809/14

32501.032
19.06.32.0015

N00204.AR.000069
NAS PENSACOLA
5090.3a

Results of Appendix IX Analysis
Monitor Well GM-66
Surge Pond Closure Permit
Wastewater Treatment Facility
Naval Air Station, Pensacola, Florida

FDER Identification No. 1017800625

Prepared For:

NAVAL FACILITIES ENGINEERING COMMAND
Southern Division
Charleston, South Carolina

May 1989

Geraghty & Miller Project No. TF0290PN12

Prepared By:

GERAGHTY & MILLER, INC.
Environmental Services
3820 Northdale Boulevard, Suite 200B
Tampa, Florida 33624

Pioneer
PLI LABORATORY, INC.
11 EAST OLIVE ROAD PENSACOU. FLORIDA 32514
PHONE(904) 074-1001

Client: GERAGHTY & MILLER
07001 3820 NORTHDALE BLVD.
SUITE 200
TAMPA FL 33624-0000

Lab I.D.#: 89-0923
Order Number: P18898
Order Date: 03/16/89
Sampled By: TJZ/DWL
Sample Date: 03/16/89
Sample Time: N/S

Project Number: TF0290PN12
Project Name: NAS WASTEWATER TREATMENT PLANT
sample Site: NAS PENSACOLA
Sample Type: WASTEWATER

N/S = Not Submitted

b ID	Sample ID	Parameter	Units	Results	Detection Limit
-0923-1	GM-66	CHROMIUM,HEXAVALENT	PPM	BDL	4
-0923-1	GM-66	1,2-DIBROMO-3-CHLOROPROPANE	PPB	BDL	5
-0923-1	GM-66	1,2-DIBROMOETHANE	PPB	BDL	5

ments: PPM = Parts Per Million, mg/l. PPB = Parts Per Billion, ug/l. Method References: EPA 600/4-79-020, Revised March 1983, SW-846, 3rd Edition, 11/86, and Federal Register 40 CFR Part 136, July 1, 1987.

Approved By : W. F. Bowen

CERTIFICATION NUMBERS: FL LAB ID # 81142 • EPA # FL094 • FDER # EL020 • AL LAB ID # 40150 • NIOSH # 32514-001 • FL ENV # E81010

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)7001

Lab I.D.#: 89-0923-1
Order Date: 03/16/89
Sampled By: TJZ/DWL

;ample Site: NAS PENSACOLA
Sample Type: WASTEWATER

sample ID.: GM-66 Sample Date: 03/16/89 Time: N/S

9/INORGANICS APPENDIX IX - INORGANIC PARAMETERS

arameter		Units	Result	Detection Limit
SILVER	METHOD 7761	PPM	0.0003	0.0001
ARSENIC	METHOD 7060	PPM	BDL	0.001
BARIUM	METHOD 6010	PPM	0.04	0.02
BERYLLIUM	METHOD 6010	PPM	0.08	0.005
CADMIUM	METHOD 7131	PPM	0.0006	0.0001
COBALT	METHOD 6010	PPM	BDL	0.05
CHROMIUM	METHOD 6010	PPM	0.39	0.01
COPPER	METHOD 6010	PPM	BDL	0.01
CYANIDE	METHOD 9010	PPM	BDL	0.005
MERCURY	METHOD 7470	PPM	BDL	0.0001
NICKEL	METHOD 6010	PPM	0.12	0.05
LEAD	METHOD 7421	PPM	BDL	0.001
ANTIMONY	METHOD 6010	PPM	BDL	0.05
SELENIUM	METHOD 7740	PPM	BDL	0.001
TIN	METHOD 6010	PPM	BDL	1.0
SULFIDE	METHOD 9030	PPM	3.9	0.05
THALLIUM	METHOD 6010	PPM	BDL	0.1
VANADIUM	METHOD 6010	PPM	0.37	0.2
ZINC	METHOD 6010	PPM	0.48	0.01

327360

CERTIFICATION NUMBERS: FL LAB ID # 81142 • EPA # FL084 • FDER # EL030 • AL LAB ID # 40150 • NIOSH # 32514-001 • FL DW # EB1010

Pioneer LABORATORY, INC.
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Client: GERAGHTY & MILLER
07001

Lab I.D.#: 89-0923-1
Order Date: 03/16/89
Sampled By: TJZ/DWL

Sample Site: NAS PENSACOLA
Sample Type: WASTEWATER

Sample ID.: GM-66 Sample Date: 03/16/89 Time: N/S

P9/8080PEST APPENDIX IX-METHOD 8080 PESTICIDES

Parameter	Units	Result	Detection Limit
ALDRIN	PPB	BDL	0.05
ALPHA-BHC	PPB	BDL	0.05
BETA-BHC	PPB	BDL	0.05
DELTA-BHC	PPB	BDL	0.10
GAMMA-BHC (LINDANE)	PPB	BDL	0.05
CHLORDANE	PPB	BDL	0.10
4,4'-DDD	PPB	BDL	0.10
4,4'-DDE	PPB	BDL	0.05
[illegible]'-DDT	PPB	BDL	0.10
[illegible]LDRIN	PPB	BDL	0.05
DISULFOTON	PPB	BDL	2
ENDOSULFAN I	PPB	BDL	0.10
ENDOSULFAN II	PPB	BDL	0.05
ENDOSULFAN SULFATE	PPB	BDL	0.50
ENDRIN	PPB	BDL	0.10
ENDRIN ALDEHYDE	PPB	BDL	0.20
HEPTACHLOR	PPB	BDL	0.05
HEPTACHLOR EPOXIDE	PPB	BDL	1
METHOXYCHLOR	PPB	BDL	2
METHYL PARATHION	PPB	BDL	0.5
PCBS	PPB	BDL	50
PHORATE	PPB	BDL	2
TOXAPHENE	PPB	BDL	2

CERTIFICATION NUMBERS: FL LAB ID # 81142 • EPA # FL094 • FDER # EL020 • AL LAB ID # 40150 • NIOSH # 32514-001 • FL ENV # E81010

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Lab I.D.#: 89-0923-1
Order Date: 03/16/89
Sampled By: TJZ/DWL

Sample Site: NAS PENSACOLA
Sample Type: WASTEWATER

Sample ID.: GM-66 Sample Date: 03/16/89 Time: N/S

9/8150HERB APPENDIX IX-METHOD 8150 HERBICIDES

arameter	Units	Result	Detection Limit
2,4-DICHLOROPHENOXYACETIC ACID	PPB	BDL	10
DINOSEB	PPB	BDL	1
2,4,5-TP; SILVEX	PPB	BDL	2
2,4,5-TRICHLOROPHENOXYACETIC ACID	PPB	BDL	2

327381

CERTIFICATION NUMBERS: FL LAB ID # 81142 • EPA # FL094 • FDER # EL020 • AL LAB ID # 40150 • NIOSH # 32514001 • FL DNV # 881010

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Client: GERAGHTY & MILLER
07001

Lab I.D.#: 89-0923-1
Order Date: 03/16/89
Sampled BY: TJZ/DWL

Sample Site: NAS PENSACOLA
Sample Type: WASTEWATER

Sample ID.: GM-66 Sample Date: 03/16/89 Time: N/S

P9/8240VOL APPENDIX IX-METHOD 8240 VOLATILES

Parameter	Units	Result	Detection Limit
ACETONE	PPB	BDL	10
ACETONITRILE	PPB	BDL	10
ACROLEIN	PPB	BDL	10
ACRYLONITRILE	PPB	BDL	10
ALLYL CHLORIDE	PPB	BDL	10
BENZENE	PPB	BDL	1
BROMODICHLOROMETHANE	PPB	BDL	5
BROMOFORM	PPB	BDL	5
[illegible]OMETHANE	PPB	BDL	10
CARBON DISULFIDE	PPB	BDL	10
CARBON TETRACHLORIDE	PPB	BDL	3
CHLOROBENZENE	PPB	66	5
CHLOROETHANE	PPB	BDL	10
CHLOROFORM	PPB	BDL	5
CHLOROMETHANE	PPB	BDL	10
CHLOROPRENE	PPB	BDL	5
DIBROMOCHLOROMETHANE	PPB	BDL	5
DICHLORODIFLUOROMETHANE	PPB	BDL	5
1,1-DICHLOROETHANE	PPB	24	5
1,2-DICHLOROETHANE	PPB	BDL	3
1,1-DICHLOROETHENE	PPB	290	50
1,2-DICHLOROETHENE	PPB	1180	5
1,2-DICHLOROPROPANE	PPB	BDL	5
CIS-1,3-DICHLOROPROPENE	PPB	BDL	5
TRANS-1,3-DICHLOROPROPENE	PPB	BDL	5
TRANS-1,4-DICHLORO-2-BUTENE	PPB	BDL	5
1,4-DIOXANE	PPB	BDL	10
ETHYL BENZENE	PPB	BDL	5
ETHYL METHACRYLATE	PPB	BDL	5
2-HEXANONE	PPB	BDL	10
ISOBUTYL ALCOHOL	PPB	BDL	10
METHACRYLONITRILE	PPB	BDL	5
METHYL BROMIDE	PPB	BDL	5
METHYL CHLORIDE	PPB	BDL	5
METHYLENE BROMIDE	PPB	BDL	5

 Test Parameters continued on next page

CERTIFICATION NUMBERS: FL LAB ID # 81142 • EPA # FL094 • FDER # EL020 • AL LAB ID # 40150 • NIOSH # 32514-001 • FL ENV # E81010

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Client: GERAGHTY & MILLER
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Lab I.D.#: 89-0923-1
Order Date: 03/16/89
Sampled By: TJZ/DWL

Sample Site: NAS PENSACOLA
Sample Type: WASTEWATER

Sample ID.: GH-66 Sample Date: 03/16/89 Time: N/S

P9/8240VOL APPENDIX IX-METHOD 8240 VOLATILES continued

Parameter	Units	Result	Detection Limit
METHYLENE CHLORIDE	PPB	BDL	5
METHYL ETHYL KETONE	PPB	BDL	10
METHYL IODIDE	PPB	BDL	5
METHYL METHACRYLATE	PPB	BDL	5
4-METHYL-2-PENTANONE	PPB	BDL	10
PROPANENITRILE	PPB	BDL	5
STYRENE	PPB	BDL	5
TETRACHLOROETHENE	PPB	BDL	3
1,1,1,2-TETRACHLOROETHANE	PPB	BDL	5
1,1,2,2-TETRACHLOROETHANE	PPB	BDL	5
TOLUENE	PPB	6	5
1,1,1-TRICHLOROETHANE	PPB	BDL	5
1,1,2-TRICHLOROETHANE	PPB	BDL	5
TRICHLOROETHENE	PPB	9000	100
TRICHLOROFLUOROMETHANE	PPB	BDL	5
1,2,3-TRICHLOROPROPANE	PPB	3100	500
VINYL ACETATE	PPB	BDL	10
VINYL CHLORIDE	PPB	194	1
XYLENES,TOTAL	PPB	7	5

327382

CERTIFICATION NUMBERS: FL LAB ID # E11142 • EPA # FL094 • FDER # EL020 • AL LAB ID # 40150 • NIOSH # 32514001 • FL ENV # E81010

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Lab I.D.#: 89-0923-1
Order Date: 03/16/89
Sampled By: TJZ/DWL

Sample Site: NAS PENSACOLA
Sample Type: WASTEWATER

Sample ID.: GM-66 Sample Date: 03/16/89 Time: N/S

PP9/8270ACID APPENDIX IX-METHOD 8270 ACIDS

Parameter	Units	Result	Detection Limit
P-CHLORO-M-CRESOL	PPB	BDL	10
2-CHLOROPHENOL	PPB	BDL	10
M-CRESOL	PPB	BDL	10
0-CRESOL	PPB	BDL	10
P-CRESOL	PPB	BDL	10
2,4-DICHLOROPHENOL	PPB	BDL	10
2,6-DICHLOROPHENOL	PPB	BDL	10
2,4-DIMETHYLPHENOL	PPB	102	10
4,6-DINITRO-O-CRESOL	PPB	BDL	50
2,4-DINITROPHENOL	PPB.	BDL	10
2-NITROPHENOL	PPB	BDL	10
4-NITROPHENOL	PPB	BDL	50
PENTACHLOROPHENOL	PPB	BDL	50
PHENOL	PPB	BDL	10
2,3,4,6-TETRACHLOROPHENOL	PPB	BDL	10
2,4,5-TRICHLOROPHENOL	PPB	BDL	50
2,4,6-TRICHLOROPHENOL	PPB	BDL	10

CERTIFICATION NUMBERS: FL LAB ID # 81142 • EPA # FL094 • FDER # EL020 • AL LAB ID # 40150 • NIOSH # 32514-001 • FL ENV # E81010

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Client: GERAGHTY & MILLER
07001

Lab I.D.#: 89-0923-1
Order Date: 03/16/89
Sampled By: TJZ/DWL

Sample Site: NAS PENSACOLA
Sample Type: WASTEWATER

Sample ID,: GM-66 Sample Date: 03/16/89 Time: N/S

9/8270B/N APPENDIX IX-8270 BASE/

Parameter	Units	Result	Detection Limit
ACENAPHTHENE	PPB	BDL	10
ACENAPHTHYLENE	PPB	BDL	10
ACETOPHENONE	PPB	BDL	10
2-ACETYLAMINOFLUORENE	PPB	BDL	10
4-AMINOBIPHENYL	PPB	BDL	10
ANILINE	PPB	BDL	10
ANTHRACENE	PPB	BDL	10
ARAMITE	PPB	BDL	10
BENZO(A) ANTHRACENE	PPB	BDL	10
BENZO(A) PYRENE	PPB	BDL	10
BENZO(B) FLUORANTHENE	PPB	BDL	10
BENZO(G,H,I)PERYLENE	PPB	BDL	10
BENZO(K)FLUORANTHENE	PPB	BDL	10
BENZYL ALCOHOL	PPB	BDL	10
BIS(2-CHLORO-1-METHYLETHYL) ETHER	PPB	BDL	10
BIS(2-CHLOROETHOXY)METHANE	PPB	BDL	10
BIS(2-CHLOROETHYL)ETHER	PPB	BDL	10
BIS(2-ETHYLHEXYL)PHTHALATE	PPB	BDL	10
4-BROMOPHENYL PHENYL ETHER	PPB	BDL	10
BUTYL BENZYL PHTHALATE	PPB	BDL	10
P-CHLOROANILINE	PPB	BDL	10
CHLOROBENZILATE	PPB	BDL	10
2-CHLORONAPHTHALENE	PPB	BDL	10
4-CHLOROPHENYL PHENYL ETHER	PPB	BDL	10
CHRYSENE	PPB	BDL	10
DIALLATE	PPB	BDL	10
DIBENZO(A,E)ANTHRACENE	PPB	BDL	10
DIBENZOFURAN	PPB	BDL	10
1,2-DICHLOROBENZENE	PPB	48	10
1,3-DICHLOROBENZENE	PPB	BDL	10
1,4-DICHLOROBENZENE	PPB	20	10
3,3'-DICHLOROBENZIDINE	PPB	BDL	50
DIETHYLPHTHALATE	PPB	BDL	10
DIMETHOATE	PPB	BDL	10
P-DIMETHYLAMINOAZOBENZENE	PPB	BDL	10

Sample ID,: GM-66

Test Parameters continued on next page

327383

CERTIFICATION NUMBERS: FL LAB ID # 81142 • EPA # FL094 • FDER # EL020 • AL LAB ID # 40150 • NIOSH # 32314-001 • FL SW # 881010

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Client: GERAGHTY & MILLER
07001

Lab I.D.#: 89-0923-1
Order Date: 03/16/89
Sampled By: TJZ/DWL

sample Site: NAS PENSACOLA
Sample Type: WASTEWATER

Sample ID.: GM-66 Sample Date: 03/16/89 Time: N/S

'P9/8270B/N APPENDIX IX-8270 BASE/NEUTRALS continued

Parameter	Units	Result	Detection Limit
7,12-DIMETHYLBENZ(A)	PPB	BDL	10
3,3'-DIMETHYLBENZIDINE	PPB	BDL	10
A,A-DIMETHYLPHENETHYLAMINE	PPB	BDL	10
DIMETHYLPHTHALATE	PPB	BDL	10
DI-N-BUTYLPHTHALATE	PPB	BDL	10
24-DINITROBENZENE	PPB	BDL	10
2,4-DINITROTOLUENE	PPB	BDL	10
2,6-DINITROTOLUENE	PPB	BDL	10
N-OCTYLPHTHALATE	PPB	BDL	10
HENYLAMINE	PPB	BDL	10
ETHYL METHANESULFONATE	PPB	BDL	10
FAMPHUR	PPB	BDL	10
FLUORANTHENE	PPB	BDL	10
FLUORENE	PPB	BDL	10
HEXACHLOROBENZENE	PPB	BDL	10
HEXACHLOROBUTADIENE	PPB	BDL	10
HEXACHLOROCYCLOPENTADIENE	PPB	BDL	10
HEXACHLOROETHANE	PPB	BDL	10
HEXACHLOROPHENE	PPB	BDL	10
HEXACHLOROPROPENE	PPB	BDL	10
INDENO(1,2,3-CD)PYRENE	PPB	BDL	10
ISODRIN	PPB	BDL	10
ISOPHORONE	PPB	BDL	10
ISOSAFROLE	PPB	BDL	10
KEPONE	PPB	BDL	10
METHAPYRILENE	PPB	BDL	10
3-METHYLCHOLANTHRENE	PPB	BDL	10
METHYL METHANESULFONATE	PPB	BDL	10
2-METHYLNAPHTHALENE	PPB	BDL	10
NAPHTHALENE	PPB	92	10
1,4-NAPHTHOQUINONE	PPB	BDL	10
1-NAPHTHYLAMINE	PPB	BDL	10
2-NAPHTHYLAMINE	PPB	BDL	10
2-NITROANALINE	PPB	BDL	50
3-NITROANALINE	PPB	BDL	50

mple ID.: GM-66 Test Parameters continued on next page

CERTIFICATION NUMBERS: FL LAB ID # 81142 • EPA # FL094 • FDER # EL020 • AL LAB ID # 40150 • NIOSH # 32514-001 • FL ENV # E81010

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Client: GERAGHTY & MILLER-'
07001

Lab I.D.#: 89-0923-1
Order Date: 03/16/89
Sampled By: TJZ/DWL

Sample Site: NAS PENSACOLA
Sample Type: WASTEWATER

Sample ID.: GM-66 Sample Date: 03/16/89 The: N/S

Parameter	Units	Result	Detection Limit
4-NITROANALINE	PPB	BDL	50
NITROBENZENE	PPB	BDL	10
5-NITRO-O-TOLUIDINE	PPB	BDL	10
4-NITROQUINOLINE 1-OXIDE	PPB	BDL	10
N-NITROSODIETHYLAMINE	PPB	BDL	10
N-NITROSOD NE	PPB	BDL	10
N-NITROSO-DI-N-BUTYLAMINE	PPB	BDL	10
N-NITROSODIPROPYLAMINE	PPB	BDL	10
N-NITROSODIPHENYLAMINE	PPB	BDL	10
N-NITROSOMETHYLETHYLAMINE	PPB	BDL	10
N-NITROSOMORPHOLINE	PPB	BDL	10
N-NITROSOPIPERIDINE	PPB	BDL	10
N-NITROSOPYRROLIDINE	PPB	BDL	10
PARATHION	PPB	BDL	10
PENTA E	PPB	BDL	10
1 NTA	PPB	BDL	10
PENTACHLORONITROBENZENE	PPB	BDL	10
PHENACETIN	PPB	BDL	10
PHENANTHRENE	PPB	BDL	10
2-PICOLINE	PPB	BDL	10
P-PHENYLENEDIAMINE	PPB	BDL	10
PRONAMIDE	PPB	BDL	10
PYRENE	PPB	BDL	10
PYRIDINE	PPB	BDL	10
SAFROLE	PPB	BDL	10
SULFOTEPP	PPB	BDL	10
1,2,4,5-TETRACHLOROBENZENE	PPB	BDL	10
THIONAZIN	PPB	BDL	10
O-TOLUIDINE	PPB	BDL	10
1,2,4-TRICHLOROBENZENE	PPB	BDL	10
O,O,O-TRIETHYL PHOSPHOROTHIATE	PPB	BDL	10
SYM-TRINITROBENZENE	PPB	BDL	10

327384

end of report

CERTIFICATION NUMBERS: FL LAB ID # 81142 • EPA # FL094 • FDER # EL020 • AL LAB ID # 40190 • NIOSH # 32514-001 • FL ENV # E81010

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Client: GERAGHTY & MILLER
07001 3820 NORTHDALE BLVD.
SUITE 200
TAMPA FL 33624-0000

Lab I.D.#: 89-0922
Order Number: P18899
Order Date: 03/16/89
Sampled By: TJZ/DLW
Sample Date: 03/16/89
Sample Time: N/S

Project Number: TF0290PN12
Project Name: NAS WASTEWATER TREATMENT PLANT
sample Site: NAS PENSACOLA
Sample Type: WASTEWATER

N/S = Not Submitted

Lab ID	Sample ID	Parameter	Units.	Results	Detection Limit
89-0922-1	RINSATE-3	CHROMIUM,HEXAVALENT	PPM	BDL	0.01
89-0922-2	FIELD BLANK-3	CHROMIUM,HEXAVALENT	PPM	BDL	0.01
89-0922-2	RINSATE-3	1,2-DIBROMO-3-CHLOROPROPANE	PPB	BDL	5
89-0922-1	RINSATE-3	1,2-DIBROMOETHANE	PPB	BDL	5

Comments: PPM = Parts Per Million, mg/l. PPB = Parts Per Billion, ug/l. Method References: EPA 600/4-79-020, Revised March 1983, SW-846, 3rd Edition, 11/86, and Fed Reg 40 CFR Part 136 7/1/87. BDL = Below Detection Limits.

Approved By : W. F. Bowns

CERTIFICATION NUMBERS: FL LAB ID # 81142 • EPA # FL094 • FDER # EL020 • AL LAB ID # 40150 • NIOSH # 32514-001 • FL ENV # E81010

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Client: GERAGHTY & MILLER
07001

Lab I.D.#: 89-0922-1
Order Date: 03/16/89
Sampled By: TJZ/DLW

Sample Site: NAS PENSACOLA
Sample Type: WASTEWATER

Sample ID.: RINSATE-3 Sample Date: 03/16/89 Time: N/S

9/INORGANICS APPENDIX IX - INORGANIC PARAMETERS

Parameter		Units	Result	Detection Limit
SILVER	METHOD 7761	PPM	0.0002	0.0001
ARSENIC	METHOD 7060	PPM	BDL	0.001
BARIUM	METHOD 6010	PPM	BDL	0.02
BERYLLIUM	METHOD 6010	PPM	BDL	0.005
CADMIUM	METHOD 7131	PPM	BDL	0.0001
COBALT	METHOD 6010	PPM	BDL	0.05
CHROMIUM	METHOD 6010	PPM	BDL	0.01
COPPER	METHOD 6010	PPM	0.10	0.01
ANIDE	METHOD 9010	PPM	BDL	0.005
ERCURY	METHOD 7470	PPM	BDL	0.0001
NICKEL	METHOD 6010	PPM	BDL	0.05
LEAD	METHOD 7421	PPM	BDL	0.001
ANTIMONY	METHOD 6010	PPM	BDL	0.05
SELENIUM	METHOD 7740	PPM	BDL	0.001
TIN	METHOD 6010	PPM	BDL	1.0
SULFIDE	METHOD 9030	PPM	0.07	0.05
THALLIUM	METHOD 6010	PPM	BDL	0.1
VANADIUM	METHOD 6010	PPM	BDL	0.02
ZINC	METHOD 6010	PPM	BDL	0.01

327385

CERTIFICATION NUMBERS: FL LAB ID # E1142 • EPA # FL094 • FDER # EL080 • AL LAB ID # 40150 • NIOSH # 32514-001 • FL ENV # EB1010

Pioneer LABORATORY, INC.
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Client: GERAGHTY & MILLER
07001

Lab I.D.#: 89-0922-2
Order Date: 03/16/89
Sampled By: TJZ/DLW

Sample Site: NAS PENSACOLA
Sample Type: WATER

Sample ID.: FIELD BLANK-3 Sample Date: 03/16/89 Time: N/S

?P9/INORGANICS APPENDIX IX - INORGANIC PARAMETERS

Parameter		Units	Result	Detection Limit
SILVER	METHOD 7761	PPM	BDL	0.0001
ARSENIC	METHOD 7060	PPM	BDL	0.001
BARIUM	METHOD 6010	PPM	BDL	0.02
BERYLLIUM	METHOD 6010	PPM	BDL	0.005
CADMIUM	METHOD 7131	PPM	BDL	0.0001
COBALT	METHOD 6010	PPM	BDL	0.05
CHROMIUM	METHOD 6010	PPM	BDL	0.01
COPPER	METHOD 6010	PPM	0.11	0.01
CYANIDE	METHOD 9010	PPM	BDL	0.005
MERCURY	METHOD 7470	PPM	BDL	0.0001
NICKEL	METHOD 6010	PPM	BDL	0.05
LEAD	METHOD 7421	PPM	BDL	0.001
ANTIMONY	METHOD 6010	PPM	BDL	0.05
SELENIUM	METHOD 7740	PPM	BDL	0.001
TIN	METHOD 6010	PPM	BDL	1.0
SULFIDE	METHOD 9030	PPM	BDL	0.05
THALLIUM	METHOD 6010	PPM	BDL	0.1
VANADIUM	METHOD 6010	PPM	BDL	0.02
ZINC	METHOD 6010	PPM	BDL	0.01

CERTIFICATION NUMBERS: FL LAB ID # 81142 • EPA # FL094 • FDER # EL020 • AL LAB ID # 40150 • NIOSH # 32514-001 • FL ENV # E81010

Pioneer LABORATORY, INC.
11 EAST OLIVE ROAD PENSACOLA, FLORIDA 32514
PHONE (904) 474-1001

Client: GERAGHTY & MILLER
37001

Lab I.D.#: 89-0922-1
Order Date: 03/16/89
Sampled By: TJZ/DLW

Sample Site: NAS PENSACOLA
Sample Type: WASTEWATER

Sample ID.: RINSATE-3 Sample Date: 03/16/89 Time: N/S

9/8080PEST APPENDIX IX-METHOD 8080 PESTICIDES

arameter	Units	Result	Detection Limit
ALDRIN	PPB	BDL	0.05
ALPHA-BHC	PPB	BDL	0.05
BETA-BHC	PPB	BDL	0.05
DELTA-BHC	PPB	BDL	0.10
GAMMA-BHC (LINDANE)	PPB	BDL	0.05
CHLORDANE	PPB	BDL	0.10
4,4'-DDD	PPB	BDL	0.10
4,4'-DDE	PPB	BDL	0.05
4,4'-DDT	PPB	BDL	0.10
DIELDRIN	PPB	BDL	0.05
DISULFOTON	PPB	BDL	2
ENDOSULFAN I	PPB	BDL	0.10
ENDOSULFAN II	PPB	BDL	0.05
ENDOSULFAN SULFATE	PPB	BDL	0.50
ENDRIN	PPB	BDL	0.10
ENDRIN ALDEHYDE	PPB	BDL	0.20
HEPTACHLOR	PPB	BDL	0.05
HEPTACHLOR EPOXIDE	PPB	BDL	1
METHOXYCHLOR	PPB	BDL	2
METHYL PARATHION	PPB	BDL	0.5
PCBS	PPB	BDL	50
PHORATE	PPB	BDL	2
TOXAPHENE	PPB	BDL	2

CERTIFICATION NUMBERS: FL LAB ID # 81142 • EPA # FL094 • FDER # EL020 • AL LAB ID # 40150 • NIOSH # 32514-001 • FL ENV # E81010

Pioneer
PLI LABORATORY, INC.
11 EAST OLIVE ROAD PENSACOU. FLORIDA 32514
PHONE (904) 474-1001

Client: GERAGHTY & MILLER
07001

Lab I.D.#: 89-0922-2
Order Date: 03/16/89
Sampled By: TJZ/DLW

Sample Site: NAS PENSACOLA
Sample Type: WATER

Sample ID.: FIELD BLANK-3 Sample Date: 03/16/89 Time: N/S

PP9/8080PEST APPENDIX IX–METHOD 8080 PESTICIDES

Parameter	Units	Result	Detection Limit
ALDRIN	PPB	BDL	0.05
ALPHA-BHC	PPB	BDL	0.05
BETA-BHC	PPB	BDL	0.05
DELTA–BXC	PPB	BDL	0.10
GAMMA-BHC (LINDANE)	PPB	BDL	0.05
CHLORDANE	PPB	BDL	0.10
4'-DDD	PPB	BDL	0.10
4'-DDE	PPB	BDL	0.05
4,4'-DDT	PPB	BDL	0.10
DIELDRIN	PPB	BDL	0.05
DISULFOTON	PPB	BDL	2
ENDOSULFAN I	PPB	BDL	0.10
ENDOSULFAN II	PPB	BDL	0.05
ENDOSULFAN SULFATE	PPB	BDL	0.50
ENDRIN	PPB	BDL	0.10
ENDRIN ALDEHYDE	PPB	BDL	0.20
HEPTACHLOR	PPB	BDL	0.05
HEPTACHLOR EPOXIDE	PPB	BDL	1
METHOXYCHLOR	PPB	BDL	2
METHYL PARATHION	PPB	BDL	0.5
PCBS	PPB	BDL	50
PHORATE	PPB	BDL	2
TOXAPHENE	PPB	BDL	2

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PLI LABORATORY, INC.
11 EAST OLIVE ROAD PENSACOLA, FLORIDA 32514
PHONE (904) 474-1001

Client: GERAGHTY & MILLER
07001

Lab I.D.#: 89-0922-1
Order Date: 03/16/89
Sampled By: TJZ/DLW

Sample Site: NAS PENSACOLA
Sample Type: WASTEWATER

Sample ID.: RINSATE-3 Sample Date: 03/16/89 Time: N/S

P9/8150HERB APPENDIX IX-METHOD 8150 HERBICIDES

Parameter	Units	Result	Detection Limit
2,4-DICHLOROPHENOXYACETIC ACID	PPB	BDL	10
DINOSEB	PPB	BDL	1
2,4,5-TP; SILVEX	PPB	BDL	2
2,4,5-TRICHLOROPHENOXYACETIC ACID	PPB	BDL	2

327387

Pioneer LABORATORY, INC.
11 EAST OLIVE ROAD PENSACOLA, FLORIDA 32514
PHONE (904) 474-1001

Client: GERAGHTY & MILLER
07001

Lab I.D.#: 89-0922-2
Order Date: 03/16/89
Sampled By: TJZ/DLW

Sample Site: NAS PENSACOLA
Sample Type: WATER

Sample ID.: FIELD BLANK-3 Sample Date: 03/16/89 Time: N/S

PP9/8150HERB APPENDIX IX-METHOD 8150 HERBICIDES

Parameter	Units	Result	Detection Limit
2,4-DICHLOROPHENOXYACETIC ACID	PPB	BDL	10
DINOSEB	PPB	BDL	1
2,4,5-TP; SILVEX	PPB	BDL	2
2,4,5-TRICHLOROPHENOXYACETIC ACID	PPB	BDL	2

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11 EAST OLIVE ROAD PENSACOLA, FLORIDA 32514
PHONE (904) 474-1001

Client: GERAGHTY & MILLER
07001

Lab I.D.#: 89-0922-1
Order Date: 03/16/89
Sampled By: TJZ/DLW

Sample Site: NAS PENSACOLA
Sample Type: WASTEWATER

Sample ID.: RINSATE-3 Sample Date: 03/16/89 . The: N/S

P9/8240VOL APPENDIX IX-METHOD 8240 VOLATILES

Parameter	Units	Result	Detection Limit
ACETONE	PPB	BDL	10
ACETONITRILE	PPB	BDL	10
ACROLEIN	PPB	BDL	10
ACRYLONITRILE	PPB	BDL	10
ALLYL CHLORIDE	PPB	BDL	10
BENZENE	PPB	BDL	1
BROMODICHLOROMETHANE	PPB	BDL	5
BROMOFORM	PPB	BDL	5
BROMOMETHANE	PPB	BDL	10
CARBON DISULFIDE	PPB	BDL	10
CARBON TETRACHLORIDE	PPB	BDL	3
CHLOROBENZENE	PPB	BDL	5
CHLOROETHANE	PPB	BDL	10
CHLOROFORM	PPB	BDL	5
CHLOROMETHANE	PPB	BDL	10
CHLOROPRENE	PPB	BDL	5
DIBROMOCHLOROMETHANE	PPB	BDL	5
DICHLORODIFLUOROMETHANE	PPB	BDL	5
1,1-DICHLOROETHANE	PPB	BDL	5
1,2-DICHLOROETHANE	PPB	BDL	3
1,1-DICHLOROETHENE	PPB	BDL	5
1,2-DICHLOROETHENE	PPB	BDL	5
1,2-DICHLOROPROPANE	PPB	BDL	5
CIS-1,3-DICHLOROPROPENE	PPB	BDL	5
TRANS-1,3-DICHLOROPROPENE	PPB	BDL	5
TRANS-1,4-DICHLORO-2-BUTENE	PPB	BDL	5
1,4-DIOXANE	PPB	BDL	10
ETHYL BENZENE	PPB	BDL	5
ETHYL METHACRYLATE	PPB	BDL	5
2-HEXANONE	PPB	BDL	10
ISOBUTYL ALCOHOL	PPB	BDL	10
METHACRYLONITRILE	PPB	BDL	5
METHYL BROMIDE	PPB	BDL	5
METHYL CHLORIDE	PPB	BDL	5
METHYLENE BROMIDE	PPB	BDL	5

Sample ID.: RINSATE-3

Test Parameters continued on next page

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Pioneer LABORATORY, INC.
11 EAST OUVE ROAD PENSACOLA. FLORIDA 32514
PHONE (904) 474-1001

Client: GERAGHTY & MILLER
07001

Lab I.D.#: 89-0922-1
Order Date: 03/16/89
Sampled By: TJZ/DLW

Sample Site: NAS PENSACOLA
Sample Type: WASTEWATER

Sample ID.: RINSATE-3 Sample Date: 03/16/89 'Time: N/S

PP9/8240VOL APPENDIX IX-METHOD 8240 VOLATILES continued

Parameter	Units	Result	Detection Limit
METHYLENE CHLORIDE	PPB	BDL	5
METHYL ETHYL KETONE	PPB	BDL	10
METHYL IODIDE	PPB	BDL	5
METHYL METHACRYLATE	PPB	BDL	5
4-METHYL-2-PENTANONE	PPB	BDL	10
PROPANENITRILE	PPB	BDL	5
STYRENE	PPB	BDL	5
TETRACHLOROETHENE	PPB	BDL	3
1,1,2,2-TETRACHLOROETHANE	PPB	BDL	5
	PPB	BDL	5
TOLUENE	PPB	BDL	5
1,1,1-TRICHLOROETHANE	PPB	BDL	5
1,1,2-TRICHLOROETHANE	PPB	BDL	5
TRICHLOROETHENE	PPB	BDL	1
TRICHLOROFLUOROMETHANE	PPB	BDL	5
1,2,3-TRICHLOROPROPANE	PPB	BDL	5
VINYL ACETATE	PPB	BDL	10
VINYL CHLORIDE	PPB	BDL	1
XYLENES,TOTAL	PPB	BDL	5

Pioneer LABORATORY, INC.
11 EAST OLIVE ROAD PENSACOLA, FLORIDA 32514
PHONE (904) 474 - 1001

Client: GERAGHTY & MILLER
07001

Lab I.D.#: 89-0922-1
Order Date: 03/16/89
Sampled By: TJZ/DLW

Sample Site: NAS PENSACOLA
Sample Type: WASTEWATER

Sample ID.: RINSATE-3 Sample Date: 03/16/89 Time: N/S

'9/8270ACID APPENDIX IX-METHOD 8270 ACIDS

'arameter	Units	Result	Detection Limit
P-CHLORO-M-CRESOL	PPB	BDL	10
2-CHLOROPHENOL	PPB	BDL	10
M-CRESOL	PPB	BDL	10
0-CRESOL	PPB	BDL	10
P-CRESOL	PPB	BDL	10
2,4-DICHLOROPHENOL	PPB	BDL	10
2,6-DICHLOROPHENOL	PPB	BDL	10
4-DIMETHYLPHENOL	PPB	BDL	10
4,6-DINITRO-O-CRESOL	PPB	BDL	50
2,4-DINITROPHENOL	PPB	BDL	10
2-NITROPHENOL	PPB	BDL	10
4-NITROPHENOL	PPB	BDL	50
PENTACHLOROPHENOL	PPB	BDL	50
PHENOL	PPB	BDL	10
2,3,4,6-TETRACHLOROPHENOL	PPB	BDL	10
2,4,5-TRICHLOROPHENOL	PPB	BDL	50
2,4,6-TRICHLOROPHENOL	PPB	BDL	10

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Pioneer LABORATORY, INC.
11 EAST OLIVE ROAD PENSACOLA, FLORIDA 32514
PHONE (904) 474-1001

Client: GERAGHTY & MILLER
07001

Lab I.D.#: 89-0922-2
Order Date: 03/16/89
Sampled By: TJZ/DLW

Sample Site: NAS PENSACOIA
Sample Type: WATER

Sample ID.: FIELD BLANK-3 Sample Date: 03/16/89 Time: N/S

PP9/8270ACID APPENDIX IX-METHOD 8270 ACIDS

Parameter	Units	Result	Detection Limit
P-CHLORO-M-CRESOL	PPB	BDL	10
2-CHLOROPHENOL	PPB	BDL	10
M-CRESOL	PPB	BDL	10
0-CRESOL	PPB	BDL	10
P-CRESOL	PPB	BDL	10
2,4-DICHLOROPHENOL	PPB	BDL	10
2,6-DICHLOROPHENOL	PPB	BDL	10
2,4-DIMETHYLPHENOL	PPB	BDL	10
4,6-DINITRO-O-CRESOL	PPB	BDL	50
2,4-DINITROPHENOL	PPB	BDL	10
2-NITROPHENOL	PPB	BDL	10
4-NITROPHENOL	PPB	BDL	50
PENTACHLOROPHENOL	PPB	BDL	50
PHENOL	PPB	BDL	10
2,3,4,6-TETRACHLOROPHENOL	PPB	BDL	10
2,4,5-TRICHLOROPHENOL	PPB	BDL	50
2,4,6-TRICHLOROPHENOL	PPB	BDL	10

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PL LABORATORY, INC.
11 EAST OLIVE ROAD PENSACOLA, FLORIDA 32514
PHONE (904) 474-1001

Client: GERAGHTY & MILLER
07001

Lab I.D.#: 89-0922-1
Order Date: 03/16/89
Sampled By: TJZ/DLW

Sample Site: NAS PENSACOLA
Sample Type: WASTEWATER

sample ID.: RINSATE-3 Sample Date: 03/16/89 . Time: N/S

?9/8270B/N APPENDIX IX-8270 BASE/NEUTRALS

Parameter	Units	Result	Detection Limit
ACENAPHTHENE	PPB	BDL	10
ACENAPHTHYLENE	PPB	BDL	10
ACETOPHENONE	PPB	BDL	10
2-ACETYLAMINOFLUORENE	PPB	BDL	10
4-AMINOBIPHENYL	PPB	BDL	10
ANILINE	PPB	BDL	10
ANTHRACENE	PPB	BDL	10
?'AMITE	PPB	BDL	10
BENZO(A)ANTHRACENE	PPB	BDL	10
BENZO(A)PYRENE	PPB	BDL	10
BENZO(B)FLUORANTHENE	PPB	BDL	10
BENZO(G,H,I)PERYLENE	PPB	BDL	10
BENZO(K)FLUORANTHENE	PPB	BDL	10
BENZYL ALCOHOL	PPB	BDL	10
BIS(2-CHLORO-1-METHYLETHYL)ETHER	PPB	BDL	10
BIS(2-CHLOROETHOXY)METHANE	PPB	BDL	10
BIS(2-CHLOROETHYL)ETHER	PPB	BDL	10
BIS(2-ETHYLHEXYL)PHTHALATE	PPB	BDL	10
4-BROMOPHENYL PHENYL ETHER	PPB	BDL	10
BUTYL BENZYL PHTHALATE	PPB	BDL	10
P-CHLOROANILINE	PPB	BDL	10
CHLOROBENZILATE	PPB	BDL	10
2-CHLORONAPHTHALENE	PPB	BDL	10
4-CHLOROPHENYL PHENYL ETHER	PPB	BDL	10
CHRYSENE	PPB	BDL	10
DIALLATE	PPB	BDL	10
DXBENZO(A,H)ANTHRACENE	PPB	BDL	10
DIBENZOFURAN	PPB	BDL	10
1,2-DICHLOROBENZENE	PPB	BDL	10
1,3-DICHLOROBENZENE	PPB	BDL	10
1,4-DICHLOROBENZENE	PPB	BDL	10
3,3'-DICHLOROBENZIDINE	PPB	BDL	50
DIETHYLPHTHALATE	PPB	BDL	10
DIMETHOATE	PPB	BDL	10
P-DIMETHYLAMINOAZOBENZENE	PPB	BDL	10

Sample ID.: RINSATE-3

Test Parameters continued on next page

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Pioneer LABORATORY, INC.
11 EAST OLIVE ROAD PENSACOLA, FLORIDA 32514
PHONE (904) 474-1001

Client: GERAGHTY & MILLER
07001

Lab I.D.#: 89-0922-1
Order Date: 03/16/89
Sampled By: TJZ/DLW

Sample Site: NAS PENSACOLA
Sample Type: WASTEWATER

Sample ID.: RINSATE-3 Sample Date: 03/16/89 Time: N/S

PP9/8270B/N APPENDIX IX-8270 BASE/NEUTRALS continued

Parameter	Units	Result	Detection Limit
7,12-DIMETHYLBENZ(A)ANTHRACENE	PPB	BDL	10
3,3'-DIMETHYLBENZIDINE	PPB	BDL	10
A,A-DIMETHYLPHENETHYLAMINE	PPB	BDL	10
DIMETHYLPHTHALATE	PPB	BDL	10
DI-N-BUTYLPHTHALATE	PPB	BDL	10
M-DINITROBENZENE	PPB	BDL	10
2,4-DINITROTOLUENE	PPB	BDL	10
2,6-DINITROTOLUENE	PPB	BDL	10
DI-N-OCTYLPHTHALATE	PPB	BDL	10
DIPHENYLAMINE	PPB	BDL	10
ETHYL METHANESULFONATE	PPB	BDL	10
FAMPHUR	PPB	BDL	10
FLUORANTHENE	PPB	BDL	10
FLUORENE	PPB	BDL	10
HEXACHLOROBENZENE	PPB	BDL	10
HEXACHLOROBUTADIENE	PPB	BDL	10
HEXACHLOROCYCLOPENTADIENE	PPB	BDL	10
HEXACHLOROETHANE	PPB	BDL	10
HEXACHLOROPHENE	PPB	BDL	10
HEXACHLOROPROPENE	PPB	BDL	10
INDENO(1,2,3-CD)PYRENE	PPB	BDL	10
ISODRIN	PPB	BDL	10
ISOPHORONE	PPB	BDL	10
ISOSAFROLE	PPB	BDL	10
KEPONE	PPB	BDL	10
METHAPYRILENE	PPB	BDL	10
3-METHYLCHOLANTHRENE	PPB	BDL	10
METHYL METHANESULFONATE	PPB	BDL	10
2-METHYLNAPHTHALENE	PPB	BDL	10
NAPHTHALENE	PPB	BDL	10
1,4-NAPHTHOQUINONE	PPB	BDL	10
1-NAPHTHYLAMINE	PPB	BDL	10
2-NAPHTHYLAMINE	PPB	BDL	10
2-NITROANALINE	PPB	BDL	50
3-NITROANALINE	PPB	BDL	50

Sample ID.: RINSATE-3 Test Parameters continued on next page

Pioneer
PLI LABORATORY, INC.
11 EAST OLIVE ROAD PENSACOLA, FLORIDA 32514
PHONE (904) 474-1001

Client: GERAGHTY & MILLER
07001

Lab I.D.#: 89-0922-1
Order Date: 03/16/89
Sampled By: TJZ/DLW

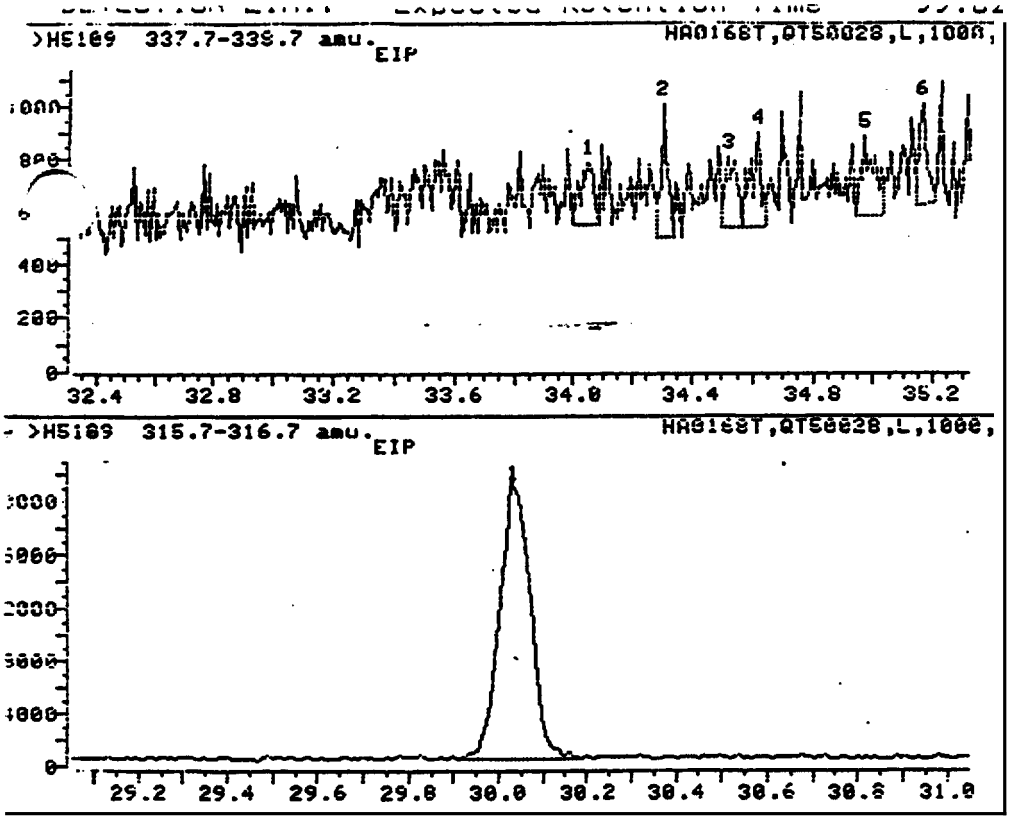
Sample Site: NAS PENSACOLA
Sample Type: WASTEWATER

Sample ID: RINSATE-3 Sample Date: 03/16/89 Time: N/S

9/8270B/N APPENDIX IX-8270 BASE/NEUTRALS continued

Parameter	Units	Result	Detection Limit
4-NITROANALINE	PPB	BDL	50
NITROBENZENE	PPB	BDL	10
5-NITRO-O-TOLUIDINE	PPB	BDL	10
4-NITROQUINOLINE 1-OXIDE	PPB	BDL	10
N-NITROSODIETHYLAMINE	PPB	BDL	10
N-NITROSODIMETHYLAMINE	PPB	BDL	10
N-NITROSO-DI-N-BUTYLAMINE	PPB	BDL	10
N-NITROSODIPROPYLAMINE	PPB	BDL	10
N-NITROSODIPHENYLAMINE	PPB	BDL	10
N-NITROSOMETHYLETHYLAMINE	PPB	BDL	10
N-NITROSOMORPHOLINE	PPB	BDL	10
N-NITROSOPIPERIDINE	PPB	BDL	10
N-NITROSOPYRROLIDINE	PPB	BDL	10
PARATHION	PPB	BDL	10
PENTACHLOROBENZENE	PPB	BDL	10
PENTACHLOROETHANE	PPB	BDL	10
PENTACHLORONITROBENZENE	PPB	BDL	10
PHENACETIN	PPB	BDL	10
PHENANTHRENE	PPB	BDL	10
2-PICOLINE	PPB	BDL	10
P-PHENYLENEDIAMINE	PPB	BDL	10
PROPAMIDE	PPB	BDL	10
PYRENE	PPB	BDL	10
PYRIDINE	PPB	BDL	10
SAFROLE	PPB	BDL	10
SULFOTEPP	PPB	BDL	10
1,2,4,5-TETRACHLOROBENZENE	PPB	BDL	10
THIONAZIN	PPB	BDL	10
O-TOLUIDINE	PPB	BDL	10
1,2,4-TRICHLOROBENZENE	PPB	BDL	10
O,O,O-TRIETHYL PHOSPHOROTHIATE	PPB	BDL	10
SYM-TRINITROBENZENE	PPB	BDL	10

327391



File: >H5109::U3

me: ..... Operator: MGRMS Date/Time: 4/18/89 1:03
sc: HA0168T,QT50028,L,1000,,4/12/89 BTL# 8

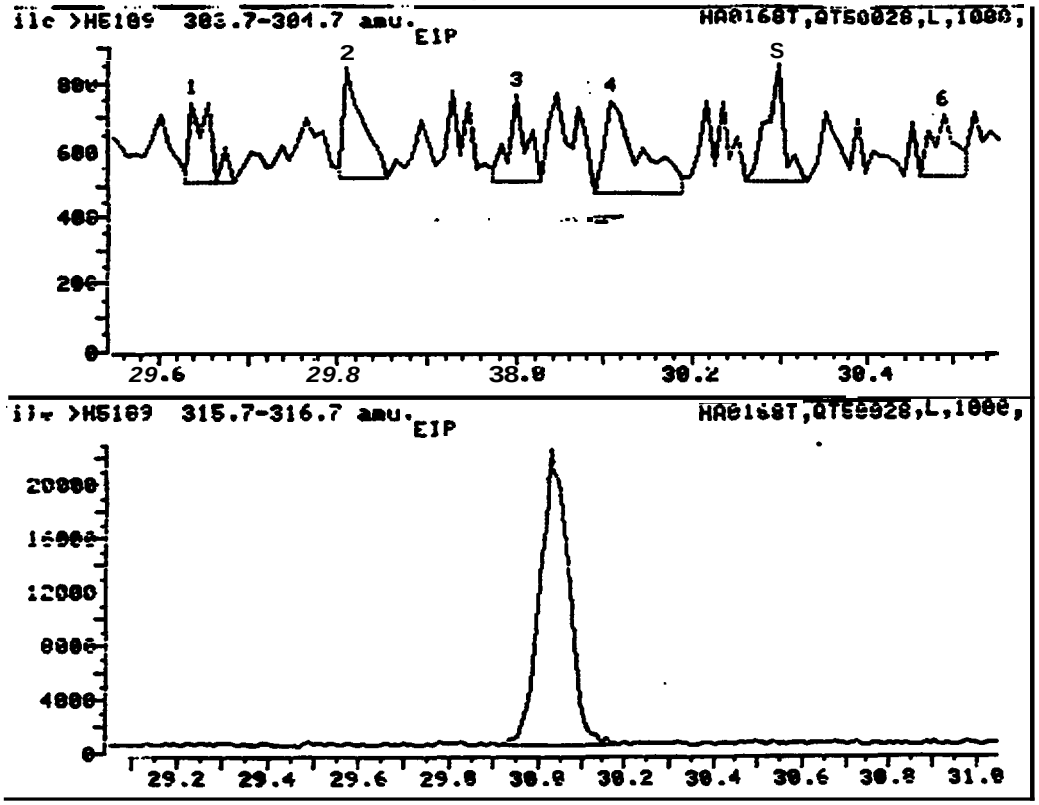
ple volume(L) = 1.00000 Response Factor .76
nal / Noise 2.5

K #	Retention Time	Peak Height 338.00	MPC **
	34.05	231	1.88
	34.30	503	4.08
	34.52	255	2.07
	34.62	350	2.84
	34.97	300	2.44
	35.16	387	3.16

) Peak Height 316.00 = 20263 ISTD Retention Time = 30.04 mins

hecked MPC is correct value.

TCDF DETECTION LIMIT * Expected Retsnt ion Time 30.05



MS Data File: >H5109::U3

Name: ..... Operator: MGKMS Date/Time: 4/18/89 1:13
Misc: HA0168T,QT50028,L,1000,,4/12/89 BIL# 8

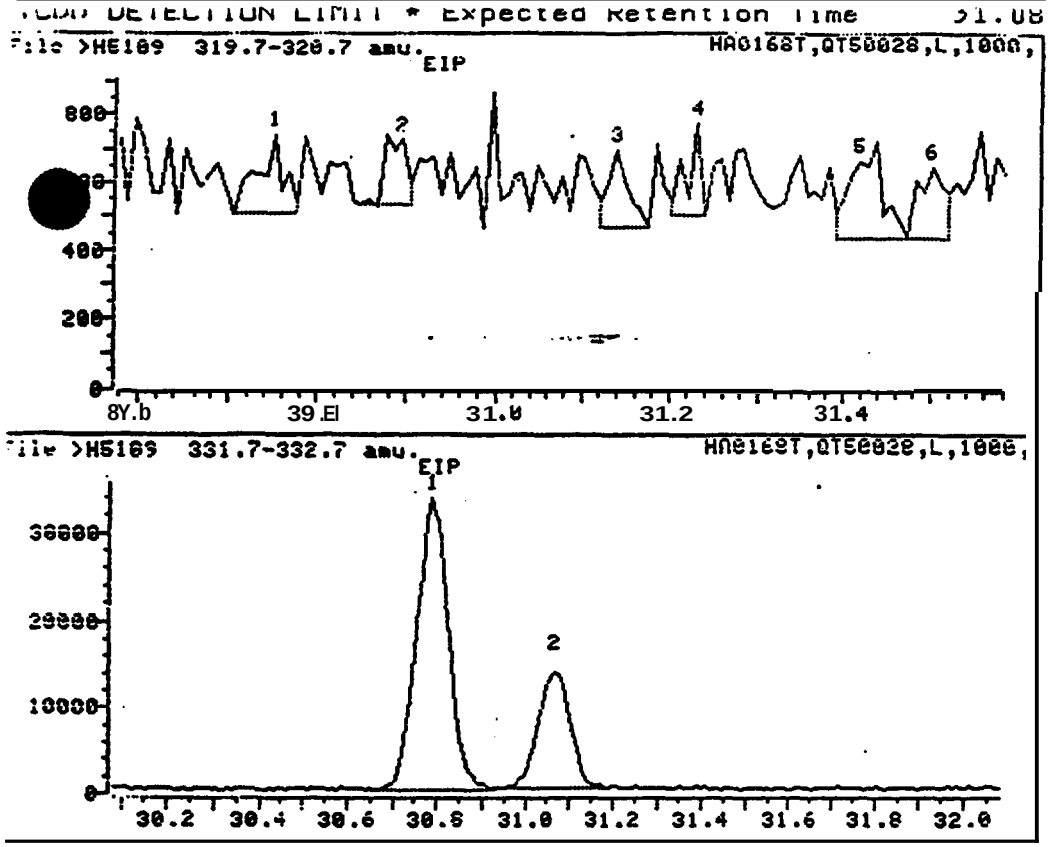
Sample volume(L) = 1.00000 Response Factor .98
Signal / Noise 2.5

PEAK #	Retention Time	Peak Height	304.00	MPC **
	29.64	232		1.46
	29.81	325		2.05
	30.00	248		1.56
	30.11	268		1.69
	30.30	342		2.15
	30.49	17Y		1.13

ISTD Peak Height 316.00 = 20'163 ISTD Retention Time = 30.04 mins

*Checked MPC is correct value.

327392



Data File: >H5109::U3

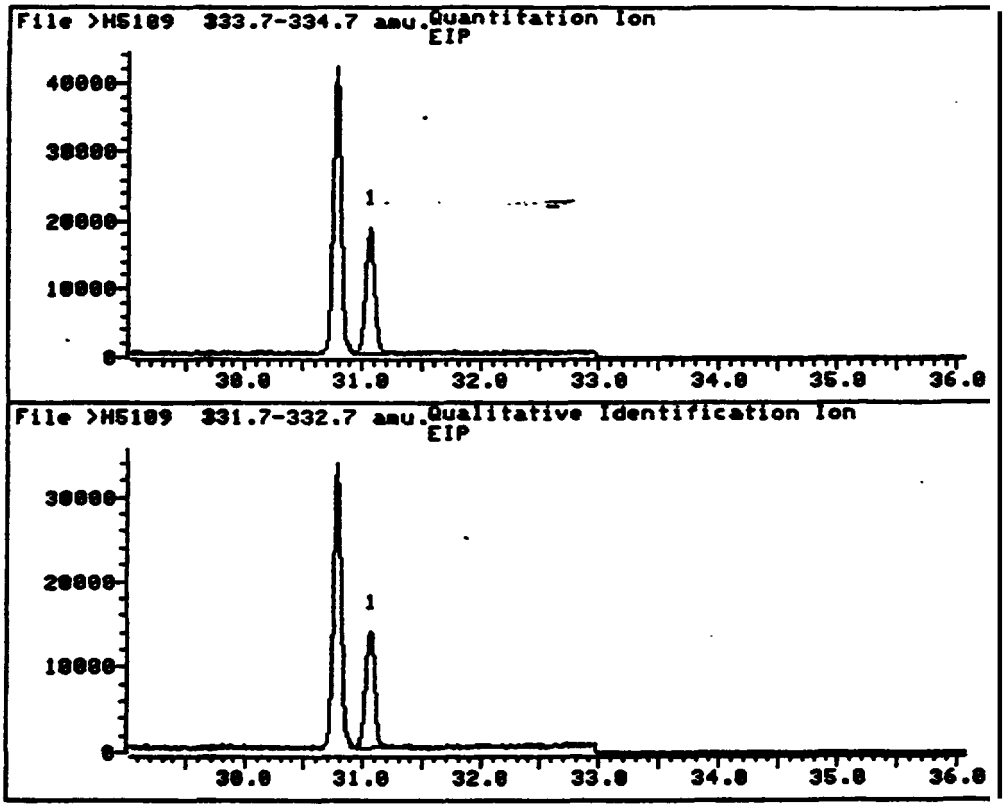
Name: ..... Operator: MGKMS Date/Time: 4/18/89 1:03
Misc: HA0168T,QT50028,L,1000,,4/12/89 BTL# 8

Sample Volume(L) = 1.00000 Response Factor .86
Signal / Noise 2.5

PEAK #	Retention Time	Peak Height	320.00	MPC **
	30.75	234		2.53
	30.89	191		2.07
	31.14	225		2.44
	31.23	265		2.87
	31.42	225		2.44
	31.50	205		2.22

ISTD Peak Height 332.00 = 13425 ISTD Retention Time = 31.07 mins

**Checked MPC is correct value.

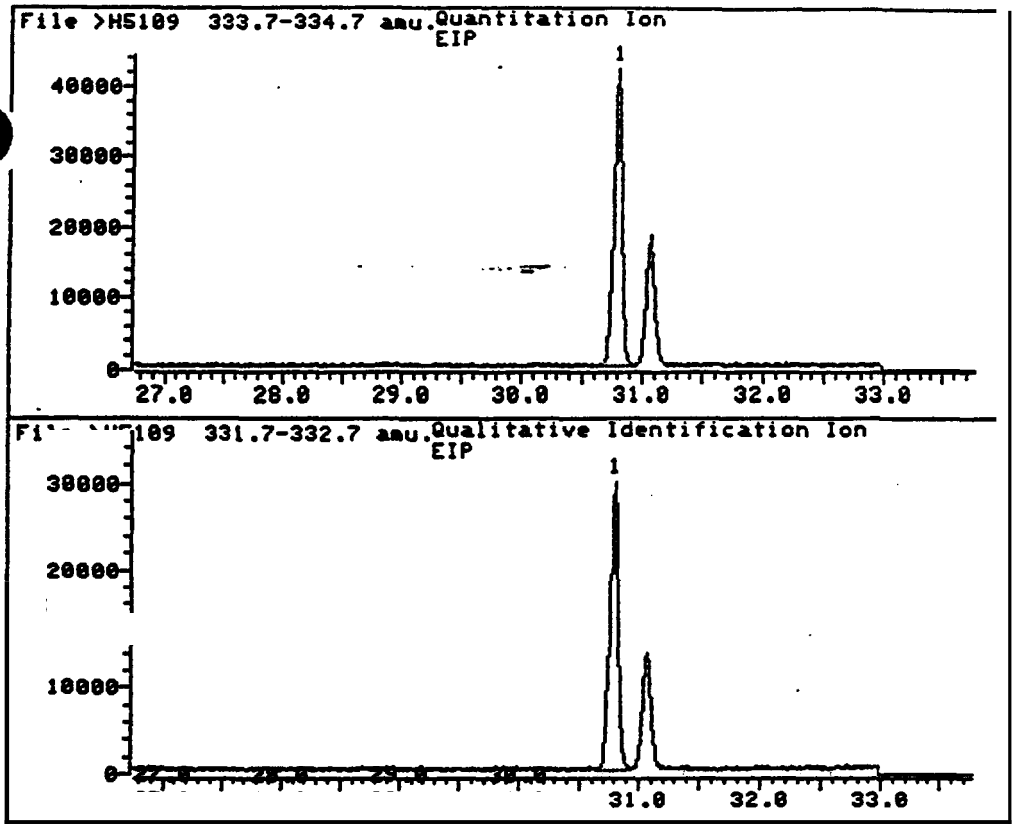


Data File: >H5109::U3 Quant Output File: ^H5109::AQ
Name:
Misc: HA0168T,QT50028,L,1000,,4/12/89 BTL# 8
Quant Time: 890418 01:50 Quant ID File: HSAMP::US
Injected at: 890418 01:03 Last Calibration: 890113 22:39

Compound No: 19
Compound Name: 13C 2378 TCDD
Quant Ion: 334.0 Sum: 334.0+332.0

Hit #	R.T. Scan#	Conc Area	Units	q	Areas and Ratios 334.0	332.0			
1	31.07	24.67	NG	97	87046	68980			
	677	156026			1.000	.792			

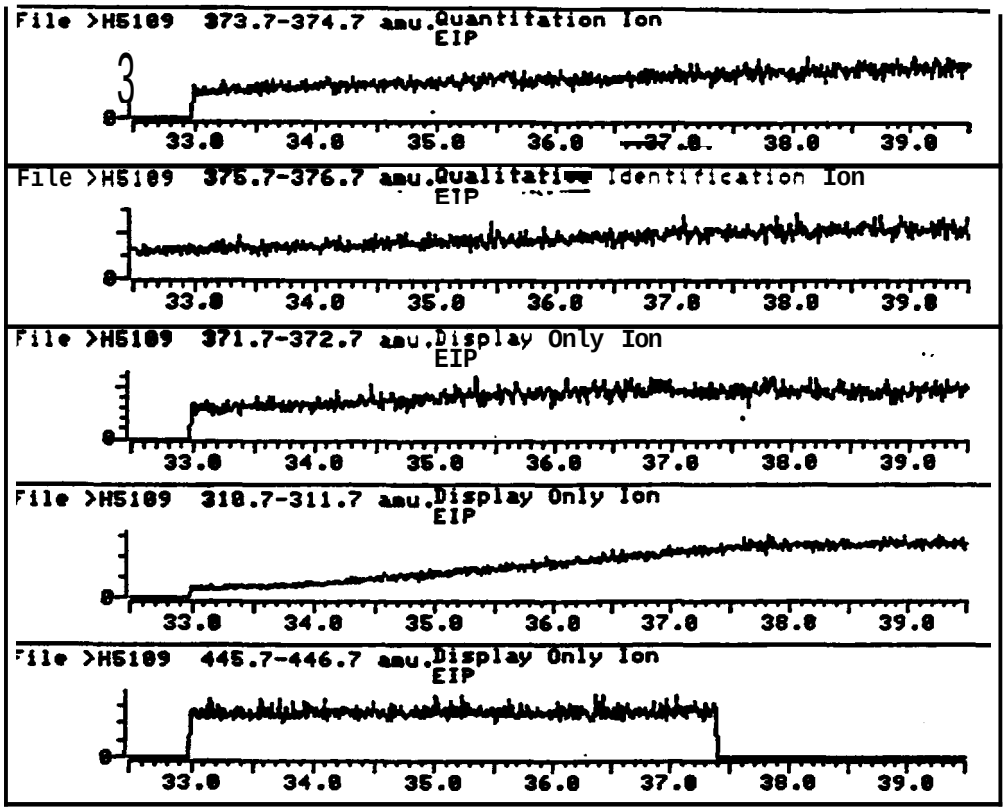
327393



Data File: >H5109::U3 Quant Output File: ^H5109::AQ
Name :
Misc: HA0168T,QT50028,L,1000,,4/12/89 BTL# 8
Quant Time: 890418 01:50 Quant ID File: HSAMP::US
Injected at: 890418 01:03 Last ,Calibration: 890113 22:39

Compound No: 18 (ISTD)
Compound Name: 13C 1234-TCDD (RSTD)
Quant Ion: 334.0 Sum: 334.0+332.0

Hit #	R.T. Scan#	Conc Area	Units	q	Areas and Ratios 334.0	332.0			
1	30.79	61.03	NG	95	202820	163940			
	647	366760			1.000	.808			



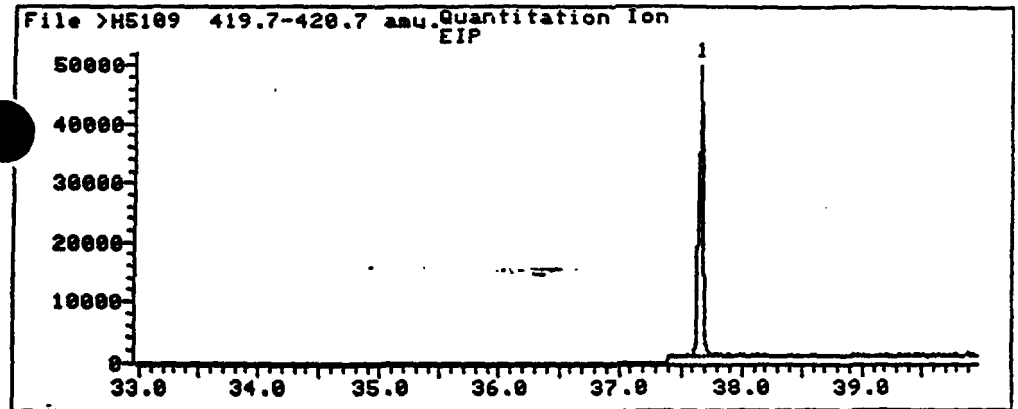
Data File: >H5109::U3 Quant Output File: ^H5109::AQ
Name :
Misc: HA0168T,QT50028,L,1000,,4/12/89 BTL# 8
Quant Time: 890418 01:50 Quant ID File: HSAMP::US
Injected at: 890418 01:03 Last Calibration: 890113 22:39

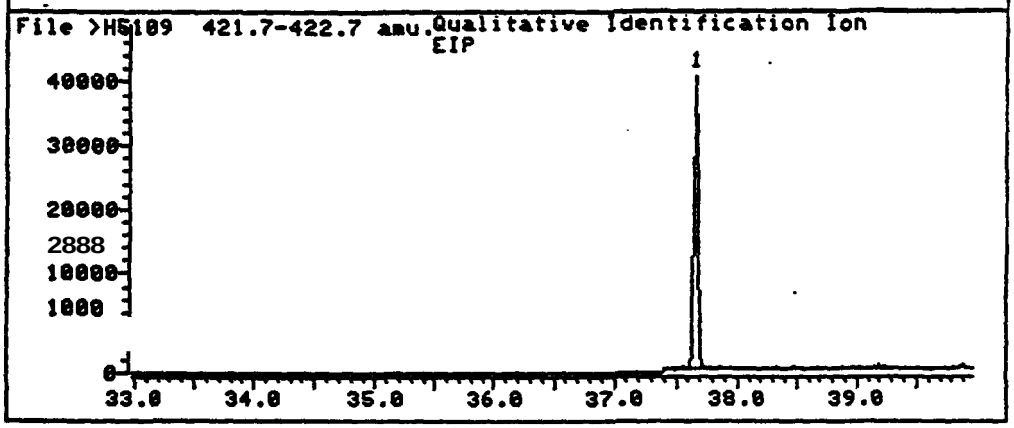
Compound No: 14
Compound Name: HxCDF
Quant Ion: 374.0 Sum: 374.0+376.0

Hit #	R.T. Scan#	Conc Area	Units	q	Areas and Ratios 374.0	376.0	372.0	311.0	446.0

No hits for this compound.

327394

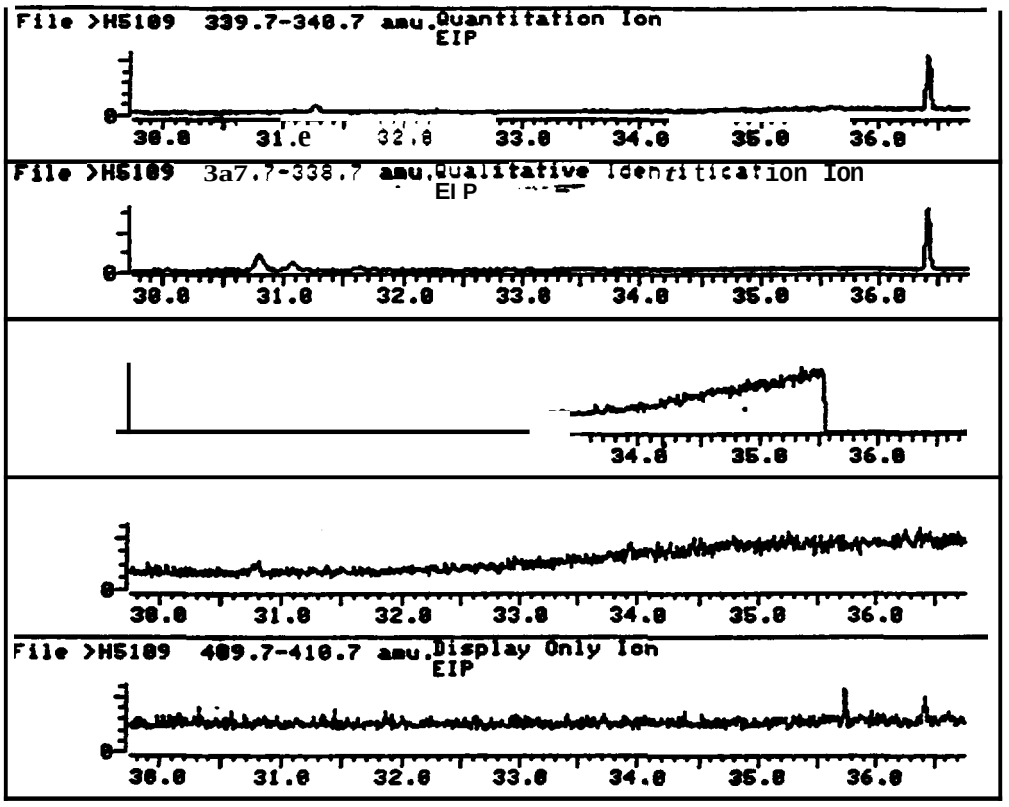




Data File: >H5109::U3 Quant Output File: ^H5109::AQ
Name:
Misc: HA0168T,QT50028,L,1000,,4/12/89 BTL# 8
Quant Time: 890418 01:50 Quant ID File: HSAMP::US
Injected at: 890418 01:03 Last Calibration: 890113 22:39

Compound No: 13 (ISTD)
Compound Name: 13C 1234678-HpCDF
Quant Ion: 420.0 Sum: 420.0+422.0

Hit #	R.T. Scan#	Conc Area	Units	q	Areas and Ratios 420.0	422.0
1	37.66	100.00	NG	98	109458	101992
	1406	211450			1.000	.932



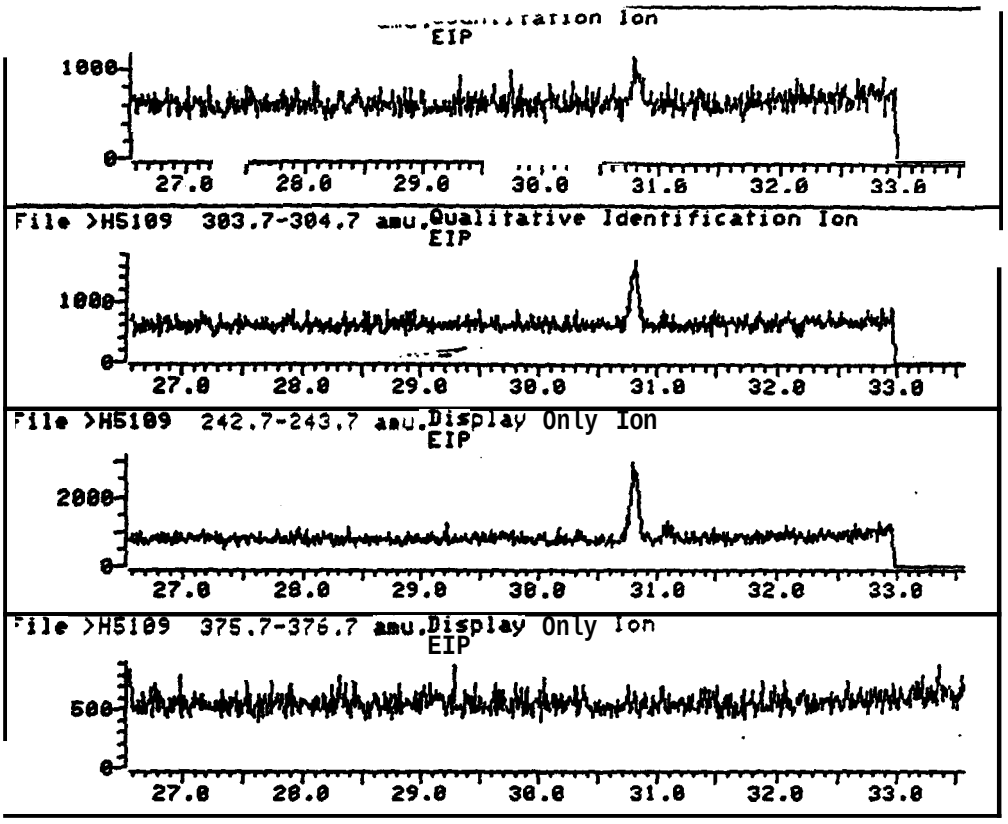
Data File: >H5109::U3 Quant Output File: ^H5109::AQ
Name :
Misc: HA0168T,QT50028,L,1000,,4/12/89 BTL# 8
Quant Time: *890418* 01:50 Quant ID File: HSAMP::US
Injected at: *890418* 01:03 Last Calibration: *890113* 22:39

Compound No: *12*
Compound Name: PCDF
Quant Ion: 340.0 Sum: 340.0+338.0

Hit #	R.T. Scan#	Conc Area	Units	q	Areas and Ratios 340.0	338.0	342.0	277.0	410.0

No hit8 for this compound.

327395

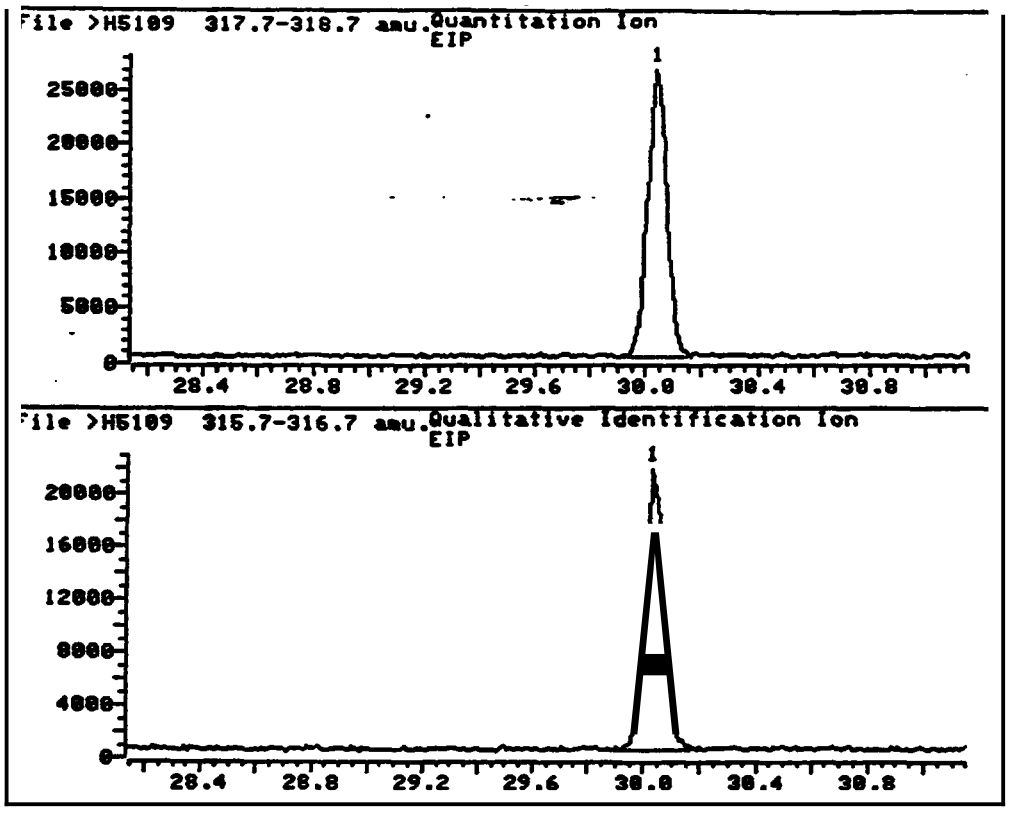


Data File: >H5109::U3 Quant Output File: ^H5109::AQ
Name:
Misc: HA0168T,QT50028,L,1000,,4/12/89 BTL# 8
Quant Time: 890418 01:50 Quant ID File: HSAMP::US
Injected et: 890418 01:03 Last Calibration: 890113 22:39

Compound No: 12
Compound Name: TCOF
Quant Ion: 306.0 Sum: 306.0+304.0

Hit #	R.T. Scan#	Conc Area	Units	q	Areas and Ratios 306.0	304.0	243.0	376.0

No hits for this compound.

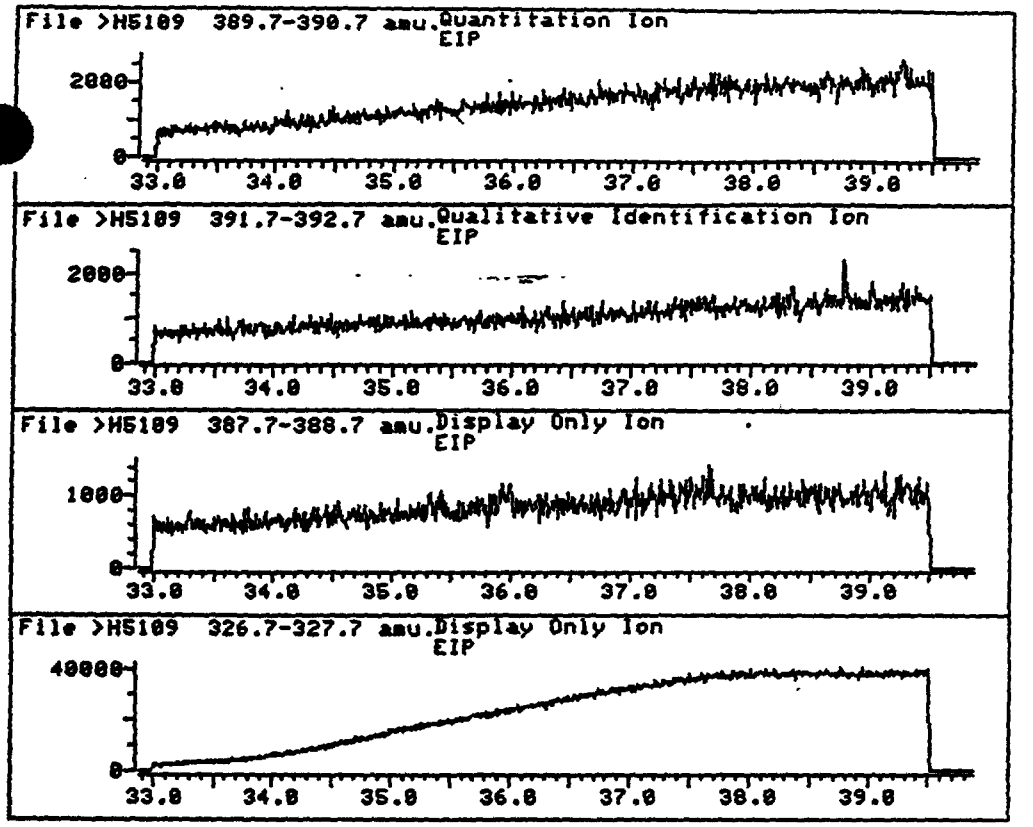


Data File: >H5109::U3 Quant Output File: ^H5109::AQ
Name:
tlisc: HA0168T,QT50028,L,1000,,4/12/89 BTL# 8
Quant Time: 890418 01:50 Quant ID File: HSAMP::US
Injected at: 890418 01:03 Last Calibration: 890113 22:39

Compound No: 10 (ISTD)
Compound Name: C13 2378-TCDF
Quant Ion: 318.0 Sum: 318.0+316.0

Hit #	R.T. Scan#	Conc Area	Units	q	Areas and Ratios 318.0	316.0			
1	30.04	50.00	NG	95	123852	100344			
	563	224196			1.000	.810			

327396

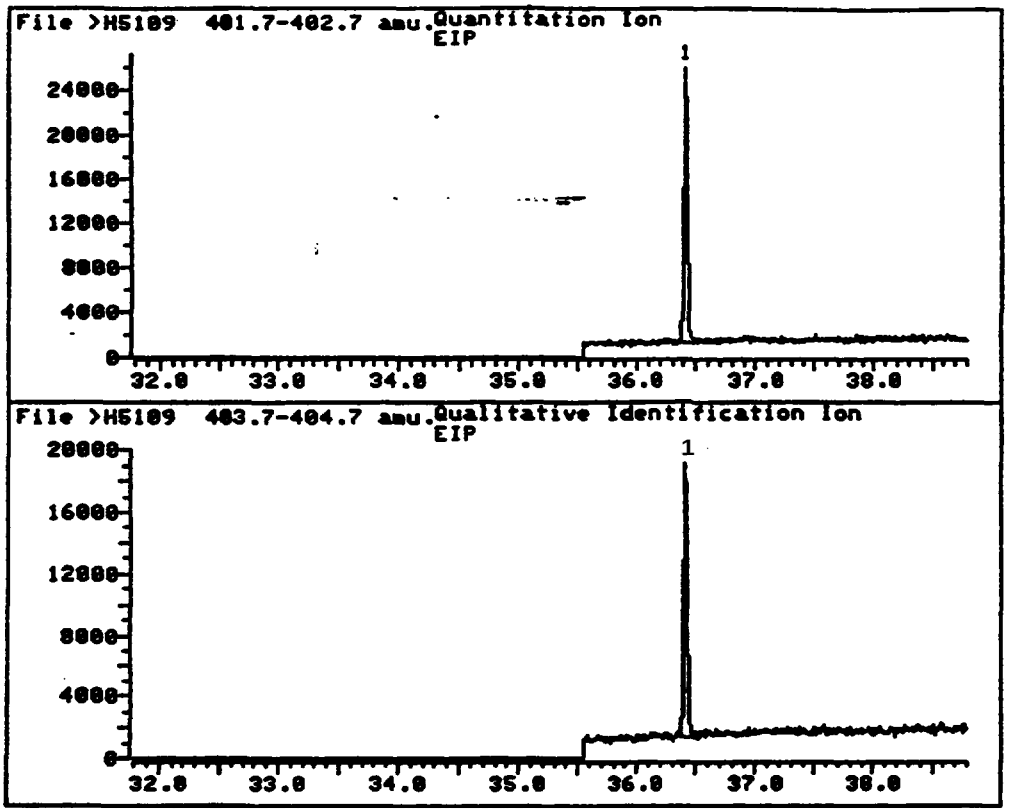


Data File: >H5109::U3 Quant Output File: ^H5109::AQ
Name :
Misc: HA0168T,QT50028,L,1000,,4/12/89 BTL# 8
Quant Time: 890418 01:50 Quant ID File: HSAMP::US
Injected at: 890418 01:03 Last Calibration: 890113 22:39

Compound No: 6
Compound Name: HxCDD
Quant Ion: 390.0 Sum: 390.0+392.0

Hit #	R.T. Scan#	Conc Area	Units	q	Areas and Ratios 390.0	392.0	388.0	327.0

No hits for this compound.

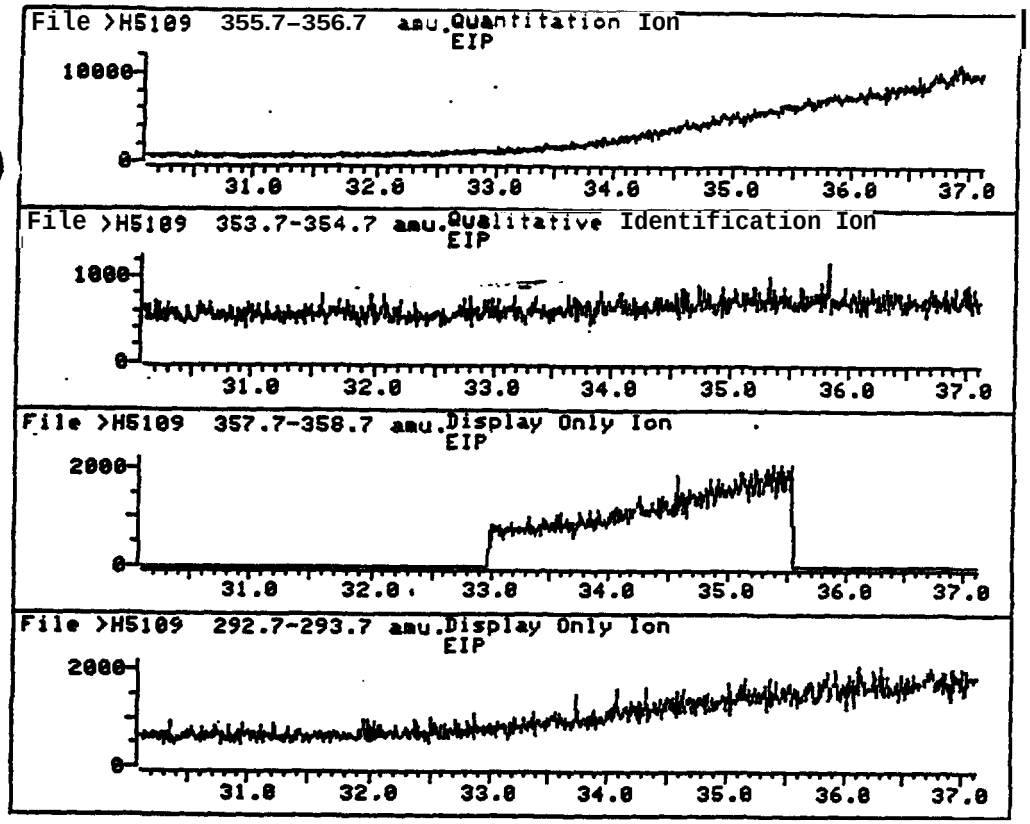


Data Fila: >H5109::U3 Quant Output File: ^H5109::AQ
Name:
Misc: HA0168T,QT50028,L,1000,,4/12/89 BTL# 8
Quant Time: *890418* 01:50 Quant ID File: HSAMP::US
Injected at: *890418* 01:03 Last Calibration: *890113* 22:39

Compound No: 5 (ISTD)
Compound Name: 13C 123678-HxCDD
Quant Ion: *402.0* Sum: 402.0+404.0

Hit #	R.T. Scan#	Conc Area	Units	q	Areas and Ratios 402.0	404.0
1	36.41	50.00	NG	94	52176	39847
	1268	92023			1.000	.764

327397



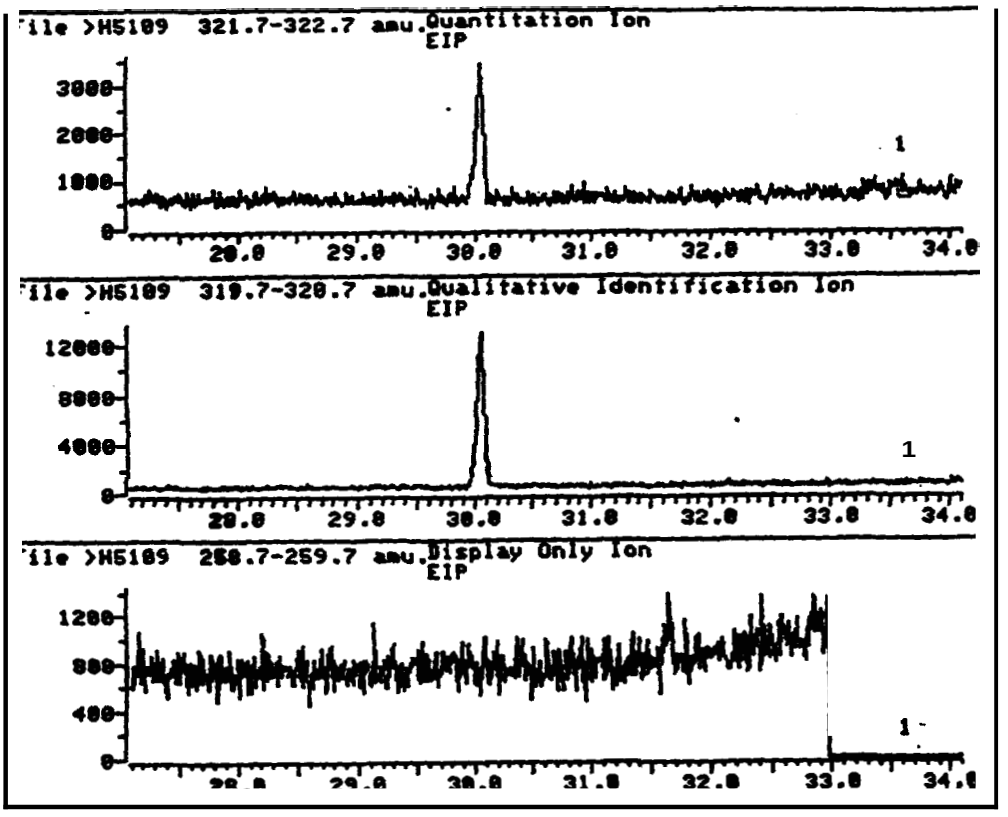
Data File: >H5109::U3 Quant Output File: ^H5109::AQ
Name:

Misc: HA016BT,QT50028,L,1000,,4/12/89 BTL# 8
Quant Time: 890418 01:50 Quant ID File: HSAMP::US
Injected at: 890418 01:03 Last Calibration: 890113 22:39

Compound No: 4
Compound Name: PCDD
Quant Ion: 356.0 Sum: 356.0+354.0

Hit #	R.T. Scan#	Conc Area	Units	q	Areas and Ratios 356.0	354.0	358.0	293.0

No hits for this compound.

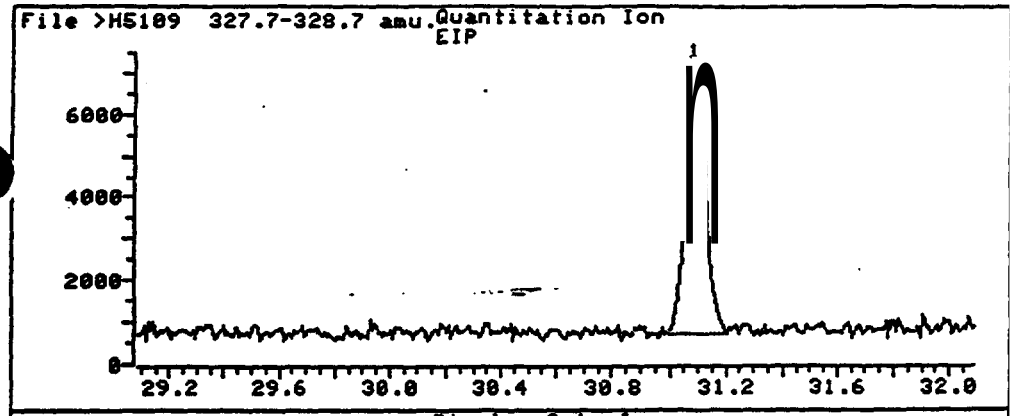


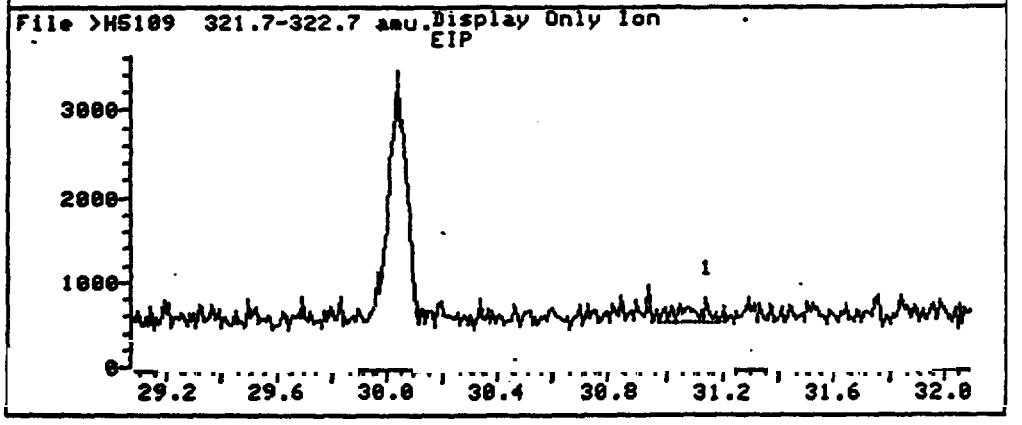
Data File: >H5109::U3 Want Output File: ^H5109::MI
Name:
Misc: HA0168T,QT50028,L,1000,,4/12/89 BTL# 8
Quant Time: 890418 01:50 Quant ID File: HSAMP::US
Injected at: 890418 01:03 Last Calibration: 890113 22:39

Compound No: 3
Compound Name: TCDD
Quant Ion: 322.0 Sum: 322.0+320.0

Hit #	R.T. Scan#	Conc Area	Units	q	Areas and Ratios 322.0	320.0	259.0
1	33.59	.811	NG	89	1166	1001	0
	956	2167			1.000	.858	0.000

327398

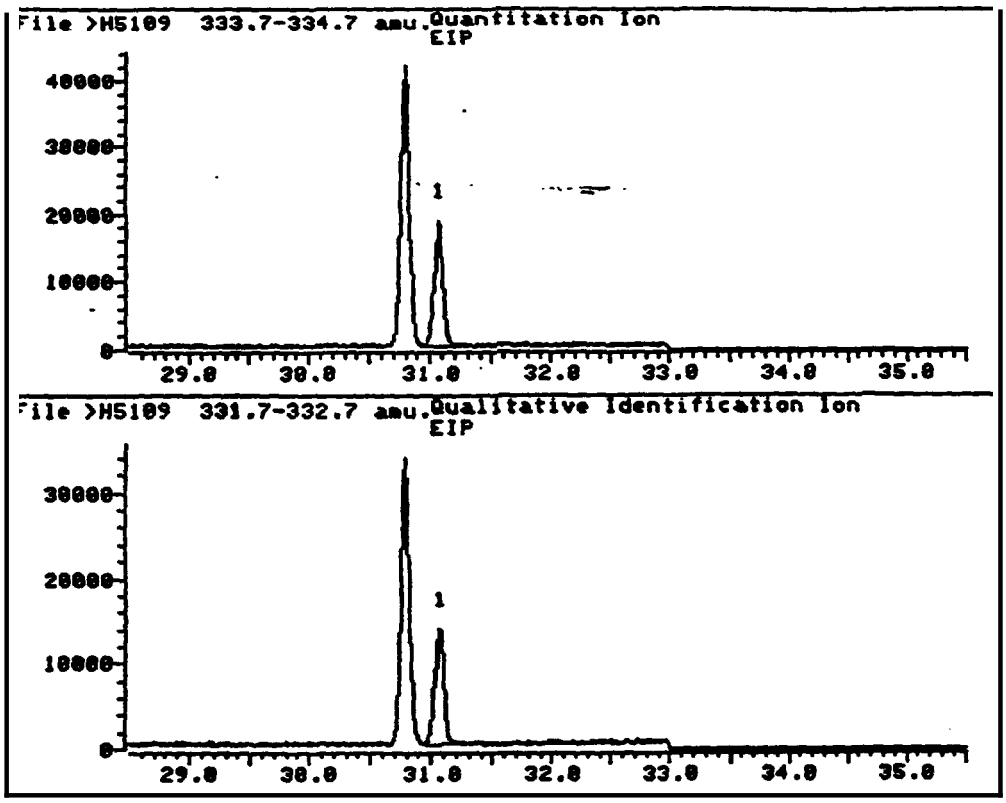




Data File: >H5109::U3 Quant Output File: ^H5109::AQ
Name:
Misc: HA0168T,QT50028,L,1000,,4/12/89 BTL# 8
Puant Time: 890418 01:50 Quant ID File: HSAMP::US
Injected at: 890418 01:03 Last Calibration: 890113 22:39

Compound No: 2
Compound Name: 37Cl4 2378-TCDD
Puant Ion: 328.0 Sum: 328.0-(.00900*Area@322.0)

Hit #	R.T. Scan#	Conc Area	Units	q	Areas and Ratios 328.0	322.0			
1	31.08	9.98	NG	100	30165	1564			
	679	30151			1.000	.052			



Data File: >H5109::U3 Quant Output File: ^H5109::AQ
Name :
Misc : HA0168T,QT50028,L,1000,,4/12/89 BTL# 8
Quant Time: 890418 01:50 Quant ID File: HSAMP::US
Injected at: 890418 01:03 Last Calibration: 890113 22:39

Compound No: 1 (ISTD)
Compound Name: 13C 2378-TCDO
Quant Ion: 334.0 Sum: 334.0+332.0

Hit #	R.T. Scan#	Conc Area	Units	q	Areas and Ratios 334.0	332.0			
1	31.07	50.00	NG	97	87046	68980			
	677	156026			1.000	.792			

327399

QUANT REPORT

Operator ID: MGRMS Quant Reu: 7 Quant Time: 890418 01:50
Output File: ^H5109::AQ Injected et: 890418 01:03
Data File: >H5109::U3 Dilution Factor: 1.00000
Ms:
Misc: HA0168T,QT50028,L,1000,,4/12/89 BTL# 8

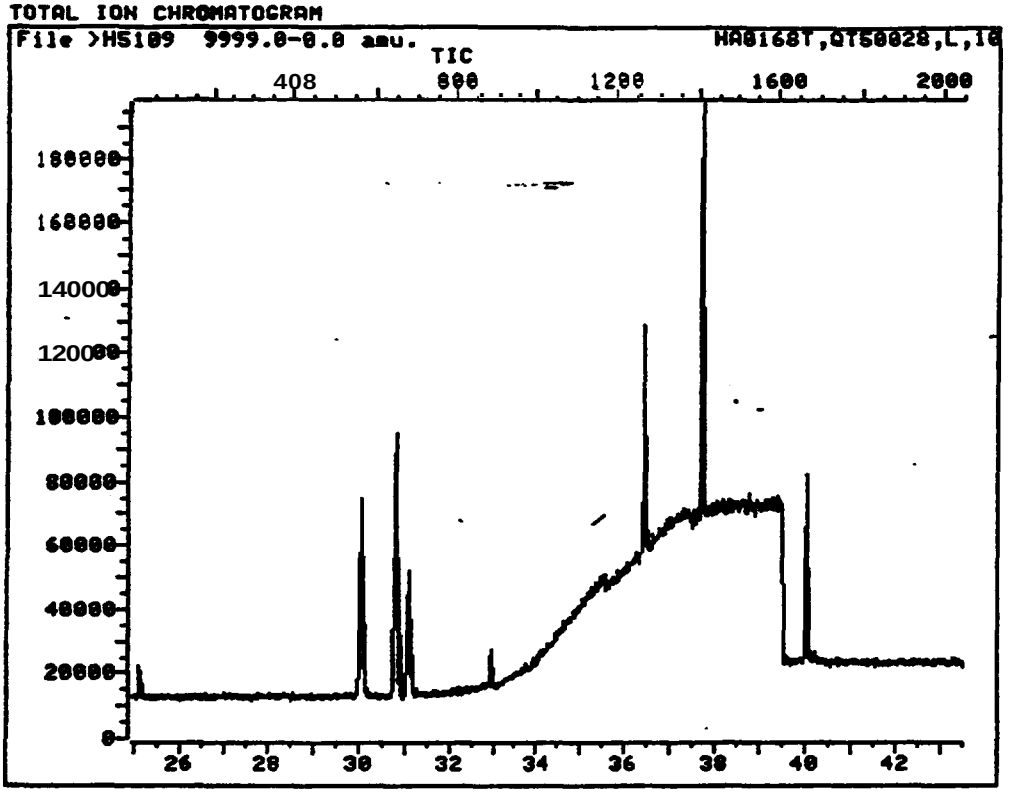
ID File: HSAMP::US
Title: PCDX IDFILE WITH MULTIPLE ISTD'S, SW-846, 870613 , K
Last Calibration: 890113 22:39

	Compound	R.T.	Scan#	Area	Conc	Units	q
1)	*13C 2378-TCDD	31.07	677	156026	50.00	NG	97
2)	37C14 2378-TCOD	31.08	679	30151	9.98	NG	100
3)	TCDD	33.59	956	2167	~~.011~~	~~NG~~	89
5)	*13C 123678-HxCDD	36.41	1268	92023	50.00	NG	94
10)	*C13 2378-TCDF	30.04	563	224196	50.00	NG	95
13)	*13C 1234678-HpCDF	37.66	1406	211450	100.00	NG	98
18)	*13C 1234-TCOD (RSTD)	30.79	647	366760	61.03	NG	95
19)	13C 2378 TCDD	31.07	677	156026	24.67	NG	97

890426

* Compound is ISTD

TOTAL ION CHROMATOGRAM



Data File: >H5109::U3 Quant Output File: ^H5109::AQ
Name :
Misc: HA0168T,QT50028,L,10.00,,4/12/89 BTL# 8

Id File: HSAMP::US
Title: PCDX IDFILE WITH MULTIPLE ISTD'S, *SW-846*, 870613 , K
Last Calibration: 890113 22:39

Operator ID: MGRMS
Quant Time: 890418 01:50
Injected at: 890418 01:03

327400

Appendix

Mass Spectral Data for Dioxins and Furans

GAS CHROMATOGRAPH PARAMETERS

Injector Temperature:	250° C.
Column Coating:	DB-5
Film Thickness:	0.25 um
Column Dimensions:	60 m x 0.25 mm I.D.
Carrier Gas:	Helium
Linear Velocity of Carrier Gas:	24 cm/sec.
Temperature Program:	150-340° C. @ 4° C./min
Interface Temperature:	250° C.

CRITERIA FOR ISOTOPIC RATIO MEASUREMENTS FOR PCDD'S AND PCDF'S

SELECTED IONS (m/z)			(NATIVE) RELATIVE INTENSITY
PCDD'S	NATIVE	(13C)	
TETRA	320/322	(332/334)	0.65 - 0.09
PENTA	354/356	(366/368)	0.55 - 0.75
HEXA	392/390	(404/402)	0.69 - 0.93
HEPTA	4261424	(438/436)	0.83 - 1.12
OCTA	458/460	(454/456)	0.75 - 1.01
PCDF'S	NATIVE	(13C)	
TETRA	304/306	(316/318)	0.65 - 0.89
PENTA	338/340	(350/352)	0.55 - 0.75
HEXA	376/374	(388/386)	0.69 - 0.93
HEPTA	410/408	(422/420)	0.83 - 1.12
OCTA	4421444	(454/456)	0.75 - 1.01

OCTACHLORODIBENZOFURAN (OCDF)

M/Z	TYPE	SCAN RANGE (MIN)
379	FRAGMENT	36.00-41.00
442	QUANT	36.00-41.00
444	QUANT	36.00-41.00

13C 1236789-OCDD

M/Z	TYPE	SCAN RANGE(MIN)
470	QUANT	36.00-41.00
472	QUANT	36.00-41.00

OCTACHLORODIBENZODIOXIN (OCDD)

Z	TYPE	SCAN RANGE (MIN)
395	FRAGMENT	36.00-41.00
458	FRAGMENT	36.00-41.00
460	FRAGMENT	36.00-41.00

13C 12346789-OCDD

M/Z	TYPE	SCAN RANGE(MIN)
470	QUANT	36.00-41.00
472	QUANT	36.00-41.00

HEXACHLORODIBENZOFURAN (HxCDF)

M/Z	TYPE	SCAN RANGE (MIN)
311	FRAGMENT	30.00-36.00
372	FRAGMENT	30.00-36.00
374	QUANT	30.00-36.00
376	QUANT	30.00-36.00

13 1234678-HpCDF

M/Z	TYPE	SCAN RANGE(MIN)
420	QUANT	34.00-41.00
422	QUANT	34.00-41.00

I (HxCDD)

M/Z	TYPE	SCAN RANGE (MIN)
388	FRAGMENT	30.00-36.00
327	FRAGMENT	30.00-36.00
390	QUANT	30.00-36.00
392	QUANT	30.00-36.00

13C 123678-HxCDD

M/Z	TYPE	SCAN RANGE(MIN)
402	QUANT	32.50-36.00
404	QUANT	32.50-36.00

HEPTACHLORODIBENZOFURAN (HpCDF)

M/Z	TYPE	SCAN RANGE (MIN)
406	FRAGMENT	34.00-41.00
345	FRAGMENT	34.00-41.00
[illegible]8	QUANT	32.50-41.00
[illegible]	QUANT	32.50-41.00

13C 1234678-HpCDF

M/Z	TYPE	SCAN RANGE(MIN)
420	QUANT	34.00-41.00
422	QUANT	34.00-41.00

HEPTACHLORODIBENZODIOXIN (HpCDD)

M/Z	TYPE	SCAN RANGE (MIN)
422	FRAGMENT	34.00-41.00
361	FRAGMENT	34.00-41.00
424	QUANT	32.50-41.00
426	QUANT	32.50-41.00

13C 123678-HxCDD

M/Z	TYPE	SCAN RANGE(MIN)
402	QUANT	32.50-36.00
404	QUANT	32.50-36.00

TABLE 1 - ION MONITORED (IN RETENTION TIME ORDER)

NATIVE IONS

TETRACHLORODIBENZOFURAN (TCDF)

M/Z	TYPE	SCAN RANGE (MIN)
243	FRAGMENT	20.00-32.85
304	QUANT	20.00-32.85
306	QUANT	20.00-32.85

TETRACHLORODIBENZODIOXIN (ICDD)

M/Z	TYPE	SCAN RANGE (MIN)
259	FRAGMENT	20.00-30.00
320	QUANT	20.00-32.85
322	QUANT	20.00-32.85
323	DISPLAY	20.00-30.00
328	SURR	20.00-30.00

PENTACHLORODIBENZOFURAN (PCDF)

M/Z	TYPE	SCAN RANGE (MIN)
277	FRAGMENT	20.00-35.00
342	FRAGMENT	20.00-35.00
338	QUANT	20.00-35.00
340	QUANT	20.00-35.00

PENTACHLORODIBENZODIOXIN (PCDD)

M/Z		SCAN RANGE (MIN)
293	FRAGMENT	35
[illegible]	FRAGMENT	[illegible]
[illegible]	NT	20.00-35.00
356	QUANT	20.00-35.00

INTERNAL STANDARDS IONS

13C 2378-TCDF

M/Z	TYPE	SCAN RANGE(MIN)
252	FRAGMENT	20.00-32.85
316	QUANT	20.00-32.85
318	QUANT	20.00-32.85

13C 2378-TCDD

M/Z	TYPE	SCAN [illegible]
332	QUANT	20.00-30.00
334	QUANT	20.00-30.00

13C 2378-TCDF

M/Z	TYPE	SCAN RANGE(MIN)
252	FRAGEMENT	20.00-32.85
316	QUANT	20.00-32.85
318	QUANT	20.00-32.85

13C 2378-TCDD

M/Z	TYPE	N RANGE(MIN)
332	QUANT	00
334	NT	

during the analytical process, The GC/MS system parameters, the key ions and ion groups are summarized in Table 1.

The presence of a chlorinated dioxin or furan is confirmed if the key ions of the detected isomer maximized within the same MS scan and their relative abundances are within 0.1 relative abundance units of the theoretical values. Each detected isomer is quantitated using the areas of the key ions of that isomer, the area of the 13C labelled dioxin or furan internal standard and a response factor generated from known concentration standards of tetra through octa chlorodioxins and furans. Each detected isomer is reported as a separate line item on the report table. The reported isomers are differentiated by their listed retention times.

Analysis of Tetra through Hexachlorodibenzodioxins and Furans

The method employed in the analysis of water samples for total tetra through hexachlorodibenzodioxins and furans is EPA Method 613 (Reference EPA-600/4-82-057) for the extraction, followed by the additional clean-up procedures found in 'Dioxin Analysis - Soil/Sediment Matrix Multi-Concentration; Selected Ion Monitoring (SIM) GC/MS Analysis with Jar Extraction Procedure" issued by the USEPA. The sample extracts are then analyzed by electron impact GC/MS with a direct capillary interface. A 50 meter fused silica capillary column was used for the analysis.

The method can be summarized as follows: 50 ng of 13C-labeled 2,3,7,8-TCDD, 50 ng of 13C labelled 2,3,7,8 TCDF, and 10 ng of 37Cl-labeled 2,3,7,8-TCDD are spiked into 1000 ml of water sample. The water sample is serially extracted with methylene chloride. The serial extracts are combined, concentrated to 1 ml and exchanged with hexane. Column chromatographic procedures are used to help eliminate sample components that may interfere with detection and measurement of chlorinated dioxins and furans. A final clean-up of the sample extract is performed by using the following procedure: Prepare 182 Carbopak C on Celite 545™ by thoroughly mixing 3.6 grams of Carbopak C (80/100 mesh) 'and 16.4 grams of Celite545™ in a 40ml vial. Activate at 130°C for six hours. Store in a desiccator. Prepare a column using a standard size (5-3/4 inches long by 7.0 mm o.d.) disposable pipet fitted with a small plug of glass wool. using a vacuum aspirator attached to the pointed end of the pipet, add the carbopak/celite mix until a 2cm column is obtained. Preelute the column with 2-ml of toluene followed by 1-ml of 75:20:5 methylene chloride/methanol/benzene, 1-ml of 1:1 cyclohexane in methylene chloride and 2-ml of hexane. While the column is still wet with hexane add the extract obtained from *above.* Elute the column sequentially with two 1-ml aliquots of hexane, 1-ml of 1:1 cyclohexane in methylene chloride, and 1-ml of 75:20:5 methylene chloride/methanol/benzene. Next collect the PCDD/PCDF (polychlorodibenzodioxin/polychlorodibenzofuran) fraction by elution with 2-ml of toluene. *The* sample is stored at this point in a freezer until GC/MS anaylsis. Just before analysis begins, reconstitute the residue with 10ul of isooctane.

The sample extracts were analyzed using a gas chromatograph equipped with a 60 meter DB-5 fused silica capillary column which is interfaced to an electron impact quadropole mass spectrometer. The mass spectrometer is operated in the selected ion mode. Key ions in the spectrum of tetra through hexachlorodibenzodioxins, furans and the 13C labelled internal standards are monitored

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

Total Polychlorinated Dibenzo Dioxins/Furans GC/MS Analysis Data (QR61)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Elapsed Hours
HA0170	PIONEER LABORATORIES	PIONEER	XFB-1	890407		0

Compound	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen ppt	MDL ppt	First ppt	Second ppt	Blank Data ppt	Concen. Added ppt	% Recov	Unspiked Sample ppt	Concen. Added ppt	Re
2,3,7,8-TCDD	ND	3.6	10.4	10.2	ND	10.0	105	ND	10.0	1(
TCDD	ND	3.6	10.4	10.2	ND	10.0	105	ND	10.0	1(
PCDD	ND	5.3	11.6	11.7	ND	10.0	111	ND	10.0	11
HxCDD		2.6	10.0	9.4	ND	10.0	92	ND	10.0	1(
TCDF	ND	2.3	9.8	9.6	ND	10.0	97	ND	10.0	9
PCDF	ND	3.0	10.3	9.7	ND	10.0	96	ND	10.0	1(
HxCDF	ND	1.1	8.3	9.6	ND	10.0	87	ND	10.0	8

ETC

MAY 1, 1989

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

Total Polychlorinated Dibenzo Dioxins/Furans GC/MS Analysis Data (QR61)

327405

Sample Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Elapsed Hours
HA0169	PIONEER LABORATORIES	PIONEER	XRINSATE	890407		0

Compound	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. ppt	MDL ppt	First ppt	Second ppt	Blank Data ppt	Concen. Added ppt	% Recov	Unspiked Sample ppt	Concen. Added ppt	% Recov
2,3,7,8-TCDD	ND	2.5	10.4	10.2	ND	10.0	105	ND	10.0	104
TCDD	ND	2.5	10.4	10.2	ND	10.0	105	ND	10.0	104
PCDD	ND	3.9	11.6	11.7	ND	10.0	111	ND	10.0	116
HxCDD	ND	2.3	10.0	9.4	ND	10.0	92	ND	10.0	100
TCDF	ND	1.6	9.8	9.6	ND	10.0	97	ND	10.0	98
PCDF	ND	3.3	10.3	9.7	ND	10.0	96	ND	10.0	103
HxCDF	ND	1.2	8.3	9.6	ND	10.0	87	ND	10.0	83

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

Total Polychlorinated Dibenzo Dioxins/Furans GC/MS Analysis Data (QR61)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Elapsed Hours
HA0168	PIONEER LABORATORIES	PIONEER	WGM-66	890407		0

Compound	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. ppt	MDL ppt	First ppt	Second ppt	Blank Data ppt	Concen. Added ppt	% Recov	Unspiked Sample ppt	Concen. Added ppt	Re
2,3,7,8-TCDD	ND	2.9	10.4	10.2	ND	10.0.	105	ND	10.0	10
TCDD	ND	2.9	10.4	10.2	ND	10.0	105	ND	10.0	10
PCDD	ND	4.4	11.6	11.7	ND	10.0	111	ND	10.0	11
HxCDD	ND	3.2	10.0	9.4	ND	10.0	92	ND	10.0	10
TCDF	ND	2.2	9.8	9.6	ND	10.0	97	ND	10.0	9
PCDF	ND	4.1	10.3	9.7	ND	10.0	96	ND	10.0	10
HxCDF	ND	2.0	8.3	9.6	ND	10.0	87	ND	10.0	8

Results

In the results table, when a compound or element is present below published MDL it is reported as BMDL (Below Method Detection Limit). when a compound is not present at any detectable concentrations it is reported as ND (Not Detected). Matrix spike and replicate analyses, where included, were performed on samples randomly chosen within each quality assurance batch and are therefore not necessarily spikes and replicates of this report's sample. Surrogate compound recovery data and instrument calibration data are included in the Method Performance Data Tables.

The procedures used in the analysis of the sample are described in this report's methodology section. All analytical procedures within our laboratory are performed within a strictly enforced Quality Assurance Protocol. A description of this Protocol is included in the report. The report appendices include the chain of custody record for your sample and, where appropriate, the gas chromatograms and mass spectra.

Introduction

This report contains the analytical results on your water sample. Per your request, we have analyzed for all Appendix IX parameters as appeared in the Federal Register of July 9, 1987 by presently available methodology. USEPA instructs that SW846, "Test Methods for Evaluating Solid Waste" is to be followed in the analysis. We have performed the analysis based on the methodology described in SW846 and divided the parameters into the following categories:

1. Direct Aqueous Injection for water soluble compounds by GC/MS.
2. Purge and Trap GC/MS method for volatile compounds.
3. Extractable Acid/Base/Neutral/Pesticides compounds by GC/MS.
4. Pesticides by GC/EC.
5. Pesticides by GC/FPD.
6. Herbicides by GC/EC.
7. Polar and thermally unstable compounds by HPLC/UV.
8. Metallic and Organometallic compounds by ICAP, AA, and cold Vapor AA.
9. Conventionals.
10. Chlorinated dioxins and furans by GC/MS/SIM.

ETC

Table of Contents

Introduction/Results

Water Soluble VOA data

Purge and Trap VOA data

Base/Neutral/Acid data

Pesticide (FPD) data

Pesticide (EC) data

PCB (EC) data

Herbicide (EC) data

PCDX data

Metals Analysis data

Conventional parameters data

Surrogate Recovery data

Instrument Tune data

Methodology

Appendix: Mass Spectral Data for Dioxins and Furans

Appendix A: Mass Spectral data for Quantitated Compounds

Appendix Al: Gas Chromatographic data for Quantitated Compounds

Appendix Cl: GC/MS Blank data

Appendix E: chain of -Custody

327407

ETC ENVIRONMENTAL TESTING and CERTIFICATION

Technical Report

for

PIONEER LABORATORIES
11 EAST OLIVE ROAD
PENNSACOLA, FL 32514

Chain of Custody Data Resulted for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Elapsed Hours
HA0160 - HA0170	PIONEER LABORATORIES	PIONEER				

Swep T. Davis

President

327408

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Pioneer LABORATORY, INC.
11 EAST OLIVE ROAD . PENSACOLA, FLORIDA 32514
PHONE (904) 474-1001

Client: GERAGHTY & MILLER
07001

Lab I.D.#: 89-0922-2
Order Date: 03/16/89
Sampled By: TJZ/DLW

Sample Site: NAS PENSACOLA
Sample Type: WATER

Sample ID.: FIELD BLANK-3 Sample Date: 03/16/89 Time: N/S

'P9/8270B/N APPENDIX IX-8270 BASE/NEUTRALS continued

Parameter	Units	Result	Detection Limit
4-NITROANALINE	PPB	BDL	50
NITROBENZENE	PPB	BDL	10
5-NITRO-O-TOLUIDINE	PPB	BDL	10
4-NITROQUINOLINE 1-OXIDE	PPB	BDL	10
N-NITROSODIETHYLAMINE	PPB	BDL	10
N-NITROSOD NE	PPB	BDL	10
N-NITROSO-DI-N-BUTYLAMINE	PPB	BDL	10
N-NITROSODIPROPYLAMINE	PPB	BDL	10
N-NITROSODIPHENYLAMINE	PPB	BDL	10
N-NITROSOMETHYLETHYLAMINE	PPB	BDL	10
N-NITROSOMORPHOLINE	PPB	BDL	10
N-NITROSOPIPERIDINE	PPB	BDL	10
N-NITROSOPYRROLIDINE	PPB	BDL	10
PARATHION	PPB	BDL	10
PENTACHLOROBENZENE	PPB	BDL	10
PENTACHLOROETHANE	PPB	BDL	10
PENTACHLORONITROBENZENE	PPB	BDL	10
PHENACETIN	PPB	BDL	10
PHENANTHRENE	PPB	BDL	10
2-PICOLINE	PPB	BDL	10
P-PHENYLENEDIAMINE	PPB	BDL	10
PRONAMIDE	PPB	BDL	10
PYRENE	PPB	BDL	10
PYRIDINE	PPB	BDL	10
SAFROLE	PPB	BDL	10
SULFOTEPP	PPB	BDL	10
1,2,4,5-TETRACHLOROBENZENE	PPB	BDL	10
THIONAZIN	PPB	BDL	10
O-TOLUIDINE	PPB	BDL	10
1,2,4-TRICHLOROBENZENE	PPB	BDL	10
O,O,O-TRIETHYL PHOSPHOROTHIATE	PPB	BDL	10
SYM-TRINITROBENZENE	PPB	BDL	10

327409

end of report

Pioneer
PL LABORATORY, INC.
11 EAST OLIVE ROAD PENSACOLA, FLORIDA 32514
PHONE (904) 474-1001

Client: GERAGHTY & MI=
07001

Lab I.D.#: 89-0922-2
Order Date: 03/16/89
Sampled By: TJZ/DLW

Sample Site: NAS PENSACOLA
Sample Type: WATER

Sample ID.: FIELD BLANK-3 Sample Date: 03/16/89 Time: N/S

P9/8270B/N APPENDIX IX-8270 BASE/NEUTRALS continued

Parameter	Units	Result	Detection Limit
7,12-DIMETHYLBENZ(A)ANTHRACENE	PPB	BDL	10
3,3'-DIMETHYLBENZIDINE	PPB	BDL	10
A,A-DIMETHYLPHENETHYLAMINE	PPB	BDL	10
DIMETHYLPHTHALATE	PPB	BDL	10
DI-N-BUTYLPHTHALATE	PPB	BDL	10
M-DINITROBENZENE	PPB	BDL	10
2,4-DINITROTOLUENE	PPB	BDL	10
2,6-DINITROTOLUENE	PPB	BDL	10
DI-N-OCTYLPHTHALATE	PPB	BDL	10
DIPHENYLAMINE	PPB	BDL	10
ETHYL METHANESULFONATE	PPB	BDL	10
FAMPHUR	PPB	BDL	10
FLUORANTHENE	PPB	BDL	10
FLUORENE	PPB	BDL	10
HEXACHLOROBENZENE	PPB	BDL	10
HEXACHLOROBUTADIENE	PPB	BDL	10
HEXACHLOROCYCLOPENTADIENE	PPB	BDL	10
HEXACHLOROETHANE	PPB	BDL	10
HEXACHLOROPHENE	PPB	BDL	10
HEXACHLOROPROPENE	PPB	BDL	10
INDENO(1,2,3-CD)PYRENE	PPB	BDL	10
ISODRIN	PPB	BDL	10
ISOPHORONE	PPB	BDL	10
ISOSAFROLE	PPB	BDL	10
KEPONE	PPB	BDL	10
METHAPYRILENE	PPB	BDL	10
3-METHYLCHOLANTHRENE	PPB	BDL	10
METHYL METHANESULFONATE	PPB	BDL	10
2-METHYLNAPHTHALENE	PPB	BDL	10
NAPHTHALENE	PPB	BDL	10
1,4-NAPHTHOQUINONE	PPB	BDL	10
1-NAPHTHYLAMINE	PPB	BDL	10
2-NAPHTHYLAMINE	PPB	BDL	10
2-NITROANALINE	PPB	BDL	50
3-NITROANALINE	PPB	BDL	50

Sample ID.: FIELD BLANK-3 Test Parameters continued on next page

Pioneer LABORATORY, INC.
11 EAST OLIVE ROAD PENSACOLA, FLORIDA 32514
PHONE (904) 474-1001

Client: GERAGHTY & MI
07001

Lab I.D.#: 89-0922-2
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Sample Site: NAS PENSACOLA
Sample Type: WATER

Sample ID.: FIELD BLANK-3 Sample Date: 03/16/89 Time: N/S

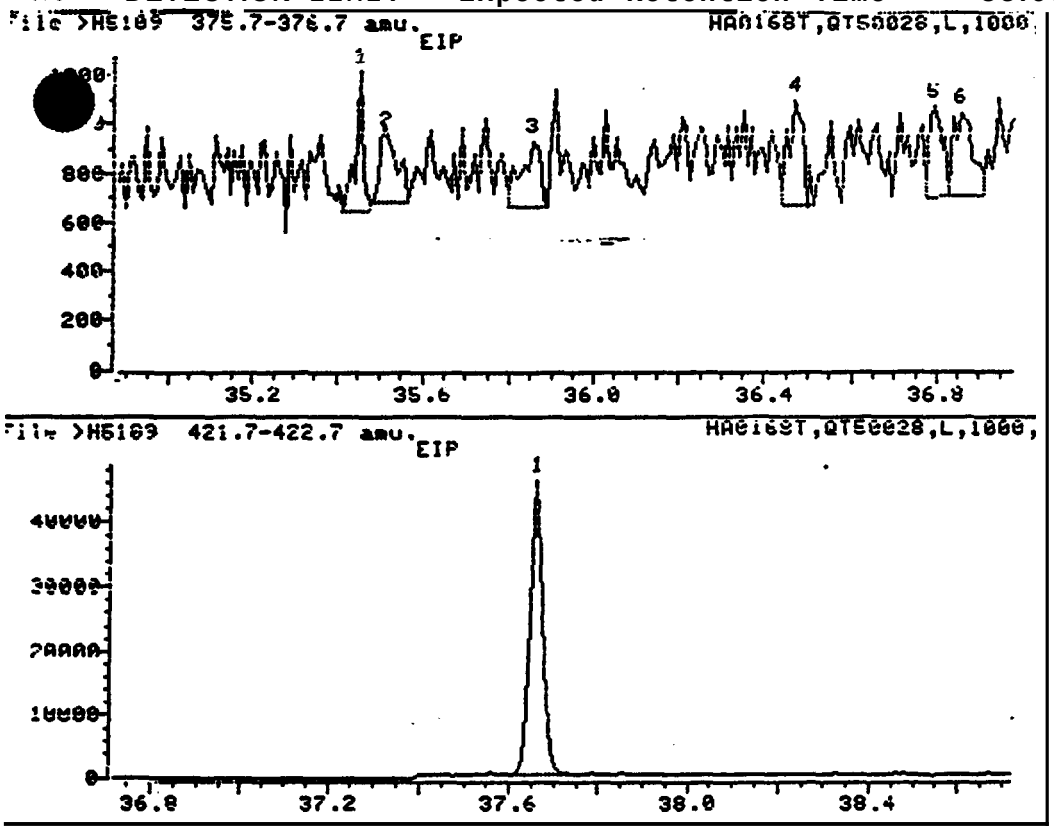
PP9/8270B/N APPENDIX IX-8270 BASE/NEUTRALS

Parameter	Units	Result	Detection Limit
ACENAPHTHENE	PPB	BDL	10
ACENAPHTHYLENE	PPB	BDL	10
ACETOPHENONE	PPB	BDL	10
2-ACETYLAMINOFLUORENE	PPB	BDL	10
4-AMINOBIPHENYL	PPB	BDL	10
ANILINE	PPB	BDL	10
ANTHRACENE	PPB	BDL	10
ARAMITE	PPB	BDL	10
BENZO(A)ANTHRACENE	PPB	BDL	10
BENZO(A)PYRENE	PPB'	BDL	10
BENZO(B)FLUORANTHENE	PPB	BDL	10
BENZO(G,H,I)PERYLENE	PPB	BDL	10
BENZO(K)FLUORANTHENE	PPB	BDL	10
BENZYL ALCOHOL	PPB	BDL	10
BIS(2-CHLORO-1-METHYLETHYL)ETHER	PPB	BDL	10
BIS(2-CHLOROETHOXY)METHANE	PPB	BDL	10
BIS(2-CHLOROETHYL)ETHER	PPB	BDL	10
BIS(2-ETHYLHEXYL)PHTHALATE	PPB	BDL	10
4-BROMOPHENYL PHENYL ETHER	PPB	BDL	10
BUTYL BENZYL PHTHALATE	PPB	BDL	10
P-CHLOROANILINE	PPB	BDL	10
CHLOROBENZILATE	PPB	BDL	10
2-CHLORONAPHTHALENE	PPB	BDL	10
4-CHLOROPHENYL PHENYL ETHER	PPB	BDL	10
CHRYSENE	PPB	BDL	10
DIALLATE	PPB	BDL	10
DIBENZO(A,H)ANTHRACENE	PPB	BDL	10
DIBENZOFURAN	PPB	BDL	10
1,2-DICHLOROBENZENE	PPB	BDL	10
1,3-DICHLOROBENZENE	PPB	BDL	10
1,4-DICHLOROBENZENE	PPB	BDL	10
3,3'-DICHLOROBENZIDINE	PPB	BDL	50
DIETHYLPHTHALATE	PPB	BDL	10
DIMETHOATE	PPB	BDL	10
P-DIMETHYLAMINOAZOBENZENE	PPB	BDL	10

Sample ID.: FIELD BLANK-3 Test Parameters continued on next page

327411

HxCDF DETECTION LIMIT * Expected Retention Time 35.98



MS Data File: >H5109::U3

Name: ..... Operator: MGRMS Date/Time: 4/18/89 1:03
Misc: HA0168T,QT50028,L,1000,,4/12/89 BTL# 8

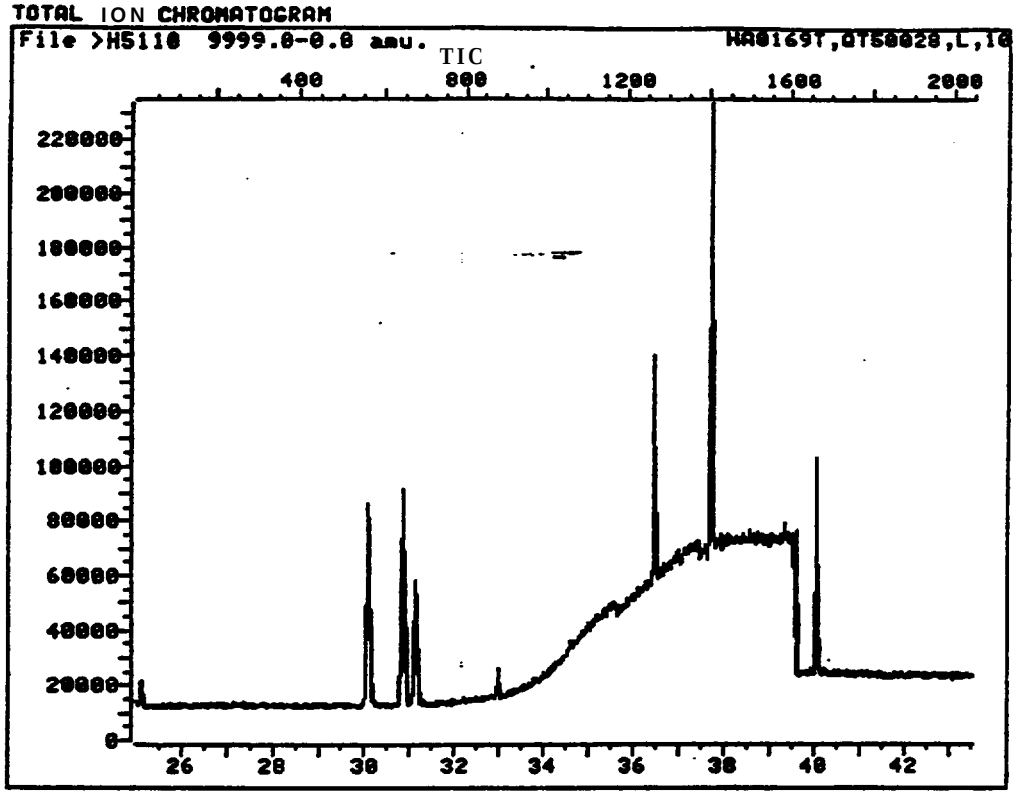
Sample Volume(L) = 1.00000 Response Factor 1.58
Signal / Noise 2.5

PEAK #	Retentinn Time	Peak Height 376.00	MPC **
	35.45	578	2.01
	35.51	273	.95
	35.85	265	.92
	36.47	435	1.51
	36.79	374	1.30
	36.85	344	1.20

SIU Peak Height 422.00 = 45521 ISID Retention Time = 37.66 mins

**Checked MPC is correct value.

TOTAL ION CHROMATOGRAM



Data File: >H5110::U3 Quant Output File: ^H5110::AQ
Name :
Misc: HA0169T,QT50028,L,1000,,4/12/89 BTL# 9

Id File.: HSAMP::US
Title: PCDX IDFILE WITH MULTIPLE ISTD'S, SW-846, 870613 , K
Last Calibration: 890113 22:39

Operator ID: MGRMS
Quant Time: 890418 02:38
Injected at: 890418 01:51

327412

. QUANT REPORT

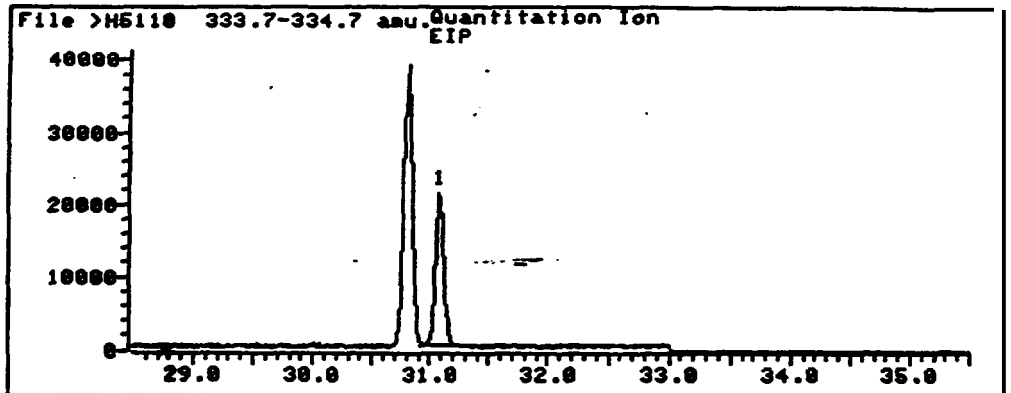
i *or ID: MGRMS Quant Rev: 7 **Quant Time:** 890418 02:38
u . File: ^H5110::AQ Injected at: 890418 01:51
ata File: >H5110::U3 Dilution Factor: 1.00000
ame:
isc: HA0169T,QT50028,L,1000,,4/12/89 BTL# 9

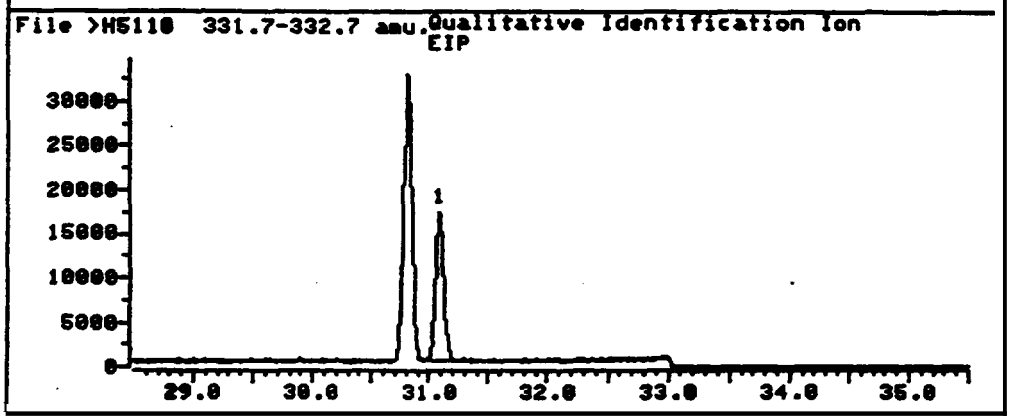
D Fila: HSAMP::US
itle: PCDX IDFILE WITH MULTIPLE ISTD'S, SW-846, 870613 , K
.est Calibration: 890113 22:39

	Compound	R.T.	Scan#	Area	Conc	Units	q
1)	*13C 2378-TCOD	31.05'	673	190479	50.00	NG	95
2)	37C14 2378-TCDD	31.11	676	38379	10.41	NG	100
3)	TCOD	33.40	929	2050	~~.628~~	~~NG~~	98
4)	PCDD	33.56	946	1677	~~.672~~	~~NG~~	87
5)	*13C 123678-HxCDD	36.43	1264	110518	50.00	NG	99
10)	*C13 2378-TCDF	30.06	560	274566	, 50.00	NG	96
12)	PCDF	35.84	1199	1963	~~.470~~	~~NG~~	81
13)	*13C 1234678-HpCDF	37.68	1402	267622	100.00	NG	98
18)	*13C 1234-TCDD (RSTD)	30.81	643	359166	61.03	NC	94
19)	13C 2378 TCDD	31.09	673	190479	30.75	NG	95

890426

* Compound is ISTD





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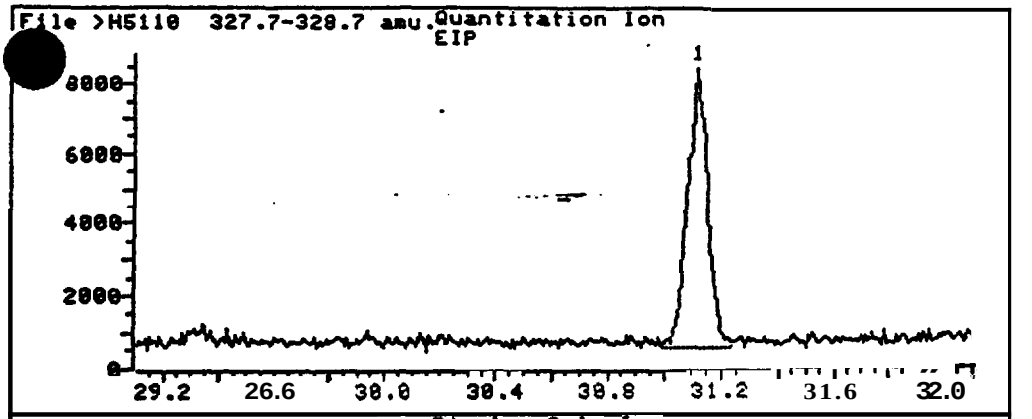
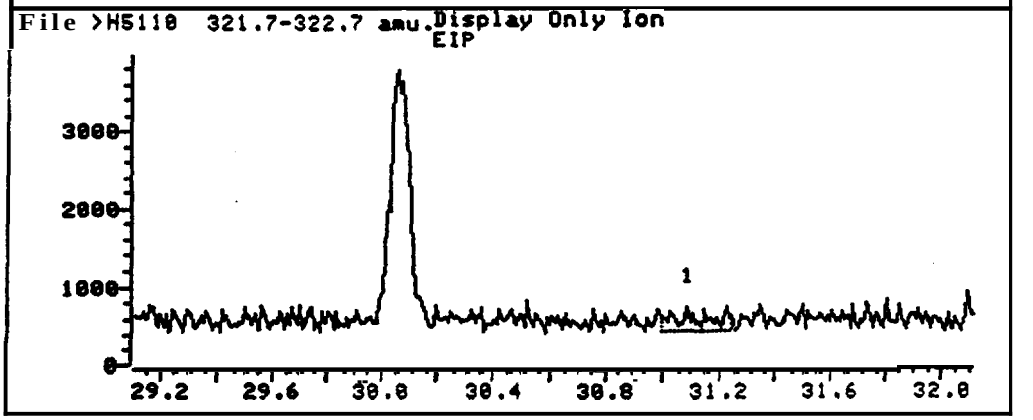
Quant Time: 890418 02:38 Quant ID File: HSAMP::US
Injected at: 890418 01:51 Last Calibration: 890113 22:39

Compound No: 1 (ISTD)
Compound Name: 13C 2378-TCOD
Quant Ion: 334.0 Sum: 334.0+332.0

Hit #	R.T. Scan#	Conc Area	Units	q	Areas and Ratios 334.0	332.0			
1	31.09	50.00	NG	95	105156	85323			
	673	190479			1.000	.811			

3274.13





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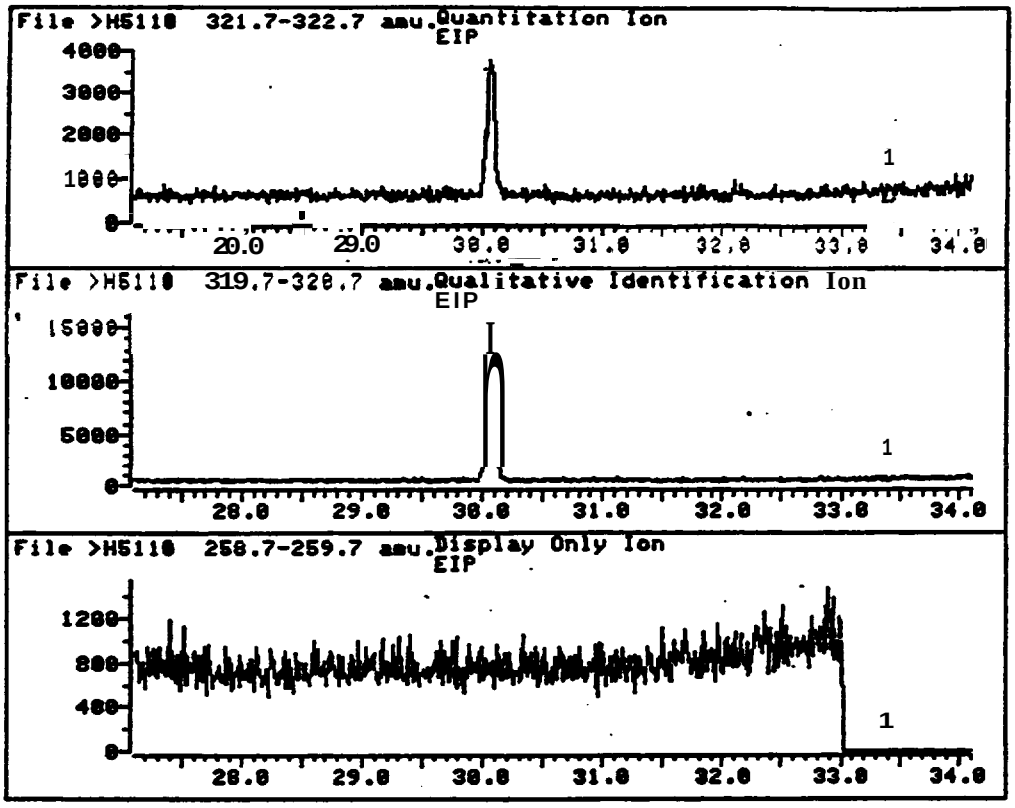
Quant Time: 890418 02:38 Quant ID File: HSAMP::US
Injected at: 890418 01:51 Last Calibration: 890113 22:39

Compound No: 2
Compound Name: 37Cl4 2378-TCDD
Quant Ion: 328.0 Sum: 328.0-(.00900*Area@322.0)

Hit #	R.T. Scan#	Conc Area	Units	q	Areas and Ratios 328.0	322.0			
1	31.11	10.41	NG	100	38399	2267			
	676	38379			1.000	.059			

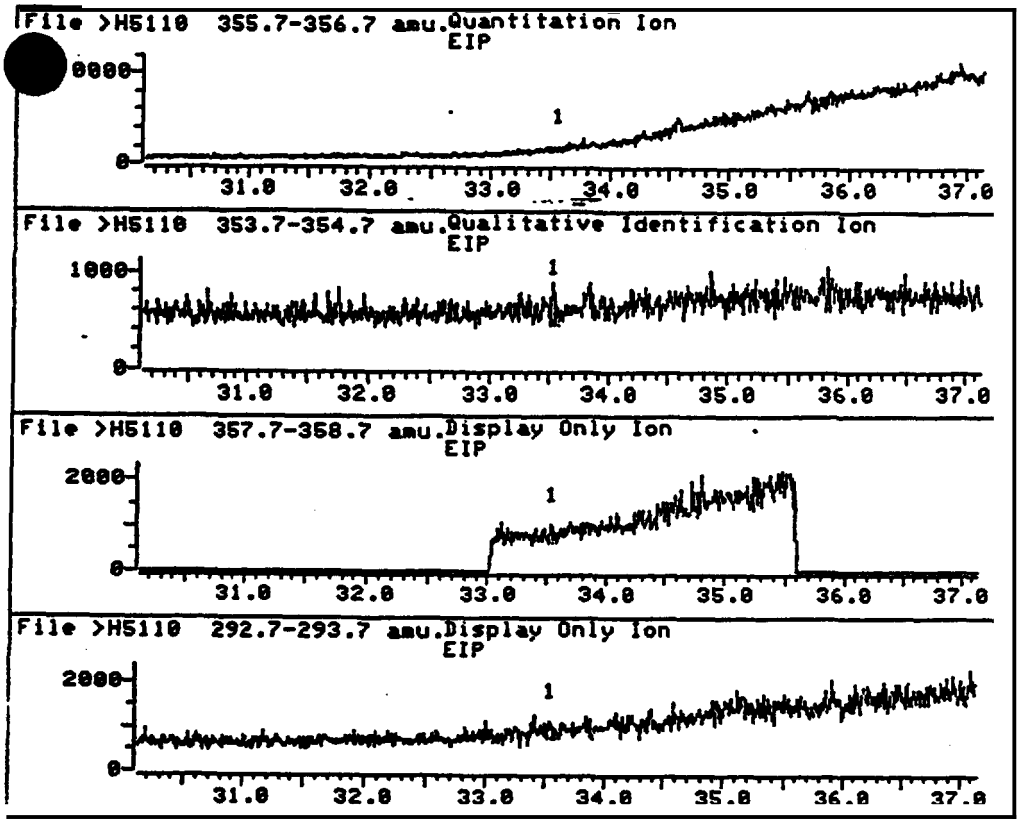


Data File: >H5110::U3 Quant Output File: ^H5110::AQ
Name :
Misc: HA0169T,QT50028,L,1000,,4/12/89 BTLI 9
Quant Time: 890418 02:38 Quant ID File: HSAMP::US
Injected at: 890418 01:51 Last Calibration: 890113 22:39

Compound No: 3
Compound Name: TCDD
Quant Ion: 322.0 Sum: 322.0+320.0

Hit #	R.T. Scan#	Conc Area	Units	q	Areas and Ratios 322.0	320.0	259.0
1	33.40	.628	NG	98	1168	882	0
	929	2050			1.000	.755	0.000

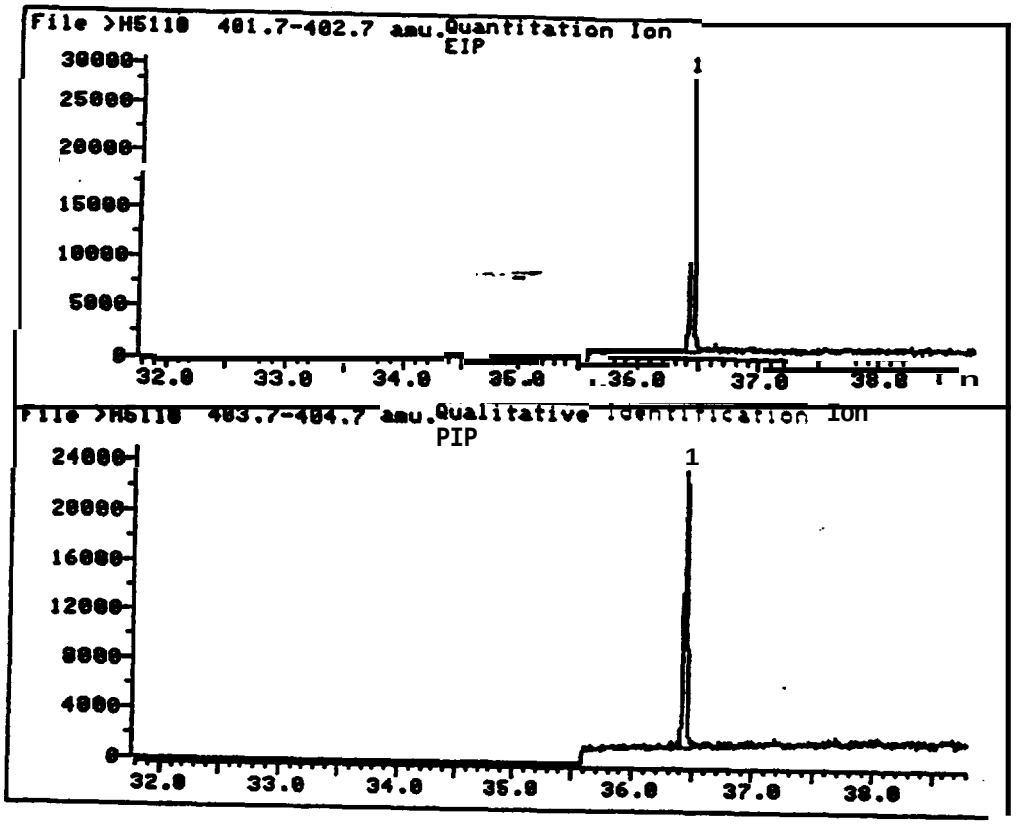
327414



Data File: >H5110::U3 Quant Output File: ^H5110::AQ
Name:
Desc: HA0169T,QT50028,L,1000,,4/12/89 BTL# 9
Quant Time: *890418* 02:38 Quant ID File: HSAMP::US
Injected at: *890418* 01:51 Last Calibration: *890113* 22:39

Compound No: *4*
Compound Name: PCDD
Quant Ion: *356.0* Sum: 356.0+354.0

Hit #	R.T. Scan#	Conc Area	Units	q	Areas and Ratios 356.0	354.0	358.0	293.0
1	33.56	.632	NG	87	1081	596	675	746
	946	1677			1.000	.551	.624	.690



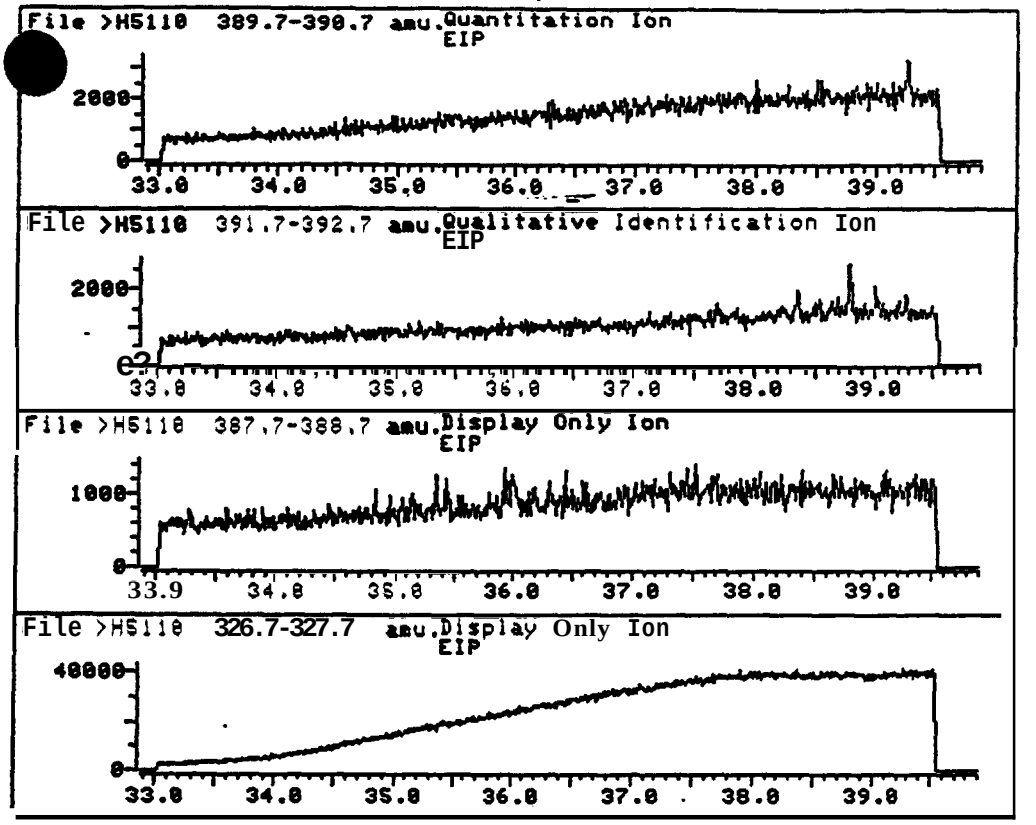
Data File: >H5110::U3 Quant Output File: ^H5110::AQ
Name: .

Misc: HA0169T,QT50028,L,1000,,4/12/88 BTL# 9
Quant Time: 890418 02:38 Quant ID File: HSAMP::US
Injected at: 890418 01:51 Last Calibration: 890113 22:39

Compound No: 5 (ISTD)
Compound Name: 13C 123678-HxCDD
Quant Ion: 402.0 Sum: 402.0+404.0

Hit #	R.T. Scan#	Conc Area	Units	q	Areas and Ratios 402.0	404.0			
1	36.43	50.00	NG	99	61223	49295			
	1264	110518			1.000	.805			

327415

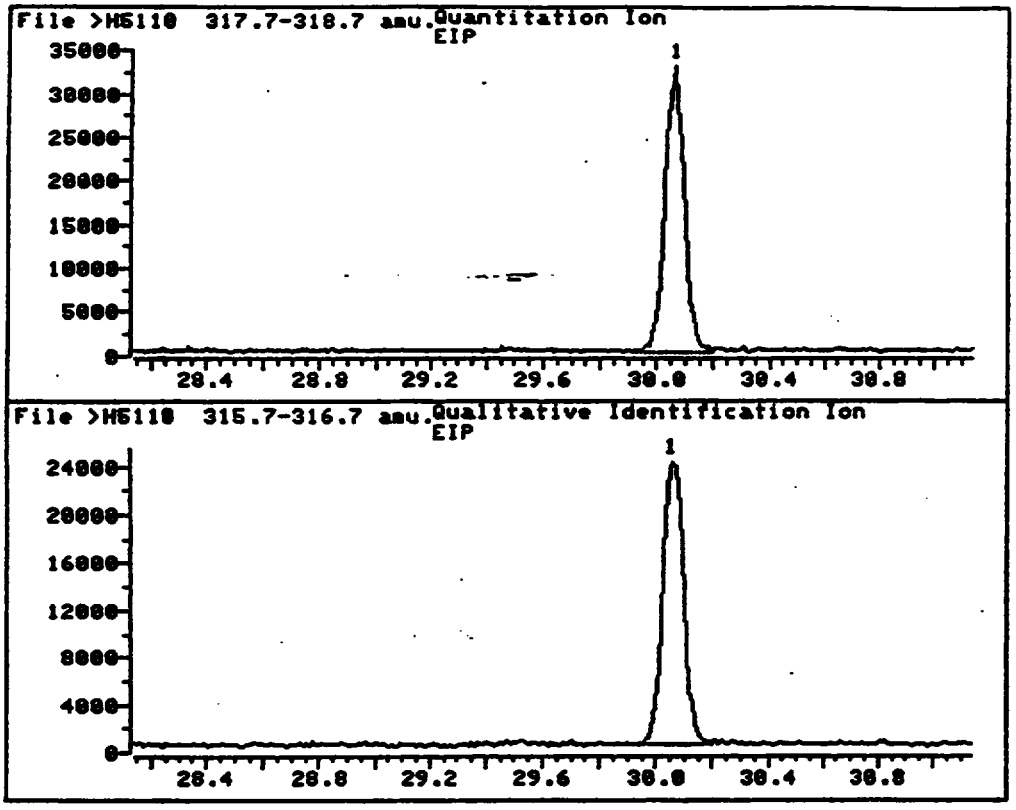


Data File: >H5110::U3 Quant Output File: ^H5110::AQ
Name:
Misc: HA0169T,QT50028,L,1000,,4/12/89 BTL# 9
Qusnt Time: 890418 02:38 Quant ID File: HSAMP::US
Injected at: 890418 01:51 Last Calibration: 890113 22:39

Compound No: 6
Compound Name: HxCDD
Quant Ion: 390.0 Sum: 390.0+392.0

Hit #	R.T. Scan#	Conc Area	Units	q	Areas and Ratios 390.0	392.0	388.0	327.0

No hits for this compound.

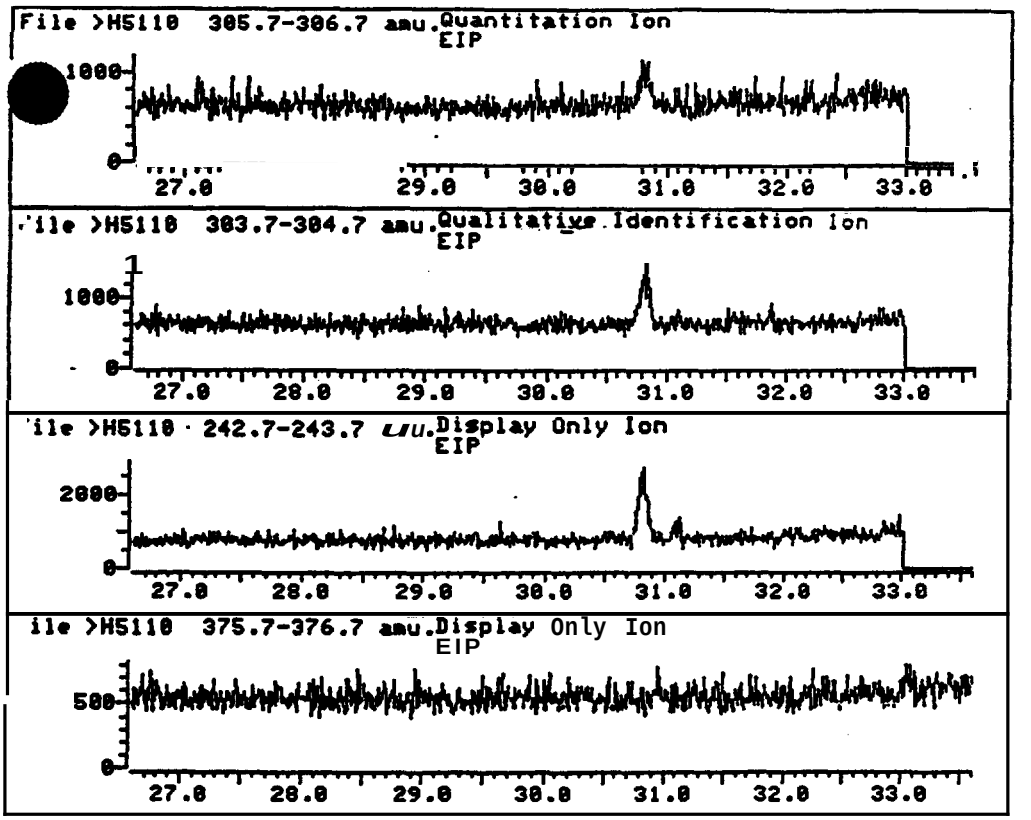


Data File: >H5110::U3 Qurnt Output File: ^H5110::AQ
Name :
Misc: HA0169T,QT50028,L,1000,,4/12/89 BTL# 9
Qurnt Time: 890418 02:38 Quant ID File: HSAMP::US
Injected at: 890418 01:51 Last Calibration: 890113 22:39

Compound No: 10 (ISTD)
Compound Name : C13 2378-TCDF
Quant Ion: 318.0 Sum: 318.0+316.0

Hit #	R.T. Scan#	Conc Area	Units	q	Areas and Ratios 318.0	316.0			
1	30.06	50.00	NG	96	152379	122187			
	560	274566			1.000	.802			

327416

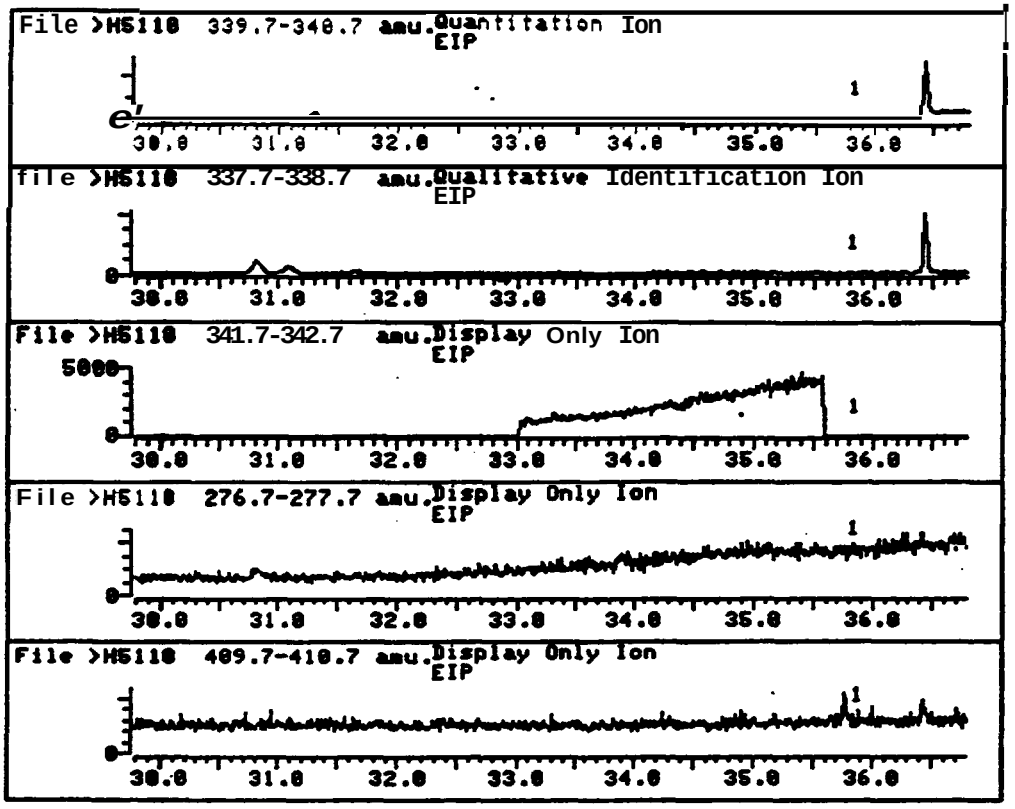


Data File: >H5110::U3 Quant Output File: ^H5110::AQ
Name:
c: HA0169T,QT50028,L,1000,,4/12/89 BTL# 9
Quant Time: 890418 02:38 Quant ID File: HSAMP::US
Injected at: 890418 01:51 Last Calibration: 890113 22:39

Compound No: 11
Compound Name: TCOF
Quant Ion: 306.0 Sum: 306.0+304.0

Hit #	R.T. Scan9	Conc Area	Units	q	Areas and Ratios 306.0	304.0	243.0	376.0

No hits for this compound.

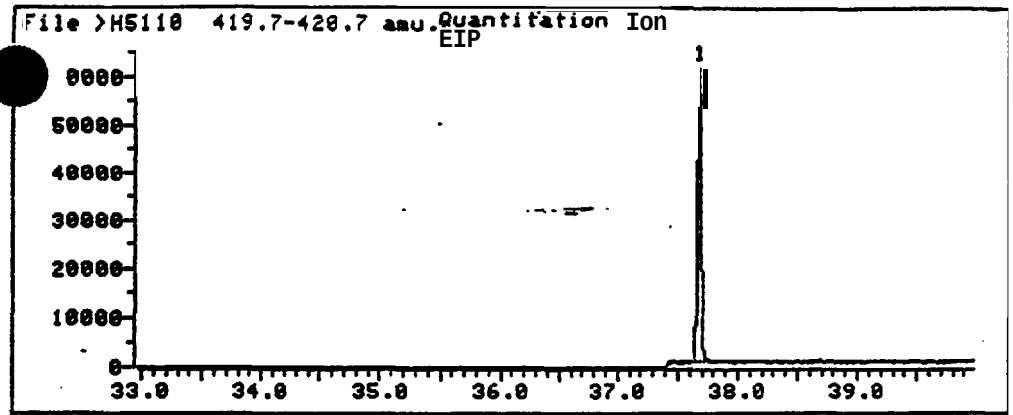


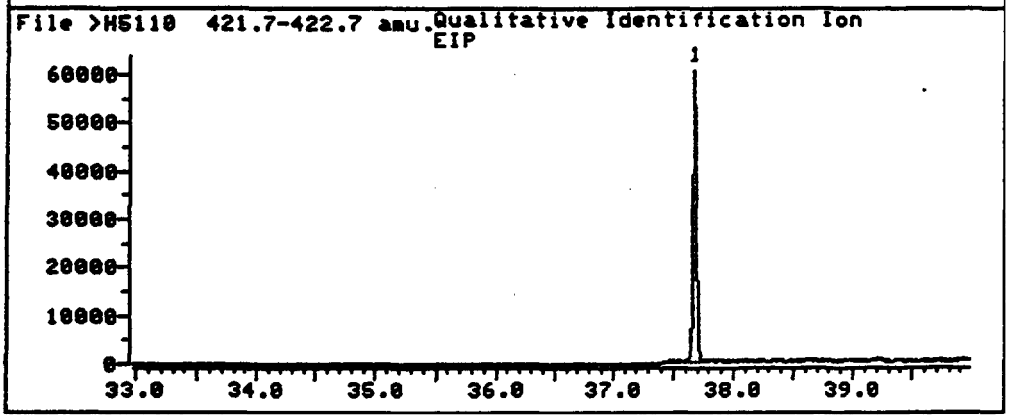
Data File: >H5110::U3 Quant Output File: ^H5110::AQ
Name :
Misc: HA0169T,QT50028,L,1000,,4/12/89 BTL# 9
Quant Tire: 890418 02:38 Quant ID File: HSAMP::US
Injected at: 890418 01:51 Last Calibration: 890113 22:39

Compound No: 12
Compound Name: PCOF
Quant Ion: 340.0 Sum: 340.0+338.0

Hit #	R.T. Scan#	Conc Area	Units	q	Areas and Ratios 340.0	338.0	342.0	277.0	410.0
1	35.84	.470	NG	81	1307	656	0	807	572
	1199	1963			1.000	.502	0.000	.617	.438

327417

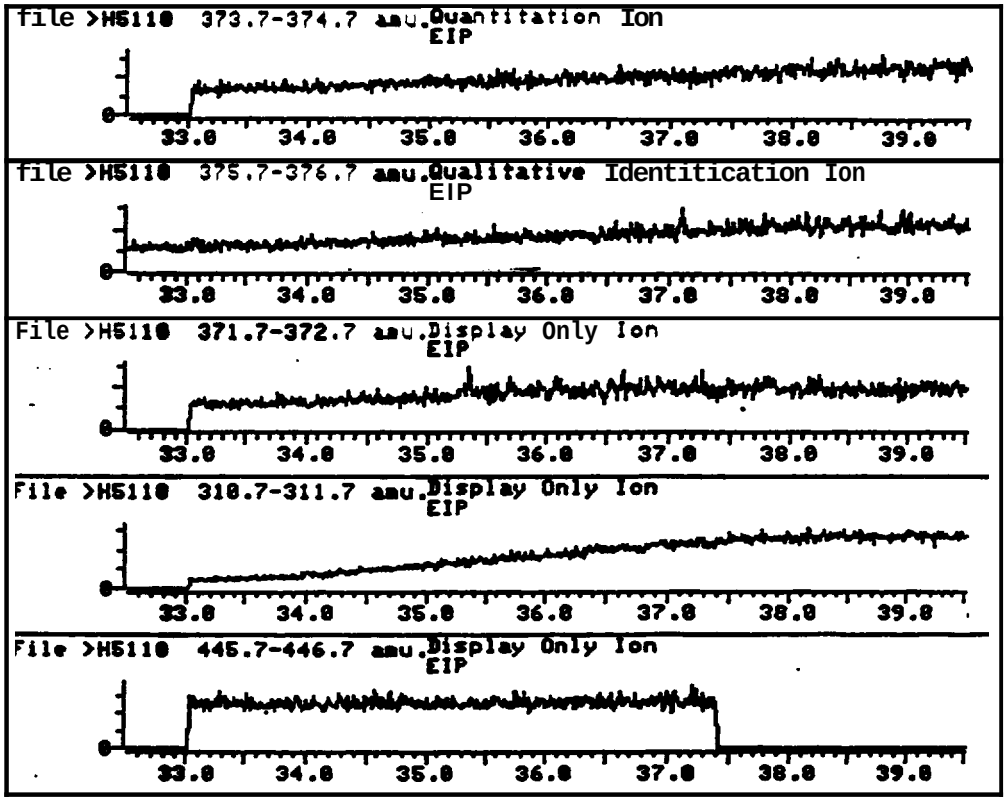




Data File: >H5110::U3 Quant Output File: ^H5110::AQ
me:
c: HA0169T,QT50028,L,1000,.,4/12/89 BTL# 9
Quant Time: 890418 02:38 Quant ID File: HSAMP::US
Injected at: 890418 01:51 Last Calibration: 890113 22:39

Compound No: 13 (ISTD)
Compound Name: 13C 1234678-HpCDF
Quant Ion: 420.0 Sum: 420.0+422.0

Hit #	R.T. Scan#	Conc Area	Units	q	Areas and Ratios 420.0	422.0			
1	37.68	100.00	NG	98	138361	129261			
	1402	267622			1.000	.934			



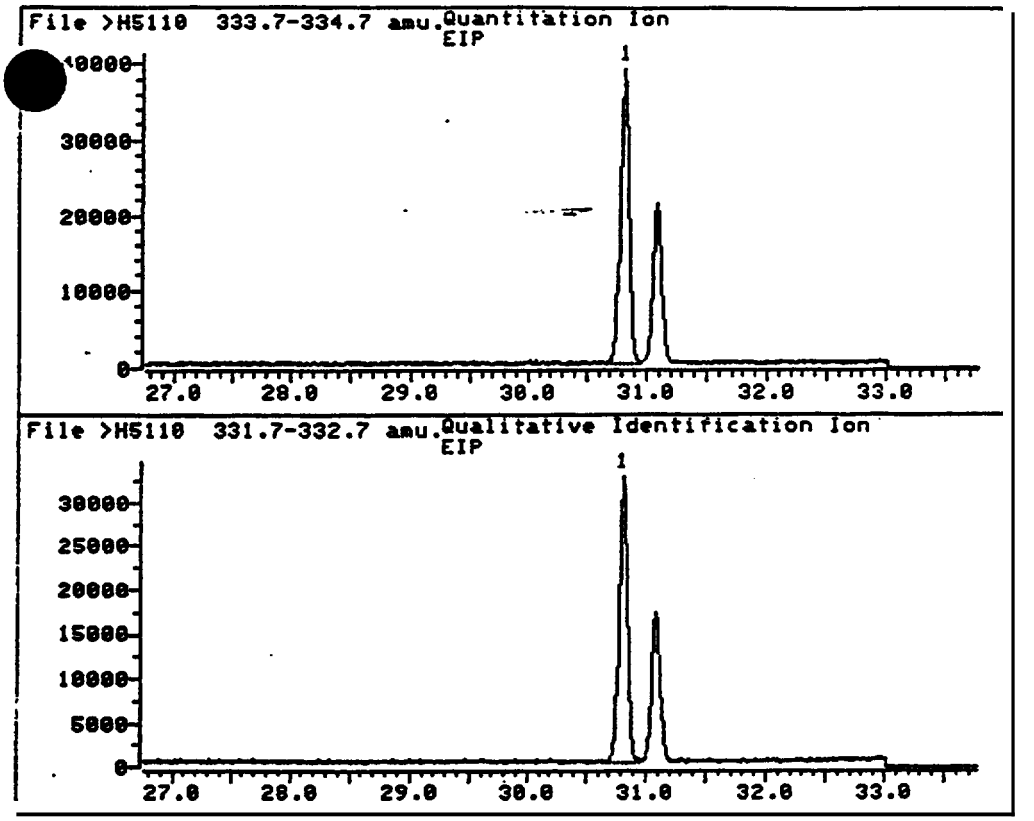
Data File: >H5110::U3 Quant Output File: ^H5110::AQ
Name :
Misc : HA0169T,QT50028,L,1000,,4/12/89 BTL# 9
Quant Time: 890418 02:38 Quant ID File: HSAMP::US
Injected at: 890418 01:51 Last Calibration: 890113 22:39

Compound No: 14
Compound Name: HxCDF
Quant Ion: 374.0 Sum: 374.0+376.0

Hit #	R.T. Scant	Conc Area	Units	q	Areas and Ratios 374.0	376.0	372.0	311.0	446.0

No hits for this compound.

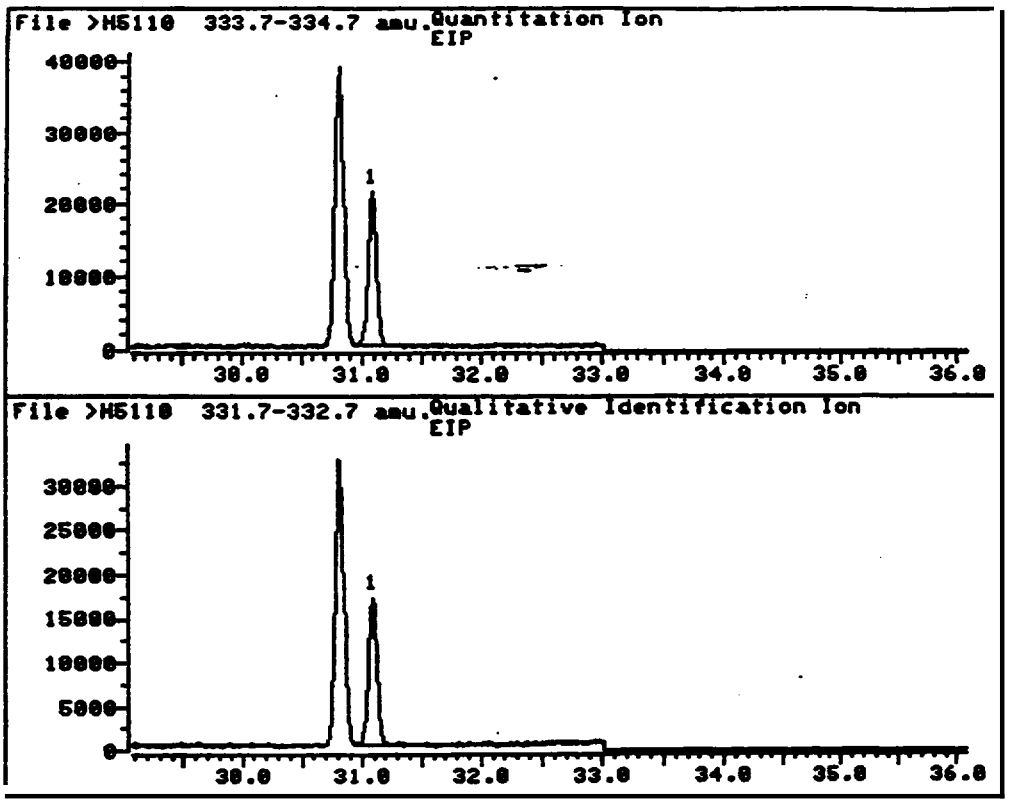
327416



Data File: >H5110::U3 Quant Output File: ^H5110::AQ
Name:
Desc: HA0169T,QT50028,L,1000,,4/12/89 BTL# 9
Quant Time: 890418 02:38 Quant ID File: HSAMP::US
Injected at: 890418 01:51 Last Calibration: 890113 22:39

Compound No: 18 (ISTD)
Compound Name: 13C 1234-TCDD (RSTD)
Quant Ion: 334.0 Sum: 334.0+332.0

Hit #	R.T. Scan#	Conc Area	Units	q	Areas and Ratios 334.0	332.0			
1	30.81	61.03	NG	94	197968	161198			
	643	359166			1.000	.814			



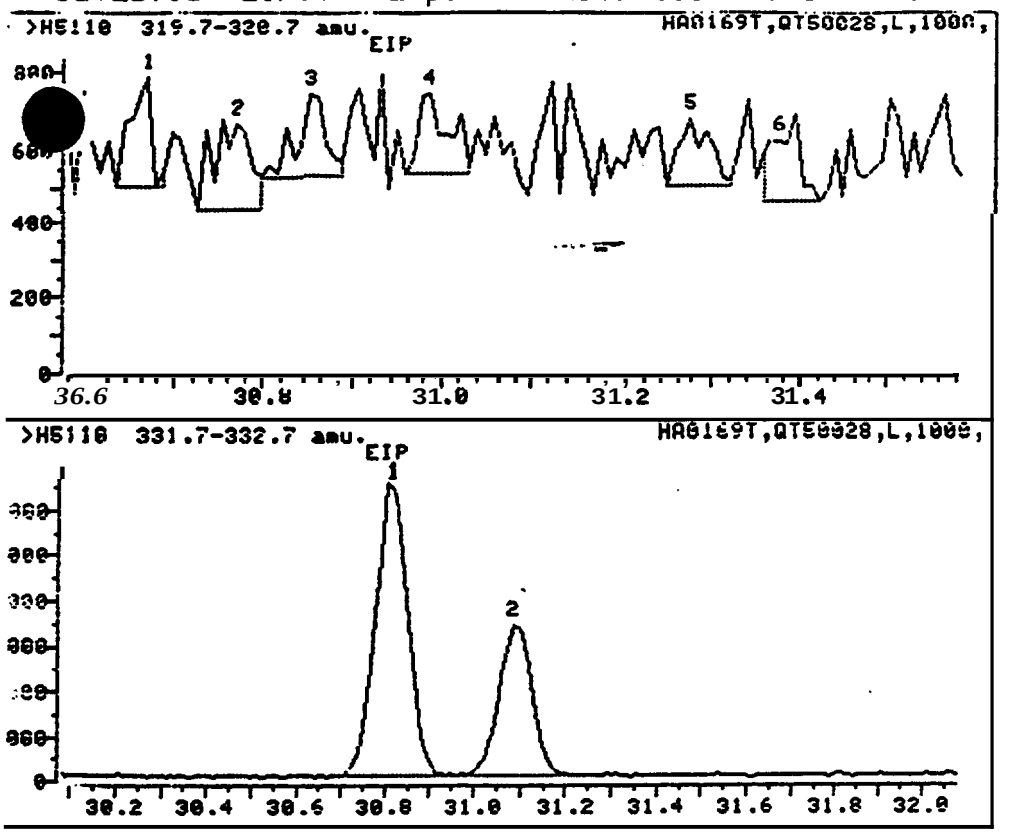
Data File: >H5110::U3 Quant Output File: ^H5110::AQ
Name :
Misc: HA0169T,QT50028,L,1000,,4/12/89 BTL# 9
Quant Time: 890418 02:38 Quant ID File: HSAMP::US
Injected at: 890418 01:51 Last Calibration: 890113 22:39

Compound No: 19
Compound Name: 13C 2378 TCDD
Quant Ion: 334.0 Sum: 334.0+332.0

Hit #	R.T. Scan#	Conc Area	Units	q	Areas and Ratios 334.0	332.0
1	31.09	30.75	NG	95	105156	85323
	673	190479			1.000	.811

327419

DETECTION LIMIT * Expected Retention Time 31.08



Data File: >H5110::U3

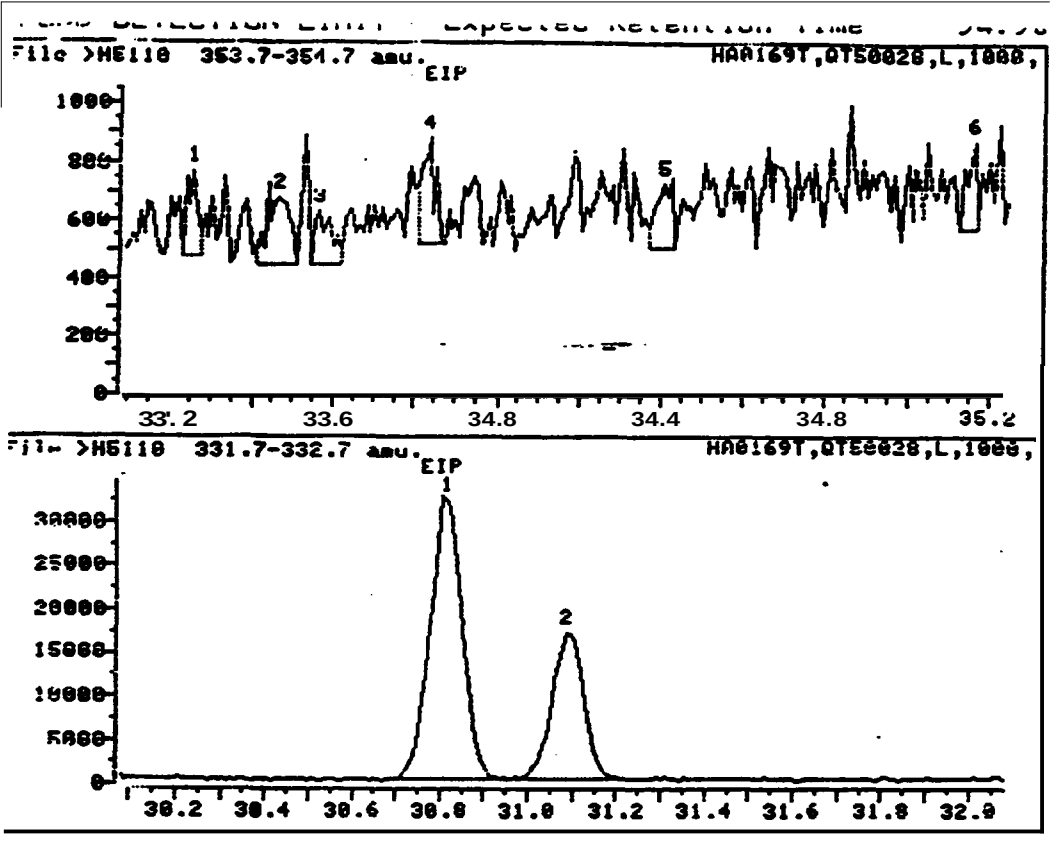
m: ..... Operator: MGKMS Date/Time: 4/18/89 1:51.
n: HAU169T,QT50028,L,1000,,4/12/89 BTL# 9

le volume(L) = 1.00000 Response Factor .86
al / Noise 2.5

#	Retention Time	Peak Height 320.00	MPC **
	30.67	287	2.50
	30.77	224	1.95
	3U.85	223	1.94
	30.99	208	1.81
	31.28	175	1.53
	31.37	158	1.38

Peak Height 332.00 = 16667 ISTD Retention Time = 31.09 mins

ecked MPC is correct value.



MS Data File: >H5110::U3

Name: ..... Operator: MGRMS Date/Time: 4/18/89 1:51
Misc: HA0169T,QT50028,L,1000,,4/12/89 BIL# 9

Sample volume(L) = 1.00000 Response Factor .70
Signal / Noise 2.5

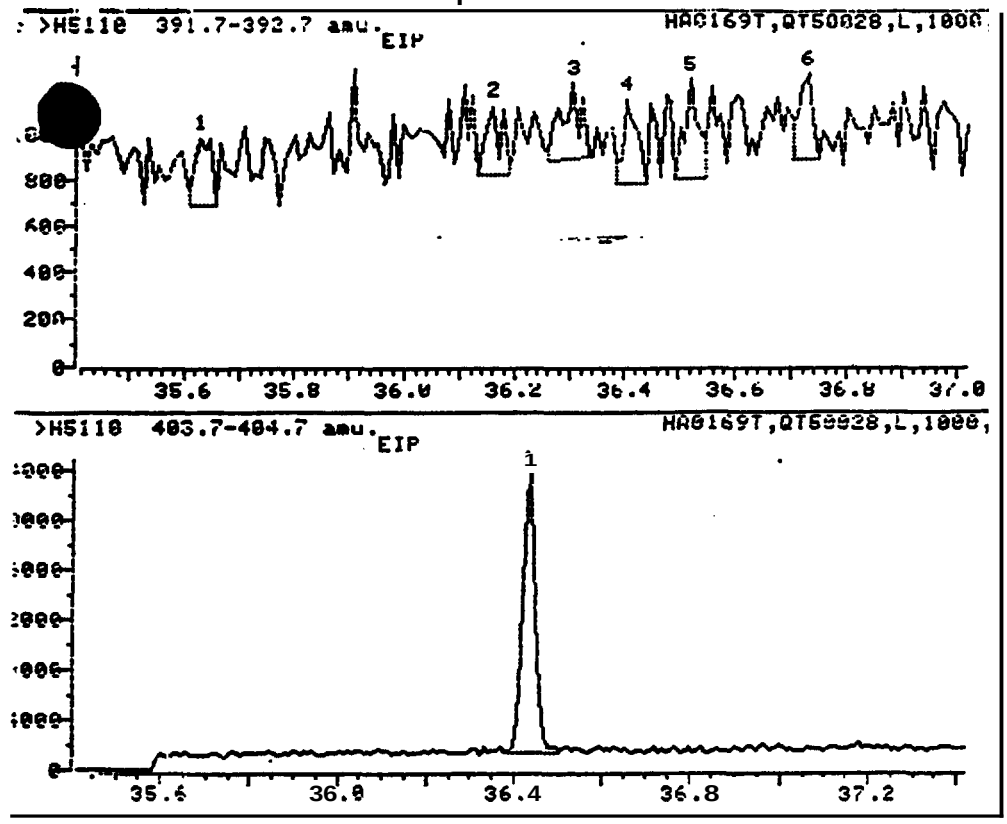
PEAK #	Retention Time	Peak Height 354.00	MPC **
	33.26	287	3.07
	33.47	230	2.46
	33.56	176	1.89
	33.84	363	3.89*
	34.40	222	2.38
	35.16	305	3.27

STD Peak Height 332.00 = 16667 ISTD Retention time = 31.09 mins

*Checked MPC is correct value.

327420

DETECTION LIMIT * Expected Retention Time 36.41



Data File: >H5110::U3

me: ..... Operator: MGRMS Date/Time: 4/18/89 1:51
sn: HA0169T,QT50028,L,1000 ,,4/12/89 BTL# 9

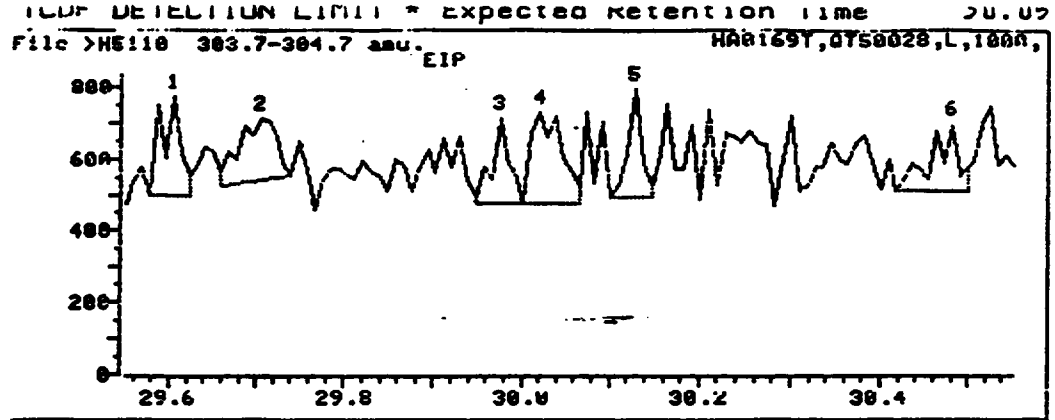
le volume(L) = 1.00000 Response Factor 1.06
nal / Noise 2.5

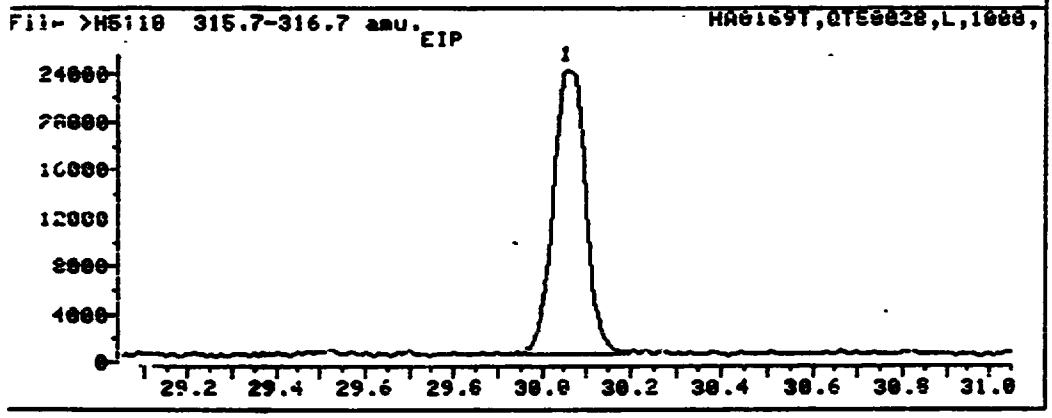
< #	Retention Time	Peak Height	392.00	MPC **
	35.63	284		1.50
	36.16	294		1.56
	36.30	336		1.78
	36.40	361		1.91
	36.52	441		2.34
	36.73	374		1.98

) Peak Height 4U4.00 = 22257 ISTD Retention Time = 36.43 mins

hecked MPC is correct ualua.

TCDF DETECTION LIMIT * Expected Retention Time 30.05





Data File: >H5110::U3

Name: ..... Operator: MGRMS Date/Time: 4/18/89 1:51
Misc: HAU169T,QT50028,L,1000,,4/12/89 BTL# 9

Sample volume(L) = 1.00000 Response Factor .98
Signal / Noise 2.5

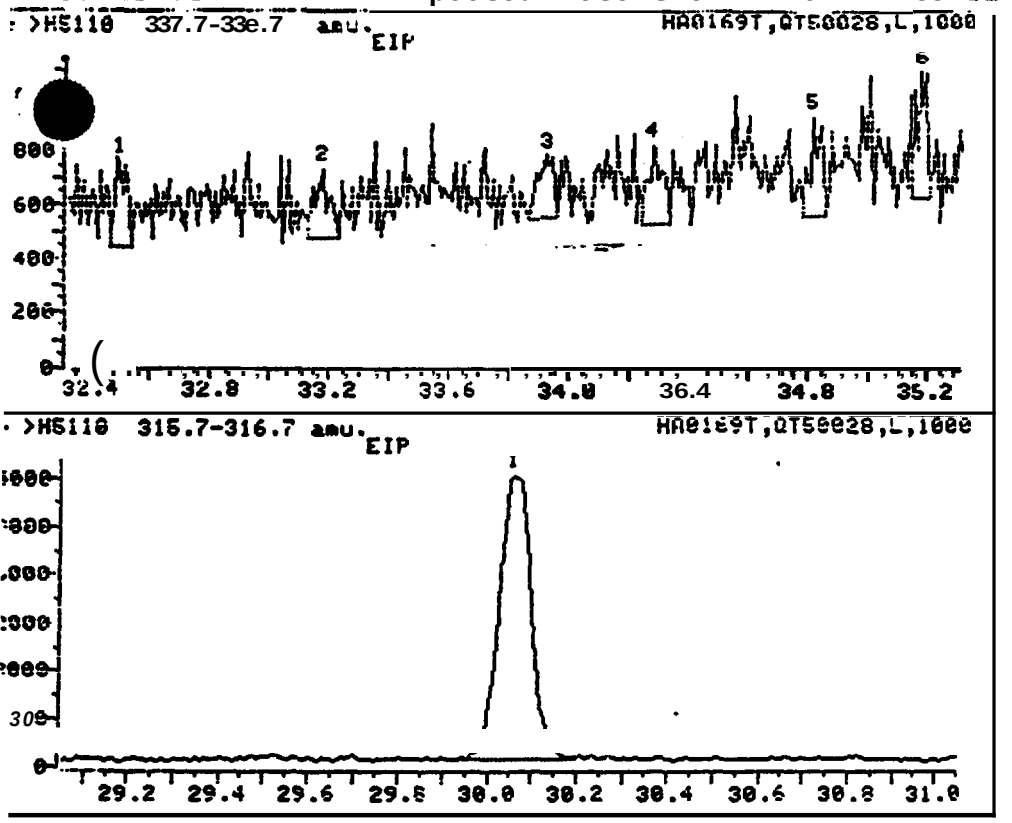
PEAK #	Retention Time	Peak Height	304.00	MPC **
1	*29.60*	278		1.50
2	29.70'	190		1.03
3	*29.97*	238		1.29
4	30.02	253		*1.37*
5	30.13	303		1.64'
6	*30.48*	185		1.00

ISTD Peak Height 316.00 = 23574 ISTD Retention Time = 30.06 mins

**Checked MPC is correct value.

327421

DETECTION LIMIT * Expected Retention Time 33.82



Data File: >H5110::U3

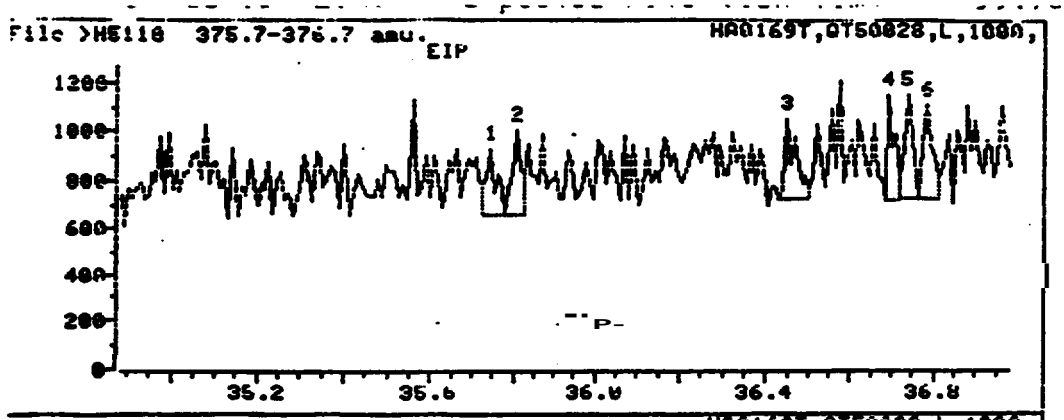
m: ..... Operator: MGRMS Date/Time: 4/18/89 1:51
c: HA0169T,QT50028,L,1000,,4/12/89 BTL# 9

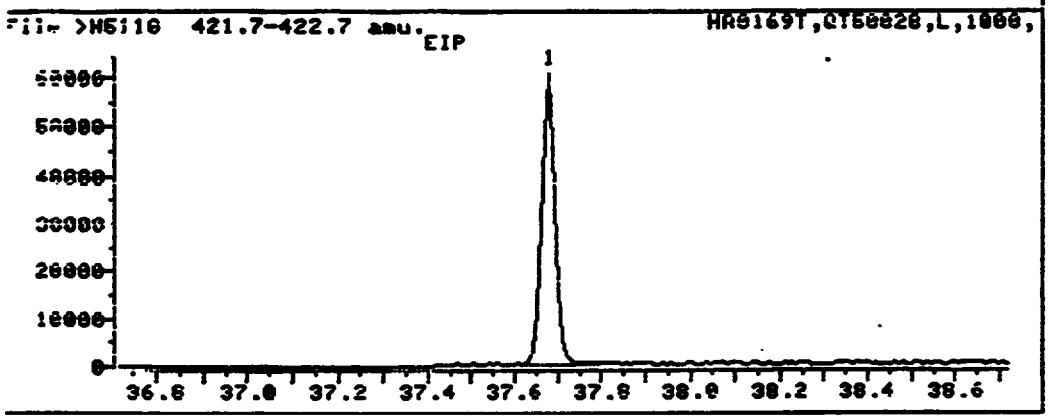
le volume(L) = 1.00000 Response Factor .76
al / Noise 2.5

#	Retsntion Time	Peak Height	338.00	MPL **
	32.49	315		2.20
	33.18	258		1.80
	33.93	238		1.66
	34.28	285		1.99
	34.81	368		2.57
	35.17	473		3.30

Peak Height 316.00 = 23574 ISTD Retention Time = 30.06 mins

ecked MPL is correct value.





MS Data File: >H5110::U3

Name: ..... Operator: MGRMS Date/Time: 4/18/89 1:51
Misc: HAU169T,QT50028,L,1000,,4/12/89 BTL# 9

Sample volume(L) = 1.00000 Response Factor 1.58
Signal / Noise 2.5

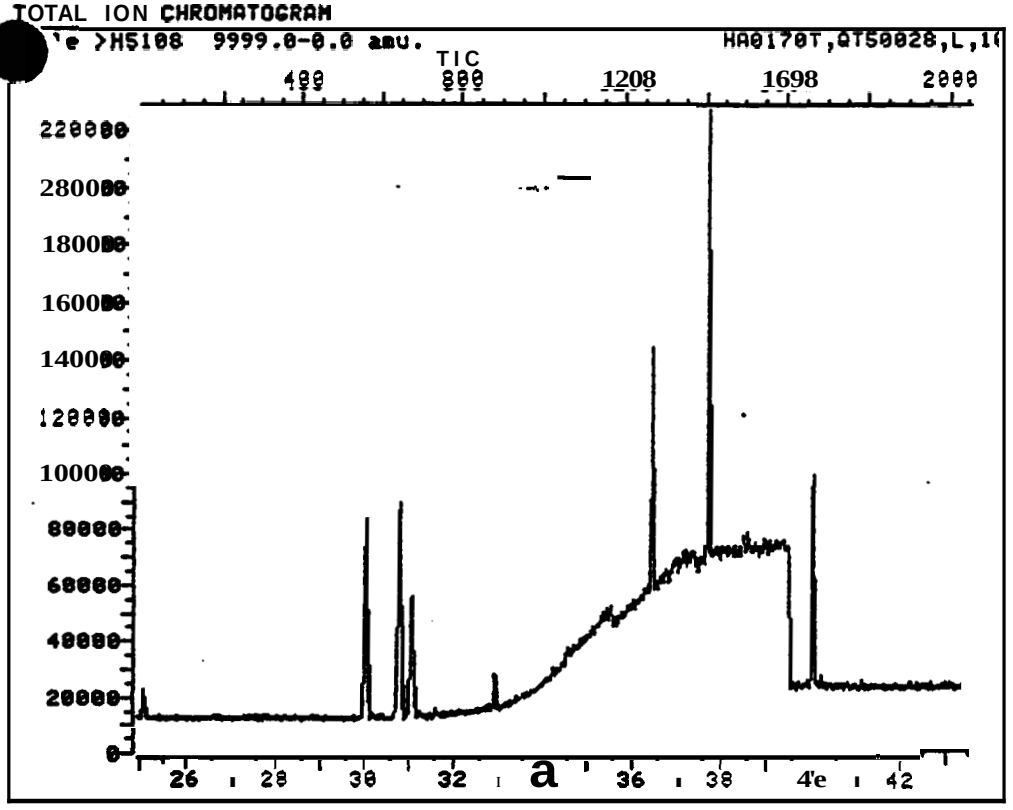
PEAK #	Retention Time	Peak Height	376.00	MPC **
	35.74	270		.71
	35.81	352		.93
	36.45	333		.88
	36.69	441		1.16
	36.74	426		1.13
	36.78	381		1.01

SID Peak Height 422.00 = 59909 ISTD Retention Time = 37.68 mins

**Checked MPC is correct value.

327422

TOTAL ION CHROMATOGRAM



Data File: >H5108: :U3 Quant Output File: ^H5108::AQ
Name :
Misc: HA0170T,QT50028,L,1000,,4/12/89 BTL# 7

Id File: HSAMP::US
Title: PCDX IDFILE WITH MULTIPLE ISTD'S, SW-846, 870613 , K
Last Calibration: 890113 22:39

Operator ID: MGRMS
Quant Time: 890418 01:02
Injected at: 890418 00:15

QUANT REPORT

Operator ID: HGRMS Quant Reu: 7 Quant Time: 890418 01:02
Output Fila: ^H5108::AQ Injected at: 890418 00:15
Data File: >H5108::U3 Oilution Factor: 1.00000
Name:
Hisc: HA0170T,QT50028,L,1000,,4/12/89 BTL# 7

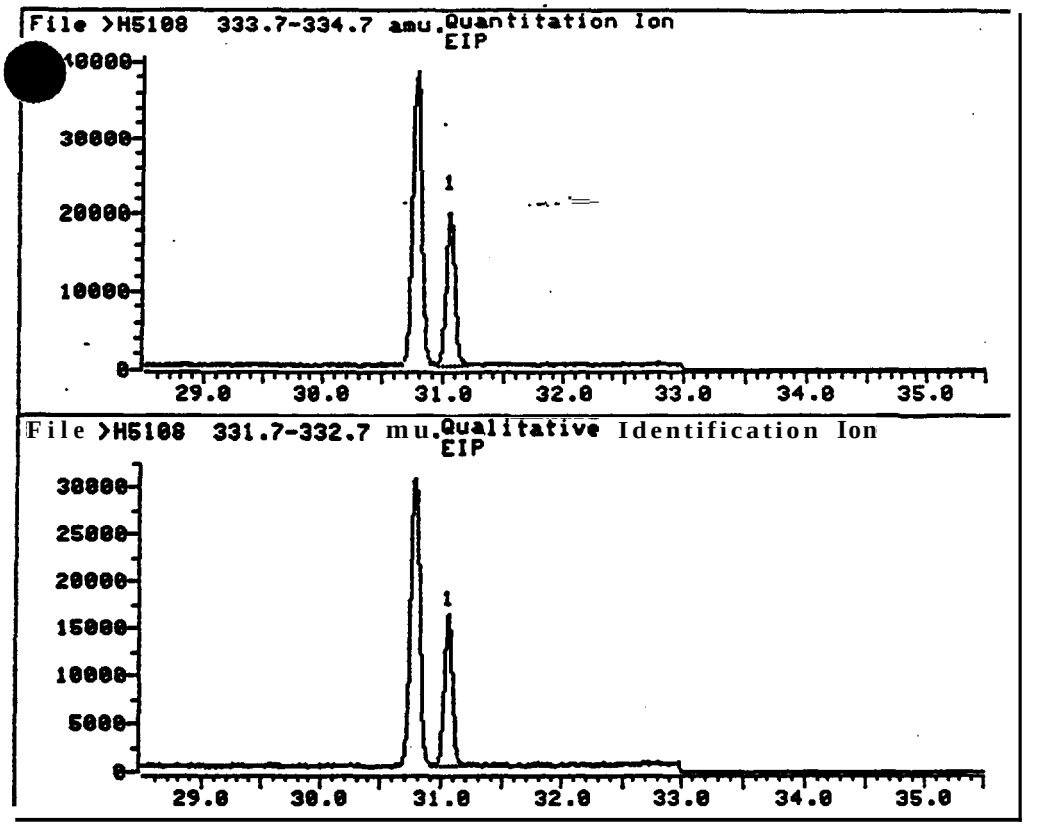
ID File: HSAMP::US
Title: PCDX IDFILE WITH MULTIPLE ISTD'S, SW-846, 870613 , K
Last Calibration: 890113 22:39

	Compound	R.T.	Scan#	Area	Conc	Units	q
1)	*13C 2378-TCDO	31.06	676	180494	50.00	NG	99
2)	37C14 2378-TCDD	31.08	678	36763	10.52	NG	100
5)	*13C 123678-HxCDD	36.40	1267	108213	50.00	NG	96
6)	HxCDD	34.35	1040	2347	~~1.02~~	~~NG~~	91
10)	*C13 2378-TCDF	30.03	562	259642	50.00	NG	95
11)	TCOF	32.96	887	4537	~~.898~~	~~NG~~	91
12)	PCDF	33.98	999	1829	~~.464~~	~~NG~~	92
12)	PCDF	35.12	1125	1556	~~.394~~	~~NG~~	81
12)	PCDF	35.30	1145	1603	~~.406~~	~~NG~~	07
12)	PCDF	35.50	1167	1737	~~.440~~	~~NG~~	95
13)	*13C 1234678-HpCDF	37.65	1405	258301	100.00	NG	97
18)	*13C 1234-TCDD (RSTD)	30.79	646	342628	61.03	NG	95
19)	13C 2378 TCOD	31.06	676	180494	30.54	NG	99

890426

* Compound is ISTD

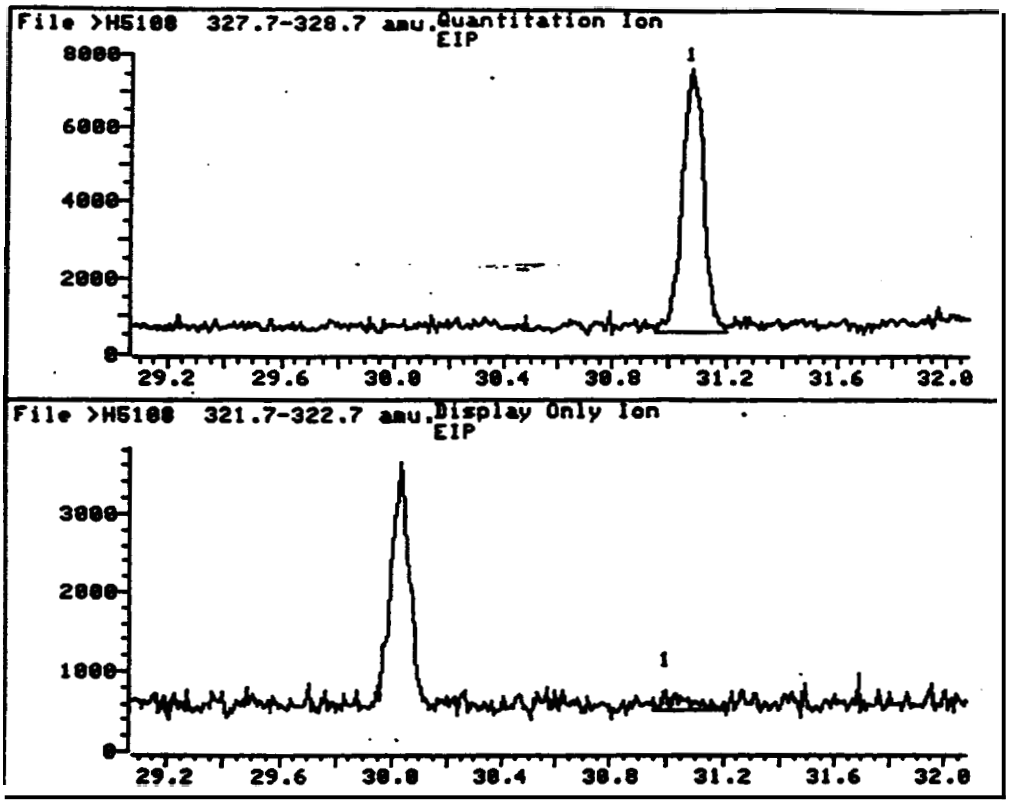
327423



Data File: >H5108::U3 Quant Output File: ^H5108::AQ
Name:
Misc: HA0170T,QT50028,L,1000,,4/12/89 BTL# 7
Quant Time: 890418 01:02 Quant ID File: HSAMP::US
Injected at: 890418 00:15 Last Calibration: 890113 22:39

Compound No: 1 (ISTD)
Compound Name: 13C 2378-TCDD
Quant Ion: *334.0* Sum: 334.0+332.0

Hit #	R.T. Scan#	Conc Area	Units	q	Areas and Ratios 334.0	332.0			
1	31.06	50.00	NG	99	101578	78916			
	676	180494			1.000	.777			



Data File: >H5108::U3 Quant Output File: ^H5108::AQ

Name :

Misc: HA0170T,QT50028,L,1000,,4/12/89 BTL# 7

Quant Time: 890418 01:02 Quant ID File: HSAMP::US

Injected at: 890418 00:15 Last Calibration: 890113 22:39

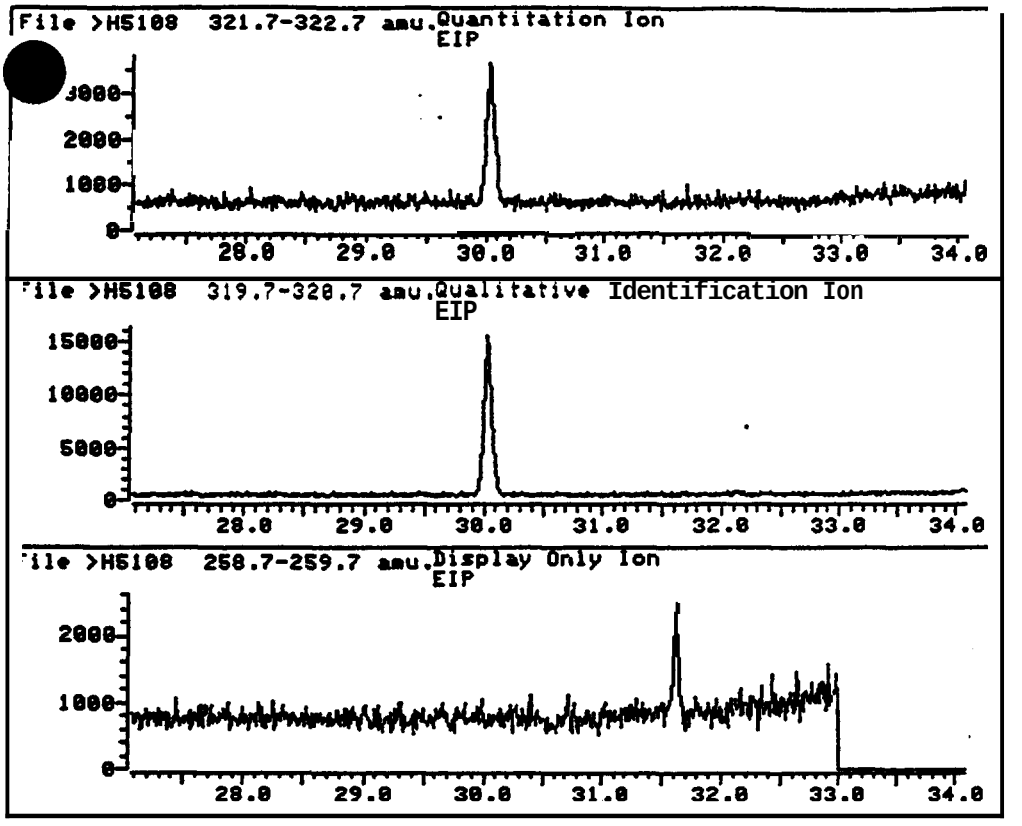
Compound No: 2

Compound Name: 37Cl4 2378-TCDD

Quant Ion: 328.0 Sum: 328.0-(.00900*Area@322.0)

Hit #	R.T. Scan#	Conc Area	Units	q	Areas and Ratios 328.0	322.0			
1	31.08	10.52	NG	100	36776	1451			
	678	36763			1.000	.039			

327424

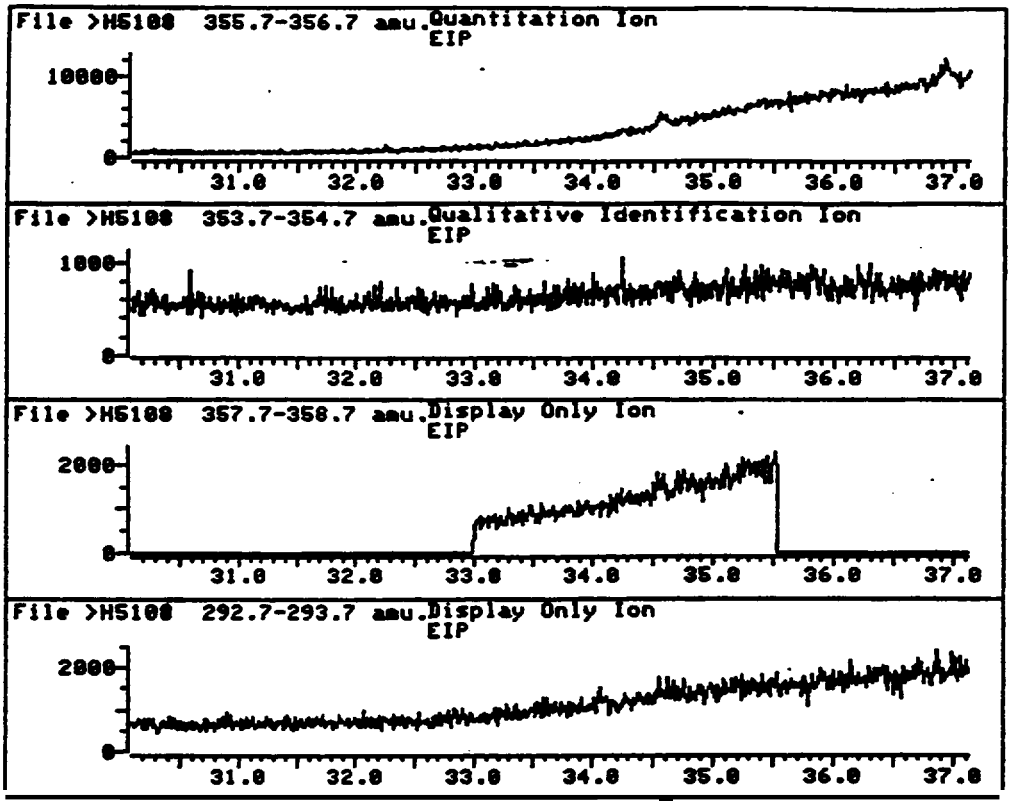


Data File: >H5108::U3 Quant Output File: ^H5108::AQ
Me:
Mc: HA0170T,QT50028,L,1000,,4/12/89 BTL# 7
Quant Time: 890418 01:02 Quant ID File: HSAMP::US
Injected at: 890418 00:15 Last Calibration: *890113* 22:39

Compound No: 3
Compound Name: TCDD
Quant Ion: 322.0 Sum: 322.0+320.0

Hit #	R.T. Scan#	Conc Area	Units	q	Areas and Ratios 322.0	320.0	259.0

No hits for this compound.



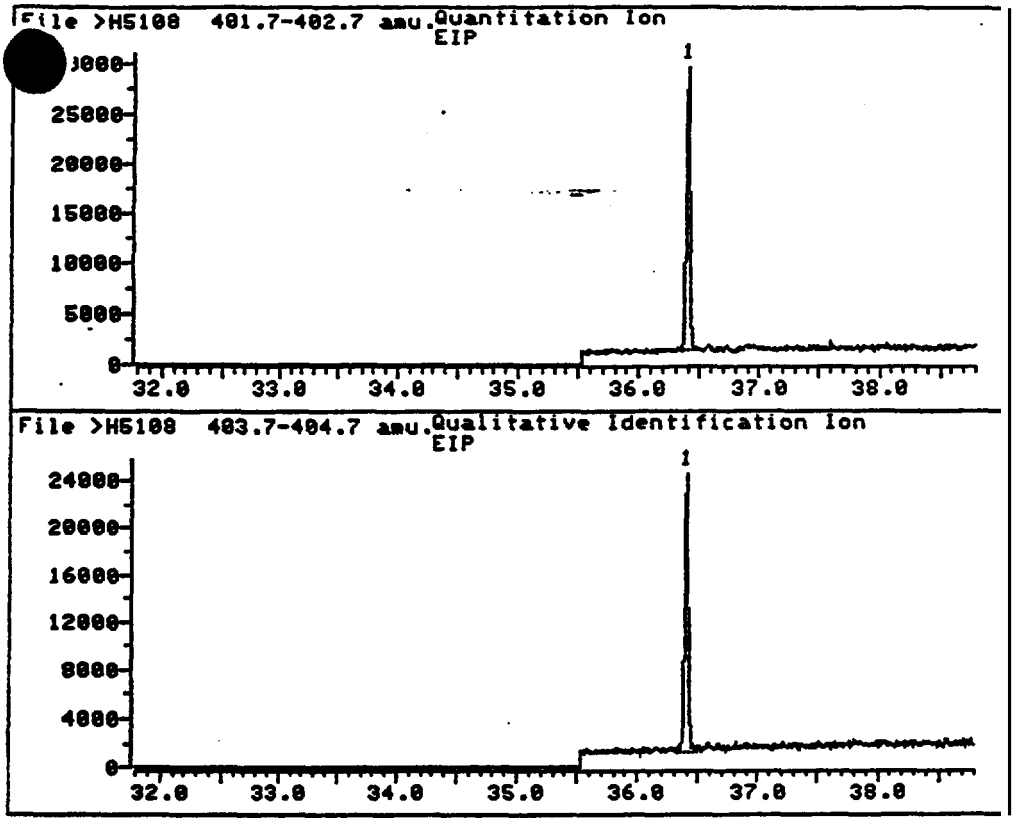
Data File: >H5108::U3 Quant Output File: ^H5108::AQ
Name :
Misc: HA0170T,QT50028,L,1000,,4/12/89 BTL# 7
Quant Time: 890418 01:02 Quant ID File: HSAMP::US
Injected at: 890418 00:15 Last Calibration: 890113 22:39

Compound No: 4
Compound Name: PCDD
Quant Ion: 356.0 Sum: 356.0+354.0

Hit #	R.T. Scan9	Cone Area	Units	q	Areas and Ratios 356.0	354.0	358.0	293.0

No hit8 for this compound.

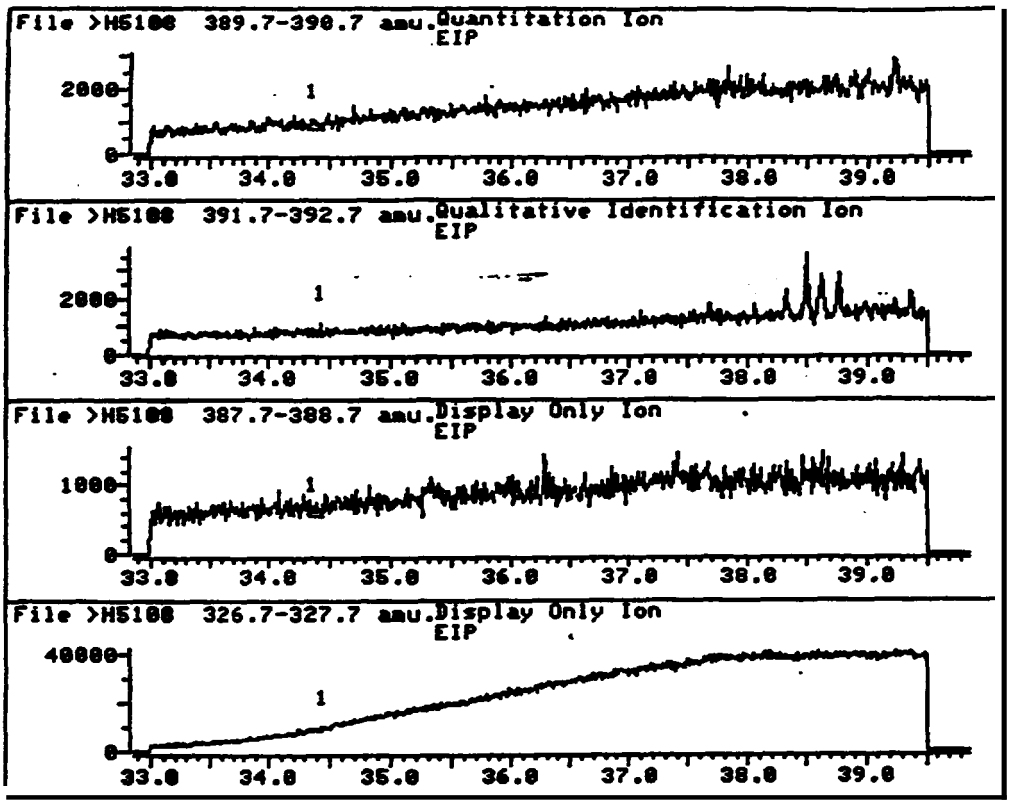
327425



Data File: >H5108::U3 Quant Output File: ^H5108::AQ
Name:
Misc: HA0170T,QT50028,L,1000,,4/12/89 BTL# 7
Quant Time: *890418* 01:02 Quant *ID* File: HSAMP: :US
Injected at: *890418* 00:15 Last Calibration: *890113* 22:39

Compound No: *5* (ISTD)
Compound Name: *13C 123678-HxCDD*
Quant Ion: *402.0* Sum: 402.0+404.0

Hit #	R.T. Scan#	Conc Area	Units	q	Areas and Ratios 402.0	404.0			
1	36.40	50.00	NG	96	58765	49448			
	1267	108213			1.000	.841			

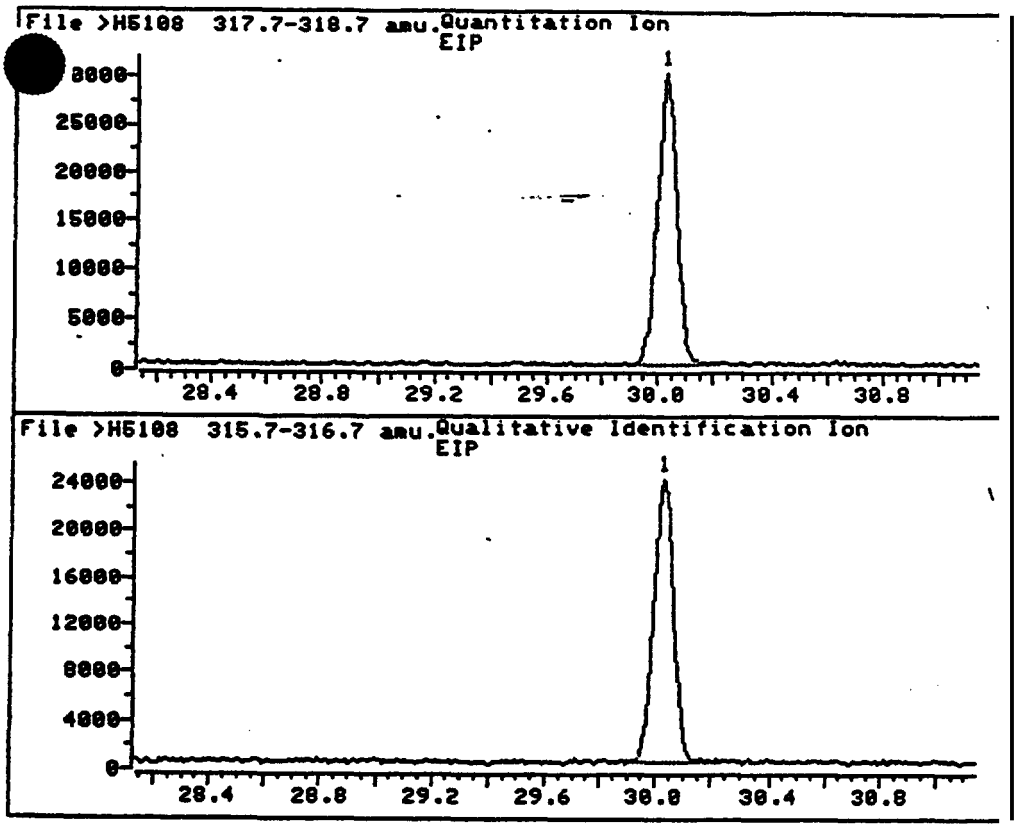


Data Film: >H5108::U3 Quant Output File: ^H5108::AQ
Name:
Misc: HA0170T,QT50028,L,1000,,4/12/89 BTL# 7
Quant Time: 890418 01:02 Quant ID File: HSAMP::US
Injected at: 890418 00:15 Last Calibration: 890113 22:39

Compound No: 6
Compound Name: HxCDD
Quant Ion: 390.0 Sum: 390.0+392.0

Hit #	R.T. Scan#	Conc Area	Units	q	Areas and Ratios 390.0	392.0	388.0	327.0
1	34.35	1.02	NG	91	1353	994	731	4952
	1040	2347			1.000	.735	.540	3.660

327426

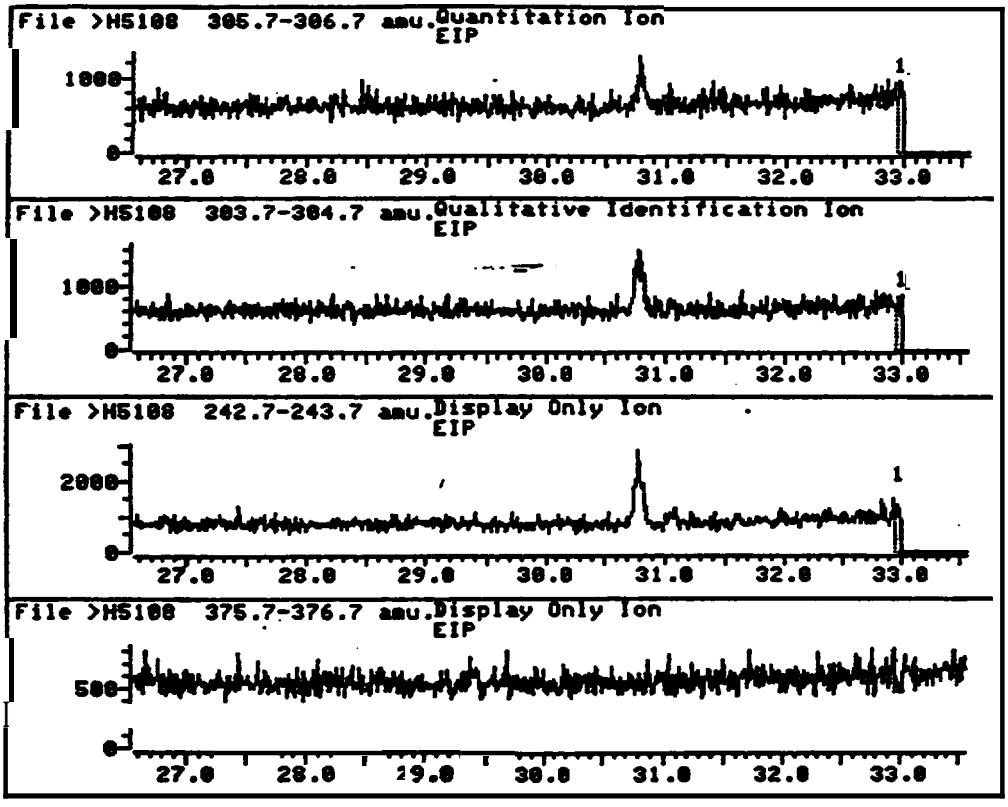


File: >H5108::U3 Quant Output File: ^H5108::AQ

.rsc: HA0170T,QT50028,L,1000,,4/12/89 BTL# 7
Qusnt Time: 890418 01:02 Quant ID File: HSRMP::US
Injected at: 890418 00:15 Last Calibration: 890113 22:39

Compound No: 10 (ISTD)
Compound Name: C13 2378-TCDF
Quant Ion: 318.0 Sum: 318.0+316.0

Hit #	R.T. Scan$	Conc Area	Units	q	Areas and Ratios 318.0	316.0			
1	30.03	50.00	NG	95	143786	115856			
	562	259642			1.000	.806			

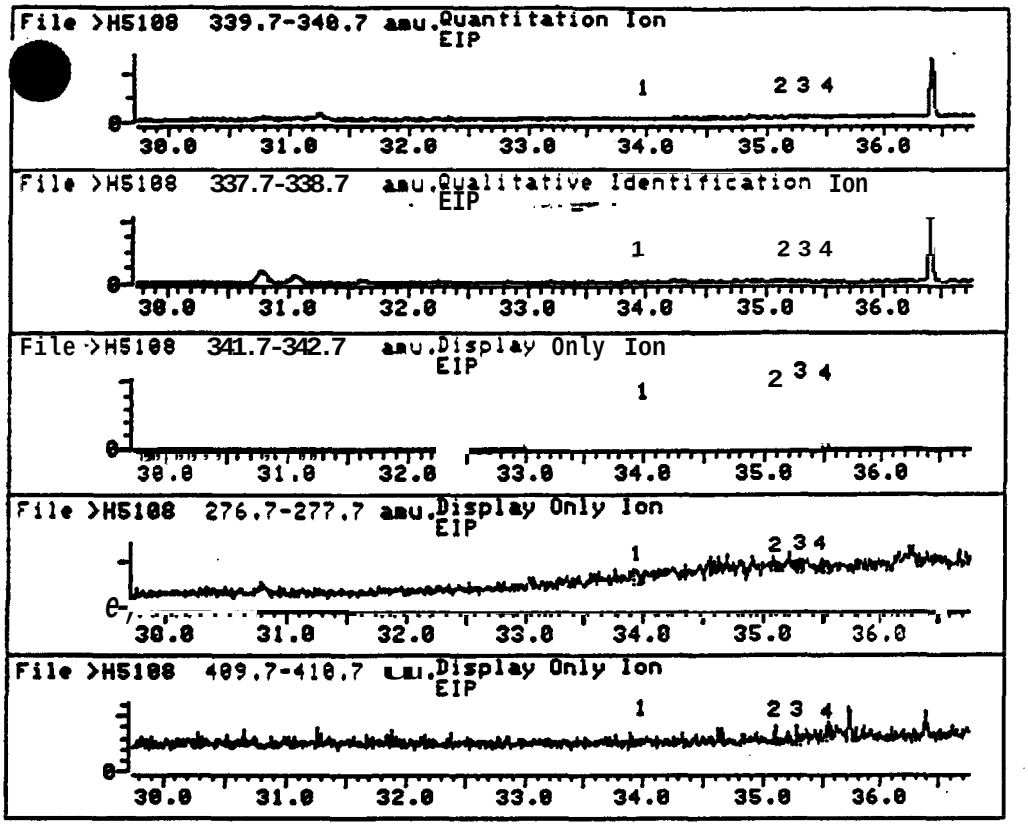


Data File: >H5108::U3 Quant Output File: ^H5108::AQ
Name :
Misc: HA0170T,QT50028,L,1000,,4/12/89 BTL# 7
Quant Time: 890418 01:02 Quant ID File: HSAMP::US
Injected at: 890418 00:15 Last Calibration: 890113 22:39

Compound No: 11
Compound Name: TCDF
Quant Ion: 306.0 Sum: 306.0+304.0

Hit #	R.T. Scan#	Conc Area	Units	q	Areas and Ratios 306.0	304.0	243.0	376.0	
1	32.96	.890	NG	91	2463	2074	3263	181	
	887	4537			1.000	.842	1.325	.073	

327427



Data File: >H5108::U3 Quant Output File: ^H5108::AQ

[illegible]:

[illegible]: HA0170T,QT50028,L,1000,,4/12/89 BTL# 7

Quant Time: 890418 01:02 Quant ID File: HSAMP::US

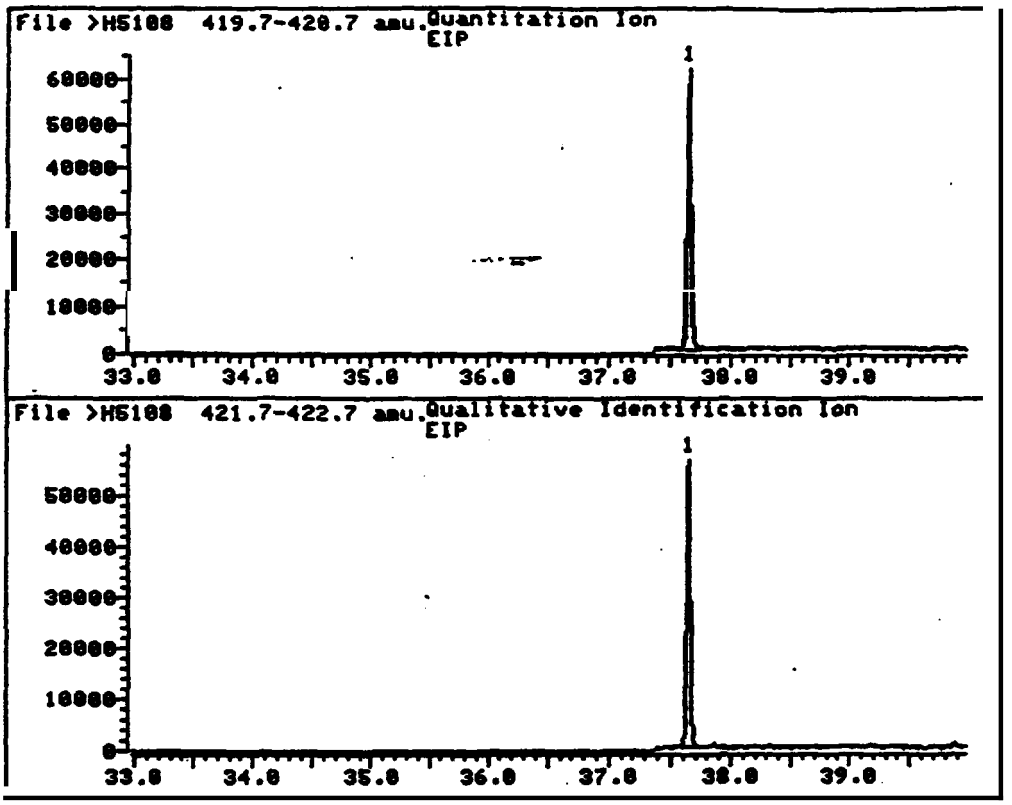
Injected at: 890418 00:15 Last Calibration: 890113 22:39

Compound No: 12

Compound Name: PCDF

Quant Ion: 340.0 Sum: 340.0+338.0

Hit #	R.T. Scan#	Conc Area	Units	q	Areas and Ratios 340.0	338.0	342.0	277.0	410.0
1	33.98	.464	NC	92	1068	761	1395	2060	420
	999	1829			1.000	.713	1.306	1.929	.393
2	35.12	.394	NG	81	1033	523	1941	997	453
	1125	1556			1.000	.506	1.879	.965	.439
3	35.30	.406	NG	87	1031	572	1824	1422	457
	1145	1603			1.000	.555	1.769	1.379	.443
4	35.50	.440	NG	95	1076	661	11813	887	341
	1167	1737			1.000	.614	10.979	.824	.317

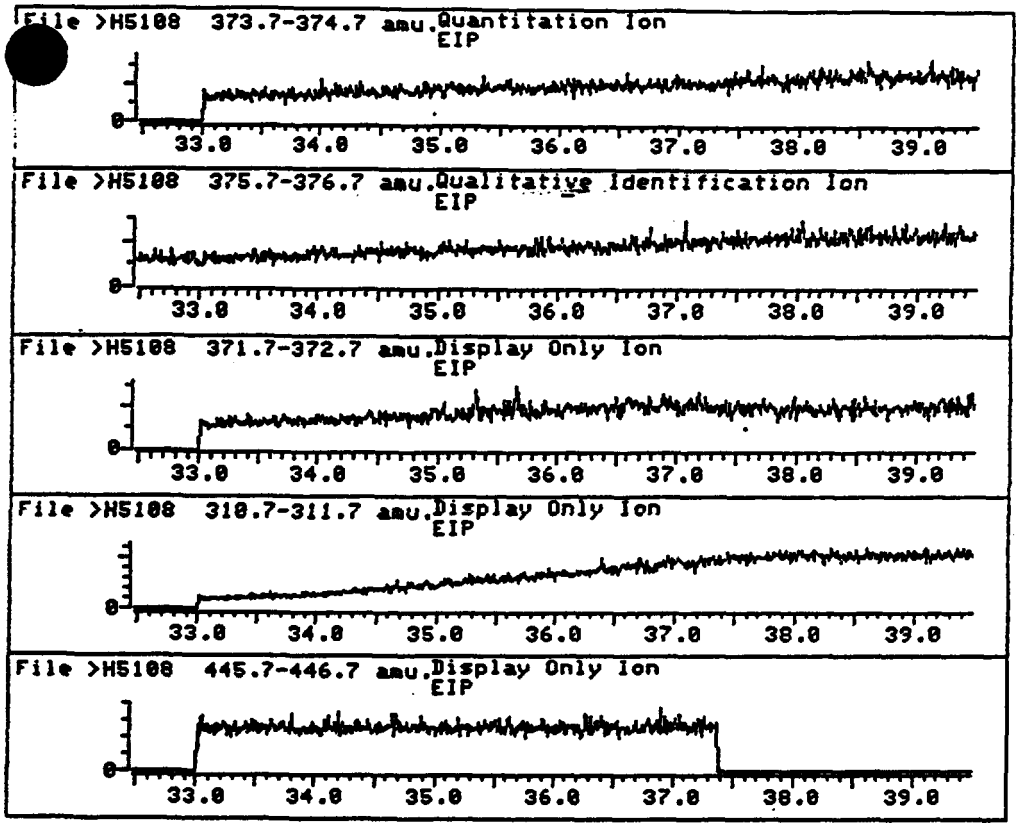


Data File: >H5108::U3 Quant Output File: ^H5108::AQ
Name:
Misc: HA0170T,QT50028,L,1000,,4/12/89 BTL# 7
Quant Time: 890418 01:02 Quant ID File: HSAMP::US
Injected at: 890418 00:15 Last Calibration: 890113 22:39

Compound No: 13 (ISTD)
Compound Name: 13C 1234678-HpCDF
Quant Ion: 420.0 Sum: 420.0+422.0

Hit #	R.T. Scan#	Conc Area	Units	q	Areas and Ratios 420.0	422.0
1	37.65	100.00	NG	97	134351	123950
	1405	258301			1.000	.923

327428

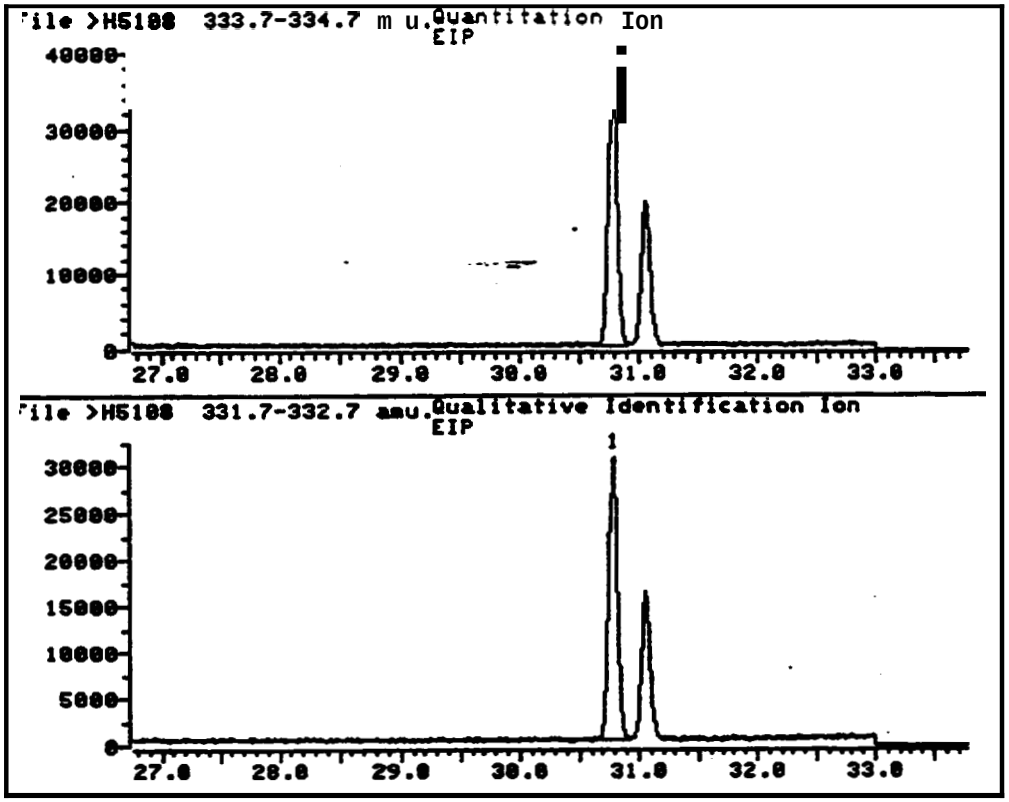


Data File: >H5108::U3 Quant Output File: ^H5108::AQ
Name:
Misc: HA0170T,QT50028,L,1000,,4/12/89 BTL# 7
Quant Time: *890418* 01:02 Quant ID File: HSAMP::US
Injected at: 890418 00:15 Last Calibration: 890113 22:39

Compound No: 14
Compound Name: HxCDF
Quant Ion: 374.0 Sum: 374.0+376.0

Hit #	R.T. Scan#	Conc Area	Units	q	Areas and Ratios 374.0	376.0	372.0	311.0	446.0

No hits for this compound.

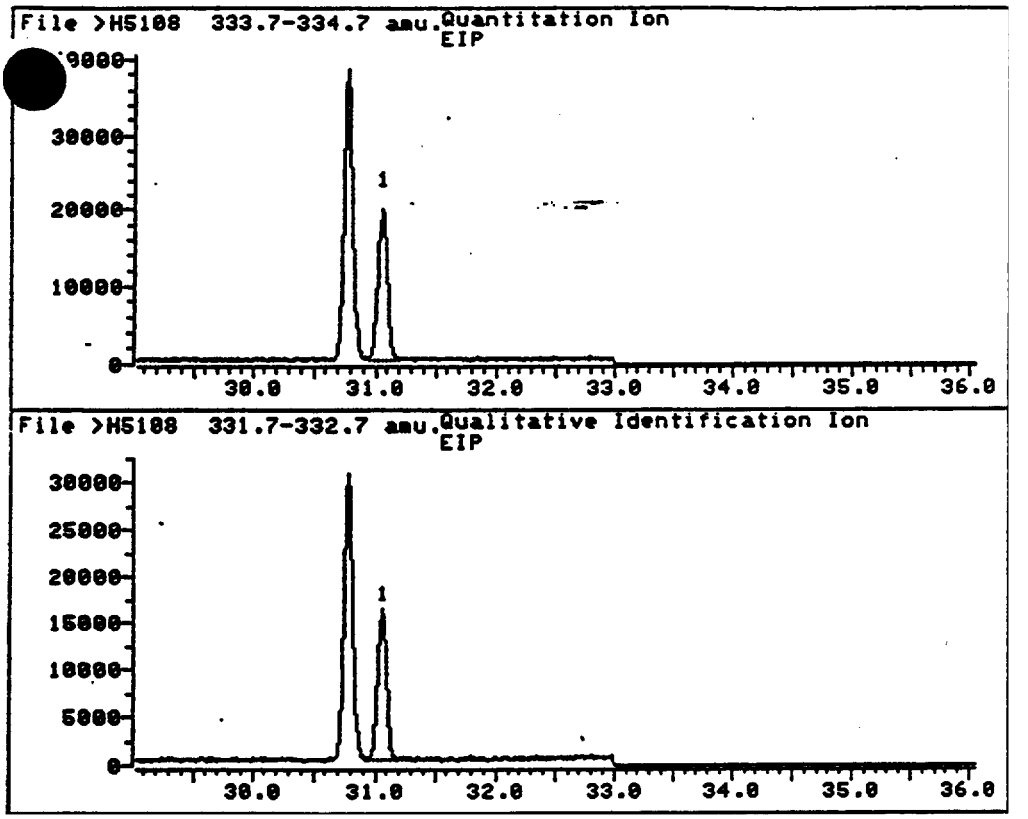


Data File: >H5108::U3 Quant Output File: ^H5108::AQ
Name :
Misc: HA0170T,QT50028,L,1000,,4/12/89 BTL# 7
Quant Time: 890418 01:02 Quant ID File: HSAMP::US
Injected at: 890418 00:15 Last Calibration: 890113 22:39

Compound No: 18 (ISTD)
Compound Name: 13C 1234-TCDD (RSTD)
Quant Ion: *334.0* Sum: 334.0+332.0

Hit #	R.T. Scan#	Conc Area	Units	q	Areas and Ratios 334.0	332.0			
1	30.79	61.03	NG	95	189131	153497			
	646	342628			1.000	.812			

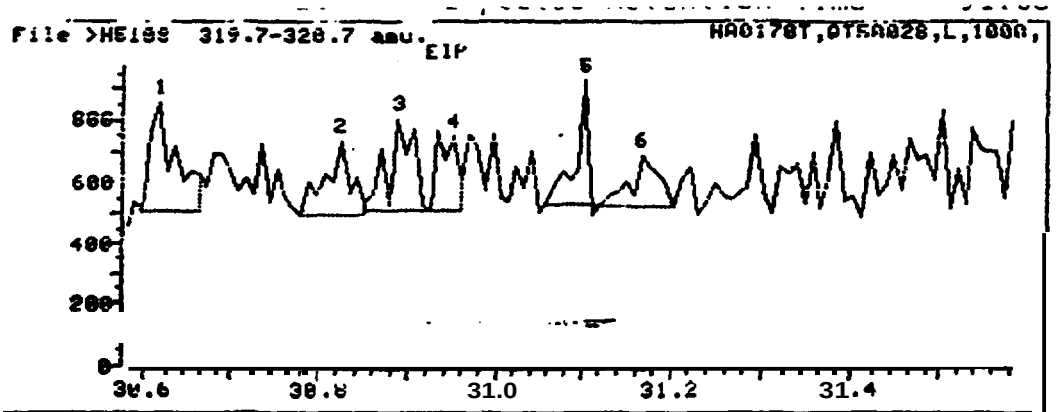
327420

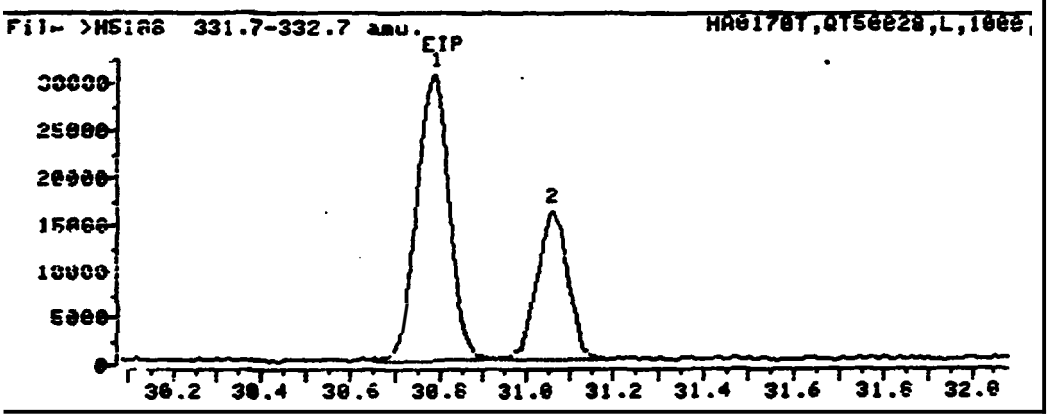


Data File: >H5108::U3 Quant Output File: ^H5108::AQ
Name:
Desc: HA0170T,QT50028,L,1000,,4/12/89 BTL# 7
Quant Time: 890418 01:02 Quant ID File: HSAMP::US
Injected at: 890418 00:15 Last Calibration: 890113 22:39

Compound No: 19
Compound Name: 13C 2378 TCDD
Quant Ion: 334.0 Sum: 334.0+332.0

Hit #	R.T. Scan#	Conc Area	Units	q	Areas and Ratios 334.0	332.0			
1	31.06	30.54	NG	99	101578	78916			
	676	180494			1.000	.777			





MS Data File: >H5108::U3

Name: ..... Operator: MGRMS Date/Time: 4/18/89 0:15
Misc: HA0170T,QT50028,L,1000, ,4/12/89 BTL# 7

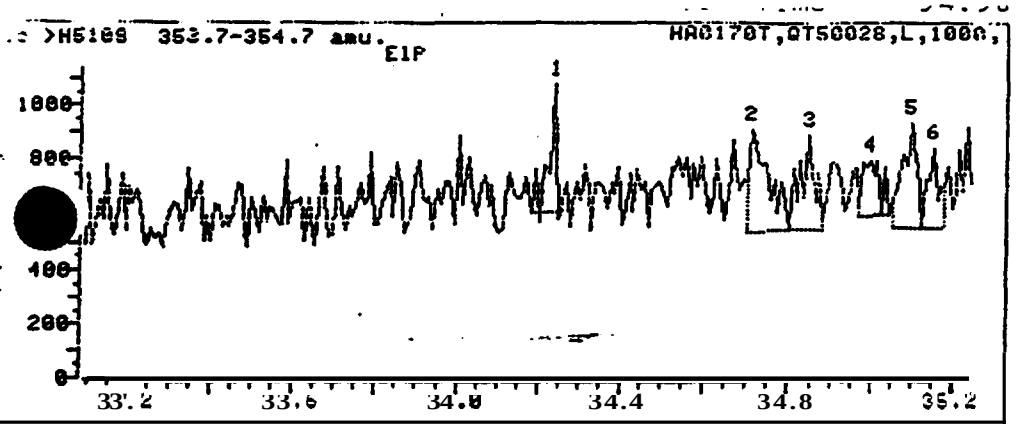
Sample volume(L) = 1.00000 Response Factor .86
Signal / Noise 2.5

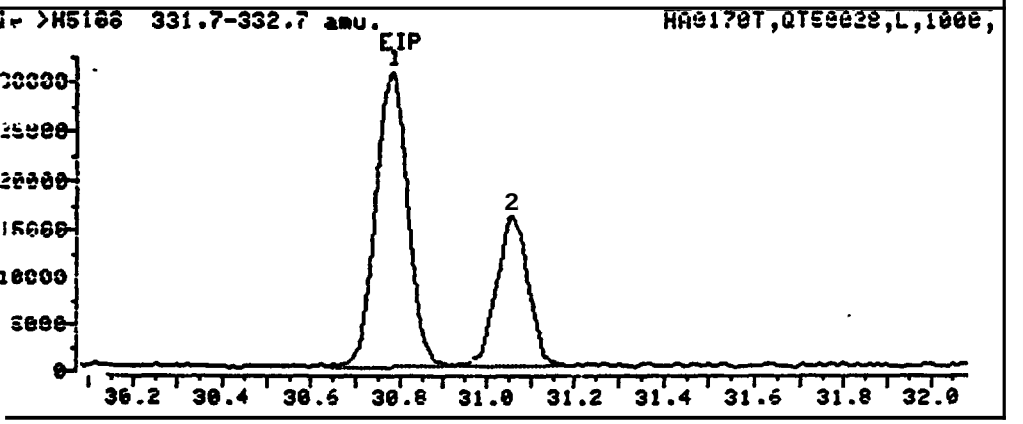
PEAK #	Retention Time	Peak Height 320.00	MPC **
	30.62	347	3.14
	30.82	235	2.13
	30.89	298	2.70
	30.95	238	2.15
	31.10	401	3.63
	31.17	163	1.48

SID Peak Height 332.00 = 16058 ISTD Retention Time = 31.06 mins

**Checked MPC is correct value.

327430





File: >H5108::U3

me: ..... Operator: MCRMS Date/Time: *4/18/89* 0:15
sc: HA0170T,QT50028,L,1000,,4/12/89 BTL# *7*

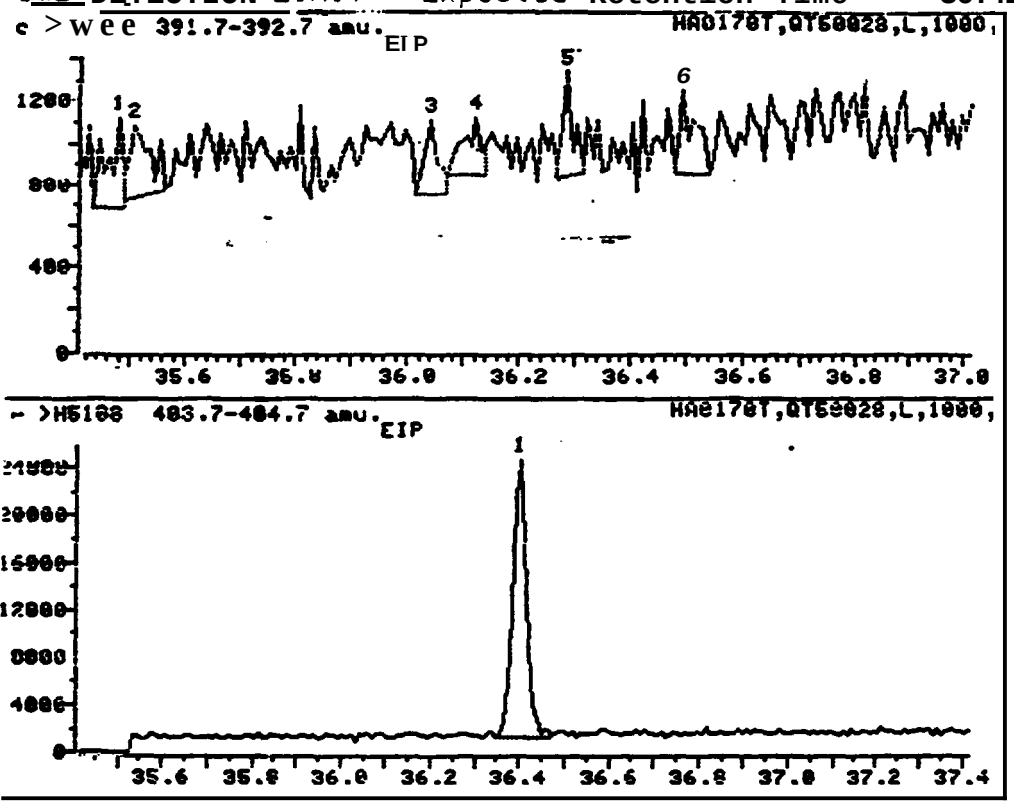
le volume(L) = 1.00000 Response Factor .70
al / Noise *2.5*

K #	Retention Time	Peak Height *354.00*	MPC **
	34.24	*472*	*5.25'*
	34.71	*369*	*4.10*
	34.85	*341*	*3.79*
	35.00	204	*2.27*
	35.10	*378*	*4.20*
	35.15	*287*	*3.19*

) Peak Height 332.00 = 16058 ISTD Retention Time = 31.06 mins

ed MPC is correct value.

LDD DETECTION LIMIT * Expected Retention Time 36.41



: Data File: >H5108::U3

ame: ..... Operator: MGRMS Date/Time: 4/18/89 0:15
isc: HA0170T,QT50028,L,1000,,4/12/89 BTL# 7

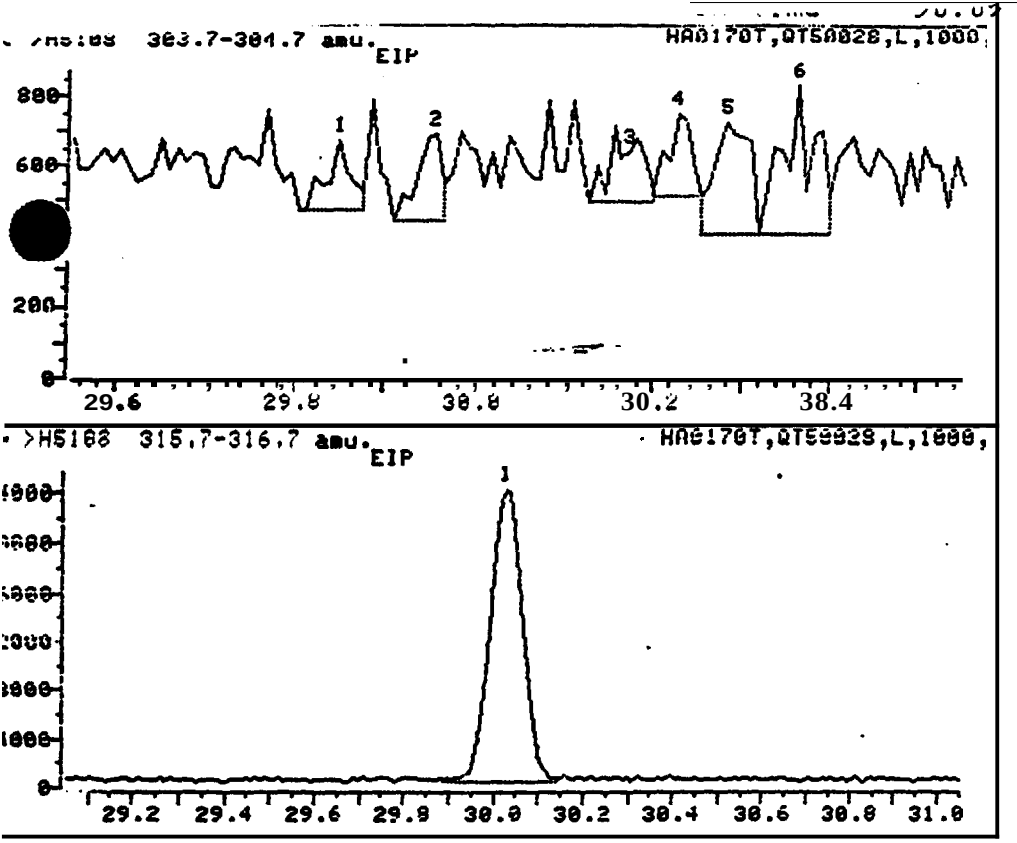
ple volume(L) = 1.00000 Response Factor 1.06
gnal / Noise 2.5

AK #	Retention Time	Peak Height 392.00	MPC **
	35.48	438	2.22
	35.51	360	1.82
	36.04	358	1.81
	36.12	275	1.39
	36.28	507	2.57
	36.49	397	2.01

D Peak Height 404.00 = 23269 ISTD Retention Time = 36.40 mins

hecked MM: is correct value.

327431



Data File: >H5108::U3

a: ..... Operator: MGKMS Date/Time: 4/18/85, 0:15

c: HA6170T,QT50028,L,1000, 4/12/89 BIL# 7

le volume(L) = 1.00000 Response Factor .98

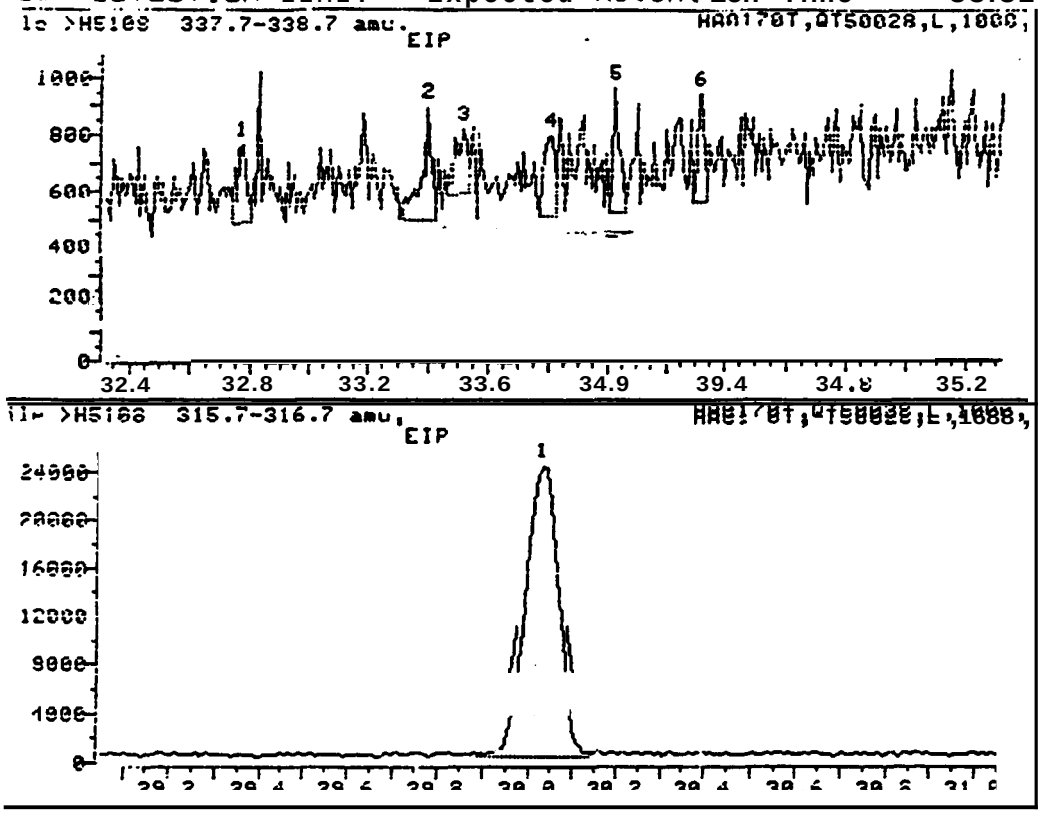
al / Norse 2.5

#	Retention Time	Peak Height 304.00	MPC **
	29.85	19X	1.07
	29.96	243	1.51
	30.17	144	.78
	30.23	233	1.25
	30.28	314	1.69
	30.36	421	2.27

Peak Height 316.00 = 23692 ISTD Retention Time = 30.03 mins

MPL is correct value.

CDF DETECTION LIMIT * Expected Retention Time 33.82



MS Data File: >H5108::U3

Name: ..... Operator: MGRMS Date/Time: 4/18/88 0:15

Misc: HAU170T,QT50028,L,1000 ,4/12/89 BTL# 7

Sample Volume(L) = 1.00000 Response Factor .76

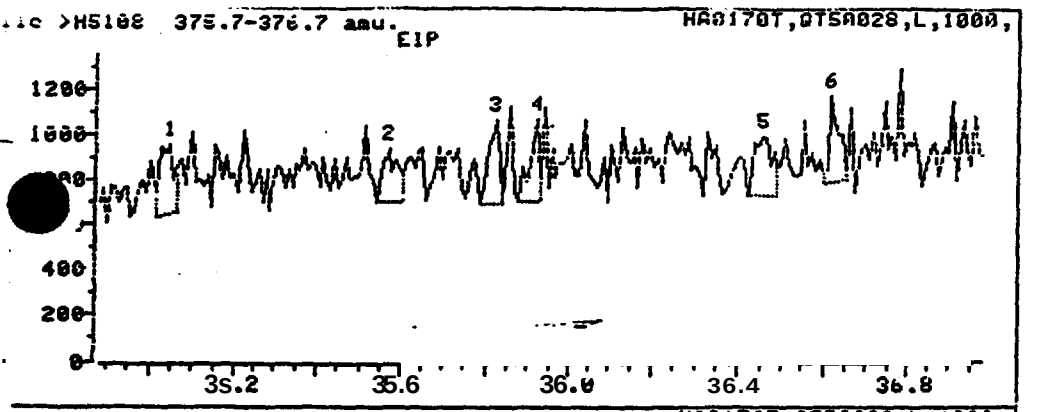
Signal / Noise 2.5

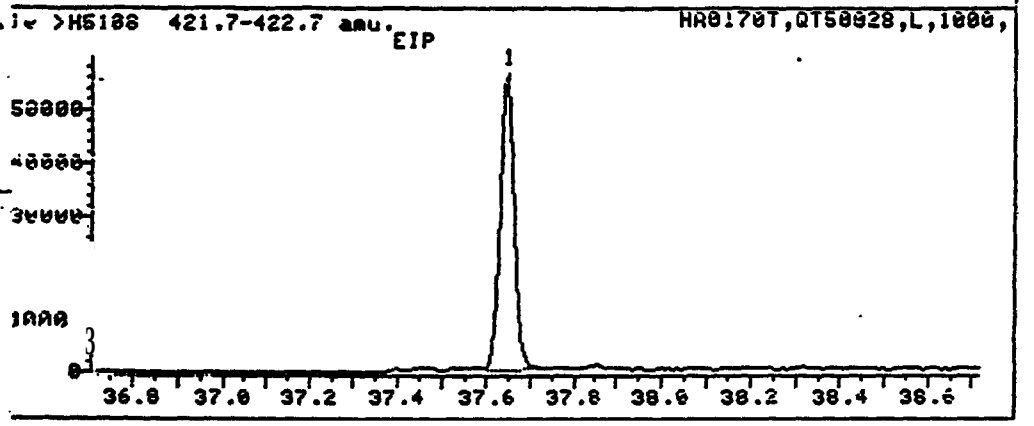
PEAK #	Retention Time	Peak Height	338.00	MPC **
	32.78	286		1.99
	33.40	395		2.74
	33.52	232		1.61
	33.81	286		1.99
	34.03	429		2.98
	34.31	387		2.65

ISTD Peak Height 316.00 = 23692 ISTD Retention Time = 30.03 mins

32743

Checked MPC is correct value.





a File: >H5108::U3

me: ..... Operator: *MGHMS* Date/Time: 4/18/89 0:15
sc: HA0170T,QT50028,L,1000,,4/12/89 BTL# 7

ple volume(L) = 1.00000 Response Factor 1.58
nal / Noise 2.5

K #	Retention Time	Peak Height	376.00	MPC **
	35.05	321		.91
	35.57	238		.67
	35.82	370		1.05
	35.92	364		1.03
	36.46	261		.74
	36.62	387		1.09

) Peak Height 422.00 = 55990 ISTD Retention Time = 37.65 mins

.e a PC *is* correct value.

ETC

Appendix E

chain of Custody

327433

CHAIN OF CUSTODY

Pioneer LABORATORY, INC.
EAST OLIVE ROAD PENSACOLA, FLORIDA 32514
PHONE (904) 474-1001 • FAX 478-2671

Client: PIONEER LABORATORY
Address: 11 EAST OLIVE ROAD
City/State/Zip: PENSACOLA, FL 32514
Phone No. (904) 474-1001
Contact: John Hawkins
P.O. #: 89-372

Laboratory ID: [illegible] Date: 4-10-89
Method of Shipment: FEDERAL EXPRESS
Sampler: RICK HACENDORFER
Project #: TF0290PN12
Project Name: NAS WASTEWATER TREATMENT PLAN
Project Location: NAS PENSACOLA, FL

SAMPLE TYPE: DW DRINKING WATER; WW WASTE WATER; GW GROUNDWATER; SW SURFACEWATER; SO SOIL; OL OIL; AR AIR; SL SLUDGE; HZ HAZARDOUS; OT OTHER

SAMPLE SITE	FIELD ID		Date	Time	# Btls.	DIOXIN	FURANS	by 8280					Lab Use Only
GM-66	89-1249-1	GW	4/7	PM	1	X	X						
RINSATE	89-1249-2				1	X	X						
FIELD BLANE	89-1249-3				1	X	X						
LI TRIP BLK	89-1249-4				1	X	X						

	Date	Time		Date	Time
RELINQUISHED BY Melissa L. Pope / PLI	4/10	0900	RECEIVED BY Christine Nagent	4/10	0900
RELINQUISHED BY			RECEIVED BY		
RELINQUISHED BY			RECEIVED BY		
RELINQUISHED BY			RECEIVED BY		

PLEASE RETURN COOLERS TO PIONEER LABORATORY.

FIELD CONDUCTIVITY 8000. FIELD PH 3.40.

FIELD TEMPERATURE 22 C.

ETC

CHAIN OF CUSTODY

Company: Pioneer Laboratories Job # _____

Address: _____

Attention: _____

Sample Description:

CUSTOMER ID	DESCRIPTION	ETC #
GM-66	1 Gallon water	HA0168
RinSate	1 Gallon water	HA0169
FB-1	1 Gallon water	HA0170
TB-1	1 Gallon water	HA0171

Sample(s) Relinquished by: _____

Time: _____ Dab: _____

Sample(s) Received by: W. Williams

Time: 8:30 Date: 4-11-89

327434

Pioneer LABORATORY, INC.

11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

NO. 89-372

ETC

DATE 4/10 1989

ESS

HOW SHIP ☐ RAIL ☐ EXPRESS ☐ TRUCK ☐ PARCEL POST

ROUTING

TO

DATE REWIRED

RESS

TERMS

CUSTOMER ORDER NO.

STATE

QUANTITY ORDERED	QUANTITY RECEIVED	STOCK NUMBER	DESCRIPTION	UNIT PRICE	TOTAL	
40			Please analyze for			
			8280 Dioxins and			
			furans			

IMPORTANT
OUR ORDER NUMBER MUST APPEAR ON INVOICES, PACKAGES AND CORRESPONDENCE.
ACKNOWLEDGE IF UNABLE TO DELIVER BY DATE REQUIRED.

PLEASE SEND COPIES OF YOUR INVOICE WITH ORIGINAL BILL OF LADING

PURCHASING AGENT

AL INSTRUCTIONS:

CHAIN OF CUSTODY

Pioneer LABORATORY, INC.
11 EAST OLIVE ROAD PENSACOLA, FLORIDA 32514
PHONE (904) 474-1001 • FAX 476-2671

Client: PIONEER LABORATORY
Address: 11 EAST OLIVE ROAD
City/State/Zip: PENSACOLA, FL 32514
Phone No. (904) 474-1001
John Hawkins
P.O.# 89-372

[redacted] Date 4-10-89
Method of Shipment: FEDERAL EXPRESS
Sampler: RICK HAGENDORFER
Project #: TF0290PN12
Project Name: NAS WASTEWATER TREATMENT PLAN
NAS PENSACOLA, FL

SAMPLE TYPE

DW DRINKING WATER, WW WASTE WATER, GW GROUND WATER, SW SURFACE WATER, SO SOIL, OL OIL, AR AIR, SL SLUDGE, HZ HAZARDOUS, OT OTHER

SAMPLE SITE	FIELD I.D.		Date	Time	# Bts.	DIOXIN	FURANS	by 8280					Lab Use Only
GM-66	89-1249-1	GW	4/7	PM	1	X	X						
RINSATE	89-1249-2				1	X	X						
FIELD BLANK	89-1249-3				1	X	X						
PLI TRIP BLN	89-1249-4				1	X	X						

	Date	Time		Date	Time
RELINQUISHED BY Melissa L. Pope / PLT	4/10	0900	RECEIVED BY Christine Spaight	4/10	0900
RELINQUISHED BY			RECEIVED BY		
RELINQUISHED BY			RECEIVED BY		
RELINQUISHED BY			RECEIVED BY		

Comments: PLEASE RETURN COOLERS TO PIONEER LABORATORY.
FIELD CONDUCTIVITY 8000. FIELD PH 3.40.

DATE 890113 SHIFT
FRACTION PCDX
INSTRUMENT H
TUNE FILE MTH100
SEQUENCE FILE HTR1::PF
METHOD FILE PCDX
ID FILE HSTD
ANALYST(S) Paul Comer

SUPERVISOR Thomas Rossing
BATCH #'s INITIAL CALIBRATION

(PLEASE INITIAL)

CURRENT CS05 STATUS		STANDARDS UPDATED	
ACQ		DATE	
WIP		BY	

STANDARD	CONC PPM	LOT NO.	LOT VOL.
PC	—	C-041-05	
CC1	200	18315	
CC2	500	18316	
CC3	1000	18317	
CC4	2000	18318	
CC5	5000	18319	

TAPE# H-359

NAME	DATA FILE > H	uL INJ	ALS #	DIL	INJECTED TIME	SPECIALS (WRITE A-TYPE)	PLUS Y/N
PC	4240		-1		23:51		
CC1	4241		2		00:36		
CC1	4242		2		01:23		
CC1	4243		2		02:11		
CC2	4244		3		02:58		
CC2	4245		3		03:47		
CC2	4246		3		04:35		
CC3	4247		4		05:24		
CC3	4248		4		06:12		
CC3	4249		4		07:00		
PC	4250		-1		07:49		
CC4	4251		5		10:51		
CC4	4252		5		11:38		
CC4	4253		5		12:42		
CC5	4254		6		13:56		
CC5	4255		6		14:44		
CC5	4256		6		15:32		
PC	4257		-1		16:24		

SAMPLE NO.	LOG-LINK	SAMPLE WT. (VOL) ML	FINAL VOL.	VER. CRMP.	ORG QT	A-TYPE
HA0168	350019	1.000				AP9/pcDX
* HA0169	↓	1.000				↓
HA0170	↓	1.000				↓
QT 50028 A		1.000				
QT 50028 B		1.000				
QT 50028 S		1.000				
HA0170 S		1.000				
H0170 MSD		1.000				

Matrix:
1 water
2 soil
3 complex
4 oil

UPD:
OS
WIP
DONE

	VOL	CONC	LOT
SPIKE	0.1 ml		20215
IS/SURR	0.1 ml		20219

* Rinsate — H_2O

Procedure	Signature	Date	Lot
weigh out	N/A		
spike	V. Lemer	4/12/89	
jar shake	N/A		
soxhlet	↓		
sep. funnel	V. Lemer	4/12/89	
acid wash(X)	NA		
MSSG(1 X)	V. Lemer	4/12/89	
SWA	V. Lemer	4/12/89	I
AX21	V. Lemer	4/13/89	B
A&B	N/A		
carbo C			
PCP CU	↓		
packaging	V. Lemer	4/13/89	

Em: _____

SUPERVISOR Zalin 4-13-89.

327436

DATE 890417 SHIFT
FRACTION AP9/PCDX
INSTRUMENT H
TUNE FILE MTH100
SEQUENCE FILE HPC28::VL
METHOD FILE PCDXH
ID FILE HSTD; HSAMP
ANALYST(S) Paul Carter

SUPERVISOR
BATCH #'s QT50028

PLEASE INITIAL

CURRENT CSOS STATUS		STANDARDS UPDATED	
ACQ		DATE	
WIP		BY	

STANDARD	CONC PPM	LOT NO	LOT VOL
WINDOW STD		ED1732A	
PC		C-091-05	
CC2	500	19316	
RSTD	6L03NG	20971	5 ml

TAPE# H003689 @890425

NAME	DATA FILE >H	uL INJ	ALS #	DIL	INJECTED TIME	SPECIALS (WRITE A-TYPE)	PLUS Y/N
WINDOW STD	5100		1		17:47		
PC	5101		98		18:37		
CC2	5102		99		19:25		
QT50028AT	5103		2		20:14		
QT50028BT	5104		3		21:02		
QT50028TS	5105		4		21:51	WEAK INJECTION	
HA0170TS	5106		5		22:39		
HA0170TSD	5107		6		23:27		
HA0170T	5108		7		00:15		
HA0168T	5109		8		01:03		
HA0169T	5110		9		01:51		
PC	5111		98		02:39		
QT50028TS	5112		4		04:56		
PC	5113		98		05:56		

ICP FORM m a

Pioneer
PL LABORATORY, INC.
11 EAST OLIVE ROAD PENSACOLA, FLORIDA 32514
PHONE (904) 474-1001

QUALITY CONTROL

DATA

327437

CERTIFICATION NUMBERS: FL LAB ID # 81142 • EPA # FL094 • FDER # EL030 • AL LAB ID # 40130 • NIOSH # 32514-001 • FL ENV # E81010

Pioneer
PLI LABORATORY, INC.
11 EASTOUVE ROAD PENSACOLA, FLORIDA 32514
PHONE (904) 474-1001

CLIENT: GERAGHTY & MILLER

PROJECT: TF0290PN12/NAS WASTEWATER TREATMENT PLANT

LAB ID: 89-0923

BATCH: V25

VOLATILES

LAB ID	CLIENT ID	DATE SAMPLED	DATE RECEIVED	DATE ANALYZED
89-0923-1	GM-66	03-16-89	03-16-89	03-21-89

e

Pioneer
PLI LABORATORY, INC.
11 EAST OLIVE ROAD PENSACOLA, FLORIDA 32514
PHONE (904) 474-1001

2A
WATER VOLATILE SURROGATE RECOVERY

CLIENT: GERAGHTY & MILLER

PROJECT NO: TF0290PN12/NAS W. T. PLANT BATCH: V25

LAB ID: 89-0923 METHOD: 8240

	EPA SAMPLE NO.	S1 (TOL)#	S2 (BFB)#	S3 (DCE)#	OTHER	TOT OUT
01	0923-1	102	102	102		0
02	MS	100	102	98		0
03	MSD	98	96	96		0
04	DI BLANK	100	102	98		0
05	EPA QC	100	98	100		0

	QC LIUITS
S1 (TOL) = Toluene-d8	(88-110)
S2 (BFB) = Bromofluorobenzene	(86-115)
S3 (DCE) = 1,2-Dichloroethane-d4	(76-114)

Column to be used to flag recovery values
* Values outside of contract required QC limits

D Surrogates diluted out

NOTES: PPB = Parts Per Billion, ug/l
BDL = Below Detection Limit
Results reported are blank corrected.
Source for control limits is internal laboratory quality assurance program and the Federal Register (see below).

REFERENCE: SW-846, 3rd Edition, November 1986.

327436

FORM II VOA-1 1/87 Rev.

Pioneer LABORATORY, INC.

11 EASTOUVEROAD PENSACOLA. FLORIDA 32514
PHONE(904) 474-1001

CLIENT NAME: GERAGHTY & MILLER
3820 NORTHDALE BLVD.
SUITE 200
TAMPA, FL 33624

PROJECT NO: **TF0290PN12/NAS** WASTEWATER TREATMENT **PLANT**

METHOD: **8240**

LAB ID: 89-0923

DT BLANK

	DETECTION LIMITS	(03-21-89 P.M.) RESULTS
ACETONE	10	28
ACETONITRILE	10	BDL
ACROLEIN	10	BDL
ACRYLONITRILE	10	BDL
ALLYL CHLORIDE	10	BDL
BENZENE	5	BDL
BROMODICHLOROMETHANE	5	BDL
BROMOFORM	5	BDL
BROMOMETHANE	10	BDL
CARBON DISULFIDERIDE	10	BDL
CARBON TETRACHLO	3	BDL
CHLOROBENZENE	5	BDL
CHIDROETHANE	10	BDL
CHLOROFORM	5	BDL
CHLOROMETHANE	10	BDL
CHLOROPROPENE	5	BDL
DIBROMOCHLOROMETHANE	5	BDL
DICHLORODIFLUOROMETHANE	5	BDL
1,1-DICHLOROETHANE	5	BDL
1,2-DICHLOROETHANE	3	BDL
1,1-DICHLOROETHENE	5	BDL
1,2-DICHLOROETHENE	5	BDL
1,2-DICHLOROPROPANE	5	BDL
CIS-1,3-DICHLOROPROPENE	5	BDL
TRANS-1,3-DICHLOROPROPENE	5	BDL
TRANS-1,4-DICHLORO-2-BUTENE	5	BDL
1,4-DIOXANE	10	BDL
ETHYL BENZENE	5	BDL
ETHYL **METHACRYLATE**	5	BDL
2-HEXANONE	10	BDL
ISOBUTYL ALCOHOL	10	BDL
METHACRYLONITRILE	5	BDL
METHYL BROMIDE	5	BDL
METHYL CHLORIDE	5	BDL
METHYLENE BROMIDE	5	BDL
METHYLENE CHLORIDE	5	8
METHYL ETHYL **KETONE**	10	BDL
METHYL IODIDE	5	BDL
METHYL METHACRYLATE	5	BDL
4-METHYL-2-PENTANONE	10	BDL
PROPANENITRILE	5	BDL
STYRENE	5	BDL

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TF0290PN12/NAS W.T.PLANT
DI BLANK - 89-0923

TETRACHLOROETHENE	3	BDL
1,1,1,2-TETRACHLOROETHANE	5	BDL
1,1,2,2-TETRACHLOROETHANE	5	BDL
TOLUENE	5	BDL
1,1,1-TRICHLOROETHANE	5	BDL
1,1,2-TRICHLOROETHANE	5	BDL
TRICHLOROETHENE	5	BDL
TRICHLOROFLUOROMETHANE	5	BDL
1,2,3-TRICHLOROPROPANE	5	BDL
VINYL ACETATE	10	BDL
VINYL CHLORIDE	10	BDL
TOTAL XYLENES	5	BDL
1,2-DIBROMOETHANE	5	BDL

Note: ppb = parts per billion, ug/l
BDL = below detection limits
Results reported are blank corrected.
Source for control limits is internal laboratory quality assurance program and the method below.

Reference: SW-846, 3rd Edition, November 1986.

327439

Pioneer
PL LABORATORY, INC.
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PHONE (904) 474-1001

CLIENT NAME: GERAGHTY & MILLER
3820 NORTHDALE BLVD.
SUITE 200
TAMPA, FL 33624

PROJECT NO: TF0290PN12/NAS WASTEWATER TREATMENT PLANT

METHOD: 8240

LAB ID: 89-0923

EPA QC

PARAMETERS	EXPECTED VALUE	EPA QC RESULTS	% RECOVERY	% REC. LIMITS
BROMODICHLOROMETHANE	20	21	105	35-155
BROMOFORM	29	30	103	45-169
CARBON TETRACHLORIDE	26	26	100	60-140
CHLOROFORM	120	141	118	51-138
DIBROMOCHLOROMETHANE	46	46	100	53-149
1,4-DICHLOROBENZENE	20	21	105	18-190
1,2-DICHLOROETHANE	20	23	115	72-129
TRANS-1,2-DICHLOROETHENE	20	22	110	54-156
1,2-DICHLOROPROPANE	20	22	110	D-210
1,1,2,2-TETRACHLOROETHANE	10	8	80	49-150
1,1,1-TRICHLOROETHANE	14	14	100	71-129
TRICHLOROETHENE	20	22	110	17-181

Note: PPB = Parts per Billion, ug/l.
BDL = Below Detection limits
Results reported are blank corrected.
Source for control limits is internal laboratory quality assurance program and the reference below.

Reference: SW-846, 3rd Edition, November 1986.

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PHONE (904) 474-1001

CLIENT: GERAGHTY & MILLER

PROJECT: TF0290PN12/NAS WASTEWATER TREATMENT PUNT

LAB ID: 89-0923

BATCH: A17

SEMIVOLATILES

LAB ID	CLIENT ID	DATE SAMPLED	DATE RECEIVED	EXTRACTION DATE	ANALYSIS DATE
89-0923-1	GM-66	03-16-89	03-16-89	03-20-89	03-28-89

327440

Pioneer LABORATORY, INC.
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PHONE (904) 474-1001

3c

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

			EXTRACTION DATE	ANALYSIS DATE
CLIENT:	GERAGHTY & MILLER			
PROJECT NO:	TF0290PN12/NAS W. T. PLANT			
LAB ID:	89-0923	MS	03-22-89	03-29-89
		MSD	03-22-89	03-29-89
METHOD:	8270			
BATCH:	A17			

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
Phenol	100	BDL	78	78	12-86
2-Chlorophenol	100	BDL	88	88	27-123
1,4-Dichlorobenzene	50	BDL	31	62	36-97
N-Nitroso-di-n-prop.(1)	50	BDL	44	88	41-116
1,2,4-Trichlorobenzene	50	BDL	43	86	39-98
4-Chloro-3-methylphenol	100	BDL	112	112*	23-97
Acenaphthene	50	BDL	40	80	46-118
4-Nitrophenol	100	BDL	78	78	10-80
2,4-Dinitrotoluene	50	BDL	40	80	24-96
Pentachlorophenol	100	BDL	150	150*	9-103
Pyrene	50	BDL	23	46	26-127

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	RPD LIM	REC.
Phenol	100	62	62	22	42	12-86
2-Chlorophenol	100	77	77	13	40	27-123
1,4-Dichlorobenzene	50	37	74	17	28	36-97
N-Nitroso-di-n-prop.(1)	50	42	84	4	38	41-116
1,2,4-Trichlorobenzene	50	50	100*	15	28	39-98
4-Chloro-3-methylphenol	100	90	90	21	42	23-97
Acenaphthene	50	44	88	9	31	46-118
4-Nitrophenol	100	47	47	50	50	10-80
2,4-Dinitrotoluene	50	32	64	22	38	24-96
Pentachlorophenol	100	122	122*	20	50	9-103
Pyrene	50	23	46	0	31	26-127

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits (MATRIX INTERFERENCE)

RPD: 0 out of 11 outside limits
Spike Recovery: 4 out of 22 outside limits

NOTES: PPB = Parts Per Billion, ug/l
BDL = Below Detection Limit
Results reported are blank corrected.
Source for control limits is internal laboratory quality assurance program and the References below.

REFERENCE: SW-846, 3rd Edition, November 1986.

FORM III SV-1 1/87 Rev.

Pioneer
PLI LABORATORY, INC.
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PHONE (904) 474-1001

3C1

REAGENT SEMIVOLATILE WATER SPIKE/SPIKE DUPLICATE RECOVERY

CLIENT: GERAGHTY & MILLER

PROJECT NO: TF0290PN12/NAS WASTEWATER PLANT

LAB ID: 89-0923

METHOD: 8270

BATCH: A17

	EXTRACTION DATE	ANALYSIS DATE
SPIKE	03-20-89	03-28-89
SPIKE DUP	03-20-89	03-28-89

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
Phenol	100	BDL	14	14	12-86
2-Chlorophenol	100	BDL	38	38	27-123
1,4-Dichlorobenzene	50	BDL	31	62	36-97
N-Nitroso-di-n-prop.(1)	50	BDL	41	82	41-116
1,2,4-Trichlorobenzene	50	BDL	41	82	39-98
4-Chloro-3-methylphenol	100	BDL	23	23	23-97
Acenaphthene	50	BDL	37	74	46-118
4-Nitrophenol	100	BDL	25	25	10-80
2,4-Dinitrotoluene	50	BDL	40	80	24-96
Pentachlorophenol	100	BDL	52	52	9-103
Pyrene	50	BDL	28	56	26-127

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #		REC.
Phenol	100	21	21	40	42	12-86
2-Chlorophenol	100	55	55	36	40	27-123
1,4-Dichlorobenzene	50	27	54	13	28	36-97
N-Nitroso-di-n-prop.(1)	50	34	68	18	38	41-116
1,2,4-Trichlorobenzene	50	36	72	13	28	39-98
4-Chloro-3-methylphenol	100	28	28	20	42	23-97
Acenaphthene	50	34	68	a	31	46-118
4-Nitrophenol	100	24	24	4	50	10-80
2,4-Dinitrotoluene	50	38	76	5	38	24-96
Pentachlorophenol	100	62	62	17	50	9-103
Pyrene	50	26	52	7	31	26-127

(1) N-Nitroso-di-n-propylamine

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

* Values outside of QC limits

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

NOTES: PPB = Parts Per Billion, ug/l
BDL = Below Detection Limit
Results reported are blank corrected.
Source for control limits is internal laboratory quality assurance program and the references below.

REFERENCE: SW-846, 3rd Edition, November 1986.

FORM III SV-1A 1/87 Rev.

327441

Pioneer
PLI LABORATORY, INC.
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2c
WATER SEMIVOLATILE SURROGATE RECOVERY

CLIENT: GERAGHTY & MILLER

PROJECT NO: TF0290PN12/NAS W. T. PLANT BATCH: A17

LAB ID: 89-0923 METHOD: 8270

	EPA SAMPLE NO.	S1 (NBZ)#	S2 (FBP)#	S3 (TPH)#	S4 (PHL)#	S5 (2FP)#	S6 (TBP)#	OTHER	TOT OUT
01	0923-1	80	102	54	75	63	81		0
02	MS	134*	100	46	102*	80	46		2
03	MSD	132*	112	64	84	70	42		1
04	DI BLANK	106	62	60	29	84	108		0
05	EPA QC	92	88	66	20	22	117		0

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

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogates diluted out
Amount added for bases is 50 ppb and for acids is 100 ppb.

NOTES: PPB = Parts per Billion, ug/l
BDL = Below Detection Limit
Results reported are blank corrected.
Source for control limits is internal laboratory quality assurance program and the references below.

REFERENCE: SW-846, 3rd Edition, November 1986.

Pioneer
PLI LABORATORY, INC.
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PHONE (904) 474-1001

CLIENT NAME: GERAGHTY & MILLER
3820 NORTHDALE BLVD.
SUITE 200
TAMPA, FL 33624

PROJECT NO: TF0290PN12/NAS WASTEWATER TREATMENT PLANT

METHOD: 8270

LAB ID: 89-0923

	DI BLANK	
	DETECTION LIMITS	(04-03-89) RESULTS
ACENAPHTHENE	10	BDL
ACENAPHTHYLENE	10	BDL
ACETOPHENONE	10	BDL
2-ACETYLAMINOFLUORENE	10	BDL
4-AMINOBIPHENYL	10	BDL
ANILINE	10	BDL
ANTHRACENE	10	BDL
ABAMITE	10	BDL
BENZO(A)ANTHRACENE	10	BDL
BENZO(A)PYRENE	10	BDL
BENZO(B)FLUORANTHENE	10	BDL
BENZO(GHI)PERYLENE	10	BDL
BENZO(K)FLUORANTHENE	10	BDL
BENZYL ALCOHOL	10	BDL
BIS(2-CHLORO-1-METHYLETHYL)ETHER	10	BDL
BIS(2-CHLOROETHOXY)METHANE	10	BDL
BIS(2-CHLOROETHYL)ETHER	10	BDL
BIS(2-ETHYLHEXYL)PHTHALATE	10	14
4-BROMOPHENYL PHENYL ETHER	10	BDL
BUTYLBENZYL PHTHALATE	10	BDL
P-CHLOROANILINE	10	BDL
CHLOROBENZILATE	10	BDL
2-CHLORONAPHTHALENE	10	BDL
4-CHLOROPHENYL PHENYL ETHER	10	BDL
CHRYSENE	10	BDL
DIALLATE	10	BDL
DIBENZO(A,H)ANTHRACENE	10	BDL
DIBENZOFURAN	10	BDL
1,2-DICHLOROBENZENE	10	BDL
1,3-DICHLOROBENZENE	10	BDL
1,4-DICHLOROBENZENE	10	BDL
3,3'-DICHLOROBENZIDINE	50	BDL
DIETHYL PHTHALATE	10	BDL
DIMETHOATE	10	BDL
P-DIMETHYLAMINOAZOBENZENE	10	BDL
7,12-DIMETHYLBENZ(A)ANTHRACENE	10	BDL
3,3'-DIMETHYLBENZIDINE	10	BDL
A,A-DINETHYLPHENETHYLAMINE	10	BDL
DIMETHYL PHTHALATE	10	BDL

327442

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TF0290PN12/NAS W.T. PLANT
DI BLANK - 89-0923

DI-N-BUTYL PHTHALATE	10	BDL
M-DINITROBENZENE	10	BDL
2,4-DINITROTOLUENE	10	BDL
2,6-DINITROTOLUENE	10	BDL
DI-N-OCTYL PHTHALATE	10	BDL
DIPHENYLAMINE	10	BDL
ETHYL METHANESULFONATE	10	BDL
FAMPHUR	10	BDL
FLUORANTHENE	10	BDL
FLUORENE	10	BDL
HEXACHLOROBENZENE	10	BDL
HEXACHLOROBUTADIENE	10	BDL
HEXACHLOROCYCLOPENTADIENE	10	BDL
HEXACHLOROETHANE	10	BDL
HEXACHLOROPHENE	10	BDL
INDENO(1,2,3-CD)PYRENE	10	BDL
ISODRIN	10	BDL
ISOPHORONE	10	BDL
ISOSAFROLE	10	BDL
KEPONE	10	BDL
METHAPYRILENE	10	BDL
3-METHYLCHOLANTHRENE	10	BDL
METHYL METHANESULFONATE	10	BDL
2-METHYLNAPHTHALENE	10	BDL
NAPHTHALENE	10	BDL
1,4-NAPHTHOQUINONE	10	BDL
1-NAPHTHYLAMINE	10	BDL
2-NAPHTHYLAMINE	10	BDL
2-NITROANALINE	50	BDL
3-NITRO ———	50	BDL
4-NITROANALINE	50	BDL
NITROBENZENE	10	BDL
5-NITRO-O-TOLUIDINE	10	BDL
4-NITROQUINOLINE 1-OXIDE	10	BDL
N-NITROSODIETHYLAMINE	10	BDL
N-NITROSODIMETHYLAMINE	10	BDL
N-NITROSODI-N-BUTYLAMINE	10	BDL
N-NITROSODIPROPYLAMINE	10	BDL
N-NITROSODIPHENYLAMINE	10	BDL
N-NITROSOMETHYLETHYLAMINE	10	BDL
N-NITROSOMORPHOLINE	10	BDL
N-NITROSOPIPERIDINE	10	BDL
N-NITROSOPYRROLIDINE	10	BDL
PARATHION	10	BDL
PENTACHLOROBENZENE	10	BDL
PENTACHLOROETHANE	10	BDL
PENTACHLORONITROBENZENE	10	BDL
PHENACTIN	10	BDL
PHENANTHRENE	10	BDL
2-PICOLINE	10	BDL
P-PHENYLENEDIAMINE	10	BDL

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PLI LABORATORY, INC.
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TF0290PN12/NAS WASTEWATER TREATMENT PLANT
DI BLANK - 89-0923

PROPENAMIDE	10	BDL
PYRENE	10	BDL
PYRIDINE	10	BDL
SAFROLE	10	BDL
SULFOTEPP	10	BDL
1,2,4,5-TETRACHLOROBENZENE	10	BDL
THIONAZIN	10	BDL
O-TOLUIDINE	10	BDL
1,2,4-TRICHLOROBENZENE	10	BDL
O,O,O-TRIETHYL PHOSPHOROTHIATE	10	BDL
SYM-TRINITROBENZENE	10	BDL
P-CHLORO-M-CRESOL	10	BDL
2-CHLOROPHENOL	10	BDL
ti-CRESOL	10	BDL
O-CRESOL	10	BDL
P-CRESOL	10	BDL
2,4-DICHLOROPHENOL	10	BDL
2,6-DICHLOROPHENOL	10	BDL
2,4-DIMETHYLPHENOL	10	BDL
4,6-DINITRO-O-CRESOL	50	BDL
2,4-DINITROPHENOL	10	BDL
2-NITROPHENOL	10	BDL
4-NITROPHENOL	SO	BDL
PENTACHLOROPHENOL	SO	BDL
PHENOL	10	BDL
2,3,4,6-TETRACHLOROPHENOL	10	BDL
2,4,5-TRICHLOROPHENOL	50	BDL
2,4,6-TRICHLOROPHENOL	10	BDL
O,O-DIETHYL O-Z-PYRAZINYL	10	BDL
PHOSPHOROTHIOATE	10	BDL
ALPHA, ALPHA-DIMETHYLPHENETHYLAMINE	10	BDL
SYM-TRINITROBENZENE	10	BDL
TETRAETHYL DITHIOPYROPHOSPHATE	10	BDL

327443

Note: ppb = parts per billion, ug/l
BDL = below detection limits
Results reported are blank corrected.
Source for control limits is internal laboratory quality assurance program and the Reference below.

Reference: SW-846, 3rd Edition, November 1986.

Pioneer
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CLIENT "E: GERAGHTY & HILLER
3820 NORTHDALE BLVD.
SUITE 200
TAMPA, FL 33624

PROJECT NO: TF0290PN12/NAS WASTEWATER TREATMENT PLANT

METHOD: 8270

LAB ID: 89-0923

	DETECTION LIMITS	DI BLANK (03-28-89) RESULTS	(03-29-89) RESULTS
ACENAPHTHENE	10	BDL	BDL
ACENAPHTHYLENE	10	BDL	BDL
ACETOPHENONE	10	BDL	BDL
2-ACETYLAMINOFLUORENE	10	BDL	BDL
4-AMINOBIPHENYL	10	BDL	BDL
ANILINE	10	BDL	BDL
ANTHRACENE	10	BDL	BDL
ARAMITE	10	BDL	BDL
BENZO(A)ANTHRACENE	10	BDL	BDL
BENZO(A)PYRENE	10	BDL	BDL
BENZO(B)FLUORANTHENE	10	BDL	BDL
BENZO(GHI)PERYLENE	10	BDL	BDL
BENZO(K)FLUORANTHENE	10	BDL	BDL
BENZYL ALCOHOL	10	BDL	BDL
BIS(2-CHLORO-1-METHYLETHYL)ETHER	10	BDL	BDL
BIS(2-CHLOROETHOXY)METHANE	10	BDL	BDL
BIS(2-CHLOROETHYL)ETHER	10	BDL	BDL
BIS(2-ETHYLHEXYL)PHTHALATE	10	BDL	14
4-BROMOPHENYL PHENYL ETHER	10	BDL	BDL
BUTYLBENZYL PHTHALATE	10	BDL	BDL
P-CHLOROANILINE	10	BDL	BDL
CHLOROBENZILATE	10	BDL	BDL
2-CHLORONAPHTHALENE	10	BDL	BDL
4-CHLOROPHENYL PHENYL ETHER	10	BDL	BDL
CHRYSENE	10	BDL	BDL
DIALLATE	10	BDL	BDL
DIBENZO(A,H)ANTHRACENE	10	BDL	BDL
DIBENZOFURAN	10	BDL	BDL
1,2-DICHLOROBENZENE	10	BDL	BDL
1,3-DICHLOROBENZENE	10	BDL	BDL
1,4-DICHLOROBENZENE	10	BDL	BDL
3,3'-DICHLOROBENZIDINE	50	BDL	BDL
DIETHYL PHTHALATE	10	BDL	BDL
DIMETHOATE	10	BDL	BDL
P-DIMETHYLAMINOAZOBENZENE	10	BDL	BDL
7,12-DIMETHYLBENZ(A)ANTHRACENE	10	BDL	BDL
3,3'-DIMETHYLBENZIDINE	10	BDL	BDL
A,A-DINETHYLPHENETHYLAMINE	10	BDL	BDL
DIMETHYL PHTHALATE	10	BDL	BDL

Pioneer
PLI LABORATORY, INC.
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TF0290PN12/NAS U.T. PLANT
DI BUNK - 89-0923

DI-N-BUTYL PHTHALATE	10	BDL	BDL
M-DINITROBENZENE	10	BDL	BDL
2,4-DINITROTOLUENE	10	BDL	BDL
2,6-DINITROTOLUENE	10	BDL	BDL
DI-N-OCTYL PHTHALATE	10	BDL	BDL
DIPHENYLAMINE	10	BDL	BDL
ETHYL METHANESULFONATE	10	BDL	BDL
FAMPHUR	10	BDL	BDL
FLUORANTHENE	10	BDL	BDL
FLUORENE	10	BDL	BDL
HEXACHLOROBENZENE	10	BDL	BDL
HEXACHLOROBUTADIENE	10	BDL	BDL
HEXACHLOROCYCLOPENTADIENE	10	BDL	BDL
HEXACHLOROETHANE	10	BDL	BDL
HEXACHLOROPHENE	10	BDL	BDL
INDENO(1,2,3-CD)PYRENE	10	BDL	BDL
ISODRIN	10	BDL	BDL
ISOPHORONE	10	BDL	BDL
ISOSAFROLE	10	BDL	BDL
KEPONE	10	BDL	BDL
METHAPYRILENE	10	BDL	BDL
3-METHYLCHOLANTHRENE	10	BDL	BDL
METHYL METHANESULFONATE	10	BDL	BDL
2-METHYLNAPHTHALENE	10	BDL	BDL
NAPHTHALENE	10	BDL	BDL
1,4-NAPHTHOQUINONE	10	BDL	BDL
1-NAPHTHYLAMINE	10	BDL	BDL
2-NAPHTHYLAMINE	10	BDL	BDL
2-NITROANALINE	50	BDL	BDL
3-NITROANALINE	50	BDL	BDL
4-NITROANALINE	50	BDL	BDL
NITROBENZENE	10	BDL	BDL
5-NITRO-O-TOLUIDINE	10	BDL	BDL
4-NITROQUINOLINE 1-OXIDE	10	BDL	BDL
N-NITROSODIETHYLAMINE	10	BDL	BDL
N-NITROSODIMETHYLAMINE	10	BDL	BDL
N-NITROSODI-N-BUTYLAMINE	10	BDL	BDL
N-NITROSODIPROPYLAMINE	10	BDL	BDL
N-NITROSODIPHENYLAMINE	10	BDL	BDL
N-NITROSOMETHYLETHYLAMINE	10	BDL	BDL
N-NITROSOMORPHOLINE	10	BDL	BDL
N-NITROSOPIPERIDINE	10	BDL	BDL
N-NITROSOPYRROLIDINE	10	BDL	BDL
PARATHION	10	BDL	BDL
PENTACHLOROBENZENE	10	BDL	BDL
PENTACHLOROETHANE	10	BDL	BDL
PENTACHLORONITROBENZENE	10	BDL	BDL
PHENACTIN	10	BDL	BDL
PHENANTHRENE	10	BDL	BDL
2-PICOLINE	10	BDL	BDL
P-PHENYLENEDIAMINE	10	BDL	BDL

327444

Pioneer
PL LABORATORY, INC.
11 EAST OLIVE ROAD PENSACOLA. FLORIDA 32514
PHONE (904) 474-1001

TF0290PN12/NAS WASTEWATER TREATMENT PLANT
DI BLANK - 89-0923

PRONAMIDE	10	BDL	BDL
PYRENE	10	BDL	BDL
PYRIDINE	10	BDL	BDL
SAFROLE	10	BDL	BDL
SULFOTEPP	10	BDL	BDL
1,2,4,5-TETRACHLOROBENZENE	10	BDL	BDL
THIONAZIN	10	BDL	BDL
0-TOLUIDINE	10	BDL	BDL
1,2,4-TRICHLOROBENZENE	10	BDL	BDL
O,O,O-TRIETHYL PHOSPHOROTHIATE	10	BDL	BDL
SYM-TRINITROBENZENE	10	BDL	BDL
P-CHLORO-M-CRESOL	10	BDL	BDL
2-CHLOROPHENOL	10	BDL	BDL
M-CRESOL	10	BDL	BDL
O-CRESOL	10	BDL	BDL
P-CRESOL	10	BDL	BDL
,4-DICHLOROPHENOL	10	BDL	BDL
,6-DICHLOROPHENOL	10	BDL	BDL
2,4-DIMETHYLPHENOL	10	BDL	BDL
4,6-DINITRO-O-CRESOL	50	BDL	BDL
2,4-DINITROPHENOL	10	BDL	BDL
2-NITROPHENOL	10	BDL	BDL
4-NITROPHENOL	50	BDL	BDL
PENTACHLOROPHENOL	50	BDL	BDL
PHENOL	10	BDL	BDL
2,3,4,6-TETRACHLOROPHENOL	10	BDL	BDL
2,4,5-TRICHLOROPHENOL	50	BDL	BDL
2,4,6-TRICHLOROPHENOL	10	BDL	BDL
O,O-DIETHYL O-Z-PYRAZINYL	10	BDL	BDL
PHOSPHOROTHIOATE	10	BDL	BDL
ALPHA, ALPHA-DIMETHYLPHENETHYLAMINE	10	BDL	BDL
SYM-TRINITROBENZENE	10	BDL	BDL
TETRAETHYL DITHIOPYROPHOSPHATE	10	BDL	BDL

Note: ppb = parts per billion, ug/l
BDL = below detection limits
Results reported are blank corrected.
Source for control limits is internal laboratory quality assurance program and the Reference below.

Reference: SW-846, 3rd Edition, November 1986.

Pioneer
PL LABORATORY, INC.
11 EAST OLIVE ROAD PENSACOLA, FLORIDA 32514
PHONE (904) 474-1001

CLIENT NAME: GERAGHTY & MILLER
3820 NORTHDALE BLVD.
SUITE 200
TAMPA, FL 33624

PROJECT NO: TF0290PN12/NAS WASTEWATER TREATMENT PLANT

METHOD: 8270

LAB ID: 89-0923

EPA QC

PARAMETERS	EXPECTED VALUE	EPA QC RESULTS	% RECOVERY	% REC. LIMITS
1,4-DICHLOROBENZENE	100	76	76	20-124
HEXACHLOROETHANE	100	68	68	40-113
NITROBENZENE	100	84	a4	35-180
NAPHTHALENE	100	82	82	21-133
DIMETHYL PHTHALATE	100	2	2	D-112
ACENAPHTHENE	100	88	88	47-145
FLUORENE	100	82	82	59-121
4-CHLOROPHENYL PHENYL ETHER	100	82	82	25-158
4-BROMOPHENYL PHENYL ETHER	100	80	80	53-127
ANTHRACENE	100	84	a4	27-133
FLUORANTHENE	100	80	80	26-137
BUTHYL BENZYL PHTHALATE	100	4	4	D-152
CHRYSENE	100	92	92	17-168
BIS(2-ETHYL HEXYL) PHTHALATE	100	90	90	8-158
BENZO(B)FLUORANTHENE	100	88	88	24-159
BENZO(A)PYRENE	100	74	74	17-163
DIBENZO(A,H)ANTHRACENE	100	74	74	D-227
BENZO(G,H,I)PERYLENE	100	80	80	D-219
2-CHLOROPHENOL	100	88	88	23-134
2-NITROPHENOL	100	84	84	29-182
PHENOL	100	76	76	5-112
2,4-DIMETHYLPHENOL	100	54	s4	32-119
2,4-DICHLOROPHENOL	100	94	94	39-135
2,4,6-TRICHLOROPHENOL	100	118	118	37-144
4-CHLORO-3-METHYLPHENOL	100	72	72	22-147
2-METHYL-4,6-DINITROPHENOL	100	86	86	D-181
PENTACHLOROPHENOL	100	116	116	14-176
4-NITROPHENOL	100	106	106	D-132

Note: PPB = Parts per Billion, ug/l.
BDL = Below Detection limits
Result. reported are blank corrected.
Source for control limits is internal laboratory quality assurance program and the references below.

Reference: SW-846, 3rd Edition, November 1986.

327445

Pioneer LABORATORY, INC.

11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

CLIENT NAME: GERAGHTY & MILLER
3820 NORTHDALE BLVD.
SUITE 200
TAMPA, FL 33624

PROJECT NO: TF0290PN12/NAS WASTEWATER TREATMENT PLANT

LAB ID: 89-0923

LAB ID	CLIENT ID
89-0923-1	GM-66

PARAMETER	PREPARATION DATE	ANALYSIS DATE	BATCH #	METHOD	DETECTION LIMIT	BLANK RESULT	SAMPLE RESULT	SAMPLE DUPLICATE RESULT	RPD	MAXIMUM RPD	MATRIX SPIKE RESULT	EXPECTED MAT. SPK. RESULT	% REC. MATRIX SPIKE	% REC. CONTROL LIMITS	QC RESULT	QC EXPECTED RESULT	QC % REC	QC CONTROL LIMITS
CHROM. HEX	03-16-89	03-16-89	89-HEX,CR-7	71%	0.01	BDL	BDL	BDL	0	20	0.54	0.50	108	75-125	1.00	1.00	100	90-110
SILVER	03-20-89	03-21-89	89-Ago-19	7761	0.0001	BDL	0.0003	0.0005	50*	27	0.0010	0.0010	100	63-141	0.0036	0.0038	95	74-122
ARSENIC	03-20-89	03-20-89	89-AsG-22	7060	0.001	BDL	BDL	BDL	0	27	0.024		120	64-136	0.029	0.031	94	90-110
BARIUM	03-20-89	03-23-89	89-LW-6	6010	0.02	BDL	BDL	BDL	0	15	0.51	0.50	102	68-128	0.99	1.00	99	78-120
BERYLLIUM	03-20-89	03-23-89	89-HW-5	6010	0.005	BDL	BDL	BDL	0	11	0.53	0.50	106	85-115	1.00	1.00	100	86-112
CADMIUM	03-20-89	03-23-89	89-CdG-19	7131	0.0001	BDL	0.0009	0.0011	20*	15	0.0020	0.0020	100	68-134	0.0026	0.0027	96	83-131
COBALT	03-20-89	03-23-89	89-LU-6	6010	0.05	BDL	BDL	BDL	0	11	0.50	0.50	100	85-115	0.95	1.00	95	86-114
CHROMIUM	03-20-89	03-23-89	89-LU-6	6010	0.01	BDL	BDL	BDL	0	12	0.50	0.50	100	80-122	0.94	1.00	94	85-115
COPPER	03-20-89	03-23-89	89-HU-5	6010	0.01	BDL	BDL	BDL	0	12	0.51	0.50	102	74-116	1.00	1.00	100	86-110
CYANIDE	03-23-89	03-23-89	8	9010	0.005	BDL	BDL	BDL	0	20	0.0063	0.010	100	65-131	0.020	0.020	100	76-124
MERCURY	03-20-89	03-20-89	89-Hg-22	7470	0.0001	0.0007	BDL	BDL	0	48		0.0070	90	48-120	0.0112	0.0100	112	61-133
NICKEL	03-20-89	03-23-89	89-LU-6	6010	0.05	BDL	BDL	BDL	0	17	0.99	1.00	99	67-127	0.94	1.00	94	84-108
LEAD	03-20-89	03-23-89	89-PbG-51	7421	0.001	BDL	0.008	0.007	13	18	0.010	0.010	100	57-147	0.026	0.026	100	81-123
ANTIMONY	03-20-89	03-23-89	89-LW-6	6010	0.05	BDL	BDL	BDL	0	15	0.74	1.00	74	60-120	0.90	1.00	90	75-120
SELENIUM	03-20-89	03-21-89	89-SeG-13	7740	0.001	BDL	BDL	BDL	0	24	0.020	0.020	100	68-134	0.026	0.025	104	69-129
TIN	03-20-89	03-23-89	89-HU-5	6010	1.0	BDL	BDL	BDL	0	13	5.0	5.0	100	75-125	1.0	1.0	100	77-123
SULFIDE	03-21-89	03-21-89	3	9030	0.05	BDL	BDL	BDL	0	20	N/A	N/A	N/A	N/A	15	20	75	75-125
THALLIUM	03-20-89	03-23-89	89-HU-5	6010	0.1	BDL	BDL	BDL	0	11	2.0	2.0	100	72-114	1.9	2.0	95	76-124
VANADIUM	03-20-89	03-23-89	89-HU-5	6010	0.2	BDL	BDL	BDL	0	20	1.0	1.0	100	81-117	0.95	1.00	95	87-111
ZINC	03-20-89	03-23-89	89-LW-6	6010	0.01	BDL	BDL	BDL	0	15	0.50	0.50	100	69-117	0.92	1.00	92	84-114

	LCS RESULT	LCS EXPECT RESULT	LCS % REC.	LCS CONTROL LIMITS	SPIKE SOURCE
CHROM. HEX	N/A	N/A	N/A	N/A	IN-HOUSE
SILVER	0.0038	0.0038	100	80-120	IN-HOUSE
ARSENIC	0.028	0.031	100	80-120	IN-HOUSE
BARIUM	0.98	1.00	98	80-120	IN-HOUSE
BERYLLIUM	1.00	1.00	100	80-120	IN-HOUSE
CADMIUM	0.0026	0.0027	96	80-120	IN-HOUSE
COBALT	0.93	1.00	93	80-120	IN-HOUSE
CHROMIUM	0.92	1.00	92	80-120	IN-HOUSE
COPPER	0.93	1.00	93	80-120	IN-HOUSE
CYANIDE	N/A	N/A	N/A	N/A	IN-HOUSE
MERCURY	0.0110	0.0100	110	80-120	IN-HOUSE
NICKEL	0.93	1.00	93	80-120	IN-HOUSE
LEAD	0.025	0.026	96	80-120	IN-HOUSE
ANTIMONY	1.00	1.00	100	80-120	IN-HOUSE
SELENIUM	0.022	0.025	88	80-120	IN-HOUSE
TIN	1.8	2.0	90	80-120	IN-HOUSE
SULFIDE	N/A	N/A	N/A	N/A	IN-HOUSE
THALLIUM	1.9	2.0	95	80-120	IN-HWSE
VANADIUM	0.9	1.0	90	80-120	IN-HOUSE
ZINC	0.88	1.00	88	80-120	IN-HOUSE

* = RESULT ABOVE THE MAXIMUM RPD.

Notes: Results reported in ppm, parts per million, mg/l.
BDL = Below Detection Limit.
Results reported are blank corrected.

Source for control limits is internal laboratory quality assurance program and references below.

Reference: SU-846, 3rd Edition, November 1986.

Pioneer
PLI LABORATORY, INC.
11 EAST OLIVE ROAD PENSACOLA, FLORIDA 32514
PHONE (904) 474-1001

CLIENT: GERAGHTY & MILLER

PROJECT: TF0290PN12/NAS WASTEWATER TREATMENT PLANT

LAB ID: 89-0923

BATCH: 14

PESTICIDES

LAB ID	CLIENT ID	DATE SAMPLED	DATE RECEIVED	EXTRACTION DATE	ANALYSIS DATE
89-0923-1	GM-66	03-16-89	03-16-89	03-22-89	04-03-89

327446

Pioneer
PLI LABORATORY, INC.
11 EAST OLIVE ROAD PENSACOU. FLORIDA 32514
PHONE (904) 474-1001

3E

WATER PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

CLIENT: GERAGHTY & MILLER

PROJECT NO: TF0290PN12/NAS W.T. PLANT

		EXTRACTION DATE	ANALYSIS DATE
	MS	03-22-89	04-03-89
LAB ID: 89-0923	MSD	03-22-89	04-03-89

METHOD: 8080

BATCH: 14

gamma-BHC (Lindane)	20	BDL	13	65	156-123
Heptachlor	20	BDL	8	40	40-131
Aldrin	20	BDL	15	75	40-120
Dieldrin	50	BDL	27	54	52-126
Endrin	50	BD	33	66	156-121

Dieldrin	50	28	56	11	18	152-126
Endrin	50	32	64	3	21	156-121
	0				

NOTES: PPB = Parts Per Billion, ug/l
BDL = Below Detection Limit
Results reported are blank corrected.
Source for control limits is internal laboratory quality assurance program and the reference below.

REFERENCE: SW-846, 3rd Edition, November 1986.

FORM III PEST-1 8/87 Rev.

Pioneer
LABORATORY, INC.
11 EAST OLIVE ROAD PENSACOLA, FLORIDA 32514
PHONE (904) 474-1001

2E
WATER PESTICIDE SURROGATE RECOVERY

CLIENT: GERAGHTY & MILLER

PROJECT NO: TF0290PN12/NAS W.T. PLANT BATCH: 14

LAB ID: 89-0923 METHOD: 8080

	EPA SAMPLE NO.	S1 (DBC)#	OTHER
01	0923-1	118	0
02	MS	150	0
03	MSD	150	0
04	DI BLANK	150	0
05	EPAQC	132	0

ADVISORY QC LIMITS

S1 (DBC) = Dibutlychlorendate (24-154)

Column to be used to flag *recovery* values

* Values outside of contract required QC limits

D Surrogates diluted out

NOTES: PPB = Parts Per Billion, ug/l
BDL = Below Detection Limit
Results reported are blank corrected.
Source for control limits is internal laboratory quality assurance program and the reference below.

REFERENCE: SW-846, 3rd Edition, November 1986.

FORM II PEST-1 1/87 Rev.

327447

Pioneer LABORATORY, INC.
LABORATORY, INC.
11 EAST OLIVE ROAD PENSACOU. FLORIDA 32514
PHONE (904) 474-1001

CLIENT NAME: GERAGHTY & MILLER
3820 NORTHDALE BLVD.
SUITE 200
TAMPA, FL 33624

PROJECT NO: TF0290PN12/NAS WASTEWATER TREATMENT PLANT

METHOD: 8080

LAB ID: 89-0923

DI BLANK

	DETECTION LIMITS	(04-03-89) RESULTS
ALDRIN	0.05	BDL
ALPHA-BHC	0.05	BDL
BETA-BHC	0.05	BDL
DELTA-BHC	0.10	BDL
GAMMA-BHC (LINDANE)	0.05	BDL
CHLORDANE	0.10	BDL
4,4'-DDD	0.10	BDL
4,4'-DDE	0.05	BDL
4,4'-DDT	0.10	BDL
DIELDRIN	0.05	BDL
ENDOSULFOTON	2	BDL
ENDOSULFAN I	0.10	BDL
ENDOSULFAN II	0.05	BDL
ENDOSULFAN SULFATE	0.50	BDL
ENDRIN	0.10	BDL
ENDRIN ALDEHYDE	0.20	BDL
HEPTACHLOR	0.05	BDL
HEPTACHLOR EPOXIDE	1	BDL
METHYOXYCHLOR	2	BDL
METHYL PARATHION	0.50	BDL
PCBS	50	BDL
PHORATE	2	BDL
TOXAPHENE	2	BDL

Note: ppb - parts per billion, ug/l
BDL - below detection limits
Results reported are blank corrected.
Source for control limits is internal laboratory quality assurance program and the reference below.

Reference: SW-846, 3rd Edition, November 1986.

Pioneer
PL LABORATORY, INC.
11 EAST OLIVE ROAD PENSACOLA, FLORIDA 32514
PHONE (904) 474-1001

CLIENT NAME: GERAGHTY 6 HILLER
3820 NORTHDALE BLVD.
SUITE 200
TAMPA, FL 33624

PROJECT NO: TF0290PN12/NAS WASTEWATER TREATMENT PLANT

METHOD: 8080

LAB ID: 89-0923

EPA QC

PARAMETERS	EXPECTED VALUE	EPA QC RESULTS	% RECOVERY	% REC. LIMITS
ALPHA-BHC	200	128	64	37-134
GAMMA-BHC (LINDANE)	100	67	67	32-127
HEPTACHLOR	250	154	77	34-111
HEPTACHLOR EPOXIDE	300	253	84	37-142
DIELDRIN	200	79	40	36-146
ENDRIN	200	143	72	30-147
4,4'-DDD	250	89	36	31-141

Note: PPB = Parts per Billion, ug/l.
BDL = Below Detection limits
Results reported are blank corrected.
Source for control limits is internal laboratory quality assurance program and the reference below.

Reference: SW-846, 3rd Edition, November 1986.

327446

Pioneer
PLI LABORATORY, INC.
11 EAST OLIVE ROAD PENSACOLA, FLORIDA 32514
PHONE (904) 474-1001

CLIENT: GERAGHTY & MILLER

PROJECT: TF0290PN12/NAS WASTEWATER TREATMENT PLANT

LAB ID: 89-0923

BATCH: 14

HERBICIDES

LAB ID	CLIENT ID	DATE SAMPLED	DATE RECEIVED	EXTRACTION DATE	ANALYSIS DATE
89-0923-1	GM-66	03-16-89	03-16-89	03-22-89	04-05-89

Pioneer LABORATORY, INC.
11 EAST OLIVE ROAD PENSACOLA, FLORIDA 32514
PHONE (904) 474-1001

GERAGHTY & MILLER, INC.
3820 NORTHDALE BLVD., SUITE 200
TAMPA, FLORIDA 33624

PROJECT: TF0290PN12/NAS WASTEWATER TREATMENT PLANT

METHOD: 8150

QC LEVEL II

LAB ID: 89-0923

LAB ID	CLIENT ID	EXTRACTION DATE	ANALYSIS DATE
89-0923-1	GM-66	03-22-89	04-05-89
MS		03-22-89	04-05-89
MSD		03-22-89	04-05-89

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

PARAMETER	SPIKE RESULT	SPIKE DUPLICATE	SPIKE EXPECTED VALUE	% REC. SPIKE	% REC. SPIKE DUPLICATE	% REC. CONTROL LIMITS	SPIKE RPD	MAXIMUM RPD
2,4-DICHLOROPHENOXY-ACETIC ACID	53	45	50	106	90	34-136	16	25
2,4,5-TP; SILVEX	5	4	5	100	80	30-130	22	25
DINOSEB	42	41	40	105	103	75-125	2	20

Note: ppb = puts per billion, ug/l
BDL = below detection limits
Results reported are blank corrected.
Source for control limits is internal laboratory quality assurance program and SW846 (see below).

Reference: SW846, 3rd Edition, November 1986.

327449

Pioneer LABORATORY, INC.
11 EAST OLIVE ROAD PENSACOU. FLORIDA 32514
PHONE (904) 474-1001

CLIENT NAME: GERAGHTY & MILLER
3820 NORTHDALE BLVD.
SUITE 200
TAMPA, FL 33624

PROJECT NO: TF0290PN12/NAS WASTEWATER TREATMENT PLANT

METHOD: 8150

LAB ID: 89-0923

DI BLANK

	DETECTION LIMITS	(04-03-89) RESULTS
2,4-DICHLOROPHENOXYACETIC ACID	10	BDL
DINOSEB	1	BDL
2,4,5-TP; SILVEX	2	BDL
2,4,5-TRICHLOROPHENOXYACETIC ACID	2	BDL

Note: ppb = parts per billion, ug/l
BDL = below detection limits
Results reported are blank corrected.
Source for control limits is internal laboratory quality assurance program and the reference below.

Reference: SW-846, 3rd Edition, November 1986.

Pioneer LABORATORY, INC.
11 EAST OLIVE ROAD PENSACOLA, FLORIDA 32514
PHONE (904) 474-1001

CLIENT NAME: GERAGHTY & MILLER
3820 NORTHDALE BLVD.
SUITE 200
TAMPA, FL 33624

PROJECT NO: TF0290PN12/NAS WASTEWATER TREATMENT PLANT

METHOD: 8150

LAB ID: 89-0923

EPA QC

PARAMETERS	EXPECTED VALUE	EPA QC RESULTS	% RECOVERY	% REC. LIMITS
2,4-DICHLOROPHENOXYACETIC-ACID	100	79	79	43-132
2,4,5-TP; SILVEX	10	8.9	89	30-130

Note: PPB = Parts per Billion, ug/l.
BDL = Below Detection limits
Results reported are blank corrected.
Source for control limits is internal laboratory quality assurance program and the reference below.

Reference: *SW-846*, 3rd Edition, November 1986.

Pioneer LABORATORY, INC.
11 EAST OLIVE ROAD PENSACOLA, FLORIDA 32514
PHONE (904) 474-1001

CLIENT: GERAGHTY & MILLER

PROJECT: TF0290PN12/NAS WASTEWATER TREATMENT PLANT

LAB ID: 89-0922

BATCH: V26

VOLATILES

LAB ID	CLIENT ID	DATE SAMPLED	DATE RECEIVED	DATE ANALYZED
89-0922-1	RINSATE-3	03-16-89	03-16-89	03-25-89

327451

Pioneer LABORATORY, INC.
11 EAST OLIVE ROAD PENSACOLA, FLORIDA 32114
PHONE (904) 474-1001

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

CLIENT: GERAGHTY & MILLER

PROJECT NO: TF0290PN12/NAS W. T. PLANT

LAB ID: 89-0922

METHOD: 8240

BATCH: V-26

	ANALYSIS DATE
MS	03-25-89
MSD	03-25-89

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	50	BDL	66	132	61-145
Trichloroethene	SO	BDL	52	104	71-120
Benzene	50	BDL	50	100	76-127
Toluene	SO	BDL	53	106	76-125
Chlorobenzene	50	BDL	50	100	75-130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	50	63	126	5	14	61-145
Trichloroethene	50	53	106	2	14	71-120
Benzene	50	52	104	4	11	176-1271
Toluene	50	54	108	2	13	76-125
Chlorobenzene	50	47	94	6	13	175-1301

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

* Values outside of QC limits

RPD: 0 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

NOTES: PPB = Parts Per Billion, ug/l
BDL = Below Detection Limits
Results reported are blank corrected.
Source for control limits is internal laboratory quality assurance program and the method below.

REFERENCE: SW-846, 3rd Edition, November 1986.

CERTIFICATION NUMBERS: FL LAB ID # 81142 • EPA # FL094 • FDER # EL020 • AL LAB ID # 40150 • NIOSH # 32514-001 • FL ENV # E81010

Pioneer LABORATORY, INC.
11 EAST OLIVE ROAD PENSACOLA, FLORIDA 32514
PHONE (904) 474-1001

2A
WATER VOLATILE SURROGATE RECOVERY

CLIENT: GERAGHTY & MILLER

PROJECT NO: TF0290PN12/NAS W. T. PLANT BATCH: V25

LAB ID: 89-0922 METHOD: 8240

	EPA SAMPLE NO.	S1 (TOL)#	S2 (BFB)#	S3 (DCE)#	OTHER	TOT OUT
01	0922-1	98	96	88		0
02	MS	102	94	90		0
03	MSD	100	96	82		0
04	DI BLANK	104	94	90		0
05	EPA QC	100	98	100		0

	QC LIMITS
S1 (TOL) = Toluene-d8	(88-110)
S2 (BF'B) = Bromofluorobenzene	(86-115)
S3 (DCE) = 1,2-Dichloroethane-d4	(76-114)

Column to be used to fly recovery values
* Values outside of contract required QC limits

D Surrogates diluted out

NOTES: PPB = Parts Per Billion, ug/l
BDL = Below Detection Limit
Results reported are blank corrected.
Source for control limits is internal laboratory quality assurance program and the reference below.

REFERENCE: SW-846, 3rd Edition, November 1986.

327453

FORM II VOA-1 1/87 Rev.

Pioneer
PL LABORATORY, INC.
11 EAST OLIVE ROAD PENSACOLA, FLORIDA 32514
PHONE (904) 474-1001

CLIENT NAME: GERAGHTY & MILLER
3820 NORTHDALE BLVD.
SUITE 200
TAMPA, FL 33624

PROJECT NO: TF0290PN12/NAS WASTEWATER TREATMENT PLANT

METHOD: 8240

LAB ID: 89-0922

	DI BLANK	
	DETECTION LIMITS	(03-25-89) RESULTS
ACETONE	10	BDL
ACETONITRILE	10	BDL
ACROLEIN	10	BDL
ACRYLONITRILE	10	BDL
ALLYL CHLORIDE	10	BDL
BENZENE	5	BDL
BROMODICE	5	BDL
BROMOFORM	5	BDL
BROMOMETHANE	10	BDL
CARBON DISULFIDE	10	BDL
CARBON TETRACHLORIDE	3	BDL
CHLOROBENZENE	5	BDL
CHLOROETHANE	10	BDL
CHLOROFORM	5	BDL
CHLOROMETHANE	10	BDL
CHLOROPROPENE	5	BDL
DIBROMOCHLOROMETHANE	5	BDL
DICHLORODIFLUOROMETHANE	5	BDL
1,1-DICHLOROETHANE	5	BDL
1,2-DICHLOROETHANE	3	BDL
1,1-DICHLOROETHENE	5	BDL
1,2-DICHLOROETHENE	5	BDL
1.2-DICHLOROPROPANE	5	BDL
CIS-1,3-DICHLOROPROPENE	5	BDL
TRANS-1,3-DICHLOROPROPENE	5	BDL
TRANS-1,4-DICHLORO-2-BUTENE	5	BDL
1,4-DIOXANE	10	BDL
ETHYL BENZENE	5	BDL
ETHYL METHACRYLATE	5	BDL
2-HEXANONE	10	BDL
ISOBUTYL ALCOHOL	10	BDL
METHACRYLONITRILE	5	BDL
METHYL BROMIDE	5	BDL
METHYL CHLORIDE	5	BDL
METHYLENE BROMIDE	5	BDL
METHYLENE CHLORIDE	5	BDL
METHYL ETHYL KETONE	10	BDL
METHYL IODIDE	5	BDL
METHYL METHACRYLATE	5	BDL
4-METHYL-2-PENTANONE	10	BDL
PROPANENITRILE	5	BDL
STYRENE	5	BDL

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PHONE (904) 474-1001

TF0290PN12/NAS W.T PLANT
DI BLANK - 89-0922

TETRACHLOROETHENE	3	BDL
1,1,1,2-TETRACHLOROETHANE	5	BDL
1,1,2,2-TETRACHLOROETHANE	5	BDL
TOLUENE	5	BDL
1,1,1-TRICHLOROETHANE	5	BDL
1,1,2-TRICHLOROETHANE	5	BDL
TRICHLOROETHENE	5	BDL
TRICHLOROFLUOROMETHANE	5	BDL
1,2,3-TRICHLOROPROPANE	5	BDL
VINYL ACETATE	10	BDL
VINYL CHLORIDE	10	BDL
TOTAL XYLENES	5	BDL
1,2-DIBROMOETHANE	5	BDL

Note: ppb = parts per billion, ug/l
BDL = below detection limits
Results reported are blank correctad.
Source for control limits is internal laboratory quality assurance program and the method below.

Reference: SW-846, 3rd Edition, November 1986.

327453

Pioneer
PL LABORATORY, INC.
11 EAST OLIVE ROAD PENSACOLA, FLORIDA 32514
PHONE (904) 474-1001

CLIENT NAME: GERAGHTY & MILLER
3820 NORTHDALE BLVD.
SUITE 200
TAMPA, FL 33624

PROJECT NO: TF0290PN12/NAS WASTEWATER TREATMENT PLANT

METHOD: 8240

LAB ID: 89-0922

EPA QC

PARAMETERS	EXPECTED VALUE	EPA QC	% RECOVERY	% REC. LIMITS
BROMODICHLOROMETHANE	20	21	105	35-155
BROMOFORM	29	30	103	45-169
CARBON TETRACHLORIDE	26	26	100	60-140
CHLOROFORM	120	141	118	51-138
DIBROMOCHLOROMETHANE	46	46	100	53-149
1,4-DICHLOROBENZENE	20	21	105	18-190
1,1-DICHLOROETHANE	20	23	115	72-129
TRANS-1,2-DICHLOROETHENE	20	22	110	54-156
1,2-DICHLOROPROPANE	20	22	110	D-210
1,1,2,2-TETRACHLOROETHANE	10	8	80	49-150
1,1,1-TRICHLOROETHANE	14	14	100	71-129
TRICHLOROETHENE	20	22	110	17-181

te: PPB = Parts per Billion, ug/l.
BDL = Below Detection limits
Results reported are blank corrected.
Source for control limits is internal laboratory quality assurance program and the reference below.

ference: SW-846, 3rd Edition, November 1986.

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11 EAST OLIVE ROAD PENSACOLA, FLORIDA 32514
PHONE (904) 474-1001

CLIENT: GERAGHTY & MILLER

PROJECT: TF0290PN12/NAS WASTEWATER TREATMENT PLANT

LAB ID: 89-0922

BATCH: A16

SEMIVOLATILES

LAB ID	CLIENT ID	DATE SAMPLED	DATE RECEIVED	EXTRACTION DATE	ANALYSIS DATE
89-0922-1	RINSATE-3	03-16-89	03-16-89	03-19-89	03-27-89
89-0922-2	FIELD BLANK-3	03-16-89	03-16-89	03-19-89	03-27-89

327454

Pioneer LABORATORY, INC.
11 EAST OUVE ROAD PENSACOU . FLORIDA 32514
PHONE (904) 474-1001

3c

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

CLIENT: GERAGHTY & MILLER

PROJECT NO: TF0290PN12/NAS W. T. PLANT

LAB ID: 89-0922

METHOD: 8270

BATCH: A16

		EXTRACTION DATE	ANALYSIS DATE
	MS	03-18-89	03-26-89
	MSD	03-18-89	03-26-89

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
Phenol	100	BDL	21	21	12-86
2-Chlorophenol	100	BDL	33	33	27-123
1,4-Dichlorobenzene	50	BDL	32	64	36-97
N-Nitroso-di-n-prop.(1)	50	BDL	35	70	41-116
1,2,4-Trichlorobenzene	50	BDL	46	92	39-98
4-Chloro-3-methylphenol	100	BDL	28	28	23-97
Acenaphthene	50	BDL	41	82	46-118
4-Nitrophenol	100	BDL	11	11	10-80
2,4-Dinitrotoluene	50	BDL	25	50	24-96
Pentachlorophenol	100	BDL	38	38	9-103
Pyrene	50	BDL	23	46	26-127

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Phenol	100	20	20	5	42	12-86
2-Chlorophenol	100	31	31	6	40	27-123
1,4-Dichlorobenzene	50	30	60	6	28	36-97
N-Nitroso-di-n-prop.(1)	50	28	56	22	38	41-116
1,2,4-Trichlorobenzene	50	42	84	9	28	39-98
4-Chloro-3-methylphenol	100	28	28	0	42	23-97
Acenaphthene	50	37	74	10	31	46-118
4-Nitrophenol	100	10	10	9	50	10-80
2,4-Dinitrotoluene	50	24	48	4	38	24-96
Pentachlorophenol	100	33	33	14	50	9-103
Pyrene	50	23	46	0	31	26-127

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

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

NOTES: PPB = Parts Per Billion, ug/l
BDL = Below Detection Limit
Results reported are blank corrected.
Source for control limits is internal laboratory quality assurance program and the Reference below.

REFERENCE: SW-846, 3rd Edition, November 1986.

CERTIFICATION NUMBERS: FL LAB ID # 81142 • EPA # FL094 • FDER # EL020 • AL LAB ID # 40150 • NIOSH # 32514-001 • FL ENV # E81010

Pioneer LABORATORY, INC.
11 EAST OLIVE ROAD PENSACOLA, FLORIDA 32514
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2c

WATER SEMIVOLATILE SURROGATE RECOVERY

CLIENT: GERAGHTY & MILLER

PROJECT NO: TF0290PN12/NAS W. T. PLANT BATCH: A16

LAB ID: 89-0922 METHOD: 8270

	EPA SAMPLE NO.	S1 (NBZ)#	S2 (FBP)#	S3 (TPH)#	S4 (PHL)#	S5 (2FP)#	S6 (TBP)#	OTHER	TOT OUT
01	0922-1	114	88	48	104*	88	83		1
02	0922-2	92	90	62	106*	85	139*		2
03	MS	94	100	52	65	63	41		0
04	MSD	90	90	48	65	62	105		0
05	DI BLANK	82	66	58	70	39	78		0
06	EPA QC	92	88	66	20	22	117		0

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

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogates diluted out
Amount added for bases is 50 ppb, acids io 100 ppb.

NOTES: PPB - Parts per Billion, ug/l
BDL - Below Detection Limit
Results reported are blank corrected.
Source for control limits is internal laboratory quality assurance program and tha method below.

REFERENCE: SW-846, 3rd Edition, November 1986.

327455

FORM II SV-1 1/87 Rev.

Pioneer
PL LABORATORY, INC.
11 EAST OUVE ROAD PENSACOU. FLORIDA 32514
PHONE (904) 474-1001

CLIENT NAME: GERAGHTY & 'MILLER
3820 NORTHDALE BLVD.
SUITE 200
TAMPA, FL 33624

PROJECT NO: TF0290PN12/NAS WASTEWATER TREATMENT PLANT

METHOD: 8270

LAB ID: 89-0922

	DI BLANK	
	DETECTION LIMITS	(03-30-89) RESULTS
ACENAPHTHENE	10	BDL
ACENAPHTHYLENE	10	BDL
ACETOPHENONE	10	BDL
2-ACETYLAMINOFLUORENE	10	BDL
4-AMINOBIPHENYL	10	BDL
ANILINE	10	BDL
ANTHRACENE	10	BDL
ARAMITE	10	BDL
BENZO(A)ANTHRACENE	10	BDL
BENZO(A) PYRENE	10	BDL
BENZO(B)FLUORANTHENE	10	BDL
BENZO(GHI)PERYLENE	10	BDL
BENZO(K)FLUORANTHENE	10	BDL
BENZYL ALCOHOL	10	BDL
BIS(2-CHLORO-1-METHYLETHYL)ETHER	10	BDL
BIS(2-CHLOROETHOXY)METHANE	10	BDL
BIS(2-CHLOROETHYL)ETHER	10	BDL
BIS(2-ETHYLHEXYL)PHTHALATE	10	BDL
4-BROMOPHENYL PHENYL ETHER	10	BDL
BUTYLBENZYL PHTHALATE	10	BDL
P-CHLOROANILINE	10	BDL
CHLOROBENZILATE	10	BDL
2-CHLORONAPHTHALENE	10	BDL
4-CHLOROPHENYL PHENYL ETHER	10	BDL
CHRYSENE	10	BDL
DIALLATE	10	BDL
DIBENZO(A,H)ANTHRACENE	10	BDL
DIBENZOFURAN	10	BDL
1,2-DICHLOROBENZENE	10	BDL
1,3-DICHLOROBENZENE	10	BDL
1,4-DICHLOROBENZENE	10	BDL
3,3'-DICHLOROBENZIDINE	SO	BDL
DIETHYL PHTHALATE	10	BDL
DIMETHOATE	10	BDL
P-DIMETHYLAMINOAZOBENZENE	10	BDL
7,12-DIMETHYLBENZ(A)ANTHRACENE	10	BDL
3,3'-DIMETHYLBENZIDINE	10	BDL
A,A-DINETHYLPHENETHYLAMINE	10	BDL
DIMETHYL PHTHALATE	10	BDL

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PLI LABORATORY, INC.
11 EAST OLIVE ROAD PENSACOLA, FLORIDA 32514
PHONE (904) 474-1001

TF0290PN12/NAS W.T. PLANT
DI BLANK - 89-0922

DI-N-BUTYL PHTHALATE	10	BDL
M-DINITROBENZENE	10	BDL
2,4-DINITROTOLUENE	10	BDL
2,6-DINITROTOLUENE	10	BDL
DI-N-OCTYL PHTHALATE	10	BDL
DIPHENYLAMINE	10	BDL
ETHYL METHANESULFONATE	10	BDL
FAMPHUR	10	BDL
FLUORANTHENE	10	BDL
FLUORENE	10	BDL
HEXACHLOROBENZENE	10	BDL
HEXACHLOROBUTADIENE	10	BDL
HEXACHLOROCYCLOPENTADIENE	10	BDL
HEXACHLOROETHANE	10	BDL
HEXACHLOROPHENE	10	BDL
INDENO(1,2,3-CD)PYRENE	10	BDL
ISODRIN	10	BDL
ISOPHORONE	10	BDL
ISOSAFROLE	10	BDL
KEPONE	10	BDL
METHAPYRILENE	10	BDL
3-METHYLCHOLANTHRENE	10	BDL
METHYL METHANESULFONATE	10	BDL
2-METHYLNAPHTHALENE	10	BDL
NAPHTHALENE	10	BDL
1,4-NAPHTHOQUINONE	10	BDL
1-NAPHTHYLAMINE	10	BDL
2-NAPHTHYLAMINE	10	BDL
2-NITROANALINE	50	BDL
3-NITROANALINE	50	BDL
4-NITROANALINE	50	BDL
NITROBENZENE	10	BDL
5-NITRO-O-TOLUIDINE	10	BDL
4-NITROQUINOLINE 1-OXIDE	10	BDL
N-NITROSODIETHYLAMINE	10	BDL
N-NITROSODIMETHYLAMINE	10	BDL
N-NITROSODI-N-BUTYLAMINE	10	BDL
N-NITROSODIPROPYLAMINE	10	BDL
N-NITROSODIPHENYLAMINE	10	BDL
N-NITROSOMETHYLETHYLAMINE	10	BDL
N-NITROSOMORPHOLINE	10	BDL
N-NITROSOPIPERIDINE	10	BDL
N-NITROSOPYRROLIDINE	10	BDL
PARATHION	10	BDL
PENTACHLOROBENZENE	10	BDL
PENTACHLOROETHANE	10	BDL
PENTACHLORONITROBENZENE	10	BDL
PHENACTIN	10	BDL
PHENANTHRENE	10	BDL
2-PICOLINE	10	BDL
P-PHENYLENEDIAMINE	10	BDL

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Pioneer LABORATORY, INC.
11 EAST OLIVE ROAD PENSACOU. FLORIDA 32514
PHONE (904) 474-1001

TF0290PN12/NAS WASTEWATER TREATMENT PLANT
DI BLANK - 89-0922

PROPENAMIDE	10	BDL
PYRENE	10	BDL
PYRIDINE	10	BDL
SAFROLE	10	BDL
SULFOTEPP	10	BDL
1,2,4,5-TETRACHLOROBENZENE	10	BDL
THIONAZIN	10	BDL
0-TOLUIDINE	10	BDL
1,2,4-TRICHLOROBENZENE	10	BDL
0,0,0-TRIETHYL PHOSPHOROTHIATE	10	BDL
SYM-TRINITROBENZENE	10	BDL
P-CHLORO-M-CRESOL	10	BDL
2-CHLOROPHENOL	10	BDL
M-CRESOL	10	BDL
0-CRESOL	10	BDL
P-CRESOL	10	BDL
2,4-DICHLOROPHENOL	10	BDL
2,6-DICHLOROPHENOL	10	BDL
?,4-DIMETHYLPHENOL	10	BDL
+,6-DINITRO-O-CRESOL	50	BDL
2,4-DINITROPHENOL	10	BDL
2-NITROPHENOL	10	BDL
4-NITROPHENOL	50	BDL
PENTACHLOROPHENOL	50	BDL
PHENOL	10	BDL
2,3,4,6-TETRACHLOROPHENOL	10	BDL
2,4,5-TRICHLOROPHENOL	50	BDL
2,4,6-TRICHLOROPHENOL	10	BDL
0,0-DIETHYL 0-Z-PYRAZINYL	10	BDL
PHOSPHOROTHIOATE	10	BDL
ALPHA, ALPHA-DIMETHYLPHENETHYLAMINE	10	BDL
SYM-TRINITROBENZENE	10	BDL
TETRAETHYL DITHIOPYROPHOSPHATE	10	BDL

Note: ppb = parts per billion, ug/1
BDL = below detection limits
Results reported are blank corrected.
Source for control limits is internal laboratory quality assurance program and the Reference below.

Reference: SW-846, 3rd Edition, November 1986.

Pioneer LABORATORY, INC.
11 EAST OLIVE ROAD PENSACOLA, FLORIDA 32514
PHONE (904) 474-1001

CLIENT NAME: GERAGHTY & MILLER
3820 NORTHDALE BLVD.
SUITE 200
TAMPA, FL 33624

PROJECT NO: TF0290PN12/NAS WASTEWATER TREATMENT PLANT

KETHOD: 8270

LAB ID: 89-0922

EPA QC

PARAMETERS	EXPECTED VALUE	EPA QC RESULTS	% RECOVERY	% REC. LIMITS
1,4-DICHLOROBENZENE	100	76	76	20-124
HEXACHLOROETHANE	100	68	68	40-113
NITROBENZENE	100	84	84	35-180
NAPHTHALENE	100	82	82	21-133
DIMETHYL PHTHALATE	100	2	2	D-112
ACENAPHTHENE	100	88	88	47-145
FLUORENE	100	82	82	59-121
4-CHLOROPHENYL PHENYL ETHER	100	82	82	25-158
4-BROMOPHENYL PHENYL ETHER	100	80	80	53-127
ANTHRACENE	100	84	84	27-133
FLUORANTHENE	100	80	80	26-137
BUTHYL BENZYL PHTHALATE	100	4	4	D-152
CHRYSENE	100	92	92	17-168
BIS(2-ETHYL HEXYL) PHTHALATE	100	90	90	8-158
BENZO(B)FLUORANTHENE	100	88	88	24-159
BENZO(A)PYRENE	100	74	74	17-163
DIBENZO(A,H)ANTHRACENE	100	74	74	D-227
BENZO(G,H,I)PERYLENE	100	80	80	D-219
2-CHLOROPHENOL	100	88	88	23-134
2-NITROPHENOL	100	84	a4	29-182
PHENOL	100	76	76	5-112
2,4-DIMETHYLPHENOL	100	54	54	32-119
2,4-DICHLOROPHENOL	100	94	94	39-135
2,4,6-TRICHLOROPHENOL	100	118	118	37-144
4-CHLORO-3-METHYLPHENOL	100	72	72	22-147
2-METHYL-4,6-DINITROPHENOL	100	86	86	D-181
PENTACHLOROPHENOL	100	116	116	14-176
4-NITROPHENOL	100	106	106	D-132

Note: PPB = Parts per Billion, ug/l.
BDL = Below Detection limits
Results reported are blank corrected.
Source for control limits is internal laboratory quality assurance program and the reference below.

Reference: SW-846, 3rd Edition, November 1986.

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Pioneer LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

CLIENT NAME: GERAGHTY & MILLER
3820 NORTHDALE BLVD.
SUITE 200
TAMPA, FL 33624

PROJECT NO: TF0290PN12/NAS WASTEWATER TREATMENT PLANT

LAB ID: 89-0922

LAB ID	CLIENT ID
89-0922-1	RINSATE-3
89-0922-2	FIELD BLANK-3

PARAMETER	PREPARATION DATE	ANALYSIS DATE	BATCH #	METHOD	DETECTION LIMIT	BLANK RESULT	SAMPLE RESULT	SAMPLE DUPLICATE RESULT	RPD	MAXIMUM RPD	MATRIX SPIKE RESULT	EXPECTED MAT.SPK. RESULT	% REC. MATRIX SPIKE	% REC. CONTROL LIMITS	QC RESULT	QC EXPECTED RESULT	QC % REC	QC CONTROL LIMITS
CHROM HEX	03-16-89	03-16-89	89-HEX,CR-7	7196	0.01	BDL	BDL	BDL	0	20	0.54	0.50	108	75-125	1.00	1.00	100	90-110
SILVER	03-20-89	03-21-89	89-A@-19	7761	0.0001	BDL	0.0003	0.0005	50*	27	0.0010	0.0010	100	63-141	0.0036	0.0038	95	74-122
ARSENIC	03-20-89	03-20-89	89-Ala-22	7060	0.001	BDL	BDL	BDL	0	27	0.024	0.020	120	64-136	0.027	0.031	94	90-110
BARIUM	03-20-89	03-23-89	89-LV-6	6010	0.02	BDL	BDL	BDL	0	15	0.51	0.50	102	68-128	0.99	1.00	99	78-120
BERYLLIW	03-20-89	03-23-89	89-HW-5	6010	0.005	BDL	BDL	BDL	0	11	0.53	0.50	106	85-115	1.00	1.00	100	86-112
CADMIUM	03-20-89	03-23-89	89-CdG-19	7131	0.0001	BDL	0.0009	0.0011	20*	15	0.0020	0.0020	100	68-134	0.0026	0.0027	96	83-131
COBALT	03-20-89	03-23-89	89-LW-6	6010	0.05	BDL	BDL	BDL	0	11	0.50	0.50	100	85-115	0.95	1.00	95	86-114
CHROMIUM	03-20-89	03-23-89	89-LV-6	6010	0.01	BDL	BDL	BDL	0	12	0.50	0.50	100	80-122	0.94	1.00	94	85-115
COPPER	03-20-89	03-23-89	89-HW-5	6010	0.01	BDL	BDL	BDL	0	12	0.51	0.50	102	74-116	1.00	1.00	100	86-110
CYANIDE	03-23-89	03-23-89	8	9010	0.005	BDL	BDL	BDL	0	20	0.010	0.010	100	65-131	0.020	0.020	100	66-123
MERCURY	03-20-89	03-20-89	89-Hg-22	7470	0.0001	0.0007	BDL	BDL	0	48	0.0063	0.0070	90	48-120	0.0112	0.0100	100	66-123
NICKEL	03-20-89	03-23-89	89-LW-6	6010	0.05	BDL	BDL	BDL	0	17	0.99	1.00	99	67-127	0.94	1.00	94	84-108
LEAD	03-20-89	03-23-89	89-PbG-51	7421	0.001	BDL	0.008	0.007	13	18	0.010	0.010	100		0.026	0.026	100	81-123
ANTIMONY	03-20-89	03-23-89	89-LV-6	6010	0.05	BDL	BDL	BDL	0	15	0.74	1.00	74	60-120	0.90	1.00	90	75-120
SELENIUM	03-20-89	03-21-89	89-ScG-13	7740	0.001	BDL	BDL	BDL	0	24	0.020	0.020	100	68-134	0.026	0.025	104	69-129
TIN	03-20-89	03-23-89	89-HW-5	6010	1.0	BDL	BDL	BDL	0	13	5.0	5.0	100	75-125	1.0	1.0	100	77-123
SULFIDE	03-21-89	03-21-89	3	9030	0.05	BDL	BDL	BDL	0	20	N/A	N/A	N/A	N/A	15	20	75	75-125
THALLIUM	03-20-89	03-23-89	89-HW-5	6010	0.1	BDL	BDL	BDL	0	11	20	2.0	100	72-114	1.9	2.0	95	76-124
VANADIUM	03-20-89	03-23-89	89-HW-5	6010	0.2	BDL	BDL	BDL	0	20	1.0	1.0	100	81-117	0.95	1.00	95	87-111
ZINC	03-20-89	03-23-89	89-LU-6	6010	0.01	BDL	BDL	BDL	0	15	0.50	0.50	100	69-117	0.92	1.00	92	84-114

	LCS RESULT	LCS EXPECT RESULT	LCS % REC.	LCS CONTROL LIMITS	SPIKE SOURCE
CHROM,HEX	N/A	N/A	N/A	N/A	IN-HOUSE
SILVER	0.0038	0.0038	100	80-120	IN-HOUSE
ARSENIC	0.028	0.031	100	80-120	IN-HOUSE
BARIUM	0.98	1.00	98	eo-120	IN-HOUSE
BERYLLIUM	1.00	1.00	100	80-120	IN-HOUSE
CADMIUM	0.0026	0.0027	96	80-120	IN-HOUSE
COBALT	0.93	1.00	93	80-120	IN-HOUSE
CHROMIUM	0.92	1.00	92	80-120	IN-HOUSE
COPPER	0.93	1.00	93	80-120	IN-HOUSE
CYANIDE	N/A	N/A	N/A	N/A	IN-HOUSE
MERCURY	0.0110	0.0100	110	80-120	IN-HOUSE
NICKEL	0.93	1.00	93	80-120	IN-HOUSE
LEAD	0.025	0.026	96	80-120	IN-HOUSE
ANTIMONY	1*00	1.00	100	io-120	IN-MOUSE
SELENIUM	0.022	0.025	88	80-120	IN-HOUSE
TIN	1.8	2.0	90	80-120	IN-HOUSE
SULFIDE	N/A	N/A	N/A	N/A	IN-HOUSE
THALLIUM	1.9	2.0	95	80-120	IN-HOUSE
VANMIUM	0.9	1.0	90	80-120	IN-HOUSE
ZINC	0.88	1.00	88	80-120	IN-HOUSE

* = RESULT ABOVE THE MAXIMUM RPD.

Notes: Results reported in ppm, parts per million, mg/l.
BDL = Below Detection Limit.
Results reported are blank corrected.

Source for control limits is internal laboratory quality assurance program and references belo

Reference: SW-846, 3rd Edition, November 1986.

Pioneer
PL LABORATORY, INC.
11 EAST OLIVE ROAD PENSACOLA, FLORIDA 32514
PHONE (904) 474-1001

CLIENT: GERAGHTY & MILLER

PROJECT: TF0290PN12/NAS WASTEWATER TREATMENT PLANT

LAB ID: 89-0922

BATCH: 14

PESTICIDES

LAB ID	CLIENT ID	DATE SAMPLED	DATE RECEIVED	EXTRACTION DATE	ANALYSIS DATE
89-0922-1	RINSATE-3	03-16-89	03-16-89	03-22-89	04-03-89
89-0922-2	FIELD BLANK-3	03-16-89	03-16-89	03-22-89	04-03-89

327456

Pioneer LABORATORY, INC.
11 EASTOUVE ROAD PENSACOLA. FLORIDA 32514
PHONE (904) 474-1001

3E
WATER PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

CLIENT: GERAGHTY & MILLER

PROJECT NO: TF0290PN12/NAS W.T. PLANT

			EXTRACTION DATE	ANALYSIS DATE
TAB ID:	89-0922	MS	03-22-89	04-03-89
		MSD	03-22-89	04-03-89

METHOD: 8080

BATCH: 14

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
gamma-BHC (Lindane)	20	BDL	13	65	56-123
Heptachlor	20	BDL	8	40	40-131
Aldrin	20	BDL	15	75	40-120
Dieldrin	50	BDL	27	54	52-126
Endrin	50	BDL	33	66	56-121
4,4'-DDT	50	BDL	50	100	38-127

			REC		RPD	
gamma-BHC (Lindane)	20	13		0	15	56-123
Heptachlor	20	10	50	11	20	40-131

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PL LABORATORY, INC.
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PHONE (904) 474-1001

2E
WATER PESTICIDE SURROGATE RECOVERY

CLIENT: GERAGHTY & MILLER

PROJECT NO: TF0290PN12/NAS W.T. PLANT BATCH: 14

LAB ID: 89-0922 METHOD: 8080

	EPA SAMPLE NO.	S1 (DBC)#	OTHER
01	0922-1	148	0
02	0922-2	119	0
03	MS	150	0
04	MSD	150	0
05	DI BLANK	150	0
06	EPA QC	132	0

ADVISORY QC LIMITS

S1 (DBC) = Dibutlychlorendate (24-154)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

NOTES: PPB = Parts Per Billion, ug/l
BDL = Below Detection Limit
Results reported are blank corrected.
Source for control limits is internal laboratory quality assurance program and the reference below.

REFERENCE: SW-846, 3rd Edition, November 1986.

FORM II PEST-1 1/87 Rev.

327459

Pioneer LABORATORY, INC.
11 EASTOUVE ROAD PENSACOLA, FLORIDA 32514
PHONE (904) 474-1001

CLIENT NAME: GERAGHTY & MILLER
3820 NORTHDALE BLVD.
SUITE 200
TAMPA, FL 33624

PROJECT NO: TF0290PN12/NAS WASTEWATER TREATMENT PLANT

METHOD: a0a0

LAB ID: 89-0922

EPA QC

PARAMETERS	EXPECTED VALUE	EPA QC RESULTS	% RECOVERY	% REC. LIMITS
ALPHA-BHC	200	128	64	37-134
GAMMA-BHC (LINDANE)	100	67	67	32-127
HEPTACHLOR	250	154	77	34-111
HEPTACHLOR EPOXIDE	300	253	a4	37-142
DIELDRIN	200	79	40	36-146
ENDRIN	200	143	72	30-147
4,4'-DDD	250	89	36	31-141

Note: PPB = Parts per Billion, ug/l.
BDL = Below Detection limits
Results reported are blank corrected.
Source for control limits is internal laboratory quality assurance program and the reference below.

Reference: SW-846, 3rd Edition, November 1986.

Pioneer
PLI LABORATORY, INC.
11 EAST OLIVE ROAD PENSACOLA, FLORIDA 32514
PHONE (904) 474-1001

CLIENT NAME: GERAGHTY & MILLER
3820 NORTHDALE BLVD.
SUITE 200
TAMPA, FL 33624

PROJECT NO: TF0290PN12/NAS WASTEWATER TREATMENT PLANT

" HOD: 8080

LAB ID: 89-0922

DI BLANK

	DETECTION LIMITS	(04-03-89) RESULTS
ALDRIN	0.05	BDL
ALPHA-BHC	0.05	BDL
BETA-BHC	0.05	BDL
DELTA-BHC	0.10	BDL
GAMMA-BHC (LINDANE)	0.05	BDL
CHLORDANE	0.10	BDL
4,4'-DDD	0.10	BDL
4,4'-DDE	0.05	BDL
4,4'-DDT	0.10	BDL
DIELDRIN	0.05	BDL
DISULFOTON	2	BDL
ENDOSULFAN I	0.10	BDL
ENDOSULFAN II	0.05	BDL
ENDOSULFAN SULFATE	0.50	BDL
ENDRIN	0.10	BDL
ENDRIN ALDEHYDE	0.20	BDL
HEPTACHLOR	0.05	BDL
HEPTACHLOR EPOXIDE	1	BDL
METHYOXYCHLOR	2	BDL
METHYL PARATHION	0.50	BDL
PCBS	50	BDL
PHORATE	2	BDL
TOXAPHENE	2	BDL

Note: ppb = parts per billion, ug/l
BDL = below detection limits
Results reported are blank corrected.
Source for control limits is internal laboratory quality assurance program and the reference below.

Reference: SW-846, 3rd Edition, November 1986.

327460

Pioneer
PL LABORATORY, INC.
11 EASTOUVE ROAD PENSACOLA, FLORIDA 32514
PHONE (904) 474-1001

CLIENT: GERAGHTY & MILLER

PROJECT: TF0290PN12/NAS WASTEWATER TREATMENT PLANT

LAB ID: 89-0922

BATCH: 14

HERBICIDES

LAB ID	CLIENT ID	DATE SAMPLED	DATE RECEIVED	EXTRACTION DATE	ANALYSIS DATE
89-0922-1	RINSATE-3	03-16-89	03-16-89	03-22-89	04-05-89
89-0922-2	FIELD BLANK-3	03-16-89	03-16-89	03-22-89	04-05-89

Pioneer
PLI LABORATORY, INC.
11 EAST OLIVE ROAD PENSACOLA, FLORIDA 32511
PHONE (904) 474-1001

GERAGHTY & MILLER, INC.
3820 NORTHDALE BLVD., SUITE 200
TAMPA, FLORIDA 33624

PROJECT: TF0290PN12/NAS WASTEWATER TREATMENT PLANT

METHOD: 8150

QC LEVEL II

LAB ID: 89-0922

LAB ID	CLIENT ID	EXTRACTION DATE	ANALYSIS DATE
89-0922-1	RINSATE-3	03-22-89	04-05-89
89-0922-2	FIELD BLANK-3	03-22-89	04-05-89
MS		03-22-89	04-05-89
MSD		03-22-89	04-05-89

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

PARAMETER	SPIKE RESULT	SPIKE DUPLICATE RESULT	SPIKE EXPECTED VALUE	% REC. SPIKE	% REC. SPIKE DUPLICATE	% REC. CONTROL LIMITS	SPIKE RPD	MAXIMUM RPD
2,4-DICHLOROPHENOXY-ACETIC ACID	53	45	50	106	90	34-136	16	25
2,4,5-TP; SILVEX	5	4	5	100	80	30-130	22	25
DINOSEB	18.1	16.3	20	91	81	75-125	12	20

Note: ppb = parts per billion, ug/l
BDL = below detection limits
Results reported are blank corrected.
Source for control limits is internal laboratory quality assurance program and SW846 (see below).

Reference: SW846, 3rd Edition, November 1986.

327461

Pioneer LABORATORY, INC.

11 EAST OLIVE ROAD PENSACOLA, FLORIDA 32514
PHONE (904) 474-1001

CLIENT NAME: GERAGHTY & MILLER
3820 NORTHDALE BLVD.
SUITE 200
TAMPA, FL 33624

PROJECT NO: TF0290PN12/NAS WASTEWATER TREATMENT PLANT

METHOD: 8150

LAB ID: 89-0922

EPA QC

PARAMETERS	EXPECTED VALUE	EPA QC RESULTS	% RECOVERY	% REC. LIMITS
2,4-DICHLOROPHENOXYACETIC-ACID	100	79	79	43-132
2,4,5-TP; SILVEX	10	8.9	89	30-130

Note: PPB = Parts per Billion, ug/l.
BDL = Below Detection limits
Results reported are blank corrected.
Source for control limits is internal laboratory quality assurance program and the reference below.

Reference: SW-846, 3rd Edition, November 1986.

Pioneer
PLI LABORATORY, INC.
11 EAST OLIVE ROAD PENSACOLA, FLORIDA 32514
PHONE (904) 474-1001

CLIENT NAME: GERAGHTY & MILLER
3820 NORTHDALE BLVD.
SUITE 200
TAMPA, FL 33624

PROJECT NO: TF0290PN12/NAS WASTEWATER TREATMENT PUNT

METHOD: 8150

LAB ID: 89-0922

	DI BLANK	
	DETECTION LIMITS	(04-03-89) RESULTS
2,4-DICHLOROPHENOXYACETIC ACID	10	BDL
DINOSEB	1	BDL
2,4,5-TP; SILVEX	2	BDL
2,4,5-TRICHLOROPHENOXYACETIC ACID	2	BDL

Bote: ppb - parts per billion, ug/l
BDL - below detection limits
Results reported are blank corrected.
Source for control limits is internal laboratory quality assurance program and the reference below.

Reference: SW-846, 3rd Edition, November 1986.

327463

DATA VALIDATION CHECKLIST

1-88
CWA/F-1 (R2)

Project Name: US Pennsylvania
Project Number: [illegible]
Sample Identification: GM-1, Blks 5, FB 3

Sampling Team: [illegible]
Analyzing Laboratory: ERCD
Analyses Performed: Approx. 18 not including Dioxins/Furans

Sample Matrix: Groundwater
QA Reporting Level: III

FIELD DATA PACKAGE DOCUMENTATION

Class A (Qualitative)	Reported	Performance Acceptable	Not Required
1. Field (water and soil) sample logs completed properly and signed	X	X	
2. sampling dates	X	X	
3. Sampling team indicated	X	X	
4. Sample identification traceable to location collected	X	X	
5. Sample location	X	X	
6. Sample depth for soils			X
7. Collection technique (bailer, pump etc)	—	X	
a. Field sample preparation techniques	X	X	
9. Sample type (grab, composite)	X	X	
9. Sample container type	X	X	
10. Preservation methods	X	X	
12. Chain of custody form completed	X	X	
13. Required analytical methods requested	X	X	
14. Number and type of field QC samples collected (blanks, replicates, splits, etc.)	X	X	
15. Field equipment calibration	X	X	
16. Field equipment decontamination	X	X	
17. Sample shipping			X
18. Laboratory Tark Order	X	X	

Comments:

Field Documentation and Performance:

EXPLANTATION OF VALIDATION AND CLASSIFICATION CODES:

SAMPLE QUALIFIER CODES

A code: Data flagged with an "R" has not met the required analytical QA requirements. This data is unusable even if field QC data is acceptable.

J coder Data flagged with a "J" has failed some of the analytical QA requirements but not sufficient to warrant classifing the data as unusable. Data in this category is qualitative (estimated) provided the field data meets all criteria and the sample is valid.

U code: Data flagged with a "U" means the analyte was analyzed for but not detected, i.e. the analyte was below detection limit.

B coder Data flagged with a "B" code means that the analyte was present above reporting detection limits within laboratory blanks! B codes do not necessarily invalidate the data but are dependent upon the judgement of the reviewer in applying the validation guidelines;

CLASSIFICATION CODES

Class A Data: Data in this class must have met all the requirements specified in the field checklist and in Section I of the analytical checklist. This data is qualitative. Any sample data. receiving an R qualifier code or an unexplained B qualifier code may not be classified as class A data. Data that has been given a J coda may not be considered as class B data.

Class B Data: Data in this class must have met all the requirements specified in the field checklist and in all Sections (I, 11, and III) where applicable for the level of reporting in order to be considered as quantitative (class B) data.

Unusable Data: Data in thir class har failed any of the requirements within the field checklist or the analytical checklist. This data should be flagged with an R and may not be used for any purpose.

ANALYTICAL DATA VALIDATION CHECKLIST

CWA F-1
1-88
R-2

CONTRACT REQUIREMENTS FOR
ANALYTICAL DATA PACKAGE DOCUMENTATION AND PERFORMANCE
Class A (Qualitative)

Section I: General Information	Reported	Performance Acceptable	NOT Required
1 Sample results	X	(1)	
2. Parameters analyzed	X	(1)	
3 Method of analysis	X	(2)	
4. Detection limits of analysis	X	(3)	
5 Master tracking list			X
6. Sample collection date	X	X	
7 Lab sample received date	X	X	
Sample preparation/extraction date	X	X	
9 Sample analysis date	X	(4)	
10. Copy of Chain-of-Custody form signed by the lab sample custodian			X
11. A narrative summary of QA or sample problems is provided.	X	(5)	

COMMENTS: 1) Missing 1,2 Dichloro 3 Chloropropane OK JJC
2) Hg 7470 instead 6010 3) Missing Lower Limit Benzene - ICP VC OK JJC
4) Analysis TOP Water 87 5) Incorrect date
for Blank Column, PC.

Cwa/f-1 (R2)
1-88

Section II. Inorganic Analyses continued	Reported	Performance Acceptable	Not Required
6. Dilution check sample-2XCRDL (ICP only)			X
7 Laboratory duplicates and RSD or RPD	X	(2)	
8. Matrix spikes	X	X	
9. Analytical (post-digested) spikes (furnace AAS only)			X

COMMENTS: 1) Hg 0.0007 mg/l 2) RPD Outside Limits
For As and Cd

1-88
R-2

Section III. Organic Analyses A. GAS CHROMATOGRAPHY (NO MASS SPEC)	Reported	Performance Acceptable	NOT Required
1. Water blanks (VOA)	X	X	
2 Extraction blanks	X	X	
3. Trip blanks			X
4. Independent QC check samples	X	X	
5. Reagent water spike (RWS)			X
6. Reagent water spike duplicate			X
7. RWS and control limits			X
8. Matrix spikes (MS)	X	X	
9. Matrix spike duplicates	X	X	
10. MS RPD and control limits	X	X	
11. Laboratory duplicates (optional)			X
12 Surrogate spikes	X	X	

COMMENTS:

Cwa f-1 (R2)
1-88

Documentation (A)/Performance (B)

Section II. Inorganic Analyses	Reported	Performance Acceptable	Not Required
1. ICVS and CCVS			X
2. LCS (digested)	X	X	
3. QC Check sample (undigested)	X	X	
4. Method blanks	X	(1)	
5. Interference check sample (ICP only)			X

Section III. Organic Analyses continued

B. GAS CHROMATOGRAPHY/MASS SPECTROMETER	Reported	Performance Acceptable	Not Required
1. BFB or DFTPP Tuning			X
2. Initial Calibration (IC)			
a. SPCC compounds (Av.RF >0.3/0.05)			X
b. CCC compounds (RSD < 30% in RF)			
c. Other compounds (Av.RF > 0)			
d. Frequency (At least every 3 Mos)			
3. Continuing calibration			
a. SPCC compounds (Av.RF >0.3/0.05)			X
b. CCC compounds (Max %D from IC Av. RF is 25%)			
c. Other compounds (Av.RF >0)			
d. Frequency (daily after tuning)			
4. Water blanks (Calibration blanks)	X	(1)	
5. Extraction (method) blanks	X		
6. Trip blank8			X
7. Reagent water spikes (RWS)			X
8. Reagent water spike duplicate			X
9. RWS RPD and control limits			X
10. Matrix spikes (MS)	X	(2)	
11. Matrix spike duplicate (MSD)	X	(3)	
12. Surrogate spike	X	(4)	
13. Results of latest Independent QC check samples (EPA or NBS traceable) analyzed, expected value, and source (lot no. & manufacturer)	X	(5)	
14. Results of blank spike analysis for matrix spike or matrix spike duplicate parameters not meeting recovery requirements		(6)	

COMMENTS: 1) Acetone 3/21 28 ug/l Methylene Chloride, 5 ug/l
2) GM.66 4 Chloro 3 methyl Phenol Pentachlorophenol High Recovery
3) GM.66 1,2,4 Trichlorobenzene, Pentachlorophenol
4) Surrogates Out (2) as MS for GM-66 EB-3
5) Dimethyl Phthalate and Butyl Benzyl Phthalate Low Recovery
6) Not Provided

CLASS B (QUANTITATIVE) REQUIREMENTS

DATA EVALUATION SUMMARY	Reported	Performance Acceptable	Not Required
1. Field measurements of pH and specific conductance are consistent with historical data	NA		
2. Analytical methods	X	(3)	
3. Extraction holding tines	X	X	
4. Analysis holding tines	X	(2)	
7. Datection limits			
8. Sampler rinsate blanks	X	(1)	
9. Field blanks	X	(2)	
10. Trip blanks			X
11. Laboratory blanks			
a. Water blanks	X	(5)	
b. Calibration blanks	X		X
c. Method blanks	X	(4)	
d. Extraction blanks	X		
15. Field replicates			X
16. Field splits			X
17. Geophysical comparisons			
a. Cation vs Anion			X
b. TDS vs Spec. Conductance			X
c. pH vs Alk/Acidity			X
d. other			X
18. Inorganic QA Data (Section II)	X	X	
19. Organic QA Data (section III A)	X	X	
20. Organic QA Data (Section III B)	+	A	—
21. Classical Analytical Methods QA Data	X	X	

COMMENTS: 1) As 0.0002 mg/L Cu 0.10 mg/L, S^{-2} 0.07 mg/L
2) Cu 0.1 mg/L 3) $Ag(CN)^-$ run colorimetric Method 4) Distilled Hg
VOA Ketones Alcohols in Method EB-3 5) Acetone, CH_2Cl_2 6) Hg

cwa f-1 (R2)
1-88

DATA VALIDATION CODING

	CODES					
1. Qualifier Codes Assigned to Data	R	B	U	J	U/J	No Flags

Identification of samples and parameters with coder:

Sample ID Parameters

R code: _____

B coda: _____

U code: _____

J coda: _____

U/J code: _____

Explanation: _____

Data Classification:

Data class:	A	B	Unusable
Sample Matrix: _____			

EXPLANATION:

Identity of samples and parameters that are in different use classes: See Memo

VALIDATION PERFORMED BY: Francis L. Carolan

Signed: Francis L. Carolan

EXPLANTATION OF VALIDATION AND CLASSIFICATION CODES:

SAMPLE QUALIFIER CODES

R code: Data flaggad with an "R" has not met the required analytical QA requirements. This data is unurrble even if field QC data is acceptable.

J code: Data flagged with a "J" has failed some of the analytical QA requirements but not rufficient to wrrrrnt classifying the data as unusable. Data in this category is qualitative (estimated) provided tha field data meets 811 criteria and the sample is valid.

U coda: Data flagged with a "U" means the analyte was analyzed for but not detected, i.e. the analyte was below dateation limit.

B code: Data flagged with a "B" coda means thrt the analyte was present above reporting detection limits within laboratory blanks; B aoder do not necessarily invalidate the data but are dependent upon the judgement of the reviewer in applying tho validation guidelines;

CLASSIFICATION CODES

Class A Data: Data in this class must have met all the requirements specified in the field checklist and in Section I of tha analytical checklirt. This drtr is qualitative. *Any* sample data receiving an R qualifier code or a unexplained B qualifier code may not be classified as class A data. Data that has been given a J code nay not be considered as clrrr B data.

Class B Data: Data in this class must have met all tha requirements specifled in the field checklist and in all Sections (I, II, and 111) where applicable for tha level of reporting in order to be conridered as quantitative (class B) data.

Unusable Data: Data in this class has failed any of the requirements within the field checklist or the analytical checklirt. This data should be flagged with an R rnd may not be ured for any purpose.

3 7 4 0 1

DATA VALIDATION CHECKLIST

1-88
CWA/F-1 (R2)

Project Name: NAS Pensacola
Project Number: TE08800PN1A
Sample Identification: WGM-66, XRINSETE, XFR-1

ng Team:
ing Laboratory: ETC
Analyses Performed: EPA METHOD 8270 FOR DRUMS/FUMES

Sample Matrix: Groundwater
QA Reporting Level: 1

FIELD DATA PACKAGE DOCUMENTATION

Clara A (Qualitative)	Reported	Performance Acceptable	Not Required
1. Field (water and soil) sample logs completed properly and rlgned	X	(1)	
2. Sampling dater	X	X	
3. Sampling team indicated	X	X	
4. Sample identification traceable to location collected	X	X	
5. Sample location	X	X	
6. Sample depth for soils			X
7. Collection technique (bailer, pump etc)	X	X	
8. Field sample preparation techniques	X	X	
9. Sample type (grab, composite)	- O/O	=	
9. Sample container type	X	(1)	
10. Preservation methods	X	(1)	
12. Chain of curtody form completed	X	X	
13. Required analytical methodr requested	X	X	
14. Number and type of field QC samples collected (blanks, replicates, splits, etc.)	X	X	
15. Field equipment calibration	X	X	
16. Field equipment decontamination	X	X	
17. Sample shipping	X	X	
18. Laboratory Task Order			X

comments: 1) Not indicated on COC Water Sample Log or on ETC COC

Field Documentation and Performance:

EXPLANTATION OF VALIDATION AND CLASSIFICATION CODES:

SAMPLE QUALIFIER CODES

R coder: Data flagged with an "R" has not met the required analytical QA requirements. Thir data is unusable even if field QC data is acceptable.

J code: Data flagged with a "J" has failed soma of the analytical QA requirements but not sufficient to warrant classifying the data as unusable. Data in thir category is qualitative (estimated) provided the field data meets a11 criteria and the rample is valid.

U code: Data flagged with a "U" means the analyte was analyzed for but not detected, i.e. tho analyte waa below detection limit.

B coder: Data flagged with a "B" code means that the analyte was present above reporting detection limits within laboratory blanks; B coder do not necessarily invalidate the data but are dependent upon the judgement of the reviewer in applying the validation guidelines;

CLASSIFICATION CODES

Clara A Data: Data in thir claar must have met all the requirements specified in the field checklist and in Section I of the anal tical checklirt. Thir data is qualitative. *Any* sample data receiving an R qualifier code or an unexplained B qualifier code may not be classified as clarr A data. Data that has been given a J code may not be considered as clarr B data.

Clara B Data: Data in thir clarr must have met all the requirements specified in the field checklirt and in all Sections (I, II, and III) where applicable for the level of reporting in order to be considered as quantitative (class B) data.

Unusable Data: Data in this clars has failed any of the requirements within the field checklirt or the analytical checkliat. Thir data rhould be flagged with an R and may not be used for any purpose.

ANALYTICAL DATA VALIDATION CHECKLIST

CWA F-1
1-88
R-2

CONTRACT REQUIREMENTS FOR ANALYTICAL DATA PACKAGE DOCUMENTATION AND PERFORMANCE
Class A (Qualitative)

Section I: General Information	Reported	Performance Acceptable	NOT Required
1. Sample results	X	X	
2. Parameters analyzed	X	X	
3. Method of analysis	X	X	
4. Detection limits of analysis	X	X	
5. Master tracking list			A-
6. Sample collection date	X	X	
7. Lab sample received date	X	X	
8. Sample preparation/extraction date	X	X	
9. Sample analysis date	X	X	
10. Copy of Chain-of-Custody form signed by the lab sample custodian	X	X	
11. A narrative summary of QA or sample problems is provided.			X

COMMENTS:

cwa f-1 (R2)
1-88

Documentation(A)/Performance(B)

Section II. Inorganic Analyses	Reported	Performance Acceptable	Not Required
1. ICVS and CCVS			
2. LCS (digested)			
3. QC Check sample (undigested)			
4. Method blanks			
5. Interference chock sample (ICP only)			

Cwa/f-1 (R2)
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Section 11. Inorganic Analyses continued	Reported	Performance Acceptable	not Required
6. Dilution chock sample-2XCRDL (ICP only)			
7. Laboratory duplicates and %RSD or RPD			
8. Matrix spikes			
9. Analytical (post-digested) spikes (furnace AAS only)			

COMMENTS:

cwa f-1
1-88
R-2

Section III. Organic Analyses A. GAS CHROMATOGRAPHY (NO MASS SPEC)	Reported	Performance Acceptable	NOT Required
1. Water blanks (VOA)			
2. Extraction blankr			
3. Trip blankr			
4. Independent QC check samples			
5. Reagent water spike (RWS)			
6. Reagent water spike duplicate			
7. RWS RPD and control limits			
8. Matrix spikes (MS)			
9. Matrix spike duplicate8			
10. MS WD and control limits			
11. Laboratory duplicates (optional)			
12. Surrogate spikes			

COMMENTS:

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Section III. Organic Analyses continued

B. GAS CHROMATOGRAPHY/MASS SPECTROMETER	Reported	Performance Acceptable	Not Required
1. BFB or DFTPP Tuning			X
2. Initial Calibration (IC)			
a. SPCC compounds (Av.RF >0.3/0.05)	X	X	
b. CCC compounds (RSD < 30% in RF)	X	X	
c. Other compounds (Av.RF > 0)	X	X	
d. Frequency (At least every 3 Mos)	X	X	
3. Continuing calibration			
a. SPCC compounds (Av.RF >0.3/0.05)	X	X	
b. CCC compounds (Max %D from IC Av. RF is 25%)	X	X	
c. Other compounds (Av.RF >0)	X	X	
d. Frequency (daily after tuning)			
4. Water blanks (Calibration blanks)			X
5. Extraction (method) blanks	X	X	
6. Trip blanks			X
7. Reagent water spikes (RWS)	X		
8. Reagent water spike duplicate			X
9. RWS ROD and control limits			X
10. Matrix spikes (MS)	X	X	
11. Matrix spike duplicate (MSD)	X	X(1)	
12. Surrogate spike			A
13. Results of latest Independent QC check samples (EPA or NBS traceable) analyred, expected value, end source (lot no. & manufacturer)	NA		
14. Results of blank spike analysis for matrix spike or matrix spike duplicate parameters not meeting recovery requirements			X

COMMENTS: NA not available, Limits not indicated

CLASS B (QUANTITATIVE) REQUIREMENTS.

DATA EVALUATION SUMMARY	Reported	Performance Acceptable	Not Required
1. Field measurements of pH and specific conductance are consistent with historical data			
2. Analytical methods	X	X	
3. Extraction holding times	X	X	
4. Analysis holding times	X	X	
7. Detection limits	X	X	
8. Sampler rinsate blanks	X	X	
9. Field blanks	X	X	
10. Trip blanks			X
11. Laboratory blanks			
a. Water blanks	X		X
b. Calibration blank8	X	X	
c. Method blanks	X		X
d. Extraction blanks	X	X	
15. Field replicates			X
16. Field splits			X
17. Geophysical comparisons			
a. Cation vs Anion			X
b. TDS vs Spec. Conductance			X
c. pH vs Alk/Acidity			X
d. other			X
18. Inorganic QA Data (Section II)			X
19. Organic QA Data (Section III A)			X
20. Organic QA Data (Section III B)	X	X	
21. Classical Analytical Methods QA Data			X

COMMENTS:

DATA VALIDATION CODING

	CODES					
	R	B	U	J	U/J	No Flags
1. Qualifier Codes Assigned to Data	____	____	____	____	____	✓

Identification of samples and parameters with codes:

Sample ID Parameters

R code, _____

B code: _____

U code: _____

J code: _____

U/J code: _____

Explanation: _____

Data Classification:

Data class:	A	B	Unusable
Sample Matrix: Groundwater	____	✓	____

EXPLANATION:

Identity of samples and parameters that are in different use classes:

VALIDATION PERFORMED BY: Fagus L. Corder

Signed: [signature]

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EXPLANATION OF VALIDATION AND CLASSIFICATION CODES:

SAMPLE QUALIFIER CODES

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CLASSIFICATION CODES

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Class B Data: Data in this class must have met all the requirements specified in tha field chacklirt and in all Sections (I, II, and III) where applicable for tha level of reporting in order to be considered as quantitative (class B) data.

Unusable Data: Drtr in this clrrr hrr failed any of the requirements within the field chacklirt or the analytical chacklirt. This data should be flagged with a R and may not bo used for my purpose.