ANNEX - 2

EIRA LABORATORY REPORT :
Example of a complete report, 14 May 1993
Dioxin-Screen Test, 7 September 1993

(Note : The laboratory results for all soil, groundwater, sediment and surface water samples included in this report are available for inspection at USACE-NOD.)

ENVIRONMENTAL INDUSTRIAL RESEARCH ASSOCIATES, INC.
161 James Drive West, Suite 100
St. Rose, Louisiana 70087
(504) 469-0333

LABORATORY REPORT

Prepared for: U.S. ARMY CORPS OF ENG.
Attention: MR. GEORGE BACUTA, JR.
P.O. BOX 60267
NEW ORLEANS, LA 70160

Lab Episode Descriptor: W304JI
Work Order Number: 13952
Date Received by the Laboratory: 04/19/93
Sampled By: Other

BPA Number: 92-A-0018
Call Number: 007
Boland Marine Site

NARRATIVE

LAB ID	MATRIX	SAMPLE ID
W304JI01	SOLID	IC-BS-1
W304JI02	SOLID	IC-BS-3
W304JI03	SOLID	IC-BS-4
W304JI04	SOLID	IC-BS-6
W304JI05	SOLID	IC-BS-6 (MATRIX SPIKE)
W304JI06	SOLID	IC-BS-5
W304JI07	SOLID	IC-BS-2
W304JI08	SOLID	IC-BS-2 (MATRIX SPIKE)
W304JI09	SOLID	IC-BS-9
W304JI10	SOLID	IC-BS-8
W304JI11	SOLID	IC-BS-7
W304JI12	SOLID	IC-BS-7 (MATRIX SPIKE)

Analysis results are presented on the following pages for the samples identified above.

In the Volatile Organics analysis, methylene chloride is a common laboratory contaminant. The surrogate recovery for 4-Bromofluorobenzene was out of the QC range due to coeluting interferences with hydrocarbon for samples IC-BS-2 (W304JI07) and IC-BS-7 (W304JI11).

In the Semivolatile Organics analysis dilutions had to be performed on samples IC-BS-9 (W304JI09) and IC-BS-7 (W304JI11) thus increasing their detection limits.

The following samples displayed "hits" in the following organic categories:

Sample	Organic Category
IC-BS-1	BTEX
IC-BS-2	Volatile
IC-BS-6	Volatile & Base Neutral
IC-BS-7	Volatile & Base Neutral
IC-BS-9	Volatile & Base Neutral

The chain of custody record is attached to this report.

Please note that recovery data for TCLP analytes are provided for each sample submitted for TCLP analysis utilizing one of two QC options meeting or exceeding the final rule QA requirements of Method 1311 (Federal Register : November 24, 1992).

Lab Descriptor: W304JI
Page Number: 2

Narrative Continued -

If you have any questions or require any additional information, please contact the Project Coordinator referencing the Lab Episode Descriptor.

Technical Review/Method Compliance/Report Completeness Certified By:

Wendy Stehling
Manager of Administration

05/14/93
Date

David W. Smith, Ph.D.
Laboratory Manager

14. May 1993
Date

EIRA ENVIRONMENTAL INDUSTRIAL RESEARCH ASSOCIATES, INC.

Lab Descriptor: W304JI
Page Number: 3

GENERAL CHEMISTRY RESULTS

IC-BS-1
DATE/TIME SAMPLED: 04/15/93 10:55:00

Test	Concentration	Units	PQL	DF
Lead	209	mg/kg(ppm)	12.3	5

IC-BS-3
DATE/TIME SAMPLED: 04/16/93 08:50:00

Test	Concentration	Units	PQL	DF
Arsenic (graphite furnace)	BQL	mg/kg(ppm)	2.3	5
Barium	79.4	mg/kg(ppm)	9.7	2
Cadmium	BQL	mg/kg(ppm)	1.0	2
Chromium	47.5	mg/kg(ppm)	1.9	2
Lead	125	mg/kg(ppm)	4.9	2
Mercury	0.075	mg/kg(ppm)	0.020	-
Selenium (graphite furnace)	BQL	mg/kg(ppm)	0.50	-
Silver	BQL	mg/kg(ppm)	1.9	2

IC-BS-4
DATE/TIME SAMPLED: 04/16/93 09:30:00

Test	Result	Color	Quantification
Asbestos	Positive	Brown	5-10% Chrysotile

IC-BS-6
DATE/TIME SAMPLED: 04/16/93 16:00:00

Test		Concentration	Units	PQL	DF	RTL
Arsenic	TCLP	BQL	mg/l (ppm)	0.060	2	5.0
Arsenic (graphite furnace)		7.0	mg/kg(ppm)	4.6	9	
Barium		138	mg/kg(ppm)	23.8	5	
Barium	TCLP	0.90	mg/l (ppm)	0.10	2	100.0
Cadmium		BQL	mg/kg(ppm)	2.4	5	
Cadmium	TCLP	BQL	mg/l (ppm)	0.010	2	1.0
Chromium		34.7	mg/kg(ppm)	4.8	5	
Chromium	TCLP	BQL	mg/l (ppm)	0.020	2	5.0
Lead		148	mg/kg(ppm)	11.9	5	
Lead	TCLP	BQL	mg/l (ppm)	0.050	2	5.0
Mercury		0.068	mg/kg(ppm)	0.020	-	
Mercury(*)	TCLP	0.0004	mg/l (ppm)	0.0002	-	0.2
Selenium	TCLP	BQL	mg/l (ppm)	0.12	2	1.0
Selenium (graphite furnace)		BQL	mg/kg(ppm)	0.50	-	
Silver		BQL	mg/kg(ppm)	4.8	5	
Silver	TCLP	BQL	mg/l (ppm)	0.020	2	5.0

Lab Descriptor: W304JI
Page Number: 4

IC-BS-6 (MATRIX SPIKE)

Test		% Recovery	SL	Units
Arsenic	TCLP	114	0.5	mg/l (ppm)
Barium	TCLP	109	1.0	mg/l (ppm)
Cadmium	TCLP	78	0.5	mg/l (ppm)
Chromium	TCLP	101	0.5	mg/l (ppm)
Lead	TCLP	107	0.5	mg/l (ppm)
Mercury	TCLP	110	0.0125	mg/l (ppm)
Selenium	TCLP	100	0.5	mg/l (ppm)
Silver	TCLP	103	1.0	mg/l (ppm)

IC-BS-2
DATE/TIME SAMPLED: 04/17/93 14:00:00

Test		Concentration	Units	PQL	DF	RTL
Arsenic	TCLP	BQL	mg/l (ppm)	0.060	2	5.0
Arsenic (graphite furnace)		7.6	mg/kg(ppm)	4.8	10	
Barium		173	mg/kg(ppm)	24.6	5	
Barium	TCLP	2.0	mg/l (ppm)	0.10	2	100.0
Cadmium		BQL	mg/kg(ppm)	2.5	5	
Cadmium	TCLP	BQL	mg/l (ppm)	0.010	2	1.0
Chromium		26.2	mg/kg(ppm)	4.9	5	
Chromium	TCLP	BQL	mg/l (ppm)	0.020	2	5.0
Lead		116	mg/kg(ppm)	12.3	5	
Lead	TCLP	BQL	mg/l (ppm)	0.050	2	5.0
Mercury		0.17	mg/kg(ppm)	0.020	-	
Mercury(*)	TCLP	BQL	mg/l (ppm)	0.0002	-	0.2
Selenium	TCLP	BQL	mg/l (ppm)	0.12	2	1.0
Selenium (graphite furnace)		BQL	mg/kg(ppm)	0.50	-	
Silver		BQL	mg/kg(ppm)	4.9	5	
Silver	TCLP	BQL	mg/l (ppm)	0.020	2	5.0

IC-BS-2 (MATRIX SPIKE)

Test		% Recovery	SL	Units
Arsenic	TCLP	111	0.5	mg/l (ppm)
Barium	TCLP	106	1.0	mg/l (ppm)
Cadmium	TCLP	81	0.5	mg/l (ppm)
Chromium	TCLP	104	0.5	mg/l (ppm)
Lead	TCLP	116	0.5	mg/l (ppm)
Mercury	TCLP	119	0.0125	mg/l (ppm)
Selenium	TCLP	89	0.5	mg/l (ppm)
Silver	TCLP	103	1.0	mg/l (ppm)

Lab Descriptor: W304JI
Page Number: 5

IC-BS-9
DATE/TIME SAMPLED: 04/18/93 13:30:00

Test	Concentration	Units	POL	DF
Arsenic (graphite furnace)	6.7	mg/kg(ppm)	4.7	9
Barium	146	mg/kg(ppm)	21.5	4
Cadmium	BQL	mg/kg(ppm)	2.2	4
Chromium	48.0	mg/kg(ppm)	4.3	4
Lead	45.4	mg/kg(ppm)	10.8	4
Mercury	0.11	mg/kg(ppm)	0.020	-
Selenium (graphite furnace)	BQL	mg/kg(ppm)	0.50	-
Silver	BQL	mg/kg(ppm)	4.3	4

IC-BS-8
DATE/TIME SAMPLED: 04/18/93 13:50:00

Test	Concentration	Units	POL	DF
Arsenic (graphite furnace)	BQL	mg/kg(ppm)	2.4	5
Barium	49.9	mg/kg(ppm)	22.4	4
Cadmium	BQL	mg/kg(ppm)	2.2	4
Chromium	13.0	mg/kg(ppm)	4.5	5
Lead	12.0	mg/kg(ppm)	11.2	4
Mercury	0.070	mg/kg(ppm)	0.020	-
Selenium (graphite furnace)	BQL	mg/kg(ppm)	0.50	-
Silver	BQL	mg/kg(ppm)	4.5	5

IC-BS-7
DATE/TIME SAMPLED: 04/18/93 14:30:00

Test		Concentration	Units	POL	DF	RTL
Arsenic	TCLP	BQL	mg/l (ppm)	0.060	2	5.0
Arsenic (graphite furnace)		4.8	mg/kg(ppm)	4.6	9	
Barium		168	mg/kg(ppm)	24.0	5	
Barium	TCLP	0.74	mg/l (ppm)	0.10	2	100.0
Cadmium		BQL	mg/kg(ppm)	2.4	5	
Cadmium	TCLP	BQL	mg/l (ppm)	0.010	2	1.0
Chromium		87.6	mg/kg(ppm)	4.8	5	
Chromium	TCLP	BQL	mg/l (ppm)	0.020	2	5.0
Lead		292	mg/kg(ppm)	12.0	5	
Lead	TCLP	BQL	mg/l (ppm)	0.050	2	5.0
Mercury		0.10	mg/kg(ppm)	0.020	-	
Mercury(*)	TCLP	BQL	mg/l (ppm)	0.0002	-	0.2
Selenium	TCLP	BQL	mg/l (ppm)	0.12	2	1.0
Selenium (graphite furnace)		BQL	mg/kg(ppm)	0.50	-	
Silver		BQL	mg/kg(ppm)	4.8	5	
Silver	TCLP	BQL	mg/l (ppm)	0.020	2	5.0
Ignitability		>100	deg.C	-	-	

Lab Descriptor: W304JI
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IC-BS-7 (MATRIX SPIKE)

Test		% Recovery	SL	Units
Arsenic	TCLP	113	0.5	mg/l (ppm)
Barium	TCLP	116	1.0	mg/l (ppm)
Cadmium	TCLP	81	0.5	mg/l (ppm)
Chromium	TCLP	105	0.5	mg/l (ppm)
Lead	TCLP	110	0.5	mg/l (ppm)
Mercury	TCLP	121	0.0125	mg/l (ppm)
Selenium	TCLP	98	0.5	mg/l (ppm)
Silver	TCLP	106	1.0	mg/l (ppm)

LABORATORY CONTROL SPIKE

Test	% Recovery	SL	Units
Arsenic (graphite furnace)	108	0.04	mg/kg(ppm)
Barium	103	1.0	mg/kg(ppm)
Cadmium	100	0.5	mg/kg(ppm)
Chromium	102	0.5	mg/kg(ppm)
Lead	105	0.5	mg/kg(ppm)
Mercury	108	0.0125	mg/kg(ppm)
Selenium (graphite furnace)	111	0.04	mg/kg(ppm)
Silver	102	1.0	mg/kg(ppm)

QUALITY CONTROL LAB BLANK

Test		Concentration	Units	PQL	RTL
Arsenic		BQL	mg/l (ppm)	0.030	
Arsenic	TCLP	BQL	mg/l (ppm)	0.030	5.0
Arsenic (graphite furnace)		BQL	mg/kg(ppm)	0.50	
Barium		BQL	mg/l (ppm)	0.050	
Barium		BQL	mg/kg(ppm)	5.0	
Barium	TCLP	BQL	mg/l (ppm)	0.050	100.0
Cadmium		BQL	mg/l (ppm)	0.005	
Cadmium		BQL	mg/kg(ppm)	0.50	
Cadmium	TCLP	BQL	mg/l (ppm)	0.005	1.0
Chromium		BQL	mg/l (ppm)	0.010	
Chromium		BQL	mg/kg(ppm)	1.0	
Chromium	TCLP	BQL	mg/l (ppm)	0.010	5.0
Lead		BQL	mg/kg(ppm)	2.5	
Lead		BQL	mg/l (ppm)	0.025	
Lead	TCLP	BQL	mg/l (ppm)	0.025	5.0
Mercury		BQL	mg/l (ppm)	0.0002	
Mercury		BQL	mg/kg(ppm)	0.020	
Mercury(*)	TCLP	BQL	mg/l (ppm)	0.0002	0.2
Selenium		BQL	mg/l (ppm)	0.060	
Selenium	TCLP	BQL	mg/l (ppm)	0.060	1.0
Selenium (graphite furnace)		BQL	mg/kg(ppm)	0.50	
Silver		BQL	mg/kg(ppm)	1.0	

Lab Descriptor: W304JI
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QUALITY CONTROL LAB BLANK CONTINUED

Test		Concentration	Units	PQL	RTL
Silver		BQL	mg/l (ppm)	0.010	
Silver	TCLP	BQL	mg/l (ppm)	0.010	5.0

(*): "Method of Standard Addition" is utilized for TCLP Mercury analysis.
BQL: Below Quantitation Limit
DF: Dilution Factor
PQL: Practical Quantitation Limit
RTL: Regulatory Threshold Limit
SL: Spike Level
TCLP: Toxicity Characteristic Leaching Procedure

Client: U.S. ARMY CORPS OF ENG.
Sample: IC-BS-6
Lab ID: W304JI04 (ZHE)
Method: SW 846-8240 by CLP SOW 3/90

Date Extracted: NA
Date Analyzed: 04/27/93
Date Sampled: 04/16/93
Data File ID: RU117F

GC/MS
TCLP VOLATILE ORGANICS

Compound	Chromatographic Retention Time (min.)	Leachate Concentration (ug/l)	PQL (ug/l)	RTL (ug/L)
Vinyl Chloride		BQL	50.	200.
1,1-Dichloroethylene		BQL	25.	700.
Chloroform		BQL	25.	6000.
1,2-Dichloroethane		BQL	25.	500.
Carbon Tetrachloride		BQL	25.	500.
Trichloroethylene		BQL	25.	500.
Benzene		BQL	25.	500.
Tetrachloroethylene		BQL	25.	700.
Chlorobenzene		BQL	25.	100000.
Methyl ethyl ketone		BQL	50.	200000.

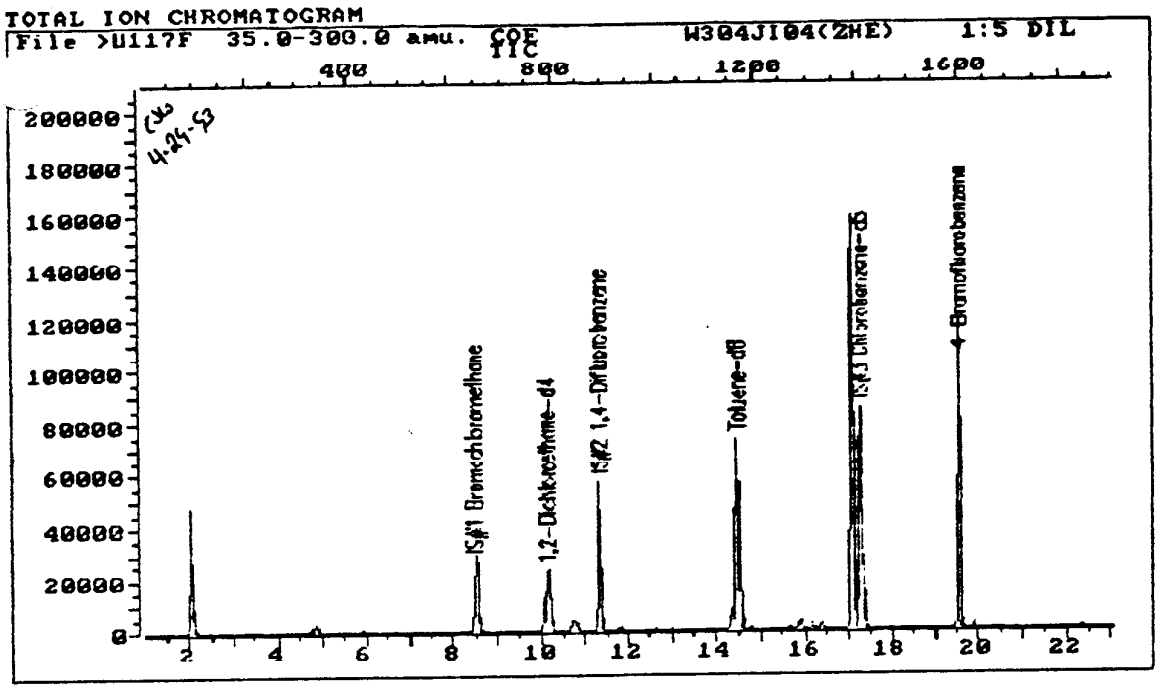
SURROGATE RECOVERY	(%)	QC Range
1,2-Dichloroethane-d4	103	76-114
Toluene-d8	100	88-110
4-Bromofluorobenzene	96	86-115

Sample pH @ analysis NA

Surrogate Spike Level: 250 ug/l
Associated Blank: VOA RU117D

B : Detected in blank
D : Quantitated by a Secondary Dilution
** : Detected Below Quantitation Limit
CI : Cannot Calculate Recovery due to Coeluting Interference
DO : Diluted Out
BQL: Below Quantitation Limit
PQL: Practical Quantitation Limit
RTL: Regulatory Threshold Limit
MS : Matrix Spike Compound Level: NA

TOTAL ION CHROMATOGRAM



Data File: >U117F::D1 Quant Output File: ^U117F::QT
Name: COE W304JI04 Instrument ID: INST U
Misc: (ZHE) 1:5 DIL IC-BS-6 INST U

Id File: ID_UZ::SC
Title: TCLP VOLATILE ORGANIC ANALYSIS (CAPILLARY COLUMN)
Last Calibration: 920305 10:09 Last Qcal Time: 930427 09:25

Operator ID: ARCHIE
Quant Time : 930427 11:42
Injected at: 930427 11:18

Client: U.S. ARMY CORPS OF ENG.
Sample: IC-BS-2
Lab ID: W304JI07 (ZHE)
Method: SW 846-8240 by CLP SOW 3/90

Date Extracted: NA
Date Analyzed: 04/27/93
Date Sampled: 04/17/93
Data File ID: RU117C

GC/MS
TCLP VOLATILE ORGANICS

Compound	Chromatographic Retention Time (min.)	Leachate Concentration (ug/l)	PQL (ug/l)	RTL (ug/L)
Vinyl Chloride		BQL	50.	200.
1,1-Dichloroethylene		BQL	25.	700.
Chloroform		BQL	25.	6000.
1,2-Dichloroethane		BQL	25.	500.
Carbon Tetrachloride		BQL	25.	500.
Trichloroethylene		BQL	25.	500.
Benzene		BQL	25.	500.
Tetrachloroethylene		BQL	25.	700.
Chlorobenzene		BQL	25.	100000.
Methyl ethyl ketone		BQL	50.	200000.

SURROGATE RECOVERY	(%)	QC Range
1,2-Dichloroethane-d4	105	76-114
Toluene-d8	96	88-110
4-Bromofluorobenzene	95	86-115

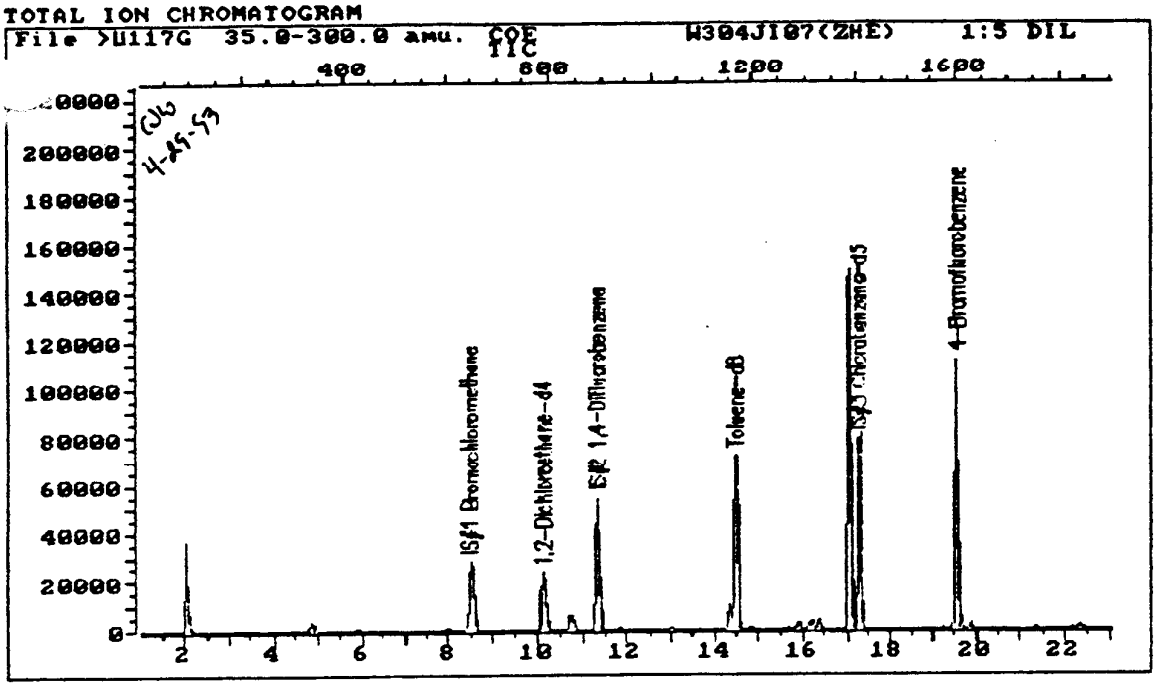
Sample pH @ analysis NA

Surrogate Spike Level: 250 ug/l
Associated Blank: VOA RU117D

B : Detected in blank
D : Quantitated by a Secondary Dilution
** : Detected Below Quantitation Limit
CI : Cannot Calculate Recovery due to Coeluting Interference
DO : Diluted Out
BQL: Below Quantitation Limit
PQL: Practical Quantitation Limit
RTL: Regulatory Threshold Limit
MS : Matrix Spike Compound Level: NA

EIRA ENVIRONMENTAL INDUSTRIAL RESEARCH ASSOCIATES, INC.

TOTAL ION CHROMATOGRAM



Data File: >U117G::D1 Quant Output File: ^U117G::QT
Name: COE W304JI07 Instrument ID: INST U
Misc: (ZHE) 1:5 DIL IC-BS-2 INST U

Id File: ID_UZ::SC
Title: TCLP VOLATILE ORGANIC ANALYSIS (CAPILLARY COLUMN)
Last Calibration: 920305 10:09 Last Qcal Time: 930427 09:25

Operator ID: ARCHIE
Quant Time : 930427 12:27
Injected at: 930427 11:55

Client: U.S. ARMY CORPS OF ENG.
Sample: IC-BS-7
Lab ID: W304JI11 (ZHE)
Method: SW 846-8240 by CLP SOW 3/90

Date Extracted: NA
Date Analyzed: 04/27/93
Date Sampled: 04/18/93
Data File ID: RU117J

GC/MS
TCLP VOLATILE ORGANICS

Compound	Chromatographic Retention Time (min.)	Leachate Concentration (ug/l)	PQL (ug/l)	RTL (ug/L)
Vinyl Chloride		BQL	50.	200.
1,1-Dichloroethylene		BQL	25.	700.
Chloroform		BQL	25.	6000.
1,2-Dichloroethane		BQL	25.	500.
Carbon Tetrachloride		BQL	25.	500.
Trichloroethylene		BQL	25.	500.
Benzene		BQL	25.	500.
Tetrachloroethylene		BQL	25.	700.
Chlorobenzene		BQL	25.	100000.
Methyl ethyl ketone		BQL	50.	200000.

SURROGATE RECOVERY	(%)	QC Range
1,2-Dichloroethane-d4	104	76-114
Toluene-d8	97	88-110
4-Bromofluorobenzene	94	86-115

Sample pH @ analysis NA

Surrogate Spike Level: 250 ug/l
Associated Blank: VOA RU117D

B : Detected in blank
D : Quantitated by a Secondary Dilution
** : Detected Below Quantitation Limit
CI : Cannot Calculate Recovery due to Coeluting Interference
DO : Diluted Out
BQL: Below Quantitation Limit
PQL: Practical Quantitation Limit
RTL: Regulatory Threshold Limit
MS : Matrix Spike Compound Level: NA

Client:	U.S. ARMY CORPS OF ENG.	Date Extracted:	NA
Sample:	IC-BS-6	Date Analyzed:	04/22/93
Lab ID:	W304JI04	Date Sampled:	04/16/93
Method:	SW 846-8240 by CLP SOW 3/90	Data File ID:	RE1122

GC/MS
VOLATILE PRIORITY POLLUTANTS/HAZARDOUS SUBSTANCE LIST COMPOUNDS

DRY ___ WET X WEIGHT

Compound	Chromatographic Retention Time (min.)	Concentration (ug/kg)	PQL (ug/kg)
Acrolein		BQL	50.
Acrylonitrile		BQL	50.
Chloromethane		BQL	10.
Bromomethane		BQL	10.
Vinyl Chloride		BQL	10.
Chloroethane		BQL	10.
Methylene Chloride	12.08	31. (B=28)	5.
1,1-Dichloroethene		BQL	5.
1,1-Dichloroethane		BQL	5.
1,2-Dichloroethene (total)		BQL	5.
Trichlorofluoromethane		BQL	5.
Chloroform		BQL	5.
1,2-Dichloroethane	17.48	5.	5.
1,1,1-Trichloroethane		BQL	5.
Carbon Tetrachloride		BQL	5.
Bromodichloromethane		BQL	5.
1,2-Dichloropropane		BQL	5.
trans-1,3-Dichloropropene		BQL	5.
Trichloroethene	18.73	22.	5.
Dibromochloromethane		BQL	5.
1,1,2-Trichloroethane		BQL	5.
Benzene		BQL	5.
cis-1,3-Dichloropropene		BQL	5.
Bromoform		BQL	5.
Tetrachloroethene	22.22	12.	5.
1,1,2,2-Tetrachloroethane		BQL	5.
Toluene	21.20	53.	5.
Chlorobenzene		BQL	5.
Ethylbenzene		BQL	5.
2-Chloroethylvinyl ether (1)		BQL	10.
1,2-Dichlorobenzene		BQL	5.
1,3-Dichlorobenzene		BQL	5.
1,4-Dichlorobenzene		BQL	5.

(1) Known to Hydrolyze in Presence of Dilute Acid

- Continued -

Client: U.S. ARMY CORPS OF ENG.
Sample: IC-BS-6

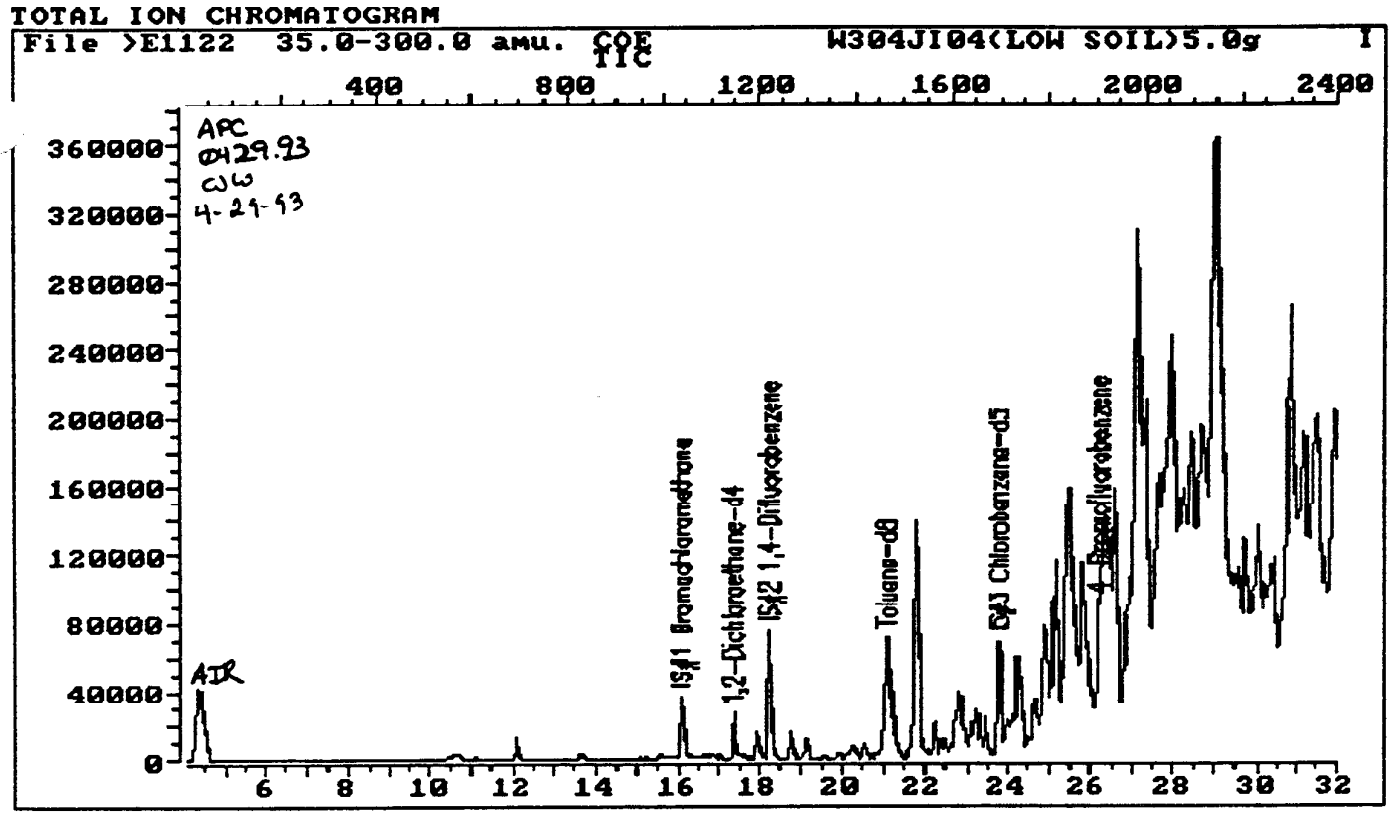
Acetone	10.65	33.	10.
Carbon Disulfide		BQL	5.
2-Butanone		BQL	10.
Vinyl Acetate		BQL	10.
2-Hexanone		BQL	10.
4-Methyl-2-Pentanone		BQL	10.
Styrene		BQL	5.
Xylene (total)	24.18-25.10	14.	5.

SURROGATE RECOVERY	(%)	QC Range
1,2-Dichloroethane-d4	88	70-121
Toluene-d8	109	84-138
4-Bromofluorobenzene	61	59-113

Surrogate Spike Level: 50 ug/kg
Associated Blank: VOA RE1121

B : Detected in blank
D : Quantitated by a Secondary Dilution
J : Detected Below Quantitation Limit
CI : Cannot Calculate Recovery due to Coeluting Interference
DO : Diluted Out
BQL: Below Quantitation Limit
PQL: Practical Quantitation Limit
MS : Matrix Spike Compound Level: NA

TOTAL ION CHROMATOGRAM



Data File: >E1122::D3 Quant Output File: ^E1122::QT
Name: COE W304JI04
Misc: (LOW SOIL)5.0g IC-BS-6 INST

Id File: ID_EV::DB
Title: VOLATILES BY SW846-8240/EPA 624 (CC# 2603392) INST E
Last Calibration: 930422 09:14

Operator ID: ARCHIE
Quant Time: 930422 15:49
Injected at: 930422 15:13

Client: U.S. ARMY CORPS OF ENG.
Sample: IC-BS-2
Lab ID: W304JI07
Method: SW 846 8240 by CLP SOW 3/90

Date Extracted: NA
Date Analyzed: 04/28/93
Date Sampled: 04/17/93
Data File ID: RE1182

GC/MS
VOLATILE PRIORITY POLLUTANTS/HAZARDOUS SUBSTANCE LIST COMPOUNDS

DRY ___ WET X WEIGHT

Compound	Chromatographic Retention Time (min.)	Concentration (ug/kg)	PQL (ug/kg)
Acrolein		BQL	50.
Acrylonitrile		BQL	50.
Chloromethane		BQL	10.
Bromomethane		BQL	10.
Vinyl Chloride		BQL	10.
Chloroethane		BQL	10.
Methylene Chloride	12.29	21. (B=9)	5.
1,1-Dichloroethene		BQL	5.
1,1-Dichloroethane		BQL	5.
1,2-Dichloroethene (total)		BQL	5.
Trichlorofluoromethane		BQL	5.
Chloroform		BQL	5.
1,2-Dichloroethane		BQL	5.
1,1,1-Trichloroethane		BQL	5.
Carbon Tetrachloride		BQL	5.
Bromodichloromethane		BQL	5.
1,2-Dichloropropane		BQL	5.
trans-1,3-Dichloropropene		BQL	5.
Trichloroethene	18.92	12.	5.
Dibromochloromethane		BQL	5.
1,1,2-Trichloroethane		BQL	5.
Benzene		BQL	5.
cis-1,3-Dichloropropene		BQL	5.
Bromoform		BQL	5.
Tetrachloroethene		BQL	5.
1,1,2,2-Tetrachloroethane		BQL	5.
Toluene	21.35	22.	5.
Chlorobenzene		BQL	5.
Ethylbenzene		BQL	5.
2-Chloroethylvinyl ether (1)		BQL	10.
1,2-Dichlorobenzene		BQL	5.
1,3-Dichlorobenzene		BQL	5.
1,4-Dichlorobenzene		BQL	5.

(1) Known to Hydrolyze in Presence of Dilute Acid

- Continued -

Client: U.S. ARMY CORPS OF ENG.
Sample: IC-BS-2

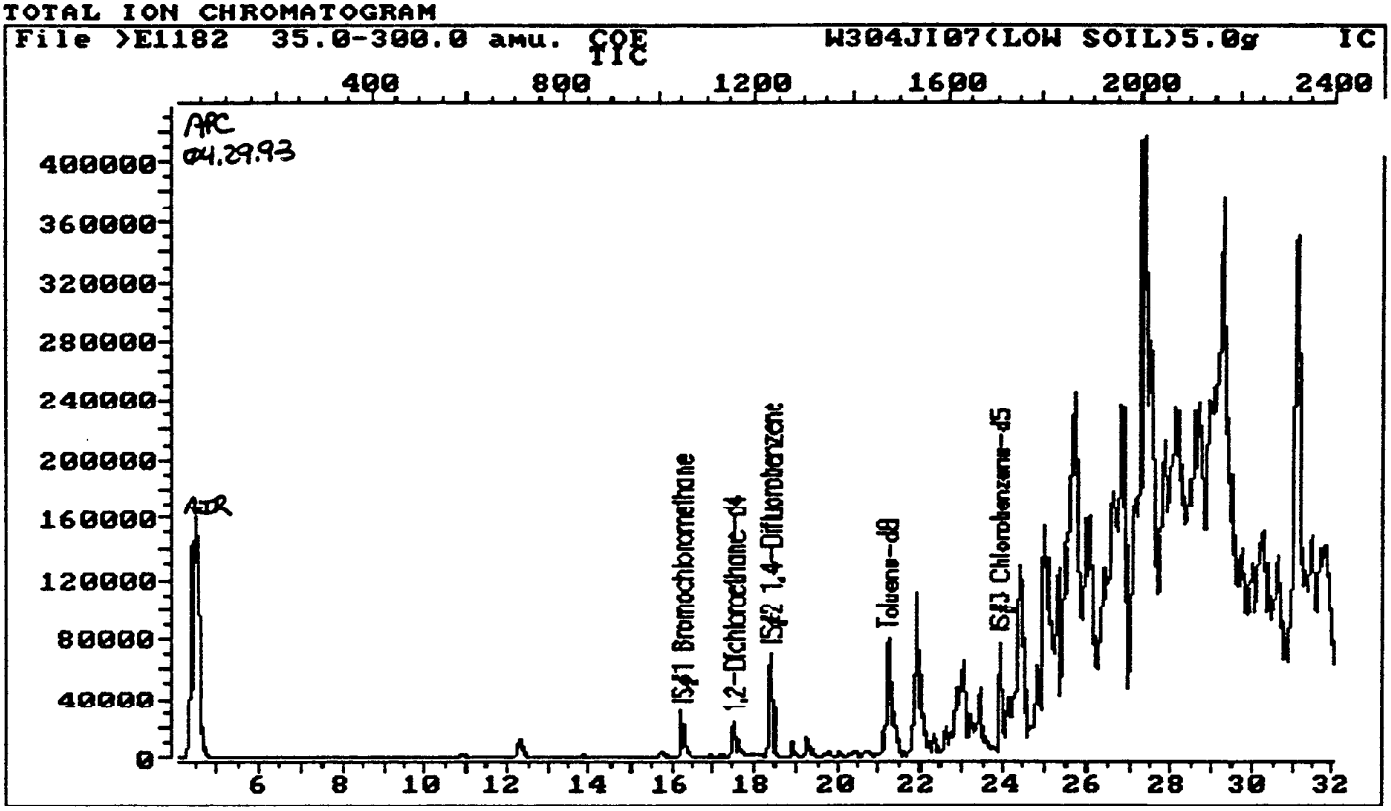
Acetone	10.86	30.	10.
Carbon Disulfide		BQL	5.
2-Butanone	15.73	24.	10.
Vinyl Acetate		BQL	10.
2-Hexanone		BQL	10.
4-Methyl-2-Pentanone		BQL	10.
Styrene		BQL	5.
Xylene (total)		BQL	5.

SURROGATE RECOVERY	(%)	QC Range
1,2-Dichloroethane-d4	88	70-121
Toluene-d8	108	84-138
4-Bromofluorobenzene	CI	59-113

Surrogate Spike Level: 50 ug/kg
Associated Blank: VOA RE1181

B : Detected in blank
D : Quantitated by a Secondary Dilution
J : Detected Below Quantitation Limit
CI : Cannot Calculate Recovery due to Coeluting Interference
DO : Diluted Out
BQL: Below Quantitation Limit
PQL: Practical Quantitation Limit
MS : Matrix Spike Compound Level: NA

TOTAL ION CHROMATOGRAM

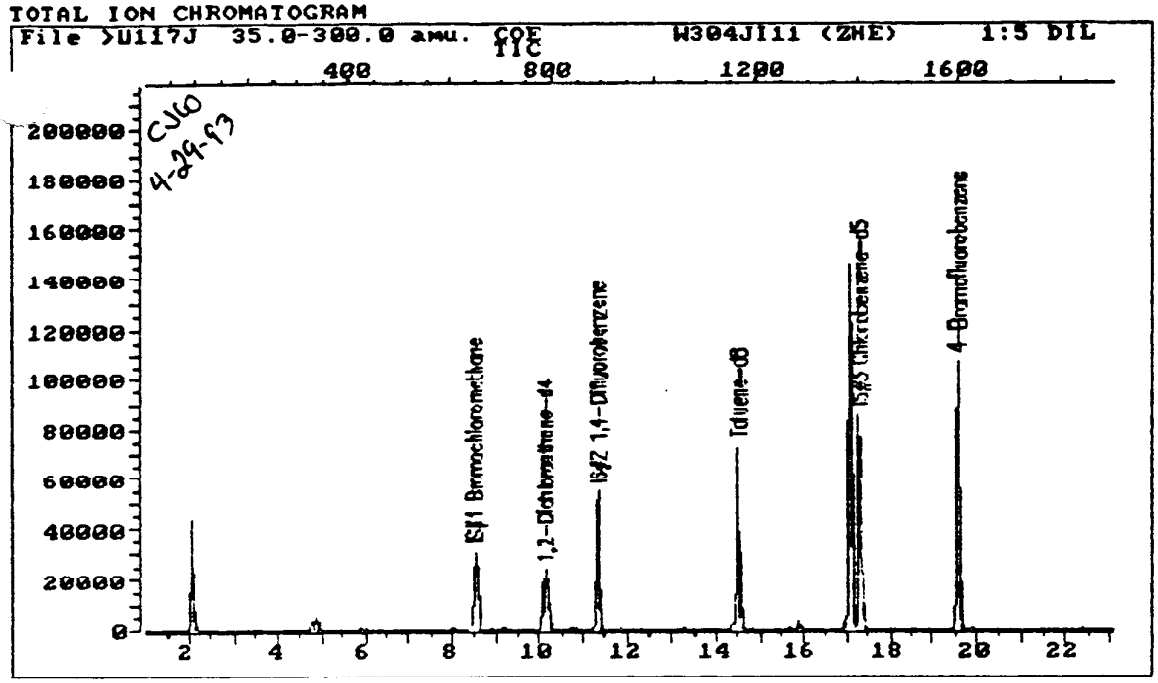


Data File: >E1182::D1 Quant Output File: ^E1182::QT
Name: COE W304JI07
Misc: (LOW SOIL)5.0g IC-BS-2 INST E

Id File: ID_EV::DB
Title: VOLATILES BY SW846-8240/EPA 624 (CC# 2603392) INST E
Last Calibration: 930428 10:51

Operator ID: ARCHIE
Quant Time: 930428 16:31
Injected at: 930428 15:56

TOTAL ION CHROMATOGRAM



Data File: >U117J::D1 Quant Output File: ^U117J::QT
Name: COE W304JI11 Instrument ID: INST U
Misc: (ZHE) 1:5 DIL IC-BS-7 INST U

Id File: ID_UZ::SC
Title: TCLP VOLATILE ORGANIC ANALYSIS (CAPILLARY COLUMN)
Last Calibration: 920305 10:09 Last Qcal Time: 930427 09:25

Operator ID: ARCHIE
Quant Time : 930427 14:19
Injected at: 930427 13:54

Client: U.S. ARMY CORPS OF ENG.
Sample: IC-BS-9
Lab ID: W304JI09
Method: SW 846 8240 by CLP SOW 3/90

Date Extracted: NA
Date Analyzed: 04/28/93
Date Sampled: 04/18/93
Data File ID: RE1184

GC/MS
VOLATILE PRIORITY POLLUTANTS/HAZARDOUS SUBSTANCE LIST COMPOUNDS

DRY ___ WET X WEIGHT

Compound	Chromatographic Retention Time (min.)	Concentration (ug/kg)	PQL (ug/kg)
Acrolein		BQL	50.
Acrylonitrile		BQL	50.
Chloromethane		BQL	10.
Bromomethane		BQL	10.
Vinyl Chloride		BQL	10.
Chloroethane		BQL	10.
Methylene Chloride	12.24	19. (B-9)	5.
1,1-Dichloroethene		BQL	5.
1,1-Dichloroethane		BQL	5.
1,2-Dichloroethene (total)		BQL	5.
Trichlorofluoromethane		BQL	5.
Chloroform		BQL	5.
1,2-Dichloroethane	17.65	5.	5.
1,1,1-Trichloroethane		BQL	5.
Carbon Tetrachloride		BQL	5.
Bromodichloromethane		BQL	5.
1,2-Dichloropropane		BQL	5.
trans-1,3-Dichloropropene		BQL	5.
Trichloroethene	18.90	12.	5.
Dibromochloromethane		BQL	5.
1,1,2-Trichloroethane		BQL	5.
Benzene		BQL	5.
cis-1,3-Dichloropropene		BQL	5.
Bromoform		BQL	5.
Tetrachloroethene	22.36	10.	5.
1,1,2,2-Tetrachloroethane		BQL	5.
Toluene	21.35	27.	5.
Chlorobenzene		BQL	5.
Ethylbenzene		BQL	5.
2-Chloroethylvinyl ether (1)		BQL	10.
1,2-Dichlorobenzene		BQL	5.
1,3-Dichlorobenzene		BQL	5.
1,4-Dichlorobenzene		BQL	5.

(1) Known to Hydrolyze in Presence of Dilute Acid

- Continued -

Client: U.S. ARMY CORPS OF ENG.
Sample: IC-BS-9

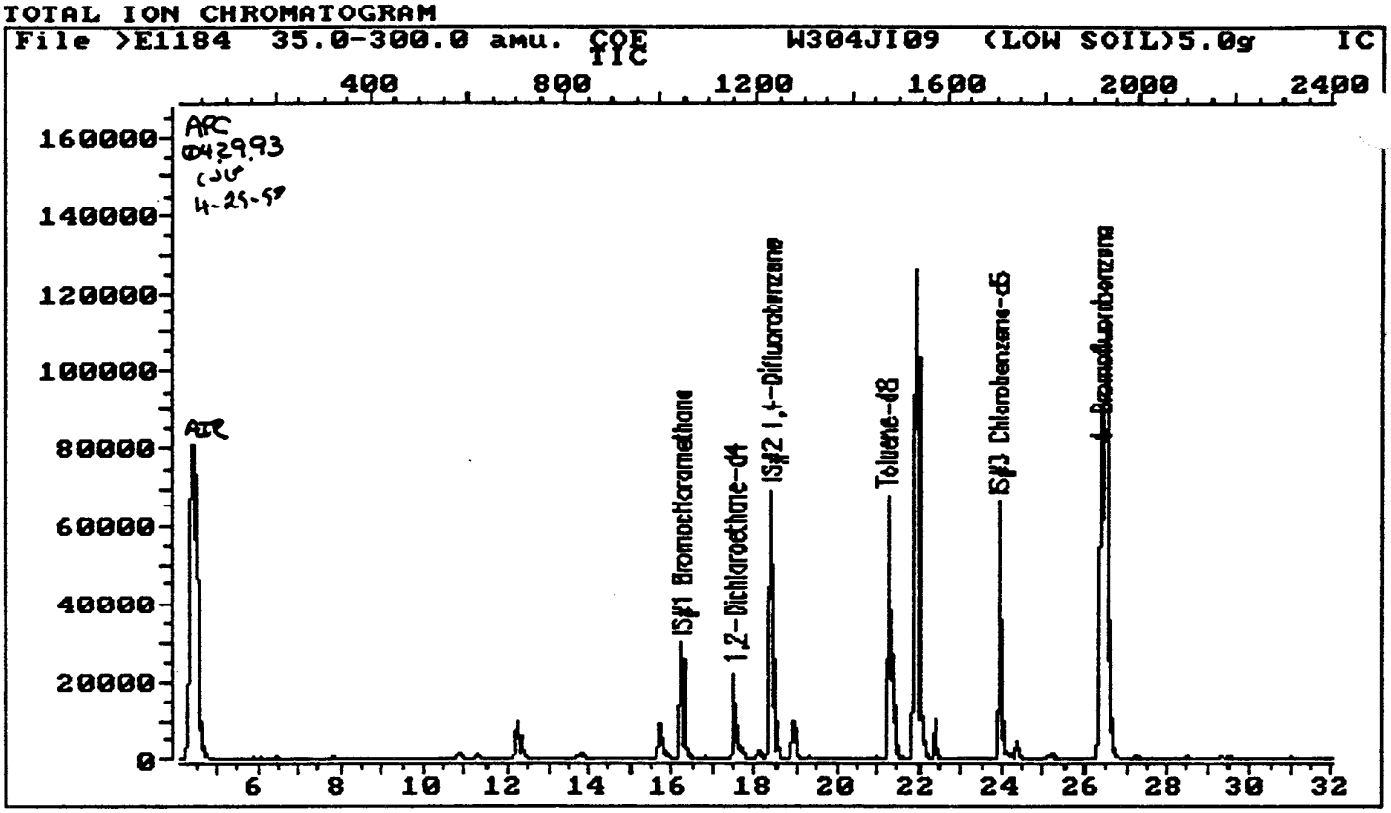
Acetone		BQL	10.
Carbon Disulfide		BQL	5.
2-Butanone	15.72	56.	10.
Vinyl Acetate		BQL	10.
2-Hexanone		BQL	10.
4-Methyl-2-Pentanone		BQL	10.
Styrene		BQL	5.
Xylene (total)	24.35-25.19	6.	5.

SURROGATE RECOVERY	(%)	QC Range
1,2-Dichloroethane-d4	92	70-121
Toluene-d8	106	84-138
4-Bromofluorobenzene	87	59-113

Surrogate Spike Level: 50 ug/kg
Associated Blank: VOA RE1181

B : Detected in blank
D : Quantitated by a Secondary Dilution
J : Detected Below Quantitation Limit
CI : Cannot Calculate Recovery due to Coeluting Interference
DO : Diluted Out
BQL: Below Quantitation Limit
PQL: Practical Quantitation Limit
MS : Matrix Spike Compound Level: NA

TOTAL ION CHROMATOGRAM



Data File: >E1184::D1 Quant Output File: ^E1184::QT
Name: COE W304JI09
Misc: (LOW SOIL)5.0g IC-BS-7-9 INST E

Id File: ID_EV::DB
Title: VOLATILES BY SW846-8240/EPA 624 (CC# 2603392) INST E
Last Calibration: 930428 10:51

Operator ID: WUSNACK
Quant Time: 930428 18:26
Injected at: 930428 17:40

Client: U.S. ARMY CORPS OF ENG.
Sample: IC-BS-7
Lab ID: W304JI11
Method: SW 846-8240 by CLP SOW 3/90

Date Extracted: NA
Date Analyzed: 04/22/93
Date Sampled: 04/18/93
Data File ID: RE1125

GC/MS
VOLATILE PRIORITY POLLUTANTS/HAZARDOUS SUBSTANCE LIST COMPOUNDS

DRY ___ WET X WEIGHT

Compound	Chromatographic Retention Time (min.)	Concentration (ug/kg)	PQL (ug/kg)
Acrolein		BQL	50.
Acrylonitrile		BQL	50.
Chloromethane		BQL	10.
Bromomethane		BQL	10.
Vinyl Chloride		BQL	10.
Chloroethane		BQL	10.
Methylene Chloride	12.10	30. (B-28)	5.
1,1-Dichloroethene		BQL	5.
1,1-Dichloroethane		BQL	5.
1,2-Dichloroethene (total)		BQL	5.
Trichlorofluoromethane		BQL	5.
Chloroform		BQL	5.
1,2-Dichloroethane	17.51	7.	5.
1,1,1-Trichloroethane		BQL	5.
Carbon Tetrachloride		BQL	5.
Bromodichloromethane		BQL	5.
1,2-Dichloropropane		BQL	5.
trans-1,3-Dichloropropene		BQL	5.
Trichloroethene	18.75	47.	5.
Dibromochloromethane		BQL	5.
1,1,2-Trichloroethane		BQL	5.
Benzene		BQL	5.
cis-1,3-Dichloropropene		BQL	5.
Bromoform		BQL	5.
Tetrachloroethene	22.24	31.	5.
1,1,2,2-Tetrachloroethane		BQL	5.
Toluene	21.21	130.	5.
Chlorobenzene		BQL	5.
Ethylbenzene	24.00	6.	5.
2-Chloroethylvinyl ether (1)		BQL	10.
1,2-Dichlorobenzene		BQL	5.
1,3-Dichlorobenzene		BQL	5.
1,4-Dichlorobenzene		BQL	5.

(1) Known to Hydrolyze in Presence of Dilute Acid

- Continued -

Client: U.S. ARMY CORPS OF ENG.
Sample: IC-BS-7

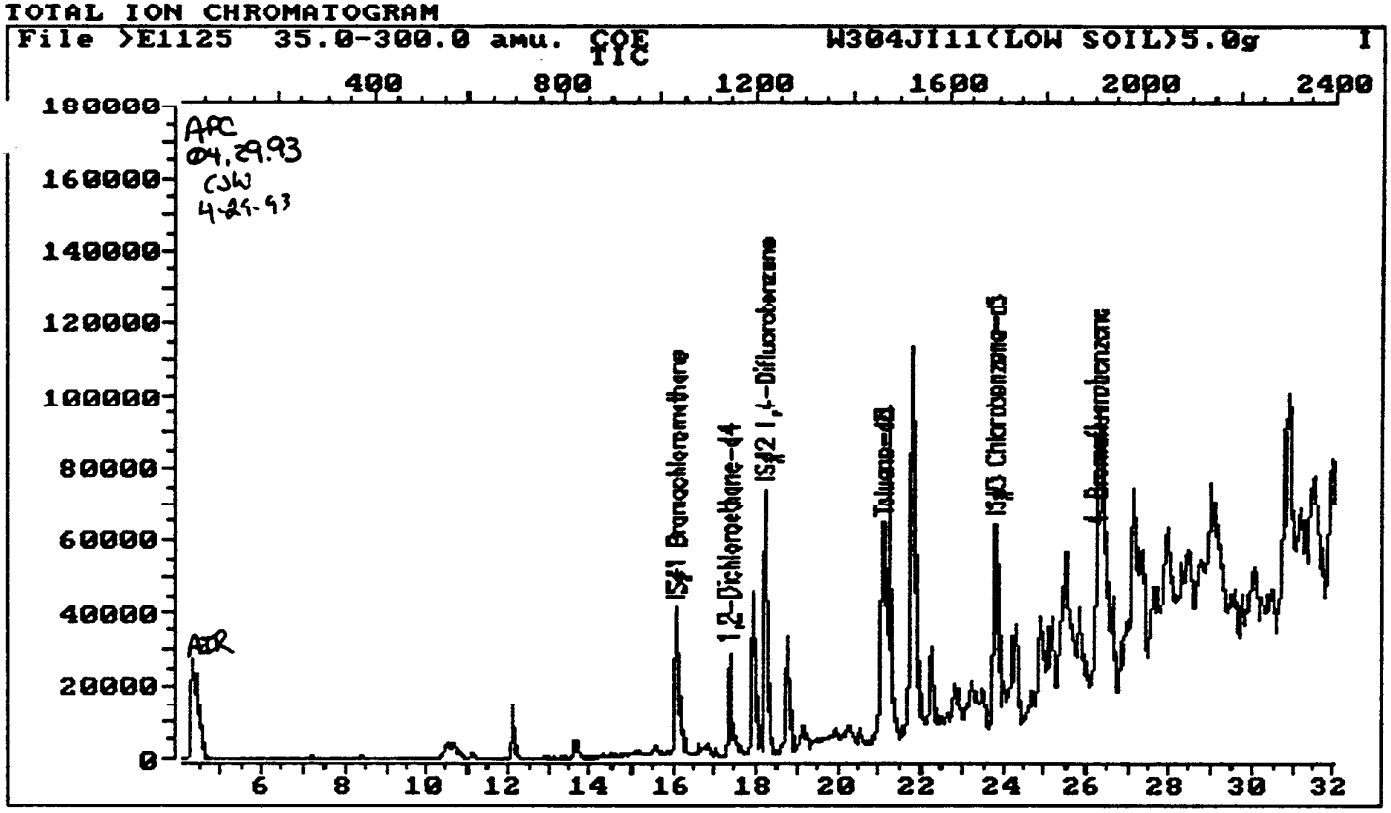
Acetone	10.67	55.	10.
Carbon Disulfide		BQL	5.
2-Butanone		BQL	10.
Vinyl Acetate		BQL	10.
2-Hexanone		BQL	10.
4-Methyl-2-Pentanone		BQL	10.
Styrene		BQL	5.
Xylene (total)	24.21-25.10	23.	5.

SURROGATE RECOVERY	(%)	QC Range
1,2-Dichloroethane-d4	86	70-121
Toluene-d8	116	84-138
4-Bromofluorobenzene	56	59-113

Surrogate Spike Level: 50 ug/kg
Associated Blank: VOA RE1121

B : Detected in blank
D : Quantitated by a Secondary Dilution
J : Detected Below Quantitation Limit
CI : Cannot Calculate Recovery due to Coeluting Interference
DO : Diluted Out
BQL: Below Quantitation Limit
PQL: Practical Quantitation Limit
MS : Matrix Spike Compound Level: NA

TOTAL ION CHROMATOGRAM



Data File: >E1125::D3 Quant Output File: ^E1125::QT
Name: COE W304JI11
Misc: (LOW SOIL)5.0g IC-BS-7 INST

Id File: ID_EV::DB
Title: VOLATILES BY SW846-8240/EPA 624 (CC# 2603392) INST E
Last Calibration: 930422 09:14

Operator ID: ARCHIE
Quant Time: 930422 17:48
Injected at: 930422 17:11

Client: U.S. ARMY CORPS OF ENG.
Sample: LABORATORY CONTROL SAMPLE
Lab ID: BS04JI (ZHE)
Method: SW 846-8240 by CLP SOW 3/90

Date Extracted: NA
Date Analyzed: 04/27/93
Date Sampled: NA
Data File ID: RU117E

GC/MS
TCLP VOLATILE ORGANICS
LABORATORY CONTROL SAMPLE

Compound	Chromatographic Retention Time (min.)	Leachate Concentration (ug/l)	PQL (ug/l)	RTL (ug/L)
Vinyl Chloride	2.65	MS 95%	50.	200.
1,1-Dichloroethylene	4.05	MS 113%	25.	700.
Chloroform	8.82	MS 120%	25.	6000.
1,2-Dichloroethane	10.32	MS 105%	25.	500.
Carbon Tetrachloride	9.62	MS 124%	25.	500.
Trichloroethylene	11.84	MS 111%	25.	500.
Benzene	10.19	MS 108%	25.	500.
Tetrachloroethylene	15.66	MS 98%	25.	700.
Chlorobenzene	17.33	MS 100%	25.	100000.
Methyl ethyl ketone	7.99	MS 51%	50.	200000.

SURROGATE RECOVERY	(%)	QC Range
1,2-Dichloroethane-d4	100	76-114
Toluene-d8	96	88-110
4-Bromofluorobenzene	96	86-115

Sample pH @ analysis NA

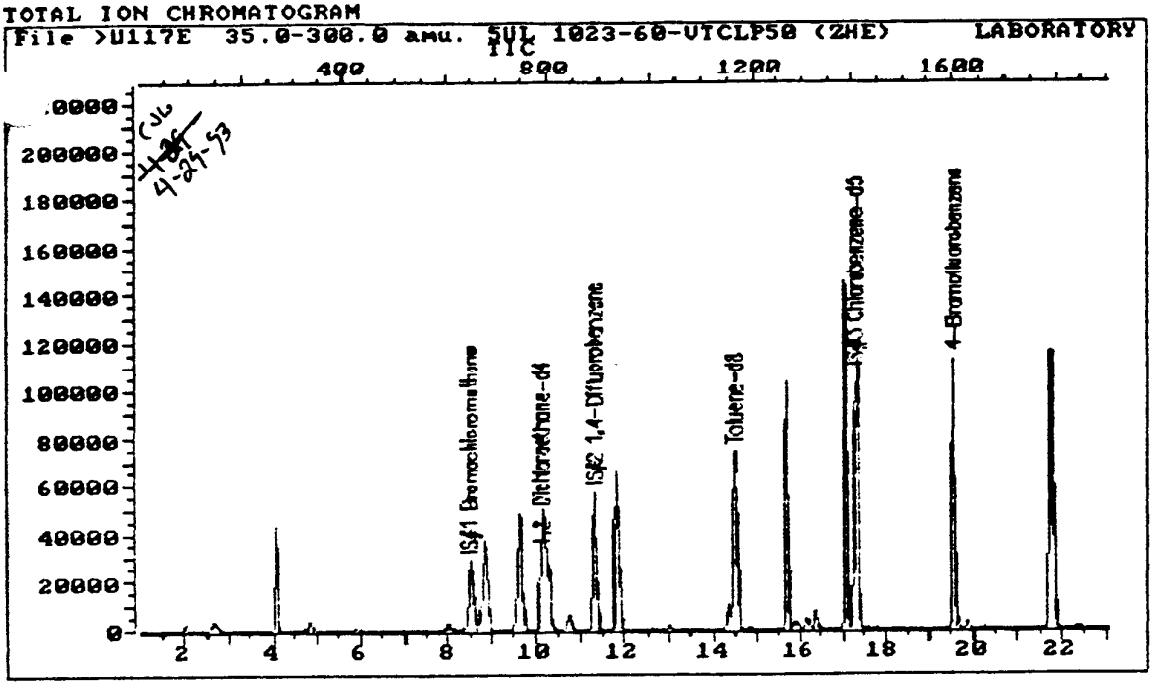
Surrogate Spike Level: 250 ug/l
Associated Blank: VOA RU117D

B : Detected in blank
D : Quantitated by a Secondary Dilution
** : Detected Below Quantitation Limit
CI : Cannot Calculate Recovery due to Coeluting Interference
DO : Diluted Out
BQL: Below Quantitation Limit
PQL: Practical Quantitation Limit
RTL: Regulatory Threshold Limit
MS : Matrix Spike Compound Level: 250 ug/l

TCLP MS QC RANGES
(* QC ranges not available in published EPA methodology)
(+ EPA CLP SOW 3/90 Advisory Ranges)
(# SW 846-8240 Revision 1 November 1990)

1,1-Dichloroethylene	:61-145+
Trichloroethylene	:71-120+
Benzene	:76-127+
Chlorobenzene	:75-130+
Vinyl Chloride	: 0-251#
Chloroform	:51-138#
1,2-Dichloroethane	:49-155#
Carbon Tetrachloride	:70-140#
Tetrachloroethylene	:64-148#
Methyl ethyl ketone	: *

TOTAL ION CHROMATOGRAM



Data File: >U117E::D1 Quant Output File: ^U117E::QT
Name: 5UL 1023-60-VTCLP50 Instrument ID: INST U
Misc: (ZHE) LABORATORY CONTROL SPIKE INST U

Id File: ID_UZ::SC
Title: TCLP VOLATILE ORGANIC ANALYSIS (CAPILLARY COLUMN)
Last Calibration: 920305 10:09 Last Qcal Time: 930427 09:25

Operator ID: ARCHIE
Quant Time : 930427 11:03
Injected at: 930427 10:40

Client: U.S. ARMY CORPS OF ENG.
Sample: VOA LAB BLANK RU117D
Lab ID: W304JI (ZHE)
Method: SW 846-8240 by CLP SOW 3/90

Date Extracted: NA
Date Analyzed: 04/27/93
Date Sampled: NA
Data File ID: RU117D

GC/MS
TCLP VOLATILE ORGANICS

Compound	Chromatographic Retention Time (min.)	Leachate Concentration (ug/l)	PQL (ug/l)	RTL (ug/L)
Vinyl Chloride		BQL	50.	200.
1,1-Dichloroethylene		BQL	25.	700.
Chloroform		BQL	25.	6000.
1,2-Dichloroethane		BQL	25.	500.
Carbon Tetrachloride		BQL	25.	500.
Trichloroethylene		BQL	25.	500.
Benzene		BQL	25.	500.
Tetrachloroethylene		BQL	25.	700.
Chlorobenzene		BQL	25.	100000.
Methyl ethyl ketone		BQL	50.	200000.

SURROGATE RECOVERY	(%)	QC Range
1,2-Dichloroethane-d4	103	76-114
Toluene-d8	100	88-110
4-Bromofluorobenzene	97	86-115

Sample pH @ analysis NA

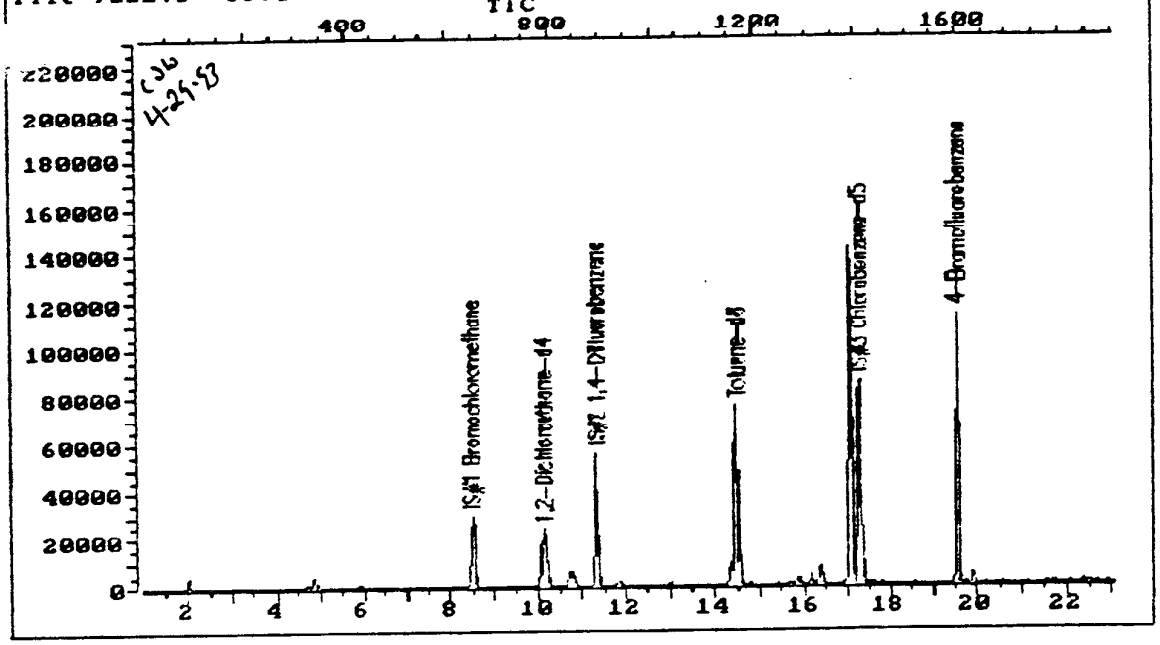
Surrogate Spike Level: 250 ug/l
Associated Blank: NA

B : Detected in blank
D : Quantitated by a Secondary Dilution
** : Detected Below Quantitation Limit
CI : Cannot Calculate Recovery due to Coeluting Interference
DO : Diluted Out
BQL: Below Quantitation Limit
PQL: Practical Quantitation Limit
RTL: Regulatory Threshold Limit
MS : Matrix Spike Compound Level: NA

EIRA ENVIRONMENTAL INDUSTRIAL RESEARCH ASSOCIATES, INC.

TOTAL ION CHROMATOGRAM

File >U117D 35.0-300.0 amu. VOA LAB BLANK U117D(ZHE) 1:5 DIL



Data File: >U117D::D1 Quant Output File: ^U117D::QT
Name: VOA LAB BLANK U117D Instrument ID: INST U
Misc: (ZHE) 1:5 DIL VOA LAB BLANK INST U

Id File: ID_UZ::SC
Title: TCLP VOLATILE ORGANIC ANALYSIS (CAPILLARY COLUMN)
Last Calibration: 920305 10:09 Last Qcal Time: 930427 09:25

Operator ID: ARCHIE
Quant Time : 930427 10:30
Injected at: 930427 10:07