Prepared for

United States Environmental Protection Agency
Region 6
1445 Ross Avenue
Dallas, Texas 75202

TECHNICAL MEMORANDUM RESULTS OF NORTH MARSH AREA SUPPLEMENTAL SITE INVESTIGATION

APPENDIX A: ANALYTICAL DATA

BAILEY SUPERFUND SITE ORANGE COUNTY, TEXAS

Submitted by:

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APPENDIX A

ANALYTICAL DATA

- **Summary of North Marsh Area Analytical Data**
- **Regulatory Levels for Determination of Disposal Requirements**
- **Memorandum - Data Validation and Results of Data Review**
- **Organics QC Package**
- **Inorganics QC Package**

SUMMARY OF NORTH MARSH AREA ANALYTICAL DATA

Summary of North Marsh Analytical Data

Parameter	Units	A HLA	A Dup HLA	A1 HLA	A1 Dup HLA	B HLA	B Dup HLA	B1 HLA	B1 Dup HLA
Miscellaneous									
Chlorides	mg/kg	---	---	800	790	---	---	2320	2250
Cyanide	mg/kg	---	---	---	---	---	---	---	---
Fluoride	mg/kg	---	---	---	---	---	---	---	---
Nitrate	mg/kg	---	---	---	---	---	---	---	---
Oil and Grease	mg/kg	---	---	160000	82000	---	---	86000	85000
pH	SU	---	---	7.04	6 97	---	---	6 95	6.95
Reactive Cyanide	mg/kg	---	---	---	---	---	---	---	---
Reactive Sulfide	mg/kg	---	---	---	---	---	---	---	---
Sulfides	mg/kg	---	---	73	74	---	---	163	140
TOC	mg/kg	---	---	ND	ND	---	---	56000	57000
TPH	mg/kg	---	---	ND	ND	---	---	ND	ND
TS Soil	mg/kg	---	---	---	---	---	---	---	---
Waste Profile Corrosivity	SU	---	---	---	---	---	---	---	---
Waste Profile Ignitability	F	---	---	---	---	---	---	---	---

--- Not Analyzed
ND Not Detected (Detection Level Not Provided)
U Not Detected (Number is Below Detection Level)

Summary of North Marsh Analytical Data

Parameter	G-NM-S-1 GeoSyntec	G-NM-S-6 GeoSyntec	G-NM-W-1 GeoSyntec	G-NM-W-2A GeoSyntec	G-NM-W-3A GeoSyntec	G-NM-W-3B GeoSyntec	G-NM-W-4 GeoSyntec	G-NM-W-5 GeoSyntec	G-NM-W-6 GeoSyntec
Miscellaneous									
Chlorides	---	---	---	---	---	---	---	---	---
Cyanide	0.025 U	0.025 U	0.065	---	0.194	0.244	---	---	0 025 U
Fluoride	13.6	27.4	31 4	---	20 4	13.9	---	---	38 7
Nitrate	2 U	2 U	0.2 U	---	2 U	2 U	---	---	2 U
Oil and Grease	---	---	---	---	---	---	---	---	---
pH	---	---	---	---	---	---	---	---	---
Reactive Cyanide	---	---	25 U	25 U	25 U	25 U	25 U	25 U	25 U
Reactive Sulfide	---	---	30 U	30 U	30 U	30 U	30 U	30 U	30 U
Sulfides	---	---	---	---	---	---	---	---	---
TOC	---	---	---	---	---	---	---	---	---
TPH	---	---	---	---	---	---	---	---	---
TS Soil	45	44.2	30.4	---	22.5	44.5	ND	---	63.4
Waste Profile Corrosivity	---	---	6.2	5.6	5.4	5.5	5.4	6.7	7 1
Waste Profile Ignitability	---	---	210	210	210	210	210	210	210

--- Not Analyzed
ND Not Detected (Detection Level Not Provided)
U Not Detected (Number is Below Detection Level)

Summary of North Marsh Analytical Data

Parameter	Units	A HLA	A Dup HLA	A1 HLA	A1 Dup HLA	B HLA	B Dup HLA	B1 HLA	B1 Dup HLA
Metals									
Aluminum	mg/kg	---	---	---	---	---	---	---	---
Antimony	mg/kg	---	---	---	---	---	---	---	---
Arsenic	mg/kg	ND	ND	---	---	ND	ND	---	---
Barium	mg/kg	9.1	8 8	---	---	8	12 2	---	---
Beryllium	mg/kg	---	---	---	---	---	---	---	---
Cadmium	mg/kg	ND	ND	---	---	ND	ND	---	---
Calcium	mg/kg	---	---	---	---	---	---	---	---
Chromium	mg/kg	17	16	---	---	6	4	---	---
Cobalt	mg/kg	---	---	---	---	---	---	---	---
Copper	mg/kg	---	---	ND	ND	---	---	---	---
Iron	mg/kg	---	---	---	---	---	---	---	---
Lead	mg/kg	ND	ND	---	---	ND	10	---	---
Magnesium	mg/kg	---	---	---	---	---	---	---	---
Manganese	mg/kg	---	---	---	---	---	---	---	---
Mercury	mg/kg	ND	ND	---	---	ND	ND	---	---
Nickel	mg/kg	---	---	---	---	---	---	---	---
Potassium	mg/kg	---	---	---	---	---	---	---	---
Selenium	mg/kg	ND	ND	---	---	ND	ND	---	---
Silver	mg/kg	ND	ND	---	---	ND	ND	---	---
Sodium	mg/kg	---	---	---	---	---	---	---	---
Thallium	mg/kg	---	---	---	---	---	---	---	---
Vanadium	mg/kg	---	---	---	---	---	---	---	---
Zinc	mg/kg	---	---	---	---	---	---	---	---
TCLP - Metals									
TCLP-Arsenic	mg/L	---	---	ND	ND	---	---	ND	ND
TCLP-Barium	mg/L	---	---	ND	ND	---	---	ND	ND
TCLP-Cadmium	mg/L	---	---	ND	ND	---	---	ND	ND
TCLP-Chromium	mg/L	---	---	ND	ND	---	---	ND	ND
TCLP-Copper	mg/L	---	---	---	---	---	---	ND	0 011
TCLP-Lead	mg/L	---	---	ND	ND	---	---	ND	ND
TCLP-Mercury	mg/L	---	---	ND	ND	---	---	ND	ND
TCLP-Selenium	mg/L	---	---	ND	ND	---	---	ND	ND
TCLP-Silver	mg/L	---	---	ND	ND	---	---	ND	ND
TCLP-Zinc	mg/L	---	---	0.1	0.1	---	---	0.2	0.3

--- Not Analyzed
ND Not Detected (Detection Level Not Provided)
U Not Detected (Number is Below Detection Level)

Summary of North Marsh Analytical Data

Parameter	G-NM-S-1 GeoSyntec	G-NM-S-6 GeoSyntec	G-NM-W-1 GeoSyntec	G-NM-W-2A GeoSyntec	G-NM-W-3A GeoSyntec	G-NM-W-3B GeoSyntec	G-NM-W-4 GeoSyntec	G-NM-W-5 GeoSyntec	G-NM-W-6 GeoSyntec
Metals									
Aluminum	5800	1600	1700	---	1400	810	---	---	950
Antimony	3 U	3 U	3 U	---	3 U	3 U	---	---	3 U
Arsenic	6.5 U	6 5 U	6 5 U	---	6.5 U	6 5 U	---	---	6 5 U
Barium	23 4	150	9	---	10	9	---	---	98
Beryllium	0.3	0.1 U	0 1 U	---	0.1 U	0 1 U	---	---	0 1 U
Cadmium	0.2 U	0 2 U	0.2 U	---	0.2 U	0 2 U	---	---	0 2 U
Calcium	996	610	420	---	390	280	---	---	500
Chromium	6.4	12	6	---	4	11	---	---	15
Cobalt	1.6	0.5 U	0 7	---	0 6	0.5 U	---	---	0 5 U
Copper	4 3	6	5	---	4	9	---	---	6
Iron	4500	1800	2100	---	2200	1000	---	---	2100
Lead	6.4	20	5	---	7	5	---	---	12
Magnesium	1900	800	710	---	700	340	---	---	560
Manganese	95.4	30	26	---	29	13	---	---	35
Mercury	0.25 U	0.25 U	0.25 U	---	0.25 U	0 25 U	---	---	0 25 U
Nickel	5.9	2	3	---	2	2	---	---	1
Potassium	1400	520	440	---	410	200	---	---	310
Selenium	2.6 U	2.6 U	2.6 U	---	2.6 U	2.6 U	---	---	2.6 U
Silver	0.4 U	0.4 U	0.4 U	---	0.4 U	0.4 U	---	---	0 4 U
Sodium	1400	1500	1800	---	1900	1100	---	---	930
Thallium	4.6 U	4.6 U	4.6 U	---	4.6 U	4.6 U	---	---	4 6 U
Vanadium	11.9	5	4	---	4	2	---	---	3
Zinc	18.9	18	15	---	14	9	---	---	10
TCLP - Metals									
TCLP-Arsenic	---	---	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0 03 U	0 03 U
TCLP-Barium	---	---	0.84	0 66	1	0 86	0 66	0.47	0 63
TCLP-Cadmium	---	---	0.001 U	0.001 U	0.001 U	0 001 U	0.001 U	0 001 U	0 001 U
TCLP-Chromium	---	---	0 004 U	0.004 U	0.004 U	0 004 U	0 004 U	0 004 U	0.004 U
TCLP-Copper	---	---	---	---	---	---	---	---	---
TCLP-Lead	---	---	0.015 U	0.015 U	0.015 U	0.14	0 015 U	0 015 U	0 015 U
TCLP-Mercury	---	---	0.0005 U	0 0005 U	0.0005 U	0 0005 U	0.0005 U	0 0005 U	0 0005 U
TCLP-Selenium	---	---	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0 015 U
TCLP-Silver	---	---	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
TCLP-Zinc	---	---	---	---	---	---	---	---	---

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ND Not Detected (Detection Level Not Provided)
U Not Detected (Number is Below Detection Level)

Summary of North Marsh Analytical Data

Parameter	Units	A HLA	A Dup HLA	A1 HLA	A1 Dup HLA	B HLA	B Dup HLA	B1 HLA	B1 Dup HLA
Pesticides									
2,4,5-TP (Silvex)	mg/kg	---	---	---	---	---	---	---	---
2,4-D	mg/kg	---	---	---	---	---	---	---	---
4,4'-DDD	mg/kg	---	---	---	---	---	---	---	---
4,4'-DDE	mg/kg	---	---	---	---	---	---	---	---
4,4'-DDT	mg/kg	---	---	---	---	---	---	---	---
4,4'-Methoxychlor	mg/kg	---	---	---	---	---	---	---	---
Aldrin	mg/kg	---	---	---	---	---	---	---	---
Alpha-BHC	mg/kg	---	---	---	---	---	---	---	---
Beta-BHC	mg/kg	---	---	---	---	---	---	---	---
Chlordane	mg/kg	---	---	---	---	---	---	---	---
Delta-BHC	mg/kg	---	---	---	---	---	---	---	---
Dieldrin	mg/kg	---	---	---	---	---	---	---	---
Endosulfan I	mg/kg	---	---	---	---	---	---	---	---
Endosulfan II	mg/kg	---	---	---	---	---	---	---	---
Endosulfan Sulfate	mg/kg	---	---	---	---	---	---	---	---
Endrin	mg/kg	---	---	---	---	---	---	---	---
Endrin Aldehyde	mg/kg	---	---	---	---	---	---	---	---
Endrin Ketone	mg/kg	---	---	---	---	---	---	---	---
Gamma-BHC	mg/kg	---	---	---	---	---	---	---	---
Heptachlor	mg/kg	---	---	---	---	---	---	---	---
Heptachlor Epoxide	mg/kg	---	---	---	---	---	---	---	---
Lindane	mg/kg	---	---	---	---	---	---	---	---
Methoxychlor	mg/kg	---	---	---	---	---	---	---	---
Toxaphene	mg/kg	---	---	---	---	---	---	---	---
TCLP - Pesticides									
TCLP-2,4,5-TP (Silvex)	mg/L	---	---	---	---	---	---	---	---
TCLP-2,4-D	mg/L	---	---	---	---	---	---	---	---
TCLP-Chlordane	mg/L	---	---	---	---	---	---	---	---
TCLP-Endrin	mg/L	---	---	---	---	---	---	---	---
TCLP-Heptachlor	mg/L	---	---	---	---	---	---	---	---
TCLP-Heptachlor Epoxide	mg/L	---	---	---	---	---	---	---	---
TCLP-Lindane	mg/L	---	---	---	---	---	---	---	---
TCLP-Methoxychlor	mg/L	---	---	---	---	---	---	---	---
TCLP-Toxaphene	mg/L	---	---	---	---	---	---	---	---

--- Not Analyzed
ND Not Detected (Detection Level Not Provided)
U Not Detected (Number is Below Detection Level)

Summary of North Marsh Analytical Data

Parameter	G-NM-S-1 GeoSyntec	G-NM-S-6 GeoSyntec	G-NM-W-1 GeoSyntec	G-NM-W-2A GeoSyntec	G-NM-W-3A GeoSyntec	G-NM-W-3B GeoSyntec	G-NM-W-4 GeoSyntec	G-NM-W-5 GeoSyntec	G-NM-W-6 GeoSyntec
Pesticides									
2,4,5-TP (Silvex)	---	---	---	---	---	---	---	---	---
2,4-D	---	---	---	---	---	---	---	---	---
4,4'-DDD	0 0033 U	0 099 U	0 099 U	---	0.099 U	0 099 U	---	---	0 099 U
4,4'-DDE	0.0033 U	0.099 U	0.099 U	---	0.099 U	0 099 U	---	---	0 099 U
4,4'-DDT	0.0033 U	0.099 U	0 099 U	---	0.099 U	0 099 U	---	---	0 099 U
4,4'-Methoxychlor	0.017 U	0.51 U	0 51 U	---	0 51 U	0 51 U	---	---	0 51 U
Aldrin	0.0017 U	0.051 U	0.051 U	---	0.051 U	0 051 U	---	---	0 051 U
Alpha-BHC	0.0017 U	0.051 U	0.051 U	---	0.051 U	0.051 U	---	---	0 051 U
Beta-BHC	0.0017 U	0.051 U	0.051 U	---	0.051 U	0.051 U	---	---	0 051 U
Chlordane	0.0017 U	0.051 U	0.051 U	---	0.051 U	0.051 U	---	---	0 051 U
Delta-BHC	0.0017 U	0.051 U	0.051 U	---	0.051 U	0 051 U	---	---	0 051 U
Dieldrin	0.0033 U	0.099 U	0 099 U	---	0.099 U	0 099 U	---	---	0 099 U
Endosulfan I	0.0033 U	0.099 U	0.099 U	---	0.099 U	0 099 U	---	---	0 099 U
Endosulfan II	0.0033 U	0.099 U	0.099 U	---	0.099 U	0 099 U	---	---	0 099 U
Endosulfan Sulfate	0.0033 U	0.099 U	0.099 U	---	0.099 U	0.099 U	---	---	0 099 U
Endrin	0.0033 U	0.099 U	0.099 U	---	0.099 U	0 099 U	---	---	0 099 U
Endrin Aldehyde	0.0033 U	0.099 U	0 099 U	---	0.099 U	0 099 U	---	---	0 099 U
Endrin Ketone	0.0033 U	0.099 U	0.099 U	---	0.099 U	0 099 U	---	---	0 099 U
Gamma-BHC	0.0017 U	0.051 U	0.051 U	---	0.051 U	0 051 U	---	---	0.051 U
Heptachlor	0.0017 U	0.051 U	0.051 U	---	0.051 U	0 051 U	---	---	0 051 U
Heptachlor Epoxide	0.0017 U	0.051 U	0.051 U	---	0.051 U	0.051 U	---	---	0.051 U
Lindane	---	---	---	---	---	---	---	---	---
Methoxychlor	---	---	---	---	---	---	---	---	---
Toxaphene	0.17 U	5.1 U	5.1 U	---	5.1 U	5.1 U	---	---	5 1 U
TCLP - Pesticides									
TCLP-2,4,5-TP (Silvex)	---	---	0.002 U	0 002 U	0 002 U	0.002 U	0.002 U	0.002 U	0 002 U
TCLP-2,4-D	---	---	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0 012 U
TCLP-Chlordane	---	---	0 001 U	0.001 U	0.001 U	0.001 U	0.001 U	0 001 U	0 001 U
TCLP-Endrin	---	---	0.001 U	0.001 U	0.001 U	0 001 U	0 001 U	0 001 U	0 001 U
TCLP-Heptachlor	---	---	0.001 U	0.001 U	0.001 U	0 001 U	0 001 U	0 001 U	0 001 U
TCLP-Heptachlor Epoxide	---	---	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0 001 U	0 001 U
TCLP-Lindane	---	---	0.001 U	0.001 U	0.001 U	0 001 U	0 001 U	0.001 U	0 001 U
TCLP-Methoxychlor	---	---	0.005 U	0.005 U	0.005 U	0 005 U	0 005 U	0.005 U	0 005 U
TCLP-Toxaphene	---	---	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0 05 U	0 05 U

--- Not Analyzed
ND Not Detected (Detection Level Not Provided)
U Not Detected (Number is Below Detection Level)

Summary of North Marsh Analytical Data

Parameter	Units	A HLA	A Dup HLA	A1 HLA	A1 Dup HLA	B HLA	B Dup HLA	B1 HLA	B1 Dup HLA
Polychlorinated Biphenyls (PCBs)									
Arochlor-1016	mg/kg	---	---	---	---	---	---	---	---
Arochlor-1221	mg/kg	---	---	---	---	---	---	---	---
Arochlor-1232	mg/kg	---	---	---	---	---	---	---	---
Arochlor-1242	mg/kg	---	---	---	---	---	---	---	---
Arochlor-1248	mg/kg	---	---	---	---	---	---	---	---
Arochlor-1254	mg/kg	---	---	---	---	---	---	---	---
Arochlor-1260	mg/kg	---	---	---	---	---	---	---	---

--- Not Analyzed
ND Not Detected (Detection Level Not Provided)
U Not Detected (Number is Below Detection Level)

Summary of North Marsh Analytical Data

Parameter	G-NM-S-1 GeoSyntec	G-NM-S-6 GeoSyntec	G-NM-W-1 GeoSyntec	G-NM-W-2A GeoSyntec	G-NM-W-3A GeoSyntec	G-NM-W-3B GeoSyntec	G-NM-W-4 GeoSyntec	G-NM-W-5 GeoSyntec	G-NM-W-6 GeoSyntec
Polychlorinated Biphenyls (PCBs)									
Arochlor-1016	0 033 U	0.99 U	0 99 U	---	0.99 U	0 99 U	---	---	0 99 U
Arochlor-1221	0.033 U	0.99 U	0.99 U	---	0.99 U	0.99 U	---	---	0 99 U
Arochlor-1232	0.033 U	0.99 U	0.99 U	---	0.99 U	0.99 U	---	---	0.99 U
Arochlor-1242	0.033 U	---	0.99 U	---	0.99 U	0 99 U	---	---	0 99 U
Arochlor-1248	0.033 U	0.99 U	0.99 U	---	0.99 U	0 99 U	---	---	0 99 U
Arochlor-1254	0.033 U	0 99 U	0.99 U	---	0.99 U	0 99 U	---	---	0 99 U
Arochlor-1260	0 033 U	0 99 U	0.99 U	---	0.99 U	0.99 U	---	---	0 99 U

--- Not Analyzed
ND Not Detected (Detection Level Not Provided)
U Not Detected (Number is Below Detection Level)

Summary of North Marsh Analytical Data

Parameter	Units	A HLA	A Dup HLA	A1 HLA	A1 Dup HLA	B HLA	B Dup HLA	B1 HLA	B1 Dup HLA
Semivolatile Organic Compounds (SVOCs)									
1,2,4-Trichlorobenzene	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Diphenylhydrazine	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
2,4,5-Trichlorophenol	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dichlorophenol	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrophenol	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrotoluene	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
2-Chloroethylvinylether	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
2-Chloronaphthalene	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
2-Chlorophenol	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	mg/kg	ND	ND	200	ND	ND	ND	ND	ND
2-Methylphenol	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
2-Nitroaniline	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
2-Nitrophenol	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
3,3'-Dichlorobenzidine	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
3-Nitroaniline	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
4,6-Dinitro-2-Methylphenol	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
4-Bromophenyl Phenyl Ether	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
4-Chloro-3-Methylphenol	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
4-Chloroaniline	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
4-Chlorophenyl Phenyl Ether	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
4-Methylphenol	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
4-Nitroaniline	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
4-Nitrophenol	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthene	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthylene	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Aniline	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)Anthracene	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)Pyrene	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(b)Fluoranthene	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(g,h,i)Perylene	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(k)Fluoranthene	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(k)Pyrene	mg/kg	---	---	---	---	---	---	---	---
Benzyl Alcohol	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Bis(2-Chloroethoxy)Methane	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Bis(2-Chloroethyl)Ether	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroisopropyl)Ether	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
bis(2-Ethylhexyl) Phthalate	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Butylbenzyl Phthalate	mg/kg	---	---	---	---	---	---	---	---

--- Not Analyzed
ND Not Detected (Detection Level Not Provided)
U Not Detected (Number is Below Detection Level)

Summary of North Marsh Analytical Data

Parameter	G-NM-S-1 GeoSyntec	G-NM-S-6 GeoSyntec	G-NM-W-1 GeoSyntec	G-NM-W-2A GeoSyntec	G-NM-W-3A GeoSyntec	G-NM-W-3B GeoSyntec	G-NM-W-4 GeoSyntec	G-NM-W-5 GeoSyntec	G-NM-W-6 GeoSyntec
Semivolatile Organic Compounds (SVOCs)									
1,2,4-Trichlorobenzene	0.99 U	9.9 U	9.9 U	---	198 U	198 U	---	---	9.9 U
1,2-Dichlorobenzene	0.005 U	0.005 U	0.5 U	---	0.5 U	0.5 U	---	---	0.5 U
1,2-Diphenylhydrazine	---	---	---	---	---	---	---	---	---
1,3-Dichlorobenzene	0.005 U	0.005 U	0.5 U	---	0.5 U	0.5 U	---	---	0.5 U
1,4-Dichlorobenzene	0.005 U	0.005 U	0.5 U	---	0.5 U	0.5 U	---	---	0.5 U
2,4,5-Trichlorophenol	0.99 U	9.9 U	9.9 U	---	198 U	198 U	---	---	9.9 U
2,4,6-Trichlorophenol	0.99 U	9.9 U	9.9 U	---	198 U	198 U	---	---	9.9 U
2,4-Dichlorophenol	0.99 U	9.9 U	9.9 U	---	198 U	198 U	---	---	9.9 U
2,4-Dimethylphenol	0.99 U	9.9 U	9.9 U	---	198 U	198 U	---	---	9.9 U
2,4-Dinitrophenol	4.95 U	49.5 U	49.5 U	---	990 U	990 U	---	---	49.5 U
2,4-Dinitrotoluene	0.99 U	9.9 U	9.9 U	---	198 U	198 U	---	---	9.9 U
2,6-Dinitrotoluene	0.99 U	9.9 U	9.9 U	---	198 U	198 U	---	---	9.9 U
2-Chloroethylvinylether	---	---	---	---	---	---	---	---	---
2-Chloronaphthalene	0.99 U	9.9 U	9.9 U	---	198 U	198 U	---	---	9.9 U
2-Chlorophenol	0.99 U	9.9 U	9.9 U	---	198 U	198 U	---	---	9.9 U
2-Methylnaphthalene	0.99 U	9.9 U	3.61	---	177	179	---	---	9.9 U
2-Methylphenol	0.99 U	9.9 U	9.9 U	---	198 U	198 U	---	---	9.9 U
2-Nitroaniline	0.99 U	9.9 U	9.9 U	---	198 U	198 U	---	---	9.9 U
2-Nitrophenol	1.98 U	19.8 U	19.8 U	---	396 U	396 U	---	---	19.8 U
3,3'-Dichlorobenzidine	1.98 U	19.8 U	19.8 U	---	396 U	396 U	---	---	19.8 U
3-Nitroaniline	0.99 U	9.9 U	9.9 U	---	198 U	198 U	---	---	9.9 U
4,6-Dinitro-2-Methylphenol	4.95 U	49.5 U	49.5 U	---	990 U	990 U	---	---	49.5 U
4-Bromophenyl Phenyl Ether	0.99 U	9.9 U	9.9 U	---	198 U	198 U	---	---	9.9 U
4-Chloro-3-Methylphenol	1.98 U	19.8 U	19.8 U	---	396 U	396 U	---	---	19.8 U
4-Chloroaniline	0.99 U	9.9 U	9.9 U	---	198 U	198 U	---	---	9.9 U
4-Chlorophenyl Phenyl Ether	0.99 U	9.9 U	9.9 U	---	198 U	198 U	---	---	9.9 U
4-Methylphenol	0.99 U	9.9 U	9.9 U	---	198 U	198 U	---	---	9.9 U
4-Nitroaniline	0.99 U	9.9 U	9.9 U	---	198 U	198 U	---	---	9.9 U
4-Nitrophenol	4.95 U	49.5 U	49.5 U	---	990 U	990 U	---	---	49.5 U
Acenaphthene	0.99 U	9.9 U	9.9 U	---	198 U	198 U	---	---	9.9 U
Acenaphthylene	0.99 U	9.9 U	9.9 U	---	198 U	198 U	---	---	9.9 U
Aniline	---	---	---	---	---	---	---	---	---
Anthracene	0.99 U	9.9 U	2.29	---	198 U	198 U	---	---	9.9 U
Benzo(a)Anthracene	0.99 U	9.9 U	9.9 U	---	198 U	198 U	---	---	9.9 U
Benzo(a)Pyrene	0.99 U	9.9 U	9.9 U	---	198 U	198 U	---	---	9.9 U
Benzo(b)Fluoranthene	0.99 U	9.9 U	9.9 U	---	198 U	198 U	---	---	9.9 U
Benzo(g,h,i)Perylene	0.99 U	9.9 U	9.9 U	---	198 U	198 U	---	---	9.9 U
Benzo(k)Fluoranthene	---	---	---	---	---	---	---	---	---
Benzo(k)Pyrene	0.99 U	9.9 U	9.9 U	---	198 U	198 U	---	---	9.9 U
Benzyl Alcohol	---	---	---	---	---	---	---	---	---
Bis(2-Chloroethoxy)Methane	0.99 U	9.9 U	9.9 U	---	198 U	198 U	---	---	9.9 U
Bis(2-Chloroethyl)Ether	0.99 U	9.9 U	9.9 U	---	198 U	198 U	---	---	9.9 U
bis(2-Chloroisopropyl)Ether	0.99 U	9.9 U	9.9 U	---	198 U	198 U	---	---	9.9 U
bis(2-Ethylhexyl) Phthalate	0.99 U	9.9 U	9.9 U	---	198 U	198 U	---	---	9.9 U
Butylbenzyl Phthalate	0.99 U	9.9 U	9.9 U	---	198 U	198 U	---	---	9.9 U

--- Not Analyzed
ND Not Detected (Detection Level Not Provided)
U Not Detected (Number is Below Detection Level)

Summary of North Marsh Analytical Data

Parameter	Units	A HLA	A Dup HLA	A1 HLA	A1 Dup HLA	B HLA	B Dup HLA	B1 HLA	B1 Dup HLA
Semivolatile Organic Compounds (SVOCs)									
Carbazole	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Cresol	mg/kg	---	---	---	---	---	---	---	---
di-n-Butyl phthalate	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
di-n-Octyl Phthalate	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Dibenzo(a,h)Anthracene	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Dibenzofuran	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Diethyl Phthalate	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Dimethyl Phthalate	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Fluorene	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Hexachloroethane	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-cd) Pyrene	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Isophorone	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
N-Nitroso-di-n-Propylamine	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	mg/kg	220	200	310	200	200	ND	ND	ND
Nitrobenzene	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Phenol	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Pyrene	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Pyridine	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
TCLP - SVOCs									
1,4-Dichlorobenzene	mg/L	---	---	---	---	---	---	---	---
2,4,5-Trichlorophenol	mg/L	---	---	---	---	---	---	---	---
2,4,6-Trichlorophenol	mg/L	---	---	---	---	---	---	---	---
2,4-Dinitrotoluene	mg/L	---	---	---	---	---	---	---	---
Cresol	mg/L	---	---	---	---	---	---	---	---
Hexachlorobenzene	mg/L	---	---	---	---	---	---	---	---
Hexachlorobutadiene	mg/L	---	---	---	---	---	---	---	---
Hexachloroethane	mg/L	---	---	---	---	---	---	---	---
Nitrobenzene	mg/L	---	---	---	---	---	---	---	---
Pentachlorophenol	mg/L	---	---	---	---	---	---	---	---
Pyridine	mg/L	---	---	---	---	---	---	---	---

--- Not Analyzed
ND Not Detected (Detection Level Not Provided)
U Not Detected (Number is Below Detection Level)

Summary of North Marsh Analytical Data

Parameter	G-NM-S-1 GeoSyntec	G-NM-S-6 GeoSyntec	G-NM-W-1 GeoSyntec	G-NM-W-2A GeoSyntec	G-NM-W-3A GeoSyntec	G-NM-W-3B GeoSyntec	G-NM-W-4 GeoSyntec	G-NM-W-5 GeoSyntec	G-NM-W-6 GeoSyntec
Semivolatile Organic Compounds (SVOCs)									
Carbazole	---	---	---	---	---	---	---	---	---
Chrysene	0 99 U	9.9 U	9 9 U	---	198 U	198 U	---	---	9 9 U
Cresol	---	---	---	---	---	---	---	---	---
di-n-Butyl phthalate	0.99 U	9.9 U	9 9 U	---	198 U	198 U	---	---	9 9 U
di-n-Octyl Phthalate	0.99 U	9.9 U	9.9 U	---	198 U	198 U	---	---	9 9 U
Dibenzo(a,h)Anthracene	0.99 U	9.9 U	9.9 U	---	198 U	198 U	---	---	9 9 U
Dibenzofuran	0.99 U	9.9 U	9.9 U	---	198 U	198 U	---	---	9 9 U
Diethyl Phthalate	0.99 U	9.9 U	9.9 U	---	198 U	198 U	---	---	9 9 U
Dimethyl Phthalate	0.99 U	9.9 U	9.9 U	---	198 U	198 U	---	---	9 9 U
Fluoranthene	0.99 U	9.9 U	9 9 U	---	198 U	198 U	---	---	9 9 U
Fluorene	0.99 U	9 9 U	9.9 U	---	198 U	198 U	---	---	9 9 U
Hexachlorobenzene	0.99 U	9.9 U	9.9 U	---	198 U	198 U	---	---	9 9 U
Hexachlorobutadiene	0.99 U	9.9 U	9.9 U	---	198 U	198 U	---	---	9 9 U
Hexachlorocyclopentadiene	0.99 U	9.9 U	9.9 U	---	198 U	198 U	---	---	9 9 U
Hexachloroethane	0.99 U	9.9 U	9.9 U	---	198 U	198 U	---	---	9 9 U
Indeno(1,2,3-cd) Pyrene	0.99 U	9.9 U	9.9 U	---	198 U	198 U	---	---	9 9 U
Isophorone	0.99 U	9.9 U	9.9 U	---	198 U	198 U	---	---	9.9 U
N-Nitroso-di-n-Propylamine	0.99 U	9.9 U	9.9 U	---	198 U	198 U	---	---	9 9 U
N-Nitrosodiphenylamine	0.99 U	9.9 U	9.9 U	---	198 U	198 U	---	---	9.9 U
Naphthalene	0.99 U	9.9 U	7.3	---	349	344	---	---	9 9 U
Nitrobenzene	0.99 U	9.9 U	9.9 U	---	198 U	198 U	---	---	9.9 U
Pentachlorophenol	4.95 U	49.5 U	49.5 U	---	990 U	990 U	---	---	49 5 U
Phenanthrene	0.99 U	9.9 U	3.72	---	198 U	198 U	---	---	9.9 U
Phenol	0.99 U	9.9 U	9.9 U	---	198 U	198 U	---	---	9 9 U
Pyrene	0.99 U	9.9 U	9.9 U	---	198 U	198 U	---	---	9 9 U
Pyridine	---	---	---	---	---	---	---	---	---
TCLP - SVOCs									
1,4-Dichlorobenzene	---	---	0 05 U	0.05 U	0.5 U	0.5 U	0.5 U	0 05 U	0 05 U
2,4,5-Trichlorophenol	---	---	0.05 U	0.05 U	0.5 U	0 5 U	0.5 U	0.05 U	0 05 U
2,4,6-Trichlorophenol	---	---	0.05 U	0.05 U	0.5 U	0 5 U	0.5 U	0.05 U	0.05 U
2,4-Dinitrotoluene	---	---	0.05 U	0.05 U	0.5 U	0.5 U	0.5 U	0 05 U	0 05 U
Cresol	---	---	0.087	0.066	0.5 U	0.5 U	0.5 U	0.05 U	0 05 U
Hexachlorobenzene	---	---	0.05 U	0.05 U	0.5 U	0 5 U	0.5 U	0 05 U	0 05 U
Hexachlorobutadiene	---	---	0.05 U	0.05 U	0.5 U	0.5 U	0.5 U	0 05 U	0 05 U
Hexachloroethane	---	---	0.05 U	0.05 U	0.5 U	0.5 U	0.5 U	0.05 U	0 05 U
Nitrobenzene	---	---	0.05 U	0.05 U	0.5 U	0.5 U	0.5 U	0.05 U	0 05 U
Pentachlorophenol	---	---	0 25 U	0.25 U	2.5 U	2 5 U	2.5 U	0 25 U	0.25 U
Pyridine	---	---	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0 01 U	0 01 U

--- Not Analyzed
ND Not Detected (Detection Level Not Provided)
U Not Detected (Number is Below Detection Level)

Summary of North Marsh Analytical Data

Parameter	Units	A HLA	A Dup HLA	A1 HLA	A1 Dup HLA	B HLA	B Dup HLA	B1 HLA	B1 Dup HLA
Volatile Organic Compounds (VOCs)									
1,1,1-Trichloroethane	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-Chloropropane	mg/kg	---	---	---	---	---	---	---	---
1,2-Dibromoethane	mg/kg	---	---	---	---	---	---	---	---
1,2-Dichloroethane	mg/kg	21	27	45	41	ND	ND	2.8	ND
1,2-Dichloroethene	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	mg/kg	---	---	---	---	---	---	---	---
1,2-Dichloropropene	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	mg/kg	ND	ND	ND	ND	ND	0.098	ND	ND
Benzene	mg/kg	33	44	75	60	3.3	0.17	17	2 2
Benzoic Acid	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Disulfide	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloropropene	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	mg/kg	62	80	120	94	16	0.7	56	7 7
Methyl Ethyl Ketone	mg/kg	---	---	---	---	---	---	---	---
Methylene Chloride	mg/kg	ND	ND	ND	ND	ND	0.03	ND	ND
Styrene	mg/kg	73	110	150	120	10	ND	46	5.6
Tetrachloroethene	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	mg/kg	ND	ND	46	36	ND	ND	16	2.1
Trans-1,3-Dichloropropene	mg/kg	---	---	---	---	---	---	---	---
Trichloroethene	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Acetate	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes	mg/kg	41	54	74	56	4.2	0.16	34	4 1

--- Not Analyzed
ND Not Detected (Detection Level Not Provided)
U Not Detected (Number is Below Detection Level)

Summary of North Marsh Analytical Data

Parameter	G-NM-S-1 GeoSyntec	G-NM-S-6 GeoSyntec	G-NM-W-1 GeoSyntec	G-NM-W-2A GeoSyntec	G-NM-W-3A GeoSyntec	G-NM-W-3B GeoSyntec	G-NM-W-4 GeoSyntec	G-NM-W-5 GeoSyntec	G-NM-W-6 GeoSyntec
Volatile Organic Compounds (VOCs)									
1,1,1-Trichloroethane	0.005 U	0.005 U	0 5 U	---	0 5 U	0 5 U	---	---	0 5 U
1,1,2,2-Tetrachloroethane	0.005 U	0.005 U	0.5 U	---	0.5 U	0.5 U	---	---	0 5 U
1,1,2-Trichloroethane	0.005 U	0.005 U	0.5 U	---	0.5 U	0 5 U	---	---	0 5 U
1,1-Dichloroethane	0.005 U	0.005 U	0.5 U	---	0 5 U	0.5 U	---	---	0 5 U
1,1-Dichloroethene	0.005 U	0.005 U	0.5 U	---	0.5 U	0.5 U	---	---	0 5 U
1,2-Dibromo-3-Chloropropane	0.005 U	0.005 U	0.5 U	---	0.5 U	0.5 U	---	---	0 5 U
1,2-Dibromoethane	0.005 U	0.005 U	0 5 U	---	0.5 U	0.5 U	---	---	0 5 U
1,2-Dichloroethane	0.005 U	0.005 U	1.8	---	16	9.7	---	---	0 5 U
1,2-Dichloroethene	0 005 U	0.005 U	0.5 U	---	0 5 U	0.5 U	---	---	0 5 U
1,2-Dichloropropane	0.005 U	0.005 U	0.5 U	---	1	0.64	---	---	0 5 U
1,2-Dichloropropene	---	---	---	---	---	---	---	---	---
2-Butanone	0.05 U	0.05 U	5 U	---	5 U	5 U	---	---	5 U
2-Hexanone	0.01 U	0.01 U	1 U	---	1 U	1 U	---	---	1 U
4-Methyl-2-Pentanone	0.01 U	0.01 U	1 U	---	1 U	1 U	---	---	1 U
Acetone	0.1 U	0.1 U	10 U	---	10 U	10 U	---	---	10 U
Benzene	0.057	0.005 U	5 4	---	21	13	---	---	0 5 U
Benzoic Acid	---	---	---	---	---	---	---	---	---
Bromodichloromethane	0.005 U	0.005 U	0.5 U	---	0.5 U	0.5 U	---	---	0.5 U
Bromoform	0.005 U	0.005 U	0.5 U	---	0 5 U	0 5 U	---	---	0 5 U
Bromomethane	0.01 U	0.01 U	1 U	---	1 U	1 U	---	---	1 U
Carbon Disulfide	0.005 U	0.005 U	0.5 U	---	0.5 U	0.5 U	---	---	0 5 U
Carbon Tetrachloride	0.005 U	0.005 U	0.5 U	---	0.5 U	0 5 U	---	---	0 5 U
Chlorobenzene	0.005 U	0.005 U	0.5 U	---	0.5 U	0.5 U	---	---	0 5 U
Chloroethane	0.005 U	0.005 U	0.5 U	---	0.5 U	0.5 U	---	---	0.5 U
Chloroform	0.005 U	0.005 U	0.5 U	---	0.5 U	0.5 U	---	---	0 5 U
Chloromethane	0.01 U	0.01 U	1 U	---	1 U	1 U	---	---	1 U
cis-1,2-Dichloropropene	0.005 U	0.005 U	0.5 U	---	0.5 U	0.5 U	---	---	0 5 U
Dibromochloromethane	0.005 U	0.005 U	0.5 U	---	0.5 U	0.5 U	---	---	0 5 U
Ethylbenzene	0.051	0.005 U	12	---	31	18	---	---	0 5 U
Methyl Ethyl Ketone	---	---	---	---	---	---	---	---	---
Methylene Chloride	0.01 U	0.01 U	1 U	---	1 U	1 U	---	---	1 U
Styrene	0.005 U	0.005 U	13	---	51	30	---	---	0 5 U
Tetrachloroethene	0.005 U	0.005 U	0.5 U	---	0.5 U	0.5 U	---	---	0 5 U
Toluene	0.027	0.005 U	4.5	---	15	8 9	---	---	0 5 U
Trans-1,3-Dichloropropene	0.005 U	0.005 U	0 5 U	---	0.5 U	0.5 U	---	---	0 5 U
Trichloroethene	0.005 U	0.005 U	0.5 U	---	0.5 U	0.5 U	---	---	0.5 U
Trichlorofluoromethane	---	---	---	---	---	---	---	---	---
Vinyl Acetate	---	---	---	---	---	---	---	---	---
Vinyl Chloride	0.01 U	0.01 U	1 U	---	1 U	1 U	---	---	1 U
Xylenes	0.013	0.005 U	4.7	---	15	9.6	---	---	0 5 U

--- Not Analyzed
ND Not Detected (Detection Level Not Provided)
U Not Detected (Number is Below Detection Level)

Summary of North Marsh Analytical Data

Parameter	Units	A HLA	A Dup HLA	A1 HLA	A1 Dup HLA	B HLA	B Dup HLA	B1 HLA	B1 Dup HLA
TCLP - VOCs									
1,1-Dichloroethene	mg/L	---	---	---	---	---	---	---	---
1,2-Dichloroethane	mg/L	---	---	---	---	---	---	---	---
Benzene	mg/L	---	---	---	---	---	---	---	---
Carbon Tetrachloride	mg/L	---	---	---	---	---	---	---	---
Chlorobenzene	mg/L	---	---	---	---	---	---	---	---
Chloroform	mg/L	---	---	---	---	---	---	---	---
Methyl Ethyl Ketone	mg/L	---	---	---	---	---	---	---	---
Tetrachloroethene	mg/L	---	---	---	---	---	---	---	---
Trichloroethene	mg/L	---	---	---	---	---	---	---	---
Vinyl Chloride	mg/L	---	---	---	---	---	---	---	---

--- Not Analyzed
ND Not Detected (Detection Level Not Provided)
U Not Detected (Number is Below Detection Level)

Summary of North Marsh Analytical Data

Parameter	G-NM-S-1 GeoSyntec	G-NM-S-6 GeoSyntec	G-NM-W-1 GeoSyntec	G-NM-W-2A GeoSyntec	G-NM-W-3A GeoSyntec	G-NM-W-3B GeoSyntec	G-NM-W-4 GeoSyntec	G-NM-W-5 GeoSyntec	G-NM-W-6 GeoSyntec
TCLP - VOCs									
1,1-Dichloroethene	---	---	0.01 U	0.01 U	0.01 U	0 01 U	0 01 U	0 01 U	0 01 U
1,2-Dichloroethane	---	---	0.05	0.32	0 72	0.6	0.21	0.01 U	0.01 U
Benzene	---	---	0 11	0.24	0 56	0 48	0 24	0 01 U	0 01 U
Carbon Tetrachloride	---	---	0 01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0 01 U
Chlorobenzene	---	---	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0 01 U	0 01 U
Chloroform	---	---	0.01 U	0 01 U	0.01 U	0 01 U	0.01 U	0 01 U	0.01 U
Methyl Ethyl Ketone	---	---	0 02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0 02 U
Tetrachloroethene	---	---	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0 01 U
Trichloroethene	---	---	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0 01 U	0 01 U
Vinyl Chloride	---	---	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0 01 U	0 01 U

--- Not Analyzed
ND Not Detected (Detection Level Not Provided)
U Not Detected (Number is Below Detection Level)

REGULATORY LEVELS FOR DETERMINATION OF DISPOSAL REQUIREMENTS

Regulatory Levels for Determination of Disposal Requirements

Parameter	Toxicity Characteristic Level (mg/L)	Land Disposal Regulation (mg/kg) unless otherwise noted
Metals		
Arsenic	5	5 (mg/L as TCLP)
Barium	100	7.6 (mg/L as TCLP)
Cadmium	1	0.19 (mg/L as TCLP)
Chromium	5	0.86 (mg/L as TCLP)
Lead	5	0.37 (mg/L as TCLP)
Mercury	0.2	0.025 (mg/L as TCLP)
Selenium	1	0.16 (mg/L as TCLP)
Silver	5	0.3 (mg/L as TCLP)
Pesticides		
2,4,5-TP (Silvex)	1	7.9
2,4-D	10	10
Chlordane	0.03	0.26
Endrin	0.02	0.13
Heptachlor	0.008	0.066
Heptachlor Epoxide	0.008	0.066
Lindane	0.4	0.066
Methoxychlor	10	0.18
Toxaphene	0.5	2.6
Semivolatile Organic Compounds (SVOCs)		
1,4-Dichlorobenzene	7.5	6
2,4,5-Trichlorophenol	400	7.4
2,4,6-Trichlorophenol	2	7.4
2,4-Dinitrotoluene	0.13	140
Cresol	200	5.6
Hexachlorobenzene	0.13	10
Hexachlorobutadiene	0.5	5.6
Hexachloroethane	3	30
Nitrobenzene	2	14
Pentachlorophenol	100	7.4
Pyridine	5	16
Volatile Organic Compounds (VOCs)		
1,1-Dichloroethene	0.7	6
1,2-Dichloroethane	0.5	6
Benzene	0.5	10
Carbon Tetrachloride	0.5	6
Chlorobenzene	100	6
Chloroform	6	6
Methyl Ethyl Ketone	200	36
Tetrachloroethene	0.7	6
Trichloroethene	0.5	6
Vinyl Chloride	0.2	6

MEMORANDUM - DATA VALIDATION AND RESULTS OF DATA REVIEW

PROJECT MEMORANDUM

TO: R. Neil Davies, P.E.
GeoSyntec Project Manager

FROM: Mary Redican MR
GeoSyntec QA Coordinator

DATE: 4 October 1995

SUBJECT: Data Validation, Results and Data Review

GEOSYNTEC PROJECT NO: GE3913

In accordance with company policy and internal project quality assurance requirements, a review was performed on the Level III data package received from EcoSys Laboratory Services (EcoSys) for the North Marsh Area of the Bailey Superfund Site. The following issues were identified and were subsequently addressed by EcoSys:

1.) For semi-volatile analyses, all continuing calibration checks on instrument MSD2 had a continuing calibration compound (CCC) that exceeded the 30 percent difference (%D) QC limit. A narrative is needed from EcoSys to describe why a new calibration curve was not generated.

CCC exceeding 30%D	Corresponding GeoSyntec Sample
Di-n-octyl Phthalate	G-NM-W-3A G-NM-W-3B G-NM-W-4
N-nitrosodiphenylamine	G-NM-W-5 G-NM-W-6 G-NM-S-1

2.) For herbicide analysis, the recovery of the surrogate DCAA was within the required QC limits on GC Column 1, but was extremely out of QC limits for GC Column 2 for five samples. A narrative from EcoSys is needed to explain the discrepancy and to verify which surrogate results correspond to which GC column. The samples with DCAA surrogate recovery out of acceptable QC limits are:

G-NM-W-2A
G-NM-W-3A
G-NM-W-3B
G-NM-W-4
G-NM-W-5

3.) There were several instances where the EcoSys Quality Assurance Manual (QAM) stated an internal QA limit or procedure that was not followed. The EcoSys limits/procedures were more stringent than SW-846 protocols so the validity of the data was not affected by not following the procedure. The EcoSys limits/procedures that were not followed included performing an auto-tune of GC/MS once per shift, a holding time for pesticides and herbicides of 7 days until extraction, and a maximum percent difference (%D) of 25 for continuing calibration compounds (CCC) for semi-volatile analyses.

Resolution of Validation Issues

EcoSys responded to the validation issues by preparing a letter that adequately addressed these previously unresolved issues. The letter from EcoSys is attached to this memo.

Results of Data Review

All analyses were performed consistent with the quality assurance program of EcoSys and are consistent with the data quality required of Level III analysis. Any analytical problem or nonconformity has been addressed by EcoSys.

GE3913.05/VAL.MEM

Conclusion

The data reported in EcoSys Ledger 105829 should be considered representative of the samples taken at the Bailey Site.

* * * * *

ECOSYS

October 3, 1995

Ms. Mary Redican
GeoSyntec
1100 Lake Hearn Drive NE, Suite 200
Atlanta, GA 30342

Dear Ms. Redican:

The following is a response to your memorandum concerning the EcoSys Level III QA/QC Data Package for Ledger 105829.

1. Samples G-NM-W-5 and W-6 were analyzed on instrument MSD2. The analyst is aware that the N-nitrosodiphenylamine is greater than 30%; however, since these two samples were analyzed for TCLP, and the indicated compound is not part of the TCLP target list, the analyst has disregarded the limit. Sample G-NM-W-4 has also been analyzed on MSD2 as a TCLP compound. Based on the continuing calibration, the percent difference discrepancy for Di-n-octyl Phthalate has been disregarded again because the compound is not part of the TCLP analyte list.

   Our analyst was aware of the continuing calibration discrepancies with instrument MSD2 for the compounds Di-n-octyl Phthalate and N-nitrosodiphenylamine for samples G-NM-W-3A, -W-3B, and -S-1. However, since both analytes were not present in the sample, the analyst was justified in reporting the data. If these analytes are present, the analyst would have performed the correction of rerunning the continuing calibration or even performing an initial calibration. In addition to SW-846, EcoSys utilizes the CLP QC format when interpreting data. In this case, the analyst referenced the SOW for Organic Analyses, page D-49/SV, section IV of OLMO1.0, paragraph 5.6.1 to 5.7 for data interpretation.

2. Due to the type of column and other conditions inherent within the GC, the second column surrogate compounds elute more slowly than those of the first column. A group of interfering peaks, caused by the sample matrix, eluted at approximately the same location as that of the surrogate compounds on the second column. This interference shifted the baseline and altered the integration and quantitation. The interfering peaks were also present on the first column, but the surrogate compounds eluted prior to the interference and, therefore, the surrogate calculation was unaffected.

OAKBROOK DRIVE
SUITE 105
NORCROSS GEORGIA 30093
404 368 0535
FAX 404 368 0806

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FIELD SAMPLING

3. As you have stated in question 3, most of the criteria used in the EcoSys QAM tends to be even more stringent than SW-846 criteria. This stringent QAM QC limit data was for accuracy and precision purposes only; therefore, deviation from procedural requirements are left to the discretion of the QC Officer and Area Manager. We have altered the summary report sheet to reflect SW-846 QC limit values. Within the next few days, the EcoSys QAM will be changed to be more consistent with SW-846 standard values.

The autotune frequency stated in the QAM was a typographical error and will be changed to "as needed". Only DFTPP and BFB tuning must be performed prior to calibration and sample analysis on a daily basis (within 12 hours of the analysis) as was done with this ledger.

The holding time stated in the QAM is also a typographical error. For soils, 14 day holding times are used for herbicide and pesticide analysis. TCLP extractions have a holding time of 14 days prior to the extraction; an additional holding time of 7 days may be utilized after the extraction and prior to the analysis.

The maximum percent difference (%D) for semi-volatiles CCCs is 30, as stated in the QAM, Table 13-1.

Sincerely,

Robert Levin
QA/QC Administrator

ORGANICS QC PACKAGE

ECOSYS

September 25, 1995

Ms. Mary Redican
GeoSyntec
1100 Lake Hearn, Ste. 200
Atlanta, GA 30342

Dear Ms. Redican:

The attached report contains the Level 3 QC data for Ledger Number 105829, EcoSys Sample Numbers AA18017, AA18018, AA18019, AA18020, AA18021, AA18022, AA18023, AA18024, AA18025, AA18027, AA18029, and AA018031, and corresponding client IDs G-NM-RB, G-NM-FB, G-NM-TB-1, G-NM-W-1, G-NM-S-1, G-NM-W-2A, G-NM-W-3A, G-NM-W-3B, G-NM-W-4, G-NM-W-5, G-NM-S-5, and G-NM-S-6. This report contains the following:

Volatile Organic QC Report (of 8-15, 8-17, and 8-18)

BFB Tuning Criteria
Method Blank Summary
MS/MSD Recovery Data
Surrogate Recovery
Continuing Calibration Data
Initial Calibration Data

Semi-volatile Organic QC Report (for 1743, 1744, 1747(2), 1749)

Summary Sheet
DFTPP Tuning Criteria
Method Blank Summary
MS/MSD Recovery
Surrogate Recovery
Continuing Calibration

Two (2) Initial Calibration Data Reports (MSD2 and MSD3)

[illegible] OAKBROOK DRIVE
[illegible]
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Herbicide

Method Blank
LCS/LCSD Report
Surrogate Report
Continuing Calibration Data
Initial Calibration Data

Pesticide/PCBs (TCLP and TCL)

Summary Sheet
Method Blank
LCS/LCSD Report
Surrogate Report
Continuing Calibration Data

Three (3) Initial Calibration Data Reports (1 for TCLP and 2 for Solid Other)

Robert Levin
QC Officer

VOLATILES BFB

Lab Name:	EcoSys, Inc.	**Client:**	GEOSYNTEC
Ledger Nos:	105829	**BFB Injection Date:**	8/17/95
Lab File ID:	BFB081795	**BFB Injection Time:**	11:00
Instrument ID:	MSD-1	**Batch Number:**	4-081795

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	18.8
75	30.0 - 66.0% of mass 95	45
95	Base peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	8.5
173	Less than 2.0% of mass 174	0
174	50.0 - 120.0% of mass 95	64.8
175	4 0 - 9.0% of mass 174	8.4
176	93.0 - 101.0% of mass 174	95.2
177	5.0 - 9.0% of mass 176	7 2

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	G-NM-W-1	AA18020	VOA0401004	8/17/95	1:38 PM
02	G-NM-S-1	AA18021	VOA0401004	8/18/95	12:17 PM
03	G-NM-W-3A	AA18023	VOA0601006	8/17/95	3:10 PM
04	G-NM-W-3B	AA18024	VOA0701007	8/17/95	3:58 PM
05	G-NM-W-6	AA18029	VOA0801008	8/17/95	4:45 PM
06	G-NM-S-6	AA18031	VOA0901009	8/17/95	5:32 PM
07	N/A	AA18020 MS	VOA1001010	8/17/95	6:18 PM
08	N/A	AA18020 MSD	VOA1101011	8/17/95	7:06 PM
09	N/A	MBLK081795	VOA0301003	8/17/95	12:52 PM
10	N/A	CONTCAL081795	VOA0101001	8/17/95	11:18 AM
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					

Robert Lem

QA/QC OFFICER

COMMENTS: N/A: NOT APPLICABLE

Volatile Method Blank Summary

Lab Name:	EcoSys, Inc.	**Client:**	GeoSyntec
Ledger No(s):	105829	**Date Extracted:**	N/A
Batch No:	4-081795	**Date Analyzed:**	8/17/95
Lab File ID:	VOA0301003	**Time Analyzed:**	12:52
Lab Sample ID:	MBLK081795	**Level:**	MED
Instrument ID:	MSD-1	**Matrix:**	Solid Other
Cleanup Method:	N/A		

This method blank applies to the following samples, MS and MSD:

	Client Sample No.	Lab Sample ID	Lab File ID	Date Analyzed
1	G-NM-W-1	AA18020	VOA0401004	8/17/95
2	G-NM-S-1	AA18021	VOA0401004	8/17/95
3	G-NM-W-3A	AA18023	VOA0601006	8/17/95
4	G-NM-W-3B	AA18024	VOA0701007	8/17/95
5	G-NM-W-6	AA18029	VOA0801008	8/17/95
6	G-NM-S-6	AA18031	VOA0901009	8/17/95
7	N/A	AA18020 MS	VOA1001010	8/17/95
8	N/A	AA18020 MSD	VOA1101011	8/17/95
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				

QA/QC Officer

Comments:

N/A: NOT APPLICABLE

Non-aqueous Volatile MS/MSD Recovery

Lab Name: EcoSys, Inc. **Client:** GeoSyntec

Ledger No: 105829 **Matrix Spike/Lab Sample No:** AA18020

Batch No: 4-081795 **Level (Low/Med):** MED

Lab File ID: VOA1001010 & VOA1101011

Compound	Spike Added (ug/L)	Sample Conc (ug/L)	MS Conc (ug/L)	MS % Recovery	#	QC Limits Recovery
1,1-Dichloroethene	5000	0	4300	86		59-172
Benzene	5000	5430	10200	95		66-142
Trichloroethene	5000	0	5280	106		62-137
Toluene	5000	4450	8840	88		59-139
Chlorobenzene	5000	0	5180	104		60-133

Compound	Spike Added (ug/L)	MSD Conc (ug/L)	MSD % Recovery	#	% RPD	#	QC Limits RPD	QC Limits Recovery
1,1-Dichloroethene	5000	3420	68		23	*	14	59-172
Benzene	5000	10200	95		0		14	66-142
Trichloroethene	5000	5340	107		1		11	62-137
Toluene	5000	9040	92		4		13	59-139
Chlorobenzene	5000	5220	104		0		13	60-133

 # Column to be used to flag recovery and RPD values with an asterisk
*** Values outside of QC limits**
ND = Not Detected

RPD: 1 **out of** 5 **outside limits**

Spike Recovery: 0 **out of** 10 **outside limits**

QA/QC Officer

Comments: * out of limits due to matrix interferences

Non-aqueous Volatile Surrogate Recovery

Lab Name: EcoSys, Inc. Client: GEOSYNTEC

Ledger No(s): 105829 Level: MED

Batch No.: 4-081795

Lab Sample No.	SMC1 (DCE)	#	SMC2 (TOL)	#	SMC3 (BFB)	#	OTHER		Total Out
MBLK081795	104		100		99				0
AA18020	101		101		98				0
AA18021	98		98		94				0
AA18023	98		101		95				0
AA18024	102		100		100				0
AA18029	103		98		100				0
AA18031	101		100		97				0
AA18020 MS	103		101		97				0
AA18020 MSD	109		100		99				0

Column to be used to flag recovery values

* Values outside of required QC limits

ND = Not Detected

	QC Limits
SMC1 (DCE) 1,2-Dichloroethane-d4	76-114
SMC2 (TOL) Toluene-d8	88-110
SMC3 (BFB) Bromofluorobenzene	86-115

QA/QC Officer

Comments:

[illegible]

[illegible]

[illegible]

[illegible]

Operator : mul OINH
Instrument : [illegible]
Sample Name : 50UL .01UG/UL [illegible] STD0002960
Comment :
Method : [illegible]
Start Date : [illegible] target
End Date : [illegible]
Sample : [illegible]
Operator : [illegible]
Instrument : [illegible]

Data File: [illegible]
Continuing Calibration Sample
Target Version: Target 1.20
Compound List: [illegible]

Compounds	QUANT SIG MASS	RT (REL RT)	RESPONSE	INTERPOLATING 1-COLUMN (ug/L)	FINAL (ug/L)
[illegible] Dichlorodifluoromethane	85.00	[illegible]	[illegible]	[illegible]	[illegible]
[illegible] Chloromethane ccc	50.00	[illegible]	[illegible]	[illegible]	[illegible]
[illegible] Chloride ccc	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible] 1,2-Dichloroethene	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	100	100
[illegible] 1,1-Dichloroethane ccc	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	102(A)
[illegible]	[illegible]	[illegible]	[illegible]	96.0	96.0
[illegible]	43.10	9.136(0.000)	[illegible]	[illegible]	123(AM)
[illegible] cis-1,2-Dichloroethene	[illegible]	9.460(0.964)	1396741	100	100
[illegible] ccc	[illegible]	9.773(0.994)	[illegible]	[illegible]	101
[illegible] Bromochloromethane	128.00	[illegible]	1361002	[illegible]	
[illegible] Chloroform	83.00	[illegible]	[illegible]	[illegible]	101
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible] 1,1 Dichloropropene	75.00	10.737(1.094)	1301423	99.6	99.6
[illegible] Carbon Tetrachloride	117.00	10.943(1.115)	1225368	92.4	92.4
[illegible] 1,2-Dichloroethane-d4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible] Benzene	78.00	11.310(1.157)	1439377	101	101
[illegible] 1,2-Dichloroethane	62.00	11.310(0.957)	1068046	102	102
[illegible] 1,2-Dichlorobenzene	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible] Trichloroethene	95.00	12.454(1.053)	1095086	99.4	99.4
[illegible] 1,2-Dichloropropane ccc	[illegible]	12.850(1.087)	1019662	100	100

Compounds	QUANT SIG MASS	RT (RRT)	RESPONSE	CONCENTRATIONS ON-COLUMN ([illegible])	FINAL ([illegible])
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	77119[illegible]	[illegible]	[illegible]
[illegible] 4-Methyl-2-pentanone (MIBK)	43.[illegible]	1[illegible].980(1.182)	1989918	123	123(M)
[illegible]-1,3-Dichloropropene	[illegible]	14.449(1.222)	[illegible]1915[illegible]	99.1	99.1
[illegible]	99.00	14.919(1.262)	1299451	90.7	90.7
[illegible] Toluene [illegible]	91.00	15.[illegible](1.327)	1333317	99.7	99.7
[illegible]-1,3-Dichloropropene	75.[illegible]	15.[illegible](0.854)	17499[illegible]	10[illegible]	102
[illegible]-Trichloroethane	97.00	15.358(0.868)	972099	103	103
[illegible]	43.00	15.344(1.740)	919563	104	104(M)
[illegible] 1,3-Dichloropropane	76.00	15.426(0.899)	1612334	102	102
[illegible] Tetrachloroethene	166.00	15.475(0.900)	1496608	96.7	96.7
[illegible] Dibromochloromethane	129.00	[illegible](0.951)	1557676	99.7	99.7
[illegible]	107.00	17.443(0.955)	1464473	103	103
[illegible] Chlorobenzene-d5	117.00	18.264(1.000)	1146600	50.0	
[illegible] Chlorobenzene [illegible]	112.00	18.352(1.005)	2182023	97.3	97.3
[illegible] Ethylbenzene [illegible]	91.00	18.44[illegible](1.010)	4596006	101	101
[illegible]-Tetrachloroethane	131.00	18.44[illegible](1.010)	1258694	96.6	94.6
[illegible] m,p-Xylene	91.00	18.602(1.019)	8677395	203	203(A)
[illegible] o-Xylene	91.00	19.614(1.074)	3295709	99.6	99.6
[illegible] Styrene	104.00	19.773(1.080)	1343909	99.1	99.1
[illegible] Isopropylbenzene	105.00	20.436(1.119)	3396220	98.6	98.6
[illegible] Bromoform [illegible]	173.00	20.583(1.127)	1646237	103	103
[illegible] 1,1,2,2-Tetrachloroethane [illegible]	83.00	20.901(1.145)	[illegible]	112	112
[illegible] 4-Bromofluorobenzene	95.00	21.083(1.154)	878647	50.4	50.4
[illegible] 1,2,3-Trichloropropane	75.00	[illegible](1.16[illegible])	1714754	112	112
[illegible] n-Propylbenzene	91.00	21.391(1.171)	5990248	99.4	99.4
[illegible] 2-Chlorotoluene	[illegible]	[illegible]	[illegible]	103	103
[illegible] 1,3,5-Trimethylbenzene	105.00	21.779(0.910)	2823954	101	101
[illegible]	91.00	21.837(0.913)	2963914	104	104
[illegible] 4-Chlorotoluene	91.00	21.951(0.918)	2953608	101	101
[illegible] tert-Butylbenzene	119.00	[illegible](0.9[illegible])	3141000	97.9	97.9
[illegible] 1,2,4-Trimethylbenzene	105.00	22.714(0.950)	2781788	102	102
sec-Butylbenzene	105.00	23.125(0.967)	4209759	100	100
[illegible] p-Isopropyltoluene	119.00	23.463(0.981)	3449745	99.6	99.6
[illegible] 1,3-Dichlorobenzene	146.00	23.709(0.992)	2293473	97.6	97.6
[illegible] 1,4-Dichlorobenzene-d4	150.00	23.91[illegible](1.000)	1414058	50.0	
[illegible] 1,4-Dichlorobenzene	146.00	23.992(1.003)	2348291	95.8	95.8
[illegible] n-Butylbenzene	91.00	24.462(1.023)	3508062	103	103
[illegible] 1,2-Dichlorobenzene	146.00	24.[illegible](1.04[illegible])	[illegible]	96.4	96.4
[illegible] 1,2-Dibromo-3-chloropropane	157.00	26.942(1.126)	710919	146	146
[illegible] 1,2,4-Trichlorobenzene	180.00	[illegible]	1761502	94.8	94.8
[illegible] Hexachlorobutadiene	225.00	[illegible]	1467911	96.2	96.2
[illegible] Naphthalene	128.00	30.068(1.257)	3404237	110	110
[illegible] 1,2,3-Trichlorobenzene	180.00	30.685(1.283)	1597912	97.6	97.6

[illegible]

[illegible] - Target compound detected but quantitated amount
exceeded maximum amount.
[illegible] - Compound response manually integrated.

[illegible] Date: [illegible] 3:26

[illegible] Research and Development Laboratory

CONTINUING CAL REPORT [illegible]

[illegible] Date: [illegible]
[illegible] Init. Calibration Date: [illegible] 3:09 PM
[illegible] Time: [illegible] Calibration Times: [illegible] 14:18
[illegible] Method File: [illegible]

Compound	RRF	RF100	MIN RRF	%	MAX %
[illegible]dichloromethane	[illegible]	[illegible]	0.0100	24.7	25.0
[illegible]romomethane [illegible]	0.1961	[illegible]	0.0100	14.2	25.0
[illegible] Chloride [illegible]	[illegible]	[illegible]	0.010	16.2	25.0
[illegible]romoethane	0.2351	0.222	0.0100	5.4	25.0
[illegible]ane	[illegible]	[illegible]	0.0100	[illegible]	25.0
[illegible] trichloromethane	1.269	[illegible]	0.0100	[illegible]	25.0
[illegible]	[illegible]	[illegible]	0.0100	5.4	25.0
[illegible]-dichloroethene [illegible]	0.406	0.401	0.0100	5.4	25.0
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]ane	0.656	0.757	0.010	[illegible]	25.0
Carbon Disulfide	0.783	0.76	0.0100	[illegible]	25.0
Methylene Chloride	0.296	0.302	0.0100	2.2	25.0
trans-1,2-Dichloroethene	[illegible]	[illegible]	[illegible]	[illegible]	25.0
[illegible]ylacetate	0.075	0.090	0.010	[illegible]	25.0
1,1-Dichloroethane [illegible]	0.509	0.547	0.0100	3.5	25.0
[illegible]ane	0.567	0.573	0.0100	[illegible]	25.0
[illegible]	0.331	[illegible]	0.010	[illegible]	25.0
[illegible]	[illegible]	[illegible]	0.0100	23.3	25.0
[illegible]-dichloroethane	0.511	0.513	0.0100	0.4	25.0
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	25.0
[illegible]chloromethane	0.418	0.42	0.0100	0.9	25.0
[illegible]-Trichloroethane	0.515	0.510	0.0100	1.0	25.0
[illegible]	0.480	0.478	0.0100	0.4	25.0
Carbon Tetrachloride	0.487	0.450	0.0100	7.6	25.0
1,2-Dichloroethane-d4	0.318	0.328	0.0100	3.1	25.0
Benzene	0.869	0.876	0.0100	0.8	25.0
1,1,2-Dichloroethane	0.377	0.384	0.0100	1.9	25.0
Trichloroethene	0.396	0.393	0.0100	0.6	25.0
1,2-Dichloropropane [illegible]	0.365	0.366	0.0100	0.3	25.0
Bromodichloromethane	0.638	0.634	0.0100	0.7	25.0
Tribromomethane	0.382	0.390	0.0100	2.0	25.0
2-Chloroethyl vinyl ether	0.274	0.263	0.0100	12.3	25.0
[illegible]-Pentanone (MIBK)	0.480	0.715	0.0100	23.2	25.0
[illegible]-Dichloropropene	.549	.546	0.0100	0.7	25.0
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Toluene [illegible]	1.246	1.242	0.0100	0.3	25.0
trans-1,3-Dichloropropene	0.590	0.600	0.0100	1.3	25.0
[illegible]-Trichloroethane	[illegible]	[illegible]	0.010	3.0	25.0
[illegible]	[illegible]	[illegible]	0.0100	24.4	25.0
[illegible]chloropropane	0.691	0.717	0.0100	2.4	25.0
[illegible]	[illegible]	[illegible]	0.0100	3.7	25.0
Chlorodibromomethane	0.816	0.814	0.0100	0.3	25.0
1,2-Dibromoethane	0.698	0.721	0.0100	3.3	25.0
Chlorobenzene [illegible]	0.978	0.957	0.0100	2.2	25.0
Ethylbenzene [illegible]	1.999	2.011	0.0100	0.6	25.0

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	0.671	0.669	0.010	[illegible]	25.00
[illegible]	[illegible]	[illegible]	0.010	[illegible]	25.00
[illegible]	1.446	1.440	0.010	[illegible]	25.00
[illegible]	0.815	0.808	0.010	0.91	25.00
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	25.00
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	0.765	0.770	0.010	0.71	25.00
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	2.012	0.010	0.61	25.00
Bromobenzene	0.787	0.784	0.010	0.38	25.00
1,3,5-Trimethylbenzene	0.988	0.998	0.010	1.11	25.00
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	25.00
[illegible]	1.033	1.044	0.010	[illegible]	25.00
[illegible]	[illegible]	[illegible]	0.010	[illegible]	25.00
[illegible]	0.985	0.984	0.010	1.91	25.00
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	25.00
[illegible]	1.237	[illegible]	0.010	1.41	25.00
[illegible]	0.828	0.807	0.010	2.41	25.00
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	1.007	1.040	0.010	[illegible]	25.00
[illegible]	0.789	0.761	0.010	[illegible]	25.00
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	25.00
1,2,4-Trichlorobenzene	0.643	0.623	0.010	3.21	25.00
[illegible]	0.546	0.525	0.010	3.81	25.00
[illegible]	1.095	1.204	0.010	9.91	25.00
[illegible]-Trichlorobenzene	0.579	0.565	0.010	2.41	25.00

[illegible]

[illegible]

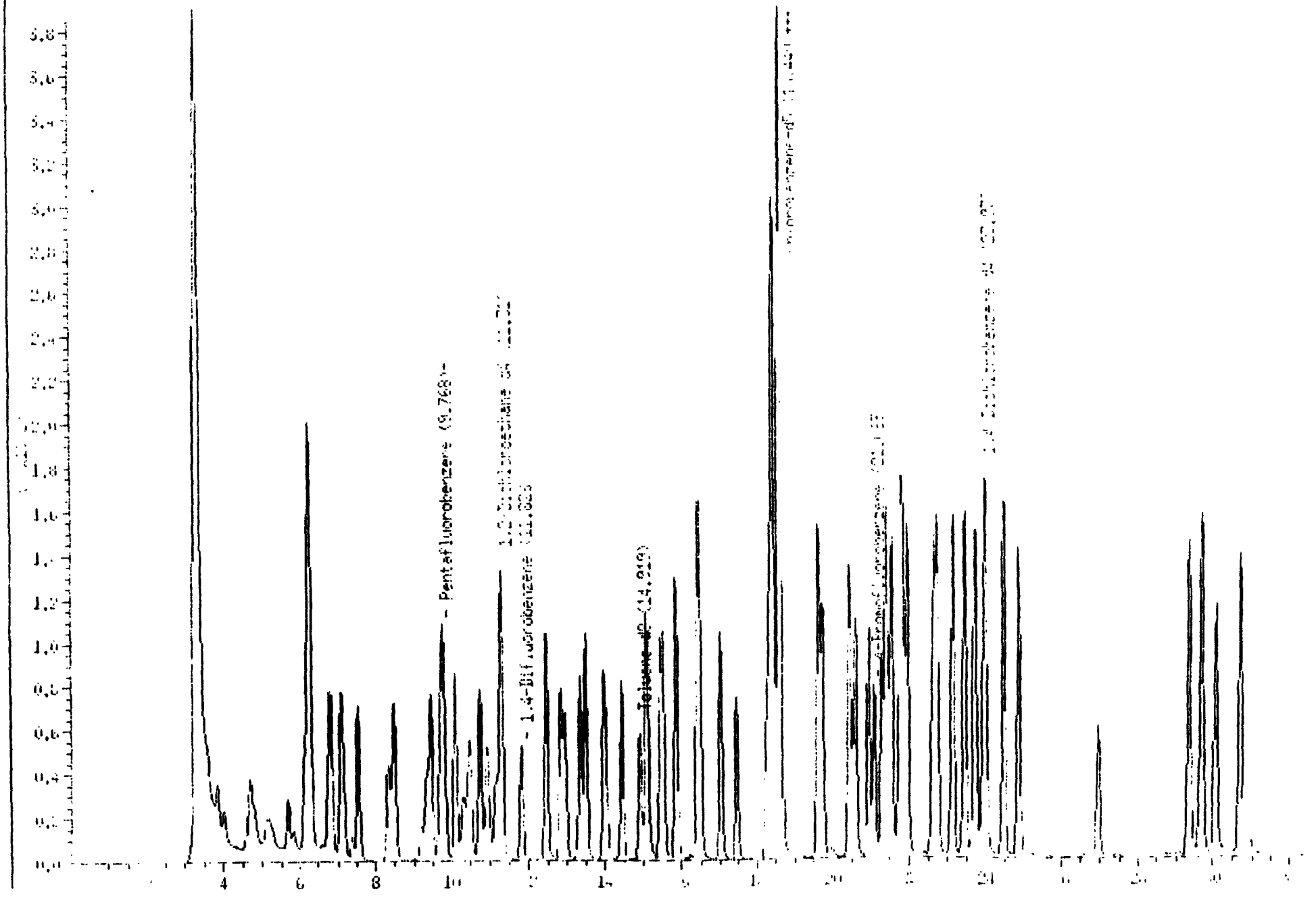
[illegible]

[illegible]

COMPOUND	STANDARD	LOWER	UPPER LIMIT	SAMPLE	% DIFF
1,4-Difluorobenzene	[illegible]	[illegible]	[illegible]	[illegible]	0.00
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.00
[illegible]-Bromofluorobenzene-95	[illegible]	[illegible]	[illegible]	[illegible]	0.00
1,4-Dichlorobenzene-d4	[illegible]	[illegible]	[illegible]	[illegible]	0.00

COMPOUND	RT	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	% DIFF
1,4-Difluorobenzene	9.31	9.31	10.31	9.81	0.00
1,4-Difluorobenzene	[illegible]	[illegible]	[illegible]	[illegible]	0.00
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.00
1,4-Dichlorobenzene-d4	13.42	13.42	14.42	13.92	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = -50% of internal standard area.
RT UPPER LIMIT = + 1.00 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.


Pentafluorobenzene (9.768)
1,4-Difluorobenzene
Toluene-d8 (14.919)
4-Bromofluorobenzene
1,4-Dichlorobenzene-d4
4
6
8
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30

INITIAL CALIBRATION DATA

Last Cal Date : 17-MAR-93 11:10
End Cal Date : 09-AUG-1995 14:18
Quant Method : ISTD
Cal Curve Type : Averaged
Target Version : Target 2.20
Integrator : HP RTE
Method File : /chem/msd_1.i/1-080995.b/8260-UOA_2.m
Cal Date : 09-Aug-1995 16:56 target

Calibration File Names:
Level 1: chem/msd_1.i/1-080995.b/UOA0101001.d
Level 2: chem/msd_1.i/1-080995.b/UOA0201002.d
Level 3: chem/msd_1.i/1-080995.b/UOA0301003.d
Level 4: chem/msd_1.i/1-080995.b/UOA0401004.d
Level 5: chem/msd_1.i/1-080995.b/UOA0501005.d

Compound	Level 1	Level 2	Level 3	Level 4	Level 5	$\overline{RRF}$	% RSD/R^2
1 Dichlorodifluoromethane	0.30942	0.29804	0.29017	0.29138	0.30363	0.29853	2.731
2 Chloromethane spcc	0.20083	0.18833	0.18117	0.18514	0.19261	0.18961	3.979
3 Vinyl Chloride ccc	0.19438	0.18459	0.17258	0.17256	0.17311	0.17944	5.463
4 Bromomethane	0.25425	0.24825	0.22554	0.21713	0.22754	0.23454	6.772
5 Chloroethane	0.15508	0.15253	0.13589	0.12927	0.13472	0.14150	8.158
6 Trichlorofluoromethane	0.29623	0.27749	0.26576	0.25540	0.25189	0.26935	6.696
7 Ether	0.13536	0.12310	0.12064	0.12060	0.11575	0.12309	5.979
8 1,1-Dichloroethene ccc	0.43636	0.42740	0.42562	0.42953	0.41342	0.42647	1.958
9 Acetone	*****	0.02048	0.01818	0.01851	0.01766	0.01871	6.595
10 Iodomethane	0.83338	0.83384	0.82322	0.83980	0.86035	0.83812	1.644
11 Carbon disulfide	0.81809	0.77266	0.76858	0.78996	0.76467	0.78279	2.806
12 Methylene Chloride	0.31346	0.29611	0.28848	0.29236	0.28919	0.29592	3.468
13 trans-1,2-Dichloroethene	0.42369	0.41985	0.41830	0.42624	0.42502	0.42262	0.805
14 Acrylonitrile	0.10464	0.06637	0.06658	0.06678	0.06904	0.07468	22.469
15 1,1-Dichloroethane spcc	0.54876	0.51732	0.50779	0.52184	0.54911	0.52897	3.578
16 Chloroprene	0.57477	0.55376	0.55356	0.56585	0.58525	0.56664	2.416
17 2,2-Dichloropropane	0.39765	0.39417	0.37567	0.36887	0.36632	0.38054	3.809
18 2-Butanone (MEK)	0.27879	0.15924	0.15295	0.15922	0.17058	0.18416	28.932
19 cis-1,2-Dichloroethene	0.52530	0.50946	0.49332	0.50323	0.52461	0.51118	2.705
20 Chloroform ccc	0.65086	0.63937	0.62752	0.64076	0.67156	0.64601	2.555
21 Bromochloromethane	0.42729	0.41335	0.40436	0.41011	0.43250	0.41752	2.847
23 1,1,1-Trichloroethane	0.51742	0.51543	0.50798	0.51546	0.53504	0.51827	1.939
24 1,1 Dichloropropene	0.47608	0.47605	0.46718	0.47939	0.50152	0.48004	2.673
25 Carbon Tetrachloride	0.47090	0.48675	0.48105	0.48995	0.50861	0.48745	2.845
27 Benzene	0.89303	0.85859	0.84298	0.86514	0.88569	0.86909	2.342
28 1,2-Dichloroethane	0.39001	0.37313	0.36247	0.36824	0.38884	0.37654	3.282
30 Trichloroethene	0.40329	0.39498	0.38320	0.39206	0.40494	0.39569	2.236
31 1,2-Dichloropropane ccc	0.37478	0.36176	0.35309	0.36106	0.37563	0.36526	2.655
32 Bromodichloromethane	0.64624	0.63318	0.61602	0.63287	0.66202	0.63807	2.689

[illegible]

[illegible] : [illegible]
[illegible] Date : 09-AUG-1996 [illegible]:16
[illegible] : [illegible]
[illegible] Type : Averaged
[illegible] : Target [illegible]
[illegible] : 40 STD
[illegible] : chem msd [illegible] [illegible].b [illegible].m
[illegible] Date : 09-Aug-1996 [illegible]:56 target

[illegible] File Names:
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[illegible] : /chem/msd [illegible] [illegible].b UDA0101004.d
[illegible] : chem msd [illegible] [illegible].b [illegible].d

Compound	Level 1	Level 2	Level 3	Level 4	Level 5	$\overline{RRF}$	% RSD/R^2
33 Dibromomethane	0.410261	0.373271	0.365531	0.368321	0.394511	0.382381	5.0461
34 2-Chloroethyl vinyl ether	0.278801	0.213051	0.218591	0.222991	0.235721	0.233831	11.3301
35 4-Methyl-2-pentanone (MIBK)	0.803171	0.510131	0.507001	0.523621	0.557501	0.580281	21.7471
36 cis-1,3-Dichloropropene	0.550691	0.545501	0.529951	0.546321	0.574801	0.549451	2.9491
38 Toluene ccc	1.235401	1.236731	1.230831	1.256331	1.268581	1.245571	1.2971
39 trans-1,3-Dichloropropene	0.603501	0.581081	0.571761	0.584721	0.607601	0.589731	2.5881
40 1,1,2-Trichloroethane	0.447361	0.402451	0.395691	0.401331	0.421951	0.413751	5.1341
41 2-Hexanone	0.396411	0.234911	0.222801	0.229531	0.243741	0.265481	27.7211
42 1,3-Dichloropropane	0.724171	0.680291	0.665531	0.671631	0.694901	0.690501	4.3271
43 Tetrachloroethene	0.686371	0.684001	0.666841	0.676421	0.684041	0.679541	1.1821
44 Chlorodibromomethane	0.854651	0.802681	0.788501	0.801031	0.835511	0.816471	3.3711
45 1,2-Dibromoethane	0.781671	0.677881	0.662431	0.671621	0.698241	0.698371	6.9291
47 Chlorobenzene spcc	0.997481	0.981101	0.955891	0.970511	0.986131	0.978221	1.6161
48 Ethylbenzene ccc	2.020371	2.011671	1.968951	1.992701	1.999431	1.998621	0.9881
49 1,1,1,2-Tetrachloroethane	0.584471	0.570531	0.556781	0.565531	0.577291	0.570921	1.8651
50 m-, p-Xylene	1.868941	1.857791	1.857991	1.884341	1.904961	1.874811	1.0691
51 o-Xylene	1.421441	1.452431	1.438471	1.448741	1.470831	1.446381	1.2581
52 Styrene	0.809021	0.817481	0.802511	0.818471	0.829241	0.815341	1.2451
53 Isopropylbenzene	1.516321	1.510181	1.490961	1.498241	1.509461	1.505031	0.6791
54 Bromoform spcc	0.793051	0.671611	0.659741	0.663641	0.699941	0.697601	7.9741
55 1,1,2,2-Tetrachloroethane spcc	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	14.0121
57 1,2,3-Trichloropropane	0.667121	0.475051	0.465041	0.466721	0.488301	0.512451	16.9681
58 n-Propylbenzene	2.022731	2.026051	1.999011	2.026871	2.051511	2.025231	0.9201
59 Bromobenzene	0.901071	0.834041	0.743171	0.699561	0.659191	0.767401	12.9011
60 1,3,5-Trimethylbenzene	1.170901	1.068101	0.953181	0.905711	0.839861	0.987551	13.3761
61 2-Chlorotoluene	1.151291	1.089451	0.980181	0.949051	0.880511	1.010101	10.8051
62 4-Chlorotoluene	1.226951	1.089451	1.017601	0.948301	0.886921	1.033051	12.7771
63 tert-Butylbenzene	1.358261	1.235691	1.093511	1.034021	0.951471	1.134591	14.3201
64 1,2,4-Trimethylbenzene	1.120331	1.055931	0.936701	0.889411	0.824831	0.965441	12.5321

INITIAL CALIBRATION DATA

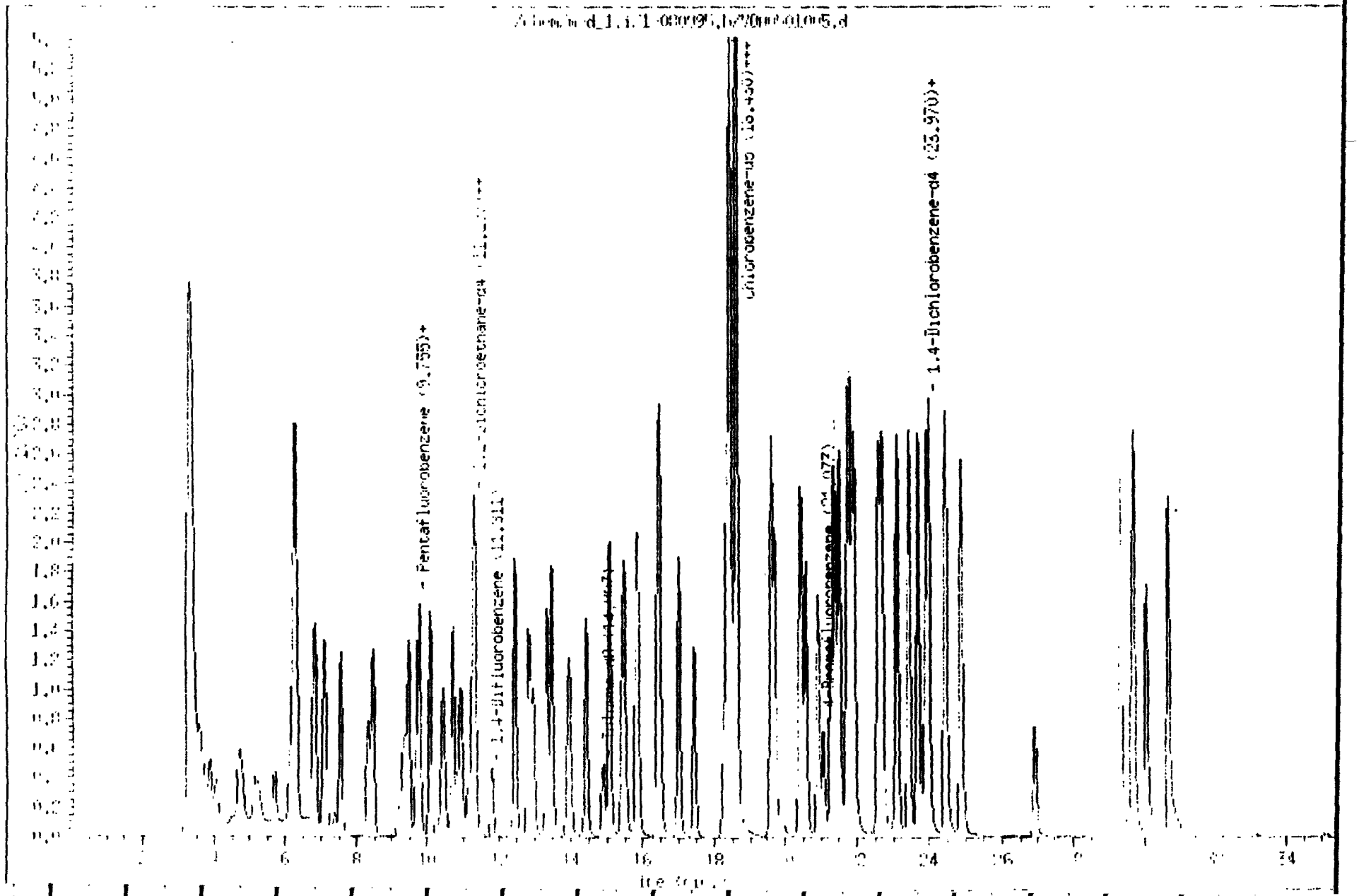
Start Cal Date : 17-MAR-95 11:10
End Cal Date : 09-AUG-1995 14:18
Quant Method : ISTD
Cal Curve Type : Averaged
Target Version : Target 2.00
Integrator : HP RTE
Method File : chem/msd_1.1/1-080995.b/a2all-V0A 2.m
Cal Date : 09-Aug-1995 16:56 target

Calibration File Names:
Level 1: chem/msd_1.1/1-080995.b/V0A0101001.d
Level 2: chem/msd_1.1/1-080995.b/V0A0201002.d
Level 3: chem/msd_1.1/1-080995.b/V0A0301003.d
Level 4: chem/msd_1.1/1-080995.b/V0A0401004.d
Level 5: chem/msd_1.1/1-080995.b/V0A0501005.d

	Compound	Level 1	Level 2	Level 3	Level 4	Level 5	$\overline{RRF}$	% RSD/R^2
65	sec-Butylbenzene	1.77540	1.60487	1.42576	1.35440	1.24928	1.48194	14.105
66	p-Isopropyltoluene	1.48927	1.33845	1.18894	1.12570	1.04084	1.23664	14.415
67	1,3-Dichlorobenzene	0.98562	0.89465	0.79499	0.75413	0.70811	0.82750	13.539
69	1,4-Dichlorobenzene	1.03479	0.94543	0.83358	0.78226	0.73542	0.86630	14.128
70	n-Butylbenzene	1.37885	1.31518	1.18060	1.12127	1.03906	1.20699	11.531
71	1,2-Dichlorobenzene	1.96305	0.85732	0.75213	0.70541	0.66731	0.78905	15.276
72	1,2-Dibromo-3-chloropropane	*****	0.19498	0.17196	0.16266	0.15715	0.17169	9.720
73	1,2,4-Trichlorobenzene	0.76161	0.70703	0.61678	0.58026	0.55095	0.64333	13.743
74	Hexachlorobutadiene	0.66294	0.59877	0.52256	0.49085	0.45556	0.54613	15.383
75	Naphthalene	1.49788	1.12202	0.99763	0.94527	0.91334	1.09523	21.796
76	1,2,3-Trichlorobenzene	0.71738	0.63501	0.54174	0.51197	0.48977	0.57917	16.409
$ 26	1,2-Dichloroethane-d4	0.33002	0.31253	0.31448	0.31210	0.32227	0.31828	2.431
$ 37	Toluene-d8	0.91594	0.91062	0.92562	0.92377	0.92505	0.92020	0.720
$ 56	4-Bromofluorobenzene	0.73574	0.76697	0.77753	0.77075	0.77296	0.76479	2.181

Data : [illegible]
Date : [illegible] 9 5 14:8
Instrument : [illegible]
Type IP
Comment :
Column Type (mm) : 0.0

Column diameter : 2.00



VOLATILES BFB

Lab Name:	EcoSys, Inc.	**Client:**	GEOSYNTEC
Ledger Nos:	105829	**BFB Injection Date:**	8/18/95
Lab File ID:	BFB081895	**BFB Injection Time:**	9:14
Instrument ID:	MSD-4	**Batch Number:**	4-081895

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	21.8
75	30.0 - 66.0% of mass 95	41.3
95	Base peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	7.5
173	Less than 2.0% of mass 174	0
174	50.0 - 120.0% of mass 95	53.5
175	4.0 - 9.0% of mass 174	7.9
176	93.0 - 101.0% of mass 174	97.8
177	5.0 - 9.0% of mass 176	7.6

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	G-NM-W-1	AA18020	VOA0401004	8/18/95	11:59 AM
02	G-NM-W-2A	AA18022	VOA0501005	8/18/95	12:50 PM
03	G-NM-W-3A	AA18023	VOA0601006	8/18/95	1:41 PM
04	G-NM-W-3B	AA18024	VOA0701007	8/18/95	2:33 PM
05	G-NM-W-4	AA18025	VOA0801008	8/18/95	3:26 PM
06	G-NM-W-5	AA18027	VOA0901009	8/18/95	4:19 PM
07	G-NM-W-6	AA18029	VOA1001010	8/18/95	5:12 PM
08	N/A	AA18029 MS	VOA1101011	8/18/95	6:04 PM
09	N/A	AA18029 MSD	VOA1201012	8/18/95	6:55 PM
10	N/A	MBLK081895	VOA0301003	8/18/95	11:10 AM
11	N/A	CONTCAL081895	VOA0101001	8/18/95	9:29 AM
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					

QA/QC OFFICER

COMMENTS: N/A: NOT APPLICABLE

TCLP Volatile Method Blank Summary

Lab Name:	EcoSys, Inc.	**Client:**	GEOSYNTEC
Ledger No(s):	105829	**Date Extracted:**	N/A
Batch No:	4-081895	**Date Analyzed:**	8/18/95
Lab File ID:	VOA0301003	**Time Analyzed:**	11:10
Lab Sample ID:	TCLP MBLK081895	**Level:**	MED
Instrument ID:	MSD-4	**Matrix:**	TCLP
Cleanup Method:	N/A		

This method blank applies to the following samples, MS and MSD:

	Client Sample No.	Lab Sample ID	Lab File ID	Date Analyzed
1	G-NM-W-1	AA18020	VOA0401004	8/18/95
2	G-NM-W-2A	AA18022	VOA0501005	8/18/95
3	G-NM-W-3A	AA18023	VOA0601006	8/18/95
4	G-NM-W-3B	AA18024	VOA0701007	8/18/95
5	G-NM-W-4	AA18025	VOA0801008	8/18/95
6	G-NM-W-5	AA18027	VOA0901009	8/18/95
7	G-NM-W-6	AA18029	VOA1001010	8/18/95
8	N/A	AA18029 MS	VOA1101011	8/18/95
9	N/A	AA18029 MSD	VOA1201012	8/18/95
10				
11				
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19				
20				
21				
22				
23				
24				

QA/QC Officer

Comments:

N/A: NOT APPLICABLE

TCLP Volatile MS/MSD Recovery

Lab Name:	EcoSys, Inc.	**Client:**	GEOSYNTEC
Ledger No:	105829	**Matrix Spike/Lab Sample No:**	AA18029
Batch No:	4-081895	**Lab Control Spike/Spike Duplicate No:**	N/A
Lab File ID:	VOA1101011 & VOA1201012	**Level (Low/Med):**	MED

Compound	Spike Added (ug/L)	Sample Conc (ug/L)	MS Conc (ug/L)	MS % Recovery	#	QC Limits Recovery
Vinyl Chloride	50	0	52	104		0-251
1,1-Dichloroethene	50	0	57	114		0-234
2-Butanone	50	0	30	60		46-153
Chloroform	50	0	55	110		51-138
Carbon Tetrachloride	50	0	50	100		70-140
1,2 Dichloroethane	50	0	64	128		49-155
Benzene	50	0	52	104		37-151
Trichloroethene	50	0	60	120		0-234
Tetrachloroethene	50	0	55	110		64-148
Chlorobenzene	50	0	52	104		37-160
1,4-Dichlorobenzene	50	0	54	108		37-160

Compound	Spike Added (ug/L)	MSD Conc (ug/L)	MSD % Recovery	#	% RPD	#	QC Limits RPD	QC Limits Recovery
Vinyl Chloride	50	48	96		8		25	0-251
1,1-Dichloroethene	50	53	106		7		25	0-234
2-Butanone	50	27	54		68		25	46-153
Chloroform	50	51	102		2		25	51-138
Carbon Tetrachloride	50	48	96		29	*	25	70-140
1,2 Dichloroethane	50	59	118		13		25	49-155
Benzene	50	46	92		26	*	25	37-151
Trichloroethene	50	57	114		4		25	0-234
Tetrachloroethene	50	54	108		4		25	64-148
Chlorobenzene	50	50	100		8		25	37-160
1,4-Dichlorobenzene	50	54	108		0		25	37-160

 # Column to be used to flag recovery and RPD values with an asterisk
*** Values outside of QC limits**
ND = Not Detected

RPD:	2	out of	11	outside limits
Spike Recovery:	0	out of	22	outside limits

QA/QC Officer

Comments: N/A: NOT APPLICABLE

* out of range due to matrix interferences

TCLP Volatile Surrogate Recovery

Lab Name: EcoSys, Inc. Client: GEOSYNTEC
Ledger No(s): 105829 Level: MED
Batch No.: 4-081895

Lab Sample No.	SMC1 (DCE)	#	SMC2 (TOL)	#	SMC3 (BFB)	#	OTHER		Total Out
MBLK081895	89		101		92				0
AA18020	95		101		93				0
AA18022	91		102		92				0
AA18023	92		103		86				0
AA18024	93		104		87				0
AA18025	93		102		88				0
AA18027	96		100		92				0
AA18029	97		99		92				0
AA18029 MS	95		102		92				0
AA18029 MSD	109		102		92				0

Column to be used to flag recovery values
* Values outside of required QC limits
ND = Not Detected

	QC Limits
SMC1 (DCE) 1,2-Dichloroethane-d4	76-114
SMC2 (TOL) Toluene-d8	88-110
SMC3 (BFB) Bromofluorobenzene	86-115

QA/QC Officer

Comments:

ECOSYS Health and Environmental Services

INITIAL CALIBRATION DATA

Start Cal Date : 17-MAR-93 11:10
End Cal Date : 09-AUG-95 12:21
Quant Method : ISTD
Cal Curve Type : Averaged
Target Version : Target 2.20
Integrator : HP RTE
Method File : /chem/msd4.i/4 080995.b/8260-V00 2.m
Cal Date : 09-Aug-1995 15:25 Target

Calibration File Names:
Level 1: /chem/msd4.i/4-080995.b/V0001101001.d
Level 2: /chem/msd4.i/4-080995.b/V0002101002.d
Level 3: /chem/msd4.i/4-080995.b/V0003101003.d
Level 4: /chem/msd4.i/4-080995.b/V0004101004.d
Level 5: /chem/msd4.i/4-080995.b/V0005101005.d

Compound	Level 1	Level 2	Level 3	Level 4	Level 5	RRF	% RSD/R^2
1 Dichlorodifluoromethane	0.588991	0.362981	0.394001	0.391641	0.396971	0.386171	3.149
2 Chloromethane qual	0.525471	0.483551	0.521961	0.521941	0.503701	0.511321	3.465
3 Vinyl Chloride qual	0.373431	0.356131	0.373481	0.372171	0.374911	0.371031	2.231
4 Bromomethane	0.223481	0.204571	0.156421	0.166231	0.165851	0.183291	15.857
5 Chloroethane	*****	0.158991	0.098991	0.093911	0.096341	0.104581	29.816
6 Trichlorofluoromethane	0.514121	0.509391	0.457361	0.350001	0.328171	0.431971	20.298
7 Ether	0.188251	0.192931	0.200961	0.172951	0.180961	0.188911	6.855
8 Acetone	0.179471	0.091841	0.079811	0.072051	0.069601	0.088551	27.621
9 1,1 Dichloroethene qual	0.605011	0.592951	0.626621	0.584981	0.580491	0.597531	3.073
10 Iodomethane	0.349631	0.415681	0.430541	0.407171	0.397951	0.400191	7.673
11 Methylene Chloride	0.585541	0.368201	0.576251	0.565581	0.554571	0.569521	3.038
12 Carbon disulfide	1.046331	1.061481	1.074211	1.041621	1.021851	1.049101	1.900
13 Acrylonitrile	0.062971	0.072951	0.089401	0.085761	0.083461	0.079971	12.963
14 trans-1,2-Dichloroethene	0.633421	0.634711	0.658491	0.633751	0.624661	0.637011	1.990
15 1,1 Dichloroethane qual	0.280571	0.285481	0.295571	0.270861	0.256171	0.274971	10.906
16 Chloroform	0.758941	0.762411	0.764311	0.737091	0.729281	0.750191	2.189
17 2 Butanone (MEK)	0.261091	0.288241	0.195751	0.214731	0.202801	0.214511	12.697
18 2,2 Dichloropropane	0.529181	0.538571	*****	0.499131	0.473071	0.510191	5.779
19 cis-1,2 Dichloroethene	0.689441	0.666281	0.645171	0.672471	0.661281	0.668831	2.497
21 Chloroform qual	0.784591	0.779571	0.797901	0.747091	0.729371	0.766681	3.544
22 Bromochloromethane	0.262181	0.242581	0.239461	0.250891	0.251661	0.241981	5.235
23 1,1,1 Trichloroethane	0.626191	0.644021	0.644941	0.639001	0.622331	0.635161	1.614
24 1,1 Dichloropropene	0.608971	0.612131	0.658491	0.609441	0.598581	0.612961	2.846
25 Carbon Tetrachloride	0.603491	0.612471	0.638191	0.613191	0.601151	0.613691	2.394
27 1,2 Dichloroethane	0.318211	0.324041	0.345971	0.339351	0.324651	0.330201	3.794
28 Benzene	0.819471	0.831301	0.829971	0.836791	0.805031	0.829961	3.014
30 Trichloroethene	0.405591	0.396611	0.421691	0.411411	0.400171	0.406651	2.456
31 1,2-Dichloropropane qual	0.453161	0.459991	0.486871	0.471991	0.459381	0.464881	3.139
32 Bromodichloromethane	0.601781	0.600431	0.631031	0.611261	0.608241	0.609131	2.153

ECOSYS Health and Environmental Services

INITIAL CALIBRATION DATA

Start Cal Date : 17-MAR-93 11:10
End Cal Date : 09-AUG-95 12:21
Quant Method : ISTD
Cal Curve Type : Averaged
Target Version : Target 2.20
Integrator : HP RTE
Method file : /chem/msd4.i/4-080995.b/8260-UOO_2.m
Cal Date : 09-Aug 1995 15:25 target

Calibration File Names:
Level 1: /chem/msd4.i/4-080995.b/U0001101001.d
Level 2: /chem/msd4.i/4-080995.b/U0002101002.d
Level 3: /chem/msd4.i/4-080995.b/U0003101003.d
Level 4: /chem/msd4.i/4-080995.b/U0004101004.d
Level 5: /chem/msd4.i/4-080995.b/U0005101005.d

Compound	Level 1	Level 2	Level 3	Level 4	Level 5	RRF	% RSD/R^2
33 Dibromomethane	0.386021	0.387771	0.388471	0.359841	0.341571	0.372571	5.7081
34 2 Chloroethylvinyl ether	*****	*****	*****	*****	*****	0.027281	6.7741
35 4 Methyl 2-pentanone (MIBK)	0.359931	0.339181	0.369741	0.361711	0.341371	0.352991	3.7011
36 cis 1,3 Dichloropropene	0.531761	0.525521	0.539651	0.546281	0.525181	0.527361	3.2771
37 Toluene-d8	0.926381	0.918351	0.951151	0.913631	0.895831	0.921051	2.1931
38 trans 1,3 Dichloropropene	0.382651	0.415321	0.378551	0.443451	0.422731	0.406511	7.3291
40 2 Hexanone	0.234141	0.205551	0.202981	0.199181	0.189581	0.202691	8.0211
41 1,1,2 Trichloroethane	0.318481	0.330271	0.352691	0.345261	0.322951	0.336051	4.6081
42 1,3-Dichloropropane	0.522811	0.532591	0.548691	0.529281	0.503141	0.527291	3.1351
43 Tetrachloroethene	0.343651	0.344931	0.358281	0.343051	0.328931	0.343821	3.0751
44 Chlorodibromomethane	0.682391	0.672381	0.700741	0.694111	0.683521	0.686511	1.5061
45 1,2 Dibromoethane	0.682951	0.721761	0.729081	0.741931	0.715931	0.719681	2.6791
47 Chlorobenzene-spec	1.021591	0.922951	1.019591	0.962161	0.922981	0.983841	4.2381
48 Ethylbenzene-spec	1.381151	1.384011	1.224491	1.637461	1.576251	1.234861	7.2091
49 1,1,1,2 Tetrachloroethane	0.465651	0.457791	0.471381	0.449151	0.429981	0.454641	3.6181
50 m , p Xylene	1.217761	1.681651	1.557681	1.444951	1.322951	1.538881	8.2471
51 o Xylene	1.404651	1.275531	1.276461	1.198681	1.171111	1.265291	7.1741
52 Styrene	0.242281	0.251281	0.221981	0.231981	0.238921	0.232921	5.2791
53 Isopropylbenzene	1.476431	1.429551	1.459841	1.362181	1.312711	1.408141	4.8361
54 Bromoform-spec	0.449551	0.443441	0.425721	0.468441	0.452821	0.458461	2.5781
55 1,1,2,2 Tetrachloroethane-spec	1.265121	1.308621	1.357911	1.353811	1.349181	1.326771	2.9891
57 1,2,3-Trichloropropane	0.292251	0.305821	0.245481	0.281981	0.285251	0.282281	2.7741
58 n Propylbenzene	3.726881	3.685531	3.696481	3.674161	3.778251	3.712931	1.1761
59 Bromobenzene	1.218861	1.223951	1.295171	1.282691	2.082551	1.352841	2.5931
60 1,3,5 Trimethylbenzene	2.363311	2.438811	2.424541	2.353631	2.371861	2.388471	1.5081
61 2 Chlorotoluene	2.268081	2.285251	2.424741	2.425491	2.462461	2.383191	4.3951
62 4 Chlorotoluene	2.486391	2.538841	2.324861	2.301971	2.373811	2.429171	5.5831
63 tert Butylbenzene	2.498361	2.352851	2.498021	2.423161	2.505591	2.485831	2.2561
64 1,2,4 Trimethylbenzene	2.282241	2.312181	2.322551	2.262931	2.288321	2.291921	1.8811

ECOSYS Health and Environment Services

INITIAL CALIBRATION DATA

Last Cal Date : 17 MAR 93 11:10
Test Cal Date : 09-AUG-95 12:21
Quant Method : ISTD
Cal Curve Type : Averaged
Target Version : Target 2.20
Integrator : HP RTE
Method File : /chem/mod4.i/4-080995.b/8240-U00 2.m
Cal Date : 09-Aug-1995 15:25 target

Calibration File Names:
Level 1: /chem/mod4.i/4-080995.b/U0001010001.d
Level 2: /chem/mod4.i/4-080995.b/U0002010002.d
Level 3: /chem/mod4.i/4-080995.b/U0003010003.d
Level 4: /chem/mod4.i/4-080995.b/U0004010004.d
Level 5: /chem/mod4.i/4-080995.b/U0005010005.d

Compound	Level 1	Level 2	Level 3	Level 4	Level 5	RSD	% RSD/RSD
45 sec Butylbenzene	1.593421	1.602081	1.663861	1.556511	1.595541	1.591441	1.2471
46 p Isopropyltoluene	2.606051	2.572061	2.564021	2.570431	2.615841	2.586681	0.8951
47 1,3 Dichlorobenzene	1.418841	1.416191	1.432921	1.441691	1.422561	1.429551	1.4471
48 1,4 Dichlorobenzene	1.557391	1.470601	1.492571	1.458641	1.442821	1.484401	3.0091
49 n Butylbenzene	2.511551	2.492161	2.581281	2.551611	2.573921	2.508841	2.2251
50 1,2 Dichlorobenzene	1.248211	1.238301	1.226361	1.208761	1.150321	1.219991	3.3371
51 1,2 Dibromo 3 chloropropane	0.108861	0.065201	0.065921	0.072721	0.065511	0.076271	25.4271
52 1,2,4 Trichlorobenzene	0.141411	0.088171	0.133211	0.140541	0.142291	0.131021	18.3411
53 Hexachlorobutadiene	0.454401	0.248361	0.224951	0.254011	0.214081	0.311281	23.5611
54 Naphthalene	*****	0.181651	0.169811	0.120341	0.174701	0.155631	20.5981
55 1,2,3 Trichlorobenzene	*****	0.051021	0.050021	0.060551	0.052201	0.067081	16.3391
56 1,2 Dichloromethane d4	0.220021	0.225221	0.229361	0.224541	0.242261	0.227571	5.0201
57 Toluene d8	0.893681	0.902441	0.902601	0.915791	0.913801	0.904521	1.0661
58 4 Bromofluorobenzene	0.212491	0.220301	0.233941	0.222011	0.229121	0.227661	2.2801

Data File : /chem/msd4.i/4-081895.b/VOA0101001.d
Report Date : 18-Aug-1995 15:58

ECOSYS Health and Environmental Services

VOLATILE REPORT SW-846 Method 8260

Data File : /chem/msd4.i/4-081895.b/VOA0101001.d
Sample Info :
Acq. Date : 18-AUG-1995 09:29 Autotune Date: 07-Aug-95 17:59:5
Operator : KHOI DINH Inst ID: msd4.i
Sample Info : MSD-4 CONT CAL 081895
Misc Info : 50ul (10UG/ml VOA STD080295C)
Comment :
Method : /chem/msd4.i/4-081895.b/8260-VOA_2.m
Meth Date : 18-Aug-1995 15:58 target
Cal Date : 18-AUG-95 09:29 Cal File: VOA0101001.d
Dilution: 1 Continuing Calibration Sample
Cal Factor: 1.000 Target Version: Target 2.20
Integrator: HP RTE Compound Sublist: all.sub
Sample Type: WATER

Compounds	QUANT SIG MASS	RT (REL RT)	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
1 Dichlorodifluoromethane	85.00	3.737(0.361)	1338209	95.3	95.3
2 Chloromethane spec	50.00	4.147(0.000)	2026547	109	109(M)
3 Vinyl Chloride spec	62.00	4.359(0.420)	1473282	109	109
4 Bromomethane	94.00	5.113(0.494)	973389	146	146(M)
5 Chloroethane	64.00	5.260(0.508)	603139	159	159
6 Trichlorofluoromethane	101.00	5.656(0.546)	1528562	97.2	97.2
7 Ether	45.00	6.154(0.594)	732080	106	106(A)
8 Acrolein	43.00	6.211(0.648)	2514453	780	780(AM)
9 1,1 Dichloroethene spec	61.00	6.755(0.652)	2328960	107	107
10 Iodomethane	142.00	7.311(0.706)	1356566	93.2	93.2(A)
11 Methylene Chloride	84.00	7.663(0.740)	1921499	143	143(M)
12 Carbon disulfide	76.00	7.663(0.740)	3682262	96.5	96.5
13 Acrylonitrile	53.00	8.001(0.772)	340188	117	117(M)
14 trans 1,2-Dichloroethene	61.00	8.133(0.785)	2310069	99.7	99.7
15 1,1 Dichloroethane spec	63.00	8.938(0.863)	2722185	101	101
16 Chloroprene	53.00	9.056(0.874)	2683282	98.3	98.3(A)
17 2 Butanone (MEK)	43.00	9.817(0.948)	971042	124	124(AM)
18 2,2-Dichloropropane	77.00	9.905(0.956)	1299642	70.0	70.0
19 cis 1,2 Dichloroethene	61.00	10.052(0.970)	2530942	104	104(M)
20 Pentafluorobenzene	168.00	10.360(1.000)	1819300	50.0	(M)
21 Chloroform spec	83.00	10.346(0.999)	2809924	101	101
22 Bromochloromethane	128.00	10.698(1.033)	937052	107	107
23 1,1,1 Trichloroethane	97.00	11.050(1.067)	2025615	87.6	87.6
24 1,1 Dichloropropene	75.00	11.328(1.093)	2255996	101	101
25 Carbon Tetrachloride	117.00	11.519(1.112)	1898814	85.0	85.0
26 1,2 Dichloroethane-d4	65.00	11.724(0.946)	627982	47.7	47.7(M)
27 1,2 Dichloroethane	62.00	11.915(0.961)	1517089	96.8	96.8
28 Benzene	78.00	11.900(0.960)	3948929	100	100
29 1,4 Difluorobenzene	114.00	12.399(1.000)	2320293	50.0	
30 Trichloroethene	95.00	13.043(1.052)	1932033	100	100
31 1,2 Dichloropropane spec	63.00	13.439(1.084)	2158568	97.9	97.9

Compounds	QUANT SIG MASS	RT (REL RT)	RESPONSE	CONCENTRATIONS ON COLUMN (ug/l)	FINAL (ug/l)
32 Bromodichloromethane	83.00	11.952(1.125)	2212551	94.1	94.1
33 Dibromomethane	93.00	14.099(1.137)	1543449	87.4	87.4
34 2-Chloroethylvinyl ether	Compound Not Detected.				
35 4-Methyl-2-pentanone (MIBK)	43.00	14.597(1.177)	1911657	114	114(M)
36 cis-1,3-Dichloropropene	75.00	15.037(1.213)	2172683	87.1	87.1
37 Toluene-d8	98.00	15.506(1.251)	2134151	49.8	49.8
38 Toluene [illegible]	91.00	15.682(1.265)	4336758	99.3	99.3
39 trans-1,3-Dichloropropene	75.00	16.107(1.299)	1763080	91.5	91.5
40 2-Hexanone	43.00	16.532(1.333)	1206921	122	122(M)
41 1,1,2-Trichloroethane	97.00	16.459(1.327)	1713643	108	108
42 1,3-Dichloropropane	76.00	17.016(1.372)	2392062	95.9	95.9
43 Tetrachloroethene	164.00	17.060(1.376)	1587344	97.4	97.4
44 Chlorodibromomethane	129.00	17.617(0.934)	2478897	96.0	96.0
45 1,2-Dibromoethane	107.00	18.057(0.957)	2329876	86.0	86.0
46 Chlorobenzene-d5	117.00	18.862(1.000)	1881351	50.0	
47 Chlorobenzene [illegible] spec	112.00	18.950(1.005)	3797130	102	102
48 Ethylbenzene [illegible] spec	91.00	19.024(1.009)	6345193	97.2	97.2
49 1,1,1,2-Tetrachloroethane	131.00	19.039(1.009)	1703996	99.6	99.6
50 m, p Xylene	91.00	19.186(1.017)	11700746	202	202(A)
51 o Xylene	91.00	20.211(1.072)	4764995	100	100
52 Styrene	104.00	20.314(1.077)	2932642	106	106
53 Isopropylbenzene	105.00	21.018(1.114)	5493198	104	104
54 Bromoform [illegible] spec	173.00	21.209(1.124)	1806273	105	105
55 1,1,2,2-Tetrachloroethane spec	83.00	21.531(0.878)	2612505	116	116
56 4-Bromofluorobenzene	95.00	21.677(1.149)	1526869	53.2	53.2
57 1,2,3-Trichloropropane	75.00	21.883(0.893)	1680258	110	110
58 n-Propylbenzene	91.00	21.971(0.896)	6254224	99.2	99.2
59 Bromobenzene	77.00	22.147(0.904)	3355830	101	101
60 1,3,5-Trimethylbenzene	105.00	22.338(0.911)	4098328	101	101
61 2-Chlorotoluene	91.00	22.426(0.915)	4019756	99.1	99.1
62 4-Chlorotoluene	91.00	22.544(0.920)	4121002	99.9	99.9
63 tert-Butylbenzene	119.00	23.189(0.946)	4149574	98.3	98.3
64 1,2,4-Trimethylbenzene	105.00	23.292(0.950)	3900545	100	100
65 sec-Butylbenzene	105.00	23.702(0.967)	6114370	100	100
66 p-Isopropyltoluene	119.00	24.025(0.980)	4208378	95.9	95.8
67 1,3-Dichlorobenzene	146.00	24.318(0.992)	2383255	97.5	97.5
68 1,4-Dichlorobenzene-d4	152.00	24.509(1.000)	849274	50.0	
69 1,4-Dichlorobenzene	146.00	24.582(1.003)	2422472	96.1	96.1
70 n-Butylbenzene	91.00	25.022(1.021)	4075342	95.6	95.6
71 1,2-Dichlorobenzene	146.00	25.506(1.041)	2116504	102	102
72 1,2-Dibromo-3-chloropropane	157.00	27.356(1.117)	151342	118	118
73 1,2,4-Trichlorobenzene	180.00	29.123(1.188)	547453	246	246(A)
74 Hexachlorobutadiene	225.00	29.357(1.198)	925133	163	163
75 Naphthalene	128.00	29.665(1.210)	213373	80.7	80.7
76 1,2,3-Trichlorobenzene	180.00	29.112(1.222)	118212	97.2	97.2

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.

ECOSYS Health and Environmental Services

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: md4.i Injection Date: 18-AUG-1995 09:29
Cal. File ID: VOA0101001.d Init. Calibration Date(s): 03/17/93 08/09/95
Analysis Type: WATER Init. Calibration Times: 11:10 12:21
Lab Sample ID: Method File: /chem/md4.i/4-081895.b/8260-VOA 2.m

COMPOUND	RRF	RF1001	MIN RRF	%D	MAX %D	
Dichlorodifluoromethane	0.3861	0.368	0.0101	4.71	25.01	
Chloromethane ppbv	0.5111	0.557	0.0101	8.91	25.01	
Vinyl Chloride ppbv	0.3711	0.405	0.0101	9.21	25.01	
Bromomethane	0.1871	0.268	0.0101	45.91	25.01	<-
Chloroethane	0.1041	0.166	0.0101	59.81	25.01	<-
Trichlorofluoromethane	0.4721	0.420	0.0101	2.71	25.01	
Ether	0.1901	0.201	0.0101	5.91	25.01	
Acrolein	0.0991	0.178	0.0101	56.11	25.01	<-
1,1-Dichloroethene ppbv	0.5981	0.640	0.0101	7.11	25.01	
Iodomethane	0.4001	0.373	0.0101	6.81	25.01	
Methylene Chloride	0.3691	0.528	0.0101	43.01	25.01	<-
Carbon Disulfide	1.0491	1.012	0.0101	3.51	25.01	
Acrylonitrile	0.0801	0.093	0.0101	17.01	25.01	
trans 1,2 Dichloroethene	0.6371	0.635	0.0101	0.31	25.01	
1,1-Dichloroethane ppbv	0.7411	0.748	0.0101	1.01	25.01	
Chloroprene	0.2601	0.237	0.0101	1.71	25.01	
2 Butanone (MEK)	0.2151	0.267	0.0101	24.41	25.01	
2,2 Dichloropropane	0.5101	0.357	0.0101	30.01	25.01	<-
cis 1,2 Dichloroethene	0.6681	0.696	0.0101	4.11	25.01	
Chloroform ppbv	0.7671	0.779	0.0101	0.71	25.01	
Bromochloromethane	0.2411	0.258	0.0101	6.71	25.01	
1,1,1 Trichloroethane	0.6351	0.557	0.0101	12.41	25.01	
1,1 Dichloropropene	0.6131	0.620	0.0101	1.21	25.01	
Carbon Tetrachloride	0.6141	0.522	0.0101	15.01	25.01	
1,2-Dichloroethane-d4	0.2781	0.265	0.0101	4.61	25.01	
1,2 Dichloroethane	0.3311	0.320	0.0101	3.21	25.01	
Benzene	0.8331	0.833	0.0101	0.01	25.01	
Trichloroethene	0.4071	0.408	0.0101	0.21	25.01	
1,2-Dichloropropane ppbv	0.4651	0.455	0.0101	2.11	25.01	
Bromodichloromethane	0.6091	0.573	0.0101	5.91	25.01	
Dibromomethane	0.3731	0.326	0.0101	12.61	25.01	
2 Chloroethylvinyl ether	0.0001	0.000	0.0101	0.01	25.01	
4 Methyl-2-pentanone (MIBK)	0.3531	0.403	0.0101	14.21	25.01	
trans 1,3-Dichloropropene	0.5071	0.459	0.0101	12.91	25.01	
Toluene d8	0.9051	0.900	0.0101	0.51	25.01	
Toluene ppbv	0.9011	0.916	0.0101	0.71	25.01	
trans-1,3-Dichloropropene	0.4071	0.372	0.0101	8.51	25.01	
2 Hexanone	0.0981	0.055	0.0101	22.41	25.01	
1,1,2-Trichloroethane	0.3361	0.361	0.0101	7.61	25.01	
1,3-Dichloropropane	0.5271	0.506	0.0101	4.11	25.01	
Tetrachloroethene	0.3441	0.335	0.0101	2.61	25.01	
Chlorodibromomethane	0.6871	0.659	0.0101	4.01	25.01	
1,2-Dibromoethane	0.7201	0.619	0.0101	14.01	25.01	
Chlorobenzene ppbv	0.9841	1.009	0.0101	2.61	25.01	

FOOSYS Health and Environmental Services

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: ms4.i Injection Date: 18-AUG-1995 09:29
Cal. File ID: WDA0101001.d Init. Calibration Date(s): 03/17/93 08/09/95
Data Type: WATER Init. Calibration Times: 11:10 12:21
Sample ID: Method File: /chem/ms4.i/4-081895.b/8260-WDA_2.m

COMPOUND	RRF	RF100	MIN RRF	%D	MAX %D	
1,1,1,2 Tetrachloroethane	0.455	0.453	0.010	0.4	25.0	
[illegible] Xylene	1.539	1.555	0.010	1.0	25.0	
[illegible] Xylene	1.265	1.266	0.010	0.1	25.0	
[illegible]	0.779	0.781	0.010	5.6	25.0	
[illegible] Isopropylbenzene	1.409	1.460	0.010	3.6	25.0	
[illegible]	0.458	0.480	0.010	4.7	25.0	
1,1,2,2 Tetrachloroethane spe	1.327	1.538	0.010	15.9	25.0	
[illegible] Fluorobenzene	0.788	0.838	0.010	6.4	25.0	
1,2,3-Trichloropropane	0.903	0.989	0.010	9.6	25.0	
[illegible] Propylbenzene	3.712	3.682	0.010	0.8	25.0	
Bromobenzene	1.957	1.976	0.010	1.0	25.0	
1,3,5-Trimethylbenzene	0.388	0.413	0.010	1.0	25.0	
2-Chlorotoluene	2.388	2.367	0.010	0.9	25.0	
4-Chlorotoluene	0.429	0.426	0.010	0.1	25.0	
tert-Butylbenzene	2.486	2.443	0.010	1.7	25.0	
1,2,4-Trimethylbenzene	0.092	0.096	0.010	0.0	25.0	
[illegible]-Butylbenzene	3.591	3.600	0.010	0.2	25.0	
[illegible] Isopropyltoluene	2.587	2.478	0.010	4.2	25.0	
1,3-Dichlorobenzene	1.440	1.407	0.010	2.5	25.0	
1,4-Dichlorobenzene	1.484	1.426	0.010	3.9	25.0	
[illegible]-Butylbenzene	2.509	2.399	0.010	4.4	25.0	
1,2-Dichlorobenzene	1.220	1.246	0.010	2.1	25.0	
1,2-Dibromo-3-chloropropane	0.075	0.089	0.010	18.5	25.0	
1,2,4-Trichlorobenzene	0.131	0.322	0.010	146.0	25.0	<-
Hexachlorobutadiene	0.333	0.545	0.010	63.4	25.0	<-
Naphthalene	0.154	0.124	0.010	19.7	25.0	
1,2,3-Trichlorobenzene	0.067	0.065	0.010	2.8	25.0	

Data File: /chem/mad4.i/4-081895.b/VOA0101001.d
Acquisition Date: 18-Aug 1995 15:58

EDDSYS Health and Environmental Services

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: mad4.i
Data File ID: VOA0101001.d
Sample ID:
Analysis Type: VOA
Method File: /chem/mad4.i/4-081895.b/8240-VOA_2.m
Misc Info: 50ML(10UG/ML VOA STD080295C)

Calibration Date: 08/18/95
Calibration Time: 1020
Sample Type: WATER
Level: LOW

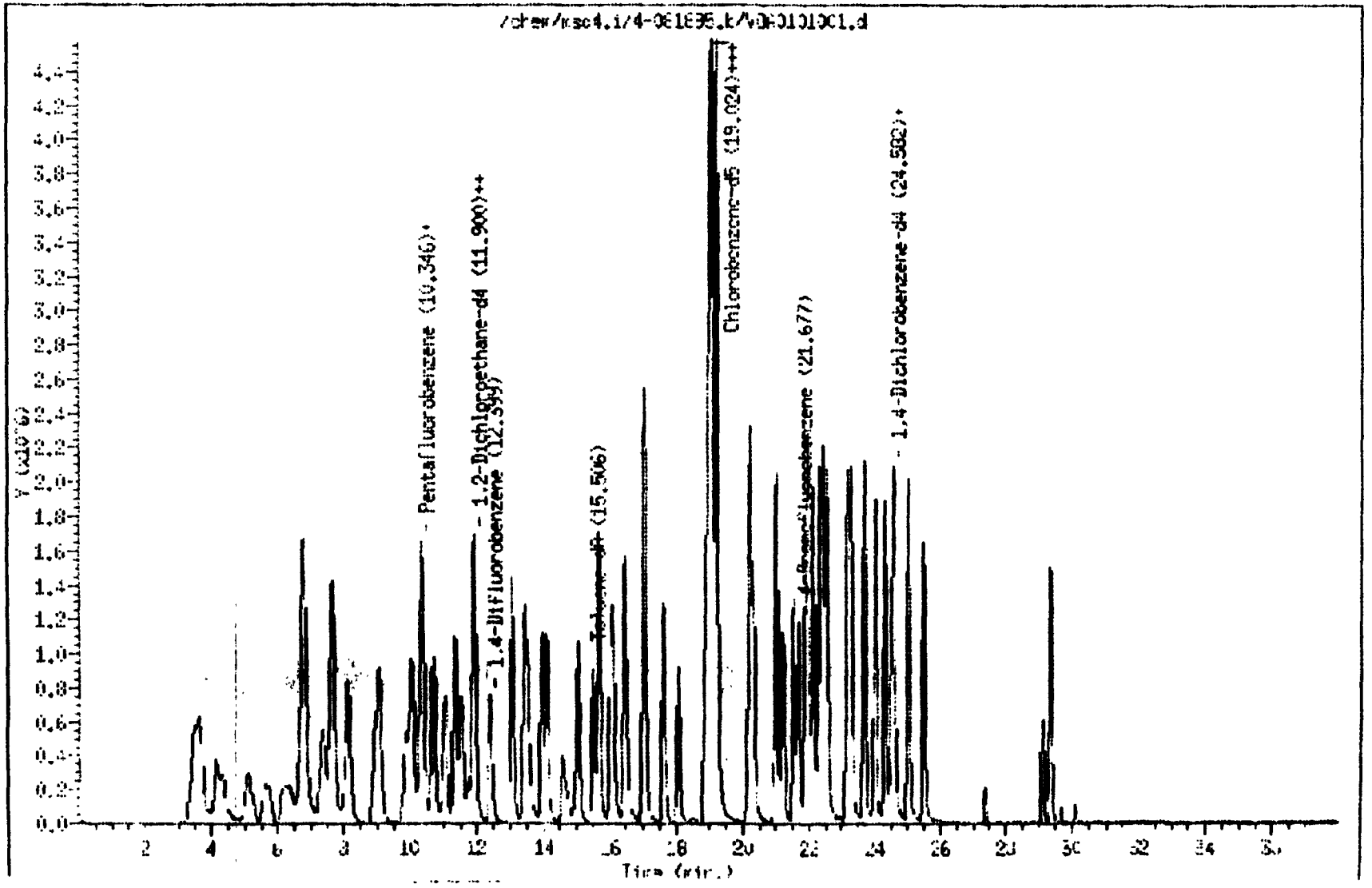
COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	% DIFF
38 Bromofluorobenzene	1819300	909650	3638600	1819300	0.00
39 1,4 Difluorobenzene	2370293	1185146	4740586	2370293	0.00
44 Chlorobenzene-d5	1881351	940675	3762702	1881351	0.00
48 1,4 Dichlorobenzene-	849274	424637	1698548	849274	0.00

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	% DIFF
38 Bromofluorobenzene	10.36	9.86	10.86	10.36	0.00
39 1,4 Difluorobenzene	12.40	11.90	12.90	12.40	0.00
44 Chlorobenzene-d5	18.86	18.36	19.36	18.86	0.00
48 1,4 Dichlorobenzene-	24.51	24.01	25.01	24.51	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/msd4.i/4-081895.b/VOA010100I.d
Date : 18-AUG-1995 09:29
Instrument : msd4.i
Sample ID :
Column phase :
Volume Injected (ul.) : 0.0

Column diameter : 2.00



VOLATILES BFB

Lab Name:	EcoSys, Inc.	**Client:**	GEOSYNTEC
Ledger Nos:	105829	**BFB Injection Date:**	8/15/95
Lab File ID:	BFB081595	**BFB Injection Time:**	9:30
Instrument ID:	MSD-4	**Batch Number:**	4-081595

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	19.8
75	30.0 - 66.0% of mass 95	39.1
95	Base peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	7.3
173	Less than 2.0% of mass 174	0
174	50.0 - 120.0% of mass 95	59
175	4.0 - 9.0% of mass 174	7
176	93.0 - 101 0% of mass 174	96.8
177	5.0 - 9.0% of mass 176	7.1

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	G-NM-RB	AA18017	VOA0401004	8/15/95	12:42 PM
02	G-NM-FB	AA18018	VOA0501005	8/15/95	1:34 PM
03	G-NM-TB-1	AA18019	VOA0601006	8/15/95	2:26 PM
04	N/A	AA18019 MS	VOA0701007	8/15/95	3:20 PM
05	N/A	AA18019 MSD	VOA0801008	8/15/95	4:13 PM
06	N/A	MBLK081595	VOA0301003	8/15/95	11:53 AM
07	N/A	CONTCAL081595	VOA0101001	8/15/95	10:13 AM
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					

QA/QC OFFICER

COMMENTS: N/A: NOT APPLICABLE

Volatile Method Blank Summary

Lab Name:	EcoSys, Inc.	**Client:**	GeoSyntec
Ledger No(s):	105829	**Date Extracted:**	N/A
Batch No:	4-081595	**Date Analyzed:**	8/15/95
Lab File ID:	VOA0301003	**Time Analyzed:**	11:53
Lab Sample ID:	MBLK081595	**Level:**	MED
Instrument ID:	MSD-4	**Matrix:**	AQUEOUS
Cleanup Method:	N/A		

This method blank applies to the following samples, MS and MSD:

	Client Sample No.	Lab Sample ID	Lab File ID	Date Analyzed
1	G-NM-RB	AA18017	VOA0401004	8/15/95
2	G-NM-FB	AA18018	VOA0501005	8/15/95
3	G-NM-TB-1	AA18019	VOA0601006	8/15/95
4	N/A	AA18019 MS	VOA0701007	8/15/95
5	N/A	AA18019 MSD	VOA0801008	8/15/95
6				
7				
8				
9				
10				
11				
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18				
19				
20				
21				
22				
23				
24				

QA/QC Officer

Comments:

N/A: NOT APPLICABLE

Aqueous Volatile MS/MSD Recovery

Lab Name: EcoSys, Inc. **Client:** GeoSyntec

Ledger No: 105829 **Matrix Spike/Lab Sample No:** AA18019

Batch No: 4-081595 **Level (Low/Med):** MED

Lab File ID: VOA0701007 & VOA0801008

Compound	Spike Added (ug/L)	Sample Conc (ug/L)	MS Conc (ug/L)	MS % Recovery	#	QC Limits Recovery
1,1-Dichloroethene	50	0.00	51.10	102		61-145
Benzene	50	0.00	55.10	110		76-127
Trichloroethene	50	0.00	52.10	104		71-120
Toluene	50	0.00	53.40	107		76-125
Chlorobenzene	50	0.00	50.00	100		75-130

Compound	Spike Added (ug/L)	MSD Conc (ug/L)	MSD % Recovery	#	RP	#	QC Limits RPD	QC Limits Recovery
1,1-Dichloroethene	50	51.80	104		2		14	61-145
Benzene	50	55.50	111		1		14	76-127
Trichloroethene	50	52.60	105		1		11	71-120
Toluene	50	53.50	107		0		13	76-125
Chlorobenzene	50	50.70	101		1		13	75-130

 # Column to be used to flag recovery and RPD values with an asterisk
*** Values outside of QC limits**
ND = Not Detected

RPD: 0 **out of** 5 **outside limits**

Spike Recovery: 0 **out of** 10 **outside limits**

QA/QC Officer

Comments: _____

Aqueous Volatile Surrogate Recovery

Lab Name: EcoSys, Inc. Client: GEOSYNTEC

Ledger No(s): 105829 Level: MED

Batch No.: 4-081595

Lab Sample No.	SMC1 (DCE)	#	SMC2 (TOL)	#	SMC3 (BFB)	#	OTHER		Total Out
MBLK081595	89		99		97				0
AA18017	90		100		97				0
AA18018	91		99		98				0
AA18019	93		100		98				0
AA18019 MS	93		101		100				0
AA18019 MSD	93		101		98				0

Column to be used to flag recovery values

* Values outside of required QC limits

ND = Not Detected

	QC Limits
SMC1 (DCE) 1,2-Dichloroethane-d4	76-114
SMC2 (TOL) Toluene-d8	88-110
SMC3 (BFB) Bromofluorobenzene	86-115

QA/QC Officer

Comments:

ECOSYS Health and Environmental Services

VOLATILE REPORT SW 846 Method 8260

Data File : /chem/ms4.i/4 081595.b/V0001010001.d
Sample Info :
Date : 15 AUG-1995 10:17 Autotune Date: 07-Aug-95 17:59:5
Operator : KHOI DINH Inst ID: ms4.i
Sample Info : MSD-4 CONT CAL 081595
Sample Info : 50UL (10UG/ML VOA STD080295C)
Comment :
Method : /chem/ms4.i/4-081595.b/8260-V00_2.m
Meth Date : 16 Aug-1995 09:42 target
Cal Date : 15 AUG-95 10:17 Cal File: V0001010001.d
Bottle: 1 Continuing Calibration Sample
Dil Factor: 1.000 Target Version: Target 2.20
Purge: 40 PTF Compound Sublist: all.sub
Sample Type: WATER

Compounds	QUANT SIG MASS	RT (REL RT)	RESPONSE	CONCENTRATIONS ON COLUMN (ug/l)	FINAL (ug/l)
1 Dichlorodifluoromethane	85.00	5.202(0.358)	1411790	101	101
2 Chloromethane spec	50.00	4.132(0.000)	1955849	106	106(M)
3 Vinyl Chloride spec	62.00	4.523(0.418)	1490825	111	111
4 Bromomethane	94.00	5.069(0.490)	817039	124	124
5 Chloroethane	64.00	5.281(0.503)	460561	125	125(M)
6 Trichlorofluoromethane	101.00	5.626(0.544)	1380934	88.6	88.6
7 Ether	59.00	5.159(0.593)	681219	99.4	99.4(A)
8 Acetone	43.00	6.681(0.646)	2151826	673	673(AM)
9 1,1 Dichloroethene spec	61.00	6.795(0.650)	2192564	102	102
10 Iodomethane	142.00	7.282(0.704)	1470643	102	102(A)
11 Methylene Chloride	84.00	7.634(0.738)	1579792	118	118
12 Carbon disulfide	76.00	7.634(0.738)	3662801	96.8	96.8
13 Acrylonitrile	53.00	7.971(0.770)	343102	119	119(M)
14 trans-1,2 Dichloroethene	61.00	8.103(0.783)	2276997	99.0	99.0
15 1,1 Dichloroethane spec	63.00	8.909(0.861)	2572896	96.2	96.2
16 Chloroprene	53.00	9.026(0.872)	2740475	101	101(A)
17 2 Butanone (MEK)	43.00	9.288(0.946)	933925	121	121(AM)
18 2,2 Dichloropropane	77.00	9.890(0.956)	1509138	82.0	82.0
19 cis 1,2 Dichloroethene	61.00	10.037(0.970)	2423712	100	100
20 Pentafluorobenzene	168.00	10.345(1.000)	1804317	50.0	
21 Chloroform spec	83.00	10.330(0.999)	2271545	100	100
22 Bromochloromethane	128.00	10.682(1.033)	928841	102	102
23 1,1,1 Trichloroethane	97.00	11.054(1.067)	2149661	94.7	94.7
24 1,1 Dichloropropene	75.00	11.313(1.094)	2254826	102	102
25 Carbon tetrachloride	117.00	11.504(1.112)	2081052	94.0	94.0
26 1,2 Dichloroethane-d4	65.00	11.209(0.946)	663427	50.1	50.1(M)
27 1,2 Dichloroethane	62.00	11.285(0.960)	1539026	97.6	97.6
28 Benzene	78.00	11.870(0.959)	3899680	98.2	98.2
29 1,4 Difluorobenzene	114.00	12.383(1.000)	2383298	50.0	
30 Trichloroethene	95.00	13.028(1.052)	1913146	98.7	98.7
31 1,2 Dichloropropane spec	63.00	13.424(1.084)	2173412	98.1	98.1

	QUANT SIG MASS	RT (REL RT)	RESPONSE	CONCENTRATIONS ON COLUMN (ug/l)	FINAL (ug/l)
[illegible]	93.00	13.932(1.196)	[illegible]	92.4	92.4
[illegible]	93.00	14.083(1.137)	1644082	92.6	92.6
[illegible]	Compound Not Detected.				
15 4 Methyl 2 pentanone (MIBK)	43.00	14.596(1.179)	1949070	116	116(M)
[illegible] 1,2 Dichloropropane	75.00	15.021(1.213)	2362625	94.0	94.0
[illegible] d8	98.00	15.490(1.251)	2170455	50.3	50.3
[illegible]	21.00	15.666(1.265)	4361711	99.3	99.3
[illegible] 1,3 Dichloropropane	75.00	16.092(1.299)	1923686	99.3	99.3
[illegible] 2 Hexanone	43.00	16.473(1.330)	1211533	122	122(M)
[illegible] 1,1,2-Trichloroethane	97.00	16.444(1.328)	1205755	106	106
[illegible] 1,3 Dichloropropane	76.00	17.001(1.373)	2510440	99.9	99.9
[illegible] Tetrachloroethene	164.00	17.045(1.376)	1600601	97.6	97.6
[illegible] Dibromochloromethane	129.00	17.602(0.934)	2546898	96.2	96.2
15 1,2 Dibromoethane	107.00	18.041(0.957)	2619579	94.4	94.4
[illegible] Chlorobenzene d5	117.00	18.847(1.000)	1228777	50.0	
[illegible] Chlorobenzene [illegible]	112.00	18.935(1.005)	3810150	100	100
[illegible] Ethylbenzene [illegible]	91.00	19.008(1.009)	6454307	99.4	99.4
[illegible] 1,1,1,2 Tetrachloroethane	131.00	19.023(1.009)	1741462	99.3	99.3
50 m, p Xylene	91.00	19.170(1.017)	11619812	196	196
51 o Xylene	91.00	20.196(1.072)	4827969	98.9	98.9
52 Styrene	104.00	20.313(1.078)	2931482	103	103
53 Isopropylbenzene	105.00	21.017(1.115)	5524630	102	102
54 Bromoform [illegible]	173.00	21.193(1.124)	1022036	103	103
55 1,1,2,2 Tetrachloroethane spc	83.00	21.515(0.828)	2650126	111	111
56 4 Bromofluorobenzene	95.00	21.662(1.149)	1539505	50.7	50.7
57 1,2,3 Trichloropropane	75.00	21.867(0.892)	1726819	107	107
[illegible] Propylbenzene	91.00	21.955(0.896)	6419524	96.4	96.4
59 Bromobenzene	77.00	22.132(0.903)	3451111	98.3	98.3
[illegible] 1,3,5 Trimethylbenzene	105.00	22.337(0.911)	4139945	96.6	96.6
61 2 Chlorotoluene	91.00	22.425(0.915)	3973795	92.8	92.8(H)
62 4 Chlorotoluene	91.00	22.598(0.919)	4340627	99.6	99.6
63 tert Butylbenzene	119.00	23.173(0.946)	4244416	95.2	95.2
64 1,2,4 Trimethylbenzene	105.00	23.276(0.950)	3920432	95.4	95.4(MH)
65 sec Butylbenzene	105.00	23.686(0.966)	6312054	98.0	98.0
66 p Isopropyltoluene	119.00	24.024(0.980)	4375291	94.3	94.3
67 1,3 Dichlorobenzene	146.00	24.317(0.992)	2467752	95.6	95.6(H)
68 1,4 Dichlorobenzene d4	152.00	24.500(1.000)	836682	50.0	
69 1,4 Dichlorobenzene	146.00	24.581(1.003)	2516474	94.5	94.5
70 n Butylbenzene	91.00	25.021(1.021)	4252466	94.5	94.5
71 1,2 Dichlorobenzene	146.00	25.490(1.040)	2194089	100	100
72 1,2 Dibromo 3 chloropropane	157.00	27.364(1.117)	162323	120	120
73 1,2,4 Trichlorobenzene	180.00	29.121(1.188)	498320	209	209(A)
74 Hexachlorobutadiene	225.00	29.341(1.197)	919809	154	154
75 Naphthalene	128.00	29.649(1.210)	221317	79.3	79.3
76 1,2,3 Trichlorobenzene	180.00	29.185(1.208)	106860	98.8	98.8

Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.

Flag Legend

- Operator selected an alternate compound hit.

ECOSYS Health and Environmental Services

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: ms4.i Injection Date: 15-AUG-1995 10:13
Data File ID: U0001101001.d Init. Calibration Date(s): 03/17/93 08/09/95
Analysis Type: WATER Init. Calibration Times: 11:10 12:21
Sample ID: Method File: /chem/ms4.i/4-081595.b/8260-U0A_2.m

COMPOUND	RRF	RF100	MIN RRF	%D	MAX %D
Dichlorodifluoromethane	0.386	0.391	0.010	1.3	25.0
Chloromethane spec	0.511	0.542	0.010	6.0	25.0
Vinyl Chloride spec	0.371	0.413	0.010	11.3	25.0
Bromomethane	0.183	0.226	0.010	23.5	25.0
Chloroethane	0.104	0.130	0.010	24.7	25.0
Trichlorofluoromethane	0.432	0.383	0.010	11.4	25.0
Ether	0.190	0.189	0.010	0.6	25.0
Acetone	0.089	0.119	0.010	34.7	25.0 <-
1,1 Dichloroethene spec	0.598	0.608	0.010	1.7	25.0
Iodomethane	0.400	0.408	0.010	1.8	25.0
Methylene Chloride	0.369	0.438	0.010	18.5	25.0
Carbon disulfide	1.049	1.015	0.010	3.2	25.0
Acrylonitrile	0.080	0.095	0.010	19.0	25.0
trans-1,2-Dichloroethene	0.637	0.631	0.010	0.9	25.0
1,1 Dichloroethane spec	0.741	0.713	0.010	3.8	25.0
Chloroprene	0.260	0.259	0.010	1.2	25.0
2-Butanone (MEK)	0.215	0.259	0.010	20.6	25.0
2,2 Dichloropropane	0.510	0.418	0.010	18.0	25.0
cis 1,2 Dichloroethene	0.668	0.672	0.010	0.5	25.0
Chloroform spec	0.767	0.768	0.010	0.2	25.0
Bromochloromethane	0.241	0.257	0.010	6.7	25.0
1,1,1-Trichloroethane	0.635	0.601	0.010	5.3	25.0
1,1 Dichloropropene	0.613	0.625	0.010	1.9	25.0
Carbon Tetrachloride	0.614	0.577	0.010	6.0	25.0
1,2-Dichloroethane-d4	0.278	0.278	0.010	0.3	25.0
1,2 Dichloroethane	0.331	0.323	0.010	2.4	25.0
Benzene	0.833	0.818	0.010	1.8	25.0
Trichloroethene	0.407	0.401	0.010	1.3	25.0
1,2-Dichloropropane spec	0.465	0.456	0.010	1.9	25.0
Bromodichloromethane	0.609	0.593	0.010	2.6	25.0
Dibromomethane	0.373	0.345	0.010	7.4	25.0
2 Chloroethylvinyl ether	0.022	0.000	0.010	0.0	25.0
4-Methyl-2-pentanone (MIBK)	0.353	0.409	0.010	15.8	25.0
cis-1,3-Dichloropropene	0.527	0.496	0.010	6.0	25.0
Toluene-d8	0.905	0.911	0.010	0.7	25.0
Toluene spec	0.921	0.915	0.010	0.7	25.0
trans-1,3 Dichloropropene	0.407	0.404	0.010	0.7	25.0
2-Hexanone	0.228	0.254	0.010	22.4	25.0
1,1,2-Trichloroethane	0.336	0.358	0.010	6.5	25.0
1,3-Dichloropropane	0.527	0.527	0.010	0.1	25.0
Tetrachloroethene	0.344	0.336	0.010	2.3	25.0
Chlorodibromomethane	0.687	0.660	0.010	3.8	25.0
1,2-Dibromoethane	0.720	0.679	0.010	5.6	25.0
Chlorobenzene spec	0.984	0.988	0.010	0.4	25.0

ECOSYS Health and Environmental Services

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: msd4.i Injection Date: 15-AUG-1995 10:13
Data File ID: UNA0101001.d Init. Calibration Date(s): 03/17/93 08/09/95
Sample Type: WATER Init. Calibration Times: 11:10 12:21
Client Sample ID: Method File: /chem/msd4.i/4-081595.b/8260-UNA_2.m

COMPOUND	$\overline{RRF}$	RF100	MIN RRF	%D	MAX %D
1,1,1,2 Tetrachloroethane	0.455	0.451	0.010	0.7	25.0
m, p-Xylene	1.539	1.506	0.010	2.1	25.0
o-Xylene	1.265	1.252	0.010	1.1	25.0
Styrene	0.739	0.760	0.010	2.8	25.0
Isopropylbenzene	1.409	1.432	0.010	1.6	25.0
Bromoform spec	0.458	0.472	0.010	3.0	25.0
1,1,2,2-Tetrachloroethane spec	1.327	1.478	0.010	11.4	25.0
4 Bromofluorobenzene	0.788	0.798	0.010	1.3	25.0
1,2,3-Trichloropropane	0.903	0.963	0.010	6.6	25.0
n-Propylbenzene	3.712	3.580	0.010	3.6	25.0
Bromobenzene	1.957	1.924	0.010	1.7	25.0
1,3,5-Trimethylbenzene	2.388	2.308	0.010	3.3	25.0
2-Chlorotoluene	2.388	2.216	0.010	7.2	25.0
4-Chlorotoluene	2.429	2.420	0.010	0.4	25.0
tert Butylbenzene	2.486	2.367	0.010	4.8	25.0
1,2,4-Trimethylbenzene	2.292	2.186	0.010	4.6	25.0
sec-Butylbenzene	3.591	3.520	0.010	2.0	25.0
p-Isopropyltoluene	2.587	2.440	0.010	5.7	25.0
1,3-Dichlorobenzene	1.440	1.376	0.010	4.4	25.0
1,4-Dichlorobenzene	1.484	1.403	0.010	5.5	25.0
n-Butylbenzene	2.509	2.371	0.010	5.5	25.0
1,2 Dichlorobenzene	1.228	1.223	0.010	0.3	25.0
1,2-Dibromo-3-chloropropane	0.075	0.091	0.010	20.3	25.0
1,2,4-Trichlorobenzene	0.131	0.273	0.010	108.7	25.0 <-
Hexachlorobutadiene	0.333	0.513	0.010	53.9	25.0 <-
Naphthalene	0.156	0.123	0.010	20.7	25.0
1,2,3-Trichlorobenzene	0.067	0.060	0.010	11.2	25.0

ECOSYS Health and Environmental Services

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msd4.i
File ID: VOA0101001.d
Sample ID:
Analysis Type: VOA
Method File: /chem/msd4.i/4-081595.b/8260-VOA_2.m
Misc Info: 50ML (10UG/ML VOA STD080295C)

Calibration Date: 08/15/95
Calibration Time: 1101
Sample Type: WATER
Level: LOW

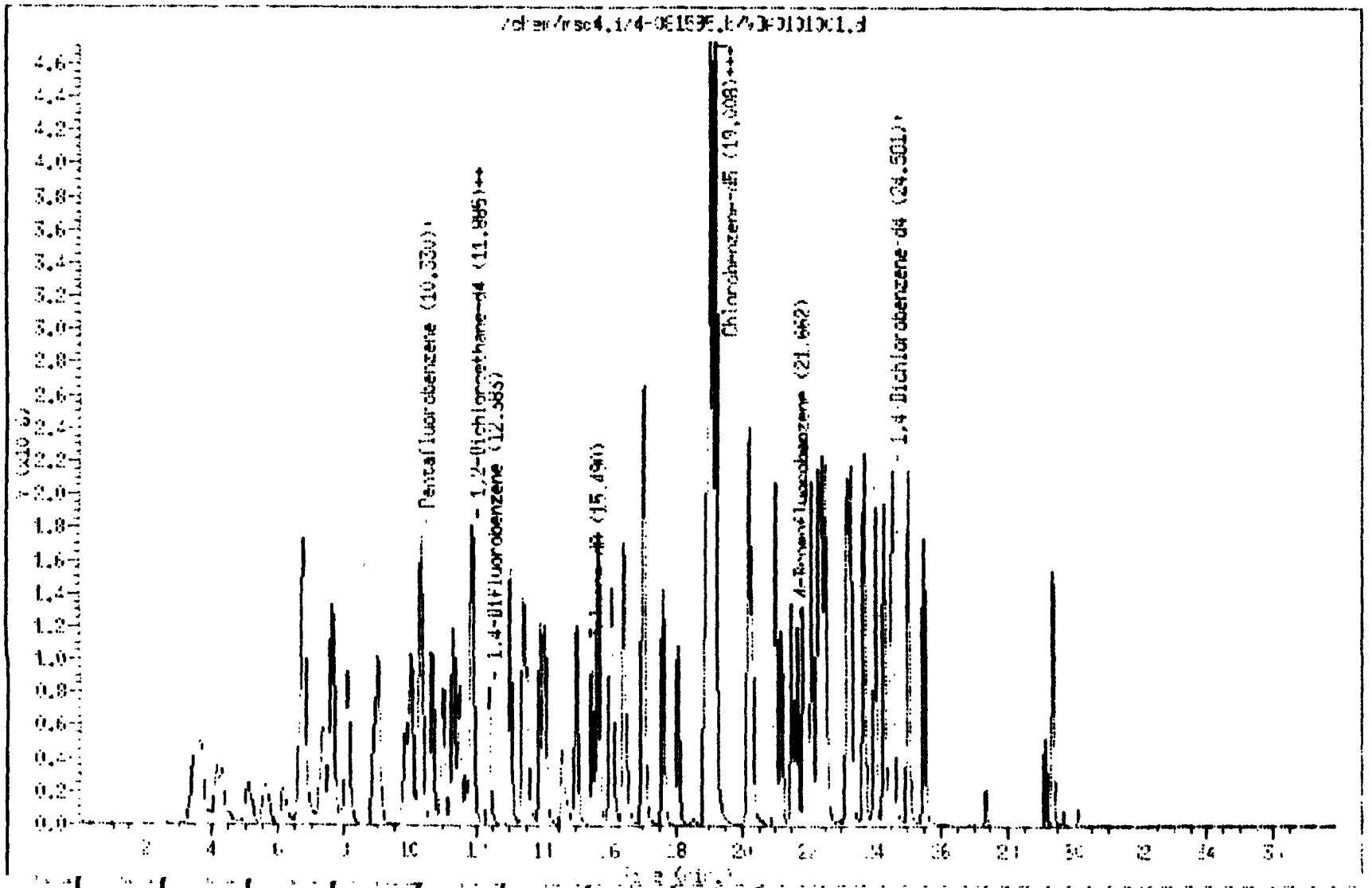
COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	% DIFF
22 Pentafluorobenzene	18043171	9021581	36086341	18043171	0.00
23 1,4-Difluorobenzene	23832981	11916491	47665961	23832981	0.00
44 Chlorobenzene-d5	19287771	9643881	38575541	19287771	0.00
48 1,4 Dichlorobenzene-	8966871	4483431	17933741	8966871	0.00

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	% DIFF
22 Pentafluorobenzene	10.35	9.85	10.85	10.35	0.00
23 1,4 Difluorobenzene	12.38	11.88	12.88	12.38	0.00
44 Chlorobenzene-d5	18.85	18.35	19.35	18.85	0.00
48 1,4 Dichlorobenzene-	24.51	24.01	25.01	24.51	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/msd4.i/4-081595.b/VOAC101C01.d
Date : 15-AUG-1995 10:13
Instrument : msd4.i
Sample ID :
Column phase :
Volume Injected (uL) : 0.0

Column diameter : 2.00



ECOSYS Health and Environmental Services

INITIAL CALIBRATION DATA

Start Cal Date : 17-MAR-93 11:10
End Cal Date : 09-AUG-95 12:21
Quant Method : ISTD
Cal Curve Type : Averaged
Target Version : Target 2.20
Integrator : HP RTF
Method File : /chem/msd4.i/4-080995.b/8260-UNO_2.m
Cal Date : 09-Aug-1995 15:25 target

Calibration File Names:
Level 1: /chem/msd4.i/4-080995.b/UN0010101001.d
Level 2: /chem/msd4.i/4-080995.b/UN0020101002.d
Level 3: /chem/msd4.i/4-080995.b/UN0030101003.d
Level 4: /chem/msd4.i/4-080995.b/UN0040101004.d
Level 5: /chem/msd4.i/4-080995.b/UN0050101005.d

Compound	Level 1	Level 2	Level 3	Level 4	Level 5	RRF	% RSD/R^2
1 Dichlorodifluoromethane	0.388991	0.362981	0.394001	0.391641	0.396971	0.386171	3.149
2 Chloromethane spec	0.525471	0.483551	0.521961	0.521941	0.503701	0.511321	3.465
3 Vinyl Chloride ccc	0.373431	0.356131	0.373481	0.372171	0.374911	0.371031	2.291
4 Bromomethane	0.223481	0.204571	0.156421	0.166231	0.165851	0.183291	15.857
5 Chloroethane	*****	0.150991	0.090291	0.083911	0.086341	0.104381	29.816
6 Trichlorofluoromethane	0.514121	0.509391	0.457361	0.350001	0.328171	0.431971	20.298
7 Ether	0.188251	0.192231	0.200261	0.179551	0.182861	0.189911	6.053
8 Acetone	0.129471	0.091841	0.079811	0.077051	0.069681	0.088551	27.621
9 1,1-Dichloroethene ccc	0.603011	0.592551	0.626621	0.584991	0.580491	0.597531	3.073
10 Iodomethane	0.349631	0.415681	0.438541	0.407171	0.397951	0.400191	7.673
11 Methylene Chloride	0.383541	0.368201	0.376231	0.363581	0.354571	0.369391	3.038
12 Carbon disulfide	1.046331	1.061481	1.074211	1.041621	1.021851	1.049181	1.908
13 Acrylonitrile	0.062971	0.072951	0.089481	0.085761	0.083461	0.079971	12.963
14 trans-1,2-Dichloroethene	0.633421	0.634711	0.658491	0.633751	0.624661	0.637011	1.998
15 1,1-Dichloroethane spec	0.800571	0.803401	0.793571	0.670861	0.656171	0.740911	18.906
16 Chloroprene	0.758941	0.762411	0.764311	0.737021	0.720201	0.750191	2.189
17 2-Butanone (MEK)	0.261021	0.200241	0.193751	0.214731	0.202801	0.214511	12.627
18 2,2-Dichloropropane	0.529181	0.538571	*****	0.499131	0.473021	0.510191	5.779
19 cis-1,2-Dichloroethene	0.639441	0.666201	0.645121	0.677471	0.661901	0.660831	2.497
20 Chloroform ccc	0.784591	0.779571	0.799901	0.747091	0.779391	0.766601	3.544
22 Bromochloromethane	0.262181	0.262501	0.239461	0.250391	0.251661	0.251281	5.235
23 1,1,1-Trichloroethane	0.626191	0.644021	0.644241	0.639001	0.622331	0.635161	1.614
24 1,1-Dichloropropene	0.608271	0.613131	0.638491	0.609441	0.590501	0.612961	2.846
25 Carbon Tetrachloride	0.603491	0.612421	0.638191	0.613191	0.601151	0.613691	2.394
27 1,2-Dichloroethane	0.318211	0.324041	0.349271	0.339551	0.326651	0.330201	3.394
28 Benzene	0.819471	0.831301	0.872971	0.836791	0.805031	0.832961	3.014
30 Trichloroethene	0.403591	0.396611	0.421691	0.411411	0.400171	0.406651	2.466
31 1,2-Dichloropropane ccc	0.453161	0.459991	0.486871	0.471991	0.459381	0.464081	3.139
32 Bromodichloromethane	0.601201	0.600431	0.631031	0.611261	0.600241	0.609131	2.153

ECOSYS Health and Environmental Services

INITIAL CALIBRATION DATA

Start Cal Date : 17-MAR-93 11:10
End Cal Date : 09-AUG-95 12:21
Quant Method : ISTD
Cal Curve Type : Averaged
Target Version : Target 2.20
Integrator : HP RTE
Method file : /chem/msd4.i/4-080995.b/8260-VOA_2.m
Cal Date : 09-Aug-1995 15:25 target

Calibration File Names:
Level 1: /chem/msd4.i/4-080995.b/V0001101001.d
Level 2: /chem/msd4.i/4-080995.b/V0002101002.d
Level 3: /chem/msd4.i/4-080995.b/V0003101003.d
Level 4: /chem/msd4.i/4-080995.b/V0004101004.d
Level 5: /chem/msd4.i/4-080995.b/V0005101005.d

Compound	Level 1	Level 2	Level 3	Level 4	Level 5	RRF	% RSD/R^2
33 Dibromomethane	0.386021	0.387771	0.388471	0.359041	0.341571	0.377571	5.701
34 2-Chloroethylvinyl ether	*****	*****	*****	*****	*****	0.877781	6.774
35 4-Methyl-2-pentanone (MIBK)	0.352931	0.339181	0.369741	0.361711	0.341371	0.352991	3.701
36 cis-1,3-Dichloropropene	0.581961	0.573571	0.539651	0.546781	0.525181	0.577361	3.777
38 Toluene-d8	0.926381	0.918351	0.951151	0.913631	0.895831	0.921051	2.193
39 trans-1,3-Dichloropropene	0.387651	0.415171	0.370351	0.443431	0.427731	0.406511	7.379
40 2-Hexanone	0.234141	0.205551	0.209981	0.199181	0.189581	0.207691	8.021
41 1,1,2-Trichloroethane	0.318481	0.330971	0.357691	0.345261	0.327751	0.336051	4.681
42 1,3-Dichloropropane	0.577811	0.532591	0.548691	0.599281	0.583141	0.577791	3.135
43 Tetrachloroethene	0.343661	0.344931	0.358781	0.343051	0.338931	0.343871	3.875
44 Chlorodibromomethane	0.682391	0.677381	0.700741	0.694111	0.683571	0.686511	1.586
45 1,2-Dibromoethane	0.639751	0.721961	0.779081	0.741831	0.715931	0.719681	7.679
47 Chlorobenzene-d5	1.021591	0.972951	1.019571	0.962161	0.977981	0.983841	4.238
48 Ethylbenzene-d10	1.881331	1.884311	1.774491	1.637461	1.576931	1.734861	7.207
49 1,1,1,2-Tetrachloroethane	0.465651	0.457771	0.471301	0.449151	0.479781	0.464641	3.618
50 m-, p-Xylene	1.717161	1.681651	1.557681	1.444951	1.377751	1.538081	8.747
51 o-Xylene	1.484651	1.275531	1.276461	1.198681	1.171111	1.265791	7.174
52 Styrene	0.242281	0.245781	0.271981	0.231581	0.284971	0.259971	3.979
53 Isopropylbenzene	1.476431	1.479551	1.459841	1.367181	1.319711	1.409141	4.836
54 Bromoform-d5	0.449551	0.442441	0.473791	0.468441	0.459871	0.458461	2.578
55 1,1,2,2-Tetrachloroethane-d2	1.265121	1.308621	1.357911	1.353011	1.349181	1.326771	2.989
57 1,2,3-Trichloropropane	0.829051	0.885071	0.945401	0.981901	0.883751	0.907781	2.774
58 n-Propylbenzene	3.726001	3.685531	3.696401	3.674161	3.778251	3.717731	1.196
59 Bromobenzene	1.210361	1.223931	1.295171	1.282691	2.002551	1.257041	2.593
60 1,3,5-Trimethylbenzene	2.363311	2.430011	2.424541	2.353431	2.371061	2.388471	1.508
61 2-Chlorotoluene	2.268001	2.285251	2.426741	2.425491	2.462461	2.338191	4.395
62 4-Chlorotoluene	2.606391	2.538041	2.324861	2.301971	2.373811	2.429171	5.583
63 tert-Butylbenzene	2.420561	2.457851	2.498871	2.427161	2.505591	2.485831	2.756
64 1,2,4-Trimethylbenzene	2.282341	2.312181	2.322551	2.262931	2.288371	2.291991	1.801

ECOSYS Health and Environmental Services

INITIAL CALIBRATION DATA

Start Cal Date : 17-MAR-93 11:10
End Cal Date : 09-AUG-95 12:21
Quant Method : ISTD
Cal Curve Type : Averaged
Target Version : Target 2.20
Integrator : HP RTE
Method File : /chem/msd4.i/4 080995.b/8260-VOA_2.m
Cal Date : 09-Aug-1995 15:25 target

Calibration File Names:
Level 1: /chem/msd4.i/4-080995.b/V0001101001.d
Level 2: /chem/msd4.i/4-080995.b/V0002101002.d
Level 3: /chem/msd4.i/4-080995.b/V0003101003.d
Level 4: /chem/msd4.i/4-080995.b/V0004101004.d
Level 5: /chem/msd4.i/4-080995.b/V0005101005.d

Compound	Level 1	Level 2	Level 3	Level 4	Level 5	RRF	% RSD/RSD
65 sec-Butylbenzene	3.579471	3.602001	3.663361	3.554511	3.555341	3.591441	1.247
66 p-Isopropyltoluene	2.606051	2.577061	2.564021	2.570431	2.615841	2.586681	0.885
67 1,3-Dichlorobenzene	1.413841	1.456191	1.473271	1.441691	1.428561	1.439551	1.447
68 1,4-Dichlorobenzene	1.557391	1.470601	1.492571	1.458641	1.442821	1.484401	3.089
70 n-Butylbenzene	2.511551	2.427161	2.501281	2.534611	2.573271	2.585841	2.275
71 1,2-Dichlorobenzene	1.268211	1.238301	1.226341	1.208761	1.150371	1.219991	3.337
72 1,2-Dibromo-3-chloropropane	0.102861	0.065371	0.065271	0.072721	0.069511	0.075271	25.427
73 1,2,4-Trichlorobenzene	0.141411	0.089171	0.133211	0.140541	0.142791	0.131071	18.341
74 Hexachlorobutadiene	0.454401	0.243761	0.324591	0.354011	0.284081	0.333281	23.561
75 Naphthalene	*****	0.107651	0.169811	0.170341	0.174701	0.155631	20.598
76 1,2,3-Trichlorobenzene	*****	0.051071	0.077071	0.069531	0.075701	0.067081	16.339
36 1,2-Dichloroethane-d4	0.298891	0.275271	0.273561	0.274541	0.267761	0.277571	3.898
37 Toluene-d8	0.893681	0.897441	0.902681	0.915791	0.913081	0.904571	1.066
55 4-Bromofluorobenzene	0.819451	0.778781	0.783941	0.777011	0.779171	0.787661	2.288

SEMI VOLATILE
QC PACKAGE FOR GEOSYNTEC

THIS PACKAGE INCLUDES INITIAL CALIBBRATION(S) FOR:

INSTRUMENT ID	DATE OF CALIBRATION
MSD2	8/24/95

THE EXTRACTION BATCH NUMBER IS:

1744 1747

THE LEDGER NUMBER IS:

105829

THE CORRESPONDING ECOSYS SAMPLE NOS. AND CLIENT ID ARE:

AA18023	G-NM-W-3A
AA18024	G-NM-W-3B
AA18025	G-NM-W-4

EACH EXTRACTION BATCH WILL INCLUDE A METHOD BLANK, LAB CONTROL SPIKE (LCS), LAB CONTOL SPIKE DUPLICATE (LCSD), AND/OR MATRIX SPIKE (MS), AND MATRIX SPIKE DUPLICATE (MSD), AND SAMPLES THAT ARE ANALYZED UNDER THAT PARTICULAR BATCH.

BATCH#	1744	BATCH#	1747
n/a	MTD BLK	MTD BLK	
n/a	LCS	LCS	
n/a	LCSD	LCSD	
n/a	MS	n/a	MS
n/a	MSD	n/a	MSD
AA18023		AA18023 (TCLP)	
AA18024		AA18024 (TCLP)	
		AA18025 (TCLP)	

QA/QC OFFICER: [signature] DATE: 9-25-95

SemiVolatiles DFTPP

Lab Name:	EcoSys, Inc.	**Client:**	GeoSyntec
Ledger Nos:	105829		
Lab File ID:	dftpp082495	**DFTPP Injection Date:**	08/24/95
Instrument ID:	msd2	**DFTPP Injection Time:**	14:44

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	38.9
68	Less than 2.0% of mass 69	0.0)1
69	Mass 69 relative abundance	51.3
70	Less than 2.0% of mass 69	(0.3)1
127	40.0 - 60.0% of mass 198	51.6
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.8
275	10.0 - 30.0% of mass 198	21.7
365	Greater than 1% of mass 198	1.7
441	Present, but less than mass 443	73.8
442	Greater than 40% of mass 198	47.4
443	17.0 - 23.0% of mass 442	(19.3)2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID		LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	N/A	Cont. Cal.	BNA-80-32	BNA0101001	08/24/95	15:26
02	N/A	MTD BLK	#1747	BNA0601006	08/22/95	18:39
03	N/A	LCS	#1747	BNA0701007	08/22/95	19:35
04	N/A	LCSD	#1747	BNA0801008	08/22/95	20:32
05	G-NM-W-3A	AA18023	(TCLP)	BNA0201002	08/24/95	16:45
06	G-NM-W-3B	AA18024	(TCLP)	BNA0301003	08/24/95	17:37
07	G-NM-W-4	AA18025	(TCLP)	BNA0401004	08/24/95	18:35
08	G-NM-W-3A	AA18023		BNA1101011	08/25/95	1:35
09	G-NM-W-3B	AA18024		BNA1201012	08/25/95	2:33
10						
11						
12						
13						

Comments:

Robert Lee

QA/QC OFFICER

SemiVolatile Method Blank Summary

Lab Name:	EcoSys, Inc.	**Client:**	GeoSyntec
Ledger No(s):	105829	**Date Extracted:**	8/22/95
Batch No(s):	1747	**Date Analyzed:**	8/22/95
Lab File ID:	BNA0601006	**Time Analyzed:**	18:39
Lab Sample ID:	mtd blk #1747	**Level:**	Low
Cleanup Method:	n/a		
Instrument ID:	msd2/msd3	**Matrix:**	TCLP/TAL

This method blank applies to the following samples, MS and MSD:

	Client Sample No.	Lab Sample ID	Lab File ID	Date Analyzed
1	G-NM-W-3A	AA18023 (TCLP)	BNA0201002	8/24/95
2	G-NM-W-3B	AA18024 (TCLP)	BNA0301003	8/24/95
3	G-NM-W-4	AA18025 (TCLP)	BNA0401004	8/24/95
4	G-NM-W-3A	AA18023	BNA1101011	8/24/95
5	G-NM-W-3B	AA18024	BNA1201012	8/24/95
6	N/A	LCS	BNA0701007	8/22/95
7	N/A	LCSD	BNA0801008	8/22/95
8				
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10				
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19				
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21				
22				
23				
24				

QA/QC Officer

Comments:

Aqueous SemiVolatile Surrogate Recovery

Lab Name: EcoSys, Inc

Ledger No(s): 105829

Batch No: 1747

Client: GeoSyntec

Level: Low

Lab Sample No.	S1 (2FP)	#	S2 (PHL)	#	S3 (NBZ)	#	S4 (FBP)	#	S5 (TBP)	#	S6 (TPH)	#	Total Out
AA18023 (TCLP)	64		77		64		73		81		76		0
AA18024 (TCLP)	63		80		67		77		82		85		0
AA18025 (TCLP)	52		61		56		69		71		74		0
AA18023	62		79		54		53		53		60		0
AA18024	81		101		73		78		75		84		0
MTD BLK #1747	53		32		57		72		85		87		0
LCS #1747	81		75		80		87		99		101		0
LCSD #1747	82		76		81		87		100		102		0

Column used to flag recovery values

* = Values outside of required QC limits

ND = Not Detected

	QC Limits/TCLP	SOIL
S1 (2FP) 2-Fluorophenol	21-100	25-121
S2 (PHL) Phenol-d5	10-110	24-113
S3 (NBZ) Nitrobenzene-d5	35-114	23-120
S4 (FBP) 2-Fluorobiphenyl	43-116	30-115
S5 (TBP) 2,4,6-Tribromophenol	10-123	19-122
S6 (TPH) Terphenyl-d14	33-141	18-137

QA/QC Officer

Comments:

TCLP Semi-Volatile MS/MSD Recovery

Lab Name:	EcoSys, Inc.	**Client:**	GeoSyntec
Ledger No(s):	105829	**Matrix Spike/Lab Sample No:**	N/A
Batch No:	1747	**Lab Control Spike/Spike Duplicate No:**	#1747
Lab File ID:	BNA0701007/BNA0801008	**Level (Low/Med):**	Low

Compound	Spike Added (ug/L)	Sample Conc (ug/L)	MS Conc (ug/L)	MS % Recovery	#	QC Limits Recovery
1,4-Dichlorobenzene	500	0	211	42		20-124
2 Methyl Phenol	500	0	180	36		17-168
Hexachloroethane	500	0	223	45		40-113
4 Methyl Phenol	500	0	323	65		17-168
Nitrobenzene	500	0	232	46		35-180
Hexachlorobutadiene	500	0	235	47		24-116
2,4,6-Trichlorophenol	500	0	198	40		37-144
2,4,5-Trichlorophenol	500	0	168	34		10-150
2,4-Dinitrotoluene	500	0	178	36	*	39-139
Hexachlorobenzene	500	0	230	46		0-132
Pentachlorophenol	500	0	185	37		14-176

Compound	Spike Added (ug/L)	MSD Conc (ug/L)	MSD % Recovery	#	RP	#	QC Limits RPD	QC Limits Recovery
1,4-Dichlorobenzene	500	217	43		3		30	20-124
2 Methyl Phenol	500	186	37		3		30	17-168
Hexachloroethane	500	226	45		1		30	40-113
4 Methyl Phenol	500	365	73		12		30	17-168
Nitrobenzene	500	242	48		4		30	35-180
Hexachlorobutadiene	500	240	48		2		30	24-116
2,4,6-Trichlorophenol	500	205	41		3		30	37-144
2,4,5-Trichlorophenol	500	177	35		5		30	10-150
2,4-Dinitrotoluene	500	189	38	*	6		30	39-139
Hexachlorobenzene	500	241	48		5		30	D-132
Pentachlorophenol	500	199	40		7		30	14-176

 # Column to be used to flag recovery and RPD values with an asterisk
*** Values outside of QC limits**
ND = Not Detected

RPD: 0 **out of** 10 **outside limits**

Spike Recovery: 2 **out of** 20 **outside limits**

QA/QC Officer

Comments: *out of range due to matrix interferences

Ecosys, Inc.

BASE NEUTRAL QUANT AND RATIO REPORT

Data file : /chem/msd_2.i/2-082495.b/BNA0101001.d
Lab. Id. :
Inj Date : 24-AUG-1995 15:26 Autotune Date: 22-Aug-95 14:27:5
Operator : BINA SHAH Inst ID: msd_2.i
Smp Info : BNA-80-32
Misc Info : CONT CAL 80NG.
Comment :
Method : /chem/msd_2.i/2-082495.b/MA-BNA.m
Meth Date : 14-Sep-1995 15:49 target
Cal Date : 24-AUG-95 15:26 Cal File: BNA0101001.d
Als bottle: 1 Continuing Calibration Sample
Dil Factor: 1.000 Target Version: Target 2.20
Integrator: HP RTE Compound Sublist: all.sub
Sample Type: WATER

	Compounds	QUANT SIG MASS	RT (REL RT)	RESPONSE	CONCENTRATIONS ON-COLUMN (ng/ul)	FINAL (ug/L)
$	1 2-Fluorophenol	112.00	8.833(0.000)	3119289	77.4	77.4(M)
	2 Aniline	93.00	11.787(0.944)	4607881	79.7	79.7
$	3 Phenol-D5	99.00	12.036(0.000)	3273161	70.9	70.9(M)
	4 Phenol **	94.00	12.090(0.000)	3594925	82.0	82.0(M)
	5 Bis(2-Chloroethyl)Ether	93.00	12.058(0.965)	2842255	77.5	77.5(M)
	6 2-chlorophenol	128.00	12.069(0.000)	3169735	79.2	79.2(M)
	7 1,3-Dichlorobenzene	146.00	12.372(0.990)	3825927	82.5	82.5(M)
*	8 1,4-Dichlorobenzene-d4	152.00	12.491(1.000)	1387691	40.0	
	9 1,4-Dichlorobenzene **	146.00	12.545(1.004)	3698572	83.8	83.8
	10 1,2-Dichlorobenzene	146.00	13.042(1.044)	3587285	81.6	81.6
	11 Benzyl Alcohol	79.00	13.172(1.055)	2494543	72.4	72.4
	12 Bis(2-Chloroisopropyl)Ether	45.00	13.529(1.083)	4187196	86.8	86.8(M)
	13 2-Methylphenol	108.00	13.627(0.000)	3395959	82.8	82.8(M)
	14 Hexachloroethane	117.00	13.843(0.000)	1453561	78.2	78.2(M)
	15 N-Nitroso-Di-n-propylamine *	70.00	13.995(1.120)	1982202	65.4	65.4
	16 4-Methylphenol	108.00	14.049(1.125)	3497380	83.9	83.9(M)
$	17 Nitrobenzene-D5	82.00	14.168(0.889)	3252671	74.5	74.5
	18 Nitrobenzene	77.00	14.222(0.892)	3010574	73.0	73.0
	19 Isophorone	82.00	14.892(0.934)	7003964	75.3	75.3
	20 2-Nitrophenol **	139.00	15.066(0.945)	2313224	78.7	78.7
	21 2,4-Dimethyphenol	107.00	15.379(0.965)	2746745	64.2	64.2
	22 Bis(-2-Chloroethoxy)Methane	93.00	15.563(0.976)	4362542	77.1	77.1
	23 2,4-Dichlorophenol **	162.00	15.747(0.988)	2557097	68.9	68.9
	24 Benzoic Acid	105.00	16.084(0.000)	2021694	70.8	70.8(M)
	25 1,2,4-Trichlorobenzene	180.00	15.867(0.995)	2690973	69.9	69.9
*	26 Naphthalene-d8	136.00	15.943(1.000)	4523285	40.0	
	27 Naphthalene	128.00	16.008(1.004)	7774933	74.6	74.6
	28 4-chloroaniline	127.00	16.301(1.022)	3698144	82.3	82.3(M)
	29 Hexachlorobutadiene **	225.00	16.518(1.036)	1078508	64.1	64.1
	30 4-chloro-3-Methylphenol **	107.00	17.685(1.109)	2416504	63.4	63.4

	Compounds	QUANT SIG MASS	RT (REL RT)	RESPONSE	CONCENTRATIONS ON-COLUMN (ng/ul)	FINAL (ug/L)
	32 Hexachlorocyclopentadiene *	237.00	18.389(0.897)	277878	18.7	18.7
	33 2,4,6-Trichlorphenol **	196.00	18.681(0.911)	1351401	67.6	67.6(H)
	34 2,4,5-Trichlorophenol	196.00	18.790(0.916)	1661805	75.5	75.5
	35 2-Fluorobiphenyl	172.00	18.866(0.920)	5369243	72.6	72.6
	36 2-chloronaphthalene	162.00	19.051(0.929)	5336532	83.1	83.1
	37 2-Nitroaniline	65.00	19.495(0.951)	1392806	72.8	72.8
	38 Dimethyl Phthalate	163.00	20.092(0.980)	5485857	74.4	74.4
	39 Acenaphthylene	152.00	20.113(0.981)	5823446	78.6	78.6
	40 2,6-Dinitrotoluene	165.00	20.254(0.988)	1483712	78.2	78.2
*	41 Acenaphthene-d10	164.00	20.504(1.000)	2373300	40.0	
	42 Acenaphthene **	153.00	20.602(1.005)	4364979	79.4	79.4(M)
	43 2,4-Dinitrophenol *	184.00	20.829(0.000)	494640	49.4	49.4(M)
	44 3-Nitroaniline	138.00	20.602(1.005)	442039	34.2	34.2(M)
	45 Dibenzofuran	168.00	21.014(1.025)	6630033	71.1	71.1
	46 4-Nitrophenol *	65.00	21.177(1.033)	797759	56.3	56.3
	47 2,4-Dinitrotoluene	165.00	21.231(1.035)	1885852	74.5	74.5
	48 Diethylphthalate	149.00	21.914(1.069)	4611871	78.2	78.2
	49 Fluorene	166.00	21.892(1.068)	4484987	73.2	73.2
	50 4-Chlorophenyl-phenylether	204.00	21.947(1.070)	2149232	75.0	75.0
	51 4-Nitroaniline	138.00	22.251(1.085)	879620	59.0	59.0(M)
	52 4,6-Dinitro-2-methylphenol	198.00	22.262(0.918)	808177	74.4	74.4
	53 N-nitrosodiphenylamine **	169.00	22.305(0.920)	1444465	89.0	89.0
$	54 2,4,6-Tribromophenol	329.70	22.566(0.931)	593937	81.3	81.3
	55 4-Bromophenyl-phenylether	248.00	23.162(0.955)	1291851	86.3	86.3
	56 Hexachlorobenzene	284.00	23.498(0.969)	1419446	101	101
	57 Pentachlorophenol **	266.00	24.007(0.990)	948149	86.2	86.2
*	58 Phenanthrene-d10	188.00	24.246(1.000)	2758311	40.0	
	59 Phenanthrene	178.00	24.323(1.003)	6083029	79.8	79.8(H)
	60 Anthracene	178.00	24.432(1.008)	5766985	78.3	78.3
	61 Di-n-Butylphthalate	149.00	26.042(1.074)	9121370	95.2	95.2
	62 Fluoranthene **	202.00	27.361(1.128)	5192793	79.2	79.2
	63 Pyrene	202.00	27.913(0.899)	5284609	84.4	84.4
$	64 Terphenyl-D14	244.00	28.422(0.916)	3671786	83.7	83.7
	65 Benzedine	184.00	28.984(0.934)	66291	38.0	38.0(M)
	66 Butylbenzylphthalate	149.00	29.817(0.961)	3732350	93.8	93.8
	67 Di (2-Ethylhexyl) Adipate	41.00	30.066(0.969)	561899	74.1	74.1
	68 Benzo(a)Anthracene	228.00	30.996(0.999)	3947165	75.6	75.6(H)
	69 3 3'-Dichlorobenzidine	252.00	31.040(1.000)	432698	41.7	41.7(M)
*	70 Chrysene-d12	240.00	31.040(1.000)	1794565	40.0	
	71 Chrysene	228.00	31.117(1.002)	3475999	75.4	75.4
	72 Bis(2-ethylhexyl)Phthalate	149.00	31.366(1.010)	4951581	94.1	94.1
	73 Di-n-octyl Phthalate **	149.00	32.847(0.950)	7544568	109	109(M)
	74 Benzo(b)fluoranthene	252.00	33.637(0.973)	3588784	77.0	77.0(H)
	75 Benzo(k)fluoranthene	252.00	33.692(0.974)	2615639	89.3	89.3
	76 Benzo(a)pyrene **	252.00	34.449(0.996)	2683161	75.6	75.6
*	77 Perylene-d12	264.00	34.580(1.000)	1141196	40.0	(M)
	78 Indeno(1,2,3-cd)pyrene	276.00	38.067(1.101)	2010578	56.3	56.3(M)
	79 Dibenzo(a,h)anthracene	278.00	38.154(1.103)	1515109	51.8	51.8(M)
	80 Benzo(g,h,i)perylene	276.00	39.105(1.131)	1733036	58.2	58.2(M)

Ecosys, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: msd_2.i Injection Date: 24-AUG-1995 15:26
Lab File ID: BNA0101001.d Init. Calibration Date(s): 05/28/93 08/11/95
Analysis Type: WATER Init. Calibration Times: 15:51 19:59
Lab Sample ID: Method File: /chem/msd_2.i/2-082495.b/MA-BNA.m

COMPOUND	$\overline{RRF}$	RF80	MIN RRF	%D	MAX %D	
2-Fluorophenol	1.162	1.124	0.050	3.2	30.0	
Aniline	1.666	1.660	0.050	0.4	30.0	
Phenol-D5	1.331	1.179	0.050	11.4	30.0	
Phenol **	1.263	1.295	0.050	2.6	30.0	
Bis(2-Chloroethyl)Ether	1.057	1.024	0.050	3.1	30.0	
2-chlorophenol	1.154	1.142	0.050	1.0	30.0	
1,3-Dichlorobenzene	1.337	1.379	0.050	3.1	30.0	
1,4-Dichlorobenzene **	1.272	1.333	0.050	4.8	30.0	
1,2-Dichlorobenzene	1.267	1.293	0.050	2.0	30.0	
Benzyl Alcohol	0.993	0.899	0.050	9.5	30.0	
Bis(2-Chloroisopropyl)Ether	1.391	1.509	0.050	8.5	30.0	
2-Methylphenol	1.183	1.224	0.050	3.5	30.0	
Hexachloroethane	0.536	0.524	0.050	2.3	30.0	
N-Nitroso-Di-n-propylamine *	0.873	0.714	0.050	18.2	30.0	
4-Methylphenol	1.201	1.260	0.050	4.9	30.0	
Nitrobenzene-D5	0.386	0.360	0.050	6.9	30.0	
Nitrobenzene	0.365	0.333	0.050	8.8	30.0	
Isophorone	0.823	0.774	0.050	5.9	30.0	
2-Nitrophenol **	0.260	0.256	0.050	1.6	30.0	
2,4-Dimethyphenol	0.378	0.304	0.050	19.7	30.0	
Bis(-2-Chloroethoxy)Methane	0.500	0.482	0.050	3.6	30.0	
2,4-Dichlorophenol **	0.328	0.283	0.050	13.8	30.0	
Benzoic Acid	0.253	0.223	0.050	11.6	30.0	
1,2,4-Trichlorobenzene	0.340	0.297	0.050	12.6	30.0	
Naphthalene	0.921	0.859	0.050	6.7	30.0	
4-chloroaniline	0.398	0.409	0.050	2.8	30.0	
Hexachlorobutadiene **	0.149	0.119	0.050	19.9	30.0	
4-chloro-3-Methylphenol **	0.337	0.267	0.050	20.7	30.0	
2-Methylnaphthalene	0.664	0.632	0.050	4.9	30.0	
Hexachlorocyclopentadiene *	0.250	0.059	0.050	76.6	30.0	<-
2,4,6-Trichlorphenol **	0.337	0.285	0.050	15.5	30.0	
2,4,5-Trichlorophenol	0.371	0.350	0.050	5.7	30.0	
2-Fluorobiphenyl	1.246	1.131	0.050	9.2	30.0	
2-chloronaphthalene	1.082	1.124	0.050	3.9	30.0	
2-Nitroaniline	0.322	0.293	0.050	9.0	30.0	
Dimethyl Phthalate	1.242	1.156	0.050	7.0	30.0	
Acenaphthylene	1.249	1.227	0.050	1.8	30.0	
2,6-Dinitrotoluene	0.320	0.313	0.050	2.3	30.0	
Acenaphthene **	0.926	0.920	0.050	0.7	30.0	
2,4-Dinitrophenol *	0.169	0.104	0.050	38.2	30.0	<-
3-Nitroaniline	0.218	0.093	0.050	57.2	30.0	<-
Dibenzofuran	1.571	1.397	0.050	11.1	30.0	
[illegible]	[illegible]	0.169	0.050	29.6	30.0	

Diethylphthalate	0.993	0.972	0.050	2.2	30.0

Data File: /chem/msd_2.i/2-082495.b/BNA0101001.d

Report Date: 14-Sep-1995 15:50

Ecosys, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: msd_2.i
Lab File ID: BNA0101001.d
Analysis Type: WATER
Lab Sample ID:

Injection Date: 24-AUG-1995 15:26
Init. Calibration Date(s): 05/28/93 08/11/95
Init. Calibration Times: 15:51 19:59
Method File: /chem/msd_2.i/2-082495.b/MA-BNA.m

COMPOUND	$\overline{RRF}$	RF80	MIN RRF	%D	MAX %D	
Fluorene	1.033	0.945	0.050	8.5	30.0	
4-Chlorophenyl-phenylether	0.483	0.453	0.050	6.3	30.0	
4-Nitroaniline	0.251	0.185	0.050	26.2	30.0	
4,6-Dinitro-2-methylphenol	0.157	0.146	0.050	7.0	30.0	
N-nitrosodiphenylamine **	0.235	0.262	0.050	11.2	30.0	
2,4,6-Tribromophenol	0.106	0.108	0.050	1.7	30.0	
4-Bromophenyl-phenylether	0.217	0.234	0.050	7.8	30.0	
Hexachlorobenzene	0.204	0.257	0.050	26.1	30.0	
Pentachlorophenol **	0.159	0.172	0.050	7.8	30.0	
Phenanthrene	1.106	1.103	0.050	0.3	30.0	
Anthracene	1.068	1.045	0.050	2.2	30.0	
Di-n-Butylphthalate	1.389	1.653	0.050	19.0	30.0	
Fluoranthene **	0.951	0.941	0.050	1.0	30.0	
Pyrene	1.395	1.472	0.050	5.5	30.0	
Terphenyl-D14	0.978	1.023	0.050	4.6	30.0	
Benzedine	0.039	0.018	0.050	52.5	30.0	<-
Butylbenzylphthalate	0.887	1.040	0.050	17.2	30.0	
Di (2-Ethylhexyl) Adipate	0.169	0.157	0.050	7.4	30.0	
Benzo(a)Anthracene	1.164	1.100	0.050	5.5	30.0	
3 3'-Dichlorobenzidine	0.231	0.121	0.050	47.9	30.0	<-
Chrysene	1.027	0.968	0.050	5.7	30.0	
Bis(2-ethylhexyl)Phthalate	1.173	1.380	0.050	17.6	30.0	
Di-n-octyl Phthalate **	2.426	3.306	0.050	36.3	30.0	<-
Benzo(b)fluoranthene	1.632	1.572	0.050	3.7	30.0	
Benzo(k)fluoranthene	1.026	1.146	0.050	11.6	30.0	
Benzo(a)pyrene **	1.244	1.176	0.050	5.5	30.0	
Indeno(1,2,3-cd)pyrene	1.251	0.881	0.050	29.6	30.0	
Dibenzo(a,h)anthracene	1.025	0.664	0.050	35.2	30.0	<-
Benzo(g,h,i)perylene	1.044	0.759	0.050	27.3	30.0	

Ecosys, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msd_2.i
Lab File ID: BNA0101001.d
Lab Sample ID:
Analysis Type: OTHER
Method File: /chem/msd_2.i/2-082495.b/MA-BNA.m
Misc Info: CONT CAL 80NG.

Calibration Date: 08/24/95
Calibration Time: 1644
Sample Type: WATER
Level: LOW

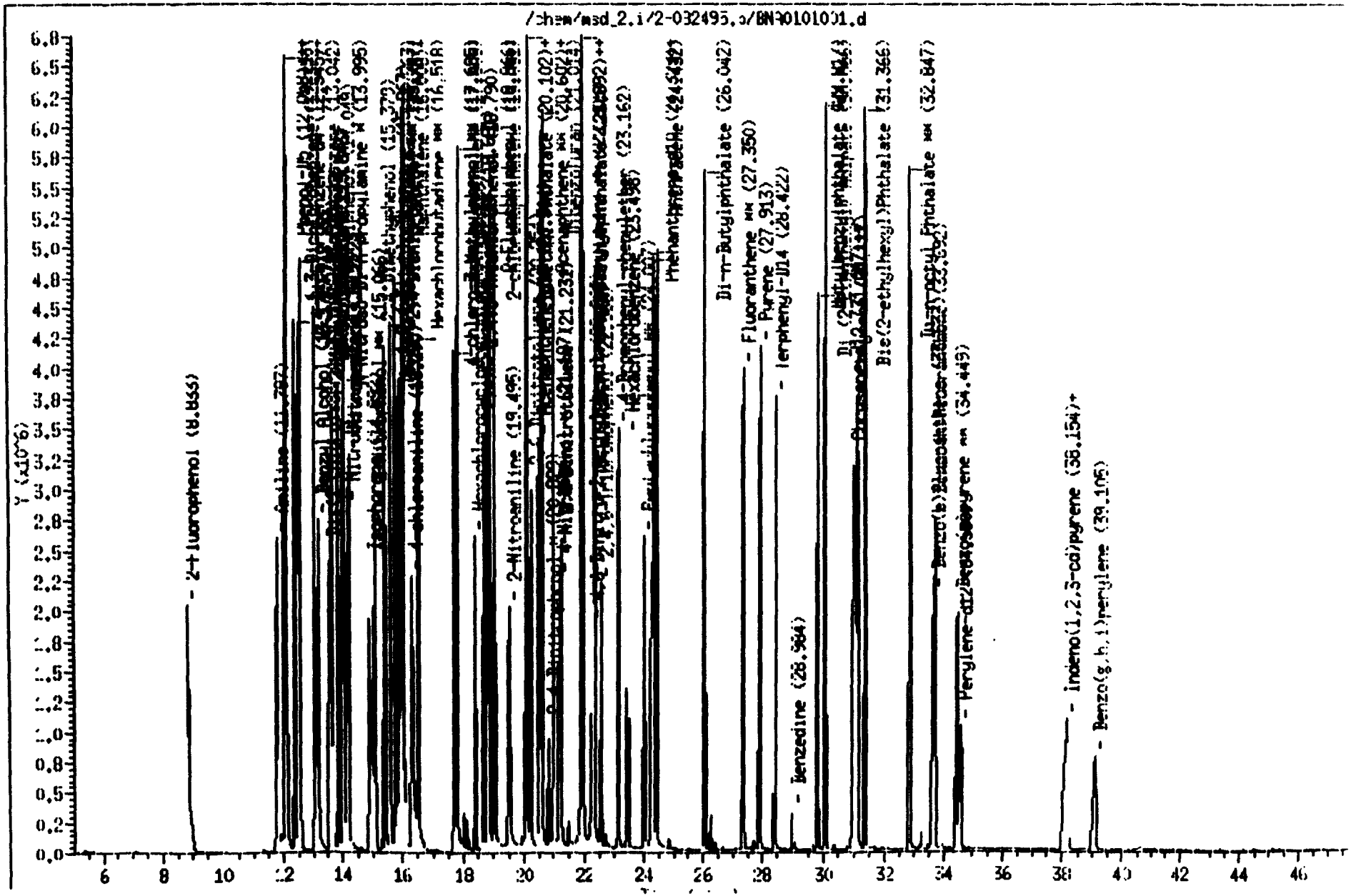
COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	% DIFF
8 1,4-Dichlorobenzene-	1387691	693845	2775382	1387691	0.00
26 Naphthalene-d8	4523285	2261642	9046570	4523285	0.00
41 Acenaphthene-d10	2373300	1186650	4746600	2373300	0.00
58 Phenanthrene-d10	2758311	1379155	5516622	2758311	0.00
70 Chrysene-d12	1794565	897282	3589130	1794565	0.00
77 Perylene-d12	1141196	570598	2282392	1141196	0.00

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	% DIFF
8 1,4-Dichlorobenzene-	12.49	11.99	12.99	12.49	0.00
26 Naphthalene-d8	15.94	15.44	16.44	15.94	0.00
41 Acenaphthene-d10	20.50	20.00	21.00	20.50	0.00
58 Phenanthrene-d10	24.25	23.75	24.75	24.25	0.00
70 Chrysene-d12	31.04	30.54	31.54	31.04	0.00
77 Perylene-d12	34.58	34.08	35.08	34.58	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/msd_2.i/2-032495.b/BN0101001.d
Date : 24-AUG-1995 15:26
Instrument : msd_2.i
Sample ID :
Column phase :
Volume Injected (uL) : 1.0

Column diameter : 2.00



SEMI VOLATILE
QC PACKAGE FOR GEOSYNTEC

THIS PACKAGE INCLUDES INITIAL CALIBBRATION(S) FOR:

INSTRUMENT ID	DATE OF CALIBRATION
MSD3	8/21/95

THE EXTRACTION BATCH NUMBER IS:

1743

THE LEDGER NUMBER IS:

105829

THE CORRESPONDING ECOSYS SAMPLE NOS. AND CLIENT ID ARE:

AA18020	G-NM-W-1
AA18029	G-NM-W-6
AA18031	G-NM-S-6

EACH EXTRACTION BATCH WILL INCLUDE A METHOD BLANK, LAB CONTROL SPIKE (LCS), LAB CONTOL SPIKE DUPLICATE (LCSD), AND/OR MATRIX SPIKE (MS), AND MATRIX SPIKE DUPLICATE (MSD), AND SAMPLES THAT ARE ANALYZED UNDER THAT PARTICULAR BATCH.

BATCH# 1743
MTK BLK
LCS
LCSD
n/a MS
n/a MSD
AA18020
AA18029
AA18031

QA/QC OFFICER: [signature] DATE: 9-25-95

SemiVolatiles DFTPP

Lab Name:	EcoSys, Inc.	Client:	GeoSyntec
Ledger Nos:	105829		
Lab File ID:	dftpp082195	DFTPP Injection Date:	08/21/95
Instrument ID:	msd3	DFTPP Injection Time:	16:05

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	34.6
68	Less than 2.0% of mass 69	0.0)1
69	Mass 69 relative abundance	48.3
70	Less than 2.0% of mass 69	(0.0)1
127	40.0 - 60.0% of mass 198	49.1
197	Less than 1.0% of mass 198	0.0
198	Base Peak. 100% relative abundance	100.0
199	5.0 to 9 0% of mass 198	6.8
275	10.0 - 30.0% of mass 198	15.6
365	Greater than 1% of mass 198	1.3
441	Present. but less than mass 443	81.6
442	Greater than 40% of mass 198	48.8
443	17.0 - 23.0% of mass 442	(19.0)2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID		LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	N/A	Cont. Cal.	BNA-80-21	BNA0101001	08/21/95	16:58
02	N/A	MTD BLK	#1743	BNA0301003	08/21/95	18:48
03	N/A	LCS	#1743	BNA0401004	08/21/95	19:44
04	N/A	LCSD	#1743	BNA0501005	08/21/95	20:42
05	G-NM-W-1	AA18020		BNA1001010	08/22/95	1:29
06	G-NM-W-6	AA18029		BNA0901009	08/22/95	0:30
07	G-NM-S-6	AA18031		BNA0701007	08/21/95	22:36
08						
09						
10						
11						
12						
13						

Comments:

QA/QC OFFICER

SemiVolatile Method Blank Summary

Lab Name:	EcoSys, Inc.	**Client:**	GeoSyntec
Ledger No(s):	105829	**Date Extracted:**	8/21/95
Batch No(s):	1743	**Date Analyzed:**	8/21/95
Lab File ID:	BNA0301003	**Time Analyzed:**	18:48
Lab Sample ID:	mtd blk #1743	**Level:**	Low
Cleanup Method:	n/a		
Instrument ID:	msd3	**Matrix:**	Solid Other

This method blank applies to the following samples, MS and MSD:

	Client Sample No.	Lab Sample ID	Lab File ID	Date Analyzed
1	G-NM-W-1	AA18020	BNA1001010	8/21/95
2	G-NM-W-6	AA18029	BNA0901009	8/21/95
3	G-NM-S-6	AA18031	BNA0701007	8/21/95
4	N/A	LCS	BNA0401004	8/21/95
5	N/A	LCSD	BNA0501005	8/21/95
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				

QA/QC Officer

Comments:

NonAqueous SemiVolatile MS/MSD Recovery

Lab Name:	EcoSys, Inc.	**Client:**	GeoSyntec
Ledger No(s):	105829	**Matrix Spike/Lab Sample No:**	N/A
Batch No(s):	1743	**Lab Control Spike/Spike Duplicate:**	1743
Lab File ID:	BNA0401004/BNA0501005	**Level (Low/Med):**	Low

Compound	Spike Added (ug/Kg)	Sample Conc (ug/Kg	MS Conc (ug/Kg)	MS % Recovery	#	QC Limits Recovery
Phenol	3330	0	2370	71		26-90
2-Chlorophenol	3330	0	2380	71		25-102
1,4-Dichlorobezene	1670	0	1040	62		28-104
N-Nitroso-di-n-propylamine	1670	0	1340	80		41-126
1,2,4-Trichlorobenzene	1670	0	1090	65		38-107
4-Chloro-3-methylphenol	3330	0	2870	86		26-103
Acenapthene	1670	0	1260	75		31-137
4-Nitrophenol	3330	0	2280	68		11-114
2,4-Dinitrotoluene	1670	0	1130	68		28-89
Pentachlorophenol	3330	0	2640	79		17-109
Pyrene	1670	0	1560	93		35-142

Compound	Spike Added (ug/Kg)	MSD Conc (ug/Kg	MSD % Recovery	#	% RP	#	QC Limits RPD	QC Limits Recovery
Phenol	3330	2620	79		11		35	26-90
2-Chlorophenol	3330	2640	79		11		50	25-102
1,4-Dichlorobezene	1670	1170	70		12		27	28-104
N-Nitroso-di-n-propylamine	1670	1480	89		11		38	41-126
1,2,4-Trichlorobenzene	1670	1230	74		13		23	38-107
4-Chloro-3-methylphenol	3330	3130	94		9		33	26-103
Acenapthene	1670	1400	84		11		19	31-137
4-Nitrophenol	3330	2250	68		0		50	11-114
2,4-Dinitrotoluene	1670	1240	74		8		47	28-89
Pentachlorophenol	3330	2730	82		4		47	17-109
Pyrene	1670	1720	103		10		36	35-142

 # Column to be used to flag recovery and RPD values with an asterisk

*** Values outside of QC limits**

ND = Not Detected

RPD: 0 **out of** 11 **outside limits**

Spike Recovery: 0 **out of** 22 **outside limits**

QA/QC Officer

Comments:

NonAqueous SemiVolatile Surrogate Recovery

Lab Name: EcoSys, Inc. **Client:** GeoSyntec

Ledger No(s).: 105829 **Level:** Low

Batch No.(s): 1743

Lab Sample No.	S1 (2FP)	#	S2 (PHL)	#	S3 (NBZ)	#	S4 (FBP)	#	S5 (TBP)	#	S6 (TPH)	#	Total Out
MTD BLK	42		53		48		58		72		81		0
LCS	66		79		68		77		91		92		0
LCSD	68		81		74		83		93		96		0
AA18020	54		63		59		70		86		83		0
AA18029	47		58		56		66		68		70		0
AA18031	39		49		45		55		85		82		0

 # Column used to flag recovery values
*** = Values outside of required QC limits**
ND = Not Detected

	QC Limits
S1 (2FP) 2-Fluorophenol	25-121
S2 (PHL) Phenol-d5	24-113
S3 (NBZ) Nitrobenzene-d5	23-120
S4 (FBP) 2-Fluorobiphenyl	30-115
S5 (TBP) 2,4,6-Tribromophenol	19-122
S6 (TPH) Terphenyl-d14	8-137

QA/QC Officer

Comments:

Energy, Inc.

BASE NEUTRAL QUANT AND RATIO REPORT

Data File : /chem/msd3.i/3_092195.b/BNA0101001.d
Lab Id. :
Inj Date : 21-AUG-1995 14:59 Autotune Date: 16-Aug-95 18:25:3
Operator : BINA SHAH Inst ID: msd3.i
Comp Info : bna-90-21
Misc Info : cont cal 90ng.
Comment :
Method : /chem/msd3.i/3_092195.b/MA-BNA_2.m
Meth Date : 22-Aug-1995 08:19 target
Cal Date : 21-AUG-95 14:59 Cal File: BNA0101001.d
Vial Bottle: 1 Continuing Calibration Sample
Inj Factor: 1.000 Target Version: Target 2.20
Integrator: HP RTE Compound Sublist: all.sub
Sample Type: WATER

Compounds	QUANT SIG MASS	RT (REL RT)	RESPONSE	CONCENTRATIONS ON-COLUMN (ng/ul)	FINAL (ug/l)
1 2-Fluorophenol	112.00	6.427(0.597)	4152518	100	100
2 Aniline	93.00	10.246(0.936)	4750820	93.8	93.8
3 bis(-2-Chloroethyl)Ether	93.00	10.571(0.965)	4042994	77.5	77.5
4 2-Chlorophenol	128.00	10.541(0.962)	3942935	92.9	92.9
5 Phenol-d5	99.00	10.710(0.977)	5122714	105	105
6 Phenol **	94.00	10.749(0.981)	4731771	93.2	93.2
7 1,3-Dichlorobenzene	146.00	10.818(0.987)	4377322	79.9	79.9
8 1,4-Dichlorobenzene-d4	150.00	10.957(1.000)	1269882	40.0	
9 1,4-Dichlorobenzene **	146.00	11.016(1.005)	4552305	79.7	79.7
10 1,2-Dichlorobenzene	146.00	11.549(1.054)	4299823	80.2	80.2
11 Benzyl Alcohol	79.00	11.796(1.077)	2249602	84.4	84.4
12 bis(2-Chloroisopropyl)ether	45.00	12.151(1.109)	4307960	77.3	77.3
13 2-Methylphenol	108.00	12.339(1.131)	3617230	95.2	95.2(M)
14 Hexachloroethane	117.00	12.378(1.130)	1966334	89.7	89.7
15 N-nitroso-Di-n-propylamine *	70.00	12.635(1.153)	1623593	60.2	60.2
16 4-Methylphenol	108.00	12.793(1.168)	3769869	96.4	96.4
17 Nitrobenzene-d5	82.00	12.754(0.877)	1286514	48.2	48.2
18 Nitrobenzene	77.00	12.813(0.881)	3733821	91.2	91.2
19 Isophorone	82.00	13.583(0.929)	5987411	77.6	77.6
20 2-Nitrophenol **	139.00	13.671(0.940)	2221976	92.4	92.4
21 2,4-Dimethylphenol	107.00	14.114(0.971)	3107079	102	102
22 bis(-2-Chloroethoxy)Methane	93.00	14.252(0.980)	4488818	89.1	89.1(M)
23 2,4-Dichlorophenol **	162.00	14.400(0.990)	2252069	96.6	96.6
24 1,2,4-Trichlorobenzene	180.00	14.460(0.995)	2982357	90.7	90.7
25 Naphthalene-d8	136.00	14.539(1.000)	4575453	40.0	
26 Naphthalene	128.00	14.598(1.004)	10057058	81.0	81.0
27 Benzoic Acid	105.00	14.974(0.000)	2279167	95.1	95.1(AM)
28 4-Chloroaniline	127.00	14.944(1.029)	3701533	85.3	85.3
29 Hexachlorobutadiene **	225.00	15.142(0.000)	1496236	84.0	84.0(M)
30 4-Chloro-3-Methylphenol **	107.00	16.423(1.130)	2647168	94.2	94.2

Compounds	QUANT SIG MASS	RT (REL RT)	RESPONSE	CONCENTRATIONS ON-COLUMN (ng/ul)	CONCENTRATIONS FINAL (ug/l)
32 Hexachlorocyclopentadiene *	237.00	14.986(0.892)	1176062	99.9	99.9
33 2,4,6-Trichlorophenol **	196.00	17.302(0.909)	1488474	99.7	99.7(M)
34 2,4,5-Trichlorophenol	196.00	17.420(0.915)	1790542	97.6	97.6
35 2-Fluorobiphenyl	172.00	17.470(0.918)	3084249	48.7	48.7(M)
36 2-Chloronaphthalene	162.00	17.609(0.925)	5338712	90.6	90.6
37 2-Nitroaniline	65.00	18.122(0.952)	1242814	71.3	71.3
38 Acenaphthylene	152.00	18.645(0.979)	7433939	75.4	75.4
39 Dimethyl Phthalate	163.00	18.794(0.983)	5644279	82.5	82.5
40 2,6-Dinitrotoluene	165.00	18.872(0.991)	1421922	97.3	97.3
41 Acenaphthene-d10	164.00	19.040(1.000)	1941791	40.0	
42 Acenaphthene **	153.00	19.129(1.005)	4872559	90.4	90.4
43 3-Nitroaniline	138.00	19.198(1.008)	1031503	69.4	69.4
44 2,4-Dinitrophenol *	184.00	19.435(1.021)	770419	96.0	96.0
45 Dibenzofuran	168.00	19.544(1.026)	4785107	92.3	92.3
46 4-Nitrophenol *	65.00	19.890(1.045)	686265	96.3	96.3
47 2,4-Dinitrotoluene	165.00	19.920(1.041)	1774730	80.2	80.2
48 Fluorene	166.00	20.404(1.072)	4273454	79.2	79.2
49 4-Chlorophenyl-phenylether	204.00	20.503(1.077)	2196681	78.6	78.6
50 Diethylphthalate	149.00	20.542(1.079)	5383825	76.5	76.5
51 4-Nitroaniline	138.00	20.888(1.097)	652868	80.9	80.9(M)
52 4,6-Dinitro-2-methylphenol	198.00	20.959(0.919)	1084432	90.5	90.5
53 N-nitrosodiphenylamine **	169.00	20.898(0.921)	1952977	77.6	77.6
54 2,4,6-Tribromophenol	329.70	21.097(1.108)	923730	79.3	79.3
55 4-Bromophenyl-phenylether	248.00	21.689(0.954)	1178993	74.3	74.3
56 Hexachlorobenzene	283.70	21.974(0.968)	1331296	79.7	79.7
57 Pentachlorophenol **	265.70	22.519(0.992)	884879	83.3	83.3
58 Phenanthrene-d10	188.00	22.698(1.000)	2241746	40.0	
59 Phenanthrene	178.00	22.767(1.003)	6185230	81.6	81.6(M)
60 Anthracene	178.00	22.886(1.008)	5844571	80.8	80.8
61 Di-n-Butylphthalate	149.00	24.598(1.083)	10631496	86.8	86.8
62 Fluoranthene **	202.00	25.742(1.134)	6038822	82.2	82.2
63 Pyrene	202.00	26.274(0.895)	6122291	88.5	88.5
64 Terphenyl-d14	244.00	26.836(0.914)	2131438	47.4	47.4
65 Butylbenzylphthalate	149.00	28.292(0.963)	4195870	91.4	91.4
66 Benzo(a)Anthracene	228.00	29.326(0.999)	4656825	85.6	85.6(M)
67 Chrysene-d12	240.00	29.366(1.000)	1735124	40.0	
68 3,3'-Dichlorobenzidine	252.00	29.436(1.004)	524526	70.8	70.8(M)
69 Chrysene	228.00	29.446(1.003)	3998249	84.6	84.6
70 bis(2-ethylhexyl)Phthalate	149.00	29.842(1.017)	4306867	92.2	92.2
71 Di-n-octyl Phthalate **	149.00	31.338(0.959)	10872204	93.9	93.9
72 Benzo(b)fluoranthene	252.00	31.981(0.976)	4533198	74.7	74.7(M)
73 Benzo(k)fluoranthene	252.00	31.941(0.978)	3958254	76.4	76.4(M)
74 Benzo(a)pyrene **	252.00.	32.572(0.997)	3539454	83.9	83.9
75 Perylene-d12	264.00	32.681(1.000)	983997	40.0	
76 Indeno(1,2,3-cd)pyrene	276.00	35.142(1.075)	3125626	87.2	87.2
77 Dibenzo(a,h)anthracene	278.00	35.221(1.078)	2448856	87.9	87.9
78 Benzo(g,h,i)perylene	276.00	35.852(0.000)	2525191	89.4	89.4(M)

Flag Legend

- Target compound detected but, quantitated amount exceeded maximum amount.
- Compound response manually integrated.
- Operator selected an alternate compound hit.

Foreye, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: msd3.i Injection Date: 21-AUG-1995 16:58
Data File ID: BNA0101001.d Init. Calibration Date(s): 03/10/93 07/12/95
Analysis Type: WATER Init. Calibration Times: 11:35 15:30
Lab Sample ID: Method File: /chem/msd3.i/3-082195.b/MB-BNA_2.m

COMPOUND	$\overline{RRF}$	RFA0	MIN RRF	%D	MAX %D
2-Fluorophenol	1.204	1.308	0.050	9.4	30.0
Aniline	1.595	1.971	0.050	17.0	30.0
bis(-2-Chloroethyl)Ether	1.443	1.592	0.050	3.1	30.0
2-Chlorophenol	1.497	1.552	0.050	3.7	30.0
Phenol-d5	1.548	1.629	0.050	5.2	30.0
Phenol **	1.599	1.963	0.050	16.5	30.0
1,3-Dichlorobenzene	1.726	1.724	0.050	0.2	30.0
1,4-Dichlorobenzene **	1.798	1.792	0.050	0.3	30.0
1,2-Dichlorobenzene	1.689	1.693	0.050	0.3	30.0
Benzyl Alcohol	0.939	0.886	0.050	5.5	30.0
bis(2-Chloroisopropyl)ether	1.877	1.696	0.050	9.6	30.0
2-Methylphenol	1.197	1.424	0.050	18.9	30.0
Hexachloroethane	0.691	0.774	0.050	12.1	30.0
N-nitroso-Di-n-propylamine *	0.849	0.639	0.050	24.7	30.0
4-Methylphenol	1.232	1.484	0.050	20.5	30.0
Nitrobenzene-d5	0.324	0.312	0.050	3.7	30.0
Nitrobenzene	0.358	0.408	0.050	14.0	30.0
Isophorone	0.674	0.654	0.050	3.0	30.0
2-Nitrophenol **	0.257	0.297	0.050	15.6	30.0
2,4-Dimethyphenol	0.267	0.340	0.050	27.0	30.0
bis(-2-Chloroethoxy)Methane	0.441	0.491	0.050	11.3	30.0
2,4-Dichlorophenol **	0.249	0.301	0.050	20.9	30.0
1,2,4-Trichlorobenzene	0.287	0.326	0.050	13.4	30.0
Naphthalene	1.095	1.099	0.050	1.3	30.0
Benzoic Acid	0.209	0.249	0.010	19.9	30.0
4-Chloroaniline	0.379	0.404	0.050	6.6	30.0
Hexachlorobutadiene **	0.156	0.164	0.050	5.0	30.0
4-Chloro-3-Methylphenol **	0.246	0.289	0.050	17.7	30.0
2-Methylnaphthalene	0.909	0.945	0.050	3.9	30.0
Hexachlorocyclopentadiene *	0.308	0.319	0.050	3.7	30.0
2,4,6-Trichlorophenol **	0.349	0.404	0.050	15.9	30.0
2,4,5-Trichlorophenol	0.444	0.487	0.050	9.4	30.0
2-Fluorobiphenyl	1.376	1.340	0.050	2.6	30.0
2-Chloronaphthalene	1.280	1.449	0.050	13.2	30.0
2-Nitroaniline	0.379	0.337	0.050	10.8	30.0
Acenaphthylene	2.142	2.018	0.050	5.8	30.0
Dimethyl Phthalate	1.486	1.532	0.050	3.1	30.0
2,6-Dinitrotoluene	0.354	0.386	0.050	9.1	30.0
Acenaphthene **	1.316	1.322	0.050	0.5	30.0
3-Nitroaniline	0.327	0.280	0.050	14.5	30.0
2,4-Dinitrophenol *	0.195	0.209	0.050	7.5	30.0
Dibenzofuran	1.790	1.842	0.050	2.9	30.0
[illegible]	[illegible]	[illegible]	0.050	7.9	30.0

Fluorene	1.595	1.[illegible]	[illegible]	[illegible]	[illegible]	30.0

Envirosys, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: msd3.i Injection Date: 01-AUG-1995 14:59
Data File ID: RNA0101001.d Init. Calibration Date(s): 03/10/93 07/12/95
Matrix Type: WATER Init. Calibration Times: 11:35 15:30
Lab Sample ID: Method File: /chem/msd3.i/3-092195.b/MA-RNA_2.m

COMPOUND	RRF	RF80	MIN RRF	%D	MAX %D
4-Chlorophenyl-phenylether	0.608	0.596	0.050	1.9	30.0
Diethylphthalate	1.529	1.462	0.050	4.1	30.0
4-Nitroaniline	0.175	0.177	0.050	1.1	30.0
4,6-Dinitro-2-methylphenol	0.214	0.242	0.050	13.1	30.0
N-nitrosodiphenylamine **	0.450	0.437	0.050	3.0	30.0
2,4,6-Tribromophenol	0.224	0.179	0.050	20.2	30.0
4-Bromophenyl-phenylether	0.274	0.263	0.050	4.6	30.0
Hexachlorobenzene	0.327	0.297	0.050	9.2	30.0
Pentachlorophenol **	0.189	0.197	0.050	4.2	30.0
Phenanthrene	1.353	1.380	0.050	2.0	30.0
Anthracene	1.290	1.304	0.050	1.0	30.0
Di-n-Butylphthalate	2.187	2.371	0.050	8.4	30.0
Fluoranthene **	1.311	1.347	0.050	2.8	30.0
Pyrene	1.595	1.764	0.050	10.6	30.0
Terphenyl-d14	1.037	0.983	0.050	5.2	30.0
Butylbenzylphthalate	1.059	1.209	0.050	14.2	30.0
Benzo(a)Anthracene	1.254	1.342	0.050	7.0	30.0
3,3'-Dichlorobenzidine	0.171	0.151	0.050	11.5	30.0
Chrysene	1.090	1.152	0.050	5.7	30.0
bis(2-ethylhexyl)Phthalate	1.577	1.917	0.050	15.3	30.0
Di-n-octyl Phthalate **	5.316	5.575	0.050	4.9	30.0
Benzo(b)fluoranthene	2.468	2.303	0.050	6.7	30.0
Benzo(k)fluoranthene	2.107	2.011	0.050	4.6	30.0
Benzo(a)pyrene **	1.716	1.799	0.050	4.9	30.0
Indeno(1,2,3-cd)pyrene	1.458	1.588	0.050	9.0	30.0
Dibenzo(a,h)anthracene	1.133	1.244	0.050	9.8	30.0
Benzo(g,h,i)perylene	1.149	1.283	0.050	11.7	30.0

Foreye, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msd3.i
Lab File ID: BNA0101001.d
Lab Sample ID:
Analysis Type: SW
Method File: /chem/msd3.i/3-092195.b/MA-BNA_2.m
Misc Info: cont cal 80ng.

Calibration Date: 08/21/95
Calibration Time: 1749
Sample Type: WATER
Level: LOW

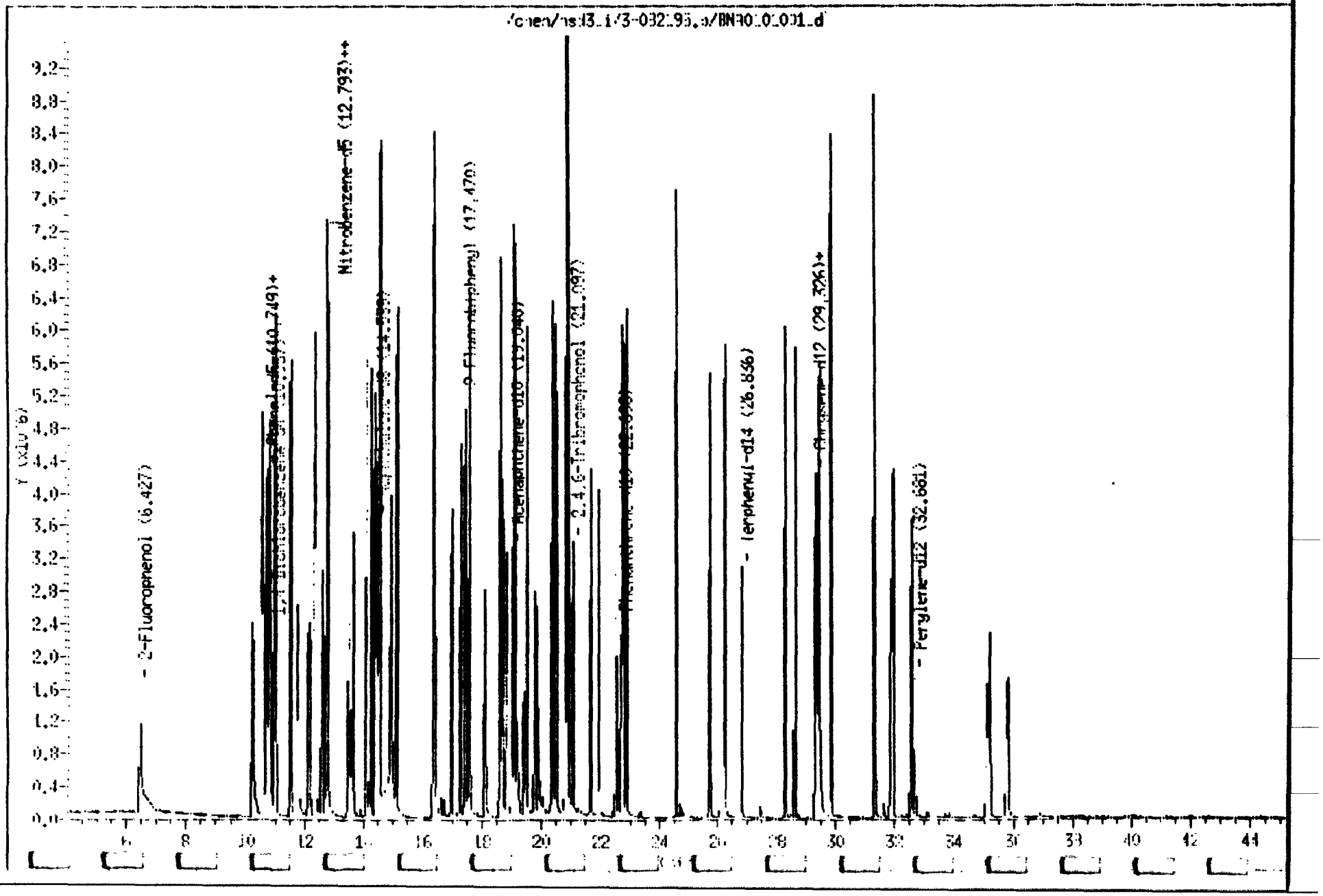
COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	% DIFF
8 1,4-Dichlorobenzene-	1269882	634941	2539764	1269882	0.00
25 Naphthalene-d8	4575453	2287726	9150906	4575453	0.00
41 Acenaphthene-d10	1841791	920895	3683582	1841791	0.00
59 Phenanthrene-d10	2241746	1120873	4483492	2241746	0.00
67 Chrysene-d12	1735124	867562	3470248	1735124	0.00
75 Perylene-d12	983997	491998	1967994	983997	0.00

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	% DIFF
8 1,4-Dichlorobenzene-	10.96	10.46	11.46	10.96	0.00
25 Naphthalene-d8	14.54	14.04	15.04	14.54	0.00
41 Acenaphthene-d10	19.04	18.54	19.54	19.04	0.00
59 Phenanthrene-d10	22.70	22.20	23.20	22.70	0.00
67 Chrysene-d12	29.37	28.87	29.87	29.37	0.00
75 Perylene-d12	32.68	32.18	33.18	32.68	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/msd3.i/3-062195.b/BN001001.d
Date : 21-AUG-1995 15:58
Instrument : msd3.i
Sample ID :
Column phase :
Volume Injected (uL) : 1.0

Column diameter : 0.20



SEMI VOLATILE
QC PACKAGE FOR GEOSYNTEC

THIS PACKAGE INCLUDES INITIAL CALIBBRATION(S) FOR:

INSTRUMENT ID	DATE OF CALIBRATION
MSD3	8/22/95

THE EXTRACTION BATCH NUMBER IS:

1747

THE LEDGER NUMBER IS:

105829

THE CORRESPONDING ECOSYS SAMPLE NOS. AND CLIENT ID ARE:

AA18020	G-NM-W-1
AA18022	G-NM-W-2A

EACH EXTRACTION BATCH WILL INCLUDE A METHOD BLANK, LAB CONTROL SPIKE (LCS), LAB CONTOL SPIKE DUPLICATE (LCSD), AND/OR MATRIX SPIKE (MS), AND MATRIX SPIKE DUPLICATE (MSD), AND SAMPLES THAT ARE ANALYZED UNDER THAT PARTICULAR BATCH.

BATCH# 1747
MTD BLK
LCS
LCSD
n/a MS
n/a MSD
AA18020
AA18022

QA/QC OFFICER: [signature] DATE: 9-25-95

SemiVolatiles DFTPP

Lab Name: [illegible] Client: [illegible]

Ledger Nos: 105828

Lab File ID: dftpp082295 DFTPP Injection Date:

Instrument ID: msd3 DFTPP Injection Time:

m/e	ION ABUNDANCE CRITERIA	% RI [illegible]
51	30.0 - 60.0% of mass 198	32.9
68	Less than 2.0% of mass 69	0.0)1
69	Mass 69 relative abundance	47.0
70	Less than 2.0% of mass 69	(0.5)1
127	40.0 - 60.0% of mass 198	48.1
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.6
275	10.0 - 30.0% of mass 198	15.5
365	Greater than 1% of mass 198	1.1
441	Present, but less than mass 443	77.6
442	Greater than 40% of mass 198	46.7
443	17.0 - 23.0% of mass 442	(19.4)2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD: [illegible]

	CLIENT SAMPLE NO.	LAB SAMPLE ID		DATA FILE ID	DATE	TIME
01	N/A	Cont. Cal.	BNA-80-21	BNA0101001	08/22/95	13:55
02	N/A	MTD BLK	#1747	BNA0601006	08/22/95	18:39
03	N/A	LCS	#1747	BNA0701007	08/22/95	19:35
04	N/A	LCSD	#1747	BNA0801008	08/22/95	20:32
05	G-NM-W-1	AA18020		BNA0901009	08/22/95	21:29
06	G-NM-W-2A	AA18022		BNA1001010	08/22/95	22:26
07						
08						
09						
10						
11						
12						
13						

Comments:

QA/QC OFFICER

SemiVolatile Method Blank Summary

Lab Name:	EcoSys, Inc.	**Client:**	GeoSyntec
Ledger No(s):	105829	**Date Extracted:**	8/22/95
Batch No(s):	1747	**Date Analyzed:**	8/22/95
Lab File ID:	BNA0601006	**Time Analyzed:**	18:39
Lab Sample ID:	mtd blk #1747	**Level:**	Low
Cleanup Method:	n/a		
Instrument ID:	msd3	**Matrix:**	TCLP

This method blank applies to the following samples, MS and MSD:

	Client Sample No.	Lab Sample ID	Lab File ID	Date Analyzed
1	G-NM-W-1	AA18020	BNA0901009	8/22/95
2	G-NM-W-2A	AA18022	BNA1001010	8/22/95
3	N/A	LCS	BNA0701007	8/22/95
4	N/A	LCSD	BNA0801008	8/22/95
5				
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24				

QA/QC Officer

Comments:

TCLP Semi-Volatile MS/MSD Recovery

Lab Name: EcoSys, Inc.	Client: GeoSyntec
Ledger No(s): 105829	Matrix Spike/Lab Sample No: N/A
Batch No: 1747	Lab Control Spike/Spike Duplicate No: #1747
Lab File ID: BNA0701007/BNA0801008	Level (Low/Med): Low

Compound	Spike Added (ug/L)	Sample Conc (ug/L)	MS Conc (ug/L)	MS % Recovery	#	QC Limits Recovery
1,4-Dichlorobenzene	500	0	211	42		20-124
2 Methyl Phenol	500	0	180	36		17-168
Hexachloroethane	500	0	223	45		40-113
4 Methyl Phenol	500	0	323	65		17-168
Nitrobenzene	500	0	232	46		35-180
Hexachlorobutadiene	500	0	235	47		24-116
2,4,6-Trichlorophenol	500	0	198	40		37-144
2,4,5-Trichlorophenol	500	0	168	34		10-150
2,4-Dinitrotoluene	500	0	178	36	*	39-139
Hexachlorobenzene	500	0	230	46		0-132
Pentachlorophenol	500	0	185	37		14-176

Compound	Spike Added (ug/L)	MSD Conc (ug/L)	MSD % Recovery	#	RP	#	QC Limits RPD	QC Limits Recovery
1,4-Dichlorobenzene	500	217	43		3		30	20-124
2 Methyl Phenol	500	186	37		3		30	17-168
Hexachloroethane	500	226	45		1		30	40-113
4 Methyl Phenol	500	365	73		12		30	17-168
Nitrobenzene	500	242	48		4		30	35-180
Hexachlorobutadiene	500	240	48		2		30	24-116
2,4,6-Trichlorophenol	500	205	41		3		30	37-144
2,4,5-Trichlorophenol	500	177	35		5		30	10-150
2,4-Dinitrotoluene	500	189	38	*	6		30	39-139
Hexachlorobenzene	500	241	48		5		30	D-132
Pentachlorophenol	500	199	40		7		30	14-176

 # Column to be used to flag recovery and RPD values with an asterisk
*** Values outside of QC limits**
ND = Not Detected

RPD: 0 **out of** 10 **outside limits**

Spike Recovery: 2 **out of** 20 **outside limits**

QA/QC Officer

Comments: *out of range due to matrix interferences

TCLP SemiVolatile Surrogate Recovery

Lab Name: EcoSys, Inc

Ledger No(s): 105829

Batch No: 1747

Client: GeoSyntec

Level: Low

Lab Sample No.	S1 (2FP)	#	S2 (PHL)	#	S3 (NBZ)	#	S4 (FBP)	#	S5 (TPH)	#	S6 (TBP)	#	Total Out
Mtd. Blank	53		32		57		72		87		85		0
LCS	81		75		80		87		101		99		0
LCSD	82		76		81		87		102		100		0
AA18020	50		42		61		66		75		65		0
AA18022	27		22		35		36	*	39		16		1

Column used to flag recovery values

* = Values outside of required QC limits

ND = Not Detected

	QC Limits
S1 (2FP) 2-Fluorophenol	21-100
S2 (PHL) Phenol-d5	10-94
S3 (NBZ) Nitrobenzene-d5	35-114
S4 (FBP) 2-Fluorobiphenyl	43-116
S5 (TPH) Terphenyl-d14	33-141
S6 (TBP) 2,4,6-Tribromophenol	10-123

QA/QC Officer

Comments:

*Out of range due to matrix interferences

FocSys, Inc.

PASS NEUTRAL QUANT AND RATIO REPORT

Data File : /chem/msd3.i/3-092295.b/PNA0101001.d
Sample Id. :
Acq. Date : 22-AUG-1995 13:55 Autotune Date: 16-Aug-95 18:25:3
Operator : PINA [redacted] Inst ID: msd3.i
Sample Text : bna-90-21
Data Text : cont cal 90ng.
Comment :
Method : /chem/msd3.i/3-092295.b/MA-BNA_2.m
Prep Date : 22-Aug-1995 17:05 target
Cal Date : 22-AUG-95 13:55 Cal File: PNA0101001.d
Vial Bottle: 1 Continuing Calibration Sample
Injection: 1.000 Target Version: Target 2.20
Integration: HP RTE Compound Sublist: all.sub
Sample Type: WATER

Compounds	QUANT SIG MASS	RT (REL RT)	RESPONSE	CONCENTRATIONS ON-COLUMN (ng/ul)	FINAL (ug/l)
1 2-Fluorophenol	112.00	6.415(0.596)	4169422	103	103(M)
2 Aniline	93.00	10.242(0.935)	4696876	87.7	87.7
3 bis(2-Chloroethyl)Ether	93.00	10.549(0.965)	4078178	73.9	73.9
4 2-Chlorophenol	128.00	10.539(0.962)	4102454	81.7	81.7
5 Phenol-d5	99.00	10.697(0.977)	5254611	101	101
6 Phenol **	94.00	10.737(0.980)	4715326	87.8	87.8
7 1,3-Dichlorobenzene	146.00	10.816(0.987)	4401732	79.4	79.4
8 1,4-Dichlorobenzene-d4	152.00	10.955(1.000)	1342899	40.0	
9 1,4-Dichlorobenzene **	146.00	11.014(1.005)	4773850	79.1	79.1
10 1,2-Dichlorobenzene	146.00	11.538(1.053)	4516905	79.7	79.7
11 Benzyl Alcohol	79.00	11.795(1.077)	2191925	77.8	77.8
12 bis(2-Chloroisopropyl)ether	45.00	12.151(1.109)	4316055	68.5	68.5
13 2-Methylphenol	108.00	12.329(1.125)	3722040	92.6	92.6(MM)
14 Hexachloroethane	117.00	12.368(1.129)	2042852	88.1	88.1
15 N-nitroso-Di-n-propylamine *	70.00	12.635(1.153)	1630167	57.2	57.2
16 4-Methylphenol	108.00	12.783(1.176)	3731155	90.2	90.2(MM)
17 Nitrobenzene-d5	82.00	12.754(0.878)	1794529	45.6	45.6
18 Nitrobenzene	77.00	12.803(0.881)	3845212	88.6	88.6
19 Isophorone	82.00	13.514(0.930)	6096837	74.6	74.6
20 2-Nitrophenol **	139.00	13.672(0.941)	2823201	90.5	90.5
21 2,4-Dimethylphenol	107.00	14.107(0.971)	3050219	94.1	94.1
22 bis(2-Chloroethoxy)Methane	93.00	14.245(0.980)	4684912	87.7	87.7
23 2,4-Dichlorophenol **	162.00	14.393(0.990)	2494092	99.9	99.9
24 1,2,4-Trichlorobenzene	180.00	14.443(0.995)	3131409	89.9	89.9
25 Naphthalene-d8	136.00	14.532(1.000)	4848747	40.0	
26 Naphthalene	128.00	14.591(1.004)	10454004	79.4	79.4
27 Benzoic Acid	105.00	14.977(0.000)	2281261	89.8	89.8(AM)
28 4-Chloroaniline	127.00	14.958(1.029)	3645480	79.3	79.3
29 Hexachlorobutadiene **	225.00	15.136(0.000)	1551222	82.2	82.2(M)
30 4-Chloro-3-Methylphenol **	107.00	16.419(1.130)	2749426	92.3	92.3
31 2-Methylnaphthalene	142.00	16.388(1.128)	8840771	80.2	80.2

		QUANT SIG MASS	RT (REL RT)	RESPONSE	CONCENTRATIONS ON-COLUMN (ng/ml)	FINAL (ug/l)
32	Hexachlorocyclopentadiene *	237.00	16.993(0.892)	1160292	77.9	77.9
33	2,4,6-Trichlorophenol **	196.00	17.299(0.909)	1539613	90.9	90.9
34	2,4,5-Trichlorophenol	196.00	17.418(0.915)	1959614	91.3	91.3
35	2-Fluorobiphenyl	172.00	17.468(0.917)	3331599	50.1	50.1(M)
36	2-Chloronaphthalene	162.00	17.607(0.925)	5659895	91.4	91.4(M)
37	2-Nitroaniline	65.00	18.110(0.951)	1291119	70.6	70.6
38	Acenaphthylene	152.00	18.643(0.979)	7202994	74.4	74.4(M)
39	Dimethyl Phthalate	163.00	18.723(0.983)	5911665	82.3	82.3
40	2,6-Dinitrotoluene	165.00	18.871(0.991)	1553825	90.8	90.8
41	Acenaphthene-d10	164.00	19.039(1.000)	1933407	40.0	
42	Acenaphthene **	153.00	19.129(1.005)	5225062	82.2	82.2(M)
43	3-Nitroaniline	138.00	19.202(1.009)	1011353	63.9	63.9
44	2,4-Dinitrophenol *	184.00	19.444(1.021)	760453	80.8	80.8
45	Dibenzofuran	168.00	19.543(1.026)	4997499	80.8	80.8
46	4-Nitrophenol *	65.00	19.909(1.046)	426994	75.1	75.1
47	2,4-Dinitrotoluene	165.00	19.820(1.041)	1874374	80.7	80.7
48	Fluorene	166.00	20.404(1.072)	4968624	79.4	79.4(M)
49	4-Chlorophenyl-phenylether	204.00	20.503(1.077)	2299560	79.2	79.2
50	Diethylphthalate	149.00	20.533(1.079)	5202943	77.2	77.2
51	4-Nitroaniline	138.00	20.899(1.098)	640348	75.6	75.6(M)
52	4,6-Dinitro-2-methylphenol	198.00	20.850(0.919)	1038615	97.5	97.5
53	N-nitrosodiphenylamine **	169.00	20.889(0.921)	2092440	93.7	93.7(M)
54	2,4,6-Tribromophenol	329.20	21.087(1.108)	944555	77.5	77.5
55	4-Bromophenyl-phenylether	248.00	21.491(0.956)	1199372	79.3	79.3
56	Hexachlorobenzene	283.70	21.968(0.968)	1415402	79.0	79.0
57	Pentachlorophenol **	265.70	22.502(0.992)	866503	82.2	82.2
58	Phenanthrene-d10	188.00	22.691(1.000)	2220489	40.0	
59	Phenanthrene	178.00	22.771(1.004)	6026127	80.3	80.3
60	Anthracene	178.00	22.888(1.008)	5989952	83.6	83.6(M)
61	Di-n-Butylphthalate	149.00	24.588(1.084)	10892499	89.7	89.7
62	Fluoranthene **	202.00	25.742(1.134)	4015731	82.7	82.7
63	Pyrene	202.00	26.275(0.895)	6137501	89.7	89.7
64	Terphenyl-d14	244.00	26.838(0.914)	2080776	46.8	46.8
65	Butylbenzylphthalate	149.00	28.288(0.963)	4350501	95.8	95.8
66	Benzo(a)Anthracene	228.00	29.324(0.999)	4532062	84.3	84.3
67	Chrysene-d12	240.00	29.364(1.000)	1715105	40.0	
68	3,3'-Dichlorobenzidine	252.00	29.663(1.003)	560797	76.5	76.5
69	Chrysene	228.00	29.633(1.002)	3959258	84.7	84.7(M)
70	bis(2-ethylhexyl)Phthalate	149.00	29.861(1.017)	4545957	97.1	97.1
71	Di-n-octyl Phthalate **	149.00	31.322(0.959)	11495502	101	101
72	Benzo(b)fluoranthene	252.00	31.894(0.976)	4048529	76.2	76.2
73	Benzo(k)fluoranthene	252.00	31.954(0.978)	3750452	82.8	82.8(M)
74	Benzo(a)pyrene **	252.00	32.564(0.997)	3144320	85.3	85.3
75	Perylene-d12	264.00	32.675(1.000)	859503	40.0	
76	Indeno(1,2,3-cd)pyrene	276.00	35.131(1.075)	2545611	81.9	81.9
77	Dibenzo(a,h)anthracene	278.00	35.201(1.077)	2009505	82.6	82.6
78	Benzo(g,h,i)perylene	276.00	35.832(1.000)	1932593	78.3	78.3(M)

Flag Legend

- Target compound detected but, quantitated amount is needed minimum amount.
- Compound response manually integrated.
- Operator selected an alternate compound hit.

FenSys, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: msd3.i Injection Date: 22-AUG-1995 13:55
Data File ID: RNA0101001.d Init. Calibration Date(s): 03/10/93 12/12/95
Analysis Type: WATER Init. Calibration Times: 11:35 15:30
Lab Sample ID: Method File: /chem/msd3.i/3-082295.b/MA-RNA_2.m

COMPOUND	$\overline{RRF}$	RF80	MIN RRF	%D	MAX %D
2-Fluorophenol	1.206	1.242	0.050	3.0	30.0
Aniline	1.595	1.749	0.050	9.6	30.0
Bis(2-Chloroethyl)Ether	1.643	1.518	0.050	7.6	30.0
2-Chlorophenol	1.497	1.529	0.050	2.1	30.0
Phenol-d5	1.549	1.565	0.050	1.1	30.0
Phenol **	1.599	1.756	0.050	9.8	30.0
1,3-Dichlorobenzene	1.726	1.713	0.050	0.7	30.0
1,4-Dichlorobenzene **	1.798	1.777	0.050	1.2	30.0
1,2-Dichlorobenzene	1.689	1.682	0.050	0.4	30.0
Benzyl Alcohol	0.939	0.814	0.050	2.9	30.0
Bis(2-Chloroisopropyl)ether	1.877	1.607	0.050	14.4	30.0
2-Methylphenol	1.197	1.386	0.050	15.7	30.0
Hexachloroethane	0.691	0.741	0.050	10.1	30.0
N-nitroso-Di-n-propylamine *	0.849	0.607	0.050	28.5	30.0
4-Methylphenol	1.232	1.389	0.050	12.8	30.0
Nitrobenzene-d5	0.324	0.294	0.050	9.7	30.0
Nitrobenzene	0.358	0.397	0.050	10.8	30.0
Isophorone	0.674	0.629	0.050	6.8	30.0
2-Nitrophenol **	0.257	0.291	0.050	13.1	30.0
2,4-Dimethyphenol	0.267	0.315	0.050	17.6	30.0
Bis(2-Chloroethoxy)Methane	0.441	0.483	0.050	9.6	30.0
2,4-Dichlorophenol **	0.249	0.277	0.050	11.2	30.0
1,2,4-Trichlorobenzene	0.287	0.323	0.050	12.3	30.0
Naphthalene	1.085	1.078	0.050	0.7	30.0
Benzoic Acid	0.209	0.235	0.010	12.3	30.0
4-Chloroaniline	0.379	0.376	0.050	0.9	30.0
Hexachlorobutadiene **	0.156	0.160	0.050	2.7	30.0
4-Chloro-3-Methylphenol **	0.246	0.284	0.050	15.4	30.0
2-Methylnaphthalene	0.909	0.912	0.050	0.3	30.0
Hexachlorocyclopentadiene *	0.308	0.300	0.050	2.6	30.0
2,4,6-Trichlorophenol **	0.349	0.394	0.050	13.7	30.0
2,4,5-Trichlorophenol	0.444	0.507	0.050	14.1	30.0
2-Fluorobiphenyl	1.376	1.379	0.050	0.2	30.0
2-Chloronaphthalene	1.280	1.463	0.050	14.3	30.0
2-Nitroaniline	0.378	0.334	0.050	11.8	30.0
Acenaphthylene	2.142	1.993	0.050	6.9	30.0
Dimethyl Phthalate	1.486	1.529	0.050	2.9	30.0
2,6-Dinitrotoluene	0.354	0.402	0.050	13.6	30.0
Acenaphthene **	1.316	1.351	0.050	2.7	30.0
3-Nitroaniline	0.327	0.262	0.050	20.1	30.0
2,4-Dinitrophenol *	0.195	0.197	0.050	1.1	30.0
Dibenzofuran	1.790	1.910	0.050	1.1	30.0
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	30.0

Data File: /chem/msd3.i/3-082295.b/BNA0101001.d
Report Date: 22-Aug-1995 17:06

EnSys, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: msd3.i Injection Date: 22-AUG-1995 17:55
Data File ID: BNA0101001.d Init. Calibration Date(s): 03/10/93 07/12/95
Calibration Type: WATER Init. Calibration Times: 11:35 15:30
Lab Sample ID: Method File: /chem/msd3.i/3-082295.b/MA-BNA_2.m

COMPOUND	RRF	RF80	MIN RRF	%D	MAX %D
4-Chlorophenyl-phenylether	0.608	0.595	0.050	2.2	30.0
Diethylphthalate	1.509	1.475	0.050	3.5	30.0
4-Nitroaniline	0.175	0.166	0.050	5.5	30.0
4,6-Dinitro-2-methylphenol	0.214	0.234	0.050	9.3	30.0
N-nitrosodiphenylamine **	0.450	0.471	0.050	4.6	30.0
2,4,6-Tribromophenol	0.224	0.175	0.050	22.5	30.0
4-Bromophenyl-phenylether	0.276	0.270	0.050	2.1	30.0
Hexachlorobenzene	0.327	0.319	0.050	2.5	30.0
Pentachlorophenol **	0.199	0.195	0.050	2.7	30.0
Phenanthrene	1.353	1.357	0.050	0.3	30.0
Anthracene	1.290	1.349	0.050	4.6	30.0
Di-n-Butylphthalate	2.187	2.453	0.050	12.2	30.0
Fluoranthene **	1.311	1.355	0.050	3.4	30.0
Pyrene	1.595	1.789	0.050	12.2	30.0
Terphenyl-d14	1.037	0.971	0.050	6.4	30.0
Butylbenzylphthalate	1.059	1.269	0.050	19.8	30.0
Benzo(a)Anthracene	1.054	1.321	0.050	5.4	30.0
3,3'-Dichlorobenzidine	0.171	0.163	0.050	4.3	30.0
Chrysene	1.090	1.154	0.050	5.9	30.0
Bis(2-ethylhexyl)Phthalate	1.577	1.914	0.050	21.4	30.0
Di-n-octyl Phthalate **	5.315	6.687	0.050	25.8	30.0
Benzo(b)fluoranthene	2.468	2.351	0.050	4.8	30.0
Benzo(k)fluoranthene	2.107	2.182	0.050	3.5	30.0
Benzo(a)pyrene **	1.715	1.829	0.050	6.7	30.0
Indeno(1,2,3-cd)pyrene	1.458	1.492	0.050	2.4	30.0
Dibenzo(a,h)anthracene	1.133	1.169	0.050	3.2	30.0
Benzo(g,h,i)perylene	1.148	1.124	0.050	2.1	30.0

Data File: /chem/msd3.i/3-022295.b/PNA0101001.d Page 1
Report Date: 22-Aug-1995 17:05

FenSys, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msd3.i
Data File ID: PNA0101001.d
Lab Sample ID:
Analysis Type: SW
Method File: /chem/msd3.i/3-022295.b/MA-PNA_2.m
Mass Int: cont cal 80ng.

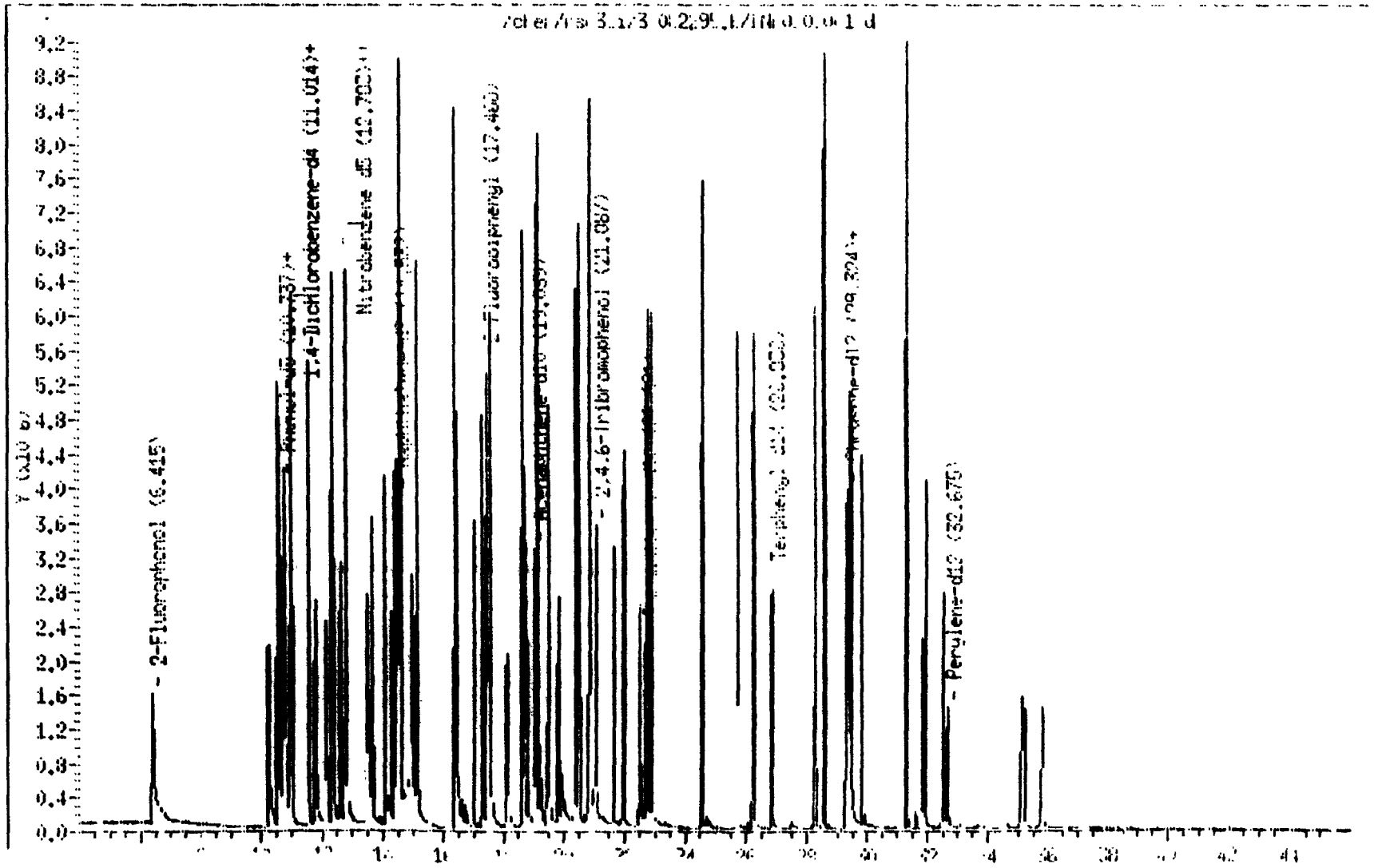
Calibration Date: 18/22/95
Calibration Time: 1446
Sample Type: WATER
Level: LOW

COMPOUND	AREA STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	% DIFF
2 1,4-Dichlorobenzene-	1342999	671449	2685799	1342999	0.00
25 Naphthalene-d8	4848747	2424373	9697491	4848747	0.00
1 Acenaphthene-d10	1933407	966703	3866814	1933407	0.00
58 Phenanthrene-d10	2220499	1110244	4440979	2220499	0.00
67 Chrysene-d12	1715105	857552	3430210	1715105	0.00
75 Perylene-d12	859503	429751	1719006	859503	0.00

COMPOUND	RT STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	% DIFF
2 1,4-Dichlorobenzene-	10.95	10.45	11.45	10.95	0.00
25 Naphthalene-d8	14.53	14.03	15.03	14.53	0.00
1 Acenaphthene-d10	19.04	18.54	19.54	19.04	0.00
58 Phenanthrene-d10	22.69	22.19	23.19	22.69	0.00
67 Chrysene-d12	29.36	28.86	29.86	29.36	0.00
75 Perylene-d12	32.68	32.18	33.18	32.68	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/msd3.i/3-08.295.b/BW01100.d
Date : 22-AUG-1995 13:55
Instrument : msd3.i
Sample ID :
Column phase :
Volume Injected (uL) : 1.0



SEMI VOLATILE
QC PACKAGE FOR GEOSYNTEC

THIS PACKAGE INCLUDES INITIAL CALIBBRATION(S) FOR:

INSTRUMENT ID	DATE OF CALIBRATION
MSD2	8/23/95

THE EXTRACTION BATCH NUMBER IS:

1749

THE LEDGER NUMBER IS:

105829

THE CORRESPONDING ECOSYS SAMPLE NOS. AND CLIENT ID ARE:

AA18021	G-NM-S-1

EACH EXTRACTION BATCH WILL INCLUDE A METHOD BLANK, LAB CONTROL SPIKE (LCS), LAB CONTOL SPIKE DUPLICATE (LCSD), AND/OR MATRIX SPIKE (MS), AND MATRIX SPIKE DUPLICATE (MSD), AND SAMPLES THAT ARE ANALYZED UNDER THAT PARTICULAR BATCH.

BATCH# 1749
MTD BLK
LCS
LCSD
n/a MS
n/a MSD
AA18021

QA/QC OFFICER: [signature] DATE: 9-25-95

SemiVolatiles DFTPP

Lab Name: EcoSyntheses Client: Geosyntec

Ledger Nos: 105829

Lab File ID: dftpp082395 DFTPP Injection Date: 08/23/95

Instrument ID: msd2 DFTPP Injection Time: 13:5

m/e	ION ABUNDANCE CRITERIA	% RE ABU
51	30.0 - 60.0% of mass 198	39.2
68	Less than 2.0% of mass 69	0.0)1
69	Mass 69 relative abundance	52.2
70	Less than 2.0% of mass 69	(0.1)1
127	40.0 - 60.0% of mass 198	50.5
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.8
275	10.0 - 30.0% of mass 198	20.7
365	Greater than 1% of mass 198	1.6
441	Present, but less than mass 443	72.4
442	Greater than 40% of mass 198	42.3
443	17.0 - 23.0% of mass 442	(19.6)2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES

	CLIENT SAMPLE NO.	LAB SAMPLE ID		FILE ID	DATE ANALYZED	
01	N/A	Cont. Cal.	BNA-80-32	BNA0101001	08/23/95	14:22
02	N/A	MTD BLK	#1749	BNA0201002	08/23/95	15:14
03	N/A	LCS	#1749	BNA0301003	08/23/95	16:13
04	N/A	LCSD	#1749	BNA0401004	08/23/95	17:13
05	G-NM-S-1	AA18021		BNA0901009	08/23/95	22:14
06						
07						
08						
09						
10						
11						
12						
13						

Comments:

QA/QC OFFICER

SemiVolatile Method Blank Summary

Lab Name:	EcoSys, Inc.	**Client:**	GeoSyntec
Ledger No(s):	105829	**Date Extracted:**	8/23/95
Batch No(s):	1749	**Date Analyzed:**	8/23/95
Lab File ID:	BNA0201002	**Time Analyzed:**	15:14
Lab Sample ID:	mtd blk #1749	**Level:**	Low
Cleanup Method:	n/a		
Instrument ID:	msd2	**Matrix:**	Non-aqueous

This method blank applies to the following samples, MS and MSD:

	Client Sample No.	Lab Sample ID	Lab File ID	Date Analyzed
1	G-NM-S-1	AA18021	BNA0901009	8/23/95
2	N/A	LCS	BNA0301003	8/23/95
3	N/A	LCSD	BNA0401004	8/23/95
4				
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24				

QA/QC Officer

Comments:

NonAqueous SemiVolatile MS/MSD Recovery

Lab Name: EcoSys, Inc.	Client: GeoSyntec
Ledger No(s): 105829	Matrix Spike/Lab Sample No: N/A
Batch No(s): 1749	Lab Control Spike/Spike Duplicate: 1749
Lab File ID: BNA0301003/BNA0401004	Level (Low/Med): Low

Compound	Spike Added (ug/Kg)	Sample Conc (ug/Kg)	MS Conc (ug/Kg)	MS % Recovery	#	QC Limits Recovery
Phenol	3330	0	2690	81		26-90
2-Chlorophenol	3330	0	2530	76		25-102
1,4-Dichlorobezene	1670	0	1520	91		28-104
N-Nitroso-di-n-propylamine	1670	0	1620	97		41-126
1,2,4-Trichlorobenzene	1670	0	1390	83		38-107
4-Chloro-3-methylphenol	3330	0	3250	98		26-103
Acenapthene	1670	0	1710	102		31-137
4-Nitrophenol	3330	0	2470	74		11-114
2,4-Dinitrotoluene	1670	0	1420	85		28-89
Pentachlorophenol	3330	0	2410	72		17-109
Pyrene	1670	0	1900	114		35-142

Compound	Spike Added (ug/Kg)	MSD Conc (ug/Kg)	MSD % Recovery	#	% RP	#	QC Limits RPD	QC Limits Recovery
Phenol	3330	2920	88		8		35	26-90
2-Chlorophenol	3330	2720	82		8		50	25-102
1,4-Dichlorobezene	1670	1590	95		4		27	28-104
N-Nitroso-di-n-propylamine	1670	1750	105		8		38	41-126
1,2,4-Trichlorobenzene	1670	1490	89		7		23	38-107
4-Chloro-3-methylphenol	3330	3450	104	*	6		33	26-103
Acenapthene	1670	1900	114		11		19	31-137
4-Nitrophenol	3330	2760	83		11		50	11-114
2,4-Dinitrotoluene	1670	1520	91	*	7		47	28-89
Pentachlorophenol	3330	2730	82		13		47	17-109
Pyrene	1670	2100	126		10		36	35-142

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

ND = Not Detected

RPD: 0 out of [redacted] outside limits

Spike Recovery: 2 out of [redacted] outside limits

QA/QC Officer

Comments: *out of range due to matrix interferences

NonAqueous SemiVolatile Surrogate Recovery

Lab Name: EcoSys, Inc.	Client: GeoSyntec
Ledger No(s).: 105829	Level: Low
Batch No.(s): 1749	

Lab Sample No.	S1 (2FP)	#	S2 (PHL)	#	S3 (NBZ)	#	S4 (FBP)	#	S5 (TBP)	#	S6 (TPH)	#	Total Out
Mtd. Blk.	82		98		85		96		81		105		0
LCS	84		92		84		95		82		102		0
LCSD	85		95		88		101		86		107		0
AA18021	72		93		73		91		96		96		0

Column used to flag recovery values
* = Values outside of required QC limits
ND = Not Detected

	QC Limits
S1 (2FP) 2-Fluorophenol	25-121
S2 (PHL) Phenol-d5	24-113
S3 (NBZ) Nitrobenzene-d5	23-120
S4 (FBP) 2-Fluorobiphenyl	30-115
S5 (TBP) 2,4,6-Tribromophenol	19-122
S6 (TPH) Terphenyl-d14	18-137

QA/QC Officer

Comments:

Ecosys, Inc.

BASE NEUTRAL QUANT AND QUALI REPORT

Data File : chem/msd_2.i/2-082395.b/BNA0101001.d
Lab. Id. :
Inj. Date : 23-AUG-1995 14:22 Autotune Date: 12-Aug-95 14:27:5
Operator : BINA SHAH Inst ID: msd_2.i
Smp Info : BNA-80-32
Misc Info : CONT CAL 80NG.
Comment :
Method : chem msd_2.i 2-082395.b/24-BNA.m
Meth Date : 24-Aug-1995 14:39 target
Cal Date : 21-AUG-95 14:21 Cal File: BNA0101001.d
Vial Bottle: 1 Continuing Calibration Sample
Multiplier: 1.000 Target Version: Target 2.20
Integration: HP RTE Compound sublist: all.sub
Sample Type: WATER

	Compounds	QUANT SIG MASS	RT (REL RT)	RESPONSE	CONCENTRATIONS ON-COLUMN (ng/ml)	FINAL (ug/L)
	1 2-Fluorophenol	112.00	9.016(0.716)	3120856	77.0	77.0
	2 Aniline	93.00	11.936(0.945)	5201448	39.-	39.4(M)
	3 Phenol-D5	99.00	12.187(0.967)	3217036	69.2	69.2
	4 Phenol **	94.00	12.231(0.971)	3642206	32.6	32.6
	5 Bis(2-Chloroethyl)Ether	93.00	12.176(0.966)	3259035	88.3	88.3
	6 2-Chlorophenol	128.00	12.220(0.970)	3376297	76.-	76.-
	7 1,3-Dichlorobenzene	146.00	12.480(0.991)	3742517	80.2	80.2
*	8 1,4-Dichlorobenzene-d4	152.00	12.599(1.000)	1396445	40.0	
	9 1,4-Dichlorobenzene **	146.00	12.653(1.004)	3544161	79.8	79.8
	10 1,2-Dichlorobenzene	146.00	13.150(1.044)	3517546	79.5	79.5
	11 Benzyl Alcohol	79.00	13.291(1.055)	2457446	70.9	70.9
	12 Bis(2-Chloroisopropyl)Ether	45.00	13.537(1.082)	4069284	83.3	83.3(M)
	13 2-Methylphenol	108.00	13.789(1.091)	3440801	83.3	83.3(M)
	14 Hexachloroethane	117.00	13.951(1.107)	1414624	75.6	75.6
	15 N-Nitroso-Di-n-propylamine *	70.00	14.103(1.119)	2020908	66.3	66.3(M)
	16 4-Methylphenol	108.00	14.179(1.125)	3548421	84.6	84.6
	17 Nitrobenzene-D5	82.00	14.276(0.889)	3179813	73.9	73.9
	18 Nitrobenzene	77.00	14.331(0.893)	2967555	73.1	73.1(M)
	19 Isophorone	82.00	15.001(0.935)	6625774	72.3	72.3
	20 2-Nitrophenol **	139.00	15.174(0.945)	2501754	36.5	36.5
	21 2,4-Dimethylphenol	[illegible]	[illegible]	[illegible]	64.9	64.9
	22 Bis(-2-Chloroethoxy)Methane	93.00	15.572(0.976)	4182614	75.1	75.1(M)
	23 2,4-Dichlorophenol **	162.00	15.867(0.988)	2590036	70.9	70.9
	24 Benzoic Acid	105.00	16.159(1.000)	2309324	32.1	32.1(M)
	25 1,2,4-Trichlorobenzene	180.00	15.975(1.995)	2688219	70.9	70.9
*	26 Naphthalene-d8	136.00	16.152(1.000)	4453020	40.0	
	27 Naphthalene	128.00	16.117(1.004)	7710904	75.2	75.2
	28 4-Chloroaniline	127.00	16.420(1.023)	3870051	87.4	87.4
	29 Hexachlorobutadiene **	225.00	16.627(1.036)	1065292	64.3	64.3
	30 4-Chloro-3-Methylphenol **	107.00	17.826(1.111)	2451983	65.4	65.4(M)
	31 2-Methylnaphthalene	142.00	17.913(1.116)	5755701	77.8	77.8(M)

	Compound	QUANT SIG MASS	RT (REL RT)	RESPONSE	CONCENTRATIONS ON-COLUMN ng/ul	FINAL ug/L
	32 Hexachlorocyclopentadiene *	237.00	18.497(0.897)	964329	63.5	63.5(M)
	33 2,4,6-Trichlorphenol **	196.00	18.801(0.912)	1343511	65.7	65.7(M)
	34 2,4,5-Trichlorophenol	196.00	18.920(0.917)	1560004	69.3	69.3
*	35 2-Fluorobiphenyl	172.00	18.986(0.921)	5249527	69.4	69.4(M)
	36 2-Chloronaphthalene	162.00	19.160(0.929)	5169527	78.7	78.7(M)
	37 2-Nitroaniline	65.00	19.625(0.952)	1426975	72.9	72.9
	38 Dimethyl Phthalate	163.00	20.199(0.979)	5511881	73.1	73.1
	39 Acenaphthylene	152.00	20.232(0.981)	5604219	37.1	37.1
	40 2,6-Dinitrotoluene	165.00	20.373(0.988)	1567788	80.8	80.8
*	41 Acenaphthene-d10	164.00	20.622(1.000)	1427516	40.0	
	42 Acenaphthene **	153.00	21.720(1.009)	4315305	76.8	76.8(M)
	43 2,4-Dinitrophenol *	184.00	20.959(1.016)	732569	71.6	71.6
	44 3-Nitroaniline	138.00	20.731(1.005)	909821	68.9	68.9
	45 Dibenzofuran	168.00	21.133(1.025)	5660221	69.3	69.3
	46 4-Nitrophenol *	65.00	21.350(1.035)	819639	56.6	56.6(M)
	47 2,4-Dinitrotoluene	165.00	21.350(1.035)	1939647	74.3	74.3
	48 Diethylphthalate	149.00	22.033(1.068)	4395416	72.9	72.9(M)
	49 Fluorene	166.00	22.000(1.067)	4206651	67.1	67.1
	50 4-Chlorophenyl-phenylether	204.00	22.066(1.070)	2073397	70.7	70.7
	51 4-Nitroaniline	138.00	22.446(1.088)	998815	65.5	65.5(M)
	52 4,6-Dinitro-2-methylphenol	198.00	22.392(0.919)	1012986	91.4	91.4
	53 N-nitrosodiphenylamine **	169.00	22.424(0.920)	1850901	112	112(M)
*	54 2,4,6-Tribromophenol	329.70	22.696(0.931)	583069	78.2	78.2
	55 4-Bromophenyl-phenylether	248.00	23.281(0.955)	1241090	81.2	81.2
	56 Hexachlorobenzene	284.00	23.617(0.969)	1373126	95.6	95.6
	57 Pentachlorophenol **	266.00	24.137(0.991)	308055	30.9	30.9
*	58 Phenanthrene-d10	188.00	24.366(1.000)	2814876	40.0	
	59 Phenanthrene	178.00	24.442(1.003)	6241037	80.2	80.2
	60 Anthracene	178.00	24.562(1.008)	6073663	80.8	80.8(M)
	61 Di-n-Butylphthalate	149.00	26.162(1.074)	9156588	93.6	93.6
	62 Fluoranthene **	202.00	27.492(1.128)	5360261	80.1	80.1
	63 Pyrene	202.00	28.045(0.899)	5451328	79.9	79.9
*	64 Terphenyl-D14	244.00	28.554(0.915)	3813556	79.8	79.8
	65 Benzedine	184.00	29.127(0.934)	78454	41.2	41.2(M)
	66 Butylbenzylphthalate	149.00	29.949(0.960)	4033725	93.0	93.0
	67 Di (2-Ethylhexyl) Adipate	41.00	30.188(0.968)	563596	68.2	68.2
	68 Benzo(a)Anthracene	228.00	31.140(0.998)	4480324	78.7	78.7
	69 3 3'-Dichlorobenzidine	252.00	31.172(0.999)	792857	70.0	70.0
*	70 Chrysene-d12	240.00	31.194(1.000)	1955992	40.0	
	71 Chrysene	228.00	31.271(1.002)	3974897	79.1	79.1
	72 Bis (2-Ethylhexyl) Phthalate	149.00	31.499(1.110)	5274965	92.0	92.0
	73 Di-n-octyl Phthalate **	149.00	32.981(0.948)	9195036	94.6	94.6
	74 Benzo(b)fluoranthene	252.00	33.825(0.973)	4844291	74.1	74.1
	75 Benzo(k)fluoranthene	252.00	33.868(0.974)	3933429	95.5	95.5(M)
	76 Benzo(a)pyrene **	252.00	34.648(0.996)	3733777	74.9	74.9
*	77 Perylene-d12	264.00	34.778(1.000)	1602570	40.0	
	78 Indeno(1,2,3-cd)pyrene	276.00	38.407(1.104)	3439996	68.6	68.6
	79 Dibenzo(a,h)anthracene	278.00	38.516(1.107)	2778032	67.6	67.6
	80 Benzo(g,h,i)perylene	276.00	39.489(1.135)	2779459	66.4	66.4

ID Flag Legend

Initial response menus.. integrated.

Data File: chem/msd_2.. 2-082395.b BNA0101001.d Page

Print Date: 24-Aug-1995 14:39

Ecosys, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: msd_2.i Injection Date: 23-AUG-1995 14:2.

Data File ID: BNA0101001.d Init. Calibration Date(s): 08/23/95 08/11/95

Analysis Type: WATER Init. Calibration Times: 15:51 19:59

Sample ID: Method File: chem msd_2.i 2-082395.b/MA-BNA.m

COMPOUND	$\overline{RRF}$	RF80	MIN RRF	%D	MAX %D
2-Fluorophenol	1.162	1.117	0.050	3.8	30.0
Aniline	1.660	1.362	0.050	11.8	30.0
Phenol-D5	1.331	1.152	0.050	13.4	30.0
Phenol **	1.263	1.304	0.050	3.3	30.0
Bis(2-Chloroethyl)Ether	1.057	1.167	0.050	10.4	30.0
2-Chlorophenol	1.154	1.101	0.050	4.5	30.0
1,3-Dichlorobenzene	1.337	1.340	0.050	0.2	30.0
1,4-Dichlorobenzene **	1.272	1.269	0.050	0.2	30.0
1,2-Dichlorobenzene	1.267	1.259	0.050	0.6	30.0
Benzyl Alcohol	0.993	0.880	0.050	11.4	30.0
Bis(2-Chloroisopropyl)Ether	1.391	1.457	0.050	4.8	30.0
2-Methylphenol	1.183	1.232	0.050	4.2	30.0
Hexachloroethane	0.536	0.507	0.050	5.5	30.0
N-Nitroso-Di-n-propylamine *	0.873	0.724	0.050	17.2	30.0
4-Methylphenol	1.201	1.271	0.050	5.8	30.0
Nitrobenzene-D5	0.386	0.357	0.050	7.6	30.0
Nitrobenzene	0.365	0.333	0.050	8.7	30.0
Isophorone	1.827	1.744	0.050	4.5	30.0
2-Nitrophenol **	0.260	0.281	0.050	8.1	30.0
2,4-Dimethylphenol	0.378	0.307	0.050	18.5	30.0
Bis(2-Chloroethoxy)Methane	0.500	0.470	0.050	6.1	30.0
2,4-Dichlorophenol **	0.328	0.291	0.050	11.3	30.0
Benzoic Acid	0.253	0.259	0.050	2.6	30.0
1,2,4-Trichlorobenzene	0.340	0.302	0.050	11.3	30.0
Naphthalene	0.921	0.866	0.050	6.0	30.0
4-Chloroaniline	0.398	0.435	0.050	9.3	30.0
Hexachlorobutadiene **	0.149	0.120	0.050	19.6	30.0
4-Chloro-3-Methylphenol **	0.337	0.275	0.050	18.3	30.0
2-Methylnaphthalene	0.664	0.646	0.050	2.7	30.0
Hexachlorocyclopentadiene *	0.250	0.199	0.050	20.6	30.0
2,4,6-Trichlorphenol **	0.337	0.277	0.050	17.9	30.0
2,4,5-Trichlorophenol	0.371	0.321	0.050	13.4	30.0
2-Fluorobiphenyl	1.246	1.081	0.050	13.2	30.0
2-Chloronaphthalene	1.082	1.065	0.050	1.6	30.0
2-Nitroaniline	0.322	0.294	0.050	8.9	30.0
Dimethyl Phthalate	1.242	1.135	0.050	8.6	30.0
Acenaphthylene	1.249	1.360	0.050	8.9	30.0
2,6-Dinitrotoluene	0.320	0.323	0.050	0.9	30.0
Acenaphthene **	0.926	0.889	0.050	4.0	30.0
2,4-Dinitrophenol *	0.169	0.151	0.050	10.5	30.0
3-Nitroaniline	0.218	0.187	0.050	13.9	30.0
Dibenzofuran	1.571	1.372	0.050	12.7	30.0
4-Nitrophenol *	0.239	0.169	0.050	29.3	30.0

Ecosys, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: msd_2.. Injection Date: 23-AUG-1995 14:22
Data File: BNA0101001.d Init. Calibration Dates: 08/11/95 08/11/95
Analysis Type: WATER Init. Calibration Times: 15:51 19:59
Lab Sample ID: Method File: /chem/msd_2.1/2-082395.b/MA-BNA.m

COMPOUND	$\overline{RRF}$	RF80	MIN RRF	%D	MAX %D	
Fluorene	1.033	0.866	0.050	16.1	30.0	
4-Chlorophenyl-phenylether	0.483	0.427	0.050	11.6	30.0	
4-Nitroaniline	0.251	0.206	0.050	18.1	30.0	
4,6-Dinitro-2-methylphenol	0.157	0.180	0.050	14.7	30.0	
N-Nitrosodiphenylamine **	0.235	0.329	0.050	39.7	30.0	<-
2,4,6-Tribromophenol	0.106	0.104	0.050	2.2	30.0	
4-Bromophenyl-phenylether	0.217	0.220	0.050	1.5	30.0	
Hexachlorobenzene	0.204	0.244	0.050	19.5	30.0	
Pentachlorophenol **	0.159	0.161	0.050	1.1	30.0	
Phenanthrene	1.106	1.109	0.050	0.2	30.0	
Anthracene	1.068	1.079	0.050	1.0	30.0	
Di-n-Butylphthalate	1.389	1.626	0.050	17.1	30.0	
Fluoranthene **	0.951	0.952	0.050	0.2	30.0	
Pyrene	1.395	1.393	0.050	0.1	30.0	
Terphenyl-D14	0.978	0.975	0.050	0.3	30.0	
Benzidine	0.039	0.020	0.050	48.7	30.0	<-
Butylbenzylphthalate	0.887	1.031	0.050	16.2	30.0	
Bis(2-ethylhexyl)adipate	0.169	0.144	0.050	14.5	30.0	
Benzo(a)Anthracene	1.164	1.145	0.050	1.6	30.0	
3,3'-Dichlorobenzidine	0.231	0.203	0.050	12.4	30.0	
Chrysene	1.027	1.016	0.050	1.1	30.0	
Bis(2-ethylhexyl)Phthalate	1.173	1.348	0.050	15.0	30.0	
Di-n-octyl Phthalate **	2.426	2.869	0.050	18.3	30.0	
Benzo(b)fluoranthene	1.632	1.511	0.050	7.4	30.0	
Benzo(k)fluoranthene	1.026	1.227	0.050	19.6	30.0	
Benzo(a)pyrene **	1.244	1.165	0.050	6.4	30.0	
Indeno(1,2,3-cd)pyrene	1.251	1.073	0.050	14.2	30.0	
Dibenzo(a,h)anthracene	1.025	0.867	0.050	15.4	30.0	
Benzo(g,h,i)perylene	1.044	0.867	0.050	17.0	30.0	

Data File: /chem/msd_2.i 2-082395.b/BNA0101001.d Page 5
Print Date: 14-Aug-1996 14:33

Ecosys, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

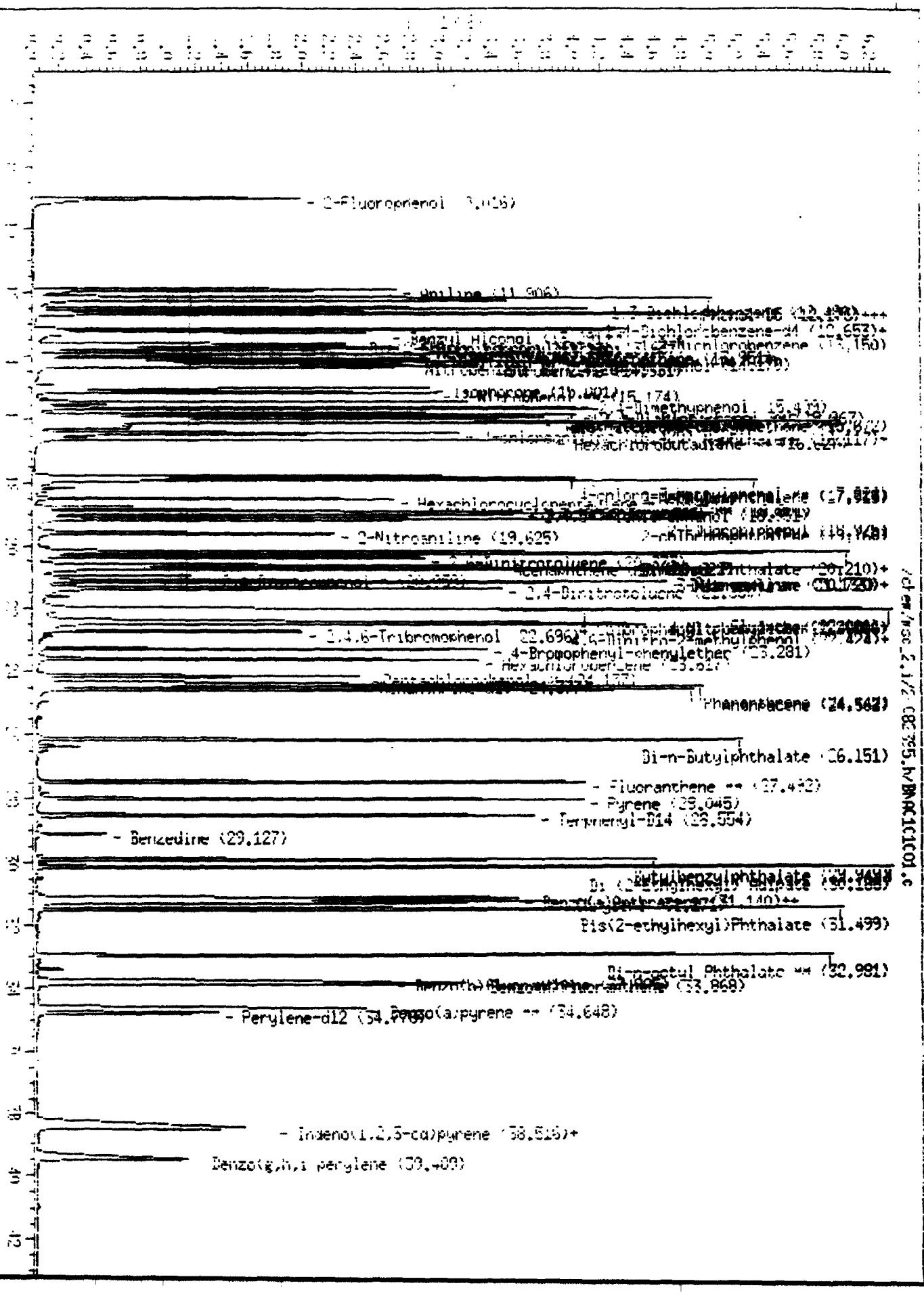
Instrument ID: msd_2.i
Lab File ID: BNA0101001.d
Internal Std Set ID:
Internal Std Type: OTHER
Method File: /chem/msd_2.i 2-082395.b/MA-BNA.m
Misc Info: CONT CAL 80NG.

Calibration Date: 08/23/95
Calibration Time: 1512
Sample Type: WATER
Level: LOW

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	% DIFF
1,4-Dichlorobenzene-d4	1396445	698222	1792890	1396445	0.00
Naphthalene-d8	4457020	2228510	5906040	4457020	0.00
Acenaphthene-d10	2427516	1213758	4855032	2427516	0.00
Phenanthrene-d10	2814876	1407438	5629752	2814876	0.00
Chrysene-d12	1955992	977996	3911984	1955992	0.00
Perylene-d12	1602570	801285	3205140	1602570	0.00

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	% DIFF
1,4-Dichlorobenzene-d4	12.60	12.10	13.10	12.60	0.00
Naphthalene-d8	16.05	15.55	16.55	16.05	0.00
Acenaphthene-d10	20.62	20.12	21.12	20.62	0.00
Phenanthrene-d10	24.37	23.87	24.87	24.37	0.00
Chrysene-d12	31.19	30.69	31.69	31.19	0.00
Perylene-d12	34.78	34.28	35.28	34.78	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.


2-Fluorophenol
Aniline (11.906)
Benzyl Alcohol
Isophorone
Hexachlorocyclopentadiene
Hexachlorocyclopentadiene
2-Nitroaniline (19.625)
2,4-Dinitrotoluene
2,4,6-Tribromophenol
4-Bromophenyl-phenylether
Phenanthrene (24.562)
Di-n-Butylphthalate (26.151)
Fluoranthene ** (27.442)
Pyrene (28.045)
Terphenyl-D14 (28.554)
Benzidine (29.127)
Bis(2-ethylhexyl)Phthalate (31.499)
Di-n-octyl Phthalate ** (32.981)
Perylene-d12
Indeno(1,2,3-cd)pyrene (38.516)+
Benzo(g,h,i perylene (39.409)

SEMI VOLATILE
QC PACKAGE FOR GEOSYNTEC

THIS PACKAGE INCLUDES INITIAL CALIBBRATION(S) FOR:

INSTRUMENT ID	DATE OF CALIBRATION
MSD2	8/22/95

THE EXTRACTION BATCH NUMBER IS:

1747

THE LEDGER NUMBER IS:

105829

THE CORRESPONDING ECOSYS SAMPLE NOS. AND CLIENT ID ARE:

AA18027	G-NM-W-5
AA18029	G-NM-W-6

EACH EXTRACTION BATCH WILL INCLUDE A METHOD BLANK, LAB CONTROL SPIKE (LCS), LAB CONTOL SPIKE DUPLICATE (LCSD), AND/OR MATRIX SPIKE (MS), AND MATRIX SPIKE DUPLICATE (MSD), AND SAMPLES THAT ARE ANALYZED UNDER THAT PARTICULAR BATCH.

BATCH#	1747
MTD BLK	
LCS	
LCSD	
n/a	MS
n/a	MSD
AA18027	
AA18029	

QA/QC OFFICER: Robert Lee DATE: 9-25-95

SemiVolatiles DFTPP

Lab Name:	EcoSystems	Client:	GeoSystems
Ledger Nos:	105829		
Lab File ID:	dftpp082495	DFTPP Injection Date:	[illegible]
Instrument ID:	msd2	DFTPP Injection Time:	[illegible]

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	38.9
68	Less than 2.0% of mass 69	0.0)1
69	Mass 69 relative abundance	51.3
70	Less than 2.0% of mass 69	(0.3)1
127	40.0 - 60.0% of mass 198	51.6
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.8
275	10.0 - 30.0% of mass 198	21.7
365	Greater than 1% of mass 198	1.7
441	Present, but less than mass 443	73.8
442	Greater than 40% of mass 198	47.4
443	17.0 - 23.0% of mass 442	(19.3)2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MB, MSD, BSD, AND STAND

	CLIENT SAMPLE NO.	LAB SAMPLE ID		LAB FILE ID	DATE ANALYZED	TIME
01	N/A	Cont. Cal.	BNA-80-32	BNA0101001	08/22/95	14:55
02	N/A	MTD BLK	#1747	BNA0601006	08/22/95	18:39
03	N/A	LCS	#1747	BNA0701007	08/22/95	19:35
04	N/A	LCSD	#1747	BNA0801008	08/22/95	20:32
05	G-NM-W-5	AA18027		BNA0601006	08/22/95	19:50
06	G-NM-W-6	AA18029		BNA0701007	08/22/95	20:49
07						
08						
09						
10						
11						
12						
13						

Comments:

QA/QC OFFICER

SemiVolatile Method Blank Summary

Lab Name:	EcoSys, Inc.	**Client:**	GeoSyntec
Ledger No(s):	105829	**Date Extracted:**	8/22/95
Batch No(s):	1747	**Date Analyzed:**	8/22/95
Lab File ID:	BNA0601006	**Time Analyzed:**	18:39
Lab Sample ID:	mtd blk #1747	**Level:**	Low
Cleanup Method:	n/a		
Instrument ID:	msd2/msd3	**Matrix:**	TCLP

This method blank applies to the following samples, MS and MSD:

	Client Sample No.	Lab Sample ID	Lab File ID	Date Analyzed
1	G-NM-W-5	AA18027	BNA0601006	8/22/95
2	G-NM-W-6	AA18029	BNA0701007	8/22/95
3	N/A	LCS	BNA0701007	8/22/95
4	N/A	LCSD	BNA0801008	8/22/95
5				
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QA/QC Officer

Comments:

TCLP Semi-Volatile MS/MSD Recovery

Lab Name:	EcoSys, Inc.	Client:	GeoSyntec
Ledger No(s):	105829	Matrix Spike/Lab Sample No:	N/A
Batch No:	1747	Lab Control Spike/Spike Duplicate No:	#1747
Lab File ID:	BNA0701007/BNA0801008	Level (Low/Med):	Low

Compound	Spike Added (ug/L)	Sample Conc (ug/L)	MS Conc (ug/L)	MS % Recovery	#	QC Limits Recovery
1,4-Dichlorobenzene	500	0	211	42		20-124
2 Methyl Phenol	500	0	180	36		17-168
Hexachloroethane	500	0	223	45		40-113
4 Methyl Phenol	500	0	323	65		17-168
Nitrobenzene	500	0	232	46		35-180
Hexachlorobutadiene	500	0	235	47		24-116
2,4,6-Trichlorophenol	500	0	198	40		37-144
2,4,5-Trichlorophenol	500	0	168	34		10-150
2,4-Dinitrotoluene	500	0	178	36	*	39-139
Hexachlorobenzene	500	0	230	46		0-132
Pentachlorophenol	500	0	185	37		14-176

Compound	Spike Added (ug/L)	MSD Conc (ug/L)	MSD % Recovery	#	RP	#	QC Limits RPD	QC Limits Recovery
1,4-Dichlorobenzene	500	217	43		3		30	20-124
2 Methyl Phenol	500	186	37		3		30	17-168
Hexachloroethane	500	226	45		1		30	40-113
4 Methyl Phenol	500	365	73		12		30	17-168
Nitrobenzene	500	242	48		4		30	35-180
Hexachlorobutadiene	500	240	48		2		30	24-116
2,4,6-Trichlorophenol	500	205	41		3		30	37-144
2,4,5-Trichlorophenol	500	177	35		5		30	10-150
2,4-Dinitrotoluene	500	189	38	*	6		30	39-139
Hexachlorobenzene	500	241	48		5		30	D-132
Pentachlorophenol	500	199	40		7		30	14-176

 # Column to be used to flag recovery and RPD values with an asterisk
*** Values outside of QC limits**
ND = Not Detected

RPD: 0 **out of** 16 **outside limits**

Spike Recovery: 2 **out of** 28 **outside limits**

QA/QC Officer

Comments: *out of range due to matrix interferences

TCLP SemiVolatile Surrogate Recovery

Lab Name: EcoSys, Inc

Ledger No(s): 105829

Batch No: 1747

Client: GeoSyntec

Level: Low

Lab Sample No.	S1 (2FP)	#	S2 (PHL)	#	S3 (NBZ)	#	S4 (FBP)	#	S5 (TBP)	#	S6 (TPH)	#	Total Out
AA18027	48		54		53		67		76		79		0
AA18029	57		65		63		78		82		79		0
MTD BLK #1747	53		32		57		72		85		87		0
LCS #1747	81		75		80		87		99		101		0
LCSD #1747	82		76		81		87		100		102		0

Column used to flag recovery values

* = Values outside of required QC limits

ND = Not Detected

	QC Limits/TCLP
S1 (2FP) 2-Fluorophenol	21-100
S2 (PHL) Phenol-d5	10-110
S3 (NBZ) Nitrobenzene-d5	35-114
S4 (FBP) 2-Fluorobiphenyl	43-116
S5 (TBP) 2,4,6-Tribromophenol	10-123
S6 (TPH) Terphenyl-d14	33-141

QA/QC Officer

Comments:

Data File: /chem/msd_2.i/2-082295.b/BNA0101001.d
Report Date: 14-Sep-1995 15:32

Ecosys, Inc.

BASE NEUTRAL QUANT AND RATIO REPORT

Data file : /chem/msd_2.i/2-082295.b/BNA0101001.d
Lab. Id. :
Inj Date : 22-AUG-1995 14:55 Autotune Date: 22-Aug-95 14:27:5
Operator : BINA SHAH Inst ID: msd_2.i
Smp Info : BNA-80-32
Misc Info : CONT CAL 80NG.
Comment :
Method : /chem/msd_2.i/2-082295.b/MA-BNA.m
Meth Date : 14-Sep-1995 15:32 target
Cal Date : 22-AUG-95 14:55 Cal File: BNA0101001.d
Als bottle: 1 Continuing Calibration Sample
Dil Factor: 1.000 Target Version: Target 2.20
Integrator: HP RTE Compound Sublist: all.sub
Sample Type: WATER

	Compounds	QUANT SIG MASS	RT (REL RT)	RESPONSE	CONCENTRATIONS ON-COLUMN (ng/ul)	FINAL (ug/L)
$	1 2-Fluorophenol	112.00	8.994(0.714)	2030993	76.0	76.0
	2 Aniline	93.00	11.905(0.945)	4732996	80.6	80.6(M)
$	3 Phenol-D5	99.00	12.154(0.965)	2803757	65.7	65.7(M)
	4 Phenol **	94.00	12.219(0.970)	3084165	76.1	76.1
	5 Bis(2-Chloroethyl)Ether	93.00	12.165(0.966)	2753607	81.2	81.2
	6 2-chlorophenol	128.00	12.208(0.969)	2718223	73.4	73.4
	7 1,3-Dichlorobenzene	146.00	12.479(0.991)	3424711	79.8	79.8
*	8 1,4-Dichlorobenzene-d4	152.00	12.598(1.000)	1282750	40.0	
	9 1,4-Dichlorobenzene **	146.00	12.652(1.004)	3201699	78.5	78.5
	10 1,2-Dichlorobenzene	146.00	13.149(1.044)	3202372	78.8	78.8
	11 Benzyl Alcohol	79.00	13.290(1.055)	2201300	69.1	69.1
	12 Bis(2-Chloroisopropyl)Ether	45.00	13.636(1.082)	3464952	77.7	77.7(M)
	13 2-Methylphenol	108.00	13.733(1.094)	3167391	83.5	83.5(MH)
	14 Hexachloroethane	117.00	13.949(1.107)	1285190	74.8	74.8
	15 N-Nitroso-Di-n-propylamine *	70.00	14.101(1.119)	1673046	59.7	59.7
	16 4-Methylphenol	108.00	14.166(1.124)	3170786	82.5	82.5
$	17 Nitrobenzene-D5	82.00	14.264(0.889)	2011067	71.8	71.8
	18 Nitrobenzene	77.00	14.329(0.893)	2525076	68.3	68.3
	19 Isophorone	82.00	14.987(0.934)	5996330	71.9	71.9
	20 2-Nitrophenol **	139.00	15.172(0.945)	2270536	86.2	86.2
	21 2,4-Dimethyphenol	107.00	15.485(0.965)	2454020	64.0	64.0
	22 Bis(-2-Chloroethoxy)Methane	93.00	15.669(0.976)	3466587	68.4	68.4
	23 2,4-Dichlorophenol **	162.00	15.853(0.988)	2432536	73.2	73.2
	24 Benzoic Acid	105.00	16.212(0.000)	1880414	73.4	73.4(M)
	25 1,2,4-Trichlorobenzene	180.00	15.973(0.995)	2414377	70.0	70.0
*	26 Naphthalene-d8	136.00	16.049(1.000)	4054777	40.0	
	27 Naphthalene	128.00	16.114(1.004)	6020465	73.1	73.1
	28 4-chloroaniline	127.00	16.417(1.023)	3461060	85.9	85.9
	29 Hexachlorobutadiene **	225.00	16.624(1.036)	940160	62.3	62.3
	30 4-chloro-3-Methylphenol **	107.00	17.012(1.110)	2155530	63.1	63.1

	Compounds	QUANT SIG MASS	RT (REL RT)	RESPONSE	CONCENTRATIONS ON-COLUMN (ng/ul)	FINAL (ug/L)
	32 Hexachlorocyclopentadiene *	237.00	18.505(0.897)	901747	65.9	65.9
	33 2,4,6-Trichlorphenol **	196.00	18.797(0.912)	1280096	65.1	65.1(M)
	34 2,4,5-Trichlorophenol	196.00	18.916(0.917)	1425073	70.2	70.2
$	35 2-Fluorobiphenyl	172.00	18.982(0.921)	4728442	69.4	69.4(M)
	36 2-chloronaphthalene	162.00	19.155(0.929)	4550200	76.8	76.8
	37 2-Nitroaniline	65.00	19.621(0.952)	1249270	70.8	70.8
	38 Dimethyl Phthalate	163.00	20.195(0.979)	4756537	70.0	70.0
	39 Acenaphthylene	152.00	20.227(0.981)	5780856	84.6	84.6
	40 2,6-Dinitrotoluene	165.00	20.368(0.988)	1431144	81.8	81.8
*	41 Acenaphthene-d10	164.00	20.618(1.000)	2180389	40.0	
	42 Acenaphthene **	153.00	20.715(1.005)	3844940	75.9	75.9
	43 2,4-Dinitrophenol *	184.00	20.954(0.000)	630881	68.4	68.4(M)
	44 3-Nitroaniline	138.00	20.726(1.005)	730582	61.4	61.4(M)
	45 Dibenzofuran	168.00	21.128(1.025)	5917755	68.8	68.8
	46 4-Nitrophenol *	65.00	21.334(1.035)	745863	57.1	57.1(M)
	47 2,4-Dinitrotoluene	165.00	21.345(1.035)	1749735	75.0	75.0
	48 Diethylphthalate	149.00	22.028(1.068)	3858333	71.0	71.0
	49 Fluorene	166.00	21.995(1.067)	3739551	66.2	66.2(M)
	50 4-Chlorophenyl-phenylether	204.00	22.060(1.070)	1830733	69.2	69.2
	51 4-Nitroaniline	138.00	22.484(1.089)	831798	60.6	60.6(M)
	52 4,6-Dinitro-2-methylphenol	198.00	22.375(0.918)	902642	93.0	93.0
	53 N-nitrosodiphenylamine **	169.00	22.418(0.920)	1650588	114	114(M)
$	54 2,4,6-Tribromophenol	329.70	22.690(0.931)	487500	74.7	74.7
	55 4-Bromophenyl-phenylether	248.00	23.286(0.956)	1076991	80.5	80.5
	56 Hexachlorobenzene	284.00	23.611(0.969)	1203381	95.7	95.7
	57 Pentachlorophenol **	266.00	24.131(0.990)	725505	73.8	73.8
*	58 Phenanthrene-d10	188.00	24.370(1.000)	2464920	40.0	
	59 Phenanthrene	178.00	24.447(1.003)	5453734	80.0	80.0
	60 Anthracene	178.00	24.555(1.008)	5303089	80.5	80.5
	61 Di-n-Butylphthalate	149.00	26.156(1.073)	8418795	90.3	90.3
	62 Fluoranthene **	202.00	27.486(1.128)	4843713	82.7	82.7
	63 Pyrene	202.00	28.049(0.899)	5020805	80.2	80.2
$	64 Terphenyl-D14	244.00	28.547(0.915)	3465308	79.0	79.0
	65 Benzedine	184.00	29.120(0.934)	71031	40.7	40.7(M)
	66 Butylbenzylphthalate	149.00	29.942(0.960)	3716577	93.4	93.4
	67 Di (2-Ethylhexyl) Adipate	41.00	30.191(0.968)	511207	67.4	67.4
	68 Benzo(a)Anthracene	228.00	31.132(0.998)	4029638	77.2	77.2
	69 3 3'-Dichlorobenzidine	252.00	31.176(1.000)	629544	60.6	60.6
*	70 Chrysene-d12	240.00	31.186(1.000)	1793882	40.0	
	71 Chrysene	228.00	31.263(1.002)	3638049	79.0	79.0
	72 Bis(2-ethylhexyl)Phthalate	149.00	31.491(1.010)	4951756	94.2	94.2
	73 Di-n-octyl Phthalate **	149.00	32.983(0.940)	8513840	95.3	95.3
	74 Benzo(b)fluoranthene	252.00	33.838(0.000)	4626374	76.9	76.9(M)
	75 Benzo(k)fluoranthene	252.00	33.871(0.000)	3373654	89.2	89.2(M)
	76 Benzo(a)pyrene **	252.00	34.650(0.996)	3449569	75.3	75.3
*	77 Perylene-d12	264.00	34.780(1.000)	1473329	40.0	
	78 Indeno(1,2,3-cd)pyrene	276.00	38.399(1.104)	3146756	68.3	68.3
	79 Dibenzo(a,h)anthracene	278.00	38.508(1.107)	2538350	67.2	67.2
	80 Benzo(g,h,i)perylene	276.00	39.491(1.135)	2598078	67.3	67.3

Ecosys, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: msd_2.i Injection Date: 22-AUG-1995 14:55
Lab File ID: BNA0101001.d Init. Calibration Date(s): 05/28/93 08/11/95
Analysis Type: WATER Init. Calibration Times: 15:51 19:59
Lab Sample ID: Method File: /chem/msd_2.i/2-082295.b/MA-BNA.m

COMPOUND	RRF	RF80	MIN RRF	%D	MAX %D
2-Fluorophenol	1.162	1.103	0.050	5.0	30.0
Aniline	1.666	1.845	0.050	10.7	30.0
Phenol-D5	1.331	1.093	0.050	17.9	30.0
Phenol **	1.263	1.202	0.050	4.8	30.0
Bis(2-Chloroethyl)Ether	1.057	1.073	0.050	1.6	30.0
2-chlorophenol	1.154	1.060	0.050	8.2	30.0
1,3-Dichlorobenzene	1.337	1.335	0.050	0.2	30.0
1,4-Dichlorobenzene **	1.272	1.248	0.050	1.9	30.0
1,2-Dichlorobenzene	1.267	1.248	0.050	1.5	30.0
Benzyl Alcohol	0.993	0.858	0.050	13.6	30.0
Bis(2-Chloroisopropyl)Ether	1.391	1.351	0.050	2.9	30.0
2-Methylphenol	1.183	1.235	0.050	4.4	30.0
Hexachloroethane	0.536	0.501	0.050	6.6	30.0
N-Nitroso-Di-n-propylamine *	0.873	0.652	0.050	25.3	30.0
4-Methylphenol	1.201	1.239	0.050	3.2	30.0
Nitrobenzene-D5	0.386	0.347	0.050	10.3	30.0
Nitrobenzene	0.365	0.311	0.050	14.6	30.0
Isophorone	0.823	0.739	0.050	10.2	30.0
2-Nitrophenol **	0.260	0.280	0.050	7.7	30.0
2,4-Dimethyphenol	0.378	0.303	0.050	20.0	30.0
Bis(-2-Chloroethoxy)Methane	0.500	0.427	0.050	14.5	30.0
2,4-Dichlorophenol **	0.328	0.300	0.050	8.6	30.0
Benzoic Acid	0.253	0.232	0.050	8.2	30.0
1,2,4-Trichlorobenzene	0.340	0.298	0.050	12.5	30.0
Naphthalene	0.921	0.842	0.050	8.6	30.0
4-chloroaniline	0.398	0.427	0.050	7.4	30.0
Hexachlorobutadiene **	0.149	0.116	0.050	22.1	30.0
4-chloro-3-Methylphenol **	0.337	0.266	0.050	21.1	30.0
2-Methylnaphthalene	0.664	0.606	0.050	8.8	30.0
Hexachlorocyclopentadiene *	0.250	0.206	0.050	17.6	30.0
2,4,6-Trichlorphenol **	0.337	0.274	0.050	18.7	30.0
2,4,5-Trichlorophenol	0.371	0.326	0.050	12.3	30.0
2-Fluorobiphenyl	1.246	1.080	0.050	13.3	30.0
2-chloronaphthalene	1.082	1.040	0.050	4.0	30.0
2-Nitroaniline	0.322	0.285	0.050	11.5	30.0
Dimethyl Phthalate	1.242	1.087	0.050	12.5	30.0
Acenaphthylene	1.249	1.321	0.050	5.7	30.0
2,6-Dinitrotoluene	0.320	0.327	0.050	2.2	30.0
Acenaphthene **	0.926	0.878	0.050	5.1	30.0
2,4-Dinitrophenol *	0.169	0.144	0.050	14.5	30.0
3-Nitroaniline	0.218	0.167	0.050	23.3	30.0
Dibenzofuran	1.571	1.352	0.050	13.9	30.0

Diethylphthalate	0.993	0.882	0.050	11.2	30.0

Data File: /chem/msd_2.i/2-082295.b/BNA0101001.d

Report Date: 14-Sep-1995 15:32

Ecosys, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: msd_2.i
Lab File ID: BNA0101001.d
Analysis Type: WATER
Lab Sample ID:

Injection Date: 22-AUG-1995 14:55
Init. Calibration Date(s): 05/28/93 08/11/95
Init. Calibration Times: 15:51 19:59
Method File: /chem/msd_2.i/2-082295.b/MA-BNA.m

COMPOUND	RRF	RF80	MIN RRF	%D	MAX %D	
Fluorene	1.033	0.854	0.050	17.3	30.0	
4-Chlorophenyl-phenylether	0.483	0.418	0.050	13.4	30.0	
4-Nitroaniline	0.251	0.190	0.050	24.3	30.0	
4,6-Dinitro-2-methylphenol	0.157	0.183	0.050	16.3	30.0	
N-nitrosodiphenylamine **	0.235	0.335	0.050	42.2	30.0	<-
2,4,6-Tribromophenol	0.106	0.099	0.050	6.6	30.0	
4-Bromophenyl-phenylether	0.217	0.218	0.050	0.6	30.0	
Hexachlorobenzene	0.204	0.244	0.050	19.6	30.0	
Pentachlorophenol **	0.159	0.147	0.050	7.7	30.0	
Phenanthrene	1.106	1.106	0.050	0.0	30.0	
Anthracene	1.068	1.076	0.050	0.7	30.0	
Di-n-Butylphthalate	1.389	1.708	0.050	22.9	30.0	
Fluoranthene **	0.951	0.983	0.050	3.4	30.0	
Pyrene	1.395	1.399	0.050	0.3	30.0	
Terphenyl-D14	0.978	0.966	0.050	1.2	30.0	
Benzedine	0.039	0.020	0.050	49.1	30.0	<-
Butylbenzylphthalate	0.887	1.036	0.050	16.7	30.0	
Di (2-Ethylhexyl) Adipate	0.169	0.142	0.050	15.7	30.0	
Benzo(a)Anthracene	1.164	1.123	0.050	3.5	30.0	
3 3'-Dichlorobenzidine	0.231	0.175	0.050	24.2	30.0	
Chrysene	1.027	1.014	0.050	1.3	30.0	
Bis(2-ethylhexyl)Phthalate	1.173	1.380	0.050	17.7	30.0	
Di-n-octyl Phthalate **	2.426	2.889	0.050	19.1	30.0	
Benzo(b)fluoranthene	1.632	1.570	0.050	3.8	30.0	
Benzo(k)fluoranthene	1.026	1.145	0.050	11.5	30.0	
Benzo(a)pyrene **	1.244	1.171	0.050	5.9	30.0	
Indeno(1,2,3-cd)pyrene	1.251	1.068	0.050	14.7	30.0	
Dibenzo(a,h)anthracene	1.025	0.861	0.050	15.9	30.0	
Benzo(g,h,i)perylene	1.044	0.879	0.050	15.8	30.0	

Data File: /chem/msd_2.i/2-082295.b/BNA0101001.d
Report Date: 14-Sep-1995 15:32

Ecosys, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msd_2.i
Lab File ID: BNA0101001.d
Lab Sample ID:
Analysis Type: OTHER
Method File: /chem/msd_2.i/2-082295.b/MA-BNA.m
Misc Info: CONT CAL 80NG.

Calibration Date: 08/22/95
Calibration Time: 1549
Sample Type: WATER
Level: LOW

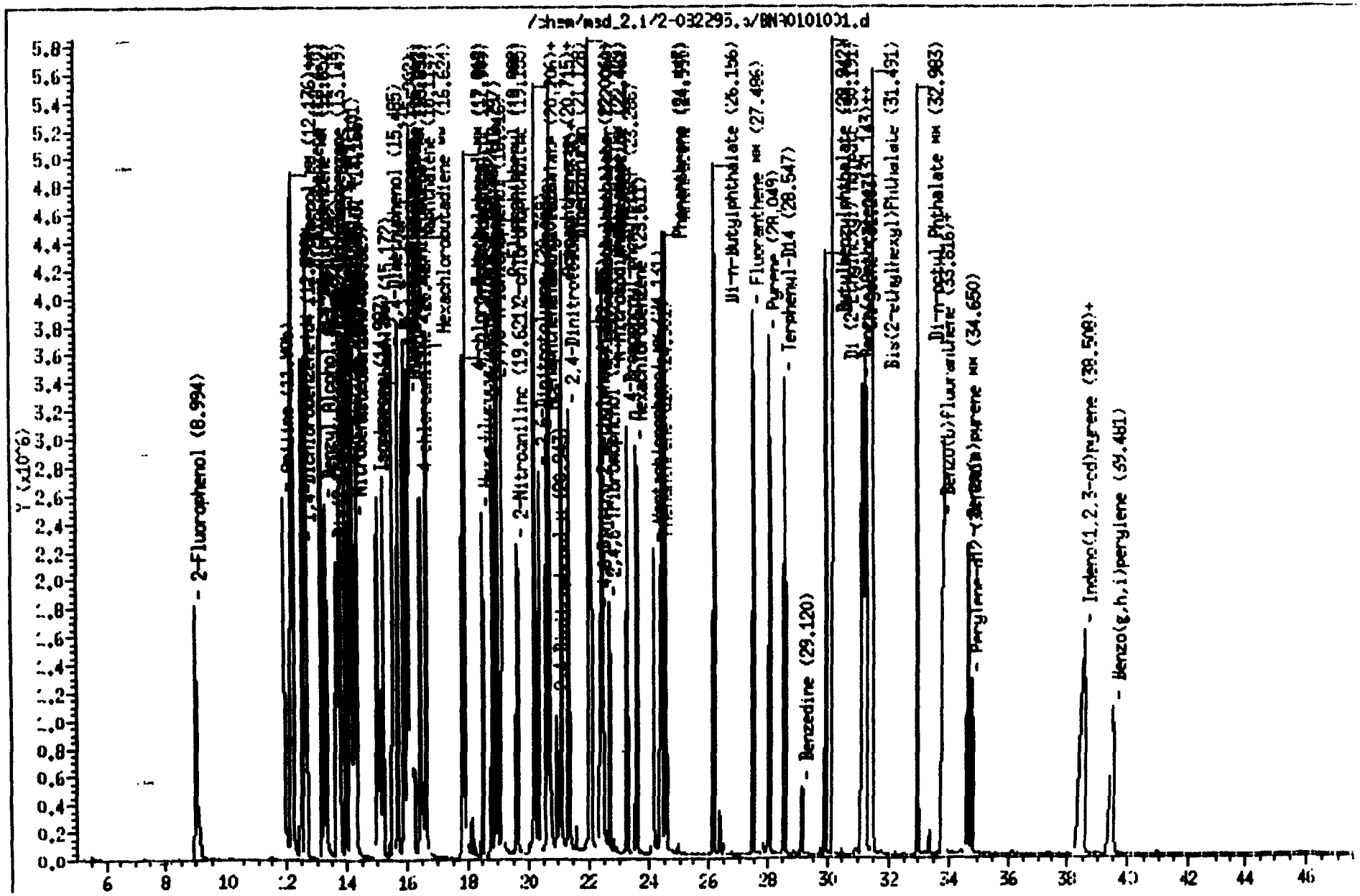
COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	% DIFF
8 1,4-Dichlorobenzene-	1282758	641379	2565516	1282758	0.00
26 Naphthalene-d8	4054777	2027388	8109554	4054777	0.00
41 Acenaphthene-d10	2188389	1094194	4376778	2188389	0.00
58 Phenanthrene-d10	2464928	1232464	4929856	2464928	0.00
70 Chrysene-d12	1793882	896941	3587764	1793882	0.00
77 Perylene-d12	1473329	736664	2946658	1473329	0.00

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	% DIFF
8 1,4-Dichlorobenzene-	12.60	12.10	13.10	12.60	0.00
26 Naphthalene-d8	16.05	15.55	16.55	16.05	0.00
41 Acenaphthene-d10	20.62	20.12	21.12	20.62	0.00
58 Phenanthrene-d10	24.37	23.87	24.87	24.37	0.00
70 Chrysene-d12	31.19	30.69	31.69	31.19	0.00
77 Perylene-d12	34.78	34.28	35.28	34.78	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/msd_2.i/2-032295.b/3NH0101001.d
Date : 22-AUG-1995 14:55
Instrument : msd_2.i
Sample ID :
Column phase :
Volume Injected (uL) : 1.0

Column diameter : 2.00



Report Date : 12-Aug-1995 12:45

Ecosys, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 28-MAY-93 15:51
End Cal Date : 11-AUG-95 19:59
Quant Method : ISTD
Cal Curve Type : Averaged
Target Version : Target 2.20
Integrator : HP RTE
Method file : /chem/msd_2.i/2-081195.b/MA-BNA.m
Cal Date : 12-Aug-1995 12:45 target

Calibration File Names:
Level 1: /chem/msd_2.i/2-081195.b/BNA0101001.d
Level 2: /chem/msd_2.i/2-081195.b/BNA0201002.d
Level 3: /chem/msd_2.i/2-081195.b/BNA0301003.d
Level 4: /chem/msd_2.i/2-081195.b/BNA0401004.d
Level 5: /chem/msd_2.i/2-081195.b/BNA0501005.d

Compound	Level 1	Level 2	Level 3	Level 4	Level 5	$\overline{RRF}$	% RSD/R^2
2 Aniline	1.40626	1.66757	1.61687	1.84802	1.79343	1.66643	10.361
4 Phenol **	1.58191	1.32489	1.12078	1.17373	1.11384	1.26303	15.635
5 Bis(2-Chloroethyl)Ether	1.36483	1.05470	0.94356	0.97704	0.94384	1.05679	16.850
6 2-chlorophenol	1.27253	1.21409	1.08443	1.10598	1.09279	1.15396	7.322
7 1,3-Dichlorobenzene	1.44594	1.37161	1.31972	1.32062	1.22874	1.33733	5.953
9 1,4-Dichlorobenzene **	1.37874	1.31643	1.26889	1.24950	1.14726	1.27216	6.744
10 1,2-Dichlorobenzene	1.48470	1.32271	1.25351	1.22934	1.12462	1.26697	8.272
11 Benzyl Alcohol	0.94902	0.97055	0.99710	1.04189	0.99788	0.99289	3.485
12 Bis(2-Chloroisopropyl)Ether	1.51170	1.49865	1.37032	1.34438	1.22760	1.39053	8.468
13 2-Methylphenol	1.27599	1.12447	1.15646	1.21289	1.14272	1.18251	5.229
14 Hexachloroethane	0.58892	0.55688	0.53018	0.52432	0.48033	0.53611	7.528
15 N-Nitroso-Di-n-propylamine *	0.83842	0.85164	0.79170	0.97281	0.92129	0.87341	8.298
16 4-Methylphenol	1.35496	1.22528	1.18056	1.14251	1.18184	1.20103	8.111
18 Nitrobenzene	0.32381	0.36474	0.36915	0.38072	0.38631	0.36479	6.828
19 Isophorone	0.78912	0.79931	0.84148	0.87724	0.88768	0.82297	4.393
20 2-Nitrophenol **	0.19088	0.25543	0.26895	0.30118	0.29186	0.25908	16.629
21 2,4-Dimethyphenol	0.36092	0.37753	0.36924	0.39892	0.38495	0.37831	3.862
22 Bis(-2-Chloroethoxy)Methane	0.52532	0.51119	0.48042	0.50278	0.48129	0.50819	3.888
23 2,4-Dichlorophenol **	0.33114	0.33946	0.31982	0.32773	0.32194	0.32802	2.386
24 Benzoic Acid	0.14481	0.22181	0.27636	0.30307	0.31737	0.25268	27.896
25 1,2,4-Trichlorobenzene	0.35248	0.33898	0.33425	0.34417	0.33222	0.34042	2.399
27 Naphthalene	1.07747	0.96339	0.84561	0.87727	0.84376	0.92150	10.838
28 4-chloroaniline	+++++	+++++	0.43777	0.48789	0.47272	0.46613	5.514
29 Hexachlorobutadiene **	0.15180	0.14431	0.14513	0.15355	0.14931	0.14802	2.718
30 4-chloro-3-Methylphenol **	0.33336	0.33331	0.32876	0.35189	0.33782	0.33703	2.641
31 2-Methylnaphthalene	0.69528	0.63817	0.63949	0.68643	0.66224	0.66432	3.948
32 Hexachlorocyclopentadiene *	0.21257	0.26063	0.25541	0.26487	0.25761	0.25086	8.481
33 2,4,6-Trichlorphenol **	0.29523	0.34881	0.32384	0.35548	0.36195	0.33706	8.154
34 2,4,5-Trichlorophenol	0.38156	0.48178	0.39208	0.36287	0.31885	0.37111	8.923

Ecosys, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 28-MAY-93 15:51
End Cal Date : 11-AUG-95 19:59
Quant Method : ISTD
Cal Curve Type : Averaged
Target Version : Target 2.20
Integrator : HP RTE
Method file : /chem/msd_2.i/2-081195.b/MA-BNA.m
Cal Date : 12-Aug-1995 12:45 target

Calibration File Names:
Level 1: /chem/msd_2.i/2-081195.b/BNA0101001.d
Level 2: /chem/msd_2.i/2-081195.b/BNA0201002.d
Level 3: /chem/msd_2.i/2-081195.b/BNA0301003.d
Level 4: /chem/msd_2.i/2-081195.b/BNA0401004.d
Level 5: /chem/msd_2.i/2-081195.b/BNA0501005.d

Compound	Level 1	Level 2	Level 3	Level 4	Level 5	$\overline{RRF}$	% RSD/R^2	
36 2-chloronaphthalene	1.12023	1.16231	1.06782	1.07637	0.98534	1.08241	6.109	
37 2-Nitroaniline	*****	0.33274	0.33802	0.35823	0.33407	0.34076	3.480	
38 Dimethyl Phthalate	1.32317	1.38850	1.21444	1.19102	1.09476	1.24238	9.273	
39 Acenaphthylene	1.67832	1.23313	1.11066	1.15415	1.07058	1.24935	19.792	
40 2,6-Dinitrotoluene	0.22085	0.32338	0.33552	0.36613	0.35358	0.31989	18.052	
42 Acenaphthene **	1.04574	1.05310	0.88472	0.85868	0.78851	0.92615	12.734	
43 2,4-Dinitrophenol *	*****	*****	0.15886	0.20057	0.20254	0.18732	13.171	
44 3-Nitroaniline	*****	*****	*****	0.24742	0.23589	0.24166	3.373	
45 Dibenzofuran	1.57543	1.69185	1.54755	1.58853	1.45178	1.57103	5.484	
46 4-Nitrophenol *	0.17577	0.23161	0.25391	0.28316	0.24956	0.23888	16.667	*
47 2,4-Dinitrotoluene	0.26959	0.42465	0.46835	0.58317	0.46715	0.42658	21.583	
48 Diethylphthalate	1.11524	1.08283	0.98993	0.94642	0.83183	0.99325	11.387	
49 Fluorene	1.13804	1.10814	0.98192	1.00745	0.92769	1.03265	8.529	
50 4-Chlorophenyl-phenylether	0.51371	0.55074	0.47966	0.46290	0.40903	0.48321	11.057	*
51 4-Nitroaniline	0.21160	0.22403	0.23589	0.29576	0.28888	0.25186	15.382	
52 4,6-Dinitro-2-methylphenol	*****	*****	0.15886	0.17753	0.16564	0.16734	5.647	*
53 N-nitrosodiphenylamine **	*****	0.18447	0.22926	0.25533	0.27248	0.23539	16.278	
55 4-Bromophenyl-phenylether	0.23029	0.22128	0.20854	0.21586	0.20976	0.21715	4.128	
56 Hexachlorobenzene	0.16766	0.22735	0.23211	0.24692	0.14654	0.20412	21.634	
57 Pentachlorophenol **	*****	0.14984	0.16313	0.18427	0.17515	0.16810	8.888	
59 Phenanthrene	1.17856	1.12116	1.03039	1.10488	1.09446	1.10587	4.816	
60 Anthracene	1.22151	1.13846	1.03029	1.08785	0.94393	1.06841	18.356	*
61 Di-n-Butylphthalate	1.57974	1.46066	1.35001	1.33754	1.21858	1.38931	9.838	
62 Fluoranthene **	1.05865	0.98717	0.90931	0.93105	0.86681	0.95060	7.823	
63 Pyrene	1.42082	1.44370	1.34411	1.41662	1.34988	1.39501	3.233	
65 Benzedine	*****	0.04531	0.03878	0.03862	0.03284	0.03889	13.183	<-
66 Butylbenzylphthalate	0.87347	0.90186	0.88698	0.91861	0.85675	0.88738	2.699	
67 Di (2-Ethylhexyl) Adipate	0.16446	0.16731	0.16923	0.17799	0.16612	0.16902	3.141	
68 Benzo(a)Anthracene	1.16590	1.18158	1.12297	1.18938	1.15968	1.16398	2.215	

Ecosys, Inc.

INITIAL CALIBRATION DATA

tart Cal Date : 28-MAY-93 15:51
End Cal Date : 11-AUG-95 19:59
uant Method : ISTD
al Curve Type : Averaged
Target Version : Target 2.20
ntegrator : HP RTE
ethod file : /chem/msd_2.i/2-081195.b/MA-BNA.m
Cal Date : 12-Aug-1995 12:45 target

alibration File Names:
Level 1: /chem/msd_2.i/2-081195.b/BNA0101001.d
Level 2: /chem/msd_2.i/2-081195.b/BNA0201002.d
evel 3: /chem/msd_2.i/2-081195.b/BNA0301003.d
evel 4: /chem/msd_2.i/2-081195.b/BNA0401004.d
Level 5: /chem/msd_2.i/2-081195.b/BNA0501005.d

	Compound	Level 1	Level 2	Level 3	Level 4	Level 5	$\overline{RRF}$	% RSD/R^2
69	3 3'-Dichlorobenzidine	0.13063	0.23093	0.22707	0.27445	0.29419	0.23146	27.298
71	Chrysene	1.04292	1.07848	0.98780	1.02696	0.99914	1.02706	3.516
72	Bis(2-ethylhexyl)Phthalate	1.23973	1.23961	1.15272	1.16512	1.06627	1.17269	6.142
73	Di-n-octyl Phthalate **	3.15496	2.62534	2.31475	2.16082	1.87188	2.42555	20.207
74	Benzo(b)fluoranthene	1.67086	1.49411	1.45725	1.85514	1.68477	1.63243	9.868
75	Benzo(k)fluoranthene	1.48369	0.99058	1.11269	0.87439	0.67092	1.02644	29.523
76	Benzo(a)pyrene **	1.47087	1.28346	1.16376	1.18889	1.11648	1.24435	11.259
78	Indeno(1,2,3-cd)pyrene	1.40515	1.24862	1.16981	1.23872	1.19496	1.25145	7.329
79	Dibenzo(a,h)anthracene	1.12946	1.02033	0.96084	1.02437	0.98999	1.02484	6.244
80	Benzo(g,h,i)perylene	1.16628	1.03626	0.96248	1.04581	1.01023	1.04420	7.233
$ 1	2-Fluorophenol	1.13396	1.17221	1.12487	1.21192	1.16461	1.16151	2.972
$ 3	Phenol-D5	1.49648	1.45667	1.28924	1.27273	1.13888	1.33888	10.968
$ 17	Nitrobenzene-D5	0.33735	0.39089	0.38578	0.41509	0.40235	0.38629	7.662
$ 35	2-Fluorobiphenyl	1.35198	1.38618	1.18819	1.19618	1.10689	1.24569	9.521
$ 54	2,4,6-Tribromophenol	0.09538	0.10272	0.10312	0.11449	0.11368	0.10588	7.654
$ 64	Terphenyl-D14	1.01621	0.98388	0.91844	0.98817	0.98254	0.97785	3.675

Ensys, Inc.

INITIAL CALIBRATION DATA

rent Cal Date : 10-MAR-1993 11:35
d Cal Date : 12-JUN-1995 15:30
ent Method : ISTD
al Curve Type : Averaged
arget Version : Target 2.20
tegrator : HP RTE
thod file : /chem/msd3.i/3-071295.b/MA-BNA_2.m
al Date : 13-Jul-1995 11:56 target

ibration File Names:
evel 1: /chem/msd3.i/3-071295.b/BNA0101001.d
evel 2: /chem/msd3.i/3-071295.b/BNA0201002.d
evel 3: /chem/msd3.i/3-071295.b/BNA0301003.d
evel 4: /chem/msd3.i/3-071295.b/BNA0401004.d
evel 5: /chem/msd3.i/3-071295.b/BNA0501005.d

Compound	level 1	level 2	level 3	level 4	level 5	$\overline{RRF}$	% RSD/R^2
2 Aniline	*****	1.147491	1.673201	1.802861	1.758161	1.595421	19.019!
3 bis(-2-Chloroethyl)Ether	1.275441	1.653861	1.835681	1.443541	1.506181	1.642941	10.243!
4 2-Chlorophenol	1.184961	1.500761	1.693721	1.542501	1.565371	1.497461	12.619!
6 Phenol **	1.301981	1.555731	1.789621	1.669011	1.679791	1.599211	11.611!
7 1,3-Dichlorobenzene	1.609091	1.644251	1.870981	1.762061	1.739771	1.776211	6.021!
9 1,4-Dichlorobenzene **	1.682741	1.689771	1.947561	1.845491	1.825941	1.798291	6.243!
10 1,2-Dichlorobenzene	1.541961	1.594091	1.831101	1.751441	1.729491	1.688701	7.007!
11 Benzyl Alcohol	0.660231	0.812421	0.953111	0.899731	0.871361	0.839371	13.376!
12 bis(2-Chloroisopropyl)ether	2.044241	1.897421	2.025481	1.675541	1.741471	1.876831	8.811!
13 2-Methylphenol	1.066081	1.162491	1.324141	1.220361	1.214041	1.197421	7.849!
14 Hexachloroethane	0.669361	0.663141	0.759131	0.691561	0.670611	0.690761	5.746!
15 N-nitroso-Di-n-propylamine *	0.920261	0.858501	0.850311	0.788721	0.829351	0.849431	5.643!
16 4-Methylphenol	1.035791	1.215341	1.392351	1.274131	1.240401	1.231601	10.456!
18 Nitrobenzene	0.337011	0.339191	0.365351	0.338641	0.409771	0.357991	8.727!
19 Isophorone	0.677201	0.659251	0.704841	0.678481	0.652251	0.674401	3.031!
20 2-Nitrophenol **	0.190971	0.249581	0.291231	0.273521	0.281731	0.257411	15.624!
21 2,4-Dimethylphenol	0.219711	0.272621	0.306911	0.263551	0.274041	0.267371	11.710!
22 bis(-2-Chloroethoxy)Methane	0.442461	0.442111	0.473891	0.408011	0.436501	0.440591	5.314!
23 2,4-Dichlorophenol **	0.182861	0.241991	0.275031	0.267021	0.278141	0.249011	15.906!
24 1,2,4-Trichlorobenzene	0.264961	0.275581	0.302621	0.297151	0.296891	0.287441	5.664!
26 Naphthalene	1.078751	1.075711	1.124091	1.084121	1.064411	1.085421	2.108!
27 Benzoic Acid	0.168591	0.206721	0.230861	0.220101	0.221051	0.209471	11.653!
28 4-Chloroaniline	*****	0.235291	0.396071	0.442741	0.443471	0.379391	25.988!
29 Hexachlorobutadiene **	0.138361	0.145521	0.166031	0.165911	0.162831	0.155731	8.285!
30 4-Chloro-3-Methylphenol **	0.194001	0.240261	0.275621	0.262121	0.256841	0.245771	12.853!
31 2-Methylnaphthalene	0.889071	0.897461	0.918631	0.979601	0.959881	0.908911	7.015!
32 Hexachlorocyclopentadiene *	0.213941	0.271131	0.333821	0.356401	0.364491	0.307961	20.796!
33 2,4,6-Trichlorophenol **	0.252241	0.346391	0.395011	0.371421	0.378311	0.348671	16.254!
34 2,4,5-Trichlorophenol	0.366011	0.433041	0.492551	0.496151	0.454891	0.444131	13.932!

Envirex, Inc.

INITIAL CALIBRATION DATA

Last Cal Date : 10-MAR-1993 11:35
Cal Date : 12-JUN-1995 15:30
Quant Method : ISTD
Cal Curve Type : Averaged
Target Version : Target 2.20
Integrator : HP RTE
Method File : /chem/msd3.i/3-071295.b/MA-BNA_2.m
Cal Date : 13-Jul-1995 11:56 target

Calibration File Names:
Level 1: /chem/msd3.i/3-071295.b/BNA01001.d
Level 2: /chem/msd3.i/3-071295.b/BNA02001.d
Level 3: /chem/msd3.i/3-071295.b/BNA03001.d
Level 4: /chem/msd3.i/3-071295.b/BNA04001.d
Level 5: /chem/msd3.i/3-071295.b/BNA05001.d

Compound	Level 1	Level 2	Level 3	Level 4	Level 5	$\overline{RRF}$	% RSD/R^2
36 2-Chloronaphthalene	1.114811	1.241681	1.36264	1.34563	1.33219	1.28039	8.142
37 2-Nitroaniline	0.31591	0.36914	0.41284	0.40975	0.38418	0.37937	10.399
38 Acenaphthylene	2.00213	2.07326	2.22665	2.21395	2.19332	2.14186	4.626
39 Dimethyl Phthalate	1.37921	1.49980	1.57993	1.45091	1.52127	1.48622	5.098
40 2,6-Dinitrotoluene	0.32268	0.36468	0.37533	0.36562	0.34084	0.35383	6.091
42 Acenaphthene **	1.24603	1.27163	1.35179	1.36482	1.34356	1.31557	4.038
43 3-Nitroaniline	*****	*****	0.27168	0.33489	0.37591	0.32758	16.033
44 2,4-Dinitrophenol *	*****	0.16394	0.19404	0.20417	0.21627	0.19468	11.495
45 Dibenzofuran	1.69108	1.77561	1.84009	1.87734	1.81829	1.79046	4.485
46 4-Nitrophenol *	0.09394	0.17112	0.20331	0.20147	0.19378	0.17977	26.556
47 2,4-Dinitrotoluene	0.38752	0.46978	0.51583	0.51229	0.51212	0.48836	11.542
48 Fluorene	1.26942	1.29225	1.35242	1.30307	1.25887	1.29521	2.818
49 4-Chlorophenyl-phenylether	0.55127	0.60659	0.69276	0.58616	0.60484	0.60817	8.583
50 Diethylphthalate	1.48092	1.53851	1.69181	1.50063	1.43191	1.52876	6.471
51 4-Nitroaniline	0.12603	0.19383	0.15979	0.19599	0.20181	0.17533	18.262
52 4,6-Dinitro-2-methylphenol	0.12347	0.18474	0.24486	0.24231	0.27396	0.21387	28.056
53 N-nitrosodiphenylamine **	0.39882	0.39227	0.43127	0.47639	0.55245	0.45024	14.689
55 4-Bromophenyl-phenylether	0.24752	0.27343	0.31110	0.25528	0.29078	0.27561	9.418
56 Hexachlorobenzene	0.28151	0.31474	0.36364	0.33021	0.34435	0.32689	9.519
57 Pentachlorophenol **	0.11876	0.17611	0.22334	0.20667	0.22261	0.18950	23.182
59 Phenanthrene	1.21099	1.28332	1.44743	1.35482	1.46604	1.35252	7.990
60 Anthracene	1.19530	1.23557	1.37324	1.28826	1.35795	1.29006	5.939
61 Di-n-Butylphthalate	2.02166	2.17721	2.50042	2.04892	2.18544	2.18673	8.699
62 Fluoranthene **	1.17295	1.24873	1.35925	1.34898	1.43064	1.31051	7.826
63 Pyrene	1.68561	1.63603	1.66508	1.53409	1.45523	1.59521	6.114
65 Butylbenzylphthalate	1.13593	1.10213	1.17094	0.93693	0.94687	1.05856	10.325
66 Benzo(a)Anthracene	1.21522	1.23645	1.31435	1.26113	1.24338	1.25409	2.989
68 3,3'-Dichlorobenzidine	0.13365	0.17285	0.16621	0.18176	0.19994	0.17088	14.258
69 Chrysene	1.03997	1.08554	1.15322	1.07739	1.09321	1.08987	3.752

Ecosys, Inc.

INITIAL CALIBRATION DATA

```
 art Cal Date   : 10-MAR-1993 11:35
nd Cal Date     : 12-JUN-1995 15:30
ant Method      : ISTD
 l Curve Type   : Averaged
arget Version   : Target  2.20
tegrator        : HP RTE
thod file       : /chem/mad3.i/3-071295.h/MA-BNA_2.m
al Date         : 13-Jul-1995 11:56 target

 libration File Names:
 vel 1: /chem/mad3.i/3-071295.h/BNA0101001.d
evel 2: /chem/mad3.i/3-071295.h/BNA0201002.d
vel 3: /chem/mad3.i/3-071295.h/BNA0301003.d
 vel 4: /chem/mad3.i/3-071295.h/BNA0401004.d
evel 5: /chem/mad3.i/3-071295.h/BNA0501005.d
```

Compound	level 1	level 2	level 3	level 4	level 5	$\overline{RRF}$	%RSD/R^2
70 bis(2-ethylhexyl)Phthalate	1.653041	1.630091	1.766231	1.397311	1.435901	1.576511	9.851
71 Di-n-octyl Phthalate **	5.265971	5.513421	6.027491	4.869131	4.898441	5.314891	9.031
72 Benzo(b)fluoranthene	1.870831	2.512471	2.597531	2.752611	2.597421	2.467771	13.796
73 Benzo(k)fluoranthene	1.775741	1.945421	2.310431	2.261651	2.243711	2.107391	11.124
74 Benzo(a)pyrene **	1.559411	1.628321	1.785541	1.778421	1.823231	1.714991	6.676
76 Indeno(1,2,3-cd)pyrene	1.331711	1.360531	1.540491	1.493191	1.562611	1.457711	7.238
77 Dibenzo(a,h)anthracene	0.986991	1.040471	1.183311	1.198081	1.255061	1.132781	10.021
78 Benzo(g,h,i)perylene	1.099891	1.082721	1.209261	1.160481	1.184351	1.148241	4.616
1 2-Fluorophenol	1.299541	1.143981	1.289071	1.202751	1.175271	1.206101	4.829
5 Phenol-d5	1.629151	1.486571	1.582011	1.552051	1.492101	1.540381	3.989
17 Nitrobenzene-d5	0.333441	0.310431	0.321171	0.333741	0.322981	0.324341	2.993
35 2-Fluorobiphenyl	1.366011	1.347041	1.354951	1.416461	1.394171	1.375731	2.103
54 2,4,6-Tribromophenol	0.221321	0.221771	0.222401	0.229481	0.232561	0.225511	2.298
64 Terphenyl-d14	1.133951	1.083891	1.021741	1.013121	0.927761	1.036731	7.633

Herbicide Method Blank Summary

Lab Name:	EcoSys, Inc.	Client:	Geosyntec
Ledger No.:	105829		
Lab Sample ID:	MBLK 1751		
Matrix:	TCLP	Extraction:	Sep Funnel
Cleanup Method:	none	Date Extracted:	8/23/95
Date Analyzed (1):	8/23/95	Date Analyzed (2):	8/23/95
Time Analyzed (1):	1910	Time Analyzed (2):	1830
Instrument ID (1):	GC-1	Instrument ID (2):	GC-1
GC Column (1):	DB-608	GC Column (2):	DB-5

This method blank applies to the following samples, LCS and LCD:

	Client Sample No.	Lab Sample ID	Date Analyzed (1)	Date Analyzed (2)
1		LCS 1751	8/23/95	8/23/95
2		LCD 1751	8/23/95	8/23/95
3	GNM W-1	AA18020	8/24/95	8/24/95
4	GNM W-2A	AA18022	8/24/95	8/24/95
5	GNM W-3A	AA18023	8/24/95	8/24/95
6	GNM W-3B	AA18024	8/24/95	8/24/95
7	GNM W-4	AA18025	8/24/95	8/24/95
8	GNM W-5	AA18027	8/24/95	8/24/95
9	GNM W-6	AA18029	8/24/95	8/24/95
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				

QA/QC Officer

Comments:

Herbicide LCS/LCD Recovery

Lab Name: EcoSys, Inc. Client: Geosyntec

Ledger No(s): 105829

Batch No: 1751 Lab Control Spike/Spike Duplicate No: LCS/LCD

Compound	Spike Added (ug/L)	Sample Conc (ug/L)	LCS Conc (ug/L)	LCS% Recovery	#	QC Limits Recovery
2,4'-D	5.0	nd	4.7	94		20-160

Compound	Spike Added (ug/L)	LCD Conc (ug/L)	LCD% Recovery	#	% RP	#	QC Limits RPD	QC Limits Recovery
2,4'-D	5.0	4.3	86		8.9		50	20-160

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
ND = Not Detected

RPD: 0 out of 2 outside limits

Spike Recovery: 0 out of 4 outside limits

QA/QC Officer

Comments: _____

Herbicide Surrogate Recovery

Lab Name: EcoSys, Inc. Client: GeoSyntec

Ledger No.: 105829 Date: 8/23/95

Batch No.: 1751

GC Column (1): DB608 ID: 0.053 (mm)

GC Column (2): DB5 ID: 0.53 (mm)

Lab Sample No.	DCAA %Rec	#	DCAA %Rec	#	OTHER %Rec	#	OTHER %Rec	#	OTHER #	OTHER #	Total Out
MBLK	100		119								0
LCS 1751	78		95								0
LCD 1751	66		82								0
AA18020	79		194								0
AA18022	92		610	*							1
AA18023	74		650	*							1
AA18024	71		700	*							1
AA18025	70		880	*							1
AA18027	78		188	*							1
AA18029	84		104								0

Column to be used to flag recovery values
* Values outside of required QC limits
D Surrogate diluted out

	QC Limits
DCAA-	60-150
DECACHLOROACETIC ACID	60-150

QA/QC Officer

Comments: * OUT OF REPORTING LIMITS DUE TO MATRIX INTERFERENCE

Herbicides Continuing Calibraton Report

REAR COLUMN (DB-5)
CONTINUING CALIBRATIONS

	CC UG/ML	RESULT	%RPD	TIME	DATE	VIAL #
2,4'-D	1.000	0.981	1.9	1507	8/23/95	25
2,4,5-TP SILVEX	0.100	0.098	2.5			

	CC UG/ML	RESULT	%RPD	TIME	DATE	VIAL #
2,4'-D	1.000	1.009	0.9	1124	8/24/95	38
2,4,5-TP SILVEX	0.100	0.099	1.3			

	CC UG/ML	RESULT	%RPD	TIME	DATE	VIAL #
2,4'-D	1.000	0.940	6.2	1914	8/24/95	49
2,4,5-TP SILVEX	0.100	0.092	8.2			

FRONT COLUMN (DB-608)
CONTINUING CALIBRATIONS

	CC UG/ML	RESULT	%RPD	TIME	DATE	VIAL#
2,4'-D	1.000	0.960	4.1	1547	8/23/95	25
2,4,5-TP SILVEX	0.100	0.099	0.7			

	CC UG/ML	RESULT	%RPD	TIME	DATE	VIAL #
2,4'-D	1.000	0.981	1.9	1205	8/24/95	38
2,4,5-TP SILVEX	0.100	0.098	2.5			

	CC UG/ML	RESULT	%RPD	TIME	DATE	VIAL #
2,4'-D	1.000	0.912	9.2	1954	8/24/95	49
2,4,5-TP SILVEX	0.100	0.085	16.1			

COMMENTS:

QA/QC OFFICER

Method: C:\HPCHEM\1\METHO. \1H081495.MTH

Calibration Table

Pk#	RT	Lvl	UG/ML	Amt/Area	Ref Istd I#	Name
1	5.734	1	2.5	7.9815e-007	1	DALAPON
		2	0.25	5.2323e-007		
		3	0.75	6.1545e-007		
		4	1.25	6.9951e-007		
		5	5.0	8.7187e-007		
2	20.813	1	1.0	1.1807e-006	1	2,4-DCAA(SURR)
		2	0.1	8.4569e-007		
		3	0.3	9.1328e-007		
		4	0.5	1.0429e-006		
		5	2.0	1.2104e-006		
3	21.266	1	100.0	3.3075e-004	1	MCPP
		2	10.0	2.4617e-004		
		3	30.0	2.7191e-004		
		4	50.0	2.9502e-004		
		5	200.0	3.3647e-004		
4	21.383	1	0.1	2.5782e-007	1	DICAMA
		2	0.01	2.3171e-007		
		3	0.03	2.2879e-007		
		4	0.05	2.4048e-007		
		5	0.2	2.5939e-007		
5	22.067	1	100.0	2.1737e-004	1	MCPA
		2	10.0	1.4133e-004		
		3	30.0	1.6897e-004		
		4	50.0	1.8389e-004		
		5	200.0	2.256e-004		
6	22.661	1	1.0	1.0751e-006	1	DICHLORPROP
		2	0.1	7.7607e-007		
		3	0.3	8.8174e-007		
		4	0.5	9.5714e-007		
		5	2.0	1.1207e-006		
7	23.601	1	1.0	1.0042e-006	1	2,4'-D
		2	0.1	6.9287e-007		
		3	0.3	8.2633e-007		
		4	0.5	8.9071e-007		
		5	2.0	1.0311e-006		
8	24.954	1	0.1	1.7744e-007	1	SILVEX
		2	0.01	1.6635e-007		
		3	0.03	1.5851e-007		
		4	0.05	1.6622e-007		
		5	0.2	1.7804e-007		
9	25.994	1	0.1	1.9234e-007	1	2,4,5-T
		2	0.01	1.6369e-007		
		3	0.03	1.6358e-007		
		4	0.05	1.7724e-007		
		5	0.2	1.9281e-007		
10	26.198	1	0.5	2.8886e-007	1	DINOSEB
		2	0.05	2.0572e-007		
		3	0.15	2.2399e-007		
		4	0.25	2.5657e-007		
		5	1.0	3.0003e-007		
11	26.831	1	1.0	1.727e-006	1	2,4'-DB
		2	0.01	1.0154e-007		
		3	0.3	1.2696e-006		
		4	0.5	1.5858e-006		
		5	2.0	1.7001e-006		

Calibration Settings

Title:

Reference window:	3.000 %
Non-reference window:	3.000 %
Units of amount:	UG/ML
Multiplier:	1.0
RF uncal peaks:	1.0
ISTD# to adjust uncal peaks:	0
Sample Amount:	0.0

Sample ISTD Information

No Sample ISTD Amounts

Multilevel Information

Fit: 2nd Order
Origin: Ignore

Case Narrative

There were several problems that had to be addressed with the samples contained in ledger number 105829 .

Samples were cleaned up using Florisil . Although the Florisil did help with the matrix effects encountered in the samples it did not alleviate all of the problems with contamination.

Because of a high number of interfering peaks there were problems with surrogate recoveries even though the samples were cleaned up .

Because of sample matrix there were problems keeping the continuing calibration standards within limits . The biggest problems were with break-down of 4,4-DDT and ENDRIN .

The same problems were encountered with TCLP samples but to a lesser degree .

Batch 1748 had some problems with %RPD . All the % recoveries were well within limits , but the LCS recoveries were closer to the lower limits and the LCD recoveries were closer to the higher limits causing the high %RPD.

Pesticide Method Blank Summary

Lab Name:	EcoSys, Inc.	Client:	GEOSYNTEC
Ledger No.:	105829		
Lab Sample ID:	MBLK 1748		
Matrix:	Water TCLP	Extraction:	sep funnel
Cleanup Method:	None	Date Extracted:	8/22/95
Date Analyzed (1):	8/23/95	Date Analyzed (2):	8/23/95
Time Analyzed (1):	2238	Time Analyzed (2):	2159
Instrument ID (1):	GC-4	Instrument ID (2):	GC-4
GC Column (1):	DB-608	GC Column (2):	DB-5

This method blank applies to the following samples, MS and MSD:

	Client Sample No.	Lab Sample ID	Date Analyzed (1)	Date Analyzed (2)
1		LCS 1748	8/23/95	8/23/95
2		LCD 1748	8/23/95	8/23/95
3	G-NM-W-1	AA18020	8/29/95	8/29/95
4	G-NM-W-2A	AA18022	8/30/95	8/30/95
5	G-NM-W-3A	AA18023	8/30/95	8/30/95
6	G-NM-W-3B	AA18024	8/30/95	8/30/95
7	G-NM-W-4	AA18025	8/30/95	8/30/95
8	G-NM-W-5	AA18027	8/30/95	8/30/95
9	G-NM-W-6	AA18029	8/30/95	8/30/95
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				

QA/QC Officer

Comments:

Water Pesticide LCS/LCD Recovery

Lab Name: EcoSys, Inc. Client: GROSYNTEC

Ledger No(s): 105829

Batch No: 1748 Lab Control Spike/Spike Duplicate No: MBLK1748

Compound	Spike Added (ug/L)	Sample Conc (ug/L)	LCS Conc (ug/L)	LCS% Recovery	#	QC Limits Recovery
gamma-BHC (Lindane)	0.500	ND	0.340	68		56-123
Heptachlor	0.500	ND	0.335	67		40-131
Aldrin	0.500	ND	0.340	68		40-120
Dieldrin	1.00	ND	0.740	74		52-126
Endrin	1.00	ND	0.830	83		56-121
4,4'-DDT	1.00	ND	0.860	86		38-127

Compound	Spike Added (ug/L)	LCD Conc (ug/L)	LCD% Recovery	#	% RPD	#	QC Limits RPD	QC Limits Recovery
gamma-BHC (Lindane)	0.500	0.455	91		29	*	15	56-123
Heptachlor	0.500	0.450	90		29	*	20	40-131
Aldrin	0.500	0.465	93		31	*	22	40-120
Dieldrin	1.00	0.970	97		27	*	18	52-126
Endrin	1.00	1.08	108		26	*	21	56-121
4,4'-DDT	1.00	1.12	113		27		27	38-127

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
ND = Not Detected

RPD: 5 out of 6 outside limits

Spike Recovery: 0 out of 12 outside limits

QA/QC Officer

Comments:

Water Pesticide Surrogate Recovery

Lab Name: EcoSys, Inc. Client: GEOSYNTEC

Ledger No(s): 105829

Batch No.: 1748

GC Column (1): DB-608

GC Column (2): DB-5

Lab Sample No.	TCX 1 %Rec	#	TCX2 %Rec	#	DCB1 %Rec	#	DCB2 %Rec	#	OTHER	#	OTHER	#	Total Out
MBLK 1748	79		93		118		110						
LCS 1748	68		97		90		114						
LCD 1748	78		106		88		111						
AA18020	87		92		108		98						
AA18022	85		94		99		92						
AA18023	100		0	*	108		94						
AA18024	92		73		103		53						
AA18025	90		120		99		62						
AA18027	87		86		117		106						
AA18029	47		49		87		81						

Column to be used to flag recovery values
* Values outside of required QC limits
ND = Not Detected

	QC Limits
TCX Tetrachloro-m-xylene	60-150
DCB Decachlorobiphenyl	60-150

QA/QC Officer

Comments:

Low surrogate recovery for sample AA18023 because of matrix effects.

Integration Events

Events:	Value:	Time:
Initial Area Reject	2000	INITIAL
Initial Peak Width	0.080	INITIAL
Shoulder Detection	OFF	INITIAL
Initial Threshold	1	INITIAL

Calibration Table

Pk#	RT	Lvl	ug/L	Amt/Hght	Ref Istd I#	Name
1	8.274	1	100.0	3.3116e-003	1	TCX(surr)
		2	10.0	3.7903e-003		
		3	20.0	4.3736e-003		
		4	50.0	3.3793e-003		
		5	200.0	3.3573e-003		
		6	400.0	3.5557e-003		
2	10.754	1	100.0	2.385e-003	1	alpha-BHC
		2	10.0	4.1588e-003		
		3	20.0	4.5008e-003		
		4	50.0	2.8988e-003		
		5	200.0	2.1944e-003		
		6	400.0	2.1899e-003		
3	12.134	1	100.0	2.4769e-003	1	gamma-BHC(Lindane)
		2	10.0	3.9716e-003		
		3	20.0	4.2496e-003		
		4	50.0	2.882e-003		
		5	200.0	2.3764e-003		
		6	400.0	2.3701e-003		
4	12.361	1	100.0	4.5679e-003	1	beta-BHC
		2	10.0	5.1338e-003		
		3	20.0	5.7824e-003		
		4	50.0	4.6654e-003		
		5	200.0	4.6151e-003		
		6	400.0	4.7227e-003		
5	13.260	1	100.0	2.7768e-003	1	Heptachlor
		2	10.0	2.9936e-003		
		3	20.0	3.3827e-003		
		4	50.0	2.9579e-003		
		5	200.0	2.7425e-003		
		6	400.0	2.7452e-003		
6	13.636	1	100.0	2.6797e-003	1	delta-BHC
		2	10.0	4.5581e-003		
		3	20.0	4.7399e-003		
		4	50.0	3.2706e-003		
		5	200.0	2.4889e-003		
		6	400.0	2.4203e-003		
7	14.475	1	100.0	3.789e-003	1	Aldrin
		2	10.0	4.8323e-003		
		3	20.0	5.3411e-003		
		4	50.0	4.3985e-003		
		5	200.0	3.469e-003		
		6	400.0	3.3186e-003		
8	16.803	1	100.0	3.2987e-003	1	Heptachlor Epoxide
		2	10.0	3.5712e-003		
		3	20.0	3.9673e-003		
		4	50.0	3.4897e-003		
		5	200.0	3.2218e-003		
		6	400.0	3.1997e-003		

9	17.920	1	100.0	2.9264e-003	1 Endosulfan I
		2	10.0	3.2702e-003	
		3	20.0	3.4765e-003	
		4	50.0	3.1167e-003	
		5	200.0	2.8941e-003	
		6	400.0	2.9546e-003	
10	18.498	1	100.0	2.8365e-003	1 4,4'-DDE
		2	10.0	3.9316e-003	
		3	20.0	4.1324e-003	
		4	50.0	3.2907e-003	
		5	200.0	2.6433e-003	
		6	400.0	2.6579e-003	
11	18.716	1	100.0	2.8927e-003	1 Dieldrin
		2	10.0	3.3068e-003	
		3	20.0	3.6049e-003	
		4	50.0	3.1252e-003	
		5	200.0	2.7096e-003	
		6	400.0	2.7002e-003	
12	19.557	1	100.0	3.2967e-003	1 Endrin
		2	10.0	4.1692e-003	
		3	20.0	4.4247e-003	
		4	50.0	3.6425e-003	
		5	200.0	3.141e-003	
		6	400.0	3.0976e-003	
13	19.767	1	100.0	3.4208e-003	1 4,4'-DDD
		2	10.0	4.6204e-003	
		3	20.0	4.783e-003	
		4	50.0	3.8079e-003	
		5	200.0	3.2326e-003	
		6	400.0	3.2804e-003	
14	19.934	1	100.0	2.7916e-003	1 Endosulfan II
		2	10.0	3.0459e-003	
		3	20.0	3.2302e-003	
		4	50.0	2.8988e-003	
		5	200.0	2.8247e-003	
		6	400.0	2.8975e-003	
15	20.380	1	100.0	3.0948e-003	1 4,4'-DDT
		2	10.0	4.2595e-003	
		3	20.0	4.2022e-003	
		4	50.0	3.4418e-003	
		5	200.0	2.9333e-003	
		6	400.0	2.9689e-003	
16	20.593	1	100.0	3.5395e-003	1 Endrin Aldehyde
		2	10.0	3.5053e-003	
		3	20.0	3.8235e-003	
		4	50.0	3.5426e-003	
		5	200.0	3.5522e-003	
		6	400.0	3.7908e-003	
17	20.845	1	100.0	3.1248e-003	1 Endosulfan Sulfate
		2	10.0	3.3409e-003	
		3	20.0	3.5998e-003	
		4	50.0	3.2351e-003	
		5	200.0	3.1445e-003	
		6	400.0	3.237e-003	
18	22.467	1	100.0	6.9482e-003	1 4,4'-Methoxychlor
		2	10.0	7.1898e-003	
		3	20.0	7.7541e-003	
		4	50.0	7.0872e-003	
		5	200.0	7.0014e-003	

		6	400.0	7.4727e-003		
19	22.849	1	100.0	3.4829e-003	1	Endrin Ketone
		2	10.0	4.3309e-003		
		3	20.0	4.5174e-003		
		4	50.0	3.7671e-003		
		5	200.0	3.4192e-003		
		6	400.0	3.5502e-003		
20	27.612	1	100.0	5.6837e-003	1	DCBP(surr)
		2	10.0	5.0242e-003		
		3	20.0	5.4655e-003		
		4	50.0	5.3876e-003		
		5	200.0	5.8513e-003		
		6	400.0	6.6888e-003		
21	100.000	1	100.0	100.0	1	AROCHLOR 1016
22	101.000	1	100.0	100.0	1	AROCHLOR 1221
23	102.000	1	100.0	100.0	1	AROCHLOR 1232
24	103.000	1	100.0	100.0	1	AROCHLOR 1242
25	104.000	1	100.0	100.0	1	AROCHLOR 1248
26	105.000	1	100.0	100.0	1	AROCHLOR 1254
27	107.000	1	100.0	100.0	1	CHLORDANE
28	108.000	1	100.0	100.0	1	TOXAPHENE

Calibration Settings

Title:

Reference window:	1.000 %
Non-reference window:	1.000 %
Units of amount:	ug/L
Multiplier:	1.0
RF uncal peaks:	1.0
ISTD# to adjust uncal peaks:	0
Sample Amount:	0.0

Sample ISTD Information

No Sample ISTD Amounts

Multilevel Information

Fit: 2nd Order
Origin: Ignore

Integration Events

Events:	Value:	Time:
Initial Area Reject	1500	INITIAL
Initial Peak Width	0.040	INITIAL
Shoulder Detection	OFF	INITIAL
Initial Threshold	0	INITIAL

Calibration Table

Pk#	RT	Lvl	ug/L	Amt/Hght	Ref	Istd	I#	Name
1	10.199	1	100.0	3.3656e-003			1	TCX(surr)
		2	10.0	4.4807e-003				
		3	20.0	4.9798e-003				
		4	50.0	3.6284e-003				
		5	200.0	3.3879e-003				
		6	400.0	4.0185e-003				
2	11.347	1	100.0	2.1794e-003			1	alpha-BHC
		2	10.0	5.0974e-003				
		3	20.0	5.2217e-003				
		4	50.0	2.7892e-003				
		5	200.0	1.9965e-003				
		6	400.0	2.3068e-003				
3	11.998	1	100.0	4.2893e-003			1	beta-BHC
		2	10.0	5.716e-003				
		3	20.0	6.101e-003				
		4	50.0	4.3328e-003				
		5	200.0	4.2381e-003				
		6	400.0	4.998e-003				
4	12.235	1	100.0	2.1843e-003			1	gamma-BHC(Lindane)
		2	10.0	4.4138e-003				
		3	20.0	4.4744e-003				
		4	50.0	2.4981e-003				
		5	200.0	2.0694e-003				
		6	400.0	2.4235e-003				
5	12.774	1	100.0	2.2244e-003			1	delta-BHC
		2	10.0	4.8859e-003				
		3	20.0	4.8535e-003				
		4	50.0	2.5576e-003				
		5	200.0	2.0782e-003				
		6	400.0	2.3837e-003				
6	14.155	1	100.0	2.3439e-003			1	Heptachlor
		2	10.0	2.9049e-003				
		3	20.0	3.1859e-003				
		4	50.0	2.3492e-003				
		5	200.0	2.286e-003				
		6	400.0	2.6999e-003				
7	15.175	1	100.0	2.9403e-003			1	Aldrin
		2	10.0	4.6483e-003				
		3	20.0	4.914e-003				
		4	50.0	3.1914e-003				
		5	200.0	2.7059e-003				
		6	400.0	3.0952e-003				
8	16.378	1	100.0	3.0982e-003			1	Heptachlor Epoxide
		2	10.0	3.8639e-003				
		3	20.0	4.156e-003				
		4	50.0	3.0986e-003				
		5	200.0	3.0041e-003				
		6	400.0	3.459e-003				

9	17.520	1	100.0	3.0141e-003	1 Endosulfan I
		2	10.0	3.8069e-003	
		3	20.0	4.024e-003	
		4	50.0	3.0321e-003	
		5	200.0	2.9539e-003	
		6	400.0	3.3811e-003	
10	18.034	1	100.0	3.1429e-003	1 4,4-DDE
		2	10.0	4.8836e-003	
		3	20.0	5.0547e-003	
		4	50.0	3.5191e-003	
		5	200.0	2.8817e-003	
		6	400.0	3.1901e-003	
11	18.236	1	100.0	2.8174e-003	1 Dieldrin
		2	10.0	3.9326e-003	
		3	20.0	4.1495e-003	
		4	50.0	2.9817e-003	
		5	200.0	2.6615e-003	
		6	400.0	2.9876e-003	
12	18.814	1	100.0	3.1899e-003	1 Endrin
		2	10.0	4.1739e-003	
		3	20.0	4.5101e-003	
		4	50.0	3.3067e-003	
		5	200.0	3.0524e-003	
		6	400.0	3.4026e-003	
13	19.012	1	100.0	2.9032e-003	1 Endosulfan II
		2	10.0	3.4552e-003	
		3	20.0	3.6721e-003	
		4	50.0	2.9393e-003	
		5	200.0	2.9114e-003	
		6	400.0	3.2696e-003	
14	19.111	1	100.0	3.7855e-003	1 4,4'-DDD
		2	10.0	5.5602e-003	
		3	20.0	5.8289e-003	
		4	50.0	4.2401e-003	
		5	200.0	3.4632e-003	
		6	400.0	3.7787e-003	
15	19.449	1	100.0	3.4776e-003	1 Endrin Aldehyde
		2	10.0	3.5887e-003	
		3	20.0	3.935e-003	
		4	50.0	3.4663e-003	
		5	200.0	3.5331e-003	
		6	400.0	4.0164e-003	
16	20.004	1	100.0	1.4838e-003	1 EndsulSulfate/DDT
		2	10.0	0.00186	
		3	20.0	1.9581e-003	
		4	50.0	1.5243e-003	
		5	200.0	1.4881e-003	
		6	400.0	1.7061e-003	
17	21.154	1	100.0	2.6323e-003	1 Endrin Ketone
		2	10.0	3.328e-003	
		3	20.0	3.5452e-003	
		4	50.0	2.8179e-003	
		5	200.0	2.6277e-003	
		6	400.0	3.0239e-003	
18	21.330	1	100.0	6.1435e-003	1 4,4'-Methoxychlor
		2	10.0	6.5236e-003	
		3	20.0	7.3932e-003	
		4	50.0	6.4771e-003	
		5	200.0	6.1232e-003	

		6	400.0	7.0048e-003	
19	28.760	1	100.0	5.5368e-003	1 DCBP(surr)
		2	10.0	4.7282e-003	
		3	20.0	5.5888e-003	
		4	50.0	5.4668e-003	
		5	200.0	5.7977e-003	
		6	400.0	7.2858e-003	

Calibration Settings

Title:

Reference window:	1.000 %
Non-reference window:	1.000 %
Units of amount:	ug/L
Multiplier:	1.0
RF uncal peaks:	1.0
ISTD# to adjust uncal peaks:	0
Sample Amount:	0.0

Sample ISTD Information

No Sample ISTD Amounts

Multilevel Information

Fit: 2nd Order
Origin: Ignore

Pesticide Calibration Verification

Date Analyzed: 8/23/95 GC Number: GC4
Time Analyzed: 2018
GC Column: DB608

	CCV concentration ug/L	results concentration ug/L	% Difference
	**********	**********	**********
TCX (Surrogate)	200	213	6.5
alph-BHC	200	202	1.0
gamma-BHC	200	202	1.0
beta-BHC	200	202	1.0
Heptachlor	200	201	0.5
delta-BHC	200	206	3.0
Aldrin	200	203	1.5
Heptachlor Epoxide	200	204	2.0
Endosulfan I	200	208	4.0
4,4'-DDE	200	220	10.0
Dieldrin	200	211	5.5
Endrin	200	213	6.5
4,4'-DDD	200	235	17.5
Endosulfan II	200	218	9.0
4,4'-DDT	200	236	18.0
Endrin Aldehyde	200	214	7.0
Endosulfan Sulfate	200	231	15.5
4,4'-Methoxychlor	200	257	28.5
Endrin Ketone	200	234	17.0
DCBP(Surrogate)	200	205	2.5

Pesticide Calibration Verification

Date Analyzed: 8/23/95 GC Number: GC4
Time Analyzed: 2039
GC Column: DB5

	CCV concentration ug/L	results concentration ug/L	% Difference
	**********	**********	**********
TCX (Surrogate)	200	194	3.0
alph-BHC	200	202	1.0
beta-BHC	200	218	9.0
gamma-BHC	200	206	3.0
delta-BHC	200	226	13.0
Heptachlor	200	208	4.0
Aldrin	200	216	8.0
Heptachlor Epoxide	200	219	9.5
Endosulfan I	200	220	10.0
4,4'-DDE	200	223	11.5
Dieldrin	200	219	9.5
Endrin	200	223	11.5
Endosulfan II	200	215	7.5
4,4'-DDD	200	222	11.0
Endrin Aldehyde	200	207	3.5
Endosulfan Sulfate/DDT	200	212	6.0
4,4'-Methoxychlor	200	209	4.5
Endrin Ketone	200	217	8.5
DCBP(Surrogate)	200	211	5.5

Pesticide Calibration Verification

Date Analyzed: 8/24/95 GC Number: GC4
Time Analyzed: 0600
GC Column: DB608

	CCV concentration ug/L **********	results concentration ug/L **********	% Difference **********
TCX (Surrogate)	200	240	20.0
alph-BHC	200	232	16.0
gamma-BHC	200	231	15.5
beta-BHC	200	237	18.5
Heptachlor	200	231	15.5
delta-BHC	200	245	22.5
Aldrin	200	232	16.0
Heptachlor Epoxide	200	234	17.0
Endosulfan I	200	237	18.5
4,4'-DDE	200	251	25.5
Dieldrin	200	241	20.5
Endrin	200	288	44.0
4,4'-DDD	200	271	35.5
Endosulfan II	200	253	26.5
4,4'-DDT	200	269	34.5
Endrin Aldehyde	200	222	11.0
Endosulfan Sulfate	200	268	34.0
4,4'-Methoxychlor	200	294	47.0
Endrin Ketone	200	257	28.5
DCBP(Surrogate)	200	238	19.0

Pesticide Calibration Verification

Date Analyzed: 8/24/95 GC Number: GC4
Time Analyzed: 0521
GC Column: DB5

	CCV concentration ug/L	results concentration ug/L	% Difference
	**********	**********	**********
TCX (Surrogate)	200	213	6.5
alph-BHC	200	214	7.0
beta-BHC	200	243	21.5
gamma-BHC	200	218	9.0
delta-BHC	200	256	28.0
Heptachlor	200	217	8.5
Aldrin	200	217	8.5
Heptachlor Epoxide	200	220	10.0
Endosulfan I	200	222	11.0
4,4'-DDE	200	232	16.0
Dieldrin	200	229	14.5
Endrin	200	253	26.5
Endosulfan II	200	230	15.0
4,4'-DDD	200	238	19.0
Endrin Aldehyde	200	205	2.5
Endosulfan Sulfate/DDT	200	229	14.5
4,4'-Methoxychlor	200	221	10.5
Endrin Ketone	200	241	20.5
DCBP(Surrogate)	200	232	16.0

Pesticide Method Blank Summary

Lab Name:	EcoSys, Inc.	Client:	CRA
Ledger No.:	105829		
Lab Sample ID:	MBLK 1737		
Matrix:	SOIL	Extraction:	Sonication
Cleanup Method:	None	Date Extracted:	18/18/95
Date Analyzed (1):	8/18/95	Date Analyzed (2):	8/18/95
Time Analyzed (1):	1303	Time Analyzed (2):	2225
Instrument ID (1):	GC-4	Instrument ID (2):	GC-4
GC Column (1):	DB-608	GC Column (2):	DB-5

This method blank applies to the following samples, MS and MSD:

	Client Sample No.	Lab Sample ID	Date Analyzed (1)	Date Analyzed (2)
1		LCS 1737	8/18/95	8/18/95
2		LCD 1737	8/18/95	8/18/95
3	G-NM-W-1	AA18020	9/1/95	9/1/95
4	G-NM-S-1	AA18021	8/19/95	8/19/95
5	G-NM-W-3A	AA18023	9/1/95	9/1/95
6	G-NM-W-3B	AA18024	9/1/95	9/1/95
7	G-NM-W-6	AA18029	9/1/95	9/1/95
8	G-NM-S-6	AA18031	9/1/95	9/1/95
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				

QA/QC Officer

Comments:

Soil Pesticide LCS/LCD Recovery

Lab Name: EcoSys, Inc. Client: GEOSYNTEC

Ledger No(s): 105829

Batch No: 1737 Lab Control Spike/Spike Duplicate No: MBLK1737

Compound	Spike Added (ug/Kg)	Sample Conc (ug/Kg)	LCS Conc (ug/Kg)	LCS% Recovery	#	QC Limits Recovery
gamma-BHC (Lindane)	16.7	ND	14.5	87		46-127
Heptachlor	16.7	ND	13.8	83		35-130
Aldrin	16.7	ND	14.5	87		34-132
Dieldrin	33.3	ND	31.5	95		31-134
Endrin	33.3	ND	17.5	53		42-139
4,4'-DDT	33.3	ND	28.5	86		23-134

Compound	Spike Added (ug/Kg)	LCD Conc (ug/Kg)	LCD% Recovery	#	% RPD	#	QC Limits RPD	QC Limits Recovery
gamma-BHC (Lindane)	16.7	15.0	90		3.4		50	46-127
Heptachlor	16.7	14.2	85		2.4		31	35-130
Aldrin	16.7	14.8	89		2.3		43	34-132
Dieldrin	33.3	32.0	96		1.6		38	31-134
Endrin	33.3	19.0	57		8.2		45	42-139
4,4'-DDT	33.3	29.7	89		4.0		50	23-134

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of OC limits
ND = Not Detected

RPD: 0 out of 6 outside limits

Spike Recovery: 0 out of 12 outside limits

QA/QC Officer

Comments:

Soil Pesticide Surrogate Recovery

Lab Name: EcoSys, Inc. Client: GEOSYNTEC

Ledger No(s): 105829

Batch No.: 1737

GC Column (1): DB-608

GC Column (2): DB-5

Lab Sample No.	TCX 1 %Rec	#	TCX2 %Rec	#	DCB1 %Rec	#	DCB2 %Rec	#	OTHER	#	OTHER	#	Total Out
MBLK 1737	88		85		93		102						
LCS 1737	97		89		97		101						
LCD 1737	97		81		99		90						
AA18020	35	*	48	*	63		58	*					3
AA18021	95		89		95		104						
AA18023	32	*	54	*	51	*	41	*					4
AA18024	66		89		112		76						
AA18029	57	*	66		112		94						1
AA18031	62		78		106		106						

Column to be used to flag recovery values
* Values outside of required QC limits
ND = Not Detected
DO = Diluted Out

	QC Limits
TCX Tetrachloro-m-xylene	60-150
DCB Decachlorobiphenyl	60-150

QA/QC Officer

Comments:

Some problems with surrogate recoveries because of matrix effects.

Integration Events

Events:	Value:	Time:
Initial Area Reject	2000	INITIAL
Initial Peak Width	0.080	INITIAL
Shoulder Detection	OFF	INITIAL
Initial Threshold	1	INITIAL

Calibration Table

Pk#	RT	Lvl	ug/L	Amt/Hght	Ref Istd I#	Name
1	8.380	1	100.0	3.5121e-003	1	TCX(surr)
		2	10.0	4.3101e-003		
		3	20.0	3.9382e-003		
		4	50.0	3.9741e-003		
		5	200.0	3.6213e-003		
		6	400.0	3.4782e-003		
2	10.859	1	100.0	2.4394e-003	1	alpha-BHC
		2	10.0	4.6052e-003		
		3	20.0	3.9346e-003		
		4	50.0	3.3804e-003		
		5	200.0	2.2927e-003		
		6	400.0	2.1016e-003		
3	12.239	1	100.0	2.5512e-003	1	gamma-BHC(Lindane)
		2	10.0	4.3147e-003		
		3	20.0	3.752e-003		
		4	50.0	3.2995e-003		
		5	200.0	2.4465e-003		
		6	400.0	2.3103e-003		
4	12.464	1	100.0	4.558e-003	1	beta-BHC
		2	10.0	5.4609e-003		
		3	20.0	5.0487e-003		
		4	50.0	5.1414e-003		
		5	200.0	4.6798e-003		
		6	400.0	4.5856e-003		
5	13.369	1	100.0	2.8866e-003	1	Heptachlor
		2	10.0	3.3217e-003		
		3	20.0	3.2063e-003		
		4	50.0	3.324e-003		
		5	200.0	2.8914e-003		
		6	400.0	2.707e-003		
6	13.746	1	100.0	2.6788e-003	1	delta-BHC
		2	10.0	4.8392e-003		
		3	20.0	4.1859e-003		
		4	50.0	3.6114e-003		
		5	200.0	2.5351e-003		
		6	400.0	2.3562e-003		
7	14.604	1	100.0	3.9389e-003	1	Aldrin
		2	10.0	5.2803e-003		
		3	20.0	4.964e-003		
		4	50.0	4.8781e-003		
		5	200.0	3.6234e-003		
		6	400.0	3.3073e-003		
8	16.920	1	100.0	3.2013e-003	1	Heptachlor Epoxide
		2	10.0	3.6505e-003		
		3	20.0	3.5148e-003		
		4	50.0	3.6658e-003		
		5	200.0	3.2081e-003		
		6	400.0	3.067e-003		

9	18.011	1	100.0	2.9105e-003	1 Endosulfan I
		2	10.0	3.3829e-003	
		3	20.0	3.2142e-003	
		4	50.0	3.286e-003	
		5	200.0	2.9724e-003	
		6	400.0	2.893e-003	
10	18.575	1	100.0	2.7572e-003	1 4,4'-DDE
		2	10.0	3.9918e-003	
		3	20.0	3.6632e-003	
		4	50.0	3.3676e-003	
		5	200.0	2.6973e-003	
		6	400.0	2.5833e-003	
11	18.796	1	100.0	2.722e-003	1 Dieldrin
		2	10.0	3.5401e-003	
		3	20.0	3.3381e-003	
		4	50.0	3.2626e-003	
		5	200.0	2.6978e-003	
		6	400.0	2.5692e-003	
12	19.629	1	100.0	3.2779e-003	1 Endrin
		2	10.0	4.3736e-003	
		3	20.0	4.0511e-003	
		4	50.0	3.9557e-003	
		5	200.0	3.3861e-003	
		6	400.0	3.1277e-003	
13	19.831	1	100.0	3.3517e-003	1 4,4'-DDD
		2	10.0	3.9011e-003	
		3	20.0	4.0889e-003	
		4	50.0	3.8416e-003	
		5	200.0	3.3023e-003	
		6	400.0	3.2872e-003	
14	20.001	1	100.0	2.8136e-003	1 Endosulfan II
		2	10.0	3.2015e-003	
		3	20.0	3.0325e-003	
		4	50.0	3.109e-003	
		5	200.0	2.9353e-003	
		6	400.0	2.8713e-003	
15	20.441	1	100.0	3.0915e-003	1 4,4'-DDT
		2	10.0	4.2765e-003	
		3	20.0	3.8583e-003	
		4	50.0	3.6157e-003	
		5	200.0	3.0972e-003	
		6	400.0	2.9778e-003	
16	20.660	1	100.0	3.604e-003	1 Endrin Aldehyde
		2	10.0	3.2901e-003	
		3	20.0	3.5763e-003	
		4	50.0	3.7009e-003	
		5	200.0	3.7303e-003	
		6	400.0	3.8018e-003	
17	20.914	1	100.0	3.2326e-003	1 Endosulfan Sulfate
		2	10.0	3.5158e-003	
		3	20.0	3.3996e-003	
		4	50.0	3.5042e-003	
		5	200.0	3.3268e-003	
		6	400.0	3.252e-003	
18	22.553	1	100.0	6.8692e-003	1 4,4'-Methoxychlor
		2	10.0	7.8828e-003	
		3	20.0	7.0789e-003	
		4	50.0	7.4871e-003	
		5	200.0	7.2238e-003	

		6	400.0	7.1237e-003		
19	22.947	1	100.0	3.5316e-003	1	Endrin Ketone
		2	10.0	4.5883e-003		
		3	20.0	4.1652e-003		
		4	50.0	4.0543e-003		
		5	200.0	3.5778e-003		
		6	400.0	3.5677e-003		
20	27.774	1	100.0	5.6591e-003	1	DCBP(surr)
		2	10.0	5.1639e-003		
		3	20.0	5.0584e-003		
		4	50.0	5.7447e-003		
		5	200.0	6.2701e-003		
		6	400.0	6.7207e-003		
21	100.000	1	100.0	100.0	1	AROCHLOR 1016
22	101.000	1	100.0	100.0	1	AROCHLOR 1221
23	102.000	1	100.0	100.0	1	AROCHLOR 1232
24	103.000	1	100.0	100.0	1	AROCHLOR 1242
25	104.000	1	100.0	100.0	1	AROCHLOR 1248
26	105.000	1	100.0	100.0	1	AROCHLOR 1254
27	107.000	1	100.0	100.0	1	CHLORDANE
28	108.000	1	100.0	100.0	1	TOXAPHENE

Calibration Settings

Title:

Reference window:	1.000 %
Non-reference window:	1.000 %
Units of amount:	ug/L
Multiplier:	1.0
RF uncal peaks:	1.0
ISTD# to adjust uncal peaks:	0
Sample Amount:	0.0

Sample ISTD Information

No Sample ISTD Amounts

Multilevel Information

Fit: 2nd Order
Origin: Ignore

Method: C:\HPCHEM\1\METHO. \2P081695.MTH

Integration Events

Events:	Value:	Time:
Initial Area Reject	1500	INITIAL
Initial Peak Width	0.040	INITIAL
Shoulder Detection	OFF	INITIAL
Initial Threshold	0	INITIAL

Calibration Table

Pk#	RT	Lvl	ug/L	Amt/Hght	Ref	Istd	I#	Name
1	10.259	1	100.0	2.6652e-003			1	TCX(surr)
		2	10.0	3.2612e-003				
		3	20.0	3.5535e-003				
		4	50.0	2.8513e-003				
		5	200.0	2.774e-003				
		6	400.0	2.8559e-003				
2	11.405	1	100.0	1.6581e-003			1	alpha-BHC
		2	10.0	3.6457e-003				
		3	20.0	3.5325e-003				
		4	50.0	2.041e-003				
		5	200.0	1.6036e-003				
		6	400.0	1.6364e-003				
3	12.055	1	100.0	3.3756e-003			1	beta-BHC
		2	10.0	4.0982e-003				
		3	20.0	4.5046e-003				
		4	50.0	3.6067e-003				
		5	200.0	3.5221e-003				
		6	400.0	3.7014e-003				
4	12.293	1	100.0	1.7042e-003			1	gamma-BHC(Lindane)
		2	10.0	3.1812e-003				
		3	20.0	3.1062e-003				
		4	50.0	1.9657e-003				
		5	200.0	1.7018e-003				
		6	400.0	1.7626e-003				
5	12.831	1	100.0	1.7515e-003			1	delta-BHC
		2	10.0	3.5298e-003				
		3	20.0	3.5322e-003				
		4	50.0	2.1048e-003				
		5	200.0	1.7081e-003				
		6	400.0	1.7692e-003				
6	14.220	1	100.0	2.0261e-003			1	Heptachlor
		2	10.0	2.3369e-003				
		3	20.0	2.6099e-003				
		4	50.0	2.1637e-003				
		5	200.0	2.0392e-003				
		6	400.0	2.1205e-003				
7	15.248	1	100.0	2.3813e-003			1	Aldrin
		2	10.0	3.5428e-003				
		3	20.0	3.7841e-003				
		4	50.0	2.8088e-003				
		5	200.0	2.3138e-003				
		6	400.0	2.358e-003				
8	16.459	1	100.0	2.5704e-003			1	Heptachlor Epoxide
		2	10.0	2.9777e-003				
		3	20.0	3.3498e-003				
		4	50.0	2.7746e-003				
		5	200.0	2.5681e-003				
		6	400.0	2.6768e-003				

9	17.593	1	100.0	2.5676e-003	1 Endosulfan I
		2	10.0	2.989e-003	
		3	20.0	3.3791e-003	
		4	50.0	2.7557e-003	
		5	200.0	2.6125e-003	
		6	400.0	2.7283e-003	
10	18.103	1	100.0	2.6589e-003	1 4,4-DDE
		2	10.0	3.839e-003	
		3	20.0	4.2858e-003	
		4	50.0	3.1834e-003	
		5	200.0	2.555e-003	
		6	400.0	2.6361e-003	
11	18.305	1	100.0	2.4219e-003	1 Dieldrin
		2	10.0	3.1611e-003	
		3	20.0	3.5134e-003	
		4	50.0	2.7748e-003	
		5	200.0	2.3634e-003	
		6	400.0	2.4347e-003	
12	18.882	1	100.0	2.6625e-003	1 Endrin
		2	10.0	3.4503e-003	
		3	20.0	3.8858e-003	
		4	50.0	3.0048e-003	
		5	200.0	2.6714e-003	
		6	400.0	2.8402e-003	
13	19.078	1	100.0	2.6133e-003	1 Endosulfan II
		2	10.0	0.00295	
		3	20.0	3.3908e-003	
		4	50.0	2.8361e-003	
		5	200.0	2.719e-003	
		6	400.0	2.7993e-003	
14	19.175	1	100.0	3.2536e-003	1 4,4'-DDD
		2	10.0	4.8369e-003	
		3	20.0	5.2695e-003	
		4	50.0	3.9419e-003	
		5	200.0	3.1828e-003	
		6	400.0	3.237e-003	
15	19.513	1	100.0	3.2612e-003	1 Endrin Aldehyde
		2	10.0	3.429e-003	
		3	20.0	3.9301e-003	
		4	50.0	3.4375e-003	
		5	200.0	3.3939e-003	
		6	400.0	3.6041e-003	
16	20.068	1	100.0	1.3718e-003	1 EndsulSulfate/DDT
		2	10.0	1.7199e-003	
		3	20.0	1.9051e-003	
		4	50.0	1.4794e-003	
		5	200.0	1.4401e-003	
		6	400.0	1.5206e-003	
17	21.231	1	100.0	2.554e-003	1 Endrin Ketone
		2	10.0	3.2292e-003	
		3	20.0	3.5462e-003	
		4	50.0	2.7836e-003	
		5	200.0	2.6338e-003	
		6	400.0	2.7553e-003	
18	21.408	1	100.0	5.8641e-003	1 4,4'-Methoxychlor
		2	10.0	6.1655e-003	
		3	20.0	7.3641e-003	
		4	50.0	6.0442e-003	
		5	200.0	6.1847e-003	

		6	400.0	6.4833e-003	
19	28.958	1	100.0	5.2645e-003	1 DCBP(surr)
		2	10.0	4.4015e-003	
		3	20.0	5.4235e-003	
		4	50.0	4.9599e-003	
		5	200.0	6.0672e-003	
		6	400.0	6.9062e-003	

Calibration Settings

Title:

Reference window:	1.000 %
Non-reference window:	1.000 %
Units of amount:	ug/L
Multiplier:	1.0
RF uncal peaks:	1.0
ISTD# to adjust uncal peaks:	0
Sample Amount:	0.0

Sample ISTD Information

No Sample ISTD Amounts

Multilevel Information

Fit: 2nd Order
Origin: Ignore

Pesticide Calibration Verification

Date Analyzed: 8/18/95 GC Number: GC4
Time Analyzed: 2107
GC Column: DB608

	CCV concentration ug/L	results concentration ug/L	% Difference
	**********	**********	**********
TCX (Surrogate)	200	221	10.5
alph-BHC	200	218	9.0
gamma-BHC	200	217	8.5
beta-BHC	200	212	6.0
Heptachlor	200	215	7.5
delta-BHC	200	216	8.0
Aldrin	200	219	9.5
Heptachlor Epoxide	200	219	9.5
Endosulfan I	200	221	10.5
4,4'-DDE	200	225	12.5
Dieldrin	200	224	12.0
Endrin	200	118	41.0
4,4'-DDD	200	230	15.0
Endosulfan II	200	224	12.0
4,4'-DDT	200	215	7.5
Endrin Aldehyde	200	269	34.5
Endosulfan Sulfate	200	227	13.5
4,4'-Methoxychlor	200	205	2.5
Endrin Ketone	200	262	31.0
DCBP(Surrogate)	200	216	8.0

Pesticide Calibration Verification

Date Analyzed: 8/18/95 GC Number: GC4
Time Analyzed: 2029
GC Column: DB5

	CCV concentration ug/L	results concentration ug/L	% Difference
	**********	**********	**********
TCX (Surrogate)	200	181	9.5
alph-BHC	200	177	11.5
beta-BHC	200	176	12.0
gamma-BHC	200	175	12.5
delta-BHC	200	175	12.5
Heptachlor	200	175	12.5
Aldrin	200	179	10.5
Heptachlor Epoxide	200	177	11.5
Endosulfan I	200	178	11.0
4,4'-DDE	200	177	11.5
Dieldrin	200	177	11.5
Endrin	200	82	59.0
Endosulfan II	200	172	14.0
4,4'-DDD	200	175	12.5
Endrin Aldehyde	200	211	5.5
Endosulfan Sulfate/DDT	200	171	14.5
4,4'-Methoxychlor	200	152	24.0
Endrin Ketone	200	204	2.0
DCBP(Surrogate)	200	179	10.5

Pesticide Calibration Verification

Date Analyzed: 8/19/95 GC Number: GC4
Time Analyzed: 0608
GC Column: DB608

	CCV concentration ug/L **********	results concentration ug/L **********	% Difference **********
TCX (Surrogate)	200	208	4.0
alph-BHC	200	210	5.0
gamma-BHC	200	210	5.0
beta-BHC	200	207	3.5
Heptachlor	200	209	4.5
delta-BHC	200	210	5.0
Aldrin	200	212	6.0
Heptachlor Epoxide	200	212	6.0
Endosulfan I	200	216	8.0
4,4'-DDE	200	219	9.5
Dieldrin	200	218	9.0
Endrin	200	104	48.0
4,4'-DDD	200	225	12.5
Endosulfan II	200	220	10.0
4,4'-DDT	200	213	6.5
Endrin Aldehyde	200	265	32.5
Endosulfan Sulfate	200	223	11.5
4,4'-Methoxychlor	200	201	0.5
Endrin Ketone	200	257	28.5
DCBP(Surrogate)	200	186	7.0

Pesticide Calibration Verification

Date Analyzed: 8/19/95 GC Number: GC4
Time Analyzed: 2029
GC Column: DB5

	CCV concentration ug/L **********	results concentration ug/L **********	% Difference **********
TCX (Surrogate)	200	184	8.0
alph-BHC	200	183	8.5
beta-BHC	200	181	9.5
gamma-BHC	200	181	9.5
delta-BHC	200	180	10.0
Heptachlor	200	185	7.5
Aldrin	200	186	7.0
Heptachlor Epoxide	200	184	8.0
Endosulfan I	200	187	6.5
4,4'-DDE	200	187	6.5
Dieldrin	200	187	6.5
Endrin	200	84	58.0
Endosulfan II	200	189	5.5
4,4'-DDD	200	189	5.5
Endrin Aldehyde	200	230	15.0
Endosulfan Sulfate/DDT	200	186	7.0
4,4'-Methoxychlor	200	166	17.0
Endrin Ketone	200	221	10.5
DCBP(Surrogate)	200	191	4.5

Integration Events

Events:	Value:	Time:
Initial Area Reject	1500	INITIAL
Initial Peak Width	0.040	INITIAL
Shoulder Detection	OFF	INITIAL
Initial Threshold	0	INITIAL

Calibration Table

Pk#	RT	Lvl	ug/L	Amt/Hght	Ref Istd I#	Name
1	10.126	1	100.0	2.4986e-003	1	TCX(surr)
		2	10.0	3.3911e-003		
		3	20.0	0.00332		
		4	50.0	2.8037e-003		
		5	200.0	2.8571e-003		
		6	400.0	2.7569e-003		
2	11.280	1	100.0	1.5518e-003	1	alpha-BHC
		2	10.0	3.8437e-003		
		3	20.0	3.3383e-003		
		4	50.0	2.026e-003		
		5	200.0	1.7038e-003		
		6	400.0	1.5745e-003		
3	11.935	1	100.0	3.2335e-003	1	beta-BHC
		2	10.0	4.3089e-003		
		3	20.0	4.2799e-003		
		4	50.0	3.5185e-003		
		5	200.0	3.7109e-003		
		6	400.0	3.5272e-003		
4	12.171	1	100.0	1.6063e-003	1	gamma-BHC(Lindane)
		2	10.0	3.2993e-003		
		3	20.0	2.9753e-003		
		4	50.0	1.9608e-003		
		5	200.0	1.8037e-003		
		6	400.0	1.7036e-003		
5	12.713	1	100.0	1.6566e-003	1	delta-BHC
		2	10.0	3.7367e-003		
		3	20.0	3.3377e-003		
		4	50.0	2.0606e-003		
		5	200.0	1.8085e-003		
		6	400.0	1.6813e-003		
6	14.091	1	100.0	1.8083e-003	1	Heptachlor
		2	10.0	2.247e-003		
		3	20.0	2.3291e-003		
		4	50.0	1.9899e-003		
		5	200.0	0.00205		
		6	400.0	1.931e-003		
7	15.105	1	100.0	2.2389e-003	1	Aldrin
		2	10.0	3.5546e-003		
		3	20.0	3.5495e-003		
		4	50.0	2.7147e-003		
		5	200.0	2.4562e-003		
		6	400.0	2.2308e-003		
8	16.301	1	100.0	2.4552e-003	1	Heptachlor Epoxide
		2	10.0	2.9927e-003		
		3	20.0	3.1528e-003		
		4	50.0	2.7216e-003		
		5	200.0	2.7593e-003		
		6	400.0	2.5719e-003		

9	17.453	1	100.0	2.4505e-003	1	Endosulfan I
		2	10.0	3.0163e-003		
		3	20.0	3.202e-003		
		4	50.0	2.7038e-003		
		5	200.0	2.7311e-003		
		6	400.0	2.5768e-003		
10	17.974	1	100.0	2.5738e-003	1	4,4-DDE
		2	10.0	3.9706e-003		
		3	20.0	4.1269e-003		
		4	50.0	3.1737e-003		
		5	200.0	2.7453e-003		
		6	400.0	0.00247		
11	18.176	1	100.0	2.3133e-003	1	Dieldrin
		2	10.0	3.2448e-003		
		3	20.0	3.3863e-003		
		4	50.0	2.7016e-003		
		5	200.0	2.5287e-003		
		6	400.0	2.3011e-003		
12	18.757	1	100.0	2.6731e-003	1	Endrin
		2	10.0	3.5975e-003		
		3	20.0	3.7513e-003		
		4	50.0	3.063e-003		
		5	200.0	3.1766e-003		
		6	400.0	2.9622e-003		
13	18.957	1	100.0	2.4623e-003	1	Endosulfan II
		2	10.0	2.9763e-003		
		3	20.0	3.1357e-003		
		4	50.0	2.6762e-003		
		5	200.0	2.8323e-003		
		6	400.0	2.6074e-003		
14	19.059	1	100.0	3.1589e-003	1	4,4'-DDD
		2	10.0	4.9813e-003		
		3	20.0	5.1533e-003		
		4	50.0	3.8625e-003		
		5	200.0	3.3918e-003		
		6	400.0	3.0478e-003		
15	19.396	1	100.0	3.0313e-003	1	Endrin Aldehyde
		2	10.0	3.3133e-003		
		3	20.0	3.5504e-003		
		4	50.0	3.2271e-003		
		5	200.0	3.428e-003		
		6	400.0	3.228e-003		
16	19.954	1	100.0	1.3191e-003	1	EndsulSulfate/DDT
		2	10.0	0.00173		
		3	20.0	1.7392e-003		
		4	50.0	1.4291e-003		
		5	200.0	1.5203e-003		
		6	400.0	1.4418e-003		
17	21.097	1	100.0	2.3251e-003	1	Endrin Ketone
		2	10.0	3.0646e-003		
		3	20.0	3.1313e-003		
		4	50.0	2.537e-003		
		5	200.0	2.6359e-003		
		6	400.0	2.4401e-003		
18	21.275	1	100.0	5.3456e-003	1	4,4'-Methoxychlor
		2	10.0	6.0295e-003		
		3	20.0	6.3265e-003		
		4	50.0	5.6496e-003		
		5	200.0	6.3006e-003		

		6	400.0	5.8572e-003	
19	28.631	1	100.0	5.0321e-003	1 DCBP(surr)
		2	10.0	4.3524e-003	
		3	20.0	4.7734e-003	
		4	50.0	4.8341e-003	
		5	200.0	6.2743e-003	
		6	400.0	6.3367e-003	

Calibration Settings

Title:

Reference window:	1.000 %
Non-reference window:	1.000 %
Units of amount:	ug/L
Multiplier:	1.0
RF uncal peaks:	1.0
ISTD# to adjust uncal peaks:	0
Sample Amount:	0.0

Sample ISTD Information

No Sample ISTD Amounts

Multilevel Information

Fit: 2nd Order
Origin: Ignore

Method: C:\HPCHEM\1\METHODS\1P082595.MTH

Integration Events

Events:	Value:	Time:
Initial Area Reject	2000	INITIAL
Initial Peak Width	0.080	INITIAL
Shoulder Detection	OFF	INITIAL
Initial Threshold	1	INITIAL

Calibration Table

Pk#	RT	Lvl	ug/L	Amt/Hght	Ref Istd I#	Name
1	8.274	1	100.0	3.3116e-003	1	TCX(surr)
		2	10.0	3.7903e-003		
		3	20.0	4.3736e-003		
		4	50.0	3.3793e-003		
		5	200.0	3.3573e-003		
		6	400.0	3.5557e-003		
2	10.753	1	100.0	2.385e-003	1	alpha-BHC
		2	10.0	4.1588e-003		
		3	20.0	4.5008e-003		
		4	50.0	2.8988e-003		
		5	200.0	2.1944e-003		
		6	400.0	2.1899e-003		
3	12.132	1	100.0	2.4769e-003	1	gamma-BHC(Lindane)
		2	10.0	3.9716e-003		
		3	20.0	4.2496e-003		
		4	50.0	2.882e-003		
		5	200.0	2.3764e-003		
		6	400.0	2.3701e-003		
4	12.360	1	100.0	4.5679e-003	1	beta-BHC
		2	10.0	5.1338e-003		
		3	20.0	5.7824e-003		
		4	50.0	4.6654e-003		
		5	200.0	4.6151e-003		
		6	400.0	4.7227e-003		
5	13.260	1	100.0	2.7768e-003	1	Heptachlor
		2	10.0	2.9936e-003		
		3	20.0	3.3827e-003		
		4	50.0	2.9579e-003		
		5	200.0	2.7425e-003		
		6	400.0	2.7452e-003		
6	13.635	1	100.0	2.6797e-003	1	delta-BHC
		2	10.0	4.5581e-003		
		3	20.0	4.7399e-003		
		4	50.0	3.2706e-003		
		5	200.0	2.4889e-003		
		6	400.0	2.4203e-003		
7	14.472	1	100.0	3.789e-003	1	Aldrin
		2	10.0	4.8323e-003		
		3	20.0	5.3411e-003		
		4	50.0	4.3985e-003		
		5	200.0	3.469e-003		
		6	400.0	3.3186e-003		
8	16.802	1	100.0	3.2987e-003	1	Heptachlor Epoxide
		2	10.0	3.5712e-003		
		3	20.0	3.9673e-003		
		4	50.0	3.4897e-003		
		5	200.0	3.2218e-003		
		6	400.0	3.1997e-003		

9	17.919	1	100.0	2.9264e-003	1 Endosulfan I
		2	10.0	3.2702e-003	
		3	20.0	3.4765e-003	
		4	50.0	3.1167e-003	
		5	200.0	2.8941e-003	
		6	400.0	2.9546e-003	
10	18.496	1	100.0	2.8365e-003	1 4,4'-DDE
		2	10.0	3.9316e-003	
		3	20.0	4.1324e-003	
		4	50.0	3.2907e-003	
		5	200.0	2.6433e-003	
		6	400.0	2.6579e-003	
11	18.715	1	100.0	2.8927e-003	1 Dieldrin
		2	10.0	3.3068e-003	
		3	20.0	3.6049e-003	
		4	50.0	3.1252e-003	
		5	200.0	2.7096e-003	
		6	400.0	2.7002e-003	
12	19.556	1	100.0	3.2967e-003	1 Endrin
		2	10.0	4.1692e-003	
		3	20.0	4.4247e-003	
		4	50.0	3.6425e-003	
		5	200.0	3.141e-003	
		6	400.0	3.0976e-003	
13	19.766	1	100.0	3.4208e-003	1 4,4'-DDD
		2	10.0	4.6204e-003	
		3	20.0	4.783e-003	
		4	50.0	3.8079e-003	
		5	200.0	3.2326e-003	
		6	400.0	3.2804e-003	
14	19.933	1	100.0	2.7916e-003	1 Endosulfan II
		2	10.0	3.0459e-003	
		3	20.0	3.2302e-003	
		4	50.0	2.8988e-003	
		5	200.0	2.8247e-003	
		6	400.0	2.8975e-003	
15	20.379	1	100.0	3.0948e-003	1 4,4'-DDT
		2	10.0	4.2595e-003	
		3	20.0	4.2022e-003	
		4	50.0	3.4418e-003	
		5	200.0	2.9333e-003	
		6	400.0	2.9689e-003	
16	20.593	1	100.0	3.5395e-003	1 Endrin Aldehyde
		2	10.0	3.5053e-003	
		3	20.0	3.8235e-003	
		4	50.0	3.5426e-003	
		5	200.0	3.5522e-003	
		6	400.0	3.7908e-003	
17	20.844	1	100.0	3.1248e-003	1 Endosulfan Sulfate
		2	10.0	3.3409e-003	
		3	20.0	3.5998e-003	
		4	50.0	3.2351e-003	
		5	200.0	3.1445e-003	
		6	400.0	3.237e-003	
18	22.466	1	100.0	6.9482e-003	1 4,4'-Methoxychlor
		2	10.0	7.1898e-003	
		3	20.0	7.7541e-003	
		4	50.0	7.0872e-003	
		5	200.0	7.0014e-003	

		6	400.0	7.4727e-003	
19	22.848	1	100.0	3.4829e-003	1 Endrin Ketone
		2	10.0	4.3309e-003	
		3	20.0	4.5174e-003	
		4	50.0	3.7671e-003	
		5	200.0	3.4192e-003	
		6	400.0	3.5502e-003	
20	27.611	1	100.0	5.6837e-003	1 DCBP(surr)
		2	10.0	5.0242e-003	
		3	20.0	5.4655e-003	
		4	50.0	5.3876e-003	
		5	200.0	5.8513e-003	
		6	400.0	6.6888e-003	
21	100.000	1	100.0	100.0	1 AROCHLOR 1016
22	101.000	1	100.0	100.0	1 AROCHLOR 1221
23	102.000	1	100.0	100.0	1 AROCHLOR 1232
24	103.000	1	100.0	100.0	1 AROCHLOR 1242
25	104.000	1	100.0	100.0	1 AROCHLOR 1248
26	105.000	1	100.0	100.0	1 AROCHLOR 1254
27	107.000	1	100.0	100.0	1 CHLORDANE
28	108.000	1	100.0	100.0	1 TOXAPHENE

Calibration Settings

Title:

Reference window:	1.000 %
Non-reference window:	1.000 %
Units of amount:	ug/L
Multiplier:	1.0
RF uncal peaks:	1.0
ISTD# to adjust uncal peaks:	0
Sample Amount:	0.0

Sample ISTD Information

No Sample ISTD Amounts

Multilevel Information

Fit: 2nd Order
Origin: Ignore

Pesticide Calibration Verification

Date Analyzed: 9/1/95 GC Number: GC4
Time Analyzed: 1435
GC Column: DB608

	CCV concentration ug/L	results concentration ug/L	% Difference
	**********	**********	**********
TCX (Surrogate)	200	133	33.5
alph-BHC	200	143	28.5
gamma-BHC	200	152	24.0
beta-BHC	200	163	18.5
Heptachlor	200	149	25.5
delta-BHC	200	171	14.5
Aldrin	200	167	16.5
Heptachlor Epoxide	200	176	12.0
Endosulfan I	200	180	10.0
4,4'-DDE	200	190	5.0
Dieldrin	200	193	3.5
Endrin	200	170	15.0
4,4'-DDD	200	232	16.0
Endosulfan II	200	197	1.5
4,4'-DDT	200	140	30.0
Endrin Aldehyde	200	197	1.5
Endosulfan Sulfate	200	204	2.0
4,4'-Methoxychlor	200	167	16.5
Endrin Ketone	200	219	9.5
DCBP(Surrogate)	200	241	20.5

Pesticide Calibration Verification

Date Analyzed: 9/1/95 GC Number: GC4
Time Analyzed: 1355
GC Column: DB5

	CCV concentration ug/L	results concentration ug/L	% Difference
	**********	**********	**********
TCX (Surrogate)	200	198	1.0
alph-BHC	200	199	0.5
beta-BHC	200	199	0.5
gamma-BHC	200	199	0.5
delta-BHC	200	200	0.0
Heptachlor	200	197	1.5
Aldrin	200	205	2.5
Heptachlor Epoxide	200	203	1.5
Endosulfan I	200	202	1.0
4,4'-DDE	200	209	4.5
Dieldrin	200	206	3.0
Endrin	200	241	20.5
Endosulfan II	200	208	4.0
4,4'-DDD	200	224	12.0
Endrin Aldehyde	200	200	0.0
Endosulfan Sulfate/DDT	200	204	2.0
4,4'-Methoxychlor	200	215	7.5
Endrin Ketone	200	208	4.0
DCBP(Surrogate)	200	239	19.5

Pesticide Calibration Verification

Date Analyzed: 9/2/95 GC Number: GC4
Time Analyzed: 0051
GC Column: DB608

	CCV concentration ug/L	results concentration ug/L	% Difference
	**********	**********	**********
TCX (Surrogate)	200	140	30.0
alph-BHC	200	151	24.5
gamma-BHC	200	160	20.0
beta-BHC	200	169	15.5
Heptachlor	200	159	20.5
delta-BHC	200	177	11.5
Aldrin	200	175	12.5
Heptachlor Epoxide	200	185	7.5
Endosulfan I	200	189	5.5
4,4'-DDE	200	198	1.0
Dieldrin	200	200	0.0
Endrin	200	175	12.5
4,4'-DDD	200	237	18.5
Endosulfan II	200	202	1.0
4,4'-DDT	200	151	24.5
Endrin Aldehyde	200	203	1.5
Endosulfan Sulfate	200	208	4.0
4,4'-Methoxychlor	200	174	13.0
Endrin Ketone	200	225	12.5
DCBP(Surrogate)	200	243	21.5

Pesticide Calibration Verification

Date Analyzed: 9/2/95 GC Number: GC4
Time Analyzed: 0012
GC Column: DB5

	CCV concentration ug/L **********	results concentration ug/L **********	% Difference **********
TCX (Surrogate)	200	198	1.0
alph-BHC	200	200	0.0
beta-BHC	200	197	1.5
gamma-BHC	200	199	0.5
delta-BHC	200	199	0.5
Heptachlor	200	198	1.0
Aldrin	200	203	1.5
Heptachlor Epoxide	200	202	1.0
Endosulfan I	200	200	0.0
4,4'-DDE	200	207	3.5
Dieldrin	200	203	1.5
Endrin	200	238	19.0
Endosulfan II	200	205	2.5
4,4'-DDD	200	221	10.5
Endrin Aldehyde	200	196	2.0
Endosulfan Sulfate/DDT	200	206	3.0
4,4'-Methoxychlor	200	217	8.5
Endrin Ketone	200	209	4.5
DCBP(Surrogate)	200	234	17.0

INORGANICS QC PACKAGE

ECOSYS

September 26, 1995

Ms. Mary Redican
GeoSyntec
1100 Lake Hearn, Ste. 200
Atlanta, GA 30342

Dear Ms. Redican:

The attached report contains the Level 3 QC data for Ledger Number 105829, EcoSys Sample Numbers AA18017, AA18018, AA18019, AA18020, AA18021, AA18022, AA18023, AA18024, AA18025, AA18027, AA18029, and AA018031, and corresponding client IDs G-NM-RB, G-NM-FB, G-NM-TB-1, G-NM-W-1, G-NM-S-1, G-NM-W-2A, G-NM-W-3A, G-NM-W-3B, G-NM-W-4, G-NM-W-5, G-NM-S-5, and G-NM-S-6. This report contains the following:

General Chemistry Data:

Total Cyanide (CN): AA18020, AA18021, AA18023, AA10824, AA18029, AA18031
Corrosivity (Corr): AA18020, AA18022, AA18023, AA18024, AA18025, AA18027, AA18029
Fluoride (Fl): AA18020, AA18021, AA18023, AA18024, AA18029, AA18031
Nitrate/Nitrite (NO3/NO2): AA18020, AA18021, AA18023, AA18024, AA18029, AA18031
Reactive Cyanide (CN 7.3.3.2): AA18020, AA18022, AA18023, AA18024, AA18025, AA18027, AA18029
Reactive Sulfide (S 7.3.4.1): AA18020, AA18022, AA18023, AA18024, AA18025, AA18027, AA18029
Flashpoint (Flash): AA18020, AA18022, AA18023, AA18024, AA18025, AA18027, AA18029

Method Blank
Laboratory Control
Duplicate RPD

[illegible] BANBROOK DRIVE
SUITE 105
NORCROSS GEORGIA 30093
404 368 0636
FAX 404 368 0806

CLINICAL LABORATORIES
ENVIRONMENTAL LABORATORIES
MOBILE LABORATORIES
FIELD SAMPLING

Metals (ICP, Method 6010) Data:

TAL: AA18020, AA18021, AA18023, AA18024, AA18029, AA18031
TCLP: AA18020, AA18022, AA18023, AA18024, AA18025, AA18027, AA18029

Method Blank Summary
Method Duplicate
Initial and Continuing Calibration Verification
Instrument Detection Limit
Spike Recovery
ICP Interference Check Sample
Lab Control Spike Recovery
ICP Serial Dilutions
Interelement Correction Factor

Mercury (Method 7471) Data:

TAL: AA18020, AA18021, AA18023, AA18024, AA18029, AA18031
TCLP: AA18020, AA18022, AA18023, AA18024, AA18025, AA18027, AA18029

Method Blank Summary
Method Duplicate
Initial and Continuing Calibration Verification
Instrument Detection Limit
Spike Recovery
Lab Control Spike Recovery (Solid Other, only)

Robert Levin
QC Officer

Method Blank Summary

Lab Name: EcoSys, Inc. **Client:** GeoSyntec

Lab Sample ID: Blank **Ledger No(s):** 105829

	ANALYTE	BLANK VALUE	DATE ANALYZED
1	Cyanide	<MDL	8/16/95; 8/28/95
2	Corrosivity	N/A	8/17/95
3	Fluoride	<MDL	8/18/95
4	Nitrate/Nitrite	<MDL	8/18/95
5	Reactive Cyanide	<MDL	8/17/95
6	Reactive Sulfide	<MDL	8/17/95
7	Flashpoint	N/A	8/17/95
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			

QA/QC Officer

Comments:

N/A: Not Applicable

Laboratory Control Recovery

Lab Name: EcoSys, Inc. **Client:** GeoSyntec

Ledger No.: 105829

Matrix: Solid Other **Lab Control:** See Below

Units: See Below

Compound	Lab LC Value (mg/Kg)	ERA LC Conc. (mg/Kg)	ERA QC Recovery	LC % Recovery	QC Limits Required
CN 335.2 LC	0.4415	0.60	0.40-0.80	74	80-120
	0.516	0.60	0.40-0.80	86	80-120

Compound	Lab LC Value	Beckman LC Conc.	Std. QC Recovery	LC % Recovery	QC Limits Required
Corrosivity 150.1 LC	0.97	1.00	0.9-1.1	97	80-120
	7.04	7.00	6.9-7.1	101	80-120

Compound	Lab LC Value (mg/Kg)	ERA LC Conc. (mg/Kg)	ERA QC Recovery	LC % Recovery	QC Limits Required
Fluoride 340.2 LC	4.30	4.33	3.90-4.76	99	80-120

Compound	Lab LC Value (mg/Kg)	ERA LC Conc. (mg/Kg)	ERA QC Recovery	LC % Recovery	QC Limits Required
NO3/NO2 353.3 LC	6.72	7.22	6.43-8.01	93	80-120

Compound	Lab LC Value (mg/Kg)	ERA LC Conc. (mg/Kg)	ERA QC Recovery	LC % Recovery	QC Limits Required
CN 7.3.3.2 LC	0.41	0.48	0.35-0.61	85	80-120

Compound	Lab LC Value (Degrees F)	P-Xylene LC Conc. (Degrees F)	Std. QC Recovery	LC % Recovery	QC Limits Required
Flashpoint 1010 LC	82	82	80-84	100	80-120

QA/QC Officer

Comments:

No Reactive Sulfide Laboratory Control was analyzed.

Duplicate RPD

Lab Name: EcoSys, Inc. **Client:** GeoSyntec

Lab Sample ID: See Below **Ledger No(s):** 105829

Lab Sample ID	CN-1 (mg/Kg)	CN-2 (mg/Kg)	Average (mg/Kg)	RPD (%)
AA18020	0.5725	0.5415	0.5570	5.6

Lab Sample ID	Corr-1	Corr-2	Average	RPD (%)
AA18024	5.53	5.49	5.51	0.7

Lab Sample ID	Fl-1 (mg/Kg)	Fl-2 (mg/Kg)	Average (mg/Kg)	RPD (%)
AA18020	31	32	32	3.2

Lab Sample ID	NO3/NO2-1 (mg/Kg)	NO3/NO2-2 (mg/Kg)	Average (mg/Kg)	RPD (%)
*	2	2.1	2.05	4.9

Lab Sample ID	React CN-1 (mg/Kg)	React CN-2 (mg/Kg)	Average (mg/Kg)	RPD (%)
*	ND	ND	ND	NC

Lab Sample ID	React S-1 (mg/Kg)	React S-2 (mg/Kg)	Average (mg/Kg)	RPD (%)
*	ND	ND	ND	NC

Lab Sample ID	Flash-1 (Degrees F)	Flash-2 (Degrees F)	Average (Degrees F)	RPD (%)
*	120	110	115	8.7

ND = Not Detected
NC = Not Calculable due to value(s) less than MDL
% RPD = [(S-D)/((S+D)/2)]*100
QC Limits Required: 20% RPD, maximum

QA/QC Officer

Comments:
1 is Sample Result; 2 is Duplicate Result
* A Non-GeoSyntec Sample was used for the duplicate analysis in this batch.

Metals Blanks

Lab Name: EcoSys, Inc. Client: GEOSYNTEC
Ledger No.: 105829 Date Analyzed: 8/16/95
Preparation Blank Matrix: SOLID OTHER Batch No.: 815A
Preparation Blank Concentration Units: MG/KG
Instrument ID: PE 3000 XL ICP Lab Sample ID: CAL BLK AA18123

Analyte	Intial Cal Blank	Continuing Cal Blank			Preparation Blank
		1	2	3	
Aluminum	<MDL	<MDL	<MDL	NR	<MDL
Antimony	<MDL	<MDL	<MDL	NR	<MDL
Arsenic	<MDL	<MDL	<MDL	NR	<MDL
Barium	<MDL	<MDL	<MDL	NR	<MDL
Beryllium	<MDL	<MDL	<MDL	NR	<MDL
Cadmium	<MDL	<MDL	<MDL	NR	<MDL
Calcium	<MDL	<MDL	<MDL	NR	<MDL
Chromium (Total)	<MDL	<MDL	<MDL	NR	<MDL
Chromium VI	NR	NR	NR	NR	NR
Cobalt	<MDL	<MDL	<MDL	NR	<MDL
Copper	<MDL	<MDL	<MDL	NR	<MDL
Iron	<MDL	<MDL	<MDL	NR	<MDL
Lead	<MDL	<MDL	<MDL	NR	<MDL
Magnesium	<MDL	<MDL	<MDL	NR	<MDL
Manganese	<MDL	<MDL	<MDL	NR	<MDL
Mercury	NR	NR	NR	NR	NR
Nickel	<MDL	<MDL	<MDL	NR	<MDL
Potassium	<MDL	<MDL	<MDL	NR	<MDL
Selenium	<MDL	<MDL	<MDL	NR	<MDL
Silver	<MDL	<MDL	<MDL	NR	<MDL
Sodium	<MDL	<MDL	<MDL	NR	<MDL
Thallium	<MDL	<MDL	<MDL	NR	<MDL
Vanadium	<MDL	<MDL	<MDL	NR	<MDL
Zinc	<MDL	<MDL	<MDL	NR	<MDL
Cyanide	NR	NR	NR	NR	NR

QA/QC Officer

Comments:

Metals Duplicates

Lab Name:	EcoSys, Inc.	Client:	GEOSYNTEC
Ledger No.:	105829	Date Analyzed:	8/16/95
Matrix:	SOLID OTHER	Batch No.:	815A
Units:	MG/KG	Lab Sample ID:	AA18024
Instrument ID:	PE 3000 XL ICP		AA18125-DUP

Analyte	Control Limit	Sample (S)	Duplicate (D)	RPD	*
Aluminum	± 20	819	841	3	
Antimony	± 20	ND	ND	NC	
Arsenic	± 20	ND	ND	NC	
Barium	± 20	9.01	9.07	1	
Beryllium	± 20	ND	ND	NC	
Cadmium	± 20	ND	ND	NC	
Calcium	± 20	263	254	3	
Chromium (Total)	± 20	10.6	10.2	4	
Chromium VI	± 20	NR	NR	NR	
Cobalt	± 20	ND	ND	NC	
Copper	± 20	9.18	8.33	10	
Iron	± 20	1048	1063	1	
Lead	± 20	5.06	5.62	10	
Magnesium	± 20	336	342	2	
Manganese	± 20	13.1	13.3	2	
Mercury	± 20	NR	NR	NR	
Nickel	± 20	1.74	1.73	1	
Potassium	± 20	154	172	11	
Selenium	± 20	ND	ND	NC	
Silver	± 20	ND	ND	NC	
Sodium	± 20	793	815	3	
Thallium	± 20	ND	ND	NC	
Vanadium	± 20	2.28	2.3	1	
Zinc	± 20	8.68	8.49	2	

*** Column used to indicate metals out of control limits**
NR = Not Required
ND = Not Detected
NC = Not Calculable due to value(s) less than CRDL
RPD = [(|S-D|)/(S+D)/2]*100

Lohit Lai
QA/QC Officer

Comments:

METALS TIAL AND CONTINUING CALIBRATION V. ICATION

Lab Name: ECOSYS, INC. Client: GEOSYNTEC

Ledger No: 105829

Initial Calibration Source: HIGH PURITY STANDARDS Date: 8/16/95

Continuing Calibration Source: EM SCIENCE

Concentration Units: MG/KG

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Aluminum	0.500	0.550	110	0.500	0.544	109	0.530	106	P
Antimony	0.500	0.578	116	0.500	0.556	111	0.498	100	P
Arsenic	0.500	0.640	128	0.500	0.528	106	0.528	106	P
Barium	0.500	0.510	102	0.500	0.484	97	0.484	97	P
Beryllium	0.500	0.507	101	0.500	0.497	99	0.510	102	P
Cadmium	0.500	0.512	102	0.500	0.493	99	0.506	101	P
Calcium	0.500	0.503	101	0.500	0.482	96	0.519	104	P
Chromium	0.500	0.526	105	0.500	0.503	101	0.510	102	P
Cobalt	0.500	0.515	103	0.500	0.475	95	0.480	96	P
Copper	0.500	0.520	104	0.500	0.489	98	0.484	97	P
Iron	0.500	0.512	102	0.500	0.498	100	0.499	100	P
Lead	0.500	0.522	104	0.500	0.483	97	0.493	99	P
Magnesium	0.500	0.510	102	0.500	0.471	94	0.477	95	P
Manganese	0.500	0.511	102	0.500	0.472	94	0.475	95	P
Mercury	NR	NR		NR	NR		NR		
Nickel	0.500	0.535	107	0.500	0.510	102	0.513	103	P
Potassium	5.000	4.460	89	5.000	4.610	92	4.770	95	P
Selenium	0.500	0.502	100	0.500	0.488	98	0.498	100	P
Silver	0.250	0.233	93	0.250	0.226	90	0.229	92	P
Sodium	0.500	0.467	93	0.500	0.405	81	0.396	79	P
Thallium	0.500	0.487	97	0.500	0.421	84	0.425	85	P
Vanadium	0.500	0.521	104	0.500	0.500	100	0.504	101	P
Zinc	0.500	0.546	109	0.500	0.508	102	0.514	103	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110

ANALYTICAL METHOD USED

P=ICP A=Flame AA F=Furnace AA MHS=HG HYDRIDE SPECTROSCOPY

Comments:

QA/QC Officer

. .als Instrument Detection Limits (IL

Lab Name: EcoSys, Inc. **Client:** GeoSyntec

Ledger No: 105829

ICP ID Number: PE 3000 XL ICP **Date Analyzed:** 08/16/95

Analyte	Wavelength (nm)	Background	CRDL (mg/Kg)	IDL (mg/Kg)	M
Aluminum	394.401	N/R	N/R	3.7	P
Antimony	217.581	N/R	0.1200	3.0	P
Arsenic	188.982	N/R	0.0200	6.5	P
Barium	233.526	N/R	N/R	0.2	P
Beryllium	313.098	N/R	0.0100	0.1	P
Cadmium	226.502	N/R	0.0100	0.2	P
Calcium	315.887	N/R	N/R	10	P
Chromium	267.707	N/R	0.0200	0.7	P
Cobalt	228.616	N/R	0.1000	0.5	P
Copper	324.750	N/R	0.0500	0.5	P
Iron	238.204	N/R	N/R	1.6	P
Lead	220.353	N/R	0.0060	3.0	P
Magnesium	279.079	N/R	N/R	4.2	P
Manganese	257.610	N/R	0.0300	5.0	P
Mercury	N/R	N/R	N/R	N/R	
Nickel	231.604	N/R	0.0800	0.7	P
Potassium	404.709	N/R	N/R	4.0	P
Selenium	196.023	N/R	0.0100	2.6	P
Silver	328.062	N/R	0.0200	0.4	P
Sodium	330.237	N/R	N/R	3.7	P
Thallium	190.793	N/R	0.0200	4.6	P
Vanadium	292.402	N/R	0.1000	0.9	P
Zinc	202.548	N/R	0.0400	1.7	P

NR = Not Required
M=Instrument: P = ICP

Comments:

QA/QC Officer

Metals Spike Recovery

Lab Name: EcoSys, Inc.	**Client:** GEOSYNTEC
Ledger No(s): 105829	**Date Analyzed:** 8/16/95
Matrix: SOLID OTHER	**Batch No.:** 815A
Units: MG/KG	**Lab Sample ID:** AA18029
Instrument ID: PE 3000 XL ICP	AA18126-MS

Analyte	Control Limit	Spiked Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R	*
Aluminum	75-125	6670	941	1308	438	*
Antimony	75-125	333	ND	392	85	
Arsenic	75-125	615	ND	654	94	
Barium	75-125	1176	97.7	1308	82	
Beryllium	75-125	28.8	ND	26.2	110	
Cadmium	75-125	54.8	ND	52.4	105	
Calcium	75-125	1445	467	524	187	*
Chromium (Total)	75-125	76.3	15.2	52.4	117	
Chromium VI	75-125	NR	NR	NR		
Cobalt	75-125	267	ND	262	102	
Copper	75-125	160	6.05	131	118	
Iron	75-125	3640	2149	654	228	*
Lead	75-125	548	11.8	654	82	
Magnesium	75-125	2215	561	1308	126	*
Manganese	75-125	126	34.7	98.1	93	
Mercury	75-125	NR	NR	NR		
Nickel	75-125	224	1.31	262	85	
Potassium	75-125	6594	307	6540	96	
Selenium	75-125	290	ND	327	89	
Silver	75-125	4.78	ND	6.54	73	*
Sodium	75-125	4140	679	3270	106	
Thallium	75-125	191	ND	262	73	*
Vanadium	75-125	287	2.7	327	87	
Zinc	75-125	131	9.87	131	92	
Cyanide	75-125	NR	NR	NR		

*** Column used to indicate metals out of control limits**
NR = Not Required
ND = Not Detected
NC = Not Calculable due to value(s) less than CRDL

Robert Lem
QA/QC Officer

Comments:
*BEYOND DETECTION DUE TO MATRIX INTERFERENCE

Metals Spike Recovery

Lab Name: EcoSys, Inc.	**Client:** GEOSYNTEC
Ledger No(s): 105829	**Date Analyzed:** 8/16/95
Matrix: SOLID OTHER	**Batch No.:** 815A
Units: MG/KG	**Lab Sample ID:** AA18029
Instrument ID: PE 3000 XL ICP	AA18127-MSD

Analyte	Control Limit	Spiked Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R	*
Aluminum	75-125	6353	941	1308	414	*
Antimony	75-125	347	ND	392	89	
Arsenic	75-125	622	ND	654	95	
Barium	75-125	1223	97.7	1308	86	
Beryllium	75-125	29.4	ND	26.2	112	
Cadmium	75-125	55.6	ND	52.4	106	
Calcium	75-125	1246	467	524	149	*
Chromium (Total)	75-125	73.9	15.2	52.4	112	
Chromium VI	75-125	NR	NR	NR		
Cobalt	75-125	271	ND	262	103	
Copper	75-125	157	6.05	131	115	
Iron	75-125	5180	2.49	654	792	*
Lead	75-125	556	11.8	654	83	
Magnesium	75-125	2100	561	1308	118	
Manganese	75-125	129	34.7	98.1	96	
Mercury	75-125	NR	NR	NR		
Nickel	75-125	227	1.31	262	86	
Potassium	75-125	6626	307	6540	97	
Selenium	75-125	293	ND	327	90	
Silver	75-125	4.96	ND	6.54	76	
Sodium	75-125	4015	679	3270	102	
Thallium	75-125	196	ND	262	75	
Vanadium	75-125	291	2.7	327	88	
Zinc	75-125	143	9.87	131	102	
Cyanide	75-125	NR	NR	NR		

*** Column used to indicate metals out of control limits**
NR = Not Required
ND = Not Detected
NC = Not Calculable due to value(s) less than CRDL

Robert Lee

QA/QC Officer

Comments:

*BEYOND DETECTION DUE TO MATRIX INTERFERENCE

ICP Interference Check Sample

Lab Name: EcoSys, Inc. **Date:** 8/16/95

Ledger Number: 105829 **Units:** MG/KG

Check Sample ID: ICS-A

Check Sample Source: HIGH PURITY STANDARDS

Compound	Control Limits (1)		True (2)	Initial		Final	
	Mean	Std. Deviation		Observed	%R	Observed	%R
Aluminum	506	32	500	472	94	495	99
Antimony	NR	NR	NR	NR	NR	NR	NR
Arsenic	NR	NR	NR	NR	NR	NR	NR
Barium	NR	NR	NR	NR	NR	NR	NR
Beryllium	NR	NR	NR	NR	NR	NR	NR
Cadmium	NR	NR	NR	NR	NR	NR	NR
Calcium	490	17	500	503	101	528	106
Chromium (Total)	NR	NR	NR	NR	NR	NR	NR
Chromium VI	NR	NR	NR	NR	NR	NR	NR
Cobalt	NR	NR	NR	NR	NR	NR	NR
Copper	NR	NR	NR	NR	NR	NR	NR
Iron	487	18	500	389	78	372	74
Lead	NR	NR	NR	NR	NR	NR	NR
Magnesium	490	17	500	454	91	439	88
Manganese	NR	NR	NR	NR	NR	NR	NR
Mercury	NR	NR	NR	NR	NR	NR	NR
Nickel	NR	NR	NR	NR	NR	NR	NR
Potassium	490	30	500	706	141	657	131
Selenium	NR	NR	NR	NR	NR	NR	NR
Silver	NR	NR	NR	NR	NR	NR	NR
Sodium	512	13	500	605	121	584	117
Thallium	NR	NR	NR	NR	NR	NR	NR
Vanadium	NR	NR	NR	NR	NR	NR	NR
Zinc	NR	NR	NR	NR	NR	NR	NR

(1) Mean value based on n = 16

(2) True value of EPA ICP Interference Check Sample or contractor standard.

QA/QC Officer

Comments: _____

ICP Interference Check Sample

Lab Name: EcoSys, Inc. **Date:** 8/16/95

Ledger Number: 105829 **Units:** MG/KG

Check Sample ID: ICS-AB

Check Sample Source: HIGH PURITY STANDARDS

Compound	Control Limits (1)		True (2)	Initial		Final	
	Mean	Std. Deviation		Observed	%R	Observed	%R
Aluminum	506	32	500	512	102	495	99
Antimony	NR	NR	NR	NR	NR	NR	NR
Arsenic	NR	NR	NR	NR	NR	NR	NR
Barium	NR	NR	NR	NR	NR	NR	NR
Beryllium	NR	NR	NR	NR	NR	NR	NR
Cadmium	NR	NR	NR	NR	NR	NR	NR
Calcium	490	17	500	501	100	530	106
Chromium (Total)	NR	NR	NR	NR	NR	NR	NR
Chromium VI	NR	NR	NR	NR	NR	NR	NR
Cobalt	NR	NR	NR	NR	NR	NR	NR
Copper	NR	NR	NR	NR	NR	NR	NR
Iron	487	18	500	388	78	372	74
Lead	NR	NR	NR	NR	NR	NR	NR
Magnesium	490	17	500	451	90	438	88
Manganese	NR	NR	NR	NR	NR	NR	NR
Mercury	NR	NR	NR	NR	NR	NR	NR
Nickel	NR	NR	NR	NR	NR	NR	NR
Potassium	490	30	500	707	141	655	131
Selenium	NR	NR	NR	NR	NR	NR	NR
Silver	NR	NR	NR	NR	NR	NR	NR
Sodium	512	13	500	602	120	584	117
Thallium	NR	NR	NR	NR	NR	NR	NR
Vanadium	NR	NR	NR	NR	NR	NR	NR
Zinc	NR	NR	NR	NR	NR	NR	NR

(1) Mean value based on n = 16

(2) True value of EPA ICP Interference Check Sample or contractor standard.

QA/QC Officer

Comments: _____

Metals Lab Control Spike Recovery

Lab Name: EcoSys, Inc.	**Client:** GEOSYNTEC
Ledger No(s): 105829	**Date Analyzed:** 8/16/95
Matrix: SOLID OTHER	**Batch No.:** 815A
Units: MG/KG	**Lab Sample ID:** AA18124-LCS
Instrument ID: PE 3000 XL ICP	**ERA LOT#** 224

Analyte	Control Limit	Spiked Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R	*
Aluminum	75-125	3236	0	3490	93	
Antimony	75-125	53	0	49.4	107	
Arsenic	75-125	81.9	0	82.4	99	
Barium	75-125	185	0	238	78	
Beryllium	75-125	134	0	152	88	
Cadmium	75-125	77.1	0	90	86	
Calcium	75-125	1881	0	2410	78	
Chromium (Total)	75-125	139	0	167	83	
Chromium VI	75-125	NR	NR	NR		
Cobalt	75-125	82.3	0	101	81	
Copper	75-125	168	0	196	86	
Iron	75-125	5529	0	7130	78	
Lead	75-125	132	0	162	81	
Magnesium	75-125	2001	0	2370	84	
Manganese	75-125	289	0	367	79	
Mercury	75-125	NR	NR	NR		
Nickel	75-125	114	0	135	84	
Potassium	75-125	2310	0	2310	100	
Selenium	75-125	102	0	109	94	
Silver	75-125	53.8	0	65.4	82	
Sodium	75-125	436	0	502	87	
Thallium	75-125	101	0	127	80	
Vanadium	75-125	79.9	0	94	85	
Zinc	75-125	171	0	199	86	
Cyanide	75-125	NR	NR	NR		

*** Column used to indicate metals out of control limits**
NR = Not Required
ND = Not Detected
NC = Not Calculable due to value(s) less than CRDL

QA/QC Officer

Comments:

Metals ICP Serial Dilutions

Lab Name: EcoSys, Inc.	Client: GEOSYNTEC
Ledger No(s): 105829	Date: 8/16/95
Matrix: SOLID OTHER	Sample No: AA18029
	Units: MG/KG

Analyte	Initial Sample Concentration (I)	Serial Dilution Result (S) (1)	% Difference (2)
Aluminum	941	938	0
Antimony	ND	ND	
Arsenic	ND	ND	
Barium	97.7	103	5
Beryllium	ND	ND	
Cadmium	ND	ND	
Calcium	507	507	0
Chromium (Total)	15.2	16	5
Chromium VI	NR	NR	
Cobalt	ND	ND	
Copper	6.05	6.31	4
Iron	2149	2302	7
Lead	11.7	13.2	13
Magnesium	561	587	5
Manganese	34.7	36.7	6
Mercury	NR	NR	
Nickel	1.31	1.52	16
Potassium	313	296	5
Selenium	ND	ND	
Silver	ND	ND	
Sodium	679	585	14
Thallium	ND	ND	
Vanadium	2.7	2.9	7
Zinc	9.87	10.3	4
Cyanide	NR	NR	

1 Diluted sample concentration corrected for 1:4 dilution
2 Percent Difference = [(|I-S|)/I]*100
NR = Not Required
NA = Not Applicable, analyte not determined by ICP

QA/QC Officer

Comments: _____

Metals ICP Serial Dilutions

Lab Name: EcoSys, Inc.	Client: GEOSYNTEC
Ledger No(s): 105829	Date: 8/16/95
Matrix: SOLID OTHER	Sample No: AA18029
	Units: MG/KG

Analyte	Initial Sample Concentration (I)	Serial Dilution Result (S) (1)	% Difference (2)
Aluminum	941	925	2
Antimony	ND	ND	
Arsenic	ND	ND	
Barium	97.7	102	4
Beryllium	ND	ND	
Cadmium	ND	ND	
Calcium	507	503	1
Chromium (Total)	15.2	15.9	5
Chromium VI	NR	NR	
Cobalt	ND	ND	
Copper	6.05	5.97	1
Iron	2149	2288	6
Lead	11.7	12.9	10
Magnesium	561	582	4
Manganese	34.7	36.2	4
Mercury	NR	NR	
Nickel	1.31	1.46	11
Potassium	313	282	10
Selenium	ND	ND	
Silver	ND	ND	
Sodium	679	600	12
Thallium	ND	ND	
Vanadium	2.7	2.87	6
Zinc	9.87	10.1	2
Cyanide	NR	NR	

1 Diluted sample concentration corrected for 1:4 dilution
2 Percent Difference = [(|I-S|)/I]*100
NR = Not Required
NA = Not Applicable, analyte not determined by ICP

QA/QC Officer

Comments: _____

ICP Interelement Correction Factors

Lab Name: Ecosys, Inc. Client: GeoSyntec

ICP Model: PE 3000XL ICP Date Analyzed: 8/16/95

Analyte	Analyte Wavelength (nm)	Interelement Correction Factors							
		Al	Ca	Fe	Mg				
Aluminum	394.401	N/R	0.000000	0.001169	0.000000				
Antimony	217.581	0.000000	0.000000	0.000000	0.000000				
Arsenic	188.982	0.000000	0.000000	0.000000	0.000000				
Barium	233.526	0.000000	0.000000	0.000000	0.000000				
Beryllium	313.098	0.000000	0.000000	0.000000	0.000000				
Cadmium	226.502	0.000000	0.000000	0.000000	0.000000				
Calcium	315.887	0.000000	N/R	0.000000	0.000000				
Chromium (Total)	267.707	0.000000	0.000000	0.000000	0.000000				
Cobalt	228.616	0.000000	0.000000	0.000000	0.000000				
Copper	324.750	0.000000	0.000000	0.000000	0.000000				
Iron	238.204	0.000000	0.000000	N/R	0.000068				
Lead	220.353	0.000000	0.000000	0.000000	0.000000				
Magnesium	279.079	0.000000	0.000000	0.000000	N/R				
Manganese	257.610	0.000000	0.000000	0.000000	0.000000				
Mercury	N/R	N/R	N/R	N/R	N/R				
Nickel	231.604	0.000000	0.000000	0.000000	0.000000				
Potassium	404.709	0.000000	0.000000	0.000000	0.000000				
Selenium	196.023	0.000000	0.000000	0.000000	0.000000				
Silver	328.062	0.000000	0.000000	0.000000	0.000000				
Sodium	330.237	0.000000	0.000000	0.000000	0.000000				
Thallium	190.793	0.000000	0.000000	0.000000	0.000000				
Vanadium	292.402	0.000000	0.000000	0.000000	0.000000				
Zinc	202.548	0.000000	0.000000	0.000000	0.000000				

N/R: Not Required

Comments: _____

QA/QC Officer

ICP METALS SAMPLE RUN LOG

Instrument ID: PE Optima 3000 XL ICP

Date: 8-16-95

Analyst: S. Kalta

Batch No: 814B, 815A

Data File: 081695A

Operating Software: Optima 3000/QC Expert

LOCATION	SAMPLE NO.	SAMPLE SIZE Water (ml)	SAMPLE SIZE Soil (g)	FINAL VOLUME (ml)	COMMENT	STD. CODE
9	Cal Blank	NA	NA	NA	NA	Reagent Blk 8-16-95
10	#1 Std					ICS 1:20 8-16-95
11	#2 Std					ICS 1:5 8-16-95
12	#3 Std					ICS 8-16-95
13	ICCS					ICS 8-16-95
14	ICV					Calver 8-16-95
15	Chk Blk					Reagent Blk 8-16-95
16	CRDL					CRDL 8-16-95
17	ICS-A					ICP-ICS ICS A HPS lot 590623
18	ICS-AB					ICP-ICS-ICS AB HPS lot 590623
19	Rinse blank					Reagent Blk 8-16-95
20	18073			100	MB 814B	NA
21	18074		1.593	100	LC ERA224	
22	17972		2.153		NA	
23	18075		1.450		DUP 17972	
24	17956		1.715			
25	CCV		NA	NA		Calver 8-16-95
26	Chk Blk		NA	NA		Reagent Blank 8-16-95

ICP METALS SAMPLE RUN LOG

Instrument ID: PE Optima 3000 XL ICP

Date: 8-16-95

Analyst: C. Kale

Batch No: 814B, 815A

Data File: 081695A

Operating Software: Optima 3000/OCXpert

LOCATION	SAMPLE NO.	SAMPLE SIZE Water (ml)	SAMPLE SIZE Soil (g)	FINAL VOLUME (ml)	COMMENT	STD. CODE
27	18012	NA	0.793	100	NA	NA
28	18076				MS	
29	18077				MSD	
30	18012 S.D		0.793		1:4 dilution	
31	18012 S.D		0.793		1:4 dilution	
32	~~18012~~ 18078				PDS 18012	
33	17991		2.120		NA	
34	17992		2.185			
35	17993		1.124			
36	CCV		NA	NA		Calver 8-16-95
37	Chk BLK		NA	NA		Reagent Blank 8-16-95
38	17994		2.099	100		NA
39	17995		1.665			
40	17996		1.144			
41	~~LS~~ Rinse BLC		NA	NA		Reagent Blank 8-16-95
42	18123		NA	100	MB 815A	NA
43	18124		1.145		LC ERA 224	
44	18024		1.645		NA	

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ICP METALS SAMPLE RUN LOG

Instrument ID: PE Optima 3000 XL ICP

Date: 8-16-95

Analyst: S. Kalte

Batch No: 814B,815A

Data File: 081695A

Operating Software: Optima 3000/QC ~~Expert~~

LOCATION	SAMPLE NO.	SAMPLE SIZE Water (ml)	SAMPLE SIZE Soil (g)	FINAL VOLUME (ml)	COMMENT	STD. CODE
45	18125	NA	1.658	100	DUP ~~NA~~ 18024	NA
46	18023		1.485	100		
47	CCV		NA	NA		Calver 8-16-95
48	Calk BLK		NA	NA		Reagent BLK 8-16-95
49	18029		1.441	100		NA
50	18126		1.529		MS 18029	
51	18127		1.527		MSD 18029	
52	18029 S.D		1.441		1:4 dilution	
53	18029 S.D		1.441		1:4 dilution	
54	18128		2.135		PDS 18029	
55	18020		1.238		NA	
56	18021		1.480			
57	18031		1.239			
58	CCV		NA	NA		Calver 8-16-95
59	Calk BLK					Reagent BLK 8-16-95
60	ICS-A					ICP-MS-ICS A HPS lot 590623
61	ICS-AB					ICP-MS-ICS AB HPS lot 590623
62						

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Metals Digestion Log

Date: 8-14-95
Balance ID: Mettler PM480
Matrix: Water (Soil) Sludge Oil TCLP Extract Other:
Digestion Method: 3005 3010 3020 3040 (3050)
Nitric Acid Lot No.: Fisher 11503
Hydrogen Peroxide Lot No.: VWR 33275346
Other Reagent Lot No.: —
Matrix Spike Standard No.: Std 1 + 2 + Ag
Received By: S. Kath

Batch No.: 814B
Prepared By: Karen Thyes
Hydrochloric Acid Lot No.: EM SCIENCE 35018
Source: High Purity
Date: 8.15.95
Lot No.: 590411 ~~590713~~
Time: 9:00

Lab ID	Sample Size (g) or (ml)	Acid Volume (ml)	Final Volume (ml)	Matrix Spike Vol. (µl)	Dilution Factor	Notes
BLANK	—	10ml 1:1 HNO_3 5ml HNO_3/5ml HCl	100			18073
LC #224	1.593					18074
17956	1.715					
17972	2.153					
17972Dp	1.450					18075
17991	2.120					
17992	2.185					
17993	1.124					
17994	2.099					
17995	1.065					
17996	1.144					
18012	30.260			0.793 gdry	~~2.4~~ 2.662 1.5 dilution	
18012MS	31.884			2ml Std 1+2 200µl Ag		18076
18012MSD	30.596					18077
18012PDS	30.710		100			18078

Page No.: _____

~~7.667~~ ~~STC~~ 7.431

Metals Digestion Log

Date: 8-15-95
Batch No.: 815A
Balance ID: PM480 (Mettler)
Prepared By: Karen Hayes
Matrix: Water (Soil) Sludge Oil TCLP Extract Other:
Digestion Method: 3005 3010 3020 3040 (3050)
Nitric Acid Lot No.: Fisher 11503
Hydrochloric Acid Lot No.: EM SCIENCE 35018
Hydrogen Peroxide Lot No.: VWR 332753416
Other Reagent Lot No.:
Matrix Spike Standard No.: Std. 1+2+Ag
Source: High Purity
Lot No.: 590411 590713
Received By: S. Kerr
Date: 8-16-95
Time: 9:00

Lab ID	Sample Size (g) or (ml)	Acid Volume (ml)	Final Volume (ml)	Matrix Spike Vol. (µl)	Dilution Factor	Notes
Blank	—	10ml 1:1 HNO_3 5ml HNO_3/5ml HCl	100ml			18123
EPA LC Lot #224	1.145		100ml			18124
18023	1.485		100ml			
18024	1.645		100ml			
18024 Dp	1.658		100ml			18125
18029	1.441		100ml			
18029 MS	1.529		100ml	4ml Std 1+2 800µl Ag		18126
18029 MSD	1.527		100ml			18127
18029 PDS	2.135		100ml			18128
18020	1.238		100ml			
18021	1.480		100ml			
18031	1.239		100ml			

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Metals Blanks

Lab Name: EcoSys, Inc. Client: GEOSYNTEC
Ledger No.: 105829 Date Analyzed: 8/24/95
Preparation Blank Matrix: AQUEOUS Batch No.: 818A
Preparation Blank Concentration Units: MG/L
Instrument ID: PE 3000 XL ICP Lab Sample ID: CAL BLK AA18429

Analyte	Intial Cal Blank	Continuing Cal Blank			Preparation Blank
		1	2	3	
Aluminum	NR	NR	NR	NR	NR
Antimony	NR	NR	NR	NR	NR
Arsenic	<MDL	<MDL	<MDL	<MDL	<MDL
Barium	<MDL	<MDL	<MDL	<MDL	<MDL
Beryllium	NR	NR	NR	NR	NR
Cadmium	<MDL	<MDL	<MDL	<MDL	<MDL
Calcium	NR	NR	NR	NR	NR
Chromium (Total)	<MDL	<MDL	<MDL	<MDL	<MDL
Chromium VI	NR	NR	NR	NR	NR
Cobalt	NR	NR	NR	NR	NR
Copper	NR	NR	NR	NR	NR
Iron	NR	NR	NR	NR	NR
Lead	<MDL	<MDL	<MDL	<MDL	<MDL
Magnesium	NR	NR	NR	NR	NR
Manganese	NR	NR	NR	NR	NR
Mercury	NR	NR	NR	NR	NR
Nickel	NR	NR	NR	NR	NR
Potassium	NR	NR	NR	NR	NR
Selenium	<MDL	<MDL	<MDL	<MDL	<MDL
Silver	<MDL	<MDL	<MDL	<MDL	<MDL
Sodium	NR	NR	NR	NR	NR
Thallium	NR	NR	NR	NR	NR
Vanadium	NR	NR	NR	NR	NR
Zinc	NR	NR	NR	NR	NR
Cyanide	NR	NR	NR	NR	NR

QA/QC Officer

Comments:

TCLP ANALYSIS

Metals Duplicates

Lab Name:	EcoSys, Inc.	Client:	GEOSYNTEC
Ledger No.:	105829	Date Analyzed:	8/24/95
Matrix:	AQUEOUS	Batch No.:	818A
Units:	MG/L	Lab Sample ID:	AA17970
Instrument ID:	PE 3000 XL ICP		AA18431-DUP

Analyte	Control Limit	Sample (S)	Duplicate (D)	RPD	*
Aluminum	± 20	NR	NR	NR	
Antimony	± 20	NR	NR	NR	
Arsenic	± 20	ND	ND	NC	
Barium	± 20	0.734	0.801	9	
Beryllium	± 20	NR	NR	NR	
Cadmium	± 20	ND	ND	NC	
Calcium	± 20	NR	NR	NR	
Chromium (Total)	± 20	0.021	0.024	13	
Chromium VI	± 20	NR	NR	NR	
Cobalt	± 20	NR	NR	NR	
Copper	± 20	NR	NR	NR	
Iron	± 20	NR	NR	NR	
Lead	± 20	0.152	0.185	20	
Magnesium	± 20	NR	NR	NR	
Manganese	± 20	NR	NR	NR	
Mercury	± 20	NR	NR	NR	
Nickel	± 20	NR	NR	NR	
Potassium	± 20	NR	NR	NR	
Selenium	± 20	0.027	0.01	92	*
Silver	± 20	ND	ND	NC	
Sodium	± 20	NR	NR	NR	
Thallium	± 20	NR	NR	NR	
Vanadium	± 20	NR	NR	NR	
Zinc	± 20	NR	NR	NR	

*** Column used to indicate metals out of control limits**
NR = Not Required
ND = Not Detected
NC = Not Calculable due to value(s) less than CRDL
RPD = [(|S-D|)/(S+D)/2]*100

QA/QC Officer

Comments:

TCLP ANALYSIS

*BEYOND DETECTION DUE TO MATRIX INTERFERENCE

METALS TIAL AND CONTINUING CALIBRATION V. FICATION

Lab Name: ECOSYS, INC. Client: GEOSYNTEC

Ledger No: 105829

Initial Calibration Source: HIGH PURITY STANDARDS Date: 8/24/95

Continuing Calibration Source: EM SCIENCE

Concentration Units: MG/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Aluminum	NR	NR		NR	NR		NR		
Antimony	NR	NR		NR	NR		NR		
Arsenic	0.500	0.580	116	0.500	0.511	102	0.495	99	P
Barium	0.500	0.517	103	0.500	0.567	113	0.558	112	P
Beryllium	NR	NR		NR	NR		NR		
Cadmium	0.500	0.524	105	0.500	0.525	105	0.519	104	P
Calcium	NR	NR		NR	NR		NR		
Chromium	0.500	0.529	106	0.500	0.547	109	0.539	108	P
Cobalt	NR	NR		NR	NR		NR		
Copper	NR	NR		NR	NR		NR		
Iron	NR	NR		NR	NR		NR		
Lead	0.500	0.522	104	0.500	0.536	107	0.523	105	P
Magnesium	NR	NR		NR	NR		NR		
Manganese	NR	NR		NR	NR		NR		
Mercury	NR	NR		NR	NR		NR		
Nickel	NR	NR		NR	NR		NR		
Potassium	NR	NR		NR	NR		NR		
Selenium	0.500	0.521	104	0.500	0.533	107	0.525	105	P
Silver	0.250	0.241	96	0.250	0.251	100	0.247	99	P
Sodium	NR	NR		NR	NR		NR		
Thallium	NR	NR		NR	NR		NR		
Vanadium	NR	NR		NR	NR		NR		
Zinc	NR	NR		NR	NR		NR		

(1) Control Limits: Mercury 80-120; Other Metals 90-110

ANALYTICAL METHOD USED

P=ICP A=Flame AA F=Furnace AA MHS=HG HYDRIDE SPECTROSCOPY

Comments: TCLP ANALYSIS

QA/QC Officer

METALS ΓIAL AND CONTINUING CALIBRATION VL .:ICATION

Lab Name: ECOSYS, INC. Client: GEOSYNTEC

Ledger No: 105829

Initial Calibration Source: HIGH PURITY STANDARDS Date: 8/24/95

Continuing Calibration Source: EM SCIENCE

Concentration Units: MG/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Aluminum	NR	NR		NR	NR		NR		
Antimony	NR	NR		NR	NR		NR		
Arsenic	NR	NR		0.500	0.488	98	NR		P
Barium	NR	NR		0.500	0.546	109	NR		P
Beryllium	NR	NR		NR	NR		NR		
Cadmium	NR	NR		0.500	0.518	104	NR		P
Calcium	NR	NR		NR	NR		NR		
Chromium	NR	NR		0.500	0.536	107	NR		P
Cobalt	NR	NR		NR	NR		NR		
Copper	NR	NR		NR	NR		NR		
Iron	NR	NR		NR	NR		NR		
Lead	NR	NR		0.500	0.521	104	NR		P
Magnesium	NR	NR		NR	NR		NR		
Manganese	NR	NR		NR	NR		NR		
Mercury	NR	NR		NR	NR		NR		
Nickel	NR	NR		NR	NR		NR		
Potassium	NR	NR		NR	NR		NR		
Selenium	NR	NR		0.500	0.497	99	NR		P
Silver	NR	NR		0.250	0.248	99	NR		P
Sodium	NR	NR		NR	NR		NR		
Thallium	NR	NR		NR	NR		NR		
Vanadium	NR	NR		NR	NR		NR		
Zinc	NR	NR		NR	NR		NR		

(1) Control Limits: Mercury 80-120; Other Metals 90-110

ANALYTICAL METHOD USED

P=ICP A=Flame AA F=Furnace AA MHS=HG HYDRIDE SPECTROSCOPY

Comments: TCLP ANALYSIS

QA/QC Officer

Metals Instrument Detection Limits (IDL)

Lab Name: EcoSys, Inc. **Client:** GeoSyntec

Ledger No: 105829

ICP ID Number: PE 3000 XL ICP **Date Analyzed:** 08/24/95

Analyte	Wavelength (nm)	Background	CRDL (mg/L)	IDL (mg/L)	M
Aluminum	394.401	N/R	N/R	0.02	P
Antimony	217.581	N/R	0.1200	0.015	P
Arsenic	188.982	N/R	0.0200	0.03	P
Barium	233.526	N/R	N/R	0.001	P
Beryllium	313.098	N/R	0.0100	0.0005	P
Cadmium	226.502	N/R	0.0100	0.001	P
Calcium	315.887	N/R	N/R	0.05	P
Chromium	267.707	N/R	0.0200	0.004	P
Cobalt	228.616	N/R	0.1000	0.003	P
Copper	324.750	N/R	0.0500	0.003	P
Iron	238.204	N/R	N/R	0.008	P
Lead	220.353	N/R	0.0060	0.015	P
Magnesium	279.079	N/R	N/R	0.02	P
Manganese	257.610	N/R	0.0300	0.025	P
Mercury	N/R	N/R	N/R	N/R	
Nickel	231.604	N/R	0.0800	0.004	P
Potassium	404.709	N/R	N/R	0.02	P
Selenium	196.023	N/R	0.0100	0.015	P
Silver	328.062	N/R	0.0200	0.002	P
Sodium	330.237	N/R	N/R	0.020	P
Thallium	190.793	N/R	0.0200	0.025	P
Vanadium	292.402	N/R	0.1000	0.005	P
Zinc	202.548	N/R	0.0400	0.01	P

NR = Not Required
M=Instrument: P = ICP

Comments:

QA/QC Officer

Metals Spike Recovery

Lab Name: EcoSys, Inc.	**Client:** GEOSYNTEC
Ledger No(s): 105829	**Date Analyzed:** 8/24/95
Matrix: AQUEOUS	**Batch No.:** 818A
Units: MG/L	**Lab Sample ID:** AA18020
Instrument ID: PE 3000 XL ICP	AA18432-MS

Analyte	Control Limit	Spiked Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R	*
Aluminum	75-125	NR	NR			
Antimony	75-125	NR	NR			
Arsenic	75-125	8.48	ND	10	85	
Barium	75-125	19.3	0.842	20	92	
Beryllium	75-125	NR	NR			
Cadmium	75-125	0.864	ND	1	86	
Calcium	75-125	NR	NR			
Chromium (Total)	75-125	0.903	ND	1	90	
Chromium VI	75-125	NR	NR			
Cobalt	75-125	NR	NR			
Copper	75-125	NR	NR			
Iron	75-125	NR	NR			
Lead	75-125	8.94	ND	10	89	
Magnesium	75-125	NR	NR			
Manganese	75-125	NR	NR			
Mercury	75-125	NR	NR			
Nickel	75-125	NR	NR			
Potassium	75-125	NR	NR			
Selenium	75-125	4.84	ND	5	97	
Silver	75-125	0.082	ND	0.1	82	
Sodium	75-125	NR	NR			
Thallium	75-125	NR	NR			
Vanadium	75-125	NR	NR			
Zinc	75-125	NR	NR			
Cyanide	75-125	NR	NR			

*** Column used to indicate metals out of control limits**
NR = Not Required
ND = Not Detected
NC = Not Calculable due to value(s) less than CRDL

QA/QC Officer

Comments:

TCLP ANALYSIS

Metals Spike Recovery

Lab Name:	**EcoSys, Inc.**	**Client:**	**GEOSYNTEC**
Ledger No(s):	**105829**	**Date Analyzed:**	**8/24/95**
Matrix:	**AQUEOUS**	**Batch No.:**	**818A**
Units:	**MG/L**	**Lab Sample ID:**	**AA18020**
Instrument ID:	**PE 3000 XL ICP**		**AA18433-MSD**

Analyte	Control Limit	Spiked Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R	*
Aluminum	75-125	NR	NR			
Antimony	75-125	NR	NR			
Arsenic	75-125	8.7	ND	10	87	
Barium	75-125	19	0.842	20	91	
Beryllium	75-125	NR	NR			
Cadmium	75-125	0.843	ND	1	84	
Calcium	75-125	NR	NR			
Chromium (Total)	75-125	0.882	ND	1	88	
Chromium VI	75-125	NR	NR			
Cobalt	75-125	NR	NR			
Copper	75-125	NR	NR			
Iron	75-125	NR	NR			
Lead	75-125	8.71	ND	10	87	
Magnesium	75-125	NR	NR			
Manganese	75-125	NR	NR			
Mercury	75-125	NR	NR			
Nickel	75-125	NR	NR			
Potassium	75-125	NR	NR			
Selenium	75-125	4.66	ND	5	93	
Silver	75-125	0.081	ND	0.1	81	
Sodium	75-125	NR	NR			
Thallium	75-125	NR	NR			
Vanadium	75-125	NR	NR			
Zinc	75-125	NR	NR			
Cyanide	75-125	NR	NR			

*** Column used to indicate metals out of control limits**
NR = Not Required
ND = Not Detected
NC = Not Calculable due to value(s) less than CRDL

QA/QC Officer

Comments:

TCLP ANALYSIS

ICP Interference Check Sample

Lab Name: EcoSys, Inc. **Date:** 8/24/95

Ledger Number: 105829 **Units:** MG/L

Check Sample ID: ICS-A

Check Sample Source: PE 3000 XL ICP

Compound	Control Limits (1)		True (2)	Initial		Final	
	Mean	Std. Deviation		Observed	%R	Observed	%R
Aluminum	506	32	500	491	98	485	97
Antimony	NR	NR	NR	NR	NR	NR	NR
Arsenic	NR	NR	NR	NR	NR	NR	NR
Barium	NR	NR	NR	NR	NR	NR	NR
Beryllium	NR	NR	NR	NR	NR	NR	NR
Cadmium	NR	NR	NR	NR	NR	NR	NR
Calcium	490	17	500	502	100	511	102
Chromium (Total)	NR	NR	NR	NR	NR	NR	NR
Chromium VI	NR	NR	NR	NR	NR	NR	NR
Cobalt	NR	NR	NR	NR	NR	NR	NR
Copper	NR	NR	NR	NR	NR	NR	NR
Iron	487	18	500	407	81	395	79
Lead	NR	NR	NR	NR	NR	NR	NR
Magnesium	490	17	500	480	96	460	92
Manganese	NR	NR	NR	NR	NR	NR	NR
Mercury	NR	NR	NR	NR	NR	NR	NR
Nickel	NR	NR	NR	NR	NR	NR	NR
Potassium	490	30	500	780	156	831	166
Selenium	NR	NR	NR	NR	NR	NR	NR
Silver	NR	NR	NR	NR	NR	NR	NR
Sodium	512	13	500	756	151	677	135
Thallium	NR	NR	NR	NR	NR	NR	NR
Vanadium	NR	NR	NR	NR	NR	NR	NR
Zinc	NR	NR	NR	NR	NR	NR	NR

(1) Mean value based on n = 16

(2) True value of EPA ICP Interference Check Sample or contractor standard.

QA/QC Officer

Comments: TCLP ANALYSIS

ICP Interference Check Sample

Lab Name: EcoSys, Inc. **Date:** 8/24/95

Ledger Number: 105829 **Units:** MG/L

Check Sample ID: ICS-AB

Check Sample Source: PE 3000 XL ICP

Compound	Control Limits (1)		True (2)	Initial		Final	
	Mean	Std. Deviation		Observed	%R	Observed	%R
Aluminum	506	32	500	497	99	483	97
Antimony	NR	NR	NR	NR	NR	NR	NR
Arsenic	NR	NR	NR	NR	NR	NR	NR
Barium	NR	NR	NR	NR	NR	NR	NR
Beryllium	NR	NR	NR	NR	NR	NR	NR
Cadmium	NR	NR	NR	NR	NR	NR	NR
Calcium	490	17	500	505	101	509	102
Chromium (Total)	NR	NR	NR	NR	NR	NR	NR
Chromium VI	NR	NR	NR	NR	NR	NR	NR
Cobalt	NR	NR	NR	NR	NR	NR	NR
Copper	NR	NR	NR	NR	NR	NR	NR
Iron	487	18	500	412	82	393	79
Lead	NR	NR	NR	NR	NR	NR	NR
Magnesium	490	17	500	486	97	456	91
Manganese	NR	NR	NR	NR	NR	NR	NR
Mercury	NR	NR	NR	NR	NR	NR	NR
Nickel	NR	NR	NR	NR	NR	NR	NR
Potassium	490	30	500	799	160	829	166
Selenium	NR	NR	NR	NR	NR	NR	NR
Silver	NR	NR	NR	NR	NR	NR	NR
Sodium	512	13	500	768	154	674	135
Thallium	NR	NR	NR	NR	NR	NR	NR
Vanadium	NR	NR	NR	NR	NR	NR	NR
Zinc	NR	NR	NR	NR	NR	NR	NR

(1) Mean value based on n = 16

(2) True value of EPA ICP Interference Check Sample or contractor standard.

QA/QC Officer

Comments: TCLP ANALYSIS

Metals Lab Control Spike Recovery

Lab Name: EcoSys, Inc.	**Client:** GEOSYNTEC
Ledger No(s): 105829	**Date Analyzed:** 8/24/95
Matrix: AQUEOUS	**Batch No.:** 818A
Units: MG/L	**Lab Sample ID:** AA18430-LCS
Instrument ID: PE 3000 XL ICP	

Analyte	Control Limit	Spiked Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R	*
Aluminum	75-125	NR	NR			
Antimony	75-125	NR	NR			
Arsenic	75-125	8.52	NR	10	85	
Barium	75-125	20	NR	20	100	
Beryllium	75-125	NR	NR			
Cadmium	75-125	0.945	NR	1	94	
Calcium	75-125	NR	NR			
Chromium (Total)	75-125	0.982	NR	1	98	
Chromium VI	75-125	NR	NR			
Cobalt	75-125	NR	NR			
Copper	75-125	NR	NR			
Iron	75-125	NR	NR			
Lead	75-125	9.7	NR	10	97	
Magnesium	75-125	NR	NR			
Manganese	75-125	NR	NR			
Mercury	75-125	NR	NR			
Nickel	75-125	NR	NR			
Potassium	75-125	NR	NR			
Selenium	75-125	4.83	NR	5	97	
Silver	75-125	0.088	NR	0.1	88	
Sodium	75-125	NR	NR			
Thallium	75-125	NR	NR			
Vanadium	75-125	NR	NR			
Zinc	75-125	NR	NR			
Cyanide	75-125	NR	NR			

*** Column used to indicate metals out of control limits**
NR = Not Required
ND = Not Detected
NC = Not Calculable due to value(s) less than CRDL

QA/QC Officer

Comments:

TCLP ANALYSIS

Metals ICP Serial Dilutions

Lab Name: EcoSys, Inc.	Client: GEOSYNTEC
Ledger No(s): 105829	Date: 8/24/95
Matrix: AQUEOUS	Sample No: AA18020
	Units: MG/L

Analyte	Initial Sample Concentration (I)	Serial Dilution Result (S) (1)	% Difference (2)
Aluminum	NR	NR	
Antimony	NR	NR	
Arsenic	ND	ND	
Barium	0.842	0.869	3
Beryllium	NR	NR	
Cadmium	ND	ND	
Calcium	NR	NR	
Chromium (Total)	ND	ND	
Chromium VI	NR	NR	
Cobalt	NR	NR	
Copper	NR	NR	
Iron	NR	NR	
Lead	ND	ND	
Magnesium	NR	NR	
Manganese	NR	NR	
Mercury	NR	NR	
Nickel	NR	NR	
Potassium	NR	NR	
Selenium	ND	0.034	
Silver	ND	ND	
Sodium	NR	NR	
Thallium	NR	NR	
Vanadium	NR	NR	
Zinc	NR	NR	
Cyanide	NR	NR	

1 Diluted sample concentration corrected for 1:4 dilution
2 Percent Difference = [(|I-S|)/I]*100
NR = Not Required
NA = Not Applicable, analyte not determined by ICP

QA/QC Officer

Comments: TCLP ANALYSIS

Metals ICP Serial Dilutions

Lab Name: EcoSys, Inc.	Client: GEOSYNTEC
Ledger No(s): 105829	Date: 8/24/95
Matrix: AQUEOUS	Sample No: AA18020
	Units: MG/L

Analyte	Initial Sample Concentration (I)	Serial Dilution Result (S) (1)	% Difference (2)
Aluminum	NR	NR	
Antimony	NR	NR	
Arsenic	ND	ND	
Barium	0.842	0.856	2
Beryllium	NR	NR	
Cadmium	ND	ND	
Calcium	NR	NR	
Chromium (Total)	ND	ND	
Chromium VI	NR	NR	
Cobalt	NR	NR	
Copper	NR	NR	
Iron	NR	NR	
Lead	ND	ND	
Magnesium	NR	NR	
Manganese	NR	NR	
Mercury	NR	NR	
Nickel	NR	NR	
Potassium	NR	NR	
Selenium	ND	ND	
Silver	ND	ND	
Sodium	NR	NR	
Thallium	NR	NR	
Vanadium	NR	NR	
Zinc	NR	NR	
Cyanide	NR	NR	

1 Diluted sample concentration corrected for 1:4 dilution
2 Percent Difference = [(|I-S|)/I]*100
NR = Not Required
NA = Not Applicable, analyte not determined by ICP

QA/QC Officer

Comments: TCLP ANALYSIS

ICP Interelement Correction Factors

Lab Name: Ecosys, Inc. **Client:** GeoSyntec

ICP Model: PE 3000XL ICP **Date Analyzed:** 8/24/95

Analyte	Analyte Wavelength (nm)	Interelement Correction Factors							
		Al	Ca	Fe	Mg				
Aluminum	394.401	N/R	0.000000	0.001169	0.000000				
Antimony	217.581	0.000000	0.000000	0.000000	0.000000				
Arsenic	188.982	0.000000	0.000000	0.000000	0.000000				
Barium	233.526	0.000000	0.000000	0.000000	0.000000				
Beryllium	313.098	0.000000	0.000000	0.000000	0.000000				
Cadmium	226.502	0.000000	0.000000	0.000000	0.000000				
Calcium	315.887	0.000000	N/R	0.000000	0.000000				
Chromium (Total)	267.707	0.000000	0.000000	0.000000	0.000000				
Cobalt	228.616	0.000000	0.000000	0.000000	0.000000				
Copper	324.750	0.000000	0.000000	0.000000	0.000000				
Iron	238.204	0.000000	0.000000	N/R	0.000068				
Lead	220.353	0.000000	0.000000	0.000000	0.000000				
Magnesium	279.079	0.000000	0.000000	0.000000	N/R				
Manganese	257.610	0.000000	0.000000	0.000000	0.000000				
Mercury	N/R	N/R	N/R	N/R	N/R				
Nickel	231.604	0.000000	0.000000	0.000000	0.000000				
Potassium	404.709	0.000000	0.000000	0.000000	0.000000				
Selenium	196.023	0.000000	0.000000	0.000000	0.000000				
Silver	328.062	0.000000	0.000000	0.000000	0.000000				
Sodium	330.237	0.000000	0.000000	0.000000	0.000000				
Thallium	190.793	0.000000	0.000000	0.000000	0.000000				
Vanadium	292.402	0.000000	0.000000	0.000000	0.000000				
Zinc	202.548	0.000000	0.000000	0.000000	0.000000				

N/R: Not Required

Comments: _____

QA/QC Officer

ICP METALS SAMPLE RUN LOG

Instrument ID: PE Optima 3000 XL ICP

Date: 8-23-95

Analyst: S. Kalta

Batch No: 818A, 821A, 822A

Data File: 082395B

Operating Software: Optima 3000/~~QC Expert~~

LOCATION	SAMPLE NO.	SAMPLE SIZE Water (ml)	SAMPLE SIZE Soil (g)	FINAL VOLUME (ml)	COMMENT	STD. CODE
9	Cal Blank	NA	NA	NA	NA	Reagent Blank 8-23-95
10	#1 std					ICS 1:20 8-23-95
11	#2 std					ICS 1:5 8-23-95
12	#3 std					ICS 8-23-95
13	ICCS					ICS 8-23-95
14	ICV					Cal ver 2 8-23-95
15	Chk Blk 1					Reagent Blank 8-23-95
16	CRDL					CRDL 8-23-95
17	ICS-A					ICP-MS-ICS A HPS lot 590629
18	ICS-AB					ICP-MS-ICS AB HPS lot 590629
19	Rinse Blank					Reagent Blank 8-23-95
20	18429 1	100		100	vis. pile 818A	NA
21	18430				LCS	
22	17970					
23	18431				17970 dup	
24	17971				NA	
25	CCV 1	NA		NA		Cal ver 2 8-23-95
26	Chk Blk 1	NA		NA		Reagent Blank 8-23-95

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ICP METALS SAMPLE RUN LOG

Instrument ID: PE Optima 3000 XL ICP

Date: _____

Analyst: _____

Batch No: _____

Data File: _____

Operating Software: Optima 3000/QC Expert

LOCATION	SAMPLE NO.	SAMPLE SIZE		FINAL VOLUME (ml)	COMMENT	STD. CODE
		Water (ml)	Soil (g)			
27	18020	100	NA	100	NA	NA
28	18432				18020 MS	
29	18433				18020 MSD	
30	18434				18020 PDS	
31	18020 S.D				1:4 dil	
32	18020 S.D				1:4 dil	
33	18005				NA	
34	18023					
35	18024					
36	CCV	NA		NA		Calver 2 8-23-95
37	Calc Blk	NA		NA		Reagent Blk 8-23-95
38	18029	100		100		NA
39	18022					
40	18025					
41	18027					
42	18065					
43	18066					
44	18068					

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ICP METALS SAMPLE RUN LOG

Instrument ID: PE Optima 3000 XL ICP Date: _____

Analyst: _____ Batch No: _____

Data File: _____ Operating Software: Optima 3000/QC Expert

LOCATION	SAMPLE NO.	SAMPLE SIZE Water (ml)	SAMPLE SIZE Soil (g)	FINAL VOLUME (ml)	COMMENT	STD. CODE
45	18089	100	NA	100	NA	NA
46	18090	100		100		NA
47	CCV	NA		NA		Cal Ver 2 8-23-95
48	Chk blk					Reagent blk 8-23-95
49	Cal Blank					Reagent blk 8-21-95
50	#1 std					ICS 1:20 8-23-95
51	#2 std					ICS 1:5 8-23-95
52	#3 std					ICS 8-23-95
53	ICCS					ICS 8-23-95
54	ICV					Cal Ver 2 8-23-95
55	Chk blk					Reagent blk 8-23-95
56	18129	100		100		NA
57	18217					
58	18220					
59	18221					
60	18409				Matrix blk 8214	
7061	18410				LCS	
7062	18257				NA	

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ICP METALS SAMPLE RUN LOG

Instrument ID: PE Optima 3000 XL ICP

Date: _____

Analyst: _____

Batch No: _____

Data File: _____

Operating Software: Optima 3000/QC Expert

LOCATION	SAMPLE NO.	SAMPLE SIZE Water (ml)	SAMPLE SIZE Soil (g)	FINAL VOLUME (ml)	COMMENT	STD. CODE
~~72~~63	18411	100		100	18257 dup	NA
~~73~~64	18235	100		100	NA	NA
~~74~~65	CCV	NA		NA		Calver 2 8-23-95
~~75~~66	Chec BLK	NA		NA		Reagent Blk 8-23-95
~~76~~67	18254	100		100		NA
~~77~~68	18412				18254 MS	
~~78~~69	18413				18254 MSD	
~~79~~70	18254 S.D				1:4 dil	
~~80~~71	18254 S.D				1:4 dil	
~~81~~72	18414				18254 PDS	
~~82~~73	18249				NA	
~~83~~74	18250					
~~84~~75	18251					
~~85~~76	CCV	NA		NA		Calver 3 8-23-95
~~86~~77	Chec BLK	NA		NA		Reagent Blk 8-23-95
~~87~~78	18256	100		100		NA
~~88~~79	18435				Dig BLK 822A	
~~89~~80	18436				LCS	

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ICP METALS SAMPLE RUN LOG

Instrument ID: PE Optima 3000 XL ICP

Date: 8-23-95

Analyst: S. Fatta

Batch No: 818A, 821A, 822A

Data File: 082395B

Operating Software: Optima 3000/QC Expert

LOCATION	SAMPLE NO.	SAMPLE SIZE Water (ml)	SAMPLE SIZE Soil (g)	FINAL VOLUME (ml)	COMMENTS	STD. CODE
9051	18347	100	NA	100	NA	NA
9052	18437				18347 dup	
9053	18356				NA	
9054	18439				18356 MS	
9055	18440				18356 MSD	
9056	18441				18356 PDS	
9057	CCV	NA		NA	NA	Calver 3 8-23-95
9058	Check BLK	NA				Reagent blk 8-23-95
9059	18348	100		100		NA
9060	18351					
9061	18355					
9062	CCV	NA		NA		Calver 3 8-23-95
9063	Check BLK					Reagent blk 8-23-95
9064	ICS-A					ICP-MS-ICS A MPS lot 590629
9065	ICS-AB					ICP-MS-ICS AB MPS lot 590629

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Metals Digestion Log

Date: 8-18-95
Balance ID: —
Matrix: Water Soil Sludge Oil TCLP Extract Other:
Digestion Method: 3005 3010 3020 3040 3050
Nitric Acid Lot No.: Fisher 11503
Hydrogen Peroxide Lot No.: —
Other Reagent Lot No.: —
Matrix Spike Standard No.: Std. 1+2+Ag
Received By: S. Kelly

Batch No.: 818A
Prepared By: Karen Hayes
Hydrochloric Acid Lot No.: EM Science 35018
Source: High Purity
Lot No.: 590411 590313
Date: 8-22-95
Time: 9:02

Lab ID	Sample Size (g) or (ml)	Acid Volume (ml)	Final Volume (ml)	Matrix Spike Vol. (µl)	Dilution Factor	Notes
Blank	100ml	6ml HNO_3 10ml 1:1 HCl	100ml			18429
LC	100ml		100ml	2ml Std. 1+2 200µl Ag		18430
17970	100ml		100ml			
17970Dp	100ml		100ml			18431
17971	100ml		100ml			
18005	100ml		100ml			
18020	50ml	3ml HNO_3 5ml 1:1 HCl	50ml			
18020MS	50ml		50ml	1ml Std. 1+2 100µl Ag		18432
18020MSD	50ml		50ml			18433
18020PDS	50ml		50ml			18434
18023	100ml	6ml HNO_3 10ml 1:1 HCl	100ml			
18024	100ml		100ml			
18029	100ml		100ml			
18022	100ml		100ml			
18025	100ml		100ml			
18027	100ml		100ml			
18085	50ml	3ml HNO_3 5ml 1:1 HCl	50ml			
~~18086 (liquid portion)~~	~~50ml~~		~~50ml~~			
18086 (solid portion)	50ml		50ml			
18088	100ml	6ml HNO_3 5ml 1:1 HCl	100ml			
18089	100ml		100ml			
18090	100ml		100ml			
18129	100ml		100ml			
18217	100ml		100ml			
18220	50ml	3ml HNO_3 5ml 1:1 HCl	50ml			
18221	100ml	6ml HNO_3 10ml 1:1 HCl	100ml			

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(*) ~~18086 liquid portion: unable to digest because of sample oily nature.~~

Metals Digestion Log

Date: 8-21-95
Balance ID: —
Matrix: (Water) Soil Sludge Oil TCLP Extract Other:
Digestion Method: 3005 (3010) 3020 3040 3050
Nitric Acid Lot No.: Fisher 11503
Hydrogen Peroxide Lot No.: —
Other Reagent Lot No.: —
Matrix Spike Standard No.: Std. 1+2+Ag
Received By: S. Kott

Batch No.: 821A
Prepared By: Karen Hayes
Hydrochloric Acid Lot No.: EM Science 35018
Source: High Purity
Lot No.: 590411 590713
Date: 8-22-95
Time: 9:00

Lab ID	Sample Size (g) or (ml)	Acid Volume (ml)	Final Volume (ml)	Matrix Spike Vol. (µl)	Dilution Factor	Notes
✓ Blank	100ml	6ml HNO3 10ml 1:1 HCl	100ml			18409
✓ LC	100ml	↓	100ml	2ml Std. 1+2 200ul Ag	Zn	18410
✓ 18235	100ml	↓	100ml	↓	Zn	
18249	50ml	3ml HNO3 5ml 1:1 HCl	50ml		Na	original volume <100mls
18250	100ml	6ml HNO3 10ml 1:1 HCl	100ml		Cu, Cd, Zn	
18251	100ml	↓	100ml	↓	↓	
✓ 18254	100ml	↓	100ml	↓	As, Se Mo	
✓ 18254MS	100ml	↓	100ml	2ml Std. 1+2 200ul Ag	↓	18412
✓ 18254MSD	100ml	↓	100ml	↓	↓	18413
✓ 18254PDS	100ml	↓	100ml	↓	↓	18414
✓ 18257	100ml	↓	100ml	↓	As, Cd, Cu, Pb, Ni, Ag, Zn	
✓ 18257 Dp	100ml	↓	100ml	↓	↓	18411
18258	100ml	↓	100ml	↓	Cr	

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Page No.: _____

Metals Digestion Log

Date: 8-22-95
Batch No.: 822A
Balance ID: —
Prepared By: Karen Hayes
Matrix: (Water) Soil Sludge Oil TCLP Extract Other:
Digestion Method: 3005 (3010) 3020 3040 3050
Nitric Acid Lot No.: Fisher 11503
Hydrochloric Acid Lot No.: EM Science 35018; 35111
Hydrogen Peroxide Lot No.: —
Other Reagent Lot No.: —
Matrix Spike Standard No.: Std. 1+2 + Ag
Source: High Purity
Lot No.: 590411 590713
Received By: S. Kettle
Date: 8-23-95
Time: 9:00

Lab ID	Sample Size (g) or (ml)	Acid Volume (ml)	Final Volume (ml)	Matrix Spike Vol. (µl)	Dilution Factor	Notes
✓ Blank	50ml	3ml HNO_3 5ml 1:1 HCl	50ml			18435
✓ LC	50ml		50ml	1ml Std. 1+2 100µl Ag		18436
✓ 18347	50ml		50ml		Cr, Zn	
✓ 18347 Dp	50ml		50ml			18437
✓ 18348	50ml		50ml			
✓ 18351	50ml		50ml		Zn	
✓ 18355	50ml		50ml		As, Pb	
✓ 18356	50ml		50ml			
✓ 18356MS	50ml		50ml	1ml Std. 1+2 100µl Ag	Cr, Ni, Zn	18439
✓ 18356MSD	50ml		50ml			18440
✓ 18356PDS	50ml	3ml HNO_3 5ml 1:1 HCl	50ml			18441

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Standards and Controls
Chain of Custody Form

Date: 8-23-95
Analyst: SHeth
Dept: Metals (org lab, met lab, wet lab)
Batch No: 821A
Sample IDs: PIL BLK BT 821A
LC BT 821A
18254 MS, MSD

Ext Log attached: _____ (yes, no, N/A)
Matrix: H2O (soil, water, solid other, non-aqueous liq.)
Method: 6010, 200.7, 7470, 7471 (Metals: Select one or indicate method #:)

	Blank	LC	MS	MSD
✓Silver:	LMDL	82	78	78
Aluminum:				
✓Arsenic:	LMDL	93	94	93
Boron:				
Barium:				
Beryllium:				
Calcium:				
✓Cadmium:	LMDL	92	92	91
Cobalt:				
✓Chromium:	LMDL	93	93	92
✓Copper:	LMDL	96	96	95
Iron:				
Potassium:				
Magnesium:				
Manganese:				
✓Molybdenum:	LMDL	90	90	89
✓Sodium:	0.5ppm	125	152	150
✓Nickel:	LMDL	93	92	91
✓Lead:	↓	92	92	91
Antimony:				
✓Selenium:	LMDL	92	69	69
Tin:				
Titanium:				
Thallium:				
Vanadium:				
✓Zinc:	LMDL	98	94	94
Mercury:				

Standards and Controls
Chain of Custody Form

Date: 8-23-05
Analyst: Skatta
Dept: Metals (org lab, met lab, wet lab)
Batch No: 818A
Sample IDs: Olc Blk 818A
LC 818A
18020 MS, MSD

Ext Log attached: (yes, no, N/A)
Matrix: H2O (soil, water, solid other, non-aqueous liq.)
Method: 6010, 200.7, 7470, 7471 (Metals: Select one or indicate method #:)

	Blank	LC	MS	MSD
Silver:	LMDL	88	82	81
Aluminum:		80	84	80
Arsenic:		85	85	87
Boron:	—	—	—	—
Barium:	LMDL	100	93	91
Beryllium:		92	86	84
Calcium:		105	100	95
Cadmium:		95	86	84
Cobalt:		99	88	87
Chromium:		98	90	88
Copper:		109	104	102
Iron:		111	92	92
Potassium:	0.5 ppm	99	159	155
Magnesium:	LMDL	101	95	92
Manganese:		97	89	86
Molybdenum:		96	89	87
Sodium:	0.1 ppm	138	—	—
Nickel:	LMDL	148	96	81
Lead:		97	89	87
Antimony:		105	100	96
Selenium:		97	97	93
Tin:		95	90	88
Titanium:		—	—	—
Thallium:		99	87	85
Vanadium:		100	92	90
Zinc:		105	102	96
Mercury:	—	—	—	—

Standards and Controls
Chain of Custody Form

Date: 8-23-95
Analyst: Skutta
Dept: Metals (org lab, met lab, wet lab)
Batch No: 822A
Sample IDs: PIG BLK 822A
LC 85 822A
83356 MS, MSD

Ext Log attached: _____ (yes, no, N/A)
Matrix: H2O (soil, water, solid other, non-aqueous liq.)
Method: 6010, 200.7, 7470, 7471 (Metals: Select one or indicate method #:)

	Blank	LC	MS	MSD
Silver:				
Aluminum:				
✓Arsenic:	<MDL	89	86	87
Boron:				
Barium:				
Beryllium:				
Calcium:				
Cadmium:				
Cobalt:				
✓Chromium:	<MDL	89	85	87
Copper:				
Iron:				
Potassium:				
Magnesium:				
Manganese:				
Molybdenum:				
Sodium:				
✓Nickel:	<MDL	88	85	87
✓Lead:	<MDL	88	84	85
Antimony:				
Selenium:				
Tin:				
Titanium:				
Thallium:				
Vanadium:				
✓Zinc:	<MDL	92	83	88
Mercury:				

GEOSYNTEC

Ledger: 105829
Batch: 824M.
Matrix: TCLP EXTRACT

Eco Sys I.D. #	Site Code	Test	Position #
AA 18020	G-NM-W-1	TCLP-Hg	26
AA 18022	G-NM-S-1	TCLP-Hg	29
AA 18023	G-NM-W-3A	TCLP-Hg	30
AA 18024	G-NM-W-3B	TCLP-Hg	31
AA 18025	G-NM-W-4	TCLP-Hg	32
AA 18027	G-NM-W-5	TCLP-Hg	33
AA 18029	G-NM-W-6	TCLP-Hg	34

Metals Blanks

Lab Name: EcoSys, Inc. **Client:** GEOSYNTEC
Ledger No.: 105829 **Date Analyzed:** 8/24/95
Preparation Blank Matrix: AQUEOUS **Batch No.:** 824M
Preparation Blank Concentration Units: UG/L
Instrument ID: PE FIAS 200 **Lab Sample ID:** CAL BLK

Analyte	Intial Cal Blank	Continuing Cal Blank			Preparation Blank
		1	2	3	
Aluminum	NR	NR	NR	NR	NR
Antimony	NR	NR	NR	NR	NR
Arsenic	NR	NR	NR	NR	NR
Barium	NR	NR	NR	NR	NR
Beryllium	NR	NR	NR	NR	NR
Cadmium	NR	NR	NR	NR	NR
Calcium	NR	NR	NR	NR	NR
Chromium (Total)	NR	NR	NR	NR	NR
Chromium VI	NR	NR	NR	NR	NR
Cobalt	NR	NR	NR	NR	NR
Copper	NR	NR	NR	NR	NR
Iron	NR	NR	NR	NR	NR
Lead	NR	NR	NR	NR	NR
Magnesium	NR	NR	NR	NR	NR
Manganese	NR	NR	NR	NR	NR
Mercury	<MDL	<MDL	<MDL	<MDL	<MDL
Nickel	NR	NR	NR	NR	NR
Potassium	NR	NR	NR	NR	NR
Selenium	NR	NR	NR	NR	NR
Silver	NR	NR	NR	NR	NR
Sodium	NR	NR	NR	NR	NR
Thallium	NR	NR	NR	NR	NR
Vanadium	NR	NR	NR	NR	NR
Zinc	NR	NR	NR	NR	NR
Cyanide	NR	NR	NR	NR	NR

Robert Lin
QA/QC Officer

Comments:

TCLP ANALYSIS

Metals Duplicates

Lab Name:	**EcoSys, Inc.**	**Client:**	**GEOSYNTEC**
Ledger No.:	**105829**	**Date Analyzed:**	**8/24/95**
Matrix:	**TCLP EXTRACT**	**Batch No.:**	**824M**
Units:	**UG/L**	**Lab Sample ID:**	**AA 17971**
Instrument ID:	**PE FIAS 200**		**TCLP**

Analyte	Control Limit	Sample (S)	Duplicate (D)	RPD	*
Aluminum	± 20	NR	NR	NR	
Antimony	± 20	NR	NR	NR	
Arsenic	± 20	NR	NR	NR	
Barium	± 20	NR	NR	NR	
Beryllium	± 20	NR	NR	NR	
Cadmium	± 20	NR	NR	NR	
Calcium	± 20	NR	NR	NR	
Chromium (Total)	± 20	NR	NR	NR	
Chromium VI	± 20	NR	NR	NR	
Cobalt	± 20	NR	NR	NR	
Copper	± 20	NR	NR	NR	
Iron	± 20	NR	NR	NR	
Lead	± 20	NR	NR	NR	
Magnesium	± 20	NR	NR	NR	
Manganese	± 20	NR	NR	NR	
Mercury	± 20	0.5	0.6	18	
Nickel	± 20	NR	NR	NR	
Potassium	± 20	NR	NR	NR	
Selenium	± 20	NR	NR	NR	
Silver	± 20	NR	NR	NR	
Sodium	± 20	NR	NR	NR	
Thallium	± 20	NR	NR	NR	
Vanadium	± 20	NR	NR	NR	
Zinc	± 20	NR	NR	NR	

*** Column used to indicate metals out of control limits**
NR = Not Required
ND = Not Detected
NC = Not Calculable due to value(s) less than CRDL
RPD = [(|S-D|)/(S+D)/2]*100

QA/QC Officer

Comments:

TCLP ANALYSIS

Lab Name: ECOSYS, INC. **Client:** GEOSYNTEC

Ledger No: 105829

Initial Calibration Source: EM SCIENCE LOT #34239 **Date:** 8/24/95

Continuing Calibration Source: FISHER LOT# 950339-24

Concentration Units: UG/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Aluminum	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Antimony	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Arsenic	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Barium	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Beryllium	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Cadmium	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Calcium	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Chromium	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Cobalt	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Copper	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Iron	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Lead	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Magnesium	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Manganese	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Mercury	5.000	6.400	128	5.000	6.300	126	6.300	126	MHS
Nickel	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Potassium	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Selenium	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Silver	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Sodium	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Thallium	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Vanadium	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Zinc	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	

(1) Control Limits: Mercury 80-120; Other Metals 90-110

ANALYTICAL METHOD USED

P=ICP A=Flame AA F=Furnace AA MHS=HG HYDRIDE SPECTROSCOPY

Comments: TCLP ANALYSIS

QA/QC Officer

METAL ITIAL AND CONTINUING CALIBRATION V ICATION

Lab Name: ECOSYS, INC. **Client:** GEOSYNTEC

Ledger No: 105829

Initial Calibration Source: EM SCIENCE LOT #34239 **Date:** 8/24/95

Continuing Calibration Source: FISHER LOT# 950339-24

Concentration Units: UG/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Aluminum	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Antimony	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Arsenic	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Barium	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Beryllium	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Cadmium	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Calcium	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Chromium	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Cobalt	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Copper	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Iron	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Lead	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Magnesium	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Manganese	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Mercury	NR	NR	#VALUE!	5.000	6.400	128	NR	#VALUE!	MHS
Nickel	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Potassium	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Selenium	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Silver	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Sodium	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Thallium	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Vanadium	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Zinc	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	

(1) Control Limits: Mercury 80-120; Other Metals 90-110

ANALYTICAL METHOD USED

P=ICP A=Flame AA F=Furnace AA MHS=HG HYDRIDE SPECTROSCOPY

Comments: TCLP ANLAYSIS

QA/QC Officer

Metals Instrument Detection Limits (IDL)

Lab Name:	EcoSys, Inc.	Client:	GEOSYNTEC
Ledger No:	105829		
ICP ID Number:	N/A	Date:	08/24/95
Flame AA ID Number:	PE FIAS 200		
Furnace AA ID Number:	N/A		

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum	NR	NR	NR	NR	
Antimony	NR	NR	NR	NR	
Arsenic	NR	NR	NR	NR	
Barium	NR	NR	NR	NR	
Beryllium	NR	NR	NR	NR	
Cadmium	NR	NR	NR	NR	
Calcium	NR	NR	NR	NR	
Chromium	NR	NR	NR	NR	
Cobalt	NR	NR	NR	NR	
Copper	NR	NR	NR	NR	
Iron	NR	NR	NR	NR	
Lead	NR	NR	NR	NR	
Magnesium	NR	NR	NR	NR	
Manganese	NR	NR	NR	NR	
Mercury	253.70	NR	0.5	0.5	MHS
Nickel	NR	NR	NR	NR	
Potassium	NR	NR	NR	NR	
Selenium	NR	NR	NR	NR	
Silver	NR	NR	NR	NR	
Sodium	NR	NR	NR	NR	
Thallium	NR	NR	NR	NR	
Vanadium	NR	NR	NR	NR	
Zinc	NR	NR	NR	NR	

NR = Not Required

P = ICP A = Flame AA F = Furnace AA MHS=Mercury Hydride System

Indicate elements commonly run with background correction (AA) with a "B" behind the analytical wavelength.

Comments:

TCLP ANALYSIS

QA/QC Officer

Metals Spike Recovery

Lab Name:	**EcoSys, Inc.**	**Client:**	**GEOSYNTEC**
Ledger No(s):	**105829**	**Date Analyzed:**	**8/24/95**
Matrix:	**TCLP EXTRACT**	**Batch No.:**	**824M**
Units:	**UG/L**	**Lab Sample ID:**	**AA 18005**
Instrument ID:	**PE FIAS 200**		TCLP MS

Analyte	Control Limit	Spiked Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R	*
Aluminum	75-125	NR	NR	NR	NR	
Antimony	75-125	NR	NR	NR	NR	
Arsenic	75-125	NR	NR	NR	NR	
Barium	75-125	NR	NR	NR	NR	
Beryllium	75-125	NR	NR	NR	NR	
Cadmium	75-125	NR	NR	NR	NR	
Calcium	75-125	NR	NR	NR	NR	
Chromium (Total)	75-125	NR	NR	NR	NR	
Chromium VI	75-125	NR	NR	NR	NR	
Cobalt	75-125	NR	NR	NR	NR	
Copper	75-125	NR	NR	NR	NR	
Iron	75-125	NR	NR	NR	NR	
Lead	75-125	NR	NR	NR	NR	
Magnesium	75-125	NR	NR	NR	NR	
Manganese	75-125	NR	NR	NR	NR	
Mercury	75-125	6.2	0	5	124	
Nickel	75-125	NR	NR	NR	NR	
Potassium	75-125	NR	NR	NR	NR	
Selenium	75-125	NR	NR	NR	NR	
Silver	75-125	NR	NR	NR	NR	
Sodium	75-125	NR	NR	NR	NR	
Thallium	75-125	NR	NR	NR	NR	
Vanadium	75-125	NR	NR	NR	NR	
Zinc	75-125	NR	NR	NR	NR	
Cyanide	75-125	NR	NR	NR	NR	

*** Column used to indicate metals out of control limits**
NR = Not Required
ND = Not Detected
NC = Not Calculable due to value(s) less than CRDL

QA/QC Officer

Comments:

TCLP ANALYSIS

Metals Spike Recovery

Lab Name:	**EcoSys, Inc.**	**Client:**	**GEOSYNTEC**
Ledger No(s):	**105829**	**Date Analyzed:**	**8/24/95**
Matrix:	**TCLP EXTRACT**	**Batch No.:**	**824M**
Units:	**UG/L**	**Lab Sample ID:**	**AA 18005**
Instrument ID:	**PE FIAS 200**		TCLP MSD

Analyte	Control Limit	Spiked Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R	*
Aluminum	75-125	NR	NR	NR	NR	
Antimony	75-125	NR	NR	NR	NR	
Arsenic	75-125	NR	NR	NR	NR	
Barium	75-125	NR	NR	NR	NR	
Beryllium	75-125	NR	NR	NR	NR	
Cadmium	75-125	NR	NR	NR	NR	
Calcium	75-125	NR	NR	NR	NR	
Chromium (Total)	75-125	NR	NR	NR	NR	
Chromium VI	75-125	NR	NR	NR	NR	
Cobalt	75-125	NR	NR	NR	NR	
Copper	75-125	NR	NR	NR	NR	
Iron	75-125	NR	NR	NR	NR	
Lead	75-125	NR	NR	NR	NR	
Magnesium	75-125	NR	NR	NR	NR	
Manganese	75-125	NR	NR	NR	NR	
Mercury	75-125	6.1	0	5	122	
Nickel	75-125	NR	NR	NR	NR	
Potassium	75-125	NR	NR	NR	NR	
Selenium	75-125	NR	NR	NR	NR	
Silver	75-125	NR	NR	NR	NR	
Sodium	75-125	NR	NR	NR	NR	
Thallium	75-125	NR	NR	NR	NR	
Vanadium	75-125	NR	NR	NR	NR	
Zinc	75-125	NR	NR	NR	NR	
Cyanide	75-125	NR	NR	NR	NR	

*** Column used to indicate metals out of control limits**
NR = Not Required
ND = Not Detected
NC = Not Calculable due to value(s) less than CRDL

QA/QC Officer

Comments:

TCLP ANALYSIS

GFAA METALS SAMPLE LOG

Instrument ID: J. HEMER

Date: 8-24-95

Analyst: J. HEMER

Batch No: 824M

Data File: 0824 M

Analyte: Hg (TCLP EXT)

LOCATION	SAMPLE NO.	CLIENT	SAMPLE SIZE (g/mL)	FINAL VOLUME (mL)	STD. CODE
9	CAL BLK		100 ml	100 ml	
10	0.5 ppb	Note:			↑ Dilutions of working solution 8/24/95
11	1.0 ppb	CALIBRATION			
12	2.0 ppb				
13	5.0 ppb				
14	10.0 ppb				↓
15	CK STD	—			working solution 8/24/95
16	CAL VER	—			Independent std 8/24/95
17	CAL BLK	—			—
18	Det Limit	—			working solution (5:100) 8/24/95
AA 18523 19	BLG BLK BS 824M	—			—
20	17971	—			—
AA 18524 21	17971 dup	—			—
22	18005	—			—
AA 18525 23	18005 MS	—			—
AA 18526 24	18005 MSD	—			—
25	17970	—			—
26	18020	Geo Synter			—
27	CAL BLK	—	↓	↓	—

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GFAA METALS SAMPLE LOG

Instrument ID: PE FIAS 200 Date: 8-24-95

Analyst: J. HEFLER Batch No: 824M

Data File: 0824M Analyte: Hg (TCLP EXT)

LOCATION	SAMPLE NO.	CLIENT	SAMPLE SIZE (g/mL)	FINAL VOLUME (mL)	STD. CODE
28	CAL VER	—	100 ml	100 ml	Independent std 8/24/95
29	18022	GeoSyntec			—
30	18023				—
31	18024				—
32	18025				—
33	18027				—
34	18029				—
35	18085	—	10 ml		—
36	18086	—	50 ml		—
37	18087	—	100 ml		—
38	18088	—			—
39	CAL BLK	—			—
40	CAL VER	—			Independent std 8/24/95
41	18089	—			—
42	18090	—			—
43	18129	—			—
44	18217	—			—
45	18220	—	50 ml		—
46	18221	—	100 ml		—

Page: 00[illegible]

GFAA METALS SAMPLE LOG

Instrument ID: PE FIAS 200 Date: 5-24-95

Analyst: J. HEMER Batch No: 824M

Data File: 0824M Analyte: Hg (TCLP EXT)

LOCATION	SAMPLE NO.	CLIENT	SAMPLE SIZE (g/mL)	FINAL VOLUME (mL)	STD. CODE
47	CAL BLK		100 ml	100 ml	—
48	CAL VER		↓	↓	Independent Std 5/24/95

5-24-95

Page: 000003

Mecury Digestion Log

Date: August 24, 1995
Balance ID: N/A
Matrix: Water Soil Sludge Oil TCLP Extract Product Other
Digestion Method: 1470 7471 Other

Batch No.: 824m
Prepared By: J. Meier

		Vol. Used			Vol. Used
Nitric Acid Lot No.:	Fisher 11503	2.5 ml	Hydrochloric Acid Lot No.:	—	—
Potassium Permanganate Lot No.:	~~[illegible]~~ Aldrich	15 ml	Sulfuric Acid Lot No.:	Vwr 34115	5 ml
Potassium Persulfate Lot No.:	G05345	8 ml	Hydroxylamine Hydrochloride Lot No.:	G16702	3 ml
Sodium Chloride Lot No.:	G41742	3 ml	Stannous Chloride Lot No.:	J 11723	—

Matrix Spike Standard No.: Hg
Received By: [illegible]
Source: Ent Science Fisher
Date: 8-24-95
Lot No.: 950339-24 (34239)
Time: 12:00 noon

Lab ID	Sample Size (g) or (ml)	Final Volume (ml)	Vol Matrix Spike (µl)	Dilution Factor	Notes
CAL BLK	100 ml	100 ml	—	—	
0.5 ppb	100	100			
1.0 ppb	100	100			
2.0 ppb	100	100			
5.0 ppb	100	100			
10.0 ppb	100	100			
DIG BLK BS 824m	100	100			
CAL VER	100	100	1000 µl		0.5 ppm std
17970	100	100	—		
17971	100	100			
17971 dup	100	100			
18005	100	100			
18005 MS	100	100	1000 µl		0.5 ppm std
18005 MSD	100	100			
18023	100	100	—		
18024	100	100			
18025	100	100			
18029	100	100			
18020	100	100			
18022	100	100			
18027	100	100			
18085	10 ml	100			
18086	50 ml	100			
18087	100	100			
18088	100	100			
18089	100	100			
18090	100	100			
18129	100	100			

Page No.: 100000

Mecury Digestion Log

Date: August 24, 1995
Balance ID: N/A
Matrix: Water Soil Sludge Oil (TCLP Extract) Product Other
Digestion Method: (7470) 7471 Other

Batch No.: 824m
Prepared By: J Infiere

		Vol. Used			Vol. Used
Nitric Acid Lot No.:	Fisher 11503	2.5 ml	Hydrochloric Acid Lot No.:	—	—
Potassium Permanganate Lot No.:	M 19721	15 ml	Sulfuric Acid Lot No.:	VWR 34115	5 ml
Potassium Persulfate Lot No.:	G08345	8 ml	Hydroxylamine Hydrochloride Lot No.:	G16702	3 ml
Sodium Chloride Lot No:	G41742	3 ml	Stannous Chloride Lot No.:	J 11723	—

Matrix Spike Standard No.: Hg
Source: EM Science Fisher
Lot No.: 34239 950339-21
Received By: J mil
Date: 8-24-95
Time: 12:00 noon

Lab ID	Sample Size (g) or (ml)	Final Volume (ml)	Vol Matrix Spike (µl)	Dilution Factor	Notes
18217	100 ml	100 ml	-0-	-1-	
18220	50 ml	100 ml	↓	↓	
18221	100 ml	100 ml	↓	↓	

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GEOSYNTEC

Ledger: 105829
Batch: 818M
Matrix: SOLID OTHER

Eco Sys I.D. #	Site Code	Test	Position #
AA 18020	G-NM-W-1	TAL-Hg	20
AA 18021	G-NM-S-1	TAL-Hg	22
AA 18023	G-NM-W-3A	TAL-Hg	29
AA 18024	G-NM-W-3B	TAL-Hg	30
AA 18029	G-NM-W-6	TAL-Hg	22
AA 18031	G-NM-S-6	TAL-Hg	31

Metals Blanks

Lab Name: EcoSys, Inc. **Client:** Geosyntec
Ledger No.: 105829 **Date Analyzed:** 8/18/95
Preparation Blank Matrix: AQUEOUS **Batch No.:** 818M
Preparation Blank Concentration Units: UG/L
Instrument ID: PE FIAS 200 **Lab Sample ID:** CAL BLK

Analyte	Intial Cal Blank	Continuing Cal Blank			Preparation Blank
		1	2	3	
Aluminum	NR	NR	NR	NR	NR
Antimony	NR	NR	NR	NR	NR
Arsenic	NR	NR	NR	NR	NR
Barium	NR	NR	NR	NR	NR
Beryllium	NR	NR	NR	NR	NR
Cadmium	NR	NR	NR	NR	NR
Calcium	NR	NR	NR	NR	NR
Chromium (Total)	NR	NR	NR	NR	NR
Chromium VI	NR	NR	NR	NR	NR
Cobalt	NR	NR	NR	NR	NR
Copper	NR	NR	NR	NR	NR
Iron	NR	NR	NR	NR	NR
Lead	NR	NR	NR	NR	NR
Magnesium	NR	NR	NR	NR	NR
Manganese	NR	NR	NR	NR	NR
Mercury	<MDL	<MDL	<MDL	NR	<MDL
Nickel	NR	NR	NR	NR	NR
Potassium	NR	NR	NR	NR	NR
Selenium	NR	NR	NR	NR	NR
Silver	NR	NR	NR	NR	NR
Sodium	NR	NR	NR	NR	NR
Thallium	NR	NR	NR	NR	NR
Vanadium	NR	NR	NR	NR	NR
Zinc	NR	NR	NR	NR	NR
Cyanide	NR	NR	NR	NR	NR

QA/QC Officer

Comments:

Metals Duplicates

Lab Name:	**EcoSys, Inc.**	**Client:**	**GEOSYNTEC**
Ledger No.:	**105829**	**Date Analyzed:**	**8/18/95**
Matrix:	**SOLID OTHER**	**Batch No.:**	**818M**
Units:	**UG/KG**	**Lab Sample ID:**	**AA 18020**
Instrument ID:	**PE FIAS 200**		

Analyte	Control Limit	Sample (S)	Duplicate (D)	RPD	*
Aluminum	± 20	NR	NR	NR	
Antimony	± 20	NR	NR	NR	
Arsenic	± 20	NR	NR	NR	
Barium	± 20	NR	NR	NR	
Beryllium	± 20	NR	NR	NR	
Cadmium	± 20	NR	NR	NR	
Calcium	± 20	NR	NR	NR	
Chromium (Total)	± 20	NR	NR	NR	
Chromium VI	± 20	NR	NR	NR	
Cobalt	± 20	NR	NR	NR	
Copper	± 20	NR	NR	NR	
Iron	± 20	NR	NR	NR	
Lead	± 20	NR	NR	NR	
Magnesium	± 20	NR	NR	NR	
Manganese	± 20	NR	NR	NR	
Mercury	± 20	ND	ND	NC	
Nickel	± 20	NR	NR	NR	
Potassium	± 20	NR	NR	NR	
Selenium	± 20	NR	NR	NR	
Silver	± 20	NR	NR	NR	
Sodium	± 20	NR	NR	NR	
Thallium	± 20	NR	NR	NR	
Vanadium	± 20	NR	NR	NR	
Zinc	± 20	NR	NR	NR	

*** Column used to indicate metals out of control limits**
NR = Not Required
ND = Not Detected
NC = Not Calculable due to value(s) less than CRDL
RPD = [(|S-D|)/(S+D)/2]*100

QA/QC Officer

Comments:

META .NITIAL AND CONTINUING CALIBRATION V. FICATION

Lab Name: ECOSYS, INC. **Client:** GEOSYNTEC

Ledger No: 105829

Initial Calibration Source: EM SCIENCE LOT #34239 **Date:** 8/18/95

Continuing Calibration Source: FISHER LOT# 950339-24

Concentration Units: UG/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Aluminum	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Antimony	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Arsenic	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Barium	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Beryllium	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Cadmium	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Calcium	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Chromium	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Cobalt	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Copper	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Iron	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Lead	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Magnesium	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Manganese	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Mercury	5.000	5.900	118	5.000	5.000	100	4.900	98	MHS
Nickel	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Potassium	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Selenium	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Silver	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Sodium	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Thallium	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Vanadium	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	
Zinc	NR	NR	#VALUE!	NR	NR	#VALUE!	NR	#VALUE!	

(1) Control Limits: Mercury 80-120; Other Metals 90-110

ANALYTICAL METHOD USED

P=ICP A=Flame AA F=Furnace AA MHS=HG HYDRIDE SPECTROSCOPY

Comments:

QA/QC Officer

Metals Instrument Detection Limits (IDL)

Lab Name:	EcoSys, Inc.	Client:	GEOSYNTEC
Ledger No:	105829		
ICP ID Number:	N/A	Date:	08/18/95
Flame AA ID Number:	PE FIAS 200		
Furnace AA ID Number:	N/A		

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/kg)	M
Aluminum	NR	NR	NR	NR	
Antimony	NR	NR	NR	NR	
Arsenic	NR	NR	NR	NR	
Barium	NR	NR	NR	NR	
Beryllium	NR	NR	NR	NR	
Cadmium	NR	NR	NR	NR	
Calcium	NR	NR	NR	NR	
Chromium	NR	NR	NR	NR	
Cobalt	NR	NR	NR	NR	
Copper	NR	NR	NR	NR	
Iron	NR	NR	NR	NR	
Lead	NR	NR	NR	NR	
Magnesium	NR	NR	NR	NR	
Manganese	NR	NR	NR	NR	
Mercury	253.70	NR	0.5	250.0	MHS
Nickel	NR	NR	NR	NR	
Potassium	NR	NR	NR	NR	
Selenium	NR	NR	NR	NR	
Silver	NR	NR	NR	NR	
Sodium	NR	NR	NR	NR	
Thallium	NR	NR	NR	NR	
Vanadium	NR	NR	NR	NR	
Zinc	NR	NR	NR	NR	

NR = Not Required

P = ICP A = Flame AA F = Furnace AA MHS=Mercury Hydride System

Indicate elements commonly run with background correction (AA) with a "B" behind the analytical wavelength.

Comments:

QA/QC Officer

Metals Spike Recovery

Lab Name:	**EcoSys, Inc.**	**Client:**	**GEOSYNTEC**
Ledger No(s):	**105829**	**Date Analyzed:**	**8/18/95**
Matrix:	**SOLID OTHER**	**Batch No.:**	**818 M**
Units:	**UG/KG**	**Lab Sample ID:**	**AA 18029**
Instrument ID:	**PE FIAS 200**		MS

Analyte	Control Limit	Spiked Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R	*
Aluminum	75-125	NR	NR	NR	NR	
Antimony	75-125	NR	NR	NR	NR	
Arsenic	75-125	NR	NR	NR	NR	
Barium	75-125	NR	NR	NR	NR	
Beryllium	75-125	NR	NR	NR	NR	
Cadmium	75-125	NR	NR	NR	NR	
Calcium	75-125	NR	NR	NR	NR	
Chromium (Total)	75-125	NR	NR	NR	NR	
Chromium VI	75-125	NR	NR	NR	NR	
Cobalt	75-125	NR	NR	NR	NR	
Copper	75-125	NR	NR	NR	NR	
Iron	75-125	NR	NR	NR	NR	
Lead	75-125	NR	NR	NR	NR	
Magnesium	75-125	NR	NR	NR	NR	
Manganese	75-125	NR	NR	NR	NR	
Mercury	75-125	2206	0	2137	103	
Nickel	75-125	NR	NR	NR	NR	
Potassium	75-125	NR	NR	NR	NR	
Selenium	75-125	NR	NR	NR	NR	
Silver	75-125	NR	NR	NR	NR	
Sodium	75-125	NR	NR	NR	NR	
Thallium	75-125	NR	NR	NR	NR	
Vanadium	75-125	NR	NR	NR	NR	
Zinc	75-125	NR	NR	NR	NR	
Cyanide	75-125	NR	NR	NR	NR	

*** Column used to indicate metals out of control limits**
NR = Not Required
ND = Not Detected
NC = Not Calculable due to value(s) less than CRDL

QA/QC Officer

Comments:

Metals Spike Recovery

Lab Name:	**EcoSys, Inc.**	**Client:**	**GEOSYNTEC**
Ledger No(s):	**105829**	**Date Analyzed:**	**8/18/95**
Matrix:	**SOLID OTHER**	**Batch No.:**	**818 M**
Units:	**UG/KG**	**Lab Sample ID:**	**AA 18029**
Instrument ID:	**PE FIAS 200**		MSD

Analyte	Control Limit	Spiked Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R	*
Aluminum	75-125	NR	NR	NR	NR	
Antimony	75-125	NR	NR	NR	NR	
Arsenic	75-125	NR	NR	NR	NR	
Barium	75-125	NR	NR	NR	NR	
Beryllium	75-125	NR	NR	NR	NR	
Cadmium	75-125	NR	NR	NR	NR	
Calcium	75-125	NR	NR	NR	NR	
Chromium (Total)	75-125	NR	NR	NR	NR	
Chromium VI	75-125	NR	NR	NR	NR	
Cobalt	75-125	NR	NR	NR	NR	
Copper	75-125	NR	NR	NR	NR	
Iron	75-125	NR	NR	NR	NR	
Lead	75-125	NR	NR	NR	NR	
Magnesium	75-125	NR	NR	NR	NR	
Manganese	75-125	NR	NR	NR	NR	
Mercury	75-125	1577	0	1466	108	
Nickel	75-125	NR	NR	NR	NR	
Potassium	75-125	NR	NR	NR	NR	
Selenium	75-125	NR	NR	NR	NR	
Silver	75-125	NR	NR	NR	NR	
Sodium	75-125	NR	NR	NR	NR	
Thallium	75-125	NR	NR	NR	NR	
Vanadium	75-125	NR	NR	NR	NR	
Zinc	75-125	NR	NR	NR	NR	
Cyanide	75-125	NR	NR	NR	NR	

*** Column used to indicate metals out of control limits**
NR = Not Required
ND = Not Detected
NC = Not Calculable due to value(s) less than CRDL

QA/QC Officer

Comments:

Metals Lab Control Spike Recovery

Lab Name:	**EcoSys, Inc.**	**Client:**	**GEOSYNTEC**
Ledger No(s):	**105829**	**Date Analyzed:**	**8/18/95**
Matrix:	**SOIL**	**Batch No.:**	**818 M**
Units:	**MG/KG**	**Lab Sample ID:**	**ERA LC**
Instrument ID:	**PE FIAS 200**		LOT #224

Analyte	Control Limit	Spiked Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R	*
Aluminum	75-125	NR	NR	NR	NR	
Antimony	75-125	NR	NR	NR	NR	
Arsenic	75-125	NR	NR	NR	NR	
Barium	75-125	NR	NR	NR	NR	
Beryllium	75-125	NR	NR	NR	NR	
Cadmium	75-125	NR	NR	NR	NR	
Calcium	75-125	NR	NR	NR	NR	
Chromium (Total)	75-125	NR	NR	NR	NR	
Chromium VI	75-125	NR	NR	NR	NR	
Cobalt	75-125	NR	NR	NR	NR	
Copper	75-125	NR	NR	NR	NR	
Iron	75-125	NR	NR	NR	NR	
Lead	75-125	NR	NR	NR	NR	
Magnesium	75-125	NR	NR	NR	NR	
Manganese	75-125	NR	NR	NR	NR	
Mercury	75-125	1.769	0	1.92	92	
Nickel	75-125	NR	NR	NR	NR	
Potassium	75-125	NR	NR	NR	NR	
Selenium	75-125	NR	NR	NR	NR	
Silver	75-125	NR	NR	NR	NR	
Sodium	75-125	NR	NR	NR	NR	
Thallium	75-125	NR	NR	NR	NR	
Vanadium	75-125	NR	NR	NR	NR	
Zinc	75-125	NR	NR	NR	NR	
Cyanide	75-125	NR	NR	NR	NR	

*** Column used to indicate metals out of control limits**
NR = Not Required
ND = Not Detected
NC = Not Calculable due to value(s) less than CRDL

QA/QC Officer

Comments:

ERA PERFORMANCE ACCEPTANCE RANGE LIMITS FOR MERCURY ARE 0.920 - 3.50 MG/KG.

GFAA METALS SAMPLE LOG

Instrument ID: PE FIAS 200 Date: 8-18-95

Analyst: J. HEMER Batch No: 818M

Data File: 0818M Analyte: [illegible] (solid other)

LOCATION	SAMPLE NO.	CLIENT	SAMPLE SIZE (g/mL)	FINAL VOLUME (mL)	STD. CODE
9	CAL BLK		100ml	100ml	—
10	0.5 ppb				Dilutions of
11	1.0 ppb	Note:			working solution 8/18/95
12	2.0 ppb	CALIBRATION			
13	5.0 ppb				
14	10.0 ppb				
15	CK STD				working solution 8/18/95
16	CAL VER				Independent std 8/18/95
17	CAL BLK				—
18	Det Limit				working solution 8/18/95 (5:100)
AA 18242 19	DIG BLK LOT 818M				—
20	AA 18020	Geo Systec	.292g		—
AA 18243 21	AA 18020 dup		.192g		—
22	AA 18029	Geo Systec	.357g		—
AA 18244 23	AA 18029 MS		.234g		—
AA 18246 24	AA 18029 MSD		.341g		—
AA 18248 25	FRA LL LOT 224		.263g		—
26	18021	Geo Systec	.301g		—
27	CAL BLK		100ml		—

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GFAA METALS SAMPLE LOG

Instrument ID: PE FIAS 200 Date: 8-18-95

Analyst: J. HEUER Batch No: 818M

Data File: 0818M Analyte: Hg (Soil / Other)

LOCATION	SAMPLE NO.	CLIENT	SAMPLE SIZE (g/mL)	FINAL VOLUME (mL)	STD. CODE
28	CAL VER		100 ml	100 ml	Independent std 8/14/95
29	AA 18023	Geo Systec	.233 g		
30	AA 18024	Geo Systec	.456 g		
31	AA 18031	Geo Systec	.487 g		
32	AA 18046		37.073 g		
33	CAL BLK		100 ml		
34	CAL VER				Independent std 8/14/95

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Mecury Digestion Log

Date: August 18, 1995
Balance ID: Mettler PM 400
Batch No.: 8/8 M
Prepared By: J. Meier
Matrix: Water Soil (Sludge) Oil TCLP Extract Product (Other)
Digestion Method: 7470 (7471) Other

		Vol. Used (g)			Vol. Used
Nitric Acid Lot No.:	Fisher ~~HN77~~ 11503	2.5 ml / 1.0 ml	Hydrochloric Acid Lot No.:	EM Science 39018	4.5 ml
Potassium Permanganate Lot No.:	H19721	15 ml	Sulfuric Acid Lot No.:	VWR 34115	5 ml
Potassium Persulfate Lot No.:	G08345	8 ml	Hydroxylamine Hydrochloride Lot No.:	G16702	3 ml
Sodium Chloride Lot No:	G41742	3 ml	Stannous Chloride Lot No.:	H09717	—

Matrix Spike Standard No.: Hg
Source: EM Science (1) Fisher
Lot No.: 950339-24 34239
Received By: J. Meier
Date: 8-16-95
Time: 9:30 am

Lab ID	Sample Size (g) or (ml)	Final Volume (ml)	Vol Matrix Spike (µl)	Dilution Factor	Notes
CAL Blk	100 ml	100 ml	-0-	-1-	
0.5 ppb	100	100			
1.0 ppb	100	100			
2.0 ppb	100	100			
5.0 ppb	100	100			
10.0 ppb	100	100			
Dir BLK for 8/8M	100	100			
CALVER	100	100	1000 µl (1)		0.5 ppm STD
ERA LOT 224	.263 g	100	-0-		
18020	.292 g	100			
18020 dup	.192 g	100			
18021	.301 g	100			
18023	.233 g	100			
18024	.456 g	100			
18029	.357 g	100			
18029 MS	.234 g	100	1000 µl (1)		0.5 ppm STD
18029 MSD	.341 g	100			
18031	.481 g	100	-0-		
18196	37.073	100			Low % solids

J. Meier 8-18-95

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