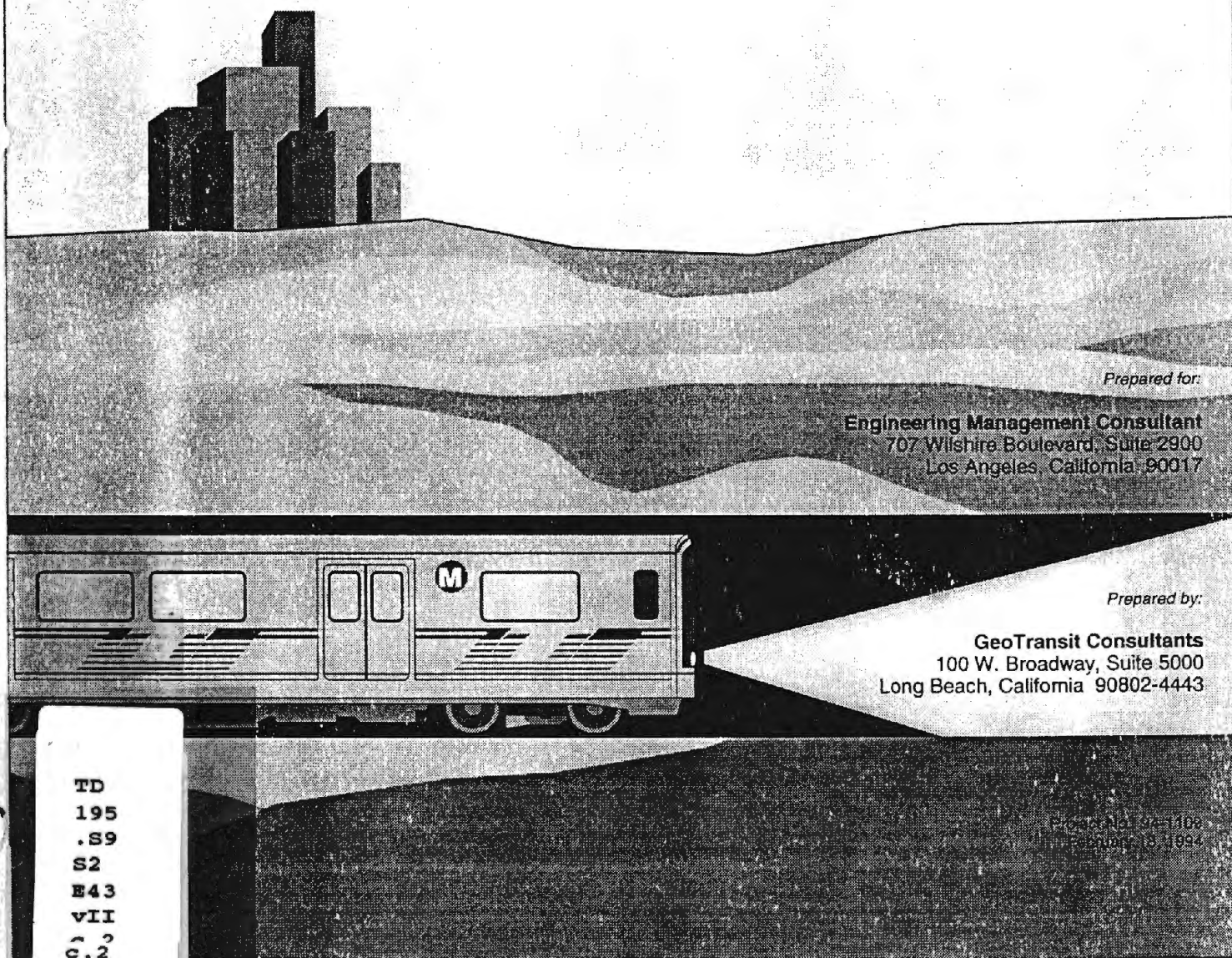


DRAFT

**Stage II Environmental Site Assessment
Eastside Extension
Metro Red Line Project
Volume II of II**



Prepared for:

Engineering Management Consultant
707 Wilshire Boulevard, Suite 2900
Los Angeles, California 90017

Prepared by:

GeoTransit Consultants
100 W. Broadway, Suite 5000
Long Beach, California 90802-4443

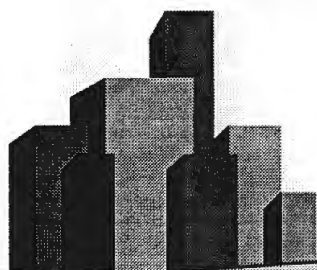
Project No. 94-1102
February 18, 1994

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DRAFT

**Stage II Environmental Site Assessment
Eastside Extension
Metro Red Line Project
Volume II of II**

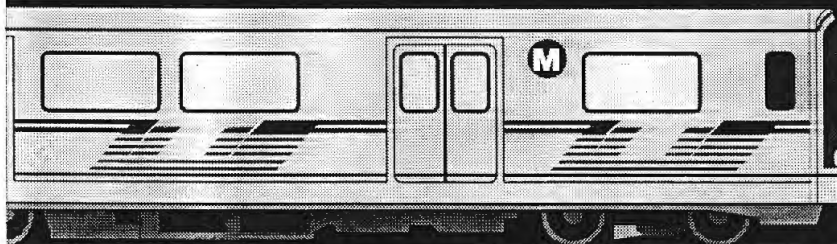


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APPENDIX C

**CHEMICAL LABORATORY TEST RESULTS
AND CHAIN-OF-CUSTODY RECORDS**

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FEB 26 1996

SOIL SAMPLES



CKY incorporated Analytical Laboratories

Date: 01-06-1994
CKY Batch No.: 93L093

Attn.: K. Khilnani

Earth Technology Corp.
13900 Alton Parkway #120
Irvine, CA 92718

Subject: Laboratory Report
Project: Metro Rail - East Side Ext.

Enclosed is the Laboratory report for samples received on 12/22/93. The samples were received in coolers with ice and intact; the chain-of-custody forms were properly filled out. The data reported include :

Sample ID	Control No.	Matrix	Analysis
-----	-----	-----	-----
EB-28-1	L093-01	soil	Hold
EB-28-2	L093-02	soil	Hold
EB-28-3	L093-03	soil	Hold
EB-28-4	L093-04	soil	Hold
EB-28-5	L093-05	soil	Hold
EB-28-6	L093-06	soil	EPA 5030/M8015 EPA 8020 EPA M8015
EB-28-7	L093-07	soil	Hold
EB-28-8	L093-08	soil	EPA 5030/M8015 EPA 8020 EPA M8015
EB-28-9	L093-09	soil	Hold
EB-28-10	L093-10	soil	EPA 5030/M8015 EPA 8020 EPA M8015
EB-28-11	L093-11	soil	Hold
EB-28-12	L093-12	soil	Hold
EB-28-13	L093-13	soil	Hold

Sample ID	Control No.	Matrix	Analysis
-----	-----	-----	-----
EB-28-14	L093-14	soil	EPA 5030/M8015 EPA M8015 EPA 8240 EPA 8270 Organic Pb Oil & Grease Sulfate Sulfide Chloride
EB-28-15	L093-15	soil	EPA 5030/M8015 EPA 8020 EPA M8015

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,



Kam Y. Pang, Ph.D.
Laboratory Director

P.S. - All analyses requested for the above referenced project have been completed. Therefore, unless instructed, the remaining portions of the samples will be disposed after fifteen (15) days from the date of this report.

EPA 5030/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE & TRAP

```
=====
CLIENT:      Earth Technology Corp.          DATE COLLECTED: 12/22/93
PROJECT:     Metro Rail - East Side Ext.     DATE RECEIVED:  12/22/93
BATCH NO.:   93L093                         DATE EXTRACTED: NA
MATRIX:      SOIL                           DATE ANALYZED:  01/03/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	% RECOVERY SURR	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----	-----
EB-28-6	L093-06	ND	111	1	1
EB-28-8	L093-08	ND	119	1	1
EB-28-10	L093-10	ND	122	1	1
EB-28-14	L093-14	ND	115	1	1
EB-28-15	L093-15	ND	86	1	1
PBLK1S	L093-B1S	ND	110	1	1

QC LIMIT: 60-140
SURR : Bromofluorobenzene
MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015G
MATRIX: SOIL

=====

BATCH NO.:	93L093	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	L093-L1W	DATE ANALYZED:	01/03/94
ACCESSION:	93L093		

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Gasoline	2.5	2.7	108

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015G
MATRIX: SOIL

```
=====
```

BATCH NO.:	93L093	DATE RECEIVED:	12/22/93
SAMPLE ID:	EB-28-6	DATE EXTRACTED:	NA
CONTROL NO.:	L093-06	DATE ANALYZED:	01/03/94
ACCESSION:	93L093		

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
Gasoline	ND	37.4	46.2	123	37.4	40.4	108	13

EPA METHOD 8020
BTEX

```
=====
CLIENT:      Earth Technology Corp.          DATE COLLECTED: 12/22/93
PROJECT:     Metro Rail - East Side Ext.    DATE RECEIVED:  12/22/93
BATCH NO.:   93L093                        DATE EXTRACTED:  NA
MATRIX:      SOIL                          DATE ANALYZED:   01/03/94
=====
```

SAMPLE ID	CNTRL NO	DL F	MDL	BENZ	RESULTS TOLUENE	(ug/kg) E BENZ	XYLS	% Rcvy SURR
EB-28-6	L093-06	1	5	ND	ND	ND	ND	103
EB-28-8	L093-08	1	5	ND	ND	ND	ND	111
EB-28-10	L093-10	1	5	ND	ND	ND	ND	114
EB-28-15	L093-15	1	5	ND	ND	ND	ND	76
VBLK1S	L093-B1S	1	5	ND	ND	ND	ND	103

DL F : Dilution Factor
SURR : Bromofluorobenzene
MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 602/8020
MATRIX: WATER

=====

BATCH NO.:	93L093	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	L093-L1W	DATE ANALYZED:	01/03/94
ACCESSION:	93L093		

PARAMETER	TRUE VALUE (ug/L)	FOUND VALUE (ug/L)	LCS RECOVERY (%)
-----	-----	-----	-----
Benzene	51	50	102
Toluene	188	188	100
Ethyl Benzene	30	30	100
Xylenes	210	203	97



CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8020
MATRIX: SOIL

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Benzene	ND	51	54	106	51	50	98	8
Toluene	ND	188	213	113	188	190	101	11
Ethyl Benzene	ND	28	34	121	28	31	111	9
Xylenes	ND	186	237	127	186	207	111	14

EPA METHOD M8015
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

CLIENT:	Earth Technology Corp.	DATE COLLECTED:	12/22/9
PROJECT:	Metro Rail - East Side Ext.	DATE RECEIVED:	12/22/9
BATCH NO.:	93L093	DATE EXTRACTED:	12/28/9
MATRIX:	SOIL	DATE ANALYZED:	01/04/9

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	H-C RANGE	% RECOVERY		DL FACTOR	MDL (mg/kg)
				SURR1	SURR2		
EB-28-6	L093-06	ND	NA	92	90	1	5
EB-28-8	L093-08	ND	NA	93	89	1	5
EB-28-10	L093-10	ND	NA	94	92	1	5
EB-28-14	L093-14	ND	NA	94	94	1	5
EB-28-15	L093-15	ND	NA	94	97	1	5
DBLK1S	L093-B1S	ND	NA	96	87	1	5

QC LIMIT: 60-140 55-150

SURR1 : Bromobenzene

SURR2 : Hexacosane

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

=====

BATCH NO.:	93L093	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	12/28/93
CONTROL NO.:	L093-L1S	DATE ANALYZED:	01/04/94
ACCESSION:	93L093		

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
DIESEL	250	200	80

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
DIESEL	ND	250	206	82	250	215	86	5

EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 12/22/93
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  12/22/93
BATCH NO.:   93L093                     DATE EXTRACTED:  NA
SAMPLE ID:   EB-28-14                   DATE ANALYZED:   12/23/93
CONTROL NO.: L093-14                     MATRIX:         SOIL
% MOISTURE:  NA                           DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	7	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	13	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	6	5.0
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	88	70-121
Toluene -d8	96	84-138
Bromofluorobenzene	94	59-113

MDL : Method Detection Limit

EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED:  NA
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:   NA
BATCH NO.:   93L093                     DATE EXTRACTED:  NA
SAMPLE ID:    VBLK1S                     DATE ANALYZED:   12/23/93
CONTROL NO.:  L093-B1S                   MATRIX:         SOIL
% MOISTURE:   NA                         DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	92	70-121
Toluene -d8	96	84-138
Bromofluorobenzene	90	59-113

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 624/8240
MATRIX: WATER

=====

BATCH NO.:	93L093	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	L093-L1W	DATE ANALYZED:	12/23/93
ACCESSION:	93L093		

PARAMETER	TRUE VALUE (ug/L)	FOUND VALUE (ug/L)	LCS RECOVERY (%)	ACCEPTABLE RANGE
-----	-----	-----	-----	-----
1,1-DCE	50	47	94	61-145
Benzene	50	51	102	76-127
TCE	50	52	104	71-125
Toluene	50	54	108	76-125
Chlorobenzene	50	53	106	75-130

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8240
MATRIX: SOIL

```
=====
```

BATCH NO.:	93L093	DATE RECEIVED:	12/22/93
SAMPLE ID:	EB-28-14	DATE EXTRACTED:	NA
CONTROL NO.:	L093-14	DATE ANALYZED:	12/23/93
ACCESSION:	93L093		

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
1,1-DCE	ND	50	39	78	50	48	96	21
Benzene	ND	50	46	92	50	48	96	4
TCE	ND	50	47	94	50	46	92	2
Toluene	ND	50	49	98	50	46	92	6
Chlorobenzene	ND	50	48	96	50	47	94	2



EPA METHOD 300
CHLORIDE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 12/22/93
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED: 12/22/93
BATCH NO.:    93L093                     DATE EXTRACTED: 12/30/93
MATRIX:      SOIL                       DATE ANALYZED: 12/30/93
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-28-14	L093-14	17.2	2	.4
WBLK1S	L093-B1S	ND	1	.2

MDL : Method Detection Limit

EPA METHOD 300
SULFATE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 12/22/93
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  12/22/93
BATCH NO.:    93L093                     DATE EXTRACTED:  12/30/93
MATRIX:      SOIL                       DATE ANALYZED:   12/30/93
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-28-14	L093-14	18.7	2	2
WBLK1S	L093-B1S	ND	1	1

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

=====

BATCH NO.:	93L093	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	12/30/93
CONTROL NO.:	L093-L1S	DATE ANALYZED:	12/30/93
ACCESSION:	93L093		

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Sulfate	150	140	93
Chloride	30	27	90

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

```
=====
```

BATCH NO.:	93L093	DATE RECEIVED:	12/22/93
SAMPLE ID:	EB-28-14	DATE EXTRACTED:	12/30/93
CONTROL NO.:	L093-14	DATE ANALYZED:	12/30/93
ACCESSION:	93L093		

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC
-----	-----	-----	-----	-----
Sulfate	18.7	15	33.5	99
Chloride	17.2	15	32.9	105



CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

=====

BATCH NO.:	93L093	DATE RECEIVED:	12/22/93
SAMPLE ID:	EB-28-14	DATE EXTRACTED:	12/30/93
CONTROL NO.:	L093-14	DATE ANALYZED:	12/30/93
ACCESSION:	93L093		

PARAMETER	Sample (mg/kg)	Dup. Sample (mg/kg)	RPD (%)
-----	-----	-----	-----
Sulfate	18.7	18.9	1
Chloride	17.2	17.2	0



DHS METHOD
ORGANIC LEAD

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 12/22/93
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  12/22/93
BATCH NO.:    93L093                     DATE EXTRACTED:  12/27/93
MATRIX:       Soil                       DATE ANALYZED:   12/28/93
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-28-14	L093-14	ND	1	.5
FBLK1S	L093-B1S	ND	1	.5

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
SPIKE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS
MATRIX: SOIL

=====

BATCH NO.:	93L093	DATE RECEIVED:	NA
SAMPLE ID:	FBLK1S	DATE EXTRACTED:	12/27/93
CONTROL NO.:	L093-B1S	DATE ANALYZED:	12/28/93
ACCESSION:	93L093		

PARAMETER	SAMPLE RESULT (mg/kg)	SPIKE CONC. (mg/kg)	SPIKE RESULT (mg/kg)	SPIKE RECRY. (%)
-----	-----	-----	-----	-----
Organic Lead	ND	5.0	5.2	104

CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	93L093	DATE RECEIVED:	12/22/93
SAMPLE ID:	EB-28-14	DATE EXTRACTED:	12/27/93
CONTROL NO.:	L093-14	DATE ANALYZED:	12/28/93
ACCESSION:	93L093		

PARAMETER	SAMPLE (mg/kg)	DUP. SAMPLE (mg/kg)	RPD (%)
-----	-----	-----	-----
Organic Lead	ND	ND	0



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	93L093	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	12/27/93
CONTROL NO.:	L093-L1S	DATE ANALYZED:	12/28/93
ACCESSION:	93L093		

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Organic Lead	5.00	4.20	84

EPA METHOD 376.1
SOLUBLE SULFIDE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 12/22/93
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED: 12/22/93
BATCH NO.:    93L093                     DATE EXTRACTED: 12/30/93
MATRIX:       SOIL                       DATE ANALYZED:  12/30/93
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-28-14	L093-14	4.1	10	2
WBLK1S	L093-B1S	ND	1	0.2

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 376.1
MATRIX: SOIL

=====

BATCH NO.:	93L093	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	L093-L1S	DATE ANALYZED:	12/30/93
ACCESSION:	93L093		

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
SULFIDE	5.0	4.6	92

CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 376.1
MATRIX: SOIL

=====

BATCH NO.:	93L093	DATE RECEIVED:	12/22/93
SAMPLE ID:	EB-28-14	DATE EXTRACTED:	12/30/93
CONTROL NO.:	L093-14	DATE ANALYZED:	12/30/93
ACCESSION:	93L093		

PARAMETER	Sample (mg/kg)	Dup. Sample (mg/kg)	RPD (%)
-----	-----	-----	-----
SULFIDE	4.1	4.1	0



EPA METHOD 413.2
OIL & GREASE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 12/22/93
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  12/22/93
BATCH NO.:    93L093                     DATE EXTRACTED:  12/28/93
MATRIX:       SOIL                       DATE ANALYZED:   01/04/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-28-14	L093-14	ND	1	10
TBLK1S	L093-B1S	ND	1	10

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 413.2
MATRIX: SOIL

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BATCH NO.:	93L093	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	12/28/93
CONTROL NO.:	L093-L1S	DATE ANALYZED:	01/04/94
ACCESSION:	93L093		

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
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TROG	150	141	94



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 413.2
MATRIX: SOIL

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BATCH NO.:	93L093	DATE RECEIVED:	12/22/93
SAMPLE ID:	EB-28-14	DATE EXTRACTED:	12/28/93
CONTROL NO.:	L093-14	DATE ANALYZED:	01/04/94

ACCESSION: 93L093

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
TROG	ND	150	139	93	150	141	94	1

EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: 12/22/93
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: 12/22/93
BATCH NO.: 93L093	DATE EXTRACTED: 01/04/94
SAMPLE ID: EB-28-14	DATE ANALYZED: 01/05/94
CONTROL NO.: L093-14	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg)		PARAMETERS	(ug/kg)	
	RESULT	MDL		RESULT	MDL
N-Nitrosodimethylamine	ND	(330)	3-Nitroaniline	ND	(800)
Pyridine	ND	(330)	Acenaphthene	ND	(330)
Aniline	ND	(330)	2,4-Dinitrophenol	ND	(800)
Phenol	ND	(330)	4-Nitrophenol	ND	(800)
bis(2-Chloroethyl)ether	ND	(330)	Dibenzofuran	ND	(330)
2-Chlorophenol	ND	(330)	2,4-Dinitrotoluene	ND	(330)
1,3-Dichlorobenzene	ND	(330)	Diethylphthalate	ND	(330)
1,4-Dichlorobenzene	ND	(330)	4-Chlorophenyl-phenylether	ND	(330)
Benzyl Alcohol	ND	(330)	Fluorene	370	(330)
1,2-Dichlorobenzene	ND	(330)	1,2-Diphenylhydrazine	ND	(800)
2-Methylphenol	ND	(330)	4-Nitroaniline	ND	(800)
2,2'-oxybis(1-Chloropropane)	ND	(330)	4,6-Dinitro-2-methylphenol	ND	(800)
4-Methylphenol	ND	(330)	N-Nitrosodiphenylamine (1)	ND	(330)
N-Nitroso-di-n-propylamine	ND	(330)	4-Bromophenyl-phenylether	ND	(330)
Hexachloroethane	ND	(330)	Hexachlorobenzene	ND	(330)
Nitrobenzene	ND	(330)	Pentachlorophenol	ND	(800)
Isophorene	ND	(330)	Benzidine	ND	(800)
2-Nitrophenol	ND	(330)	Phenanthrene	1000	(800)
2,4-Dimethylphenol	ND	(330)	Anthracene	ND	(330)
Benzoic Acid	ND	(800)	Carbazole	ND	(800)
bis(2-Chloroethoxy)methane	ND	(330)	Di-n-butylphthalate	ND	(330)
2,4-Dichlorophenol	ND	(330)	Fluoranthene	ND	(330)
1,2,4-Trichlorobenzene	ND	(330)	4,4'-Methylene Dianiline	ND	(800)
Naphthalene	800	(330)	Pyrene	ND	(330)
4-Chloroaniline	ND	(330)	Bisphenol-A	ND	(330)
Hexachloro-1,3-butadiene	ND	(330)	Butylbenzylphthalate	ND	(330)
4-Chloro-3-methylphenol	ND	(330)	3,3'-Dichlorobenzidine	ND	(330)
2-Methylnaphthalene	ND	(330)	Benzo(a)anthracene	ND	(330)
Hexachlorocyclopentadiene	ND	(330)	Chrysene	ND	(330)
2,4,6-Trichlorophenol	ND	(330)	bis(2-Ethylhexyl)phthalate	ND	(330)
2,4,5-Trichlorophenol	ND	(800)	Di-n-octylphthalate	ND	(330)
2-Chloronaphthalene	ND	(330)	Benz(b)fluoranthene	ND	(330)
1-Chloronaphthalene	ND	(330)	Benzo(k)fluoranthene	ND	(330)
2-Nitroaniline	ND	(800)	Benzo(a)pyrene	ND	(330)
Dimethylphthalate	ND	(330)	Indeno(1,2,3-cd)pyrene	ND	(330)
Acenaphthylene	ND	(330)	Dibenzo(a,h)anthracene	ND	(330)
2,6-Dinitrotoluene	ND	(330)	Benzo(g,h,i)perylene	ND	(330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	81	23-120
2-Fluorobiphenyl	74	30-115
Terphenyl-d14	74	18-137
Phenol-d5	80	24-113
2-Fluorophenol	74	25-121
2,4,6-Tribromophenol	74	19-122

MDL: Method Detection Limit



EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: NA
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: NA
BATCH NO.: 93L093	DATE EXTRACTED: 01/04/94
SAMPLE ID: SBLK1S	DATE ANALYZED: 01/05/94
CONTROL NO.: L093-B1S	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg)		PARAMETERS	(ug/kg)	
	RESULT	MDL		RESULT	MDL
N-Nitrosodimethylamine	ND	(330)	3-Nitroaniline	ND	(800)
Pyridine	ND	(330)	Acenaphthene	ND	(330)
Aniline	ND	(330)	2,4-Dinitrophenol	ND	(800)
Phenol	ND	(330)	4-Nitrophenol	ND	(800)
bis(2-Chloroethyl) ether	ND	(330)	Dibenzofuran	ND	(330)
2-Chlorophenol	ND	(330)	2,4-Dinitrotoluene	ND	(330)
1,3-Dichlorobenzene	ND	(330)	Diethylphthalate	ND	(330)
1,4-Dichlorobenzene	ND	(330)	4-Chlorophenyl-phenylether	ND	(330)
Benzyl Alcohol	ND	(330)	Fluorene	ND	(330)
1,2-Dichlorobenzene	ND	(330)	1,2-Diphenylhydrazine	ND	(800)
2-Methylphenol	ND	(330)	4-Nitroaniline	ND	(800)
2,2'-oxybis(1-Chloropropane)	ND	(330)	4,6-Dinitro-2-methylphenol	ND	(800)
4-Methylphenol	ND	(330)	N-Nitrosodiphenylamine (1)	ND	(330)
N-Nitroso-di-n-propylamine	ND	(330)	4-Bromophenyl-phenylether	ND	(330)
Hexachloroethane	ND	(330)	Hexachlorobenzene	ND	(330)
Nitrobenzene	ND	(330)	Pentachlorophenol	ND	(800)
Isophorene	ND	(330)	Benzidine	ND	(800)
2-Nitrophenol	ND	(330)	Phenanthrene	ND	(800)
2,4-Dimethylphenol	ND	(330)	Anthracene	ND	(330)
Benzoic Acid	ND	(800)	Carbazole	ND	(800)
bis(2-Chloroethoxy)methane	ND	(330)	Di-n-butylphthalate	ND	(330)
2,4-Dichlorophenol	ND	(330)	Fluoranthene	ND	(330)
1,2,4-Trichlorobenzene	ND	(330)	4,4'-Methylene Dianiline	ND	(800)
Naphthalene	ND	(330)	Pyrene	ND	(330)
4-Chloroaniline	ND	(330)	Bisphenol-A	ND	(330)
Hexachloro-1,3-butadiene	ND	(330)	Butylbenzylphthalate	ND	(330)
4-Chloro-3-methylphenol	ND	(330)	3,3'-Dichlorobenzidine	ND	(330)
2-Methylnaphthalene	ND	(330)	Benzo(a)anthracene	ND	(330)
Hexachlorocyclopentadiene	ND	(330)	Chrysene	ND	(330)
2,4,6-Trichlorophenol	ND	(330)	bis(2-Ethylhexyl)phthalate	ND	(330)
2,4,5-Trichlorophenol	ND	(800)	Di-n-octylphthalate	ND	(330)
2-Chloronaphthalene	ND	(330)	Benz(b)fluoranthene	ND	(330)
1-Chloronaphthalene	ND	(330)	Benzo(k)fluoranthene	ND	(330)
2-Nitroaniline	ND	(800)	Benzo(a)pyrene	ND	(330)
Dimethylphthalate	ND	(330)	Indeno(1,2,3-cd)pyrene	ND	(330)
Acenaphthylene	ND	(330)	Dibenzo(a,h)anthracene	ND	(330)
2,6-Dinitrotoluene	ND	(330)	Benzo(g,h,i)perylene	ND	(330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	76	23-120
2-Fluorobiphenyl	71	30-115
Terphenyl-d14	83	18-137
Phenol-d5	77	24-113
2-Fluorophenol	73	25-121
2,4,6-Tribromophenol	69	19-122

MDL: Method Detection Limit

CKY

CKY INC.. ANALYTICAL LABORATORIES. 630 Maple Ave.. Torrance, Calif. 90503 Tel. (310) 618-8889 Fax: (310) 618-0818

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8270
MATRIX: SOIL

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BATCH NO.:	93L093	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/04/94
CONTROL NO.:	L093-L1S	DATE ANALYZED:	01/05/94
ACCESSION:	93L093		

PARAMETER	TRUE VALUE (ug/kg)	FOUND VALUE (ug/kg)	LCS RECOVERY (%)
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Phenol	5000	3313	66
2-Chlorophenol	5000	3351	67
1,4-DCB	3300	2342	71
N-Nitroso-di-n-	3300	2613	79
1,2,4-TCB	3300	2308	70
4-Chloro-3-Methy	5000	3281	66
Acenaphthene	3300	2227	67
4-Nitrophenol	5000	3569	71
2,4-Dinitrotol	3300	2340	71
Pentachlorophe	5000	2693	54
Pyrene	3300	2598	79



Laboratory CLKY Method of Shipment PICKUP AT SITE
Address 630 MAPLE AV Shipment No. 1
TORRANCE, CA 90503
(310) 618 8889 Airbill No. _____
Cooler No. (ONE COOLER)
Client The Earth Technology Corporation Project Manager KRIS KHILNANI
Address 13900 Alton Parkway, Suite 120 Telephone No. (714) 458-7414
Irvine, CA 92718 Fax No. (714) 458-8701
Project Name METRO REDLINE - EAST SIDE Samplers: (Signature) VR Nadeswar
Project Number 94-1109-02

Field Sample Number	Location/Depth	Date	Time	Sample Type	Type/Size of Container	Preservation		Analysis Required										Remarks
						Temp.	Chemical	Filtered	No. of Containers	EPA Method 8015 (Mod)	EPA 8020 BTEX	EPA Method 8015 (Mod) Diesel	EPA Method 8240	EPA Method 8270	Total Lead	Chromium Pb	Chromium Cu	
1	EB-28-1	2.0	12/22	0814	D	Blue	None	1										Groundwater
2	-2	4.0	0824	D	Stainless Steel	1L		1										at ~ 29' bgs
3	-3	9.0	0845	D				1										
4	-4	14.0	0908	D				1										
5	-5	19.0	0923	D				1										
6	-6	24.0	0935	D				1	XXX					XX				
7	-7	29.0	0942	D				1										
8	-8	34.0	1010	D				1	XXV					XX				
9	-9	39.0	1031	D				1										
10	-10	44.0	1035	D				1										
11	-11	49.0	1112	D				1										
12	-12	55.0	1150	D				1										

Relinquished by:
Signature V.R. Nadeswar
Printed V. R. NADESWAR
Company GEO TRANSIT
Reason SHIPPING TO CAD

Date 12/22/93
Received by:
Signature Don Kankis
Printed Don Kankis
Company CLKY

Date 12/22/93
Relinquished by:
Signature Don Kankis
Printed Don Kankis
Company CLKY
Reason ANALYSIS

Date 12/22/93
Received by:
Signature Don Kankis
Printed Don Kankis
Company CLKY

Comments:

Relinquished by:
Signature _____
Printed _____
Company _____
Reason _____

Date _____
Received by:
Signature _____
Printed _____
Company _____



The [] Technology Corporation

Laboratory

Client The Earth Technology Corporation

Address 13900 Alton Parkway, Suite 120
Irvine, CA 92718

Project Name METRO RED LINE - EAST

Project Number 94-1109-02

Chain of Custody Record

Method of Shipment Pick up at SILE

Shipment No. Airbill No. Cooler No. ONE (COOLER)

Project Manager KRIS KHILAVANI

Telephone No. 714 458-7414

Fax. No. (714) 458-8701

Samplers: (Signature) _____

Page 2 of 2

Lab job no.:

Date 12-22-95

Page 2 of 2

Field Sample Number	Location/ Depth	Date	Time	Sample Type	Type/Size of Container	Preservation					EPA Gas	EPA 8	EPA Diesel	EPA 9	EPA 10	EPA 11	EPA 12	EPA 13	EPA 14	EPA 15	EPA 16	EPA 17	EPA 18	EPA 19	EPA 20	EPA 21	EPA 22	EPA 23	EPA 24	EPA 25	EPA 26	EPA 27	EPA 28	EPA 29	EPA 30	EPA 31	EPA 32	EPA 33	EPA 34	EPA 35	EPA 36	EPA 37	EPA 38	EPA 39	EPA 40	EPA 41	EPA 42	EPA 43	EPA 44	EPA 45	EPA 46	EPA 47	EPA 48	EPA 49	EPA 50	EPA 51	EPA 52	EPA 53	EPA 54	EPA 55	EPA 56	EPA 57	EPA 58	EPA 59	EPA 60	EPA 61	EPA 62	EPA 63	EPA 64	EPA 65	EPA 66	EPA 67	EPA 68	EPA 69	EPA 70	EPA 71	EPA 72	EPA 73	EPA 74	EPA 75	EPA 76	EPA 77	EPA 78	EPA 79	EPA 80	EPA 81	EPA 82	EPA 83	EPA 84	EPA 85	EPA 86	EPA 87	EPA 88	EPA 89	EPA 90	EPA 91	EPA 92	EPA 93	EPA 94	EPA 95	EPA 96	EPA 97	EPA 98	EPA 99	EPA 100	EPA 101	EPA 102	EPA 103	EPA 104	EPA 105	EPA 106	EPA 107	EPA 108	EPA 109	EPA 110	EPA 111	EPA 112	EPA 113	EPA 114	EPA 115	EPA 116	EPA 117	EPA 118	EPA 119	EPA 120	EPA 121	EPA 122	EPA 123	EPA 124	EPA 125	EPA 126	EPA 127	EPA 128	EPA 129	EPA 130	EPA 131	EPA 132	EPA 133	EPA 134	EPA 135	EPA 136	EPA 137	EPA 138	EPA 139	EPA 140	EPA 141	EPA 142	EPA 143	EPA 144	EPA 145	EPA 146	EPA 147	EPA 148	EPA 149	EPA 150	EPA 151	EPA 152	EPA 153	EPA 154	EPA 155	EPA 156	EPA 157	EPA 158	EPA 159	EPA 160	EPA 161	EPA 162	EPA 163	EPA 164	EPA 165	EPA 166	EPA 167	EPA 168	EPA 169	EPA 170	EPA 171	EPA 172	EPA 173	EPA 174	EPA 175	EPA 176	EPA 177	EPA 178	EPA 179	EPA 180	EPA 181	EPA 182	EPA 183	EPA 184	EPA 185	EPA 186	EPA 187	EPA 188	EPA 189	EPA 190	EPA 191	EPA 192	EPA 193	EPA 194	EPA 195	EPA 196	EPA 197	EPA 198	EPA 199	EPA 200	EPA 201	EPA 202	EPA 203	EPA 204	EPA 205	EPA 206	EPA 207	EPA 208	EPA 209	EPA 210	EPA 211	EPA 212	EPA 213	EPA 214	EPA 215	EPA 216	EPA 217	EPA 218	EPA 219	EPA 220	EPA 221	EPA 222	EPA 223	EPA 224	EPA 225	EPA 226	EPA 227	EPA 228	EPA 229	EPA 230	EPA 231	EPA 232	EPA 233	EPA 234	EPA 235	EPA 236	EPA 237	EPA 238	EPA 239	EPA 240	EPA 241	EPA 242	EPA 243	EPA 244	EPA 245	EPA 246	EPA 247	EPA 248	EPA 249	EPA 250	EPA 251	EPA 252	EPA 253	EPA 254	EPA 255	EPA 256	EPA 257	EPA 258	EPA 259	EPA 260	EPA 261	EPA 262	EPA 263	EPA 264	EPA 265	EPA 266	EPA 267	EPA 268	EPA 269	EPA 270	EPA 271	EPA 272	EPA 273	EPA 274	EPA 275	EPA 276	EPA 277	EPA 278	EPA 279	EPA 280	EPA 281	EPA 282	EPA 283	EPA 284	EPA 285	EPA 286	EPA 287	EPA 288	EPA 289	EPA 290	EPA 291	EPA 292	EPA 293	EPA 294	EPA 295	EPA 296	EPA 297	EPA 298	EPA 299	EPA 300	EPA 301	EPA 302	EPA 303	EPA 304	EPA 305	EPA 306	EPA 307	EPA 308	EPA 309	EPA 310	EPA 311	EPA 312	EPA 313	EPA 314	EPA 315	EPA 316	EPA 317	EPA 318	EPA 319	EPA 320	EPA 321	EPA 322	EPA 323	EPA 324	EPA 325	EPA 326	EPA 327	EPA 328	EPA 329	EPA 330	EPA 331	EPA 332	EPA 333	EPA 334	EPA 335	EPA 336	EPA 337	EPA 338	EPA 339	EPA 340	EPA 341	EPA 342	EPA 343	EPA 344	EPA 345	EPA 346	EPA 347	EPA 348	EPA 349	EPA 350	EPA 351	EPA 352	EPA 353	EPA 354	EPA 355	EPA 356	EPA 357	EPA 358	EPA 359	EPA 360	EPA 361	EPA 362	EPA 363	EPA 364	EPA 365	EPA 366	EPA 367	EPA 368	EPA 369	EPA 370	EPA 371	EPA 372	EPA 373	EPA 374	EPA 375	EPA 376	EPA 377	EPA 378	EPA 379	EPA 380	EPA 381	EPA 382	EPA 383	EPA 384	EPA 385	EPA 386	EPA 387	EPA 388	EPA 389	EPA 390	EPA 391	EPA 392	EPA 393	EPA 394	EPA 395	EPA 396	EPA 397	EPA 398	EPA 399	EPA 400	EPA 401	EPA 402	EPA 403	EPA 404	EPA 405	EPA 406	EPA 407	EPA 408	EPA 409	EPA 410	EPA 411	EPA 412	EPA 413	EPA 414	EPA 415	EPA 416	EPA 417	EPA 418	EPA 419	EPA 420	EPA 421	EPA 422	EPA 423	EPA 424	EPA 425	EPA 426	EPA 427	EPA 428	EPA 429	EPA 430	EPA 431	EPA 432	EPA 433	EPA 434	EPA 435	EPA 436	EPA 437	EPA 438	EPA 439	EPA 440	EPA 441	EPA 442	EPA 443	EPA 444	EPA 445	EPA 446	EPA 447	EPA 448	EPA 449	EPA 450	EPA 451	EPA 452	EPA 453	EPA 454	EPA 455	EPA 456	EPA 457	EPA 458	EPA 459	EPA 460	EPA 461	EPA 462	EPA 463	EPA 464	EPA 465	EPA 466	EPA 467	EPA 468	EPA 469	EPA 470	EPA 471	EPA 472	EPA 473	EPA 474	EPA 475	EPA 476	EPA 477	EPA 478	EPA 479	EPA 480	EPA 481	EPA 482	EPA 483	EPA 484	EPA 485	EPA 486	EPA 487	EPA 488	EPA 489	EPA 490	EPA 491	EPA 492	EPA 493	EPA 494	EPA 495	EPA 496	EPA 497	EPA 498	EPA 499	EPA 500	EPA 501	EPA 502	EPA 503	EPA 504	EPA 505	EPA 506	EPA 507	EPA 508	EPA 509	EPA 510	EPA 511	EPA 512	EPA 513	EPA 514	EPA 515	EPA 516	EPA 517	EPA 518	EPA 519	EPA 520	EPA 521	EPA 522	EPA 523	EPA 524	EPA 525	EPA 526	EPA 527	EPA 528	EPA 529	EPA 530	EPA 531	EPA 532	EPA 533	EPA 534	EPA 535	EPA 536	EPA 537	EPA 538	EPA 539	EPA 540	EPA 541	EPA 542	EPA 543	EPA 544	EPA 545	EPA 546	EPA 547	EPA 548	EPA 549	EPA 550	EPA 551	EPA 552	EPA 553	EPA 554	EPA 555	EPA 556	EPA 557	EPA 558	EPA 559	EPA 560	EPA 561	EPA 562	EPA 563	EPA 564	EPA 565	EPA 566	EPA 567	EPA 568	EPA 569	EPA 570	EPA 571	EPA 572	EPA 573	EPA 574	EPA 575	EPA 576	EPA 577	EPA 578	EPA 579	EPA 580	EPA 581	EPA 582	EPA 583	EPA 584	EPA 585	EPA 586	EPA 587	EPA 588	EPA 589	EPA 590	EPA 591	EPA 592	EPA 593	EPA 594	EPA 595	EPA 596	EPA 597	EPA 598	EPA 599	EPA 600	EPA 601	EPA 602	EPA 603	EPA 604	EPA 605	EPA 606	EPA 607	EPA 608	EPA 609	EPA 610	EPA 611	EPA 612	EPA 613	EPA 614	EPA 615	EPA 616	EPA 617	EPA 618	EPA 619	EPA 620	EPA 621	EPA 622	EPA 623	EPA 624	EPA 625	EPA 626	EPA 627	EPA 628	EPA 629	EPA 630	EPA 631	EPA 632	EPA 633	EPA 634	EPA 635	EPA 636	EPA 637	EPA 638	EPA 639	EPA 640	EPA 641	EPA 642	EPA 643	EPA 644	EPA 645	EPA 646	EPA 647	EPA 648	EPA 649	EPA 650	EPA 651	EPA 652	EPA 653	EPA 654	EPA 655	EPA 656	EPA 657	EPA 658	EPA 659	EPA 660	EPA 661	EPA 662	EPA 663	EPA 664	EPA 665	EPA 666	EPA 667	EPA 668	EPA 669	EPA 670	EPA 671	EPA 672	EPA 673	EPA 674	EPA 675	EPA 676	EPA 677	EPA 678	EPA 679	EPA 680	EPA 681	EPA 682	EPA 683	EPA 684	EPA 685	EPA 686	EPA 687	EPA 688	EPA 689	EPA 690	EPA 691	EPA 692	EPA 693	EPA 694	EPA 695	EPA 696	EPA 697	EPA 698	EPA 699	EPA 700	EPA 701	EPA 702	EPA 703	EPA 704	EPA 705	EPA 706	EPA 707	EPA 708	EPA 709	EPA 710	EPA 711	EPA 712	EPA 713	EPA 714	EPA 715	EPA 716	EPA 717	EPA 718	EPA 719	EPA 720	EPA 721	EPA 722	EPA 723	EPA 724	EPA 725	EPA 726	EPA 727	EPA 728	EPA 729	EPA 730	EPA 731	EPA 732	EPA 733	EPA 734	EPA 735	EPA 736	EPA 737	EPA 738	EPA 739	EPA 740	EPA 741	EPA 742	EPA 743	EPA 744	EPA 745	EPA 746	EPA 747	EPA 748	EPA 749	EPA 750	EPA 751	EPA 752	EPA 753	EPA 754	EPA 755	EPA 756	EPA 757	EPA 758	EPA 759	EPA 760	EPA 761	EPA 762	EPA 763	EPA 764	EPA 765	EPA 766	EPA 767	EPA 768	EPA 769	EPA 770	EPA 771	EPA 772	EPA 773	EPA 774	EPA 775	EPA 776	EPA 777	EPA 778	EPA 779	EPA 780	EPA 781	EPA 782	EPA 783	EPA 784	EPA 785	EPA 786	EPA 787	EPA 788	EPA 789	EPA 790	EPA 791	EPA 792	EPA 793	EPA 794	EPA 795	EPA 796	EPA 797	EPA 798	EPA 799	EPA 800	EPA 801	EPA 802	EPA 803	EPA 804	EPA 805	EPA 806	EPA 807	EPA 808	EPA 809	EPA 810	EPA 811	EPA 812	EPA 813	EPA 814	EPA 815	EPA 816	EPA 817	EPA 818	EPA 819	EPA 820	EPA 821	EPA 822	EPA 823	EPA 824	EPA 825	EPA 826	EPA 827	EPA 828	EPA 829	EPA 830	EPA 831	EPA 832	EPA 833	EPA 834	EPA 835	EPA 836	EPA 837	EPA 838	EPA 839	EPA 840	EPA 841	EPA 842	EPA 843	EPA 844	EPA 845	EPA 846	EPA 847	EPA 848	EPA 849	EPA 850	EPA 851	EPA 852	EPA 853	EPA 854	EPA 855	EPA 856	EPA 857	EPA 858	EPA 859	EPA 860	EPA 861	EPA 862	EPA 863	EPA 864	EPA 865	EPA 866	EPA 867	EPA 868	EPA 869	EPA 870	EPA 871	EPA 872	EPA 873	EPA 874	EPA 875	EPA 876	EPA 877	EPA 878	EPA 879	EPA 880	EPA 881	EPA 882	EPA 883	EPA 884	EPA 885	EPA 886	EPA 887	EPA 888	EPA 889

Relinquished by: V.R. Nadeswara
Signature V.R. NADESWARA
Printed Geo Transit
Company SHIPMENT 12000
Reason

Date	Received by:
12/24/21	Signature <u>[Signature]</u>
Time	Printed <u>[Signature]</u>
1300	<u>[Signature]</u>

Relinquished by: [Signature]
Signature _____
Printed DOMINOWIC
Company CKU
Reason ANALYSIS

Date	Received by:
1/17/2013	Signature <i>[Signature]</i>
Time	Printed <i>CATHERINE</i>
1:41 PM	Company <i>OKI</i>

Comments: _____

Relinquished by:

Signature _____

Printed _____

Company _____

Reason _____

Date	Received by:
	Signature _____
Time	Printed _____

ANALYSIS REQUEST FORM

CLIENT NAME: Earth Tech
CKY CONTROL NO.: 93L093
REQUESTED BY: Gerry Dahm
DATE: 12-27-93
LOGGED BY: Maria

CKY CONTROL NO.	CLIENT SAMPLE ID	COMMENTS
<u>93L093 - 6</u>	<u>EB-28-6</u>	<u>delete Organic Pb,</u> <u>Oil and Grease</u>
<u>93L093 - 8</u>	<u>EB-28-8</u>	<u>delete Organic Pb &</u> <u>Oil and Grease</u>
<u>93L093 - 10</u>	<u>EB-28-10</u>	<u>add Gas, BTEX</u> <u>and Diesel</u>
<u>93L093 - 15</u>	<u>EB-28-15</u>	<u>add Gas, BTEX</u> <u>and Diesel</u>
<u>For Project No.</u>	<u>94-1109-02</u>	<u>Metro Red Line</u> <u>East Side</u>
<u>Gas and Diesel analysis will be</u> <u>Carbon Chain ID.</u>		

SAMPLE RECEIPT FORM

CONTROL NO.	936093
CLIENT	EARTH TECH
PROJECT	METRO RED LINE

DATE	12-22-93
TIME	1340 H
RECIPIENT	CDTIANGLCO

SAMPLE TRANSPORTATION TO CKY LABORATORY:	BY	ON(DATE)	AT(TIME)	FROM(SITE/CO.)	COMMENTS
PICKED-UP BY CKY COURIER	Don Knowles	12-22-91	1340 H	EARTH TECH	
DELIVERED BY CLIENT					
SHIPPED/AIRBILL NO					

SAMPLE BATCH PACKAGING/SEALING UPON RECEIPT:			INTACT	DAMAGED	SEALED	NOT SEALED	NO CONTAINER
CONTAINER:	INSIDE TEMPERATURE:		3 C	CUSTODY SEAL		LOCATION	NUMBER
COOLER	PACKAGING	TYPE	SUFFICIENCY	INTACT	DAMAGED		
BOX	INSULATION:	coron	sh	NAME:			
OTHER:	ICE/COOLANT:	blue	ol	DATE:			
	PACKING MATERIAL:	none	—	TIME:			

SAMPLE DOCUMENTATION/CHAIN-OF-CUSTODY(COC)	SEALED	ENCLOSED	HANDCARRIED	FAXED	MAILED

SAMPLE LOG-IN:	CRITERIA	COMMENTS	DISCREPANCY
SAMPLE CUSTODY SEAL	EVERY SAMPLE	NO	
CONTAINER TYPE/MATERIAL	APPROPRIATE	al	
SAMPLE AMOUNT	ENOUGH	al	
SAMPLE PRESERVATION/HOLDING TIME	SUFFICIENT	al	
HEADSPACE/BUBBLES	ZERO/NONE	N/A	
SAMPLE LABEL INFORMATION	SUFFICIENT	al	
CHAIN-OF-CUSTODY INFORMATION	SUFFICIENT	.	

AMPLE INFO.:	SAMPLE ID	DATE	TIME	SIGNATURE	ANALYSES	PRESERVATIVE	CONTAINER
INDIVIDUAL SAMPLE CONTAINER:	NONE		SEALED PLASTIC BAG		CAN	OTHER(SPECIFY):	

[illegible]

CLIENT SERVICES COPY RECEIVED BY	DATE	TIME



CKY incorporated Analytical Laboratories

Date: 01-07-1994
CKY Batch No.: 93L113

Attn.: K. Khilnani

Earth Technology Corp.
13900 Alton Parkway #120
Irvine, CA 92718

Subject: Laboratory Report
Project: Metro Rail - East Side Ext.

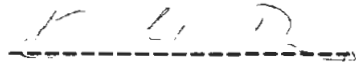
Enclosed is the Laboratory report for samples received on 12/30/93. The samples were received in coolers with ice and intact; the chain-of-custody forms were properly filled out. The data reported include :

Sample ID	Control No.	Matrix	Analysis
-----	-----	-----	-----
EB-25-1	L113-01	soil	Hold
EB-25-2	L113-02	soil	Hold
EB-25-3	L113-03	soil	Hold
EB-25-4	L113-04	soil	Hold
EB-25-5	L113-05	soil	Hold
EB-25-6	L113-06	soil	EPA M8015 (CCID) EPA 8020
EB-25-7	L113-07	soil	Hold
EB-25-8	L113-08	soil	EPA M8015 (CCID) EPA 8020 Chloride Sulfate
EB-25-9	L113-09	soil	EPA M8015 (CCID) EPA 8240 EPA 8270 Organic Pb Oil & Grease Sulfide
EB-25-10	L113-10	soil	Hold

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,



Kam Y. Pang, Ph.D.
Laboratory Director

P.S. - All analyses requested for the above referenced project have been completed. Therefore, unless instructed, the remaining portions of the samples will be disposed after fifteen (15) days from the date of this report.

EPA METHOD M8015
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

CLIENT:	Earth Technology Corp.	DATE COLLECTED:	12/29/93
PROJECT:	Metro Rail - East Side Ext.	DATE RECEIVED:	12/30/93
BATCH NO.:	93L113	DATE EXTRACTED:	01/04/94
MATRIX:	SOIL	DATE ANALYZED:	01/06/94

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	H-C RANGE	% RECOVERY		DL FACTOR	MDL (mg/kg)
				SURR1	SURR2		
EB-25-6	L113-06	ND	NA	81	85	1	5
EB-25-8	L113-08	ND	NA	78	98	1	5
EB-25-9	L113-09	ND	NA	82	105	1	5
DBLK1S	L113-B1S	ND	NA	103	86	1	5

QC LIMIT: 60-140 55-150

SURR1 : Bromobenzene

SURR2 : Hexacosane

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

BATCH NO.: 93L113 DATE RECEIVED: NA
SAMPLE ID: DBLK1S DATE EXTRACTED: NA
CONTROL NO.: L106-B1S DATE ANALYZED: 01/06/94

ACCESSION: 93L106 93L113 94A003 94A007

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
DIESEL	ND	250	227	91	250	231	92	1

CKY

EPA METHOD 8020
BTEX

```
=====
CLIENT:      Earth Technology Corp.          DATE COLLECTED: 12/29/93
PROJECT:     Metro Rail - East Side Ext.     DATE RECEIVED:  12/30/93
BATCH NO.:   93L113                         DATE EXTRACTED:  NA
MATRIX:      SOIL                           DATE ANALYZED:   01/04/94
=====
```

SAMPLE ID	CNTRL NO	DL F	MDL	BENZ	RESULTS TOLUENE	(ug/kg) E BENZ	XYLS	% Rcvy SURR
-----	-----	----	-----	----	-----	-----	-----	-----
EB-25-6	L113-06	1	5	ND	ND	ND	ND	90
EB-25-8	L113-08	1	5	ND	ND	ND	ND	91
VBLK1S	L113-B1S	1	5	ND	ND	ND	ND	101

DL F : Dilution Factor
SURR : Bromofluorobenzene
MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 602
MATRIX: WATER

```
=====
```

BATCH NO.:	93L113	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	L113-L1S	DATE ANALYZED:	01/04/94
ACCESSION:	93L113		

PARAMETER	TRUE VALUE (ug/L)	FOUND VALUE (ug/L)	LCS RECOVERY (%)
-----	-----	-----	-----
Benzene	50	58	116
Toluene	185	209	113
Ethyl Benzene	29	33	114
Xylenes	205	230	112



CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8020
MATRIX: SOIL

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Benzene	ND	50	43	86	50	53	106	21
Toluene	ND	185	156	84	185	200	108	25
Ethyl Benzene	ND	29	26	90	29	33	114	24
Xylenes	ND	205	169	82	205	219	107	26

EPA METHOD 300
CHLORIDE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 12/29/93
PROJECT:      Metro Rail - East Side Ext.  DATE RECEIVED:  12/30/93
BATCH NO.:    93L113                     DATE EXTRACTED:  01/03/94
MATRIX:       SOIL                       DATE ANALYZED:   01/03/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-25-8	L113-08	17.0	2	.4
WBLK1S	L113-B1S	ND	1	.2

MDL : Method Detection Limit

EPA METHOD 300
SULFATE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 12/29/93
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  12/30/93
BATCH NO.:    93L113                     DATE EXTRACTED:  01/03/94
MATRIX:       SOIL                       DATE ANALYZED:   01/03/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-25-8	L113-08	55.4	2	.4
WBLK1S	L113-B1S	ND	1	.2

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

=====

BATCH NO.:	93L113	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	L113-L1S	DATE ANALYZED:	01/03/94
ACCESSION:	93L113		

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Sulfate	150	143	95
Chloride	30.0	27.8	93

CKY QUALITY CONTROL DATA
SPIKE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

```
=====
```

BATCH NO.:	93L113	DATE RECEIVED:	12/30/93
SAMPLE ID:	EB-25-8	DATE EXTRACTED:	01/03/94
CONTROL NO.:	L113-08	DATE ANALYZED:	01/03/94
ACCESSION:	93L113		

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC
-----	-----	-----	-----	-----
Sulfate	55.4	15	71.6	108
Chloride	17.0	5	22.3	106



CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

=====

BATCH NO.:	93L113	DATE RECEIVED:	12/30/93
SAMPLE ID:	EB-25-8	DATE EXTRACTED:	01/03/94
CONTROL NO.:	L113-08	DATE ANALYZED:	01/03/94
ACCESSION:	93L113		

PARAMETER	Sample (mg/kg)	Dup. Sample (mg/kg)	RPD (%)
-----	-----	-----	-----
Sulfate	55.4	55.0	0
Chloride	17.0	17.1	0

EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 12/29/93
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  12/30/93
BATCH NO.:   93L113                     DATE EXTRACTED:  NA
SAMPLE ID:   EB-25-9                     DATE ANALYZED:   01/03/94
CONTROL NO.: L113-09                     MATRIX:         SOIL
% MOISTURE:  NA                          DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	94	70-121
Toluene -d8	100	84-138
Bromofluorobenzene	87	59-113

MDL : Method Detection Limit



EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED:  NA
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:   NA
BATCH NO.:   93L113                     DATE EXTRACTED:  NA
SAMPLE ID:   VBLK1S                     DATE ANALYZED:   01/03/94
CONTROL NO.: L113-B1S                   MATRIX:         SOIL
% MOISTURE:  NA                         DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	82	70-121
Toluene -d8	105	84-138
Bromofluorobenzene	92	59-113

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8240
MATRIX: SOIL

=====

BATCH NO.:	93L113	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	L113-L1S	DATE ANALYZED:	01/03/94
ACCESSION:	93L113		

PARAMETER	TRUE VALUE (ug/kg)	FOUND VALUE (ug/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
1,1-DCE	50.00	33.00	66
Benzene	50.00	40.00	80
TCE	50.00	42.00	84
Toluene	50.00	45.00	90
Chlorobenzene	50.00	43.00	86



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8240
MATRIX: SOIL

BATCH NO.: 93L113 DATE RECEIVED: NA
SAMPLE ID: 29-A114305 DATE EXTRACTED: NA
CONTROL NO.: L106-05 DATE ANALYZED: 01/03/94

ACCESSION: 93L106 93L113

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
1,1-DCE	ND	50.00	33.00	66	50.00	36.00	72	9
Benzene	ND	50.00	45.00	90	50.00	44.00	88	2
TCE	ND	50.00	49.00	98	50.00	48.00	96	2
Toluene	ND	50.00	47.00	94	50.00	47.00	94	0
Chlorobenzene	ND	50.00	48.00	96	50.00	48.00	96	0



EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: 12/29/93
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: 12/30/93
BATCH NO.: 93L113	DATE EXTRACTED: 01/04/94
SAMPLE ID: EB-25-9	DATE ANALYZED: 01/05/94
CONTROL NO.: L113-09	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg)		PARAMETERS	(ug/kg)	
	RESULT	MDL		RESULT	MDL
N-Nitrosodimethylamine	ND	(330)	3-Nitroaniline	ND	(800)
Pyridine	ND	(330)	Acenaphthene	ND	(330)
Aniline	ND	(330)	2,4-Dinitrophenol	ND	(800)
Phenol	ND	(330)	4-Nitrophenol	ND	(800)
bis(2-Chloroethyl)ether	ND	(330)	Dibenzofuran	ND	(330)
2-Chlorophenol	ND	(330)	2,4-Dinitrotoluene	ND	(330)
1,3-Dichlorobenzene	ND	(330)	Diethylphthalate	ND	(330)
1,4-Dichlorobenzene	ND	(330)	4-Chlorophenyl-phenylether	ND	(330)
Benzyl Alcohol	ND	(330)	Fluorene	ND	(330)
1,2-Dichlorobenzene	ND	(330)	1,2-Diphenylhydrazine	ND	(800)
2-Methylphenol	ND	(330)	4-Nitroaniline	ND	(800)
2,2'-oxybis(1-Chloropropane)	ND	(330)	4,6-Dinitro-2-methylphenol	ND	(800)
4-Methylphenol	ND	(330)	N-Nitrosodiphenylamine (1)	ND	(330)
N-Nitroso-di-n-propylamine	ND	(330)	4-Bromophenyl-phenylether	ND	(330)
Hexachloroethane	ND	(330)	Hexachlorobenzene	ND	(330)
Nitrobenzene	ND	(330)	Pentachlorophenol	ND	(800)
Isophorene	ND	(330)	Benzidine	ND	(800)
2-Nitrophenol	ND	(330)	Phenanthrene	ND	(800)
2,4-Dimethylphenol	ND	(330)	Anthracene	ND	(330)
Benzoic Acid	ND	(800)	Carbazole	ND	(800)
bis(2-Chloroethoxy)methane	ND	(330)	Di-n-butylphthalate	ND	(330)
2,4-Dichlorophenol	ND	(330)	Fluoranthene	ND	(330)
1,2,4-Trichlorobenzene	ND	(330)	4,4'-Methylene Dianiline	ND	(800)
Naphthalene	ND	(330)	Pyrene	ND	(330)
4-Chloroaniline	ND	(330)	Bisphenol-A	ND	(330)
Hexachloro-1,3-butadiene	ND	(330)	Butylbenzylphthalate	ND	(330)
4-Chloro-3-methylphenol	ND	(330)	3,3'-Dichlorobenzidine	ND	(330)
2-Methylnaphthalene	ND	(330)	Benzo(a)anthracene	ND	(330)
Hexachlorocyclopentadiene	ND	(330)	Chrysene	ND	(330)
2,4,6-Trichlorophenol	ND	(330)	bis(2-Ethylhexyl)phthalate	ND	(330)
2,4,5-Trichlorophenol	ND	(800)	Di-n-octylphthalate	ND	(330)
2-Chloronaphthalene	ND	(330)	Benz(b)fluoranthene	ND	(330)
1-Chloronaphthalene	ND	(330)	Benzo(k)fluoranthene	ND	(330)
2-Nitroaniline	ND	(800)	Benzo(a)pyrene	ND	(330)
Dimethylphthalate	ND	(330)	Indeno(1,2,3-cd)pyrene	ND	(330)
Acenaphthylene	ND	(330)	Dibenzo(a,h)anthracene	ND	(330)
2,6-Dinitrotoluene	ND	(330)	Benzo(g,h,i)perylene	ND	(330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	65	23-120
2-Fluorobiphenyl	62	30-115
Terphenyl-d14	68	18-137
Phenol-d5	65	24-113
2-Fluorophenol	60	25-121
2,4,6-Tribromophenol	52	19-122

MDL: Method Detection Limit



EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: NA
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: NA
BATCH NO.: 93L113	DATE EXTRACTED: 01/04/94
SAMPLE ID: SBLK1S	DATE ANALYZED: 01/05/94
CONTROL NO.: L113-B1S	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg)		PARAMETERS	(ug/kg)	
	RESULT	MDL		RESULT	MDL
N-Nitrosodimethylamine	ND	(330)	3-Nitroaniline	ND	(800)
Pyridine	ND	(330)	Acenaphthene	ND	(330)
Aniline	ND	(330)	2,4-Dinitrophenol	ND	(800)
Phenol	ND	(330)	4-Nitrophenol	ND	(800)
bis(2-Chloroethyl)ether	ND	(330)	Dibenzofuran	ND	(330)
2-Chlorophenol	ND	(330)	2,4-Dinitrotoluene	ND	(330)
1,3-Dichlorobenzene	ND	(330)	Diethylphthalate	ND	(330)
1,4-Dichlorobenzene	ND	(330)	4-Chlorophenyl-phenylether	ND	(330)
Benzyl Alcohol	ND	(330)	Fluorene	ND	(330)
1,2-Dichlorobenzene	ND	(330)	1,2-Diphenylhydrazine	ND	(800)
2-Methylphenol	ND	(330)	4-Nitroaniline	ND	(800)
2,2'-oxybis(1-Chloropropane)	ND	(330)	4,6-Dinitro-2-methylphenol	ND	(800)
4-Methylphenol	ND	(330)	N-Nitrosodiphenylamine (1)	ND	(330)
N-Nitroso-di-n-propylamine	ND	(330)	4-Bromophenyl-phenylether	ND	(330)
Hexachloroethane	ND	(330)	Hexachlorobenzene	ND	(330)
Nitrobenzene	ND	(330)	Pentachlorophenol	ND	(800)
Isophorene	ND	(330)	Benzidine	ND	(800)
2-Nitrophenol	ND	(330)	Phenanthrene	ND	(800)
2,4-Dimethylphenol	ND	(330)	Anthracene	ND	(330)
Benzoic Acid	ND	(800)	Carbazole	ND	(800)
bis(2-Chloroethoxy)methane	ND	(330)	Di-n-butylphthalate	ND	(330)
2,4-Dichlorophenol	ND	(330)	Fluoranthene	ND	(330)
1,2,4-Trichlorobenzene	ND	(330)	4,4'-Methylene Dianiline	ND	(800)
Naphthalene	ND	(330)	Pyrene	ND	(330)
4-Chloroaniline	ND	(330)	Bisphenol-A	ND	(330)
Hexachloro-1,3-butadiene	ND	(330)	Butylbenzylphthalate	ND	(330)
4-Chloro-3-methylphenol	ND	(330)	3,3'-Dichlorobenzidine	ND	(330)
2-Methylnaphthalene	ND	(330)	Benzo(a)anthracene	ND	(330)
Hexachlorocyclopentadiene	ND	(330)	Chrysene	ND	(330)
2,4,6-Trichlorophenol	ND	(330)	bis(2-Ethylhexyl)phthalate	ND	(330)
2,4,5-Trichlorophenol	ND	(800)	Di-n-octylphthalate	ND	(330)
2-Chloronaphthalene	ND	(330)	Benz(b)fluoranthene	ND	(330)
1-Chloronaphthalene	ND	(330)	Benzo(k)fluoranthene	ND	(330)
2-Nitroaniline	ND	(800)	Benzo(a)pyrene	ND	(330)
Dimethylphthalate	ND	(330)	Indeno(1,2,3-cd)pyrene	ND	(330)
Acenaphthylene	ND	(330)	Dibenzo(a,h)anthracene	ND	(330)
2,6-Dinitrotoluene	ND	(330)	Benzo(g,h,i)perylene	ND	(330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	76	23-120
2-Fluorobiphenyl	71	30-115
Terphenyl-d14	83	18-137
Phenol-d5	77	24-113
2-Fluorophenol	73	25-121
2,4,6-Tribromophenol	69	19-122

MDL: Method Detection Limit

CKY

CKY INC., ANALYTICAL LABORATORIES, 630 Maple Ave., Torrance, Calif. 90503 Tel. (310) 618-8889 Fax: (310) 618-0818

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8270
MATRIX: SOIL

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=====
```

BATCH NO.:	93L113	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/04/94
CONTROL NO.:	L113-L1S	DATE ANALYZED:	01/05/94
ACCESSION:	93L113		

PARAMETER	TRUE VALUE (ug/kg)	FOUND VALUE (ug/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Phenol	5000	3313	66
2-Chlorophenol	5000	3351	67
1,4-DCB	3300	2342	71
N-Nitroso-di-n-	3300	2613	79
1,2,4-TCB	3300	2308	70
4-Chloro-3-Methy	5000	3281	66
Acenaphthene	3300	2227	67
4-Nitrophenol	5000	3569	71
2,4-Dinitrotol	3300	2340	71
Pentachlorophe	5000	2693	54
Pyrene	3300	2598	79



DHS METHOD
ORGANIC LEAD

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 12/29/93
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  12/30/93
BATCH NO.:    93L113                     DATE EXTRACTED:  01/04/94
MATRIX:       SOIL                       DATE ANALYZED:   01/04/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-25-9	L113-09	ND	1	.5
FBLK1S	L113-B1S	ND	1	.5

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	93L113	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/04/94
CONTROL NO.:	L113-L1S	DATE ANALYZED:	01/04/94
ACCESSION:	93L113		

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Lead	100	97	97



CKY QUALITY CONTROL DATA
SPIKE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	93L113	DATE RECEIVED:	NA
SAMPLE ID:	FBLK1S	DATE EXTRACTED:	01/04/94
CONTROL NO.:	L113-B1S	DATE ANALYZED:	01/04/94
ACCESSION:	93L113		

PARAMETER	SAMPLE RESULT (mg/kg)	SPIKE CONC. (mg/kg)	SPIKE RESULT (mg/kg)	SPIKE RECRY. (%)
-----	-----	-----	-----	-----
Lead	ND	5.0	4.54	91



CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	93L113	DATE RECEIVED:	12/30/93
SAMPLE ID:	EB-25-9	DATE EXTRACTED:	01/04/94
CONTROL NO.:	L113-09	DATE ANALYZED:	01/04/94
ACCESSION:	93L113		

PARAMETER	SAMPLE (mg/kg)	DUP. SAMPLE (mg/kg)	RPD (%)
-----	-----	-----	-----
Lead	ND	ND	0



EPA METHOD 413.2
OIL & GREASE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 12/29/93
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED: 12/30/93
BATCH NO.:    93L113                     DATE EXTRACTED: 12/30/93
MATRIX:      SOIL                       DATE ANALYZED: 01/05/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-25-9	L113-09	ND	1	10
TBLK1S	L113-B1S	ND	1	10

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 413.2
MATRIX: SOIL

```
=====
```

BATCH NO.:	93L113	DATE RECEIVED:	NA
SAMPLE ID:	TBLK1S	DATE EXTRACTED:	NA
CONTROL NO.:	L106-B1S	DATE ANALYZED:	01/05/94
ACCESSION:	93L106 93L113		

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
-----	-----	-----	-----	-----	-----	-----	-----	-----
TROG	ND	150	167	111	150	152	101	9

EPA METHOD 376.1
TOTAL SULFIDE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 12/29/93
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  12/30/93
BATCH NO.:   93L113                     DATE EXTRACTED:  01/03/94
MATRIX:      SOIL                       DATE ANALYZED:   01/03/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-25-9	L113-09	7.7	10	4.0
WBLK1S	L113-B1S	ND	1	0.4

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 376.1
MATRIX: WATER

=====

BATCH NO.:	93L113	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	L113-L1W	DATE ANALYZED:	01/03/94
ACCESSION:	93L113		

PARAMETER	TRUE VALUE (mg/L)	FOUND VALUE (mg/L)	LCS RECOVERY (%)
-----	-----	-----	-----
SULFIDE	5.0	4.6	92



CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 376.1
MATRIX: SOIL

=====

BATCH NO.:	93L113	DATE RECEIVED:	12/30/93
SAMPLE ID:	EB-25-9	DATE EXTRACTED:	01/03/94
CONTROL NO.:	L113-09	DATE ANALYZED:	01/03/94
ACCESSION:	93L113		

PARAMETER	Sample (mg/kg)	Dup. Sample (mg/kg)	RPD (%)
-----	-----	-----	-----
SULFIDE	7.7	8.6	11



Chain of Custody Record

Laboratory CKY Inc.

Address 630 Maple Ave.
Torrance, CA 90503

Client The Earth Technology Corporation

Address 13900 Alton Parkway, Suite 120
Irvine, CA 92718

Project Name Metro Red Line - East Side Ext.

Project Number 94-1109-02

Method of Shipment Courier

Shipment No.

Airbill No. _____

Cooler No.

Project Manager Krit Khilnani

Telephone No. 714-458-7414

Fax. No. 714-458-6701

Samplers: (Signature) K. K. Mehta

Lab Job no.: _____

Date _____

Page 9 of 10

Field Sample Number	Location/ Depth	Date	Time	Sample Type	Type/Size of Container	Preservation																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															

Relinquished by: N. N. Murtuza
Signature
Printed K. K. MURALESHWARAN
Company TETC
Reason Transportation

Date 12/3/98 Received by: J. Patel
Signature J. Patel
Time 2:08 Printed J. C. Patel
Company CKY Inc

Date	Relinquished by
12/30/93	Signature <u>[Signature]</u>
	Printed <u>FAIRHILL</u>
Time	Company
2:00 PM	<u>City</u>
	Reason <u>1st shift</u>

Date	Received by:
12/30/71	Signature _____
Time	Printed _____
3:00 pm	Company _____

Comments: _____

Relinquished by:

Signature _____

Printed _____

Company _____

Reason _____

Date	Received by:
	Signature _____
Time	Printed _____
	Company _____

SAMPLE RECEIPT FORM

CONTROL NO.		932113				
CLIENT		EARTH TECH.				
PROJECT		METRO RED LINE EAST SIDE EXT.				
DATE 12-30-93 TIME 15:00 RECIPIENT JFS						
SAMPLE TRANSPORTATION TO CKY LABORATORY:		BY	ON(DATE)	AT(TIME)	FROM(SITE/CO.)	COMMENTS
PICKED-UP BY CKY COURIER		INDRA	12-30-93	14:00 AM	EARTH TECH.	
DELIVERED BY CLIENT						
SHIPPED/AIRBILL NO						
SAMPLE BATCH PACKAGING/SEALING UPON RECEIPT:		— INTACT	DAMAGED	SEALED	— NOT SEALED	NO CONTAINER
CONTAINER:	INSIDE TEMPERATURE:	6 ° C	CUSTODY SEAL		LOCATION	NUMBER
— COOLER	PACKAGING	TYPE	SUFFICIENCY	INTACT	DAMAGED	
BOX	INSULATION:	COOLER	OK	NAME:		
OTHER:	ICE/COOLANT:	REGULAR ICE	OK	DATE:		
	PACKING MATERIAL:	ZIPLOC BAG	OK	TIME:		
SAMPLE DOCUMENTATION/CHAIN-OF-CUSTODY(COC)		SEALED	ENCLOSED	— HANDCARRIED	FAXED	MAILED
SAMPLE LOG-IN:		CRITERIA	COMMENTS		DISCREPANCY	
SAMPLE CUSTODY SEAL		EVERY SAMPLE	NONE			
CONTAINER TYPE/MATERIAL		APPROPRIATE	OK			
SAMPLE AMOUNT		ENOUGH	OK			
SAMPLE PRESERVATION/HOLDING TIME		SUFFICIENT	OK			
HEADSPACE/BUBBLES		ZERO/NONE	NONE			
SAMPLE LABEL INFORMATION		SUFFICIENT	OK			
CHAIN-OF-CUSTODY INFORMATION		SUFFICIENT	OK			
SAMPLE INFO.:	SAMPLE ID —	DATE —	TIME —	SIGNATURE —	ANALYSES —	PRESERVATIVE + CONTAINER —
INDIVIDUAL SAMPLE CONTAINER:		NONE	SEALED PLASTIC BAG		CAN	OTHER(SPECIFY):
SAMPLE NUMBER	CLIENT ID	DISCREPANCY			ACTION	
CLIENT SERVICES COPY RECEIVED BY		DATE		TIME		



CKY incorporated Analytical Laboratories

Date: 01-31-1994
CKY Batch No.: 94A008

Attn.: K. Khilnani

Earth Technology Corp.
13900 Alton Parkway #120
Irvine, CA 92718

Subject: Laboratory Report
Project: Metro Rail - East Side Ext.

Enclosed is the Laboratory report for samples received on 01/04/94. The samples were received in coolers with ice and intact; the chain-of-custody forms were properly filled out. The data reported include :

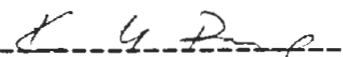
Sample ID	Control No.	Matrix	Analysis
EB-2-D-1	A008-01	soil	CAM METALS
EB-2-D-2	A008-02	soil	Hold
EB-2-D-3	A008-03	soil	EPA M8015 (CCID) EPA 8020
EB-2-D-4	A008-04	soil	Hold
EB-2-D-5	A008-05	soil	Hold
EB-2-D-6	A008-06	soil	EPA M8015 (CCID) EPA 8240 EPA 8270 Organic Pb Oil & Grease Sulfide Sulfate Chloride
EB-2-D-7	A008-07	soil	Hold
EB-2-D-8	A008-08	soil	Hold
EB-2-D-9	A008-09	soil	Hold
EB-2-D-10	A008-10	soil	EPA M8015 (CCID) EPA 8020

Sample ID	Control No.	Matrix	Analysis
-----	-----	-----	-----
EB-2-D-11	A008-11	soil	Hold
EB-2-D-12	A008-12	soil	Hold
EB-2-D-13	A008-13	soil	EPA M8015 (CCID) EPA 8020
EB-2-D-14	A008-14	soil	Hold
EB-2-D-15	A008-15	soil	Hold

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,



Kam Y. Pang, Ph.D.
Laboratory Director

P.S. - All analyses requested for the above referenced project have been completed. Therefore, unless instructed, the remaining portions of the samples will be disposed after fifteen (15) days from the date of this report.

EPA METHOD 3050/6010
CAM METALS BY ICP

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/04/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/04/94
BATCH NO.:   94A008                     DATE EXTRACTED:  01/27/94
SAMPLE ID:   EB-2-D-1                   DATE ANALYZED:   01/28/94
CONTROL NO.: A008-01                     MATRIX:         SOIL
% MOISTURE:  NA                         DILUTION FACTOR: 1
=====
```

Element	Det Limit (mg/kg)	RESULT (mg/kg)
-----	-----	-----
Antimony	5	ND
Arsenic	10	ND
Barium	.5	103
Beryllium	.5	.68
Cadmium	.5	.64
Chromium	.5	24.1
Cobalt	.5	10.1
Copper	.5	16.7
Lead	5	ND
Mercury^	.05	.08
Molybdenum	2.5	ND
Nickel	1	16.4
Selenium	10	ND
Silver	.5	ND
Thallium	20	ND
Vanadium	.5	46.2
Zinc	1	52.5

^ EPA METHOD 7471



EPA METHOD 3050/6010
CAM METALS BY ICP

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED:  NA
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:   NA
BATCH NO.:   94A008                     DATE EXTRACTED:  01/27/94
SAMPLE ID:   IBLK1S                     DATE ANALYZED:   01/28/94
CONTROL NO.: A008-B1S                   MATRIX:         SOIL
% MOISTURE:  NA                         DILUTION FACTOR: 1
=====
```

Element	Det Limit (mg/kg)	RESULT (mg/kg)
-----	-----	-----
Antimony	5	ND
Arsenic	10	ND
Barium	.5	ND
Beryllium	.5	ND
Cadmium	.5	ND
Chromium	.5	ND
Cobalt	.5	ND
Copper	.5	ND
Lead	5	ND
Mercury^	.05	ND
Molybdenum	2.5	ND
Nickel	1	ND
Selenium	10	ND
Silver	.5	ND
Thallium	20	ND
Vanadium	.5	ND
Zinc	1	ND

^ EPA METHOD 7471

CKY QUALITY CONTROL DATA
SPIKE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 3050/6010
MATRIX: SOIL

BATCH NO.: 94A008 DATE RECEIVED: NA
SAMPLE ID: EB-18#1 DATE EXTRACTED: 01/27/94
CONTROL NO.: A034-13 DATE ANALYZED: 01/28/94

ACCESSION: 94A008 94A021 94A031 94A032 94A034

PARAMETER	SAMPLE RESULT (mg/kg)	SPIKE CONC. (mg/kg)	SPIKE RESULT (mg/kg)	SPIKE RECRY. (%)
Antimony	ND	100	77.7	78
Arsenic	ND	100	110	110
Barium	84.7	100	187	102
Beryllium	ND	100	104	104
Cadmium	ND	100	102	102
Chromium	11.9	100	118	106
Cobalt	6.92	100	111	104
Copper	11.8	100	114	102
Lead	ND	100	104	104
Mercury^	.08	.48	.57	102
Molybdenum	ND	100	105	105
Nickel	8.97	100	109	100
Selenium	ND	100	93.4	93
Silver	ND	100	93.6	94
Thallium	ND	100	86.1	86
Vanadium	30.5	100	140	109
Zinc	44.2	100	150	106

^ EPA METHOD 7471



CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 3050/6010
MATRIX: SOIL

BATCH NO.: 94A008 DATE RECEIVED: NA
SAMPLE ID: EB-18#1 DATE EXTRACTED: 01/27/94
CONTROL NO.: A034-13 DATE ANALYZED: 01/28/94

ACCESSION: 94A008 94A021 94A031 94A032 94A034

PARAMETER	SAMPLE RESULT (mg/kg)	DUP SAMPLE RESULT (mg/kg)	RPD RESULT (%)
Antimony	ND	ND	0
Arsenic	ND	ND	0
Barium	84.7	83.6	1
Beryllium	ND	ND	0
Cadmium	ND	.53	NA+
Chromium	11.9	11.4	4
Cobalt	6.92	6.66	4
Copper	11.8	11	7
Lead	ND	ND	0
Mercury^	.08	.08	0
Molybdenum	ND	ND	0
Nickel	8.97	8.02	11
Selenium	ND	ND	0
Silver	ND	ND	0
Thallium	ND	ND	0
Vanadium	30.5	30.6	1
Zinc	44.2	45.2	2

^ EPA METHOD 7471

+ RPD is non-calculable as sample result is below MDL. No corrective action.

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 3050/6010
MATRIX: SOIL

BATCH NO.: 94A008 DATE RECEIVED: NA
SAMPLE ID: LCS01 DATE EXTRACTED: 01/27/94
CONTROL NO.: A008-L1S DATE ANALYZED: 01/28/94
ACCESSION: 94A008 94A021 94A031 94A032 94A034

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
Antimony	27.8	33.6	121
Arsenic	67.7	84.7	125
Barium	187	175	94
Beryllium	57.5	57.9	101
Cadmium	110	115	104
Chromium	189	172	91
Cobalt	87	87.5	101
Copper	141	135	96
Lead	100	93.6	94
Mercury^	2.36	2.38	101
Molybdenum	124	129	104
Nickel	79.6	80.4	101
Selenium	99.1	110	111
Silver	124	121	98
Thallium	67.9	55.5	82
Vanadium	84.8	80.4	95
Zinc	197	192	98

^ EPA METHOD 7471



EPA METHOD M8015
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

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=====
CLIENT:      Earth Technology Corp.          DATE COLLECTED: 01/04/94
PROJECT:     Metro Rail - East Side Ext.    DATE RECEIVED:  01/04/94
BATCH NO.:   94A008                        DATE EXTRACTED: 01/06/94
MATRIX:      SOIL                          DATE ANALYZED:  01/10/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	H-C RANGE	% RECOVERY		DL FACTOR	MDL (mg/kg)
				SURR1	SURR2		
EB-2-D-3	A008-03	ND	NA	97	78	1	5
EB-2-D-6	A008-06	ND	NA	97	92	1	5
EB-2-D-10	A008-10	ND	NA	97	95	1	5
EB-2-D-13	A008-13	ND	NA	100	99	1	5
DBLK1S	A008-B1S	ND	NA	96	96	1	5

```
QC LIMIT:                               60-140    55-150
SURR1 : Bromobenzene
SURR2 : Hexacosane
MDL   : Method Detection Limit
```

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

BATCH NO.: 94A008 DATE RECEIVED: 01/04/94
SAMPLE ID: EB-2-D-10 DATE EXTRACTED: 01/06/94
CONTROL NO.: A008-10 DATE ANALYZED: 01/10/94

ACCESSION: 94A008 94A009 94A010 94A011

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
DIESEL	ND	250	233	93	250	228	91	2

CKY

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

=====

BATCH NO.:	94A008	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/06/94
CONTROL NO.:	A008-L1S	DATE ANALYZED:	01/10/94

ACCESSION: 94A008 94A009 94A010 94A011

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
DIESEL	250	225	90



EPA METHOD 8020
BTEX

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=====
CLIENT:      Earth Technology Corp.          DATE COLLECTED: 01/04/94
PROJECT:     Metro Rail - East Side Ext.     DATE RECEIVED:  01/04/94
BATCH NO.:   94A008                         DATE EXTRACTED:  NA
MATRIX:      SOIL                           DATE ANALYZED:   01/10/94
=====
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SAMPLE ID	CNTRL NO	DL F	MDL	BENZ	RESULTS TOLUENE	(ug/kg) E BENZ	XYLS	% Rcvy SURR
-----	-----	----	----	----	-----	-----	-----	-----
EB-2-D-3	A008-03	1	5	ND	ND	ND	ND	124
EB-2-D-10	A008-10	1	5	ND	ND	ND	ND	115
EB-2-D-13	A008-13	1	5	ND	ND	ND	ND	116
VBLK1S	A008-B1S	1	5	ND	ND	ND	ND	110

DL F : Dilution Factor
SURR : Bromofluorobenzene
MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8020
MATRIX: SOIL

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BATCH NO.:	94A008	DATE RECEIVED:	NA
SAMPLE ID:	EB5#5	DATE EXTRACTED:	NA
CONTROL NO.:	A009-017	DATE ANALYZED:	01/10/94

ACCESSION: 94A008 94A009 94A017

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Benzene	ND	250	240	96	250	255	102	6
Toluene	ND	250	245	98	250	270	108	10
Ethyl Benzene	ND	250	250	100	250	275	110	10
Xylenes	ND	750	750	100	750	830	111	10

CKY

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 602/8020
MATRIX: WATER

=====

BATCH NO.:	94A008	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A008-L1W	DATE ANALYZED:	01/10/94
ACCESSION:	94A008 94A009 94A017		

PARAMETER	TRUE VALUE (ug/L)	FOUND VALUE (ug/L)	LCS RECOVERY (%)
-----	-----	-----	-----
Benzene	50	52	104
Toluene	50	51	102
Ethyl Benzene	50	50	100
Xylenes	150	151	101



EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

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=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/04/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/04/94
BATCH NO.:   94A008                     DATE EXTRACTED:  NA
SAMPLE ID:   EB-2-D-6                   DATE ANALYZED:  01/05/94
CONTROL NO.: A008-06                     MATRIX:        SOIL
% MOISTURE:  NA                         DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	107	70-121
Toluene -d8	100	84-138
Bromofluorobenzene	107	59-113

MDL : Method Detection Limit

EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

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=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED:  NA
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  NA
BATCH NO.:   94A008                     DATE EXTRACTED:  NA
SAMPLE ID:   VBLK1S                     DATE ANALYZED:   01/05/94
CONTROL NO.: A008-B1S                   MATRIX:         SOIL
% MOISTURE:  NA                         DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	102	70-121
Toluene -d8	106	84-138
Bromofluorobenzene	103	59-113

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8240
MATRIX: SOIL

BATCH NO.: 94A008 DATE RECEIVED: NA
SAMPLE ID: EB3#5 DATE EXTRACTED: NA
CONTROL NO.: A009-05 DATE ANALYZED: 01/05/94

ACCESSION: 94A008 94A009

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
1,1-DCE	ND	50	39	78	50	34	68	14
Benzene	ND	50	46	92	50	48	96	4
TCE	ND	50	47	94	50	48	96	2
Toluene	ND	50	50	100	50	48	96	4
Chlorobenzene	ND	50	53	106	50	52	104	2



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8240
MATRIX: SOIL

=====

BATCH NO.:	94A008	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A008-L1S	DATE ANALYZED:	01/05/94
ACCESSION:	94A008		

PARAMETER	TRUE VALUE (ug/kg)	FOUND VALUE (ug/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
1,1-DCE	50	41	82
Benzene	50	46	92
TCE	50	47	94
Toluene	50	50	100
Chlorobenzene	50	51	102

EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: 01/04/94
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: 01/04/94
BATCH NO.: 94A008	DATE EXTRACTED: 01/07/94
SAMPLE ID: EB-2-D-6	DATE ANALYZED: 01/08/94
CONTROL NO.: A008-06	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg)		PARAMETERS	(ug/kg)	
	RESULT	MDL		RESULT	MDL
N-Nitrosodimethylamine	ND	(330)	3-Nitroaniline	ND	(800)
Pyridine	ND	(330)	Acenaphthene	ND	(330)
Aniline	ND	(330)	2,4-Dinitrophenol	ND	(800)
Phenol	ND	(330)	4-Nitrophenol	ND	(800)
bis(2-Chloroethyl) ether	ND	(330)	Dibenzofuran	ND	(330)
2-Chlorophenol	ND	(330)	2,4-Dinitrotoluene	ND	(330)
1,3-Dichlorobenzene	ND	(330)	Diethylphthalate	ND	(330)
1,4-Dichlorobenzene	ND	(330)	4-Chlorophenyl-phenylether	ND	(330)
Benzyl Alcohol	ND	(330)	Fluorene	ND	(330)
1,2-Dichlorobenzene	ND	(330)	1,2-Diphenylhydrazine	ND	(800)
2-Methylphenol	ND	(330)	4-Nitroaniline	ND	(800)
2,2'-oxybis(1-Chloropropane)	ND	(330)	4,6-Dinitro-2-methylphenol	ND	(800)
4-Methylphenol	ND	(330)	N-Nitrosodiphenylamine (1)	ND	(330)
N-Nitroso-di-n-propylamine	ND	(330)	4-Bromophenyl-phenylether	ND	(330)
Hexachloroethane	ND	(330)	Hexachlorobenzene	ND	(330)
Nitrobenzene	ND	(330)	Pentachlorophenol	ND	(800)
Isophorene	ND	(330)	Benzidine	ND	(800)
2-Nitrophenol	ND	(330)	Phenanthrene	ND	(800)
2,4-Dimethylphenol	ND	(330)	Anthracene	ND	(330)
Benzoic Acid	ND	(800)	Carbazole	ND	(800)
bis(2-Chloroethoxy)methane	ND	(330)	Di-n-butylphthalate	660	(330)
2,4-Dichlorophenol	ND	(330)	Fluoranthene	ND	(330)
1,2,4-Trichlorobenzene	ND	(330)	4,4'-Methylene Dianiline	ND	(800)
Naphthalene	ND	(330)	Pyrene	ND	(330)
4-Chloroaniline	ND	(330)	Bisphenol-A	ND	(330)
Hexachloro-1,3-butadiene	ND	(330)	Butylbenzylphthalate	ND	(330)
4-Chloro-3-methylphenol	ND	(330)	3,3'-Dichlorobenzidine	ND	(330)
2-Methylnaphthalene	ND	(330)	Benzo(a)anthracene	ND	(330)
Hexachlorocyclopentadiene	ND	(330)	Chrysene	ND	(330)
2,4,6-Trichlorophenol	ND	(330)	bis(2-Ethylhexyl)phthalate	ND	(330)
2,4,5-Trichlorophenol	ND	(800)	Di-n-octylphthalate	ND	(330)
2-Chloronaphthalene	ND	(330)	Benz(b)fluoranthene	ND	(330)
1-Chloronaphthalene	ND	(330)	Benzo(k)fluoranthene	ND	(330)
2-Nitroaniline	ND	(800)	Benzo(a)pyrene	ND	(330)
Dimethylphthalate	ND	(330)	Indeno(1,2,3-cd)pyrene	ND	(330)
Acenaphthylene	ND	(330)	Dibenzo(a,h)anthracene	ND	(330)
2,6-Dinitrotoluene	ND	(330)	Benzo(g,h,i)perylene	ND	(330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	95	23-120
2-Fluorobiphenyl	94	30-115
Terphenyl-d14	104	18-137
Phenol-d5	92	24-113
2-Fluorophenol	98	25-121
2,4,6-Tribromophenol	105	19-122

MDL: Method Detection Limit



CKY INC., ANALYTICAL LABORATORIES, 630 Maple Ave., Torrance, Calif. 90503 Tel. (310) 618-8889 Fax: (310) 618-0818

EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: NA
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: NA
BATCH NO.: 94A008	DATE EXTRACTED: 01/07/94
SAMPLE ID: SBLK1S	DATE ANALYZED: 01/08/94
CONTROL NO.: L084-B1S	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg) RESULT MDL	PARAMETERS	(ug/kg) RESULT MDL
N-Nitrosodimethylamine	ND (330)	3-Nitroaniline	ND (800)
Pyridine	ND (330)	Acenaphthene	ND (330)
Aniline	ND (330)	2,4-Dinitrophenol	ND (800)
Phenol	ND (330)	4-Nitrophenol	ND (800)
bis(2-Chloroethyl) ether	ND (330)	Dibenzofuran	ND (330)
2-Chlorophenol	ND (330)	2,4-Dinitrotoluene	ND (330)
1,3-Dichlorobenzene	ND (330)	Diethylphthalate	ND (330)
1,4-Dichlorobenzene	ND (330)	4-Chlorophenyl-phenylether	ND (330)
Benzyl Alcohol	ND (330)	Fluorene	ND (330)
1,2-Dichlorobenzene	ND (330)	1,2-Diphenylhydrazine	ND (800)
2-Methylphenol	ND (330)	4-Nitroaniline	ND (800)
2,2'-oxybis(1-Chloropropane)	ND (330)	4,6-Dinitro-2-methylphenol	ND (800)
4-Methylphenol	ND (330)	N-Nitrosodiphenylamine (1)	ND (330)
N-Nitroso-di-n-propylamine	ND (330)	4-Bromophenyl-phenylether	ND (330)
Hexachloroethane	ND (330)	Hexachlorobenzene	ND (330)
Nitrobenzene	ND (330)	Pentachlorophenol	ND (800)
Isophorene	ND (330)	Benzidine	ND (800)
2-Nitrophenol	ND (330)	Phenanthrene	ND (800)
2,4-Dimethylphenol	ND (330)	Anthracene	ND (330)
Benzoic Acid	ND (800)	Carbazole	ND (800)
bis(2-Chloroethoxy)methane	ND (330)	Di-n-butylphthalate	1500 (330)
2,4-Dichlorophenol	ND (330)	Fluoranthene	ND (330)
1,2,4-Trichlorobenzene	ND (330)	4,4'-Methylene Dianiline	ND (800)
Naphthalene	ND (330)	Pyrene	ND (330)
4-Chloroaniline	ND (330)	Bisphenol-A	ND (330)
Hexachloro-1,3-butadiene	ND (330)	Butylbenzylphthalate	ND (330)
4-Chloro-3-methylphenol	ND (330)	3,3'-Dichlorobenzidine	ND (330)
2-Methylnaphthalene	ND (330)	Benzo(a)anthracene	ND (330)
Hexachlorocyclopentadiene	ND (330)	Chrysene	ND (330)
2,4,6-Trichlorophenol	ND (330)	bis(2-Ethylhexyl)phthalate	ND (330)
2,4,5-Trichlorophenol	ND (800)	Di-n-octylphthalate	ND (330)
2-Chloronaphthalene	ND (330)	Benz(b)fluoranthene	ND (330)
1-Chloronaphthalene	ND (330)	Benzo(k)fluoranthene	ND (330)
2-Nitroaniline	ND (800)	Benzo(a)pyrene	ND (330)
Dimethylphthalate	ND (330)	Indeno(1,2,3-cd)pyrene	ND (330)
Acenaphthylene	ND (330)	Dibenzo(a,h)anthracene	ND (330)
2,6-Dinitrotoluene	ND (330)	Benzo(g,h,i)perylene	ND (330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	64	23-120
2-Fluorobiphenyl	71	30-115
Terphenyl-d14	103	18-137
Phenol-d5	61	24-113
2-Fluorophenol	61	25-121
2,4,6-Tribromophenol	72	19-122

MDL: Method Detection Limit

CKY

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8270
MATRIX: SOIL

BATCH NO.: 94A008 DATE RECEIVED: NA
SAMPLE ID: 29-A115902 DATE EXTRACTED: 01/07/94
CONTROL NO.: A019-02 DATE ANALYZED: 01/08/94

ACCESSION: 94A008 94A009 94A010 94A011 94A014 94A015
94A016 94A017 94A019

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Phenol	ND	5000	3130	63	5000	2880	58	8
2-Chlorophenol	ND	5000	3310	66	5000	3000	60	10
1,4-DCB	ND	3300	2145	65	3300	2010	61	6
N-Nitroso-di-n	ND	3300	2460	75	3300	2300	70	7
1,2,4-TCB	ND	3300	2460	75	3300	2310	70	7
4-Chl-3-Methy	ND	5000	3780	76	5000	3610	72	5
Acenaphthene	ND	3300	2520	76	3300	2330	71	7
2,4-Dinitrotol	ND	3300	2960	90	3300	3040	92	2
Pentachlorophe	ND	5000	4620	92	5000	4320	86	7
Pyrene	ND	3300	3010	91	3300	3540	107	16

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8270
MATRIX: SOIL

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BATCH NO.:	94A008	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A008-L1S	DATE ANALYZED:	01/07/94

ACCESSION: 94A008 94A009 94A010 94A011 94A014 94A015
94A016 94A017

PARAMETER	TRUE VALUE (ug/kg)	FOUND VALUE (ug/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Phenol	5000	3260	65
2-Chlorophenol	5000	3640	73
1,4-DCB	3300	2440	73
N-Nitroso-di-n-	3300	2750	83
1,2,4-TCB	3300	2760	83
4-Chloro-3-Methy	5000	2560	77
Acenaphthene	3300	2710	81
4-Nitrophenol	5000	4970	99
2,4-Dinitrotol	3300	3380	101
Pentachlorophe	5000	5060	101
Pyrene	3300	3020	91

DHS METHOD
ORGANIC LEAD

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CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/04/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/04/94
BATCH NO.:    94A008                     DATE EXTRACTED:  01/07/94
MATRIX:       SOIL                       DATE ANALYZED:   01/07/94
=====
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SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-2-D-6	A008-06	ND	1	.5
FBLK1S	A008-B1S	ND	1	.5

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A008	DATE RECEIVED:	01/04/94
SAMPLE ID:	EB-2-D-6	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A008-06	DATE ANALYZED:	01/07/94
ACCESSION:	94A008 94A009 94A010 94A011 94A014 94A015 94A016		
	94A017 94A021 94A022		

PARAMETER	SAMPLE (mg/kg)	DUP. SAMPLE (mg/kg)	RPD (%)
-----	-----	-----	-----
Lead	ND	ND	0

CK

CKY QUALITY CONTROL DATA
SPIKE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

```
=====
BATCH NO.:      94A008                      DATE RECEIVED:  NA
SAMPLE ID:      FBLK1S                      DATE EXTRACTED: 01/07/94
CONTROL NO.:    A008-B1S                    DATE ANALYZED:  01/07/94

ACCESSION:      94A008  94A009  94A010  94A011  94A014  94A015  94A016
                  94A017  94A021  94A022
```

PARAMETER	SAMPLE RESULT (mg/kg)	SPIKE CONC. (mg/kg)	SPIKE RESULT (mg/kg)	SPIKE RECRY. (%)
-----	-----	-----	-----	-----
Lead	ND	5.0	5.2	104



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A008	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A008-L1S	DATE ANALYZED:	01/07/94
ACCESSION:	94A008 94A009 94A010 94A011 94A014 94A015 94A016 94A017 94A021 94A022		

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Lead	100	94	94

CKY

EPA METHOD 413.2
OIL & GREASE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/04/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/04/94
BATCH NO.:    94A008                     DATE EXTRACTED:  01/06/94
MATRIX:      SOIL                        DATE ANALYZED:   01/10/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-2-D-6	A008-06	ND	1	10
TBLK1S	A008-B1S	ND	1	10

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 413.2
MATRIX: SOIL

BATCH NO.: 94A008 DATE RECEIVED: NA
SAMPLE ID: TBLK1S DATE EXTRACTED: 01/06/94
CONTROL NO.: A019-B1S DATE ANALYZED: 01/10/94

ACCESSION: 94A008 94A009 94A010 94A011 94A019

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
TROG	ND	150	129	86	150	134	89	3



EPA METHOD 376.1
SULFIDE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/04/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/04/94
BATCH NO.:   94A008                     DATE EXTRACTED:  01/07/94
MATRIX:     SOIL                        DATE ANALYZED:   01/07/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-2-D-6	A008-06	ND	2*	0.4
WBLK1S	A008-B1S	ND	1	0.2

MDL : Method Detection Limit
* : Inadequate amount of sample

CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 376.1
MATRIX: SOIL

=====

BATCH NO.:	94A008	DATE RECEIVED:	01/04/94
SAMPLE ID:	EB-2-D-6	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A008-06	DATE ANALYZED:	01/07/94
ACCESSION:	94A008	94A009	94A010 94A011

PARAMETER	Sample (mg/kg)	Dup. Sample (mg/kg)	RPD (%)
-----	-----	-----	-----
SULFIDE	ND	ND	0



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 376.1
MATRIX: WATER

=====

BATCH NO.:	94A008	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A008-L1W	DATE ANALYZED:	01/07/94

ACCESSION: 94A008 94A009 94A010 94A011

PARAMETER	TRUE VALUE (mg/L)	FOUND VALUE (mg/L)	LCS RECOVERY (%)
-----	-----	-----	-----
SULFIDE	5.0	4.6	92

EPA METHOD 300
SULFATE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/04/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/04/94
BATCH NO.:    94A008                     DATE EXTRACTED:  01/07/94
MATRIX:      SOIL                       DATE ANALYZED:   01/07/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-2-D-6	A008-06	4.7	1	1.0
WBLK1S	A008-B1S	ND	1	1.0

MDL : Method Detection Limit

EPA METHOD 300
CHLORIDE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/04/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/04/94
BATCH NO.:   94A008                     DATE EXTRACTED:  01/07/94
MATRIX:      SOIL                       DATE ANALYZED:   01/07/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-2-D-6	A008-06	2.2	1	0.2
WBLK1S	A008-B1S	ND	1	0.2

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
SPIKE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

BATCH NO.: 94A008 DATE RECEIVED: 01/04/94
SAMPLE ID: EB-2-D-6 DATE EXTRACTED: 01/07/94
CONTROL NO.: A008-06 DATE ANALYZED: 01/07/94

ACCESSION: 94A008 94A009 94A010 94A011

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC
Sulfate	4.7	20.0	21.6	85
Chloride	2.2	20.0	20.3	91

CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

=====

BATCH NO.:	94A008	DATE RECEIVED:	01/04/94
SAMPLE ID:	EB-2-D-6	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A008-06	DATE ANALYZED:	01/07/94
ACCESSION:	94A008 94A009 94A010 94A011		

PARAMETER	Sample (mg/kg)	Dup. Sample (mg/kg)	RPD (%)
-----	-----	-----	-----
Sulfate	4.7	4.5	2
Chloride	2.2	2.8	24

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: WATER

=====

BATCH NO.:	94A008	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A008-L1W	DATE ANALYZED:	01/07/94
ACCESSION:	94A008	94A009	94A010 94A011

PARAMETER	TRUE VALUE (mg/L)	FOUND VALUE (mg/L)	LCS RECOVERY (%)
Sulfate	150	136	91
Chloride	30.0	25.9	86

EB-2

WHITTIER BLVD 10005 AVE.
Chain of Custody Record

94A008

DUE 01-11-94

GZ

Lab Job no.

Date 1/4/94

Page 1 of 2

Laboratory CKM Method of Shipment _____

Address _____ Shipment No. _____

_____ Airbill No. _____

Client The Earth Technology Corporation Cooler No. _____

Address 13900 Alton Parkway, Suite 120 Project Manager _____

Irvine, CA 92718 Telephone No. _____

Project Name EASTSIDE EXTENSION Fax. No. _____

Project Number 94-1109 Samplers: (Signature) Gary R. [Signature]

Field Sample Number	Location/Depth	Date	Time	Sample Type	Type/Size of Container	Preservation		Analysis Required											Remarks
						Temp.	Chemical	Filtered & No. of Containers	EPA Method 8015 (Moog)	EPA Method 8020 BTEX	EPA Method 8015 (Moog) Diesel	EPA Method 8240	EPA Method 8270	Total Lead	Oil Organic	Sulfate & Phosphate	Sulfate/Chloride	Background OVA	
1	D-1	4'	1/4/94 9:03		ST. STEEL TUBE 2" X 1/2"													7.47	
2	D-2	9'	9:11															7.87	
3	D-3	14'	9:15					XX										8.06.8	
4	D-4	19'	9:20															8.07.0	
5	D-5	24'	9:40															8.47.2	
6	D-6	29'	9:48					X			XXXX	XXXX	XXXX	XXXX	XXXX			10.28.1	
7	D-7	34'	9:55															9.68.5	
8	D-8	39'	10:02															9.69.0	
9	D-9	44'	10:12															10.09.2	
10	D-10	49'	10:26					XX										10.08.7	
11	D-11	54'	10:37															9.98.7	
12	D-12	59'	10:58															10.09.4	

Relinquished by: <u>Gary R. [Signature]</u> Signature <u>GREG RENTON</u> Printed <u>EARTHTECH/GEOTECHNICAL</u> Company _____ Reason _____	Date <u>1/4/94</u> Time <u>5:15</u>	Received by: <u>[Signature]</u> Signature <u>SIGAM, S.</u> Printed <u>CKM INC.</u> Company _____	Date <u>1/4/94</u> Time <u>5:15</u>	Relinquished by: <u>[Signature]</u> Signature <u>SIGAM</u> Printed <u>CKM</u> Company _____ Reason <u>ANALYSIS</u>	Date <u>1-4-94</u> Time <u>1855</u>	Received by: <u>[Signature]</u> Signature <u>C. DIANGELO</u> Printed <u>C. DIANGELO</u> Company <u>CKM</u>	Date <u>1-4-94</u> Time <u>1855</u>
Comments: <u>T=50C</u>				Relinquished by: _____ Signature _____ Printed _____ Company _____ Reason _____			

EB-2

WHITFIELD BLVD | WOODS AVE.

Chain of Custody Record

94A008

DUE 01-11-94

62

Lab job no.

Date 1/4/94

Page 2 of 2

Laboratory CRC Method of Shipment _____

Address _____ Shipment No. _____

Airbill No. _____

Client The Earth Technology Corporation Cooler No. _____

Address 13900 Alton Parkway, Suite 120 Project Manager

Irvine, CA 92718 Telephone No. _____

Project Name EASTSIDE EXTENSION Fax. No. _____

Project Number 94-1109 Samplers: (Signature) [Signature]

[illegible]

Relinquished by: Long Net
Signature CPRG Renewal
Printed ERMINDY COOTENIQUE
Company _____
Reason _____

Date	Received by:	Date
1/4/94	Signature <i>[Signature]</i>	1/4/94
Time	Printed SICAM	Time
5:55	Company CKY INC.	5:15

Relinquished by: [Signature]
Signature _____
Printed SICAM
Company CKY
Reason ANALYSIS

Date	Received by:	Date
1-4-	Signature <u>COTIANGCO</u>	1-4
74	Printed <u>COTIANGCO</u>	74
Time		Time
1:55	Company <u>CLAY</u>	1:55

Comments: $T = 5^{\circ}\text{C}$

Relinquished by:

Signature _____

Printed _____

Company _____

Reason _____

Date	Received by: Signature _____ Printed _____ Company _____	Date
Time		Time

ANALYTICAL LABORATORIES 620 W. 14th St. St. Paul, Minn. 55102

DATE	1-4-98
TIME	18:55 PM
RECIPIENT	CHT/ANSCO

SAMPLE BATCH PACKAGING/SEALING UPON RECEIPT:				✓ INTACT	DAMAGED	SEALED	✓ NOT SEALED	NO CONTAINER
CONTAINER:	INSIDE TEMPERATURE:			5° C	CUSTODY SEAL		LOCATION	NUMBER
✓ COOLER	PACKAGING	TYPE	SUFFICIENCY	INTACT	DAMAGED			
BOX	INSULATION:	COOLER	OK	NAME:				
OTHER:	ICE/COOLANT:	BLUE ICE	OK	DATE:				
	PACKING MATERIAL:	21 PLOC BAGS	OK	TIME:				

SAMPLE LOG-IN:		CRITERIA	COMMENTS				DISCREPANCY	
SAMPLE CUSTODY SEAL		EVERY SAMPLE	NONE					
CONTAINER TYPE/MATERIAL		APPROPRIATE	OK					
SAMPLE AMOUNT		ENOUGH	OK					
SAMPLE PRESERVATION/HOLDING TIME		SUFFICIENT	OK					
HEADSPACE/BUBBLES		ZERO/NONE	NONE					
SAMPLE LABEL INFORMATION		SUFFICIENT	OK					
CHAIN-OF-CUSTODY INFORMATION		SUFFICIENT	OK - ANALYSES TO BE RELAYED					
SAMPLE INFO.:	SAMPLE ID	DATE	TIME	SIGNATURE	ANALYSES	PRESERVATIVE	CONTAINER	
INDIVIDUAL SAMPLE CONTAINER:		NONE	- SEALED PLASTIC BAG		CAN	OTHER(SPECIFY):		

SAMPLE NUMBER	CLIENT ID	DISCREPANCY	ACTION		
		<i>NONE</i>			
CLIENT SERVICES COPY RECEIVED BY			DATE	TIME	

ANALYSIS REQUEST FORM

CLIENT NAME:

Earth Technology

CKY CONTROL NO.:

A008 / A021 / A031 / A032 / A034

REQUESTED BY:

Ymalee

DATE:

1/26/94

RUSH

LOGGED BY:

Caulig

CKY CONTROL NO.

CLIENT SAMPLE ID

COMMENTS

A008-7

A032-1

A031-1

A021-7

A034-13

CAN yelals



- Rush -



CKY incorporated Analytical Laboratories

Date: 01-12-1994
CKY Batch No.: 94A009

Attn.: K. Khilnani

Earth Technology Corp.
13900 Alton Parkway #120
Irvine, CA 92718

Subject: Laboratory Report
Project: Metro Rail - East Side Ext.

Enclosed is the Laboratory report for samples received on 01/04/94. The samples were received in coolers with ice and intact; the chain-of-custody forms were properly filled out. The data reported include :

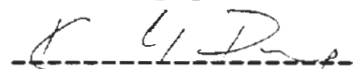
Sample ID	Control No.	Matrix	Analysis
-----	-----	-----	-----
EB3#1	A009-01	soil	Hold
EB3#2	A009-02	soil	EPA M8015 (CCID) EPA 8020
EB3#3	A009-03	soil	Hold
EB3#4	A009-04	soil	Hold
EB3#5	A009-05	soil	EPA M8015 (CCID) EPA 8240 EPA 8270 Organic Pb Oil & Grease Sulfide Sulfate Chloride
EB4#1	A009-06	soil	EPA M8015 (CCID) EPA 8020
EB4#2	A009-07	soil	EPA M8015 (CCID) EPA 8240 EPA 8270 Organic Pb

<u>Sample ID</u>	<u>Control No.</u>	<u>Matrix</u>	<u>Analysis</u>
			Oil & Grease
			Sulfide
			Sulfate
			Chloride
EB4#3	A009-08	soil	Hold
EB4#4	A009-09	soil	Hold
EB4#5	A009-10	soil	EPA M8015 (CCID)
			EPA 8020
EB4#6	A009-11	soil	Hold
EB4#7	A009-12	soil	Hold
EB5#1	A009-13	soil	EPA M8015 (CCID)
			EPA 8240
			EPA 8270
			Organic Pb
			Oil & Grease
			Sulfide
			Sulfate
			Chloride
EB5#2	A009-14	soil	Hold
EB5#3	A009-15	soil	Hold
EB5#4	A009-16	soil	EPA M8015 (CCID)
			EPA 8020
EB5#5	A009-17	soil	EPA M8015 (CCID)
			EPA 8020

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,



Kam Y. Pang, Ph.D.
Laboratory Director

P.S. - All analyses requested for the above referenced project have been completed. Therefore, unless instructed, the remaining portions of the samples will be disposed after fifteen (15) days from the date of this report.

EPA METHOD M8015
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

CLIENT:	Earth Technology Corp.	DATE COLLECTED:	01/04/94
PROJECT:	Metro Rail - East Side Ext.	DATE RECEIVED:	01/04/94
BATCH NO.:	94A009	DATE EXTRACTED:	01/06/94
MATRIX:	SOIL	DATE ANALYZED:	01/10/94

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	H-C RANGE	% RECOVERY SURR1	% RECOVERY SURR2	DL FACTOR	MDL (mg/kg)
EB3#2	A009-02	ND	NA	97	95	1	5
EB3#5	A009-05	ND	NA	103	100	1	5
EB4#1	A009-06	ND	NA	97	96	1	5
EB4#2	A009-07	ND	NA	97	95	1	5
EB4#5	A009-10*	ND	NA	104	98	1	5
EB5#1	A009-13*	ND	NA	98	87	1	5
EB5#4	A009-16*	ND	NA	101	94	1	5
EB5#5	A009-17*	28	C10-C14	104	99	1	5
DBLK1S	A008-B1S	ND	NA	96	96	1	5

QC LIMIT: 60-140 55-150

SURR1 : Bromobenzene

SURR2 : Hexacosane

MDL : Method Detection Limit

* : Analyzed on 01/11/94

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

=====

BATCH NO.:	94A009	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/06/94
CONTROL NO.:	A008-L1S	DATE ANALYZED:	01/10/94

ACCESSION: 94A008 94A009 94A010 94A011

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
DIESEL	250	225	90

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

BATCH NO.: 94A009 DATE RECEIVED: NA
SAMPLE ID: D-10 DATE EXTRACTED: 01/06/94
CONTROL NO.: A008-10 DATE ANALYZED: 01/10/94

ACCESSION: 94A008 94A009 94A010 94A011

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
DIESEL	ND	250	233	93	250	228	91	2



EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: 01/04/94
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: 01/04/94
BATCH NO.: 94A009	DATE EXTRACTED: 01/07/94
SAMPLE ID: EB3#5	DATE ANALYZED: 01/08/94
CONTROL NO.: A009-05	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg)		PARAMETERS	(ug/kg)	
	RESULT	MDL		RESULT	MDL
N-Nitrosodimethylamine	ND	(330)	3-Nitroaniline	ND	(800)
Pyridine	ND	(330)	Acenaphthene	ND	(330)
Aniline	ND	(330)	2,4-Dinitrophenol	ND	(800)
Phenol	ND	(330)	4-Nitrophenol	ND	(800)
bis(2-Chloroethyl) ether	ND	(330)	Dibenzofuran	ND	(330)
2-Chlorophenol	ND	(330)	2,4-Dinitrotoluene	ND	(330)
1,3-Dichlorobenzene	ND	(330)	Diethylphthalate	ND	(330)
1,4-Dichlorobenzene	ND	(330)	4-Chlorophenyl-phenylether	ND	(330)
Benzyl Alcohol	ND	(330)	Fluorene	ND	(330)
1,2-Dichlorobenzene	ND	(330)	1,2-Diphenylhydrazine	ND	(800)
2-Methylphenol	ND	(330)	4-Nitroaniline	ND	(800)
2,2'-oxybis(1-Chloropropane)	ND	(330)	4,6-Dinitro-2-methylphenol	ND	(800)
4-Methylphenol	ND	(330)	N-Nitrosodiphenylamine (1)	ND	(330)
N-Nitroso-di-n-propylamine	ND	(330)	4-Bromophenyl-phenylether	ND	(330)
Hexachloroethane	ND	(330)	Hexachlorobenzene	ND	(330)
Nitrobenzene	ND	(330)	Pentachlorophenol	ND	(800)
Isophorene	ND	(330)	Benidine	ND	(800)
2-Nitrophenol	ND	(330)	Phenanthrene	ND	(800)
2,4-Dimethylphenol	ND	(330)	Anthracene	ND	(330)
Benzoic Acid	ND	(800)	Carbazole	ND	(800)
bis(2-Chloroethoxy)methane	ND	(330)	Di-n-butylphthalate	1100	(330)
2,4-Dichlorophenol	ND	(330)	Fluoranthene	ND	(330)
1,2,4-Trichlorobenzene	ND	(330)	4,4'-Methylene Dianiline	ND	(800)
Naphthalene	ND	(330)	Pyrene	ND	(330)
4-Chloroaniline	ND	(330)	Bisphenol-A	ND	(330)
Hexachloro-1,3-butadiene	ND	(330)	Butylbenzylphthalate	ND	(330)
4-Chloro-3-methylphenol	ND	(330)	3,3'-Dichlorobenzidine	ND	(330)
2-Methylnaphthalene	ND	(330)	Benzo(a)anthracene	ND	(330)
Hexachlorocyclopentadiene	ND	(330)	Chrysene	ND	(330)
2,4,6-Trichlorophenol	ND	(330)	bis(2-Ethylhexyl)phthalate	ND	(330)
2,4,5-Trichlorophenol	ND	(800)	Di-n-octylphthalate	ND	(330)
2-Chloronaphthalene	ND	(330)	Benzo(b)fluoranthene	ND	(330)
1-Chloronaphthalene	ND	(330)	Benzo(k)fluoranthene	ND	(330)
2-Nitroaniline	ND	(800)	Benzo(a)pyrene	ND	(330)
Dimethylphthalate	ND	(330)	Indeno(1,2,3-cd)pyrene	ND	(330)
Acenaphthylene	ND	(330)	Dibenzo(a,h)anthracene	ND	(330)
2,6-Dinitrotoluene	ND	(330)	Benzo(g,h,i)perylene	ND	(330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	104	23-120
2-Fluorobiphenyl	103	30-115
Terphenyl-d14	107	18-137
Phenol-d5	93	24-113
2-Fluorophenol	99	25-121
2,4,6-Tribromophenol	110	19-122

MDL: Method Detection Limit

EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: 01/04/94
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: 01/04/94
BATCH NO.: 94A009	DATE EXTRACTED: 01/07/94
SAMPLE ID: EB4#2	DATE ANALYZED: 01/08/94
CONTROL NO.: A009-07	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg) RESULT MDL	PARAMETERS	(ug/kg) RESULT MDL
N-Nitrosodimethylamine	ND (330)	3-Nitroaniline	ND (800)
Pyridine	ND (330)	Acenaphthene	ND (330)
Aniline	ND (330)	2,4-Dinitrophenol	ND (800)
Phenol	ND (330)	4-Nitrophenol	ND (800)
bis(2-Chloroethyl) ether	ND (330)	Dibenzofuran	ND (330)
2-Chlorophenol	ND (330)	2,4-Dinitrotoluene	ND (330)
1,3-Dichlorobenzene	ND (330)	Diethylphthalate	ND (330)
1,4-Dichlorobenzene	ND (330)	4-Chlorophenyl-phenylether	ND (330)
Benzyl Alcohol	ND (330)	Fluorene	ND (330)
1,2-Dichlorobenzene	ND (330)	1,2-Diphenylhydrazine	ND (800)
2-Methylphenol	ND (330)	4-Nitroaniline	ND (800)
2,2'-oxybis(1-Chloropropane)	ND (330)	4,6-Dinitro-2-methylphenol	ND (800)
4-Methylphenol	ND (330)	N-Nitrosodiphenylamine (1)	ND (330)
N-Nitroso-di-n-propylamine	ND (330)	4-Bromophenyl-phenylether	ND (330)
Hexachloroethane	ND (330)	Hexachlorobenzene	ND (330)
Nitrobenzene	ND (330)	Pentachlorophenol	ND (800)
Isophorene	ND (330)	Benzidine	ND (800)
2-Nitrophenol	ND (330)	Phenanthrene	ND (800)
2,4-Dimethylphenol	ND (330)	Anthracene	ND (330)
Benzoic Acid	ND (800)	Carbazole	ND (800)
bis(2-Chloroethoxy) methane	ND (330)	Di-n-butylphthalate	ND (330)
2,4-Dichlorophenol	ND (330)	Fluoranthene	ND (330)
1,2,4-Trichlorobenzene	ND (330)	4,4'-Methylene Dianiline	ND (800)
Naphthalene	ND (330)	Pyrene	ND (330)
4-Chloroaniline	ND (330)	Bisphenol-A	ND (330)
Hexachloro-1,3-butadiene	ND (330)	Butylbenzylphthalate	ND (330)
4-Chloro-3-methylphenol	ND (330)	3,3'-Dichlorobenzidine	ND (330)
2-Methylnaphthalene	ND (330)	Benzo(a)anthracene	ND (330)
Hexachlorocyclopentadiene	ND (330)	Chrysene	ND (330)
2,4,6-Trichlorophenol	ND (330)	bis(2-Ethylhexyl)phthalate	ND (330)
2,4,5-Trichlorophenol	ND (800)	Di-n-octylphthalate	ND (330)
2-Chloronaphthalene	ND (330)	Benz(b)fluoranthene	ND (330)
1-Chloronaphthalene	ND (330)	Benzo(k)fluoranthene	ND (330)
2-Nitroaniline	ND (800)	Benzo(a)pyrene	ND (330)
Dimethylphthalate	ND (330)	Indeno(1,2,3-cd)pyrene	ND (330)
Acenaphthylene	ND (330)	Dibenzo(a,h)anthracene	ND (330)
2,6-Dinitrotoluene	ND (330)	Benzo(g,h,i)perylene	ND (330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	91	23-120
2-Fluorobiphenyl	93	30-115
Terphenyl-d14	110	18-137
Phenol-d5	85	24-113
2-Fluorophenol	88	25-121
2,4,6-Tribromophenol	102	19-122

MDL: Method Detection Limit



EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: 01/04/94
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: 01/04/94
BATCH NO.: 94A009	DATE EXTRACTED: 01/07/94
SAMPLE ID: EB5#1	DATE ANALYZED: 01/09/94
CONTROL NO.: A009-13	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg) RESULT MDL	PARAMETERS	(ug/kg) RESULT MDL
N-Nitrosodimethylamine	ND (330)	3-Nitroaniline	ND (800)
Pyridine	ND (330)	Acenaphthene	ND (330)
Aniline	ND (330)	2,4-Dinitrophenol	ND (800)
Phenol	ND (330)	4-Nitrophenol	ND (800)
bis(2-Chloroethyl) ether	ND (330)	Dibenzofuran	ND (330)
2-Chlorophenol	ND (330)	2,4-Dinitrotoluene	ND (330)
1,3-Dichlorobenzene	ND (330)	Diethylphthalate	ND (330)
1,4-Dichlorobenzene	ND (330)	4-Chlorophenyl-phenylether	ND (330)
Benzyl Alcohol	ND (330)	Fluorene	ND (330)
1,2-Dichlorobenzene	ND (330)	1,2-Diphenylhydrazine	ND (800)
2-Methylphenol	ND (330)	4-Nitroaniline	ND (800)
2,2'-oxybis(1-Chloropropane)	ND (330)	4,6-Dinitro-2-methylphenol	ND (800)
4-Methylphenol	ND (330)	N-Nitrosodiphenylamine (1)	ND (330)
N-Nitroso-di-n-propylamine	ND (330)	4-Bromophenyl-phenylether	ND (330)
Hexachloroethane	ND (330)	Hexachlorobenzene	ND (330)
Nitrobenzene	ND (330)	Pentachlorophenol	ND (800)
Isophorene	ND (330)	Benzidine	ND (800)
2-Nitrophenol	ND (330)	Phenanthrene	ND (800)
2,4-Dimethylphenol	ND (330)	Anthracene	ND (330)
Benzoic Acid	ND (800)	Carbazole	ND (800)
bis(2-Chloroethoxy)methane	ND (330)	Di-n-butylphthalate	ND (330)
2,4-Dichlorophenol	ND (330)	Fluoranthene	ND (330)
1,2,4-Trichlorobenzene	ND (330)	4,4'-Methylene Dianiline	ND (800)
Naphthalene	ND (330)	Pyrene	ND (330)
4-Chloroaniline	ND (330)	Bisphenol-A	ND (330)
Hexachloro-1,3-butadiene	ND (330)	Butylbenzylphthalate	ND (330)
4-Chloro-3-methylphenol	ND (330)	3,3'-Dichlorobenzidine	ND (330)
2-Methylnaphthalene	ND (330)	Benzo(a)anthracene	ND (330)
Hexachlorocyclopentadiene	ND (330)	Chrysene	ND (330)
2,4,6-Trichlorophenol	ND (330)	bis(2-Ethylhexyl)phthalate	ND (330)
2,4,5-Trichlorophenol	ND (800)	Di-n-octylphthalate	ND (330)
2-Chloronaphthalene	ND (330)	Benzo(b)fluoranthene	ND (330)
1-Chloronaphthalene	ND (330)	Benzo(k)fluoranthene	ND (330)
2-Nitroaniline	ND (800)	Benzo(a)pyrene	ND (330)
Dimethylphthalate	ND (330)	Indeno(1,2,3-cd)pyrene	ND (330)
Acenaphthylene	ND (330)	Dibenzo(a,h)anthracene	ND (330)
2,6-Dinitrotoluene	ND (330)	Benzo(g,h,i)perylene	ND (330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	95	23-120
2-Fluorobiphenyl	97	30-115
Terphenyl-d14	109	18-137
Phenol-d5	90	24-113
2-Fluorophenol	94	25-121
2,4,6-Tribromophenol	111	19-122

MDL: Method Detection Limit

EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: NA
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: NA
BATCH NO.: 94A009	DATE EXTRACTED: 01/07/94
SAMPLE ID: SBLK1S	DATE ANALYZED: 01/07/94
CONTROL NO.: L084-B1S	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg) RESULT MDL	PARAMETERS	(ug/kg) RESULT MDL
N-Nitrosodimethylamine	ND (330)	3-Nitroaniline	ND (800)
Pyridine	ND (330)	Acenaphthene	ND (330)
Aniline	ND (330)	2,4-Dinitrophenol	ND (800)
Phenol	ND (330)	4-Nitrophenol	ND (800)
bis(2-Chloroethyl)ether	ND (330)	Dibenzofuran	ND (330)
2-Chlorophenol	ND (330)	2,4-Dinitrotoluene	ND (330)
1,3-Dichlorobenzene	ND (330)	Diethylphthalate	ND (330)
1,4-Dichlorobenzene	ND (330)	4-Chlorophenyl-phenylether	ND (330)
Benzyl Alcohol	ND (330)	Fluorene	ND (330)
1,2-Dichlorobenzene	ND (330)	1,2-Diphenylhydrazine	ND (800)
2-Methylphenol	ND (330)	4-Nitroaniline	ND (800)
2,2'-oxybis(1-Chloropropane)	ND (330)	4,6-Dinitro-2-methylphenol	ND (800)
4-Methylphenol	ND (330)	N-Nitrosodiphenylamine (1)	ND (330)
N-Nitroso-di-n-propylamine	ND (330)	4-Bromophenyl-phenylether	ND (330)
Hexachloroethane	ND (330)	Hexachlorobenzene	ND (330)
Nitrobenzene	ND (330)	Pentachlorophenol	ND (800)
Isophorene	ND (330)	Benzidine	ND (800)
2-Nitrophenol	ND (330)	Phenanthrene	ND (800)
2,4-Dimethylphenol	ND (330)	Anthracene	ND (330)
Benzoic Acid	ND (800)	Carbazole	ND (800)
bis(2-Chloroethoxy)methane	ND (330)	Di-n-butylphthalate	1500 (330)
2,4-Dichlorophenol	ND (330)	Fluoranthene	ND (330)
1,2,4-Trichlorobenzene	ND (330)	4,4'-Methylene Dianiline	ND (800)
Naphthalene	ND (330)	Pyrene	ND (330)
4-Chloroaniline	ND (330)	Bisphenol-A	ND (330)
Hexachloro-1,3-butadiene	ND (330)	Butylbenzylphthalate	ND (330)
4-Chloro-3-methylphenol	ND (330)	3,3'-Dichlorobenzidine	ND (330)
2-Methylnaphthalene	ND (330)	Benzo(a)anthracene	ND (330)
Hexachlorocyclopentadiene	ND (330)	Chrysene	ND (330)
2,4,6-Trichlorophenol	ND (330)	bis(2-Ethylhexyl)phthalate	ND (330)
2,4,5-Trichlorophenol	ND (800)	Di-n-octylphthalate	ND (330)
2-Chloronaphthalene	ND (330)	Benz(b)fluoranthene	ND (330)
1-Chloronaphthalene	ND (330)	Benzo(k)fluoranthene	ND (330)
2-Nitroaniline	ND (800)	Benzo(a)pyrene	ND (330)
Dimethylphthalate	ND (330)	Indeno(1,2,3-cd)pyrene	ND (330)
Acenaphthylene	ND (330)	Dibenzo(a,h)anthracene	ND (330)
2,6-Dinitrotoluene	ND (330)	Benzo(g,h,i)perylene	ND (330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	64	23-120
2-Fluorobiphenyl	71	30-115
Terphenyl-d14	103	18-137
Phenol-d5	61	24-113
2-Fluorophenol	61	25-121
2,4,6-Tribromophenol	72	19-122

MDL: Method Detection Limit



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8270
MATRIX: SOIL

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BATCH NO.:	94A009	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A008-L1S	DATE ANALYZED:	01/07/94

ACCESSION: 94A008 94A009 94A010 94A011 94A014 94A015
94A016 94A017

PARAMETER	TRUE VALUE (ug/kg)	FOUND VALUE (ug/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Phenol	5000	3260	65
2-Chlorophenol	5000	3640	73
1,4-DCB	3300	2440	73
N-Nitroso-di-n-	3300	2750	83
1,2,4-TCB	3300	2760	83
4-Chloro-3-Methy	5000	2560	77
Acenaphthene	3300	2710	81
4-Nitrophenol	5000	4970	99
2,4-Dinitrotol	3300	3380	101
Pentachlorophe	5000	5060	101
Pyrene	3300	3020	91

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8270
MATRIX: SOIL

BATCH NO.: 94A009 DATE RECEIVED: NA
SAMPLE ID: 29-A115902 DATE EXTRACTED: 01/07/94
CONTROL NO.: A019-02 DATE ANALYZED: 01/08/94

ACCESSION: 94A008 94A009 94A010 94A011 94A014 94A015
94A016 94A017 94A019

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Phenol	ND	5000	3130	63	5000	2880	58	8
2-Chlorophenol	ND	5000	3310	66	5000	3000	60	10
1,4-DCB	ND	3300	2145	65	3300	2010	61	6
N-Nitroso-di-n	ND	3300	2460	75	3300	2300	70	7
1,2,4-TCB	ND	3300	2460	75	3300	2310	70	7
4-Chl-3-Methy	ND	5000	3780	76	5000	3610	72	5
Acenaphthene	ND	3300	2520	76	3300	2330	71	7
2,4-Dinitrotol	ND	3300	2960	90	3300	3040	92	2
Pentachlorophe	ND	5000	4620	92	5000	4320	86	7
Pyrene	ND	3300	3010	91	3300	3540	107	16



EPA METHOD 8020
BTEX

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CLIENT:      Earth Technology Corp.          DATE COLLECTED: 01/04/94
PROJECT:     Metro Rail - East Side Ext.     DATE RECEIVED:  01/04/94
BATCH NO.:   94A009                         DATE EXTRACTED: NA
MATRIX:      SOIL                           DATE ANALYZED:  01/10/94
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SAMPLE ID	CNTRL NO	DL F	MDL	BENZ	RESULTS (ug/kg)		XYLS	% Rcvy
					TOLUENE	E BENZ		
EB3#2	A009-02	1	5	ND	ND	ND	ND	117
EB4#1	A009-06	1	5	ND	ND	ND	ND	124
EB4#5	A009-10	1	5	ND	ND	ND	ND	94
EB5#4	A009-16	1	5	ND	ND	ND	ND	111
~~EB5#5~~	~~A009-17~~	~~1~~	~~5~~	~~ND~~	~~ND~~	~~ND~~	~~ND~~	~~106~~
VBLK1S	A009-B1S	1	5	ND	ND	ND	ND	110

DL F : Dilution Factor
SURRE : Bromofluorobenzene
MDL : Method Detection Limit

Handwritten notes:
EB5#5 - 10/10/94
10/10/94

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 602/8020
MATRIX: WATER

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BATCH NO.:	94A009	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A008-L1W	DATE ANALYZED:	01/10/94
ACCESSION:	94A008 94A009 94A017		

PARAMETER	TRUE VALUE (ug/L)	FOUND VALUE (ug/L)	LCS RECOVERY (%)
-----	-----	-----	-----
Benzene	50	52	104
Toluene	50	51	102
Ethyl Benzene	50	50	100
Xylenes	150	151	101

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8020
MATRIX: SOIL

BATCH NO.:	94A009	DATE RECEIVED:	01/04/94
SAMPLE ID:	EB5#5	DATE EXTRACTED:	NA
CONTROL NO.:	A009-017	DATE ANALYZED:	01/10/94

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Benzene	ND	250	240	96	250	255	102	6
Toluene	ND	250	245	98	250	270	108	10
Ethyl Benzene	ND	250	250	100	250	275	110	10
Xylenes	ND	750	750	100	750	830	111	10

EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

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CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/04/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/04/94
BATCH NO.:   94A009                     DATE EXTRACTED:  NA
SAMPLE ID:    EB3#5                     DATE ANALYZED:   01/05/94
CONTROL NO.:  A009-05                   MATRIX:         SOIL
% MOISTURE:   NA                       DILUTION FACTOR: 1
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PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	106	70-121
Toluene -d8	105	84-138
Bromofluorobenzene	101	59-113

MDL : Method Detection Limit

EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

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CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/04/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/04/94
BATCH NO.:   94A009                     DATE EXTRACTED:  NA
SAMPLE ID:    EB4#2                      DATE ANALYZED:   01/05/94
CONTROL NO.:  A009-07                   MATRIX:         SOIL
% MOISTURE:   NA                        DILUTION FACTOR: 1
=====
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PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	105	70-121
Toluene -d8	100	84-138
Bromofluorobenzene	108	59-113

MDL : Method Detection Limit

EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

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CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/04/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/04/94
BATCH NO.:   94A009                     DATE EXTRACTED:  NA
SAMPLE ID:    EB5#1                     DATE ANALYZED:   01/05/94
CONTROL NO.:  A009-13                   MATRIX:         SOIL
% MOISTURE:   NA                       DILUTION FACTOR: 1
=====
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PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	106	70-121
Toluene -d8	105	84-138
Bromofluorobenzene	104	59-113

MDL : Method Detection Limit

EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

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CLIENT:      Earth Technology Corp.      DATE COLLECTED:  NA
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:   NA
BATCH NO.:   94A009                     DATE EXTRACTED:  NA
SAMPLE ID:    VBLK1S                     DATE ANALYZED:   01/05/94
CONTROL NO.:  A009-B1S                   MATRIX:         SOIL
% MOISTURE:   NA                         DILUTION FACTOR: 1
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PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	102	70-121
Toluene -d8	106	84-138
Bromofluorobenzene	103	59-113

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8240
MATRIX: SOIL

=====

BATCH NO.:	94A009	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A008-L1S	DATE ANALYZED:	01/05/94
ACCESSION:	94A008		

PARAMETER	TRUE VALUE (ug/kg)	FOUND VALUE (ug/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
1,1-DCE	50	41	82
Benzene	50	46	92
TCE	50	47	94
Toluene	50	50	100
Chlorobenzene	50	51	102



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8240
MATRIX: SOIL

BATCH NO.: 94A009 DATE RECEIVED: 01/04/94
SAMPLE ID: EB3#5 DATE EXTRACTED: NA
CONTROL NO.: A009-05 DATE ANALYZED: 01/05/94

ACCESSION: 94A008 94A009

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
1,1-DCE	ND	50	39	78	50	34	68	14
Benzene	ND	50	46	92	50	48	96	4
TCE	ND	50	47	94	50	48	96	2
Toluene	ND	50	50	100	50	48	96	4
Chlorobenzene	ND	50	53	106	50	52	104	2

EPA METHOD 413.2
OIL & GREASE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/04/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/04/94
BATCH NO.:   94A009                     DATE EXTRACTED:  01/06/94
MATRIX:     SOIL                        DATE ANALYZED:   01/10/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB3#5	A009-05	ND	1	10
EB4#2	A009-07	ND	1	10
EB5#1	A009-13*	ND	1	10
TBLK1S	A019-B1S	ND	1	10

MDL : Method Detection Limit

* : Extracted on 01/07/94 and analyzed on 01/12/94

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 413.2
MATRIX: SOIL

=====

BATCH NO.:	94A009	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A009-L1S	DATE ANALYZED:	01/12/94

ACCESSION: 94A009 94A014 94A015 94A016 94A017

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
TROG	150	139	93



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 413.2
MATRIX: SOIL

BATCH NO.: 94A009 DATE RECEIVED: NA
SAMPLE ID: TBLK1S DATE EXTRACTED: 01/06/94
CONTROL NO.: A019-B1 DATE ANALYZED: 01/10/94

ACCESSION: 94A008 94A009 94A010 94A011 94A019

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
TROG	ND	150	129	86	150	134	89	3



EPA METHOD 376.1
SULFIDE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/04/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/04/94
BATCH NO.:   94A009                     DATE EXTRACTED:  01/07/94
MATRIX:      SOIL                       DATE ANALYZED:   01/07/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB3#5	A009-05	ND	2*	0.4
EB4#2	A009-07	ND	2*	0.4
EB5#1	A009-13	ND	2*	0.4
WBLK1S	A008-B1S	ND	1	0.2

MDL : Method Detection Limit
* : Inadequate amount of sample

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 376.1
MATRIX: WATER

=====

BATCH NO.:	94A009	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A008-L1W	DATE ANALYZED:	01/07/94

ACCESSION: 94A008 94A009 94A010 94A011

PARAMETER	TRUE VALUE (mg/L)	FOUND VALUE (mg/L)	LCS RECOVERY (%)
-----	-----	-----	-----
SULFIDE	5.0	4.6	92

CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 376.1
MATRIX: SOIL

=====

BATCH NO.:	94A009	DATE RECEIVED:	NA
SAMPLE ID:	D-6	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A008-06	DATE ANALYZED:	01/07/94
ACCESSION:	94A008	94A009	94A010 94A011

PARAMETER	Sample (mg/kg)	Dup. Sample (mg/kg)	RPD (%)
-----	-----	-----	-----
SULFIDE	ND	ND	0



EPA METHOD 300
CHLORIDE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/04/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/04/94
BATCH NO.:    94A009                     DATE EXTRACTED:  01/07/94
MATRIX:      SOIL                       DATE ANALYZED:   01/07/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB3#5	A009-05	13.3	1	0.2
EB4#2	A009-07	3.4	1	0.2
EB5#1	A009-13	6.4	1	0.2
WBLK1S	A008-B1S	ND	1	0.2

MDL : Method Detection Limit



EPA METHOD 300
SULFATE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/04/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/04/94
BATCH NO.:    94A009                     DATE EXTRACTED:  01/07/94
MATRIX:       SOIL                       DATE ANALYZED:   01/07/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB3#5	A009-05	26.2	1	1.0
EB4#2	A009-07	ND	1	1.0
EB5#1	A009-13	ND	1	1.0
WBLK1S	A008-B1S	ND	1	1.0

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: WATER

=====

BATCH NO.:	94A009	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A008-L1W	DATE ANALYZED:	01/07/94

ACCESSION: 94A008 94A009 94A010 94A011

PARAMETER	TRUE VALUE (mg/L)	FOUND VALUE (mg/L)	LCS RECOVERY (%)
-----	-----	-----	-----
Sulfate	150	136	91
Chloride	30.0	25.9	86



CKY QUALITY CONTROL DATA
SPIKE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

BATCH NO.: 94A009 DATE RECEIVED: NA
SAMPLE ID: D-6 DATE EXTRACTED: 01/07/94
CONTROL NO.: A008-06 DATE ANALYZED: 01/07/94
ACCESSION: 94A008 94A009 94A010 94A011

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC
Sulfate	4.7	20.0	21.6	85
Chloride	2.2	20.0	20.3	91

CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

=====

BATCH NO.:	94A009	DATE RECEIVED:	NA
SAMPLE ID:	D-6	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A008-06	DATE ANALYZED:	01/07/94

ACCESSION: 94A008 94A009 94A010 94A011

PARAMETER	Sample (mg/kg)	Dup. Sample (mg/kg)	RPD (%)
-----	-----	-----	-----
Sulfate	4.7	4.5	2
Chloride	2.2	2.8	24



DHS METHOD
ORGANIC LEAD

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/04/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/04/94
BATCH NO.:    94A009                     DATE EXTRACTED:  01/07/94
MATRIX:      SOIL                       DATE ANALYZED:   01/07/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB3#5	A009-05	ND	1	.5
EB4#2	A009-07	ND	1	.5
EB5#1	A009-13	ND	1	.5
FBLK1S	A008-B1S	ND	1	.5

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A009	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A008-L1S	DATE ANALYZED:	01/07/94

ACCESSION: 94A008 94A009 94A010 94A011 94A014 94A015 94A016
94A017 94A021 94A022

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Lead	100	94	94



CKY QUALITY CONTROL DATA
SPIKE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

```
=====
BATCH NO.: 94A009          DATE RECEIVED: NA
SAMPLE ID:  FBLK1S        DATE EXTRACTED: 01/07/94
CONTROL NO.: A008-B1S     DATE ANALYZED: 01/07/94

ACCESSION: 94A008  94A009  94A010  94A011  94A014  94A015  94A016
           94A017  94A021  94A022
```

PARAMETER	SAMPLE RESULT (mg/kg)	SPIKE CONC. (mg/kg)	SPIKE RESULT (mg/kg)	SPIKE RECRY. (%)
-----	-----	-----	-----	-----
Lead	ND	5.0	5.2	104

CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A009	DATE RECEIVED:	NA
SAMPLE ID:	D-6	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A008-06	DATE ANALYZED:	01/07/94

ACCESSION: 94A008 94A009 94A010 94A011 94A014 94A015 94A016
 94A017 94A021 94A022

PARAMETER	SAMPLE (mg/kg)	DUP. SAMPLE (mg/kg)	RPD (%)
-----	-----	-----	-----
Lead	ND	ND	0

Chain of Custody Record

94 A009
DUE 01-11-94
GZ

Lab job no.:
Date 1/4/94
Page 1 of 2

Laboratory CKY Method of Shipment _____

Address _____ Shipment No. _____

Airbill No. _____

Client The Earth Technology Corporation Cooler No. _____

Address 13900 Alton Parkway, Suite 120 Project Manager Kric Khilman

Irvine, CA 92718

Project Name METRO EAST EXT. Telephone No. 714 458 7414

Project Number 94-1119-2 Fax No. 714 458 8201

Samplers: (Signature) Hossain Rashid

Field Sample Number	Location/Depth	Date	Time	Sample Type	Type/Size of Container	Preservation		Analysis Required												Remarks
						Temp.	Chemical	Filtered	No. of Containers	EPA Method 8015 (Mod)	EPA Method 8015 (Mod)	EPA Method 8015 (Mod)	EPA Method 8015 (Mod)	EPA Method 8015 (Mod)	EPA Method 8015 (Mod)	EPA Method 8015 (Mod)	EPA Method 8015 (Mod)	EPA Method 8015 (Mod)	EPA Method 8015 (Mod)	
1	EB3 #1	5'	1/4/94	miss	D	2 0.0 4.5" long	ICE BAG													
2	2	10'		9:26	D	Stainless steel				X	X									
3	3	15'		9:22	D															
4	4	20'		9:30	D															
5	5	25'		9:40	D					X		X	X	X	X	X	X	X	X	
6	EB #4	1	5'		10:15	D				X	X									
7	2	10'		10:50	D					X		X	X	X	X	X	X	X	X	
8	3	15'		10:57	D															
9	4	20'		11:07	D															
10	5	25'		11:17	D					X	X									
11	6	30'		11:48	D															
12	7	35'		12:05	D															

Relinquished by: <u>Hossain Rashid</u> Signature: <u>Hossain Rashid</u> Printed: <u>HOSSEIN RASHIDI</u> Company: <u>DIAZ YOURMAN</u> Reason: <u>Transfer to lab</u>	Date: <u>1/4/94</u> Time: <u>12:00</u>	Received by: <u>SICAM</u> Signature: <u>SICAM</u> Printed: <u>SICAM</u> Company: <u>CKY</u> Reason: <u>ANALYSIS</u>	Date: <u>1-4-94</u> Time: <u>1855</u>	Relinquished by: <u>SICAM</u> Signature: <u>SICAM</u> Printed: <u>SICAM</u> Company: <u>CKY</u> Reason: <u>ANALYSIS</u>	Date: <u>1-4-94</u> Time: <u>1855</u>	Received by: <u>COTIANG CO</u> Signature: <u>COTIANG CO</u> Printed: <u>COTIANG CO</u> Company: <u>CKY</u>	Date: <u>1-4-94</u> Time: <u>1855</u>
Comments: <u>T=5°C</u>				Relinquished by: _____ Signature: _____ Printed: _____ Company: _____ Reason: _____			



Chain of Custody Record

94 A009
DUE 01-11-94
GZ

Lab job no.:
Date 1/4/94
Page 2 of 2

Laboratory CKV Method of Shipment _____
Address _____ Shipment No. _____
Airbill No. _____
Cooler No. _____
Client The Earth Technology Corporation Project Manager Kris K. Korman
Address 13900 Alton Parkway, Suite 120 Telephone No. 714 458 7414
Irvine, CA 92718 Fax No. 714 458 8701
Project Name METRO EAST EXT. Samplers: (Signature) _____
Project Number 94-1109-2

Field Sample Number		Location/Depth	Date	Time	Sample Type	Type/Size of Container	Preservation		Analysis Required												Remarks	
							Temp.	Chemical	Filtered ✓	No. of Containers	EPA Method 8015 (Met)	EPA 8020 BTEX	EPA Method 8015 (Met) Diesel	EPA Method 8240	EPA Method 8270	Federal Lead	Organic	Oil & Grease	Surfactants	Sulfides/Chlorides		B.G. OVA.
13	EB-5 #1	5	1/4/94	12:14	D	2' CD 4.5" long	ICE	NONE			X		X	X	X	X	X	X		10	26	
14		2	10	13:24	D	5" diameter steel	BAG													10	20	
15		3	15	13:38	D	Sleeves														8	9	
16		4	20	13:47	P				X	X										8	21	
17		5	25	13:53	P				X	X										8	21	

Relinquished by: Signature <u>Hossein Rashedi</u> Printed <u>HOSSEIN RASHEDI</u> Company <u>DIAR International</u> Reason <u>Transfer to Lab</u>	Date <u>1/4/94</u> Time _____	Received by: Signature <u>SICAM</u> Printed <u>SICAM</u> Company <u>CKV INC.</u>	Date <u>1/4/94</u> Time _____	Relinquished by: Signature <u>SICAM</u> Printed <u>SICAM</u> Company <u>CAY</u> Reason <u>ANALYSIS</u>	Date <u>1-4-94</u> Time <u>8:55</u>	Received by: Signature <u>CDTIANCO</u> Printed <u>CDTIANCO</u> Company <u>CKV</u>	Date <u>4-94</u> Time <u>1:15</u>
Comments: <u>T=50C</u>				Relinquished by: Signature _____ Printed _____ Company _____ Reason _____			



CKY incorporated Analytical Laboratories

Date: 01-21-1994
CKY Batch No.: 94A009

Attn.: K. Khilnani

Earth Technology Corp.
13900 Alton Parkway #120
Irvine, CA 92718

Subject: Additional Laboratory Report
Project: Metro Rail - East Side Ext.

Enclosed is the additional laboratory report for samples received on 01/04/94. The samples were received in coolers with ice and intact; the chain-of-custody forms were properly filled out. The data reported include :

Sample ID	Control No.	Matrix	Analysis
-----	-----	-----	-----
EB4#1	A009-06	soil	EPA 8020
EB4#6	A009-11	soil	EPA 8020
EB4#7	A009-12	soil	EPA 8020
EB5#5	A009-17	soil	EPA 8020

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

A handwritten signature in black ink, appearing to read 'K. Y. Pang'.

Kam Y. Pang, Ph.D.
Laboratory Director

P.S. - All analyses requested for the above referenced project have been completed. Therefore, unless instructed, the remaining portions of the samples will be disposed after fifteen (15) days from the date of this report.

EPA METHOD 8020
BTEX

```
=====
CLIENT:      Earth Technology Corp.          DATE COLLECTED: 01/04/94
PROJECT:     Metro Rail - East Side Ext.     DATE RECEIVED:  01/04/94
BATCH NO.:   94A009                         DATE EXTRACTED: NA
MATRIX:      SOIL                           DATE ANALYZED:  01/18/94
=====
```

SAMPLE ID	CNTRL NO	DL F	MDL	BENZ	RESULTS TOLUENE	(ug/kg) E BENZ	XYLS	% Rcvy SURR
-----	-----	-----	-----	-----	-----	-----	-----	-----
EB4#1	A009-06*	1	5	ND	ND	ND	ND	100
EB4#6	A009-11	1	5	ND	ND	ND	ND	100
EB4#7	A009-12	1	5	ND	ND	ND	ND	91
EB5#5	A009-17*	1	5	ND	5.2	11	40	75
VBLK1S	A009-B1S	1	5	ND	ND	ND	ND	99

DL F : Dilution Factor

SURR : Bromofluorobenzene

MDL : Method Detection Limit

* Taken from unopened end of tube



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 602/8020
MATRIX: SOIL

=====

BATCH NO.:	94A009	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A009-L1W	DATE ANALYZED:	01/18/94
ACCESSION:	94A009 94A016		

PARAMETER	TRUE VALUE (ug/L)	FOUND VALUE (ug/L)	LCS RECOVERY (%)
-----	-----	-----	-----
Benzene	250	240	96
Toluene	250	250	100
Ethyl Benzene	250	260	104
Xylenes	750	770	103



ANALYSIS REQUEST FORM

CLIENT NAME:

Earth Tech

CKY CONTROL NO.:

94 ADD9

REQUESTED BY:

Yulee

DATE:

1/14/94

LOGGED BY:

Cellular

CKY CONTROL NO.

CLIENT SAMPLE ID

COMMENTS

4009-6

EB 4 #1

BTEX

A009-17

FB 545

BTEX

- Plse. get sample from unopened end
of tube).

ASD 9-11

EB 4 #6

BTE X

ADD 9-12

EB4 #7

③TEX



CKY incorporated Analytical Laboratories

Date: 01-12-1994
CKY Batch No.: 94A010

Attn.: K. Khilnani

Earth Technology Corp.
13900 Alton Parkway #120
Irvine, CA 92718

Subject: Laboratory Report
Project: Metro Rail - East Side Ext.

Enclosed is the Laboratory report for samples received on 01/04/94. The samples were received in coolers with ice and intact; the chain-of-custody forms were properly filled out. The data reported include :

Sample ID	Control No.	Matrix	Analysis
-----	-----	-----	-----
EB9-D1	A010-01	soil	EPA M8015 (CCID) EPA 8020
EB9-D2	A010-02	soil	EPA M8015 (CCID) EPA 8240 EPA 8270 Organic Pb Sulfide Oil & Grease Sulfate Chloride
EB9-D3	A010-03	soil	Hold
EB9-D4	A010-04	soil	EPA M8015 (CCID) EPA 8020
EB9-D5	A010-05	soil	Hold
EB9-D6	A010-06	soil	Hold

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

Kam Y. Pang, Ph.D.
Laboratory Director

P.S. - All analyses requested for the above referenced project have been completed. Therefore, unless instructed, the remaining portions of the samples will be disposed after fifteen (15) days from the date of this report.

EPA METHOD M8015
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```
=====
CLIENT:      Earth Technology Corp.          DATE COLLECTED: 01/04/94
PROJECT:     Metro Rail - East Side Ext.     DATE RECEIVED:  01/04/94
BATCH NO.:   94A010                         DATE EXTRACTED: 01/06/94
MATRIX:      SOIL                           DATE ANALYZED:  01/11/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	H-C RANGE	% RECOVERY		DL FACTOR	MDL (mg/kg)
				SURR1	SURR2		
EB9-D1	A010-01	ND	NA	102	99	1	5
EB9-D2	A010-02	ND	NA	96	95	1	5
EB9-D4	A010-04	ND	NA	97	97	1	5
VBLK1S	A008-B1S	ND	NA	96	96	1	5

```
QC LIMIT:                               60-140   55-150
SURR1 : Bromobenzene
SURR2 : Hexacosane
MDL   : Method Detection Limit
```

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

=====

BATCH NO.:	94A010	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/06/94
CONTROL NO.:	A008-L1S	DATE ANALYZED:	01/10/94
ACCESSION:	94A008	94A009	94A010 94A011

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
DIESEL	250	225	90

CKY

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

BATCH NO.: 94A010 DATE RECEIVED: NA
SAMPLE ID: D-10 DATE EXTRACTED: 01/06/94
CONTROL NO.: A008-10 DATE ANALYZED: 01/10/94

ACCESSION: 94A008 94A009 94A010 94A011

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
DIESEL	ND	250	233	93	250	228	91	2

EPA METHOD 8020
BTEX

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=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/04/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/04/94
BATCH NO.:   94A010                     DATE EXTRACTED:  NA
MATRIX:      SOIL                       DATE ANALYZED:   01/10/94
=====
```

SAMPLE ID	CNTRL NO	DL F	MDL	BENZ	RESULTS TOLUENE	(ug/kg) E BENZ	XYLS	% Rcvy SURR
EB9-D1	A010-01	1	5	ND	ND	ND	ND	77
EB9-D4	A010-04	1	5	ND	ND	ND	ND	86
VBLK1S	A010-B1S	1	5	ND	ND	ND	ND	99

DL F : Dilution Factor
SURR : Bromofluorobenzene
MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 602/8020
MATRIX: WATER

=====

BATCH NO.:	94A010	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A010-L1W	DATE ANALYZED:	01/10/94
ACCESSION:	94A010		

PARAMETER	TRUE VALUE (ug/L)	FOUND VALUE (ug/L)	LCS RECOVERY (%)
-----	-----	-----	-----
Benzene	50	48	96
Toluene	50	48	96
Chlorobenzene	50	51	102

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8020
MATRIX: SOIL

BATCH NO.: 94A010 DATE RECEIVED: NA
SAMPLE ID: EB14A-D1 DATE EXTRACTED: NA
CONTROL NO.: A022-01 DATE ANALYZED: 01/10/94

ACCESSION: 94A010 94A011 94A021 94A022

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Benzene	ND	74	72	97	74	77	104	7
Toluene	ND	540	530	98	540	540	100	2
Ethyl Benzene	ND	120	110	92	120	120	100	8
Xylenes	ND	840	810	96	840	870	104	8



EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

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=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/04/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/04/94
BATCH NO.:   94A010                     DATE EXTRACTED:  NA
SAMPLE ID:    EB9-D2                     DATE ANALYZED:   01/05/94
CONTROL NO.:  A010-02                   MATRIX:         SOIL
% MOISTURE:   NA                        DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	107	70-121
Toluene -d8	104	84-138
Bromofluorobenzene	107	59-113

MDL : Method Detection Limit

EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED:  NA
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:   NA
BATCH NO.:   94A010                     DATE EXTRACTED:  NA
SAMPLE ID:   VBLK1S                     DATE ANALYZED:   01/05/94
CONTROL NO.: A010-B1S                   MATRIX:         SOIL
% MOISTURE:  NA                         DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	102	70-121
Toluene -d8	106	84-138
Bromofluorobenzene	103	59-113

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8240
MATRIX: SOIL

=====

BATCH NO.:	94A010	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A010-L1S	DATE ANALYZED:	01/05/94
ACCESSION:	94A008		

PARAMETER	TRUE VALUE (ug/kg)	FOUND VALUE (ug/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
1,1-DCE	50	41	82
Benzene	50	46	92
TCE	50	47	94
Toluene	50	50	100
Chlorobenzene	50	51	102



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8240
MATRIX: SOIL

BATCH NO.: 94A010 DATE RECEIVED: NA
SAMPLE ID: EB3#5 DATE EXTRACTED: NA
CONTROL NO.: A009-05 DATE ANALYZED: 01/05/94

ACCESSION: 94A008 94A009 94A010

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
1,1-DCE	ND	50	39	78	50	34	68	14
Benzene	ND	50	46	92	50	48	96	4
TCE	ND	50	47	94	50	48	96	2
Toluene	ND	50	50	100	50	48	96	4
Chlorobenzene	ND	50	53	106	50	52	104	2



EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: 01/04/94
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: 01/04/94
BATCH NO.: 94A010	DATE EXTRACTED: 01/07/94
SAMPLE ID: EB9-D2	DATE ANALYZED: 01/09/94
CONTROL NO.: A010-02	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg) RESULT MDL	PARAMETERS	(ug/kg) RESULT MDL
N-Nitrosodimethylamine	ND (330)	3-Nitroaniline	ND (800)
Pyridine	ND (330)	Acenaphthene	ND (330)
Aniline	ND (330)	2,4-Dinitrophenol	ND (800)
Phenol	ND (330)	4-Nitrophenol	ND (800)
bis(2-Chloroethyl)ether	ND (330)	Dibenzofuran	ND (330)
2-Chlorophenol	ND (330)	2,4-Dinitrotoluene	ND (330)
1,3-Dichlorobenzene	ND (330)	Diethylphthalate	ND (330)
1,4-Dichlorobenzene	ND (330)	4-Chlorophenyl-phenylether	ND (330)
Benzyl Alcohol	ND (330)	Fluorene	ND (330)
1,2-Dichlorobenzene	ND (330)	1,2-Diphenylhydrazine	ND (800)
2-Methylphenol	ND (330)	4-Nitroaniline	ND (800)
2,2'-oxybis(1-Chloropropane)	ND (330)	4,6-Dinitro-2-methylphenol	ND (800)
4-Methylphenol	ND (330)	N-Nitrosodiphenylamine (1)	ND (330)
N-Nitroso-di-n-propylamine	ND (330)	4-Bromophenyl-phenylether	ND (330)
Hexachloroethane	ND (330)	Hexachlorobenzene	ND (330)
Nitrobenzene	ND (330)	Pentachlorophenol	ND (800)
Isophorene	ND (330)	Nitidine	ND (800)
2-Nitrophenol	ND (330)	Phenanthrene	ND (800)
2,4-Dimethylphenol	ND (330)	Anthracene	ND (330)
Benzoic Acid	ND (800)	Carbazole	ND (800)
bis(2-Chloroethoxy)methane	ND (330)	Di-n-butylphthalate	660 (330)
2,4-Dichlorophenol	ND (330)	Fluoranthene	ND (330)
1,2,4-Trichlorobenzene	ND (330)	4,4'-Methylene Dianiline	ND (800)
Naphthalene	ND (330)	Pyrene	ND (330)
4-Chloroaniline	ND (330)	Bisphenol-A	ND (330)
Hexachloro-1,3-butadiene	ND (330)	Butylbenzylphthalate	ND (330)
4-Chloro-3-methylphenol	ND (330)	3,3'-Dichlorobenzidine	ND (330)
2-Methylnaphthalene	ND (330)	Benzo(a)anthracene	ND (330)
Hexachlorocyclopentadiene	ND (330)	Chrysene	ND (330)
2,4,6-Trichlorophenol	ND (330)	bis(2-Ethylhexyl)phthalate	ND (330)
2,4,5-Trichlorophenol	ND (800)	Di-n-octylphthalate	ND (330)
2-Chloronaphthalene	ND (330)	Benz(b)fluoranthene	ND (330)
1-Chloronaphthalene	ND (330)	Benzo(k)fluoranthene	ND (330)
2-Nitroaniline	ND (800)	Benzo(a)pyrene	ND (330)
Dimethylphthalate	ND (330)	Indeno(1,2,3-cd)pyrene	ND (330)
Acenaphthylene	ND (330)	Dibenzo(a,h)anthracene	ND (330)
2,6-Dinitrotoluene	ND (330)	Benzo(g,h,i)perylene	ND (330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	98	23-120
2-Fluorobiphenyl	96	30-115
Terphenyl-d14	107	18-137
Phenol-d5	91	24-113
2-Fluorophenol	98	25-121
2,4,6-Tribromophenol	107	19-122

MDL: Method Detection Limit



EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: NA
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: NA
BATCH NO.: 94A010	DATE EXTRACTED: 01/07/94
SAMPLE ID: SBLK1S	DATE ANALYZED: 01/07/94
CONTROL NO.: L084-B1S	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg) RESULT MDL	PARAMETERS	(ug/kg) RESULT MDL
N-Nitrosodimethylamine	ND (330)	3-Nitroaniline	ND (800)
Pyridine	ND (330)	Acenaphthene	ND (330)
Aniline	ND (330)	2,4-Dinitrophenol	ND (800)
Phenol	ND (330)	4-Nitrophenol	ND (800)
bis(2-Chloroethyl) ether	ND (330)	Dibenzofuran	ND (330)
2-Chlorophenol	ND (330)	2,4-Dinitrotoluene	ND (330)
1,3-Dichlorobenzene	ND (330)	Diethylphthalate	ND (330)
1,4-Dichlorobenzene	ND (330)	4-Chlorophenyl-phenylether	ND (330)
Benzyl Alcohol	ND (330)	Fluorene	ND (330)
1,2-Dichlorobenzene	ND (330)	1,2-Diphenylhydrazine	ND (800)
2-Methylphenol	ND (330)	4-Nitroaniline	ND (800)
2,2'-oxybis(1-Chloropropane)	ND (330)	4,6-Dinitro-2-methylphenol	ND (800)
4-Methylphenol	ND (330)	N-Nitrosodiphenylamine (1)	ND (330)
N-Nitroso-di-n-propylamine	ND (330)	4-Bromophenyl-phenylether	ND (330)
Hexachloroethane	ND (330)	Hexachlorobenzene	ND (330)
Nitrobenzene	ND (330)	Pentachlorophenol	ND (800)
Isophorene	ND (330)	Benzidine	ND (800)
2-Nitrophenol	ND (330)	Phenanthrene	ND (800)
2,4-Dimethylphenol	ND (330)	Anthracene	ND (330)
Benzoic Acid	ND (800)	Carbazole	ND (800)
bis(2-Chloroethoxy)methane	ND (330)	Di-n-butylphthalate	1500 (330)
2,4-Dichlorophenol	ND (330)	Fluoranthene	ND (330)
1,2,4-Trichlorobenzene	ND (330)	4,4'-Methylene Dianiline	ND (800)
Naphthalene	ND (330)	Pyrene	ND (330)
4-Chloroaniline	ND (330)	Bisphenol-A	ND (330)
Hexachloro-1,3-butadiene	ND (330)	Butylbenzylphthalate	ND (330)
4-Chloro-3-methylphenol	ND (330)	3,3'-Dichlorobenzidine	ND (330)
2-Methylnaphthalene	ND (330)	Benzo(a)anthracene	ND (330)
Hexachlorocyclopentadiene	ND (330)	Chrysene	ND (330)
2,4,6-Trichlorophenol	ND (330)	bis(2-Ethylhexyl)phthalate	ND (330)
2,4,5-Trichlorophenol	ND (800)	Di-n-octylphthalate	ND (330)
2-Chloronaphthalene	ND (330)	Benzo(b)fluoranthene	ND (330)
1-Chloronaphthalene	ND (330)	Benzo(k)fluoranthene	ND (330)
2-Nitroaniline	ND (800)	Benzo(a)pyrene	ND (330)
Dimethylphthalate	ND (330)	Indeno(1,2,3-cd)pyrene	ND (330)
Acenaphthylene	ND (330)	Dibenzo(a,h)anthracene	ND (330)
2,6-Dinitrotoluene	ND (330)	Benzo(g,h,i)perylene	ND (330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	64	23-120
2-Fluorobiphenyl	71	30-115
Terphenyl-d14	103	18-137
Phenol-d5	61	24-113
2-Fluorophenol	61	25-121
2,4,6-Tribromophenol	72	19-122

MDL: Method Detection Limit



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8270
MATRIX: SOIL

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=====
BATCH NO.:      94A010      DATE RECEIVED:    NA
SAMPLE ID:      LCS01      DATE EXTRACTED:   01/07/94
CONTROL NO.:    A008-L1S    DATE ANALYZED:    01/07/94
```

ACCESSION: 94A008 94A009 94A010 94A011 94A014 94A015
 94A016 94A017

PARAMETER	TRUE VALUE (ug/kg)	FOUND VALUE (ug/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Phenol	5000	3260	65
2-Chlorophenol	5000	3640	73
1,4-DCB	3300	2440	73
N-Nitroso-di-n-	3300	2750	83
1,2,4-TCB	3300	2760	83
4-Chloro-3-Methy	5000	2560	77
Acenaphthene	3300	2710	81
4-Nitrophenol	5000	4970	99
2,4-Dinitrotol	3300	3380	101
Pentachlorophe	5000	5060	101
Pyrene	3300	3020	91



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8270
MATRIX: SOIL

BATCH NO.: 94A010 DATE RECEIVED: NA
SAMPLE ID: 29-A115902 DATE EXTRACTED: 01/07/94
CONTROL NO.: A019-02 DATE ANALYZED: 01/08/94

ACCESSION: 94A008 94A009 94A010 94A011 94A014 94A015
94A016 94A017 94A019

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Phenol	ND	5000	3130	63	5000	2880	58	8
2-Chlorophenol	ND	5000	3310	66	5000	3000	60	10
1,4-DCB	ND	3300	2145	65	3300	2010	61	6
N-Nitroso-di-n	ND	3300	2460	75	3300	2300	70	7
1,2,4-TCB	ND	3300	2460	75	3300	2310	70	7
4-Chl-3-Methy	ND	5000	3780	76	5000	3610	72	5
Acenaphthene	ND	3300	2520	76	3300	2330	71	7
2,4-Dinitrotol	ND	3300	2960	90	3300	3040	92	2
Pentachlorophe	ND	5000	4620	92	5000	4320	86	7
Pyrene	ND	3300	3010	91	3300	3540	107	16

EPA METHOD 413.2
OIL & GREASE

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=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/04/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/04/94
BATCH NO.:    94A010                     DATE EXTRACTED:  01/06/94
MATRIX:       SOIL                       DATE ANALYZED:   01/10/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB9-D2	A010-02	ND	1	10
TBLK1S	A019-B1S	ND	1	10

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 413.2
MATRIX: SOIL

BATCH NO.: 94A010 DATE RECEIVED: NA
SAMPLE ID: TBLK1S DATE EXTRACTED: 01/06/94
CONTROL NO.: A019-B1 DATE ANALYZED: 01/10/94

ACCESSION: 94A008 94A009 94A010 94A011 94A019

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
TROG	ND	150	129	86	150	134	89	3

EPA METHOD 376.1
SULFIDE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/04/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/04/94
BATCH NO.:    94A010                     DATE EXTRACTED:  01/07/94
MATRIX:       SOIL                       DATE ANALYZED:   01/07/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB9-D2	A010-02	ND	2*	0.4
WBLK1S	A008-B1S	ND	1	0.2

MDL : Method Detection Limit
* : Inadequate amount of sample

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 376.1
MATRIX: WATER

=====

BATCH NO.:	94A010	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A008-L1W	DATE ANALYZED:	01/07/94
ACCESSION:	94A008	94A009	94A010 94A011

PARAMETER	TRUE VALUE (mg/L)	FOUND VALUE (mg/L)	LCS RECOVERY (%)
-----	-----	-----	-----
SULFIDE	5.0	4.6	92



CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 376.1
MATRIX: SOIL

=====

BATCH NO.:	94A010	DATE RECEIVED:	NA
SAMPLE ID:	D-6	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A008-06	DATE ANALYZED:	01/07/94

ACCESSION: 94A008 94A009 94A010 94A011

PARAMETER	Sample (mg/kg)	Dup. Sample (mg/kg)	RPD (%)
-----	-----	-----	-----
SULFIDE	ND	ND	0

EPA METHOD 300
CHLORIDE

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=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/04/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/04/94
BATCH NO.:   94A010                     DATE EXTRACTED:  01/07/94
MATRIX:     SOIL                        DATE ANALYZED:   01/07/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB9-D2	A010-02	6.7	1	0.2
WBLK1S	A008-B1S	ND	1	0.2

MDL : Method Detection Limit

EPA METHOD 300
SULFATE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/04/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/04/94
BATCH NO.:    94A010                     DATE EXTRACTED:  01/07/94
MATRIX:       SOIL                       DATE ANALYZED:   01/07/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB9-D2	A010-02	4.2	1	1.0
WBLK1S	A008-B1S	ND	1	1.0

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: WATER

=====

BATCH NO.:	94A010	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A008-L1W	DATE ANALYZED:	01/07/94
ACCESSION:	94A008	94A009	94A010 94A011

PARAMETER	TRUE VALUE (mg/L)	FOUND VALUE (mg/L)	LCS RECOVERY (%)
-----	-----	-----	-----
Sulfate	150	136	91
Chloride	30.0	25.9	86



CKY QUALITY CONTROL DATA
SPIKE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

BATCH NO.: 94A010 DATE RECEIVED: NA
SAMPLE ID: D-6 DATE EXTRACTED: 01/07/94
CONTROL NO.: A008-06 DATE ANALYZED: 01/07/94

ACCESSION: 94A008 94A009 94A010 94A011

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC
Sulfate	4.7	20.0	21.6	85
Chloride	2.2	20.0	20.3	91



CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

=====

BATCH NO.:	94A010	DATE RECEIVED:	NA
SAMPLE ID:	D-6	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A008-06	DATE ANALYZED:	01/07/94

ACCESSION: 94A008 94A009 94A010 94A011

PARAMETER	Sample (mg/kg)	Dup. Sample (mg/kg)	RPD (%)
-----	-----	-----	-----
Sulfate	4.7	4.5	2
Chloride	2.2	2.8	24



DHS METHOD
ORGANIC LEAD

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/04/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/04/94
BATCH NO.:   94A010                     DATE EXTRACTED:  01/07/94
MATRIX:      SOIL                       DATE ANALYZED:   01/07/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB9-D2	A010-02	ND	1	.5
FBLK1S	A008-B1S	ND	1	.5

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A010	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A008-L1S	DATE ANALYZED:	01/07/94
ACCESSION:	94A008 94A009 94A010 94A011 94A014 94A015 94A016		
	94A017 94A021 94A022		

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Lead	100	94	94



CKY QUALITY CONTROL DATA
SPIKE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

```
=====
BATCH NO.:      94A010      DATE RECEIVED:    NA
SAMPLE ID:      FBLK1S      DATE EXTRACTED:   01/07/94
CONTROL NO.:    A008-B1S    DATE ANALYZED:    01/07/94

ACCESSION:      94A008  94A009  94A010  94A011  94A014  94A015  94A016
                  94A017  94A021  94A022
```

PARAMETER	SAMPLE RESULT (mg/kg)	SPIKE CONC. (mg/kg)	SPIKE RESULT (mg/kg)	SPIKE RECRY. (%)
-----	-----	-----	-----	-----
Lead	ND	5.0	5.2	104



CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

ENT: Earth Technology Corp.
ECT: Metro Rail - East Side Ext.
OD: DHS METHOD
IX: Soil

=====

CH NO.:	94A010	DATE RECEIVED:	NA
LE ID:	D-6	DATE EXTRACTED:	01/07/94
ROL NO.:	A008-06	DATE ANALYZED:	01/07/94

MISSION: 94A008 94A009 94A010 94A011 94A014 94A015 94A016
94A017 94A021 94A022

METER	SAMPLE (mg/kg)	DUP. SAMPLE (mg/kg)	RPD (%)
	ND	ND	0

Time	Printed	Company
Time	Printed	Company
Reason	Company	Printed

DISTRIBUTION: White to Laboratory, Canary to Earth Technology Project File, Pink to Courter, Golden to Field File

F-1000
10/25/92



CKY incorporated Analytical Laboratories

Date: 01-12-1994
CKY Batch No.: 94A011

Attn.: K. Khilnani

Earth Technology Corp.
13900 Alton Parkway #120
Irvine, CA 92718

Subject: Laboratory Report
Project: Metro Rail - East Side Ext.

Enclosed is the Laboratory report for samples received on 01/04/94. The samples were received in coolers with ice and intact; the chain-of-custody forms were properly filled out. The data reported include :

Sample ID	Control No.	Matrix	Analysis
-----	-----	-----	-----
EB10-D1	A011-01	soil	Hold
EB10-D2	A011-02	soil	EPA M8015 (CCID) EPA 8020
EB10-D3	A011-03	soil	EPA M8015 (CCID) EPA 8240 EPA 8270 Organic Pb Oil & Grease Sulfide Sulfate Chloride
EB10-D4	A011-04	soil	Hold
EB10-D5	A011-05	soil	EPA M8015 (CCID) EPA 8020
EB10-D6	A011-06	soil	Hold

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

Kam Y. Pang, Ph.D.
Laboratory Director

P.S. - All analyses requested for the above referenced project have been completed. Therefore, unless instructed, the remaining portions of the samples will be disposed after fifteen (15) days from the date of this report.

EPA METHOD M8015
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

CLIENT:	Earth Technology Corp.	DATE COLLECTED:	01/04/94
PROJECT:	Metro Rail - East Side Ext.	DATE RECEIVED:	01/04/94
BATCH NO.:	94A011	DATE EXTRACTED:	01/06/94
MATRIX:	SOIL	DATE ANALYZED:	01/11/94

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	H-C RANGE	% RECOVERY SURR1	SURR2	DL FACTOR	MDL (mg/kg)
EB10-D2	A011-02	ND	N.A.	97	95	1	5
EB10-D3	A011-03	ND	N.A.	102	98	1	5
EB10-D5	A011-05	ND	N.A.	98	97	1	5
DBLK1S	A011-B1S*	ND	N.A.	96	96	1	5

SURR1 : Bromobenzene

SURR2 : Hexacosane

MDL : Method Detection Limit

* Date analyzed, 01/10/94

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

=====

BATCH NO.:	94A011	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/06/94
CONTROL NO.:	A008-L1S	DATE ANALYZED:	01/10/94

ACCESSION: 94A008 94A009 94A010 94A011

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
DIESEL	250	225	90



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

BATCH NO.: 94A011 DATE RECEIVED: NA
SAMPLE ID: D-10 DATE EXTRACTED: 01/06/94
CONTROL NO.: A008-10 DATE ANALYZED: 01/10/94

ACCESSION: 94A008 94A009 94A010 94A011

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
DIESEL	ND	250	233	93	250	228	91	2

EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: 01/04/94
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: 01/04/94
BATCH NO.: 94A011	DATE EXTRACTED: 01/07/94
SAMPLE ID: EB10-D3	DATE ANALYZED: 01/10/94
CONTROL NO.: A011-03	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg) RESULT MDL	PARAMETERS	(ug/kg) RESULT MDL
N-Nitrosodimethylamine	ND (330)	3-Nitroaniline	ND (800)
Pyridine	ND (330)	Acenaphthene	ND (330)
Aniline	ND (330)	2,4-Dinitrophenol	ND (800)
Phenol	ND (330)	4-Nitrophenol	ND (800)
bis(2-Chloroethyl) ether	ND (330)	Dibenzofuran	ND (330)
2-Chlorophenol	ND (330)	2,4-Dinitrotoluene	ND (330)
1,3-Dichlorobenzene	ND (330)	Diethylphthalate	ND (330)
1,4-Dichlorobenzene	ND (330)	4-Chlorophenyl-phenylether	ND (330)
Benzyl Alcohol	ND (330)	Fluorene	ND (330)
1,2-Dichlorobenzene	ND (330)	1,2-Diphenylhydrazine	ND (800)
2-Methylphenol	ND (330)	4-Nitroaniline	ND (800)
2,2'-oxybis(1-Chloropropane)	ND (330)	4,6-Dinitro-2-methylphenol	ND (800)
4-Methylphenol	ND (330)	N-Nitrosodiphenylamine (1)	ND (330)
N-Nitroso-di-n-propylamine	ND (330)	4-Bromophenyl-phenylether	ND (330)
Hexachloroethane	ND (330)	Hexachlorobenzene	ND (330)
Nitrobenzene	ND (330)	Pentachlorophenol	ND (800)
Isophorene	ND (330)	Benzidine	ND (800)
2-Nitrophenol	ND (330)	Phenanthrene	ND (800)
2,4-Dimethylphenol	ND (330)	Anthracene	ND (330)
Benzoic Acid	ND (800)	Carbazole	ND (800)
bis(2-Chloroethoxy)methane	ND (330)	Di-n-butylphthalate	640 (330)
2,4-Dichlorophenol	ND (330)	Fluoranthene	ND (330)
1,2,4-Trichlorobenzene	ND (330)	4,4'-Methylene Dianiline	ND (800)
Naphthalene	ND (330)	Pyrene	ND (330)
4-Chloroaniline	ND (330)	Bisphenol-A	ND (330)
Hexachloro-1,3-butadiene	ND (330)	Butylbenzylphthalate	ND (330)
4-Chloro-3-methylphenol	ND (330)	3,3'-Dichlorobenzidine	ND (330)
2-Methylnaphthalene	ND (330)	Benzo(a)anthracene	ND (330)
Hexachlorocyclopentadiene	ND (330)	Chrysene	ND (330)
2,4,6-Trichlorophenol	ND (330)	bis(2-Ethylhexyl)phthalate	ND (330)
2,4,5-Trichlorophenol	ND (800)	Di-n-octylphthalate	ND (330)
2-Chloronaphthalene	ND (330)	Benz(b)fluoranthene	ND (330)
1-Chloronaphthalene	ND (330)	Benzo(k)fluoranthene	ND (330)
2-Nitroaniline	ND (800)	Benzo(a)pyrene	ND (330)
Dimethylphthalate	ND (330)	Indeno(1,2,3-cd)pyrene	ND (330)
Acenaphthylene	ND (330)	Dibenzo(a,h)anthracene	ND (330)
2,6-Dinitrotoluene	ND (330)	Benzo(g,h,i)perylene	ND (330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	103	23-120
2-Fluorobiphenyl	98	30-115
Terphenyl-d14	109	18-137
Phenol-d5	100	24-113
2-Fluorophenol	102	25-121
2,4,6-Tribromophenol	103	19-122

MDL: Method Detection Limit



EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: NA
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: NA
BATCH NO.: 94A011	DATE EXTRACTED: 01/07/94
SAMPLE ID: SBLK1S	DATE ANALYZED: 01/10/94
CONTROL NO.: A011-B1S	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg)		PARAMETERS	(ug/kg)	
	RESULT	MDL		RESULT	MDL
N-Nitrosodimethylamine	ND	(330)	3-Nitroaniline	ND	(800)
Pyridine	ND	(330)	Acenaphthene	ND	(330)
Aniline	ND	(330)	2,4-Dinitrophenol	ND	(800)
Phenol	ND	(330)	4-Nitrophenol	ND	(800)
bis(2-Chloroethyl) ether	ND	(330)	Dibenzofuran	ND	(330)
2-Chlorophenol	ND	(330)	2,4-Dinitrotoluene	ND	(330)
1,3-Dichlorobenzene	ND	(330)	Diethylphthalate	ND	(330)
1,4-Dichlorobenzene	ND	(330)	4-Chlorophenyl-phenylether	ND	(330)
Benzyl Alcohol	ND	(330)	Fluorene	ND	(330)
1,2-Dichlorobenzene	ND	(330)	1,2-Diphenylhydrazine	ND	(800)
2-Methylphenol	ND	(330)	4-Nitroaniline	ND	(800)
2,2'-oxybis(1-Chloropropane)	ND	(330)	4,6-Dinitro-2-methylphenol	ND	(800)
4-Methylphenol	ND	(330)	N-Nitrosodiphenylamine (1)	ND	(330)
N-Nitroso-di-n-propylamine	ND	(330)	4-Bromophenyl-phenylether	ND	(330)
Hexachloroethane	ND	(330)	Hexachlorobenzene	ND	(330)
Nitrobenzene	ND	(330)	Pentachlorophenol	ND	(800)
Isophorene	ND	(330)	Benidine	ND	(800)
2-Nitrophenol	ND	(330)	Phenanthrene	ND	(800)
2,4-Dimethylphenol	ND	(330)	Anthracene	ND	(330)
Benzoic Acid	ND	(800)	Carbazole	ND	(800)
bis(2-Chloroethoxy) methane	ND	(330)	Di-n-butylphthalate	1500	(330)
2,4-Dichlorophenol	ND	(330)	Fluoranthene	ND	(330)
1,2,4-Trichlorobenzene	ND	(330)	4,4'-Methylene Dianiline	ND	(800)
Naphthalene	ND	(330)	Pyrene	ND	(330)
4-Chloroaniline	ND	(330)	Bisphenol-A	ND	(330)
Hexachloro-1,3-butadiene	ND	(330)	Butylbenzylphthalate	ND	(330)
4-Chloro-3-methylphenol	ND	(330)	3,3'-Dichlorobenzidine	ND	(330)
2-Methylnaphthalene	ND	(330)	Benzo(a)anthracene	ND	(330)
Hexachlorocyclopentadiene	ND	(330)	Chrysene	ND	(330)
2,4,6-Trichlorophenol	ND	(330)	bis(2-Ethylhexyl)phthalate	ND	(330)
2,4,5-Trichlorophenol	ND	(800)	Di-n-octylphthalate	ND	(330)
2-Chloronaphthalene	ND	(330)	Benz(b)fluoranthene	ND	(330)
1-Chloronaphthalene	ND	(330)	Benzo(k)fluoranthene	ND	(330)
2-Nitroaniline	ND	(800)	Benzo(a)pyrene	ND	(330)
Dimethylphthalate	ND	(330)	Indeno(1,2,3-cd)pyrene	ND	(330)
Acenaphthylene	ND	(330)	Dibenzo(a,h)anthracene	ND	(330)
2,6-Dinitrotoluene	ND	(330)	Benzo(g,h,i)perylene	ND	(330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	64	23-120
2-Fluorobiphenyl	71	30-115
Terphenyl-d14	103	18-137
Phenol-d5	61	24-113
2-Fluorophenol	61	25-121
2,4,6-Tribromophenol	72	19-122

MDL: Method Detection Limit

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8270
MATRIX: SOIL

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=====
BATCH NO.:      94A011      DATE RECEIVED:    NA
SAMPLE ID:      LCS01      DATE EXTRACTED:   01/07/94
CONTROL NO.:    A008-L1S    DATE ANALYZED:    01/07/94
```

ACCESSION: 94A008 94A009 94A010 94A011 94A014 94A015
 94A016 94A017

PARAMETER	TRUE VALUE (ug/kg)	FOUND VALUE (ug/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Phenol	5000	3260	65
2-Chlorophenol	5000	3640	73
1,4-DCB	3300	2440	73
N-Nitroso-di-n-	3300	2750	83
1,2,4-TCB	3300	2760	83
4-Chloro-3-Methy	5000	2560	77
Acenaphthene	3300	2710	81
4-Nitrophenol	5000	4970	99
2,4-Dinitrotol	3300	3380	101
Pentachlorophe	5000	5060	101
Pyrene	3300	3020	91

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8270
MATRIX: SOIL

BATCH NO.: 94A011 DATE RECEIVED: NA
SAMPLE ID: 29-A115902 DATE EXTRACTED: 01/07/94
CONTROL NO.: A019-02 DATE ANALYZED: 01/08/94

ACCESSION: 94A008 94A009 94A010 94A011 94A014 94A015
 94A016 94A017 94A019

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Phenol	ND	5000	3130	63	5000	2880	58	8
2-Chlorophenol	ND	5000	3310	66	5000	3000	60	10
1,4-DCB	ND	3300	2145	65	3300	2010	61	6
N-Nitroso-di-n	ND	3300	2460	75	3300	2300	70	7
1,2,4-TCB	ND	3300	2460	75	3300	2310	70	7
4-Chl-3-Methy	ND	5000	3780	76	5000	3610	72	5
Acenaphthene	ND	3300	2520	76	3300	2330	71	7
2,4-Dinitrotol	ND	3300	2960	90	3300	3040	92	2
Pentachlorophe	ND	5000	4620	92	5000	4320	86	7
Pyrene	ND	3300	3010	91	3300	3540	107	16

EPA METHOD 413.2
OIL & GREASE

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=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/04/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/04/94
BATCH NO.:   94A011                     DATE EXTRACTED:  01/06/94
MATRIX:     SOIL                        DATE ANALYZED:   01/10/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB10-D3	A011-03	ND	1	10
TBLK1S	A019-B1S	ND	1	10

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 413.2
MATRIX: SOIL

BATCH NO.: 94A011 DATE RECEIVED: NA
SAMPLE ID: TBLK1S DATE EXTRACTED: 01/06/94
CONTROL NO.: A019-B1 DATE ANALYZED: 01/10/94

ACCESSION: 94A008 94A009 94A010 94A011 94A019

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
TROG	ND	150	129	86	150	134	89	3

EPA METHOD 8020
BTEX

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=====
CLIENT:      Earth Technology Corp.          DATE COLLECTED: 01/04/94
PROJECT:     Metro Rail - East Side Ext.     DATE RECEIVED:  01/04/94
BATCH NO.:   94A011                         DATE EXTRACTED: NA
MATRIX:      SOIL                           DATE ANALYZED:   01/10/94
=====
```

SAMPLE ID	CNTRL NO	DL F	MDL	BENZ	RESULTS TOLUENE	(ug/kg) E BENZ	XYLS	% Rcvy SURR
EB10-D2	A011-02	1	5	ND	ND	ND	ND	73
EB10-D5	A011-05	1	5	ND	ND	ND	ND	69
VBLK1S	A011-B1S	1	5	ND	ND	ND	ND	99

DL F : Dilution Factor
SURR : Bromofluorobenzene
MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 602/8020
MATRIX: WATER

=====

BATCH NO.:	94A011	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A011-L1W	DATE ANALYZED:	01/10/94
ACCESSION:	94A011		

PARAMETER	TRUE VALUE (ug/L)	FOUND VALUE (ug/L)	LCS RECOVERY (%)
-----	-----	-----	-----
Benzene	50	48	96
Toluene	50	48	96
Chlorobenzene	50	51	102

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8020
MATRIX: SOIL

BATCH NO.: 94A011 DATE RECEIVED: NA
SAMPLE ID: EB14A-D1 DATE EXTRACTED: NA
CONTROL NO.: A022-01 DATE ANALYZED: 01/10/94

ACCESSION: 94A010 94A011 94A021 94A022

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Benzene	ND	74	72	97	74	77	104	7
Toluene	ND	540	530	98	540	540	100	2
Ethyl Benzene	ND	120	110	92	120	120	100	8
Xylenes	ND	840	810	96	840	870	104	8

EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

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=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/04/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/04/94
BATCH NO.:   94A011                     DATE EXTRACTED:  NA
SAMPLE ID:   EB10-D3                     DATE ANALYZED:   01/05/94
CONTROL NO.: A011-03                     MATRIX:         SOIL
% MOISTURE:  NA                           DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	104	70-121
Toluene -d8	103	84-138
Bromofluorobenzene	103	59-113

MDL : Method Detection Limit

EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED:  NA
PROJECT:      Metro Rail - East Side Ext.  DATE RECEIVED:   NA
BATCH NO.:    94A011                     DATE EXTRACTED:  NA
SAMPLE ID:    VBLK1S                     DATE ANALYZED:   01/05/94
CONTROL NO.:  A011-B1S                   MATRIX:         SOIL
% MOISTURE:   NA                         DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	102	70-121
Toluene -d8	106	84-138
Bromofluorobenzene	103	59-113

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8240
MATRIX: SOIL

=====

BATCH NO.:	94A011	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A011-L1S	DATE ANALYZED:	01/05/94
ACCESSION:	94A011		

PARAMETER	TRUE VALUE (ug/kg)	FOUND VALUE (ug/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
1,1-DCE	50	41	82
Benzene	50	46	92
TCE	50	47	94
Toluene	50	50	100
Chlorobenzene	50	51	102

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8240
MATRIX: SOIL

BATCH NO.:	94A011	DATE RECEIVED:	NA
SAMPLE ID:	EB3#5	DATE EXTRACTED:	NA
CONTROL NO.:	A009-05	DATE ANALYZED:	01/05/94
ACCESSION:	94A009 94A011		

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	% MS REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	% MSD REC	% RPD
1,1-DCE	ND	50	39	78	50	34	68	14
Benzene	ND	50	46	92	50	48	96	4
TCE	ND	50	47	94	50	48	96	2
Toluene	ND	50	50	100	50	48	96	4
Chlorobenzene	ND	50	53	106	50	52	104	2

EPA METHOD 376.1
SULFIDE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/04/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/04/94
BATCH NO.:   94A011                     DATE EXTRACTED:  01/07/94
MATRIX:     SOIL                        DATE ANALYZED:   01/07/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB10-D3	A011-03	ND	2*	0.4
WBLK1S	A011-B1S	ND	1	0.2

MDL : Method Detection Limit
* : Inadequate amount of sample



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 376.1
MATRIX: WATER

=====

BATCH NO.:	94A011	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A008-L1W	DATE ANALYZED:	01/07/94

ACCESSION: 94A008 94A009 94A010 94A011

PARAMETER	TRUE VALUE (mg/L)	FOUND VALUE (mg/L)	LCS RECOVERY (%)
-----	-----	-----	-----
SULFIDE	5.0	4.6	92



CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 376.1
MATRIX: SOIL

=====

BATCH NO.:	94A011	DATE RECEIVED:	NA
SAMPLE ID:	D-6	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A008-06	DATE ANALYZED:	01/07/94

ACCESSION: 94A008 94A009 94A010 94A011

PARAMETER	Sample (mg/kg)	Dup. Sample (mg/kg)	RPD (%)
-----	-----	-----	-----
SULFIDE	ND	ND	0

EPA METHOD 300
CHLORIDE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/04/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/04/94
BATCH NO.:   94A011                     DATE EXTRACTED:  01/07/94
MATRIX:     SOIL                        DATE ANALYZED:   01/07/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB10-D3	A011-03	1.7	1	0.2
WBLK1S	A008-B1S	ND	1	0.2

MDL : Method Detection Limit

EPA METHOD 300
SULFATE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/04/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/04/94
BATCH NO.:   94A011                     DATE EXTRACTED:  01/07/94
MATRIX:      SOIL                       DATE ANALYZED:   01/07/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB10-D3	A011-03	1.6	1	1
WBLK1S	A008-B1S	ND	1	1

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: WATER

=====

BATCH NO.:	94A011	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A008-L1W	DATE ANALYZED:	01/07/94
ACCESSION:	94A008 94A009 94A010 94A011		

PARAMETER	TRUE VALUE (mg/L)	FOUND VALUE (mg/L)	LCS RECOVERY (%)
Sulfate	150	136	91
Chloride	30.0	25.9	86

CKY QUALITY CONTROL DATA
SPIKE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

BATCH NO.: 94A011 DATE RECEIVED: NA
SAMPLE ID: D-6 DATE EXTRACTED: 01/07/94
CONTROL NO.: A008-06 DATE ANALYZED: 01/07/94

ACCESSION: 94A008 94A009 94A010 94A011

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC
Sulfate	4.7	20.0	21.6	85
Chloride	2.2	20.0	20.3	91

CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

=====

BATCH NO.:	94A011	DATE RECEIVED:	NA
SAMPLE ID:	D-6	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A008-06	DATE ANALYZED:	01/07/94
ACCESSION:	94A008	94A009	94A010 94A011

PARAMETER	Sample (mg/kg)	Dup. Sample (mg/kg)	RPD (%)
-----	-----	-----	-----
Sulfate	4.7	4.5	2
Chloride	2.2	2.8	24



DHS METHOD
ORGANIC LEAD

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/04/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/04/94
BATCH NO.:   94A011                     DATE EXTRACTED: 01/07/94
MATRIX:      SOIL                       DATE ANALYZED:  01/07/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB10-D3	A011-03	ND	1	.5
FBLK1S	A008-B1S	ND	1	.5

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A011	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A008-L1S	DATE ANALYZED:	01/07/94
ACCESSION:	94A008 94A009 94A010 94A011 94A014 94A015 94A016 94A017 94A021 94A022		

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Lead	100	94	94



CKY QUALITY CONTROL DATA
SPIKE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A011	DATE RECEIVED:	NA
SAMPLE ID:	FBLK1S	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A008-B1S	DATE ANALYZED:	01/07/94

ACCESSION: 94A008 94A009 94A010 94A011 94A014 94A015 94A016
94A017 94A021 94A022

PARAMETER	SAMPLE RESULT (mg/kg)	SPIKE CONC. (mg/kg)	SPIKE RESULT (mg/kg)	SPIKE RECRY. (%)
-----	-----	-----	-----	-----
Lead	ND	5.0	5.2	104



CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

```
=====
BATCH NO.:      94A011      DATE RECEIVED:    NA
SAMPLE ID:      D-6        DATE EXTRACTED:   01/07/94
CONTROL NO.:    A008-06    DATE ANALYZED:    01/07/94

ACCESSION:      94A008  94A009  94A010  94A011  94A014  94A015  94A016
                  94A017  94A021  94A022
```

PARAMETER	SAMPLE (mg/kg)	DUP. SAMPLE (mg/kg)	RPD (%)
-----	-----	-----	-----
Lead	ND	ND	0

64

941109

Chain of Custody Record

Lab Job no.:
Date: 11/4/94
Page: 1 of 1

E B-10
DUE 01-11-94 G2

Laboratory: CKY Method of Shipment: _____
Address: _____ Shipment No.: _____
Airbill No.: _____
Cooler No.: _____
Client: The Earth Technology Corporation Project Manager: _____
Address: 13900 Alton Parkway, Suite 120 Telephone No.: _____
Irvine, CA 92718
Project Name: ALTON RAIL - EAST SIDE EXTENSION Fax No.: _____
Project Number: 94-1109 Samplers: (Signature) [Signature]

Field Sample Number	Location/Depth	Date	Time	Sample Type	Type/Size of Container	Preservation		Analysis Required												Remarks
						Temp.	Chemical	Filtered	No. of Containers	EPA Method 8015 (Mod)	EPA 8020 BTEX	EPA Method 8015 (Mod) Diesel	EPA Method 8240	EPA Method 8270	Total Lead	Oil & Grease	Sulfides	Sulfate/Chloride	Ammonia	11 in. 15 min. OVA
1	E B-10 D54	11/4/94	12:35																	8790
2	E B-10 D2	11/4/94	12:35							X	X									1210
3	E B-10 D3	11/4/94	12:38							X			X	X	X	X	X			9610
4	E B-10 D4	11/4/94	12:45																	9610
5	E B-10 D5	11/4/94	12:55							X	X									9310
6	E B-10 D6	11/4/94	1:15																	9499

Relinquished by: <u>[Signature]</u> Signature: <u>DAVID KEMERANCE</u> Printed: <u>DAVID KEMERANCE</u> Company: <u>SL ENVIRONMENTAL</u> Reason: <u>TO LAB</u>	Date: <u>11/4/94</u> Time: _____	Received by: _____ Signature: _____ Printed: _____ Company: _____	Date: <u>11/4/94</u> Time: _____
Relinquished by: <u>[Signature]</u> Signature: <u>SICAM</u> Printed: <u>CKY</u> Reason: <u>ANALYSIS</u>	Date: <u>11/4/94</u> Time: <u>1:00</u>	Received by: <u>[Signature]</u> Signature: <u>DAVID KEMERANCE</u> Printed: <u>DAVID KEMERANCE</u> Company: <u>CKY</u>	Date: <u>11/4/94</u> Time: <u>1:00</u>

Comments: TEMP

SAMPLE RECEIPT FORM

CONTROL NO.		94A011		DATE		1-4-94		
CLIENT		EARTH TECH		TIME		18:15		
PROJECT		METRO EAST EXT.		RECIPIENT		COTIANGCO		
SAMPLE TRANSPORTATION TO CKY LABORATORY:				BY	ON(DATE)	AT(TIME)	FROM(SITE/CO.)	COMMENTS
PICKED-UP BY CKY COURIER				JOSEPH	1-4-94	5:30 PM	WHITTIER/EASTERN	
DELIVERED BY CLIENT								
SHIPPED/AIRBILL NO								
SAMPLE BATCH PACKAGING/SEALING UPON RECEIPT:				/ INTACT	DAMAGED	SEALED	/ NOT SEALED	NO CONTAINER
CONTAINER:	INSIDE TEMPERATURE:			5 C	CUSTODY SEAL		LOCATION	NUMBER
/ COOLER	PACKAGING	TYPE	SUFFICIENCY	INTACT	DAMAGED			
BOX	INSULATION:	COOLER	ok	NAME:				
OTHER:	ICE/COOLANT:	BAGS	ok	DATE:				
	PACKING MATERIAL:	ZIPLOC BAG	ok	TIME:				
SAMPLE DOCUMENTATION/CHAIN-OF-CUSTODY(COC)				SEALED	ENCLOSED	/ HANDCARRIED	FAXED	MAILED
SAMPLE LOG-IN:		CRITERIA	COMMENTS				DISCREPANCY	
SAMPLE CUSTODY SEAL		EVERY SAMPLE	NONE					
CONTAINER TYPE/MATERIAL		APPROPRIATE	ok					
SAMPLE AMOUNT		ENOUGH	ok					
SAMPLE PRESERVATION/HOLDING TIME		SUFFICIENT	ok					
HEADSPACE/BUBBLES		ZERO/NONE	NONE					
SAMPLE LABEL INFORMATION		SUFFICIENT	ok					
CHAIN-OF-CUSTODY INFORMATION		SUFFICIENT	ok - ANALYSES TO BE RELAYED					
SAMPLE INFO.: / SAMPLE ID		/ DATE	/ TIME	/ SIGNATURE	ANALYSES X	PRESERVATIVE	/ CONTAINER	
INDIVIDUAL SAMPLE CONTAINER:		NONE	/ SEALED PLASTIC BAG		CAN	OTHER(SPECIFY):		
SAMPLE NUMBER	CLIENT ID	DISCREPANCY				ACTION		
		None ✓						
CLIENT SERVICES COPY RECEIVED BY		DATE				TIME		



CKY incorporated Analytical Laboratories

Date: 01-13-1994
CKY Batch No.: 94A014

Attn.: K. Khilnani

Earth Technology Corp.
13900 Alton Parkway #120
Irvine, CA 92718

Subject: Laboratory Report
Project: Metro Rail - East Side Ext.

Enclosed is the Laboratory report for samples received on 01/05/94. The samples were received in coolers with ice and intact; the chain-of-custody forms were properly filled out. The data reported include :

Sample ID	Control No.	Matrix	Analysis
-----	-----	-----	-----
EB1-D1	A014-01	soil	Hold
EB1-D2	A014-02	soil	Hold
EB1-D3	A014-03	soil	EPA M8015 (CCID) EPA 8020
EB1-D4	A014-04	soil	Hold
EB1-D5	A014-05	soil	EPA M8015 (CCID) EPA 8240 EPA 8270 Organic Pb Oil & Grease Sulfide Sulfate Chloride
EB1-D6	A014-06	soil	EPA M8015 (CCID) EPA 8020

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

Kam Y. Pang, Ph.D.
Laboratory Director

P.S. - All analyses requested for the above referenced project have been completed. Therefore, unless instructed, the remaining portions of the samples will be disposed after fifteen (15) days from the date of this report.

EPA METHOD M8015
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```
=====
CLIENT:      Earth Technology Corp.          DATE COLLECTED: 01/05/94
PROJECT:     Metro Rail - East Side Ext.    DATE RECEIVED:  01/05/94
BATCH NO.:   94A014                        DATE EXTRACTED: 01/06/94
MATRIX:      SOIL                          DATE ANALYZED:  01/09/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	H-C RANGE	% RECOVERY		DL FACTOR	MDL (mg/kg)
				SURR1	SURR2		
EB1-D3	A014-03	ND	N.A.	111	107	1	5
EB1-D5	A014-05	ND	N.A.	105	105	1	5
EB1-D6	A014-06	ND	N.A.	104	94	1	5
DBLK1S	A014-B1S*	ND	N.A.	107	104	1	5

SURR1 : Bromobenzene

SURR2 : Hexacosane

MDL : Method Detection Limit

* Analyzed on 01/08/94

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

BATCH NO.: 94A014 DATE RECEIVED: 01/05/94
SAMPLE ID: EB1-D3 DATE EXTRACTED: 01/06/94
CONTROL NO.: A014-03 DATE ANALYZED: 01/08/94

ACCESSION: 94A014 94A015 94A016 94A017

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
DIESEL	ND	250	231	92	250	248	99	7



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

=====

BATCH NO.:	94A014	DATE RECEIVED:	NA
SAMPLE ID:	LCS02	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A014-L2S	DATE ANALYZED:	01/08/94

ACCESSION: 94A014 94A015 94A016 94A017

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
DIESEL	250	250	100

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8020
MATRIX: SOIL

BATCH NO.: 94A015 DATE RECEIVED: 01/05/94
SAMPLE ID: EB1-D3 DATE EXTRACTED: NA
CONTROL NO.: A014-03 DATE ANALYZED: 01/11/94

ACCESSION: 94A014 94A015 94A016 94A017

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Benzene	ND	250	306	122	250	321	128	5
Toluene	ND	250	255	102	250	263	105	3
EthylBenzene	ND	250	249	100	250	259	104	4
Xylenes	ND	750	754	101	750	784	105	4



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 602/8020
MATRIX: WATER

=====

BATCH NO.:	94A014	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A014-L1W	DATE ANALYZED:	01/11/94
ACCESSION:	94A014	94A015	94A016 94A017

PARAMETER	TRUE VALUE (ug/L)	FOUND VALUE (ug/L)	LCS RECOVERY (%)
-----	-----	-----	-----
Benzene	50	48	96
Toluene	50	49	98
EthylBenzene	50	50	100
Xylenes	150	149	99

EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/05/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/05/94
BATCH NO.:    94A014                    DATE EXTRACTED:  NA
SAMPLE ID:     EB1-D5                    DATE ANALYZED:   01/10/94
CONTROL NO.:   A014-05                   MATRIX:         SOIL
% MOISTURE:    NA                        DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	94	70-121
Toluene -d8	106	84-138
Bromofluorobenzene	100	59-113

MDL : Method Detection Limit



EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED:  NA
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  NA
BATCH NO.:   93A014                     DATE EXTRACTED:  NA
SAMPLE ID:   VBLK1S                     DATE ANALYZED:   01/10/94
CONTROL NO.: A014-B1S                   MATRIX:        SOIL
% MOISTURE:  NA                         DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	92	70-121
Toluene -d8	107	84-138
Bromofluorobenzene	94	59-113

MDL : Method Detection Limit

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8240
MATRIX: SOIL

ACCESSION: 94A014 94A015 94A016 94A022 94A027

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8240
MATRIX: WATER

```
=====
BATCH NO.:      94A014      DATE RECEIVED:  NA
SAMPLE ID:      LCS01      DATE EXTRACTED: NA
CONTROL NO.:    A014-L1W    DATE ANALYZED:  01/10/94
```

ACCESSION: 94A014 94A017 94A022

PARAMETER	TRUE VALUE (ug/L)	FOUND VALUE (ug/L)	LCS RECOVERY (%)	QC LIMIT
-----	-----	-----	-----	-----
1,1-DCE	50	64	128	61-145
Benzene	50	58	116	76-127
TCE	50	56	112	71-120
Toluene	50	56	112	76-125
Chlorobenzene	50	53	106	75-130

EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: 01/05/94
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: 01/05/94
BATCH NO.: 94A014	DATE EXTRACTED: 01/07/94
SAMPLE ID: EB1-D5	DATE ANALYZED: 01/09/94
CONTROL NO.: A014-05	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg)		PARAMETERS	(ug/kg)	
	RESULT	MDL		RESULT	MDL
N-Nitrosodimethylamine	ND	(330)	3-Nitroaniline	ND	(800)
Pyridine	ND	(330)	Acenaphthene	ND	(330)
Aniline	ND	(330)	2,4-Dinitrophenol	ND	(800)
Phenol	ND	(330)	4-Nitrophenol	ND	(800)
bis(2-Chloroethyl) ether	ND	(330)	Dibenzofuran	ND	(330)
2-Chlorophenol	ND	(330)	2,4-Dinitrotoluene	ND	(330)
1,3-Dichlorobenzene	ND	(330)	Diethylphthalate	ND	(330)
1,4-Dichlorobenzene	ND	(330)	4-Chlorophenyl-phenylether	ND	(330)
Benzyl Alcohol	ND	(330)	Fluorene	ND	(330)
1,2-Dichlorobenzene	ND	(330)	1,2-Diphenylhydrazine	ND	(800)
2-Methylphenol	ND	(330)	4-Nitroaniline	ND	(800)
2,2'-oxybis(1-Chloropropane)	ND	(330)	4,6-Dinitro-2-methylphenol	ND	(800)
4-Methylphenol	ND	(330)	N-Nitrosodiphenylamine (1)	ND	(330)
N-Nitroso-di-n-propylamine	ND	(330)	4-Bromophenyl-phenylether	ND	(330)
Hexachloroethane	ND	(330)	Hexachlorobenzene	ND	(330)
Nitrobenzene	ND	(330)	Pentachlorophenol	ND	(800)
Isophorene	ND	(330)	Benidine	ND	(800)
2-Nitrophenol	ND	(330)	Phenanthrene	ND	(800)
2,4-Dimethylphenol	ND	(330)	Anthracene	ND	(330)
Benzoic Acid	ND	(800)	Carbazole	ND	(800)
bis(2-Chloroethoxy)methane	ND	(330)	Di-n-butylphthalate	500	(330)
2,4-Dichlorophenol	ND	(330)	Fluoranthene	ND	(330)
1,2,4-Trichlorobenzene	ND	(330)	4,4'-Methylene Dianiline	ND	(800)
Naphthalene	ND	(330)	Pyrene	ND	(330)
4-Chloroaniline	ND	(330)	Bisphenol-A	ND	(330)
Hexachloro-1,3-butadiene	ND	(330)	Butylbenzylphthalate	ND	(330)
4-Chloro-3-methylphenol	ND	(330)	3,3'-Dichlorobenzidine	ND	(330)
2-Methylnaphthalene	ND	(330)	Benzo(a)anthracene	ND	(330)
Hexachlorocyclopentadiene	ND	(330)	Chrysene	ND	(330)
2,4,6-Trichlorophenol	ND	(330)	bis(2-Ethylhexyl)phthalate	ND	(330)
2,4,5-Trichlorophenol	ND	(800)	Di-n-octylphthalate	ND	(330)
2-Chloronaphthalene	ND	(330)	Benz(b)fluoranthene	ND	(330)
1-Chloronaphthalene	ND	(330)	Benzo(k)fluoranthene	ND	(330)
2-Nitroaniline	ND	(800)	Benzo(a)pyrene	ND	(330)
Dimethylphthalate	ND	(330)	Indeno(1,2,3-cd)pyrene	ND	(330)
Acenaphthylene	ND	(330)	Dibenzo(a,h)anthracene	ND	(330)
2,6-Dinitrotoluene	ND	(330)	Benzo(g,h,i)perylene	ND	(330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	95	23-120
2-Fluorobiphenyl	97	30-115
Terphenyl-d14	105	18-137
Phenol-d5	88	24-113
2-Fluorophenol	94	25-121
2,4,6-Tribromophenol	107	19-122

MDL: Method Detection Limit



EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: NA
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: NA
BATCH NO.: 94A014	DATE EXTRACTED: 01/07/94
SAMPLE ID: SBLK1S	DATE ANALYZED: 01/09/94
CONTROL NO.: L084-B1S	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg) RESULT MDL	PARAMETERS	(ug/kg) RESULT MDL
N-Nitrosodimethylamine	ND (330)	3-Nitroaniline	ND (800)
Pyridine	ND (330)	Acenaphthene	ND (330)
Aniline	ND (330)	2,4-Dinitrophenol	ND (800)
Phenol	ND (330)	4-Nitrophenol	ND (800)
bis(2-Chloroethyl) ether	ND (330)	Dibenzofuran	ND (330)
2-Chlorophenol	ND (330)	2,4-Dinitrotoluene	ND (330)
1,3-Dichlorobenzene	ND (330)	Diethylphthalate	ND (330)
1,4-Dichlorobenzene	ND (330)	4-Chlorophenyl-phenylether	ND (330)
Benzyl Alcohol	ND (330)	Fluorene	ND (330)
1,2-Dichlorobenzene	ND (330)	1,2-Diphenylhydrazine	ND (800)
2-Methylphenol	ND (330)	4-Nitroaniline	ND (800)
2,2'-oxybis(1-Chloropropane)	ND (330)	4,6-Dinitro-2-methylphenol	ND (800)
4-Methylphenol	ND (330)	N-N-propylamine	ND (330)
Hexachloroethane	ND (330)	Hexachlorobenzene	ND (330)
Nitrobenzene	ND (330)	Pentachlorophenol	ND (800)
Isophorene	ND (330)	Benzidine	ND (800)
2-Nitrophenol	ND (330)	Phenanthrene	ND (800)
2,4-Dimethylphenol	ND (330)	Anthracene	ND (330)
Benzoic Acid	ND (800)	Carbazole	ND (800)
bis(2-Chloroethoxy) methane	ND (330)	Di-n-butylphthalate	1500 (330)
2,4-Dichlorophenol	ND (330)	Fluoranthene	ND (330)
1,2,4-Trichlorobenzene	ND (330)	4,4'-Methylene Dianiline	ND (800)
Naphthalene	ND (330)	Pyrene	ND (330)
4-Chloroaniline	ND (330)	Bisphenol-A	ND (330)
Hexachloro-1,3-butadiene	ND (330)	Butylbenzylphthalate	ND (330)
4-Chloro-3-methylphenol	ND (330)	3,3'-Dichlorobenzidine	ND (330)
2-Methylnaphthalene	ND (330)	Benzo(a)anthracene	ND (330)
Hexachlorocyclopentadiene	ND (330)	Chrysene	ND (330)
2,4,6-Trichlorophenol	ND (330)	bis(2-Ethylhexyl)phthalate	ND (330)
2,4,5-Trichlorophenol	ND (800)	Di-n-octylphthalate	ND (330)
2-Chloronaphthalene	ND (330)	Benz(b)fluoranthene	ND (330)
1-Chloronaphthalene	ND (330)	Benzo(k)fluoranthene	ND (330)
2-Nitroaniline	ND (800)	Benzo(a)pyrene	ND (330)
Dimethylphthalate	ND (330)	Indeno(1,2,3-cd)pyrene	ND (330)
Acenaphthylene	ND (330)	Dibenzo(a,h)anthracene	ND (330)
2,6-Dinitrotoluene	ND (330)	Benzo(g,h,i)perylene	ND (330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	64	23-120
2-Fluorobiphenyl	71	30-115
Terphenyl-d14	103	18-137
Phenol-d5	61	24-113
2-Fluorophenol	61	25-121
2,4,6-Tribromophenol	72	19-122

MDL: Method Detection Limit



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8270
MATRIX: SOIL

BATCH NO.: 94A014 DATE RECEIVED: NA
SAMPLE ID: 29-A115902 DATE EXTRACTED: 01/07/94
CONTROL NO.: A019-02 DATE ANALYZED: 01/08/94

ACCESSION: 94A008 94A009 94A010 94A011 94A014 94A015
 94A016 94A017 94A019

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Phenol	ND	5000	3130	63	5000	2880	58	8
2-Chlorophenol	ND	5000	3310	66	5000	3000	60	10
1,4-DCB	ND	3300	2145	65	3300	2010	61	6
N-Nitroso-di-n	ND	3300	2460	75	3300	2300	70	7
1,2,4-TCB	ND	3300	2460	75	3300	2310	70	7
4-Chl-3-Methy	ND	5000	3780	76	5000	3610	72	5
Acenaphthene	ND	3300	2520	76	3300	2330	71	7
2,4-Dinitrotol	ND	3300	2960	90	3300	3040	92	2
Pentachlorophe	ND	5000	4620	92	5000	4320	86	7
Pyrene	ND	3300	3010	91	3300	3540	107	16



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8270
MATRIX: SOIL

```
=====
BATCH NO.:      94A014      DATE RECEIVED:  NA
SAMPLE ID:      LCS01      DATE EXTRACTED: 01/07/94
CONTROL NO.:    A008-L1S    DATE ANALYZED:  01/07/94
```

ACCESSION: 94A008 94A009 94A010 94A011 94A014 94A015
 94A016 94A017

PARAMETER	TRUE VALUE (ug/kg)	FOUND VALUE (ug/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Phenol	5000	3260	65
2-Chlorophenol	5000	3640	73
1,4-DCB	3300	2440	73
N-Nitroso-di-n-	3300	2750	83
1,2,4-TCB	3300	2760	83
4-Chloro-3-Methy	5000	2560	77
Acenaphthene	3300	2710	81
4-Nitrophenol	5000	4970	99
2,4-Dinitrotol	3300	3380	101
Pentachlorophe	5000	5060	101
Pyrene	3300	3020	91

DHS METHOD
ORGANIC LEAD

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/05/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/05/94
BATCH NO.:    94A014                     DATE EXTRACTED:  01/07/94
MATRIX:      SOIL                       DATE ANALYZED:   01/07/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB1-D5	A014-05	ND	1	.5
FBLK1S	A008-B1S	ND	1	.5

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A014	DATE RECEIVED:	NA
SAMPLE ID:	D-6	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A008-06	DATE ANALYZED:	01/07/94

ACCESSION: 94A008 94A009 94A010 94A011 94A014 94A015 94A016
94A017 94A021 94A022

PARAMETER	SAMPLE (mg/kg)	DUP. SAMPLE (mg/kg)	RPD (%)
-----	-----	-----	-----
Lead	ND	ND	0



CKY QUALITY CONTROL DATA
SPIKE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

```
=====
BATCH NO.:      94A014                      DATE RECEIVED:   NA
SAMPLE ID:      FBLK1S                      DATE EXTRACTED:  01/07/94
CONTROL NO.:    A008-B1S                     DATE ANALYZED:   01/07/94

ACCESSION:      94A008  94A009  94A010  94A011  94A014  94A015  94A016
                  94A017  94A021  94A022
```

PARAMETER	SAMPLE RESULT (mg/kg)	SPIKE CONC. (mg/kg)	SPIKE RESULT (mg/kg)	SPIKE RECRY. (%)
-----	-----	-----	-----	-----
Lead	ND	5.0	5.2	104

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A014	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A008-L1S	DATE ANALYZED:	01/07/94
ACCESSION:	94A008 94A009 94A010 94A011 94A014 94A015 94A016		
	94A017 94A021 94A022		

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Lead	100	94	94

EPA METHOD 413.2
OIL & GREASE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/05/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/05/94
BATCH NO.:   94A014                     DATE EXTRACTED: 01/07/94
MATRIX:     SOIL                        DATE ANALYZED:  01/12/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB1-D5	A014-05	ND	1	10
TBLK1S	A014-B1S	ND	1	10

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 413.2
MATRIX: SOIL

BATCH NO.: 94A014 DATE RECEIVED: NA
SAMPLE ID: EB-6-D-9 DATE EXTRACTED: 01/07/94
CONTROL NO.: A015-09 DATE ANALYZED: 01/12/94

ACCESSION: 94A009 94A014 94A015 94A016 94A017

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
TROG	ND	150	139	93	150	135	90	3

EPA METHOD 376.1
SULFIDE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/05/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/05/94
BATCH NO.:   94A014                     DATE EXTRACTED:  01/11/94
MATRIX:     SOIL                        DATE ANALYZED:   01/11/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB1-D5	A014-05	ND	2*	.4
WBLK1S	A014-B1S	ND	1	.2

MDL : Method Detection Limit
* Inadequate amount of sample

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 376.1
MATRIX: WATER

=====

BATCH NO.:	94A014	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A014-L1W	DATE ANALYZED:	01/11/94

ACCESSION: 94A014 94A015 94A016 94A017 94A021 94A022

PARAMETER	TRUE VALUE (mg/L)	FOUND VALUE (mg/L)	LCS RECOVERY (%)
-----	-----	-----	-----
SULFIDE	4.0	3.7	93

CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 376.1
MATRIX: SOIL

=====

BATCH NO.:	94A014	DATE RECEIVED:	01/05/94
SAMPLE ID:	EB1-D5	DATE EXTRACTED:	01/11/94
CONTROL NO.:	A014-05	DATE ANALYZED:	01/11/94
ACCESSION:	94A014	94A015	94A016
	94A017	94A021	94A022

PARAMETER	Sample (mg/kg)	Dup. Sample (mg/kg)	RPD (%)
-----	-----	-----	-----
SULFIDE	ND	ND	0



EPA METHOD 300
SULFATE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/05/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/05/94
BATCH NO.:    94A014                     DATE EXTRACTED:  01/11/94
MATRIX:      SOIL                       DATE ANALYZED:   01/11/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB1-D5	A014-05	2.8	1	1
WBLK1S	A014-B1S	ND	1	1

MDL : Method Detection Limit

EPA METHOD 300
CHLORIDE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/05/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/05/94
BATCH NO.:    94A014                     DATE EXTRACTED:  01/11/94
MATRIX:      SOIL                       DATE ANALYZED:   01/11/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB1-D5	A014-05	1.3	1	.2
WBLK1S	A014-B1S	ND	1	.2

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

=====

BATCH NO.:	94A014	DATE RECEIVED:	NA
SAMPLE ID:	EB6-D9	DATE EXTRACTED:	01/11/94
CONTROL NO.:	A015-09	DATE ANALYZED:	01/11/94
ACCESSION:	94A014	94A015	94A016
	94A017	94A021	94A022

PARAMETER	Sample (mg/kg)	Dup. Sample (mg/kg)	RPD (%)
-----	-----	-----	-----
Sulfate	25.3	24.0	5
Chloride	42.5	41.3	3



CKY QUALITY CONTROL DATA
SPIKE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

BATCH NO.: 94A014 DATE RECEIVED: NA
SAMPLE ID: EB6-D9 DATE EXTRACTED: 01/11/94
CONTROL NO.: A015-09 DATE ANALYZED: 01/11/94

ACCESSION: 94A014 94A015 94A016 94A017 94A021 94A022

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC
Sulfate	25.3	50.0	70.2	90
Chloride	42.5	50.0	92.4	100



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

=====

BATCH NO.:	94A014	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A014-L1S	DATE ANALYZED:	01/11/94

ACCESSION: 94A014 94A015 94A016 94A017 94A021 94A022

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Sulfate	150	146	97
Chloride	30.0	28.0	93



CKY incorporated Analytical Laboratories

Date: 01-13-1994
CKY Batch No.: 94A015

Attn.: K. Khilnani

Earth Technology Corp.
13900 Alton Parkway #120
Irvine, CA 92718

Subject: Laboratory Report
Project: Metro Rail - East Side Ext.

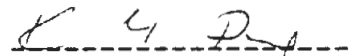
Enclosed is the Laboratory report for samples received on 01/05/94. The samples were received in coolers with ice and intact; the chain-of-custody forms were properly filled out. The data reported include :

Sample ID	Control No.	Matrix	Analysis
EB6-D1	A015-01	soil	EPA M8015 (CCID) EPA 8020
EB6-D2	A015-02	soil	Hold
EB6-D3	A015-03	soil	Hold
EB6-D4	A015-04	soil	Hold
EB6-D5	A015-05	soil	EPA M8015 (CCID) EPA 8020
EB6-D6	A015-06	soil	Hold
EB6-D7	A015-07	soil	Hold
EB6-D8	A015-08	soil	Hold
EB6-D9	A015-09	soil	EPA M8015 (CCID) EPA 8240 EPA 8270 Organic Pb Oil & Grease Sulfide Sulfate Chloride

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,



Kam Y. Pang, Ph.D.
Laboratory Director

P.S. - All analyses requested for the above referenced project have been completed. Therefore, unless instructed, the remaining portions of the samples will be disposed after fifteen (15) days from the date of this report.

EPA METHOD M8015
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

CLIENT:	Earth Technology Corp.	DATE COLLECTED:	01/05/94
PROJECT:	Metro Rail - East Side Ext.	DATE RECEIVED:	01/05/94
BATCH NO.:	94A015	DATE EXTRACTED:	01/06/94
MATRIX:	SOIL	DATE ANALYZED:	01/09/94

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	H-C RANGE	% RECOVERY		DL FACTOR	MDL (mg/kg)
				SURR1	SURR2		
EB6-D1	A015-01	ND	N.A.	100	101	1	5
EB6-D5	A015-05	ND	N.A.	103	102	1	5
EB6-D9	A015-09	ND	N.A.	99	100	1	5
DBLK1S	A015-B1S*	ND	N.A.	107	104	1	5

SURR1 : Bromobenzene

SURR2 : Hexacosane

MDL : Method Detection Limit

* Date analyzed on 01/08/94



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

BATCH NO.: 94A015 DATE RECEIVED: NA
SAMPLE ID: EB1-D3 DATE EXTRACTED: 01/06/94
CONTROL NO.: A014-03 DATE ANALYZED: 01/08/94

ACCESSION: 94A014 94A015 94A016 94A017

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
DIESEL	ND	250	231	92	250	248	99	7



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

=====

BATCH NO.:	94A015	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/06/94
CONTROL NO.:	A014-L1S	DATE ANALYZED:	01/08/94

ACCESSION: 94A014 94A015 94A016 94A017

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
DIESEL	250	269	108

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

=====

BATCH NO.:	94A015	DATE RECEIVED:	NA
SAMPLE ID:	LCS02	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A014-L2S	DATE ANALYZED:	01/08/94
ACCESSION:	94A014	94A015	94A016 94A17

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
DIESEL	250	250	100



EPA METHOD 8020
BTEX

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=====
CLIENT:      Earth Technology Corp.          DATE COLLECTED: 01/05/94
PROJECT:     Metro Rail - East Side Ext.     DATE RECEIVED:  01/05/94
BATCH NO.:   94A015                         DATE EXTRACTED: NA
MATRIX:      SOIL                           DATE ANALYZED:  01/11/94
=====
```

SAMPLE ID	CNTRL NO	DL F	MDL	BENZ	RESULTS TOLUENE	(ug/kg) E BENZ	XYLS	% Rcvy SURR
EB6-D1	A015-01	1	5	ND	ND	ND	ND	116
EB6-D5	A015-05	1	5	ND	ND	ND	ND	112
VBLK1S	A015-B1S	1	5	ND	ND	ND	ND	98

DL F : Dilution Factor
SURR : Bromofluorobenzene
MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 602/8020
MATRIX: WATER

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=====
BATCH NO.:      94A015          DATE RECEIVED:    NA
SAMPLE ID:      LCS01          DATE EXTRACTED:   NA
CONTROL NO.:    A014-L1W       DATE ANALYZED:    01/11/94

ACCESSION:      94A014  94A015  94A016  94A017
```

PARAMETER	TRUE VALUE (ug/L)	FOUND VALUE (ug/L)	LCS RECOVERY (%)
-----	-----	-----	-----
Benzene	50	48	96
Toluene	50	49	98
EthylBenzene	50	50	100
Xylenes	150	149	99



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8020
MATRIX: SOIL

BATCH NO.: 94A015 DATE RECEIVED: 01/05/94
SAMPLE ID: EB1-D3 DATE EXTRACTED: NA
CONTROL NO.: A014-03 DATE ANALYZED: 01/11/94

ACCESSION: 94A014 94A015 94A016 94A017

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Benzene	ND	250	306	122	250	321	128	5
Toluene	ND	250	255	102	250	263	105	3
EthylBenzene	ND	250	249	100	250	259	104	4
Xylenes	ND	750	754	101	750	784	105	4

EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

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=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/05/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/05/94
BATCH NO.:   94A015                     DATE EXTRACTED:  NA
SAMPLE ID:   EB6-D9                     DATE ANALYZED:  01/07/94
CONTROL NO.: A015-09                     MATRIX:        SOIL
% MOISTURE:  NA                         DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	87	70-121
Toluene -d8	113	84-138
Bromofluorobenzene	90	59-113

MDL : Method Detection Limit



EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

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=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED:  NA
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:   NA
BATCH NO.:   94A015                     DATE EXTRACTED:  NA
SAMPLE ID:   8BLK1S                     DATE ANALYZED:   01/07/94
CONTROL NO.: A015-B1S                   MATRIX:         SOIL
% MOISTURE:  NA                         DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	93	70-121
Toluene -d8	104	84-138
Bromofluorobenzene	95	59-113

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8240
MATRIX: SOIL

BATCH NO.: 94A015 DATE RECEIVED: NA
SAMPLE ID: EB14A-D4 DATE EXTRACTED: NA
CONTROL NO.: A022-04 DATE ANALYZED: 01/10/94

ACCESSION: 94A014 94A015 94A016 94A022 94A027

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
1,1-DCE	ND	50	67	134	50	63	126	6
Benzene	ND	50	69	138	50	69	138	0
TCE	ND	50	65	130	50	63	126	3
Toluene	ND	50	64	128	50	62	124	3
Chlorobenzene	ND	50	61	122	50	61	122	0



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8240
MATRIX: SOIL

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=====
BATCH NO.:      94A015          DATE RECEIVED:   NA
SAMPLE ID:      LCS01          DATE EXTRACTED:  NA
CONTROL NO.:    A015-L1S       DATE ANALYZED:   01/07/94
ACCESSION:      94A015
```

PARAMETER	TRUE VALUE (ug/kg)	FOUND VALUE (ug/kg)	LCS RECOVERY (%)	QC LIMIT
-----	-----	-----	-----	-----
1,1-DCE	50	30	60	59-172
Benzene	50	44	88	66-142
TCE	50	42	84	62-137
Toluene	50	45	90	59-139
Chlorobenzene	50	48	96	60-133

EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: 01/05/94
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: 01/05/94
BATCH NO.: 94A015	DATE EXTRACTED: 01/07/94
SAMPLE ID: EB6-D9	DATE ANALYZED: 01/09/94
CONTROL NO.: A015-09	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg)		PARAMETERS	(ug/kg)	
	RESULT	MDL		RESULT	MDL
N-Nitrosodimethylamine	ND	(330)	3-Nitroaniline	ND	(800)
Pyridine	ND	(330)	Acenaphthene	ND	(330)
Aniline	ND	(330)	2,4-Dinitrophenol	ND	(800)
Phenol	ND	(330)	4-Nitrophenol	ND	(800)
bis(2-Chloroethyl)ether	ND	(330)	Dibenzofuran	ND	(330)
2-Chlorophenol	ND	(330)	2,4-Dinitrotoluene	ND	(330)
1,3-Dichlorobenzene	ND	(330)	Diethylphthalate	ND	(330)
1,4-Dichlorobenzene	ND	(330)	4-Chlorophenyl-phenylether	ND	(330)
Benzyl Alcohol	ND	(330)	Fluorene	ND	(330)
1,2-Dichlorobenzene	ND	(330)	1,2-Diphenylhydrazine	ND	(800)
2-Methylphenol	ND	(330)	4-Nitroaniline	ND	(800)
2,2'-oxybis(1-Chloropropane)	ND	(330)	4,6-Dinitro-2-methylphenol	ND	(800)
4-Methylphenol	ND	(330)	N-Nitrosodiphenylamine (1)	ND	(330)
N-Nitroso-di-n-propylamine	ND	(330)	4-Bromophenyl-phenylether	ND	(330)
Hexachloroethane	ND	(330)	Hexachlorobenzene	ND	(330)
Nitrobenzene	ND	(330)	Pentachlorophenol	ND	(800)
Isophorene	ND	(330)	Benzidine	ND	(800)
2-Nitrophenol	ND	(330)	Phenanthrene	ND	(800)
2,4-Dimethylphenol	ND	(330)	Anthracene	ND	(330)
Benzoic Acid	ND	(800)	Carbazole	ND	(800)
bis(2-Chloroethoxy)methane	ND	(330)	Di-n-butylphthalate	ND	(330)
2,4-Dichlorophenol	ND	(330)	Fluoranthene	ND	(330)
1,2,4-Trichlorobenzene	ND	(330)	4,4'-Methylene Dianiline	ND	(800)
Naphthalene	ND	(330)	Pyrene	ND	(330)
4-Chloroaniline	ND	(330)	Bisphenol-A	ND	(330)
Hexachloro-1,3-butadiene	ND	(330)	Butylbenzylphthalate	ND	(330)
4-Chloro-3-methylphenol	ND	(330)	3,3'-Dichlorobenzidine	ND	(330)
2-Methylnaphthalene	ND	(330)	Benzo(a)anthracene	ND	(330)
Hexachlorocyclopentadiene	ND	(330)	Chrysene	ND	(330)
2,4,6-Trichlorophenol	ND	(330)	bis(2-Ethylhexyl)phthalate	ND	(330)
2,4,5-Trichlorophenol	ND	(800)	Di-n-octylphthalate	ND	(330)
2-Chloronaphthalene	ND	(330)	Benz(b)fluoranthene	ND	(330)
1-Chloronaphthalene	ND	(330)	Benzo(k)fluoranthene	ND	(330)
2-Nitroaniline	ND	(800)	Benzo(a)pyrene	ND	(330)
Dimethylphthalate	ND	(330)	Indeno(1,2,3-cd)pyrene	ND	(330)
Acenaphthylene	ND	(330)	Dibenzo(a,h)anthracene	ND	(330)
2,6-Dinitrotoluene	ND	(330)	Benzo(g,h,i)perylene	ND	(330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	94	23-120
2-Fluorobiphenyl	94	30-115
Terphenyl-d14	100	18-137
Phenol-d5	87	24-113
2-Fluorophenol	93	25-121
2,4,6-Tribromophenol	113	19-122

MDL: Method Detection Limit



EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: NA
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: NA
BATCH NO.: 94A015	DATE EXTRACTED: 01/07/94
SAMPLE ID: SBLK1S	DATE ANALYZED: 01/09/94
CONTROL NO.: L084-B1S	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg)		PARAMETERS	(ug/kg)	
	RESULT	MDL		RESULT	MDL
N-Nitrosodimethylamine	ND	(330)	3-Nitroaniline	ND	(800)
Pyridine	ND	(330)	Acenaphthene	ND	(330)
Aniline	ND	(330)	2,4-Dinitrophenol	ND	(800)
Phenol	ND	(330)	4-Nitrophenol	ND	(800)
bis(2-Chloroethyl) ether	ND	(330)	Dibenzofuran	ND	(330)
2-Chlorophenol	ND	(330)	2,4-Dinitrotoluene	ND	(330)
1,3-Dichlorobenzene	ND	(330)	Diethylphthalate	ND	(330)
1,4-Dichlorobenzene	ND	(330)	4-Chlorophenyl-phenylether	ND	(330)
Benzyl Alcohol	ND	(330)	Fluorene	ND	(330)
1,2-Dichlorobenzene	ND	(330)	1,2-Diphenylhydrazine	ND	(800)
2-Methylphenol	ND	(330)	4-Nitroaniline	ND	(800)
2,2'-oxybis(1-Chloropropane)	ND	(330)	4,6-Dinitro-2-methylphenol	ND	(800)
4-Methylphenol	ND	(330)	N-Nitrosodiphenylamine (1)	ND	(330)
N-Nitroso-di-n-propylamine	ND	(330)	4-Bromophenyl-phenylether	ND	(330)
Hexachloroethane	ND	(330)	Hexachlorobenzene	ND	(330)
Nitrobenzene	ND	(330)	Pentachlorophenol	ND	(800)
Isophorene	ND	(330)	Benzidine	ND	(800)
2-Nitrophenol	ND	(330)	Phenanthrene	ND	(800)
2,4-Dimethylphenol	ND	(330)	Anthracene	ND	(330)
Benzoic Acid	ND	(800)	Carbazole	ND	(800)
bis(2-Chloroethoxy)methane	ND	(330)	Di-n-butylphthalate	1500	(330)
2,4-Dichlorophenol	ND	(330)	Fluoranthene	ND	(330)
1,2,4-Trichlorobenzene	ND	(330)	4,4'-Methylene Dianiline	ND	(800)
Naphthalene	ND	(330)	Pyrene	ND	(330)
4-Chloroaniline	ND	(330)	Bisphenol-A	ND	(330)
Hexachloro-1,3-butadiene	ND	(330)	Butylbenzylphthalate	ND	(330)
4-Chloro-3-methylphenol	ND	(330)	3,3'-Dichlorobenzidine	ND	(330)
2-Methylnaphthalene	ND	(330)	Benzo(a)anthracene	ND	(330)
Hexachlorocyclopentadiene	ND	(330)	Chrysene	ND	(330)
2,4,6-Trichlorophenol	ND	(330)	bis(2-Ethylhexyl)phthalate	ND	(330)
2,4,5-Trichlorophenol	ND	(800)	Di-n-octylphthalate	ND	(330)
2-Chloronaphthalene	ND	(330)	Benz(b)fluoranthene	ND	(330)
1-Chloronaphthalene	ND	(330)	Benzo(k)fluoranthene	ND	(330)
2-Nitroaniline	ND	(800)	Benzo(a)pyrene	ND	(330)
Dimethylphthalate	ND	(330)	Indeno(1,2,3-cd)pyrene	ND	(330)
Acenaphthylene	ND	(330)	Dibenzo(a,h)anthracene	ND	(330)
2,6-Dinitrotoluene	ND	(330)	Benzo(g,h,i)perylene	ND	(330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	64	23-120
2-Fluorobiphenyl	71	30-115
Terphenyl-d14	103	18-137
Phenol-d5	61	24-113
2-Fluorophenol	61	25-121
2,4,6-Tribromophenol	72	19-122

MDL: Method Detection Limit

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8270
MATRIX: SOIL

BATCH NO.: 94A015 DATE RECEIVED: NA
SAMPLE ID: 29-A115902 DATE EXTRACTED: 01/07/94
CONTROL NO.: A019-02 DATE ANALYZED: 01/08/94

ACCESSION: 94A008 94A009 94A010 94A011 94A014 94A015
 94A016 94A017 94A019

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Phenol	ND	5000	3130	63	5000	2880	58	8
2-Chlorophenol	ND	5000	3310	66	5000	3000	60	10
1,4-DCB	ND	3300	2145	65	3300	2010	61	6
N-Nitroso-di-n	ND	3300	2460	75	3300	2300	70	7
1,2,4-TCB	ND	3300	2460	75	3300	2310	70	7
4-Chl-3-Methy	ND	5000	3780	76	5000	3610	72	5
Acenaphthene	ND	3300	2520	76	3300	2330	71	7
2,4-Dinitrotol	ND	3300	2960	90	3300	3040	92	2
Pentachlorophe	ND	5000	4620	92	5000	4320	86	7
Pyrene	ND	3300	3010	91	3300	3540	107	16

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8270
MATRIX: SOIL

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=====
BATCH NO.:      94A015      DATE RECEIVED:  NA
SAMPLE ID:      LCS01      DATE EXTRACTED: 01/07/94
CONTROL NO.:    A008-L1S   DATE ANALYZED: 01/07/94
```

ACCESSION: 94A008 94A009 94A010 94A011 94A014 94A015
 94A016 94A017

PARAMETER	TRUE VALUE (ug/kg)	FOUND VALUE (ug/kg)	LCS RECOVERY (%)
Phenol	5000	3260	65
2-Chlorophenol	5000	3640	73
1,4-DCB	3300	2440	73
N-Nitroso-di-n-	3300	2750	83
1,2,4-TCB	3300	2760	83
4-Chloro-3-Methy	5000	2560	77
Acenaphthene	3300	2710	81
4-Nitrophenol	5000	4970	99
2,4-Dinitrotol	3300	3380	101
Pentachlorophe	5000	5060	101
Pyrene	3300	3020	91

DHS METHOD
ORGANIC LEAD

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=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/05/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/05/94
BATCH NO.:    94A015                     DATE EXTRACTED:  01/07/94
MATRIX:      SOIL                       DATE ANALYZED:   01/07/94
=====
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SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB6-D9	A015-09	ND	1	.5
FBLK1S	A008-B1S	ND	1	.5

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A015	DATE RECEIVED:	NA
SAMPLE ID:	D-6	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A008-06	DATE ANALYZED:	01/07/94
ACCESSION:	94A008 94A009 94A010 94A011 94A014 94A015 94A016		
	94A017 94A021 94A022		

PARAMETER	SAMPLE (mg/kg)	DUP. SAMPLE (mg/kg)	RPD (%)
-----	-----	-----	-----
Lead	ND	ND	0

CKY QUALITY CONTROL DATA
SPIKE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A015	DATE RECEIVED:	NA
SAMPLE ID:	FBLK1S	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A008-B1S	DATE ANALYZED:	01/07/94

ACCESSION: 94A008 94A009 94A010 94A011 94A014 94A015 94A016
94A017 94A021 94A022

PARAMETER	SAMPLE RESULT (mg/kg)	SPIKE CONC. (mg/kg)	SPIKE RESULT (mg/kg)	SPIKE RECRY. (%)
-----	-----	-----	-----	-----
Lead	ND	5.0	5.2	104



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

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=====
BATCH NO.:      94A015      DATE RECEIVED:    NA
SAMPLE ID:      LCS01      DATE EXTRACTED:   01/07/94
CONTROL NO.:    A008-L1S    DATE ANALYZED:    01/07/94

ACCESSION:      94A008  94A009  94A010  94A011  94A014  94A015  94A016
                  94A017  94A021  94A022
```

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Lead	100	94	94

EPA METHOD 413.2
OIL & GREASE

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=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/05/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/05/94
BATCH NO.:   94A015                     DATE EXTRACTED:  01/07/94
MATRIX:     SOIL                        DATE ANALYZED:   01/12/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB6-D9	A015-09	ND	1	10
TBLK1S	A014-B1S	ND	1	10

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 413.2
MATRIX: SOIL

```
=====
BATCH NO.:      94A015                      DATE RECEIVED: 01/05/94
SAMPLE ID:      EB6-D9                      DATE EXTRACTED: 01/07/94
CONTROL NO.:    A015-09                     DATE ANALYZED:  01/12/94
```

ACCESSION: 94A014 94A015 94A016 94A017 94A009

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
TROG	ND	150	139	93	150	135	90	3



EPA METHOD 376.1
SULFIDE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/05/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED: 01/05/94
BATCH NO.:    94A015                     DATE EXTRACTED: 01/11/94
MATRIX:      SOIL                       DATE ANALYZED: 01/11/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB6-D9	A015-09	ND	2*	.4
WBLK1S	A014-B1S	ND	1	.2

MDL : Method Detection Limit
* Inadequate amount of sample



CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 376.1
MATRIX: SOIL

=====

BATCH NO.:	94A015	DATE RECEIVED:	NA
SAMPLE ID:	EB1-D5	DATE EXTRACTED:	01/11/94
CONTROL NO.:	A014-05	DATE ANALYZED:	01/11/94

ACCESSION: 94A014 94A015 94A016 94A017 94A021 94A022

PARAMETER	Sample (mg/kg)	Dup. Sample (mg/kg)	RPD (%)
-----	-----	-----	-----
SULFIDE	ND	ND	0

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 376.1
MATRIX: WATER

=====

BATCH NO.:	94A015	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A014-L1W	DATE ANALYZED:	01/11/94
ACCESSION:	94A014	94A015	94A016 94A017 94A021 94A022

PARAMETER	TRUE VALUE (mg/L)	FOUND VALUE (mg/L)	LCS RECOVERY (%)
-----	-----	-----	-----
SULFIDE	4.0	3.7	93



EPA METHOD 300
SULFATE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/05/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/05/94
BATCH NO.:    94A015                     DATE EXTRACTED:  01/11/94
MATRIX:       SOIL                       DATE ANALYZED:   01/11/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB6-D9	A015-09	25	5	5
WBLK1S	A014-B1S	ND	1	1

MDL : Method Detection Limit

EPA METHOD 300
CHLORIDE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/05/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/05/94
BATCH NO.:    94A015                     DATE EXTRACTED:  01/11/94
MATRIX:       SOIL                       DATE ANALYZED:   01/11/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB6-D9	A015-09	42	5	1
WBLK1S	A014-B1S	ND	1	.2

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

=====

BATCH NO.:	94A015	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A014-L1S	DATE ANALYZED:	01/11/94

ACCESSION: 94A014 94A015 94A016 94A017 94A021 94A022

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
Sulfate	150	146	97
Chloride	30.0	28.0	93

CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

=====

BATCH NO.:	94A015	DATE RECEIVED:	01/05/94
SAMPLE ID:	EB6-D9	DATE EXTRACTED:	01/11/94
CONTROL NO.:	A015-09	DATE ANALYZED:	01/11/94
ACCESSION:	94A014	94A015	94A016 94A017 94A021 94A022

PARAMETER	Sample (mg/kg)	Dup. Sample (mg/kg)	RPD (%)
-----	-----	-----	-----
Sulfate	25.3	24.0	5
Chloride	42.5	41.3	3



CKY QUALITY CONTROL DATA
SPIKE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

BATCH NO.: 94A015 DATE RECEIVED: 01/05/94
SAMPLE ID: EB6-D9 DATE EXTRACTED: 01/11/94
CONTROL NO.: A015-09 DATE ANALYZED: 01/11/94

ACCESSION: 94A014 94A015 94A016 94A017 94A021 94A022

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC
Sulfate	25.3	50.0	70.2	90
Chloride	42.5	50.0	92.4	100





94A015

Chain of Custody Record

EB-6

Lab Job no.:

Date 1/5/94

Page 1 of 1

Laboratory CKY

Method of Shipment CKY COURIER

DUE 01-12-94

GZ

Address

Shipment No.

Airbill No.

Cooler No.

Client The Earth Technology Corporation

Address 13900 Alton Parkway, Suite 120

Irvine, CA 92718

Project Manager SUE BENER

Telephone No.

Project Name EASTSIDE EXTENSION

Fax No.

Project Number 94-1109

Samplers: (Signature) Greg Renfrew

Field Sample Number	Location/Depth	Date	Time	Sample Type	Type/Size of Container	Preservation		Analysis Required										Remarks
						Temp	Chemical	EPA Method 8015 (Mon)	EPA Method 8015 (Mon)	EPA Method 8015 (Mon)	EPA Method 8015 (Mon)	EPA Method 8015 (Mon)	EPA Method 8015 (Mon)	EPA Method 8015 (Mon)	EPA Method 8015 (Mon)	EPA Method 8015 (Mon)	EPA Method 8015 (Mon)	
1 EB-6-D-1	5'	1/5/94	8:42	TUBE	2 x 4 TUBE	ICE		X	X									8.07.2
2 EB-6-D-2	10'		8:48															7.4 7.1
3 EB-6-D-3	15'		8:54															7.6 7.0
4 EB-6-D-4	20'		9:06															7.1 6.6
5 EB-6-D-5	25'		9:15					X	X									7.8 6.9
6 EB-6-D-6	30'		9:25															8.7 8.2
7 EB-6-D-7	35'		9:40															8.3 8.0
8 EB-6-D-8	40'		9:57															INSUFFICIENT MATERIAL TO ANALYZE
9 EB-6-D-9	45'		12:25					X		X	X	X	X	X	X	X	X	9.0 7.0

Relinquished by:

Signature

Greg Renfrew

Printed

GREG RENFREW

Company

EARTH TECH / CHAIN OF CUSTODY

Reason

Date

Signature

Printed

Company

Received by:

Signature

Printed

Company

Date

Signature

Printed

Company

Relinquished by:

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Company

Comments:

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Relinquished by:

Signature

Printed

Company

Reason

Date

Signature

Printed

Company

Received by:

Signature

Printed

Company

Date

Signature

Printed

Company



CKY incorporated Analytical Laboratories

Date: 01-13-1994
CKY Batch No.: 94A016

Attn.: K. Khilnani

Earth Technology Corp.
13900 Alton Parkway #120
Irvine, CA 92718

Subject: Laboratory Report
Project: Metro Rail - East Side Ext.

Enclosed is the Laboratory report for samples received on 01/05/94. The samples were received in coolers with ice and intact; the chain-of-custody forms were properly filled out. The data reported include :

Sample ID	Control No.	Matrix	Analysis
EB-8D#1	A016-01	soil	Hold
EB-8D#2	A016-02	soil	Hold
EB-8D#3	A016-03	soil	Hold
EB-8D#4	A016-04	soil	Hold
EB-8D#5	A016-05	soil	EPA M8015 (CCID) EPA 8020
EB-8D#6	A016-06	soil	Hold
EB-8D#7	A016-07	soil	Hold
EB-8D#8	A016-08	soil	Hold
EB-8D#9	A016-09	soil	EPA M8015 (CCID) EPA 8020
EB-8D#10	A016-10	soil	Hold
EB-8D#11	A016-11	soil	EPA M8015 (CCID) EPA 8020
EB-8D#12	A016-12	soil	Hold
EB-8D#13	A016-13	soil	EPA M8015 (CCID) EPA 8240 EPA 8270 Organic Pb

Sample ID -----	Control No. -----	Matrix -----	Analysis -----
			Sulfide
			Oil & Grease
			Sulfate
			Chloride
EB-8D#14	A016-14	soil	EPA M8015 (CCID)
			EPA 8020
EB-8D#15	A016-15	soil	EPA M8015 (CCID)
			EPA 8020

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,



Kam Y. Pang, Ph.D.
Laboratory Director

P.S. - All analyses requested for the above referenced project have been completed. Therefore, unless instructed, the remaining portions of the samples will be disposed after fifteen (15) days from the date of this report.

EPA METHOD M8015
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

CLIENT:	Earth Technology Corp.	DATE COLLECTED:	01/05/94
PROJECT:	Metro Rail - East Side Ext.	DATE RECEIVED:	01/05/94
BATCH NO.:	94A016	DATE EXTRACTED:	01/06/94
MATRIX:	SOIL	DATE ANALYZED:	01/09/94

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	H-C RANGE	% RECOVERY		DL FACTOR	MDL (mg/kg)
				SURR1	SURR2		
EB-8D#5	A016-05	ND	N.A.	88	77	1	5
EB-8D#9	A016-09	ND	N.A.	97	99	1	5
EB-8D#11	A016-11	ND	N.A.	101	104	1	5
EB-8D#13	A016-13***	ND	N.A.	93	98	1	5
EB-8D#14	A016-14*	ND	N.A.	98	103	1	5
EB-8D#15	A016-15	ND	N.A.	96	100	1	5
DBLK1S	A016-B1S**	ND	N.A.	107	104	1	5
DBLK2S	A016-B2S***	ND	N.A.	92	95	1	5

SURR1 : Bromobenzene

SURR2 : Hexacosane

MDL : Method Detection Limit

* Date extracted, 01/07/94

** Date analyzed, 01/08/94

*** Date extracted and analyzed, 01/12/94

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

=====

BATCH NO.:	94A016	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/06/94
CONTROL NO.:	A014-L1S	DATE ANALYZED:	01/08/94

ACCESSION: 94A014 94A015 94A016 94A017

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
DIESEL	250	269	108

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

=====

BATCH NO.:	94A016	DATE RECEIVED:	NA
SAMPLE ID:	LCS02	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A014-L2S	DATE ANALYZED:	01/08/94

ACCESSION: 94A014 94A015 94A016 94A017

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
DIESEL	250	250	100



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

=====

BATCH NO.:	94A016	DATE RECEIVED:	NA
SAMPLE ID:	LCS03	DATE EXTRACTED:	01/12/94
CONTROL NO.:	A014-L3S	DATE ANALYZED:	01/12/94

ACCESSION: 94A014 94A015 94A016 94A017

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
DIESEL	250	250	100

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

BATCH NO.: 94A016 DATE RECEIVED: NA
SAMPLE ID: EB1-D3 DATE EXTRACTED: 01/06/94
CONTROL NO.: A014-03 DATE ANALYZED: 01/08/94

ACCESSION: 94A014 94A015 94A016 94A017

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
DIESEL	ND	250	231	92	250	248	99	7



EPA METHOD 8020
BTEX

```
=====
CLIENT:      Earth Technology Corp.          DATE COLLECTED: 01/05/94
PROJECT:     Metro Rail - East Side Ext.     DATE RECEIVED:  01/05/94
BATCH NO.:   94A016                         DATE EXTRACTED:  NA
MATRIX:      SOIL                           DATE ANALYZED:   01/11/94
=====
```

SAMPLE ID	CNTRL NO	DL F	MDL	BENZ	RESULTS (ug/kg)		XYLS	% Rcvy SURR
					TOLUENE	E BENZ		
EB-8D#5	A016-05	1	5	ND	ND	ND	ND	108
EB-8D#9	A016-09	1	5	ND	ND	ND	ND	90
EB-8D#11	A016-11	1	5	ND	ND	ND	ND	106
EB-8D#14	A016-14	1	5	120	7	ND	ND	106
EB-8D#15	A016-15	1	5	ND	ND	ND	ND	98
VBLK1S	A016-B1S	1	5	ND	ND	ND	ND	98

DL F : Dilution Factor
SURR : Bromofluorobenzene
MDL : Method Detection Limit



CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8020
MATRIX: SOIL

BATCH NO.:	94A016	DATE RECEIVED:	NA
SAMPLE ID:	EB1-D3	DATE EXTRACTED:	NA
CONTROL NO.:	A014-03	DATE ANALYZED:	01/11/94

ACCESSION: 94A014 94A015 94A016 94A017

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CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 602/8020
MATRIX: WATER

=====

BATCH NO.:	94A016	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A014-L1W	DATE ANALYZED:	01/11/94

ACCESSION: 94A014 94A015 94A016 94A017

PARAMETER	TRUE VALUE (ug/L)	FOUND VALUE (ug/L)	LCS RECOVERY (%)
-----	-----	-----	-----
Benzene	50	48	96
Toluene	50	49	98
EthylBenzene	50	50	100
Xylenes	150	149	99



EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/05/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/05/94
BATCH NO.:   94A016                     DATE EXTRACTED:  NA
SAMPLE ID:   EB-8D#13                   DATE ANALYZED:  01/07/94
CONTROL NO.: A016-13                     MATRIX:        SOIL
% MOISTURE:  NA                           DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	87	70-121
Toluene -d8	115	84-138
Bromofluorobenzene	88	59-113

MDL : Method Detection Limit

EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED:  NA
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:   NA
BATCH NO.:   94A016                     DATE EXTRACTED:  NA
SAMPLE ID:   VBLK1S                     DATE ANALYZED:   01/07/94
CONTROL NO.: A016-B1S                   MATRIX:         SOIL
% MOISTURE:  NA                         DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	93	70-121
Toluene -d8	104	84-138
Bromofluorobenzene	95	59-113

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8240
MATRIX: SOIL

=====

BATCH NO.:	94A016	DATE RECEIVED:	NA
SAMPLE ID:	EB14A-D4	DATE EXTRACTED:	NA
CONTROL NO.:	A022-04	DATE ANALYZED:	01/10/94

ACCESSION: 94A014 94A015 94A016 94A022 94A027

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
1,1-DCE	ND	50	67	134	50	63	126	6
Benzene	ND	50	69	138	50	69	138	0
TCE	ND	50	65	130	50	63	126	3
Toluene	ND	50	64	128	50	62	124	3
Chlorobenzene	ND	50	61	122	50	61	122	0

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8240
MATRIX: SOIL

=====

BATCH NO.:	94A016	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A016-L1S	DATE ANALYZED:	01/07/94
ACCESSION:	94A016		

PARAMETER	TRUE VALUE (ug/kg)	FOUND VALUE (ug/kg)	LCS RECOVERY (%)	QC LIMIT
-----	-----	-----	-----	-----
1,1-DCE	50	30	60	59-172
Benzene	50	44	88	66-142
TCE	50	42	84	62-137
Toluene	50	45	90	59-139
Chlorobenzene	50	48	96	60-133

EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: 01/05/94
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: 01/05/94
BATCH NO.: 94A016	DATE EXTRACTED: 01/07/94
SAMPLE ID: EB-8D#13	DATE ANALYZED: 01/09/94
CONTROL NO.: A016-13	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg) RESULT MDL	PARAMETERS	(ug/kg) RESULT MDL
N-Nitrosodimethylamine	ND (330)	3-Nitroaniline	ND (800)
Pyridine	ND (330)	Acenaphthene	ND (330)
Aniline	ND (330)	2,4-Dinitrophenol	ND (800)
Phenol	ND (330)	4-Nitrophenol	ND (800)
bis(2-Chloroethyl) ether	ND (330)	Dibenzofuran	ND (330)
2-Chlorophenol	ND (330)	2,4-Dinitrotoluene	ND (330)
1,3-Dichlorobenzene	ND (330)	Diethylphthalate	ND (330)
1,4-Dichlorobenzene	ND (330)	4-Chlorophenyl-phenylether	ND (330)
Benzyl Alcohol	ND (330)	Fluorene	ND (330)
1,2-Dichlorobenzene	ND (330)	1,2-Diphenylhydrazine	ND (800)
2-Methylphenol	ND (330)	4-Nitroaniline	ND (800)
2,2'-oxybis(1-Chloropropane)	ND (330)	4,6-Dinitro-2-methylphenol	ND (800)
4-Methylphenol	ND (330)	N-Nitrosodiphenylamine (1)	ND (330)
N-Nitroso-di-n-propylamine	ND (330)	4-Bromophenyl-phenylether	ND (330)
Hexachloroethane	ND (330)	Hexachlorobenzene	ND (330)
Nitrobenzene	ND (330)	Pentachlorophenol	ND (800)
Isophorene	ND (330)	Benzidine	ND (800)
2-Nitrophenol	ND (330)	Phenanthrene	ND (800)
2,4-Dimethylphenol	ND (330)	Anthracene	ND (330)
Benzoic Acid	ND (800)	Carbazole	ND (800)
bis(2-Chloroethoxy)methane	ND (330)	Di-n-butylphthalate	ND (330)
2,4-Dichlorophenol	ND (330)	Fluoranthene	ND (330)
1,2,4-Trichlorobenzene	ND (330)	4,4'-Methylene Dianiline	ND (800)
Naphthalene	ND (330)	Pyrene	ND (330)
4-Chloroaniline	ND (330)	Bisphenol-A	ND (330)
Hexachloro-1,3-butadiene	ND (330)	Butylbenzylphthalate	ND (330)
4-Chloro-3-methylphenol	ND (330)	3,3'-Dichlorobenzidine	ND (330)
2-Methylnaphthalene	ND (330)	Benzo(a)anthracene	ND (330)
Hexachlorocyclopentadiene	ND (330)	Chrysene	ND (330)
2,4,6-Trichlorophenol	ND (330)	bis(2-Ethylhexyl)phthalate	ND (330)
2,4,5-Trichlorophenol	ND (800)	Di-n-octylphthalate	ND (330)
2-Chloronaphthalene	ND (330)	Benz(b)fluoranthene	ND (330)
1-Chloronaphthalene	ND (330)	Benzo(k)fluoranthene	ND (330)
2-Nitroaniline	ND (800)	Benzo(a)pyrene	ND (330)
Dimethylphthalate	ND (330)	Indeno(1,2,3-cd)pyrene	ND (330)
Acenaphthylene	ND (330)	Dibenzo(a,h)anthracene	ND (330)
2,6-Dinitrotoluene	ND (330)	Benzo(g,h,i)perylene	ND (330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	48	23-120
2-Fluorobiphenyl	52	30-115
Terphenyl-d14	63	18-137
Phenol-d5	46	24-113
2-Fluorophenol	47	25-121
2,4,6-Tribromophenol	55	19-122

MDL: Method Detection Limit



EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED:  NA
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:   NA
BATCH NO.:   94A016                     DATE EXTRACTED:  01/07/94
SAMPLE ID:   SBLK1S                     DATE ANALYZED:   01/09/94
CONTROL NO.: L084-B1S                   MATRIX:         SOIL
% MOISTURE:  NA                         DILUTION FACTOR: 1
=====
```

PARAMETERS	(ug/kg)	PARAMETERS	(ug/kg)
RESULT MDL		RESULT MDL	
N-Nitrosodimethylamine	ND (330)	3-Nitroaniline	ND (800)
Pyridine	ND (330)	Acenaphthene	ND (330)
Aniline	ND (330)	2,4-Dinitrophenol	ND (800)
Phenol	ND (330)	4-Nitrophenol	ND (800)
bis(2-Chloroethyl) ether	ND (330)	Dibenzofuran	ND (330)
2-Chlorophenol	ND (330)	2,4-Dinitrotoluene	ND (330)
1,3-Dichlorobenzene	ND (330)	Diethylphthalate	ND (330)
1,4-Dichlorobenzene	ND (330)	4-Chlorophenyl-phenylether	ND (330)
Benzyl Alcohol	ND (330)	Fluorene	ND (330)
1,2-Dichlorobenzene	ND (330)	1,2-Diphenylhydrazine	ND (800)
2-Methylphenol	ND (330)	4-Nitroaniline	ND (800)
2,2'-oxybis(1-Chloropropane)	ND (330)	4,6-Dinitro-2-methylphenol	ND (800)
4-Methylphenol	ND (330)	N-Nitrosodiphenylamine (1)	ND (330)
N-Nitroso-di-n-propylamine	ND (330)	4-Bromophenyl-phenylether	ND (330)
Hexachloroethane	ND (330)	Hexachlorobenzene	ND (330)
Nitrobenzene	ND (330)	Pentachlorophenol	ND (800)
Isophorene	ND (330)	Benidone	ND (800)
2-Nitrophenol	ND (330)	Phenanthrene	ND (800)
2,4-Dimethylphenol	ND (330)	Anthracene	ND (330)
Benzoic Acid	ND (800)	Carbazole	ND (800)
bis(2-Chloroethoxy)methane	ND (330)	Di-n-butylphthalate	1500 (330)
2,4-Dichlorophenol	ND (330)	Fluoranthene	ND (330)
1,2,4-Trichlorobenzene	ND (330)	4,4'-Methylene Dianiline	ND (800)
Naphthalene	ND (330)	Pyrene	ND (330)
4-Chloroaniline	ND (330)	Bisphenol-A	ND (330)
Hexachloro-1,3-butadiene	ND (330)	Butylbenzylphthalate	ND (330)
4-Chloro-3-methylphenol	ND (330)	3,3'-Dichlorobenzidine	ND (330)
2-Methylnaphthalene	ND (330)	Benzo(a)anthracene	ND (330)
Hexachlorocyclopentadiene	ND (330)	Chrysene	ND (330)
2,4,6-Trichlorophenol	ND (330)	bis(2-Ethylhexyl)phthalate	ND (330)
2,4,5-Trichlorophenol	ND (800)	Di-n-octylphthalate	ND (330)
2-Chloronaphthalene	ND (330)	Benz(b)fluoranthene	ND (330)
1-Chloronaphthalene	ND (330)	Benzo(k)fluoranthene	ND (330)
2-Nitroaniline	ND (800)	Benzo(a)pyrene	ND (330)
Dimethylphthalate	ND (330)	Indeno(1,2,3-cd)pyrene	ND (330)
Acenaphthylene	ND (330)	Dibenzo(a,h)anthracene	ND (330)
2,6-Dinitrotoluene	ND (330)	Benzo(g,h,i)perylene	ND (330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	64	23-120
2-Fluorobiphenyl	71	30-115
Terphenyl-d14	103	18-137
Phenol-d5	61	24-113
2-Fluorophenol	61	25-121
2,4,6-Tribromophenol	72	19-122

MDL: Method Detection Limit

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8270
MATRIX: SOIL

BATCH NO.: 94A016 DATE RECEIVED: NA
SAMPLE ID: 29-A115902 DATE EXTRACTED: 01/07/94
CONTROL NO.: A019-02 DATE ANALYZED: 01/08/94

ACCESSION: 94A008 94A009 94A010 94A011 94A014 94A015
 94A016 94A017 94A019

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Phenol	ND	5000	3130	63	5000	2880	58	8
2-Chlorophenol	ND	5000	3310	66	5000	3000	60	10
1,4-DCB	ND	3300	2145	65	3300	2010	61	6
N-Nitroso-di-n	ND	3300	2460	75	3300	2300	70	7
1,2,4-TCB	ND	3300	2460	75	3300	2310	70	7
4-Chl-3-Methy	ND	5000	3780	76	5000	3610	72	5
Acenaphthene	ND	3300	2520	76	3300	2330	71	7
2,4-Dinitrotol	ND	3300	2960	90	3300	3040	92	2
Pentachlorophe	ND	5000	4620	92	5000	4320	86	7
Pyrene	ND	3300	3010	91	3300	3540	107	16



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8270
MATRIX: SOIL

```
=====
BATCH NO.:      94A016      DATE RECEIVED:  NA
SAMPLE ID:      LCS01      DATE EXTRACTED: 01/07/94
CONTROL NO.:    A008-L1S   DATE ANALYZED:  01/07/94

ACCESSION:      94A008  94A009  94A010  94A011  94A014  94A015
                  94A016  94A017
```

PARAMETER	TRUE VALUE (ug/kg)	FOUND VALUE (ug/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Phenol	5000	3260	65
2-Chlorophenol	5000	3640	73
1,4-DCB	3300	2440	73
N-Nitroso-di-n-	3300	2750	83
1,2,4-TCB	3300	2760	83
4-Chloro-3-Methy	5000	2560	77
Acenaphthene	3300	2710	81
4-Nitrophenol	5000	4970	99
2,4-Dinitrotol	3300	3380	101
Pentachlorophe	5000	5060	101
Pyrene	3300	3020	91

DHS METHOD
ORGANIC LEAD

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/05/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/05/94
BATCH NO.:    94A016                     DATE EXTRACTED:  01/07/94
MATRIX:       SOIL                       DATE ANALYZED:   01/07/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-8D#13	A016-13	ND	1	.5
FBLK1S	A008-B1S	ND	1	.5

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A016	DATE RECEIVED:	NA
SAMPLE ID:	D-6	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A008-06	DATE ANALYZED:	01/07/94
ACCESSION:	94A008 94A009 94A010 94A011 94A014 94A015 94A016		
	94A017 94A021 94A022		

PARAMETER	SAMPLE (mg/kg)	DUP. SAMPLE (mg/kg)	RPD (%)
-----	-----	-----	-----
Lead	ND	ND	0

CKY QUALITY CONTROL DATA
SPIKE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

```
=====
BATCH NO.:      94A016                      DATE RECEIVED:   NA
SAMPLE ID:      FBLK1S                      DATE EXTRACTED:  01/07/94
CONTROL NO.:    A008-B1S                    DATE ANALYZED:   01/07/94

ACCESSION:      94A008  94A009  94A010  94A011  94A014  94A015  94A016
                  94A017  94A021  94A022
```

PARAMETER	SAMPLE RESULT (mg/kg)	SPIKE CONC. (mg/kg)	SPIKE RESULT (mg/kg)	SPIKE RECRY. (%)
-----	-----	-----	-----	-----
Lead	ND	5.0	5.2	104



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A016	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A008-L1S	DATE ANALYZED:	01/07/94
ACCESSION:	94A008 94A009 94A010 94A011 94A014 94A015 94A016 94A017 94A021 94A022		

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
----- Lead	----- 100	----- 94	----- 94

EPA METHOD 376.1
SULFIDE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/05/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/05/94
BATCH NO.:    94A016                     DATE EXTRACTED:  01/11/94
MATRIX:       SOIL                       DATE ANALYZED:   01/11/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-8D#13	A016-13	ND	2*	.4
WBLK1S	A014-B1S	ND	1	.2

MDL : Method Detection Limit
* Inadequate amount of sample



CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 376.1
MATRIX: SOIL

=====

BATCH NO.:	94A016	DATE RECEIVED:	NA
SAMPLE ID:	EB1-D5	DATE EXTRACTED:	01/11/94
CONTROL NO.:	A014-05	DATE ANALYZED:	01/11/94
ACCESSION:	94A014	94A015	94A016 94A017 94A021 94A022

PARAMETER	Sample (mg/kg)	Dup. Sample (mg/kg)	RPD (%)
-----	-----	-----	-----
SULFIDE	ND	ND	0



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 376.1
MATRIX: WATER

=====

BATCH NO.:	94A016	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A014-L1W	DATE ANALYZED:	01/11/94
ACCESSION:	94A014	94A015	94A016 94A017 94A021 94A022

PARAMETER	TRUE VALUE (mg/L)	FOUND VALUE (mg/L)	LCS RECOVERY (%)
SULFIDE	4.0	3.7	93



EPA METHOD 413.2
OIL & GREASE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/05/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/05/94
BATCH NO.:   94A016                     DATE EXTRACTED:  01/07/94
MATRIX:     SOIL                        DATE ANALYZED:   01/12/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-8D#13	A016-13	ND	1	10
TBLK1S	A016-B1S	ND	1	10

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 413.2
MATRIX: SOIL

BATCH NO.: 94A016 DATE RECEIVED: NA
SAMPLE ID: EB-6-D-9 DATE EXTRACTED: 01/07/94
CONTROL NO.: A015-09 DATE ANALYZED: 01/12/94

ACCESSION: 94A009 94A014 94A015 94A016 94A017

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
TROG	ND	150	139	93	150	135	90	3



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 413.2
MATRIX: SOIL

=====

BATCH NO.:	94A016	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A009-L1S	DATE ANALYZED:	01/12/94
ACCESSION:	94A009	94A014	94A015
	94A016	94A017	

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
TROG	150	139	93

EPA METHOD 300
SULFATE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/05/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/05/94
BATCH NO.:   94A016                     DATE EXTRACTED:  01/11/94
MATRIX:     SOIL                       DATE ANALYZED:   01/11/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-8D#13	A016-13	8.6	1	1
WBLK1S	A014-B1S	ND	1	1

MDL : Method Detection Limit



EPA METHOD 300
CHLORIDE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/05/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/05/94
BATCH NO.:   94A016                     DATE EXTRACTED:  01/11/94
MATRIX:      SOIL                       DATE ANALYZED:   01/11/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-8D#13	A016-13	7.6	1	0.2
WBLK1S	A014-B1S	ND	1	0.2

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
SPIKE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

BATCH NO.: 94A016 DATE RECEIVED: NA
SAMPLE ID: EB6-D9 DATE EXTRACTED: 01/11/94
CONTROL NO.: A015-09 DATE ANALYZED: 01/11/94

ACCESSION: 94A014 94A015 94A016 94A017 94A021 94A022

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC
Sulfate	25.3	50.0	70.2	90
Chloride	42.5	50.0	92.4	100



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

=====

BATCH NO.:	94A016	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A014-L1S	DATE ANALYZED:	01/11/94

ACCESSION: 94A014 94A015 94A016 94A017 94A021 94A022

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Sulfate	150	146	97
Chloride	30.0	28.0	93

CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

=====

BATCH NO.:	94A016	DATE RECEIVED:	NA
SAMPLE ID:	EB6-D9	DATE EXTRACTED:	01/11/94
CONTROL NO.:	A015-09	DATE ANALYZED:	01/11/94

ACCESSION: 94A014 94A015 94A016 94A017 94A021 94A022

PARAMETER	Sample (mg/kg)	Dup. Sample (mg/kg)	RPD (%)
-----	-----	-----	-----
Sulfate	25.3	24.0	5
Chloride	42.5	41.3	3



Laboratory CKY Method of Shipment _____
Address _____ Shipment No. _____
Airbill No. _____
Cooler No. _____
Client The Earth Technology Corporation Project Manager Kris Khilnani
Address 13900 Alton Parkway, Suite 120 Telephone No. 714 458 7414
Irvine, CA 92718 Fax No. 714 458 8701
Project Name Metro East Ext. Samplers: (Signature) Hossein Rashidi
Project Number 94-1109-2

DUE 01-12-94 G2

Field Sample Number	Location/ Depth	Date	Time	Sample Type	Type/Size of Container	Preservation		EPA Carc	EPA 8	EPA Diesel	EPA 1	EPA 1	Total	Oil	Oil	Oil	Lead	H ₂ O
						Temp.	Chemical											
EB-2D #	1	5'	1/1/94	9:11	D	2'dia, 4.5' long	Ice										3.2	3.4
"	2	10'		9:19			Ice										3.2	4
"	3	15'		9:35		S.S. Sleeve	Ice										3.2	4
"	4	20'		9:38													3.2	4.5
"	5	25'		9:45				X	X								3.5	10
"	6	30'		10:00													3.6	4.6
"	7	35'		10:07													3.6	8.5
"	8	40'		10:15													3.6	10
"	9	45'		10:37				X	X								3.6	19
"	10	50'		11:07				X	X								6.0	22
"	11	55'		11:01				X	X								6.0	42 *
"	12	60'		11:19													6.0	40 +
"	13	65'		12:11				X		X	X	X	X	X	X		8.0	120 +
"	14	70'		12:37				X	X								8.0	116 *
"	15	75'		12:45				X	X								8.0	21
"	16	80'																

Relinquished by: Signature <u>Hossein Rashidi</u> Printed <u>HOSSEIN RASHIDI</u> Company <u>DIB2 YOURHAN</u> Reason <u>Transfer to HLB</u>	Date <u>11/5/94</u> Time <u>16:25</u>	Received by: Signature <u>Craig Hiza</u> Printed <u>CRAIG HIZA</u> Company <u>CKY INC.</u> Reason <u>ANALYSIS</u>	Date <u>11/5/94</u> Time <u>4:31</u>	Relinquished by: Signature _____ Printed _____ Company _____ Reason _____	Date _____ Time _____	Received by: Signature <u>Craig Hiza</u> Printed <u>CRAIG HIZA</u> Company <u>CKY INC.</u> Reason <u>ANALYSIS</u>	Date <u>11/5/94</u> Time <u>5:22</u>
Comments: <u>T = 5°C</u>							



CKY incorporated Analytical Laboratories

Date: 01-18-1994
CKY Batch No.: 94A021

Attn.: K. Khilnani

Earth Technology Corp.
13900 Alton Parkway #120
Irvine, CA 92718

Subject: Laboratory Report
Project: Metro Rail - East Side Ext.

Enclosed is the Laboratory report for samples received on 01/06/94. The samples were received in coolers with ice and intact; the chain-of-custody forms were properly filled out. The data reported include :

Sample ID	Control No.	Matrix	Analysis
-----	-----	-----	-----
EB-7-D1	A021-01	soil	EPA M8015 (CCID) EPA 8020
EB-7-D2	A021-02	soil	Hold
EB-7-D3	A021-03	soil	EPA M8015 (CCID) EPA 8240 EPA 8270 Organic Pb Oil & Grease Sulfide Sulfate Chloride
EB-7-D4	A021-04	soil	Hold
EB-7-D5	A021-05	soil	Hold
EB-7-D6	A021-06	soil	EPA M8015 (CCID) EPA 8020
EB-15-D1	A021-07	soil	Hold
EB-15-D2	A021-08	soil	Hold
EB-15-D3	A021-09	soil	EPA M8015 (CCID) EPA 8020

Sample ID	Control No.	Matrix	Analysis
-----	-----	-----	-----
EB-15-D4	A021-10	soil	Hold

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,



Kam Y. Pang, Ph.D.¹
Laboratory Director

P.S. - All analyses requested for the above referenced project have been completed. Therefore, unless instructed, the remaining portions of the samples will be disposed after fifteen (15) days from the date of this report.

EPA METHOD M8015
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```
=====
CLIENT:      Earth Technology Corp.          DATE COLLECTED: 01/06/94
PROJECT:     Metro Rail - East Side Ext.     DATE RECEIVED:  01/06/94
BATCH NO.:   94A021                         DATE EXTRACTED: 01/10/94
MATRIX:      SOIL                           DATE ANALYZED:  01/11/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	H-C RANGE	% RECOVERY		DL FACTOR	MDL (mg/kg)
				SURR1	SURR2		
EB-7-D1	A021-01	ND	N.A.	95	106	1	5
EB-7-D3	A021-03	ND	N.A.	96	97	1	5
EB-7-D6	A021-06	ND	N.A.	95	99	1	5
EB-15-D3	A021-09*	ND	N.A.	95	94	1	5
DBLK1S	A021-B1S*	ND	N.A.	94	94	1	5

```
QC LIMIT:                               60-140    55-150
SURR1 : Bromobenzene
SURR2 : Hexacosane
MDL   : Method Detection Limit
*      : Date extracted, 01/11/94
        : Date analyzed, 01/13/94
```



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

=====

BATCH NO.:	94A021	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/10/94
CONTROL NO.:	A021-L1S	DATE ANALYZED:	01/11/94

ACCESSION: 94A021 94A022

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
DIESEL	250	239	96



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

=====

BATCH NO.:	94A021	DATE RECEIVED:	NA
SAMPLE ID:	LCS02	DATE EXTRACTED:	01/11/94
CONTROL NO.:	A021-L2S	DATE ANALYZED:	01/12/94

ACCESSION: 94A021 94A022

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
DIESEL	250	223	89



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

BATCH NO.: 94A021 DATE RECEIVED: 01/06/94
SAMPLE ID: EB-7-D6 DATE EXTRACTED: 01/10/94
CONTROL NO.: A021-06 DATE ANALYZED: 01/11/94

ACCESSION: 94A021 94A022

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
DIESEL	ND	250	225	90	250	222	89	1

EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: 01/06/94
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: 01/06/94
BATCH NO.: 94A021	DATE EXTRACTED: 01/11/94
SAMPLE ID: EB-7-D3	DATE ANALYZED: 01/13/94
CONTROL NO.: A021-03	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg)		PARAMETERS	(ug/kg)	
	RESULT	MDL		RESULT	MDL
N-Nitrosodimethylamine	ND	(330)	3-Nitroaniline	ND	(800)
Pyridine	ND	(330)	Acenaphthene	ND	(330)
Aniline	ND	(330)	2,4-Dinitrophenol	ND	(800)
Phenol	ND	(330)	4-Nitrophenol	ND	(800)
bis(2-Chloroethyl) ether	ND	(330)	Dibenzofuran	ND	(330)
2-Chlorophenol	ND	(330)	2,4-Dinitrotoluene	ND	(330)
1,3-Dichlorobenzene	ND	(330)	Diethylphthalate	ND	(330)
1,4-Dichlorobenzene	ND	(330)	4-Chlorophenyl-phenylether	ND	(330)
Benzyl Alcohol	ND	(330)	Fluorene	ND	(330)
1,2-Dichlorobenzene	ND	(330)	1,2-Diphenylhydrazine	ND	(800)
2-Methylphenol	ND	(330)	4-Nitroaniline	ND	(800)
2,2'-oxybis(1-Chloropropane)	ND	(330)	4,6-Dinitro-2-methylphenol	ND	(800)
4-Methylphenol	ND	(330)	N-Nitrosodiphenylamine (1)	ND	(330)
N-Nitroso-di-n-propylamine	ND	(330)	4-Bromophenyl-phenylether	ND	(330)
Hexachloroethane	ND	(330)	Hexachlorobenzene	ND	(330)
Nitrobenzene	ND	(330)	Pentachlorophenol	ND	(800)
Isophorone	ND	(330)	Benzidine	ND	(800)
2-Nitrophenol	ND	(330)	Phenanthrene	ND	(800)
2,4-Dimethylphenol	ND	(330)	Anthracene	ND	(330)
Benzoic Acid	ND	(800)	Carbazole	ND	(800)
bis(2-Chloroethoxy)methane	ND	(330)	Di-n-butylphthalate	ND	(330)
2,4-Dichlorophenol	ND	(330)	Fluoranthene	ND	(330)
1,2,4-Trichlorobenzene	ND	(330)	4,4'-Methylene Dianiline	ND	(800)
Naphthalene	ND	(330)	Pyrene	ND	(330)
4-Chloroaniline	ND	(330)	Bisphenol-A	ND	(330)
Hexachloro-1,3-butadiene	ND	(330)	Butylbenzylphthalate	ND	(330)
4-Chloro-3-methylphenol	ND	(330)	3,3'-Dichlorobenzidine	ND	(330)
2-Methylnaphthalene	ND	(330)	Benzo(a)anthracene	ND	(330)
Hexachlorocyclopentadiene	ND	(330)	Chrysene	ND	(330)
2,4,6-Trichlorophenol	ND	(330)	bis(2-Ethylhexyl)phthalate	ND	(330)
2,4,5-Trichlorophenol	ND	(800)	Di-n-octylphthalate	ND	(330)
2-Chloronaphthalene	ND	(330)	Benz(b)fluoranthene	ND	(330)
1-Chloronaphthalene	ND	(330)	Benzo(k)fluoranthene	ND	(330)
2-Nitroaniline	ND	(800)	Benzo(a)pyrene	ND	(330)
Dimethylphthalate	ND	(330)	Indeno(1,2,3-cd)pyrene	ND	(330)
Acenaphthylene	ND	(330)	Dibenzo(a,h)anthracene	ND	(330)
2,6-Dinitrotoluene	ND	(330)	Benzo(g,h,i)perylene	ND	(330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	99	23-120
2-Fluorobiphenyl	105	30-115
Terphenyl-d14	127	18-137
Phenol-d5	100	24-113
2-Fluorophenol	101	25-121
2,4,6-Tribromophenol	101	19-122

MDL: Method Detection Limit

CK

EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: NA
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: NA
BATCH NO.: 94A021	DATE EXTRACTED: 01/11/94
SAMPLE ID: SBLK01	DATE ANALYZED: 01/13/94
CONTROL NO.: A017-B1S	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg) RESULT MDL	PARAMETERS	(ug/kg) RESULT MDL
N-Nitrosodimethylamine	ND (330)	3-Nitroaniline	ND (800)
Pyridine	ND (330)	Acenaphthene	ND (330)
Aniline	ND (330)	2,4-Dinitrophenol	ND (800)
Phenol	ND (330)	4-Nitrophenol	ND (800)
bis(2-Chloroethyl)ether	ND (330)	Dibenzofuran	ND (330)
2-Chlorophenol	ND (330)	2,4-Dinitrotoluene	ND (330)
1,3-Dichlorobenzene	ND (330)	Diethylphthalate	ND (330)
1,4-Dichlorobenzene	ND (330)	4-Chlorophenyl-phenylether	ND (330)
Benzyl Alcohol	ND (330)	Fluorene	ND (330)
1,2-Dichlorobenzene	ND (330)	1,2-Diphenylhydrazine	ND (800)
2-Methylphenol	ND (330)	4-Nitroaniline	ND (800)
2,2'-oxybis(1-Chloropropane)	ND (330)	4,6-Dinitro-2-methylphenol	ND (800)
4-Methylphenol	ND (330)	N-Nitrosodiphenylamine (1)	ND (330)
N-Nitroso-di-n-propylamine	ND (330)	4-Bromophenyl-phenylether	ND (330)
Hexachloroethane	ND (330)	Hexachlorobenzene	ND (330)
Nitrobenzene	ND (330)	Pentachlorophenol	ND (800)
Isophorone	ND (330)	Benzidine	ND (800)
2-Nitrophenol	ND (330)	Phenanthrene	ND (800)
2,4-Dimethylphenol	ND (330)	Anthracene	ND (330)
Benzoic Acid	ND (800)	Carbazole	ND (800)
bis(2-Chloroethoxy)methane	ND (330)	Di-n-butylphthalate	ND (330)
2,4-Dichlorophenol	ND (330)	Fluoranthene	ND (330)
1,2,4-Trichlorobenzene	ND (330)	4,4'-Methylene Dianiline	ND (800)
Naphthalene	ND (330)	Pyrene	ND (330)
4-Chloroaniline	ND (330)	Bisphenol-A	ND (330)
Hexachloro-1,3-butadiene	ND (330)	Butylbenzylphthalate	ND (330)
4-Chloro-3-methylphenol	ND (330)	3,3'-Dichlorobenzidine	ND (330)
2-Methylnaphthalene	ND (330)	Benzo(a)anthracene	ND (330)
Hexachlorocyclopentadiene	ND (330)	Chrysene	ND (330)
2,4,6-Trichlorophenol	ND (330)	bis(2-Ethylhexyl)phthalate	ND (330)
2,4,5-Trichlorophenol	ND (800)	Di-n-octylphthalate	ND (330)
2-Chloronaphthalene	ND (330)	Benz(b)fluoranthene	ND (330)
1-Chloronaphthalene	ND (330)	Benzo(k)fluoranthene	ND (330)
2-Nitroaniline	ND (800)	Benzo(a)pyrene	ND (330)
Dimethylphthalate	ND (330)	Indeno(1,2,3-cd)pyrene	ND (330)
Acenaphthylene	ND (330)	Dibenzo(a,h)anthracene	ND (330)
2,6-Dinitrotoluene	ND (330)	Benzo(g,h,i)perylene	ND (330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	39	23-120
2-Fluorobiphenyl	44	30-115
Terphenyl-d14	109	18-137
Phenol-d5	40	24-113
2-Fluorophenol	44	25-121
2,4,6-Tribromophenol	45	19-122

MDL: Method Detection Limit



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8270
MATRIX: SOIL

BATCH NO.: 94A021 DATE RECEIVED: NA
SAMPLE ID: SBLK01 DATE EXTRACTED: 01/11/94
CONTROL NO.: A017-B1S DATE ANALYZED: 01/12/94

ACCESSION: 94A017 94A021 94A022 94A027

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Phenol	ND	5000	2932	59	5000	2282	46	25
2-Chlorophenol	ND	5000	3058	61	5000	2378	48	25
1,4-DCB	ND	3300	2076	63	3300	1546	47	29
N-Nitroso-di-n	ND	3300	2659	81	3300	2169	66	20
1,2,4-TCB	ND	3300	2199	67	3300	1611	49	31
4-Chl-3-Methyl	ND	5000	3785	76	5000	2916	58	26
Acenaphthene	ND	3300	2652	80	3300	2061	62	25
4-Nitrophenol	ND	5000	6171	123	5000	4396	88	34
2,4-Dinitrotol	ND	3300	3786	115	3300	2775	84	31
Pentachlorophe	ND	5000	6443	129	5000	4418	88	37
Pyrene	ND	3300	3973	120	3300	2924	89	30



EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

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CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/06/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/06/94
BATCH NO.:   94A021                     DATE EXTRACTED:  NA
SAMPLE ID:   EB-7-D3                     DATE ANALYZED:  01/10/94
CONTROL NO.: A021-03                     MATRIX:        SOIL
% MOISTURE:  NA                         DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	94	70-121
Toluene -d8	105	84-138
Bromofluorobenzene	93	59-113

MDL : Method Detection Limit

EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

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=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED:  NA
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  NA
BATCH NO.:   94A021                     DATE EXTRACTED:  NA
SAMPLE ID:   VBLK1S                     DATE ANALYZED:   01/10/94
CONTROL NO.: A021-B1S                   MATRIX:        SOIL
% MOISTURE:  NA                         DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	92	70-121
Toluene -d8	107	84-138
Bromofluorobenzene	94	59-113

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8240
MATRIX: WATER

=====

BATCH NO.:	94A021	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A021-L1W	DATE ANALYZED:	01/10/94
ACCESSION:	94A021		

PARAMETER	TRUE VALUE (ug/L)	FOUND VALUE (ug/L)	LCS RECOVERY (%)	QC LIMIT
-----	-----	-----	-----	-----
1,1-DCE	50	64	128	61-145
Benzene	50	58	116	76-127
TCE	50	56	112	71-120
Toluene	50	56	112	76-125
Chlorobenzene	50	53	106	75-130

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8240
MATRIX: SOIL

BATCH NO.: 94A021 DATE RECEIVED: NA
SAMPLE ID: EB14A-D4 DATE EXTRACTED: NA
CONTROL NO.: A022-04 DATE ANALYZED: 01/10/94

ACCESSION: 94A021 94A022

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
1,1-DCE	ND	50	67	134	50	63	126	6
Benzene	ND	50	69	138	50	69	138	0
TCE	ND	50	65	130	50	63	126	3
Toluene	ND	50	64	128	50	62	124	3
Chlorobenzene	ND	50	61	122	50	61	122	0



EPA METHOD 300
SULFATE

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=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/06/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/06/94
BATCH NO.:   94A021                     DATE EXTRACTED:  01/11/94
MATRIX:     SOIL                       DATE ANALYZED:   01/11/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-7-D3	A021-03	19.4	1	1
WBLK1S	A021-B1S	ND	1	1

MDL : Method Detection Limit

EPA METHOD 300
CHLORIDE

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=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/06/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/06/94
BATCH NO.:   94A021                     DATE EXTRACTED:  01/11/94
MATRIX:     SOIL                        DATE ANALYZED:   01/11/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-7-D3	A021-03	0.80	1	0.2
WBLK1S	A014-B1S	ND	1	0.2

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: WATER

=====

BATCH NO.:	94A021	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A014-L1	DATE ANALYZED:	01/11/94
ACCESSION:	94A014	94A015	94A016
	94A017	94A021	94A022

PARAMETER	TRUE VALUE (mg/L)	FOUND VALUE (mg/L)	LCS RECOVERY (%)
Sulfate	150	146	97
Chloride	30.0	28.0	93

CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

=====

BATCH NO.:	94A021	DATE RECEIVED:	NA
SAMPLE ID:	EB6-D9	DATE EXTRACTED:	01/11/94
CONTROL NO.:	A015-09	DATE ANALYZED:	01/11/94

ACCESSION: 94A014 94A015 94A016 94A017 94A021 94A022

PARAMETER	Sample (mg/kg)	Dup. Sample (mg/kg)	RPD (%)
-----	-----	-----	-----
Sulfate	25.3	24.0	5
Chloride	42.5	41.3	3

CKY QUALITY CONTROL DATA
SPIKE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

=====

BATCH NO.:	94A021	DATE RECEIVED:	NA
SAMPLE ID:	EB6-D9	DATE EXTRACTED:	01/11/94
CONTROL NO.:	A015-09	DATE ANALYZED:	01/11/94
ACCESSION:	94A014	94A015	94A016 94A017 94A021 94A022

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC
-----	-----	-----	-----	-----
Sulfate	25.3	50.0	70.2	90
Chloride	42.5	50.0	92.4	100



EPA METHOD 376.1
SULFIDE

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=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/06/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED: 01/06/94
BATCH NO.:    94A021                     DATE EXTRACTED: 01/11/94
MATRIX:       SOIL                       DATE ANALYZED:  01/11/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-7-D3	A021-03	ND	2*	0.4
WBLK1S	A014-B1S	ND	1	0.2

MDL : Method Detection Limit

* : Inadequate amount of sample



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 376.1
MATRIX: WATER

=====

BATCH NO.:	94A021	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A014-L1W	DATE ANALYZED:	01/11/94
ACCESSION:	94A014	94A015	94A016 94A017 94A021 94A022

PARAMETER	TRUE VALUE (mg/L)	FOUND VALUE (mg/L)	LCS RECOVERY (%)
SULFIDE	4.0	3.7	93



CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 376.1
MATRIX: SOIL

=====

BATCH NO.:	94A021	DATE RECEIVED:	NA
SAMPLE ID:	EB1-D5	DATE EXTRACTED:	01/11/94
CONTROL NO.:	A014-05	DATE ANALYZED:	01/11/94

ACCESSION: 94A014 94A015 94A016 94A017 94A021 94A022

PARAMETER	Sample (mg/kg)	Dup. Sample (mg/kg)	RPD (%)
-----	-----	-----	-----
SULFIDE	ND	ND	0



EPA METHOD 413.2
OIL & GREASE

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=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/06/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/06/94
BATCH NO.:    94A021                     DATE EXTRACTED:  01/11/94
MATRIX:       SOIL                       DATE ANALYZED:   01/12/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-7-D3	A021-03	ND	1	10
TBLK1S	A021-B1S	ND	1	10

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 413.2
MATRIX: SOIL

=====

BATCH NO.:	94A021	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/11/94
CONTROL NO.:	A021-L1S	DATE ANALYZED:	01/12/94

ACCESSION: 94A021 94A022 94A027 94A031 94A034 94A035

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
TROG	150	141	94



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 413.2
MATRIX: SOIL

BATCH NO.: 94A021 DATE RECEIVED: NA
SAMPLE ID: EB14A-D4 DATE EXTRACTED: 01/11/94
CONTROL NO.: A022-04 DATE ANALYZED: 01/12/94

ACCESSION: 94A021 94A022 94A027 94A031 94A034 94A035

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
TROG	ND	150	138	92	150	137	91	1



DHS METHOD
ORGANIC LEAD

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/06/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/06/94
BATCH NO.:    94A021                     DATE EXTRACTED:  01/07/94
MATRIX:      SOIL                       DATE ANALYZED:   01/07/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-7-D3	A021-03	ND	1	.5
FBLK1S	A008-B1S	ND	1	.5

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A021	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A008-L1S	DATE ANALYZED:	01/07/94
ACCESSION:	94A008 94A009 94A010 94A011 94A014 94A015 94A016 94A017 94A021 94A022		

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Lead	100	94	94

CKY QUALITY CONTROL DATA
SPIKE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A021	DATE RECEIVED:	NA
SAMPLE ID:	FBLK1S	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A008-B1S	DATE ANALYZED:	01/07/94

ACCESSION:	94A008	94A009	94A010	94A011	94A014	94A015	94A016
	94A017	94A021	94A022				

PARAMETER	SAMPLE RESULT (mg/kg)	SPIKE CONC. (mg/kg)	SPIKE RESULT (mg/kg)	SPIKE RECRY. (%)
-----	-----	-----	-----	-----
Lead	ND	5.0	5.2	104



CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A021	DATE RECEIVED:	NA
SAMPLE ID:	D-6	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A008-06	DATE ANALYZED:	01/07/94
ACCESSION:	94A008 94A009 94A010 94A011 94A014 94A015 94A016		
	94A017 94A021 94A022		

PARAMETER	SAMPLE (mg/kg)	DUP. SAMPLE (mg/kg)	RPD (%)
-----	-----	-----	-----
Lead	ND	ND	0



EPA METHOD 8020
BTEX

```
=====
CLIENT:      Earth Technology Corp.          DATE COLLECTED: 01/06/94
PROJECT:     Metro Rail - East Side Ext.     DATE RECEIVED:  01/06/94
BATCH NO.:   94A021                         DATE EXTRACTED: NA
MATRIX:      SOIL                           DATE ANALYZED:  01/10/94
=====
```

SAMPLE ID	CNTRL NO	DL F	MDL	BENZ	RESULTS TOLUENE	(ug/kg) E BENZ	XYLS	% Rcvy SURR
EB-7-D1	A021-01	1	5	ND	ND	ND	ND	77
EB-7-D6	A021-06	1	5	ND	ND	ND	ND	82
EB-15-D3	A021-09*	1	5	ND	ND	ND	ND	60
VLK1S	A021-B1S	1	5	ND	ND	ND	ND	99
VLK2S	A021-B2S*	1	5	ND	ND	ND	ND	93

DL F : Dilution Factor
 SURR : Bromofluorobenzene
 MDL : Method Detection Limit
 * : Analyzed on 01/11/94



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 602/8020
MATRIX: WATER

=====

BATCH NO.:	94A021	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A021-L1W	DATE ANALYZED:	01/10/94
ACCESSION:	94A021		

PARAMETER	TRUE VALUE (ug/L)	FOUND VALUE (ug/L)	LCS RECOVERY (%)
-----	-----	-----	-----
Benzene	50	48	96
Toluene	50	48	96
Chlorobenzene	50	51	102

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 602/8020
MATRIX: WATER

=====

BATCH NO.:	94A021	DATE RECEIVED:	NA
SAMPLE ID:	LCS02	DATE EXTRACTED:	NA
CONTROL NO.:	A021-L2W	DATE ANALYZED:	01/11/94
ACCESSION:	94A021		

PARAMETER	TRUE VALUE (ug/L)	FOUND VALUE (ug/L)	LCS RECOVERY (%)
-----	-----	-----	-----
Benzene	50	42	84
Toluene	50	56	112
Chlorobenzene	50	43	86



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8020
MATRIX: SOIL

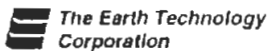
=====

BATCH NO.:	94A021	DATE RECEIVED:	NA
SAMPLE ID:	EB14A-D1	DATE EXTRACTED:	NA
CONTROL NO.:	A022-01	DATE ANALYZED:	01/10/94

ACCESSION: 94A010 94A011 94A021 94A022

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Benzene	ND	74	72	97	74	77	104	7
Toluene	ND	540	530	98	540	540	100	2
Ethyl Benzene	ND	120	110	92	120	120	100	8
Xylenes	ND	840	810	96	840	870	104	8





Chain of Custody Record

Laboratory CTC Method of Shipment 1/1/99

Address _____ Shipment No. _____

Airbill No. _____

Client The Earth Technology Corporation Cooler No. _____

Address 13900 Alton Parkway, Suite 120 Project Manager JOL SENER

Irvine, CA 92718 Telephone No. _____

Project Name CASLINE Fax No. _____

Project Number 94-1107 Samplers: (Signature) [Signature]

Lab job no.: _____

Date 1/6/99

Page 1 of _____

Field Sample Number	Location/ Depth	Date	Time	Sample Type	Type/Size of Container	Preservation					EPA Gas	EPA 8	EPA Diesel	EPA M	EPA N	Total					
						Temp.	Chemical														
EB-7-D1	5'	1/1/99	8:28		SAMPLE TAKEN 2.5 LITERS DIESEL	100					X	X							7.06.3	~~7.06.3~~	
EB-7-D2	10'		8:37																6.86.3	~~6.86.3~~	
EB-7-D3	15'		8:43							X			X	X	X	X			7.06.1	~~7.06.1~~	5 min / with 1/1
EB-7-D4	20'		8:48																7.06.4		
EB-7-D5	25'		8:56																7.06.5		
EB-7-D6	30'		9:03							X	X								7.26.6		
EB-15-D1	6'		1:00																5.45.4		
EB-15-D2	10'		1:16																5.45.4		
EB-15-D3	15'		1:25							X	X	~~W~~									
EB-15-D4	20'		1:50																		

Relinquished by:
Signature [Signature]
Printed JOHN SENER
Company EARTHTECH/PROJECT MGR
Reason _____

Date 1/1/99
Received by:
Signature [Signature]
Printed J. SENER
Company CTC
Date 1/1/99
Received by:
Signature [Signature]
Printed [Signature]
Company CTC

Relinquished by:
Signature [Signature]
Printed [Signature]
Company CTC
Reason ANALYSIS

Date 1/1/99
Received by:
Signature [Signature]
Printed [Signature]
Company CTC

Comments: 7.06.3

Relinquished by:
Signature _____
Printed _____
Company _____
Reason _____

Date _____
Received by:
Signature _____
Printed _____
Company _____

CKY INC., ANALYTICAL LABORATORIES, 630 Maple Ave., Torrance, Calif 90503 Tel (310) 618 8880 F (310) 618 8881

SAMPLE RECEIPT FORM

[illegible]



CKY incorporated Analytical Laboratories

Date: 01-19-1994
CKY Batch No.: 94A017

Attn.: K. Khilnani

Earth Technology Corp.
13900 Alton Parkway #120
Irvine, CA 92718

Subject: Laboratory Report
Project: Metro Rail - East Side Ext.

Enclosed is the Laboratory report for samples received on 01/05/94. The samples were received in coolers with ice and intact; the chain-of-custody forms were properly filled out. The data reported include :

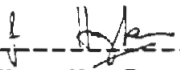
Sample ID	Control No.	Matrix	Analysis
-----	-----	-----	-----
EB12-D1	A017-01	soil	Hold
EB12-D2	A017-02	soil	EPA M8015 (CCID) EPA 8020
EB12-D3	A017-03	soil	Hold
EB12-D4	A017-04	soil	Hold
EB12-D5	A017-05	soil	Hold
EB12-D6	A017-06	soil	Hold
EB12-D7	A017-07	soil	Hold
EB12-D8	A017-08	soil	Hold
EB12-D9	A017-09	soil	Hold
EB12-D10	A017-10	soil	EPA M8015 (CCID) EPA 8020 EPA 8240 EPA 8270 Organic Pb Oil & Grease Sulfide Chloride Sulfate

Sample ID	Control No.	Matrix	Analysis
-----	-----	-----	-----
EB12-D11	A017-11	soil	Hold
EB12-D12	A017-12	soil	Hold
EB12-D13	A017-13	soil	EPA M8015 (CCID) EPA 8020
EB12-D14	A017-14	soil	EPA M8015 (CCID) EPA 8240 EPA 8270 Organic Pb Oil & Grease Sulfide Sulfate Chloride
EB12-D15	A017-15	soil	EPA M8015 (CCID) EPA 8020

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,



Kam Y. Pang, Ph.D.
Laboratory Director

P.S. - All analyses requested for the above referenced project have been completed. Therefore, unless instructed, the remaining portions of the samples will be disposed after fifteen (15) days from the date of this report.

EPA METHOD M8015
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```
=====
CLIENT:      Earth Technology Corp.          DATE COLLECTED: 01/05/94
PROJECT:     Metro Rail - East Side Ext.     DATE RECEIVED:  01/05/94
BATCH NO.:   94A017                         DATE EXTRACTED: 01/06/94
MATRIX:     SOIL                           DATE ANALYZED:  01/09/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	H-C RANGE	% RECOVERY		DL FACTOR	MDL (mg/kg)
				SURR1	SURR2		
EB12-D2	A017-02**	ND	NA	102	102	1	5
EB12-D10	A017-10	ND	NA	138	132	1	5
EB12-D13	A017-13	ND	NA	103	101	1	5
EB12-D14	A017-14*	ND	NA	102	101	1	5
EB12-D15	A017-15***	ND	NA	96	92	1	5
DBLK1S	A014-B1S**	ND	NA	107	104	1	5
DBLK2S	A014-B2S*	ND	NA	100	103	1	5

QC LIMIT: 60-140 55-150

SURR1 : Bromobenzene
 SURR2 : Hexacosane
 MDL : Method Detection Limit
 * : Extracted on 01/07/94
 ** : Analyzed on 01/08/94
 *** : Analyzed on 01/10/94



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

=====

BATCH NO.:	94A017	DATE RECEIVED:	NA
SAMPLE ID:	LCS03	DATE EXTRACTED:	01/12/94
CONTROL NO.:	A014-L3S	DATE ANALYZED:	01/12/94

ACCESSION: 94A014 94A015 94A016 94A017

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
DIESEL	250	228	91



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

BATCH NO.: 94A017 DATE RECEIVED: NA
SAMPLE ID: EB1-D3 DATE EXTRACTED: 01/06/94
CONTROL NO.: A014-03 DATE ANALYZED: 01/08/94

ACCESSION: 94A014 94A015 94A016 94A017

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
DIESEL	ND	250	231	92	250	248	99	7



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

=====

BATCH NO.:	94A017	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/06/94
CONTROL NO.:	A014-L1S	DATE ANALYZED:	01/08/94

ACCESSION: 94A014 94A015 94A016 94A017

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
DIESEL	250	269	108



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

=====

BATCH NO.:	94A017	DATE RECEIVED:	NA
SAMPLE ID:	LCS02	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A014-L2S	DATE ANALYZED:	01/08/94
ACCESSION:	94A014	94A015	94A016 94A017

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
DIESEL	250	250	100



EPA METHOD 8020
BTEX

```
=====
CLIENT:      Earth Technology Corp.          DATE COLLECTED: 01/05/94
PROJECT:     Metro Rail - East Side Ext.    DATE RECEIVED:  01/05/94
BATCH NO.:   94A017                        DATE EXTRACTED: NA
MATRIX:      SOIL                          DATE ANALYZED:   01/11/94
=====
```

SAMPLE ID	CNTRL NO	DL F	MDL	BENZ	RESULTS TOLUENE	(ug/kg) E BENZ	XYLS	% Rcvy SURR
EB12-D2	A017-02	1	5	ND	ND	ND	ND	100
EB12-D10	A017-10	1	5	ND	ND	ND	ND	86
EB12-D13	A017-13*	1	5	ND	ND	ND	ND	98
EB12-D15	A017-15	1	5	ND	ND	ND	ND	117
VBLK1S	A017-B1S	1	5	ND	ND	ND	ND	98
VBLK2S	A017-B2S*	1	5	ND	ND	ND	ND	110

DL F : Dilution Factor
 SURR : Bromofluorobenzene
 MDL : Method Detection Limit
 * Analyzed on 01/10/94



CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8020
MATRIX: SOIL

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Benzene	ND	250	240	96	250	255	102	6
Toluene	ND	250	245	98	250	270	108	10
EthylBenzene	ND	250	250	100	250	275	110	10
Xylenes	ND	750	750	100	750	830	111	10

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8020
MATRIX: SOIL

BATCH NO.: 94A017 DATE RECEIVED: NA
SAMPLE ID: EB1-D3 DATE EXTRACTED: NA
CONTROL NO.: A014-03 DATE ANALYZED: 01/11/94

ACCESSION: 94A014 94A015 94A016 94A017

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Benzene	ND	250	306	122	250	321	128	5
Toluene	ND	250	255	102	250	263	105	3
EthylBenzene	ND	250	249	100	250	259	104	4
Xylenes	ND	750	754	101	750	784	105	4

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 602/8020
MATRIX: WATER

=====

BATCH NO.:	94A017	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A008-L1W	DATE ANALYZED:	01/10/94
ACCESSION:	94A008 94A009 94A017		

PARAMETER	TRUE VALUE (ug/L)	FOUND VALUE (ug/L)	LCS RECOVERY (%)
-----	-----	-----	-----
Benzene	50	52	104
Toluene	50	51	102
EthylBenzene	50	50	100
Xylenes	150	151	101



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 602/8020
MATRIX: WATER

=====

BATCH NO.:	94A017	DATE RECEIVED:	NA
SAMPLE ID:	LCS02	DATE EXTRACTED:	NA
CONTROL NO.:	A014-L1W	DATE ANALYZED:	01/11/94

ACCESSION: 94A014 94A015 94A016 94A017

PARAMETER	TRUE VALUE (ug/L)	FOUND VALUE (ug/L)	LCS RECOVERY (%)
-----	-----	-----	-----
Benzene	50	48	96
Toluene	50	49	98
EthylBenzene	50	50	100
Xylenes	150	149	99



EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/05/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/05/94
BATCH NO.:   94A017                     DATE EXTRACTED:  NA
SAMPLE ID:   EB12-D10                   DATE ANALYZED:  01/11/94
CONTROL NO.: A017-10                    MATRIX:        SOIL
% MOISTURE:  NA                         DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	97	70-121
Toluene -d8	108	84-138
Bromofluorobenzene	96	59-113

MDL : Method Detection Limit



EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/05/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/05/94
BATCH NO.:   94A017                     DATE EXTRACTED:  NA
SAMPLE ID:   EB12-D14                   DATE ANALYZED:  01/11/94
CONTROL NO.: A017-14                     MATRIX:        SOIL
% MOISTURE:  NA                         DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	95	70-121
Toluene -d8	104	84-138
Bromofluorobenzene	100	59-113

MDL : Method Detection Limit

EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED:  NA
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  NA
BATCH NO.:   94A017                     DATE EXTRACTED:  NA
SAMPLE ID:   VBLK1S                     DATE ANALYZED:   01/10/94
CONTROL NO.: A017-B1S                   MATRIX:        SOIL
% MOISTURE:  NA                         DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	92	70-121
Toluene -d8	107	84-138
Bromofluorobenzene	94	59-113

MDL : Method Detection Limit

CK

EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

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CLIENT:      Earth Technology Corp.      DATE COLLECTED:  NA
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  NA
BATCH NO.:   94A017                     DATE EXTRACTED:  NA
SAMPLE ID:   VBLK2S                     DATE ANALYZED:   01/11/94
CONTROL NO.: A017-B2S                   MATRIX:        SOIL
% MOISTURE:  NA                         DILUTION FACTOR: 1
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PARAMETERS -----	results (ug/kg) -----	MDL (ug/kg) -----
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0

SURROGATE PARAMETER -----	% RECOVERY -----	QC LIMIT -----
1,2 Dichloroethane-d4	94	70-121
Toluene -d8	107	84-138
Bromofluorobenzene	97	59-113

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8240
MATRIX: SOIL

BATCH NO.: 94A017 DATE RECEIVED: NA
SAMPLE ID: EB14A-D4 DATE EXTRACTED: NA
CONTROL NO.: A022-04 DATE ANALYZED: 01/10/94

ACCESSION: 94A014 94A015 94A016 94A017 94A022 94A027

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
1,1-DCE	ND	50	67	134	50	63	126	6
Benzene	ND	50	69	138	50	69	138	0
TCE	ND	50	65	130	50	63	126	3
Toluene	ND	50	64	128	50	62	124	3
Chlorobenzene	ND	50	61	122	50	61	122	0

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8240
MATRIX: SOIL

BATCH NO.: 94A017 DATE RECEIVED: NA
SAMPLE ID: EB8F#5 DATE EXTRACTED: NA
CONTROL NO.: A032-05 DATE ANALYZED: 01/12/94

ACCESSION: 94A017 94A032

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
1,1-DCE	ND	50	53	106	50	53	106	0
Benzene	29	50	85	112	50	75	92	20
TCE	ND	50	56	112	50	56	112	0
Toluene	185*	50	185	NA	50	146	NA	NA
Chlorobenzene	ND	50	54	108	50	53	106	2

* Interference from the comp. present in the sample

CKY

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8240
MATRIX: WATER

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BATCH NO.:	94A017	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A017-L1W	DATE ANALYZED:	01/10/94

ACCESSION: 94A017 94A014 94A022

PARAMETER	TRUE VALUE (ug/L)	FOUND VALUE (ug/L)	LCS RECOVERY (%)	QC LIMIT
-----	-----	-----	-----	-----
1,1-DCE	50	64	128	61-145
Benzene	50	58	116	76-127
TCE	50	56	112	71-120
Toluene	50	56	112	76-125
Chlorobenzene	50	53	106	75-130

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8240
MATRIX: WATER

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BATCH NO.:    94A017          DATE RECEIVED:  NA
SAMPLE ID:    LCS02          DATE EXTRACTED: NA
CONTROL NO.:  A017-L2W      DATE ANALYZED:  01/11/94
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ACCESSION: 94A017 94A014 94A022

PARAMETER	TRUE VALUE (ug/L)	FOUND VALUE (ug/L)	LCS RECOVERY (%)	QC LIMIT
-----	-----	-----	-----	-----
1,1-DCE	50	56	112	61-145
Benzene	50	55	110	76-127
TCE	50	51	102	71-120
Toluene	50	55	110	76-125
Chlorobenzene	50	50	100	75-130

EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: 01/05/94
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: 01/05/94
BATCH NO.: 94A017	DATE EXTRACTED: 01/11/94
SAMPLE ID: EB12-D10	DATE ANALYZED: 01/12/94
CONTROL NO.: A017-10	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg) RESULT MDL	PARAMETERS	(ug/kg) RESULT MDL
N-Nitrosodimethylamine	ND (330)	3-Nitroaniline	ND (800)
Pyridine	ND (330)	Acenaphthene	ND (330)
Aniline	ND (330)	2,4-Dinitrophenol	ND (800)
Phenol	ND (330)	4-Nitrophenol	ND (800)
bis(2-Chloroethyl)ether	ND (330)	Dibenzofuran	ND (330)
2-Chlorophenol	ND (330)	2,4-Dinitrotoluene	ND (330)
1,3-Dichlorobenzene	ND (330)	Diethylphthalate	ND (330)
1,4-Dichlorobenzene	ND (330)	4-Chlorophenyl-phenylether	ND (330)
Benzyl Alcohol	ND (330)	Fluorene	ND (330)
1,2-Dichlorobenzene	ND (330)	1,2-Diphenylhydrazine	ND (800)
2-Methylphenol	ND (330)	4-Nitroaniline	ND (800)
2,2'-oxybis(1-Chloropropane)	ND (330)	4,6-Dinitro-2-methylphenol	ND (800)
4-Methylphenol	ND (330)	N-Nitrosodiphenylamine (1)	ND (330)
N-Nitroso-di-n-propylamine	ND (330)	4-Bromophenyl-phenylether	ND (330)
Hexachloroethane	ND (330)	Hexachlorobenzene	ND (330)
Nitrobenzene	ND (330)	Pentachlorophenol	ND (800)
Isophorene	ND (330)	Benzidine	ND (800)
2-Nitrophenol	ND (330)	Phenanthrene	ND (800)
2,4-Dimethylphenol	ND (330)	Anthracene	ND (330)
Benzoic Acid	ND (800)	Carbazole	ND (800)
bis(2-Chloroethoxy)methane	ND (330)	Di-n-butylphthalate	ND (330)
2,4-Dichlorophenol	ND (330)	Fluoranthene	ND (330)
1,2,4-Trichlorobenzene	ND (330)	4,4'-Methylene Dianiline	ND (800)
Naphthalene	ND (330)	Pyrene	ND (330)
4-Chloroaniline	ND (330)	Bisphenol-A	ND (330)
Hexachloro-1,3-butadiene	ND (330)	Butylbenzylphthalate	ND (330)
4-Chloro-3-methylphenol	ND (330)	3,3'-Dichlorobenzidine	ND (330)
2-Methylnaphthalene	ND (330)	Benzo(a)anthracene	ND (330)
Hexachlorocyclopentadiene	ND (330)	Chrysene	ND (330)
2,4,6-Trichlorophenol	ND (330)	bis(2-Ethylhexyl)phthalate	ND (330)
2,4,5-Trichlorophenol	ND (800)	Di-n-octylphthalate	ND (330)
2-Chloronaphthalene	ND (330)	Benz(b)fluoranthene	ND (330)
1-Chloronaphthalene	ND (330)	Benzo(k)fluoranthene	ND (330)
2-Nitroaniline	ND (800)	Benzo(a)pyrene	ND (330)
Dimethylphthalate	ND (330)	Indeno(1,2,3-cd)pyrene	ND (330)
Acenaphthylene	ND (330)	Dibenzo(a,h)anthracene	ND (330)
2,6-Dinitrotoluene	ND (330)	Benzo(g,h,i)perylene	ND (330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	82	23-120
2-Fluorobiphenyl	81	30-115
Terphenyl-d14	97	18-137
Phenol-d5	80	24-113
2-Fluorophenol	82	25-121
2,4,6-Tribromophenol	73	19-122

MDL: Method Detection Limit

CKY

CKY INC., ANALYTICAL LABORATORIES, 630 Maple Ave., Torrance, Calif. 90503 Tel: (310) 618-8889 Fax: (310) 618-0818

EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: 01/05/94
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: 01/05/94
BATCH NO.: 94A017	DATE EXTRACTED: 01/07/94
SAMPLE ID: EB12-D14	DATE ANALYZED: 01/09/94
CONTROL NO.: A017-14	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg) RESULT MDL	PARAMETERS	(ug/kg) RESULT MDL
N-Nitrosodimethylamine	ND (330)	3-Nitroaniline	ND (800)
Pyridine	ND (330)	Acenaphthene	ND (330)
Aniline	ND (330)	2,4-Dinitrophenol	ND (800)
Phenol	ND (330)	4-Nitrophenol	ND (800)
bis(2-Chloroethyl)ether	ND (330)	Dibenzofuran	ND (330)
2-Chlorophenol	ND (330)	2,4-Dinitrotoluene	ND (330)
1,3-Dichlorobenzene	ND (330)	Diethylphthalate	ND (330)
1,4-Dichlorobenzene	ND (330)	4-Chlorophenyl-phenylether	ND (330)
Benzyl Alcohol	ND (330)	Fluorene	ND (330)
1,2-Dichlorobenzene	ND (330)	1,2-Diphenylhydrazine	ND (800)
2-Methylphenol	ND (330)	4-Nitroaniline	ND (800)
2,2'-oxybis(1-Chloropropane)	ND (330)	4,6-Dinitro-2-methylphenol	ND (800)
4-Methylphenol	ND (330)	N-Nitrosodiphenylamine (1)	ND (330)
N-Nitroso-di-n-propylamine	ND (330)	4-Bromophenyl-phenylether	ND (330)
Hexachloroethane	ND (330)	Hexachlorobenzene	ND (330)
Nitrobenzene	ND (330)	Pentachlorophenol	ND (800)
Isophorene	ND (330)	Benzidine	ND (800)
2-Nitrophenol	ND (330)	Phenanthrene	ND (800)
2,4-Dimethylphenol	ND (330)	Anthracene	ND (330)
Benzoic Acid	ND (800)	Carbazole	ND (800)
bis(2-Chloroethoxy)methane	ND (330)	Di-n-butylphthalate	520 (330)
2,4-Dichlorophenol	ND (330)	Fluoranthene	ND (330)
1,2,4-Trichlorobenzene	ND (330)	4,4'-Methylene Dianiline	ND (800)
Naphthalene	ND (330)	Pyrene	ND (330)
4-Chloroaniline	ND (330)	Bisphenol-A	ND (330)
Hexachloro-1,3-butadiene	ND (330)	Butylbenzylphthalate	ND (330)
4-Chloro-3-methylphenol	ND (330)	3,3'-Dichlorobenzidine	ND (330)
2-Methylnaphthalene	ND (330)	Benzo(a)anthracene	ND (330)
Hexachlorocyclopentadiene	ND (330)	Chrysene	ND (330)
2,4,6-Trichlorophenol	ND (330)	bis(2-Ethylhexyl)phthalate	ND (330)
2,4,5-Trichlorophenol	ND (800)	Di-n-octylphthalate	ND (330)
2-Chloronaphthalene	ND (330)	Benz(b)fluoranthene	ND (330)
1-Chloronaphthalene	ND (330)	Benz(k)fluoranthene	ND (330)
2-Nitroaniline	ND (800)	Benzo(a)pyrene	ND (330)
Dimethylphthalate	ND (330)	Indeno(1,2,3-cd)pyrene	ND (330)
Acenaphthylene	ND (330)	Dibenzo(a,h)anthracene	ND (330)
2,6-Dinitrotoluene	ND (330)	Benzo(g,h,i)perylene	ND (330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	80	23-120
2-Fluorobiphenyl	82	30-115
Terphenyl-d14	93	18-137
Phenol-d5	76	24-113
2-Fluorophenol	80	25-121
2,4,6-Tribromophenol	93	19-122

MDL: Method Detection Limit



EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: NA
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: NA
BATCH NO.: 94A017	DATE EXTRACTED: 01/07/94
SAMPLE ID: SBLK1S	DATE ANALYZED: 01/09/94
CONTROL NO.: L084-B1S	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg) RESULT MDL	PARAMETERS	(ug/kg) RESULT MDL
N-Nitrosodimethylamine	ND (330)	3-Nitroaniline	ND (800)
Pyridine	ND (330)	Acenaphthene	ND (330)
Aniline	ND (330)	2,4-Dinitrophenol	ND (800)
Phenol	ND (330)	4-Nitrophenol	ND (800)
bis(2-Chloroethyl)ether	ND (330)	Dibenzofuran	ND (330)
2-Chlorophenol	ND (330)	2,4-Dinitrotoluene	ND (330)
1,3-Dichlorobenzene	ND (330)	Diethylphthalate	ND (330)
1,4-Dichlorobenzene	ND (330)	4-Chlorophenyl-phenylether	ND (330)
Benzyl Alcohol	ND (330)	Fluorene	ND (330)
1,2-Dichlorobenzene	ND (330)	1,2-Diphenylhydrazine	ND (800)
2-Methylphenol	ND (330)	4-Nitroaniline	ND (800)
2,2'-oxybis(1-Chloropropane)	ND (330)	4,6-Dinitro-2-methylphenol	ND (800)
4-Methylphenol	ND (330)	N-Nitrosodiphenylamine (1)	ND (330)
N-Nitroso-di-n-propylamine	ND (330)	4-Bromophenyl-phenylether	ND (330)
Hexachloroethane	ND (330)	Hexachlorobenzene	ND (330)
Nitrobenzene	ND (330)	Pentachlorophenol	ND (800)
Isophorene	ND (330)	Benzidine	ND (800)
2-Nitrophenol	ND (330)	Phenanthrene	ND (800)
2,4-Dimethylphenol	ND (330)	Anthracene	ND (330)
Benzoic Acid	ND (800)	Carbazole	ND (800)
bis(2-Chloroethoxy)methane	ND (330)	Di-n-butylphthalate	1500 (330)
2,4-Dichlorophenol	ND (330)	Fluoranthene	ND (330)
1,2,4-Trichlorobenzene	ND (330)	4,4'-Methylene Dianiline	ND (800)
Naphthalene	ND (330)	Pyrene	ND (330)
4-Chloroaniline	ND (330)	Bisphenol-A	ND (330)
Hexachloro-1,3-butadiene	ND (330)	Butylbenzylphthalate	ND (330)
4-Chloro-3-methylphenol	ND (330)	3,3'-Dichlorobenzidine	ND (330)
2-Methylnaphthalene	ND (330)	Benzo(a)anthracene	ND (330)
Hexachlorocyclopentadiene	ND (330)	Chrysene	ND (330)
2,4,6-Trichlorophenol	ND (330)	bis(2-Ethylhexyl)phthalate	ND (330)
2,4,5-Trichlorophenol	ND (800)	Di-n-octylphthalate	ND (330)
2-Chloronaphthalene	ND (330)	Benz(b)fluoranthene	ND (330)
1-Chloronaphthalene	ND (330)	Benzo(k)fluoranthene	ND (330)
2-Nitroaniline	ND (800)	Benzo(a)pyrene	ND (330)
Dimethylphthalate	ND (330)	Indeno(1,2,3-cd)pyrene	ND (330)
Acenaphthylene	ND (330)	Dibenzo(a,h)anthracene	ND (330)
2,6-Dinitrotoluene	ND (330)	Benzo(g,h,i)perylene	ND (330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	64	23-120
2-Fluorobiphenyl	71	30-115
Terphenyl-d14	103	18-137
Phenol-d5	61	24-113
2-Fluorophenol	61	25-121
2,4,6-Tribromophenol	72	19-122

MDL: Method Detection Limit



EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: NA
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: NA
BATCH NO.: 94A017	DATE EXTRACTED: 01/11/94
SAMPLE ID: SBLK02	DATE ANALYZED: 01/13/94
CONTROL NO.: A017-B2S	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg)		PARAMETERS	(ug/kg)	
	RESULT	MDL		RESULT	MDL
N-Nitrosodimethylamine	ND	(330)	3-Nitroaniline	ND	(800)
Pyridine	ND	(330)	Acenaphthene	ND	(330)
Aniline	ND	(330)	2,4-Dinitrophenol	ND	(800)
Phenol	ND	(330)	4-Nitrophenol	ND	(800)
bis(2-Chloroethyl) ether	ND	(330)	Dibenzofuran	ND	(330)
2-Chlorophenol	ND	(330)	2,4-Dinitrotoluene	ND	(330)
1,3-Dichlorobenzene	ND	(330)	Diethylphthalate	ND	(330)
1,4-Dichlorobenzene	ND	(330)	4-Chlorophenyl-phenylether	ND	(330)
Benzyl Alcohol	ND	(330)	Fluorene	ND	(330)
1,2-Dichlorobenzene	ND	(330)	1,2-Diphenylhydrazine	ND	(800)
2-Methylphenol	ND	(330)	4-Nitroaniline	ND	(800)
2,2'-oxybis(1-Chloropropane)	ND	(330)	4,6-Dinitro-2-methylphenol	ND	(800)
4-Methylphenol	ND	(330)	N-Nitrosodiphenylamine (1)	ND	(330)
N-Nitroso-di-n-propylamine	ND	(330)	4-Bromophenyl-phenylether	ND	(330)
Hexachloroethane	ND	(330)	Hexachlorobenzene	ND	(330)
Nitrobenzene	ND	(330)	Pentachlorophenol	ND	(800)
Isophorene	ND	(330)	Benzidine	ND	(800)
2-Nitrophenol	ND	(330)	Phenanthrene	ND	(800)
2,4-Dimethylphenol	ND	(330)	Anthracene	ND	(330)
Benzoic Acid	ND	(800)	Carbazole	ND	(800)
bis(2-Chloroethoxy)methane	ND	(330)	Di-n-butylphthalate	ND	(330)
2,4-Dichlorophenol	ND	(330)	Fluoranthene	ND	(330)
1,2,4-Trichlorobenzene	ND	(330)	4,4'-Methylene Dianiline	ND	(800)
Naphthalene	ND	(330)	Pyrene	ND	(330)
4-Chloroaniline	ND	(330)	Bisphenol-A	ND	(330)
Hexachloro-1,3-butadiene	ND	(330)	Butylbenzylphthalate	ND	(330)
4-Chloro-3-methylphenol	ND	(330)	3,3'-Dichlorobenzidine	ND	(330)
2-Methylnaphthalene	ND	(330)	Benzo(a)anthracene	ND	(330)
Hexachlorocyclopentadiene	ND	(330)	Chrysene	ND	(330)
2,4,6-Trichlorophenol	ND	(330)	bis(2-Ethylhexyl)phthalate	ND	(330)
2,4,5-Trichlorophenol	ND	(800)	Di-n-octylphthalate	ND	(330)
2-Chloronaphthalene	ND	(330)	Benz(b)fluoranthene	ND	(330)
1-Chloronaphthalene	ND	(330)	Benzo(k)fluoranthene	ND	(330)
2-Nitroaniline	ND	(800)	Benzo(a)pyrene	ND	(330)
Dimethylphthalate	ND	(330)	Indeno(1,2,3-cd)pyrene	ND	(330)
Acenaphthylene	ND	(330)	Dibenzo(a,h)anthracene	ND	(330)
2,6-Dinitrotoluene	ND	(330)	Benzo(g,h,i)perylene	ND	(330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	39	23-120
2-Fluorobiphenyl	44	30-115
Terphenyl-d14	109	18-137
Phenol-d5	40	24-113
2-Fluorophenol	44	25-121
2,4,6-Tribromophenol	45	19-122

MDL: Method Detection Limit

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8270
MATRIX: SOIL

BATCH NO.: 94A017 DATE RECEIVED: NA
SAMPLE ID: 29-A115902 DATE EXTRACTED: 01/07/94
CONTROL NO.: A019-02 DATE ANALYZED: 01/08/94

ACCESSION: 94A008 94A009 94A010 94A011 94A014 94A015
94A016 94A017 94A019

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Phenol	ND	5000	3130	63	5000	2880	58	8
2-Chlorophenol	ND	5000	3310	66	5000	3000	60	10
1,4-DCB	ND	3300	2145	65	3300	2010	61	6
N-Nitroso-di-n	ND	3300	2460	75	3300	2300	70	7
1,2,4-TCB	ND	3300	2460	75	3300	2310	70	7
4-Chl-3-Methy	ND	5000	3780	76	5000	3610	72	5
Acenaphthene	ND	3300	2520	76	3300	2330	71	7
2,4-Dinitrotol	ND	3300	2960	90	3300	3040	92	2
Pentachlorophe	ND	5000	4620	92	5000	4320	86	7
Pyrene	ND	3300	3010	91	3300	3540	107	16

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8270
MATRIX: SOIL

```
=====
BATCH NO.:      94A017      DATE RECEIVED:    NA
SAMPLE ID:      LCS01      DATE EXTRACTED:   01/07/94
CONTROL NO.:    A008-L1S    DATE ANALYZED:    01/07/94
```

ACCESSION: 94A008 94A009 94A010 94A011 94A014 94A015
 94A016 94A017

PARAMETER	TRUE VALUE (ug/kg)	FOUND VALUE (ug/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Phenol	5000	3260	65
2-Chlorophenol	5000	3640	73
1,4-DCB	3300	2440	73
N-Nitroso-di-n-	3300	2750	83
1,2,4-TCB	3300	2760	83
4-Chloro-3-Methy	5000	2560	77
Acenaphthene	3300	2710	81
4-Nitrophenol	5000	4970	99
2,4-Dinitrotol	3300	3380	101
Pentachlorophe	5000	5060	101
Pyrene	3300	3020	91



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8270
MATRIX: SOIL

BATCH NO.:	94A017	DATE RECEIVED:	NA
SAMPLE ID:	LCS02	DATE EXTRACTED:	01/11/94
CONTROL NO.:	A017-L2S	DATE ANALYZED:	01/12/94

ACCESSION: 94A017 94A021 94A022 94A027

Parameter	TRUE VALUE (ug/kg)	FOUND VALUE (ug/kg)	LCS RECOVERY (%)
Phenol	5000	2932	59
2-Chlorophenol	5000	3058	61
1,4-DCB	3300	2076	63
N-Nitroso-di-n	3300	2659	81
1,2,4-TCB	3300	2199	67
4-Chl-3-Methy	5000	3785	76
Acenaphthene	3300	2652	80
4-Nitrophenol	5000	6171	123
2,4-Dinitrotol	3300	3786	115
Pentachlorophe	5000	6443	129
Pyrene	3300	3973	120



DHS METHOD
ORGANIC LEAD

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/05/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/05/94
BATCH NO.:   94A017                     DATE EXTRACTED:  01/12/94
MATRIX:      SOIL                       DATE ANALYZED:   01/12/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB12-D10	A017-10	ND	1	.5
FBLK1S	A017-B1S	ND	1	.5

MDL : Method Detection Limit



DHS METHOD
ORGANIC LEAD

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/05/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED: 01/05/94
BATCH NO.:    94A017                     DATE EXTRACTED: 01/07/94
MATRIX:       SOIL                       DATE ANALYZED:  01/07/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB12-D14	A017-14	ND	1	.5
FBLK1S	A008-B1S	ND	1	.5

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
SPIKE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A017	DATE RECEIVED:	NA
SAMPLE ID:	FBLK1S	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A008-B1S	DATE ANALYZED:	01/07/94

ACCESSION:	94A008	94A009	94A010	94A011	94A014	94A015	94A016
	94A017	94A021	94A022				

PARAMETER	SAMPLE RESULT (mg/kg)	SPIKE CONC. (mg/kg)	SPIKE RESULT (mg/kg)	SPIKE RECRY. (%)
-----	-----	-----	-----	-----
Lead	ND	5.0	5.2	104



CKY QUALITY CONTROL DATA
SPIKE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A017	DATE RECEIVED:	NA
SAMPLE ID:	FBLK1S	DATE EXTRACTED:	01/12/94
CONTROL NO.:	A017-B1S	DATE ANALYZED:	01/12/94

ACCESSION: 94A017 94A027 94A031 94A032 94A034 94A035 94A039
94A033

PARAMETER	SAMPLE RESULT (mg/kg)	SPIKE CONC. (mg/kg)	SPIKE RESULT (mg/kg)	SPIKE RECRY. (%)
-----	-----	-----	-----	-----
Lead	ND	5.0	5.0	100



CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A017	DATE RECEIVED:	NA
SAMPLE ID:	D-6	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A008-06	DATE ANALYZED:	01/07/94
ACCESSION:	94A008 94A009 94A010 94A011 94A014 94A015 94A016 94A017 94A021 94A022		

PARAMETER	SAMPLE (mg/kg)	DUP. SAMPLE (mg/kg)	RPD (%)
-----	-----	-----	-----
Lead	ND	ND	0

CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

```
=====
```

BATCH NO.:	94A017	DATE RECEIVED:	NA
SAMPLE ID:	EB-10B-D4	DATE EXTRACTED:	01/12/94
CONTROL NO.:	A027-17	DATE ANALYZED:	01/12/94

ACCESSION: 94A017 94A027 94A031 94A032 94A034 94A035 94A039
94A033

PARAMETER	SAMPLE (mg/kg)	DUP. SAMPLE (mg/kg)	RPD (%)
-----	-----	-----	-----
Lead	ND	ND	0



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A017	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A008-L1S	DATE ANALYZED:	01/07/94
ACCESSION:	94A008 94A009 94A010 94A011 94A014 94A015 94A016		
	94A017 94A021 94A022		

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Lead	100	94	94



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A017	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/12/94
CONTROL NO.:	A017-L1S	DATE ANALYZED:	01/12/94

ACCESSION: 94A017 94A027 94A031 94A032 94A034 94A035 94A039
94A033

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Lead	100	91	91



EPA METHOD 413.2
OIL & GREASE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/05/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/05/94
BATCH NO.:    94A017                     DATE EXTRACTED:  01/07/94
MATRIX:       SOIL                       DATE ANALYZED:   01/12/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB12-D10	A017-10*	ND	1	10
EB12-D14	A017-14	ND	1	10
TBLK1S	A014-B1S	ND	1	10
TBLK2S	A017-B2S*	ND	1	10

MDL : Method Detection Limit

* : Extracted on 01/24/94 and analyzed on 01/25/94

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 413.2
MATRIX: SOIL

BATCH NO.: 94A017 DATE RECEIVED: NA
SAMPLE ID: EB-6-D-9 DATE EXTRACTED: 01/07/94
CONTROL NO.: A015-09 DATE ANALYZED: 01/12/94

ACCESSION: 94A009 94A014 94A015 94A016 94A017

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
TROG	ND	150	139	93	150	135	90	3



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 413.2
MATRIX: SOIL

=====

BATCH NO.:	94A017	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A009-L1S	DATE ANALYZED:	01/12/94

ACCESSION: 94A009 94A014 94A015 94A016 94A017

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
TROG	150	139	93

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 413.2
MATRIX: SOIL

=====

BATCH NO.:	94A017	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/24/94
CONTROL NO.:	A017-L1S	DATE ANALYZED:	01/25/94
ACCESSION:	94A017		

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
TROG	150	162	108



EPA METHOD 376.1
SULFIDE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/05/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/05/94
BATCH NO.:    94A017                     DATE EXTRACTED:  01/11/94
MATRIX:       SOIL                       DATE ANALYZED:   01/11/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB12-D14	A017-14	ND	2*	0.4
WBLK1S	A014-B1S	ND	1	0.2

MDL : Method Detection Limit
* : Inadequate amount of sample



EPA METHOD 376.1
SULFIDE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/05/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/05/94
BATCH NO.:   94A017                     DATE EXTRACTED:  01/12/94
MATRIX:      SOIL                       DATE ANALYZED:   01/12/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB12-D10	A017-10	ND	2*	0.4
WBLK1S	A017-B2S	ND	1	0.2

MDL : Method Detection Limit
* : Inadequate amount of sample

CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 376.1
MATRIX: SOIL

=====

BATCH NO.:	94A017	DATE RECEIVED:	NA
SAMPLE ID:	EB1-D5	DATE EXTRACTED:	01/11/94
CONTROL NO.:	A014-05	DATE ANALYZED:	01/11/94

ACCESSION: 94A014 94A015 94A016 94A017 94A021 94A022

PARAMETER	Sample (mg/kg)	Dup. Sample (mg/kg)	RPD (%)
-----	-----	-----	-----
SULFIDE	ND	ND	0



CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 376.1
MATRIX: SOIL

=====

BATCH NO.:	94A017	DATE RECEIVED:	NA
SAMPLE ID:	EB-20-D-11	DATE EXTRACTED:	01/12/94
CONTROL NO.:	A035-11	DATE ANALYZED:	01/12/94

ACCESSION: 94A017 94A027 94A031 94A034 94A035

PARAMETER	Sample (mg/kg)	Dup. Sample (mg/kg)	RPD (%)
-----	-----	-----	-----
SULFIDE	8.1	7.2	12



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 376.1
MATRIX: WATER

=====

BATCH NO.:	94A017	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A014-L1W	DATE ANALYZED:	01/11/94
ACCESSION:	94A014	94A015	94A016
	94A017	94A021	94A022

PARAMETER	TRUE VALUE (mg/L)	FOUND VALUE (mg/L)	LCS RECOVERY (%)
-----	-----	-----	-----
SULFIDE	4.0	3.7	93



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 376.1
MATRIX: WATER

=====

BATCH NO.:	94A017	DATE RECEIVED:	NA
SAMPLE ID:	LCS02	DATE EXTRACTED:	NA
CONTROL NO.:	A017-L1W	DATE ANALYZED:	01/12/94

ACCESSION: 94A017 94A027 94A031 94A034 94A035

PARAMETER	TRUE VALUE (mg/L)	FOUND VALUE (mg/L)	LCS RECOVERY (%)
-----	-----	-----	-----
SULFIDE	4.0	3.9	97



EPA METHOD 300
CHLORIDE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/05/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/05/94
BATCH NO.:    94A017                     DATE EXTRACTED:  01/11/94
MATRIX:       SOIL                       DATE ANALYZED:   01/11/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB12-D10	A017-10*	19	2	0.4
EB12-D14	A017-14	18.7	1	0.2
WBLK1S	A014-B1S	ND	1	0.2
WBLK2S	A017-B1S*	ND	1	0.2

MDL : Method Detection Limit

* : Extracted and analyzed on 01/12/94



EPA METHOD 300
SULFATE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/05/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/05/94
BATCH NO.:   94A017                     DATE EXTRACTED:  01/11/94
MATRIX:      SOIL                       DATE ANALYZED:   01/11/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB12-D10	A017-10*	78	2	2
EB12-D14	A017-14	17.3	1	1
WBLK1S	A014-B1S	ND	1	1
WBLK2S	A017-B1S*	ND	1	1

MDL : Method Detection Limit

* : Extracted and analyzed on 01/12/94



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: WATER

=====

BATCH NO.:	94A017	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A014-L1W	DATE ANALYZED:	01/11/94

ACCESSION: 94A014 94A015 94A016 94A017 94A021 94A022

PARAMETER	TRUE VALUE (mg/L)	FOUND VALUE (mg/L)	LCS RECOVERY (%)
-----	-----	-----	-----
Sulfate	150	146	97
Chloride	30.0	28.0	93



CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

=====

BATCH NO.:	94A017	DATE RECEIVED:	NA
SAMPLE ID:	EB6-D9	DATE EXTRACTED:	01/11/94
CONTROL NO.:	A015-09	DATE ANALYZED:	01/11/94

ACCESSION: 94A014 94A015 94A016 94A017 94A021 94A022

PARAMETER	Sample (mg/kg)	Dup. Sample (mg/kg)	RPD (%)
-----	-----	-----	-----
Sulfate	25.3	24.0	5
Chloride	42.5	41.3	3



CKY QUALITY CONTROL DATA
SPIKE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

=====

BATCH NO.:	94A017	DATE RECEIVED:	NA
SAMPLE ID:	EB6-D9	DATE EXTRACTED:	01/11/94
CONTROL NO.:	A015-09	DATE ANALYZED:	01/11/94

ACCESSION: 94A014 94A015 94A016 94A017 94A021 94A022

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC
-----	-----	-----	-----	-----
Sulfate	25.3	50.0	70.2	90
Chloride	42.5	50.0	92.4	100

CKY QUALITY CONTROL DATA
SPIKE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

BATCH NO.: 94A017 DATE RECEIVED: 01/05/94
SAMPLE ID: EB12-D10 DATE EXTRACTED: 01/12/94
CONTROL NO.: A017-10 DATE ANALYZED: 01/12/94

ACCESSION: 94A017 94A027 94A031 94A034 94A035

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC
Sulfate	77.9	20.0	97.6	99
Chloride	18.9	20.0	37.4	93

CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

=====

BATCH NO.:	94A017	DATE RECEIVED:	01/05/94
SAMPLE ID:	EB12-D10	DATE EXTRACTED:	01/12/94
CONTROL NO.:	A017-10	DATE ANALYZED:	01/12/94

ACCESSION: 94A017 94A027 94A031 94A034 94A035

PARAMETER	Sample (mg/kg)	Dup. Sample (mg/kg)	RPD (%)
-----	-----	-----	-----
Sulfate	77.9	76.8	1
Chloride	18.9	19.5	3



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: WATER

=====

BATCH NO.:	94A017	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A017-L1W	DATE ANALYZED:	01/12/94

ACCESSION: 94A017 94A027 94A031 94A034 94A035

PARAMETER	TRUE VALUE (mg/L)	FOUND VALUE (mg/L)	LCS RECOVERY (%)
Sulfate	150	141	94
Chloride	30.0	27.8	93



 The Earth Technology Corporation
Laboratory CKY LABORATORY 74A017

Chain of Custody Record

EB-12

Lab job no.: _____
Date 1/5/94
Page 1 of 2

Laboratory CA / LABORATORY Method of Shipment BY AIR

Address _____ Shipment No. _____

Airbill No. _____

Client The Earth Technology Corporation Cooler No. _____

Address 13900 Alton Parkway, Suite 120 Project Manager JOE NEVE

Irvine, CA 92718 Telephone No. _____

Project Name / HEIRIAL LANE SIDE CH. VILL Fax. No.

Project Number 94-1109 Samplers: (Signature) [Signature]

DOE 01-12-94 GZ

[illegible]

	Field Sample Number	Location/ Depth	Date	Time	Sample Type	Type/Size of Container	Preservation	
							Temp.	Chemical
1	EB 12 - 01	5'	✓ 5/4	11:30	MIC	2" X 4" SSTUBE		
2	EB 12 - 02	10'		12:00				
3	EB 12 - 03	15'		12:10				
4	EB 12 - 04	20'		12:20				
5	EB 12 - 05	25'		12:50				
6	EB 12 - 06	30'		1:10				
7	EB 12 - 07	35'		1:20				
8	EB 12 - 08	40'		1:30				
9	EB 12 - 09	45'		1:40				
10	EB 12 - 10	50'		2:00				
11	EB 12 - 11	55'		2:05				
12	EB 12 - 12	60'	✓	2:25				

Relinquished by: <i>[Signature]</i>	Date: <i>1/5/81</i>
Signature: <i>[Signature]</i>	
Printed: <i>DAVID LEWIS, INC.</i>	
Company: <i>SC EVVIRVIRVIRVIRVIR</i>	Time:
Reason: <i>TRAVELING 7:24 AM</i>	

Received by:	<u>Chen H.</u>	Date	<u>1/6/91</u>
Signature	<u>[Signature]</u>	Time	<u>1:30</u>
Printed	<u>CHEN H.</u>		
Company	<u>IBM</u>		

Relinquished by: Chang Hing
Signature: [Signature]
Printed: CHANG HING
Company: CHANG HING
Reason: ANALYST

Date	Received by:
1/5/84	Signature <u>C. J. Anderson</u>
Time	Printed <u>C. J. Anderson</u>
5:22	Company <u>Chap</u>

Date	1-5-74
Time	173

Comments: $T = 5^{\circ}\text{C}$

Relinquished by: _____
Signature _____
Printed _____
Company _____
Reason _____

Date	Received by:
	Signature _____
Time	Printed _____
	Company _____

Date
Time



CKY incorporated Analytical Laboratories

Date: 01-20-1994
CKY Batch No.: 94A022

Attn.: K. Khilnani

Earth Technology Corp.
13900 Alton Parkway #120
Irvine, CA 92718

Subject: Laboratory Report
Project: Metro Rail - East Side Ext.

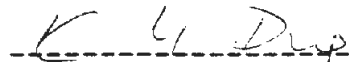
Enclosed is the Laboratory report for samples received on 01/06/94. The samples were received in coolers with ice and intact; the chain-of-custody forms were properly filled out. The data reported include :

Sample ID	Control No.	Matrix	Analysis
-----	-----	-----	-----
EB14A-D1	A022-01	soil	EPA M8015 (CCID) EPA 8020
EB14A-D2	A022-02	soil	Hold
EB14A-D3	A022-03	soil	Hold
EB14A-D4	A022-04	soil	EPA M8015 (CCID) EPA 8240 EPA 8270 Organic Pb Oil & Grease Sulfide Sulfate Chloride
EB14A-D5	A022-05	soil	Hold
EB14A-D6	A022-06	soil	Hold
EB14A-D7	A022-07	soil	Hold
EB14A-D8	A022-08	soil	EPA M8015 (CCID) EPA 8020

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,



Kam Y. Pang, Ph.D.
Laboratory Director

P.S. - All analyses requested for the above referenced project have been completed. Therefore, unless instructed, the remaining portions of the samples will be disposed after fifteen (15) days from the date of this report.

EPA METHOD M8015
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```
=====
CLIENT:      Earth Technology Corp.          DATE COLLECTED: 01/06/94
PROJECT:     Metro Rail - East Side Ext.    DATE RECEIVED:  01/06/94
BATCH NO.:   94A022                        DATE EXTRACTED: 01/10/94
MATRIX:      SOIL                          DATE ANALYZED:  01/11/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	H-C RANGE	% RECOVERY		DL FACTOR	MDL (mg/kg)
				SURR1	SURR2		
EB14A-D1	A022-01	ND	N.A.	96	101	1	5
EB14A-D4	A022-04	ND	N.A.	96	94	1	5
EB14A-D8	A022-08	ND	N.A.	97	101	1	5
DBLK1S	A022-B1S	ND	N.A.	96	112	1	5

SURR1 : Bromobenzene
 SURR2 : Hexacosane
 MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

=====

BATCH NO.:	94A022	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/10/94
CONTROL NO.:	A021-L1S	DATE ANALYZED:	01/11/94
ACCESSION:	94A021 94A022		

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
DIESEL	250	239	96



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

=====

BATCH NO.:	94A022	DATE RECEIVED:	NA
SAMPLE ID:	EB-7-D6	DATE EXTRACTED:	01/10/94
CONTROL NO.:	A021-06	DATE ANALYZED:	01/11/94

ACCESSION: 94A021 94A022

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
-----	-----	-----	-----	-----	-----	-----	-----	-----
DIESEL	ND	250	225	90	250	222	89	1



EPA METHOD 8020
BTEX

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CLIENT:      Earth Technology Corp.          DATE COLLECTED: 01/06/94
PROJECT:     Metro Rail - East Side Ext.     DATE RECEIVED:  01/06/94
BATCH NO.:   94A022                         DATE EXTRACTED: NA
MATRIX:      SOIL                           DATE ANALYZED:  01/10/94
=====
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SAMPLE ID	CNTRL NO	DL F	MDL	BENZ	RESULTS TOLUENE	(ug/kg) E BENZ	XYLS	% Rcvy SURR
-----	-----	----	-----	-----	-----	-----	-----	-----
EB14A-D1	A022-01	1	5	ND	ND	ND	ND	75
EB14A-D8	A022-08	1	5	ND	ND	ND	ND	66
VBLK1S	A022-B1S	1	5	ND	ND	ND	ND	99

DL F : Dilution Factor
SURR : Bromofluorobenzene
MDL : Method Detection Limit

CKY

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8020
MATRIX: SOIL

BATCH NO.: 94A022 DATE RECEIVED: 01/06/94
SAMPLE ID: EB14A-D1 DATE EXTRACTED: NA
CONTROL NO.: A022-01 DATE ANALYZED: 01/10/94

ACCESSION: 94A010 94A011 94A021 94A022

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Benzene	ND	74	72	97	74	77	104	7
Toluene	ND	540	530	98	540	540	100	2
EthylBenzene	ND	120	110	92	120	120	100	9
Xylenes	ND	840	810	96	840	870	104	7



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 602/8020
MATRIX: WATER

=====

BATCH NO.:	94A022	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A021-L1W	DATE ANALYZED:	01/10/94

ACCESSION: 94A010 94A011 94A021 94A022

PARAMETER	TRUE VALUE (ug/L)	FOUND VALUE (ug/L)	LCS RECOVERY (%)
-----	-----	-----	-----
Benzene	50	48	96
Toluene	50	48	96
ChloroBenzene	50	51	102



EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

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=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/06/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/06/94
BATCH NO.:   94A022                     DATE EXTRACTED:  NA
SAMPLE ID:   EB14A-D4                   DATE ANALYZED:  01/10/94
CONTROL NO.: A022-04                     MATRIX:        SOIL
% MOISTURE:  NA                         DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
-----	-----	-----
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
-----	-----	-----
1,2 Dichloroethane-d4	91	70-121
Toluene -d8	106	84-138
Bromofluorobenzene	99	59-113

MDL : Method Detection Limit

EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

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=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED:  NA
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:   NA
BATCH NO.:   94A022                     DATE EXTRACTED:  NA
SAMPLE ID:   VBLK1S                     DATE ANALYZED:   01/10/94
CONTROL NO.: A022-B1S                   MATRIX:         SOIL
% MOISTURE:  NA                         DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	92	70-121
Toluene -d8	107	84-138
Bromofluorobenzene	94	59-113

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8240
MATRIX: SOIL

BATCH NO.: 94A022 DATE RECEIVED: 01/06/94
SAMPLE ID: EB14A-D4 DATE EXTRACTED: NA
CONTROL NO.: A022-04 DATE ANALYZED: 01/10/94

ACCESSION: 94A014 94A015 94A016 94A022 94A027

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
1,1-DCE	ND	50	67	134	50	63	126	6
Benzene	ND	50	69	138	50	69	138	0
TCE	ND	50	65	130	50	63	126	3
Toluene	ND	50	64	128	50	62	124	3
Chlorobenzene	ND	50	61	122	50	61	122	0



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8240
MATRIX: WATER

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BATCH NO.:	94A022	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A014-L1W	DATE ANALYZED:	01/10/94

ACCESSION: 94A014 94A017 94A022

PARAMETER	TRUE VALUE (ug/L)	FOUND VALUE (ug/L)	LCS RECOVERY (%)	QC LIMIT
1,1-DCE	50	64	128	61-145
Benzene	50	58	116	76-127
TCE	50	56	112	71-120
Toluene	50	56	112	76-125
Chlorobenzene	50	53	106	75-130



EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

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=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/06/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/06/94
BATCH NO.:   94A022                     DATE EXTRACTED: 01/11/94
SAMPLE ID:   EB14A-D4                   DATE ANALYZED:  01/12/94
CONTROL NO.: A022-04                     MATRIX:         SOIL
% MOISTURE:  NA                         DILUTION FACTOR: 1
=====
```

PARAMETERS	(ug/kg) RESULT MDL	PARAMETERS	(ug/kg) RESULT MDL
N-Nitrosodimethylamine	ND (330)	3-Nitroaniline	ND (800)
Pyridine	ND (330)	Acenaphthene	ND (330)
Aniline	ND (330)	2,4-Dinitrophenol	ND (800)
Phenol	ND (330)	4-Nitrophenol	ND (800)
bis(2-Chloroethyl)ether	ND (330)	Dibenzofuran	ND (330)
2-Chlorophenol	ND (330)	2,4-Dinitrotoluene	ND (330)
1,3-Dichlorobenzene	ND (330)	Diethylphthalate	ND (330)
1,4-Dichlorobenzene	ND (330)	4-Chlorophenyl-phenylether	ND (330)
Benzyl Alcohol	ND (330)	Fluorene	ND (330)
1,2-Dichlorobenzene	ND (330)	1,2-Diphenylhydrazine	ND (800)
2-Methylphenol	ND (330)	4-Nitroaniline	ND (800)
2,2'-oxybis(1-Chloropropane)	ND (330)	4,6-Dinitro-2-methylphenol	ND (800)
4-Methylphenol	ND (330)	N-Nitrosodiphenylamine (1)	ND (330)
N-Nitroso-di-n-propylamine	ND (330)	4-Bromophenyl-phenylether	ND (330)
Hexachloroethane	ND (330)	Hexachlorobenzene	ND (330)
Nitrobenzene	ND (330)	Pentachlorophenol	ND (800)
Isophorone	ND (330)	Benzidine	ND (800)
2-Nitrophenol	ND (330)	Phenanthrene	ND (800)
2,4-Dimethylphenol	ND (330)	Anthracene	ND (330)
Benzoic Acid	ND (800)	Carbazole	ND (800)
bis(2-Chloroethoxy)methane	ND (330)	Di-n-butylphthalate	ND (330)
2,4-Dichlorophenol	ND (330)	Fluoranthene	ND (330)
1,2,4-Trichlorobenzene	ND (330)	4,4'-Methylene Dianiline	ND (800)
Naphthalene	ND (330)	Pyrene	ND (330)
4-Chloroaniline	ND (330)	Bisphenol-A	ND (330)
Hexachloro-1,3-butadiene	ND (330)	Butylbenzylphthalate	ND (330)
4-Chloro-3-methylphenol	ND (330)	3,3'-Dichlorobenzidine	ND (330)
2-Methylnaphthalene	ND (330)	Benzo(a)anthracene	ND (330)
Hexachlorocyclopentadiene	ND (330)	Chrysene	ND (330)
2,4,6-Trichlorophenol	ND (330)	bis(2-Ethylhexyl)phthalate	ND (330)
2,4,5-Trichlorophenol	ND (800)	Di-n-octylphthalate	ND (330)
2-Chloronaphthalene	ND (330)	Benz(b)fluoranthene	ND (330)
1-Chloronaphthalene	ND (330)	Benzo(k)fluoranthene	ND (330)
2-Nitroaniline	ND (800)	Benzo(a)pyrene	ND (330)
Dimethylphthalate	ND (330)	Indeno(1,2,3-cd)pyrene	ND (330)
Acenaphthylene	ND (330)	Dibenzo(a,h)anthracene	ND (330)
2,6-Dinitrotoluene	ND (330)	Benzo(g,h,i)perylene	ND (330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	75	23-120
2-Fluorobiphenyl	82	30-115
Terphenyl-d14	116	18-137
Phenol-d5	77	24-113
2-Fluorophenol	86	25-121
2,4,6-Tribromophenol	96	19-122

MDL: Method Detection Limit

CKY

CKY INC., ANALYTICAL LABORATORIES, 630 Maple Ave., Torrance, Calif. 90503 Tel. (310) 618-8889 Fax: (310) 618-0818

EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: NA
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: NA
BATCH NO.: 94A022	DATE EXTRACTED: 01/11/94
SAMPLE ID: SBLK01	DATE ANALYZED: 01/13/94
CONTROL NO.: A017-B1S	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg) RESULT MDL	PARAMETERS	(ug/kg) RESULT MDL
N-Nitrosodimethylamine	ND (330)	3-Nitroaniline	ND (800)
Pyridine	ND (330)	Acenaphthene	ND (330)
Aniline	ND (330)	2,4-Dinitrophenol	ND (800)
Phenol	ND (330)	4-Nitrophenol	ND (800)
bis(2-Chloroethyl) ether	ND (330)	Dibenzofuran	ND (330)
2-Chlorophenol	ND (330)	2,4-Dinitrotoluene	ND (330)
1,3-Dichlorobenzene	ND (330)	Diethylphthalate	ND (330)
1,4-Dichlorobenzene	ND (330)	4-Chlorophenyl-phenylether	ND (330)
Benzyl Alcohol	ND (330)	Fluorene	ND (330)
1,2-Dichlorobenzene	ND (330)	1,2-Diphenylhydrazine	ND (800)
2-Methylphenol	ND (330)	4-Nitroaniline	ND (800)
2,2'-oxybis(1-Chloropropane)	ND (330)	4,6-Dinitro-2-methylphenol	ND (800)
4-Methylphenol	ND (330)	N-Nitrosodiphenylamine (1)	ND (330)
N-Nitroso-di-n-propylamine	ND (330)	4-Bromophenyl-phenylether	ND (330)
Hexachloroethane	ND (330)	Hexachlorobenzene	ND (330)
Nitrobenzene	ND (330)	Pentachlorophenol	ND (800)
Isophorone	ND (330)	Benizidine	ND (800)
2-Nitrophenol	ND (330)	Phenanthrene	ND (800)
2,4-Dimethylphenol	ND (330)	Anthracene	ND (330)
Benzoic Acid	ND (800)	Carbazole	ND (800)
bis(2-Chloroethoxy)methane	ND (330)	Di-n-butylphthalate	ND (330)
2,4-Dichlorophenol	ND (330)	Fluoranthene	ND (330)
1,2,4-Trichlorobenzene	ND (330)	4,4'-Methylene Dianiline	ND (800)
Naphthalene	ND (330)	Pyrene	ND (330)
4-Chloroaniline	ND (330)	Bisphenol-A	ND (330)
Hexachloro-1,3-butadiene	ND (330)	Butylbenzylphthalate	ND (330)
4-Chloro-3-methylphenol	ND (330)	3,3'-Dichlorobenzidine	ND (330)
2-Methylnaphthalene	ND (330)	Benzo(a)anthracene	ND (330)
Hexachlorocyclopentadiene	ND (330)	Chrysene	ND (330)
2,4,6-Trichlorophenol	ND (330)	bis(2-Ethylhexyl)phthalate	ND (330)
2,4,5-Trichlorophenol	ND (800)	Di-n-octylphthalate	ND (330)
2-Chloronaphthalene	ND (330)	Benz(b)fluoranthene	ND (330)
1-Chloronaphthalene	ND (330)	Benzo(k)fluoranthene	ND (330)
2-Nitroaniline	ND (800)	Benzo(a)pyrene	ND (330)
Dimethylphthalate	ND (330)	Indeno(1,2,3-cd)pyrene	ND (330)
Acenaphthylene	ND (330)	Dibenzo(a,h)anthracene	ND (330)
2,6-Dinitrotoluene	ND (330)	Benzo(g,h,i)perylene	ND (330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	39	23-120
2-Fluorobiphenyl	44	30-115
Terphenyl-d14	109	18-137
Phenol-d5	40	24-113
2-Fluorophenol	44	25-121
2,4,6-Tribromophenol	45	19-122

MDL: Method Detection Limit

CKY

CKY INC., ANALYTICAL LABORATORIES, 630 Maple Ave., Torrance, Calif. 90503 Tel: (310) 618-8889 Fax: (310) 618-0818

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8270
MATRIX: SOIL

BATCH NO.:	94A022	DATE RECEIVED:	NA
SAMPLE ID:	SBLK01	DATE EXTRACTED:	01/11/94
CONTROL NO.:	A017-B1S	DATE ANALYZED:	01/12/94

ACCESSION: 94A017 94A021 94A022 94A027

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Phenol	ND	5000	2932	59	5000	2282	46	25
2-Chlorophenol	ND	5000	3058	61	5000	2378	48	25
1,4-DCB	ND	3300	2076	63	3300	1546	47	29
N-Nitroso-di-n	ND	3300	2659	81	3300	2169	66	20
1,2,4-TCB	ND	3300	2199	67	3300	1611	49	31
4-Chl-3-Methyl	ND	5000	3785	76	5000	2916	58	26
Acenaphthene	ND	3300	2652	80	3300	2061	62	25
4-Nitrophenol	ND	5000	6171	123	5000	4396	88	34
2,4-Dinitrotol	ND	3300	3786	115	3300	2775	84	31
Pentachlorophe	ND	5000	6443	129	5000	4418	88	37
Pyrene	ND	3300	3973	120	3300	2924	89	30

DHS METHOD
ORGANIC LEAD

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=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/06/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/06/94
BATCH NO.:    94A022                     DATE EXTRACTED:  01/07/94
MATRIX:      SOIL                       DATE ANALYZED:   01/07/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB14A-D4	A022-04	ND	1	.5
FBLK1S	A008-B1S	ND	1	.5

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A022	DATE RECEIVED:	NA
SAMPLE ID:	D-6	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A008-06	DATE ANALYZED:	01/07/94
ACCESSION:	94A008 94A009 94A010 94A011 94A014 94A015 94A016 94A017 94A021 94A022		

PARAMETER	SAMPLE (mg/kg)	DUP. SAMPLE (mg/kg)	RPD (%)
-----	-----	-----	-----
Lead	ND	ND	0



CKY QUALITY CONTROL DATA
SPIKE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A022	DATE RECEIVED:	NA
SAMPLE ID:	FBLK1S	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A008-B1S	DATE ANALYZED:	01/07/94

ACCESSION: 94A008 94A009 94A010 94A011 94A014 94A015 94A016
94A017 94A021 94A022

PARAMETER	SAMPLE RESULT (mg/kg)	SPIKE CONC. (mg/kg)	SPIKE RESULT (mg/kg)	SPIKE RECRY. (%)
-----	-----	-----	-----	-----
Lead	ND	5.0	5.2	104



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.: 94A022 DATE RECEIVED: NA
SAMPLE ID: LCS01 DATE EXTRACTED: 01/07/94
CONTROL NO.: A008-L1S DATE ANALYZED: 01/07/94

ACCESSION: 94A008 94A009 94A010 94A011 94A014 94A015 94A016
 94A017 94A021 94A022

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Lead	100	94	94



EPA METHOD 413.2
OIL & GREASE

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=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/06/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/06/94
BATCH NO.:    94A022                     DATE EXTRACTED:  01/11/94
MATRIX:      SOIL                       DATE ANALYZED:   01/12/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB14A-D4	A022-04	ND	1	10
TBLK1S	A021-B1S	ND	1	10

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 413.2
MATRIX: SOIL

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BATCH NO.:	94A022	DATE RECEIVED:	01/06/94
SAMPLE ID:	EB14A-D4	DATE EXTRACTED:	01/11/94
CONTROL NO.:	A022-04	DATE ANALYZED:	01/12/94

ACCESSION: 94A021 94A022 94A027 94A031 94A034 94A035

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
-----	-----	-----	-----	-----	-----	-----	-----	-----
TROG	ND	150	138	92	150	137	91	1



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 413.2
MATRIX: SOIL

=====

BATCH NO.:	94A022	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/11/94
CONTROL NO.:	A021-L1S	DATE ANALYZED:	01/12/94

ACCESSION: 94A021 94A022 94A027 94A031 94A034 94A035

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
TROG	150	141	94



EPA METHOD 376.1
SULFIDE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/06/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/06/94
BATCH NO.:   94A022                     DATE EXTRACTED:  01/11/94
MATRIX:     SOIL                        DATE ANALYZED:   01/11/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB14A-D4	A022-04	ND	2*	.4
WBLK1S	A014-B1S	ND	1	.2

MDL : Method Detection Limit
* Inadequate amount of sample

CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 376.1
MATRIX: SOIL

=====

BATCH NO.:	94A022	DATE RECEIVED:	NA
SAMPLE ID:	EB1-D5	DATE EXTRACTED:	01/11/94
CONTROL NO.:	A014-05	DATE ANALYZED:	01/11/94

ACCESSION: 94A014 94A015 94A016 94A017 94A021 94A022

PARAMETER	Sample (mg/kg)	Dup. Sample (mg/kg)	RPD (%)
-----	-----	-----	-----
SULFIDE	ND	ND	0



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 376.1
MATRIX: WATER

=====

BATCH NO.:	94A022	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A014-L1W	DATE ANALYZED:	01/11/94
ACCESSION:	94A014	94A015	94A016 94A017 94A021 94A022

PARAMETER	TRUE VALUE (mg/L)	FOUND VALUE (mg/L)	LCS RECOVERY (%)
SULFIDE	4.0	3.7	93

EPA METHOD 300
SULFATE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/06/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/06/94
BATCH NO.:    94A022                     DATE EXTRACTED:  01/11/94
MATRIX:      SOIL                       DATE ANALYZED:   01/11/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB14A-D4	A022-04	102	3	3
WBLK1S	A014-B1S	ND	1	1

MDL : Method Detection Limit



EPA METHOD 300
CHLORIDE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/06/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/06/94
BATCH NO.:   94A022                     DATE EXTRACTED:  01/11/94
MATRIX:     SOIL                        DATE ANALYZED:   01/11/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB14A-D4	A022-04	19.2	3	.6
WBLK1S	A014-B1S	ND	1	.2

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

=====

BATCH NO.:	94A022	DATE RECEIVED:	NA
SAMPLE ID:	EB6-D9	DATE EXTRACTED:	01/11/94
CONTROL NO.:	A015-09	DATE ANALYZED:	01/11/94

ACCESSION: 94A014 94A015 94A016 94A017 94A021 94A022

PARAMETER	Sample (mg/kg)	Dup. Sample (mg/kg)	RPD (%)
-----	-----	-----	-----
Sulfate	25.3	24.0	5
Chloride	42.5	41.3	3

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

=====

BATCH NO.:	94A022	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A014-L1S	DATE ANALYZED:	01/11/94

ACCESSION: 94A014 94A015 94A016 94A017 94A021 94A022

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
Sulfate	150	146	97
Chloride	30.0	28.0	93



CKY QUALITY CONTROL DATA
SPIKE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

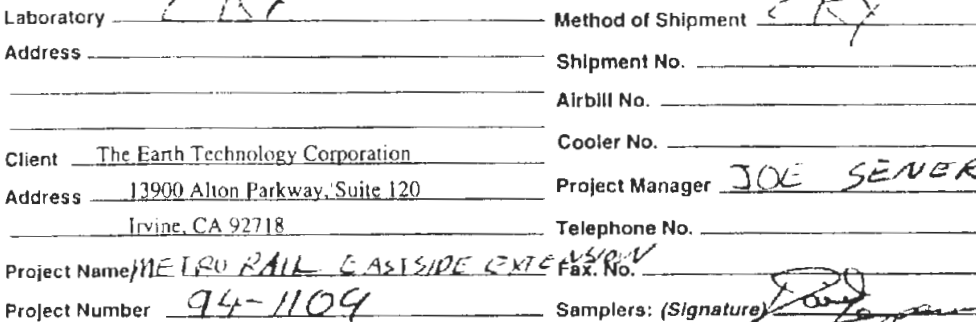
=====

BATCH NO.:	94A022	DATE RECEIVED:	NA
SAMPLE ID:	EB6-D9	DATE EXTRACTED:	01/11/94
CONTROL NO.:	A015-09	DATE ANALYZED:	01/11/94

ACCESSION: 94A014 94A015 94A016 94A017 94A021 94A022

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC
-----	-----	-----	-----	-----
Sulfate	25.3	50.0	70.2	90
Chloride	42.5	50.0	92.4	100





for $\alpha \in \mathbb{R}$, $\beta \in \mathbb{C}$

Lab job no.: _____
Date 1/6/94
Page 1 of 1

[illegible]



CKY incorporated Analytical Laboratories

Date: 01-20-1994
CKY Batch No.: 94A034

Attn.: K. Khilnani

Earth Technology Corp.
13900 Alton Parkway #120
Irvine, CA 92718

Subject: Laboratory Report
Project: Metro Rail - East Side Ext.

Enclosed is the Laboratory report for samples received on 01/10/94. The samples were received in coolers with ice and intact; the chain-of-custody forms were properly filled out. The data reported include :

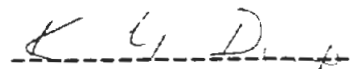
Sample ID	Control No.	Matrix	Analysis
-----	-----	-----	-----
EB-11#1	A034-01	soil	EPA M8015 (CCID) EPA 8020
EB-11#2	A034-02	soil	Hold
EB-11#3	A034-03	soil	EPA M8015 (CCID) EPA 8020
EB-11#4	A034-04	soil	EPA M8015 (CCID) EPA 8240 EPA 8270 Organic Pb Oil & Grease Sulfide Sulfate Chloride
EB-11#5	A034-05	soil	Hold
EB-11#6	A034-06	soil	Hold
EB-16#1	A034-07	soil	EPA M8015 (CCID) EPA 8020
EB-16#2	A034-08	soil	Hold
EB-16#3	A034-09	soil	EPA M8015 (CCID)

Sample ID -----	Control No. -----	Matrix -----	Analysis -----
EB-16#4	A034-10	soil	EPA 8020 Hold
EB-16#5	A034-11	soil	EPA M8015 (CCID) EPA 8240 EPA 8270 Organic Pb Oil & Grease Sulfide Sulfate Chloride
EB-16#6	A034-12	soil	Hold
EB-18#1	A034-13	soil	EPA M8015 (CCID) EPA 8020
EB-18#2	A034-14	soil	EPA M8015 (CCID) EPA 8240 EPA 8270 Organic Pb Oil & Grease Sulfide Sulfate Chloride
EB-18#3	A034-15	soil	Hold
EB-18#4	A034-16	soil	EPA M8015 (CCID) EPA 8020
EB-18#5	A034-17	soil	Hold

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,



Kam Y. Pang, Ph.D.
Laboratory Director

P.S. - All analyses requested for the above referenced project have been completed. Therefore, unless instructed, the remaining portions of the samples will be disposed after fifteen (15) days from the date of this report.

EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: NA
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: NA
BATCH NO.: 94A034	DATE EXTRACTED: 01/14/94
SAMPLE ID: SBLK01	DATE ANALYZED: 01/15/94
CONTROL NO.: A031-B1S	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg)		PARAMETERS	(ug/kg)	
	RESULT	MDL		RESULT	MDL
N-Nitrosodimethylamine	ND	(330)	3-Nitroaniline	ND	(800)
Pyridine	ND	(330)	Acenaphthene	ND	(330)
Aniline	ND	(330)	2,4-Dinitrophenol	ND	(800)
Phenol	ND	(330)	4-Nitrophenol	ND	(800)
bis(2-Chloroethyl) ether	ND	(330)	Dibenzofuran	ND	(330)
2-Chlorophenol	ND	(330)	2,4-Dinitrotoluene	ND	(330)
1,3-Dichlorobenzene	ND	(330)	Diethylphthalate	ND	(330)
1,4-Dichlorobenzene	ND	(330)	4-Chlorophenyl-phenylether	ND	(330)
Benzyl Alcohol	ND	(330)	Fluorene	ND	(330)
1,2-Dichlorobenzene	ND	(330)	1,2-Diphenylhydrazine	ND	(800)
2-Methylphenol	ND	(330)	4-Nitroaniline	ND	(800)
2,2'-oxybis(1-Chloropropane)	ND	(330)	4,6-Dinitro-2-methylphenol	ND	(800)
4-Methylphenol	ND	(330)	N-Nitrosodiphenylamine (1)	ND	(330)
N-Nitroso-di-n-propylamine	ND	(330)	4-Bromophenyl-phenylether	ND	(330)
Hexachloroethane	ND	(330)	Hexachlorobenzene	ND	(330)
Nitrobenzene	ND	(330)	Pentachlorophenol	ND	(800)
Isophorone	ND	(330)	Benzidine	ND	(800)
2-Nitrophenol	ND	(330)	Phenanthrene	ND	(800)
2,4-Dimethylphenol	ND	(330)	Anthracene	ND	(330)
Benzoic Acid	ND	(800)	Carbazole	ND	(800)
bis(2-Chloroethoxy) methane	ND	(330)	Di-n-butylphthalate	680	(330)
2,4-Dichlorophenol	ND	(330)	Fluoranthene	ND	(330)
1,2,4-Trichlorobenzene	ND	(330)	4,4'-Methylene Dianiline	ND	(800)
Naphthalene	ND	(330)	Pyrene	ND	(330)
4-Chloroaniline	ND	(330)	Bisphenol-A	ND	(330)
Hexachloro-1,3-butadiene	ND	(330)	Butylbenzylphthalate	ND	(330)
4-Chloro-3-methylphenol	ND	(330)	3,3'-Dichlorobenzidine	ND	(330)
2-Methylnaphthalene	ND	(330)	Benzo(a)anthracene	ND	(330)
Hexachlorocyclopentadiene	ND	(330)	Chrysene	ND	(330)
2,4,6-Trichlorophenol	ND	(330)	bis(2-Ethylhexyl)phthalate	ND	(330)
2,4,5-Trichlorophenol	ND	(800)	Di-n-octylphthalate	ND	(330)
2-Chloronaphthalene	ND	(330)	Benz(b)fluoranthene	ND	(330)
1-Chloronaphthalene	ND	(330)	Benzo(k)fluoranthene	ND	(330)
2-Nitroaniline	ND	(800)	Benzo(a)pyrene	ND	(330)
Dimethylphthalate	ND	(330)	Indeno(1,2,3-cd)pyrene	ND	(330)
Acenaphthylene	ND	(330)	Dibenzo(a,h)anthracene	ND	(330)
2,6-Dinitrotoluene	ND	(330)	Benzo(g,h,i)perylene	ND	(330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	65	23-120
2-Fluorobiphenyl	65	30-115
Terphenyl-d14	77	18-137
Phenol-d5	66	24-113
2-Fluorophenol	64	25-121
2,4,6-Tribromophenol	65	19-122

MDL: Method Detection Limit

CKY

CKY INC., ANALYTICAL LABORATORIES, 630 Maple Ave., Torrance, Calif. 90503 Tel. (310) 618-8889 Fax: (310) 618-0818

EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

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=====
CLIENT:      Earth Technology Corp.          DATE COLLECTED: 01/08/94
PROJECT:     Metro Rail - East Side Ext.     DATE RECEIVED:  01/10/94
BATCH NO.:   94A034                         DATE EXTRACTED: 01/14/94
SAMPLE ID:   EB-18#2                        DATE ANALYZED:  01/15/94
CONTROL NO.: A034-14                        MATRIX:         SOIL
% MOISTURE:  NA                             DILUTION FACTOR: 1
=====
```

PARAMETERS	(ug/kg)	PARAMETERS	(ug/kg)
RESULT MDL		RESULT MDL	
N-Nitrosodimethylamine	ND (330)	3-Nitroaniline	ND (800)
Pyridine	ND (330)	Acenaphthene	ND (330)
Aniline	ND (330)	2,4-Dinitrophenol	ND (800)
Phenol	ND (330)	4-Nitrophenol	ND (800)
bis(2-Chloroethyl) ether	ND (330)	Dibenzofuran	ND (330)
2-Chlorophenol	ND (330)	2,4-Dinitrotoluene	ND (330)
1,3-Dichlorobenzene	ND (330)	Diethylphthalate	ND (330)
1,4-Dichlorobenzene	ND (330)	4-Chlorophenyl-phenylether	ND (330)
Benzyl Alcohol	ND (330)	Fluorene	ND (330)
1,2-Dichlorobenzene	ND (330)	1,2-Diphenylhydrazine	ND (800)
2-Methylphenol	ND (330)	4-Nitroaniline	ND (800)
2,2'-oxybis(1-Chloropropane)	ND (330)	4,6-Dinitro-2-methylphenol	ND (800)
4-Methylphenol	ND (330)	N-Nitrosodiphenylamine (1)	ND (330)
N-Nitroso-di-n-propylamine	ND (330)	4-Bromophenyl-phenylether	ND (330)
Hexachloroethane	ND (330)	Hexachlorobenzene	ND (330)
Nitrobenzene	ND (330)	Pentachlorophenol	ND (800)
Isophorone	ND (330)	Benzidine	ND (800)
2-Nitrophenol	ND (330)	Phenanthrene	ND (800)
2,4-Dimethylphenol	ND (330)	Anthracene	ND (330)
Benzoic Acid	ND (800)	Carbazole	ND (800)
bis(2-Chloroethoxy)methane	ND (330)	Di-n-butylphthalate	470 (330)
2,4-Dichlorophenol	ND (330)	Fluoranthene	ND (330)
1,2,4-Trichlorobenzene	ND (330)	4,4'-Methylene Dianiline	ND (800)
Naphthalene	ND (330)	Pyrene	ND (330)
4-Chloroaniline	ND (330)	Bisphenol-A	ND (330)
Hexachloro-1,3-butadiene	ND (330)	Butylbenzylphthalate	ND (330)
4-Chloro-3-methylphenol	ND (330)	3,3'-Dichlorobenzidine	ND (330)
2-Methylnaphthalene	ND (330)	Benzo(a)anthracene	ND (330)
Hexachlorocyclopentadiene	ND (330)	Chrysene	ND (330)
2,4,6-Trichlorophenol	ND (330)	bis(2-Ethylhexyl)phthalate	ND (330)
2,4,5-Trichlorophenol	ND (800)	Di-n-octylphthalate	ND (330)
2-Chloronaphthalene	ND (330)	Benz(b)fluoranthene	ND (330)
1-Chloronaphthalene	ND (330)	Benzo(k)fluoranthene	ND (330)
2-Nitroaniline	ND (800)	Benzo(a)pyrene	ND (330)
Dimethylphthalate	ND (330)	Indeno(1,2,3-cd)pyrene	ND (330)
Acenaphthylene	ND (330)	Dibenzo(a,h)anthracene	ND (330)
2,6-Dinitrotoluene	ND (330)	Benzo(g,h,i)perylene	ND (330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	37	23-120
2-Fluorobiphenyl	41	30-115
Terphenyl-d14	77	18-137
Phenol-d5	44	24-113
2-Fluorophenol	38	25-121
2,4,6-Tribromophenol	53	19-122

MDL: Method Detection Limit

CKY

CKY INC., ANALYTICAL LABORATORIES, 630 Maple Ave., Torrance, Calif. 90503 Tel. (310) 618-8889 Fax: (310) 618-0818

EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: 01/08/94
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: 01/10/94
BATCH NO.: 94A034	DATE EXTRACTED: 01/14/94
SAMPLE ID: EB-16#5	DATE ANALYZED: 01/15/94
CONTROL NO.: A034-11	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg) RESULT MDL	PARAMETERS	(ug/kg) RESULT MDL
N-Nitrosodimethylamine	ND (330)	3-Nitroaniline	ND (800)
Pyridine	ND (330)	Acenaphthene	ND (330)
Aniline	ND (330)	2,4-Dinitrophenol	ND (800)
Phenol	ND (330)	4-Nitrophenol	ND (800)
bis(2-Chloroethyl) ether	ND (330)	Dibenzofuran	ND (330)
2-Chlorophenol	ND (330)	2,4-Dinitrotoluene	ND (330)
1,3-Dichlorobenzene	ND (330)	Diethylphthalate	ND (330)
1,4-Dichlorobenzene	ND (330)	4-Chlorophenyl-phenylether	ND (330)
Benzyl Alcohol	ND (330)	Fluorene	ND (330)
1,2-Dichlorobenzene	ND (330)	1,2-Diphenylhydrazine	ND (800)
2-Methylphenol	ND (330)	4-Nitroaniline	ND (800)
2,2'-oxybis(1-Chloropropane)	ND (330)	4,6-Dinitro-2-methylphenol	ND (800)
4-Methylphenol	ND (330)	N-Nitrosodiphenylamine (1)	ND (330)
N-Nitroso-di-n-propylamine	ND (330)	4-Bromophenyl-phenylether	ND (330)
Hexachloroethane	ND (330)	Hexachlorobenzene	ND (330)
Nitrobenzene	ND (330)	Pentachlorophenol	ND (800)
Isophorone	ND (330)	Benzidine	ND (800)
2-Nitrophenol	ND (330)	Phenanthrene	ND (800)
2,4-Dimethylphenol	ND (330)	Anthracene	ND (330)
Benzoic Acid	ND (800)	Carbazole	ND (800)
bis(2-Chloroethoxy)methane	ND (330)	Di-n-butylphthalate	ND (330)
2,4-Dichlorophenol	ND (330)	Fluoranthene	ND (330)
1,2,4-Trichlorobenzene	ND (330)	4,4'-Methylene Dianiline	ND (800)
Naphthalene	ND (330)	Pyrene	ND (330)
4-Chloroaniline	ND (330)	Bisphenol-A	ND (330)
Hexachloro-1,3-butadiene	ND (330)	Butylbenzylphthalate	ND (330)
4-Chloro-3-methylphenol	ND (330)	3,3'-Dichlorobenzidine	ND (330)
2-Methylnaphthalene	ND (330)	Benzo(a)anthracene	ND (330)
Hexachlorocyclopentadiene	ND (330)	Chrysene	ND (330)
2,4,6-Trichlorophenol	ND (330)	bis(2-Ethylhexyl)phthalate	ND (330)
2,4,5-Trichlorophenol	ND (800)	Di-n-octylphthalate	ND (330)
2-Chloronaphthalene	ND (330)	Benz(b)fluoranthene	ND (330)
1-Chloronaphthalene	ND (330)	Benzo(k)fluoranthene	ND (330)
2-Nitroaniline	ND (800)	Benzo(a)pyrene	ND (330)
Dimethylphthalate	ND (330)	Indeno(1,2,3-cd)pyrene	ND (330)
Acenaphthylene	ND (330)	Dibenzo(a,h)anthracene	ND (330)
2,6-Dinitrotoluene	ND (330)	Benzo(g,h,i)perylene	ND (330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	27	23-120
2-Fluorobiphenyl	40	30-115
Terphenyl-d14	69	18-137
Phenol-d5	36	24-113
2-Fluorophenol	21	25-121
2,4,6-Tribromophenol	41	19-122

MDL: Method Detection Limit



EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: 01/08/94
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: 01/10/94
BATCH NO.: 94A034	DATE EXTRACTED: 01/14/94
SAMPLE ID: EB-11#4	DATE ANALYZED: 01/15/94
CONTROL NO.: A034-04	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg)		PARAMETERS	(ug/kg)	
	RESULT	MDL		RESULT	MDL
N-Nitrosodimethylamine	ND	(330)	3-Nitroaniline	ND	(800)
Pyridine	ND	(330)	Acenaphthene	ND	(330)
Aniline	ND	(330)	2,4-Dinitrophenol	ND	(800)
Phenol	ND	(330)	4-Nitrophenol	ND	(800)
bis(2-Chloroethyl) ether	ND	(330)	Dibenzofuran	ND	(330)
2-Chlorophenol	ND	(330)	2,4-Dinitrotoluene	ND	(330)
1,3-Dichlorobenzene	ND	(330)	Diethylphthalate	ND	(330)
1,4-Dichlorobenzene	ND	(330)	4-Chlorophenyl-phenylether	ND	(330)
Benzyl Alcohol	ND	(330)	Fluorene	ND	(330)
1,2-Dichlorobenzene	ND	(330)	1,2-Diphenylhydrazine	ND	(800)
2-Methylphenol	ND	(330)	4-Nitroaniline	ND	(800)
2,2'-oxybis(1-Chloropropane)	ND	(330)	4,6-Dinitro-2-methylphenol	ND	(800)
4-Methylphenol	ND	(330)	N-Nitrosodiphenylamine (1)	ND	(330)
N-Nitroso-di-n-propylamine	ND	(330)	4-Bromophenyl-phenylether	ND	(330)
Hexachloroethane	ND	(330)	Hexachlorobenzene	ND	(330)
Nitrobenzene	ND	(330)	Pentachlorophenol	ND	(800)
Isophorone	ND	(330)	Benztidine	ND	(800)
2-Nitrophenol	ND	(330)	Phenanthrene	ND	(800)
2,4-Dimethylphenol	ND	(330)	Anthracene	ND	(330)
Benzoic Acid	ND	(800)	Carbazole	ND	(800)
bis(2-Chloroethoxy) methane	ND	(330)	Di-n-butylphthalate	1500	(330)
2,4-Dichlorophenol	ND	(330)	Fluoranthene	ND	(330)
1,2,4-Trichlorobenzene	ND	(330)	4,4'-Methylene Dianiline	ND	(800)
Naphthalene	ND	(330)	Pyrene	ND	(330)
4-Chloroaniline	ND	(330)	Bisphenol-A	ND	(330)
Hexachloro-1,3-butadiene	ND	(330)	Butylbenzylphthalate	ND	(330)
4-Chloro-3-methylphenol	ND	(330)	3,3'-Dichlorobenzidine	ND	(330)
2-Methylnaphthalene	ND	(330)	Benzo(a)anthracene	ND	(330)
Hexachlorocyclopentadiene	ND	(330)	Chrysene	ND	(330)
2,4,6-Trichlorophenol	ND	(330)	bis(2-Ethylhexyl)phthalate	ND	(330)
2,4,5-Trichlorophenol	ND	(800)	Di-n-octylphthalate	ND	(330)
2-Chloronaphthalene	ND	(330)	Benz(b)fluoranthene	ND	(330)
1-Chloronaphthalene	ND	(330)	Benzo(k)fluoranthene	ND	(330)
2-Nitroaniline	ND	(800)	Benzo(a)pyrene	ND	(330)
Dimethylphthalate	ND	(330)	Indeno(1,2,3-cd)pyrene	ND	(330)
Acenaphthylene	ND	(330)	Dibenzo(a,h)anthracene	ND	(330)
2,6-Dinitrotoluene	ND	(330)	Benzo(g,h,i)perylene	ND	(330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	24	23-120
2-Fluorobiphenyl	29	30-115
Terphenyl-d14	75	18-137
Phenol-d5	31	24-113
2-Fluorophenol	23	25-121
2,4,6-Tribromophenol	31	19-122

MDL: Method Detection Limit

CKY

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8270
MATRIX: SOIL

BATCH NO.: 94A034 DATE RECEIVED: NA
SAMPLE ID: SBLK01 DATE EXTRACTED: 01/14/94
CONTROL NO.: A031-B1S DATE ANALYZED: 01/15/94

ACCESSION: 94A031 94A034 94A035

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Phenol	ND	5000	2687	54	5000	3165	63	16
2-Chlorophenol	ND	5000	2797	56	5000	3247	65	15
1,4-DCB	ND	3300	1820	55	3300	2163	66	17
N-Nitroso-di-n	ND	3300	1927	58	3300	2331	71	19
1,2,4-TCB	ND	3300	1751	53	3300	2113	64	19
4-Chl-3-Methyl	ND	5000	2628	53	5000	3285	66	22
Acenaphthene	ND	3300	1752	53	3300	2103	64	18
4-Nitrophenol	ND	5000	3349	67	5000	4318	86	25
2,4-Dinitrotol	ND	3300	2093	63	3300	2633	80	23
Pentachlorophe	ND	5000	3126	63	5000	3777	76	19
Pyrene	ND	3300	2503	76	3300	2911	88	15



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8270
MATRIX: SOIL

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BATCH NO.:	94A034	DATE RECEIVED:	NA
SAMPLE ID:	SBLK01	DATE EXTRACTED:	01/14/94
CONTROL NO.:	A031-B1S	DATE ANALYZED:	01/15/94

ACCESSION: 94A031 94A034 94A035

PARAMETER	TRUE VALUE (ug/kg)	FOUND VALUE (ug/kg)	LCS RECOVERY (%)
Phenol	5000	2687	54
2-Chlorophenol	5000	2797	56
1,4-DCB	3300	1820	55
N-Nitroso-di-n	3300	1927	58
1,2,4-TCB	3300	1751	53
4-Chl-3-Methyl	5000	2628	53
Acenaphthene	3300	1752	53
4-Nitrophenol	5000	3349	67
2,4-Dinitrotol	3300	2093	63
Pentachlorophe	5000	3126	63
Pyrene	3300	2503	76



EPA METHOD M8015
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```
=====
CLIENT:      Earth Technology Corp.          DATE COLLECTED: 01/08/94
PROJECT:     Metro Rail - East Side Ext.    DATE RECEIVED:  01/10/94
BATCH NO.:   94A034                        DATE EXTRACTED: 01/11/94
MATRIX:      SOIL                          DATE ANALYZED:  01/14/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	H-C RANGE	% RECOVERY		DL FACTOR	MDL (mg/kg)
				SURR1	SURR2		
EB-11#1	A034-01*	ND	N.A.	95	101	1	5
EB-11#3	A034-03*	ND	N.A.	93	84	1	5
EB-11#4	A034-04*	ND	N.A.	92	93	1	5
EB-16#1	A034-07	ND	N.A.	91	95	1	5
EB-16#3	A034-09	ND	N.A.	92	92	1	5
EB-16#5	A034-11	ND	N.A.	92	94	1	5
EB-18#1	A034-13	ND	N.A.	93	95	1	5
EB-18#2	A034-14	ND	N.A.	93	93	1	5
EB-18#4	A034-16	ND	N.A.	93	90	1	5
DBLK1S	A034-B1S*	ND	N.A.	94	94	1	5

SURR1 : Bromobenzene
 SURR2 : Hexacosane
 MDL : Method Detection Limit
 * : Analyzed 01/13/94



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 83015
MATRIX: SOIL

BATCH NO.: 94A034 DATE RECEIVED: NA
SAMPLE ID: EB13A-D8 DATE EXTRACTED: 01/11/94
CONTROL NO.: A031-08 DATE ANALYZED: 01/13/94

ACCESSION: 94A021 94A027 94A031 94A034 94A035

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
DIESEL	ND	250	230	92	250	239	96	4

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

=====

BATCH NO.:	94A034	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/11/94
CONTROL NO.:	A021-L1S	DATE ANALYZED:	01/12/94

ACCESSION: 94A021 94A027 94A031 94A034 94A035

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
DIESEL	250	223	89



EPA METHOD 8020
BTEX

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=====
CLIENT:      Earth Technology Corp.          DATE COLLECTED: 01/08/94
PROJECT:     Metro Rail - East Side Ext.     DATE RECEIVED:  01/10/94
BATCH NO.:   94A034                         DATE EXTRACTED: NA
MATRIX:      SOIL                           DATE ANALYZED:   01/13/94
=====
```

SAMPLE ID	CNTRL NO	DL F	MDL	BENZ	RESULTS TOLUENE	(ug/kg) E BENZ	XYLS	% Rcvy SURR
-----	-----	----	-----	-----	-----	-----	-----	-----
EB-11#1	A034-01	1	5	ND	ND	ND	ND	110
EB-11#3	A034-03	1	5	ND	ND	ND	ND	116
EB-16#1	A034-07	1	5	ND	ND	ND	ND	111
EB-16#3	A034-09	1	5	ND	ND	ND	ND	74
EB-18#1	A034-13	1	5	ND	ND	ND	ND	75
EB-18#4	A034-16	1	5	ND	ND	ND	ND	90
VBLK1S	A034-B1S	1	5	ND	ND	ND	ND	83

DL F : Dilution Factor
SURR : Bromofluorobenzene
MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8020
MATRIX: SOIL

BATCH NO.: 94A034 DATE RECEIVED: 01/10/94
SAMPLE ID: EB-18#1 DATE EXTRACTED: NA
CONTROL NO.: A034-13 DATE ANALYZED: 01/13/94

ACCESSION: 94A031 94A032 94A033 94A034 94A039

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Benzene	ND	250	218	87	250	232	93	6
Toluene	ND	250	226	90	250	240	96	6
EthylBenzene	ND	250	223	89	250	247	99	10
Xylenes	ND	750	670	89	750	740	99	10



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8020
MATRIX: SOIL

=====

BATCH NO.:	94A034	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A032-L1S	DATE ANALYZED:	01/13/94

ACCESSION: 94A032 94A034 94A035 94A039

PARAMETER	TRUE VALUE (ug/kg)	FOUND VALUE (ug/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Benzene	250	225	90
Toluene	250	236	94
EthylBenzene	250	240	96
Xylenes	750	722	96

EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

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=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/08/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/10/94
BATCH NO.:   94A034                     DATE EXTRACTED:  NA
SAMPLE ID:   EB-11#4                     DATE ANALYZED:  01/11/94
CONTROL NO.: A034-04                     MATRIX:        SOIL
% MOISTURE:  NA                           DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	92	70-121
Toluene -d8	111	84-138
Bromofluorobenzene	95	59-113

MDL : Method Detection Limit

CKY

EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/08/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/10/94
BATCH NO.:    94A034                     DATE EXTRACTED:  NA
SAMPLE ID:    EB-16#5                     DATE ANALYZED:   01/11/94
CONTROL NO.:  A034-11                     MATRIX:         SOIL
% MOISTURE:   NA                         DILUTION FACTOR: 1
=====
```

PARAMETERS	RESULTS (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	95	70-121
Toluene -d8	111	84-138
Bromofluorobenzene	96	59-113

MDL : Method Detection Limit

EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/08/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/10/94
BATCH NO.:   94A034                     DATE EXTRACTED:  NA
SAMPLE ID:   EB-18#2                     DATE ANALYZED:  01/11/94
CONTROL NO.: A034-14                     MATRIX:        SOIL
% MOISTURE:  NA                           DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	96	70-121
Toluene -d8	112	84-138
Bromofluorobenzene	90	59-113

MDL : Method Detection Limit



EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

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=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED:  NA
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:   NA
BATCH NO.:   94A034                     DATE EXTRACTED:  NA
SAMPLE ID:    VBLK1S                     DATE ANALYZED:   01/11/94
CONTROL NO.:  A034-B1S                   MATRIX:         SOIL
% MOISTURE:   NA                         DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	94	70-121
Toluene -d8	107	84-138
Bromofluorobenzene	92	59-113

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8240
MATRIX: WATER

BATCH NO.: 94A034 DATE RECEIVED: 01/12/94
SAMPLE ID: EB8F #5 DATE EXTRACTED: NA
CONTROL NO.: A032-05 DATE ANALYZED: 01/12/94

ACCESSION: 94A031 94A032 94A034 94A039

PARAMETER	SAMPLE CONC (ug/L)	SPIKE ADDED (ug/L)	MS CONC (ug/L)	MS % REC	SPIKE ADDED (ug/L)	MSD CONC (ug/L)	MSD % REC	% RPD
1,1-DCE	ND	50	53	106	50	53	106	0
Benzene	29	50	85	112	50	75	92	20
TCE	ND	50	56	112	50	56	112	0
Toluene +	185	50	185	NA	50	146	NA	NA
Chlorobenzene	ND	50	54	108	50	53	106	2

+ Interference from the comp. present in the sample.



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: 376.1
MATRIX: WATER

=====

BATCH NO.:	94A034	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A034-L1W	DATE ANALYZED:	01/11/94
ACCESSION:	94A034		

PARAMETER	TRUE CONC. (ug/L)	FOUND CONC. (ug/L)	SPIKE REC. (%)
-----	-----	-----	-----
1,1-DCE	50	56	112
Benzene	50	55	110
TCE	50	51	102
Toluene	50	55	110
Chlorobenzene	50	50	100



DHS METHOD
ORGANIC LEAD

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/08/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/10/94
BATCH NO.:    94A034                     DATE EXTRACTED:  01/12/94
MATRIX:       SOIL                       DATE ANALYZED:   01/12/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-11#4	A034-04	ND	1	.5
EB-16#5	A034-11	ND	1	.5
EB-18#2	A034-14	ND	1	.5
FBLK1S	A017-B1S	ND	1	.5

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A034	DATE RECEIVED:	NA
SAMPLE ID:	EB-10B-D4	DATE EXTRACTED:	01/12/94
CONTROL NO.:	A027-17	DATE ANALYZED:	01/12/94
ACCESSION:	94A017 94A027 94A031 94A032 94A033 94A034 94A035 94A039		

PARAMETER	SAMPLE (mg/kg)	DUP. SAMPLE (mg/kg)	RPD (%)
-----	-----	-----	-----
Lead	ND	ND	0

CKY QUALITY CONTROL DATA
SPIKE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A034	DATE RECEIVED:	NA
SAMPLE ID:	FBLK1S	DATE EXTRACTED:	01/12/94
CONTROL NO.:	A017-B1S	DATE ANALYZED:	01/12/94

ACCESSION: 94A017 94A027 94A031 94A032 94A033 94A034 94A035
94A039

PARAMETER	SAMPLE RESULT (mg/kg)	SPIKE CONC. (mg/kg)	SPIKE RESULT (mg/kg)	SPIKE RECRY. (%)
-----	-----	-----	-----	-----
Lead	ND	5.0	5.0	100



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A034	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/12/94
CONTROL NO.:	A017-L1S	DATE ANALYZED:	01/12/94
ACCESSION:	94A017 94A027 94A031 94A032 94A033 94A034 94A035 94A039		

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Lead	100	91	91

EPA METHOD 376.1
TOTAL SULFIDE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/08/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/10/94
BATCH NO.:    94A034                     DATE EXTRACTED:  01/12/94
MATRIX:       SOIL                       DATE ANALYZED:   01/12/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-11#4 ✓	A034-04	ND	2	.4
EB-16#5	A034-11	ND	2	.4
EB-18#2	A034-14	ND	2	.4
WBLK1S	A017-B1S	ND	1	.2

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: 376.1
MATRIX: SOIL

=====

BATCH NO.:	94A034	DATE RECEIVED:	NA
SAMPLE ID:	EB-20-D-11	DATE EXTRACTED:	01/12/94
CONTROL NO.:	A035-11	DATE ANALYZED:	01/12/94

ACCESSION: 94A017 94A027 94A031 94A034 94A035

PARAMETER	SAMPLE RESULT (mg/kg)	DUP SAMPLE RESULT (mg/kg)	RPD (%)
-----	-----	-----	-----
Sulfide	8.1	7.2	12

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: 376.1
MATRIX: Water

=====

BATCH NO.:	94A034	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A017-L1W	DATE ANALYZED:	01/12/94

ACCESSION: 94A017 94A027 94A031 94A034 94A035

PARAMETER	TRUE CONC. (mg/L)	FOUND CONC. (mg/L)	SPIKE RECRY. (%)
-----	-----	-----	-----
Sulfide	4.0	3.88	97



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 413.2
MATRIX: SOIL

BATCH NO.: 94A034 DATE RECEIVED: NA
SAMPLE ID: EB14A-D4 DATE EXTRACTED: 01/11/94
CONTROL NO.: A022-04 DATE ANALYZED: 01/12/94

ACCESSION: 94A021 94A022 94A027 94A031 94A034 94A035

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
TROG	ND	150	138	92	150	137	91	1

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 413.2
MATRIX: SOIL

=====

BATCH NO.:	94A034	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/11/94
CONTROL NO.:	A021-L1S	DATE ANALYZED:	01/12/94

ACCESSION: 94A021 94A022 94A027 94A031 94A034 94A035

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
TROG	150	141	94



EPA METHOD 413.2
OIL & GREASE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/08/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/10/94
BATCH NO.:    94A034                     DATE EXTRACTED:  01/11/94
MATRIX:       SOIL                       DATE ANALYZED:   01/17/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-11#4	A034-04	ND	1	10
EB-16#5	A034-11	ND	1	10
EB-18#2	A034-14	ND	1	10
TBLK1S	A021-B1S	ND	1	10

MDL : Method Detection Limit

EPA METHOD 300
CHLORIDE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/08/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/10/94
BATCH NO.:   94A034                     DATE EXTRACTED:  01/12/94
MATRIX:      SOIL                       DATE ANALYZED:   01/12/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-11#4	A034-04	3.2	1	0.2
EB-16#5	A034-11	0.87	1	0.2
EB-18#2	A034-14	2.5	1	0.2
WBLK1S	A017-B1S	ND	1	0.2

MDL : Method Detection Limit



EPA METHOD 300
SULFATE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/08/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/10/94
BATCH NO.:    94A034                     DATE EXTRACTED:  01/12/94
MATRIX:      SOIL                       DATE ANALYZED:   01/12/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-11#4 ~	A034-04	8.2	1	1.0
EB-16#5	A034-11	4.3	1	1.0
EB-18#2	A034-14	24	1	1.0
WBLK1S	A017-B1S	ND	1	1.0

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
SPIKE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

BATCH NO.: 94A034 DATE RECEIVED: NA
SAMPLE ID: EB12-D10 DATE EXTRACTED: 01/12/94
CONTROL NO.: A017-10 DATE ANALYZED: 01/12/94

ACCESSION: 94A017 94A027 94A031 94A034 94A035

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC
Sulfate	77.9	20.0	97.6	99
Chloride	18.9	20.0	37.4	93



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: WATER

=====

BATCH NO.:	94A034	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A017-L1W	DATE ANALYZED:	01/12/94

ACCESSION: 94A017 94A027 94A031 94A034 94A035

PARAMETER	TRUE VALUE (mg/L)	FOUND VALUE (mg/L)	LCS RECOVERY (%)
-----	-----	-----	-----
Sulfate	150	141	94
Chloride	30.0	27.8	93



CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

=====

BATCH NO.:	94A034	DATE RECEIVED:	NA
SAMPLE ID:	EB12-D10	DATE EXTRACTED:	01/12/94
CONTROL NO.:	A017-10	DATE ANALYZED:	01/12/94
ACCESSION:	94A017 94A027 94A031 94A034 94A035		

PARAMETER	Sample (mg/kg)	Dup. Sample (mg/kg)	RPD (%)
-----	-----	-----	-----
Sulfate	77.9	76.8	1
Chloride	18.9	19.5	3



Chain of Custody Record

Lab Job no.: _____

Date 1-8-94

Page 1 of 1

Laboratory CKY Method of Shipment _____

Address _____ Shipment No. _____

_____ Airbill No. _____

Client The Earth Technology Corporation Cooler No. _____

Address 13900 Alton Parkway, Suite 120 Project Manager Kris Whitman

Irvine, CA 92718 Telephone No. 714 458 7614

Project Name Shoreline Cleanup Fax No. 714 458 8701

Project Number 94-1169-C2 Samplers: (Signature) Hassan D...

Field Sample Number	Location/Depth	Date	Time	Sample Type	Type/Size of Container	Preservation		Analysis Required												Remarks
						Temp.	Chemical	Filtered	No. of Containers	EPA Method 8015 (Mod)	EPA Method 8015 (Mod)	EPA Method 8015 (Mod)	EPA Method 8015 (Mod)	EPA Method 8015 (Mod)	EPA Method 8015 (Mod)	EPA Method 8015 (Mod)	EPA Method 8015 (Mod)	EPA Method 8015 (Mod)	EPA Method 8015 (Mod)	
1 CB-11 #1	5	1/1	8:25	Soil	4.5" s.s. Shovel	ICE				X	X									
2 #2	10	1/1	8:35							X	X									
3 #3	15	1/1	8:50							X	X									
4 #4	20	1/1	9:00							X			X	X	X	X	X	X	X	
5 #5	25	1/1	9:10																	
6 #6	30	1/1	9:20																	
7 CB-16 #1	5	1/1	11:15							X	X									
8 #2	10	1/1	11:23																	
9 #3	15	1/1	11:32							X	X									
10 #4	20	1/1	11:40																	
11 #5	25	1/1	11:47							X	X		X	X	X	X	X	X	X	
12 #6	30	1/1	11:52																	
13 CB-18 #1	5	1/1	12:12							X	X									
14 #2	10	1/1	12:22							X	X		X	X	X	X	X	X	X	
15 #3	15	1/1	12:27																	
16 #4	20	1/1	12:32							X	X									
17 #5	25	1/1	12:42																	

Relinquished by: Hassan D...
 Signature _____
 Printed Hassan D...
 Company Earth Tech.
 Reason Transfer to Lab

Date 1/8/94
 Received by: Ken F. Miller
 Signature _____
 Printed Ken F. Miller
 Company Earth Tech.

Date 1/8/94
 Relinquished by: Ken F. Miller
 Signature _____
 Printed Ken F. Miller
 Company Earth Tech.
 Reason Lab Work

Date 1/8/94
 Received by: Ken F. Miller
 Signature _____
 Printed Ken F. Miller
 Company Earth Tech.

Comments: T = 2°C

Relinquished by: Ken F. Miller
 Signature _____
 Printed Ken F. Miller
 Company Earth Tech.
 Reason Analysis

Date 1/8/94
 Received by: Ken F. Miller
 Signature _____
 Printed Ken F. Miller
 Company Earth Tech.



CKY incorporated Analytical Laboratories

Date: 01-20-1994
CKY Batch No.: 94A035

Attn.: K. Khilnani

Earth Technology Corp.
13900 Alton Parkway #120
Irvine, CA 92718

Subject: Laboratory Report
Project: Metro Rail - East Side Ext.

Enclosed is the Laboratory report for samples received on 01/10/94. The samples were received in coolers with ice and intact; the chain-of-custody forms were properly filled out. The data reported include :

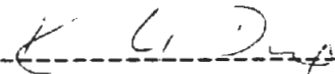
Sample ID	Control No.	Matrix	Analysis
-----	-----	-----	-----
EB-20-D-1	A035-01	soil	Hold
EB-20-D-2	A035-02	soil	Hold
EB-20-D-3	A035-03	soil	Hold
EB-20-D-4	A035-04	soil	Hold
EB-20-D-5	A035-05	soil	Hold
EB-20-D-6	A035-06	soil	Hold
EB-20-D-7	A035-07	soil	EPA M8015 (CCID) EPA 8020
EB-20-D-8	A035-08	soil	EPA M8015 (CCID) EPA 8020
EB-20-D-9	A035-09	soil	EPA M8015 (CCID) EPA 8020
EB-20-D-10	A035-10	soil	Hold
EB-20-D-11	A035-11	soil	EPA M8015 (CCID) EPA 8240 EPA 8270 Organic Pb Oil & Grease Sulfide

Sample ID	Control No.	Matrix	Analysis
-----	-----	-----	-----
			Sulfate
			Chloride

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,



Kam Y. Pang, Ph.D.
Laboratory Director

P.S. - All analyses requested for the above referenced project have been completed. Therefore, unless instructed, the remaining portions of the samples will be disposed after fifteen (15) days from the date of this report.

EPA METHOD M8015
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```
=====
CLIENT:      Earth Technology Corp.          DATE COLLECTED: 01/08/94
PROJECT:     Metro Rail - East Side Ext.     DATE RECEIVED:  01/10/94
BATCH NO.:   94A035                         DATE EXTRACTED: 01/11/94
MATRIX:      SOIL                           DATE ANALYZED:  01/13/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	H-C RANGE	% RECOVERY		DL FACTOR	MDL (mg/kg)
				SURR1	SURR2		
EB-20-D-7	A035-07*	ND	NA	100	92	1	5
EB-20-D-8	A035-08	ND	NA	96	75	1	5
EB-20-D-9	A035-09	ND	NA	94	97	1	5
EB-20-D-11	A035-11	ND	NA	97	97	1	5
DBLK1S	A031-B1S	ND	NA	94	94	1	5
DBLK2S	A031-B2S*	ND	NA	100	95	1	5

SURR1 : Bromobenzene
 SURR2 : Hexacosane
 MDL : Method Detection Limit
 * Date extracted, 01/18/94
 Date analyzed, 01/19/94

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

=====

BATCH NO.:	94A035	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/11/94
CONTROL NO.:	A021-L1S	DATE ANALYZED:	01/12/94

ACCESSION: 94A021 94A027 94A031 94A034 94A035

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
DIESEL	250	223	89



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

BATCH NO.: 94A035 DATE RECEIVED: NA
SAMPLE ID: EB13A-08 DATE EXTRACTED: 01/11/94
CONTROL NO.: A031-08 DATE ANALYZED: 01/13/94

ACCESSION: 94A021 94A027 94A031 94A034 94A035

PARAMETER	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
Diesel	ND	250	230	92	250	239	96	4

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

BATCH NO.:	94A035	DATE RECEIVED:	NA
SAMPLE ID:	EB-24-D5	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A061-05	DATE ANALYZED:	01/19/94

ACCESSION: 94A059 94A060 94A061 94A062 94A035 94A050

PARAMETER	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
Diesel	ND	250	219	88	250	222	89	1

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

=====

BATCH NO.:	94A035	DATE RECEIVED:	NA
SAMPLE ID:	LCS02	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A035-L2S	DATE ANALYZED:	01/19/94

ACCESSION: 94A059 94A060 94A061 94A062 94A035 94A050

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
<u>-----</u> DIESEL	<u>-----</u> 250	<u>-----</u> 229	<u>-----</u> 92



EPA METHOD 8020
BTEX

```
=====
CLIENT:      Earth Technology Corp.          DATE COLLECTED: 01/08/94
PROJECT:     Metro Rail - East Side Ext.    DATE RECEIVED:  01/10/94
BATCH NO.:   94A035                        DATE EXTRACTED: NA
MATRIX:      SOIL                          DATE ANALYZED:   01/13/94
=====
```

SAMPLE ID	CNTRL NO	DL F	MDL	BENZ	RESULTS TOLUENE	(ug/kg) E BENZ	XYLS	% Rcvy SURR
-----	-----	----	----	----	-----	-----	-----	-----
EB-20-D-7	A035-07*	1	5	ND	ND	ND	ND	75
EB-20-D-8	A035-08	1	5	ND	ND	ND	ND	71
EB-20-D-9	A035-09	1	5	ND	ND	ND	ND	83
VBLK1S	A031-B1S	1	5	ND	ND	ND	ND	83
VBLK2S	A035-B2S*	1	5	ND	ND	ND	ND	84

DL F : Dilution Factor
 SURR : Bromofluorobenzene
 MDL : Method Detection Limit
 * : Analyzed on 01/18/94



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8020
MATRIX: SOIL

BATCH NO.: 94A035 DATE RECEIVED: NA
SAMPLE ID: EB-10B-D6 DATE EXTRACTED: NA
CONTROL NO.: A027-19 DATE ANALYZED: 01/12/94

ACCESSION: 94A027 94A035 94A044

PARAMETER	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Benzene	ND	72	44	61	72	45	63	3
Toluene	ND	480	390	81	480	380	79	3
Ethylbenzene	ND	110	84	76	110	87	79	4
Xylenes	ND	800	630	79	800	660	83	5



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8020
MATRIX: SOIL

BATCH NO.: 94A035 DATE RECEIVED: NA
SAMPLE ID: EB-18#1 DATE EXTRACTED: NA
CONTROL NO.: A034-13 DATE ANALYZED: 01/13/94

ACCESSION: 94A031 94A032 94A033 94A034 94A039

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Benzene	ND	250	218	87	250	232	93	7
Toluene	ND	250	226	90	250	240	96	7
EthylBenzene	ND	250	223	89	250	247	99	11
Xylenes	ND	750	670	89	750	740	99	11



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 620/8020
MATRIX: WATER

=====

BATCH NO.:	94A035	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A035-L1W	DATE ANALYZED:	01/18/94
ACCESSION:	94A035		

PARAMETER	TRUE VALUE (ug/L)	FOUND VALUE (ug/L)	LCS RECOVERY (%)
-----	-----	-----	-----
Benzene	50	43	86
Toluene	50	43	86
Chlorobenzene	50	47	94



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 620/8020
MATRIX: WATER

=====

BATCH NO.:	94A035	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A032-L1W	DATE ANALYZED:	01/13/94

ACCESSION: 94A032 94A035 94A039

PARAMETER	TRUE VALUE (ug/L)	FOUND VALUE (ug/L)	LCS RECOVERY (%)
-----	-----	-----	-----
Benzene	250	225	90
Toluene	250	236	94
EthylBenzene	250	240	96
Xylenes	750	722	96

EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/08/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/10/94
BATCH NO.:   94A035                     DATE EXTRACTED:  NA
SAMPLE ID:   EB-20-D-11                 DATE ANALYZED:  01/12/94
CONTROL NO.: A035-11                    MATRIX:        SOIL
% MOISTURE:  NA                         DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	18	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	8	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	15	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	6	5.0

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	101	70-121
Toluene -d8	105	84-138
Bromofluorobenzene	100	59-113

MDL : Method Detection Limit

CKY

EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED:  NA
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  NA
BATCH NO.:   94A035                     DATE EXTRACTED:  NA
SAMPLE ID:   VBLK1S                     DATE ANALYZED:   01/12/94
CONTROL NO.: A035-B1S                   MATRIX:         SOIL
% MOISTURE:  NA                         DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	93	70-121
Toluene -d8	109	84-138
Bromofluorobenzene	97	59-113

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8240
MATRIX: SOIL

BATCH NO.: 94A035 DATE RECEIVED: NA
SAMPLE ID: EB8F #5 DATE EXTRACTED: NA
CONTROL NO.: A032-05 DATE ANALYZED: 01/12/94

ACCESSION: 94A032 94A035

PARAMETER	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
1,1-DCE	ND	50	53	106	50	53	106	0
Benzene	29	50	85	112	50	75	92	20
TCE	ND	50	56	112	50	56	112	0
Toluene	185+	50	185	NA	50	146	NA	NA
Chlorobenzene	ND	50	54	108	50	53	106	2

+ Interference from the comp. present in the sample.



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 624/8240
MATRIX: WATER

=====

BATCH NO.:	94A035	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A035-L1W	DATE ANALYZED:	01/12/94
ACCESSION:	94A035		

PARAMETER	TRUE CONC. (ug/L)	FOUND CONC. (ug/L)	SPIKE REC. (%)	ACCEPT. RANGE
-----	-----	-----	-----	-----
1,1-DCE	50	65	130	61-145
Benzene	50	56	112	76-127
TCE	50	55	110	71-120
Toluene	50	56	112	76-125
Chlorobenzene	50	52	104	75-130



EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: 01/08/94
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: 01/10/94
BATCH NO.: 94A035	DATE EXTRACTED: 01/17/94
SAMPLE ID: EB-20-D-11	DATE ANALYZED: 01/19/94
CONTROL NO.: A035-11	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg) RESULT MDL	PARAMETERS	(ug/kg) RESULT MDL
N-Nitrosodimethylamine	ND (330)	3-Nitroaniline	ND (800)
Pyridine	ND (330)	Acenaphthene	ND (330)
Aniline	ND (330)	2,4-Dinitrophenol	ND (800)
Phenol	ND (330)	4-Nitrophenol	ND (800)
bis(2-Chloroethyl)ether	ND (330)	Dibenzofuran	ND (330)
2-Chlorophenol	ND (330)	2,4-Dinitrotoluene	ND (330)
1,3-Dichlorobenzene	ND (330)	Diethylphthalate	ND (330)
1,4-Dichlorobenzene	ND (330)	4-Chlorophenyl-phenylether	ND (330)
Benzyl Alcohol	ND (330)	Fluorene	ND (330)
1,2-Dichlorobenzene	ND (330)	1,2-Diphenylhydrazine	ND (800)
2-Methylphenol	ND (330)	4-Nitroaniline	ND (800)
2,2'-oxybis(1-Chloropropane)	ND (330)	4,6-Dinitro-2-methylphenol	ND (800)
4-Methylphenol	ND (330)	N-Nitrosodiphenylamine (1)	ND (330)
N-Nitroso-di-n-propylamine	ND (330)	4-Bromophenyl-phenylether	ND (330)
Hexachloroethane	ND (330)	Hexachlorobenzene	ND (330)
Nitrobenzene	ND (330)	Pentachlorophenol	ND (800)
Isophorone	ND (330)	Benidine	ND (800)
2-Nitrophenol	ND (330)	Phenanthrene	ND (800)
2,4-Dimethylphenol	ND (330)	Anthracene	ND (330)
Benzoic Acid	ND (800)	Carbazole	ND (800)
bis(2-Chloroethoxy)methane	ND (330)	Di-n-butylphthalate	480 (330)
2,4-Dichlorophenol	ND (330)	Fluoranthene	ND (330)
1,2,4-Trichlorobenzene	ND (330)	4,4'-Methylene Dianiline	ND (800)
Naphthalene	ND (330)	Pyrene	ND (330)
4-Chloroaniline	ND (330)	Bisphenol-A	ND (330)
Hexachloro-1,3-butadiene	ND (330)	Butylbenzylphthalate	ND (330)
4-Chloro-3-methylphenol	ND (330)	3,3'-Dichlorobenzidine	ND (330)
2-Methylnaphthalene	ND (330)	Benzo(a)anthracene	ND (330)
Hexachlorocyclopentadiene	ND (330)	Chrysene	ND (330)
2,4,6-Trichlorophenol	ND (330)	bis(2-Ethylhexyl)phthalate	ND (330)
2,4,5-Trichlorophenol	ND (800)	Di-n-octylphthalate	ND (330)
2-Chloronaphthalene	ND (330)	Benz(b)fluoranthene	ND (330)
1-Chloronaphthalene	ND (330)	Benzo(k)fluoranthene	ND (330)
2-Nitroaniline	ND (800)	Benzo(a)pyrene	ND (330)
Dimethylphthalate	ND (330)	Indeno(1,2,3-cd)pyrene	ND (330)
Acenaphthylene	ND (330)	Dibenzo(a,h)anthracene	ND (330)
2,6-Dinitrotoluene	ND (330)	Benzo(g,h,i)perylene	ND (330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	46	23-120
2-Fluorobiphenyl	53	30-115
Terphenyl-d14	127	18-137
Phenol-d5	50	24-113
2-Fluorophenol	49	25-121
2,4,6-Tribromophenol	73	19-122

MDL: Method Detection Limit



EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: NA
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: NA
BATCH NO.: 94A035	DATE EXTRACTED: 01/17/94
SAMPLE ID: SBLK01	DATE ANALYZED: 01/19/94
CONTROL NO.: A035-B1S	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg) RESULT MDL	PARAMETERS	(ug/kg) RESULT MDL
N-Nitrosodimethylamine	ND (330)	3-Nitroaniline	ND (800)
Pyridine	ND (330)	Acenaphthene	ND (330)
Aniline	ND (330)	2,4-Dinitrophenol	ND (800)
Phenol	ND (330)	4-Nitrophenol	ND (800)
bis(2-Chloroethyl) ether	ND (330)	Dibenzofuran	ND (330)
2-Chlorophenol	ND (330)	2,4-Dinitrotoluene	ND (330)
1,3-Dichlorobenzene	ND (330)	Diethylphthalate	ND (330)
1,4-Dichlorobenzene	ND (330)	4-Chlorophenyl-phenylether	ND (330)
Benzyl Alcohol	ND (330)	Fluorene	ND (330)
1,2-Dichlorobenzene	ND (330)	1,2-Diphenylhydrazine	ND (800)
2-Methylphenol	ND (330)	4-Nitroaniline	ND (800)
2,2'-oxybis(1-Chloropropane)	ND (330)	4,6-Dinitro-2-methylphenol	ND (800)
4-Methylphenol	ND (330)	N-Nitrosodiphenylamine (1)	ND (330)
N-Nitroso-di-n-propylamine	ND (330)	4-Bromophenyl-phenylether	ND (330)
Hexachloroethane	ND (330)	Hexachlorobenzene	ND (330)
Nitrobenzene	ND (330)	Pentachlorophenol	ND (800)
Isophorone	ND (330)	Benidine	ND (800)
2-Nitrophenol	ND (330)	Phenanthrene	ND (800)
2,4-Dimethylphenol	ND (330)	Anthracene	ND (330)
Benzoic Acid	ND (800)	Carbazole	ND (800)
bis(2-Chloroethoxy) methane	ND (330)	Di-n-butylphthalate	450 (330)
2,4-Dichlorophenol	ND (330)	Fluoranthene	ND (330)
1,2,4-Trichlorobenzene	ND (330)	4,4'-Methylene Dianiline	ND (800)
Naphthalene	ND (330)	Pyrene	ND (330)
4-Chloroaniline	ND (330)	Bisphenol-A	ND (330)
Hexachloro-1,3-butadiene	ND (330)	Butylbenzylphthalate	ND (330)
4-Chloro-3-methylphenol	ND (330)	3,3'-Dichlorobenzidine	ND (330)
2-Methylnaphthalene	ND (330)	Benzo(a)anthracene	ND (330)
Hexachlorocyclopentadiene	ND (330)	Chrysene	ND (330)
2,4,6-Trichlorophenol	ND (330)	bis(2-Ethylhexyl)phthalate	ND (330)
2,4,5-Trichlorophenol	ND (800)	Di-n-octylphthalate	ND (330)
2-Chloronaphthalene	ND (330)	Benz(b)fluoranthene	ND (330)
1-Chloronaphthalene	ND (330)	Benzo(k)fluoranthene	ND (330)
2-Nitroaniline	ND (800)	Benzo(a)pyrene	ND (330)
Dimethylphthalate	ND (330)	Indeno(1,2,3-cd)pyrene	ND (330)
Acenaphthylene	ND (330)	Dibenzo(a,h)anthracene	ND (330)
2,6-Dinitrotoluene	ND (330)	Benzo(g,h,i)perylene	ND (330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	60	23-120
2-Fluorobiphenyl	59	30-115
Terphenyl-d14	128	18-137
Phenol-d5	57	24-113
2-Fluorophenol	49	25-121
2,4,6-Tribromophenol	70	19-122

MDL: Method Detection Limit

CKY

CKY INC., ANALYTICAL LABORATORIES, 630 Maple Ave., Torrance, Calif. 90503 Tel. (310) 618-8889 Fax: (310) 618-0818

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8270
MATRIX: SOIL

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```

BATCH NO.:	94A035	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/17/94
CONTROL NO.:	A035-L1S	DATE ANALYZED:	01/19/94
ACCESSION:	94A035		

PARAMETER	TRUE VALUE (ug/kg)	FOUND VALUE (ug/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Phenol	5000	2131	43
2-Chlorophenol	5000	2178	44
1,4-DCB	3300	1436	44
N-Nitroso-di-n	3300	1858	56
1,2,4-TCB	3300	1695	51
4-Chl-3-Methyl	5000	2749	55
Acenaphthene	3300	1904	58
4-Nitrophenol	5000	3727	75
2,4-Dinitrotol	3300	2690	82
Pentachlorophe	5000	4375	88
Pyrene	3300	3821	116



CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8270
MATRIX: SOIL

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Phenol	ND	5000	2131	43	5000	2751	55	25
2-Chlorophenol	ND	5000	2178	44	5000	2951	59	30
1,4-DCB	ND	3300	1436	44	3300	2059	62	36
N-Nitroso-di-n	ND	3300	1858	56	3300	2065	63	11
1,2,4-TCB	ND	3300	1695	51	3300	2219	67	27
4-Chl-3-Methyl	ND	5000	2749	55	5000	2930	59	6
Acenaphthene	ND	3300	1904	58	3300	2068	63	8
4-Nitrophenol	ND	5000	3727	75	5000	3904	78	5
2,4-Dinitrotol	ND	3300	2690	82	3300	2906	88	8
Pentachlorophe	ND	5000	4375	88	5000	4500	90	3
Pyrene	ND	3300	3821	116	3300	4716	143	21

DHS METHOD
ORGANIC LEAD

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/08/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/10/94
BATCH NO.:   94A035                     DATE EXTRACTED:  01/12/94
MATRIX:     SOIL                        DATE ANALYZED:   01/12/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-20-D-11	A035-11	ND	1	.5
FBLK1S	A017-B1S	ND	1	.5

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

```
=====
BATCH NO.:      94A035          DATE RECEIVED:   NA
SAMPLE ID:      LCS01          DATE EXTRACTED:  01/12/94
CONTROL NO.:    A017-L1S       DATE ANALYZED:   01/12/94

ACCESSION:      94A017  94A027  94A031  94A032  94A034  94A035  94A039
                  94A033
```

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Lead	100	91	91

CKY

CKY QUALITY CONTROL DATA
SPIKE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A035	DATE RECEIVED:	NA
SAMPLE ID:	FBLK1S	DATE EXTRACTED:	01/12/94
CONTROL NO.:	A017-B1S	DATE ANALYZED:	01/12/94

ACCESSION: 94A017 94A027 94A031 94A032 94A034 94A035 94A039
94A033

PARAMETER	SAMPLE RESULT (mg/kg)	SPIKE CONC. (mg/kg)	SPIKE RESULT (mg/kg)	SPIKE RECRY. (%)
-----	-----	-----	-----	-----
Lead	ND	5.0	5.0	100



CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A035	DATE RECEIVED:	NA
SAMPLE ID:	EB-10B-D4	DATE EXTRACTED:	01/12/94
CONTROL NO.:	A027-17	DATE ANALYZED:	01/12/94
ACCESSION:	94A017 94A027 94A031 94A032 94A034 94A035 94A039 94A033		

PARAMETER	SAMPLE (mg/kg)	DUP. SAMPLE (mg/kg)	RPD (%)
-----	-----	-----	-----
Lead	ND	ND	0



EPA METHOD 413.2
OIL & GREASE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/08/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/10/94
BATCH NO.:    94A035                     DATE EXTRACTED:  01/11/94
MATRIX:       SOIL                       DATE ANALYZED:   01/17/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-20-D-11	A035-11	ND	1	10
TBLK1S	A021-B1S	ND	1	10

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 413.2
MATRIX: SOIL

=====

BATCH NO.:	94A035	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/11/94
CONTROL NO.:	A021-L1S	DATE ANALYZED:	01/12/94

ACCESSION: 94A021 94A022 94A027 94A031 94A034 94A035

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
TROG	150	141	94



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 413.2
MATRIX: SOIL

BATCH NO.: 94A035 DATE RECEIVED: NA
SAMPLE ID: EB14A-D4 DATE EXTRACTED: 01/11/94
CONTROL NO.: A022-04 DATE ANALYZED: 01/12/94

ACCESSION: 94A021 94A022 94A027 94A031 94A034 94A035

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
TROG	ND	150	138	92	150	137	91	1



EPA METHOD 376.1
TOTAL SULFIDE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/08/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/10/94
BATCH NO.:    94A035                     DATE EXTRACTED:  01/12/94
MATRIX:       SOIL                       DATE ANALYZED:   01/12/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-20-D-11	A035-11	81	2	.4
WBLK1S	A017-B1S	ND	1	.2

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: 376.1
MATRIX: SOIL

BATCH NO.: 94A035 DATE RECEIVED: 01/10/94
SAMPLE ID: EB-20-D-11 DATE EXTRACTED: 01/12/94
CONTROL NO.: A035-11 DATE ANALYZED: 01/12/94

ACCESSION: 94A017 94A027 94A031 94A034 94A035

PARAMETER	SAMPLE RESULT (mg/kg)	DUP SAMPLE RESULT (mg/kg)	RPD (%)
Sulfide	8.1	7.2	12



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: 376.1
MATRIX: Water

=====

BATCH NO.:	94A035	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A017-L1W	DATE ANALYZED:	01/12/94
ACCESSION:	94A017 94A027 94A031 94A034 94A035		

PARAMETER	TRUE CONC. (mg/L)	FOUND CONC. (mg/L)	SPIKE RECRY. (%)
-----	-----	-----	-----
Sulfide	4.0	3.88	97



EPA METHOD 300
SULFATE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/08/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/10/94
BATCH NO.:   94A035                     DATE EXTRACTED:  01/12/94
MATRIX:      SOIL                       DATE ANALYZED:   01/12/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-20-D-11	A035-11	13	1	1.0
WBLK1S	A017-B1S	ND	1	1.0

MDL : Method Detection Limit

EPA METHOD 300
CHLORIDE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/08/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/10/94
BATCH NO.:    94A035                     DATE EXTRACTED:  01/12/94
MATRIX:       SOIL                       DATE ANALYZED:   01/12/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-20-D-11	A035-11	67	5	1.0
WBLK1S	A017-B1S	ND	1	0.2

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

=====

BATCH NO.:	94A035	DATE RECEIVED:	NA
SAMPLE ID:	EB12-D10	DATE EXTRACTED:	01/12/94
CONTROL NO.:	A017-10	DATE ANALYZED:	01/12/94

ACCESSION: 94A017 94A027 94A031 94A034 94A035

PARAMETER	Sample (mg/kg)	Dup. Sample (mg/kg)	RPD (%)
-----	-----	-----	-----
Sulfate	77.9	76.8	1
Chloride	18.9	19.5	3



CKY QUALITY CONTROL DATA
SPIKE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

```
=====
```

BATCH NO.:	94A035	DATE RECEIVED:	NA
SAMPLE ID:	EB12-D10	DATE EXTRACTED:	01/12/94
CONTROL NO.:	A017-10	DATE ANALYZED:	01/12/94

ACCESSION: 94A017 94A027 94A031 94A034 94A035

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC
Sulfate	77.9	20.0	97.6	99
Chloride	18.9	20.0	37.4	93

CKY

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: WATER

=====

BATCH NO.: 94A035 DATE RECEIVED: NA
SAMPLE ID: LCS01 DATE EXTRACTED: NA
CONTROL NO.: A017-L1W DATE ANALYZED: 01/12/94

ACCESSION: 94A017 94A027 94A031 94A034 94A035

PARAMETER	TRUE VALUE (mg/L)	FOUND VALUE (mg/L)	LCS RECOVERY (%)
Sulfate	150	141	94
Chloride	30.0	27.8	93



Chain of Custody Record

Date 1/17/94

Lab Job no.: _____

Date 1/21/94

Page 1 of 1

Laboratory CKY Method of Shipment _____

Address _____ Shipment No. _____

Client The Earth Technology Corporation Airbill No. _____

Address 13900 Alton Parkway, Suite 120 Cooler No. _____

Irvine, CA 92718 Project Manager CRIST MULLER

Project Name CRIST MULLER Telephone No. _____

Project Number 77-11-9 Fax No. _____

Samplers: (Signature) Samuel

Field Sample Number	Location/ Depth	Date	Time	Sample Type	Type/Size of Container	Preservation					EPA Gasol	EPA B	EPA Diesel	EPA M	EPA M	Total												
						Temp.	Chemical																					
EP-20-D-1	4	1/17/94	9:00	D	2x4 1/2" x 1 1/2" x 1 1/2"	106																				4.7	2.1	
EP-20-D-2	9		10:50																								4.0	1.5
EP-20-D-3	14		11:00																								4.2	2.5
EP-20-D-4	19		11:07																								4.2	3.7
EP-20-D-5	24		11:15																								4.2	5.2
EP-20-D-6	29		11:24																								4.4	4.4
EP-20-D-7	34		11:34																								6.4	5.3
EP-20-D-8	39		11:52								X	X															7.0	6.4
EP-20-D-9	44		12:33								X	X															10.0	7.7
EP-20-D-10	49		12:54																								11.4	6.6
EP-20-D-11	54		1:06								X			X	X	X	X	X	X	X	X						20.0	6.8

Relinquished by: Samuel
Signature _____
Printed JOE RENTON
Company THE EARTH TECHNOLOGY CORPORATION
Reason ANALYSIS

Date 1/18/94
Time 1:00

Received by: CRIST MULLER
Signature _____
Printed CRIST MULLER
Company CKY

Date 1/18/94
Time 1:12

Relinquished by: Samuel
Signature _____
Printed JOE RENTON
Company THE EARTH TECHNOLOGY CORPORATION
Reason ANALYSIS

Date 1/18/94
Time 1:00

Received by: CRIST MULLER
Signature _____
Printed CRIST MULLER
Company CKY

Date 1/18/94
Time 1:12

Comments: 7 = 200

Relinquished by: Samuel
Signature _____
Printed JOE RENTON
Company THE EARTH TECHNOLOGY CORPORATION
Reason ANALYSIS

Date 1/18/94
Time 1:00

Received by: CRIST MULLER
Signature _____
Printed CRIST MULLER
Company CKY

Date 1/18/94
Time 1:12

Earth Tech.

LOGGED BY:

CKY CONTROL NO.

CLIENT SAMPLE ID

COMMENTS

AO35-7

EB-20-D-7

148015 H/CC10
BTEX



CKY incorporated Analytical Laboratories

Date: 01-20-1994
CKY Batch No.: 94A039

Attn.: K. Khilnani

Earth Technology Corp.
13900 Alton Parkway #120
Irvine, CA 92718

Subject: Laboratory Report
Project: Metro Rail - East Side Ext.

Enclosed is the Laboratory report for samples received on 01/11/94. The samples were received in coolers with ice and intact; the chain-of-custody forms were properly filled out. The data reported include :

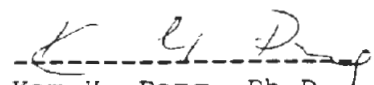
Sample ID	Control No.	Matrix	Analysis
-----	-----	-----	-----
EB-22#1	A039-01	soil	Hold
EB-22#2	A039-02	soil	Hold
EB-22#3	A039-03	soil	EPA M8015 (CCID) EPA 8020
EB-22#4	A039-04	soil	Hold
EB-22#5	A039-05	soil	Hold
EB-22#6	A039-06	soil	Hold
EB-22#7	A039-07	soil	Hold
EB-22#8	A039-08	soil	EPA M8015 (CCID) EPA 8240 EPA 8270 Organic Pb Oil & Grease Sulfide Sulfate Chloride
EB-22#9	A039-09	soil	Hold
EB-22#10	A039-10	soil	Hold
EB-22#11	A039-11	soil	EPA M8015 (CCID)

Sample ID -----	Control No. -----	Matrix -----	Analysis -----
EB-22#12	A039-12	soil	EPA 8020 Hold
EB-22#13	A039-13	soil	Hold

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,



Kam Y. Pang, Ph.D.
Laboratory Director

P.S. - All analyses requested for the above referenced project have been completed. Therefore, unless instructed, the remaining portions of the samples will be disposed after fifteen (15) days from the date of this report.

EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/11/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/11/94
BATCH NO.:   94A039                     DATE EXTRACTED:  NA
SAMPLE ID:   EB-22#8                    DATE ANALYZED:   01/12/94
CONTROL NO.: A039-08                     MATRIX:         SOIL
% MOISTURE:  NA                           DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	5	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	8	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	102	70-121
Toluene -d8	111	84-138
Bromofluorobenzene	97	59-113

MDL : Method Detection Limit



EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED:  NA
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:   NA
BATCH NO.:   94A039                     DATE EXTRACTED:  NA
SAMPLE ID:   VBLK1S                     DATE ANALYZED:   01/12/94
CONTROL NO.: A039-B1S                   MATRIX:         SOIL
% MOISTURE:  NA                         DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	93	70-121
Toluene -d8	109	84-138
Bromofluorobenzene	97	59-113

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8240
MATRIX: SOIL

BATCH NO.: 94A039 DATE RECEIVED: NA
SAMPLE ID: EB8#5 DATE EXTRACTED: NA
CONTROL NO.: A032-05 DATE ANALYZED: 01/12/94

ACCESSION: 94A032 94A039

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
1,1-DCE	ND	50	53	106	50	53	106	0
Benzene	29	50	85	112	50	75	92	20
TCE	ND	50	56	112	50	56	112	0
Toluene	185*	50	185	NA	50	146	NA	NA
Chlorobenzene	ND	50	54	108	50	53	106	2

* Interference from the comp. present in the sample



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8240
MATRIX: SOIL

=====

BATCH NO.:	94A039	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A039-L1S	DATE ANALYZED:	01/12/94

ACCESSION: 94A032 94A039

PARAMETER	TRUE VALUE (ug/kg)	FOUND VALUE (ug/kg)	LCS RECOVERY (%)	QC LIMIT
-----	-----	-----	-----	-----
1,1-DCE	50	65	130	61-145
Benzene	50	56	112	76-127
TCE	50	55	110	71-120
Toluene	50	56	112	76-125
Chlorobenzene	50	52	104	75-130

CKY

EPA METHOD 8020
BTEX

```
=====
CLIENT:      Earth Technology Corp.          DATE COLLECTED: 01/11/94
PROJECT:     Metro Rail - East Side Ext.    DATE RECEIVED:  01/11/94
BATCH NO.:   94A039                        DATE EXTRACTED:  NA
MATRIX:      SOIL                          DATE ANALYZED:   01/13/94
=====
```

SAMPLE ID	CNTRL NO	DL F	MDL	BENZ	RESULTS TOLUENE	(ug/kg) E BENZ	XYLS	% Rcvy SURR
EB-22#3	A039-03	1	5	ND	ND	ND	ND	75
EB-22#11	A039-11	1	5	ND	ND	ND	ND	72
VBLK1S	A039-B1S	1	5	ND	ND	ND	ND	83

DL F : Dilution Factor
SURR : Bromofluorobenzene
MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8020
MATRIX: SOIL

=====

BATCH NO.:	94A039	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A032-L1S	DATE ANALYZED:	01/13/94
ACCESSION:	94A032 94A034 94A035 94A039		

PARAMETER	TRUE VALUE (ug/kg)	FOUND VALUE (ug/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Benzene	250	225	90
Toluene	250	236	94
EthylBenzene	250	240	96
Xylenes	750	722	96



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8020
MATRIX: SOIL

BATCH NO.: 94A039 DATE RECEIVED: NA
SAMPLE ID: EB-18#1 DATE EXTRACTED: NA
CONTROL NO.: A034-13 DATE ANALYZED: 01/13/94

ACCESSION: 94A031 94A032 94A033 94A034 94A039

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Benzene	ND	250	218	87	250	232	93	6
Toluene	ND	250	226	90	250	240	96	6
EthylBenzene	ND	250	223	89	250	247	99	10
Xylenes	ND	750	670	89	750	740	99	10



EPA METHOD M8015
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```
=====
CLIENT:      Earth Technology Corp.          DATE COLLECTED: 01/11/94
PROJECT:     Metro Rail - East Side Ext.    DATE RECEIVED:  01/11/94
BATCH NO.:   94A039                        DATE EXTRACTED: 01/13/94
MATRIX:     SOIL                          DATE ANALYZED:  01/15/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	H-C RANGE	% RECOVERY		DL FACTOR	MDL (mg/kg)
				SURR1	SURR2		
EB-22#3	A039-03	ND	N.A.	96	83	1	5
EB-22#8	A039-08	ND	N.A.	96	98	1	5
EB-22#11	A039-11	ND	N.A.	96	95	1	5
DBLK1S	A039-B1S	ND	N.A.	97	101	1	5

SURR1 : Bromobenzene
SURR2 : Hexacosane
MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

BATCH NO.: 94A039 DATE RECEIVED: 01/11/94
SAMPLE ID: EB-22#3 DATE EXTRACTED: 01/13/94
CONTROL NO.: A039-03 DATE ANALYZED: 01/15/94

ACCESSION: 94A032 94A039

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
DIESEL	ND	250	222	89	250	235	94	6



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

=====

BATCH NO.:	94A039	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/13/94
CONTROL NO.:	A039-L1S	DATE ANALYZED:	01/15/94

ACCESSION: 94A039 94A032

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
DIESEL	250	234	94

CKY

DHS METHOD
ORGANIC LEAD

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/11/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/11/94
BATCH NO.:    94A039                     DATE EXTRACTED:  01/12/94
MATRIX:       SOIL                       DATE ANALYZED:   01/12/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-22#8	A039-08	ND	1	.5
FBLK1S	A017-B1S	ND	1	.5

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A039	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/12/94
CONTROL NO.:	A017-L1S	DATE ANALYZED:	01/12/94
ACCESSION:	94A017 94A027 94A031 94A032 94A033 94A034 94A035		
	94A039		

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Lead	100	91	91

CKY QUALITY CONTROL DATA
SPIKE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.: 94A039 DATE RECEIVED: NA
SAMPLE ID: FBLK1S DATE EXTRACTED: 01/12/94
CONTROL NO.: A017-B1S DATE ANALYZED: 01/12/94

ACCESSION: 94A017 94A027 94A031 94A032 94A033 94A034 94A035
94A039

PARAMETER	SAMPLE RESULT (mg/kg)	SPIKE CONC. (mg/kg)	SPIKE RESULT (mg/kg)	SPIKE RECRY. (%)
-----	-----	-----	-----	-----
Lead	ND	5.0	5.0	100



CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A039	DATE RECEIVED:	NA
SAMPLE ID:	EB-10B-D4	DATE EXTRACTED:	01/12/94
CONTROL NO.:	A027-17	DATE ANALYZED:	01/12/94
ACCESSION:	94A017 94A027 94A031 94A032 94A033 94A034 94A035		
	94A039		

PARAMETER	SAMPLE (mg/kg)	DUP. SAMPLE (mg/kg)	RPD (%)
-----	-----	-----	-----
Lead	ND	ND	0



EPA METHOD 376.1
SULFIDE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/11/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/11/94
BATCH NO.:   94A039                     DATE EXTRACTED:  01/13/94
MATRIX:     SOIL                        DATE ANALYZED:   01/13/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-22#8	A039-08	ND	2	.4
WBLK1S	A032-B1S	ND	1	.2

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 376.1
MATRIX: WATER

=====

BATCH NO.:	94A039	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/13/94
CONTROL NO.:	A039-L1W	DATE ANALYZED:	01/13/94

ACCESSION: 94A032 94A039

PARAMETER	TRUE VALUE (mg/L)	FOUND VALUE (mg/L)	LCS RECOVERY (%)
-----	-----	-----	-----
SULFIDE	4.00	3.88	97



CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 376.1
MATRIX: SOIL

=====

BATCH NO.:	94A039	DATE RECEIVED:	01/11/94
SAMPLE ID:	EB-22#8	DATE EXTRACTED:	01/13/94
CONTROL NO.:	A039-08	DATE ANALYZED:	01/13/94
ACCESSION:	94A032 94A039		

PARAMETER	Sample (mg/kg)	Dup. Sample (mg/kg)	RPD (%)
-----	-----	-----	-----
SULFIDE	ND	ND	0



EPA METHOD 300
CHLORIDE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/11/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED: 01/11/94
BATCH NO.:    94A039                     DATE EXTRACTED: 01/13/94
MATRIX:      SOIL                       DATE ANALYZED: 01/13/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-22#8	A039-08	16.0	1	.2
WBLK1S	A032-B1S	ND	1	.2

MDL : Method Detection Limit



EPA METHOD 300
SULFATE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/11/94
PROJECT:      Metro Rail - East Side Ext.  DATE RECEIVED:  01/11/94
BATCH NO.:    94A039                     DATE EXTRACTED:  01/13/94
MATRIX:      SOIL                        DATE ANALYZED:   01/13/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-22#8	A039-08	21.0	1	1
WBLK1S	A032-B1S	ND	1	1

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
SPIKE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

=====

BATCH NO.:	94A039	DATE RECEIVED:	01/11/94
SAMPLE ID:	EB-22#8	DATE EXTRACTED:	01/13/94
CONTROL NO.:	A039-08	DATE ANALYZED:	01/13/94

ACCESSION: 94A039 94A032

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC
-----	-----	-----	-----	-----
Sulfate	20.7	20.0	39.0	92
Chloride	15.8	20.0	34.4	93



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

=====

BATCH NO.:	94A039	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A032-L1S	DATE ANALYZED:	01/13/94
ACCESSION:	94A032 94A039		

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Sulfate	150	146.5	98
Chloride	30.0	28.9	96

CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

```
=====
BATCH NO.:      94A039      DATE RECEIVED:    01/11/94
SAMPLE ID:      EB-22#8     DATE EXTRACTED:   01/13/94
CONTROL NO.:    A039-08     DATE ANALYZED:    01/13/94

ACCESSION:      94A032  94A039
```

PARAMETER	Sample (mg/kg)	Dup. Sample (mg/kg)	RPD (%)
-----	-----	-----	-----
Sulfate	20.7	20.1	3
Chloride	15.8	15.6	1



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8270
MATRIX: SOIL

BATCH NO.: 94A039 DATE RECEIVED: NA
SAMPLE ID: EB-24-D5 DATE EXTRACTED: 01/18/94
CONTROL NO.: A061-05 DATE ANALYZED: 01/20/94

ACCESSION: 94A032 94A039 94A050 94A051 94A059 94A060
94A061 94A062

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Phenol	ND	5000	2018	40	5000	2536	51	23
2-Chlorophenol	ND	5000	2102	42	5000	2714	54	25
1,4-DCB	ND	3300	1395	42	3300	1775	54	24
N-Nitroso-di-n	ND	3300	1481	45	3300	1920	58	26
1,2,4-TCB	ND	3300	1397	42	3300	1750	53	22
4-Chl-3-Methyl	ND	5000	2514	50	5000	3083	62	20
Acenaphthene	ND	3300	1508	46	3300	1942	59	25
4-Nitrophenol	ND	5000	4709	94	5000	4893	98	4
2,4-Dinitrotol	ND	3300	2331	71	3300	2724	83	16
Pentachlorophe	ND	5000	5360	107	5000	5570	111	4
Pyrene	22	3300	2771	84	3300	2828	86	2



EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: 01/11/94
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: 01/11/94
BATCH NO.: 94A039	DATE EXTRACTED: 01/18/94
SAMPLE ID: EB-22#8	DATE ANALYZED: 01/18/94
CONTROL NO.: A039-08	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg)		PARAMETERS	(ug/kg)	
	RESULT	MDL		RESULT	MDL
N-Nitrosodimethylamine	ND	(330)	3-Nitroaniline	ND	(800)
Pyridine	ND	(330)	Acenaphthene	ND	(330)
Aniline	ND	(330)	2,4-Dinitrophenol	ND	(800)
Phenol	ND	(330)	4-Nitrophenol	ND	(800)
bis(2-Chloroethyl) ether	ND	(330)	Dibenzofuran	ND	(330)
2-Chlorophenol	ND	(330)	2,4-Dinitrotoluene	ND	(330)
1,2-Dichlorobenzene	ND	(330)	Diethylphthalate	ND	(330)
1,4-Dichlorobenzene	ND	(330)	4-Chlorophenyl-phenylether	ND	(330)
Benzyl Alcohol	ND	(330)	Fluorene	ND	(330)
1,2-Dichlorobenzene	ND	(330)	1,2-Diphenylhydrazine	ND	(800)
2-Methylphenol	ND	(330)	4-Nitroaniline	ND	(800)
2,2'-oxybis(1-Chloropropane)	ND	(330)	4,6-Dinitro-2-methylphenol	ND	(800)
4-Methylphenol	ND	(330)	N-Nitrosodiphenylamine (1)	ND	(330)
N-Nitroso-di-n-propylamine	ND	(330)	4-Bromophenyl-phenylether	ND	(330)
Hexachloroethane	ND	(330)	Hexachlorobenzene	ND	(330)
Nitrobenzene	ND	(330)	Pentachlorophenol	ND	(800)
Isophorone	ND	(330)	Benzidine	ND	(800)
2-Nitrophenol	ND	(330)	Phenanthrene	ND	(800)
2,4-Dimethylphenol	ND	(330)	Anthracene	ND	(330)
Benzoic Acid	ND	(800)	Carbazole	ND	(800)
bis(2-Chloroethoxy)methane	ND	(330)	Di-n-butylphthalate	450	(330)
2,4-Dichlorophenol	ND	(330)	Fluoranthene	ND	(330)
1,2,4-Trichlorobenzene	ND	(330)	4,4'-Methylene Dianiline	ND	(800)
Naphthalene	ND	(330)	Pyrene	ND	(330)
4-Chloroaniline	ND	(330)	Bisphenol-A	ND	(330)
Hexachloro-1,3-butadiene	ND	(330)	Butylbenzylphthalate	ND	(330)
4-Chloro-3-methylphenol	ND	(330)	3,3'-Dichlorobenzidine	ND	(330)
2-Methylnaphthalene	ND	(330)	Benzo(a)anthracene	ND	(330)
Hexachlorocyclopentadiene	ND	(330)	Chrysene	ND	(330)
2,4,6-Trichlorophenol	ND	(330)	bis(2-Ethylhexyl)phthalate	ND	(330)
2,4,5-Trichlorophenol	ND	(800)	Di-n-octylphthalate	ND	(330)
2-Chloronaphthalene	ND	(330)	Benz(b)fluoranthene	ND	(330)
1-Chloronaphthalene	ND	(330)	Benzo(k)fluoranthene	ND	(330)
2-Nitroaniline	ND	(800)	Benzo(a)pyrene	ND	(330)
Dimethylphthalate	ND	(330)	Indeno(1,2,3-cd)pyrene	ND	(330)
Acenaphthylene	ND	(330)	Dibenzo(a,h)anthracene	ND	(330)
2,6-Dinitrotoluene	ND	(330)	Benzo(g,h,i)perylene	ND	(330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	46	23-120
2-Fluorobiphenyl	43	30-115
Terphenyl-d14	80	18-137
Phenol-d5	48	24-113
2-Fluorophenol	47	25-121
2,4,6-Tribromophenol	48	19-122

MDL: Method Detection Limit



CKY INC., ANALYTICAL LABORATORIES, 630 Maple Ave., Torrance, Calif. 90503 Tel. (310) 618-8889 Fax: (310) 618-0818

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8270
MATRIX: SOIL

=====

BATCH NO.:	94A039	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A039-L1S	DATE ANALYZED:	01/19/94

ACCESSION: 94A032 94A039 94A050 94A059 94A060 94A061
94A062

PARAMETER	TRUE VALUE (ug/kg)	FOUND VALUE (ug/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Phenol	5000	2814	56
2-Chlorophenol	5000	3008	60
1,4-DCB	3300	2069	63
N-Nitroso-di-n	3300	2282	69
1,2,4-TCB	3300	2153	65
4-Chl-3-Methyl	5000	3139	63
Acenaphthene	3300	2003	61
4-Nitrophenol	5000	3319	66
2,4-Dinitrotol	3300	2100	64
Pentachlorophe	5000	3291	66
Pyrene	3300	2137	65

EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: NA
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: NA
BATCH NO.: 94A039	DATE EXTRACTED: 01/18/94
SAMPLE ID: SBLK01	DATE ANALYZED: 01/19/94
CONTROL NO.: A039-B1S	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg) RESULT MDL	PARAMETERS	(ug/kg) RESULT MDL
N-Nitrosodimethylamine	ND (330)	3-Nitroaniline	ND (800)
Pyridine	ND (330)	Acenaphthene	ND (330)
Aniline	ND (330)	2,4-Dinitrophenol	ND (800)
Phenol	ND (330)	4-Nitrophenol	ND (800)
bis(2-Chloroethyl) ether	ND (330)	Dibenzofuran	ND (330)
2-Chlorophenol	ND (330)	2,4-Dinitrotoluene	ND (330)
1,3-Dichlorobenzene	ND (330)	Diethylphthalate	ND (330)
1,4-Dichlorobenzene	ND (330)	4-Chlorophenyl-phenylether	ND (330)
Benzyl Alcohol	ND (330)	Fluorene	ND (330)
1,2-Dichlorobenzene	ND (330)	1,2-Diphenylhydrazine	ND (800)
2-Methylphenol	ND (330)	4-Nitroaniline	ND (800)
2,2'-oxybis(1-Chloropropane)	ND (330)	4,6-Dinitro-2-methylphenol	ND (800)
4-Methylphenol	ND (330)	N-Nitrosodiphenylamine (1)	ND (330)
N-Nitroso-di-n-propylamine	ND (330)	4-Bromophenyl-phenylether	ND (330)
Hexachloroethane	ND (330)	Hexachlorobenzene	ND (330)
Nitrobenzene	ND (330)	Pentachlorophenol	ND (800)
Isophorone	ND (330)	Benidine	ND (800)
2-Nitrophenol	ND (330)	Phenanthrene	ND (800)
2,4-Dimethylphenol	ND (330)	Anthracene	ND (330)
Benzoic Acid	ND (800)	Carbazole	ND (800)
bis(2-Chloroethoxy) methane	ND (330)	Di-n-butylphthalate	440 (330)
2,4-Dichlorophenol	ND (330)	Fluoranthene	ND (330)
1,2,4-Trichlorobenzene	ND (330)	4,4'-Methylene Dianiline	ND (800)
Naphthalene	ND (330)	Pyrene	ND (330)
4-Chloroaniline	ND (330)	Bisphenol-A	ND (330)
Hexachloro-1,3-butadiene	ND (330)	Butylbenzylphthalate	ND (330)
4-Chloro-3-methylphenol	ND (330)	3,3'-Dichlorobenzidine	ND (330)
2-Methylnaphthalene	ND (330)	Benzo(a)anthracene	ND (330)
Hexachlorocyclopentadiene	ND (330)	Chrysene	ND (330)
2,4,6-Trichlorophenol	ND (330)	bis(2-Ethylhexyl)phthalate	ND (330)
2,4,5-Trichlorophenol	ND (800)	Di-n-octylphthalate	ND (330)
2-Chloronaphthalene	ND (330)	Benz(b)fluoranthene	ND (330)
1-Chloronaphthalene	ND (330)	Benzo(k)fluoranthene	ND (330)
2-Nitroaniline	ND (800)	Benzo(a)pyrene	ND (330)
Dimethylphthalate	ND (330)	Indeno(1,2,3-cd)pyrene	ND (330)
Acenaphthylene	ND (330)	Dibenzo(a,h)anthracene	ND (330)
2,6-Dinitrotoluene	ND (330)	Benzo(g,h,i)perylene	ND (330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	60	23-120
2-Fluorobiphenyl	58	30-115
Terphenyl-d14	117	18-137
Phenol-d5	57	24-113
2-Fluorophenol	52	25-121
2,4,6-Tribromophenol	70	19-122

MDL: Method Detection Limit



CKY INC., ANALYTICAL LABORATORIES, 630 Maple Ave., Torrance, Calif. 90503 Tel. (310) 618-8889 Fax: (310) 618-0818

EPA METHOD 413.2
OIL & GREASE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/11/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/11/94
BATCH NO.:   94A039                     DATE EXTRACTED:  01/13/94
MATRIX:      SOIL                       DATE ANALYZED:   01/17/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-22#8	A039-08	ND	1	10
TBLK1S	A039-B1S	ND	1	10

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 413.2
MATRIX: SOIL

BATCH NO.: 94A039 DATE RECEIVED: NA
SAMPLE ID: EB8#5 DATE EXTRACTED: 01/13/94
CONTROL NO.: A032-05 DATE ANALYZED: 01/17/94

ACCESSION: 94A032 94A039

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
TROG	ND	150	151	101	150	163	109	8

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 413.2
MATRIX: SOIL

=====

BATCH NO.:	94A039	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/13/94
CONTROL NO.:	A032-L1S	DATE ANALYZED:	01/17/94
ACCESSION:	94A032 94A039		

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
TROG	150	158	105



14/10/89

Chain of Custody Record

410 18 40
92

Lab Job no.: _____

Date: 1/10/89

Page 1 of 1

Laboratory: CKY Method of Shipment: _____

Address: _____ Shipment No.: _____

Airbill No.: _____

Client: The Earth Technology Corporation Cooler No.: _____

Address: 13900 Alton Parkway, Suite 120 Project Manager: Kris Kishan

Irvine, CA 92718

Telephone No.: 714 459-7414

Project Name: METRO E EXT. Fax No.: _____

Project Number: 94-1109-2 Samplers: (Signature) [Signature]

Field Sample Number	Location/Depth	Date	Time	Sample Type	Type/Size of Container	Preservation		Analysis Required										Remarks
						Temp.	Chemical	Filtered	No. of Containers	EPA Method 8015 (Mod) Gasoline	EPA 8020 BTEX	EPA Method 8015 (Mod) Diesel	EPA Method 8240	EPA Method 8270	Total Lead	Signature	Signature	
ER-22 #	1	2	11/10/89	Soil	4.5" S.S. Sleeve	Ice												
	2	4	11/10/89															
	3	7	11/10/89															
	4	14	11/10/89															
	5	17	11/10/89															
	6	24	11/10/89															
	7	29	11/10/89															
	8	35	11/10/89															
	9	40	11/10/89															
	10	45	11/10/89															
	11	50	11/10/89															
	12	55	11/10/89															
	13	59.5	11/10/89															

Relinquished by: [Signature]	Date: 1/10/89	Received by: [Signature]	Date: 1/10/89	Relinquished by: [Signature]	Date: 1/10/89	Received by: [Signature]	Date: 1/10/89
Signature: [Signature]		Signature: [Signature]		Signature: [Signature]		Signature: [Signature]	
Printed: [Signature]		Printed: [Signature]		Printed: [Signature]		Printed: [Signature]	
Company: [Signature]		Company: [Signature]		Company: [Signature]		Company: [Signature]	
Reason: Transfer to Lab.		Reason: [Signature]		Reason: Analysis		Reason: [Signature]	

Comments: 7-200	Relinquished by: [Signature]	Date: _____	Received by: [Signature]	Date: _____
	Signature: _____		Signature: _____	
	Printed: _____		Printed: _____	
	Company: _____		Company: _____	
	Reason: _____		Reason: _____	



CKY incorporated Analytical Laboratories

Date: 01-21-1994
CKY Batch No.: 94A016

Attn.: K. Khilnani

Earth Technology Corp.
13900 Alton Parkway #120
Irvine, CA 92718

Subject: Laboratory Report
Project: Metro Rail - East Side Ext.

Enclosed is the Laboratory report for samples received on 01/05/94. The samples were received in coolers with ice and intact; the chain-of-custody forms were properly filled out. The data reported include :

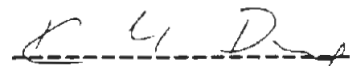
Sample ID	Control No.	Matrix	Analysis
-----	-----	-----	-----
EB-8D#1	A016-01	soil	Hold
EB-8D#2	A016-02	soil	Hold
EB-8D#3	A016-03	soil	Hold
EB-8D#4	A016-04	soil	Hold
EB-8D#5	A016-05	soil	EPA M8015 (CCID) EPA 8020
EB-8D#6	A016-06	soil	Hold
EB-8D#7	A016-07	soil	Hold
EB-8D#8	A016-08	soil	Hold
EB-8D#9	A016-09	soil	EPA M8015 (CCID) EPA 8020
EB-8D#10	A016-10	soil	Hold
EB-8D#11	A016-11	soil	EPA M8015 (CCID) EPA 8020
EB-8D#12	A016-12	soil	EPA M8015 (CCID) EPA 8020
EB-8D#13	A016-13	soil	EPA M8015 (CCID) EPA 8240 EPA 8270

Sample ID	Control No.	Matrix	Analysis
-----	-----	-----	-----
			Organic Pb
			Sulfide
			Oil & Grease
			Sulfate
			Chloride
EB-8D#14	A016-14	soil	EPA M8015 (CCID)
			EPA 8020
EB-8D#15	A016-15	soil	EPA M8015 (CCID)
			EPA 8020

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,



Kam Y. Pang, Ph.D.
Laboratory Director

P.S. - All analyses requested for the above referenced project have been completed. Therefore, unless instructed, the remaining portions of the samples will be disposed after fifteen (15) days from the date of this report.

EPA METHOD M8015
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

CLIENT:	Earth Technology Corp.	DATE COLLECTED:	01/05/94
PROJECT:	Metro Rail - East Side Ext.	DATE RECEIVED:	01/05/94
BATCH NO.:	94A016	DATE EXTRACTED:	01/06/94
MATRIX:	SOIL	DATE ANALYZED:	01/09/94

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	H-C RANGE	% RECOVERY		DL FACTOR	MDL (mg/kg)
				SURR1	SURR2		
EB-8D#5	A016-05	ND	N.A.	88	77	1	5
EB-8D#9	A016-09	ND	N.A.	97	99	1	5
EB-8D#11	A016-11	ND	N.A.	101	104	1	5
EB-8D#12	A016-12	ND	N.A.	102	95	1	5
EB-8D#13	A016-13	ND	N.A.	93	98	1	5
EB-8D#14	A016-14	ND	N.A.	98	103	1	5
EB-8D#15	A016-15	ND	N.A.	96	100	1	5
DBLK1S	A016-B1S	ND	N.A.	107	104	1	5
DBLK2S	A016-B2S	ND	N.A.	100	103	1	5
DBLK3S	A016-B3S	ND	N.A.	92	95	1	5
DBLK4S	A016-B4S	ND	N.A.	104	98	1	5

SURR1 : Bromobenzene

SURR2 : Hexacosane

MDL : Method Detection Limit

A016-12 & A016-B4S, extracted and analyzed on 01/18/94

A016-13 & A016-B3S, extracted and analyzed on 01/12/94

A016-14 & A016-B2S, extracted on 01/07/94

A016-B1S, analyzed on 01/08/94

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

BATCH NO.: 94A016 DATE RECEIVED: NA
SAMPLE ID: EB1-D3 DATE EXTRACTED: 01/06/94
CONTROL NO.: A014-03 DATE ANALYZED: 01/08/94

ACCESSION: 94A014 94A015 94A016 94A017

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
DIESEL	ND	250	231	92	250	248	99	7

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

=====

BATCH NO.:	94A016	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/06/94
CONTROL NO.:	A014-L1S	DATE ANALYZED:	01/08/94

ACCESSION: 94A014 94A015 94A016 94A017

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
DIESEL	250	269	108



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

=====

BATCH NO.:	94A016	DATE RECEIVED:	NA
SAMPLE ID:	LCS02	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A014-L2S	DATE ANALYZED:	01/08/94
ACCESSION:	94A014	94A015	94A016 94A017

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
DIESEL	250	250	100

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

=====

BATCH NO.:	94A016	DATE RECEIVED:	NA
SAMPLE ID:	LCS03	DATE EXTRACTED:	01/12/94
CONTROL NO.:	A014~L3S	DATE ANALYZED:	01/12/94

ACCESSION: 94A014 94A015 94A016 94A017

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
DIESEL	250	228	91

64

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

=====

BATCH NO.:	94A016	DATE RECEIVED:	NA
SAMPLE ID:	LCS04	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A016-L4S	DATE ANALYZED:	01/18/94

ACCESSION: 94A016 94A045 94A058

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
DIESEL	250	230	92



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

```
=====
BATCH NO.:      94A016                      DATE RECEIVED:    NA
SAMPLE ID:      MIR936-SB05-35              DATE EXTRACTED:   01/18/94
CONTROL NO.:    A058-01                    DATE ANALYZED:    01/18/94

ACCESSION:      94A016   94A045   94A058
```

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
DIESEL	ND	250	244	98	250	236	94	4

EPA METHOD 8020
BTEX

```
=====
CLIENT:      Earth Technology Corp.          DATE COLLECTED: 01/05/94
PROJECT:     Metro Rail - East Side Ext.    DATE RECEIVED:  01/05/94
BATCH NO.:   94A016                        DATE EXTRACTED: NA
MATRIX:      SOIL                          DATE ANALYZED:   01/11/94
=====
```

SAMPLE ID	CNTRL NO	DL F	MDL	BENZ	RESULTS TOLUENE	(ug/kg) E BENZ	XYLS	% Rcvy SURR
-----	-----	----	-----	-----	-----	-----	-----	-----
EB-8D#5	A016-05	1	5	ND	ND	ND	ND	108
EB-8D#9	A016-09	1	5	ND	ND	ND	ND	90
EB-8D#11	A016-11	1	5	ND	ND	ND	ND	106
EB-8D#14	A016-14	1	5	120	7	ND	ND	106
EB-8D#15	A016-15	1	5	ND	ND	ND	ND	98
VBLK1S	A016-B1S	1	5	ND	ND	ND	ND	98
EB-8D#12	A016-12*	1	5	11	ND	ND	ND	86
VBLK2S	A016-B2S*	1	5	ND	ND	ND	ND	99

DL F : Dilution Factor
SURR : Bromofluorobenzene
MDL : Method Detection Limit

* Date Analyzed : 01/18/94, Sample was taken from the unopened end of tube.



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8020
MATRIX: SOIL

BATCH NO.: 94A009 DATE RECEIVED: NA
SAMPLE ID: EB-8D#12 DATE EXTRACTED: NA
CONTROL NO.: A016-12 DATE ANALYZED: 01/18/94

ACCESSION: 94A009 94A016

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Benzene	11	250	221	84	250	251	96	13
Toluene	ND	250	210	84	250	260	104	21
Ethyl Benzene	ND	250	220	88	250	270	108	20
Xylenes	ND	750	650	87	750	780	104	18



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 602/8020
MATRIX: WATER

=====

BATCH NO.: 94A016 DATE RECEIVED: NA
SAMPLE ID: LCS01 DATE EXTRACTED: NA
CONTROL NO.: A014-L1W DATE ANALYZED: 01/11/94

ACCESSION: 94A014 94A015 94A016 94A017

PARAMETER	TRUE VALUE (ug/L)	FOUND VALUE (ug/L)	LCS RECOVERY (%)
-----	-----	-----	-----
Benzene	50	48	96
Toluene	50	49	98
EthylBenzene	50	50	100
Xylenes	150	149	99



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 602/8020
MATRIX: SOIL

=====

BATCH NO.:	94A016	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A016-L1S	DATE ANALYZED:	01/18/94
ACCESSION:	94A019 94A016		

PARAMETER	TRUE VALUE (ug/kg)	FOUND VALUE (ug/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Benzene	250	240	96
Toluene	250	250	100
EthylBenzene	250	260	104
Xylenes	750	770	103



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8020
MATRIX: SOIL

BATCH NO.: 94A016 DATE RECEIVED: NA
SAMPLE ID: EB1-D3 DATE EXTRACTED: NA
CONTROL NO.: A014-03 DATE ANALYZED: 01/11/94

ACCESSION: 94A014 94A015 94A016 94A017

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Benzene	ND	250	306	122	250	321	128	5
Toluene	ND	250	255	102	250	263	105	3
EthylBenzene	ND	250	249	100	250	259	104	4
Xylenes	ND	750	754	101	750	784	105	4

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8020
MATRIX: SOIL

BATCH NO.: 94A016 DATE RECEIVED: 01/05/94
SAMPLE ID: EB-8D#12 DATE EXTRACTED: NA
CONTROL NO.: A016-12 DATE ANALYZED: 01/18/94

ACCESSION: 94A009 94A016

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Benzene	ND	250	210	84	250	240	96	13
Toluene	ND	250	210	84	250	260	104	21
EthylBenzene	ND	250	220	88	250	270	108	20
Xylenes	ND	750	650	87	750	780	104	18



EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/05/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/05/94
BATCH NO.:   94A016                     DATE EXTRACTED:  NA
SAMPLE ID:   EB-8D#13                   DATE ANALYZED:  01/07/94
CONTROL NO.: A016-13                     MATRIX:        SOIL
% MOISTURE:  NA                           DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
-----	-----	-----
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
-----	-----	-----
1,2 Dichloroethane-d4	87	70-121
Toluene -d8	115	84-138
Bromofluorobenzene	88	59-113

MDL : Method Detection Limit

EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

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=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED:  NA
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:   NA
BATCH NO.:   94A016                     DATE EXTRACTED:  NA
SAMPLE ID:   VBLK1S                     DATE ANALYZED:   01/07/94
CONTROL NO.: A016-B1S                   MATRIX:         SOIL
% MOISTURE:  NA                         DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	93	70-121
Toluene -d8	104	84-138
Bromofluorobenzene	95	59-113

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8240
MATRIX: SOIL

BATCH NO.: 94A016 DATE RECEIVED: NA
SAMPLE ID: EB14A-D4 DATE EXTRACTED: NA
CONTROL NO.: A022-04 DATE ANALYZED: 01/10/94

ACCESSION: 94A014 94A015 94A016 94A022 94A027

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
1,1-DCE	ND	50	67	134	50	63	126	6
Benzene	ND	50	69	138	50	69	138	0
TCE	ND	50	65	130	50	63	126	3
Toluene	ND	50	64	128	50	62	124	3
Chlorobenzene	ND	50	61	122	50	61	122	0

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8240
MATRIX: SOIL

=====

BATCH NO.:	94A016	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A016-L1S	DATE ANALYZED:	01/07/94
ACCESSION:	94A016		

PARAMETER	TRUE VALUE (ug/kg)	FOUND VALUE (ug/kg)	LCS RECOVERY (%)	QC LIMIT
-----	-----	-----	-----	-----
1,1-DCE	50	30	60	59-172
Benzene	50	44	88	66-142
TCE	50	42	84	62-137
Toluene	50	45	90	59-139
Chlorobenzene	50	48	96	60-133



EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: 01/05/94
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: 01/05/94
BATCH NO.: 94A016	DATE EXTRACTED: 01/07/94
SAMPLE ID: EB-8D#13	DATE ANALYZED: 01/09/94
CONTROL NO.: A016-13	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg)		PARAMETERS	(ug/kg)	
	RESULT	MDL		RESULT	MDL
N-Nitrosodimethylamine	ND	(330)	3-Nitroaniline	ND	(800)
Pyridine	ND	(330)	Acenaphthene	ND	(330)
Aniline	ND	(330)	2,4-Dinitrophenol	ND	(800)
Phenol	ND	(330)	4-Nitrophenol	ND	(800)
bis(2-Chloroethyl) ether	ND	(330)	Dibenzofuran	ND	(330)
2-Chlorophenol	ND	(330)	2,4-Dinitrotoluene	ND	(330)
1,3-Dichlorobenzene	ND	(330)	Diethylphthalate	ND	(330)
1,4-Dichlorobenzene	ND	(330)	4-Chlorophenyl-phenylether	ND	(330)
Benzyl Alcohol	ND	(330)	Fluorene	ND	(330)
1,2-Dichlorobenzene	ND	(330)	1,2-Diphenylhydrazine	ND	(800)
2-Methylphenol	ND	(330)	4-Nitroaniline	ND	(800)
2,2'-oxybis(1-Chloropropane)	ND	(330)	4,6-Dinitro-2-methylphenol	ND	(800)
4-Methylphenol	ND	(330)	N-Nitrosodiphenylamine (1)	ND	(330)
N-Nitroso-di-n-propylamine	ND	(330)	4-Bromophenyl-phenylether	ND	(330)
Hexachloroethane	ND	(330)	Hexachlorobenzene	ND	(330)
Nitrobenzene	ND	(330)	Pentachlorophenol	ND	(800)
Isophorene	ND	(330)	Benidine	ND	(800)
2-Nitrophenol	ND	(330)	Phenanthrene	ND	(800)
2,4-Dimethylphenol	ND	(330)	Anthracene	ND	(330)
Benzoic Acid	ND	(800)	Carbazole	ND	(800)
bis(2-Chloroethoxy) methane	ND	(330)	Di-n-butylphthalate	ND	(330)
2,4-Dichlorophenol	ND	(330)	Fluoranthene	ND	(330)
1,2,4-Trichlorobenzene	ND	(330)	4,4'-Methylene Dianiline	ND	(800)
Naphthalene	ND	(330)	Pyrene	ND	(330)
4-Chloroaniline	ND	(330)	Bisphenol-A	ND	(330)
Hexachloro-1,3-butadiene	ND	(330)	Butylbenzylphthalate	ND	(330)
4-Chloro-3-methylphenol	ND	(330)	3,3'-Dichlorobenzidine	ND	(330)
2-Methylnaphthalene	ND	(330)	Benzo(a)anthracene	ND	(330)
Hexachlorocyclopentadiene	ND	(330)	Chrysene	ND	(330)
2,4,6-Trichlorophenol	ND	(330)	bis(2-Ethylhexyl)phthalate	ND	(330)
2,4,5-Trichlorophenol	ND	(800)	Di-n-octylphthalate	ND	(330)
2-Chloronaphthalene	ND	(330)	Benz(b)fluoranthene	ND	(330)
1-Chloronaphthalene	ND	(330)	Benzo(k)fluoranthene	ND	(330)
2-Nitroaniline	ND	(800)	Benzo(a)pyrene	ND	(330)
Dimethylphthalate	ND	(330)	Indeno(1,2,3-cd)pyrene	ND	(330)
Acenaphthylene	ND	(330)	Dibenzo(a,h)anthracene	ND	(330)
2,6-Dinitrotoluene	ND	(330)	Benzo(g,h,i)perylene	ND	(330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	48	23-120
2-Fluorobiphenyl	52	30-115
Terphenyl-d14	63	18-137
Phenol-d5	46	24-113
2-Fluorophenol	47	25-121
2,4,6-Tribromophenol	55	19-122

MDL: Method Detection Limit

EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: NA
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: NA
BATCH NO.: 94A016	DATE EXTRACTED: 01/07/94
SAMPLE ID: SBLK1S	DATE ANALYZED: 01/09/94
CONTROL NO.: L084-B1S	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg)		PARAMETERS	(ug/kg)	
	RESULT	MDL		RESULT	MDL
N-Nitrosodimethylamine	ND	(330)	3-Nitroaniline	ND	(800)
Pyridine	ND	(330)	Acenaphthene	ND	(330)
Aniline	ND	(330)	2,4-Dinitrophenol	ND	(800)
Phenol	ND	(330)	4-Nitrophenol	ND	(800)
bis(2-Chloroethyl) ether	ND	(330)	Dibenzofuran	ND	(330)
2-Chlorophenol	ND	(330)	2,4-Dinitrotoluene	ND	(330)
1,3-Dichlorobenzene	ND	(330)	Diethylphthalate	ND	(330)
1,4-Dichlorobenzene	ND	(330)	4-Chlorophenyl-phenylether	ND	(330)
Benzyl Alcohol	ND	(330)	Fluorene	ND	(330)
1,2-Dichlorobenzene	ND	(330)	1,2-Diphenylhydrazine	ND	(800)
2-Methylphenol	ND	(330)	4-Nitroaniline	ND	(800)
2,2'-oxybis(1-Chloropropane)	ND	(330)	4,6-Dinitro-2-methylphenol	ND	(800)
4-Methylphenol	ND	(330)	N-Nitrosodiphenylamine (1)	ND	(330)
N-Nitroso-di-n-propylamine	ND	(330)	4-Bromophenyl-phenylether	ND	(330)
Hexachloroethane	ND	(330)	Hexachlorobenzene	ND	(330)
Nitrobenzene	ND	(330)	Pentachlorophenol	ND	(800)
Isophorene	ND	(330)	Benzidine	ND	(800)
2-Nitrophenol	ND	(330)	Phenanthrene	ND	(800)
2,4-Dimethylphenol	ND	(330)	Anthracene	ND	(330)
Benzoic Acid	ND	(800)	Carbazole	ND	(800)
bis(2-Chloroethoxy) methane	ND	(330)	Di-n-butylphthalate	1500	(330)
2,4-Dichlorophenol	ND	(330)	Fluoranthene	ND	(330)
1,2,4-Trichlorobenzene	ND	(330)	4,4'-Methylene Dianiline	ND	(800)
Naphthalene	ND	(330)	Pyrene	ND	(330)
4-Chloroaniline	ND	(330)	Bisphenol-A	ND	(330)
Hexachloro-1,3-butadiene	ND	(330)	Butylbenzylphthalate	ND	(330)
4-Chloro-3-methylphenol	ND	(330)	3,3'-Dichlorobenzidine	ND	(330)
2-Methylnaphthalene	ND	(330)	Benzo(a)anthracene	ND	(330)
Hexachlorocyclopentadiene	ND	(330)	Chrysene	ND	(330)
2,4,6-Trichlorophenol	ND	(330)	bis(2-Ethylhexyl)phthalate	ND	(330)
2,4,5-Trichlorophenol	ND	(800)	Di-n-octylphthalate	ND	(330)
2-Chloronaphthalene	ND	(330)	Benz(b)fluoranthene	ND	(330)
1-Chloronaphthalene	ND	(330)	Benzo(k)fluoranthene	ND	(330)
2-Nitroaniline	ND	(800)	Benzo(a)pyrene	ND	(330)
Dimethylphthalate	ND	(330)	Indeno(1,2,3-cd)pyrene	ND	(330)
Acenaphthylene	ND	(330)	Dibenzo(a,h)anthracene	ND	(330)
2,6-Dinitrotoluene	ND	(330)	Benzo(g,h,i)perylene	ND	(330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	64	23-120
2-Fluorobiphenyl	71	30-115
Terphenyl-d14	103	18-137
Phenol-d5	61	24-113
2-Fluorophenol	61	25-121
2,4,6-Tribromophenol	72	19-122

MDL: Method Detection Limit



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8270
MATRIX: SOIL

BATCH NO.: 94A016 DATE RECEIVED: NA
SAMPLE ID: 29-A115902 DATE EXTRACTED: 01/07/94
CONTROL NO.: A019-02 DATE ANALYZED: 01/08/94

ACCESSION: 94A008 94A009 94A010 94A011 94A014 94A015
94A016 94A017 94A019

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Phenol	ND	5000	3130	63	5000	2880	58	8
2-Chlorophenol	ND	5000	3310	66	5000	3000	60	10
1,4-DCB	ND	3300	2145	65	3300	2010	61	6
N-Nitroso-di-n	ND	3300	2460	75	3300	2300	70	7
1,2,4-TCB	ND	3300	2460	75	3300	2310	70	7
4-Chl-3-Methy	ND	5000	3780	76	5000	3610	72	5
Acenaphthene	ND	3300	2520	76	3300	2330	71	7
2,4-Dinitrotol	ND	3300	2960	90	3300	3040	92	2
Pentachlorophe	ND	5000	4620	92	5000	4320	86	7
Pyrene	ND	3300	3010	91	3300	3540	107	16



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8270
MATRIX: SOIL

```
=====
BATCH NO.:      94A016      DATE RECEIVED:    NA
SAMPLE ID:      LCS01      DATE EXTRACTED:   01/07/94
CONTROL NO.:    A008-L1S    DATE ANALYZED:    01/07/94
```

ACCESSION: 94A008 94A009 94A010 94A011 94A014 94A015
 94A016 94A017

PARAMETER	TRUE VALUE (ug/kg)	FOUND VALUE (ug/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Phenol	5000	3260	65
2-Chlorophenol	5000	3640	73
1,4-DCB	3300	2440	73
N-Nitroso-di-n-	3300	2750	83
1,2,4-TCB	3300	2760	83
4-Chloro-3-Methy	5000	2560	77
Acenaphthene	3300	2710	81
4-Nitrophenol	5000	4970	99
2,4-Dinitrotol	3300	3380	101
Pentachlorophe	5000	5060	101
Pyrene	3300	3020	91

CKY

DHS METHOD
ORGANIC LEAD

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=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/05/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/05/94
BATCH NO.:    94A016                     DATE EXTRACTED:  01/07/94
MATRIX:       SOIL                       DATE ANALYZED:   01/07/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-8D#13	A016-13	ND	1	.5
FBLK1S	A008-B1S	ND	1	.5

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A016	DATE RECEIVED:	NA
SAMPLE ID:	D-6	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A008-06	DATE ANALYZED:	01/07/94
ACCESSION:	94A008 94A009 94A010 94A011 94A014 94A015 94A016 94A017 94A021 94A022		

PARAMETER	SAMPLE (mg/kg)	DUP. SAMPLE (mg/kg)	RPD (%)
-----	-----	-----	-----
Lead	ND	ND	0



CKY QUALITY CONTROL DATA
SPIKE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A016	DATE RECEIVED:	NA
SAMPLE ID:	FBLK1S	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A008-B1S	DATE ANALYZED:	01/07/94

ACCESSION: 94A008 94A009 94A010 94A011 94A014 94A015 94A016
94A017 94A021 94A022

PARAMETER	SAMPLE RESULT (mg/kg)	SPIKE CONC. (mg/kg)	SPIKE RESULT (mg/kg)	SPIKE RECRY. (%)
-----	-----	-----	-----	-----
Lead	ND	5.0	5.2	104

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A016	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A008-L1S	DATE ANALYZED:	01/07/94

ACCESSION: 94A008 94A009 94A010 94A011 94A014 94A015 94A016
94A017 94A021 94A022

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Lead	100	94	94



EPA METHOD 376.1
SULFIDE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/05/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/05/94
BATCH NO.:    94A016                     DATE EXTRACTED:  01/11/94
MATRIX:       SOIL                       DATE ANALYZED:   01/11/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-8D#13	A016-13	ND	2*	.4
WBLK1S	A014-B1S	ND	1	.2

MDL : Method Detection Limit
* Inadequate amount of sample

CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 376.1
MATRIX: SOIL

=====

BATCH NO.:	94A016	DATE RECEIVED:	NA
SAMPLE ID:	EB1-D5	DATE EXTRACTED:	01/11/94
CONTROL NO.:	A014-05	DATE ANALYZED:	01/11/94
ACCESSION:	94A014	94A015	94A016 94A017 94A021 94A022

PARAMETER	Sample (mg/kg)	Dup. Sample (mg/kg)	RPD (%)
-----	-----	-----	-----
SULFIDE	ND	ND	0



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 376.1
MATRIX: WATER

=====

BATCH NO.:	94A016	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A014-L1W	DATE ANALYZED:	01/11/94
ACCESSION:	94A014	94A015	94A016
	94A017	94A021	94A022

PARAMETER	TRUE VALUE (mg/L)	FOUND VALUE (mg/L)	LCS RECOVERY (%)
-----	-----	-----	-----
SULFIDE	4.0	3.7	93

EPA METHOD 413.2
OIL & GREASE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/05/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/05/94
BATCH NO.:    94A016                     DATE EXTRACTED:  01/07/94
MATRIX:      SOIL                        DATE ANALYZED:   01/12/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-8D#13	A016-13	ND	1	10
TBLK1S	A016-B1S	ND	1	10

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 413.2
MATRIX: SOIL

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=====
```

BATCH NO.:	94A016	DATE RECEIVED:	NA
SAMPLE ID:	EB-6-D-9	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A015-09	DATE ANALYZED:	01/12/94

ACCESSION: 94A009 94A014 94A015 94A016 94A017

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
-----	-----	-----	-----	-----	-----	-----	-----	-----
TROG	ND	150	139	93	150	135	90	3



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 413.2
MATRIX: SOIL

=====

BATCH NO.:	94A016	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/07/94
CONTROL NO.:	A009-L1S	DATE ANALYZED:	01/12/94

ACCESSION: 94A009 94A014 94A015 94A016 94A017

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
TROG	150	139	93



EPA METHOD 300
SULFATE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/05/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/05/94
BATCH NO.:    94A016                     DATE EXTRACTED:  01/11/94
MATRIX:       SOIL                       DATE ANALYZED:   01/11/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-8D#13	A016-13	8.6	1	1
WBLK1S	A014-B1S	ND	1	1

MDL : Method Detection Limit

EPA METHOD 300
CHLORIDE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/05/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/05/94
BATCH NO.:   94A016                     DATE EXTRACTED:  01/11/94
MATRIX:     SOIL                        DATE ANALYZED:   01/11/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-8D#13	A016-13	7.6	1	0.2
WBLK1S	A014-B1S	ND	1	0.2

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
SPIKE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

=====

BATCH NO.: 94A016 DATE RECEIVED: NA
SAMPLE ID: EB6-D9 DATE EXTRACTED: 01/11/94
CONTROL NO.: A015-09 DATE ANALYZED: 01/11/94

ACCESSION: 94A014 94A015 94A016 94A017 94A021 94A022

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC
-----	-----	-----	-----	-----
Sulfate	25.3	50.0	70.2	90
Chloride	42.5	50.0	92.4	100



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

=====

BATCH NO.: 94A016 DATE RECEIVED: NA
SAMPLE ID: LCS01 DATE EXTRACTED: NA
CONTROL NO.: A014-L1S DATE ANALYZED: 01/11/94

ACCESSION: 94A014 94A015 94A016 94A017 94A021 94A022

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
Sulfate	150	146	97
Chloride	30.0	28.0	93



CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

=====

BATCH NO.:	94A016	DATE RECEIVED:	NA
SAMPLE ID:	EB6-D9	DATE EXTRACTED:	01/11/94
CONTROL NO.:	A015-09	DATE ANALYZED:	01/11/94
ACCESSION:	94A014	94A015	94A016 94A017 94A021 94A022

PARAMETER	Sample (mg/kg)	Dup. Sample (mg/kg)	RPD (%)
-----	-----	-----	-----
Sulfate	25.3	24.0	5
Chloride	42.5	41.3	3





94A016

Chain of Custody Record

EB-8D

Lab Job no.:

Date

11/5/94

Page

1 of 1

Laboratory CKY

Method of Shipment

Address

Shipment No.

Airbill No.

Cooler No.

Client The Earth Technology CorporationProject Manager Kris KhilnaniAddress 13900 Alton Parkway, Suite 120Irvine, CA 92718Telephone No. 714 458 7414Project Name Metro East Ext.Fax No. 714 458 8701Project Number 94-1109-2Samplers: (Signature) Hossain Rashid

DUE 01-12-94

G2

Field Sample Number	Location/Depth	Date	Time	Sample Type	Type/Size of Container	Preservation		Analysis Required												Remarks
						Temp	Chemical	Filtered / No. of Containers	EPA Method 8015 (Mod) Gasoline / L	EPA Method 8015 (Mod) Diesel	EPA Method 8015 (Mod) Diesel	EPA Method 8240	EPA Method 8270	Total Lead	Organic Sulphides	Oil & Grease	Surfactants	Background OVA	Head Space OVA	
1	EB-8D #1	5'	11/5/94	9:11	D	2" dia, 4.5" long	ICE													
2	"	10'		9:19			13AC													
3	"	15'		9:20		S.S. Sleeve														
4	"	20'		9:38																
5	"	25'		9:45				X	X											
6	"	30'		10:00																
7	"	35'		10:01																
8	"	40'		10:15																
9	"	45'		10:37				X	X											
10	"	50'		10:47				X	X											
11	"	55'		11:01				X	X											
12	"	60'		11:19				X	X											
13	"	65'		12:11				X	X	X	X	X	X	X	X	X	X	X	X	
14	"	70'		2:37				X	X											
15	"	73'		12:45				X	X											

Relinquished by: Hossain Rashid
Signature Hossain Rashid
Printed Hossain Rashid
Company Diaz Yourman
Reason Transfer to Job

Date 11/5/94
Received by: Craig High
Signature Craig High
Printed CRAIG HIGH
Company CKY INC.
Time 4:31

Relinquished by: Craig High
Signature Craig High
Printed CRAIG HIGH
Company CKY INC.
Reason ANALYSIS

Date 11/5/94
Received by: Craig High
Signature Craig High
Printed CRAIG HIGH
Company CKY INC.
Time 5:22

Comments: T=5°C

Relinquished by:
Signature
Printed
Company
Reason

Date
Received by:
Signature
Printed
Company
Time



CKY incorporated Analytical Laboratories

Date: 01-21-1994
CKY Batch No.: 94A027

Attn.: K. Khilnani

Earth Technology Corp.
13900 Alton Parkway #120
Irvine, CA 92718

Subject: Laboratory Report
Project: Metro Rail - East Side Ext.

Enclosed is the Laboratory report for samples received on 01/07/94. The samples were received in coolers with ice and intact; the chain-of-custody forms were properly filled out. The data reported include :

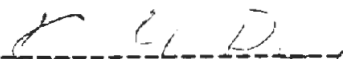
Sample ID	Control No.	Matrix	Analysis
-----	-----	-----	-----
EB-15-D5	A027-01	soil	Hold
EB-15-D6	A027-02	soil	Hold
EB-15-D7	A027-03	soil	EPA M8015 (CCID) EPA 8020
EB-15-D8	A027-04	soil	Hold
EB-15-D9	A027-05	soil	Hold
EB-15-D10	A027-06	soil	EPA M8015 (CCID) EPA 8020
EB-15-D11	A027-07	soil	Hold
EB-15-D12	A027-08	soil	Hold
EB-15-D13	A027-09	soil	EPA M8015 (CCID) EPA 8240 EPA 8270 Organic Pb Oil & Grease Sulfide Sulfate Chloride
EB-15-D14	A027-10	soil	Hold

Sample ID	Control No.	Matrix	Analysis
-----	-----	-----	-----
EB-15-D15	A027-11	soil	Hold
EB-15-D16	A027-12	soil	Hold
EB-15-D17	A027-13	soil	Hold
EB-10B-D1	A027-14	soil	Hold
EB-10B-D2	A027-15	soil	EPA M8015 (CCID) EPA 8020
EB-10B-D3	A027-16	soil	Hold
EB-10B-D4	A027-17	soil	EPA M8015 (CCID) EPA 8240 EPA 8270 Organic Pb Oil & Grease Sulfide Sulfate Chloride
EB-10B-D5	A027-18	soil	Hold
EB-10B-D6	A027-19	soil	EPA M8015 (CCID) EPA 8020

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,



Kam Y. Pang, Ph.D.
Laboratory Director

P.S. - All analyses requested for the above referenced project have been completed. Therefore, unless instructed, the remaining portions of the samples will be disposed after fifteen (15) days from the date of this report.

EPA METHOD 8020
BTEX

```
=====
CLIENT:      Earth Technology Corp.          DATE COLLECTED: 01/07/94
PROJECT:     Metro Rail - East Side Ext.     DATE RECEIVED:  01/07/94
BATCH NO.:   94A027                         DATE EXTRACTED: NA
MATRIX:      SOIL                           DATE ANALYZED:  01/12/94
=====
```

SAMPLE ID	CNTRL NO	DL F	MDL	BENZ	RESULTS (ug/kg)		XYLS	% Rcvy SURR
					TOLUENE	E BENZ		
EB-15-D7	A027-03	1	5	ND	ND	ND	ND	61
EB-15-D10	A027-06	1	5	ND	ND	ND	ND	63
EB-10B-D2	A027-15	1	5	ND	ND	ND	ND	64
EB-10B-D6	A027-19	1	5	ND	ND	ND	ND	62
VBLK1S	A027-B1S	1	5	ND	ND	ND	ND	84

DL F : Dilution Factor
SURR : Bromofluorobenzene
MDL : Method Detection Limit



EPA METHOD M8015
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```
=====
CLIENT:      Earth Technology Corp.          DATE COLLECTED: 01/07/94
PROJECT:     Metro Rail - East Side Ext.    DATE RECEIVED:  01/07/94
BATCH NO.:   94A027                        DATE EXTRACTED: 01/11/94
MATRIX:      SOIL                          DATE ANALYZED:  01/13/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	H-C RANGE	% RECOVERY		DL FACTOR	MDL (mg/kg)
				SURR1	SURR2		
EB-15-D7	A027-03	ND	N.A.	95	98	1	5
EB-15-D10	A027-06	ND	N.A.	95	97	1	5
EB-15-D13	A027-09	ND	N.A.	95	99	1	5
EB-10B-D2	A027-15	ND	N.A.	95	90	1	5
EB-10B-D4	A027-17	ND	N.A.	98	104	1	5
EB-10B-D6	A027-19	ND	N.A.	95	89	1	5
DBLK1S	A027-B1S	ND	N.A.	94	94	1	5

SURR1 : Bromobenzene
 SURR2 : Hexacosane
 MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

=====

BATCH NO.:	94A027	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/11/94
CONTROL NO.:	A021-L1S	DATE ANALYZED:	01/12/94

ACCESSION: 94A021 94A027 94A031 94A034 94A035

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
DIESEL	250	223	89



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

BATCH NO.: 94A027 DATE RECEIVED: NA
SAMPLE ID: EB13A-08 DATE EXTRACTED: 01/11/94
CONTROL NO.: A031-08 DATE ANALYZED: 01/13/94

ACCESSION: 94A017 94A021 94A027 94A031 94A035

PARAMETER	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
Diesel	ND	250	230	92	250	239	96	4

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: 8020
MATRIX: WATER

=====

BATCH NO.:	94A027	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A027-L1W	DATE ANALYZED:	01/12/94
ACCESSION:	94A027		

PARAMETER	TRUE CONC. (ug/L)	FOUND CONC. (ug/L)	SPIKE REC. (%)
-----	-----	-----	-----
Benzene	50	40	80
Toluene	50	40	70
Chlorobenzene	50	38	76



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8020
MATRIX: SOIL

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BATCH NO.:	94A027	DATE RECEIVED:	01/07/94
SAMPLE ID:	EB-10B-D6	DATE EXTRACTED:	NA
CONTROL NO.:	A027-19	DATE ANALYZED:	01/12/94
ACCESSION:	94A027		

PARAMETER	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Benzene	ND	72	44	61	72	45	63	3
Toluene	ND	480	390	81	480	380	79	3
Ethylbenzene	ND	110	84	76	110	87	79	4
Xylenes	ND	800	630	79	800	660	83	5

EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/07/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/07/94
BATCH NO.:   94A027                     DATE EXTRACTED:  NA
SAMPLE ID:    EB-10B-D4                  DATE ANALYZED:   01/10/94
CONTROL NO.:  A027-17                    MATRIX:         SOIL
% MOISTURE:   NA                        DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	93	70-121
Toluene -d8	108	84-138
Bromofluorobenzene	97	59-113

MDL : Method Detection Limit



EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/07/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/07/94
BATCH NO.:   94A027                     DATE EXTRACTED:  NA
SAMPLE ID:   EB-15-D13                   DATE ANALYZED:  01/10/94
CONTROL NO.: A027-09                     MATRIX:        SOIL
% MOISTURE:  NA                           DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	95	70-121
Toluene -d8	106	84-138
Bromofluorobenzene	100	59-113

MDL : Method Detection Limit

EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED:  NA
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  NA
BATCH NO.:   94A027                     DATE EXTRACTED:  NA
SAMPLE ID:    VBLK1S                     DATE ANALYZED:   01/10/94
CONTROL NO.:  A027-B1S                   MATRIX:         SOIL
% MOISTURE:   NA                         DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	92	70-121
Toluene -d8	107	84-138
Bromofluorobenzene	94	59-113

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8240
MATRIX: WATER

=====

BATCH NO.:	94A027	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A027-L1W	DATE ANALYZED:	01/07/94
ACCESSION:	94A027		

PARAMETER	TRUE VALUE (ug/L)	FOUND VALUE (ug/L)	LCS RECOVERY (%)	QC LIMIT
-----	-----	-----	-----	-----
1,1-DCE	50	64	128	61-145
Benzene	50	58	116	76-127
TCE	50	56	112	71-120
Toluene	50	56	112	76-125
Chlorobenzene	50	53	106	75-130



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8240
MATRIX: SOIL

BATCH NO.: 94A027 DATE RECEIVED: NA
SAMPLE ID: EB14A-D4 DATE EXTRACTED: NA
CONTROL NO.: A022-04 DATE ANALYZED: 01/10/94
ACCESSION: 94A014 94A015 94A016 94A022 94A027

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
1,1-DCE	ND	50	67	134	50	63	126	6
Benzene	ND	50	69	138	50	69	138	0
TCE	ND	50	65	130	50	63	126	3
Toluene	ND	50	64	128	50	62	124	3
Chlorobenzene	ND	50	61	122	50	61	122	0



EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: 01/07/94
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: 01/07/94
BATCH NO.: 94A027	DATE EXTRACTED: 01/11/94
SAMPLE ID: EB-15-D13	DATE ANALYZED: 01/12/94
CONTROL NO.: A027-09	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg)		PARAMETERS	(ug/kg)	
	RESULT	MDL		RESULT	MDL
N-Nitrosodimethylamine	ND	(330)	3-Nitroaniline	ND	(800)
Pyridine	ND	(330)	Acenaphthene	ND	(330)
Aniline	ND	(330)	2,4-Dinitrophenol	ND	(800)
Phenol	ND	(330)	4-Nitrophenol	ND	(800)
bis(2-Chloroethyl) ether	ND	(330)	Dibenzofuran	ND	(330)
2-Chlorophenol	ND	(330)	2,4-Dinitrotoluene	ND	(330)
1,3-Dichlorobenzene	ND	(330)	Diethylphthalate	ND	(330)
1,4-Dichlorobenzene	ND	(330)	4-Chlorophenyl-phenylether	ND	(330)
Benzyl Alcohol	ND	(330)	Fluorene	ND	(330)
1,2-Dichlorobenzene	ND	(330)	1,2-Diphenylhydrazine	ND	(800)
2-Methylphenol	ND	(330)	4-Nitroaniline	ND	(800)
2,2'-oxybis(1-Chloropropane)	ND	(330)	4,6-Dinitro-2-methylphenol	ND	(800)
4-Methylphenol	ND	(330)	N-Nitrosodiphenylamine (1)	ND	(330)
N-Nitroso-di-n-propylamine	ND	(330)	4-Bromophenyl-phenylether	ND	(330)
Hexachloroethane	ND	(330)	Hexachlorobenzene	ND	(330)
Nitrobenzene	ND	(330)	Pentachlorophenol	ND	(800)
Isophorone	ND	(330)	Benzidine	ND	(800)
2-Nitrophenol	ND	(330)	Phenanthrene	ND	(800)
2,4-Dimethylphenol	ND	(330)	Anthracene	ND	(330)
Benzoic Acid	ND	(800)	Carbazole	ND	(800)
bis(2-Chloroethoxy) methane	ND	(330)	Di-n-butylphthalate	ND	(330)
2,4-Dichlorophenol	ND	(330)	Fluoranthene	ND	(330)
1,2,4-Trichlorobenzene	ND	(330)	4,4'-Methylene Dianiline	ND	(800)
Naphthalene	ND	(330)	Pyrene	ND	(330)
4-Chloroaniline	ND	(330)	Bisphenol-A	ND	(330)
Hexachloro-1,3-butadiene	ND	(330)	Butylbenzylphthalate	ND	(330)
4-Chloro-3-methylphenol	ND	(330)	3,3'-Dichlorobenzidine	ND	(330)
2-Methylnaphthalene	ND	(330)	Benzo(a)anthracene	ND	(330)
Hexachlorocyclopentadiene	ND	(330)	Chrysene	ND	(330)
2,4,6-Trichlorophenol	ND	(330)	bis(2-Ethylhexyl)phthalate	ND	(330)
2,4,5-Trichlorophenol	ND	(800)	Di-n-octylphthalate	ND	(330)
2-Chloronaphthalene	ND	(330)	Benz(b)fluoranthene	ND	(330)
1-Chloronaphthalene	ND	(330)	Benzo(k)fluoranthene	ND	(330)
2-Nitroaniline	ND	(800)	Benzo(a)pyrene	ND	(330)
Dimethylphthalate	ND	(330)	Indeno(1,2,3-cd)pyrene	ND	(330)
Acenaphthylene	ND	(330)	Dibenzo(a,h)anthracene	ND	(330)
2,6-Dinitrotoluene	ND	(330)	Benzo(g,h,i)perylene	ND	(330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	37	23-120
2-Fluorobiphenyl	46	30-115
Terphenyl-d14	114	18-137
Phenol-d5	41	24-113
2-Fluorophenol	40	25-121
2,4,6-Tribromophenol	85	19-122

MDL: Method Detection Limit

EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: 01/07/94
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: 01/07/94
BATCH NO.: 94A027	DATE EXTRACTED: 01/11/94
SAMPLE ID: EB-10B-D4	DATE ANALYZED: 01/13/94
CONTROL NO.: A027-17	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg) RESULT MDL	PARAMETERS	(ug/kg) RESULT MDL
N-Nitrosodimethylamine	ND (330)	3-Nitroaniline	ND (800)
Pyridine	ND (330)	Acenaphthene	ND (330)
Aniline	ND (330)	2,4-Dinitrophenol	ND (800)
Phenol	ND (330)	4-Nitrophenol	ND (800)
bis(2-Chloroethyl)ether	ND (330)	Dibenzofuran	ND (330)
2-Chlorophenol	ND (330)	2,4-Dinitrotoluene	ND (330)
1,3-Dichlorobenzene	ND (330)	Diethylphthalate	ND (330)
1,4-Dichlorobenzene	ND (330)	4-Chlorophenyl-phenylether	ND (330)
Benzyl Alcohol	ND (330)	Fluorene	ND (330)
1,2-Dichlorobenzene	ND (330)	1,2-Diphenylhydrazine	ND (800)
2-Methylphenol	ND (330)	4-Nitroaniline	ND (800)
2,2'-oxybis(1-Chloropropane)	ND (330)	4,6-Dinitro-2-methylphenol	ND (800)
4-Methylphenol	ND (330)	N-Nitrosodiphenylamine (1)	ND (330)
N-Nitroso-di-n-propylamine	ND (330)	4-Bromophenyl-phenylether	ND (330)
Hexachloroethane	ND (330)	Hexachlorobenzene	ND (330)
Nitrobenzene	ND (330)	Pentachlorophenol	ND (800)
Isophorone	ND (330)	Benzidine	ND (800)
2-Nitrophenol	ND (330)	Phenanthrene	ND (800)
2,4-Dimethylphenol	ND (330)	Anthracene	ND (330)
Benzoic Acid	ND (800)	Carbazole	ND (800)
bis(2-Chloroethoxy)methane	ND (330)	Di-n-butylphthalate	ND (330)
2,4-Dichlorophenol	ND (330)	Fluoranthene	ND (330)
1,2,4-Trichlorobenzene	ND (330)	4,4'-Methylene Dianiline	ND (800)
Naphthalene	ND (330)	Pyrene	ND (330)
4-Chloroaniline	ND (330)	Bisphenol-A	ND (330)
Hexachloro-1,3-butadiene	ND (330)	Butylbenzylphthalate	ND (330)
4-Chloro-3-methylphenol	ND (330)	3,3'-Dichlorobenzidine	ND (330)
2-Methylnaphthalene	ND (330)	Benzo(a)anthracene	ND (330)
Hexachlorocyclopentadiene	ND (330)	Chrysene	ND (330)
2,4,6-Trichlorophenol	ND (330)	bis(2-Ethylhexyl)phthalate	ND (330)
2,4,5-Trichlorophenol	ND (800)	Di-n-octylphthalate	ND (330)
2-Chloronaphthalene	ND (330)	Benzo(b)fluoranthene	ND (330)
1-Chloronaphthalene	ND (330)	Benzo(k)fluoranthene	ND (330)
2-Nitroaniline	ND (800)	Benzo(a)pyrene	ND (330)
Dimethylphthalate	ND (330)	Indeno(1,2,3-cd)pyrene	ND (330)
Acenaphthylene	ND (330)	Dibenzo(a,h)anthracene	ND (330)
2,6-Dinitrotoluene	ND (330)	Benzo(g,h,i)perylene	ND (330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	39	23-120
2-Fluorobiphenyl	44	30-115
Terphenyl-d14	109	18-137
Phenol-d5	40	24-113
2-Fluorophenol	44	25-121
2,4,6-Tribromophenol	45	19-122

MDL: Method Detection Limit

CKY

CKY INC., ANALYTICAL LABORATORIES, 630 Maple Ave., Torrance, Calif. 90503 Tel. (310) 618-8889 Fax: (310) 618-0818

EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: NA
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: NA
BATCH NO.: 94A027	DATE EXTRACTED: 01/11/94
SAMPLE ID: SBLK01	DATE ANALYZED: 01/13/94
CONTROL NO.: A017-B1S	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg)		PARAMETERS	(ug/kg)	
	RESULT	MDL		RESULT	MDL
N-Nitrosodimethylamine	ND	(330)	3-Nitroaniline	ND	(800)
Pyridine	ND	(330)	Acenaphthene	ND	(330)
Aniline	ND	(330)	2,4-Dinitrophenol	ND	(800)
Phenol	ND	(330)	4-Nitrophenol	ND	(800)
bis(2-Chloroethyl) ether	ND	(330)	Dibenzofuran	ND	(330)
2-Chlorophenol	ND	(330)	2,4-Dinitrotoluene	ND	(330)
1,3-Dichlorobenzene	ND	(330)	Diethylphthalate	ND	(330)
1,4-Dichlorobenzene	ND	(330)	4-Chlorophenyl-phenylether	ND	(330)
Benzyl Alcohol	ND	(330)	Fluorene	ND	(330)
1,2-Dichlorobenzene	ND	(330)	1,2-Diphenylhydrazine	ND	(800)
2-Methylphenol	ND	(330)	4-Nitroaniline	ND	(800)
2,2'-oxybis(1-Chloropropane)	ND	(330)	4,6-Dinitro-2-methylphenol	ND	(800)
4-Methylphenol	ND	(330)	N-Nitrosodiphenylamine (1)	ND	(330)
N-Nitroso-di-n-propylamine	ND	(330)	4-Bromophenyl-phenylether	ND	(330)
Hexachloroethane	ND	(330)	Hexachlorobenzene	ND	(330)
Nitrobenzene	ND	(330)	Pentachlorophenol	ND	(800)
Isophorone	ND	(330)	Benzidine	ND	(800)
2-Nitrophenol	ND	(330)	Phenanthrene	ND	(800)
2,4-Dimethylphenol	ND	(330)	Anthracene	ND	(330)
Benzoic Acid	ND	(800)	Carbazole	ND	(800)
bis(2-Chloroethoxy)methane	ND	(330)	Di-n-butylphthalate	ND	(330)
2,4-Dichlorophenol	ND	(330)	Fluoranthene	ND	(330)
1,2,4-Trichlorobenzene	ND	(330)	4,4'-Methylene Dianiline	ND	(800)
Naphthalene	ND	(330)	Pyrene	ND	(330)
4-Chloroaniline	ND	(330)	Bisphenol-A	ND	(330)
Hexachloro-1,3-butadiene	ND	(330)	Butylbenzylphthalate	ND	(330)
4-Chloro-3-methylphenol	ND	(330)	3,3'-Dichlorobenzidine	ND	(330)
2-Methylnaphthalene	ND	(330)	Benzo(a)anthracene	ND	(330)
Hexachlorocyclopentadiene	ND	(330)	Chrysene	ND	(330)
2,4,6-Trichlorophenol	ND	(330)	bis(2-Ethylhexyl)phthalate	ND	(330)
2,4,5-Trichlorophenol	ND	(800)	Di-n-octylphthalate	ND	(330)
2-Chloronaphthalene	ND	(330)	Benz(b)fluoranthene	ND	(330)
1-Chloronaphthalene	ND	(330)	Benzo(k)fluoranthene	ND	(330)
2-Nitroaniline	ND	(800)	Benzo(a)pyrene	ND	(330)
Dimethylphthalate	ND	(330)	Indeno(1,2,3-cd)pyrene	ND	(330)
Acenaphthylene	ND	(330)	Dibenzo(a,h)anthracene	ND	(330)
2,6-Dinitrotoluene	ND	(330)	Benzo(g,h,i)perylene	ND	(330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	39	23-120
2-Fluorobiphenyl	44	30-115
Terphenyl-d14	109	18-137
Phenol-d5	40	24-113
2-Fluorophenol	44	25-121
2,4,6-Tribromophenol	45	19-122

MDL: Method Detection Limit

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8270
MATRIX: SOIL

BATCH NO.: 94A027 DATE RECEIVED: NA
SAMPLE ID: SBLK01 DATE EXTRACTED: 01/11/94
CONTROL NO.: A017-B1S DATE ANALYZED: 01/12/94

ACCESSION: 94A017 94A021 94A022 94A027

PARAMETER	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Phenol	ND	5000	2932	59	5000	2282	46	25
2-Chlorophenol	ND	5000	3058	61	5000	2378	48	25
1,4-DCB	ND	3300	2076	63	3300	1546	47	29
N-Nitroso-di-n	ND	3300	2659	81	3300	2169	66	20
1,2,4-TCB	ND	3300	2199	67	3300	1611	49	31
4-Chl-3-Methyl	ND	5000	3785	76	5000	2916	58	26
Acenaphthene	ND	3300	2652	80	3300	2061	62	25
4-Nitrophenol	ND	5000	6171	123	5000	4396	88	34
2,4-Dinitrotol	ND	3300	3786	115	3300	2775	84	31
Pentachlorophe	ND	5000	6443	129	5000	4418	88	37
Pyrene	ND	3300	3973	120	3300	2924	89	30

DHS METHOD
ORGANIC LEAD

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/07/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/07/94
BATCH NO.:    94A027                     DATE EXTRACTED:  01/12/94
MATRIX:      SOIL                        DATE ANALYZED:   01/12/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-15-D13	A027-09	ND	1	.5
EB-10B-D4	A027-17	ND	1	.5
FBLK1S	A017-B1S	ND	1	.5

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A027	DATE RECEIVED:	01/07/94
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/12/94
CONTROL NO.:	A017-L1S	DATE ANALYZED:	01/12/94
ACCESSION:	94A017 94A027 94A031 94A032 94A033 94A034 94A035 94A039		

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Lead	100	91	91



CKY QUALITY CONTROL DATA
SPIKE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

```
=====
BATCH NO.:      94A027                DATE RECEIVED:  01/07/94
SAMPLE ID:      FBLK1S                DATE EXTRACTED: 01/12/94
CONTROL NO.:    A017-B1S              DATE ANALYZED:  01/12/94

ACCESSION:      94A017  94A027  94A031  94A032  94A033  94A034  94A035
                  94A039
```

PARAMETER	SAMPLE RESULT (mg/kg)	SPIKE CONC. (mg/kg)	SPIKE RESULT (mg/kg)	SPIKE RECRY. (%)
-----	-----	-----	-----	-----
Lead	ND	5.0	5.0	100



EPA METHOD 413.2
OIL & GREASE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/07/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/07/94
BATCH NO.:    94A027                     DATE EXTRACTED:  01/11/94
MATRIX:       SOIL                       DATE ANALYZED:   01/17/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-15-D13	A027-09	ND	1	10
EB-10B-D4	A027-17	ND	1	10
WBLK1S	A021-B1S	ND	1	10

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A027	DATE RECEIVED:	01/07/94
SAMPLE ID:	EB-10B-D4	DATE EXTRACTED:	01/12/94
CONTROL NO.:	A027-17	DATE ANALYZED:	01/12/94

ACCESSION: 94A017 94A027 94A031 94A032 94A033 94A034 94A035
94A039

PARAMETER	SAMPLE (mg/kg)	DUP. SAMPLE (mg/kg)	RPD (%)
-----	-----	-----	-----
Lead	ND	ND	0

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 413.2
MATRIX: SOIL

=====

BATCH NO.:	94A027	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/11/94
CONTROL NO.:	A021-L1S	DATE ANALYZED:	01/12/94

ACCESSION: 94A021 94A022 94A027 94A031 94A034 94A035

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
TROG	150	141	94

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 413.2
MATRIX: SOIL

BATCH NO.: 94A027 DATE RECEIVED: NA
SAMPLE ID: EB14A-D4 DATE EXTRACTED: 01/11/94
CONTROL NO.: A022-04 DATE ANALYZED: 01/12/94

ACCESSION: 94A021 94A022 94A027 94A031 94A034 94A035

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
TROG	ND	150	138	92	150	137	91	1

EPA METHOD 376.1
TOTAL SULFIDE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/07/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/07/94
BATCH NO.:   94A027                     DATE EXTRACTED:  01/12/94
MATRIX:      SOIL                       DATE ANALYZED:   01/12/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-15-D13~	A027-09	ND	2	.4
EB-10B-D4	A027-17	ND	2	.4
WBLK1S	A017-B1S	ND	1	.2

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: 376.1
MATRIX: Water

=====

BATCH NO.:	94A027	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A017-L1W	DATE ANALYZED:	01/12/94
ACCESSION:	94A017 94A027 94A031 94A034 94A035		

PARAMETER	TRUE CONC. (mg/L)	FOUND CONC. (mg/L)	SPIKE RECRY. (%)
-----	-----	-----	-----
Sulfide	4.0	3.88	97



CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: 376.1
MATRIX: SOIL

=====

BATCH NO.:	94A027	DATE RECEIVED:	NA
SAMPLE ID:	EB-20-D-11	DATE EXTRACTED:	01/12/94
CONTROL NO.:	A035-11	DATE ANALYZED:	01/12/94

ACCESSION: 94A017 94A027 94A031 94A034 94A035

PARAMETER	SAMPLE RESULT (mg/kg)	DUP SAMPLE RESULT (mg/kg)	RPD (%)
-----	-----	-----	-----
Sulfide	8.1	7.2	12



EPA METHOD 300
SULFATE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/07/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/07/94
BATCH NO.:    94A027                     DATE EXTRACTED:  01/12/94
MATRIX:       SOIL                       DATE ANALYZED:   01/12/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-15-D13	A027-09	26	1	1.0
EB-10B-D4	A027-17	8.4	1	1.0
WBLK1S	A027-B1S	ND	1	1.0

MDL : Method Detection Limit

EPA METHOD 300
CHLORIDE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/07/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/07/94
BATCH NO.:   94A027                     DATE EXTRACTED:  01/12/94
MATRIX:      SOIL                       DATE ANALYZED:   01/12/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-15-D13	A027-09	14	1	0.2
EB-10B-D4	A027-17	3.2	1	0.2
WBLK1S	A017-B1S	ND	1	0.2

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: WATER

=====

BATCH NO.: 94A027 DATE RECEIVED: NA
SAMPLE ID: LCS01 DATE EXTRACTED: NA
CONTROL NO.: A017-L1W DATE ANALYZED: 01/12/94

ACCESSION: 94A017 94A027 94A031 94A034 94A035

PARAMETER	TRUE VALUE (mg/L)	FOUND VALUE (mg/L)	LCS RECOVERY (%)
Sulfate	150	141	94
Chloride	30.0	27.8	93

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

BATCH NO.:	94A027	DATE RECEIVED:	NA
SAMPLE ID:	EB12-D10	DATE EXTRACTED:	01/12/94
CONTROL NO.:	A017-10	DATE ANALYZED:	01/12/94

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC
Sulfate	77.9	20.0	97.6	99
Chloride	18.9	20.0	37.4	93

CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

=====

BATCH NO.:	94A027	DATE RECEIVED:	NA
SAMPLE ID:	EB12-D10	DATE EXTRACTED:	01/12/94
CONTROL NO.:	A017-10	DATE ANALYZED:	01/12/94
ACCESSION:	94A017	94A027	94A031 94A034 94A035

PARAMETER	Sample (mg/kg)	Dup. Sample (mg/kg)	RPD (%)
-----	-----	-----	-----
Sulfate	77.9	76.8	1
Chloride	18.9	19.5	3

Chain of Custody Record

DATE 1/14/94

Lab Job no. _____

Date 1/7/94

Page 1 of 2

Laboratory CTV Method of Shipment _____

Address _____ Shipment No. _____

Client The Earth Technology Corporation Cooler No. _____

Address 13900 Alton Parkway, Suite 120 Project Manager GRANT MILLER

Irvine, CA 92718 Telephone No. (714) 458-7414

Project Name EASTSIDE EXPANSION Fax. No. _____

Project Number 94-11-29 Samplers: (Signature) Greg R. [Signature]

Field Sample Number	Location/Depth	Date	Time	Sample Type	Type/Size of Container	Preservation		Filtered ✓	No. of Containers	Analysis Required										Remarks						
						Temp.	Chemical			EPA Method 8015 (Mod) Gasoline	EPA 8020 BTEX	EPA Method 8015 (Mod) Diesel	EPA Method 8240	EPA Method 8270	Total Lead	Del. Organic	Freeze	Notes								
1	EB-15-D5	1/7/94	7:55	D	STAINLESS STEEL 1/2" LINE																					
2	EB-15-D6		8:07																							
3	EB-15-D7		8:32																							
4	EB-15-D8		8:43																							
5	EB-15-D9		8:50																							
6	EB-15-D10		8:58																							
7	EB-15-D11		9:10																							
8	EB-15-D12		9:25																							
9	EB-15-D13		9:44																							
10	EB-15-D14		9:50																							
11	EB-15-D15		10:11																							
12	EB-15-D16		10:28																							

Relinquished by:	Date	Received by:	Date	Relinquished by:	Date	Received by:	Date
Signature <u>Greg R. [Signature]</u>	1/7/94	Signature <u>[Signature]</u>	1/7/94	Signature <u>Grant Miller</u>	1/7/94	Signature <u>[Signature]</u>	1/7/94
Printed <u>GREG RENEKEW</u>	Time	Printed <u>[Signature]</u>	Time	Printed <u>Grant Miller</u>	Time	Printed <u>[Signature]</u>	Time
Company <u>EARTH TECH/ALBANY</u>		Company <u>EARTH TECH</u>		Company <u>EARTH TECH</u>		Company <u>[Signature]</u>	
Reason <u>10 LAB COURTESY</u>		Company <u>EARTH TECH</u>		Reason <u>Sample Recovery</u>		Company <u>[Signature]</u>	

Comments:	Relinquished by:	Date	Received by:	Date
<u>T-600</u>	Signature _____		Signature _____	
<u>Sample from 10' depth in existing tank.</u>	Printed _____		Printed _____	
	Company _____		Company _____	
	Reason _____		Company _____	

SAMPLE RECEIPT FORM

CONTROL NO.		94A027		DATE		1-7-94		
CLIENT		EARTH TECH		TIME		1658		
PROJECT		METRO RAIL EAST		RECIPIENT		CDTIAN GCO		
SAMPLE TRANSPORTATION TO CKY LABORATORY:				BY	ON(DATE)	AT(TIME)	FROM(SITE/CO.)	COMMENTS
PICKED-UP BY CKY COURIER								
DELIVERED BY CLIENT				GRANT MILLER	1-7-94	1658	WHITTIER/DARTMOUTH	
SHIPPED/AIRBILL NO								
SAMPLE BATCH PACKAGING/SEALING UPON RECEIPT:				INTACT	DAMAGED	SEALED	NOT SEALED	NO CONTAINER
CONTAINER:	INSIDE TEMPERATURE:			CUSTODY SEAL			LOCATION	NUMBER
/ COOLER	PACKAGING	TYPE	SUFFICIENCY	INTACT	DAMAGED			
BOX	INSULATION:	cool gel	ok	NAME:				
OTHER:	ICE/COOLANT:	BLUE	ok	DATE:				
	PACKING MATERIAL:	NONE	ok	TIME:				
SAMPLE DOCUMENTATION/CHAIN-OF-CUSTODY(COC)				SEALED	ENCLOSED	HANDCARRIED	FAXED	MAILED
SAMPLE LOG-IN:		CRITERIA	COMMENTS				DISCREPANCY	
SAMPLE CUSTODY SEAL		EVERY SAMPLE	NONE					
CONTAINER TYPE/MATERIAL		APPROPRIATE	ok					
SAMPLE AMOUNT		ENOUGH	ok					
SAMPLE PRESERVATION/HOLDING TIME		SUFFICIENT	ok					
HEADSPACE/BUBBLES		ZERO/NONE	N/A					
SAMPLE LABEL INFORMATION		SUFFICIENT	ok					
CHAIN-OF-CUSTODY INFORMATION		SUFFICIENT	ok - ANALYZES TO BE RELAYED					
SAMPLE INFO.:	SAMPLE ID	DATE	TIME	SIGNATURE	ANALYSES	PRESERVATIVE	CONTAINER	
INDIVIDUAL SAMPLE CONTAINER:		NONE	SEALED PLASTIC BAG		CAN	OTHER(SPECIFY):		
SAMPLE NUMBER	CLIENT ID	DISCREPANCY				ACTION		
		NONE						
CLIENT SERVICES COPY RECEIVED BY		DATE				TIME		



CKY incorporated Analytical Laboratories

Date: 01-21-1994
CKY Batch No.: 94A031

Attn.: K. Khilnani

Earth Technology Corp.
13900 Alton Parkway #120
Irvine, CA 92718

Subject: Laboratory Report
Project: Metro Rail - East Side Ext.

Enclosed is the Laboratory report for samples received on 01/10/94. The samples were received in coolers with ice and intact; the chain-of-custody forms were properly filled out. The data reported include :

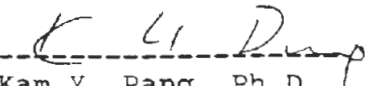
Sample ID	Control No.	Matrix	Analysis
-----	-----	-----	-----
EB13A-D1	A031-01	soil	Hold
EB13A-D2	A031-02	soil	EPA M8015 (CCID) EPA 8020
EB13A-D3	A031-03	soil	Hold
EB13A-D4	A031-04	soil	EPA M8015 (CCID) EPA 8240 EPA 8270 Organic Pb Sulfide Sulfate Chloride Oil & Grease
EB13A-D5	A031-05	soil	Hold
EB13A-D6	A031-06	soil	Hold
EB13A-D7	A031-07	soil	Hold
EB13A-D8	A031-08	soil	EPA M8015 (CCID) EPA 8020
EB13A-D9	A031-09	soil	EPA M8015 (CCID) EPA 8020

Sample ID	Control No.	Matrix	Analysis
-----	-----	-----	-----
EB13A-D10	A031-10	soil	Hold
EB13A-D11	A031-11	soil	Hold
EB13A-D12	A031-12	soil	Hold
EB13A-D13	A031-13	soil	Hold
EB13A-D14	A031-14	soil	Hold
EB13A-D15	A031-15	soil	Hold

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,



 Kam Y. Pang, Ph.D.
 Laboratory Director

P.S. - All analyses requested for the above referenced project have been completed. Therefore, unless instructed, the remaining portions of the samples will be disposed after fifteen (15) days from the date of this report.

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 413.2
MATRIX: SOIL

=====

BATCH NO.:	94A031	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/11/94
CONTROL NO.:	A021-L1S	DATE ANALYZED:	01/12/94
ACCESSION:	94A021 94A022 94A027 94A031 94A034 94A035		

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
TROG	150	141	94



EPA METHOD 413.2
OIL & GREASE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/08/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/10/94
BATCH NO.:   94A031                     DATE EXTRACTED:  01/11/94
MATRIX:      SOIL                       DATE ANALYZED:   01/17/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB13A-D4	A031-04	ND	1	10
TBLK1S	A031-B1S	ND	1	10

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 413.2
MATRIX: SOIL

BATCH NO.: 94A031 DATE RECEIVED: NA
SAMPLE ID: EB14A-D4 DATE EXTRACTED: 01/11/94
CONTROL NO.: A022-04 DATE ANALYZED: 01/12/94

ACCESSION: 94A021 94A022 94A027 94A031 94A034 94A035

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
TROG	ND	150	138	92	150	137	91	1



EPA METHOD M8015
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```
=====
CLIENT:      Earth Technology Corp.          DATE COLLECTED: 01/08/94
PROJECT:     Metro Rail - East Side Ext.    DATE RECEIVED:  01/10/94
BATCH NO.:   94A031                        DATE EXTRACTED: 01/11/94
MATRIX:     SOIL                           DATE ANALYZED:  01/13/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	H-C RANGE	% RECOVERY		DL FACTOR	MDL (mg/kg)
				SURR1	SURR2		
EB13A-D2	A031-02	ND	N.A.	95	96	1	5
EB13A-D4	A031-04	ND	N.A.	96	100	1	5
EB13A-D8	A031-08	ND	N.A.	94	98	1	5
EB13A-D9	A031-09	ND	N.A.	97	102	1	5
DBLK1S	A031-B1S	ND	N.A.	94	94	1	5

SURR1 : Bromobenzene
 SURR2 : Hexacosane
 MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

=====

BATCH NO.:	94A031	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/11/94
CONTROL NO.:	A021-L1S	DATE ANALYZED:	01/12/94
ACCESSION:	94A021 94A027 94A031 94A034 94A035		

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
DIESEL	250	223	89



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

BATCH NO.: 94A031 DATE RECEIVED: 01/10/94
SAMPLE ID: EB13A-D8 DATE EXTRACTED: 01/11/94
CONTROL NO.: A031-08 DATE ANALYZED: 01/13/94

ACCESSION: 94A021 94A027 94A031 94A034 94A035

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
DIESEL	ND	250	230	92	250	239	96	4



EPA METHOD 300
CHLORIDE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/08/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/10/94
BATCH NO.:   94A031                     DATE EXTRACTED:  01/12/94
MATRIX:      SOIL                       DATE ANALYZED:   01/12/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB13A-D4	A031-04	16	1	.2
WBLK1S	A017-B1S	ND	1	.2

MDL : Method Detection Limit



EPA METHOD 300
SULFATE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/08/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/10/94
BATCH NO.:   94A031                     DATE EXTRACTED:  01/12/94
MATRIX:      SOIL                       DATE ANALYZED:   01/12/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB13A-D4	A031-04	31	1	1
WBLK1S	A017-B1S	ND	1	1

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
SPIKE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

BATCH NO.: 94A031 DATE RECEIVED: NA
SAMPLE ID: EB12-D10 DATE EXTRACTED: 01/12/94
CONTROL NO.: A017-10 DATE ANALYZED: 01/12/94

ACCESSION: 94A017 94A027 94A031 94A034 94A035

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC
Sulfate	77.9	20.0	97.6	99
Chloride	18.9	20.0	37.4	93



CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

=====

BATCH NO.:	94A031	DATE RECEIVED:	NA
SAMPLE ID:	EB12-D10	DATE EXTRACTED:	01/12/94
CONTROL NO.:	A017-10	DATE ANALYZED:	01/12/94

ACCESSION: 94A017 94A027 94A031 94A034 94A035

PARAMETER	Sample (mg/kg)	Dup. Sample (mg/kg)	RPD (%)
-----	-----	-----	-----
Sulfate	77.9	76.8	1
Chloride	18.9	19.5	3

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: WATER

=====

BATCH NO.:	94A031	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A017-L1W	DATE ANALYZED:	01/12/94
ACCESSION:	94A017 94A027 94A031 94A034 94A035		

PARAMETER	TRUE VALUE (mg/L)	FOUND VALUE (mg/L)	LCS RECOVERY (%)
Sulfate	150	141	94
Chloride	30.0	27.8	93



EPA METHOD 376.1
TOTAL SULFIDE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/08/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/10/94
BATCH NO.:   94A031                     DATE EXTRACTED: 01/12/94
MATRIX:      SOIL                       DATE ANALYZED:  01/12/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB13A-D4	A031-04	ND	2	.4
WBLK1S	A017-B1S	ND	1	.2

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: 376.1
MATRIX: SOIL

=====

BATCH NO.:	94A031	DATE RECEIVED:	NA
SAMPLE ID:	EB-20-D-11	DATE EXTRACTED:	01/12/94
CONTROL NO.:	A035-11	DATE ANALYZED:	01/12/94
ACCESSION:	94A017 94A027 94A031 94A034 94A035		

PARAMETER	SAMPLE RESULT (mg/kg)	DUP SAMPLE RESULT (mg/kg)	RPD (%)
-----	-----	-----	-----
Sulfide	8.1	7.2	12



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: 376.1
MATRIX: Water

=====

BATCH NO.:	94A031	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A017-L1W	DATE ANALYZED:	01/12/94

ACCESSION: 94A017 94A027 94A031 94A034 94A035

PARAMETER	TRUE CONC. (mg/L)	FOUND CONC. (mg/L)	SPIKE RECRY. (%)
-----	-----	-----	-----
Sulfide	4.0	3.88	97

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A031	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/12/94
CONTROL NO.:	A017-L1S	DATE ANALYZED:	01/12/94

ACCESSION: 94A027 94A031 94A032 94A033 94A034 94A035 94A039

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Lead	100	91	91

CKY QUALITY CONTROL DATA
SPIKE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A031	DATE RECEIVED:	NA
SAMPLE ID:	FBLK1S	DATE EXTRACTED:	01/12/94
CONTROL NO.:	A017-B1S	DATE ANALYZED:	01/12/94

ACCESSION: 94A027 94A031 94A032 94A033 94A034 94A035 94A039

PARAMETER	SAMPLE RESULT (mg/kg)	SPIKE CONC. (mg/kg)	SPIKE RESULT (mg/kg)	SPIKE RECRY. (%)
-----	-----	-----	-----	-----
Lead	ND	5.0	5.0	100



DHS METHOD
ORGANIC LEAD

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/08/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/10/94
BATCH NO.:    94A031                     DATE EXTRACTED:  01/12/94
MATRIX:       SOIL                       DATE ANALYZED:   01/12/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB13A-D4	A031-04	ND	1	.5
FBLK1S	A017-B1S	ND	1	.5

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A031	DATE RECEIVED:	NA
SAMPLE ID:	EB-10B-D4	DATE EXTRACTED:	01/12/94
CONTROL NO.:	A027-17	DATE ANALYZED:	01/12/94
ACCESSION:	94A027	94A031	94A032 94A033 94A034 94A035 94A039

PARAMETER	SAMPLE (mg/kg)	DUP. SAMPLE (mg/kg)	RPD (%)
-----	-----	-----	-----
Lead	ND	ND	0

EPA METHOD 8020
BTEX

```
=====
CLIENT:      Earth Technology Corp.          DATE COLLECTED: 01/08/94
PROJECT:     Metro Rail - East Side Ext.    DATE RECEIVED:  01/10/94
BATCH NO.:   94A031                        DATE EXTRACTED:  NA
MATRIX:      SOIL                          DATE ANALYZED:   01/12/94
=====
```

SAMPLE ID	CNTRL NO	DL F	MDL	BENZ	RESULTS TOLUENE	(ug/kg) E BENZ	XYLS	% Rcvy SURR
EB13A-D2	A031-02	1	5	ND	ND	ND	ND	81
EB13A-D8	A031-08	1	5	ND	ND	ND	ND	91
EB13A-D9	A031-09	1	5	ND	ND	ND	ND	74
VBK1S	A031-B1S	1	5	ND	ND	ND	ND	95

DL F : Dilution Factor
SURR : Bromofluorobenzene
MDL : Method Detection Limit

QY

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8020
MATRIX: SOIL

=====

BATCH NO.:	94A031	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A031-02	DATE ANALYZED:	01/12/94
ACCESSION:	94A031 94AA33		

PARAMETER	TRUE VALUE (ug/kg)	FOUND VALUE (ug/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Benzene	250	258	103
Toluene	250	247	99
EthylBenzene	250	252	101
Xylenes	750	756	101



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8020
MATRIX: SOIL

BATCH NO.: 94A031 DATE RECEIVED: NA
SAMPLE ID: EB-18#1 DATE EXTRACTED: NA
CONTROL NO.: A034-13 DATE ANALYZED: 01/13/94

ACCESSION: 94A031 94A032 94A033 94A034 94A039

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Benzene	ND	250	218	87	250	232	93	6
Toluene	ND	250	226	90	250	240	96	6
EthylBenzene	ND	250	223	89	250	247	99	10
Xylenes	ND	750	670	89	750	740	99	10

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8240
MATRIX: WATER

BATCH NO.: 94A031 DATE RECEIVED: NA
SAMPLE ID: EB8F #5 DATE EXTRACTED: NA
CONTROL NO.: A032-05 DATE ANALYZED: 01/12/94

ACCESSION: 94A031 94A032

PARAMETER	SAMPLE CONC (ug/L)	SPIKE ADDED (ug/L)	MS CONC (ug/L)	MS % REC	SPIKE ADDED (ug/L)	MSD CONC (ug/L)	MSD % REC	% RPD
1,1-DCE	ND	50	53	106	50	53	106	0
Benzene	29	50	85	112	50	75	92	20
TCE	ND	50	56	112	50	56	112	0
Toluene +	185	50	185	NA	50	146	NA	NA
Chlorobenzene	ND	50	54	108	50	53	106	2

+ Interference from the comp. present in the sample.

EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/08/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/10/94
BATCH NO.:   94A031                     DATE EXTRACTED:  NA
SAMPLE ID:   EB13A-D4                   DATE ANALYZED:  01/11/94
CONTROL NO.: A031-04                     MATRIX:        SOIL
% MOISTURE:  NA                           DILUTION FACTOR: 1
=====
```

PARAMETERS	RESULTS (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	99	70-121
Toluene -d8	112	84-138
Bromofluorobenzene	94	59-113

MDL : Method Detection Limit



EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED:  NA
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:   NA
BATCH NO.:   94A031                     DATE EXTRACTED:  NA
SAMPLE ID:   VBLK1S                     DATE ANALYZED:   01/11/94
CONTROL NO.: A031-B1S                   MATRIX:         SOIL
% MOISTURE:  NA                         DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	94	70-121
Toluene -d8	107	84-138
Bromofluorobenzene	97	59-113

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: 376.1
MATRIX: WATER

=====

BATCH NO.:	94A031	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A031-L1W	DATE ANALYZED:	01/11/94
ACCESSION:	94A031		

PARAMETER	TRUE CONC. (ug/L)	FOUND CONC. (ug/L)	SPIKE REC. (%)
-----	-----	-----	-----
1,1-DCE	50	56	112
Benzene	50	55	110
TCE	50	51	102
Toluene	50	55	110
Chlorobenzene	50	50	100



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8270
MATRIX: SOIL

BATCH NO.:	94A031	DATE RECEIVED:	NA
SAMPLE ID:	SBLK01	DATE EXTRACTED:	01/14/94
CONTROL NO.:	A031-B1S	DATE ANALYZED:	01/15/94

ACCESSION: 94A031 94A034 94A035

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Phenol	ND	5000	2687	54	5000	3165	63	16
2-Chlorophenol	ND	5000	2797	56	5000	3247	65	15
1,4-DCB	ND	3300	1820	55	3300	2163	66	17
N-Nitroso-di-n	ND	3300	1927	58	3300	2331	71	19
1,2,4-TCB	ND	3300	1751	53	3300	2113	64	19
4-Chl-3-Methyl	ND	5000	2628	53	5000	3285	66	22
Acenaphthene	ND	3300	1752	53	3300	2103	64	18
4-Nitrophenol	ND	5000	3349	67	5000	4318	86	25
2,4-Dinitrotol	ND	3300	2093	63	3300	2633	80	23
Pentachlorophe	ND	5000	3126	63	5000	3777	76	19
Pyrene	ND	3300	2503	76	3300	2911	88	15

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8270
MATRIX: SOIL

=====

BATCH NO.:	94A031	DATE RECEIVED:	NA
SAMPLE ID:	SBLK01	DATE EXTRACTED:	01/14/94
CONTROL NO.:	A031-L1S	DATE ANALYZED:	01/15/94

ACCESSION: 94A031 94A034 94A035

PARAMETER	TRUE VALUE (ug/kg)	FOUND VALUE (ug/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Phenol	5000	2687	54
2-Chlorophenol	5000	2797	56
1,4-DCB	3300	1820	55
N-Nitroso-di-n	3300	1927	58
1,2,4-TCB	3300	1751	53
4-Chl-3-Methyl	5000	2628	53
Acenaphthene	3300	1752	53
4-Nitrophenol	5000	3349	67
2,4-Dinitrotol	3300	2093	63
Pentachlorophe	5000	3126	63
Pyrene	3300	2503	76



EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: NA
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: NA
BATCH NO.: 94A031	DATE EXTRACTED: 01/14/94
SAMPLE ID: SBLK01	DATE ANALYZED: 01/15/94
CONTROL NO.: A031-B1S	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg) RESULT MDL	PARAMETERS	(ug/kg) RESULT MDL
N-Nitrosodimethylamine	ND (330)	3-Nitroaniline	ND (800)
Pyridine	ND (330)	Acenaphthene	ND (330)
Aniline	ND (330)	2,4-Dinitrophenol	ND (800)
Phenol	ND (330)	4-Nitrophenol	ND (800)
bis(2-Chloroethyl)ether	ND (330)	Dibenzofuran	ND (330)
2-Chlorophenol	ND (330)	2,4-Dinitrotoluene	ND (330)
1,3-Dichlorobenzene	ND (330)	Diethylphthalate	ND (330)
1,4-Dichlorobenzene	ND (330)	4-Chlorophenyl-phenylether	ND (330)
Benzyl Alcohol	ND (330)	Fluorene	ND (330)
1,2-Dichlorobenzene	ND (330)	1,2-Diphenylhydrazine	ND (800)
2-Methylphenol	ND (330)	4-Nitroaniline	ND (800)
2,2'-oxybis(1-Chloropropane)	ND (330)	4,6-Dinitro-2-methylphenol	ND (800)
4-Methylphenol	ND (330)	N-Nitrosodiphenylamine (1)	ND (330)
N-Nitroso-di-n-propylamine	ND (330)	4-Bromophenyl-phenylether	ND (330)
Hexachloroethane	ND (330)	Hexachlorobenzene	ND (330)
Nitrobenzene	ND (330)	Pentachlorophenol	ND (800)
Isophorone	ND (330)	Benzidine	ND (800)
2-Nitrophenol	ND (330)	Phenanthrene	ND (800)
2,4-Dimethylphenol	ND (330)	Anthracene	ND (330)
Benzoic Acid	ND (800)	Carbazole	ND (800)
bis(2-Chloroethoxy)methane	ND (330)	Di-n-butylphthalate	680 (330)
2,4-Dichlorophenol	ND (330)	Fluoranthene	ND (330)
1,2,4-Trichlorobenzene	ND (330)	4,4'-Methylene Dianiline	ND (800)
Naphthalene	ND (330)	Pyrene	ND (330)
4-Chloroaniline	ND (330)	Bisphenol-A	ND (330)
Hexachloro-1,3-butadiene	ND (330)	Butylbenzylphthalate	ND (330)
4-Chloro-3-methylphenol	ND (330)	3,3'-Dichlorobenzidine	ND (330)
2-Methylnaphthalene	ND (330)	Benzo(a)anthracene	ND (330)
Hexachlorocyclopentadiene	ND (330)	Chrysene	ND (330)
2,4,6-Trichlorophenol	ND (330)	bis(2-Ethylhexyl)phthalate	ND (330)
2,4,5-Trichlorophenol	ND (800)	Di-n-octylphthalate	ND (330)
2-Chloronaphthalene	ND (330)	Benzo(b)fluoranthene	ND (330)
1-Chloronaphthalene	ND (330)	Benzo(k)fluoranthene	ND (330)
2-Nitroaniline	ND (800)	Benzo(a)pyrene	ND (330)
Dimethylphthalate	ND (330)	Indeno(1,2,3-cd)pyrene	ND (330)
Acenaphthylene	ND (330)	Dibenzo(a,h)anthracene	ND (330)
2,6-Dinitrotoluene	ND (330)	Benzo(g,h,i)perylene	ND (330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	65	23-120
2-Fluorobiphenyl	65	30-115
Terphenyl-d14	77	18-137
Phenol-d5	66	24-113
2-Fluorophenol	64	25-121
2,4,6-Tribromophenol	65	19-122

MDL: Method Detection Limit

EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: 01/08/94
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: 01/10/94
BATCH NO.: 94A031	DATE EXTRACTED: 01/14/94
SAMPLE ID: EB13A-D4	DATE ANALYZED: 01/15/94
CONTROL NO.: A031-04	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

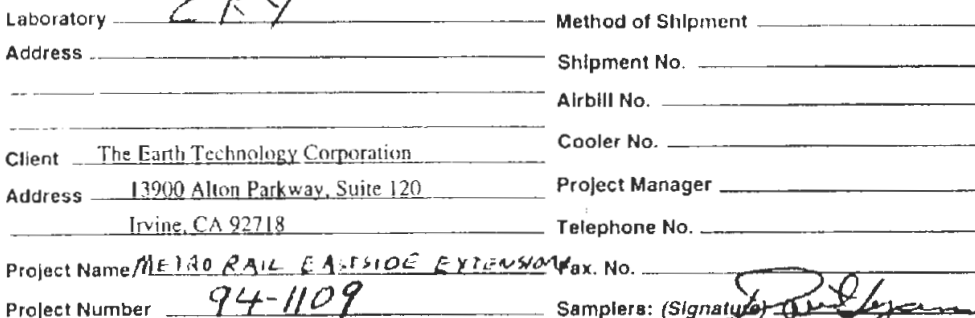
PARAMETERS	(ug/kg)		PARAMETERS	(ug/kg)	
	RESULT	MDL		RESULT	MDL
N-Nitrosodimethylamine	ND	(330)	3-Nitroaniline	ND	(800)
Pyridine	ND	(330)	Acenaphthene	ND	(330)
Aniline	ND	(330)	2,4-Dinitrophenol	ND	(800)
Phenol	ND	(330)	4-Nitrophenol	ND	(800)
bis(2-Chloroethyl) ether	ND	(330)	Dibenzofuran	ND	(330)
2-Chlorophenol	ND	(330)	2,4-Dinitrotoluene	ND	(330)
1,3-Dichlorobenzene	ND	(330)	Diethylphthalate	ND	(330)
1,4-Dichlorobenzene	ND	(330)	4-Chlorophenyl-phenylether	ND	(330)
Benzyl Alcohol	ND	(330)	Fluorene	ND	(330)
1,2-Dichlorobenzene	ND	(330)	1,2-Diphenylhydrazine	ND	(800)
2-Methylphenol	ND	(330)	4-Nitroaniline	ND	(800)
2,2'-oxybis(1-Chloropropane)	ND	(330)	4,6-Dinitro-2-methylphenol	ND	(800)
4-Methylphenol	ND	(330)	N-Nitrosodiphenylamine (1)	ND	(330)
N-Nitroso-di-n-propylamine	ND	(330)	4-Bromophenyl-phenylether	ND	(330)
Hexachloroethane	ND	(330)	Hexachlorobenzene	ND	(330)
Nitrobenzene	ND	(330)	Pentachlorophenol	ND	(800)
Isophorone	ND	(330)	Benzidine	ND	(800)
2-Nitrophenol	ND	(330)	Phenanthrene	ND	(800)
2,4-Dimethylphenol	ND	(330)	Anthracene	ND	(330)
Benzoic Acid	ND	(800)	Carbazole	ND	(800)
bis(2-Chloroethoxy) methane	ND	(330)	Di-n-butylphthalate	380	(330)
2,4-Dichlorophenol	ND	(330)	Fluoranthene	ND	(330)
1,2,4-Trichlorobenzene	ND	(330)	4,4'-Methylene Dianiline	ND	(800)
Naphthalene	ND	(330)	Pyrene	ND	(330)
4-Chloroaniline	ND	(330)	Bisphenol-A	ND	(330)
Hexachloro-1,3-butadiene	ND	(330)	Butylbenzylphthalate	ND	(330)
4-Chloro-3-methylphenol	ND	(330)	3,3'-Dichlorobenzidine	ND	(330)
2-Methylnaphthalene	ND	(330)	Benzo(a)anthracene	ND	(330)
Hexachlorocyclopentadiene	ND	(330)	Chrysene	ND	(330)
2,4,6-Trichlorophenol	ND	(330)	bis(2-Ethylhexyl)phthalate	ND	(330)
2,4,5-Trichlorophenol	ND	(800)	Di-n-octylphthalate	ND	(330)
2-Chloronaphthalene	ND	(330)	Benz(b)fluoranthene	ND	(330)
1-Chloronaphthalene	ND	(330)	Benzo(k)fluoranthene	ND	(330)
2-Nitroaniline	ND	(800)	Benzo(a)pyrene	ND	(330)
Dimethylphthalate	ND	(330)	Indeno(1,2,3-cd)pyrene	ND	(330)
Acenaphthylene	ND	(330)	Dibenzo(a,h)anthracene	ND	(330)
2,6-Dinitrotoluene	ND	(330)	Benzo(g,h,i)perylene	ND	(330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	40	23-120
2-Fluorobiphenyl	43	30-115
Terphenyl-d14	66	18-137
Phenol-d5	44	24-113
2-Fluorophenol	40	25-121
2,4,6-Tribromophenol	41	19-122

MDL: Method Detection Limit

CKY

CKY INC., ANALYTICAL LABORATORIES, 630 Maple Ave., Torrance, Calif. 90503 Tel: (310) 618-8889 Fax: (310) 618-0818



DE 117-79

Lab job no.: _____
Date 1/8/94
Page 1 of 2

	Field Sample Number	Location/ Depth	Date	Time	Sample Type	Type/Size of Container	Preservation																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														

DISTRIBUTION: White to Laboratory, Canary to Earth Technology Project File, Pink to Courier, Golden to Field File

F-1000
10/25/92

Chain of Custody Record

1/18/94

Lab job no.:

Date 1/8/94

Page 2 of 2

Laboratory CKY Method of Shipment _____

Address _____ Shipment No. _____

Client The Earth Technology Corporation Cooler No. _____

Address 13900 Alton Parkway, Suite 120 Project Manager _____

Irvine, CA 92718 Telephone No. _____

Project Name METRO RAIL EAST SIDE EXTENSION Fax No. _____

Project Number 94-1109 Samplers: (Signature) Paul Laguerre

Field Sample Number	Location/Depth	Date	Time	Sample Type	Type/Size of Container	Preservation		Analysis Required										Remarks
						Temp.	Chemical	Filtered ✓	No. of Containers	EPA Method 8015 (Mod) Gasoline	EPA 8020 BTEX Diesel	EPA Method 8015 (Mod) Diesel	EPA Method 8240	EPA Method 8270	Total Lead			
13 EB13A-D13	70'	1/8/94	11:05	5" x 4" SST LAB														10 11
14 EB13A-D14	75'		11:15															10 11
15 EB13A-D15	80'		11:35															10 11

Relinquished by: Paul Laguerre Date 1/8/94
 Signature DAVID L. SPERANCE
 Printed SC ENVIRONMENTAL
 Company TRAVELER LABS
 Reason T = 20C

Received by: David L. Sperance Date 1/8/94
 Signature David L. Sperance
 Printed SC ENVIRONMENTAL
 Company TRAVELER LABS

Relinquished by: David L. Sperance Date 1/10/94
 Signature David L. Sperance
 Printed SC ENVIRONMENTAL
 Company TRAVELER LABS
 Reason Lab pick up

Received by: David L. Sperance Date 1/10/94
 Signature David L. Sperance
 Printed SC ENVIRONMENTAL
 Company TRAVELER LABS

Comments: T = 20C

Relinquished by: David L. Sperance Date 1/10/94
 Signature David L. Sperance
 Printed SC ENVIRONMENTAL
 Company TRAVELER LABS
 Reason Analysis

Received by: David L. Sperance Date 1/10/94
 Signature David L. Sperance
 Printed SC ENVIRONMENTAL
 Company TRAVELER LABS

CKY INC., ANALYTICAL LABORATORIES, 630 Maple Ave. Torrance, Calif. 90503 Tel. (310) 418-8888

CKY INC., ANALYTICAL LABORATORIES, 630 Maple Ave. Torrance, Calif. 90503 Tel. (310) 418-8888



CKY incorporated Analytical Laboratories

Date: 01-21-1994
CKY Batch No.: 94A032

Attn.: K. Khilnani

Earth Technology Corp.
13900 Alton Parkway #120
Irvine, CA 92718

Subject: Laboratory Report
Project: Metro Rail - East Side Ext.

Enclosed is the Laboratory report for samples received on 01/10/94. The samples were received in coolers with ice and intact; the chain-of-custody forms were properly filled out. The data reported include :

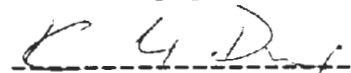
Sample ID	Control No.	Matrix	Analysis
-----	-----	-----	-----
EB8F#1	A032-01	soil	Hold
EB8F#2	A032-02	soil	Hold
EB8F#3	A032-03	soil	Hold
EB8F#4	A032-04	soil	Hold
EB8F#5	A032-05	soil	EPA M8015 (CCID) EPA 8240 EPA 8270 Organic Pb Sulfide Oil & Grease Sulfate Chloride
EB8F#6	A032-06	soil	Hold
EB8F#7	A032-07	soil	Hold
EB8F#8	A032-08	soil	EPA M8015 (CCID) EPA 8020
EB8F#9	A032-09	soil	Hold
EB8F#10	A032-10	soil	EPA M8015 (CCID) EPA 8020

Sample ID	Control No.	Matrix	Analysis
EB8F#11	A032-11	soil	Hold
EB8F#12	A032-12	soil	EPA M8015 (CCID) EPA 8020
EB8F#13	A032-13	soil	Hold
EB8F#14	A032-14	soil	EPA M8015 (CCID) EPA 8020
EB8F#15	A032-15	soil	Hold

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,



Kam Y. Pang, Ph.D.
Laboratory Director

P.S. - All analyses requested for the above referenced project have been completed. Therefore, unless instructed, the remaining portions of the samples will be disposed after fifteen (15) days from the date of this report.

EPA METHOD M8015
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```
=====
CLIENT:      Earth Technology Corp.          DATE COLLECTED: 01/10/94
PROJECT:     Metro Rail - East Side Ext.    DATE RECEIVED:  01/10/94
BATCH NO.:   94A032                        DATE EXTRACTED: 01/13/94
MATRIX:     SOIL                          DATE ANALYZED:  01/15/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	H-C RANGE	% RECOVERY		DL FACTOR	MDL (mg/kg)
				SURR1	SURR2		
EB8F#5	A032-05	ND	N.A.	98	97	1	5
EB8F#8	A032-08	ND	N.A.	100	98	1	5
EB8F#10	A032-10	ND	N.A.	97	98	1	5
EB8F#12	A032-12	ND	N.A.	100	102	1	5
EB8F#14	A032-14	ND	N.A.	98	101	1	5
DBLK1S	A039-B1S	ND	N.A.	97	101	1	5

SURR1 : Bromobenzene
 SURR2 : Hexacosane
 MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: M8015
MATRIX: SOIL

=====

BATCH NO.:	94A032	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/13/94
CONTROL NO.:	A039-L1S	DATE ANALYZED:	01/15/94
ACCESSION:	94A032 94A039		

PARAMETER	TRUE CONC. (mg/kg)	FOUND CONC. (mg/kg)	SPIKE RECRY. (%)
-----	-----	-----	-----
Diesel	250	234	94



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

BATCH NO.: 94A032 DATE RECEIVED: NA
SAMPLE ID: EB-22 #3 DATE EXTRACTED: 01/13/94
CONTROL NO.: A039-03 DATE ANALYZED: 01/15/94

ACCESSION: 94A032 94A039

PARAMETER	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
Diesel	ND	250	222	89	250	235	94	5

CKY

EPA METHOD 376.1
TOTAL SULFIDE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/10/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/10/94
BATCH NO.:   94A032                     DATE EXTRACTED:  01/13/94
MATRIX:      SOIL                       DATE ANALYZED:   01/13/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB8F#5	A032-05	ND	2	.4
WBLK1S	A032-B1S	ND	1	.2

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: 376.1
MATRIX: Water

=====

BATCH NO.:	94A032	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A032-L1W	DATE ANALYZED:	01/13/94
ACCESSION:	94A032 94A039		

PARAMETER	TRUE CONC. (mg/L)	FOUND CONC. (mg/L)	SPIKE RECRY. (%)
-----	-----	-----	-----
Sulfide	4.0	3.88	97



CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: 376.1
MATRIX: SOIL

=====

BATCH NO.:	94A032	DATE RECEIVED:	NA
SAMPLE ID:	EB-22 #8	DATE EXTRACTED:	01/13/94
CONTROL NO.:	A032-08	DATE ANALYZED:	01/13/94
ACCESSION:	94A032 94A039		

PARAMETER	SAMPLE RESULT (mg/kg)	DUP SAMPLE RESULT (mg/kg)	RPD (%)
-----	-----	-----	-----
Sulfide	ND	ND	0

EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/10/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/10/94
BATCH NO.:   94A032                     DATE EXTRACTED:  NA
SAMPLE ID:   EB8F#5                     DATE ANALYZED:  01/12/94
CONTROL NO.: A032-05                     MATRIX:        SOIL
% MOISTURE:  NA                         DILUTION FACTOR: 1
=====
```

PARAMETERS	RESULTS (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	29	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	40	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	180	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	170	5.0
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	100	70-121
Toluene -d8	114	84-138
Bromofluorobenzene	103	59-113

MDL : Method Detection Limit



EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED:  NA
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:   NA
BATCH NO.:   94A032                     DATE EXTRACTED:  NA
SAMPLE ID:    VBLK1S                     DATE ANALYZED:   01/12/94
CONTROL NO.:  A032-B1S                   MATRIX:         SOIL
% MOISTURE:   NA                         DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	93	70-121
Toluene -d8	109	84-138
Bromofluorobenzene	97	59-113

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: WATER

BATCH NO.: 94A032 DATE RECEIVED: NA
SAMPLE ID: LCS01 DATE EXTRACTED: NA
CONTROL NO.: A032-L1W DATE ANALYZED: 01/12/94
ACCESSION: 94A032

PARAMETER	TRUE CONC. (ug/L)	FOUND CONC. (ug/L)	SPIKE REC. (%)	ACCEPT. RANGE
1,1-DCE	50	65	130	61-145
Benzene	50	56	112	76-127
TCE	50	55	110	71-120
Toluene	50	56	112	76-125
Chlorobenzene	50	52	104	75-130



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8240
MATRIX: WATER

BATCH NO.: 94A032 DATE RECEIVED: 01/12/94
SAMPLE ID: EB8F #5 DATE EXTRACTED: NA
CONTROL NO.: A032-05 DATE ANALYZED: 01/12/94

ACCESSION: 94A031 94A032 94A034 94A039

PARAMETER	SAMPLE CONC (ug/L)	SPIKE ADDED (ug/L)	MS CONC (ug/L)	MS % REC	SPIKE ADDED (ug/L)	MSD CONC (ug/L)	MSD % REC	% RPD
1,1-DCE	ND	50	53	106	50	53	106	0
Benzene	29	50	85	112	50	75	92	20
TCE	ND	50	56	112	50	56	112	0
Toluene +	185	50	185	NA	50	146	NA	NA
Chlorobenzene	ND	50	54	108	50	53	106	2

+ Interference from the comp. present in the sample.



EPA METHOD 8020
BTEX

```
=====
CLIENT:      Earth Technology Corp.          DATE COLLECTED: 01/10/94
PROJECT:     Metro Rail - East Side Ext.    DATE RECEIVED:  01/10/94
BATCH NO.:   94A032                        DATE EXTRACTED:  NA
MATRIX:      SOIL                          DATE ANALYZED:   01/13/94
=====
```

SAMPLE ID	CNTRL NO	DL F	MDL	BENZ	RESULTS TOLUENE	(ug/kg) E BENZ	XYLS	% Rcvy SURR
EB8F#8	A032-08	1	5	150	290	28	140	96
EB8F#10	A032-10	1	5	370	370	25	110	84
EB8F#12	A032-12	1	5	160	9.6	ND	ND	86
EB8F#14	A032-14	1	5	520	440	9.8	99	78
VBLK1S	A032-B1S	1	5	ND	ND	ND	ND	83

DL F : Dilution Factor
SURR : Bromofluorobenzene
MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8020
MATRIX: SOIL

=====

BATCH NO.:	94A032	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A032-L1S	DATE ANALYZED:	01/13/94
ACCESSION:	94A032	94A034	94A035 94A039

PARAMETER	TRUE VALUE (ug/kg)	FOUND VALUE (ug/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Benzene	250	225	90
Toluene	250	236	94
EthylBenzene	250	240	96
Xylenes	750	722	96

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8020
MATRIX: SOIL

BATCH NO.:	94A032	DATE RECEIVED:	NA
SAMPLE ID:	EB-18#1	DATE EXTRACTED:	NA
CONTROL NO.:	A034-13	DATE ANALYZED:	01/13/94

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Benzene	ND	250	218	87	250	232	93	6
Toluene	ND	250	226	90	250	240	96	6
EthylBenzene	ND	250	223	89	250	247	99	10
Xylenes	ND	750	670	89	750	740	99	10

EPA METHOD 413.2
OIL & GREASE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/10/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/10/94
BATCH NO.:   94A032                     DATE EXTRACTED:  01/13/94
MATRIX:      SOIL                       DATE ANALYZED:   01/17/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB8F#5	A032-05	ND	1	10
TBLK1S	A032-B1S	ND	1	10

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 413.2
MATRIX: SOIL

=====

BATCH NO.:	94A032	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/13/94
CONTROL NO.:	A032-L1S	DATE ANALYZED:	01/17/94
ACCESSION:	94A032 94A039		

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
TROG	150	158	105

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 413.2
MATRIX: SOIL

BATCH NO.: 94A032 DATE RECEIVED: 01/10/94
SAMPLE ID: EB8#5 DATE EXTRACTED: 01/13/94
CONTROL NO.: A032-05 DATE ANALYZED: 01/17/94

ACCESSION: 94A032 94A039

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
TROG	ND	150	151	101	150	163	109	8



EPA METHOD 300
CHLORIDE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/10/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/10/94
BATCH NO.:   94A032                     DATE EXTRACTED:  01/13/94
MATRIX:     SOIL                        DATE ANALYZED:   01/13/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB8F#5	A032-05	4.0	1	.2
WBLK1S	A032-B1S	ND	1	.2

MDL : Method Detection Limit



EPA METHOD 300
SULFATE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/10/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/10/94
BATCH NO.:    94A032                     DATE EXTRACTED:  01/13/94
MATRIX:      SOIL                       DATE ANALYZED:   01/13/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB8F#5	A032-05	ND	1	1
WBLK1S	A032-B1S	ND	1	1

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

=====

BATCH NO.:	94A032	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A032-L1S	DATE ANALYZED:	01/13/94
ACCESSION:	94A032 94A039		

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Sulfate	150	146.5	98
Chloride	30.0	28.9	96



CKY QUALITY CONTROL DATA
SPIKE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

=====

BATCH NO.: 94A032 DATE RECEIVED: NA
SAMPLE ID: EB-22#8 DATE EXTRACTED: 01/13/94
CONTROL NO.: A039-08 DATE ANALYZED: 01/13/94

ACCESSION: 94A039 94A032

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC
-----	-----	-----	-----	-----
Sulfate	20.7	20.0	39.0	92
Chloride	15.8	20.0	34.4	93



CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

=====

BATCH NO.:	94A032	DATE RECEIVED:	NA
SAMPLE ID:	EB-22#8	DATE EXTRACTED:	01/13/94
CONTROL NO.:	A039-08	DATE ANALYZED:	01/13/94

ACCESSION: 94A032 94A039

PARAMETER	Sample (mg/kg)	Dup. Sample (mg/kg)	RPD (%)
-----	-----	-----	-----
Sulfate	20.7	20.1	3
Chloride	15.8	15.6	1



DHS METHOD
ORGANIC LEAD

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/10/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/10/94
BATCH NO.:   94A032                     DATE EXTRACTED:  01/12/94
MATRIX:      SOIL                       DATE ANALYZED:   01/12/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB8F#5	A032-05	ND	1	.5
FBLK1S	A017-B1S	ND	1	.5

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A032	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/12/94
CONTROL NO.:	A017-L1S	DATE ANALYZED:	01/12/94
ACCESSION:	94A017 94A027 94A031 94A032 94A033 94A034 94A035 94A039		

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Lead	100	91	91

CKY QUALITY CONTROL DATA
SPIKE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A032	DATE RECEIVED:	NA
SAMPLE ID:	FBLK1S	DATE EXTRACTED:	01/12/94
CONTROL NO.:	A017-B1S	DATE ANALYZED:	01/12/94
ACCESSION:	94A017 94A027 94A031 94A032 94A033 94A034 94A035 94A039		

PARAMETER	SAMPLE RESULT (mg/kg)	SPIKE CONC. (mg/kg)	SPIKE RESULT (mg/kg)	SPIKE RECRY. (%)
-----	-----	-----	-----	-----
Lead	ND	5.0	5.0	100



CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A032	DATE RECEIVED:	NA
SAMPLE ID:	EB-10B-D4	DATE EXTRACTED:	01/12/94
CONTROL NO.:	A027-17	DATE ANALYZED:	01/12/94
ACCESSION:	94A017 94A027 94A031 94A032 94A033 94A034 94A035 94A039		

PARAMETER	SAMPLE (mg/kg)	DUP. SAMPLE (mg/kg)	RPD (%)
-----	-----	-----	-----
Lead	ND	ND	0



EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: 01/10/94
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: 01/10/94
BATCH NO.: 94A032	DATE EXTRACTED: 01/18/94
SAMPLE ID: EB8F#5	DATE ANALYZED: 01/20/94
CONTROL NO.: A032-05	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg) RESULT MDL	PARAMETERS	(ug/kg) RESULT MDL
N-Nitrosodimethylamine	ND (330)	3-Nitroaniline	ND (800)
Pyridine	ND (330)	Acenaphthene	ND (330)
Aniline	ND (330)	2,4-Dinitrophenol	ND (800)
Phenol	ND (330)	4-Nitrophenol	ND (800)
bis(2-Chloroethyl)ether	ND (330)	Dibenzofuran	ND (330)
2-Chlorophenol	ND (330)	2,4-Dinitrotoluene	ND (330)
1,3-Dichlorobenzene	ND (330)	Diethylphthalate	ND (330)
1,4-Dichlorobenzene	ND (330)	4-Chlorophenyl-phenylether	ND (330)
Benzyl Alcohol	ND (330)	Fluorene	ND (330)
1,2-Dichlorobenzene	ND (330)	1,2-Diphenylhydrazine	ND (800)
2-Methylphenol	ND (330)	4-Nitroaniline	ND (800)
2,2'-oxybis(1-Chloropropane)	ND (330)	4,6-Dinitro-2-methylphenol	ND (800)
4-Methylphenol	ND (330)	N-Nitrosodiphenylamine (1)	ND (330)
N-Nitroso-di-n-propylamine	ND (330)	4-Bromophenyl-phenylether	ND (330)
Hexachloroethane	ND (330)	Hexachlorobenzene	ND (330)
Nitrobenzene	ND (330)	Pentachlorophenol	ND (800)
Isophorone	ND (330)	Benazidine	ND (800)
2-Nitrophenol	ND (330)	Phenanthrene	ND (800)
2,4-Dimethylphenol	ND (330)	Anthracene	ND (330)
Benzoic Acid	ND (800)	Carbazole	ND (800)
bis(2-Chloroethoxy)methane	ND (330)	Di-n-butylphthalate	1200 (330)
2,4-Dichlorophenol	ND (330)	Fluoranthene	ND (330)
1,2,4-Trichlorobenzene	ND (330)	4,4'-Methylene Dianiline	ND (800)
Naphthalene	ND (330)	Pyrene	ND (330)
4-Chloroaniline	ND (330)	Bisphenol-A	ND (330)
Hexachloro-1,3-butadiene	ND (330)	Butylbenzylphthalate	ND (330)
4-Chloro-3-methylphenol	ND (330)	3,3'-Dichlorobenzidine	ND (330)
2-Methylnaphthalene	ND (330)	Benzo(a)anthracene	ND (330)
Hexachlorocyclopentadiene	ND (330)	Chrysene	ND (330)
2,4,6-Trichlorophenol	ND (330)	bis(2-Ethylhexyl)phthalate	ND (330)
2,4,5-Trichlorophenol	ND (800)	Di-n-octylphthalate	ND (330)
2-Chloronaphthalene	ND (330)	Benz(b)fluoranthene	ND (330)
1-Chloronaphthalene	ND (330)	Benzo(k)fluoranthene	ND (330)
2-Nitroaniline	ND (800)	Benzo(a)pyrene	ND (330)
Dimethylphthalate	ND (330)	Indeno(1,2,3-cd)pyrene	ND (330)
Acenaphthylene	ND (330)	Dibenzo(a,h)anthracene	ND (330)
2,6-Dinitrotoluene	ND (330)	Benzo(g,h,i)perylene	ND (330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	44	23-120
2-Fluorobiphenyl	43	30-115
Terphenyl-d14	87	18-137
Phenol-d5	46	24-113
2-Fluorophenol	43	25-121
2,4,6-Tribromophenol	48	19-122

MDL: Method Detection Limit

EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: NA
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: NA
BATCH NO.: 94A032	DATE EXTRACTED: 01/18/94
SAMPLE ID: SBLK01	DATE ANALYZED: 01/19/94
CONTROL NO.: A039-B1S	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg)		PARAMETERS	(ug/kg)	
	RESULT	MDL		RESULT	MDL
N-Nitrosodimethylamine	ND	(330)	3-Nitroaniline	ND	(800)
Pyridine	ND	(330)	Acenaphthene	ND	(330)
Aniline	ND	(330)	2,4-Dinitrophenol	ND	(800)
Phenol	ND	(330)	4-Nitrophenol	ND	(800)
bis(2-Chloroethyl) ether	ND	(330)	Dibenzofuran	ND	(330)
2-Chlorophenol	ND	(330)	2,4-Dinitrotoluene	ND	(330)
1,3-Dichlorobenzene	ND	(330)	Diethylphthalate	ND	(330)
1,4-Dichlorobenzene	ND	(330)	4-Chlorophenyl-phenylether	ND	(330)
Benzyl Alcohol	ND	(330)	Fluorene	ND	(330)
1,2-Dichlorobenzene	ND	(330)	1,2-Diphenylhydrazine	ND	(800)
2-Methylphenol	ND	(330)	4-Nitroaniline	ND	(800)
2,2'-oxybis(1-Chloropropane)	ND	(330)	4,6-Dinitro-2-methylphenol	ND	(800)
4-Methylphenol	ND	(330)	N-Nitrosodiphenylamine (1)	ND	(330)
N-Nitroso-di-n-propylamine	ND	(330)	4-Bromophenyl-phenylether	ND	(330)
Hexachloroethane	ND	(330)	Hexachlorobenzene	ND	(330)
Nitrobenzene	ND	(330)	Pentachlorophenol	ND	(800)
Isophorone	ND	(330)	Benzidine	ND	(800)
2-Nitrophenol	ND	(330)	Phenanthrene	ND	(800)
2,4-Dimethylphenol	ND	(330)	Anthracene	ND	(330)
Benzoic Acid	ND	(800)	Carbazole	ND	(800)
bis(2-Chloroethoxy)methane	ND	(330)	Di-n-butylphthalate	440	(330)
2,4-Dichlorophenol	ND	(330)	Fluoranthene	ND	(330)
1,2,4-Trichlorobenzene	ND	(330)	4,4'-Methylene Dianiline	ND	(800)
Naphthalene	ND	(330)	Pyrene	ND	(330)
4-Chloroaniline	ND	(330)	Bisphenol-A	ND	(330)
Hexachloro-1,3-butadiene	ND	(330)	Butylbenzylphthalate	ND	(330)
4-Chloro-3-methylphenol	ND	(330)	3,3'-Dichlorobenzidine	ND	(330)
2-Methylnaphthalene	ND	(330)	Benzo(a)anthracene	ND	(330)
Hexachlorocyclopentadiene	ND	(330)	Chrysene	ND	(330)
2,4,6-Trichlorophenol	ND	(330)	bis(2-Ethylhexyl)phthalate	ND	(330)
2,4,5-Trichlorophenol	ND	(800)	Di-n-octylphthalate	ND	(330)
2-Chloronaphthalene	ND	(330)	Benz(b)fluoranthene	ND	(330)
1-Chloronaphthalene	ND	(330)	Benzo(k)fluoranthene	ND	(330)
2-Nitroaniline	ND	(800)	Benzo(a)pyrene	ND	(330)
Dimethylphthalate	ND	(330)	Indeno(1,2,3-cd)pyrene	ND	(330)
Acenaphthylene	ND	(330)	Dibenzo(a,h)anthracene	ND	(330)
2,6-Dinitrotoluene	ND	(330)	Benzo(g,h,i)perylene	ND	(330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	60	23-120
2-Fluorobiphenyl	58	30-115
Terphenyl-d14	117	18-137
Phenol-d5	57	24-113
2-Fluorophenol	52	25-121
2,4,6-Tribromophenol	70	19-122

MDL: Method Detection Limit

CKY

CKY INC., ANALYTICAL LABORATORIES, 630 Maple Ave., Torrance, Calif. 90503 Tel: (310) 618-8889 Fax: (310) 618-0818

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8270
MATRIX: SOIL

=====

BATCH NO.:	94A032	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A039-L1S	DATE ANALYZED:	01/19/94

ACCESSION: 94A032 94A039 94A050 94A059 94A060 94A061
94A062

PARAMETER	TRUE VALUE (ug/kg)	FOUND VALUE (ug/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Phenol	5000	2814	56
2-Chlorophenol	5000	3008	60
1,4-DCB	3300	2069	63
N-Nitroso-di-n	3300	2282	69
1,2,4-TCB	3300	2153	65
4-Chl-3-Methyl	5000	3139	63
Acenaphthene	3300	2003	61
4-Nitrophenol	5000	3319	66
2,4-Dinitrotol	3300	2100	64
Pentachlorophe	5000	3291	66
Pyrene	3300	2137	65

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8270
MATRIX: SOIL

BATCH NO.: 94A032 DATE RECEIVED: NA
SAMPLE ID: EB-24-D5 DATE EXTRACTED: 01/18/94
CONTROL NO.: A061-05 DATE ANALYZED: 01/20/94

ACCESSION: 94A032 94A039 94A050 94A051 94A059 94A060
94A061 94A062

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Phenol	ND	5000	2018	40	5000	2536	51	23
2-Chlorophenol	ND	5000	2102	42	5000	2714	54	25
1,4-DCB	ND	3300	1395	42	3300	1775	54	24
N-Nitroso-di-n	ND	3300	1481	45	3300	1920	58	26
1,2,4-TCB	ND	3300	1397	42	3300	1750	53	22
4-Chl-3-Methyl	ND	5000	2514	50	5000	3083	62	20
Acenaphthene	ND	3300	1508	46	3300	1942	59	25
4-Nitrophenol	ND	5000	4709	94	5000	4893	98	4
2,4-Dinitrotol	ND	3300	2331	71	3300	2724	83	16
Pentachlorophe	ND	5000	5360	107	5000	5570	111	4
Pyrene	22	3300	2771	84	3300	2828	86	2

94A032

Chain of Custody Record

Due 1-17-94
G.I.

Lab job no.:
Date 1/10/94
Page 1 of 1

Laboratory CKY Laboratory Method of Shipment _____
Address _____ Shipment No. _____
Airbill No. _____
Cooler No. _____
Client The Earth Technology Corporation Project Manager Kris Khilnani
Address 13900 Alton Parkway, Suite 120 Telephone No. 714 452 7414
Irvine, CA 92718 Fax No. 714 458 8701
Project Name METRO EAST EXT. Samplers: (Signature) Hossein Rashedi
Project Number 94-1109-2

Field Sample Number	Location/Depth	Date	Time	Sample Type	Type/Size of Container	Preservation		Analysis Required												Remarks
						Temp.	Chemical	Filtrated	No. of Containers	EPA Method 8015 (Mod)	EPA Method 8015 (Mod)	EPA Method 8015 (Mod)	EPA Method 8240	EPA Method 8270	Total Lead Org.	Freeze	Freeze	Freeze	Freeze	
1	EBBF #1	1	4	1/10/94	11:32	D	4.5" S.S. Sleeve	ICE												9 10
2	"	2	9	"	11:37	"	"	"												9 23
3	"	3	14	"	11:49	"	"	"												9 11
4	"	4	19	"	12:00	"	"	"												9 14
5	"	5	24	"	12:10	"	"	"												9 1000
6	"	6	29	"	12:42	"	"	"												4 110
7	"	7	34	"	12:56	"	"	"												9 17
8	"	8	39	"	13:05	"	"	"												9 230
9	"	9	44	"	13:15	"	"	"												9 160
10	"	10	49	"	13:26	"	"	"												11 240
11	"	11	54	"	13:44	"	"	"												9 175
12	"	12	59	"	13:54	"	"	"												6 170
13	"	13	64	"	14:07	"	"	"												6 44
14	"	14	69	"	14:25	"	"	"												6 30
15	"	15	74	"	14:36	"	"	"												6 180

Relinquished by: <u>Hossein Rashedi</u> Signature: <u>HOSSEIN RASHIDI</u> Printed: <u>Diaz, Youman</u> Company: <u>Transfer to lab.</u> Reason:	Date: <u>1/10/94</u> Time: <u>16:03</u>	Received by: <u>Rodolfo B. Alva</u> Signature: <u>RODOLFO ALVA</u> Printed: <u>CKY INC.</u> Company: <u>CKY INC.</u>	Date: <u>1/10/94</u> Time: <u>16:03</u>	Relinquished by: <u>Rodolfo B. Alva</u> Signature: <u>RODOLFO B. ALVA</u> Printed: <u>CKY INC.</u> Company: <u>ANALYSIS</u>	Date: <u>1-10-94</u> Time: <u>5:00 pm</u>	Received by: <u>Carli Angco</u> Signature: <u>CARLI ANGCO</u> Printed: <u>CKY</u> Company:	Date: <u>1-10-94</u> Time: <u>1703</u>			
Comments: <u>T=60C</u>				Relinquished by: _____ Signature: _____ Printed: _____ Company: _____ Reason: _____				Date: _____ Time: _____	Received by: _____ Signature: _____ Printed: _____ Company: _____	Date: _____ Time: _____

SAMPLE RECEIPT FORM

CONTROL NO.	94A032-					DATE	TIME	RECIPIENT	1-10-84 1700 COTTAGGIO
CLIENT	EARTH TECH								
PROJECT	METRO EASTSIDE EXT								
SAMPLE TRANSPORTATION TO CKY LABORATORY:	BY	ON(DATE)	AT(TIME)	FROM(SITE/CO.)	COMMENTS				
PICKED-UP BY CKY COURIER	R. ALBA	1-10-84	1603	WHITTIER/EASTERN					
DELIVERED BY CLIENT									
SHIPPED/AIRBILL NO									
SAMPLE BATCH PACKAGING/SEALING UPON RECEIPT:	/ INTACT	DAMAGED	SEALED	/ NOT SEALED	NO CONTAINER				
CONTAINER:	INSIDE TEMPERATURE: 6 C	CUSTODY SEAL		LOCATION	NUMBER				
/ COOLER	PACKAGING TYPE SUFFICIENCY	INTACT	DAMAGED						
BOX	INSULATION: Cooler al	NAME:							
OTHER:	ICE/COOLANT: Blue al	DATE:							
	PACKING MATERIAL: NONE	TIME:							
SAMPLE DOCUMENTATION/CHAIN-OF-CUSTODY(COC)	SEALED	ENCLOSED	HANDCARRIED	FAXED	MAILED				
SAMPLE LOG-IN:	CRITERIA	COMMENTS			DISCREPANCY				
SAMPLE CUSTODY SEAL	EVERY SAMPLE	NONE							
CONTAINER TYPE/MATERIAL	APPROPRIATE	al							
SAMPLE AMOUNT	ENOUGH	al							
SAMPLE PRESERVATION/HOLDING TIME	SUFFICIENT	al							
HEADSPACE/BUBBLES	ZERO/NONE	N/A							
SAMPLE LABEL INFORMATION	SUFFICIENT	> SOME SAMPLING TIMES DO NOT TALLY			94A032-6 + 94A032-12				
CHAIN-OF-CUSTODY INFORMATION	SUFFICIENT								
SAMPLE INFO.: / SAMPLE ID	/ DATE	/ TIME	/ SIGNATURE	/ ANALYSES	PRESERVATIVE	X CONTAINER			
INDIVIDUAL SAMPLE CONTAINER:	NONE	/ SEALED PLASTIC BAG		CAN	OTHER(SPECIFY):				
SAMPLE NUMBER	CLIENT ID	DISCREPANCY	ACTION						
94A020-6	EBBF-6	SAMPLING TIME ON LABEL IS 12:48 BUT ON COC IT IS 12:42.							
94A020-12	EBBF-12	SAMPLING TIME ON LABEL IS 13:54 BUT ON COC IT IS 13:57.							
CLIENT SERVICES COPY RECEIVED BY		DATE	TIME						



CKY incorporated Analytical Laboratories

Date: 01-21-1994
CKY Batch No.: 94A050

Attn.: K. Khilnani

Earth Technology Corp.
13900 Alton Parkway #120
Irvine, CA 92718

Subject: Laboratory Report
Project: Metro Rail - East Side Ext.

Enclosed is the Laboratory report for samples received on 01/13/94. The samples were received in coolers with ice and intact; the chain-of-custody forms were properly filled out. The data reported include :

Sample ID	Control No.	Matrix	Analysis
-----	-----	-----	-----
EB-20#12D	A050-01	soil	Hold
EB-20#13D	A050-02	soil	Hold
EB-20#14D	A050-03	soil	Hold
EB-20#15D	A050-04	soil	EPA M8015 (CCID) EPA 8240 EPA 8270 Organic Pb
EB-20#16D	A050-05	soil	Hold
EB-20#17D	A050-06	soil	Hold

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

Kam Y. Pang, Ph.D.
Laboratory Director

P.S. - All analyses requested for the above referenced project have been completed. Therefore, unless instructed, the remaining portions of the samples will be disposed after fifteen (15) days from the date of this report.

EPA METHOD M8015
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

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=====
CLIENT:      Earth Technology Corp.          DATE COLLECTED: 01/13/94
PROJECT:     Metro Rail - East Side Ext.    DATE RECEIVED:  01/13/94
BATCH NO.:   94A050                        DATE EXTRACTED: 01/18/94
MATRIX:     SOIL                          DATE ANALYZED:  01/19/94
=====
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SAMPLE ID	CONTROL NO	RESULT (mg/kg)	H-C RANGE	% RECOVERY		DL FACTOR	MDL (mg/kg)
-----	-----	-----	-----	SURR1	SURR2	-----	-----
EB-20#15D	A050-04	ND	NA	101	101	1	5
DBLK1S	A050-B1S	ND	NA	100	95	1	5

QC LIMIT: 60-140 55-150
SURR1 : Bromobenzene
SURR2 : Hexacosane
MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

BATCH NO.: 94A050 DATE RECEIVED: NA
SAMPLE ID: EB-24-D5 DATE EXTRACTED: 01/18/94
CONTROL NO.: A061-05 DATE ANALYZED: 01/19/94

ACCESSION: 94A035 94A050 94A059 94A060 94A061 94A062

PARAMETER	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
Diesel	ND	250	219	88	250	222	89	1

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

=====

BATCH NO.:	94A050	DATE RECEIVED:	NA
SAMPLE ID:	LCS02	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A035-L2S	DATE ANALYZED:	01/19/94

ACCESSION: 94A035 94A050 94A059 94A060 94A061 94A062

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
DIESEL	250	229	92



EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

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=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/13/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/13/94
BATCH NO.:   94A050                     DATE EXTRACTED:  NA
SAMPLE ID:   EB-20#15D                   DATE ANALYZED:  01/20/94
CONTROL NO.: A050-04                     MATRIX:        SOIL
% MOISTURE:  NA                           DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	9	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	89	70-121
Toluene -d8	129	84-138
Bromofluorobenzene	78	59-113

MDL : Method Detection Limit

EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED:  NA
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:   NA
BATCH NO.:   94A050                     DATE EXTRACTED:  NA
SAMPLE ID:   VBLK1S                     DATE ANALYZED:   01/20/94
CONTROL NO.: A050-B1S                   MATRIX:         SOIL
% MOISTURE:  NA                         DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	98	70-121
Toluene -d8	108	84-138
Bromofluorobenzene	100	59-113

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8240
MATRIX: SOIL

BATCH NO.: 94A050 DATE RECEIVED: NA
SAMPLE ID: VBLK1S DATE EXTRACTED: NA
CONTROL NO.: A050-B1S DATE ANALYZED: 01/20/94

ACCESSION: 94A050 94A061

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
1,1-DCE	ND	50	36	72	50	33	66	9
Benzene	ND	50	65	130	50	68	136	5
TCE	ND	50	45	90	50	46	92	2
Toluene	ND	50	61	122	50	58	116	5
Chlorobenzene	ND	50	49	98	50	51	102	4



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 624/8240
MATRIX: WATER

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=====
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BATCH NO.:	94A050	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A050-L1S	DATE ANALYZED:	01/20/94
ACCESSION:	94A050 94A061		

PARAMETER	TRUE VALUE (ug/L)	FOUND VALUE (ug/L)	LCS RECOVERY (%)	ACCEPTABLE RANGE
-----	-----	-----	-----	-----
1,1-DCE	50	35	70	61-145
Benzene	50	58	116	76-127
TCE	50	41	82	71-120
Toluene	50	54	108	76-125
Chlorobenzene	50	44	88	75-130



EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: 01/13/94
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: 01/13/94
BATCH NO.: 94A050	DATE EXTRACTED: 01/18/94
SAMPLE ID: EB-20#15D	DATE ANALYZED: 01/18/94
CONTROL NO.: A050-04	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg)		PARAMETERS	(ug/kg)	
	RESULT	MDL		RESULT	MDL
N-Nitrosodimethylamine	ND	(330)	3-Nitroaniline	ND	(800)
Pyridine	ND	(330)	Acenaphthene	ND	(330)
Aniline	ND	(330)	2,4-Dinitrophenol	ND	(800)
Phenol	ND	(330)	4-Nitrophenol	ND	(800)
bis(2-Chloroethyl)ether	ND	(330)	Dibenzofuran	ND	(330)
2-Chlorophenol	ND	(330)	2,4-Dinitrotoluene	ND	(330)
1,3-Dichlorobenzene	ND	(330)	Diethylphthalate	ND	(330)
1,4-Dichlorobenzene	ND	(330)	4-Chlorophenyl-phenylether	ND	(330)
Benzyl Alcohol	ND	(330)	Fluorene	ND	(330)
1,2-Dichlorobenzene	ND	(330)	1,2-Diphenylhydrazine	ND	(800)
2-Methylphenol	ND	(330)	4-Nitroaniline	ND	(800)
2,2'-oxybis(1-Chloropropane)	ND	(330)	4,6-Dinitro-2-methylphenol	ND	(800)
4-Methylphenol	ND	(330)	N-Nitrosodiphenylamine (1)	ND	(330)
N-Nitroso-di-n-propylamine	ND	(330)	4-Bromophenyl-phenylether	ND	(330)
Hexachloroethane	ND	(330)	Hexachlorobenzene	ND	(330)
Nitrobenzene	ND	(330)	Pentachlorophenol	ND	(800)
Isophorone	ND	(330)	Benzidine	ND	(800)
2-Nitrophenol	ND	(330)	Phenanthrene	ND	(800)
2,4-Dimethylphenol	ND	(330)	Anthracene	ND	(330)
Benzoic Acid	ND	(800)	Carbazole	ND	(800)
bis(2-Chloroethoxy)methane	ND	(330)	Di-n-butylphthalate	1100	(330)
2,4-Dichlorophenol	ND	(330)	Fluoranthene	ND	(330)
1,2,4-Trichlorobenzene	ND	(330)	4,4'-Methylene Dianiline	ND	(800)
Naphthalene	ND	(330)	Pyrene	ND	(330)
4-Chloroaniline	ND	(330)	Bisphenol-A	ND	(330)
Hexachloro-1,3-butadiene	ND	(330)	Butylbenzylphthalate	ND	(330)
4-Chloro-3-methylphenol	ND	(330)	3,3'-Dichlorobenzidine	ND	(330)
2-Methylnaphthalene	ND	(330)	Benzo(a)anthracene	ND	(330)
Hexachlorocyclopentadiene	ND	(330)	Chrysene	ND	(330)
2,4,6-Trichlorophenol	ND	(330)	bis(2-Ethylhexyl)phthalate	ND	(330)
2,4,5-Trichlorophenol	ND	(800)	Di-n-octylphthalate	ND	(330)
2-Chloronaphthalene	ND	(330)	Benz(b)fluoranthene	ND	(330)
1-Chloronaphthalene	ND	(330)	Benzo(k)fluoranthene	ND	(330)
2-Nitroaniline	ND	(800)	Benzo(a)pyrene	ND	(330)
Dimethylphthalate	ND	(330)	Indeno(1,2,3-cd)pyrene	ND	(330)
Acenaphthylene	ND	(330)	Dibenzo(a,h)anthracene	ND	(330)
2,6-Dinitrotoluene	ND	(330)	Dibenzo(g,h,i)perylene	ND	(330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	78	23-120
2-Fluorobiphenyl	71	30-115
Terphenyl-d14	103	18-137
Phenol-d5	82	24-113
2-Fluorophenol	79	25-121
2,4,6-Tribromophenol	96	19-122

MDL: Method Detection Limit

EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: NA
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: NA
BATCH NO.: 94A050	DATE EXTRACTED: 01/18/94
SAMPLE ID: SBLK01	DATE ANALYZED: 01/19/94
CONTROL NO.: A039-B1S	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg)		PARAMETERS	(ug/kg)	
	RESULT	MDL		RESULT	MDL
N-Nitrosodimethylamine	ND	(330)	3-Nitroaniline	ND	(800)
Pyridine	ND	(330)	Acenaphthene	ND	(330)
Aniline	ND	(330)	2,4-Dinitrophenol	ND	(800)
Phenol	ND	(330)	4-Nitrophenol	ND	(800)
bis(2-Chloroethyl) ether	ND	(330)	Dibenzofuran	ND	(330)
2-Chlorophenol	ND	(330)	2,4-Dinitrotoluene	ND	(330)
1,3-Dichlorobenzene	ND	(330)	Diethylphthalate	ND	(330)
1,4-Dichlorobenzene	ND	(330)	4-Chlorophenyl-phenylether	ND	(330)
Benzyl Alcohol	ND	(330)	Fluorene	ND	(330)
1,2-Dichlorobenzene	ND	(330)	1,2-Diphenylhydrazine	ND	(800)
2-Methylphenol	ND	(330)	4-Nitroaniline	ND	(800)
2,2'-oxybis(1-Chloropropane)	ND	(330)	4,6-Dinitro-2-methylphenol	ND	(800)
4-Methylphenol	ND	(330)	N-Nitrosodiphenylamine (1)	ND	(330)
N-Nitroso-di-n-propylamine	ND	(330)	4-Bromophenyl-phenylether	ND	(330)
Hexachloroethane	ND	(330)	Hexachlorobenzene	ND	(330)
Nitrobenzene	ND	(330)	Pentachlorophenol	ND	(800)
Isophorone	ND	(330)	Benzidine	ND	(800)
2-Nitrophenol	ND	(330)	Phenanthrene	ND	(800)
2,4-Dimethylphenol	ND	(330)	Anthracene	ND	(330)
Benzoic Acid	ND	(800)	Carbazole	ND	(800)
bis(2-Chloroethoxy)methane	ND	(330)	Di-n-butylphthalate	440	(330)
2,4-Dichlorophenol	ND	(330)	Fluoranthene	ND	(330)
1,2,4-Trichlorobenzene	ND	(330)	4,4'-Methylene Dianiline	ND	(800)
Naphthalene	ND	(330)	Pyrene	ND	(330)
4-Chloroaniline	ND	(330)	Bisphenol-A	ND	(330)
Hexachloro-1,3-butadiene	ND	(330)	Butylbenzylphthalate	ND	(330)
4-Chloro-3-methylphenol	ND	(330)	3,3'-Dichlorobenzidine	ND	(330)
2-Methylnaphthalene	ND	(330)	Benzo(a)anthracene	ND	(330)
Hexachlorocyclopentadiene	ND	(330)	Chrysene	ND	(330)
2,4,6-Trichlorophenol	ND	(330)	bis(2-Ethylhexyl)phthalate	ND	(330)
2,4,5-Trichlorophenol	ND	(800)	Di-n-octylphthalate	ND	(330)
2-Chloronaphthalene	ND	(330)	Benz(b)fluoranthene	ND	(330)
1-Chloronaphthalene	ND	(330)	Benzo(k)fluoranthene	ND	(330)
2-Nitroaniline	ND	(800)	Benzo(a)pyrene	ND	(330)
Dimethylphthalate	ND	(330)	Indeno(1,2,3-cd)pyrene	ND	(330)
Acenaphthylene	ND	(330)	Dibenzo(a,h)anthracene	ND	(330)
2,6-Dinitrotoluene	ND	(330)	Benzo(g,h,i)perylene	ND	(330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	60	23-120
2-Fluorobiphenyl	58	30-115
Terphenyl-d14	117	18-137
Phenol-d5	57	24-113
2-Fluorophenol	52	25-121
2,4,6-Tribromophenol	70	19-122

MDL: Method Detection Limit



CKY INC., ANALYTICAL LABORATORIES, 630 Maple Ave., Torrance, Calif. 90503 Tel: (310) 618-8889 Fax: (310) 618-0818

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8270
MATRIX: SOIL

BATCH NO.: 94A050 DATE RECEIVED: NA
SAMPLE ID: EB-24-D5 DATE EXTRACTED: 01/18/94
CONTROL NO.: A061-05 DATE ANALYZED: 01/20/94

ACCESSION: 94A032 94A039 94A050 94A051 94A059 94A060
94A061 94A062

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Phenol	ND	5000	2018	40	5000	2536	51	23
2-Chlorophenol	ND	5000	2102	42	5000	2714	54	25
1,4-DCB	ND	3300	1395	42	3300	1775	54	24
N-Nitroso-di-n	ND	3300	1481	45	3300	1920	58	26
1,2,4-TCB	ND	3300	1397	42	3300	1750	53	22
4-Chl-3-Methyl	ND	5000	2514	50	5000	3083	62	20
Acenaphthene	ND	3300	1508	46	3300	1942	59	25
4-Nitrophenol	ND	5000	4709	94	5000	4893	98	4
2,4-Dinitrotol	ND	3300	2331	71	3300	2724	83	16
Pentachlorophe	ND	5000	5360	107	5000	5570	111	4
Pyrene	22	3300	2771	84	3300	2828	86	2



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8270
MATRIX: SOIL

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BATCH NO.:	94A050	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A039-L1S	DATE ANALYZED:	01/19/94

ACCESSION: 94A032 94A039 94A050 94A059 94A060 94A061
94A062

PARAMETER	TRUE VALUE (ug/kg)	FOUND VALUE (ug/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Phenol	5000	2814	56
2-Chlorophenol	5000	3008	60
1,4-DCB	3300	2069	63
N-Nitroso-di-n	3300	2282	69
1,2,4-TCB	3300	2153	65
4-Chl-3-Methyl	5000	3139	63
Acenaphthene	3300	2003	61
4-Nitrophenol	5000	3319	66
2,4-Dinitrotol	3300	2100	64
Pentachlorophe	5000	3291	66
Pyrene	3300	2137	65



DHS METHOD
ORGANIC LEAD

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=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/13/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/13/94
BATCH NO.:    94A050                     DATE EXTRACTED:  01/18/94
MATRIX:       SOIL                       DATE ANALYZED:   01/19/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-20#15D	A050-04	ND	1	.5
FBLK1S	A050-B1S	ND	1	.5

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A050	DATE RECEIVED:	NA
SAMPLE ID:	EB-21-D8	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A059-08	DATE ANALYZED:	01/19/94

ACCESSION: 94A050 94A059 94A060 94A061 94A062

PARAMETER	SAMPLE (mg/kg)	DUP. SAMPLE (mg/kg)	RPD (%)
-----	-----	-----	-----
Lead	ND	ND	0



CKY QUALITY CONTROL DATA
SPIKE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A050	DATE RECEIVED:	NA
SAMPLE ID:	FBLK1S	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A050-B1S	DATE ANALYZED:	01/19/94

ACCESSION: 94A050 94A059 94A060 94A061 94A062

PARAMETER	SAMPLE RESULT (mg/kg)	SPIKE CONC. (mg/kg)	SPIKE RESULT (mg/kg)	SPIKE RECRY. (%)
-----	-----	-----	-----	-----
Lead	ND	100	86	86

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

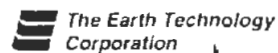
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BATCH NO.:	94A050	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A050-L1S	DATE ANALYZED:	01/19/94

ACCESSION: 94A050 94A059 94A060 94A061 94A062

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Lead	100	91	91





Chain of Custody Record

Lab job no.: _____

Date 1/13/94

Page 1 of 1

Laboratory CRV Method of Shipment _____

Address _____ Shipment No. _____

Alrbill No. _____

Client The Earth Technology Corporation Cooler No. _____

Address 13900 Alton Parkway, Suite 120 Project Manager Kris Kilman

Irvine, CA 92718 Telephone No. 114 458 7411

Project Name METAL E-ENT Fax. No. 714 958 6701

Project Number 94-1109-2 Samplers: (Signature) Hosea K

[illegible]

Relinquished by: Husein Kaid
Signature Husein Kaid
Printed Husein Kaid
Company Dine Youngman
Reason Transferred to job

Date	Received by:
11/1/94	Signature _____
Time	Printed _____
11:06	_____

Date	Relinquished by:
11/2/84	Signature <u>[Signature]</u>
	Printed <u>DON BOWEN</u>
Time	Company <u>CTE</u>
11/2/84	Reason <u>Don't know it</u>

Date 11/3/14	Received by: Signature [Signature]	Date 11/3/14
Time 15:11	Printed [Name]	Time 15:11
Company [Company Name]		

Comments: $T = -10$

Relinquished by:

Signature _____

Printed _____

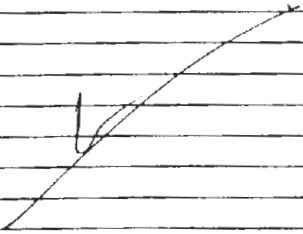
Company _____

Reason _____

Date	Received by:	Date
	Signature _____	
Time	Printed _____	Time

DATE	1-13-68
TIME	12:10
RECIPIENT	CT

SAMPLE DOCUMENTATION/CHAIN-OF-CUSTODY(COC)	SEALED	ENCLOSED	☒ HANDCARRIED	FAXED	MAILED

SAMPLE NUMBER	CLIENT ID	DISCREPANCY	ACTION
99A050-5	EB-WH 16D	SAMPLING IN LABEL IS 11:27, BUT IN CDC IT IS 11:30 	
CLIENT SERVICES COPY RECEIVED BY		DATE	TIME



CKY incorporated Analytical Laboratories

Date: 01-25-1994
CKY Batch No.: 94A059

Attn.: K. Khilnani

Earth Technology Corp.
13900 Alton Parkway #120
Irvine, CA 92718

Subject: Laboratory Report
Project: Metro Rail - East Side Ext.

Enclosed is the Laboratory report for samples received on 01/17/94. The samples were received in coolers with ice and intact; the chain-of-custody forms were properly filled out. The data reported include :

Sample ID	Control No.	Matrix	Analysis
-----	-----	-----	-----
EB-21-D1	A059-01	soil	Hold
EB-21-D2	A059-02	soil	Hold
EB-21-D3	A059-03	soil	Hold
EB-21-D4	A059-04	soil	Hold
EB-21-D5	A059-05	soil	Hold
EB-21-D6	A059-06	soil	EPA M8015 (CCID) EPA 8020
EB-21-D7	A059-07	soil	Hold
EB-21-D8	A059-08	soil	EPA M8015 (CCID) EPA 8240 EPA 8270 Organic Pb Oil & Grease Sulfide Sulfate Chloride
EB-21-D9	A059-09	soil	EPA M8015 (CCID) EPA 8020
EB-21-D10	A059-10	soil	Hold

Sample ID -----	Control No. -----	Matrix -----	Analysis -----
EB-21-D11	A059-11	soil	EPA M8015 (CCID) EPA 8020
EB-21-D12	A059-12	soil	Hold
EB-21-D13	A059-13	soil	Hold

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,



Kam Y. Pang, Ph.D.
Laboratory Director

P.S. - All analyses requested for the above referenced project have been completed. Therefore, unless instructed, the remaining portions of the samples will be disposed after fifteen (15) days from the date of this report.

EPA METHOD 413.2
OIL & GREASE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/15/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/17/94
BATCH NO.:   94A059                     DATE EXTRACTED:  01/18/94
MATRIX:     SOIL                         DATE ANALYZED:   01/21/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-21-D8	A059-08	ND	1	10
TBLK1S	A059-B1S	ND	1	10

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 413.2
MATRIX: Soil

```
=====
```

BATCH NO.:	94A059	DATE RECEIVED:	NA
SAMPLE ID:	EB-24-D5	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A061-05	DATE ANALYZED:	01/21/94

ACCESSION: 94A059 94A060 94A061 94A062

PARAMETER	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
-----	-----	-----	-----	-----	-----	-----	-----	-----
TROG	ND	150	168	112	150	165	110	2

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 413.2
MATRIX: Soil

=====

BATCH NO.:	94A059	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A059-L1S	DATE ANALYZED:	01/21/94

ACCESSION: 94A059 94A060 94A061 94A062

PARAMETER	TRUE CONC. (mg/kg)	FOUND CONC. (mg/kg)	SPIKE RECRY. (%)
-----	-----	-----	-----
TROG	150	151	101



EPA METHOD M8015
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```
=====
CLIENT:      Earth Technology Corp.          DATE COLLECTED: 01/15/94
PROJECT:     Metro Rail - East Side Ext.    DATE RECEIVED:  01/17/94
BATCH NO.:   94A059                        DATE EXTRACTED: 01/18/94
MATRIX:     SOIL                           DATE ANALYZED:  01/19/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	H-C RANGE	% RECOVERY		DL FACTOR	MDL (mg/kg)
				SURR1	SURR2		
EB-21-D6	A059-06	ND	N.A.	98	80	1	5
EB-21-D8	A059-08	ND	N.A.	99	97	1	5
EB-21-D9	A059-09	ND	N.A.	98	94	1	5
EB-21-D11	A059-11	ND	N.A.	100	95	1	5
DBLK1S	A059-B1S	ND	N.A.	100	95	1	5

SURR1 : Bromobenzene
 SURR2 : Hexacosane
 MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: Soil

BATCH NO.: 94A059 DATE RECEIVED: NA
SAMPLE ID: EB-24-D5 DATE EXTRACTED: 01/18/94
CONTROL NO.: A061-05 DATE ANALYZED: 01/19/94

ACCESSION: 94A035 94A050 94A059 94A060 94A061 94A062

PARAMETER	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
Diesel	ND	250	219	88	250	222	89	1



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: M8015
MATRIX: Soil

=====

BATCH NO.:	94A059	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A061-L1S	DATE ANALYZED:	01/19/94

ACCESSION: 94A035 94A050 94A059 94A060 94A061 94A062

PARAMETER	TRUE CONC. (mg/kg)	FOUND CONC. (mg/kg)	SPIKE RECRY. (%)
-----	-----	-----	-----
Diesel	250	229	92

EPA METHOD 8020
BTEX

```
=====
CLIENT:      Earth Technology Corp.          DATE COLLECTED: 01/15/94
PROJECT:     Metro Rail - East Side Ext.     DATE RECEIVED:  01/17/94
BATCH NO.:   94A059                         DATE EXTRACTED: NA
MATRIX:      SOIL                           DATE ANALYZED:  01/19/94
=====
```

SAMPLE ID	CNTRL NO	DL F	MDL	BENZ	RESULTS TOLUENE	(ug/kg) E BENZ	XYLS	% Rcvy SURR
EB-21-D6	A059-06	1	5	ND	ND	ND	ND	83
EB-21-D9	A059-09	1	5	ND	ND	ND	ND	77
EB-21-D11	A059-11	1	5	ND	ND	ND	ND	75
VBLK1S	A059-B1S	1	5	ND	ND	ND	ND	105

DL F : Dilution Factor
SURR : Bromofluorobenzene
MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8020
MATRIX: SOIL

BATCH NO.: 94A059 DATE RECEIVED: 01/17/94
SAMPLE ID: EB-21-D6 DATE EXTRACTED: NA
CONTROL NO.: A059-06 DATE ANALYZED: 01/19/94

ACCESSION: 94A045 94A058 94A059

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Benzene	ND	45	43	96	45	42	93	3
Toluene	ND	450	370	82	450	390	87	6
Ethyl Benzene	ND	110	90	82	110	90	82	0
Xylenes	ND	770	640	83	770	650	84	1

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 602/8020
MATRIX: WATER

=====

BATCH NO.:	94A059	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A059-L1S	DATE ANALYZED:	01/19/94
ACCESSION:	94A059		

PARAMETER	TRUE VALUE (ug/L)	FOUND VALUE (ug/L)	LCS RECOVERY (%)
-----	-----	-----	-----
Benzene	50	42	84
Toluene	50	44	88
Chlorobenzene	50	52	104



EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: NA
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: NA
BATCH NO.: 94A059	DATE EXTRACTED: 01/18/94
SAMPLE ID: SBLK01	DATE ANALYZED: 01/19/94
CONTROL NO.: A039-B1S	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg) RESULT MDL	PARAMETERS	(ug/kg) RESULT MDL
N-Nitrosodimethylamine	ND (330)	3-Nitroaniline	ND (800)
Pyridine	ND (330)	Acenaphthene	ND (330)
Aniline	ND (330)	2,4-Dinitrophenol	ND (800)
Phenol	ND (330)	4-Nitrophenol	ND (800)
bis(2-Chloroethyl) ether	ND (330)	Dibenzofuran	ND (330)
2-Chlorophenol	ND (330)	2,4-Dinitrotoluene	ND (330)
1,3-Dichlorobenzene	ND (330)	Diethylphthalate	ND (330)
1,4-Dichlorobenzene	ND (330)	4-Chlorophenyl-phenylether	ND (330)
Benzyl Alcohol	ND (330)	Fluorene	ND (330)
1,2-Dichlorobenzene	ND (330)	1,2-Diphenylhydrazine	ND (800)
2-Methylphenol	ND (330)	4-Nitroaniline	ND (800)
2,2'-oxybis(1-Chloropropane)	ND (330)	4,6-Dinitro-2-methylphenol	ND (800)
4-Methylphenol	ND (330)	N-Nitrosodiphenylamine (1)	ND (330)
N-Nitroso-di-n-propylamine	ND (330)	4-Bromophenyl-phenylether	ND (330)
Hexachloroethane	ND (330)	Hexachlorobenzene	ND (330)
Nitrobenzene	ND (330)	Pentachlorophenol	ND (800)
Isophorone	ND (330)	Benzidine	ND (800)
2-Nitrophenol	ND (330)	Phenanthrene	ND (800)
2,4-Dimethylphenol	ND (330)	Anthracene	ND (330)
Benzoic Acid	ND (800)	Carbazole	ND (800)
bis(2-Chloroethoxy)methane	ND (330)	Di-n-butylphthalate	440 (330)
2,4-Dichlorophenol	ND (330)	Fluoranthene	ND (330)
1,2,4-Trichlorobenzene	ND (330)	4,4'-Methylene Dianiline	ND (800)
Naphthalene	ND (330)	Pyrene	ND (330)
4-Chloroaniline	ND (330)	Bisphenol-A	ND (330)
Hexachloro-1,3-butadiene	ND (330)	Butylbenzylphthalate	ND (330)
4-Chloro-3-methylphenol	ND (330)	3,3'-Dichlorobenzidine	ND (330)
2-Methylnaphthalene	ND (330)	Benzo(a)anthracene	ND (330)
Hexachlorocyclopentadiene	ND (330)	Chrysene	ND (330)
2,4,6-Trichlorophenol	ND (330)	bis(2-Ethylhexyl)phthalate	ND (330)
2,4,5-Trichlorophenol	ND (800)	Di-n-octylphthalate	ND (330)
2-Chloronaphthalene	ND (330)	Benz(b)fluoranthene	ND (330)
1-Chloronaphthalene	ND (330)	Benzo(k)fluoranthene	ND (330)
2-Nitroaniline	ND (800)	Benzo(a)pyrene	ND (330)
Dimethylphthalate	ND (330)	Indeno(1,2,3-cd)pyrene	ND (330)
Acenaphthylene	ND (330)	Dibenzo(a,h)anthracene	ND (330)
2,6-Dinitrotoluene	ND (330)	Benzo(g,h,i)perylene	ND (330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	60	23-120
2-Fluorobiphenyl	58	30-115
Terphenyl-d14	117	18-137
Phenol-d5	57	24-113
2-Fluorophenol	52	25-121
2,4,6-Tribromophenol	70	19-122

MDL: Method Detection Limit

EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: 01/15/94
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: 01/17/94
BATCH NO.: 94A059	DATE EXTRACTED: 01/18/94
SAMPLE ID: EB-21-D8	DATE ANALYZED: 01/18/94
CONTROL NO.: A059-08	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg)		PARAMETERS	(ug/kg)	
	RESULT	MDL		RESULT	MDL
N-Nitrosodimethylamine	ND	(330)	3-Nitroaniline	ND	(800)
Pyridine	ND	(330)	Acenaphthene	ND	(330)
Aniline	ND	(330)	2,4-Dinitrophenol	ND	(800)
Phenol	ND	(330)	4-Nitrophenol	ND	(800)
bis(2-Chloroethyl) ether	ND	(330)	Dibenzofuran	ND	(330)
2-Chlorophenol	ND	(330)	2,4-Dinitrotoluene	ND	(330)
1,3-Dichlorobenzene	ND	(330)	Diethylphthalate	ND	(330)
1,4-Dichlorobenzene	ND	(330)	4-Chlorophenyl-phenylether	ND	(330)
Benzyl Alcohol	ND	(330)	Fluorene	ND	(330)
1,2-Dichlorobenzene	ND	(330)	1,2-Diphenylhydrazine	ND	(800)
2-Methylphenol	ND	(330)	4-Nitroaniline	ND	(800)
2,2'-oxybis(1-Chloropropane)	ND	(330)	4,6-Dinitro-2-methylphenol	ND	(800)
4-Methylphenol	ND	(330)	N-Nitrosodiphenylamine (1)	ND	(330)
N-Nitroso-di-n-propylamine	ND	(330)	4-Bromophenyl-phenylether	ND	(330)
Hexachloroethane	ND	(330)	Hexachlorobenzene	ND	(330)
Nitrobenzene	ND	(330)	Pentachlorophenol	ND	(800)
Isophorone	ND	(330)	Benzidine	ND	(800)
2-Nitrophenol	ND	(330)	Phenanthrene	ND	(800)
2,4-Dimethylphenol	ND	(330)	Anthracene	ND	(330)
Benzoic Acid	ND	(800)	Carbazole	ND	(800)
bis(2-Chloroethoxy)methane	ND	(330)	Di-n-butylphthalate	2500	(330)
2,4-Dichlorophenol	ND	(330)	Fluoranthene	ND	(330)
1,2,4-Trichlorobenzene	ND	(330)	4,4'-Methylene Dianiline	ND	(800)
Naphthalene	ND	(330)	Pyrene	ND	(330)
4-Chloroaniline	ND	(330)	Bisphenol-A	ND	(330)
Hexachloro-1,3-butadiene	ND	(330)	Butylbenzylphthalate	ND	(330)
4-Chloro-3-methylphenol	ND	(330)	3,3'-Dichlorobenzidine	ND	(330)
2-Methylnaphthalene	ND	(330)	Benzo(a)anthracene	ND	(330)
Hexachlorocyclopentadiene	ND	(330)	Chrysene	ND	(330)
2,4,6-Trichlorophenol	ND	(330)	bis(2-Ethylhexyl)phthalate	ND	(330)
2,4,5-Trichlorophenol	ND	(800)	Di-n-octylphthalate	ND	(330)
2-Chloronaphthalene	ND	(330)	Benz(b)fluoranthene	ND	(330)
1-Chloronaphthalene	ND	(330)	Benzo(k)fluoranthene	ND	(330)
2-Nitroaniline	ND	(800)	Benzo(a)pyrene	ND	(330)
Dimethylphthalate	ND	(330)	Indeno(1,2,3-cd)pyrene	ND	(330)
Acenaphthylene	ND	(330)	Dibenzo(a,h)anthracene	ND	(330)
2,6-Dinitrotoluene	ND	(330)	Benzo(g,h,i)perylene	ND	(330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	36	23-120
2-Fluorobiphenyl	35	30-115
Terphenyl-d14	74	18-137
Phenol-d5	38	24-113
2-Fluorophenol	37	25-121
2,4,6-Tribromophenol	55	19-122

MDL: Method Detection Limit

CKY

EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

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=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED:  NA
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:   NA
BATCH NO.:   94A059                     DATE EXTRACTED:  NA
SAMPLE ID:    VBLK1S                     DATE ANALYZED:   01/20/94
CONTROL NO.:  A059-B1S                   MATRIX:         SOIL
% MOISTURE:   NA                         DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	98	70-121
Toluene -d8	108	84-138
Bromofluorobenzene	100	59-113

MDL : Method Detection Limit

CKY

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8270
MATRIX: SOIL

BATCH NO.: 94A059 DATE RECEIVED: NA
SAMPLE ID: EB-24-D5 DATE EXTRACTED: 01/18/94
CONTROL NO.: A061-05 DATE ANALYZED: 01/19/94

ACCESSION: 94A032 94A039 94A050 94A059 94A060 94A061 94A062

PARAMETER	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Phenol	ND	5000	1517	30	5000	2919	58	63
2-Chlorophenol	ND	5000	1596	32	5000	3094	62	64
1,4-DCB	ND	3300	1031	31	3300	2001	61	64
N-Nitroso-di-n	ND	3300	1083	33	3300	2200	67	68
1,2,4-TCB	ND	3300	1083	33	3300	2119	64	65
4-Chl-3-Methyl	ND	5000	2035	41	5000	3997	80	65
Acenaphthene	ND	3300	1152	35	3300	2257	68	65
4-Nitrophenol	ND	5000	3842	77	5000	6208	124	47
2,4-Dinitrotol	ND	3300	1690	51	3300	2986	90	55
Pentachlorophe	ND	5000	3892	78	5000	6269	125	47
Pyrene	22	3300	2068	62	3300	3258	98	62

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8270
MATRIX: SOIL

```
=====
BATCH NO.:      94A059          DATE RECEIVED:    NA
SAMPLE ID:      LCS01          DATE EXTRACTED:   01/18/94
CONTROL NO.:    A039-L1S       DATE ANALYZED:    01/19/94
```

ACCESSION: 94A032 94A039 94A050 94A059 94A060 94A061
94A062

PARAMETER	TRUE VALUE (ug/kg)	FOUND VALUE (ug/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Phenol	5000	2814	56
2-Chlorophenol	5000	3008	60
1,4-DCB	3300	2069	63
N-Nitroso-di-n	3300	2282	69
1,2,4-TCB	3300	2153	65
4-Chl-3-Methyl	5000	3139	63
Acenaphthene	3300	2003	61
4-Nitrophenol	5000	3319	66
2,4-Dinitrotol	3300	2100	64
Pentachlorophe	5000	3291	66
Pyrene	3300	2137	65

EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/15/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/17/94
BATCH NO.:   94A059                     DATE EXTRACTED:  NA
SAMPLE ID:   EB-21-D8                   DATE ANALYZED:   01/20/94
CONTROL NO.: A059-08                     MATRIX:         SOIL
% MOISTURE:  NA                         DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	83	70-121
Toluene -d8	109	84-138
Bromofluorobenzene	94	59-113

MDL : Method Detection Limit



EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED:  NA
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:   NA
BATCH NO.:   94A059                     DATE EXTRACTED:  NA
SAMPLE ID:   VBLK1S                     DATE ANALYZED:   01/20/94
CONTROL NO.: A059-B1S                   MATRIX:         SOIL
% MOISTURE:  NA                         DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	98	70-121
Toluene -d8	108	84-138
Bromofluorobenzene	100	59-113

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8240
MATRIX: SOIL

BATCH NO.: 94A059 DATE RECEIVED: NA
SAMPLE ID: EB-24-D5 DATE EXTRACTED: NA
CONTROL NO.: A061-05S DATE ANALYZED: 01/20/94

ACCESSION: 94A059 94A061 94A062 94A066

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
1,1-DCE	ND	50	36	72	50	33	66	9
Benzene	ND	50	65	130	50	68	136	5
TCE	ND	50	45	90	50	46	92	2
Toluene	ND	50	61	122	50	58	116	5
Chlorobenzene	ND	50	49	98	50	51	102	4

CKY

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 624/8240
MATRIX: WATER

```
=====
```

BATCH NO.:	94A059	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A059-L1W	DATE ANALYZED:	01/20/94

ACCESSION: 94A059 94A061 94A062 94A066

PARAMETER	TRUE VALUE (ug/L)	FOUND VALUE (ug/L)	LCS RECOVERY (%)	ACCEPTABLE RANGE
-----	-----	-----	-----	-----
1,1-DCE	50	35	70	61-145
Benzene	50	58	116	76-127
TCE	50	41	82	71-120
Toluene	50	54	108	76-125
Chlorobenzene	50	44	88	75-130



DHS METHOD
ORGANIC LEAD

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/15/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/17/94
BATCH NO.:    94A059                     DATE EXTRACTED:  01/18/94
MATRIX:      SOIL                       DATE ANALYZED:   01/19/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-21-D8	A059-08	ND	1	.5
FBLK1S	A050-B1S	ND	1	.5

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A059	DATE RECEIVED:	01/17/94
SAMPLE ID:	EB-21-D8	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A059-08	DATE ANALYZED:	01/19/94

ACCESSION: 94A050 94A059 94A060 94A061 94A062

PARAMETER	SAMPLE (mg/kg)	DUP. SAMPLE (mg/kg)	RPD (%)
-----	-----	-----	-----
Lead	ND	ND	0



CKY QUALITY CONTROL DATA
SPIKE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.: 94A059 DATE RECEIVED: NA
SAMPLE ID: FBLK1S DATE EXTRACTED: 01/18/94
CONTROL NO.: A050-B1S DATE ANALYZED: 01/19/94

ACCESSION: 94A050 94A059 94A060 94A061 94A062

PARAMETER	SAMPLE RESULT (mg/kg)	SPIKE CONC. (mg/kg)	SPIKE RESULT (mg/kg)	SPIKE RECRY. (%)
-----	-----	-----	-----	-----
Lead	ND	100	86	86



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A059	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A050-L1S	DATE ANALYZED:	01/19/94
ACCESSION:	94A050	94A059	94A060 94A061 94A062

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Lead	100	91	91

EPA METHOD 300
CHLORIDE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/15/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/17/94
BATCH NO.:    94A059                     DATE EXTRACTED:  01/18/94
MATRIX:       SOIL                       DATE ANALYZED:   01/18/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-21-D8	A059-08	17.5	2	0.4
WBLK1S	A059-B1S	ND	1	0.2

MDL : Method Detection Limit



EPA METHOD 300
SULFATE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/15/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED: 01/17/94
BATCH NO.:    94A059                     DATE EXTRACTED: 01/18/94
MATRIX:      SOIL                       DATE ANALYZED: 01/18/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-21-D8	A059-08	36.1	2	2
WBLK1S	A059-B1S	ND	1	1

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

=====

BATCH NO.:	94A059	DATE RECEIVED:	01/17/94
SAMPLE ID:	EB-21-D8	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A059-08	DATE ANALYZED:	01/18/94

ACCESSION: 94A059 94A060 94A061 94A062

PARAMETER	Sample (mg/kg)	Dup. Sample (mg/kg)	RPD (%)
-----	-----	-----	-----
Sulfate	36.1	36.3	1
Chloride	17.5	17.3	1



CKY QUALITY CONTROL DATA
SPIKE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

BATCH NO.: 94A059 DATE RECEIVED: 01/17/94
SAMPLE ID: EB-21-D8 DATE EXTRACTED: 01/18/94
CONTROL NO.: A059-08 DATE ANALYZED: 01/18/94

ACCESSION: 94A059 94A060 94A061 94A062

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC
Sulfate	36.1	20	55.9	99
Chloride	17.5	10	27.1	96

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: WATER

=====

BATCH NO.:	94A059	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A059-L1W	DATE ANALYZED:	01/18/94
ACCESSION:	94A059 94A060 94A061 94A062		

PARAMETER	TRUE VALUE (mg/L)	FOUND VALUE (mg/L)	LCS RECOVERY (%)
-----	-----	-----	-----
Sulfate	150	144	96
Chloride	30.00	27.80	93



EPA METHOD 376.1
SULFIDE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/15/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/17/94
BATCH NO.:   94A059                     DATE EXTRACTED:  01/18/94
MATRIX:     SOIL                        DATE ANALYZED:   01/18/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-21-D8	A059-08	3.2	2	.4
SBLK1S	A059-B1S	ND	1	.2

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 376.1
MATRIX: SOIL

=====

BATCH NO.:	94A059	DATE RECEIVED:	01/17/94
SAMPLE ID:	EB-21-D8	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A059-08	DATE ANALYZED:	01/18/94

ACCESSION: 94A059 94A060 94A061 94A062

PARAMETER	Sample (mg/kg)	Dup. Sample (mg/kg)	RPD (%)
-----	-----	-----	-----
SULFIDE	0.90	0.90	0



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 376.1
MATRIX: WATER

=====

BATCH NO.:	94A059	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A059-L1W	DATE ANALYZED:	01/18/94

ACCESSION: 94A059 94A060 94A061 94A062

PARAMETER	TRUE VALUE (mg/L)	FOUND VALUE (mg/L)	LCS RECOVERY (%)
-----	-----	-----	-----
SULFIDE	4.00	3.88	97





94A037
Date 1-24-94

Chain of Custody Record

Lab job no. _____

Date 1/15/94

Page 1 of 2

Laboratory CK4 Method of Shipment _____

Address _____ Shipment No. _____

Client The Earth Technology Corporation Cooler No. _____

Address 13900 Alton Parkway, Suite 120 Project Manager K.K. / Maurice

Irvine, CA 92718 Telephone No. (714) 458-7414

Project Name Holmes Rd. Earthside Extension Fax No. (714) 458-8701

Project Number 94-1107-02 Samplers: (Signature) Hussien Kasindi

Field Sample Number	Location/Depth	Date	Time	Sample Type	Type/Size of Container	Preservation		Analysis Required										Remarks	
						Temp.	Chemical	Filtered	No. of Containers	EPA Method 8015 (Mod) Gasoline	EPA 8020 BTEX	EPA Method 8015 (Mod) Diesel	EPA Method 8240	EPA Method 8270	Total Lead	Other	Other	Other	Other
1 EB-21-D1	1'	1/15/94	0750	Soil	Stainless Steel 2"x4"	40	---											8/2	3/2.5
-D2	9'		0801															7.3/7.1	3/2.5
-D3	14'		0808															8/7.6	3/1.5
-D4	19'		0816															9.2/7.6	2/1.5
-D5	24'		0831															10/8	2.8/1.8
-D6	29'		0840							XX								10/8	2.4/1.8
-D7	34'		0900																
-D8	39'		1014							X			XX	XX	XX	XX		220/14	3.2/1
-D9	44'		1031							XX								210/14	4.2/1
-D10	49'		1051															150/18	3.6/1.2
-D11	54'		1124							XX								210/18	4.4/1.2
EB-21-D12	59'		1140															50/9	4.5/1.2

Relinquished by: Hussien Kasindi
Signature _____
Printed HUSSEIN KASINDI
Company DIAZ Volman
Reason Sample Transfer

Received by: Dorothy L. B...
Signature _____
Printed Dorothy L. B...
Company CK4

Relinquished by: Dorothy L. B...
Signature _____
Printed Dorothy L. B...
Company CK4

Received by: C. J. ...
Signature _____
Printed C. J. ...
Company ...

Comments: EB-21 on North side of Commercial St,
across from Diesel Tank Area
Handspace cell actual / Background
HNU Actual / Background

Relinquished by: _____
Signature _____
Printed _____
Company _____
Reason _____



CKY incorporated Analytical Laboratories

Date: 01-25-1994
CKY Batch No.: 94A060

Attn.: K. Khilnani

Earth Technology Corp.
13900 Alton Parkway #120
Irvine, CA 92718

Subject: Laboratory Report
Project: Metro Rail - East Side Ext.

Enclosed is the Laboratory report for samples received on 01/17/94. The samples were received in coolers with ice and intact; the chain-of-custody forms were properly filled out. The data reported include :

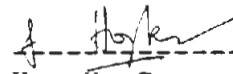
Sample ID	Control No.	Matrix	Analysis
-----	-----	-----	-----
EB-23-D1	A060-01	soil	Hold
EB-23-D2	A060-02	soil	Hold
EB-23-D3	A060-03	soil	Hold
EB-23-D4	A060-04	soil	Hold
EB-23-D5	A060-05	soil	Hold
EB-23-D6	A060-06	soil	Hold
EB-23-D7	A060-07	soil	EPA M8015 (CCID) EPA 8020
EB-23-D8	A060-08	soil	Hold
EB-23-D9	A060-09	soil	EPA M8015 (CCID) EPA 8240 EPA 8270 Organic Pb Oil & Grease Sulfide Sulfate Chloride
EB-23-D10	A060-10	soil	EPA M8015 (CCID) EPA 8020

Sample ID	Control No.	Matrix	Analysis
-----	-----	-----	-----
EB-23-D11	A060-11	soil	Hold
EB-23-D12	A060-12	soil	EPA M8015 (CCID) EPA 8020
EB-23-D13	A060-13	soil	EPA M8015 (CCID) EPA 8020
EB-23-D14	A060-14	soil	Hold
EB-23-D15	A060-15	soil	Hold
EB-23-D16	A060-16	soil	Hold
EB-23-D17	A060-17	soil	Hold

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,



Kam Y. Pang, Ph.D.
Laboratory Director

P.S. - All analyses requested for the above referenced project have been completed. Therefore, unless instructed, the remaining portions of the samples will be disposed after fifteen (15) days from the date of this report.

EPA METHOD M8015
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION
CARBON CHAIN IDENTIFICATION

```
=====
CLIENT:      Earth Technology Corp.          DATE COLLECTED: 01/15/94
PROJECT:     Metro Rail - East Side Ext.    DATE RECEIVED:  01/17/94
BATCH NO.:   94A060                        DATE EXTRACTED: 01/18/94
MATRIX:      SOIL                          DATE ANALYZED:  01/21/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	H-C RANGE	% RECOVERY		DL FACTOR	MDL (mg/kg)
				SURR1	SURR2		
EB-23-D7	A060-07*	ND	N.A.	104	96	1	5
EB-23-D9	A060-09	1.1	C10-C11				
		6.4	C11-C13				
		2.5	C13-C14				
		2.5	C14-C15				
		1.1	C16-C17				
		2.3	C18-C19				
		2.2	C19-C20				
	(Total)	36+	C11-C22	94	98	1	5
EB-23-D10	A060-10	ND	N.A.	80	89	1	5
EB-23-D12	A060-12	ND	N.A.	79	85	1	5
EB-23-D13	A060-13	ND	N.A.	83	88	1	5
DBLK1S	A060-B1S**	ND	N.A.	100	95	1	5

QC LIMIT:

SURR1 : Bromobenzene

SURR2 : Hexacosane

MDL : Method Detection Limit

* Date analyzed, 01/20/94

** Date analyzed, 01/19/94

+ Not typical fuel hydrocarbon pattern

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

BATCH NO.: 94A060 DATE RECEIVED: NA
SAMPLE ID: EB-24-D5 DATE EXTRACTED: 01/18/94
CONTROL NO.: A061-05 DATE ANALYZED: 01/19/94

ACCESSION: 94A059 94A050 94A060 94A061 94A062 94A035

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
DIESEL	ND	250	219	88	250	222	89	1



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: SOIL

=====

BATCH NO.:	94A060	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A060-L1S	DATE ANALYZED:	01/19/94

ACCESSION: 94A050 94A035 94A059 94A060 94A061 94A062

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
DIESEL	250	229	92

EPA METHOD 8020
BTEX

```
=====
CLIENT:      Earth Technology Corp.          DATE COLLECTED: 01/15/94
PROJECT:     Metro Rail - East Side Ext.     DATE RECEIVED:  01/17/94
BATCH NO.:   94A060                         DATE EXTRACTED: NA
MATRIX:      SOIL                           DATE ANALYZED:  01/19/94
=====
```

SAMPLE ID	CNTRL NO	DL F	MDL	BENZ	RESULTS TOLUENE	(ug/kg) E BENZ	XYLS	% Rcvy SURR
EB-23-D7	A060-07	1	5	ND	ND	ND	ND	78
EB-23-D10	A060-10	1	5	ND	ND	ND	ND	56
EB-23-D12	A060-12	1	5	ND	ND	ND	ND	50
EB-23-D13	A060-13	1	5	ND	ND	ND	ND	48
VLK1S	A060-B1S	1	5	ND	ND	ND	ND	105

DL F : Dilution Factor
SURR : Bromofluorobenzene
MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8020
MATRIX: SOIL

BATCH NO.: 94A060 DATE RECEIVED: NA
SAMPLE ID: EB-21-D6 DATE EXTRACTED: NA
CONTROL NO.: A059-06 DATE ANALYZED: 01/19/94

ACCESSION: 94A045 94A058 94A059 94A060

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Benzene	ND	45	43	96	45	42	93	3
Toluene	ND	450	370	82	450	390	87	6
Ethyl Benzene	ND	110	90	82	110	90	82	0
Xylenes	ND	770	640	83	770	650	84	1

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 602/8020
MATRIX: WATER

=====

BATCH NO.:	94A060	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A060-L1W	DATE ANALYZED:	01/19/94

ACCESSION: 94A058 94A059 94A045 94A060

PARAMETER	TRUE VALUE (ug/kg)	FOUND VALUE (ug/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Benzene	50.00	42.00	84
Toluene	50.00	44.00	88
Chlorobenzene	50.00	52.00	104



EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/15/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/17/94
BATCH NO.:   94A060                     DATE EXTRACTED:  NA
SAMPLE ID:   EB-23-D9                   DATE ANALYZED:  01/20/94
CONTROL NO.: A060-09                     MATRIX:        SOIL
% MOISTURE:  NA                         DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	150	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	37	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	1900*	250
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	260*	250
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	950*	250

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	86	70-121
Toluene -d8	122	84-138
Bromofluorobenzene	92	59-113

MDL : Method Detection Limit

* Date analyzed, 01/21/94

Dilution factor, 50

EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

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=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED:  NA
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  NA
BATCH NO.:   94A060                     DATE EXTRACTED:  NA
SAMPLE ID:   VBLK1S                     DATE ANALYZED:   01/20/94
CONTROL NO.: A060-B1S                   MATRIX:         SOIL
% MOISTURE:  NA                         DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	98	70-121
Toluene -d8	108	84-138
Bromofluorobenzene	100	59-113

MDL : Method Detection Limit



EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

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=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED:  NA
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:   NA
BATCH NO.:   94A060                     DATE EXTRACTED:  NA
SAMPLE ID:   VBLK2S                     DATE ANALYZED:   01/21/94
CONTROL NO.: A060-B2S                   MATRIX:         SOIL
% MOISTURE:  NA                         DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
-----	-----	-----
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
-----	-----	-----
1,2 Dichloroethane-d4	92	70-121
Toluene -d8	104	84-138
Bromofluorobenzene	99	59-113

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8240
MATRIX: SOIL

BATCH NO.: 94A060 DATE RECEIVED: NA
SAMPLE ID: EB-24-D5 DATE EXTRACTED: NA
CONTROL NO.: A061-05 DATE ANALYZED: 01/20/94

ACCESSION: 94A050 94A059 94A060 94A061 94A062 94A066

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
1,1-DCE	ND	50	36	72	50	33	66	9
Benzene	ND	50	65	130	50	68	136	5
TCE	ND	50	45	90	50	46	92	2
Toluene	ND	50	61	122	50	58	116	5
Chlorobenzene	ND	50	49	98	50	51	102	4



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 624/8240
MATRIX: WATER

=====

BATCH NO.:	94A060	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A059-L1W	DATE ANALYZED:	01/20/94
ACCESSION:	94A050 94A053 94A058 94A059 94A060 94A061 94A062 94A066		

PARAMETER	TRUE VALUE (ug/L)	FOUND VALUE (ug/L)	LCS RECOVERY (%)	ACCEPTABLE RANGE
-----	-----	-----	-----	-----
1,1-DCE	50	35	70	61-145
Benzene	50	58	116	76-127
TCE	50	41	82	71-120
Toluene	50	54	108	76-125
Chlorobenzene	50	44	88	75-130

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 624/8240
MATRIX: WATER

=====

BATCH NO.:	94A060	DATE RECEIVED:	NA
SAMPLE ID:	LCS02	DATE EXTRACTED:	NA
CONTROL NO.:	A060-L2W	DATE ANALYZED:	01/21/94
ACCESSION:	94A075 94A060 94A068		

PARAMETER	TRUE VALUE (ug/L)	FOUND VALUE (ug/L)	LCS RECOVERY (%)	ACCEPTABLE RANGE
1,1-DCE	50	42	84	61-145
Benzene	50	55	110	76-127
TCE	50	43	86	71-120
Toluene	50	55	110	76-125
Chlorobenzene	50	46	92	75-130



EPA METHOD 413.2
OIL & GREASE

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=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/15/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/17/94
BATCH NO.:    94A060                     DATE EXTRACTED:  01/18/94
MATRIX:      SOIL                       DATE ANALYZED:   01/21/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-23-D9	A060-09	ND	1	10
TBLK1S	A060-B1S	ND	1	10

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 413.2
MATRIX: Soil

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BATCH NO.:	94A060	DATE RECEIVED:	NA
SAMPLE ID:	EB-24-D5	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A061-05	DATE ANALYZED:	01/21/94

ACCESSION: 94A059 94A060 94A061 94A062

PARAMETER	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
TROG	ND	150	168	112	150	165	110	2

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 413.2
MATRIX: Soil

=====

BATCH NO.:	94A060	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A059-L1S	DATE ANALYZED:	01/21/94

ACCESSION: 94A059 94A060 94A061 94A062

PARAMETER	TRUE CONC. (mg/kg)	FOUND CONC. (mg/kg)	SPIKE RECRY. (%)
-----	-----	-----	-----
TROG	150	151	101



DHS METHOD
ORGANIC LEAD

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=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/15/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/17/94
BATCH NO.:   94A060                     DATE EXTRACTED: 01/18/94
MATRIX:     SOIL                        DATE ANALYZED:  01/19/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-23-D9	A060-09	ND	1	.5
FBLK1S	A050-B1S	ND	1	.5

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A060	DATE RECEIVED:	NA
SAMPLE ID:	EB-21-D8	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A059-08	DATE ANALYZED:	01/19/94
ACCESSION:	94A050	94A059	94A060 94A061 94A062

PARAMETER	SAMPLE (mg/kg)	DUP. SAMPLE (mg/kg)	RPD (%)
-----	-----	-----	-----
Lead	ND	ND	0

CKY QUALITY CONTROL DATA
SPIKE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A060	DATE RECEIVED:	NA
SAMPLE ID:	FBLK1S	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A050-B1S	DATE ANALYZED:	01/19/94

ACCESSION: 94A050 94A059 94A060 94A061 94A062

PARAMETER	SAMPLE RESULT (mg/kg)	SPIKE CONC. (mg/kg)	SPIKE RESULT (mg/kg)	SPIKE RECRY. (%)
-----	-----	-----	-----	-----
Lead	ND	100	86	86



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A060	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A050-L1S	DATE ANALYZED:	01/19/94

ACCESSION: 94A050 94A059 94A060 94A061 94A062

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Lead	100	91	91



EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: 01/15/94
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: 01/17/94
BATCH NO.: 94A060	DATE EXTRACTED: 01/18/94
SAMPLE ID: EB-23-D9	DATE ANALYZED: 01/20/94
CONTROL NO.: A060-09	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 5

PARAMETERS	(ug/kg)		PARAMETERS	(ug/kg)	
	RESULT	MDL		RESULT	MDL
N-Nitrosodimethylamine	ND	(1650)	3-Nitroaniline	ND	(4000)
Pyridine	ND	(1650)	Acenaphthene	3200	(1650)
Aniline	ND	(1650)	2,4-Dinitrophenol	ND	(4000)
Phenol	ND	(1650)	4-Nitrophenol	ND	(4000)
bis(2-Chloroethyl)ether	ND	(1650)	Dibenzofuran	ND	(1650)
2-Chlorophenol	ND	(1650)	2,4-Dinitrotoluene	ND	(1650)
1,3-Dichlorobenzene	ND	(1650)	Diethylphthalate	ND	(1650)
1,4-Dichlorobenzene	ND	(1650)	4-Chlorophenyl-phenylether	ND	(1650)
Benzyl Alcohol	ND	(1650)	Fluorene	5000	(1650)
1,2-Dichlorobenzene	ND	(1650)	1,2-Diphenylhydrazine	ND	(4000)
2-Methylphenol	ND	(1650)	4-Nitroaniline	ND	(4000)
2,2'-oxybis(1-Chloropropane)	ND	(1650)	4,6-Dinitro-2-methylphenol	ND	(4000)
4-Methylphenol	ND	(1650)	N-Nitrosodiphenylamine (1)	ND	(1650)
N-Nitroso-di-n-propylamine	ND	(1650)	4-Bromophenyl-phenylether	ND	(1650)
Hexachloroethane	ND	(1650)	Hexachlorobenzene	ND	(1650)
Nitrobenzene	ND	(1650)	Pentachlorophenol	ND	(4000)
Isophorone	ND	(1650)	Benzidine	ND	(4000)
2-Nitrophenol	ND	(1650)	Phenanthrene	5000	(4000)
2,4-Dimethylphenol	ND	(1650)	Anthracene	7000	(1650)
Benzoic Acid	ND	(4000)	Carbazole	ND	(4000)
bis(2-Chloroethoxy)methane	ND	(1650)	Di-n-butylphthalate	2400	(1650)
2,4-Dichlorophenol	ND	(1650)	Fluoranthene	9000	(1650)
1,2,4-Trichlorobenzene	ND	(1650)	4,4'-Methylene Dianiline	ND	(4000)
Naphthalene	8000	(1650)	Pyrene	11000	(1650)
4-Chloroaniline	ND	(1650)	Bisphenol-A	ND	(1650)
Hexachloro-1,3-butadiene	ND	(1650)	Butylbenzylphthalate	ND	(1650)
4-Chloro-3-methylphenol	ND	(1650)	3,3'-Dichlorobenzidine	ND	(1650)
2-Methylnaphthalene	400~*	(330)	Benzo(a)anthracene	8000	(1650)
Hexachlorocyclopentadiene	ND	(1650)	Chrysene	8000	(1650)
2,4,6-Trichlorophenol	ND	(1650)	bis(2-Ethylhexyl)phthalate	ND	(1650)
2,4,5-Trichlorophenol	ND	(4000)	Di-n-octylphthalate	ND	(1650)
2-Chloronaphthalene	ND	(1650)	Benz(b)fluoranthene	ND	(1650)
1-Chloronaphthalene	ND	(1650)	Benzo(k)fluoranthene	ND	(1650)
2-Nitroaniline	ND	(4000)	Benzo(a)pyrene	10000	(1650)
Dimethylphthalate	ND	(1650)	Indeno(1,2,3-cd)pyrene	3400	(1650)
Acenaphthylene	4750	(1650)	Dibenzo(a,h)anthracene	700~*	(330)
2,6-Dinitrotoluene	ND	(1650)	Benzo(g,h,i)perylene	3500	(1650)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	85	23-120
2-Fluorobiphenyl	100	30-115
Terphenyl-d14	113	18-137
Phenol-d5	87	24-113
2-Fluorophenol	81	25-121
2,4,6-Tribromophenol	108	19-122

MDL : Method Detection Limit
 ~ : Dilution Factor is 1
 * : Analyzed on 01/19/94

CKY

EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: NA
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: NA
BATCH NO.: 94A060	DATE EXTRACTED: 01/18/94
SAMPLE ID: SBLK01	DATE ANALYZED: 01/19/94
CONTROL NO.: A039-B1S	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg) RESULT MDL	PARAMETERS	(ug/kg) RESULT MDL
N-Nitrosodimethylamine	ND (330)	3-Nitroaniline	ND (800)
Pyridine	ND (330)	Acenaphthene	ND (330)
Aniline	ND (330)	2,4-Dinitrophenol	ND (800)
Phenol	ND (330)	4-Nitrophenol	ND (800)
bis(2-Chloroethyl)ether	ND (330)	Dibenzofuran	ND (330)
2-Chlorophenol	ND (330)	2,4-Dinitrotoluene	ND (330)
1,3-Dichlorobenzene	ND (330)	Diethylphthalate	ND (330)
1,4-Dichlorobenzene	ND (330)	4-Chlorophenyl-phenylether	ND (330)
Benzyl Alcohol	ND (330)	Fluorene	ND (330)
1,2-Dichlorobenzene	ND (330)	1,2-Diphenylhydrazine	ND (800)
2-Methylphenol	ND (330)	4-Nitroaniline	ND (800)
2,2'-oxybis(1-Chloropropane)	ND (330)	4,6-Dinitro-2-methylphenol	ND (800)
4-Methylphenol	ND (330)	N-Nitrosodiphenylamine (1)	ND (330)
N-Nitroso-di-n-propylamine	ND (330)	4-Bromophenyl-phenylether	ND (330)
Hexachloroethane	ND (330)	Hexachlorobenzene	ND (330)
Nitrobenzene	ND (330)	Pentachlorophenol	ND (800)
Isophorone	ND (330)	Benidine	ND (800)
2-Nitrophenol	ND (330)	Phenanthrene	ND (800)
2,4-Dimethylphenol	ND (330)	Anthracene	ND (330)
Benzoic Acid	ND (800)	Carbazole	ND (800)
bis(2-Chloroethoxy)methane	ND (330)	Di-n-butylphthalate	440 (330)
2,4-Dichlorophenol	ND (330)	Fluoranthene	ND (330)
1,2,4-Trichlorobenzene	ND (330)	4,4'-Methylene Dianiline	ND (800)
Naphthalene	ND (330)	Pyrene	ND (330)
4-Chloroaniline	ND (330)	Bisphenol-A	ND (330)
Hexachloro-1,3-butadiene	ND (330)	Butylbenzylphthalate	ND (330)
4-Chloro-3-methylphenol	ND (330)	3,3'-Dichlorobenzidine	ND (330)
2-Methylnaphthalene	ND (330)	Benzo(a)anthracene	ND (330)
Hexachlorocyclopentadiene	ND (330)	Chrysene	ND (330)
2,4,6-Trichlorophenol	ND (330)	bis(2-Ethylhexyl)phthalate	ND (330)
2,4,5-Trichlorophenol	ND (800)	Di-n-octylphthalate	ND (330)
2-Chloronaphthalene	ND (330)	Benz(b)fluoranthene	ND (330)
1-Chloronaphthalene	ND (330)	Benzo(k)fluoranthene	ND (330)
2-Nitroaniline	ND (800)	Benzo(a)pyrene	ND (330)
Dimethylphthalate	ND (330)	Indeno(1,2,3-cd)pyrene	ND (330)
Acenaphthylene	ND (330)	Dibenzo(a,h)anthracene	ND (330)
2,6-Dinitrotoluene	ND (330)	Benzo(g,h,i)perylene	ND (330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	60	23-120
2-Fluorobiphenyl	58	30-115
Terphenyl-d14	117	18-137
Phenol-d5	57	24-113
2-Fluorophenol	52	25-121
2,4,6-Tribromophenol	70	19-122

MDL: Method Detection Limit



CKY INC., ANALYTICAL LABORATORIES, 630 Maple Ave., Torrance, Calif. 90503 Tel. (310) 618-8889 Fax: (310) 618-0818

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8270
MATRIX: SOIL

BATCH NO.: 94A060 DATE RECEIVED: NA
SAMPLE ID: EB-24-D5 DATE EXTRACTED: 01/18/94
CONTROL NO.: A061-05 DATE ANALYZED: 01/20/94

ACCESSION: 94A032 94A039 94A050 94A051 94A059 94A060
94A061 94A062

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Phenol	ND	5000	2018	40	5000	2536	51	23
2-Chlorophenol	ND	5000	2102	42	5000	2714	54	25
1,4-DCB	ND	3300	1395	42	3300	1775	54	24
N-Nitroso-di-n	ND	3300	1481	45	3300	1920	58	26
1,2,4-TCB	ND	3300	1397	42	3300	1750	53	22
4-Chl-3-Methyl	ND	5000	2514	50	5000	3083	62	20
Acenaphthene	ND	3300	1508	46	3300	1942	59	25
4-Nitrophenol	ND	5000	4709	94	5000	4893	98	4
2,4-Dinitrotol	ND	3300	2331	71	3300	2724	83	16
Pentachlorophe	ND	5000	5360	107	5000	5570	111	4
Pyrene	22	3300	2771	84	3300	2828	86	2



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8270
MATRIX: SOIL

=====

BATCH NO.:	94A060	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A039-L1S	DATE ANALYZED:	01/19/94

ACCESSION: 94A032 94A039 94A050 94A059 94A060 94A061
94A062

PARAMETER	TRUE VALUE (ug/kg)	FOUND VALUE (ug/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Phenol	5000	2814	56
2-Chlorophenol	5000	3008	60
1,4-DCB	3300	2069	63
N-Nitroso-di-n	3300	2282	69
1,2,4-TCB	3300	2153	65
4-Chl-3-Methyl	5000	3139	63
Acenaphthene	3300	2003	61
4-Nitrophenol	5000	3319	66
2,4-Dinitrotol	3300	2100	64
Pentachlorophe	5000	3291	66
Pyrene	3300	2137	65

EPA METHOD 376.1
TOTAL SULFIDE

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=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/15/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/17/94
BATCH NO.:   94A060                     DATE EXTRACTED:  01/18/94
MATRIX:     SOIL                        DATE ANALYZED:   01/18/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-23-D9	A060-09	1.8	2	0.4
WBLK1S	A059-B1S	ND	1	0.2

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 376.1
MATRIX: SOIL

=====

BATCH NO.:	94A060	DATE RECEIVED:	NA
SAMPLE ID:	WBLK1S	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A059-B1S	DATE ANALYZED:	01/18/94

ACCESSION: 94A059 94A060 94A061 94A062

PARAMETER	Sample (mg/kg)	Dup. Sample (mg/kg)	RPD (%)
-----	-----	-----	-----
SULFIDE	0.9	0.9	0

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 376.1
MATRIX: WATER

=====

BATCH NO.:	94A060	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A059-L1W	DATE ANALYZED:	01/18/94

ACCESSION: 94A059 94A060 94A061 94A062

PARAMETER	TRUE VALUE (mg/L)	FOUND VALUE (mg/L)	LCS RECOVERY (%)
-----	-----	-----	-----
SULFIDE	4.0	3.88	97



EPA METHOD 300
CHLORIDE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/15/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/17/94
BATCH NO.:   94A060                     DATE EXTRACTED:  01/18/94
MATRIX:      SOIL                       DATE ANALYZED:   01/18/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-23-D9	A060-09	39.0	2	0.4
WBLK1S	A059-B1S	ND	1	0.2

MDL : Method Detection Limit

EPA METHOD 300
SULFATE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/15/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/17/94
BATCH NO.:   94A060                     DATE EXTRACTED:  01/18/94
MATRIX:     SOIL                        DATE ANALYZED:   01/18/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-23-D9	A060-09	17.2	1	1
WBLK1S	A059-B1S	ND	1	1

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

=====

BATCH NO.:	94A060	DATE RECEIVED:	NA
SAMPLE ID:	EB-21-D8	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A059-08	DATE ANALYZED:	01/18/94

ACCESSION: 94A059 94A060 94A061 94A062

PARAMETER	Sample (mg/kg)	Dup. Sample (mg/kg)	RPD (%)
-----	-----	-----	-----
Sulfate	36.1	36.3	1
Chloride	17.5	17.3	1

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

=====

BATCH NO.: 94A060 DATE RECEIVED: NA
SAMPLE ID: EB-21-D8 DATE EXTRACTED: 01/18/94
CONTROL NO.: A059-08 DATE ANALYZED: 01/18/94

ACCESSION: 94A059 94A060 94A061 94A062

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC
Sulfate	36.1	20	55.9	99
Chloride	17.5	10	27.1	96



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: WATER

=====

BATCH NO.:	94A060	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A059-L1W	DATE ANALYZED:	01/18/94
ACCESSION:	94A059 94A060 94A061 94A062		

PARAMETER	TRUE VALUE (mg/L)	FOUND VALUE (mg/L)	LCS RECOVERY (%)
-----	-----	-----	-----
Sulfate	150	144	96
Chloride	30.00	27.80	93

Chain of Custody Record

Lab Job No. 1

Date 1-15-94

Page 1 of 2

Laboratory CKY Laboratory Method of Shipment Carrier

Address _____ Shipment No. _____

Airbill No. _____

Client The Earth Technology Corporation Cooler No. _____

Address 13900 Alton Parkway, Suite 120 Project Manager Keith H. / Munk

Irvine, CA 92718 Telephone No. 714 458-7414

Project Name Metra Rail Estate Extension Fax No. (714) 458-8701

Project Number 94-1109-02 Samplers: (Signature) Greg Renshaw

Field Sample Number	Location/ Depth	Date	Time	Sample Type	Type/Size of Container	Preservation					EPA Gas	EPA Pet	EPA Diesel	EPA A	EPA A	Total	Oil	PCB	Pesticide			DVA	HDD
						Temp.	Chemical																
EB-23-D1	4ft	1/15/94	0830	Soil	5 gal. 0.5 Steel 2"x4"	40	Ice	1														1.1/0.9	-
-D2	9'		0842					1														4.2/0.9	-
-D3	14'		0910					1														1.8/1.1	-
-D4	19'		0926					1														4.7/1.1	-
-D5	24'		0934					1														5.3/1.1	-
-D6	29'		0944					1														5.0/1.2	-
-D7	34'		0955					1	X	X												4.0/1.1	-
-D8	39'		1007					1														2.2/1.1	-
-D9	44'		1200					1	X				X	X	X	X	X	X				89/9.0	-
-D10	49'		1218					1	X	X												55/7.6	9.7
-D11	54'		1226					1														78/7.6	5.9
EB-23-D12	59'		1232					1	X	X												320/7.6	15.1

Relinquished by: Signature: <u>Greg Renshaw</u> Printed: <u>GREG RENSCHAW</u> Company: <u>Earth Technology Corporation</u> Reason: _____	Date: <u>1/15/94</u> Time: <u>12:00</u> 12:15	Received by: Signature: <u>Tom B. De</u> Printed: <u>Tom B. De</u> Company: <u>TEC</u>	Date: <u>1/15/94</u> Time: <u>12:15</u>	Relinquished by: Signature: <u>Tom B. De</u> Printed: <u>Tom B. De</u> Company: <u>TEC</u> Reason: _____	Date: <u>1/15/94</u> Time: <u>12:15</u>	Received by: Signature: <u>Tom B. De</u> Printed: <u>Tom B. De</u> Company: <u>CKY</u>	Date: <u>1/15/94</u> Time: <u>12:15</u>			
Comments: <u>EB23 - Between Center & Vineyard St.</u> <u>North end of St 11.5 ft south of north curb.</u> <u>T 70C</u>				Relinquished by: Signature: <u>Tom B. De</u> Printed: <u>Tom B. De</u> Company: <u>TEC</u> Reason: _____				Date: <u>1/15/94</u> Time: <u>12:15</u>	Received by: Signature: <u>Tom B. De</u> Printed: <u>Tom B. De</u> Company: <u>CKY</u>	Date: <u>1/15/94</u> Time: <u>12:15</u>

Laboratory CKY Laboratory Method of Shipment _____

Address _____ Shipment No. _____

_____ Airbill No. _____

Client The Earth Technology Corporation Cooler No. _____

Address 13900 Alton Parkway, Suite 120 Project Manager K. K. / Mendez

Irvine, CA 92718 Telephone No. (714) 458-7414

Project Name Main Rail East side Extension Fax No. (714) 458-8701

Project Number 94-1109-02 Samplers: (Signature) [Signature]

Field Sample Number	Location/Depth	Date	Time	Sample Type	Type/Size of Container	Preservation		Analysis Required										Remarks	
						Temp.	Chemical	Filtered	No. of Containers	EPA Method 8015 (Mod)	EPA Method 8015 (Mod)	EPA Method 8015 (Mod)	EPA Method 8015 (Mod)	EPA Method 8015 (Mod)	EPA Method 8015 (Mod)	EPA Method 8015 (Mod)	EPA Method 8015 (Mod)	OVA	HNU
13	EB-23-D13	64'	1/5/94	1246	Soil	Stainless Steel 2"x4"	42	Yes	1	X	X							585/9.2	2.0/4.2
14	-D14	69'		1255					1									395/9.0	15.4/4.2
15	-D15	74'		1:08					1									320/9.6	18.4/5.0
16	-D16	79'		1:24					1									200/9.6	16.6/4.6
17	EB-23-D17	84'		1:30					1									890/9.6	13.2/4.8

Relinquished by: [Signature] Date 1/15/94
 Signature [Signature]
 Printed COREG REICREW
 Company EARTHTECH/GEOMONITORING
 Reason Single Transfer

Received by: [Signature] Date 1/15/94
 Signature [Signature]
 Printed Jeffrey D. Lee
 Company T.E.C.

Relinquished by: [Signature] Date 1/17/94
 Signature [Signature]
 Printed Jeffrey D. Lee
 Company T.E.C.
 Reason _____

Received by: [Signature] Date 1/17/94
 Signature [Signature]
 Printed Don K. [Signature]
 Company CKY

Comments: EB-23 between Center St & Vignas St
North side of street
OVA = Headspace / Background
HNU = Headspace / Background T=300

Relinquished by: [Signature] Date 1/17/94
 Signature [Signature]
 Printed Don K. [Signature]
 Company CKY
 Reason [Signature]

Received by: [Signature] Date 1/17/94
 Signature [Signature]
 Printed [Signature]
 Company CKY



CKY incorporated Analytical Laboratories

Date: 01-25-1994
CKY Batch No.: 94A061

Attn.: K. Khilnani

Earth Technology Corp.
13900 Alton Parkway #120
Irvine, CA 92718

Subject: Laboratory Report
Project: Metro Rail - East Side Ext.

Enclosed is the Laboratory report for samples received on 01/17/94. The samples were received in coolers with ice and intact; the chain-of-custody forms were properly filled out. The data reported include :

Sample ID	Control No.	Matrix	Analysis
EB-24-D1	A061-01	soil	Hold
EB-24-D2	A061-02	soil	Hold
EB-24-D3	A061-03	soil	EPA M8015 (CCID) EPA 8020
EB-24-D4	A061-04	soil	Hold
EB-24-D5	A061-05	soil	EPA M8015 (CCID) EPA 8240 EPA 8270 Organic Pb Oil & Grease Sulfide Sulfate Chloride
EB-24-D6	A061-06	soil	Hold
EB-24-D7	A061-07	soil	EPA M8015 (CCID) EPA 8020
EB-24-D8	A061-08	soil	Hold
EB-24-D9	A061-09	soil	EPA M8015 (CCID) EPA 8020

Sample ID	Control No.	Matrix	Analysis
-----	-----	-----	-----
EB-24-D10	A061-10	soil	Hold
EB-24-D11	A061-11	soil	EPA M8015 (CCID) EPA 8020
EB-24-D12	A061-12	soil	Hold

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,



 Kam Y. Pang, Ph.D.
 Laboratory Director

P.S. - All analyses requested for the above referenced project have been completed. Therefore, unless instructed, the remaining portions of the samples will be disposed after fifteen (15) days from the date of this report.

EPA METHOD 8020
BTEX

```
=====
CLIENT:      Earth Technology Corp.          DATE COLLECTED: 01/15/94
PROJECT:     Metro Rail - East Side Ext.    DATE RECEIVED:  01/17/94
BATCH NO.:   94A061                        DATE EXTRACTED: NA
MATRIX:      SOIL                          DATE ANALYZED:   01/20/94
=====
```

SAMPLE ID	CNTRL NO	DL F	MDL	BENZ	RESULTS TOLUENE	(ug/kg) E BENZ	XYLS	% Rcvy SURR
-----	-----	----	----	----	-----	-----	----	----
EB-24-D3	A061-03	1	5	ND	ND	ND	ND	80
EB-24-D7	A061-07	1	5	ND	ND	ND	ND	80
EB-24-D9	A061-09	1	5	ND	ND	ND	ND	77
EB-24-D11	A061-11	1	5	ND	ND	ND	ND	73
VBLK1S	A061-B1S	1	5	ND	ND	ND	ND	105

DL F : Dilution Factor
SURR : Bromofluorobenzene
MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8020
MATRIX: SOIL

BATCH NO.: 94A061 DATE RECEIVED: 01/17/94
SAMPLE ID: EB-24-D7 DATE EXTRACTED: NA
CONTROL NO.: A061-07 DATE ANALYZED: 01/20/94

ACCESSION: 94A061 94A062

PARAMETER	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Benzene	ND	52	33	63	52	40	77	20
Toluene	ND	520	310	60	520	390	75	22
Ethyl Benzene	ND	130	79	61	130	91	70	14
Xylenes	ND	920	560	61	920	670	73	18



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 602/8020
MATRIX: WATER

=====

BATCH NO.:	94A061	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A061-L1W	DATE ANALYZED:	01/20/94
ACCESSION:	94A061 94A062		

PARAMETER	TRUE VALUE (ug/L)	FOUND VALUE (ug/L)	LCS RECOVERY (%)
-----	-----	-----	-----
Benzene	50	41	82
Toluene	50	43	86
Chlorobenzene	50	51	102



EPA METHOD M8015
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION
CARBON CHAIN IDENTIFICATION

```
=====
CLIENT:      Earth Technology Corp.          DATE COLLECTED: 01/15/94
PROJECT:     Metro Rail - East Side Ext.     DATE RECEIVED:  01/17/94
BATCH NO.:   94A061                         DATE EXTRACTED: 01/18/94
MATRIX:      SOIL                           DATE ANALYZED:  01/19/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	H-C RANGE	% RECOVERY		DL FACTOR	MDL (mg/kg)
				SURR1	SURR2		
EB-24-D3	A061-03	3.0	C16-C17				
		6.9	C21-C22				
		3.7	C25-C26				
	(Total)	29+	C16-C26	112	118	1	5
EB-24-D5	A061-05	ND	N.A.	99	95	1	5
EB-24-D7	A061-07	ND	N.A.	99	100	1	5
EB-24-D9	A061-09	ND	N.A.	97	94	1	5
EB-24-D11	A061-11	ND	N.A.	100	102	1	5
VBLK1S	A061-B1S	ND	N.A.	100	95	1	5

SURR1 : Bromobenzene
 SURR2 : Hexacosane
 MDL : Method Detection Limit
 + : Not typical fuel hydrocarbon pattern

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: Soil

BATCH NO.: 94A061 DATE RECEIVED: 01/17/94
SAMPLE ID: EB-24-D5 DATE EXTRACTED: 01/18/94
CONTROL NO.: A061-05 DATE ANALYZED: 01/19/94

ACCESSION: 94A035 94A050 94A059 94A060 94A061 94A062

PARAMETER	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
Diesel	ND	250	219	88	250	222	89	1



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: M8015
MATRIX: Soil

=====

BATCH NO.:	94A061	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A061-L1S	DATE ANALYZED:	01/19/94

ACCESSION: 94A035 94A050 94A059 94A060 94A061 94A062

PARAMETER	TRUE CONC. (mg/kg)	FOUND CONC. (mg/kg)	SPIKE RECRY. (%)
-----	-----	-----	-----
Diesel	250	229	92

EPA METHOD 413.2
OIL & GREASE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/15/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/17/94
BATCH NO.:   94A061                     DATE EXTRACTED:  01/18/94
MATRIX:     SOIL                         DATE ANALYZED:   01/21/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-24-D5	A061-05	ND	1	10
TBLK1S	A059-B1S	ND	1	10

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 413.2
MATRIX: Soil

BATCH NO.: 94A061 DATE RECEIVED: 01/17/94
SAMPLE ID: EB-24-D5 DATE EXTRACTED: 01/18/94
CONTROL NO.: A061-05 DATE ANALYZED: 01/21/94

ACCESSION: 94A059 94A060 94A061 94A062

PARAMETER	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
TROG	ND	150	168	112	150	165	110	2

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 413.2
MATRIX: Soil

=====

BATCH NO.:	94A061	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A059-L1S	DATE ANALYZED:	01/21/94

ACCESSION: 94A059 94A060 94A061 94A062

PARAMETER	TRUE CONC. (mg/kg)	FOUND CONC. (mg/kg)	SPIKE RECRY. (%)
-----	-----	-----	-----
TROG	150	151	101



EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: 01/15/94
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: 01/17/94
BATCH NO.: 94A061	DATE EXTRACTED: 01/18/94
SAMPLE ID: EB-24-D5	DATE ANALYZED: 01/19/94
CONTROL NO.: A061-05	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg) RESULT MDL	PARAMETERS	(ug/kg) RESULT MDL
N-Nitrosodimethylamine	ND (330)	3-Nitroaniline	ND (800)
Pyridine	ND (330)	Acenaphthene	ND (330)
Aniline	ND (330)	2,4-Dinitrophenol	ND (800)
Phenol	ND (330)	4-Nitrophenol	ND (800)
bis(2-Chloroethyl) ether	ND (330)	Dibenzofuran	ND (330)
2-Chlorophenol	ND (330)	2,4-Dinitrotoluene	ND (330)
1,3-Dichlorobenzene	ND (330)	Diethylphthalate	ND (330)
1,4-Dichlorobenzene	ND (330)	4-Chlorophenyl-phenylether	ND (330)
Benzyl Alcohol	ND (330)	Fluorene	ND (330)
1,2-Dichlorobenzene	ND (330)	1,2-Diphenylhydrazine	ND (800)
2-Methylphenol	ND (330)	4-Nitroaniline	ND (800)
2,2'-oxybis(1-Chloropropane)	ND (330)	4,6-Dinitro-2-methylphenol	ND (800)
4-Methylphenol	ND (330)	N-Nitrosodiphenylamine (1)	ND (330)
N-Nitroso-di-n-propylamine	ND (330)	4-Bromophenyl-phenylether	ND (330)
Hexachloroethane	ND (330)	Hexachlorobenzene	ND (330)
Nitrobenzene	ND (330)	Pentachlorophenol	ND (800)
Isophorone	ND (330)	Benazidine	ND (800)
2-Nitrophenol	ND (330)	Phenanthrene	ND (800)
2,4-Dimethylphenol	ND (330)	Anthracene	ND (330)
Benzoic Acid	ND (800)	Carbazole	ND (800)
bis(2-Chloroethoxy)methane	ND (330)	Di-n-butylphthalate	1400 (330)
2,4-Dichlorophenol	ND (330)	Fluoranthene	ND (330)
1,2,4-Trichlorobenzene	ND (330)	4,4'-Methylene Dianiline	ND (800)
Naphthalene	ND (330)	Pyrene	ND (330)
4-Chloroaniline	ND (330)	Bisphenol-A	ND (330)
Hexachloro-1,3-butadiene	ND (330)	Butylbenzylphthalate	ND (330)
4-Chloro-3-methylphenol	ND (330)	3,3'-Dichlorobenzidine	ND (330)
2-Methylnaphthalene	ND (330)	Benzo(a)anthracene	ND (330)
Hexachlorocyclopentadiene	ND (330)	Chrysene	ND (330)
2,4,6-Trichlorophenol	ND (330)	bis(2-Ethylhexyl)phthalate	ND (330)
2,4,5-Trichlorophenol	ND (800)	Di-n-octylphthalate	ND (330)
2-Chloronaphthalene	ND (330)	Benz(b)fluoranthene	ND (330)
1-Chloronaphthalene	ND (330)	Benzo(k)fluoranthene	ND (330)
2-Nitroaniline	ND (800)	Benzo(a)pyrene	ND (330)
Dimethylphthalate	ND (330)	Indeno(1,2,3-cd)pyrene	ND (330)
Acenaphthylene	ND (330)	Dibenzo(a,h)anthracene	ND (330)
2,6-Dinitrotoluene	ND (330)	Benzo(g,h,i)perylene	ND (330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	63	23-120
2-Fluorobiphenyl	58	30-115
Terphenyl-d14	93	18-137
Phenol-d5	70	24-113
2-Fluorophenol	69	25-121
2,4,6-Tribromophenol	94	19-122

MDL: Method Detection Limit

EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: NA
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: NA
BATCH NO.: 94A061	DATE EXTRACTED: 01/18/94
SAMPLE ID: SBLK01	DATE ANALYZED: 01/19/94
CONTROL NO.: A039-B1S	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg) RESULT MDL	PARAMETERS	(ug/kg) RESULT MDL
N-Nitrosodimethylamine	ND (330)	3-Nitroaniline	ND (800)
Pyridine	ND (330)	Acenaphthene	ND (330)
Aniline	ND (330)	2,4-Dinitrophenol	ND (800)
Phenol	ND (330)	4-Nitrophenol	ND (800)
bis(2-Chloroethyl) ether	ND (330)	Dibenzofuran	ND (330)
2-Chlorophenol	ND (330)	2,4-Dinitrotoluene	ND (330)
1,3-Dichlorobenzene	ND (330)	Diethylphthalate	ND (330)
1,4-Dichlorobenzene	ND (330)	4-Chlorophenyl-phenylether	ND (330)
Benzyl Alcohol	ND (330)	Fluorene	ND (330)
1,2-Dichlorobenzene	ND (330)	1,2-Diphenylhydrazine	ND (800)
2-Methylphenol	ND (330)	4-Nitroaniline	ND (800)
2,2'-oxybis(1-Chloropropane)	ND (330)	4,6-Dinitro-2-methylphenol	ND (800)
4-Methylphenol	ND (330)	N-Nitrosodiphenylamine (1)	ND (330)
N-Nitroso-di-n-propylamine	ND (330)	4-Bromophenyl-phenylether	ND (330)
Hexachloroethane	ND (330)	Hexachlorobenzene	ND (330)
Nitrobenzene	ND (330)	Pentachlorophenol	ND (800)
Isophorone	ND (330)	Benzidine	ND (800)
2-Nitrophenol	ND (330)	Phenanthrene	ND (800)
2,4-Dimethylphenol	ND (330)	Anthracene	ND (330)
Benzoic Acid	ND (800)	Carbazole	ND (800)
bis(2-Chloroethoxy)methane	ND (330)	Di-n-butylphthalate	440 (330)
2,4-Dichlorophenol	ND (330)	Fluoranthene	ND (330)
1,2,4-Trichlorobenzene	ND (330)	4,4'-Methylene Dianiline	ND (800)
Naphthalene	ND (330)	Pyrene	ND (330)
4-Chloroaniline	ND (330)	Bisphenol-A	ND (330)
Hexachloro-1,3-butadiene	ND (330)	Butylbenzylphthalate	ND (330)
4-Chloro-3-methylphenol	ND (330)	3,3'-Dichlorobenzidine	ND (330)
2-Methylnaphthalene	ND (330)	Benzo(a)anthracene	ND (330)
Hexachlorocyclopentadiene	ND (330)	Chrysene	ND (330)
2,4,6-Trichlorophenol	ND (330)	bis(2-Ethylhexyl)phthalate	ND (330)
2,4,5-Trichlorophenol	ND (800)	Di-n-octylphthalate	ND (330)
2-Chloronaphthalene	ND (330)	Benz(b)fluoranthene	ND (330)
1-Chloronaphthalene	ND (330)	Benzo(k)fluoranthene	ND (330)
2-Nitroaniline	ND (800)	Benzo(a)pyrene	ND (330)
Dimethylphthalate	ND (330)	Indeno(1,2,3-cd)pyrene	ND (330)
Acenaphthylene	ND (330)	Dibenzo(a,h)anthracene	ND (330)
2,6-Dinitrotoluene	ND (330)	Benzo(g,h,i)perylene	ND (330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	60	23-120
2-Fluorobiphenyl	58	30-115
Terphenyl-d14	117	18-137
Phenol-d5	57	24-113
2-Fluorophenol	52	25-121
2,4,6-Tribromophenol	70	19-122

MDL: Method Detection Limit



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8270
MATRIX: SOIL

BATCH NO.: 94A061 DATE RECEIVED: 01/17/94
SAMPLE ID: EB-24-D5 DATE EXTRACTED: 01/18/94
CONTROL NO.: A061-05 DATE ANALYZED: 01/20/94

ACCESSION: 94A032 94A039 94A050 94A051 94A059 94A060
94A061 94A062

PARAMETER	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Phenol	ND	5000	2018	40	5000	2536	51	23
2-Chlorophenol	ND	5000	2102	42	5000	2714	54	25
1,4-DCB	ND	3300	1395	42	3300	1775	54	24
N-Nitroso-di-n	ND	3300	1481	45	3300	1920	58	26
1,2,4-TCB	ND	3300	1397	42	3300	1750	53	22
4-Chl-3-Methyl	ND	5000	2514	50	5000	3083	62	20
Acenaphthene	ND	3300	1508	46	3300	1942	59	25
4-Nitrophenol	ND	5000	4709	94	5000	4893	98	4
2,4-Dinitrotol	ND	3300	2331	71	3300	2724	83	16
Pentachlorophe	ND	5000	5360	107	5000	5570	111	4
Pyrene	22	3300	2771	84	3300	2828	86	2

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8270
MATRIX: SOIL

=====

BATCH NO.:	94A061	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A061-L1S	DATE ANALYZED:	01/19/94

ACCESSION: 94A032 94A039 94A050 94A059 94A060 94A061
94A062

PARAMETER	TRUE VALUE (ug/kg)	FOUND VALUE (ug/kg)	LCS RECOVERY (%)
Phenol	5000	2814	56
2-Chlorophenol	5000	3008	60
1,4-DCB	3300	2069	63
N-Nitroso-di-n	3300	2282	69
1,2,4-TCB	3300	2153	65
4-Chl-3-Methyl	5000	3139	63
Acenaphthene	3300	2003	61
4-Nitrophenol	5000	3319	66
2,4-Dinitrotol	3300	2100	64
Pentachlorophe	5000	3291	66
Pyrene	3300	2137	65



EPA METHOD 300
CHLORIDE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/15/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/17/94
BATCH NO.:   94A061                     DATE EXTRACTED:  01/18/94
MATRIX:      SOIL                       DATE ANALYZED:   01/18/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-24-D5	A061-05	2.8	1	0.2
WBLK1S	A059-B1S	ND	1	0.2

MDL : Method Detection Limit

EPA METHOD 300
SULFATE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/15/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/17/94
BATCH NO.:   94A061                     DATE EXTRACTED:  01/18/94
MATRIX:     SOIL                        DATE ANALYZED:   01/18/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-24-D5	A061-05	111	2	2
WBLK1S	A059-B1S	ND	1	1

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

=====

BATCH NO.: 94A061 DATE RECEIVED: NA
SAMPLE ID: EB-21-D8 DATE EXTRACTED: 01/18/94
CONTROL NO.: A059-08S DATE ANALYZED: 01/18/94

ACCESSION: 94A059 94A060 94A061 94A062

PARAMETER	Sample (mg/kg)	Dup. Sample (mg/kg)	RPD (%)
-----	-----	-----	-----
Sulfate	36.1	36.3	1
Chloride	17.5	17.3	1



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

BATCH NO.: 94A061 DATE RECEIVED: NA
SAMPLE ID: EB-21-D8 DATE EXTRACTED: 01/18/94
CONTROL NO.: A059-08 DATE ANALYZED: 01/18/94

ACCESSION: 94A059 94A060 94A061 94A062

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC
Sulfate	36.1	20	55.9	99
Chloride	17.5	10	27.1	96

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: WATER

=====

BATCH NO.:	94A061	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A059-L1W	DATE ANALYZED:	01/18/94

ACCESSION: 94A059 94A060 94A061 94A062

PARAMETER	TRUE VALUE (mg/L)	FOUND VALUE (mg/L)	LCS RECOVERY (%)
-----	-----	-----	-----
Sulfate	150	144	96
Chloride	30.00	27.80	93

EPA METHOD 376.1
TOTAL SULFIDE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/15/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/17/94
BATCH NO.:   94A061                     DATE EXTRACTED:  01/18/94
MATRIX:     SOIL                        DATE ANALYZED:   01/18/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-24-D5	A061-05	0.9	2	0.4
WBLK1S	A059-B1S	ND	1	0.2

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 376.1
MATRIX: SOIL

=====

BATCH NO.:	94A061	DATE RECEIVED:	NA
SAMPLE ID:	WBLK1S	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A059-B1S	DATE ANALYZED:	01/18/94

ACCESSION: 94A059 94A060 94A061 94A062

PARAMETER	Sample (mg/kg)	Dup. Sample (mg/kg)	RPD (%)
-----	-----	-----	-----
SULFIDE	0.9	0.9	0

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 376.1
MATRIX: WATER

=====

BATCH NO.:	94A061	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A059-L1W	DATE ANALYZED:	01/18/94
ACCESSION:	94A059 94A060 94A061 94A062		

PARAMETER	TRUE VALUE (mg/L)	FOUND VALUE (mg/L)	LCS RECOVERY (%)
-----	-----	-----	-----
SULFIDE	4.0	3.88	97



DHS METHOD
ORGANIC LEAD

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/15/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/17/94
BATCH NO.:    94A061                     DATE EXTRACTED:  01/18/94
MATRIX:       SOIL                       DATE ANALYZED:   01/19/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB-24-D5	A061-05	ND	1	.5
FBLK1S	A050-B1S	ND	1	.5

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A061	DATE RECEIVED:	NA
SAMPLE ID:	EB-21-D8	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A059-08	DATE ANALYZED:	01/19/94
ACCESSION:	94A050 94A059 94A060 94A061 94A062		

PARAMETER	SAMPLE (mg/kg)	DUP. SAMPLE (mg/kg)	RPD (%)
-----	-----	-----	-----
Lead	ND	ND	0



CKY QUALITY CONTROL DATA
SPIKE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

```
=====
BATCH NO.: 94A061          DATE RECEIVED: NA
SAMPLE ID:  FBLK1S        DATE EXTRACTED: 01/18/94
CONTROL NO.: A050-B1S     DATE ANALYZED: 01/19/94
```

ACCESSION: 94A050 94A059 94A060 94A061 94A062

PARAMETER	SAMPLE RESULT (mg/kg)	SPIKE CONC. (mg/kg)	SPIKE RESULT (mg/kg)	SPIKE RECRY. (%)
-----	-----	-----	-----	-----
Lead	ND	100	86	86

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A061	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A050-L1S	DATE ANALYZED:	01/19/94
ACCESSION:	94A050 94A059 94A060 94A061 94A062		

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Lead	100	91	91



Laboratory CEK Lab Method of Shipment _____
 Address 630 Maple Ave Shipment No. _____
Traverse, CA 95503 Airbill No. _____
 Client The Earth Technology Corporation Cooler No. _____
 Address 13900 Alton Parkway, Suite 120 Project Manager Krist K. / Mautice
Irvine, CA 92718 Telephone No. (714) 458-7414
 Project Name Malibu Red Eastside Expansion Fax No. (714) 458-8701
 Project Number 74-1109-02 Samplers: (Signature) [Signature]

Analysis Required										Remarks
Filtered V	No. of Containers	EPA Method 8015 (Mod) Gasoline	EPA 8020 BTEX	EPA Method 8015 (Mod) Diesel	EPA Method 8240	EPA Method 8270	Total Lead	Copper	Vanadium	
1										Head, pore
1										OVA HNU
1			XX							
1		X			XX	XX	XX	XX	XX	
1										
1		XX								
1										
1		XX								
1										
1		XX								
1										
1		XX								

Relinquished by: Signature <u>[Signature]</u> Printed <u>T. F. J. C.</u> Company <u>T. F. J. C.</u> Reason _____	Date <u>1/12/84</u> Time <u>12:00</u>	Received by: Signature <u>[Signature]</u> Printed <u>T. F. J. C.</u> Company <u>CEK</u>	Date <u>1/14/84</u> Time <u>1:00</u>	Relinquished by: Signature <u>[Signature]</u> Printed <u>T. F. J. C.</u> Company <u>CEK</u> Reason <u>Analysis</u>	Date <u>1/17/84</u> Time <u>1:00</u>	Received by: Signature <u>[Signature]</u> Printed <u>T. F. J. C.</u> Company <u>CEK</u>	Date <u>1/17/84</u> Time <u>1:00</u>	
Comments: <u>Stage II Enviro assessment - by Hwy 101 - Northbound</u> <u>lane & Morgan St. LA.</u> <u>T-30C</u>				Relinquished by: Signature _____ Printed _____ Company _____ Reason _____				Date _____ Time _____

SAMPLE RECEIPT FORM

[illegible]



CKY incorporated Analytical Laboratories

Date: 01-25-1994
CKY Batch No.: 94A062

Attn.: K. Khilnani

Earth Technology Corp.
13900 Alton Parkway #120
Irvine, CA 92718

Subject: Laboratory Report
Project: Metro Rail - East Side Ext.

Enclosed is the Laboratory report for samples received on 01/17/94. The samples were received in coolers with ice and intact; the chain-of-custody forms were properly filled out. The data reported include :

Sample ID	Control No.	Matrix	Analysis
-----	-----	-----	-----
EB27-D1	A062-01	soil	Hold
EB27-D2	A062-02	soil	Hold
EB27-D3	A062-03	soil	EPA M8015 (CCID) EPA 8020
EB27-D4	A062-04	soil	Hold
EB27-D5	A062-05	soil	EPA M8015 (CCID) EPA 8240 EPA 8270 Organic Pb Oil & Grease Sulfide Sulfate Chloride
EB27-D6	A062-06	soil	EPA M8015 (CCID) EPA 8020
EB27-D7	A062-07	soil	EPA M8015 (CCID) EPA 8240
EB27-D8	A062-08	soil	Hold
EB27-D9	A062-09	soil	Hold

Sample ID	Control No.	Matrix	Analysis
-----	-----	-----	-----
EB27-D10	A062-10	soil	Hold

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,



Kam Y. Pang, Ph.D.
Laboratory Director

P.S. - All analyses requested for the above referenced project have been completed. Therefore, unless instructed, the remaining portions of the samples will be disposed after fifteen (15) days from the date of this report.

EPA METHOD M8015
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION
CARBON CHAIN IDENTIFICATION

CLIENT: Earth Technology Corp.	DATE COLLECTED: 01/15/94
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: 01/17/94
BATCH NO.: 94A062	DATE EXTRACTED: 01/18/94
MATRIX: SOIL	DATE ANALYZED: 01/19/94

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	H-C RANGE	% RECOVERY SURR1	SURR2	DL FACTOR	MDL (mg/kg)
EB27-D3	A062-03	10	C25-C26	100	100	1	5
EB27-D5	A062-05	1.2	C10-C11				
		.82	C11-C12				
		.38	C13-C14				
		.28	C14-C15				
		.76	C15-C16				
		1.15	C17-C18				
		.74	C18-C19				
		.44	C19-C20				
		.95	C20-C21				
		1.0	C21-C22				
	(Total)	43	C10-C22	79	87	1	5
EB27-D6	A062-06	ND	N.A.	103	98	1	5
EB27-D7	A062-07*	ND	N.A.	104	85	1	5
DBLK1S	A062-B1S	ND	N.A.	100	95	1	5

SURR1 : Bromobenzene

SURR2 : Hexacosane

MDL : Method Detection Limit

* Date analyzed, 01/20/94

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: Soil

BATCH NO.: 94A062 DATE RECEIVED: NA
SAMPLE ID: EB-24-D5 DATE EXTRACTED: 01/18/94
CONTROL NO.: A061-05 DATE ANALYZED: 01/19/94

ACCESSION: 94A035 94A050 94A059 94A060 94A061 94A062

PARAMETER	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
Diesel	ND	250	219	88	250	222	89	1



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: M8015
MATRIX: Soil

=====

BATCH NO.:	94A062	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A061-L1S	DATE ANALYZED:	01/19/94

ACCESSION: 94A035 94A050 94A059 94A060 94A061 94A062

PARAMETER	TRUE CONC. (mg/kg)	FOUND CONC. (mg/kg)	SPIKE RECRY. (%)
-----	-----	-----	-----
Diesel	250	229	92



EPA METHOD 8020
BTEX

```
=====
CLIENT:      Earth Technology Corp.          DATE COLLECTED: 01/15/94
PROJECT:     Metro Rail - East Side Ext.    DATE RECEIVED:  01/17/94
BATCH NO.:   94A062                        DATE EXTRACTED: NA
MATRIX:      SOIL                          DATE ANALYZED:  01/20/94
=====
```

SAMPLE ID	CNTRL NO	DL F	MDL	BENZ	RESULTS TOLUENE	(ug/kg) E BENZ	XYLS	% Rcvy SURR
-----	-----	----	----	----	-----	-----	-----	-----
EB27-D3	A062-03	1	5	ND	ND	ND	ND	76
EB27-D6	A062-06	1	5	ND	ND	ND	ND	66
VBLK1S	A062-B1S	1	5	ND	ND	ND	ND	105

DL F : Dilution Factor
SURR : Bromofluorobenzene
MDL : Method Detection Limit

CKY

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8020
MATRIX: SOIL

BATCH NO.: 94A062 DATE RECEIVED: NA
SAMPLE ID: EB-24-D7 DATE EXTRACTED: NA
CONTROL NO.: A061-07 DATE ANALYZED: 01/20/94

ACCESSION: 94A061 94A062

PARAMETER	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Benzene	ND	52	33	63	52	40	77	20
Toluene	ND	520	310	60	520	390	75	22
Ethyl Benzene	ND	130	79	61	130	91	70	18
Xylenes	ND	920	560	61	920	670	73	18



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 602/8020
MATRIX: WATER

=====

BATCH NO.:	94A062	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A061-L1W	DATE ANALYZED:	01/20/94
ACCESSION:	94A061 94A062		

PARAMETER	TRUE VALUE (ug/L)	FOUND VALUE (ug/L)	LCS RECOVERY (%)
-----	-----	-----	-----
Benzene	50	41	82
Toluene	50	43	86
Chlorobenzene	50	51	102



EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/15/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/17/94
BATCH NO.:   94A062                     DATE EXTRACTED:  NA
SAMPLE ID:   EB27-D5                     DATE ANALYZED:  01/20/94
CONTROL NO.: A062-05                     MATRIX:        SOIL
% MOISTURE:  NA                         DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	160	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	38	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	26	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	24	5.0
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	84	70-121
Toluene -d8	113	84-138
Bromofluorobenzene	89	59-113

MDL : Method Detection Limit

EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/15/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/17/94
BATCH NO.:   94A062                     DATE EXTRACTED:  NA
SAMPLE ID:   EB27-D7                     DATE ANALYZED:  01/20/94
CONTROL NO.: A062-07                     MATRIX:        SOIL
% MOISTURE:  NA                         DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	85	70-121
Toluene -d8	113	84-138
Bromofluorobenzene	91	59-113

MDL : Method Detection Limit



EPA METHOD 8240
VOLATILE ORGANICS BY GC/MS

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED:  NA
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:   NA
BATCH NO.:   94A062                     DATE EXTRACTED:  NA
SAMPLE ID:   VBLK1S                     DATE ANALYZED:   01/20/94
CONTROL NO.: A062-B1S                   MATRIX:         SOIL
% MOISTURE:  NA                         DILUTION FACTOR: 1
=====
```

PARAMETERS	results (ug/kg)	MDL (ug/kg)
Acetone	ND	100
Benzene	ND	5.0
Bromodichloromethane	ND	5.0
Bromoform	ND	10
Bromomethane	ND	50
2-Butanone (MEK)	ND	100
Carbon Disulfide	ND	5.0
Carbon Tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chlorodibromomethane	ND	50
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	ND	50
Chloroform	ND	5.0
Chloromethane	ND	50
Dibromoethane	ND	5.0
Dichlorodifluoromethane	ND	50
1,1-Dichloroethane	ND	5.0
1,2-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
Ethylbenzene	ND	5.0
2-Hexanone	ND	50
Methylene Chloride	ND	50
4-Methyl-2-pentanone (MIBK)	ND	10
Styrene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	10
Vinyl Acetate	ND	50
Vinyl Chloride	ND	50
Xylenes	ND	5.0

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	98	70-121
Toluene -d8	108	84-138
Bromofluorobenzene	100	59-113

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8240
MATRIX: SOIL

BATCH NO.: 94A062 DATE RECEIVED: NA
SAMPLE ID: EB-24-D5 DATE EXTRACTED: NA
CONTROL NO.: A061-05 DATE ANALYZED: 01/20/94

ACCESSION: 94A059 94A061 94A062 94A066

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
1,1-DCE	ND	50	36	72	50	33	66	9
Benzene	ND	50	65	130	50	68	136	5
TCE	ND	50	45	90	50	46	92	2
Toluene	ND	50	61	122	50	58	116	5
Chlorobenzene	ND	50	49	98	50	51	102	4



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 624/8240
MATRIX: WATER

=====

BATCH NO.:	94A062	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A059-L1W	DATE ANALYZED:	01/20/94

ACCESSION: 94A059 94A061 94A062 94A066

PARAMETER	TRUE VALUE (ug/L)	FOUND VALUE (ug/L)	LCS RECOVERY (%)	ACCEPTABLE RANGE
-----	-----	-----	-----	-----
1,1-DCE	50	35	70	61-145
Benzene	50	58	116	76-127
TCE	50	41	82	71-120
Toluene	50	54	108	76-125
Chlorobenzene	50	44	88	75-130

EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: 01/15/94
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: 01/17/94
BATCH NO.: 94A062	DATE EXTRACTED: 01/18/94
SAMPLE ID: EB27-D5	DATE ANALYZED: 01/20/94
CONTROL NO.: A062-05	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg) RESULT MDL	PARAMETERS	(ug/kg) RESULT MDL
N-Nitrosodimethylamine	ND (330)	3-Nitroaniline	ND (800)
Pyridine	ND (330)	Acenaphthene	ND (330)
Aniline	ND (330)	2,4-Dinitrophenol	ND (800)
Phenol	ND (330)	4-Nitrophenol	ND (800)
bis(2-Chloroethyl) ether	ND (330)	Dibenzofuran	ND (330)
2-Chlorophenol	ND (330)	2,4-Dinitrotoluene	ND (330)
1,3-Dichlorobenzene	ND (330)	Diethylphthalate	ND (330)
1,4-Dichlorobenzene	ND (330)	4-Chlorophenyl-phenylether	ND (330)
Benzyl Alcohol	ND (330)	Fluorene	ND (330)
1,2-Dichlorobenzene	ND (330)	1,2-Diphenylhydrazine	ND (800)
2-Methylphenol	ND (330)	4-Nitroaniline	ND (800)
2,2'-oxybis(1-Chloropropane)	ND (330)	4,6-Dinitro-2-methylphenol	ND (800)
4-Methylphenol	ND (330)	N-Nitrosodiphenylamine (1)	ND (330)
N-Nitroso-di-n-propylamine	ND (330)	4-Bromophenyl-phenylether	ND (330)
Hexachloroethane	ND (330)	Hexachlorobenzene	ND (330)
Nitrobenzene	ND (330)	Pentachlorophenol	ND (800)
Isophorone	ND (330)	Benzidine	ND (800)
2-Nitrophenol	ND (330)	Phenanthrene	ND (800)
2,4-Dimethylphenol	ND (330)	Anthracene	ND (330)
Benzoic Acid	ND (800)	Carbazole	ND (800)
bis(2-Chloroethoxy)methane	ND (330)	Di-n-butylphthalate	500(330)
2,4-Dichlorophenol	ND (330)	Fluoranthene	900(330)
1,2,4-Trichlorobenzene	ND (330)	4,4'-Methylene Dianiline	ND (800)
Naphthalene	ND (330)	Pyrene	1700(330)
4-Chloroaniline	ND (330)	Bisphenol-A	ND (330)
Hexachloro-1,3-butadiene	ND (330)	Butylbenzylphthalate	ND (330)
4-Chloro-3-methylphenol	ND (330)	3,3'-Dichlorobenzidine	ND (330)
2-Methylnaphthalene	ND (330)	Benzo(a)anthracene	ND (330)
Hexachlorocyclopentadiene	ND (330)	Chrysene	ND (330)
2,4,6-Trichlorophenol	ND (330)	bis(2-Ethylhexyl)phthalate	ND (330)
2,4,5-Trichlorophenol	ND (800)	Di-n-octylphthalate	ND (330)
2-Chloronaphthalene	ND (330)	Benz(b)fluoranthene	ND (330)
1-Chloronaphthalene	ND (330)	Benzo(k)fluoranthene	ND (330)
2-Nitroaniline	ND (800)	Benzo(a)pyrene	900(330)
Dimethylphthalate	ND (330)	Indeno(1,2,3-cd)pyrene	440(330)
Acenaphthylene	400(330)	Dibenzo(a,h)anthracene	ND (330)
2,6-Dinitrotoluene	ND (330)	Benzo(g,h,i)perylene	1200(330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	63	23-120
2-Fluorobiphenyl	68	30-115
Terphenyl-d14	81	18-137
Phenol-d5	65	24-113
2-Fluorophenol	62	25-121
2,4,6-Tribromophenol	91	19-122

MDL: Method Detection Limit

CKY

CKY INC., ANALYTICAL LABORATORIES, 630 Maple Ave., Torrance, Calif. 90503 Tel. (310) 618-8889 Fax: (310) 618-0818

EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: NA
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: NA
BATCH NO.: 94A062	DATE EXTRACTED: 01/18/94
SAMPLE ID: SBLK01	DATE ANALYZED: 01/19/94
CONTROL NO.: A039-B1S	MATRIX: SOIL
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/kg) RESULT MDL	PARAMETERS	(ug/kg) RESULT MDL
N-Nitrosodimethylamine	ND (330)	3-Nitroaniline	ND (800)
Pyridine	ND (330)	Acenaphthene	ND (330)
Aniline	ND (330)	2,4-Dinitrophenol	ND (800)
Phenol	ND (330)	4-Nitrophenol	ND (800)
bis(2-Chloroethyl)ether	ND (330)	Dibenzofuran	ND (330)
2-Chlorophenol	ND (330)	2,4-Dinitrotoluene	ND (330)
1,3-Dichlorobenzene	ND (330)	Diethylphthalate	ND (330)
1,4-Dichlorobenzene	ND (330)	4-Chlorophenyl-phenylether	ND (330)
Benzyl Alcohol	ND (330)	Fluorene	ND (330)
1,2-Dichlorobenzene	ND (330)	1,2-Diphenylhydrazine	ND (800)
2-Methylphenol	ND (330)	4-Nitroaniline	ND (800)
2,2'-oxybis(1-Chloropropane)	ND (330)	4,6-Dinitro-2-methylphenol	ND (800)
4-Methylphenol	ND (330)	N-Nitrosodiphenylamine (1)	ND (330)
N-Nitroso-di-n-propylamine	ND (330)	4-Bromophenyl-phenylether	ND (330)
Hexachloroethane	ND (330)	Hexachlorobenzene	ND (330)
Nitrobenzene	ND (330)	Pentachlorophenol	ND (800)
Isophorone	ND (330)	Benzidine	ND (800)
2-Nitrophenol	ND (330)	Phenanthrene	ND (800)
2,4-Dimethylphenol	ND (330)	Anthracene	ND (330)
Benzoic Acid	ND (800)	Carbazole	ND (800)
bis(2-Chloroethoxy)methane	ND (330)	Di-n-butylphthalate	440 (330)
2,4-Dichlorophenol	ND (330)	Fluoranthene	ND (330)
1,2,4-Trichlorobenzene	ND (330)	4,4'-Methylene Dianiline	ND (800)
Naphthalene	ND (330)	Pyrene	ND (330)
4-Chloroaniline	ND (330)	Bisphenol-A	ND (330)
Hexachloro-1,3-butadiene	ND (330)	Butylbenzylphthalate	ND (330)
4-Chloro-3-methylphenol	ND (330)	3,3'-Dichlorobenzidine	ND (330)
2-Methylnaphthalene	ND (330)	Benzo(a)anthracene	ND (330)
Hexachlorocyclopentadiene	ND (330)	Chrysene	ND (330)
2,4,6-Trichlorophenol	ND (330)	bis(2-Ethylhexyl)phthalate	ND (330)
2,4,5-Trichlorophenol	ND (800)	Di-n-octylphthalate	ND (330)
2-Chloronaphthalene	ND (330)	Benz(b)fluoranthene	ND (330)
1-Chloronaphthalene	ND (330)	Benzo(k)fluoranthene	ND (330)
2-Nitroaniline	ND (800)	Benzo(a)pyrene	ND (330)
Dimethylphthalate	ND (330)	Indeno(1,2,3-cd)pyrene	ND (330)
Acenaphthylene	ND (330)	Dibenzo(a,h)anthracene	ND (330)
2,6-Dinitrotoluene	ND (330)	Benzo(g,h,i)perylene	ND (330)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	60	23-120
2-Fluorobiphenyl	58	30-115
Terphenyl-d14	117	18-137
Phenol-d5	57	24-113
2-Fluorophenol	52	25-121
2,4,6-Tribromophenol	70	19-122

MDL: Method Detection Limit



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8270
MATRIX: SOIL

=====

BATCH NO.:	94A062	DATE RECEIVED:	NA
SAMPLE ID:	EB-24-D5	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A061-05	DATE ANALYZED:	01/20/94

ACCESSION:	94A032	94A039	94A050	94A051	94A059	94A060
	94A061	94A062				

Parameter	SAMPLE CONC (ug/kg)	SPIKE ADDED (ug/kg)	MS CONC (ug/kg)	MS % REC	SPIKE ADDED (ug/kg)	MSD CONC (ug/kg)	MSD % REC	% RPD
Phenol	ND	5000	2018	40	5000	2536	51	23
2-Chlorophenol	ND	5000	2102	42	5000	2714	54	25
1,4-DCB	ND	3300	1395	42	3300	1775	54	24
N-Nitroso-di-n	ND	3300	1481	45	3300	1920	58	26
1,2,4-TCB	ND	3300	1397	42	3300	1750	53	22
4-Chl-3-Methyl	ND	5000	2514	50	5000	3083	62	20
Acenaphthene	ND	3300	1508	46	3300	1942	59	25
4-Nitrophenol	ND	5000	4709	94	5000	4893	98	4
2,4-Dinitrotol	ND	3300	2331	71	3300	2724	83	16
Pentachlorophe	ND	5000	5360	107	5000	5570	111	4
Pyrene	22	3300	2771	84	3300	2828	86	2



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8270
MATRIX: SOIL

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BATCH NO.:	94A062	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A039-L1S	DATE ANALYZED:	01/19/94

ACCESSION: 94A032 94A039 94A050 94A059 94A060 94A061
94A062

PARAMETER	TRUE VALUE (ug/kg)	FOUND VALUE (ug/kg)	LCS RECOVERY (%)
Phenol	5000	2814	56
2-Chlorophenol	5000	3008	60
1,4-DCB	3300	2069	63
N-Nitroso-di-n	3300	2282	69
1,2,4-TCB	3300	2153	65
4-Chl-3-Methyl	5000	3139	63
Acenaphthene	3300	2003	61
4-Nitrophenol	5000	3319	66
2,4-Dinitrotol	3300	2100	64
Pentachlorophe	5000	3291	66
Pyrene	3300	2137	65



EPA METHOD 413.2
OIL & GREASE

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=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/15/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/17/94
BATCH NO.:   94A062                     DATE EXTRACTED:  01/18/94
MATRIX:     SOIL                        DATE ANALYZED:   01/21/94
=====
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SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB27-D5	A062-05	110	1	10
TBLK1S	A062-B1S	ND	1	10

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 413.2
MATRIX: Soil

BATCH NO.: 94A062 DATE RECEIVED: NA
SAMPLE ID: EB-24-D5 DATE EXTRACTED: 01/18/94
CONTROL NO.: A061-05 DATE ANALYZED: 01/21/94

ACCESSION: 94A059 94A060 94A061 94A062

PARAMETER	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC	SPIKE ADDED (mg/kg)	MSD CONC (mg/kg)	MSD % REC	% RPD
TROG	ND	150	168	112	150	165	110	2

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 413.2
MATRIX: Soil

=====

BATCH NO.:	94A062	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A059-L1S	DATE ANALYZED:	01/21/94

ACCESSION: 94A059 94A060 94A061 94A062

PARAMETER	TRUE CONC. (mg/kg)	FOUND CONC. (mg/kg)	SPIKE RECRY. (%)
-----	-----	-----	-----
TROG	150	151	101



DHS METHOD
ORGANIC LEAD

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=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/15/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/17/94
BATCH NO.:    94A062                     DATE EXTRACTED:  01/18/94
MATRIX:      SOIL                        DATE ANALYZED:   01/19/94
=====
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SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB27-D5	A062-05	ND	1	.5
FBLK1S	A050-B1S	ND	1	.5

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A062	DATE RECEIVED:	NA
SAMPLE ID:	EB-21-D8	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A059-08	DATE ANALYZED:	01/19/94

ACCESSION: 94A050 94A059 94A060 94A061 94A062

PARAMETER	SAMPLE (mg/kg)	DUP. SAMPLE (mg/kg)	RPD (%)
-----	-----	-----	-----
Lead	ND	ND	0



CKY QUALITY CONTROL DATA
SPIKE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A062	DATE RECEIVED:	NA
SAMPLE ID:	FBLK1S	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A050-B1S	DATE ANALYZED:	01/19/94

ACCESSION: 94A050 94A059 94A060 94A061 94A062

PARAMETER	SAMPLE RESULT (mg/kg)	SPIKE CONC. (mg/kg)	SPIKE RESULT (mg/kg)	SPIKE RECRY. (%)
-----	-----	-----	-----	-----
Lead	ND	100	86	86



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Soil

=====

BATCH NO.:	94A062	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A050-L1S	DATE ANALYZED:	01/19/94

ACCESSION: 94A050 94A059 94A060 94A061 94A062

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Lead	100	91	91



EPA METHOD 300
CHLORIDE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/15/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/17/94
BATCH NO.:   94A062                     DATE EXTRACTED:  01/18/94
MATRIX:      SOIL                       DATE ANALYZED:   01/18/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB27-D5	A062-05	12	2	0.4
WBLK1S	A059-B1S	ND	1	0.2

MDL : Method Detection Limit

EPA METHOD 300
SULFATE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/15/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/17/94
BATCH NO.:    94A062                     DATE EXTRACTED:  01/18/94
MATRIX:      SOIL                       DATE ANALYZED:   01/18/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB27-D5	A062-05	24.5	5	5
WBLK1S	A059-B1S	ND	1	1

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

=====

BATCH NO.:	94A062	DATE RECEIVED:	NA
SAMPLE ID:	EB-21-D8	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A059-08	DATE ANALYZED:	01/18/94

ACCESSION: 94A059 94A060 94A061 94A062

PARAMETER	Sample (mg/kg)	Dup. Sample (mg/kg)	RPD (%)
-----	-----	-----	-----
Sulfate	36.1	36.3	1
Chloride	17.5	17.3	1

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: SOIL

=====

BATCH NO.:	94A062	DATE RECEIVED:	NA
SAMPLE ID:	EB-21-D8	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A059-08	DATE ANALYZED:	01/18/94

ACCESSION: 94A059 94A060 94A061 94A062

Parameter	SAMPLE CONC (mg/kg)	SPIKE ADDED (mg/kg)	MS CONC (mg/kg)	MS % REC
-----	-----	-----	-----	-----
Sulfate	36.1	20	55.9	99
Chloride	17.5	10	27.1	96



EPA METHOD 376.1
TOTAL SULFIDE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/15/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/17/94
BATCH NO.:   94A062                     DATE EXTRACTED:  01/18/94
MATRIX:      SOIL                       DATE ANALYZED:   01/18/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/kg)	DILUTION FACTOR	MDL (mg/kg)
-----	-----	-----	-----	-----
EB27-D5	A062-05	5.4	2	0.4
WBLK1S	A059-B1S	ND	1	0.2

MDL : Method Detection Limit



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: WATER

=====

BATCH NO.: 94A062 DATE RECEIVED: NA
SAMPLE ID: LCS01 DATE EXTRACTED: 01/18/94
CONTROL NO.: A059-L1W DATE ANALYZED: 01/18/94

ACCESSION: 94A059 94A060 94A061 94A062

PARAMETER	TRUE VALUE (mg/L)	FOUND VALUE (mg/L)	LCS RECOVERY (%)
Sulfate	150	144	96
Chloride	30.00	27.80	93



CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 376.1
MATRIX: SOIL

=====

BATCH NO.:	94A062	DATE RECEIVED:	NA
SAMPLE ID:	WBLK1S	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A059-B1S	DATE ANALYZED:	01/18/94
ACCESSION:	94A059 94A060 94A061 94A062		

PARAMETER	Sample (mg/kg)	Dup. Sample (mg/kg)	RPD (%)
-----	-----	-----	-----
SULFIDE	0.9	0.9	0



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 376.1
MATRIX: WATER

=====

BATCH NO.:	94A062	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/18/94
CONTROL NO.:	A059-L1W	DATE ANALYZED:	01/18/94
ACCESSION:	94A059 94A060 94A061 94A062		

PARAMETER	TRUE VALUE (mg/L)	FOUND VALUE (mg/L)	LCS RECOVERY (%)
-----	-----	-----	-----
SULFIDE	4.0	3.88	97



Laboratory CKS Lab Method of Shipment _____
 Address 130 Alton Ave Shipment No. _____
7300 Alton Ave Airbill No. _____
 Client The Earth Technology Corporation Cooler No. _____
 Address 13900 Alton Parkway, Suite 120 Project Manager Kris K. / Mavlos
Irvine, CA 92718 Telephone No. (714) 458-7414
 Project Name Alton Rail Earthquake Expansion Fax No. (714) 458-8701
 Project Number 94-1107-02 Samplers: (Signature) _____

Analysis Required										Remarks	
Filtered	No. of Containers	EPA Method 8015 (Mod) Gas	EPA 820 BTEX	EPA Method 8015 (Mod) Diesel	EPA Method 8240	EPA Method 8270	Total Lead	Other	Other	Other	Other
1										18	0.6
1										500	0.6
1	X	X								420	0.8
1										45	0.8
1	X			X	X	X	X	X	X	150	11.0
1	X	X								110	10.5
1	X			X						7,000	1.4
1										240	0.6
1										650	0.6
1										160	1.0

Relinquished by: Thomas R. Ashidi Date 1/17/94
 Signature _____
 Printed Thomas R. Ashidi
 Company DLA
 Reason Sample Transfer

Received by: Thomas R. Ashidi Date 1/17/94
 Signature _____
 Printed Thomas R. Ashidi
 Company DLA

Relinquished by: Thomas R. Ashidi Date 1/17/94
 Signature _____
 Printed Thomas R. Ashidi
 Company DLA
 Reason Analysis

Received by: Thomas R. Ashidi Date 1/17/94
 Signature _____
 Printed Thomas R. Ashidi
 Company DLA

Comments: @ 24' No Sample recovery
OVA Background
HVB Background 0.6
T = 30°C

Relinquished by: _____ Date _____
 Signature _____
 Printed _____
 Company _____
 Reason _____

Received by: _____ Date _____
 Signature _____
 Printed _____
 Company _____



CKY incorporated Analytical Laboratories

Date: 01-31-1994
CKY Batch No.: 94A021

Attn.: K. Khilnani

Earth Technology Corp.
13900 Alton Parkway #120
Irvine, CA 92718

Subject: Laboratory Report
Project: Metro Rail - East Side Ext.

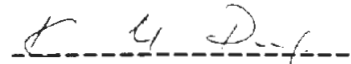
Enclosed is the Laboratory report for samples received on 01/06/94. The samples were received in coolers with ice and intact; the chain-of-custody forms were properly filled out. The data reported include :

Sample ID	Control No.	Matrix	Analysis
-----	-----	-----	-----
EB-15-D1	A021-07	Soil	CAM Metals

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,



Kam Y. Pang, Ph.D.
Laboratory Director

P.S. - All analyses requested for the above referenced project have been completed. Therefore, unless instructed, the remaining portions of the samples will be disposed after fifteen (15) days from the date of this report.

EPA METHOD 3050/6010
CAM METALS BY ICP

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/06/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/06/94
BATCH NO.:   94A021                     DATE EXTRACTED: 01/27/94
SAMPLE ID:    EB-15-D1                   DATE ANALYZED:  01/28/94
CONTROL NO.:  A021-07                   MATRIX:         SOIL
% MOISTURE:   NA                        DILUTION FACTOR: 1
=====
```

Element	Det Limit (mg/kg)	RESULT (mg/kg)
Antimony	5	ND
Arsenic	10	ND
Barium	.5	102
Beryllium	.5	ND
Cadmium	.5	ND
Chromium	.5	16.8
Cobalt	.5	7.25
Copper	.5	35.2
Lead	5	6.85
Mercury^	.05	ND
Molybdenum	2.5	ND
Nickel	1	11.7
Selenium	10	ND
Silver	.5	ND
Thallium	20	ND
Vanadium	.5	27.7
Zinc	1	48.2

^ EPA METHOD 7471

EPA METHOD 3050/6010
CAM METALS BY ICP

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED:  NA
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:   NA
BATCH NO.:   94A021                     DATE EXTRACTED:   01/27/94
SAMPLE ID:   IBLK1S                     DATE ANALYZED:    01/28/94
CONTROL NO.: A008-B1S                   MATRIX:         SOIL
% MOISTURE:   NA                        DILUTION FACTOR:  1
=====
```

Element	Det Limit (mg/kg)	RESULT (mg/kg)
Antimony	5	ND
Arsenic	10	ND
Barium	.5	ND
Beryllium	.5	ND
Cadmium	.5	ND
Chromium	.5	ND
Cobalt	.5	ND
Copper	.5	ND
Lead	5	ND
Mercury^	.05	ND
Molybdenum	2.5	ND
Nickel	1	ND
Selenium	10	ND
Silver	.5	ND
Thallium	20	ND
Vanadium	.5	ND
Zinc	1	ND

^ EPA METHOD 7471

CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 3050/6010
MATRIX: SOIL

BATCH NO.: 94A021 DATE RECEIVED: NA
SAMPLE ID: EB-18#1 DATE EXTRACTED: 01/27/94
CONTROL NO.: A034-13 DATE ANALYZED: 01/28/94

ACCESSION: 94A008 94A021 94A031 94A032 94A034

PARAMETER	SAMPLE RESULT (mg/kg)	DUP SAMPLE RESULT (mg/kg)	RPD RESULT (%)
Antimony	ND	ND	0
Arsenic	ND	ND	0
Barium	84.7	83.6	1
Beryllium	ND	ND	0
Cadmium	ND	.53	NA+
Chromium	11.9	11.4	4
Cobalt	6.92	6.66	4
Copper	11.8	11	7
Lead	ND	ND	0
Mercury^	.08	.08	0
Molybdenum	ND	ND	0
Nickel	8.97	8.02	11
Selenium	ND	ND	0
Silver	ND	ND	0
Thallium	ND	ND	0
Vanadium	30.5	30.6	1
Zinc	44.2	45.2	2

^ EPA METHOD 7471

+ RPD is non-calculable as sample result is below MDL. No corrective action.

CKY QUALITY CONTROL DATA
SPIKE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 3050/6010
MATRIX: SOIL

BATCH NO.: 94A021 DATE RECEIVED: NA
SAMPLE ID: EB-18#1 DATE EXTRACTED: 01/27/94
CONTROL NO.: A034-13 DATE ANALYZED: 01/28/94

ACCESSION: 94A008 94A021 94A031 94A032 94A034

PARAMETER	SAMPLE RESULT (mg/kg)	SPIKE CONC. (mg/kg)	SPIKE RESULT (mg/kg)	SPIKE RECRY. (%)
Antimony	ND	100	77.7	78
Arsenic	ND	100	110	110
Barium	84.7	100	187	102
Beryllium	ND	100	104	104
Cadmium	ND	100	102	102
Chromium	11.9	100	118	106
Cobalt	6.92	100	111	104
Copper	11.8	100	114	102
Lead	ND	100	104	104
Mercury^	.08	.48	.57	102
Molybdenum	ND	100	105	105
Nickel	8.97	100	109	100
Selenium	ND	100	93.4	93
Silver	ND	100	93.6	94
Thallium	ND	100	86.1	86
Vanadium	30.5	100	140	109
Zinc	44.2	100	150	106

^ EPA METHOD 7471



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

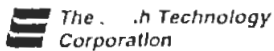
CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 3050/6010
MATRIX: SOIL

BATCH NO.: 94A021 DATE RECEIVED: NA
SAMPLE ID: LCS01 DATE EXTRACTED: 01/27/94
CONTROL NO.: A008-L1S DATE ANALYZED: 01/28/94

ACCESSION: 94A008 94A021 94A031 94A032 94A034

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
Antimony	27.8	33.6	121
Arsenic	67.7	84.7	125
Barium	187	175	94
Beryllium	57.5	57.9	101
Cadmium	110	115	104
Chromium	189	172	91
Cobalt	87	87.5	101
Copper	141	135	96
Lead	100	93.6	94
Mercury^	2.36	2.38	101
Molybdenum	124	129	104
Nickel	79.6	80.4	101
Selenium	99.1	110	111
Silver	124	121	98
Thallium	67.9	55.5	82
Vanadium	84.8	80.4	95
Zinc	197	192	98

^ EPA METHOD 7471



Chain of Custody Record

94A021
DUE 01-13-94
G1

Lab job no.: _____
Date 1/6/94
Page 1 of 1

Laboratory CKY Method of Shipment CKY COURIER
Address _____ Shipment No. _____
Airbill No. _____
Cooler No. _____
Client The Earth Technology Corporation Project Manager JOE SEWER
Address 13900 Alton Parkway, Suite 120 Telephone No. _____
Irvine, CA 92718 Fax No. _____
Project Name EASTSIDE EXPANSION Samplers: (Signature) Coplan
Project Number 94-1109

Field Sample Number	Location/ Depth	Date	Time	Sample Type	Type/Size of Container	Preservation		EPA 8000	EPA 8 0000	EPA 8 0000	EPA 8 0000	EPA 8 0000	EPA 8 0000	Total	C/L	H/L	B/L		
						Temp.	Chemical												
EB-7-D1	5'	1/6/94	8:20		STAINLESS STEEL 2.54 DURE	100			X	X						7.0	6.3	6.3	
EB-7-D2	10'		8:37													6.8	6.3	6.3	
EB-7-D3	15'		8:43						X			X	X	X	X	7.0	6.6	6.6	Sulfides / Sulfates / Chlorides
EB-7-D4	20'		8:49													7.0	6.4	6.4	
EB-7-D5	25'		8:56													7.0	6.5	6.5	
EB-7-D6	30'		9:03						X	X						7.2	6.6	6.6	
EB-15-D1	6		1:00													5.4	5.4	5.4	
EB-15-D2	10		1:18													6.8	5.4	5.4	
EB-15-D3	15		1:25																
EB-15-D4	20		1:50																

Relinquished by: Signature <u>Coplan</u> Printed <u>GREG REMERSON</u> Company <u>EARTHTECH/GEOTECHNIQUE</u> Reason _____	Date <u>1/6/94</u> Time <u>4:10</u>	Received by: Signature <u>Don K... ..</u> Printed <u>Don K... ..</u> Company <u>CKY Inc.</u>	Date <u>1/6/94</u> Time <u>4:10</u>	Relinquished by: Signature <u>Don K... ..</u> Printed <u>Don K... ..</u> Company <u>CKY</u> Reason <u>Analysis</u>	Date <u>1-6-94</u> Time <u>1745</u>	Received by: Signature <u>COPIANG CO</u> Printed <u>COPIANG CO</u> Company <u>CKY</u>	Date <u>1-6-94</u> Time <u>1745</u>
Comments: <u>T=60°C</u>				Relinquished by: Signature _____ Printed _____ Company _____ Reason _____			
				Received by: Signature _____ Printed _____ Company _____			

ANALYSIS REQUEST FORM

CLIENT NAME: Earth Technology
 CKY CONTROL NO.: A008 / A021 / A031 / A032 / A034
 REQUESTED BY: Ymalee
 DATE: 1/26/94
 LOGGED BY: Caulig

RUSH

CKY CONTROL NO.

CLIENT SAMPLE ID

COMMENTS

A008-2

A032-1

A031-1

A021-7

A034-13

EB-15 D-1

CAM yerals

↓

- Rush -



CKY incorporated Analytical Laboratories

Date: 01-31-1994
CKY Batch No.: 94A031

Attn.: K. Khilnani

Earth Technology Corp.
13900 Alton Parkway #120
Irvine, CA 92718

Subject: Laboratory Report
Project: Metro Rail - East Side Ext.

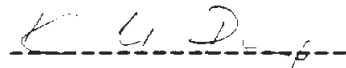
Enclosed is the Laboratory report for samples received on 01/10/94. The samples were received in coolers with ice and intact; the chain-of-custody forms were properly filled out. The data reported include :

Sample ID	Control No.	Matrix	Analysis
EB13A-D1	A031-01	Soil	CAM Metals

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,



Kam Y. Pang, Ph.D.
Laboratory Director

P.S. - All analyses requested for the above referenced project have been completed. Therefore, unless instructed, the remaining portions of the samples will be disposed after fifteen (15) days from the date of this report.

EPA METHOD 3050/6010
CAM METALS BY ICP

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/08/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/10/94
BATCH NO.:  94A031                     DATE EXTRACTED:  01/27/94
SAMPLE ID:   EB13A-D1                   DATE ANALYZED:   01/28/94
CONTROL NO.: A031-01                   MATRIX:         SOIL
% MOISTURE:  NA                         DILUTION FACTOR: 1
=====
```

Element	Det Limit (mg/kg)	RESULT (mg/kg)
-----	-----	-----
Antimony	5	ND
Arsenic	10	ND
Barium	.5	116
Beryllium	.5	ND
Cadmium	.5	ND
Chromium	.5	41.4
Cobalt	.5	4.69
Copper	.5	33.9
Lead	5	15.2
Mercury^	.05	0.07
Molybdenum	2.5	ND
Nickel	1	12.2
Selenium	10	ND
Silver	.5	ND
Thallium	20	ND
Vanadium	.5	27.8
Zinc	1	67.9

^ EPA METHOD 7471

EPA METHOD 3050/6010
CAM METALS BY ICP

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED:  NA
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:   NA
BATCH NO.:   94A031                     DATE EXTRACTED:  01/27/94
SAMPLE ID:   IBLK1S                     DATE ANALYZED:   01/28/94
CONTROL NO.: A008-B1S                   MATRIX:         SOIL
% MOISTURE:  NA                         DILUTION FACTOR: 1
=====
```

Element	Det Limit (mg/kg)	RESULT (mg/kg)
Antimony	5	ND
Arsenic	10	ND
Barium	.5	ND
Beryllium	.5	ND
Cadmium	.5	ND
Chromium	.5	ND
Cobalt	.5	ND
Copper	.5	ND
Lead	5	ND
Mercury^	.05	ND
Molybdenum	2.5	ND
Nickel	1	ND
Selenium	10	ND
Silver	.5	ND
Thallium	20	ND
Vanadium	.5	ND
Zinc	1	ND

^ EPA METHOD 7471

CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 3050/6010
MATRIX: SOIL

=====

BATCH NO.: 94A031 DATE RECEIVED: NA
SAMPLE ID: EB-18#1 DATE EXTRACTED: 01/27/94
CONTROL NO.: A034-13 DATE ANALYZED: 01/28/94

ACCESSION: 94A008 94A021 94A031 94A032 94A034

PARAMETER	SAMPLE RESULT (mg/kg)	DUP SAMPLE RESULT (mg/kg)	RPD RESULT (%)
-----	-----	-----	-----
Antimony	ND	ND	0
Arsenic	ND	ND	0
Barium	84.7	83.6	1
Beryllium	ND	ND	0
Cadmium	ND	.53	NA+
Chromium	11.9	11.4	4
Cobalt	6.92	6.66	4
Copper	11.8	11	7
Lead	ND	ND	0
Mercury^	.08	.08	0
Molybdenum	ND	ND	0
Nickel	8.97	8.02	11
Selenium	ND	ND	0
Silver	ND	ND	0
Thallium	ND	ND	0
Vanadium	30.5	30.6	1
Zinc	44.2	45.2	2

^ EPA METHOD 7471

+ RPD is non-calculable as sample result is below MDL. No corrective action.

CKY QUALITY CONTROL DATA
SPIKE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 3050/6010
MATRIX: SOIL

BATCH NO.: 94A031 DATE RECEIVED: NA
SAMPLE ID: EB-18#1 DATE EXTRACTED: 01/27/94
CONTROL NO.: A034-13 DATE ANALYZED: 01/28/94

ACCESSION: 94A008 94A021 94A031 94A032 94A034

PARAMETER	SAMPLE RESULT (mg/kg)	SPIKE CONC. (mg/kg)	SPIKE RESULT (mg/kg)	SPIKE RECRY. (%)
Antimony	ND	100	77.7	78
Arsenic	ND	100	110	110
Barium	84.7	100	187	102
Beryllium	ND	100	104	104
Cadmium	ND	100	102	102
Chromium	11.9	100	118	106
Cobalt	6.92	100	111	104
Copper	11.8	100	114	102
Lead	ND	100	104	104
Mercury^	.08	.48	.57	102
Molybdenum	ND	100	105	105
Nickel	8.97	100	109	100
Selenium	ND	100	93.4	93
Silver	ND	100	93.6	94
Thallium	ND	100	86.1	86
Vanadium	30.5	100	140	109
Zinc	44.2	100	150	106

^ EPA METHOD 7471



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 3050/6010
MATRIX: SOIL

=====

BATCH NO.:	94A031	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/27/94
CONTROL NO.:	A008-L1S	DATE ANALYZED:	01/28/94

ACCESSION: 94A008 94A021 94A031 94A032 94A034

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Antimony	27.8	33.6	121
Arsenic	67.7	84.7	125
Barium	187	175	94
Beryllium	57.5	57.9	101
Cadmium	110	115	104
Chromium	189	172	91
Cobalt	87	87.5	101
Copper	141	135	96
Lead	100	93.6	94
Mercury^	2.36	2.38	101
Molybdenum	124	129	104
Nickel	79.6	80.4	101
Selenium	99.1	110	111
Silver	124	121	98
Thallium	67.9	55.5	82
Vanadium	84.8	80.4	95
Zinc	197	192	98

^ EPA METHOD 7471



94A031
G3

Chain of Custody Record

DATE 1-17-94

Lab Job no.:
Date 1/18/94
Page 1 of 2

Laboratory CKY Method of Shipment _____

Address _____ Shipment No. _____

_____ Airbill No. _____

Client The Earth Technology Corporation Cooler No. _____

Address 13900 Alton Parkway, Suite 120 Project Manager _____

Irvine, CA 92718 Telephone No. _____

Project Name METRO RAIL EASTSIDE EXTENSION Fax No. _____

Project Number 94-1109 Samplers: (Signature) [Signature]

Field Sample Number	Location/ Depth	Date	Time	Sample Type	Type/Size of Container	Preservation						EPA Grease	EPA 8 BTEX	EPA Diesel	EPA M Metals	EPA M Metals	Total L		0		BA	HEAT
						Temp.	Chemical															
EB13A-D1	5'	8/9/80	8:40	SOIL	2"x4" SSTUBE																80	85
EB13A-D2	10'		9:50									X	X								55	70
EB13A-D3	15'		9:05																		5.5	7.
EB13A-D4	20'		9:10									X			X	X	X	X	X	X	5.9	8.6
EB13A-D5	25'		9:20																		6	8.5
EB13A-D6	30'		9:30																		6.6	8
EB13A-D7	35'		9:40																		6.6	7
EB13A-D8	40'		9:50									X	X								7.6	9.6
EB13A-D9	50'		10:15									X	X								10	11
EB13A-D10	55'		10:30																		10	11
EB13A-D11	60'		10:35																		10	11
EB13A-D12	65'		10:45																		10	11

Relinquished by: [Signature] Date 1/18/94
Signature DAVID L. ESPERANCE
Printed DAVID L. ESPERANCE
Company SC ENVIRONMENTAL
Reason TRANSPORT TO LAB
Time 4:35 PM

Received by: [Signature] Date 1/18/94
Signature Grant F. Miller
Printed Grant F. Miller
Company Earth Tech
Time 4:35 PM

Relinquished by: [Signature] Date 1/18/94
Signature Grant F. Miller
Printed Grant F. Miller
Company Earth Tech
Reason Earth Tech.
Time 11:10

Received by: [Signature] Date 1/18/94
Signature Don Kuwles
Printed Don Kuwles
Company CKY
Time 11:20

Comments: T=2°C

Relinquished by: [Signature] Date 1/18/94
Signature Don Kuwles
Printed Don Kuwles
Company CKY
Reason Analysis
Time 12:30

Received by: [Signature] Date 1-10-94
Signature COTIANGCO
Printed COTIANGCO
Company CKY
Time 12:30

ANALYSIS REQUEST FORM

CLIENT NAME:

Earth Technology

CKY CONTROL NO.:

A008 / A021 / A031 / A032 / A034

REQUESTED BY:

Yinsee

DATE:

1/26/94

RUSH

LOGGED BY:

Leuliz

CKY CONTROL NO.

CLIENT SAMPLE ID

COMMENTS

A008-7

1032 - 1

AD 31 - 1

A021-7

A034-13

EB 13A - DI

CAM yeasts

U

- Rush -



CKY incorporated Analytical Laboratories

Date: 01-31-1994
CKY Batch No.: 94A032

Attn.: K. Khilnani

Earth Technology Corp.
13900 Alton Parkway #120
Irvine, CA 92718

Subject: Laboratory Report
Project: Metro Rail - East Side Ext.

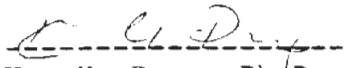
Enclosed is the Laboratory report for samples received on 01/10/94. The samples were received in coolers with ice and intact; the chain-of-custody forms were properly filled out. The data reported include :

Sample ID	Control No.	Matrix	Analysis
-----	-----	-----	-----
EB8F#1	A032-01	Soil	CAM Metals

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,



Kam Y. Pang, Ph.D.
Laboratory Director

P.S. - All analyses requested for the above referenced project have been completed. Therefore, unless instructed, the remaining portions of the samples will be disposed after fifteen (15) days from the date of this report.

EPA METHOD 3050/6010
CAM METALS BY ICP

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/10/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/10/94
BATCH NO.:   94A032                     DATE EXTRACTED:  01/27/94
SAMPLE ID:   EB8F#1                     DATE ANALYZED:   01/28/94
CONTROL NO.: A032-01                     MATRIX:         SOIL
% MOISTURE:  NA                          DILUTION FACTOR: 1
=====
```

Element	Det Limit (mg/kg)	RESULT (mg/kg)
-----	-----	-----
Antimony	5	ND
Arsenic	10	ND
Barium	.5	197
Beryllium	.5	1.04
Cadmium	.5	.79
Chromium	.5	29.1
Cobalt	.5	24.3
Copper	.5	18.3
Lead	5	6.03
Mercury^	.05	0.19
Molybdenum	2.5	ND
Nickel	1	23.6
Selenium	10	ND
Silver	.5	ND
Thallium	20	ND
Vanadium	.5	56.6
Zinc	1	60.9

^ EPA METHOD 7471

EPA METHOD 3050/6010
CAM METALS BY ICP

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED:  NA
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  NA
BATCH NO.:   94A032                     DATE EXTRACTED:   01/27/94
SAMPLE ID:   IBLK1S                     DATE ANALYZED:    01/28/94
CONTROL NO.: A008-B1S                   MATRIX:          SOIL
% MOISTURE:  NA                         DILUTION FACTOR:  1
=====
```

Element	Det Limit (mg/kg)	RESULT (mg/kg)
-----	-----	-----
Antimony	5	ND
Arsenic	10	ND
Barium	.5	ND
Beryllium	.5	ND
Cadmium	.5	ND
Chromium	.5	ND
Cobalt	.5	ND
Copper	.5	ND
Lead	5	ND
Mercury^	.05	ND
Molybdenum	2.5	ND
Nickel	1	ND
Selenium	10	ND
Silver	.5	ND
Thallium	20	ND
Vanadium	.5	ND
Zinc	1	ND

^ EPA METHOD 7471



CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 3050/6010
MATRIX: SOIL

BATCH NO.: 94A032 DATE RECEIVED: NA
SAMPLE ID: EB-18#1 DATE EXTRACTED: 01/27/94
CONTROL NO.: A034-13 DATE ANALYZED: 01/28/94

ACCESSION: 94A008 94A021 94A031 94A032 94A034

PARAMETER	SAMPLE RESULT (mg/kg)	DUP SAMPLE RESULT (mg/kg)	RPD RESULT (%)
Antimony	ND	ND	0
Arsenic	ND	ND	0
Barium	84.7	83.6	1
Beryllium	ND	ND	0
Cadmium	ND	.53	NA+
Chromium	11.9	11.4	4
Cobalt	6.92	6.66	4
Copper	11.8	11	7
Lead	ND	ND	0
Mercury^	.08	.08	0
Molybdenum	ND	ND	0
Nickel	8.97	8.02	11
Selenium	ND	ND	0
Silver	ND	ND	0
Thallium	ND	ND	0
Vanadium	30.5	30.6	1
Zinc	44.2	45.2	2

^ EPA METHOD 7471

+ RPD is non-calculable as sample result is below MDL. No corrective action.



CKY QUALITY CONTROL DATA
SPIKE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 3050/6010
MATRIX: SOIL

BATCH NO.: 94A032 DATE RECEIVED: NA
SAMPLE ID: EB-18#1 DATE EXTRACTED: 01/27/94
CONTROL NO.: A034-13 DATE ANALYZED: 01/28/94

ACCESSION: 94A008 94A021 94A031 94A032 94A034

PARAMETER	SAMPLE RESULT (mg/kg)	SPIKE CONC. (mg/kg)	SPIKE RESULT (mg/kg)	SPIKE RECRY. (%)
Antimony	ND	100	77.7	78
Arsenic	ND	100	110	110
Barium	84.7	100	187	102
Beryllium	ND	100	104	104
Cadmium	ND	100	102	102
Chromium	11.9	100	118	106
Cobalt	6.92	100	111	104
Copper	11.8	100	114	102
Lead	ND	100	104	104
Mercury^	.08	.48	.57	102
Molybdenum	ND	100	105	105
Nickel	8.97	100	109	100
Selenium	ND	100	93.4	93
Silver	ND	100	93.6	94
Thallium	ND	100	86.1	86
Vanadium	30.5	100	140	109
Zinc	44.2	100	150	106

^ EPA METHOD 7471



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

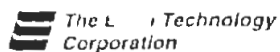
CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 3050/6010
MATRIX: SOIL

BATCH NO.: 94A032 DATE RECEIVED: NA
SAMPLE ID: LCS01 DATE EXTRACTED: 01/27/94
CONTROL NO.: A008-L1S DATE ANALYZED: 01/28/94

ACCESSION: 94A008 94A021 94A031 94A032 94A034

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
Antimony	27.8	33.6	121
Arsenic	67.7	84.7	125
Barium	187	175	94
Beryllium	57.5	57.9	101
Cadmium	110	115	104
Chromium	189	172	91
Cobalt	87	87.5	101
Copper	141	135	96
Lead	100	93.6	94
Mercury^	2.36	2.38	101
Molybdenum	124	129	104
Nickel	79.6	80.4	101
Selenium	99.1	110	111
Silver	124	121	98
Thallium	67.9	55.5	82
Vanadium	84.8	80.4	95
Zinc	197	192	98

^ EPA METHOD 7471



94A032
Chain of Custody Record
Due 1-17-94
GL
Lab job no.:
Date 1/10/94
Page 1 of 1
Laboratory CKY Laboratory Method of Shipment _____
Address _____ Shipment No. _____
Airbill No. _____
Cooler No. _____
Client The Earth Technology Corporation Project Manager Kris Khilnani
Address 13900 Alton Parkway, Suite 120 Telephone No. 714 458 7414
Irvine, CA 92718 Fax No. 714 458 8701
Project Name METRO EAST EXT. Samplers: (Signature) Hossein Razidi
Project Number 94-1109-2

Field Sample Number	Location/Depth	Date	Time	Sample Type	Type/Size of Container	Preservation		Analysis Required												Remarks
						Temp.	Chemical	Filtered	No. of Containers	EPA Method 8015 (Mod) Gasoline	EPA 8020 BTEX	EPA Method 8015 (Mod) Diesel	EPA Method 8240	EPA Method 8270	Test Lead Org.	Freeze	Freeze/Allyl	B.C. G.A.	Handpump GVA	
1 EBBF #	1 4	1/10/94	11:32	D	4.5" S.S. Slavic	ICE														9 10
2	2 9		11:39	"		BAG														4 23
3	3 14		11:49	"																9 11
4	4 19		12:01	"																9 14
5	5 24		12:10	"																9 1000
6	6 29		12:42	"																4 110
7	7 34		12:56	"																9 17
8	8 39		13:05	"																9 220
9	9 44		13:15	"																9 160
10	10 49		13:26	"																11 240
11	11 54		13:44	"																9 115
12	12 59		13:54	"																6 140
13	13 64		14:07	"																6 94
14	14 69		14:25	"																6 320
15	15 74		14:26	"																6 180

Relinquished by: <u>Hossein Razidi</u> Signature <u>Hossein Razidi</u> Printed <u>HOSSEIN RAZIDI</u> Company <u>Diaz-Yarman</u> Reason <u>Transfer to lab.</u>	Date <u>1/10/94</u> Time <u>16:03</u>	Received by: <u>RODOLFO B. ALBA</u> Signature <u>RODOLFO B. ALBA</u> Printed <u>RODOLFO B. ALBA</u> Company <u>CKY INC</u>	Date <u>1/10/94</u> Time <u>16:03</u>	Relinquished by: <u>ANALYST</u> Signature _____ Printed _____ Company _____ Reason _____	Date _____ Time _____	Received by: <u>CATIANCO</u> Signature <u>CATIANCO</u> Printed <u>CATIANCO</u> Company <u>CKY</u>	Date <u>1-10-94</u> Time <u>1703</u>
Comments: <u>T=60C</u>							

ANALYSIS REQUEST FORM

CLIENT NAME: East Technology
 CKY CONTROL NO.: A008 / A021 / A031 / A032 / A034
 REQUESTED BY: Yusuf
 DATE: 1/26/94
 LOGGED BY: Caulis

RUSH

CKY CONTROL NO.

CLIENT SAMPLE ID

COMMENTS

A008-2
A032-1
A031-1
A021-7
A034-13

ED8F#1

CAM yelals



- Rush -



CKY incorporated Analytical Laboratories

Date: 01-31-1994
CKY Batch No.: 94A034

Attn.: K. Khilnani

Earth Technology Corp.
13900 Alton Parkway #120
Irvine, CA 92718

Subject: Laboratory Report
Project: Metro Rail - East Side Ext.

Enclosed is the Laboratory report for samples received on 01/10/94. The samples were received in coolers with ice and intact; the chain-of-custody forms were properly filled out. The data reported include :

Sample ID	Control No.	Matrix	Analysis
EB-18#1	A034-13	Soil	CAM Metals

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,



Kam Y. Pang, Ph.D.
Laboratory Director

P.S. - All analyses requested for the above referenced project have been completed. Therefore, unless instructed, the remaining portions of the samples will be disposed after fifteen (15) days from the date of this report.

EPA METHOD 3050/6010
CAM METALS BY ICP

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/08/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/10/94
BATCH NO.:   94A034                     DATE EXTRACTED:  01/27/94
SAMPLE ID:   EB-18#1                    DATE ANALYZED:   01/28/94
CONTROL NO.: A034-13                     MATRIX:         SOIL
% MOISTURE:  NA                          DILUTION FACTOR: 1
=====
```

Element	Det Limit (mg/kg)	RESULT (mg/kg)
Antimony	5	ND
Arsenic	10	ND
Barium	.5	84.7
Beryllium	.5	ND
Cadmium	.5	ND
Chromium	.5	11.9
Cobalt	.5	6.92
Copper	.5	11.8
Lead	5	ND
Mercury^	.05	.08
Molybdenum	2.5	ND
Nickel	1	8.97
Selenium	10	ND
Silver	.5	ND
Thallium	20	ND
Vanadium	.5	30.5
Zinc	1	44.2

^ EPA METHOD 7471

EPA METHOD 3050/6010
CAM METALS BY ICP

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED:  NA
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:   NA
BATCH NO.:   94A034                      DATE EXTRACTED:  01/27/94
SAMPLE ID:   IBLK1S                      DATE ANALYZED:   01/28/94
CONTROL NO.: A008-B1S                    MATRIX:         SOIL
% MOISTURE:  NA                          DILUTION FACTOR: 1
=====
```

Element	Det Limit (mg/kg)	RESULT (mg/kg)
Antimony	5	ND
Arsenic	10	ND
Barium	.5	ND
Beryllium	.5	ND
Cadmium	.5	ND
Chromium	.5	ND
Cobalt	.5	ND
Copper	.5	ND
Lead	5	ND
Mercury^	.05	ND
Molybdenum	2.5	ND
Nickel	1	ND
Selenium	10	ND
Silver	.5	ND
Thallium	20	ND
Vanadium	.5	ND
Zinc	1	ND

^ EPA METHOD 7471

CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 3050/6010
MATRIX: SOIL

BATCH NO.: 94A034 DATE RECEIVED: 01/10/94
SAMPLE ID: EB-18#1 DATE EXTRACTED: 01/27/94
CONTROL NO.: A034-13 DATE ANALYZED: 01/28/94

ACCESSION: 94A008 94A021 94A031 94A032 94A034

PARAMETER	SAMPLE RESULT (mg/kg)	DUP SAMPLE RESULT (mg/kg)	RPD RESULT (%)
Antimony	ND	ND	0
Arsenic	ND	ND	0
Barium	84.7	83.6	1
Beryllium	ND	ND	0
Cadmium	ND	.53	NA+
Chromium	11.9	11.4	4
Cobalt	6.92	6.66	4
Copper	11.8	11	7
Lead	ND	ND	0
Mercury^	.08	.08	0
Molybdenum	ND	ND	0
Nickel	8.97	8.02	11
Selenium	ND	ND	0
Silver	ND	ND	0
Thallium	ND	ND	0
Vanadium	30.5	30.6	1
Zinc	44.2	45.2	2

^ EPA METHOD 7471

+ RPD is non-calculable as sample result is below MDL. No corrective action.

CKY QUALITY CONTROL DATA
SPIKE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 3050/6010
MATRIX: SOIL

BATCH NO.: 94A034 DATE RECEIVED: 01/10/94
SAMPLE ID: EB-18#1 DATE EXTRACTED: 01/27/94
CONTROL NO.: A034-13 DATE ANALYZED: 01/28/94

ACCESSION: 94A008 94A021 94A031 94A032 94A034

PARAMETER	SAMPLE RESULT (mg/kg)	SPIKE CONC. (mg/kg)	SPIKE RESULT (mg/kg)	SPIKE RECRY. (%)
Antimony	ND	100	77.7	78
Arsenic	ND	100	110	110
Barium	84.7	100	187	102
Beryllium	ND	100	104	104
Cadmium	ND	100	102	102
Chromium	11.9	100	118	106
Cobalt	6.92	100	111	104
Copper	11.8	100	114	102
Lead	ND	100	104	104
Mercury^	.08	.48	.57	102
Molybdenum	ND	100	105	105
Nickel	8.97	100	109	100
Selenium	ND	100	93.4	93
Silver	ND	100	93.6	94
Thallium	ND	100	86.1	86
Vanadium	30.5	100	140	109
Zinc	44.2	100	150	106

^ EPA METHOD 7471



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 3050/6010
MATRIX: SOIL

=====

BATCH NO.:	94A034	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/27/94
CONTROL NO.:	A008-L1S	DATE ANALYZED:	01/28/94

ACCESSION: 94A008 94A021 94A031 94A032 94A034

PARAMETER	TRUE VALUE (mg/kg)	FOUND VALUE (mg/kg)	LCS RECOVERY (%)
-----	-----	-----	-----
Antimony	27.8	33.6	121
Arsenic	67.7	84.7	125
Barium	187	175	94
Beryllium	57.5	57.9	101
Cadmium	110	115	104
Chromium	189	172	91
Cobalt	87	87.5	101
Copper	141	135	96
Lead	100	93.6	94
Mercury^	2.36	2.38	101
Molybdenum	124	129	104
Nickel	79.6	80.4	101
Selenium	99.1	110	111
Silver	124	121	98
Thallium	67.9	55.5	82
Vanadium	84.8	80.4	95
Zinc	197	192	98

^ EPA METHOD 7471



94-A034

G3

Chain of Custody Record

Due 1-17-94

Lab Job no.

Date 1-8-94

Page 1 of 1

Laboratory CKY Method of Shipment _____

Address _____ Shipment No. _____

Client The Earth Technology Corporation Cooler No. _____

Address 13900 Alton Parkway, Suite 120 Project Manager Kris Khilnani

Irvine, CA 92718

Project Name Stage II Environ. Telephone No. 714 458 7014

Project Number 94-1109-02 Fax No. 714 458 8701

Samplers: (Signature) Hossein Rashedi

Field Sample Number	Location/Depth	Date	Time	Sample Type	Type/Size of Container	Preservation		Filtered	No. of Containers	Analysis Required										Remarks
						Temp.	Chemical			EPA Method 8015 (Mod)	EPA Method 8015 (Mod)	EPA Method 8015 (Mod)	EPA Method 8015 (Mod)	EPA Method 8015 (Mod)	EPA Method 8015 (Mod)	EPA Method 8015 (Mod)	EPA Method 8015 (Mod)	EPA Method 8015 (Mod)	EPA Method 8015 (Mod)	
1	EB-11 #1	5	8:30	Soil	4.5" ss. skew	ICE				X	X									2.8
2	#2	10	8:30							X	X									1.2
3	#3	15	8:30							X	X									2.6
4	#4	20	8:00							X		X	X	X	X	X	X	X	X	1.4
5	#5	25	7:40																	0.8
6	#6	30	8:20																	1.0
7	EB-16 #1	5	11:15							X	X									2.0
8	#2	10	11:23																	1.1
9	#3	15	11:32							X	X									1.1
10	#4	20	11:40																	0.4
11	#5	25	11:47							X	X	X	X	X	X	X	X	X	X	0.4
12	#6	30	11:58																	0.9
13	EB-18 #1	5	13:15							X	X									1.2
14	#2	10	13:22							X	X	X	X	X	X	X	X	X	X	1.2
15	#3	15	13:27																	0.3
16	#4	20	13:35							X	X									0.8
17	#5	25	13:42							X	X									0.7

Relinquished by: Hossein Rashedi
Signature
Printed HOSSEIN RASHEDI
Company DYA
Reason Transfer to lab

Date 1/8/94
Time 5:00 PM

Received by: David E. Miller
Signature
Printed DAVID E. MILLER
Company Earth Tech.

Date 1/8/94
Time 5:00 PM

Relinquished by: David E. Miller
Signature
Printed DAVID E. MILLER
Company Earth Tech.
Reason Lab Pick up

Date 1/10/94
Time 11:10

Received by: Don Knowles
Signature
Printed DON KNOWLES
Company CKY

Date 1/10/94
Time 11:20

Comments: T = 2°C

Relinquished by: Don Knowles
Signature
Printed DON KNOWLES
Company CKY
Reason Analysis

Date 1/10/94
Time 12:30

Received by: CDTIANSCO
Signature
Printed CDTIANSCO
Company CDTIANSCO

Date 1-10-94
Time 12:30

94A024

DATE

01/12/94

G3

CLIENT
NAME: FIRTH TECHNOLOGY CORP.

ADDRESS: _____

PHONE NO. _____ FAX NO. _____

PROJECT NAME: STAGE II - DIVISION 94-1109-02

SEND REPORT TO: _____

CHAIN OF CUSTODY RECORD
REQUEST FOR ANALYSIS

DATE: _____

PAGE _____ OF _____



CKY Incorporated
Analytical Laboratories
630 Maple Ave.
Torrance, Calif. 90503
Tel: 213-618-8889
Fax: 213-618-0818

SAMPLER NAME/SIGNATURE

TURN AROUND TIME

NORMAL ☐RUSH ☐

ANALYSES REQUIRED

418.1 M8015 (C/D) 8010/601 8020/602 BTEX 8090/608 8240/624 8270/625 CAM Metals ORG Pb OIL & GREASE SULFIDES SULFATES/CHLORIDES

SAMPLE NUMBER	Depth	SAMPLING DATE/TIME	PRESERVATIVE	CONTAINER SIZE/TYPE	SAMPLE DESCRIPTION			418.1	M8015 (C/D)	8010/601	8020/602 BTEX	8090/608	8240/624	8270/625	CAM Metals	ORG Pb	OIL & GREASE	SULFIDES	SULFATES/CHLORIDES
					WATER	SOIL	OTHER												
1 EE-11 #1	5	1/8/94 8:30		4.5" SS SUEW		X			X	X									
2 #2	10																		
3 #3	15								X	X									
4 #4	20								X				X	X	X	X	X	X	
5 #5	25																		
6 #6	30																		
7 EE-16 #1	5								X	X									
8 #2	10																		
9 #3	15								X	X									
10 #4	20																		
11 #5	25								X	X			X	X	X	X	X	X	
12 #6	30																		
13 EE-18 #1	5								X	X									
14 #2	10								X	X			X	X	X	X	X	X	

COMMENTS:

Relinquished by: (Signature)	Date:	Received by: (Signature)	Date:	Relinquished by: (Signature)	Date:	Received by: (Signature)	Date:
Company:	Time:	Company:	Time:	Company:	Time:	Company:	Time:

Storage/Disposal of Samples: Sample will be stored at CKY for 30 days at no charge and at \$10/sample/month thereafter. Disposal of sample by the Laboratory will be charged at \$10/sample.

G^2

GKY

C K Y incorporated
Analytical Laboratories
630 Maple Ave.
Torrance, Calif. 90503
Tel: 213-618-8889
Fax: 213-618-0818

[illegible]

Storage/Disposal of Samples: Sample will be stored at CKY for 30 days at no charge and at \$10/sample/month thereafter. Disposal of sample by the Laboratory will be charged at \$10/sample.

ANALYSIS REQUEST FORM

CLIENT NAME: Exact Technology
 CKY CONTROL NO.: A008 / A021 / A031 / A032 / A034
 REQUESTED BY: Ymalee
 DATE: 1/26/94
 LOGGED BY: Caulig

RUSH

CKY CONTROL NO.

CLIENT SAMPLE ID

COMMENTS

A008-7

A032-1

A031-1

A021-7

A034-13

EB-18 #1

CAN yerals

↓

- Rush -

GROUNDWATER SAMPLES



CKY incorporated Analytical Laboratories

Date: 01-26-1994
CKY Batch No.: 94A087

Attn.: K. Khilnani

Earth Technology Corp.
13900 Alton Parkway #120
Irvine, CA 92718

Subject: Laboratory Report
Project: Metro Rail - East Side Ext.

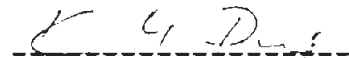
Enclosed is the Laboratory report for samples received on 01/24/94. The samples were received in coolers with ice and intact; the chain-of-custody forms were properly filled out. The data reported include :

Sample ID	Control No.	Matrix	Analysis
-----	-----	-----	-----
EB-12A	A087-01	Water	EPA M8015 (CCID)
EB-12A	A087-02	Water	EPA 8240
EB-12A	A087-03	Water	EPA 8270
EB-12A	A087-04	Water	Organic Pb
EB-12A	A087-05	Water	Sulfide
EB-12A	A087-06	Water	Chloride
			Sulfate
EB-12A	A087-07	Water	CAM Metals
EB-12A	A087-08	Water	Oil & Grease
EB-13A	A087-09	Water	EPA M8015 (CCID)
EB-13A	A087-10	Water	EPA 8240
EB-13A	A087-11	Water	EPA 8270
EB-13A	A087-12	Water	Organic Pb
EB-13A	A087-13	Water	Sulfide
EB-13A	A087-14	Water	Chloride
			Sulfate
EB-13A	A087-15	Water	CAM Metals
EB-13A	A087-16	Water	Oil & Grease

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,



Kam Y. Pang, Ph.D.
Laboratory Director

P.S. - All analyses requested for the above referenced project have been completed. Therefore, unless instructed, the remaining portions of the samples will be disposed after fifteen (15) days from the date of this report.

DHS METHOD
ORGANIC LEAD

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/22/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/24/94
BATCH NO.:    94A087                     DATE EXTRACTED:  01/25/94
MATRIX:       WATER                      DATE ANALYZED:   01/26/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/L)	DILUTION FACTOR	MDL (mg/L)
-----	-----	-----	-----	-----
EB-12A	A087-04	ND	1	.5
EB-13A	A087-12*	ND	1	.5
FBLK1W	A087-B1W	ND	1	.5

MDL : Method Detection Limit
* : Date Collected 01/23/94

CKY QUALITY CONTROL DATA
SPIKE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Water

=====

BATCH NO.:	94A087	DATE RECEIVED:	01/24/94
SAMPLE ID:	FBLK1W	DATE EXTRACTED:	01/25/94
CONTROL NO.:	A087-B1W	DATE ANALYZED:	01/26/94
ACCESSION:	94A081 94A087		

PARAMETER	SAMPLE RESULT (mg/L)	SPIKE CONC. (mg/L)	SPIKE RESULT (mg/L)	SPIKE RECRY. (%)
-----	-----	-----	-----	-----
Lead	ND	2.5	2.6	100



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Water

=====

BATCH NO.:	94A087	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/25/94
CONTROL NO.:	A087-L1W	DATE ANALYZED:	01/26/94
ACCESSION:	94A081 94A087		

PARAMETER	TRUE VALUE (mg/L)	FOUND VALUE (mg/L)	LCS RECOVERY (%)
-----	-----	-----	-----
Lead	2.5	2.3	92

CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: DHS METHOD
MATRIX: Water

=====

BATCH NO.:	94A087	DATE RECEIVED:	01/24/94
SAMPLE ID:	EB-12A	DATE EXTRACTED:	01/25/94
CONTROL NO.:	A087-04	DATE ANALYZED:	01/26/94
ACCESSION:	94A081 94A087		

PARAMETER	SAMPLE (mg/L)	DUP. SAMPLE (mg/L)	RPD (%)
-----	-----	-----	-----
Lead	ND	ND	0



EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: 01/22/94
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: 01/24/94
BATCH NO.: 94A087	DATE EXTRACTED: 01/25/94
SAMPLE ID: EB-12A	DATE ANALYZED: 01/25/94
CONTROL NO.: A087-03	MATRIX: WATER
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/L)		PARAMETERS	(ug/L)	
	RESULT	MDL		RESULT	MDL
N-Nitrosodimethylamine	ND	(10)	3-Nitroaniline	ND	(50)
Pyridine	ND	(10)	Acenaphthene	ND	(10)
Aniline	ND	(10)	2,4-Dinitrophenol	ND	(50)
Phenol	ND	(10)	4-Nitrophenol	ND	(50)
bis(2-Chloroethyl)ether	ND	(10)	Dibenzofuran	ND	(10)
2-Chlorophenol	ND	(10)	2,4-Dinitrotoluene	ND	(10)
1,3-Dichlorobenzene	ND	(10)	Diethylphthalate	ND	(10)
1,4-Dichlorobenzene	ND	(10)	4-Chlorophenyl-phenylether	ND	(10)
Benzyl Alcohol	ND	(10)	Fluorene	ND	(10)
1,2-Dichlorobenzene	ND	(10)	1,2-Diphenylhydrazine	ND	(50)
2-Methylphenol	ND	(10)	4-Nitroaniline	ND	(50)
2,2'-oxybis(1-Chloropropane)	ND	(10)	4,6-Dinitro-2-methylphenol	ND	(50)
4-Methylphenol	ND	(10)	N-Nitrosodiphenylamine (1)	ND	(10)
N-Nitroso-di-n-propylamine	ND	(10)	4-Bromophenyl-phenylether	ND	(10)
Hexachloroethane	ND	(10)	Hexachlorobenzene	ND	(10)
Nitrobenzene	ND	(10)	Pentachlorophenol	ND	(10)
Isophorene	ND	(10)	Benzidine	ND	(50)
2-Nitrophenol	ND	(10)	Phenanthrene	ND	(50)
2,4-Dimethylphenol	ND	(10)	Anthracene	ND	(10)
Benzoic Acid	ND	(50)	Carbazole	ND	(0.0)
bis(2-Chloroethoxy)methane	ND	(10)	Di-n-butylphthalate	ND	(10)
2,4-Dichlorophenol	ND	(10)	Fluoranthene	ND	(10)
1,2,4-Trichlorobenzene	ND	(10)	4,4'-Methylene Dianiline	ND	(50)
Naphthalene	ND	(10)	Pyrene	ND	(10)
4-Chloroaniline	ND	(20)	Bisphenol-A	ND	(10)
Hexachloro-1,3-butadiene	ND	(10)	Butylbenzylphthalate	ND	(10)
4-Chloro-3-methylphenol	ND	(20)	3,3'-Dichlorobenzidine	ND	(20)
2-Methylnaphthalene	ND	(10)	Benzo(a)anthracene	ND	(10)
Hexachlorocyclopentadiene	ND	(10)	Chrysene	ND	(10)
2,4,6-Trichlorophenol	ND	(10)	bis(2-Ethylhexyl)phthalate	ND	(10)
2,4,5-Trichlorophenol	ND	(10)	Di-n-octylphthalate	ND	(10)
2-Chloronaphthalene	ND	(10)	Benz(b)fluoranthene	ND	(10)
1-Chloronaphthalene	ND	(10)	Benzo(k)fluoranthene	ND	(10)
2-Nitroaniline	ND	(50)	Benzo(a)pyrene	ND	(10)
Dimethylphthalate	ND	(10)	Indeno(1,2,3-cd)pyrene	ND	(10)
Acenaphthylene	ND	(10)	Dibenzo(a,h)anthracene	ND	(10)
2,6-Dinitrotoluene	ND	(10)	Benzo(g,h,i)perylene	ND	(10)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	74	35-114
2-Fluorobiphenyl	69	43-116
Terphenyl-d14	70	33-141
Phenol-d5	67	10-110
2-Fluorophenol	63	21-110
2,4,6-Tribromophenol	72	10-123

MDL: Method Detection Limit



EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

CLIENT: Earth Technology Corp.	DATE COLLECTED: 01/23/94
PROJECT: Metro Rail - East Side Ext.	DATE RECEIVED: 01/24/94
BATCH NO.: 94A087	DATE EXTRACTED: 01/25/94
SAMPLE ID: EB-13A	DATE ANALYZED: 01/25/94
CONTROL NO.: A087-11	MATRIX: WATER
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	(ug/L)		PARAMETERS	(ug/L)	
	RESULT	MDL		RESULT	MDL
N-Nitrosodimethylamine	ND	(10)	3-Nitroaniline	ND	(50)
Pyridine	ND	(10)	Acenaphthene	ND	(10)
Aniline	ND	(10)	2,4-Dinitrophenol	ND	(50)
Phenol	ND	(10)	4-Nitrophenol	ND	(50)
bis(2-Chloroethyl) ether	ND	(10)	Dibenzofuran	ND	(10)
2-Chlorophenol	ND	(10)	2,4-Dinitrotoluene	ND	(10)
1,3-Dichlorobenzene	ND	(10)	Diethylphthalate	ND	(10)
1,4-Dichlorobenzene	ND	(10)	4-Chlorophenyl-phenylether	ND	(10)
Benzyl Alcohol	ND	(10)	Fluorene	ND	(10)
1,2-Dichlorobenzene	ND	(10)	1,2-Diphenylhydrazine	ND	(50)
2-Methylphenol	ND	(10)	4-Nitroaniline	ND	(50)
2,2'-oxybis(1-Chloropropane)	ND	(10)	4,6-Dinitro-2-methylphenol	ND	(50)
4-Methylphenol	ND	(10)	N-Nitrosodiphenylamine (1)	ND	(10)
N-Nitroso-di-n-propylamine	ND	(10)	4-Bromophenyl-phenylether	ND	(10)
Hexachloroethane	ND	(10)	Hexachlorobenzene	ND	(10)
Nitrobenzene	ND	(10)	Pentachlorophenol	ND	(10)
Isophorene	ND	(10)	Benizidine	ND	(50)
2-Nitrophenol	ND	(10)	Phenanthrene	ND	(50)
2,4-Dimethylphenol	ND	(10)	Anthracene	ND	(10)
Benzoic Acid	ND	(50)	Carbazole	ND	(0.0)
bis(2-Chloroethoxy) methane	ND	(10)	Di-n-butylphthalate	ND	(10)
2,4-Dichlorophenol	ND	(10)	Fluoranthene	ND	(10)
1,2,4-Trichlorobenzene	ND	(10)	4,4'-Methylene Dianiline	ND	(50)
Naphthalene	ND	(10)	Pyrene	ND	(10)
4-Chloroaniline	ND	(20)	Bisphenol-A	ND	(10)
Hexachloro-1,3-butadiene	ND	(10)	Butylbenzylphthalate	ND	(10)
4-Chloro-3-methylphenol	ND	(20)	3,3'-Dichlorobenzidine	ND	(20)
2-Methylnaphthalene	ND	(10)	Benzo(a)anthracene	ND	(10)
Hexachlorocyclopentadiene	ND	(10)	Chrysene	ND	(10)
2,4,6-Trichlorophenol	ND	(10)	bis(2-Ethylhexyl)phthalate	ND	(10)
2,4,5-Trichlorophenol	ND	(10)	Di-n-octylphthalate	ND	(10)
2-Chloronaphthalene	ND	(10)	Benz(b)fluoranthene	ND	(10)
1-Chloronaphthalene	ND	(10)	Benzo(k)fluoranthene	ND	(10)
2-Nitroaniline	ND	(50)	Benzo(a)pyrene	ND	(10)
Dimethylphthalate	ND	(10)	Indeno(1,2,3-cd)pyrene	ND	(10)
Acenaphthylene	ND	(10)	Dibenzo(a,h)anthracene	ND	(10)
2,6-Dinitrotoluene	ND	(10)	Benzo(g,h,i)perylene	ND	(10)

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	90	35-114
2-Fluorobiphenyl	81	43-116
Terphenyl-d14	82	33-141
Phenol-d5	80	10-110
2-Fluorophenol	76	21-110
2,4,6-Tribromophenol	84	10-123

MDL: Method Detection Limit



EPA METHOD 8270
SEMI VOLATILE ORGANICS BY GC/MS

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=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED:  NA
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:   NA
BATCH NO.:   94A087                     DATE EXTRACTED:  01/25/94
SAMPLE ID:   SBLK1W                     DATE ANALYZED:   01/25/94
CONTROL NO.: A087-B1W                   MATRIX:         WATER
% MOISTURE:  NA                         DILUTION FACTOR: 1
=====
```

		(ug/L)				(ug/L)	
PARAMETERS	RESULT	MDL	PARAMETERS	RESULT	MDL	PARAMETERS	RESULT
N-Nitrosodimethylamine	ND	(10)	3-Nitroaniline	ND	(50)		
Pyridine	ND	(10)	Acenaphthene	ND	(10)		
Aniline	ND	(10)	2,4-Dinitrophenol	ND	(50)		
Phenol	ND	(10)	4-Nitrophenol	ND	(50)		
bis(2-Chloroethyl) ether	ND	(10)	Dibenzofuran	ND	(10)		
2-Chlorophenol	ND	(10)	2,4-Dinitrotoluene	ND	(10)		
1,3-Dichlorobenzene	ND	(10)	Diethylphthalate	ND	(10)		
1,4-Dichlorobenzene	ND	(10)	4-Chlorophenyl-phenylether	ND	(10)		
Benzyl Alcohol	ND	(10)	Fluorene	ND	(10)		
1,2-Dichlorobenzene	ND	(10)	1,2-Diphenylhydrazine	ND	(50)		
2-Methylphenol	ND	(10)	4-Nitroaniline	ND	(50)		
2,2'-oxybis(1-Chloropropane)	ND	(10)	4,6-Dinitro-2-methylphenol	ND	(50)		
4-Methylphenol	ND	(10)	N-Nitrosodiphenylamine (1)	ND	(10)		
N-Nitroso-di-n-propylamine	ND	(10)	4-Bromophenyl-phenylether	ND	(10)		
Hexachloroethane	ND	(10)	Hexachlorobenzene	ND	(10)		
Nitrobenzene	ND	(10)	Pentachlorophenol	ND	(10)		
Isophorene	ND	(10)	Benidine	ND	(50)		
2-Nitrophenol	ND	(10)	Phenanthrene	ND	(50)		
2,4-Dimethylphenol	ND	(10)	Anthracene	ND	(10)		
Benzoic Acid	ND	(50)	Carbazole	ND	(0.0)		
bis(2-Chloroethoxy) methane	ND	(10)	Di-n-butylphthalate	ND	(10)		
2,4-Dichlorophenol	ND	(10)	Fluoranthene	ND	(10)		
1,2,4-Trichlorobenzene	ND	(10)	4,4'-Methylene Dianiline	ND	(50)		
Naphthalene	ND	(10)	Pyrene	ND	(10)		
4-Chloroaniline	ND	(20)	Bisphenol-A	ND	(10)		
Hexachloro-1,3-butadiene	ND	(10)	Butylbenzylphthalate	ND	(10)		
4-Chloro-3-methylphenol	ND	(20)	3,3'-Dichlorobenzidine	ND	(20)		
2-Methylnaphthalene	ND	(10)	Benzo(a)anthracene	ND	(10)		
Hexachlorocyclopentadiene	ND	(10)	Chrysene	ND	(10)		
2,4,6-Trichlorophenol	ND	(10)	bis(2-Ethylhexyl)phthalate	ND	(10)		
2,4,5-Trichlorophenol	ND	(10)	Di-n-octylphthalate	ND	(10)		
2-Chloronaphthalene	ND	(10)	Benz(b)fluoranthene	ND	(10)		
1-Chloronaphthalene	ND	(10)	Benzo(k)fluoranthene	ND	(10)		
2-Nitroaniline	ND	(50)	Benzo(a)pyrene	ND	(10)		
Dimethylphthalate	ND	(10)	Indeno(1,2,3-cd)pyrene	ND	(10)		
Acenaphthylene	ND	(10)	Dibenzo(a,h)anthracene	ND	(10)		
2,6-Dinitrotoluene	ND	(10)	Benzo(g,h,i)perylene	ND	(10)		

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Nitrobenzene-d5	62	35-114
2-Fluorobiphenyl	55	43-116
Terphenyl-d14	72	33-141
Phenol-d5	54	10-110
2-Fluorophenol	48	21-110
2,4,6-Tribromophenol	61	10-123

MDL: Method Detection Limit

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 8270
MATRIX: WATER

```
=====
BATCH NO.:      94A087          DATE RECEIVED:    NA
SAMPLE ID:      LCS01          DATE EXTRACTED:   01/25/94
CONTROL NO.:    A087-L1W       DATE ANALYZED:    01/25/94
ACCESSION:      94A087
```

PARAMETER	TRUE VALUE (ug/L)	FOUND VALUE (ug/L)	LCS RECOVERY (%)
-----	-----	-----	-----
Phenol	150	85	57
2-Chlorophenol	150	97	65
1,4-DCB	100	60	60
N-Nitroso-di-n-	100	79	79
1,2,4-TCB	100	62	62
4-Chloro-3-Methy	150	98	65
Acenaphthene	100	69	69
4-Nitrophenol	150	112	75
2,4-Dinitrotol	100	80	80
Pentachlorophe	150	110	73
Pyrene	100	74	74

EPA METHOD 300
CHLORIDE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/22/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/24/94
BATCH NO.:   94A087                     DATE EXTRACTED:  NA
MATRIX:      WATER                      DATE ANALYZED:   01/25/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/L)	DILUTION FACTOR	MDL (mg/L)
-----	-----	-----	-----	-----
EB-12A	A087-06	354	50	10
EB-13A	A087-14*	107	20	4
WBLK1W	A074-B1W	ND	1	0.2

MDL : Method Detection Limit
* : Collected on 01/23/94

EPA METHOD 300
SULFATE

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=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/22/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/24/94
BATCH NO.:   94A087                     DATE EXTRACTED:  NA
MATRIX:      WATER                      DATE ANALYZED:   01/25/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/L)	DILUTION FACTOR	MDL (mg/L)
-----	-----	-----	-----	-----
EB-12A	A087-06	ND	1	1
EB-13A	A087-14*	293	5	5
WBLK1W	A087-B1W	ND	1	1

MDL : Method Detection Limit
* : Collected on 01/23/94



CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: WATER

=====

BATCH NO.:	94A087	DATE RECEIVED:	01/24/94
SAMPLE ID:	EB-12A	DATE EXTRACTED:	NA
CONTROL NO.:	A087-06	DATE ANALYZED:	01/25/94
ACCESSION:	94A087		

PARAMETER	Sample (mg/L)	Dup. Sample (mg/L)	RPD (%)
-----	-----	-----	-----
Sulfate	ND	ND	0
Chloride	354	366	3

CKY QUALITY CONTROL DATA
SPIKE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: WATER

BATCH NO.: 94A087 DATE RECEIVED: 01/24/94
SAMPLE ID: EB-12A DATE EXTRACTED: NA
CONTROL NO.: A087-06 DATE ANALYZED: 01/25/94
ACCESSION: 94A087

Parameter	SAMPLE CONC (mg/L)	SPIKE ADDED (mg/L)	MS CONC (mg/L)	MS % REC
Sulfate	ND	20	20.2	101
Chloride	354	250	639	114

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 300
MATRIX: WATER

=====

BATCH NO.:	94A087	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A087-L1W	DATE ANALYZED:	01/25/94
ACCESSION:	94A087		

PARAMETER	TRUE VALUE (mg/L)	FOUND VALUE (mg/L)	LCS RECOVERY (%)
-----	-----	-----	-----
Sulfate	109	104	95
Chloride	125	128	102

EPA METHOD 3005/6010
CAM METALS BY ICP

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=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/22/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/24/94
BATCH NO.:   94A087                     DATE EXTRACTED: 01/24/94
SAMPLE ID:   EB-12A                     DATE ANALYZED:  01/24/94
CONTROL NO.: A087-07                     MATRIX:        WATER
% MOISTURE:  NA                         DILUTION FACTOR: 1
=====
```

Element	Det Limit (ug/L)	RESULT (ug/L)
-----	-----	-----
Antimony	100	ND
Arsenic	200	ND
Barium	10	85.3
Beryllium	10	ND
Cadmium	10	ND
Chromium	10	ND
Cobalt	10	ND
Copper	10	10.2
Lead	100	ND
Mercury^	.2	ND
Molybdenum	50	ND
Nickel	20	ND
Selenium	200	ND
Silver	10	ND
Thallium	200	ND
Vanadium	10	ND
Zinc	20	ND

^ EPA METHOD 7471

EPA METHOD 3005/6010
CAM METALS BY ICP

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=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/23/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/24/94
BATCH NO.:   94A087                     DATE EXTRACTED:  01/24/94
SAMPLE ID:   EB-13A                     DATE ANALYZED:   01/24/94
CONTROL NO.: A087-15                     MATRIX:          WATER
% MOISTURE:   NA                         DILUTION FACTOR: 1
=====
```

Element	Det Limit (ug/L)	RESULT (ug/L)
-----	-----	-----
Antimony	100	ND
Arsenic	200	ND
Barium	10	69.9
Beryllium	10	ND
Cadmium	10	ND
Chromium	10	ND
Cobalt	10	ND
Copper	10	ND
Lead	100	ND
Mercury^	.2	ND
Molybdenum	50	ND
Nickel	20	ND
Selenium	200	ND
Silver	10	ND
Thallium	200	ND
Vanadium	10	ND
Zinc	20	62.8

^ EPA METHOD 7471

EPA METHOD 3005/6010
CAM METALS BY ICP

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=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED:  NA
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:   NA
BATCH NO.:   94A087                     DATE EXTRACTED:  01/24/94
SAMPLE ID:   IBLK1W                     DATE ANALYZED:   01/24/94
CONTROL NO.: A087-B1W                   MATRIX:         WATER
% MOISTURE:  NA                         DILUTION FACTOR: 1
=====
```

Element	Det Limit (ug/L)	RESULT (ug/L)
Antimony	100	ND
Arsenic	200	ND
Barium	10	ND
Beryllium	10	ND
Cadmium	10	ND
Chromium	10	ND
Cobalt	10	ND
Copper	10	ND
Lead	100	ND
Mercury^	.2	ND
Molybdenum	50	ND
Nickel	20	ND
Selenium	200	ND
Silver	10	ND
Thallium	200	ND
Vanadium	10	ND
Zinc	20	ND

^ EPA METHOD 7471

CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 3005/6010
MATRIX: WATER

BATCH NO.: 94A087 DATE RECEIVED: 01/24/94
SAMPLE ID: EB-12A DATE EXTRACTED: 01/24/94
CONTROL NO.: A087-07 DATE ANALYZED: 01/24/94
ACCESSION: 94A087

PARAMETER	SAMPLE RESULT (ug/L)	DUP SAMPLE RESULT (ug/L)	RPD RESULT (%)
Antimony	ND	ND	0
Arsenic	ND	ND	0
Barium	85.3	88.5	4
Beryllium	ND	ND	0
Cadmium	ND	ND	0
Chromium	ND	ND	0
Cobalt	ND	ND	0
Copper	10.2	11.3	10
Lead	ND	ND	0
Mercury^	ND	ND	0
Molybdenum	ND	ND	0
Nickel	ND	ND	0
Selenium	ND	ND	0
Silver	ND	ND	0
Thallium	ND	ND	0
Vanadium	ND	ND	0
Zinc	ND	ND	0

^ EPA METHOD 7471

CKY QUALITY CONTROL DATA
SPIKE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 3005/6010
MATRIX: WATER

```
=====
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BATCH NO.:	94A087	DATE RECEIVED:	01/24/94
SAMPLE ID:	EB-12A	DATE EXTRACTED:	01/24/94
CONTROL NO.:	A087-07	DATE ANALYZED:	01/24/94
ACCESSION: 94A087			

PARAMETER	SAMPLE RESULT (ug/L)	SPIKE CONC. (ug/L)	SPIKE RESULT (ug/L)	SPIKE RECRY. (%)
-----	-----	-----	-----	-----
Antimony	ND	1000	1110	110
Arsenic	ND	1000	1020	102
Barium	85.3	1000	1070	98
Beryllium	ND	1000	1020	102
Cadmium	ND	1000	1020	102
Chromium	ND	1000	1020	102
Cobalt	ND	1000	1010	101
Copper	10.2	1000	1000	99
Lead	ND	1000	1050	105
Mercury^	ND	2.0	2.1	105
Molybdenum	ND	1000	1020	102
Nickel	ND	1000	1010	101
Selenium	ND	1000	1030	103
Silver	ND	1000	940	94
Thallium	ND	1000	1020	102
Vanadium	ND	1000	1030	103
Zinc	ND	1000	1040	104

^ EPA METHOD 7471

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 3005/6010
MATRIX: WATER

BATCH NO.: 94A087 DATE RECEIVED: NA
SAMPLE ID: LCS01 DATE EXTRACTED: 01/24/94
CONTROL NO.: A087-L1W DATE ANALYZED: 01/24/94

ACCESSION: 94A087

PARAMETER	TRUE VALUE (ug/L)	FOUND VALUE (ug/L)	LCS RECOVERY (%)
Antimony	1000	1190	119
Arsenic	1000	1080	108
Barium	1000	1210	121
Beryllium	1000	1140	114
Cadmium	1000	1160	116
Chromium	1000	1170	117
Cobalt	1000	1140	114
Copper	1000	1130	113
Lead	1000	1210	121
Mercury^	5.0	5.19	104
Molybdenum	1000	1140	114
Nickel	1000	1170	117
Selenium	1000	1090	109
Silver	1000	1080	108
Thallium	1000	1130	113
Vanadium	1000	1160	116
Zinc	1000	1170	117

^ EPA METHOD 7471

EPA METHOD M8015
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```
=====
CLIENT:      Earth Technology Corp.          DATE COLLECTED: 01/22/94
PROJECT:     Metro Rail - East Side Ext.    DATE RECEIVED:  01/24/94
BATCH NO.:   94A087                        DATE EXTRACTED: 01/24/94
MATRIX:      WATER                          DATE ANALYZED:  01/24/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/L)	H-C RANGE	% RECOVERY		DL FACTOR	MDL (mg/L)
				SURR1	SURR2		
EB-12A	A087-01	ND	N.A.	77	77	1	.5
EB-13A	A087-09*	ND	N.A.	81	77	1	.5
DBLK1W	A087-B1W	ND	N.A.	97	103	1	.5

```
SURR1 : Bromobenzene
SURR2 : Hexacosane
MDL    : Method Detection Limit
*      : Date Collected 01/23/94
```

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: WATER

BATCH NO.: 94A087 DATE RECEIVED: NA
SAMPLE ID: 29-A119703 DATE EXTRACTED: NA
CONTROL NO.: A074-08 DATE ANALYZED: 01/24/94

ACCESSION: 94A074 94A079 94A081 94A087

PARAMETER	SAMPLE CONC (mg/L)	SPIKE ADDED (mg/L)	MS CONC (mg/L)	MS % REC	SPIKE ADDED (mg/L)	MSD CONC (mg/L)	MSD % REC	% RPD
Diesel	ND	1	.74	74	1	.73	73	1

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA M8015
MATRIX: WATER

=====

BATCH NO.:	94A087	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A074-L1W	DATE ANALYZED:	01/24/94

ACCESSION: 94A074 94A079 94A081 94A087

PARAMETER	TRUE CONC. (mg/L)	FOUND CONC. (mg/L)	SPIKE RECRY. (%)
-----	-----	-----	-----
Diesel	1	78	78

EPA METHOD 624
VOLATILE ORGANICS BY GC/MS

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/22/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/24/94
BATCH NO.:   94A087                     DATE EXTRACTED:  NA
SAMPLE ID:   EB-12A                     DATE ANALYZED:  01/24/94
CONTROL NO.: A087-02                     MATRIX:        WATER
% MOISTURE:  NA                         DILUTION FACTOR: 1
=====
```

PARAMETERS	RESULTS (ug/L)	MDL (ug/L)
Benzene	ND	1
Bromodichloromethane	ND	1
Bromoform	ND	1
Bromomethane	ND	5
Carbon Tetrachloride	ND	1
Chlorobenzene	ND	1
Chlorodibromomethane	ND	1
Chloroethane	ND	5
2-Chloroethyl Vinyl Ether	ND	5
Chloroform	ND	1
Chloromethane	ND	5
Dichlorodifluoromethane	ND	10
1,1-Dichloroethane	ND	1
1,2-Dichloroethane	ND	1
1,1-Dichloroethene	ND	1
trans-1,2-Dichloroethene	ND	1
cis-1,2-Dichloroethene	ND	1
1,2-Dichloropropane	ND	1
cis-1,3-Dichloropropene	ND	1
trans-1,3-Dichloropropene	ND	1
Ethylbenzene	ND	1
Methylene Chloride	ND	10
1,1,2,2-Tetrachloroethane	ND	1
Tetrachloroethene	ND	1
Toluene	ND	1
1,1,1-Trichloroethane	ND	1
1,1,2-Trichloroethane	ND	1
Trichloroethene	ND	1
Trichlorofluoromethane	ND	5
Vinyl Chloride	ND	10
Xylenes	ND	1
1,3-Dichlorobenzene	ND	1
1,4-Dichlorobenzene	ND	1
1,2-Dichlorobenzene	ND	1
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
1,2 Dichloroethane-d4	102	76-114
Toluene -d8	102	88-110
Bromofluorobenzene	100	86-115

MDL : Method Detection Limit

EPA METHOD 624
VOLATILE ORGANICS BY GC/MS

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/23/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/24/94
BATCH NO.:   94A087                     DATE EXTRACTED:  NA
SAMPLE ID:   EB-13A                     DATE ANALYZED:  01/24/94
CONTROL NO.: A087-10                    MATRIX:        WATER
% MOISTURE:  NA                          DILUTION FACTOR: 1
=====
```

PARAMETERS	RESULTS (ug/L)	MDL (ug/L)
-----	-----	-----
Benzene	ND	1
Bromodichloromethane	ND	1
Bromoform	ND	1
Bromomethane	ND	5
Carbon Tetrachloride	ND	1
Chlorobenzene	ND	1
Chlorodibromomethane	ND	1
Chloroethane	ND	5
2-Chloroethyl Vinyl Ether	ND	5
Chloroform	ND	1
Chloromethane	ND	5
Dichlorodifluoromethane	ND	10
1,1-Dichloroethane	ND	1
1,2-Dichloroethane	ND	1
1,1-Dichloroethene	ND	1
trans-1,2-Dichloroethene	ND	1
cis-1,2-Dichloroethene	ND	1
1,2-Dichloropropane	ND	1
cis-1,3-Dichloropropene	ND	1
trans-1,3-Dichloropropene	ND	1
Ethylbenzene	ND	1
Methylene Chloride	ND	10
1,1,2,2-Tetrachloroethane	ND	1
Tetrachloroethene	ND	1
Toluene	ND	1
1,1,1-Trichloroethane	ND	1
1,1,2-Trichloroethane	ND	1
Trichloroethene	ND	1
Trichlorofluoromethane	ND	5
Vinyl Chloride	ND	10
Xylenes	ND	1
1,3-Dichlorobenzene	ND	1
1,4-Dichlorobenzene	ND	1
1,2-Dichlorobenzene	ND	1
-----	-----	-----
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
-----	-----	-----
1,2 Dichloroethane-d4	106	76-114
Toluene -d8	106	88-110
Bromofluorobenzene	103	86-115

=====

MDL : Method Detection Limit

EPA METHOD 624
VOLATILE ORGANICS BY GC/MS

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED:  NA
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:   NA
BATCH NO.:   94A087                     DATE EXTRACTED:  NA
SAMPLE ID:   VBLK1W                     DATE ANALYZED:   01/24/94
CONTROL NO.: A087-B1W                   MATRIX:         WATER
% MOISTURE:  NA                         DILUTION FACTOR: 1
=====
```

PARAMETERS -----	RESULTS (ug/L) -----	MDL (ug/L) -----
Benzene	ND	1
Bromodichloromethane	ND	1
Bromoform	ND	1
Bromomethane	ND	5
Carbon Tetrachloride	ND	1
Chlorobenzene	ND	1
Chlorodibromomethane	ND	1
Chloroethane	ND	5
2-Chloroethyl Vinyl Ether	ND	5
Chloroform	ND	1
Chloromethane	ND	5
Dichlorodifluoromethane	ND	10
1,1-Dichloroethane	ND	1
1,2-Dichloroethane	ND	1
1,1-Dichloroethene	ND	1
trans-1,2-Dichloroethene	ND	1
cis-1,2-Dichloroethene	ND	1
1,2-Dichloropropane	ND	1
cis-1,3-Dichloropropene	ND	1
trans-1,3-Dichloropropene	ND	1
Ethylbenzene	ND	1
Methylene Chloride	ND	10
1,1,2,2-Tetrachloroethane	ND	1
Tetrachloroethene	ND	1
Toluene	ND	1
1,1,1-Trichloroethane	ND	1
1,1,2-Trichloroethane	ND	1
Trichloroethene	ND	1
Trichlorofluoromethane	ND	5
Vinyl Chloride	ND	10
Xylenes	ND	1
1,3-Dichlorobenzene	ND	1
1,4-Dichlorobenzene	ND	1
1,2-Dichlorobenzene	ND	1
SURROGATE PARAMETER -----	% RECOVERY -----	QC LIMIT -----
1,2 Dichloroethane-d4	99	76-114
Toluene -d8	102	88-110
Bromofluorobenzene	101	86-115

MDL : Method Detection Limit

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 624
MATRIX: WATER

BATCH NO.: 94A087 DATE RECEIVED: NA
SAMPLE ID: VBLK1W DATE EXTRACTED: NA
CONTROL NO.: A081-B1W DATE ANALYZED: 01/24/94

ACCESSION: 94A081 94A087

PARAMETER	SAMPLE CONC (ug/L)	SPIKE ADDED (ug/L)	MS CONC (ug/L)	MS % REC	SPIKE ADDED (ug/L)	MSD CONC (ug/L)	MSD % REC	% RPD
1,1-DCE	ND	50	41	82	50	37	74	10
Benzene	ND	50	60	120	50	59	118	2
TCE	ND	50	47	94	50	47	94	0
Toluene	ND	50	61	122	50	61	122	0
Chlorobenzene	ND	50	51	102	50	52	104	2

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 624
MATRIX: WATER

BATCH NO.: 94A087 DATE RECEIVED: NA
SAMPLE ID: LCS01 DATE EXTRACTED: NA
CONTROL NO.: A075-L1W DATE ANALYZED: 01/24/94
ACCESSION: 94A075 94A081 94A087

PARAMETER	TRUE CONC. (ug/L)	FOUND CONC. (ug/L)	SPIKE REC. (%)	ACCEPT. RANGE
1,1-DCE	50	31	62	61-145
Benzene	50	50	100	76-127
TCE	50	37	74	71-120
Toluene	50	47	94	76-125
Chlorobenzene	50	39	78	75-130

EPA METHOD 376.1
TOTAL SULFIDE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/22/94
PROJECT:     Metro Rail - East Side Ext. DATE RECEIVED:  01/24/94
BATCH NO.:   94A087                     DATE EXTRACTED:  NA
MATRIX:      WATER                      DATE ANALYZED:   01/24/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/L)	DILUTION FACTOR	MDL (mg/L)
-----	-----	-----	-----	-----
EB-12A	A087-05	ND	1	.2
EB-13A	A087-13*	ND	1	.2
WBLK1W	A087-B1W	ND	1	.2

MDL : Method Detection Limit
* : Collected on 01/23/94

CKY QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 376.1
MATRIX: WATER

=====

BATCH NO.:	94A087	DATE RECEIVED:	01/24/94
SAMPLE ID:	EB-12A	DATE EXTRACTED:	NA
CONTROL NO.:	A087-05	DATE ANALYZED:	01/24/94
ACCESSION:	94A087		

PARAMETER	Sample (mg/L)	Dup. Sample (mg/L)	RPD (%)
-----	-----	-----	-----
SULFIDE	ND	ND	0

CKY QUALITY CONTROL DATA
SPIKE SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 376.1
MATRIX: WATER

BATCH NO.: 94A087 DATE RECEIVED: 01/24/94
SAMPLE ID: EB-12A DATE EXTRACTED: NA
CONTROL NO.: A087-05 DATE ANALYZED: 01/24/94
ACCESSION: 94A087

Parameter	SAMPLE CONC (mg/L)	SPIKE ADDED (mg/L)	MS CONC (mg/L)	MS % REC
SULFIDE	ND	3.8	3.5	92



CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 376.1
MATRIX: WATER

=====

BATCH NO.:	94A087	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	NA
CONTROL NO.:	A087-L1W	DATE ANALYZED:	01/24/94
ACCESSION:	94A087		

PARAMETER	TRUE VALUE (mg/L)	FOUND VALUE (mg/L)	LCS RECOVERY (%)
-----	-----	-----	-----
SULFIDE	3.8	3.5	92

EPA METHOD 413.2
OIL & GREASE

```
=====
CLIENT:      Earth Technology Corp.      DATE COLLECTED: 01/22/94
PROJECT:      Metro Rail - East Side Ext. DATE RECEIVED:  01/24/94
BATCH NO.:    94A087                     DATE EXTRACTED:  01/24/94
MATRIX:      WATER                       DATE ANALYZED:   01/25/94
=====
```

SAMPLE ID	CONTROL NO	RESULT (mg/L)	DILUTION FACTOR	MDL (mg/L)
-----	-----	-----	-----	-----
EB-12A	A087-08	ND	1	1
EB-13A	A087-16*	ND	1	1
TBLK1W	A074-B1W	ND	1	1

MDL : Method Detection Limit
* : Collected on 01/23/94

CKY QUALITY CONTROL DATA
SPIKE/SPIKE DUPLICATE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 413.2
MATRIX: WATER

```
=====
```

BATCH NO.:	94A087	DATE RECEIVED:	NA
SAMPLE ID:	29-A119702	DATE EXTRACTED:	01/24/94
CONTROL NO.:	A074-07	DATE ANALYZED:	01/25/94

ACCESSION: 94A074 94A087

Parameter	SAMPLE CONC (mg/L)	SPIKE ADDED (mg/L)	MS CONC (mg/L)	MS % REC	SPIKE ADDED (mg/L)	MSD CONC (mg/L)	MSD % REC	% RPD
TROG	ND	15.0	14.5	97	15.0	16.0	107	10

CKY QUALITY CONTROL DATA
LABORATORY CONTROL SAMPLE ANALYSIS

CLIENT: Earth Technology Corp.
PROJECT: Metro Rail - East Side Ext.
METHOD: EPA 413.2
MATRIX: WATER

=====

BATCH NO.:	94A087	DATE RECEIVED:	NA
SAMPLE ID:	LCS01	DATE EXTRACTED:	01/24/94
CONTROL NO.:	A074-B1W	DATE ANALYZED:	01/25/94
ACCESSION:	94A074 94A087		

PARAMETER	TRUE VALUE (mg/L)	FOUND VALUE (mg/L)	LCS RECOVERY (%)
-----	-----	-----	-----
TROG	15.0	15.0	100

Chain of Custody Record

Lab job no.:

Date 1/22/94

Page 1 of 2

Laboratory CKY
Address 630 Maple Ave
Torrance, Ca. 90503

Method of Shipment

Shipment No.

Airbill No.

Cooler No.

Client The Earth Technology Corporation

Address 13900 Alton Parkway, Suite 120

Irvine, CA 92718

Project Manager K.K. / Mavle

Telephone No. 714/458-7414

Fax No. 714/458-8701

Project Name M.R. Eastside Extension II

Project Number 94-1109-02

Samplers: (Signature) R. Jin

"RUSH" DUE 1-25-94
"NORMAL" DUE 1-31-94

Field Sample Number	Location/Depth	Date	Time	Sample Type	Type/Size of Container	Preservation		Analysis Required										Remarks
						Temp.	Chemical	Filtered /	No. of Containers	EPA Method 8015 (Mod)	EPA Method 8015 (Mod)	EPA Method 8015 (Mod)	EPA Method 8015 (Mod)	EPA Method 8015 (Mod)	EPA Method 8015 (Mod)	EPA Method 8015 (Mod)	EPA Method 8015 (Mod)	
1	EB-12A	1/24/94	10:00	Water	Amber				1									T=30
2					VOA													
3					Amber													
4					100ml. plastic													
5					400ml. plastic													
6					" "													
7					plastic													
8					Amber													

Relinquished by: R. Jin
Signature RETNOLD JIN
Printed RETNOLD JIN
Company TETC
Reason Lab Analysis
Date 1/24/94
Time 10:30
Received by: [Signature]
Signature [Signature]
Printed [Signature]
Company CKY
Reason Analysis
Date 1/24/94
Time 10:30

Relinquished by: [Signature]
Signature [Signature]
Printed [Signature]
Company CKY
Reason Analysis
Date 1/24/94
Time 10:30
Received by: [Signature]
Signature [Signature]
Printed [Signature]
Company CKY INC
Reason Analysis
Date 1/24/94
Time 10:30

Comments: Rush Turnaround Due 1/25 for following:
48015/1020/8270/376
RUSH

Relinquished by:
Signature
Printed
Company
Reason
Date
Time
Received by:
Signature
Printed
Company
Reason
Date
Time

Laboratory CKY Method of Shipment _____
 Address 630 Maple Ave. Shipment No. _____
Torrance, Cal. 90503 Airbill No. _____
 Client The Earth Technology Corporation Cooler No. _____
 Address 13900 Alton Parkway, Suite 120 Project Manager K.K. / Mavick
Irvine, CA 92718 Telephone No. 714 / 458-7414
 Project Name M.R. Eastside Extension I Fax No. 714 / 458-8701
 Project Number 94-H09-02 Samplers: (Signature) R. Liu

Chain of Custody Record

94A087

"RUSH" DUE 1-25-94

"NORMAL" DUE 1-31-94

Lab job no.:

Date 9/23/94

Page 2 of 2

[illegible]

GAS SAMPLES



Del Mar Analytical

2852 Alton Ave. Irvine, CA 92714 (714) 261-1022 FAX (714) 261-1228
 1014 E. Cooley Dr., Suite A, Corton, CA 92324 (909) 370-4667 FAX (909) 370-1046
 16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
 943 South 48th St., Suite 114 Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1338

Earth Technology Corporation
 13900 Alton Parkway, Suite 120
 Irvine, CA 92718
 Attention: Gary Dahm

Client Project ID: 94-1109-02
 East Side Extension Stage II
 Sample Descript: Air Sample Tedlar Bag, PE 31
 Lab Number: DA02444

Sampled: Jan 26, 1994
 Received: Jan 26, 1994
 Analyzed: Jan 27, 1994
 Reported: Jan 31, 1994

VOLATILE ORGANICS by GC/MS

Analyte	Detection Limit mg/m3	Sample Result mg/m3	Detection Limit ppm/vol	Sample Result ppm/vol
Acetone.....	25	N.D.	10	N.D.
Benzene.....	5.0	N.D.	1.5	N.D.
Bromodichloromethane.....	5.0	N.D.	0.73	N.D.
Bromoform.....	5.0	N.D.	0.48	N.D.
Bromomethane.....	5.0	N.D.	1.3	N.D.
2-Butanone.....	25	N.D.	8.3	N.D.
Carbon disulfide.....	10	N.D.	3.2	N.D.
Carbon tetrachloride.....	5.0	N.D.	0.78	N.D.
Chlorobenzene.....	5.0	N.D.	1.1	N.D.
Chlorodibromomethane.....	5.0	N.D.	0.6	N.D.
Chloroethane.....	5.0	N.D.	1.8	N.D.
2-Chloroethyl vinyl ether.....	5.0	N.D.	1.1	N.D.
Chloroform.....	5.0	N.D.	1.0	N.D.
Chloromethane.....	5.0	N.D.	2.4	N.D.
1,1-Dichloroethane.....	5.0	N.D.	1.2	N.D.
1,2-Dichloroethane.....	5.0	N.D.	1.2	N.D.
1,1-Dichloroethene.....	5.0	N.D.	1.2	N.D.
Trans 1,2-Dichloroethene.....	5.0	N.D.	1.2	N.D.
1,2-Dichloropropane.....	5.0	N.D.	1.1	N.D.
cis-1,3-Dichloropropene.....	5.0	N.D.	1.1	N.D.
trans-1,3-Dichloropropene.....	5.0	N.D.	1.1	N.D.
Ethylbenzene.....	5.0	N.D.	1.1	N.D.
2-Hexanone.....	10	N.D.	2.4	N.D.
Methylene chloride.....	5.0	N.D.	1.4	N.D.
4-Methyl-2-pentanone.....	10	N.D.	2.4	N.D.
Styrene.....	10	N.D.	2.3	N.D.
1,1,2,2-Tetrachloroethane.....	5.0	N.D.	0.72	N.D.
Tetrachloroethene.....	5.0	N.D.	0.72	N.D.
Toluene.....	5.0	N.D.	1.3	N.D.
1,1,1-Trichloroethane.....	5.0	N.D.	1.1	N.D.
1,1,2-Trichloroethane.....	5.0	N.D.	1.1	N.D.
Trichloroethene.....	5.0	N.D.	0.91	N.D.
Trichlorofluoromethane.....	25	N.D.	4.4	N.D.
Vinyl acetate.....	10	N.D.	2.8	N.D.
Vinyl chloride.....	5.0	N.D.	1.9	N.D.
Total Xylenes.....	5.0	N.D.	1.1	N.D.

Analytes reported as N.D. were not present above the stated limit of detection

DEL MAR ANALYTICAL, IRVINE (ELAP #1197)

Gary Steube
 Laboratory Director

Surrogate Standard Recoveries	
1,2-Dichloroethane-d4 ..	97%
Toluene-d8 ..	99%
4-Bromofluorobenzene ..	99%

DA02444 EAR <1 of 6>



Del Mar Analytical

2852 Alton Ave. Irvine, CA 92714 (714) 261-1022 FAX (714) 261-1228
 1014 E. Cooley Dr., Suite A, Colton, CA 92524 (909) 370-4667 FAX (909) 370-1046
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 943 South 48th St., Suite 114, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1338

Earth Technology Corporation
 13900 Alton Parkway, Suite 120
 Irvine, CA 92718
 Attention: Jerry Dahm

Client Project ID: 94-1109-02
 East Side Extension Stage II
 Sample Descript: Air Sample Tedlar Bag, EB 22 Deep
 Lab Number: DA02445

Sampled: Jan 26, 1994
 Received: Jan 26, 1994
 Analyzed: Jan 27, 1994
 Reported: Jan 31, 1994

VOLATILE ORGANICS by GC/MS

Analyte	Detection Limit mg/m3	Sample Result mg/m3	Detection Limit ppm/vol	Sample Result ppm/vol
Acetone.....	25	N.D.	10	N.D.
Benzene.....	5.0	9.0	1.5	2.8
Bromodichloromethane.....	5.0	N.D.	0.73	N.D.
Bromoform.....	5.0	N.D.	0.48	N.D.
Bromomethane.....	5.0	N.D.	1.3	N.D.
2-Butanone.....	25	N.D.	8.3	N.D.
Carbon disulfide.....	10	N.D.	3.2	N.D.
Carbon tetrachloride.....	5.0	N.D.	0.78	N.D.
Chlorobenzene.....	5.0	N.D.	1.1	N.D.
Chlorodibromomethane.....	5.0	N.D.	0.6	N.D.
Chloroethane.....	5.0	N.D.	1.8	N.D.
2-Chloroethyl vinyl ether.....	5.0	N.D.	1.1	N.D.
Chloroform.....	5.0	N.D.	1.0	N.D.
Chloromethane.....	5.0	N.D.	2.4	N.D.
1,1-Dichloroethane.....	5.0	N.D.	1.2	N.D.
1,2-Dichloroethane.....	5.0	N.D.	1.2	N.D.
1,1-Dichloroethene.....	5.0	N.D.	1.2	N.D.
Trans 1,2-Dichloroethene.....	5.0	N.D.	1.2	N.D.
1,2-Dichloropropane.....	5.0	N.D.	1.1	N.D.
cis-1,3-Dichloropropene.....	5.0	N.D.	1.1	N.D.
trans-1,3-Dichloropropene.....	5.0	N.D.	1.1	N.D.
Ethylbenzene.....	5.0	N.D.	1.1	N.D.
2-Hexanone.....	10	N.D.	2.4	N.D.
Methylene chloride.....	5.0	N.D.	1.4	N.D.
4-Methyl-2-pentanone.....	10	N.D.	2.4	N.D.
Styrene.....	10	N.D.	2.3	N.D.
1,1,2,2-Tetrachloroethane.....	5.0	N.D.	0.72	N.D.
Tetrachloroethene.....	5.0	N.D.	0.72	N.D.
Toluene.....	5.0	N.D.	1.3	N.D.
1,1,1-Trichloroethane.....	5.0	N.D.	1.1	N.D.
1,1,2-Trichloroethane.....	5.0	N.D.	1.1	N.D.
Trichloroethene.....	5.0	N.D.	0.91	N.D.
Trichlorofluoromethane.....	25	N.D.	4.4	N.D.
Vinyl acetate.....	10	N.D.	2.8	N.D.
Vinyl chloride.....	5.0	6.0	1.9	2.3
Total Xylenes.....	5.0	N.D.	1.1	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL, IRVINE (ELAP #1197)

Gary Steube
 Laboratory Director

Surrogate Standard Recoveries	
1,2-Dichloroethane-d4.....	99%
Toluene-d8.....	98%
4-Bromofluorobenzene.....	98%

DA02444 EAR <2 of 6>



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943 South 48th St., Suite 114, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1338

Earth Technology Corporation
13900 Alton Parkway, Suite 120
Irvine, CA 92718
Attention: Jerry Dahm

Client Project ID: 94-1109-02
East Side Extension Stage II
Sample Descript: Air Sample Tedlar Bag, PE 29
Lab Number: DA02446

Sampled: Jan 26, 1994
Received: Jan 26, 1994
Analyzed: Jan 27, 1994
Reported: Jan 31, 1994

VOLATILE ORGANICS by GC/MS

Analyte	Detection Limit mg/m3	Sample Result mg/m3	Detection Limit ppm/vol	Sample Result ppm/vol
Acetone.....	25	N.D.	10	N.D.
Benzene.....	5.0	N.D.	1.5	N.D.
Bromodichloromethane.....	5.0	N.D.	0.73	N.D.
Bromoform.....	5.0	N.D.	0.48	N.D.
Bromomethane.....	5.0	N.D.	1.3	N.D.
2-Butanone.....	25	N.D.	8.3	N.D.
Carbon disulfide.....	10	N.D.	3.2	N.D.
Carbon tetrachloride.....	5.0	N.D.	0.78	N.D.
Chlorobenzene.....	5.0	N.D.	1.1	N.D.
Chlorodibromomethane.....	5.0	N.D.	0.6	N.D.
Chloroethane.....	5.0	N.D.	1.8	N.D.
2-Chloroethyl vinyl ether.....	5.0	N.D.	1.1	N.D.
Chloroform.....	5.0	N.D.	1.0	N.D.
Chloromethane.....	5.0	N.D.	2.4	N.D.
1,1-Dichloroethane.....	5.0	N.D.	1.2	N.D.
1,2-Dichloroethane.....	5.0	N.D.	1.2	N.D.
1,1-Dichloroethene.....	5.0	N.D.	1.2	N.D.
Trans 1,2-Dichloroethene.....	5.0	N.D.	1.2	N.D.
1,2-Dichloropropane.....	5.0	N.D.	1.1	N.D.
cis-1,3-Dichloropropene.....	5.0	N.D.	1.1	N.D.
trans-1,3-Dichloropropene.....	5.0	N.D.	1.1	N.D.
Ethylbenzene.....	5.0	N.D.	1.1	N.D.
2-Hexanone.....	10	N.D.	2.4	N.D.
Methylene chloride.....	5.0	N.D.	1.4	N.D.
4-Methyl-2-pentanone.....	10	N.D.	2.4	N.D.
Styrene.....	10	N.D.	2.3	N.D.
1,1,2,2-Tetrachloroethane.....	5.0	N.D.	0.72	N.D.
Tetrachloroethene.....	5.0	N.D.	0.72	N.D.
Toluene.....	5.0	N.D.	1.3	N.D.
1,1,1-Trichloroethane.....	5.0	N.D.	1.1	N.D.
1,1,2-Trichloroethane.....	5.0	N.D.	1.1	N.D.
Trichloroethene.....	5.0	N.D.	0.91	N.D.
Trichlorofluoromethane.....	25	N.D.	4.4	N.D.
Vinyl acetate.....	10	N.D.	2.8	N.D.
Vinyl chloride.....	5.0	N.D.	1.9	N.D.
Total Xylenes.....	5.0	N.D.	1.1	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL, IRVINE (ELAP #1197)

Gary Steube
Laboratory Director

Surrogate Standard Recoveries	
1,2-Dichloroethane-d4	98%
Toluene-d8	99%
4-Bromofluorobenzene	102%

DA02444.EAR <3 of 6>



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943 South 48th St., Suite 114, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1338

Earth Technology Corporation
13900 Alton Parkway, Suite 120
Irvine, CA 92718
Attention: Jerry Dahm

Client Project ID: 94-1109-02
East Side Extension Stage II
Sample Descript: Air Sample Tedlar Bag, PE 30
Lab Number: DA02447

Sampled: Jan 26, 1994
Received: Jan 26, 1994
Analyzed: Jan 27, 1994
Reported: Jan 31, 1994

VOLATILE ORGANICS by GC/MS

Analyte	Detection Limit mg/m3	Sample Result mg/m3	Detection Limit ppm/vol	Sample Result ppm/vol
Acetone.....	25	N.D.	10	N.D.
Benzene.....	5.0	N.D.	1.5	N.D.
Bromodichloromethane.....	5.0	N.D.	0.73	N.D.
Bromoform.....	5.0	N.D.	0.48	N.D.
Bromomethane.....	5.0	N.D.	1.3	N.D.
2-Butanone.....	25	N.D.	8.3	N.D.
Carbon disulfide.....	10	N.D.	3.2	N.D.
Carbon tetrachloride.....	5.0	N.D.	0.78	N.D.
Chlorobenzene.....	5.0	N.D.	1.1	N.D.
Chlorodibromomethane.....	5.0	N.D.	0.6	N.D.
Chloroethane.....	5.0	N.D.	1.8	N.D.
2-Chloroethyl vinyl ether.....	5.0	N.D.	1.1	N.D.
Chloroform.....	5.0	N.D.	1.0	N.D.
Chloromethane.....	5.0	N.D.	2.4	N.D.
1,1-Dichloroethane.....	5.0	N.D.	1.2	N.D.
1,2-Dichloroethane.....	5.0	N.D.	1.2	N.D.
1,1-Dichloroethene.....	5.0	N.D.	1.2	N.D.
Trans 1,2-Dichloroethene.....	5.0	N.D.	1.2	N.D.
1,2-Dichloropropane.....	5.0	N.D.	1.1	N.D.
cis-1,3-Dichloropropene.....	5.0	N.D.	1.1	N.D.
trans-1,3-Dichloropropene.....	5.0	N.D.	1.1	N.D.
Ethylbenzene.....	5.0	N.D.	1.1	N.D.
2-Hexanone.....	10	N.D.	2.4	N.D.
Methylene chloride.....	5.0	N.D.	1.4	N.D.
4-Methyl-2-pentanone.....	10	N.D.	2.4	N.D.
Styrene.....	10	N.D.	2.3	N.D.
1,1,2,2-Tetrachloroethane.....	5.0	N.D.	0.72	N.D.
Tetrachloroethene.....	5.0	N.D.	0.72	N.D.
Toluene.....	5.0	N.D.	1.3	N.D.
1,1,1-Trichloroethane.....	5.0	N.D.	1.1	N.D.
1,1,2-Trichloroethane.....	5.0	N.D.	1.1	N.D.
Trichloroethene.....	5.0	N.D.	0.91	N.D.
Trichlorofluoromethane.....	25	N.D.	4.4	N.D.
Vinyl acetate.....	10	N.D.	2.8	N.D.
Vinyl chloride.....	5.0	N.D.	1.9	N.D.
Total Xylenes.....	5.0	N.D.	1.1	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL, IRVINE (ELAP #1197)

Gary Steube
Laboratory Director

Surrogate Standard Recoveries	
1,2-Dichloroethane-d4.....	98%
Toluene-d8.....	100%
4-Bromofluorobenzene.....	98%

DA02444.EAR <4 of 6>



Del Mar Analytical

Earth Technology Corporation
13900 Alton Parkway, Suite 120
Irvine, CA 92718
Attention: Gary Dahm

Client Project ID: 94-1109-02
East Side Extension Stage II
Sample Descript: Air Sample in Tedlar Bag
First Sample #: DA02444

Sampled: Jan 26, 1994
Received: Jan 26, 1994
Analyzed: Jan 28, 1994
Reported: Jan 31, 1994

METHANE by METHOD GC/FID

Laboratory Number	Sample Description	Detection Limit mg/m3 (ppm)	Sample Result mg/m3 (ppm)
DA02444	PE 31	5.0	57
DA02445	EB 22 Deep	5.0	20,000
DA02446	PE 29	5.0	55,000
DA02447	PE 30	5.0	26,000

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL, IRVINE (ELAP #1197)

Gary Steube
Laboratory Director

DA02444.EAR <5 of 6>



Del Mar Analytical

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943 South 48th St., Suite 114, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1338

Earth Technology Corporation
13900 Alton Parkway, Suite 120
Irvine, CA 92718
Attention: Gary Dahm

Client Project ID: 94-1109-02
East Side Extension Stage II
Sample Descript: Air Sample in Tedlar Bag, EB 22 Deep
Lab Number: DA02445

Sampled: Jan 26, 1994
Received: Jan 26, 1994
Analyzed: Jan 27, 1994
Reported: Jan 31, 1994

HYDROGEN SULFIDE by GC/FPD

Analyte	Detection Limit mg/m3	Sample Result mg/m3	Detection Limit ppm/vol	Sample Result ppm/vol
Hydrogen Sulfide.....	190	15,000	130	11,000

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL, IRVINE (ELAP #1197)

Kim M. Steube

Gary Steube
Laboratory Director

DA02444 EAR <6 of 6>



Del Mar Analytical

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602) 968-8272 FAX (602) 968-1538

Earth Technology Corporation
13900 Alton Parkway, Suite 120
Irvine, CA 92718
Attention: MuraLee

Client Project ID: 94-1109-02
East Side Extension Stage II
Sample Descript: Air Sample in Tedlar Bag, PE-31
Lab Number: DB00082

Sampled: Feb 1, 1994
Received: Feb 1, 1994
Analyzed: Feb 2, 1994
Reported: Feb 7, 1994

HYDROGEN SULFIDE by GC/FPD

Analyte	Detection Limit mg/m3	Sample Result mg/m3	Detection Limit ppm/vol	Sample Result ppm/vol
Hydrogen Sulfide.....	0.056	N.D.	0.040	N.D.

Hydrocarbons detected by this method range from C6 - C15.

The molecular weight of 86 was used to convert Volatile Fuel Hydrocarbons from mg/m3 to ppm by volume

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL, IRVINE (ELAP #1197)

Gary Steube
Laboratory Director



Del Mar Analytical

2852 Alton Ave. Irvine, CA 92714 (714) 261-1022 FAX (714) 261-1228
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16525 Sherman Way, Suite C-11, Van Nuys, CA 91405 (818) 779-1844 FAX (818) 779-1843
943 South 48th St., Suite 114, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1338

Earth Technology Corporation
13900 Alton Parkway, Suite 120
Irvine, CA 92718
Attention: MuraLee

Client Project ID: 94-1109-02
East Side Extension Stage II
Sample Descript: Air Sample in Tedlar Bag, PE-30
Lab Number: DB00083

Sampled: Feb 1, 1994
Received: Feb 1, 1994
Analyzed: Feb 2, 1994
Reported: Feb 7, 1994

HYDROGEN SULFIDE by GC/FPD

Analyte	Detection Limit mg/m3	Sample Result mg/m3	Detection Limit ppm/vol	Sample Result ppm/vol
Hydrogen Sulfide.....	0.056	N.D.	0.040	N.D.

Hydrocarbons detected by this method range from C6 - C15.

The molecular weight of 86 was used to convert Volatile Fuel Hydrocarbons from mg/m3 to ppm by volume.

Analytes reported as N.D. were not present above the stated limit of detection

DEL MAR ANALYTICAL, IRVINE (ELAP #1197)


Gary Steube
Laboratory Director

DB00082.EAR <2 of 6>



Del Mar Analytical

2852 Alton Ave., Irvine, CA 92714 (714) 261-1022 FAX (714) 261-1228
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943 South 48th St., Suite 114 Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1338

Earth Technology Corporation
13900 Alton Parkway, Suite 120
Irvine, CA 92718
Attention: MuraLee

Client Project ID: 94-1109-02
East Side Extension Stage II
Sample Descript: Air Sample in Tedlar Bag, PE-29
Lab Number: DB00084

Sampled: Feb 1, 1994
Received: Feb 1, 1994
Analyzed: Feb 2, 1994
Reported: Feb 7, 1994

HYDROGEN SULFIDE by GC/FPD

Analyte	Detection Limit mg/m3	Sample Result mg/m3	Detection Limit ppm/vol	Sample Result ppm/vol
Hydrogen Sulfide.....	0.056	N.D.	0.040	N.D.

Hydrocarbons detected by this method range from C6 - C15.

The molecular weight of 86 was used to convert Volatile Fuel Hydrocarbons from mg/m3 to ppm by volume.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL, IRVINE (ELAP #1197)

Gary Steube
Laboratory Director



Del Mar Analytical

2852 Alton Ave. Irvine, CA 92714 (714) 261-1022 FAX (714) 261-1229
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943 South 48th St., Suite 114 Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1338

Earth Technology Corporation
13900 Alton Parkway, Suite 120
Irvine, CA 92718
Attention: MuraLee

Client Project ID: 94-1109-02
East Side Extension Stage II
Sample Descript: Air Sample in Tedlar Bag, EB-22 Shallow
Lab Number: DB00085

Sampled: Feb 1, 1994
Received: Feb 1, 1994
Analyzed: Feb 2, 1994
Reported: Feb 7, 1994

HYDROGEN SULFIDE by GC/FPD

Analyte	Detection Limit mg/m3	Sample Result mg/m3	Detection Limit ppm/vol	Sample Result ppm/vol
Hydrogen Sulfide.....	0.056	N.D.	0.040	N.D.

Hydrocarbons detected by this method range from C6 - C15.

The molecular weight of 86 was used to convert Volatile Fuel Hydrocarbons from mg/m3 to ppm by volume.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL, IRVINE (ELAP #1197)


Gary Steube
Laboratory Director



Del Mar Analytical

2852 Alton Ave., Irvine, CA 92714 (714) 261-1022 FAX (714) 261-1228
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943 South 48th St., Suite 114 Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1338

Earth Technology Corporation
13900 Alton Parkway, Suite 120
Irvine, CA 92718
Attention: MuraLee

Client Project ID: 94-1109-02
East Side Extension Stage II
Sample Descript: Air Sample in Tedlar Bag, EB-22 Deep
Lab Number: DB00086

Sampled: Feb 1, 1994
Received: Feb 1, 1994
Analyzed: Feb 2, 1994
Reported: Feb 7, 1994

HYDROGEN SULFIDE by GC/FPD

Analyte	Detection Limit mg/m3	Sample Result mg/m3	Detection Limit ppm/vol	Sample Result ppm/vol
Hydrogen Sulfide.....	560	27,000	400	19,000

Hydrocarbons detected by this method range from C6 - C15.
The molecular weight of 86 was used to convert Volatile Fuel Hydrocarbons from mg/m3 to ppm by volume.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL, IRVINE (ELAP #1197)

Gary Steube
Laboratory Director



Del Mar Analytical

2852 Alton Ave. Irvine, CA 92714 (714) 261-1022 FAX (714) 261-1228
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943 South 48th St., Suite 114 Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1338

Earth Technology Corporation
13900 Alton Parkway, Suite 120
Irvine, CA 92718
Attention: MuraLee

Client Project ID: 94-1109-02
East Side Extension Stage II
Sample Descript: Air Sample in Tedlar Bag
First Sample #: DB00083

Sampled: Feb 1, 1994
Received: Feb 1, 1994
Analyzed: Feb 1-2, 1994
Reported: Feb 7, 1994

METHANE by METHOD GC/FID

Laboratory Number	Sample Description	Detection Limit ppm	Sample Result ppm
DB00083	PE-30	5.0	360,000
DB00084	PE-29	5.0	110,000
DB00085	EB-22 Shallow	5.0	8.2
DB00086	EB-22 Deep	5.0	720,000

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL, IRVINE (ELAP #1197)


Gary Steube
Laboratory Director

DB00082.EAR <6 of 6>



Chain of Custody Record

Lab job no.:

Date 2/1/94

Page 1 of 1

Laboratory D. J. Mac Analytical

Method of Shipment Employed

Address 2052 Alton Pkwy

Shipment No. 1 ✓

Airbill No. _____

Cooler No. 101 5000

Client The Earth Technology Corporation

Project Manager Hsien Chen

Address 13900 Alton Parkway, Suite 120

Telephone No 714 458 7414

Irvine, CA 92718

714 458 8701

Project Name East Side Extension Stage II

Fax. No. 119 458 8701

Project Number 94-1109-02

Samplers: (Signature) [Signature]

[illegible]

Relinquished by: Pat Smith
Signature: Pat Smith
Printed: Pat Smith
Company: Earth Technology
Reason:

Date	Received by:	Date
2/1/94	Signature <u>[Signature]</u>	2/1/94
Time	Printed <u>[Signature]</u>	Time
3:25	<u>[Signature]</u>	3:25

Relinquished by:

Signature _____

Printed _____

Company _____

Reason _____

Date	Received by: Signature _____ Printed _____ Company _____	Date
Time		Time

Comments: intact | 1001 R.H.P.

Relinquished by:

Signature _____

Printed _____

Company _____

Reason _____

Date	Received by:	Date
Time		Time
	Signature _____	
	Printed _____	



GLOBAL
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February 17 1994
page 1 of 3

The Earth Technology Corporation
13900 Alton Parkway/Suite 120
Irvine, CA 92718

Attention: Dr. K.K. Muraleetharan

RE: Source of Methane and H₂S from M-Well EB-22

Dear Dr. Muraleetharan,

Global Geochemistry has now completed the analysis on the gas sample you submitted on February 2, 1994.

Two sets of analyses were conducted; one was for gas composition (Table 1) and the other was for stable isotope analyses (Table 2).

Gas Composition

The results from the gas analysis show that the chemical composition of the gas was a mixture of hydrocarbons, air (nitrogen, argon and oxygen), carbon dioxide, and hydrogen sulfide. The dominant hydrocarbon gas is methane (67%) with trace amounts of ethane (0.003 to 0.004%). In addition, trace amounts of hydrogen gas (0.004 to 0.005%) was also present. No helium was detected, suggesting the gas could not have originated from the Southern California Gas Co. transmission lines.

Carbon dioxide is a major component of the gas and constitutes from 7.16 to 7.28% of the gas composition.

The most surprising component is hydrogen sulfide which constitutes 1.06% of the gas composition.

Stable Isotope Analyses

Carbon (¹³C/¹²C), deuterium/hydrogen (D/H) and sulfur (³⁴S/³²S) isotope (Figure 1) analyses were performed on the constituents in the gas phase and on sulfate and bicarbonate in solution. To simplify the data presentation and the interpretation, we will discuss the isotope results for each constituent separately.

Dr. K.K. Muraleetharan
February 17, 1994
page 2 of 3

- Methane:** The delta ^{13}C and delta D values of methane fall in the typical range for biogenic methane (see Figure 2). Further, the isotope values (-74.20‰ for delta ^{13}C and -282‰ for delta D demonstrate that the process of formation of the methane is by reduction of carbon dioxide (or bicarbonate) with hydrogen.
- Carbon Dioxide:** The delta ^{13}C value for carbon dioxide gas is typical of a respiratory gas originating from biological metabolism of vegetation. It does not appear to represent oxidation of methane, because the delta ^{13}C value would then be more negative. On the other hand, if methane is formed by reduction of CO_2 , the isotopic ratio of the starting CO_2 may have been significantly more enriched in ^{12}C (i.e. the delta ^{13}C value would have been more negative). The delta ^{13}C value of the carbon dioxide further reflects an equilibration with the dissolved bicarbonate in water. The bicarbonate may in part have been derived from dissolved calcium carbonate, with a delta ^{13}C value of about 0‰ . Because several processes may be involved in controlling the concentration and delta ^{13}C value of the CO_2 gas, we can only comment that it has a strong biogenic signature.
- Dissolved Carbonate:** The delta ^{13}C value of -10.73 and -10.77‰ is indicative of a biogenic contribution to this component.
- Hydrogen Sulfide:** The value of -5.5 and -5.6‰ for delta ^{34}S is not a strong signature for biogenic H_2S .
- Dissolved Sulfate:** The delta ^{34}S value for the dissolved sulfate is $+2.6\text{‰}$. This is not typical of a marine evaporite (which has a value of $+20\text{‰}$), and may represent sulfate derived from oxidation of sedimentary pyrite. During bacterial sulfate reduction of dissolved sulfate, the residual dissolved sulfate becomes highly enriched in ^{34}S and the hydrogen sulfide becomes enriched in ^{32}S . The isotopic difference may be as high as 40‰ between the hydrogen sulfide and dissolved sulfate. In the present case the difference is only about 8‰ . The hydrogen sulfide may therefore not be produced by bacterial sulfate reduction of dissolved sulfate in the well water.

CONCLUSIONS:

The conclusions drawn from this study are as follows:

1. Methane is the dominant hydrocarbon gas, but trace amounts of ethane are also present.

Dr. K.K. Muraleetharan
February 17, 1994
page 3 of 3

2. The isotope ratios show that the methane is generated by bacteria through the reduction of CO₂ with hydrogen gas.
3. The carbon dioxide is the result of respiratory oxidation of organic matter during bacterial metabolism. We cannot specify the precise process of its formation, because multiple processes could be controlling the isotope ratio.
4. Hydrogen sulfide does not appear to have been produced by bacterial sulfate reduction from the dissolved sulfate present in the well water. It has therefore either diffused up from a deeper aquifer or from some calcareous or sandy horizon where it has been trapped from some previous (historic) generation event.

We conclude from the above summary that upward migrating of hydrogen sulfide from an unknown horizon has produced anoxic conditions by removing the oxygen. This has resulted in producing conditions which are favorable for bacterial generation of methane in near surface sediments.

I hope these interpretations are acceptable to you. If you have any questions please call me.

Sincerely yours,

Isaac Kaplan
Isaac Kaplan
President

Enclosure:
IK/e-t-co.let

Table 1

Gas concentrations in one sample submitted by Earth Technology, Inc.

	EB22-DEEP 2255-1	EB22-DEEP (Duplicate) 2255-2
Methane	67.0%	67.0%
Ethane	0.003%	0.004%
Propane	ND	ND
Iso-Butane	ND	ND
n-Butane	ND	ND
Iso-Pentane	ND	ND
n-Pentane	ND	ND
Carbon Dioxide	7.16%	7.28%
Oxygen + Argon	4.10%	4.13%
Nitrogen	20.1%	19.9%
Helium	ND	ND
Hydrogen	0.005%	0.004%
Hydrogen Sulfide	1.06%	*

ND = Not Detected The detection limit is 0.002%

* Duplicate analysis not performed

Table 2**Isotope results for samples submitted by Earth Technology, Inc.**

Sample ID GGC ID	EB22-DEEP 2255-1	93L064-7 2255-2
Delta ^{13}C of Methane (‰)	-74.20	
Delta D of Methane (‰)	-282	
Delta ^{13}C of CO_2 (‰)	-26.44	
Delta ^{34}S of hydrogen sulfide (‰)	-5.4 -5.5*	
Delta ^{34}S of sulfate (‰)		+2.6
Delta ^{13}C of bicarbonate (‰)		-10.73 -10.77*

*** Duplicate Analysis**

Figure 1
STABLE ISOTOPE RATIOS

$$\text{Delta or } \delta^{13}\text{C}_{\text{ppt}} = \left[\frac{{}^{13}\text{C}/{}^{12}\text{C}_{\text{sample}} - {}^{13}\text{C}/{}^{12}\text{C}_{\text{std}}}{{}^{13}\text{C}/{}^{12}\text{C}_{\text{std}}} \right] \times 1000$$

In Nature Approximate Ratios For

D/H	1/6500
${}^{13}\text{C}/{}^{12}\text{C}$	1/90
${}^{15}\text{N}/{}^{14}\text{N}$	1/250
${}^{18}\text{O}/{}^{16}\text{O}$	1/500
${}^{34}\text{S}/{}^{32}\text{S}$	1/22.5

International Standards for Each Element

By Convention:

- Enrichment of Heavy Isotope Relative to Standard Given +ve Value
- Enrichment of Light Isotope Relative to standard given -ve. Value

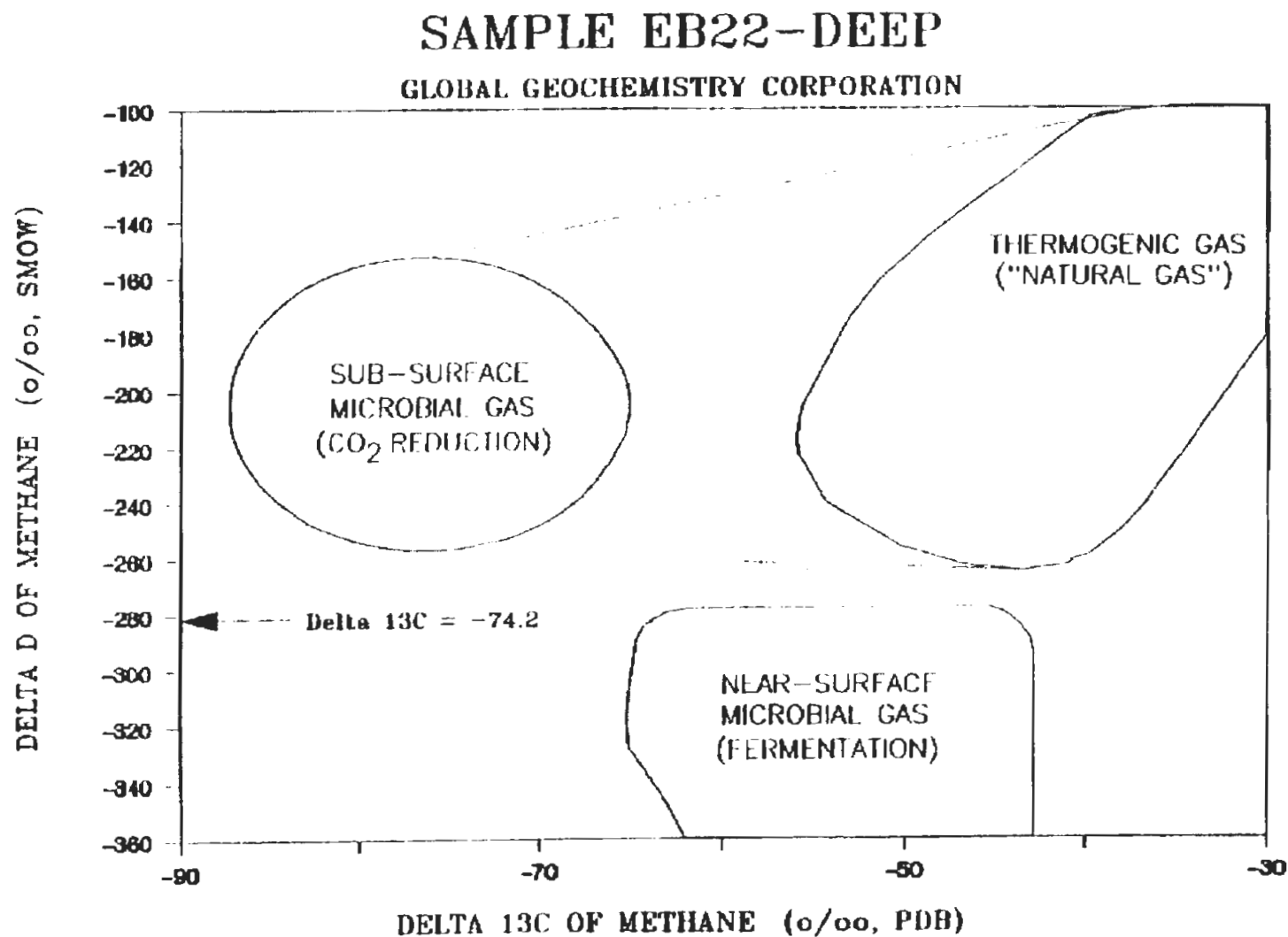


Figure 2: Delta 13C vs. Delta D for one gas sample submitted by Earth Technology, Inc.

Chain of Custody Record

Lab Job no.: _____

Date 2/1/94

Page 1 of 1

Laboratory SLH (Seaboard) Corp Method of Shipment Truck
 Address 1915 Alton Parkway Shipment No. _____
Irvine, CA 92718 Airbill No. _____
 Client The Earth Technology Corporation Cooler No. _____
 Address 13900 Alton Parkway, Suite 120 Project Manager M. Lee
Irvine, CA 92718 Telephone No. 714 458 7414
 Project Name ES-1 Field Station II Fax No. 714 458 8701
 Project Number 91-1151-02 Samplers: (Signature) [Signature]

Field Sample Number	Location/Depth	Date	Time	Sample Type	Type/Size of Container	Preservation		Analysis Required												Remarks
						Temp.	Chemical	Filtrated	No. of Containers	EPA Method 8015 (Mod) Gasoline	EPA 8020 BTEX	EPA Method 8015 (Mod) Diesel	EPA Method 8240	EPA Method 8270	Total Lead	As	Ag	Al	Ar	
ES-1-1	0.5	2/1/94	11:00	11	1.0L	—	—	2												Concentration
ES-2-1	0.5	2/1/94	11:00	306	1.0L	—	—	1												Source
																				is being used
																				Natural

Relinquished by: [Signature] Date 4/1/94
 Signature _____
 Printed P. L. Smith
 Company The Earth Technology Corporation
 Reason _____
 Time 11:00

Received by: [Signature] Date 2/1/94
 Signature _____
 Printed Kelly A. D...
 Company GSC
 Reason _____
 Time 11:00

Comments: _____

Relinquished by: _____ Date _____
 Signature _____
 Printed _____
 Company _____
 Reason _____
 Time _____

Received by: _____ Date _____
 Signature _____
 Printed _____
 Company _____
 Reason _____
 Time _____