Gulf Coast ACCUTEST Laboratories

IT'S ALL IN THE CHEMISTRY

12/16/09

Technical Report for

ERM Salt Lake City

Vertellus-Provo

Accutest Job Number: T42224

Sampling Date: 11/13/09

Report to:

ERM

Kristopher.Benson@erm.com

ATTN: Kristopher Benson

Total number of pages in report: **17**

ACCREDITED IN ACCORDANCE WITH nelac

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Paul K Canevaro

Paul Canevaro
Laboratory Director

ACCUTEST LABORATORIES 50 YEARS 1956-2006

Client Service contact: Georgia Jones 713-271-4700

Certifications: TX (T104704220-06-TX) AR (88-0756) FL (E87628) KS (E-10366) LA (85695/04004) OK (9103) UT(7132714700)

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Test results relate only to samples analyzed.

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Table of Contents

-1-

Section 1: Sample Summary **3**
Section 2: Case Narrative/Conformance Summary **4**
Section 3: Sample Results **6**
3.1: T42224-1: MW-20 7
3.2: T42224-2: TRIP BLANK 12
Section 4: Misc. Forms **13**
4.1: Chain of Custody 14

Accutest LabLink@40387 11:42 16-Dec-2009

Sample Summary

ERM Salt Lake City

Vertellus-Provo

Job No: T42224

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
T42224-1	11/13/09	09:20		11/14/09	AQ	Ground Water	MW-20
T42224-2	11/13/09	00:00		11/14/09	AQ	Trip Blank Water	TRIP BLANK

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client:	ERM Salt Lake City	**Job No**	T42224
Site:	Vertellus-Provo	**Report Date**	12/7/2009 9:14:53 AM

1 Sample(s), 1 Trip Blank(s) and 0 Field Blank(s) were collected on 11/13/2009 and were received at Accutest on 11/14/2009 properly preserved, at 2.4 Deg. C and intact. These Samples received an Accutest job number of T42224. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix AQ **Batch ID:** VC233

- All samples were analyzed within the recommended method holding time.
- Sample(s) T42842-1MS, T42842-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Extractables by GCMS By Method SW846 8270C

Matrix AQ **Batch ID:** OP13511

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Extractables by GCMS By Method SW846 8270C BY SIM

Matrix AQ **Batch ID:** OP13514

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- OP13514-BSD: Recoveries were adjusted for 10x spiking.
- OP13514-BS: Recoveries were adjusted for 10x spiking.
- OP13514-BS for Terphenyl-d14: Recovery was adjusted for 10x spiking.
- OP13514-BS for Nitrobenzene-d5: Recovery was adjusted for 10x spiking.
- OP13514-BS for 2-Fluorobiphenyl: Recovery was adjusted for 10x spiking.
- OP13514-BSD for Nitrobenzene-d5: Recovery was adjusted for 10x spiking.
- OP13514-BSD for Terphenyl-d14: Recovery was adjusted for 10x spiking.
- OP13514-BSD for 2-Fluorobiphenyl: Recovery was adjusted for 10x spiking.
- OP13514-MB for Nitrobenzene-d5: Recovery was adjusted for 10x spiking.
- T42224-1 for Nitrobenzene-d5: Recovery was adjusted for 10x spiking.
- OP13514-MB for Terphenyl-d14: Recovery was adjusted for 10x spiking.
- OP13514-MB for 2-Fluorobiphenyl: Recovery was adjusted for 10x spiking.
- T42224-1 for Terphenyl-d14: Recovery was adjusted for 10x spiking.
- T42224-1 for 2-Fluorobiphenyl: Recovery was adjusted for 10x spiking.

Wet Chemistry By Method EPA 335.4

Matrix AQ	**Batch ID:** GP7245

- All samples were distilled within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T42224-1MS, T42224-1DUP were used as the QC samples for Cyanide.
- Matrix Spike Recovery(s) for Cyanide are outside control limits. Probable cause due to matrix interference.
- RPD(s) for Duplicate for Cyanide are outside control limits for sample GP7245-D1. RPD acceptable due to low duplicate and sample concentrations.

Wet Chemistry By Method SM 4500 SO4

Matrix AQ	**Batch ID:** GN19156

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T42888-9DUP, T42888-9MS were used as the QC samples for Sulfate.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	MW-20		
Lab Sample ID:	T42224-1	**Date Sampled:**	11/13/09
Matrix:	AQ - Ground Water	**Date Received:**	11/14/09
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Vertellus-Provo		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C0005129.D	1	11/21/09	AP	n/a	n/a	VC233
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

8260 Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	4.7 U	50	4.7	ug/l	
71-43-2	Benzene	0.50 U	2.0	0.50	ug/l	
67-66-3	Chloroform	0.64 U	2.0	0.64	ug/l	
75-15-0	Carbon disulfide	0.53 U	2.0	0.53	ug/l	
100-41-4	Ethylbenzene	0.55 U	2.0	0.55	ug/l	
74-95-3	Methylene bromide	0.65 U	2.0	0.65	ug/l	
75-09-2	Methylene chloride	0.41 U	5.0	0.41	ug/l	
78-93-3	Methyl ethyl ketone	3.9 U	10	3.9	ug/l	
108-88-3	Toluene	0.43 U	2.0	0.43	ug/l	
1330-20-7	Xylene (total)	1.7 U	6.0	1.7	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		79-122%
17060-07-0	1,2-Dichloroethane-D4	112%		75-121%
2037-26-5	Toluene-D8	91%		87-119%
460-00-4	4-Bromofluorobenzene	87%		80-133%

U = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-20		
Lab Sample ID:	T42224-1	**Date Sampled:**	11/13/09
Matrix:	AQ - Ground Water	**Date Received:**	11/14/09
Method:	SW846 8270C SW846 3510C	**Percent Solids:**	n/a
Project:	Vertellus-Provo		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P07322.D	1	11/19/09	GJ	11/19/09	OP13511	EP352
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

SW-846 8270C

CAS No.	Compound	Result	RL	MDL	Units	Q
108-98-5	Benzenethiol	1.3 U	10	1.3	ug/l	
105-67-9	2,4-Dimethylphenol	1.3 U	5.0	1.3	ug/l	
95-48-7	2-Methylphenol	0.83 U	5.0	0.83	ug/l	
	3&4-Methylphenol	1.6 U	5.0	1.6	ug/l	
108-95-2	Phenol	0.75 U	5.0	0.75	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	54%		10-66%
4165-62-2	Phenol-d5	35%		10-53%
118-79-6	2,4,6-Tribromophenol	84%		32-128%
4165-60-0	Nitrobenzene-d5	82%		29-115%
321-60-8	2-Fluorobiphenyl	82%		34-113%
1718-51-0	Terphenyl-d14	72%		12-145%

CAS No.	Tentatively Identified Compounds [a]	R.T.	Est. Conc.	Units	Q
1576-87-0	2-Pentenal, (E)-	5.46	12	ug/l	JN
615-29-2	3-Hexanol, 4-methyl-	5.59	12	ug/l	JN
590-66-9	Cyclohexane, 1,1-dimethyl-	5.71	12	ug/l	JN
1000216-62-5	trans-2,3-Dimethylthiophane	7.48	4.3	ug/l	JN
	Total TIC, Semi-Volatile		40.3	ug/l	J

(a) Resorcinol was not detected in the sample.

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-20		
Lab Sample ID:	T42224-1	**Date Sampled:**	11/13/09
Matrix:	AQ - Ground Water	**Date Received:**	11/14/09
Method:	SW846 8270C BY SIM SW846 3510C	**Percent Solids:**	n/a
Project:	Vertellus-Provo		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P07344.D	1	11/20/09	GJ	11/19/09	OP13514	EP353
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

SW846 8270 PAH Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	0.042 U	0.20	0.042	ug/l	
208-96-8	Acenaphthylene	0.072 U	0.20	0.072	ug/l	
120-12-7	Anthracene	0.054 U	0.20	0.054	ug/l	
56-55-3	Benzo(a)anthracene	0.041 U	0.20	0.041	ug/l	
50-32-8	Benzo(a)pyrene	0.064 U	0.20	0.064	ug/l	
205-99-2	Benzo(b)fluoranthene	0.060 U	0.20	0.060	ug/l	
207-08-9	Benzo(k)fluoranthene	0.056 U	0.20	0.056	ug/l	
218-01-9	Chrysene	0.044 U	0.20	0.044	ug/l	
53-70-3	Dibenzo(a,h)anthracene	0.060 U	0.20	0.060	ug/l	
206-44-0	Fluoranthene	0.046 U	0.20	0.046	ug/l	
86-73-7	Fluorene	0.064 U	0.20	0.064	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	0.061 U	0.20	0.061	ug/l	
91-20-3	Naphthalene	0.075 U	0.20	0.075	ug/l	
85-01-8	Phenanthrene	0.075 U	0.20	0.075	ug/l	
129-00-0	Pyrene	0.079 U	0.20	0.079	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	81% [a]		17-131%
321-60-8	2-Fluorobiphenyl	94% [a]		15-137%
1718-51-0	Terphenyl-d14	116% [a]		10-160%

(a) Recovery was adjusted for 10x spiking.

U = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-20		
Lab Sample ID:	T42224-1	**Date Sampled:**	11/13/09
Matrix:	AQ - Ground Water	**Date Received:**	11/14/09
		Percent Solids:	n/a
Project:	Vertellus-Provo		

Total Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	186000	5000	130	ug/l	1	11/18/09	11/18/09	NS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA4401
(2) Prep QC Batch: MP10672

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	MW-20		
Lab Sample ID:	T42224-1	**Date Sampled:**	11/13/09
Matrix:	AQ - Ground Water	**Date Received:**	11/14/09
		Percent Solids:	n/a
Project:	Vertellus-Provo		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.0067 B	0.010	0.0040	mg/l	1	11/27/09 13:25	CV	EPA 335.4
Sulfate	210	10	2.6	mg/l	1	12/02/09 10:00	MC	SM 4500 SO4

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	T42224-2	**Date Sampled:**	11/13/09
Matrix:	AQ - Trip Blank Water	**Date Received:**	11/14/09
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Vertellus-Provo		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C0005126.D	1	11/21/09	AP	n/a	n/a	VC233
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

8260 Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	4.7 U	50	4.7	ug/l	
71-43-2	Benzene	0.50 U	2.0	0.50	ug/l	
67-66-3	Chloroform	0.64 U	2.0	0.64	ug/l	
75-15-0	Carbon disulfide	0.53 U	2.0	0.53	ug/l	
100-41-4	Ethylbenzene	0.55 U	2.0	0.55	ug/l	
74-95-3	Methylene bromide	0.65 U	2.0	0.65	ug/l	
75-09-2	Methylene chloride	0.41 U	5.0	0.41	ug/l	
78-93-3	Methyl ethyl ketone	3.9 U	10	3.9	ug/l	
108-88-3	Toluene	0.43 U	2.0	0.43	ug/l	
1330-20-7	Xylene (total)	1.7 U	6.0	1.7	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		79-122%
17060-07-0	1,2-Dichloroethane-D4	111%		75-121%
2037-26-5	Toluene-D8	91%		87-119%
460-00-4	4-Bromofluorobenzene	90%		80-133%

U = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

CHAIN OF CUSTODY

PAGE 1 OF 1

ACCUTEST Laboratories

10165 Harwin Dr, Ste 150 Houston, TX 77036
TEL. 713-271-4700 FAX: 713-271-4770
www.accutest.com

FED-EX Tracking #:
Bottle Order Control #:
Accutest Quote #:
Accutest Job #: T42224

Client / Reporting Information

Company Name: ERM
Street Address: 102 West 500 South, Suite 650
City: Salt Lake City State: UT Zip: 84101
Project Contact: Kevin Lundmark E-mail:
Phone #: 801 595-8400 Fax #:
Sampler(s) Name(s): Kris Benson Phone #:

Project Information

Project Name: Vertellus Provo
Street:
City: State:
Project #:
Client Purchase Order #:
Project Manager: K. Lundmark
Billing Information (If different from Report to)
Company Name:
Street Address:
City: State: Zip:
Attention:

Requested Analyses

Accutest Sample #	Field ID / Point of Collection	Collection Date	Collection Time	Sampled By	Matrix	# of bottles	HCl	NaOH	ZnAcOH	HNO3	H2SO4	NONE	DI Water	MEOH	TSP	NaHSO4	ENCORE	OTHER	Volatile/8260	SVOC and SIMPAH/8270	Sodium /6010	Cyanide	Sulfate	LAB USE ONLY
	MW-20	11/13/09	9:20	KB	GW	8	3			1		3							X	X	X	X	X	
	Trip Blank																		X					

Number of preserved Bottles

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
SED-Sediment
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe
FB-Field Blank

Turnaround Time (Business days)

- [xx] Standard
- [ ] 5 Day *RUSH*
- [ ] 4 Day *RUSH*
- [ ] 3 Day *RUSH*
- [ ] 2 Day *RUSH*
- [ ] 1 Day *EMERGENCY*

Emergency & Rush T/A data available VIA Lablink

Approved By (Accutest PM): / Date:

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [xx] FULT1 (Level 3+4)
- [ ] REDT1 (Level 3+4)
- [ ] Commercial "C"
- [ ] TRRP
- [ ] EDD Format
- [ ] Other _____

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
Commercial "C" = Results + QC & Surrogate Summary

Comments / Special Instructions

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	11/13/09 17:10	1	2 Fed Ex	1030 11/14/09	2
Relinquished by Sampler: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #	[ ] Intact [ ] Not Intact	Preserved where applicable [ ]

On Ice: ☒ Cooler Temp.: 2.4

4.1
4

T42224: Chain of Custody
Page 1 of 4

SAMPLE INSPECTION FORM

Accutest Job Number: T42224 Client: ERM Date/Time Received: 11/14/09 1030

# of Coolers Received: 1 Thermometer #: IR-1 Temperature Adjustment Factor: +0.4

Cooler Temps: #1: 2.4 #2: _____ #3: _____ #4: _____ #5: _____ #6: _____ #7: _____ #8: _____

Method of Delivery: (FEDEX) UPS Accutest Courier Greyhound Delivery Other

Airbill Numbers: _____

COOLER INFORMATION

- [ ] Custody seal missing or not intact
- [ ] Temperature criteria not met
- [ ] Wet ice received in cooler

CHAIN OF CUSTODY

- [ ] Chain of Custody not received
- [ ] Sample D/T unclear or missing
- [ ] Analyses unclear or missing
- [ ] COC not properly executed

SAMPLE INFORMATION

- [ ] Sample containers received broken
- [ ] VOC vials have headspace
- [ ] Sample labels missing or illegible
- [ ] ID on COC does not match label(s)
- [ ] D/T on COC does not match label(s)
- [ ] Sample/Bottles rcvd but no analysis on COC
- [ ] Sample listed on COC, but not received
- [ ] Bottles missing for requested analysis
- [ ] Insufficient volume for analysis
- [ ] Sample received improperly preserved

TRIP BLANK INFORMATION

- [ ] Trip Blank on COC but not received
- [ ] Trip Blank received but not on COC
- [ ] Trip Blank not intact
- [ ] Received Water Trip Blank
- [ ] Received Soil TB

Number of Encores? _____
Number of 5035 kits? _____
Number of lab-filtered metals? _____

Summary of Discrepancies:

TECHNICIAN SIGNATURE/DATE: [signature] 11/14/09

INFORMATION AND SAMPLE LABELING VERIFIED BY: _____

CORRECTIVE ACTIONS

Client Representative Notified: _____ **Date:** _____

By Accutest Representative: _____ **Via:** Phone Email

Client Instructions:

I:\mwalker\form\samplemanagement

Page 1 of 1

From: Origin ID: NPHA (801) 595-8400
Kris Benson
ERM-Rocky Mountain
102 West 500 South
Suite 650
Salt Lake City, UT 84101

FedEx Express

Ship Date: 13NOV09
ActWgt: 40.0 LB
CAD: 3903792/INET9090
Account#: S **********
Dims: 22 X 15 X 15 IN

Delivery Address Bar Code

Ref # 0092500
Invoice #
PO #
Dept #

BILL RECIPIENT

SHIP TO: (801) 271-4700
Sample Receiving.
Accutest Labs
10165 Harwin Dr. Ste 150
Houston, TX 77036

SATURDAY ### A2
PRIORITY OVERNIGHT

TRK# 0201 7981 3967 0118

77036
TX-US
IAH

X0 JGQA

this label: ... to print your label to your laser or inkjet printer.

T42224: Chain of Custody
Page 3 of 4

SAMPLE RECEIPT LOG

JOB #: T42224 DATE/TIME RECEIVED: 11/14/09 1030

CLIENT: ERM INITIALS: FF

COOLER#	SAMPLE ID	FIELD ID	DATE	MATRIX	VOL	BOTTLE #	LOCATION	PRESERV	PH
1	1	MW-20	11/13/09 920	W	LAG	1-2	I ~~II~~ FF	1 2 3 4 5 6 7 8	<2 >12
					250	3		1 2 3 4 5 6 7 8	<2 >12
					"	4		1 2 3 4 5 6 7 8	<2 >12
					P125	5		1 2 3 4 5 6 7 8	<2 >12
					40ml	6-8	VR	1 2 3 4 5 6 7 8	<2 >12
	2	Trip Blank			40ml	1-2	VR	1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
			FF 11/14/09					1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12

PRESERVATIVES: 1: None 2: HCL 3: HNO3 4: H2SO4 5: NAOH 6: DI 7: MeOH 8: Other

LOCATION: 1: Walk-In #1 (Waters) 2: Walk-In #2 (Soils) VR: Volatile Fridge M: Metals SUB: Subcontract EF: Encore Freezer

Rev 8/12/04

4.1

4

T42224: Chain of Custody

Page 4 of 4