

Laboratory Number: 140565
Client: Geomatrix Consultants
Project Name: 3095.006

Receipt Date: 07/22/99

CASE NARRATIVE

This hardcopy data package contains sample results and batch QC results for fifteen soil samples received from the above referenced project. The samples were received cold and intact.

BTXE: No analytical problems were encountered.

Metals: The matrix duplicate relative percent difference (RPD) for chromium was outside acceptance limits. The associated blank spike RPDs were acceptable for all target elements.

The matrix spike recoveries for cadmium, chromium, copper, lead, nickel, and zinc were outside acceptance limits. The associated blank spike recoveries were acceptable for all target elements. No other analytical problems were encountered.



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900, Fax (510) 486-0532

A N A L Y T I C A L R E P O R T

Prepared for:

Geomatrix Consultants
2101 Webster Street
12th Floor
Oakland, CA 94612

Date: 30-JUL-99
Lab Job Number: 140565
Project ID: N/A
Location: 3095.006

Reviewed by:

Reviewed by:

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140565

CURTIS + THOMPSON

CHAIN-OF-CUSTODY RECORD			Nº 12638		Date: 7/22/99		Page 1 of 2									
Project No.: 3095.006			ANALYSES						REMARKS							
Samplers (Signatures): <i>B. J. Thompson</i>			EPA Method 8010	EPA Method 8020	EPA Method 8020 (BTEX only)	EPA Method 8240	EPA Method 8270	TPH as gasoline	TPH as diesel	METALS	SEE REMARKS	Cooled	Soil (S), Water (W), or Vapor (V)	Acidified	Number of containers	Additional Comments
Date	Time	Sample Number														
1	7/22/99	1030	SS-1-1.0								X	Y	S	-	1	<p>HAND AUGER / DRIVE SAMPLE SOIL SAMPLES</p> <p>COMPOSITE SAMPLES SS-1-1.0 TO SS-15-1.0 INTO ONE SAMPLE CALLED SS-1-COMP AND ANALYZE FOR BTEX BY EPA METHOD 8020 AND THE FOLLOWING METALS: arsenic, cadmium, chromium, copper, lead, molybdenum, selenium, nickel, zinc, & mercury</p> <p>PLEASE CALL JENNIFER PATTERSON @ (510) 663-4100 IF YOU HAVE ANY QUESTIONS</p>
2		1040	SS-2-1.0								X	Y	S	-	1	
3		1100	SS-3-1.0								X	Y	S	-	1	
4		1110	SS-4-1.0								X	Y	S	-	1	
5		1120	SS-5-1.0								X	Y	S	-	1	
6		1135	SS-6-1.0								X	Y	S	-	1	
7		1145	SS-7-1.0								X	Y	S	-	1	
8		1155	SS-8-1.0								X	Y	S	-	1	
9		1200	SS-9-1.0								X	Y	S	-	1	
10		1210	SS-10-1.0								X	Y	S	-	1	
11		1215	SS-11-1.0								X	Y	S	-	1	
12		1230	SS-12-1.0								X	Y	S	-	1	
			Turnaround time: 24 HOUR MAX TAT			Results to: JENNIFER PATTERSON			Total No. of containers: 13/15							
Relinquished by (signature): <i>B. J. Thompson</i>		Date: 7/22/99	Relinquished by (signature):		Date:	Relinquished by (signature):		Date:	Method of Shipment: DROP OFF @ LAB		Laboratory Comments and Log No.:					
Printed Name: BRIAN J THOMPSON		Time: 1330	Printed Name:		Time:	Printed Name:		Time:								
Company: GEOMATRIX			Company:			Company:										
Received by (signature): <i>Tracy Babier</i>		Date: 7/22/99	Received by (signature):		Date:	Received by (signature):		Date:								
Printed Name: Tracy Babier		Time: 1:35	Printed Name:		Time:	Printed Name:		Time:								
Company:			Company:			Company:										



140565

CURTIS & TOMPKINS

CHAIN-OF-CUSTODY RECORD

Nº 12639

Date: 7/22/99

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Project No.: 3095.006

ANALYSES

REMARKS

Samplers (Signatures):
B. J. Thompson

Date	Time	Sample Number
7/22/99	1240	SS-13-1.0
	1250	SS-14-1.0
	1300	SS-15-1.0

EPA Method 8010	EPA Method 8020	EPA Method 8020 (BTEX only)	EPA Method 8240	EPA Method 8270	TPH as gasoline	TPH as diesel	SEE REMARKS	Cooled	Soil (S), Water (W), or Vapor (V)	Acidified	Number of containers
							X	Y	S	-	1
							X	Y	S	-	1
							X	Y	S	-	1

Additional Comments

HAND AUGER / DRIVE SAMPLES
SOIL SAMPLES

SEE REMARKS ON PAGE 1 OF 2.

16 COMP

Turnaround time: 24 HOUR TAT

Results to: JENNIFER PATTERSON

Total No. of containers: 3/15

Relinquished by (signature): *B. J. Thompson*

Date: 7/22/99

Relinquished by (signature):

Date:

Relinquished by (signature):

Date:

Method of Shipment: DROP OFF @ LAB

Printed Name: BRIAN J. THOMPSON

Time: 1330

Printed Name:

Time:

Printed Name:

Time:

Laboratory Comments and Log No.:

Company: GEOMATRIX

Company:

Company:

Received by (signature): *Tracy Bahja*

Date:

Received by (signature):

Date:

Received by (signature):

Date:

Printed Name: Tracy Bahja

Time:

Printed Name:

Time:

Printed Name:

Time:

Company: C&T

Company:

Company:



Geomatrix Consultants
100 Pine Street, 10th Floor
San Francisco, California 94111
415 434 9400

BTXE	
Client: Geomatrix Consultants	Analysis Method: EPA 8021B
Location: 3095.006	Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
140565-016	SS-1-COMP	49486	07/22/99	07/23/99	07/23/99	10%

Matrix: Soil

Analyte	Units	140565-016
Diln Fac:		1
Benzene	ug/Kg	<5.6
Toluene	ug/Kg	<5.6
Ethylbenzene	ug/Kg	<5.6
m,p-Xylenes	ug/Kg	<5.6
o-Xylene	ug/Kg	<5.6
Surrogate		
Trifluorotoluene	%REC	87
Bromofluorobenzene	%REC	91



Lab #: 140565

BATCH QC REPORT

Page 1 of 1

BTXE			
Client:	Geomatrix Consultants	Analysis Method:	EPA 8021B
Location:	3095.006	Prep Method:	EPA 5030
METHOD BLANK			
Matrix:	Soil	Prep Date:	07/22/99
Batch#:	49486	Analysis Date:	07/22/99
Units:	ug/Kg		
Diln Fac:	1		

MB Lab ID: QC03325

Analyte	Result		
Benzene	<5.0		
Toluene	<5.0		
Ethylbenzene	<5.0		
m,p-Xylenes	<5.0		
o-Xylene	<5.0		
Surrogate	%Rec		Recovery Limits
Trifluorotoluene	95		59-134
Bromofluorobenzene	99		38-150

BTXE			
Client:	Geomatrix Consultants	Analysis Method:	EPA 8021B
Location:	3095.006	Prep Method:	EPA 5030
BLANK SPIKE/BLANK SPIKE DUPLICATE			
Matrix:	Soil	Prep Date:	07/22/99
Batch#:	49486	Analysis Date:	07/22/99
Units:	ug/Kg		
Diln Fac:	1		

BS Lab ID: QC03327

Analyte	Spike Added	BS	%Rec #	Limits
Benzene	100	96.99	97	67-116
Toluene	100	93.19	93	77-122
Ethylbenzene	100	98.38	98	70-124
m,p-Xylenes	200	199.9	100	75-125
o-Xylene	100	101.3	101	75-126
Surrogate	%Rec	Limits		
Trifluorotoluene	96	59-134		
Bromofluorobenzene	100	38-150		

BSD Lab ID: QC03328

Analyte	Spike Added	BSD	%Rec #	Limits	RPD #	Limit
Benzene	100	96.17	96	67-116	1	10
Toluene	100	93.34	93	77-122	0	10
Ethylbenzene	100	100.1	100	70-124	2	10
m,p-Xylenes	200	199.4	100	75-125	0	10
o-Xylene	100	101.6	102	75-126	0	10
Surrogate	%Rec	Limits				
Trifluorotoluene	93	59-134				
Bromofluorobenzene	96	38-150				

Column to be used to flag recovery and RPD values with an asterisk
 * Values outside of QC limits
 RPD: 0 out of 5 outside limits
 Spike Recovery: 0 out of 10 outside limits



SAMPLE ID: SS-1-COMP
LAB ID: 140565-016
CLIENT: Geomatrix Consultants
LOCATION: 3095.006
MATRIX: Soil
MOISTURE: 10%

DATE SAMPLED: 07/22/99
DATE RECEIVED: 07/22/99
DATE REPORTED: 07/27/99

Metals Analytical Report

Compound	Result (mg/Kg*)	Reporting Limit (mg/Kg*)	IDF	QC Batch	Method	Analysis Date
Arsenic	24	0.28	1	49494	EPA 6010B	07/23/99
Cadmium	3.0	0.28	1	49494	EPA 6010B	07/23/99
Chromium (total)	48	0.55	1	49494	EPA 6010B	07/23/99
Copper	200	0.55	1	49494	EPA 6010B	07/23/99
Lead	180	0.17	1	49494	EPA 6010B	07/23/99
Mercury	1.6	0.044	1	49501	EPA 7471	07/23/99
Molybdenum	1.3	1.1	1	49494	EPA 6010B	07/23/99
Nickel	43	1.1	1	49494	EPA 6010B	07/23/99
Selenium	ND	0.28	1	49494	EPA 6010B	07/23/99
Zinc	1200	11	10	49494	EPA 6010B	07/23/99

ND = Not detected at or above reporting limit
* = Dry weight basis



CLIENT: Geomatrix Consultants
JOB NUMBER: 140565

DATE REPORTED: 07/27/99

BATCH QC REPORT
PREP BLANK

Compound	Result	Reporting Limit	Units	IDF	QC Batch	Method	Analysis Date
Arsenic	ND	0.25	mg/Kg	1	49494	EPA 6010B	07/23/99
Cadmium	ND	0.25	mg/Kg	1	49494	EPA 6010B	07/23/99
Chromium (total)	ND	0.5	mg/Kg	1	49494	EPA 6010B	07/23/99
Copper	ND	0.5	mg/Kg	1	49494	EPA 6010B	07/23/99
Lead	ND	0.15	mg/Kg	1	49494	EPA 6010B	07/23/99
Mercury	ND	0.04	mg/Kg	1	49501	EPA 7471	07/23/99
Molybdenum	ND	1	mg/Kg	1	49494	EPA 6010B	07/23/99
Nickel	ND	1	mg/Kg	1	49494	EPA 6010B	07/23/99
Selenium	ND	0.25	mg/Kg	1	49494	EPA 6010B	07/23/99
Zinc	ND	1	mg/Kg	1	49494	EPA 6010B	07/23/99

ND = Not Detected at or above reporting limit



CLIENT: Geomatrix Consultants
JOB NUMBER: 140565

DATE REPORTED: 07/27/99

BATCH QC REPORT
BLANK SPIKE / BLANK SPIKE DUPLICATE

Compound	Spike Amount	BS Result	BSD Result	Units	BS% Rec.	BSD% Rec.	Rec. Limits	RPD %	RPD Limit	QC Batch	Method	Analysis Date
Arsenic	100	94	93.5	mg/Kg	94	94	80-120	1	35	49494	EPA 6010B	07/23/99
Cadmium	2.5	2.385	2.38	mg/Kg	95	95	80-120	0	35	49494	EPA 6010B	07/23/99
Chromium (total)	10	9.4	9.3	mg/Kg	94	93	80-120	1	35	49494	EPA 6010B	07/23/99
Copper	12.5	12.3	12.1	mg/Kg	98	97	80-120	2	35	49494	EPA 6010B	07/23/99
Lead	25	22.15	22.05	mg/Kg	89	88	80-120	1	35	49494	EPA 6010B	07/23/99
Mercury	1.000	1.041	1.037	mg/Kg	104	104	80-120	0	35	49501	EPA 7471	07/23/99
Molybdenum	20	18.7	18.65	mg/Kg	94	93	80-120	0	35	49494	EPA 6010B	07/23/99
Nickel	25	24.2	24	mg/Kg	97	96	80-120	1	35	49494	EPA 6010B	07/23/99
Selenium	100	90	89.5	mg/Kg	90	90	80-120	1	35	49494	EPA 6010B	07/23/99
Zinc	25	22.95	22.55	mg/Kg	92	90	80-120	2	35	49494	EPA 6010B	07/23/99



CLIENT: Geomatrix Consultants
JOB NUMBER: 140565

DATE REPORTED: 07/27/99

BATCH QC REPORT
MATRIX SPIKE / MATRIX SPIKE DUPLICATE

Compound	Sample	Sample Result	Spike Amount	MS Result	MSD Result	Units	MS% Rec.	MSD% Rec.	Rec. Limit	RPD %	RPD QC Lim	QC Batch	Method	Analysis Date
Mercury	140521-003	0.15	1.163	1.284	1.24	mg/Kg	97	94	65-135	4	35	49501	EPA 7471	07/23/99



CLIENT: Geomatrix Consultants
JOB NUMBER: 140565

DATE REPORTED: 07/27/99

**BATCH QC REPORT
SAMPLE DUPLICATE**

Compound	Sample	Sample Result	Duplicate Result	Units	RPD %	RPD Limit	QC Batch	Method	Analysis Date
Arsenic	140565-016	24.37	23.2	mg/Kg	5	35	49494	EPA 6010B	07/23/99
Cadmium	140565-016	2.976	2.854	mg/Kg	4	35	49494	EPA 6010B	07/23/99
Chromium (total)	140565-016	47.91	31.86	mg/Kg	40*	35	49494	EPA 6010B	07/23/99
Copper	140565-016	195.8	173.7	mg/Kg	12	35	49494	EPA 6010B	07/23/99
Lead	140565-016	183.2	212.4	mg/Kg	15	35	49494	EPA 6010B	07/23/99
Molybdenum	140565-016	1.265	1.28	mg/Kg	1	35	49494	EPA 6010B	07/23/99
Nickel	140565-016	43.45	37.8	mg/Kg	14	35	49494	EPA 6010B	07/23/99
Selenium	140565-016	<0.272	<0.272	mg/Kg	NC	35	49494	EPA 6010B	07/23/99
Zinc	140565-016	1161	964.1	mg/Kg	19	35	49494	EPA 6010B	07/23/99

* = Out of Limits
NC = Not Calculable



CLIENT: Geomatrix Consultants
JOB NUMBER: 140565

DATE REPORTED: 07/27/99

**BATCH QC REPORT
SAMPLE SPIKE**

Compound	Spike Amount	Sample	Sample Result	Spike Result	Units	Percent Rec.	Rec. Limit	QC Batch	Method	Analysis Date
Arsenic	108.9	140565-016	24.37	114.9	mg/Kg	83	65-135	49494	EPA 6010B	07/23/99
Cadmium	2.724	140565-016	2.976	4.183	mg/Kg	44*	65-135	49494	EPA 6010B	07/23/99
Chromium (total)	10.89	140565-016	47.91	34.26	mg/Kg	-125* NM	65-135	49494	EPA 6010B	07/23/99
Copper	13.62	140565-016	195.8	128.5	mg/Kg	-494* NM	65-135	49494	EPA 6010B	07/23/99
Lead	27.24	140565-016	183.2	146	mg/Kg	-137* NM	65-135	49494	EPA 6010B	07/23/99
Molybdenum	21.78	140565-016	1.265	18.63	mg/Kg	80	65-135	49494	EPA 6010B	07/23/99
Nickel	27.24	140565-016	43.45	53.65	mg/Kg	37*	65-135	49494	EPA 6010B	07/23/99
Selenium	108.9	140565-016	<0.272	92.59	mg/Kg	85	65-135	49494	EPA 6010B	07/23/99
Zinc	27.24	140565-016	1161	577.3	mg/Kg	-2142* NM	65-135	49494	EPA 6010B	07/23/99

* = Out of Limits
NM = Not Meaningful