STATE OF COLORADO
OIL & GAS
CONSERVATION COMMISSION

DEPARTMENT OF NATURAL RESOURCES
John W. Hickenlooper, Governor
707 Wapiti Ct. Suite 204
Rifle, CO 81650
Phone: (970) 625-2497
FAX: (970) 625-5682
www.colorado.gov/cogcc

July 24, 2012 Certified Mail Return Receipt 7011 3500 0001 3136 7431

Mr. Tim Guthrie
5137 CR 331
Silt, CO 81652

Re: Encana NOAV 200355205 – Davis Ditch Release
Baseline Water Sample Laboratory Report
Facility ID 429626
NWSW 34 6S 92W
TestAmerica Laboratory Work Order 280-30378-2

Dear Mr. Guthrie,

Enclosed is the laboratory analysis report for the water sample Craig Heydenberk collected on behalf of The Colorado Oil and Gas Conservation Commission (COGCC) from your domestic well on 6-22-2012. A summary table containing laboratory results from the recent domestic well sample and a previous sample from your domestic well is included as Attachment 1, with CDPHE standards for reference. I have copied the pages of the report that present your domestic well sample results and placed them behind this letter in Attachment 2, for your convenience. The remainder of the complete laboratory report, which includes laboratory quality control samples, is included as Attachment 3. Additionally, I've entered the sample results into a tool developed by Colorado State University Extension Service in conjunction with other agencies for analyzing drinking water. Results of this tool comparing your water results to drinking water standards, and irrigation water standards are included in this packet for the baseline sample as Attachments 4. Based on my initial evaluation the baseline sample results do not appear to show an impact to your water well from oil and gas activities in your area.

Encana has also collected samples from your domestic water well in 2012 but I have not received results from those samples at this time. When I receive the results from the Encana samples, I will include them in my analysis to determine if your well was

impacted by the release to the Davis Ditch after the baseline sample was collected and infiltration to the aquifer occurred.

The COGCC will prepare an interpretive letter evaluating the water quality identified by the baseline sampling results and a comparison of baseline results to sample results collected from your well as required by the NOAV written to Encana. We will be analyzing your domestic well data closely and will generate a letter discussing all the various constituents reported by the laboratory and what the concentrations, if any, identified in the water sample mean.

Thank you for your patience.

Sincerely,

Linda Spry O'Rourke
Environmental Protection Specialist II, NW Region
970-625-2497 ext. 7
linda.spryorourk@state.co.us

encl.: TestAmerica Laboratory Work Order 280-30378-2

cc: Thom Kerr, Acting COGCC Directory, w/o attachments,
Karen Spray, Acting COGCC Environmental Protection Manager
Alex Fischer, COGCC Environmental Protection Supervisor
Kathy Friesen, Encana Environmental Manager

Attachments:
Attachment 1 - Table 1 - Analytical Summary
Attachment 2 – TestAmerica Laboratory Well Sample Data Reports
Attachment 3 – TestAmerica Laboratory Well Sample Quality Control Sample Data Reports

Attachment 1

Table 1 ANALYTICAL SUMMARY
Guthrie Domestic Well
NOAV 200355205

Parameter	Well Water Sample	Well Water Sample		CDPHE Standards		
	Sample Date	Sample Date				
	8-Jun-2006	22-Jun-12				
	Result	Result	Unit	Domestic	Agriculture	Units
Aluminum	ND (0.1)	ND(0.018)	mg/l	0.05	NS	mg/l
Antimony	ND (0.01)	0.002	mg/l	0.006	NS	mg/l
Arsenic	ND (0.02)	0.00055	mg/l	0.01	0.1	mg/l
Barium	ND (0.005)	0.01	mg/l	2.0	NS	mg/l
Berylium	ND (0.002)	ND (0.00047)	mg/l	0.004	0.1	mg/l
Boron	ND (0.2)	0.37	mg/l	NS	0.75	mg/l
Cadmium	ND (0.005)	0.000095J	mg/l	0.005	0.01	mg/l
Calcium	299	290	mg/l	NS	NS	
Chromium	ND (0.01)	ND (0.00066)	mg/l	0.1	0.1	mg/l
Cobalt	ND (0.01)	0.00013	mg/l	NS	0.05	mg/l
Copper	ND (0.02)	0.0063	mg/l	1	0.2	mg/l
Iron	ND (0.07)	ND (0.022)	mg/l	0.3	5	mg/l
Lead	ND (0.005)	0.00013	mg/l	0.05	0.1	mg/l
Lithium	NA	0.053	mg/l	NS	2.5	mg/l
Magnesium	170	170	mg/l	NS	NS	
Manganese	0.025	0.053	mg/l	0.05	0.2	mg/l
Mercury	NA	ND (0.000027)	mg/l	0.002	0.01	mg/l
Molybdenum	ND (0.002)	0.0043B	mg/l	0.035	NS	mg/l
Nickel	ND (0.02)	ND (0.0013)	mg/l	0.1	0.2	mg/l
Potassium	5.43	7.3	mg/l	NS	NS	
Selenium	0.008	0.005	mg/l	0.05	0.02	mg/l
Silicon	NA	6.8	mg/l	NS	NS	
Silver	ND (0.01)	0.000051JB	mg/l	0.05	NS	mg/l
Sodium	244	280	mg/l	NS	NS	
Strontium	ND (0.01)	7.1	mg/l	NS	NS	
Thallium	ND (0.02)	ND (0.000066)	mg/l	0.002	NS	mg/l
Uranium	NA	0.03	mg/l	0.03	NS	mg/l
Vanadium	ND (0.01)	0.0016J	mg/l	NS	0.1	mg/l
Zinc	ND (0.03)	0.091	mg/l	5	2	mg/l
Nitrite	ND (1.3)	ND (0.098)	mg/l	1.0	10	mg/l
Nitrate	1.74	0.5J	mg/l	10.0	100	mg/l
Total Nitrite/Nitrate	3.04	0.6	mg/l	10.0	100	mg/l
Sulfate	1520	1400	mg/l	250	NS	mg/l
Chloride	114	79	mg/l	250	NS	mg/l
Fluoride	0.49	0.43J	mg/l	4.0	2	mg/l
Bromide	1.11	0.67	mg/l	NS	NS	

Table 1 ANALYTICAL SUMMARY
Guthrie Domestic Well
NOAV 200355205

Parameter	Well Water Sample	Well Water Sample		CDPHE Standards		
	Sample Date	Sample Date				
	8-Jun-2006	22-Jun-12				
	Result	Result	Unit	Domestic	Agriculture	Units
pH	6.94	7.33HF	No units	6.5 - 8.5	6.5 - 8.5	No units
Total Dissolved Solids	2910	2500	mg/l	400	*1500	mg/l
Total Alkalinity	437	470	mg/l	NS	NS	
Bicarbonate	437	470	mg/l	NS	NS	
Carbonate	ND (5)	ND (1.1)	mg/l	NS	NS	
Hydroxide Alkalinity	NA	ND (1.1)	mg/l	NS	NS	
Specific Conductivity	2990	3100	umhos/cm	NS	NS	
Sodium Adsorption Ratio	NA	3.2	ratio	NS	NS	
Methane	ND (0.0008)	0.0025	mg/l	NS	NS	
Ethane	NA	0.00042J	mg/l	NS	NS	
Propane	NA	ND (0.00075)	mg/l	NS	NS	
Benzene	ND (0.001)	ND (0.00016)	mg/l	0.005	NS	mg/l
Toluene	ND (0.002)	ND (0.00017)	mg/l	0.56	NS	mg/l
Ethylbenzene	NA	ND (0.00016)	mg/l	0.7	NS	mg/l
Total Xylenes	ND (0.004)	ND (0.00019)	mg/l	1.4	NS	mg/l
MTBE	ND (0.004)	ND (0.00025)	mg/l	NS	NS	
Methylene Chloride	NA	0.00036JB	mg/l			
GRO	NA	ND (0.010)	mg/l	NS	NS	
DRO	NA	ND (0.053)	mg/l	NS	NS	
Total Organic Carbon	NA	4.7B	mg/l	NS	NS	

Notes

CDPHE	Colorado Department of Public Health and the Environment.
Domestic	Water Quality Control Comm. 5 CCR 1002-41, Reg. No. 41 - The Basic Standards For Groundwater; Nov. 2009.
Agriculture	* Standards for agriculture compiled from CDPHE and other sources.
mg/l	milligrams per liter (ppm or parts per
µmhos/cm	micromhos per centimeter
NA	Not analyzed.
ND (0.000)	Not detected, detection limit in parenthesis.
NS	No Standard.
J	Estimated value
HF	Analyzed out of holding time for field parameter
B	Constituent present in laboratory blank sample
	Human health standard.
	Secondary standard.
	CDPHE basic ground water standard.

Attachment 2

SAMPLE SUMMARY

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
280-30378-3	GUTHRIE	Water	06/22/2012 0945	06/23/2012 0900

EXECUTIVE SUMMARY - Detections

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Lab Sample ID / Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
280-30378-3	**GUTHRIE**					
Methylene Chloride		0.36	J B	2.0	ug/L	8260B
Ethane		0.42	J	2.0	ug/L	RSK-175
Methane		2.5		1.0	ug/L	RSK-175
Sodium Adsorption Ratio		3.2		0.40	No Unit	20B
Bromide		0.67		0.40	mg/L	300.0
Nitrate as N		0.50	J	1.0	mg/L	300.0
Chloride		79		6.0	mg/L	300.0
Fluoride		0.43	J	1.0	mg/L	300.0
Sulfate		1400		250	mg/L	300.0
Total Alkalinity		470		5.0	mg/L	SM 2320B
Bicarbonate Alkalinity as CaCO3		470		5.0	mg/L	SM 2320B
Specific Conductance		3100		2.0	umhos/cm	SM 2510B
Total Dissolved Solids		2500		20	mg/L	SM 2540C
pH		7.33	HF	0.100	SU	SM 4500 H+ B
Total Organic Carbon - Average		4.7	B	1.0	mg/L	SM 5310B
Dissolved						
Boron		370		100	ug/L	200.7 Rev 4.4
Calcium		290000		200	ug/L	200.7 Rev 4.4
Lithium		53		10	ug/L	200.7 Rev 4.4
Magnesium		170000		200	ug/L	200.7 Rev 4.4
Potassium		7300		3000	ug/L	200.7 Rev 4.4
Silicon		6800		500	ug/L	200.7 Rev 4.4
Sodium		280000		5000	ug/L	200.7 Rev 4.4
Strontium		7100		10	ug/L	200.7 Rev 4.4
Vanadium		1.6	J	10	ug/L	200.7 Rev 4.4
Zinc		91		20	ug/L	200.7 Rev 4.4
Arsenic		0.55	J	5.0	ug/L	200.8
Barium		10		1.0	ug/L	200.8
Cadmium		0.095	J	1.0	ug/L	200.8
Cobalt		0.13	J	1.0	ug/L	200.8
Copper		6.3		2.0	ug/L	200.8
Lead		0.13	J	1.0	ug/L	200.8
Manganese		53		2.0	ug/L	200.8
Molybdenum		4.3	B	2.0	ug/L	200.8
Selenium		5.0		5.0	ug/L	200.8
Silver		0.051	J B	1.0	ug/L	200.8
Uranium		30		1.0	ug/L	200.8

METHOD SUMMARY

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Description	Lab Location	Method	Preparation Method
Matrix: Water			
Volatile Organic Compounds (GC/MS)	TAL DEN	SW846 8260B	
Purge and Trap	TAL DEN		SW846 5030B
Semivolatile Organic Compounds (GC/MS)	TAL DEN	SW846 8270C	
Liquid-Liquid Extraction (Continuous)	TAL DEN		SW846 3520C
Gasoline Range Organics - (GC)	TAL DEN	SW846 8015B	
Purge and Trap	TAL DEN		SW846 5030B
Diesel Range Organics (DRO) (GC)	TAL DEN	SW846 8015B	
Liquid-Liquid Extraction (Separatory Funnel)	TAL DEN		SW846 3510C
Metals (ICP)	TAL DEN	EPA 200.7 Rev 4.4	
Preparation, Total Recoverable Metals	TAL DEN		EPA 200.7
Sample Filtration	TAL DEN		FILTRATION
Metals (ICP/MS)	TAL DEN	EPA 200.8	
Preparation, Total Recoverable Metals	TAL DEN		EPA 200.8
Sample Filtration	TAL DEN		FILTRATION
Sodium Adsorption Ratio	TAL DEN	USDA 20B	
Mercury (CVAA)	TAL DEN	EPA 245.1	
Preparation, Mercury	TAL DEN		EPA 245.1
Sample Filtration	TAL DEN		FILTRATION
Anions, Ion Chromatography	TAL DEN	MCAWW 300.0	
Alkalinity	TAL DEN	SM SM 2320B	
Conductivity, Specific Conductance	TAL DEN	SM SM 2510B	
Solids, Total Dissolved (TDS)	TAL DEN	SM SM 2540C	
pH	TAL DEN	SM SM 4500 H+ B	
Organic Carbon, Total (TOC)	TAL DEN	SM SM 5310B	
Dissolved Gases (GC)	TAL HOU	RSK RSK-175	

Lab References:

TAL DEN = TestAmerica Denver

TAL HOU = TestAmerica Houston

Method References:

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

USDA = "USDA Agriculture Handbook 60, section 20B".

Analytical Data

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Client Sample ID: **GUTHRIE**

Lab Sample ID: 280-30378-3
Client Matrix: Water

Date Sampled: 06/22/2012 0945
Date Received: 06/23/2012 0900

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	280-125949	Instrument ID:	MSV_R1
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	R7222.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	06/28/2012 1338			Final Weight/Volume:	20 mL
Prep Date:	06/28/2012 1338				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane	ND		0.21	1.0
1,1,1-Trichloroethane	ND		0.16	1.0
1,1,2,2-Tetrachloroethane	ND		0.21	1.0
1,1,2-Trichloroethane	ND		0.27	1.0
1,1-Dichloroethane	ND		0.22	1.0
1,1-Dichloroethene	ND		0.23	1.0
1,1-Dichloropropene	ND		0.19	1.0
1,2,3-Trichlorobenzene	ND		0.21	1.0
1,2,3-Trichloropropane	ND		0.33	2.5
1,2,4-Trichlorobenzene	ND		0.21	1.0
1,2,4-Trimethylbenzene	ND		0.15	1.0
1,2-Dibromo-3-Chloropropane	ND		0.47	5.0
1,2-Dibromoethane	ND		0.18	1.0
1,2-Dichlorobenzene	ND		0.15	1.0
1,2-Dichloroethane	ND		0.13	1.0
1,2-Dichloroethene, Total	ND		0.24	1.0
1,2-Dichloropropane	ND		0.18	1.0
1,3,5-Trimethylbenzene	ND		0.16	1.0
1,3-Dichlorobenzene	ND		0.13	1.0
1,3-Dichloropropane	ND		0.22	1.0
1,4-Dichlorobenzene	ND		0.16	1.0
2,2-Dichloropropane	ND		0.18	1.0
2-Butanone (MEK)	ND		2.0	6.0
2-Chlorotoluene	ND		0.17	1.0
2-Hexanone	ND		1.7	5.0
4-Chlorotoluene	ND		0.21	1.0
4-Isopropyltoluene	ND		0.20	1.0
4-Methyl-2-pentanone (MIBK)	ND		0.98	5.0
Acetone	ND		1.9	10
Benzene	ND		0.16	1.0
Bromobenzene	ND		0.17	1.0
Bromoform	ND		0.19	1.0
Bromomethane	ND		0.21	2.0
Carbon tetrachloride	ND		0.19	1.0
Chlorobenzene	ND		0.17	1.0
Chlorobromomethane	ND		0.10	1.0
Chlorodibromomethane	ND		0.17	1.0
Chloroethane	ND		0.41	2.0
Chloroform	ND		0.16	1.0
Chloromethane	ND		0.30	2.0
cis-1,2-Dichloroethene	ND		0.15	1.0
cis-1,3-Dichloropropene	ND		0.16	1.0
Dibromomethane	ND		0.17	1.0
Dichlorobromomethane	ND		0.17	1.0
Dichlorodifluoromethane	ND		0.31	2.0
Ethylbenzene	ND		0.16	1.0

Analytical Data

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Client Sample ID: **GUTHRIE**

Lab Sample ID: 280-30378-3
Client Matrix: Water

Date Sampled: 06/22/2012 0945
Date Received: 06/23/2012 0900

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	280-125949	Instrument ID:	MSV_R1
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	R7222.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	06/28/2012 1338			Final Weight/Volume:	20 mL
Prep Date:	06/28/2012 1338				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Hexachlorobutadiene	ND		0.36	1.0
Isopropylbenzene	ND		0.19	1.0
Methyl tert-butyl ether	ND		0.25	5.0
Methylene Chloride	0.36	J B	0.32	2.0
m-Xylene & p-Xylene	ND		0.34	2.0
Naphthalene	ND		0.22	1.0
n-Butylbenzene	ND		0.32	1.0
N-Propylbenzene	ND		0.16	1.0
o-Xylene	ND		0.19	1.0
sec-Butylbenzene	ND		0.17	1.0
Styrene	ND		0.17	1.0
tert-Butylbenzene	ND		0.16	1.0
Tetrachloroethene	ND		0.20	1.0
Toluene	ND		0.17	1.0
trans-1,2-Dichloroethene	ND		0.15	1.0
trans-1,3-Dichloropropene	ND		0.19	3.0
Trichloroethene	ND		0.16	1.0
Trichlorofluoromethane	ND		0.29	2.0
Vinyl chloride	ND		0.10	1.0
Xylenes, Total	ND		0.19	2.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	96		70 - 127
4-Bromofluorobenzene (Surr)	83		78 - 120
Dibromofluoromethane (Surr)	92		77 - 120
Toluene-d8 (Surr)	93		80 - 125

Analytical Data

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Client Sample ID: **GUTHRIE**

Lab Sample ID: 280-30378-3
Client Matrix: Water

Date Sampled: 06/22/2012 0945
Date Received: 06/23/2012 0900

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-126328	Instrument ID:	MSS_Y
Prep Method:	3520C	Prep Batch:	280-125338	Lab File ID:	Y8517.D
Dilution:	1.0			Initial Weight/Volume:	1057.2 mL
Analysis Date:	06/29/2012 1433			Final Weight/Volume:	1000 uL
Prep Date:	06/24/2012 0815			Injection Volume:	0.5 uL

Analyte	Result (ug/L)	Qualifier	MDL	RL
2,2'-oxybis[1-chloropropane]	ND		0.26	9.5
2,4,5-Trichlorophenol	ND		0.43	9.5
2,4,6-Trichlorophenol	ND		0.27	9.5
2,4-Dichlorophenol	ND		0.61	9.5
2,4-Dimethylphenol	ND		0.55	9.5
2,4-Dinitrophenol	ND		9.5	28
2,4-Dinitrotoluene	ND		1.6	9.5
2,6-Dinitrotoluene	ND		1.8	9.5
2-Chloronaphthalene	ND		0.25	3.8
2-Chlorophenol	ND		1.9	9.5
2-Methylnaphthalene	ND		0.27	3.8
2-Methylphenol	ND		0.93	9.5
2-Nitroaniline	ND		1.6	9.5
2-Nitrophenol	ND		0.37	9.5
3 & 4 Methylphenol	ND		0.24	9.5
3,3'-Dichlorobenzidine	ND		1.9	47
3-Nitroaniline	ND		1.9	9.5
4,6-Dinitro-2-methylphenol	ND		3.8	47
4-Bromophenyl phenyl ether	ND		0.41	9.5
4-Chloro-3-methylphenol	ND		2.3	9.5
4-Chloroaniline	ND		2.0	9.5
4-Chlorophenyl phenyl ether	ND		1.6	9.5
4-Nitroaniline	ND		1.9	9.5
4-Nitrophenol	ND		1.2	9.5
Acenaphthene	ND		0.26	3.8
Acenaphthylene	ND		0.46	3.8
Acetophenone	ND		0.23	9.5
Anthracene	ND		0.40	3.8
Atrazine	ND		0.69	9.5
Benzidine	ND		47	95
Benzo[a]anthracene	ND		0.33	3.8
Benzo[a]pyrene	ND		0.29	3.8
Benzo[b]fluoranthene	ND		0.50	3.8
Benzo[g,h,i]perylene	ND		0.47	3.8
Benzo[k]fluoranthene	ND		0.44	3.8
Bis(2-chloroethoxy)methane	ND		0.92	9.5
Bis(2-chloroethyl)ether	ND		0.39	9.5
Bis(2-ethylhexyl) phthalate	ND		0.53	9.5
Butyl benzyl phthalate	ND		0.95	3.8
Caprolactam	ND		4.7	9.5
Carbazole	ND		0.41	3.8
Chrysene	ND		0.51	3.8
Cresols, Total	ND		0.24	9.5
Dibenz(a,h)anthracene	ND		0.48	3.8
Dibenzofuran	ND		0.27	3.8
Diethyl phthalate	ND		0.36	3.8

Analytical Data

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Client Sample ID: **GUTHRIE**

Lab Sample ID: 280-30378-3
Client Matrix: Water

Date Sampled: 06/22/2012 0945
Date Received: 06/23/2012 0900

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-126328	Instrument ID:	MSS_Y
Prep Method:	3520C	Prep Batch:	280-125338	Lab File ID:	Y8517.D
Dilution:	1.0			Initial Weight/Volume:	1057.2 mL
Analysis Date:	06/29/2012 1433			Final Weight/Volume:	1000 uL
Prep Date:	06/24/2012 0815			Injection Volume:	0.5 uL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Dimethyl phthalate	ND		0.20	3.8
Di-n-butyl phthalate	ND		1.1	3.8
Di-n-octyl phthalate	ND		0.33	3.8
Fluoranthene	ND		0.19	3.8
Fluorene	ND		0.29	3.8
Hexachlorobenzene	ND		0.62	9.5
Hexachlorobutadiene	ND		3.1	9.5
Hexachlorocyclopentadiene	ND		9.5	47
Hexachloroethane	ND		2.0	9.5
Indeno[1,2,3-cd]pyrene	ND		0.61	3.8
Naphthalene	ND		0.27	3.8
Nitrobenzene	ND		0.77	9.5
N-Nitrosodi-n-propylamine	ND		0.33	9.5
n-Nitrosodiphenylamine(as diphenylamine)	ND		0.42	9.5
Pentachlorophenol	ND		19	47
Phenanthrene	ND		0.25	3.8
Phenol	ND		1.9	9.5
Pyrene	ND		0.35	9.5

Surrogate	%Rec	Qualifier	Acceptance Limits
2,4,6-Tribromophenol	111		57 - 120
2-Fluorobiphenyl	85		38 - 120
2-Fluorophenol	82		51 - 120
Nitrobenzene-d5	88		48 - 120
Phenol-d5	89		51 - 120
Terphenyl-d14	108		50 - 120

Analytical Data

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Client Sample ID: **GUTHRIE**

Lab Sample ID: 280-30378-3
Client Matrix: Water

Date Sampled: 06/22/2012 0945
Date Received: 06/23/2012 0900

8015B Gasoline Range Organics - (GC)

Analysis Method:	8015B	Analysis Batch:	280-125760	Instrument ID:	GCV_K
Prep Method:	5030B		N/A	Initial Weight/Volume:	5 mL
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	06/27/2012 0011			Injection Volume:	5 mL
Prep Date:	06/27/2012 0011			Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
Gasoline Range Organics (GRO)-C6-C10	ND		10	25

Surrogate	%Rec	Qualifier	Acceptance Limits
a,a,a-Trifluorotoluene	89		82 - 110

Analytical Data

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Client Sample ID: **GUTHRIE**

Lab Sample ID: 280-30378-3
Client Matrix: Water

Date Sampled: 06/22/2012 0945
Date Received: 06/23/2012 0900

RSK-175 Dissolved Gases (GC)

Analysis Method:	RSK-175	Analysis Batch:	600-83033	Instrument ID:	FID14
	N/A		N/A	Initial Weight/Volume:	1 mL
Dilution:	1.0			Final Weight/Volume:	1 mL
Analysis Date:	07/02/2012 1651			Injection Volume:	
Prep Date:	N/A			Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
Ethane	0.42	J	0.30	2.0
Methane	2.5		0.36	1.0
Propane	ND		0.75	2.0

Analytical Data

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Client Sample ID: **GUTHRIE**

Lab Sample ID: 280-30378-3
Client Matrix: Water

Date Sampled: 06/22/2012 0945
Date Received: 06/23/2012 0900

8015B Diesel Range Organics (DRO) (GC)

Analysis Method:	8015B	Analysis Batch:	280-125910	Instrument ID:	GCS_U2
Prep Method:	3510C	Prep Batch:	280-125504	Initial Weight/Volume:	1055 mL
Dilution:	1.0			Final Weight/Volume:	1000 uL
Analysis Date:	06/27/2012 2106			Injection Volume:	1 uL
Prep Date:	06/25/2012 1906			Result Type:	PRIMARY

Analyte	Result (mg/L)	Qualifier	MDL	RL
C10-C36	ND		0.053	0.47

Surrogate	%Rec	Qualifier	Acceptance Limits
o-Terphenyl	71		50 - 115
n-Octacosane	92		26 - 152

Analytical Data

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Client Sample ID: **GUTHRIE**

Lab Sample ID: 280-30378-3
Client Matrix: Water

Date Sampled: 06/22/2012 0945
Date Received: 06/23/2012 0900

200.7 Rev 4.4 Metals (ICP)-Dissolved

Analysis Method:	200.7 Rev 4.4	Analysis Batch:	280-125764	Instrument ID:	MT_026
Prep Method:	200.7	Prep Batch:	280-125463	Lab File ID:	26A062612.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	06/27/2012 0006			Final Weight/Volume:	50 mL
Prep Date:	06/26/2012 1400				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Aluminum	ND		18	100
Beryllium	ND		0.47	1.0
Boron	370		4.4	100
Calcium	290000		35	200
Chromium	ND		0.66	10
Iron	ND		22	100
Lithium	53		2.6	10
Magnesium	170000		11	200
Nickel	ND		1.3	40
Potassium	7300		240	3000
Silicon	6800		35	500
Sodium	280000		92	5000
Strontium	7100		0.30	10
Vanadium	1.6	J	1.1	10
Zinc	91		4.5	20

200.8 Metals (ICP/MS)-Dissolved

Analysis Method:	200.8	Analysis Batch:	280-125775	Instrument ID:	MT_024
Prep Method:	200.8	Prep Batch:	280-125466	Lab File ID:	074SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	06/27/2012 0023			Final Weight/Volume:	50 mL
Prep Date:	06/26/2012 1400				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	ND		0.16	2.0
Arsenic	0.55	J	0.50	5.0
Barium	10		0.38	1.0
Cadmium	0.095	J	0.040	1.0
Cobalt	0.13	J	0.050	1.0
Copper	6.3		0.20	2.0
Lead	0.13	J	0.10	1.0
Manganese	53		0.51	2.0
Molybdenum	4.3	B	0.040	2.0
Selenium	5.0		1.0	5.0
Silver	0.051	J B	0.020	1.0
Thallium	ND		0.066	1.0
Uranium	30		0.030	1.0

20B Sodium Adsorption Ratio

Analytical Data

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Client Sample ID: **GUTHRIE**

Lab Sample ID: 280-30378-3
Client Matrix: Water

Date Sampled: 06/22/2012 0945
Date Received: 06/23/2012 0900

20B Sodium Adsorption Ratio

Analysis Method:	20B	Analysis Batch:	280-125550	Instrument ID:	MT_025
	N/A		N/A	Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	
Analysis Date:	06/26/2012 0710			Final Weight/Volume:	1.0 mL
Prep Date:	N/A				

Analyte	Result (No Unit)	Qualifier	MDL	RL
Sodium Adsorption Ratio	3.2		0.40	0.40

245.1 Mercury (CVAA)-Dissolved

Analysis Method:	245.1	Analysis Batch:	280-125895	Instrument ID:	MT_033
Prep Method:	245.1	Prep Batch:	280-125678	Lab File ID:	120627aa.txt
Dilution:	1.0			Initial Weight/Volume:	30 mL
Analysis Date:	06/27/2012 1503			Final Weight/Volume:	30 mL
Prep Date:	06/27/2012 1035				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Mercury	ND		0.027	0.20

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

General Chemistry

Client Sample ID: **GUTHRIE**

Lab Sample ID: 280-30378-3
Client Matrix: Water

Date Sampled: 06/22/2012 0945
Date Received: 06/23/2012 0900

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Bromide	0.67		mg/L	0.23	0.40	2.0	300.0
Analysis Batch: 280-125605	Analysis Date: 06/23/2012 1630						
Nitrate as N	0.50	J	mg/L	0.084	1.0	2.0	300.0
Analysis Batch: 280-125604	Analysis Date: 06/23/2012 1630						
Chloride	79		mg/L	0.51	6.0	2.0	300.0
Analysis Batch: 280-125605	Analysis Date: 06/23/2012 1630						
Nitrite as N	ND		mg/L	0.098	1.0	2.0	300.0
Analysis Batch: 280-125604	Analysis Date: 06/23/2012 1630						
Fluoride	0.43	J	mg/L	0.12	1.0	2.0	300.0
Analysis Batch: 280-125605	Analysis Date: 06/23/2012 1630						
Sulfate	1400		mg/L	12	250	50	300.0
Analysis Batch: 280-125605	Analysis Date: 06/24/2012 1230						
Total Alkalinity	470		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-125734	Analysis Date: 06/26/2012 0932						
Bicarbonate Alkalinity as CaCO3	470		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-125734	Analysis Date: 06/26/2012 0932						
Carbonate Alkalinity as CaCO3	ND		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-125734	Analysis Date: 06/26/2012 0932						
Hydroxide Alkalinity	ND		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-125734	Analysis Date: 06/26/2012 0932						
Specific Conductance	3100		umhos/cm	2.0	2.0	1.0	SM 2510B
Analysis Batch: 280-125960	Analysis Date: 06/28/2012 1108						
Total Dissolved Solids	2500		mg/L	9.4	20	1.0	SM 2540C
Analysis Batch: 280-125916	Analysis Date: 06/28/2012 0900						
pH	7.33	HF	SU	0.100	0.100	1.0	SM 4500 H+ B
Analysis Batch: 280-125326	Analysis Date: 06/23/2012 1205						
Total Organic Carbon - Average	4.7	B	mg/L	0.16	1.0	1.0	SM 5310B
Analysis Batch: 280-126107	Analysis Date: 06/28/2012 0620						

Attachment 3

Received 7/13/2012 Rifle COGCC

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 280-30378-2

Job Description: Tim Guthrie Silt, CO

For:
Colorado Oil&Gas Conservation Commision
707 Wapiti Court
Suite 204
Rifle, CO 81650

Attention: Linda Spry O'Rourke

Approved for release.
Joseph J Egry
Project Manager I
7/13/2012 11:16 AM

Joseph J Egry
Project Manager I
joseph.egry@testamericainc.com
07/13/2012

The test results in this report relate only to the samples in this report and meet all requirements of NELAC, with any exceptions noted. Pursuant to NELAP, this report shall not be reproduced except in full, without the written approval of the laboratory. All questions regarding this report should be directed to the TestAmerica Denver Project Manager.

The Lab Certification ID# is E87667.

Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.

TestAmerica Laboratories, Inc.
TestAmerica Denver 4955 Yarrow Street, Arvada, CO 80002
Tel (303) 736-0100 Fax (303) 431-7171 www.testamericainc.com

ACCREDITED IN ACCORDANCE WITH nelac

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Table of Contents

CASE NARRATIVE

Client: Colorado Oil & Gas Conservation Commission

Project: Tim Guthrie Silt, CO

Report Number: 280-30378-2

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 06/23/2012; the samples arrived in three (3) coolers in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 1.8ºC, 2.4ºC, and 2.8ºC.

The results for the RSK-175 analysis, SW846 8015B, are included in this report and were performed by TestAmerica Houston: 6310 Rothway Street; Houston, TX 77040: Phone: 713.690.4444.

The sample collection time was not listed on the Chain of Custody for sample GUTHRIE (280-30378-3). The sample was logged per the time listed on the container labels.

VOLATILE ORGANIC COMPOUNDS (GC-MS)

Sample GUTHRIE (280-30378-3) was analyzed for volatile organic compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 06/28/2012.

Methylene Chloride was detected in method blank MB 280-125949/5 at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged “J”. If the associated sample reported a result above the MDL and/or RL, the result has been “B” flagged.

No other difficulties were encountered during the volatiles analysis.

All other quality control parameters were within the acceptance limits.

SEMIVOLATILE ORGANIC COMPOUNDS (GC-MS)

Sample GUTHRIE (280-30378-3) was analyzed for semivolatile organic compounds (GC-MS) in accordance with EPA SW-846 Method 8270C. The samples were prepared on 06/24/2012 and analyzed on 06/29/2012.

2,4,6-Tribromophenol failed the surrogate recovery criteria high for LCS 280-125338/2-A and LCSD 280-125338/3-A. All spike compounds were within control in both the LCS and LCSD, therefore the data will be reported.

Insufficient sample volume was available to perform batch matrix spike/matrix spike duplicate (MS/MSD) associated with batch 125338. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch.

No other difficulties were encountered during the SVOC analysis.

All other quality control parameters were within the acceptance limits.

GAS RANGE ORGANICS

Sample GUTHRIE (280-30378-3) was analyzed for gas range organics in accordance with EPA SW-846 Method 8015B - GRO. The samples were analyzed on 06/27/2012.

No difficulties were encountered during the GRO analysis.

All quality control parameters were within the acceptance limits.

DISSOLVED GASES

Sample GUTHRIE (280-30378-3) was analyzed for dissolved gases in accordance with RSK_175. The samples were analyzed on 07/02/2012.

No difficulties were encountered during the dissolved gases analysis.

All quality control parameters were within the acceptance limits.

DIESEL RANGE ORGANICS
Sample GUTHRIE (280-30378-3) was analyzed for Diesel Range Organics in accordance with EPA SW-846 Method 8015B - DRO. The samples were prepared on 06/25/2012 and analyzed on 06/27/2012.

Insufficient sample volume was available to perform batch matrix spike/matrix spike duplicate (MS/MSD) associated with batch 125504 method 3510C/ 8015B_DRO. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch.

No other difficulties were encountered during the DRO analysis.

All quality control parameters were within the acceptance limits.

DISSOLVED METALS (ICP)
Sample GUTHRIE (280-30378-3) was analyzed for dissolved metals (ICP) in accordance with EPA Method 200.7. The samples were prepared on 06/26/2012 and analyzed on 06/27/2012.

Sodium failed the recovery criteria low for the MS and MSD of sample 280-30333-1 in batch 280-125764. The associated laboratory control sample (LCS) recovery met acceptance criteria.

No other difficulties were encountered during the metals analysis.

All other quality control parameters were within the acceptance limits.

DISSOLVED METALS (ICPMS)
Sample GUTHRIE (280-30378-3) was analyzed for dissolved metals (ICPMS) in accordance with EPA Method 200.8. The samples were prepared on 06/26/2012 and analyzed on 06/27/2012.

Molybdenum and Silver were detected in method blank MB 280-125420/1-B at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged “J”. If the associated sample reported a result above the MDL and/or RL, the result has been “B” flagged.

Cobalt and Copper failed the recovery criteria low for the MS and MSD of sample 280-30378-1 in batch 280-125775. The associated laboratory control sample (LCS) recovery met acceptance criteria.

No other difficulties were encountered during the dissolved metals analysis.

All other quality control parameters were within the acceptance limits.

DISSOLVED MERCURY (CVAA)
Sample GUTHRIE (280-30378-3) was analyzed for dissolved mercury (CVAA) in accordance with EPA Method 245.1. The samples were prepared and analyzed on 06/27/2012.

No difficulties were encountered during the dissolved mercury analysis.

All quality control parameters were within the acceptance limits.

SODIUM ABSORPTION RATIO
Sample GUTHRIE (280-30378-3) was analyzed for Sodium Absorption Ratio in accordance with USDA Handbook 60 - 20B. The samples were analyzed on 06/26/2012.

No difficulties were encountered during the SAR analysis.

All quality control parameters were within the acceptance limits.

ALKALINITY
Sample GUTHRIE (280-30378-3) was analyzed for Alkalinity in accordance with SM20 2320B. The samples were analyzed on 06/26/2012.

No difficulties were encountered during the alkalinity analysis.

All quality control parameters were within the acceptance limits.

SPECIFIC CONDUCTIVITY
Sample GUTHRIE (280-30378-3) was analyzed for specific conductivity in accordance with SM20 2510B. The samples were analyzed on 06/28/2012.

No difficulties were encountered during the conductivity analysis.

All quality control parameters were within the acceptance limits.

TOTAL DISSOLVED SOLIDS
Sample GUTHRIE (280-30378-3) was analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 06/28/2012.

No difficulties were encountered during the TDS analysis.

All quality control parameters were within the acceptance limits.

ANIONS (28 DAYS)
Sample GUTHRIE (280-30378-3) was analyzed for anions (28 days) in accordance with EPA Method 300.0. The samples were analyzed on 06/23/2012 and 06/24/2012.

Sample GUTHRIE (280-30378-3) [2X] and [50X] required dilution prior to analysis due to matrix. The reporting limits have been adjusted accordingly.

No other difficulties were encountered during the anions analysis.

All other quality control parameters were within the acceptance limits.

ANIONS (48 HOURS)
Sample GUTHRIE (280-30378-3) was analyzed for anions (48 hours) in accordance with EPA Method 300.0. The samples were analyzed on 06/23/2012.

Sample GUTHRIE (280-30378-3) [2X] required dilution prior to analysis due to matrix. The reporting limits have been adjusted accordingly.

No difficulties were encountered during the anions analysis.

All quality control parameters were within the acceptance limits.

CORROSIVITY (PH)
Sample GUTHRIE (280-30378-3) was analyzed for corrosivity (pH) in accordance with SM20 4500 H+ B. The samples were analyzed on 06/23/2012.

No difficulties were encountered during the pH analysis.

All other quality control parameters were within the acceptance limits.

TOTAL ORGANIC CARBON
Sample GUTHRIE (280-30378-3) was analyzed for total organic carbon in accordance with SM20 5310B. The samples were analyzed on 06/28/2012.

Total Organic Carbon - Average was detected in method blank MB 280-126107/25 at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged “J”. If the associated sample reported a result above the MDL and/or RL, the result has been “B” flagged.

No other difficulties were encountered during the TOC analysis.

All other quality control parameters were within the acceptance limits.

GC/MS VOA MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-30378-2

SDG No.:

Instrument ID: MSV_R1 Analysis Batch Number: 124031

Lab Sample ID: IC 280-124031/3 Client Sample ID:

Date Analyzed: 06/12/12 08:22 Lab File ID: R7009.D GC Column: DB-624 ID: 0.25(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,2-Dibromo-3-Chloropropane	12.88	Analyte not Identified by the Data System	dobransky m	06/12/12 11:24

GASOLINE RANGE ORGANICS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-30378-2

SDG No.:

Instrument ID: GCV_K Analysis Batch Number: 115193

Lab Sample ID: IC 280-115193/3 Client Sample ID:

Date Analyzed: 04/11/12 15:28 Lab File ID: 113F0301.D GC Column: RTX 502.2 ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
a,a,a-Trifluorotoluene	10.57	Split Peak	byla	04/12/12 10:32
Gasoline Range Organics (GRO) -C6-C10	14.46	Baseline Event	byla	04/12/12 00:00
1-Chloro-4-fluorobenzene	15.39	Baseline Event	byla	04/12/12 10:31
Chlorobenzene	15.73	Baseline Event	byla	04/12/12 10:31
C5-C12	16.98	Baseline Event	byla	04/12/12 00:00
C6-C12	17.65	Baseline Event	byla	04/12/12 00:00

Lab Sample ID: IC 280-115193/4 Client Sample ID:

Date Analyzed: 04/11/12 16:10 Lab File ID: 114F0401.D GC Column: RTX 502.2 ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
a,a,a-Trifluorotoluene	10.57	Split Peak	byla	04/12/12 12:58
Gasoline Range Organics (GRO) -C6-C10	14.46	Baseline Event	byla	04/12/12 00:00
1-Chloro-4-fluorobenzene	15.38	Baseline Event	byla	04/12/12 12:58
Chlorobenzene	15.72	Baseline Event	byla	04/12/12 12:58
C5-C12	16.98	Baseline Event	byla	04/12/12 00:00
C6-C12	17.65	Baseline Event	byla	04/12/12 00:00

GASOLINE RANGE ORGANICS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-30378-2

SDG No.:

Instrument ID: GCV_K Analysis Batch Number: 115193

Lab Sample ID: ICRT 280-115193/5 Client Sample ID:

Date Analyzed: 04/11/12 16:53 Lab File ID: 115F0501.D GC Column: RTX 502.2 ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
a,a,a-Trifluorotoluene	10.57	Split Peak	byla	04/12/12 10:29
Gasoline Range Organics (GRO) -C6-C10	14.46	Baseline Event	byla	04/12/12 00:00
1-Chloro-4-fluorobenzene	15.38	Baseline Event	byla	04/12/12 10:29
Chlorobenzene	15.72	Baseline Event	byla	04/12/12 10:29
C5-C12	16.98	Baseline Event	byla	04/12/12 00:00
C6-C12	17.65	Baseline Event	byla	04/12/12 00:00

Lab Sample ID: IC 280-115193/6 Client Sample ID:

Date Analyzed: 04/11/12 17:36 Lab File ID: 116F0601.D GC Column: RTX 502.2 ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
a,a,a-Trifluorotoluene	10.57	Split Peak	byla	04/12/12 10:34
Gasoline Range Organics (GRO) -C6-C10	14.46	Baseline Event	byla	04/12/12 00:00
1-Chloro-4-fluorobenzene	15.38	Baseline Event	byla	04/12/12 10:34
Chlorobenzene	15.71	Baseline Event	byla	04/12/12 10:34
C5-C12	16.98	Baseline Event	byla	04/12/12 00:00
C6-C12	17.65	Baseline Event	byla	04/12/12 00:00

GASOLINE RANGE ORGANICS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-30378-2

SDG No.:

Instrument ID: GCV_K Analysis Batch Number: 115193

Lab Sample ID: IC 280-115193/7 Client Sample ID:

Date Analyzed: 04/11/12 18:18 Lab File ID: 201F0701.D GC Column: RTX 502.2 ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
a,a,a-Trifluorotoluene	10.57	Split Peak	byla	04/12/12 10:35
Gasoline Range Organics (GRO) -C6-C10	14.46	Baseline Event	byla	04/12/12 00:00
1-Chloro-4-fluorobenzene	15.38	Baseline Event	byla	04/12/12 10:34
Chlorobenzene	15.71	Baseline Event	byla	04/12/12 10:34
C5-C12	16.98	Baseline Event	byla	04/12/12 00:00
C6-C12	17.65	Baseline Event	byla	04/12/12 00:00

Lab Sample ID: IC 280-115193/8 Client Sample ID:

Date Analyzed: 04/11/12 19:01 Lab File ID: 202F0801.D GC Column: RTX 502.2 ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
a,a,a-Trifluorotoluene	10.56	Baseline Event	mooret	04/12/12 11:00
Gasoline Range Organics (GRO) -C6-C10	14.46	Baseline Event	mooret	04/12/12 00:00
1-Chloro-4-fluorobenzene	15.37	Baseline Event	mooret	04/12/12 11:00
Chlorobenzene	15.70	Baseline Event	mooret	04/12/12 11:00
C5-C12	16.98	Baseline Event	mooret	04/12/12 00:00
C6-C12	17.65	Baseline Event	mooret	04/12/12 00:00

GASOLINE RANGE ORGANICS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-30378-2

SDG No.:

Instrument ID: GCV_K Analysis Batch Number: 115193

Lab Sample ID: ICV 280-115193/9 Client Sample ID:

Date Analyzed: 04/11/12 19:43 Lab File ID: 203F0901.D GC Column: RTX 502.2 ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
a,a,a-Trifluorotoluene	10.55	Split Peak	byla	04/12/12 10:38
Gasoline Range Organics (GRO) -C6-C10	14.46	Baseline Event	byla	04/12/12 00:00
Chlorobenzene	15.69	Baseline Event	byla	04/12/12 10:38
C5-C12	16.98	Baseline Event	byla	04/12/12 00:00
C6-C12	17.65	Baseline Event	byla	04/12/12 00:00
Gasoline	17.65	Baseline Event	byla	04/12/12 00:00

GASOLINE RANGE ORGANICS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-30378-2

SDG No.:

Instrument ID: GCV_K Analysis Batch Number: 125760

Lab Sample ID: CCVRT 280-125760/2 Client Sample ID:

Date Analyzed: 06/26/12 10:03 Lab File ID: 111F0201.D GC Column: RTX 502.2 ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
a,a,a-Trifluorotoluene	10.57	Split Peak	byla	06/26/12 12:51
Gasoline Range Organics (GRO) -C6-C10	14.45	Baseline Event	byla	06/26/12 00:00
Chlorobenzene	15.71	Baseline Event	byla	06/26/12 12:51

Lab Sample ID: LCS 280-125760/3 Client Sample ID:

Date Analyzed: 06/26/12 13:34 Lab File ID: 112F0301.D GC Column: RTX 502.2 ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
a,a,a-Trifluorotoluene	10.56	Split Peak	byla	06/26/12 15:20
Gasoline Range Organics (GRO) -C6-C10	14.45	Baseline Event	byla	06/26/12 00:00

Lab Sample ID: LCSD 280-125760/4 Client Sample ID:

Date Analyzed: 06/26/12 14:16 Lab File ID: 113F0401.D GC Column: RTX 502.2 ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
a,a,a-Trifluorotoluene	10.58	Baseline Event	byla	06/26/12 15:20
Gasoline Range Organics (GRO) -C6-C10	14.45	Baseline Event	byla	06/26/12 00:00

Lab Sample ID: 280-30378-L-1 MS Client Sample ID:

Date Analyzed: 06/26/12 16:23 Lab File ID: 116F0701.D GC Column: RTX 502.2 ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
a,a,a-Trifluorotoluene	10.58	Baseline Event	byla	06/27/12 08:26
Gasoline Range Organics (GRO) -C6-C10	14.45	Baseline Event	byla	06/27/12 00:00

GASOLINE RANGE ORGANICS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-30378-2

SDG No.:

Instrument ID: GCV_K Analysis Batch Number: 125760

Lab Sample ID: 280-30378-L-1 MSD Client Sample ID:

Date Analyzed: 06/26/12 17:06 Lab File ID: 201F0801.D GC Column: RTX 502.2 ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
a,a,a-Trifluorotoluene	10.58	Baseline Event	byla	06/27/12 08:26
Gasoline Range Organics (GRO) -C6-C10	14.45	Baseline Event	byla	06/27/12 00:00

Lab Sample ID: CCV 280-125760/13 Client Sample ID:

Date Analyzed: 06/26/12 20:39 Lab File ID: 206F1301.D GC Column: RTX 502.2 ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
a,a,a-Trifluorotoluene	10.55	Split Peak	byla	06/27/12 08:21
Gasoline Range Organics (GRO) -C6-C10	14.45	Baseline Event	byla	06/27/12 00:00
Chlorobenzene	15.69	Baseline Event	byla	06/27/12 08:21

Lab Sample ID: CCV 280-125760/21 Client Sample ID:

Date Analyzed: 06/27/12 02:19 Lab File ID: 214F2101.D GC Column: RTX 502.2 ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
a,a,a-Trifluorotoluene	10.53	Split Peak	byla	06/27/12 08:22
Gasoline Range Organics (GRO) -C6-C10	14.45	Baseline Event	byla	06/27/12 00:00
Chlorobenzene	15.67	Baseline Event	byla	06/27/12 08:21

DIESEL RANGE ORGANICS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-30378-2

SDG No.:

Instrument ID: GCS_U2 Analysis Batch Number: 117292

Lab Sample ID: IC 280-117292/2 Client Sample ID:

Date Analyzed: 04/26/12 15:10 Lab File ID: 004F0401.D GC Column: RTX-1 (30.32) ID: 0.25(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
C10-C22	6.49	Baseline Event	birdsellm	04/27/12 00:00
C10-C24	6.82	Baseline Event	birdsellm	04/27/12 10:14
C10-C25	6.98	Baseline Event	birdsellm	04/27/12 10:14
C8-C34	7.00	Baseline Event	birdsellm	04/27/12 00:00
Diesel Range Organics [C10-C28]	7.41	Baseline Event	birdsellm	04/27/12 10:14
C10-C32	7.94	Baseline Event	birdsellm	04/27/12 10:14
C10-C36	8.40	Baseline Event	birdsellm	04/27/12 10:14

Lab Sample ID: IC 280-117292/3 Client Sample ID:

Date Analyzed: 04/26/12 15:34 Lab File ID: 005F0501.D GC Column: RTX-1 (30.32) ID: 0.25(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
C10-C22	6.49	Baseline Event	birdsellm	04/27/12 10:15
C10-C24	6.82	Baseline Event	birdsellm	04/27/12 10:15
C10-C25	6.98	Baseline Event	birdsellm	04/27/12 10:15
C8-C34	7.00	Baseline Event	birdsellm	04/27/12 10:15
Diesel Range Organics [C10-C28]	7.41	Baseline Event	birdsellm	04/27/12 10:15
C10-C32	7.94	Baseline Event	birdsellm	04/27/12 10:15
o-Terphenyl	8.22	Baseline Event	birdsellm	04/27/12 10:15
C10-C36	8.40	Baseline Event	birdsellm	04/27/12 10:15
n-Octacosane	11.38	Baseline Event	birdsellm	04/27/12 10:15

DIESEL RANGE ORGANICS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-30378-2

SDG No.:

Instrument ID: GCS_U2 Analysis Batch Number: 117292

Lab Sample ID: IC 280-117292/4 Client Sample ID:

Date Analyzed: 04/26/12 15:58 Lab File ID: 006F0601.D GC Column: RTX-1 (30.32) ID: 0.25(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
C10-C22	6.49	Baseline Event	birdsellm	04/27/12 10:15
C10-C24	6.82	Baseline Event	birdsellm	04/27/12 10:15
C10-C25	6.98	Baseline Event	birdsellm	04/27/12 10:15
C8-C34	7.00	Baseline Event	birdsellm	04/27/12 10:15
Diesel Range Organics [C10-C28]	7.41	Baseline Event	birdsellm	04/27/12 10:15
C10-C32	7.94	Baseline Event	birdsellm	04/27/12 10:15
o-Terphenyl	8.21	Baseline Event	birdsellm	04/27/12 10:15
C10-C36	8.40	Baseline Event	birdsellm	04/27/12 10:15
n-Octacosane	11.38	Baseline Event	birdsellm	04/27/12 10:15

Lab Sample ID: ICRT 280-117292/5 Client Sample ID:

Date Analyzed: 04/26/12 16:23 Lab File ID: 007F0701.D GC Column: RTX-1 (30.32) ID: 0.25(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
C10-C22	6.49	Baseline Event	birdsellm	04/27/12 10:13
C10-C24	6.82	Baseline Event	birdsellm	04/27/12 10:13
C10-C25	6.98	Baseline Event	birdsellm	04/27/12 10:13
C8-C34	7.00	Baseline Event	birdsellm	04/27/12 10:13
Diesel Range Organics [C10-C28]	7.41	Baseline Event	birdsellm	04/27/12 10:13
C10-C32	7.94	Baseline Event	birdsellm	04/27/12 10:13
o-Terphenyl	8.21	Baseline Event	birdsellm	04/27/12 10:13
C10-C36	8.40	Baseline Event	birdsellm	04/27/12 10:13
n-Octacosane	11.38	Baseline Event	birdsellm	04/27/12 10:13

DIESEL RANGE ORGANICS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-30378-2

SDG No.:

Instrument ID: GCS_U2 Analysis Batch Number: 117292

Lab Sample ID: IC 280-117292/6 Client Sample ID:

Date Analyzed: 04/26/12 16:47 Lab File ID: 008F0801.D GC Column: RTX-1 (30.32) ID: 0.25(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
C10-C22	6.49	Baseline Event	birdsellm	04/27/12 10:16
C10-C24	6.82	Baseline Event	birdsellm	04/27/12 10:16
C10-C25	6.98	Baseline Event	birdsellm	04/27/12 10:16
C8-C34	7.00	Baseline Event	birdsellm	04/27/12 10:16
Diesel Range Organics [C10-C28]	7.41	Baseline Event	birdsellm	04/27/12 10:16
C10-C32	7.94	Baseline Event	birdsellm	04/27/12 10:16
o-Terphenyl	8.20	Baseline Event	birdsellm	04/27/12 10:16
C10-C36	8.40	Baseline Event	birdsellm	04/27/12 10:16
n-Octacosane	11.38	Baseline Event	birdsellm	04/27/12 10:15

Lab Sample ID: IC 280-117292/7 Client Sample ID:

Date Analyzed: 04/26/12 17:12 Lab File ID: 009F0901.D GC Column: RTX-1 (30.32) ID: 0.25(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
C10-C22	6.49	Baseline Event	birdsellm	04/27/12 10:16
C10-C24	6.82	Baseline Event	birdsellm	04/27/12 10:16
C10-C25	6.98	Baseline Event	birdsellm	04/27/12 10:16
C8-C34	7.00	Baseline Event	birdsellm	04/27/12 10:16
Diesel Range Organics [C10-C28]	7.41	Baseline Event	birdsellm	04/27/12 10:16
C10-C32	7.94	Baseline Event	birdsellm	04/27/12 10:16
o-Terphenyl	8.20	Baseline Event	birdsellm	04/27/12 10:16
C10-C36	8.40	Baseline Event	birdsellm	04/27/12 10:16

DIESEL RANGE ORGANICS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-30378-2

SDG No.:

Instrument ID: GCS_U2 Analysis Batch Number: 117292

Lab Sample ID: IC 280-117292/8 Client Sample ID:

Date Analyzed: 04/26/12 17:36 Lab File ID: 010F1001.D GC Column: RTX-1 (30.32) ID: 0.25(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
C10-C22	6.49	Baseline Event	birdsellm	04/27/12 10:16
C10-C24	6.82	Baseline Event	birdsellm	04/27/12 10:16
C10-C25	6.98	Baseline Event	birdsellm	04/27/12 10:16
C8-C34	7.00	Baseline Event	birdsellm	04/27/12 10:16
Diesel Range Organics [C10-C28]	7.41	Baseline Event	birdsellm	04/27/12 10:16
C10-C32	7.94	Baseline Event	birdsellm	04/27/12 10:16
o-Terphenyl	8.20	Baseline Event	birdsellm	04/27/12 10:16
C10-C36	8.40	Baseline Event	birdsellm	04/27/12 10:16

Lab Sample ID: ICV 280-117292/9 Client Sample ID:

Date Analyzed: 04/26/12 18:01 Lab File ID: 011F1101.D GC Column: RTX-1 (30.32) ID: 0.25(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
C10-C24	6.82	Baseline Event	birdsellm	04/27/12 10:19
C10-C25	6.98	Baseline Event	birdsellm	04/27/12 10:19
C8-C34	7.00	Baseline Event	birdsellm	04/27/12 10:19
Diesel Range Organics [C10-C28]	7.41	Baseline Event	birdsellm	04/27/12 10:19
C10-C32	7.94	Baseline Event	birdsellm	04/27/12 10:19
o-Terphenyl	8.20	Baseline Event	birdsellm	04/27/12 10:18
C10-C36	8.40	Baseline Event	birdsellm	04/27/12 10:19
n-Octacosane	11.37	Baseline Event	birdsellm	04/27/12 10:19

DIESEL RANGE ORGANICS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-30378-2

SDG No.:

Instrument ID: GCS_U2 Analysis Batch Number: 125910

Lab Sample ID: CCVRT 280-125910/2 Client Sample ID:

Date Analyzed: 06/27/12 14:36 Lab File ID: 004F0401.D GC Column: RTX-1 (30.32) ID: 0.25(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Diesel Range Organics [C10-C28]	7.38	Baseline Event	pavlakoa	06/27/12 16:12
o-Terphenyl	8.18	Baseline Event	pavlakoa	06/27/12 16:12
C10-C36	8.37	Baseline Event	pavlakoa	06/27/12 16:12
n-Octacosane	11.35	Baseline Event	pavlakoa	06/27/12 16:12

Lab Sample ID: LCS 280-125504/2-A Client Sample ID:

Date Analyzed: 06/27/12 19:29 Lab File ID: 016F1601.D GC Column: RTX-1 (30.32) ID: 0.25(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
o-Terphenyl	8.17	Baseline Event	pavlakoa	06/28/12 08:35
C10-C36	8.37	Baseline Event	pavlakoa	06/28/12 08:35
n-Octacosane	11.34	Baseline Event	pavlakoa	06/28/12 08:35

Lab Sample ID: LCSD 280-125504/3-A Client Sample ID:

Date Analyzed: 06/27/12 19:53 Lab File ID: 017F1701.D GC Column: RTX-1 (30.32) ID: 0.25(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
o-Terphenyl	8.17	Baseline Event	pavlakoa	06/28/12 08:36
C10-C36	8.37	Baseline Event	pavlakoa	06/28/12 08:36
n-Octacosane	11.34	Baseline Event	pavlakoa	06/28/12 08:36

DIESEL RANGE ORGANICS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-30378-2

SDG No.:

Instrument ID: GCS_U2 Analysis Batch Number: 125910

Lab Sample ID: CCV 280-125910/18 Client Sample ID:

Date Analyzed: 06/27/12 21:31 Lab File ID: 021F2101.D GC Column: RTX-1 (30.32) ID: 0.25(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Diesel Range Organics [C10-C28]	7.38	Baseline Event	pavlakoa	06/28/12 08:37
o-Terphenyl	8.18	Baseline Event	pavlakoa	06/28/12 08:37
C10-C36	8.37	Baseline Event	pavlakoa	06/28/12 08:37
n-Octacosane	11.35	Baseline Event	pavlakoa	06/28/12 08:37

GC VOA MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Houston Job No.: 280-30378-2

SDG No.:

Instrument ID: FID14 Analysis Batch Number: 83033

Lab Sample ID: CCVRT 600-83033/1 Client Sample ID:

Date Analyzed: 07/02/12 14:22 Lab File ID: rsk070212_001.d GC Column: RTX-5 ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Methane	0.92	Peak Integrated Incorrectly	lamj	07/02/12 14:37
Ethane	1.10	Peak Integrated Incorrectly	lamj	07/02/12 14:37

Lab Sample ID: LCS 600-83033/3 Client Sample ID:

Date Analyzed: 07/02/12 14:52 Lab File ID: rsk070212_003.d GC Column: RTX-5 ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Methane	0.90	Peak Integrated Incorrectly	lamj	07/02/12 15:03
Ethane	1.08	Peak Integrated Incorrectly	lamj	

Lab Sample ID: 280-30378-3 Client Sample ID: GUTHRIE

Date Analyzed: 07/02/12 16:51 Lab File ID: rsk070212_011.d GC Column: RTX-5 ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Methane	0.97	Peak Integrated Incorrectly	lamj	07/03/12 16:00
Ethane	1.15	Peak Integrated Incorrectly	lamj	

Lab Sample ID: CCV 600-83033/12 Client Sample ID:

Date Analyzed: 07/02/12 17:16 Lab File ID: rsk070212_012.d GC Column: RTX-5 ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Methane	0.92	Peak Integrated Incorrectly	lamj	07/02/12 17:26
Ethane	1.10	Peak Integrated Incorrectly	lamj	07/02/12 17:26

GC VOA MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Houston Job No.: 280-30378-2

SDG No.:

Instrument ID: FID14 Analysis Batch Number: 83033

Lab Sample ID: 280-30378-P-1 MS Client Sample ID:

Date Analyzed: 07/02/12 17:29 Lab File ID: rsk070212_013.d GC Column: RTX-5 ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Methane	0.92	Peak Integrated Incorrectly	lamj	07/02/12 17:43
Ethane	1.10	Peak Integrated Incorrectly	lamj	07/02/12 17:43

Lab Sample ID: 280-30378-P-1 MSD Client Sample ID:

Date Analyzed: 07/02/12 17:46 Lab File ID: rsk070212_014.d GC Column: RTX-5 ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Methane	0.92	Peak Integrated Incorrectly	lamj	07/02/12 17:55
Ethane	1.10	Peak Integrated Incorrectly	lamj	07/02/12 17:55

Lab Sample ID: CCV 600-83033/15 Client Sample ID:

Date Analyzed: 07/02/12 18:10 Lab File ID: rsk070212_015.d GC Column: RTX-5 ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Methane	0.92	Peak Integrated Incorrectly	lamj	07/02/12 18:20
Ethane	1.08	Peak Integrated Incorrectly	lamj	

GC/MS VOA MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-30378-2

SDG No.:

Instrument ID: MSV_R1 Analysis Batch Number: 124031

Lab Sample ID: IC 280-124031/3 Client Sample ID:

Date Analyzed: 06/12/12 08:22 Lab File ID: R7009.D GC Column: DB-624 ID: 0.25(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,2-Dibromo-3-Chloropropane	12.88	Analyte not Identified by the Data System	dobransky m	06/12/12 11:24

070612

8260B

METHOD / ANALYST SUMMARY

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Method	Analyst	Analyst ID
SW846 8260B	Dobransky, Michael E	MD
SW846 8270C	Hoffman, Michael G	MGH
SW846 8015B	Byl, Amelia M	AMB
RSK RSK-175	Lam, Jason A	JAL
SW846 8015B	Pavlakovich, Adam M	AMP
EPA 200.7 Rev 4.4	Bowen, Heidi E	HEB
EPA 200.8	Lill, Thomas E	TEL
USDA 20B	Harre, John K	JKH
EPA 245.1	Ivey, Crystal L	CLI
MCAWW 300.0	Bonnett, Jaqueline C	JCB
SM SM 2320B	Gilbert, Bryan M	BMG
SM SM 2510B	Hostetler, Jeffrey M	JMH
SM SM 2540C	Domnick, Brandon J	BJD
SM SM 4500 H+ B	Ayala, Delaina	DA
SM SM 5310B	Bandy, Darlene F	DFB

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Surrogate Recovery Report

8015B Diesel Range Organics (DRO) (GC)

Client Matrix: Water

Lab Sample ID	Client Sample ID	OTPH1 %Rec	OTC1 %Rec
280-30378-3	GUTHRIE	71	92
MB 280-125504/1-A		63	100
LCS 280-125504/2-A		81	97
LCSD 280-125504/3-A		73	86

Surrogate	Acceptance Limits
OTPH = o-Terphenyl	50-115
OTC = n-Octacosane	26-152

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Method Blank - Batch: 280-125949

Method: 8260B
Preparation: 5030B

Lab Sample ID:	MB 280-125949/5	Analysis Batch:	280-125949	Instrument ID:	MSV_R1
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	R7205.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	20 mL
Analysis Date:	06/28/2012 0750	Units:	ug/L	Final Weight/Volume:	20 mL
Prep Date:	06/28/2012 0750				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
1,1,1,2-Tetrachloroethane	ND		0.21	1.0
1,1,1-Trichloroethane	ND		0.16	1.0
1,1,2,2-Tetrachloroethane	ND		0.21	1.0
1,1,2-Trichloroethane	ND		0.27	1.0
1,1-Dichloroethane	ND		0.22	1.0
1,1-Dichloroethene	ND		0.23	1.0
1,1-Dichloropropene	ND		0.19	1.0
1,2,3-Trichlorobenzene	ND		0.21	1.0
1,2,3-Trichloropropane	ND		0.33	2.5
1,2,4-Trichlorobenzene	ND		0.21	1.0
1,2,4-Trimethylbenzene	ND		0.15	1.0
1,2-Dibromo-3-Chloropropane	ND		0.47	5.0
1,2-Dibromoethane	ND		0.18	1.0
1,2-Dichlorobenzene	ND		0.15	1.0
1,2-Dichloroethane	ND		0.13	1.0
1,2-Dichloroethene, Total	ND		0.24	1.0
1,2-Dichloropropane	ND		0.18	1.0
1,3,5-Trimethylbenzene	ND		0.16	1.0
1,3-Dichlorobenzene	ND		0.13	1.0
1,3-Dichloropropane	ND		0.22	1.0
1,4-Dichlorobenzene	ND		0.16	1.0
2,2-Dichloropropane	ND		0.18	1.0
2-Butanone (MEK)	ND		2.0	6.0
2-Chlorotoluene	ND		0.17	1.0
2-Hexanone	ND		1.7	5.0
4-Chlorotoluene	ND		0.21	1.0
4-Isopropyltoluene	ND		0.20	1.0
4-Methyl-2-pentanone (MIBK)	ND		0.98	5.0
Acetone	ND		1.9	10
Benzene	ND		0.16	1.0
Bromobenzene	ND		0.17	1.0
Bromoform	ND		0.19	1.0
Bromomethane	ND		0.21	2.0
Carbon tetrachloride	ND		0.19	1.0
Chlorobenzene	ND		0.17	1.0
Chlorobromomethane	ND		0.10	1.0
Chlorodibromomethane	ND		0.17	1.0
Chloroethane	ND		0.41	2.0
Chloroform	ND		0.16	1.0
Chloromethane	ND		0.30	2.0
cis-1,2-Dichloroethene	ND		0.15	1.0
cis-1,3-Dichloropropene	ND		0.16	1.0
Dibromomethane	ND		0.17	1.0
Dichlorobromomethane	ND		0.17	1.0
Dichlorodifluoromethane	ND		0.31	2.0

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Method Blank - Batch: 280-125949

Method: 8260B
Preparation: 5030B

Lab Sample ID:	MB 280-125949/5	Analysis Batch:	280-125949	Instrument ID:	MSV_R1
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	R7205.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	20 mL
Analysis Date:	06/28/2012 0750	Units:	ug/L	Final Weight/Volume:	20 mL
Prep Date:	06/28/2012 0750				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Ethylbenzene	ND		0.16	1.0
Hexachlorobutadiene	ND		0.36	1.0
Isopropylbenzene	ND		0.19	1.0
Methyl tert-butyl ether	ND		0.25	5.0
Methylene Chloride	0.339	J	0.32	2.0
m-Xylene & p-Xylene	ND		0.34	2.0
Naphthalene	ND		0.22	1.0
n-Butylbenzene	ND		0.32	1.0
N-Propylbenzene	ND		0.16	1.0
o-Xylene	ND		0.19	1.0
sec-Butylbenzene	ND		0.17	1.0
Styrene	ND		0.17	1.0
tert-Butylbenzene	ND		0.16	1.0
Tetrachloroethene	ND		0.20	1.0
Toluene	ND		0.17	1.0
trans-1,2-Dichloroethene	ND		0.15	1.0
trans-1,3-Dichloropropene	ND		0.19	3.0
Trichloroethene	ND		0.16	1.0
Trichlorofluoromethane	ND		0.29	2.0
Vinyl chloride	ND		0.10	1.0
Xylenes, Total	ND		0.19	2.0

Surrogate	% Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	92	70 - 127
4-Bromofluorobenzene (Surr)	85	78 - 120
Dibromofluoromethane (Surr)	85	77 - 120
Toluene-d8 (Surr)	87	80 - 125

Quality Control Results

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Lab Control Sample - Batch: 280-125949

Method: 8260B
Preparation: 5030B

Lab Sample ID:	LCS 280-125949/4	Analysis Batch:	280-125949	Instrument ID:	MSV_R1
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	R7204.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	20 mL
Analysis Date:	06/28/2012 0730	Units:	ug/L	Final Weight/Volume:	20 mL
Prep Date:	06/28/2012 0730				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
1,1,1-Trichloroethane	5.00	4.43	89	70 - 135	
1,1-Dichloroethane	5.00	4.56	91	75 - 135	
1,1-Dichloroethene	5.00	4.38	88	71 - 136	
1,2-Dichloropropane	5.00	4.23	85	71 - 120	
1,3-Dichlorobenzene	5.00	4.02	80	74 - 135	
Benzene	5.00	4.30	86	74 - 135	
Carbon tetrachloride	5.00	4.69	94	67 - 135	
Chlorobenzene	5.00	4.19	84	76 - 135	
Chloroform	5.00	4.34	87	76 - 120	
Dichlorobromomethane	5.00	4.54	91	73 - 135	
Ethylbenzene	5.00	4.30	86	72 - 120	
Methylene Chloride	5.00	4.13	83	54 - 141	
Tetrachloroethene	5.00	4.31	86	70 - 135	
Toluene	5.00	4.31	86	73 - 120	
trans-1,2-Dichloroethene	5.00	4.16	83	75 - 135	
Trichloroethene	5.00	4.09	82	73 - 135	

Surrogate	% Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	88	70 - 127
4-Bromofluorobenzene (Surr)	83	78 - 120
Dibromofluoromethane (Surr)	85	77 - 120
Toluene-d8 (Surr)	91	80 - 125

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-125949

Method: 8260B
Preparation: 5030B

MS Lab Sample ID:	280-30310-D-1 MS	Analysis Batch:	280-125949	Instrument ID:	MSV_R1
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	R7214.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	20 mL
Analysis Date:	06/28/2012 1054			Final Weight/Volume:	20 mL
Prep Date:	06/28/2012 1054				
Leach Date:	N/A				

MSD Lab Sample ID:	280-30310-D-1 MSD	Analysis Batch:	280-125949	Instrument ID:	MSV_R1
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	R7215.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	20 mL
Analysis Date:	06/28/2012 1114			Final Weight/Volume:	20 mL
Prep Date:	06/28/2012 1114				
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
1,1,1-Trichloroethane	86	92	70 - 135	7	20		
1,1-Dichloroethane	89	95	75 - 135	7	21		
1,1-Dichloroethene	84	92	71 - 136	9	20		
1,2-Dichloropropane	82	87	71 - 120	6	20		
1,3-Dichlorobenzene	79	83	74 - 135	5	20		
Benzene	84	88	74 - 135	5	20		
Carbon tetrachloride	91	97	67 - 135	7	21		
Chlorobenzene	83	86	76 - 135	3	20		
Chloroform	86	91	76 - 120	6	20		
Dichlorobromomethane	88	94	73 - 135	6	20		
Ethylbenzene	85	87	72 - 120	3	26		
Methylene Chloride	75	79	54 - 141	6	20		
Tetrachloroethene	84	87	70 - 135	3	20		
Toluene	85	89	73 - 120	5	20		
trans-1,2-Dichloroethene	84	89	75 - 135	5	24		
Trichloroethene	78	84	73 - 135	8	20		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	92	92	70 - 127
4-Bromofluorobenzene (Surr)	83	85	78 - 120
Dibromofluoromethane (Surr)	86	90	77 - 120
Toluene-d8 (Surr)	92	92	80 - 125

Quality Control Results

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-125949

Method: 8260B
Preparation: 5030B

MS Lab Sample ID:	280-30310-D-1 MS	Units: ug/L	
Client Matrix:	Water		
Dilution:	1.0		
Analysis Date:	06/28/2012 1054		
Prep Date:	06/28/2012 1054		
Leach Date:	N/A		

MSD Lab Sample ID:	280-30310-D-1 MSD
Client Matrix:	Water
Dilution:	1.0
Analysis Date:	06/28/2012 1114
Prep Date:	06/28/2012 1114
Leach Date:	N/A

Analyte	Sample Result/Qual		MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
1,1,1-Trichloroethane	ND		5.00	5.00	4.29	4.60
1,1-Dichloroethane	ND		5.00	5.00	4.44	4.77
1,1-Dichloroethene	ND		5.00	5.00	4.20	4.62
1,2-Dichloropropane	ND		5.00	5.00	4.10	4.36
1,3-Dichlorobenzene	ND		5.00	5.00	3.97	4.15
Benzene	ND		5.00	5.00	4.20	4.42
Carbon tetrachloride	ND		5.00	5.00	4.55	4.87
Chlorobenzene	ND		5.00	5.00	4.16	4.29
Chloroform	ND		5.00	5.00	4.29	4.57
Dichlorobromomethane	ND		5.00	5.00	4.39	4.68
Ethylbenzene	ND		5.00	5.00	4.23	4.34
Methylene Chloride	0.34	J	5.00	5.00	4.07	4.31
Tetrachloroethene	ND		5.00	5.00	4.22	4.36
Toluene	ND		5.00	5.00	4.24	4.44
trans-1,2-Dichloroethene	ND		5.00	5.00	4.21	4.43
Trichloroethene	ND		5.00	5.00	3.89	4.19

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Method Blank - Batch: 280-125338

Method: 8270C
Preparation: 3520C

Lab Sample ID:	MB 280-125338/1-A	Analysis Batch:	280-126328	Instrument ID:	MSS_Y
Client Matrix:	Water	Prep Batch:	280-125338	Lab File ID:	Y8510.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1000 mL
Analysis Date:	06/29/2012 1211	Units:	ug/L	Final Weight/Volume:	1000 uL
Prep Date:	06/24/2012 0815			Injection Volume:	0.5 uL
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
2,2'-oxybis[1-chloropropane]	ND		0.28	10
2,4,5-Trichlorophenol	ND		0.45	10
2,4,6-Trichlorophenol	ND		0.29	10
2,4-Dichlorophenol	ND		0.64	10
2,4-Dimethylphenol	ND		0.58	10
2,4-Dinitrophenol	ND		10	30
2,4-Dinitrotoluene	ND		1.7	10
2,6-Dinitrotoluene	ND		1.9	10
2-Chloronaphthalene	ND		0.26	4.0
2-Chlorophenol	ND		2.0	10
2-Methylnaphthalene	ND		0.29	4.0
2-Methylphenol	ND		0.98	10
2-Nitroaniline	ND		1.7	10
2-Nitrophenol	ND		0.39	10
3 & 4 Methylphenol	ND		0.25	10
3,3'-Dichlorobenzidine	ND		2.0	50
3-Nitroaniline	ND		2.0	10
4,6-Dinitro-2-methylphenol	ND		4.0	50
4-Bromophenyl phenyl ether	ND		0.43	10
4-Chloro-3-methylphenol	ND		2.4	10
4-Chloroaniline	ND		2.1	10
4-Chlorophenyl phenyl ether	ND		1.7	10
4-Nitroaniline	ND		2.0	10
4-Nitrophenol	ND		1.2	10
Acenaphthene	ND		0.28	4.0
Acenaphthylene	ND		0.49	4.0
Acetophenone	ND		0.24	10
Anthracene	ND		0.42	4.0
Atrazine	ND		0.73	10
Benzidine	ND		50	100
Benzo[a]anthracene	ND		0.35	4.0
Benzo[a]pyrene	ND		0.31	4.0
Benzo[b]fluoranthene	ND		0.53	4.0
Benzo[g,h,i]perylene	ND		0.50	4.0
Benzo[k]fluoranthene	ND		0.46	4.0
Bis(2-chloroethoxy)methane	ND		0.97	10
Bis(2-chloroethyl)ether	ND		0.41	10
Bis(2-ethylhexyl) phthalate	ND		0.56	10
Butyl benzyl phthalate	ND		1.0	4.0
Caprolactam	ND		5.0	10
Carbazole	ND		0.43	4.0
Chrysene	ND		0.54	4.0
Cresols, Total	ND		0.25	10
Dibenz(a,h)anthracene	ND		0.51	4.0
Dibenzofuran	ND		0.29	4.0

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Method Blank - Batch: 280-125338

Method: 8270C
Preparation: 3520C

Lab Sample ID:	MB 280-125338/1-A	Analysis Batch:	280-126328	Instrument ID:	MSS_Y
Client Matrix:	Water	Prep Batch:	280-125338	Lab File ID:	Y8510.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1000 mL
Analysis Date:	06/29/2012 1211	Units:	ug/L	Final Weight/Volume:	1000 uL
Prep Date:	06/24/2012 0815			Injection Volume:	0.5 uL
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Diethyl phthalate	ND		0.38	4.0
Dimethyl phthalate	ND		0.21	4.0
Di-n-butyl phthalate	ND		1.2	4.0
Di-n-octyl phthalate	ND		0.35	4.0
Fluoranthene	ND		0.20	4.0
Fluorene	ND		0.31	4.0
Hexachlorobenzene	ND		0.66	10
Hexachlorobutadiene	ND		3.3	10
Hexachlorocyclopentadiene	ND		10	50
Hexachloroethane	ND		2.1	10
Indeno[1,2,3-cd]pyrene	ND		0.65	4.0
Naphthalene	ND		0.29	4.0
Nitrobenzene	ND		0.81	10
N-Nitrosodi-n-propylamine	ND		0.35	10
n-Nitrosodiphenylamine(as diphenylamine)	ND		0.44	10
Pentachlorophenol	ND		20	50
Phenanthrene	ND		0.26	4.0
Phenol	ND		2.0	10
Pyrene	ND		0.37	10

Surrogate	% Rec	Acceptance Limits
2,4,6-Tribromophenol	106	57 - 120
2-Fluorobiphenyl	67	38 - 120
2-Fluorophenol	84	51 - 120
Nitrobenzene-d5	89	48 - 120
Phenol-d5	89	51 - 120
Terphenyl-d14	110	50 - 120

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-125338

Method: 8270C
Preparation: 3520C

LCS Lab Sample ID:	LCS 280-125338/2-A	Analysis Batch:	280-126328	Instrument ID:	MSS_Y
Client Matrix:	Water	Prep Batch:	280-125338	Lab File ID:	Y8511.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1000 mL
Analysis Date:	06/29/2012 1232	Units:	ug/L	Final Weight/Volume:	1000 uL
Prep Date:	06/24/2012 0815			Injection Volume:	0.5 uL
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-125338/3-A	Analysis Batch:	280-126328	Instrument ID:	MSS_Y
Client Matrix:	Water	Prep Batch:	280-125338	Lab File ID:	Y8512.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1000 mL
Analysis Date:	06/29/2012 1252	Units:	ug/L	Final Weight/Volume:	1000 uL
Prep Date:	06/24/2012 0815			Injection Volume:	0.5 uL
Leach Date:	N/A				

	% Rec.					
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
1,2,4-Trichlorobenzene	74	59	28 - 120	23	42		
1,4-Dichlorobenzene	67	61	25 - 120	10	52		
2,4,5-Trichlorophenol	110	103	64 - 120	7	30		
2,4,6-Trichlorophenol	104	100	62 - 120	4	30		
2,4-Dinitrotoluene	116	113	76 - 120	3	32		
2-Chlorophenol	95	94	58 - 120	2	30		
2-Methylnaphthalene	88	70	42 - 120	23	32		
2-Methylphenol	92	93	62 - 120	1	30		
4-Chloro-3-methylphenol	105	105	69 - 120	0	30		
4-Nitrophenol	121	117	59 - 129	3	35		
Acenaphthene	95	87	61 - 120	9	30		
Anthracene	102	100	71 - 120	2	30		
Carbazole	105	103	72 - 120	2	30		
N-Nitrosodi-n-propylamine	98	97	58 - 120	1	30		
Pentachlorophenol	99	97	57 - 120	2	33		
Phenol	95	92	61 - 120	3	42		
Pyrene	101	101	71 - 120	0	30		

Surrogate	LCS % Rec		LCSD % Rec		Acceptance Limits
2,4,6-Tribromophenol	128	X	122	X	57 - 120
2-Fluorobiphenyl	94		71		38 - 120
2-Fluorophenol	91		86		51 - 120
Nitrobenzene-d5	98		96		48 - 120
Phenol-d5	97		92		51 - 120
Terphenyl-d14	113		111		50 - 120

Quality Control Results

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Laboratory Control/
Laboratory Duplicate Data Report - Batch: 280-125338

Method: 8270C
Preparation: 3520C

LCS Lab Sample ID:	LCS 280-125338/2-A	Units:	ug/L	LCSD Lab Sample ID:	LCSD 280-125338/3-A
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	06/29/2012 1232			Analysis Date:	06/29/2012 1252
Prep Date:	06/24/2012 0815			Prep Date:	06/24/2012 0815
Leach Date:	N/A			Leach Date:	N/A

Analyte	LCS Spike Amount	LCSD Spike Amount	LCS Result/Qual	LCSD Result/Qual
1,2,4-Trichlorobenzene	80.0	80.0	59.0	47.0
1,4-Dichlorobenzene	80.0	80.0	53.4	48.5
2,4,5-Trichlorophenol	80.0	80.0	88.2	82.1
2,4,6-Trichlorophenol	80.0	80.0	83.6	80.1
2,4-Dinitrotoluene	80.0	80.0	92.8	90.2
2-Chlorophenol	80.0	80.0	76.4	74.9
2-Methylnaphthalene	80.0	80.0	70.7	56.2
2-Methylphenol	80.0	80.0	73.6	74.5
4-Chloro-3-methylphenol	80.0	80.0	83.9	83.9
4-Nitrophenol	80.0	80.0	96.7	93.6
Acenaphthene	80.0	80.0	76.0	69.4
Anthracene	80.0	80.0	81.6	80.4
Carbazole	80.0	80.0	83.9	82.5
N-Nitrosodi-n-propylamine	80.0	80.0	78.6	77.9
Pentachlorophenol	80.0	80.0	79.1	77.4
Phenol	80.0	80.0	76.0	73.7
Pyrene	80.0	80.0	80.6	80.8

Quality Control Results

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Method Blank - Batch: 280-125760

Method: 8015B
Preparation: 5030B

Lab Sample ID:	MB 280-125760/5	Analysis Batch:	280-125760	Instrument ID:	GCV_K
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	114F0501.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	06/26/2012 1458	Units:	ug/L	Final Weight/Volume:	5 mL
Prep Date:	06/26/2012 1458			Injection Volume:	5 mL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Result	Qual	MDL	RL
Gasoline Range Organics (GRO)-C6-C10	ND		10	25

Surrogate	% Rec	Acceptance Limits
a,a,a-Trifluorotoluene	97	82 - 110

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-125760

Method: 8015B
Preparation: 5030B

LCS Lab Sample ID:	LCS 280-125760/3	Analysis Batch:	280-125760	Instrument ID:	GCV_K
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	112F0301.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	06/26/2012 1334	Units:	ug/L	Final Weight/Volume:	5 mL
Prep Date:	06/26/2012 1334			Injection Volume:	5 mL
Leach Date:	N/A			Column ID:	PRIMARY

LCSD Lab Sample ID:	LCSD 280-125760/4	Analysis Batch:	280-125760	Instrument ID:	GCV_K
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	113F0401.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	06/26/2012 1416	Units:	ug/L	Final Weight/Volume:	5 mL
Prep Date:	06/26/2012 1416			Injection Volume:	5 mL
Leach Date:	N/A			Column ID:	PRIMARY

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Gasoline Range Organics (GRO)-C6-C10	113	108	79 - 149	4	27		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
a,a,a-Trifluorotoluene	109	105	82 - 110

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Laboratory Control/
Laboratory Duplicate Data Report - Batch: 280-125760

Method: 8015B
Preparation: 5030B

LCS Lab Sample ID:	LCS 280-125760/3	Units: ug/L	LCSD Lab Sample ID:	LCSD 280-125760/4	
Client Matrix:	Water		Client Matrix:	Water	
Dilution:	1.0		Dilution:	1.0	
Analysis Date:	06/26/2012 1334		Analysis Date:	06/26/2012 1416	
Prep Date:	06/26/2012 1334		Prep Date:	06/26/2012 1416	
Leach Date:	N/A		Leach Date:	N/A	

Analyte	LCS Spike Amount	LCSD Spike Amount	LCS Result/Qual	LCSD Result/Qual
Gasoline Range Organics (GRO)-C6-C10	101	101	114	109

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-125760

Method: 8015B
Preparation: 5030B

MS Lab Sample ID:	280-30378-L-1 MS	Analysis Batch:	280-125760	Instrument ID:	GCV_K
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	116F0701.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	06/26/2012 1623			Final Weight/Volume:	5 mL
Prep Date:	06/26/2012 1623			Injection Volume:	5 mL
Leach Date:	N/A			Column ID:	PRIMARY
MSD Lab Sample ID:	280-30378-L-1 MSD	Analysis Batch:	280-125760	Instrument ID:	GCV_K
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	201F0801.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	06/26/2012 1706			Final Weight/Volume:	5 mL
Prep Date:	06/26/2012 1706			Injection Volume:	5 mL
Leach Date:	N/A			Column ID:	PRIMARY

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Gasoline Range Organics (GRO)-C6-C10	108	105	79 - 149	2	27		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
a,a,a-Trifluorotoluene	106	105	82 - 110

Quality Control Results

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-125760

Method: 8015B
Preparation: 5030B

MS Lab Sample ID:	280-30378-L-1 MS	Units: ug/L	MSD Lab Sample ID:	280-30378-L-1 MSD	
Client Matrix:	Water		Client Matrix:	Water	
Dilution:	1.0		Dilution:	1.0	
Analysis Date:	06/26/2012 1623		Analysis Date:	06/26/2012 1706	
Prep Date:	06/26/2012 1623		Prep Date:	06/26/2012 1706	
Leach Date:	N/A		Leach Date:	N/A	

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Gasoline Range Organics (GRO)-C6-C10	ND	101	101	109	106

Client: Colorado Oil&Gas Conservation Commision Job Number: 280-30378-2

Method Blank - Batch: 600-83033

Method: RSK-175
Preparation: N/A

Lab Sample ID:	MB 600-83033/2	Analysis Batch:	600-83033	Instrument ID:	FID14
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	rsk070212_002.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1 mL
Analysis Date:	07/02/2012 1438	Units:	ug/L	Final Weight/Volume:	1 mL
Prep Date:	N/A			Injection Volume:	
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Result	Qual	MDL	RL
Ethane	ND		0.30	2.0
Methane	ND		0.36	1.0
Propane	ND		0.75	2.0

Lab Control Sample - Batch: 600-83033

Method: RSK-175
Preparation: N/A

Lab Sample ID:	LCS 600-83033/3	Analysis Batch:	600-83033	Instrument ID:	FID14
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	rsk070212_003.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1 mL
Analysis Date:	07/02/2012 1452	Units:	ug/L	Final Weight/Volume:	1 mL
Prep Date:	N/A			Injection Volume:	
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Ethane	12.9	10.8	84	70 - 130	
Methane	6.86	6.66	97	70 - 130	
Propane	18.9	16.7	88	70 - 130	

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 600-83033

Method: RSK-175
Preparation: N/A

MS Lab Sample ID:	280-30378-P-1 MS	Analysis Batch:	600-83033	Instrument ID:	FID14
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	rsk070212_013.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1 mL
Analysis Date:	07/02/2012 1729			Final Weight/Volume:	1 mL
Prep Date:	N/A			Injection Volume:	
Leach Date:	N/A			Column ID:	PRIMARY

MSD Lab Sample ID:	280-30378-P-1 MSD	Analysis Batch:	600-83033	Instrument ID:	FID14
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	rsk070212_014.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1 mL
Analysis Date:	07/02/2012 1746			Final Weight/Volume:	1 mL
Prep Date:	N/A			Injection Volume:	
Leach Date:	N/A			Column ID:	PRIMARY

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Ethane	83	82	70 - 130	1	30		
Methane	81	81	70 - 130	0	30		
Propane	90	88	70 - 130	2	30		

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 600-83033

Method: RSK-175
Preparation: N/A

MS Lab Sample ID:	280-30378-P-1 MS	Units:	ug/L	MSD Lab Sample ID:	280-30378-P-1 MSD
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	07/02/2012 1729			Analysis Date:	07/02/2012 1746
Prep Date:	N/A			Prep Date:	N/A
Leach Date:	N/A			Leach Date:	N/A

	Sample		MS Spike	MSD Spike	MS	MSD
Analyte	Result/Qual		Amount	Amount	Result/Qual	Result/Qual
Ethane	0.40	J	12.9	12.9	11.1	10.9
Methane	2.0		6.86	6.86	7.57	7.55
Propane	ND		18.9	18.9	16.9	16.6

Client: Colorado Oil&Gas Conservation Commision Job Number: 280-30378-2

Method Blank - Batch: 280-125504 **Method: 8015B**
Preparation: 3510C

Lab Sample ID:	MB 280-125504/1-A	Analysis Batch:	280-125910	Instrument ID:	GCS_U2
Client Matrix:	Water	Prep Batch:	280-125504	Lab File ID:	015F1501.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1000 mL
Analysis Date:	06/27/2012 1905	Units:	mg/L	Final Weight/Volume:	1000 uL
Prep Date:	06/25/2012 1906			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Result	Qual	MDL	RL
C10-C36	ND		0.056	0.50

Surrogate	% Rec	Acceptance Limits
o-Terphenyl	63	50 - 115
n-Octacosane	100	26 - 152

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-125504 **Method: 8015B**
Preparation: 3510C

LCS Lab Sample ID:	LCS 280-125504/2-A	Analysis Batch:	280-125910	Instrument ID:	GCS_U2
Client Matrix:	Water	Prep Batch:	280-125504	Lab File ID:	016F1601.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1000 mL
Analysis Date:	06/27/2012 1929	Units:	mg/L	Final Weight/Volume:	1000 uL
Prep Date:	06/25/2012 1906			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

LCSD Lab Sample ID:	LCSD 280-125504/3-A	Analysis Batch:	280-125910	Instrument ID:	GCS_U2
Client Matrix:	Water	Prep Batch:	280-125504	Lab File ID:	017F1701.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1000 mL
Analysis Date:	06/27/2012 1953	Units:	mg/L	Final Weight/Volume:	1000 uL
Prep Date:	06/25/2012 1906			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
C10-C36	86	74	57 - 115	15	31		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
o-Terphenyl	81	73	50 - 115
n-Octacosane	97	86	26 - 152

Quality Control Results

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Laboratory Control/
Laboratory Duplicate Data Report - Batch: 280-125504

Method: 8015B
Preparation: 3510C

LCS Lab Sample ID:	LCS 280-125504/2-A	Units:	mg/L	LCSD Lab Sample ID:	LCSD 280-125504/3-A
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	06/27/2012 1929			Analysis Date:	06/27/2012 1953
Prep Date:	06/25/2012 1906			Prep Date:	06/25/2012 1906
Leach Date:	N/A			Leach Date:	N/A

Analyte	LCS Spike Amount	LCSD Spike Amount	LCS Result/Qual	LCSD Result/Qual
C10-C36	2.00	2.00	1.72	1.48

Client: Colorado Oil&Gas Conservation Commision Job Number: 280-30378-2

Method Blank - Batch: 280-125463

Method: 200.7 Rev 4.4
Preparation: 200.7
Dissolved

Lab Sample ID:	MB 280-125231/1-C	Analysis Batch:	280-125764	Instrument ID:	MT_026
Client Matrix:	Water	Prep Batch:	280-125463	Lab File ID:	26A062612.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	06/26/2012 2340	Units:	ug/L	Final Weight/Volume:	50 mL
Prep Date:	06/26/2012 1400				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Aluminum	ND		18	100
Beryllium	ND		0.47	1.0
Boron	ND		4.4	100
Calcium	ND		35	200
Chromium	ND		0.66	10
Iron	ND		22	100
Lithium	ND		2.6	10
Magnesium	ND		11	200
Nickel	ND		1.3	40
Potassium	ND		240	3000
Silicon	ND		35	500
Sodium	ND		92	5000
Strontium	ND		0.30	10
Vanadium	ND		1.1	10
Zinc	ND		4.5	20

Lab Control Sample - Batch: 280-125463

Method: 200.7 Rev 4.4
Preparation: 200.7
Dissolved

Lab Sample ID:	LCS 280-125231/2-C	Analysis Batch:	280-125764	Instrument ID:	MT_026
Client Matrix:	Water	Prep Batch:	280-125463	Lab File ID:	26A062612.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	06/26/2012 2343	Units:	ug/L	Final Weight/Volume:	50 mL
Prep Date:	06/26/2012 1400				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Aluminum	2000	1970	99	87 - 111	
Beryllium	50.0	49.7	99	89 - 113	
Boron	1000	1060	106	86 - 110	
Calcium	50000	49300	99	90 - 111	
Chromium	200	200	100	90 - 113	
Iron	1000	987	99	89 - 115	
Lithium	1000	1020	102	90 - 112	
Magnesium	50000	50500	101	90 - 113	
Nickel	500	497	99	89 - 111	
Potassium	50000	52100	104	89 - 114	
Silicon	10000	10000	100	90 - 110	
Sodium	50000	51800	104	90 - 115	
Strontium	1000	1010	101	90 - 111	
Vanadium	500	511	102	90 - 111	
Zinc	500	505	101	85 - 111	

Quality Control Results

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-125463

Method: 200.7 Rev 4.4
Preparation: 200.7
Dissolved

MS Lab Sample ID:	280-30333-I-1-F MS	Analysis Batch:	280-125764	Instrument ID:	MT_026
Client Matrix:	Water	Prep Batch:	280-125463	Lab File ID:	26A062612.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	06/26/2012 2351			Final Weight/Volume:	50 mL
Prep Date:	06/26/2012 1400				
Leach Date:	N/A				

MSD Lab Sample ID:	280-30333-I-1-G MSD	Analysis Batch:	280-125764	Instrument ID:	MT_026
Client Matrix:	Water	Prep Batch:	280-125463	Lab File ID:	26A062612.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	06/26/2012 2354			Final Weight/Volume:	50 mL
Prep Date:	06/26/2012 1400				
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Aluminum	93	92	87 - 111	2	20		
Beryllium	97	95	89 - 113	2	20		
Boron	98	96	86 - 110	1	20		
Calcium	96	92	90 - 111	1	20		
Chromium	98	96	90 - 113	2	20		
Iron	99	97	89 - 115	2	20		
Lithium	106	104	90 - 112	1	20		
Magnesium	96	93	90 - 113	1	20		
Nickel	96	95	89 - 111	1	20		
Potassium	114	113	89 - 114	1	20		
Silicon	100	97	90 - 110	1	20		
Sodium	85	65	90 - 115	1	20	4	4
Strontium	97	93	90 - 111	1	20		
Vanadium	104	102	90 - 111	2	20		
Zinc	102	100	85 - 111	2	20		

Quality Control Results

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-125463

Method: 200.7 Rev 4.4
Preparation: 200.7
Dissolved

MS Lab Sample ID:	280-30333-I-1-F MS	Units:	ug/L
Client Matrix:	Water		
Dilution:	1.0		
Analysis Date:	06/26/2012 2351		
Prep Date:	06/26/2012 1400		
Leach Date:	N/A		

MSD Lab Sample ID:	280-30333-I-1-G MSD
Client Matrix:	Water
Dilution:	1.0
Analysis Date:	06/26/2012 2354
Prep Date:	06/26/2012 1400
Leach Date:	N/A

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Aluminum	ND	2000	2000	1860	1830
Beryllium	ND	50.0	50.0	48.4	47.5
Boron	480	1000	1000	1460	1440
Calcium	110000	50000	50000	154000	152000
Chromium	ND	200	200	196	193
Iron	ND	1000	1000	990	969
Lithium	100	1000	1000	1160	1150
Magnesium	100000	50000	50000	150000	149000
Nickel	3.8 J	500	500	486	479
Potassium	5100	50000	50000	62200	61400
Silicon	6200	10000	10000	16200	15900
Sodium	1200000	50000	50000	1250000 4	1240000 4
Strontium	3500	1000	1000	4440	4400
Vanadium	1.6 J	500	500	521	513
Zinc	8.5 J	500	500	518	510

Quality Control Results

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Serial Dilution - Batch: 280-125463

Method: 200.7 Rev 4.4
Preparation: 200.7
Dissolved

Lab Sample ID:	280-30333-I-1-E SD ^5	Analysis Batch:	280-125764	Instrument ID:	MT_026
Client Matrix:	Water	Prep Batch:	280-125463	Lab File ID:	26A062612.asc
Dilution:	5.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	06/26/2012 2349	Units:	ug/L	Final Weight/Volume:	50 mL
Prep Date:	06/26/2012 1400				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Result	%Diff	Limit	Qual
Aluminum	ND		ND	NC	10	
Beryllium	ND		ND	NC	10	
Boron	480		523	9.0	10	
Calcium	110000		111000	4.8	10	
Chromium	ND		ND	NC	10	
Iron	ND		ND	NC	10	
Lithium	100		111	NC	10	
Magnesium	100000		107000	4.4	10	
Nickel	3.8	J	ND	NC	10	
Potassium	5100		5790	NC	10	J
Silicon	6200		6470	4.8	10	
Sodium	1200000		1260000	4.1	10	
Strontium	3500		3620	4.3	10	
Vanadium	1.6	J	ND	NC	10	
Zinc	8.5	J	25.4	NC	10	J

Client: Colorado Oil&Gas Conservation Commision Job Number: 280-30378-2

Method Blank - Batch: 280-125466

Method: 200.8
Preparation: 200.8
Dissolved

Lab Sample ID:	MB 280-125420/1-B	Analysis Batch:	280-125775	Instrument ID:	MT_024
Client Matrix:	Water	Prep Batch:	280-125466	Lab File ID:	061_BLK.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	06/26/2012 2345	Units:	ug/L	Final Weight/Volume:	50 mL
Prep Date:	06/26/2012 1400				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Antimony	ND		0.16	2.0
Arsenic	ND		0.50	5.0
Barium	ND		0.38	1.0
Cadmium	ND		0.040	1.0
Cobalt	ND		0.050	1.0
Copper	ND		0.20	2.0
Lead	ND		0.10	1.0
Manganese	ND		0.51	2.0
Molybdenum	0.0689	J	0.040	2.0
Selenium	ND		1.0	5.0
Silver	0.0394	J	0.020	1.0
Thallium	ND		0.066	1.0
Uranium	ND		0.030	1.0

Lab Control Sample - Batch: 280-125466

Method: 200.8
Preparation: 200.8
Dissolved

Lab Sample ID:	LCS 280-125420/2-B	Analysis Batch:	280-125775	Instrument ID:	MT_024
Client Matrix:	Water	Prep Batch:	280-125466	Lab File ID:	062_LCS.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	06/26/2012 2348	Units:	ug/L	Final Weight/Volume:	50 mL
Prep Date:	06/26/2012 1400				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Antimony	40.0	40.3	101	85 - 115	
Arsenic	40.0	41.1	103	89 - 111	
Barium	40.0	41.2	103	89 - 115	
Cadmium	40.0	40.0	100	89 - 111	
Cobalt	40.0	39.3	98	92 - 115	
Copper	40.0	39.3	98	90 - 115	
Lead	40.0	41.4	104	88 - 115	
Manganese	40.0	39.5	99	87 - 115	
Molybdenum	40.0	41.2	103	89 - 112	
Selenium	40.0	40.7	102	85 - 114	
Silver	40.0	39.4	98	90 - 114	
Thallium	40.0	44.1	110	86 - 115	
Uranium	40.0	44.7	112	85 - 115	

Quality Control Results

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-125466

Method: 200.8
Preparation: 200.8
Dissolved

MS Lab Sample ID:	280-30378-F-1-D MS	Analysis Batch:	280-125775	Instrument ID:	MT_024
Client Matrix:	Water	Prep Batch:	280-125466	Lab File ID:	064_MS.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	06/26/2012 2354			Final Weight/Volume:	50 mL
Prep Date:	06/26/2012 1400				
Leach Date:	N/A				

MSD Lab Sample ID:	280-30378-F-1-E MSD	Analysis Batch:	280-125775	Instrument ID:	MT_024
Client Matrix:	Water	Prep Batch:	280-125466	Lab File ID:	065_MSD.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	06/26/2012 2357			Final Weight/Volume:	50 mL
Prep Date:	06/26/2012 1400				
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Antimony	98	96	85 - 115	2	30		
Arsenic	103	100	79 - 120	2	30		
Barium	99	96	89 - 115	2	30		
Cadmium	91	91	89 - 111	0	30		
Cobalt	91	90	92 - 115	1	30	F	F
Copper	85	83	90 - 115	1	30	F	F
Lead	90	90	88 - 115	0	30		
Manganese	92	91	87 - 115	1	35		
Molybdenum	100	97	89 - 112	2	30		
Selenium	106	106	85 - 114	0	35		
Silver	84	83	20 - 120	1	40		
Thallium	96	96	86 - 115	1	30		
Uranium	106	107	85 - 115	0	30		

Quality Control Results

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-125466

Method: 200.8
Preparation: 200.8
Dissolved

MS Lab Sample ID:	280-30378-F-1-D MS	Units:	ug/L
Client Matrix:	Water		
Dilution:	1.0		
Analysis Date:	06/26/2012 2354		
Prep Date:	06/26/2012 1400		
Leach Date:	N/A		

MSD Lab Sample ID:	280-30378-F-1-E MSD
Client Matrix:	Water
Dilution:	1.0
Analysis Date:	06/26/2012 2357
Prep Date:	06/26/2012 1400
Leach Date:	N/A

Analyte	Sample Result/Qual		MS Spike Amount	MSD Spike Amount	MS Result/Qual		MSD Result/Qual	
Antimony	ND		40.0	40.0	39.2		38.3	
Arsenic	2.0	J	40.0	40.0	43.1		42.2	
Barium	12		40.0	40.0	51.1		50.0	
Cadmium	ND		40.0	40.0	36.4		36.3	
Cobalt	0.052	J	40.0	40.0	36.3	F	36.0	F
Copper	28		40.0	40.0	62.3	F	61.6	F
Lead	0.14	J	40.0	40.0	36.2		36.3	
Manganese	2.3		40.0	40.0	39.0		38.7	
Molybdenum	23		40.0	40.0	62.9		61.7	
Selenium	13		40.0	40.0	54.8		55.0	
Silver	0.023	J	40.0	40.0	33.6		33.3	
Thallium	ND		40.0	40.0	38.3		38.6	
Uranium	5.0		40.0	40.0	47.5		47.7	

Quality Control Results

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Method Blank - Batch: 280-125550

Method: 20B
Preparation: N/A

Lab Sample ID:	MB 280-125550/1	Analysis Batch:	280-125550	Instrument ID:	MT_025
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	06/26/2012 0710	Units:	No Unit	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Sodium Adsorption Ratio	ND		0.40	0.40

Client: Colorado Oil&Gas Conservation Commision Job Number: 280-30378-2

Method Blank - Batch: 280-125678

Method: 245.1
Preparation: 245.1
Dissolved

Lab Sample ID:	MB 280-125420/1-C	Analysis Batch:	280-125895	Instrument ID:	MT_033
Client Matrix:	Water	Prep Batch:	280-125678	Lab File ID:	120627aa.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30 mL
Analysis Date:	06/27/2012 1454	Units:	ug/L	Final Weight/Volume:	30 mL
Prep Date:	06/27/2012 1035				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Mercury	ND		0.027	0.20

Lab Control Sample - Batch: 280-125678

Method: 245.1
Preparation: 245.1
Dissolved

Lab Sample ID:	LCS 280-125420/2-C	Analysis Batch:	280-125895	Instrument ID:	MT_033
Client Matrix:	Water	Prep Batch:	280-125678	Lab File ID:	120627aa.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30 mL
Analysis Date:	06/27/2012 1456	Units:	ug/L	Final Weight/Volume:	30 mL
Prep Date:	06/27/2012 1035				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Mercury	5.00	4.52	90	90 - 110	

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-125678

Method: 245.1
Preparation: 245.1
Dissolved

MS Lab Sample ID:	280-30378-3	Analysis Batch:	280-125895	Instrument ID:	MT_033
Client Matrix:	Water	Prep Batch:	280-125678	Lab File ID:	120627aa.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30 mL
Analysis Date:	06/27/2012 1510			Final Weight/Volume:	30 mL
Prep Date:	06/27/2012 1035				
Leach Date:	N/A				

MSD Lab Sample ID:	280-30378-3	Analysis Batch:	280-125895	Instrument ID:	MT_033
Client Matrix:	Water	Prep Batch:	280-125678	Lab File ID:	120627aa.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30 mL
Analysis Date:	06/27/2012 1512			Final Weight/Volume:	30 mL
Prep Date:	06/27/2012 1035				
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Mercury	98	93	80 - 120	5	10		

Quality Control Results

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-125678

Method: 245.1
Preparation: 245.1
Dissolved

MS Lab Sample ID:	280-30378-3	Units: ug/L	MSD Lab Sample ID:	280-30378-3	
Client Matrix:	Water		Client Matrix:	Water	
Dilution:	1.0		Dilution:	1.0	
Analysis Date:	06/27/2012 1510		Analysis Date:	06/27/2012 1512	
Prep Date:	06/27/2012 1035		Prep Date:	06/27/2012 1035	
Leach Date:	N/A		Leach Date:	N/A	

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Mercury	ND	5.00	5.00	4.89	4.67

Client: Colorado Oil&Gas Conservation Commision Job Number: 280-30378-2

Method Blank - Batch: 280-125604

Method: 300.0
Preparation: N/A

Lab Sample ID:	MB 280-125604/7	Analysis Batch:	280-125604	Instrument ID:	WC_IC6
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	116.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	06/23/2012 1103	Units:	mg/L	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Nitrate as N	ND		0.042	0.50
Nitrite as N	ND		0.049	0.50

Method Reporting Limit Check - Batch: 280-125604

Method: 300.0
Preparation: N/A

Lab Sample ID:	MRL 280-125604/3	Analysis Batch:	280-125604	Instrument ID:	WC_IC6
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	112.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	06/23/2012 0954	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate as N	0.200	0.200	100	50 - 150	J
Nitrite as N	0.200	0.194	97	50 - 150	J

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-125604

Method: 300.0
Preparation: N/A

LCS Lab Sample ID:	LCS 280-125604/5	Analysis Batch:	280-125604	Instrument ID:	WC_IC6
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	114.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	06/23/2012 1029	Units:	mg/L	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-125604/6	Analysis Batch:	280-125604	Instrument ID:	WC_IC6
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	115.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	06/23/2012 1046	Units:	mg/L	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	N/A				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Nitrate as N	93	93	90 - 110	0	10		
Nitrite as N	96	96	90 - 110	0	10		

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Laboratory Control/
Laboratory Duplicate Data Report - Batch: 280-125604

Method: 300.0
Preparation: N/A

LCS Lab Sample ID:	LCS 280-125604/5	Units:	mg/L	LCSD Lab Sample ID:	LCSD 280-125604/6
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	06/23/2012 1029			Analysis Date:	06/23/2012 1046
Prep Date:	N/A			Prep Date:	N/A
Leach Date:	N/A			Leach Date:	N/A

Analyte	LCS Spike Amount	LCSD Spike Amount	LCS Result/Qual	LCSD Result/Qual
Nitrate as N	5.00	5.00	4.66	4.67
Nitrite as N	5.00	5.00	4.81	4.81

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-125604

Method: 300.0
Preparation: N/A

MS Lab Sample ID:	280-30379-A-4 MS	Analysis Batch:	280-125604	Instrument ID:	WC_IC6
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	122.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	06/23/2012 1429			Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	N/A				

MSD Lab Sample ID:	280-30379-A-4 MSD	Analysis Batch:	280-125604	Instrument ID:	WC_IC6
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	123.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	06/23/2012 1446			Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Nitrate as N	98	99	80 - 120	1	20		
Nitrite as N	101	101	80 - 120	0	20		

Quality Control Results

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-125604

Method: 300.0
Preparation: N/A

MS Lab Sample ID:	280-30379-A-4 MS	Units:	mg/L	MSD Lab Sample ID:	280-30379-A-4 MSD
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	06/23/2012 1429			Analysis Date:	06/23/2012 1446
Prep Date:	N/A			Prep Date:	N/A
Leach Date:	N/A			Leach Date:	N/A

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Nitrate as N	0.56	5.00	5.00	5.48	5.51
Nitrite as N	ND	5.00	5.00	5.05	5.06

Duplicate - Batch: 280-125604

Method: 300.0
Preparation: N/A

Lab Sample ID:	280-30379-A-4 DU	Analysis Batch:	280-125604	Instrument ID:	WC_IC6
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	121.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	06/23/2012 1411	Units:	mg/L	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Nitrate as N	0.56	0.553	0.4	15	
Nitrite as N	ND	ND	NC	15	

Client: Colorado Oil&Gas Conservation Commision Job Number: 280-30378-2

Method Blank - Batch: 280-125605

Method: 300.0
Preparation: N/A

Lab Sample ID:	MB 280-125605/7	Analysis Batch:	280-125605	Instrument ID:	WC_IC6
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	116.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	06/23/2012 1103	Units:	mg/L	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Bromide	ND		0.11	0.20
Chloride	ND		0.25	3.0
Fluoride	ND		0.060	0.50
Sulfate	ND		0.23	5.0

Method Reporting Limit Check - Batch: 280-125605

Method: 300.0
Preparation: N/A

Lab Sample ID:	MRL 280-125605/3	Analysis Batch:	280-125605	Instrument ID:	WC_IC6
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	112.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	06/23/2012 0954	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Chloride	1.00	0.644	64	50 - 150	J
Fluoride	0.200	0.165	83	50 - 150	J
Sulfate	1.00	1.00	100	50 - 150	J

Quality Control Results

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-125605

Method: 300.0
Preparation: N/A

LCS Lab Sample ID:	LCS 280-125605/5	Analysis Batch:	280-125605	Instrument ID:	WC_IC6
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	114.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	06/23/2012 1029	Units:	mg/L	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-125605/6	Analysis Batch:	280-125605	Instrument ID:	WC_IC6
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	115.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	06/23/2012 1046	Units:	mg/L	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	% Rec. LCS	% Rec. LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Bromide	92	92	90 - 110	0	10		
Chloride	96	96	90 - 110	0	10		
Fluoride	97	97	90 - 110	0	10		
Sulfate	97	97	90 - 110	0	10		

Laboratory Control/
Laboratory Duplicate Data Report - Batch: 280-125605

Method: 300.0
Preparation: N/A

LCS Lab Sample ID:	LCS 280-125605/5	Units:	mg/L	LCSD Lab Sample ID:	LCSD 280-125605/6
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	06/23/2012 1029			Analysis Date:	06/23/2012 1046
Prep Date:	N/A			Prep Date:	N/A
Leach Date:	N/A			Leach Date:	N/A

Analyte	LCS Spike Amount	LCSD Spike Amount	LCS Result/Qual	LCSD Result/Qual
Bromide	5.00	5.00	4.58	4.58
Chloride	25.0	25.0	24.0	24.0
Fluoride	5.00	5.00	4.87	4.85
Sulfate	25.0	25.0	24.2	24.2

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-125605

Method: 300.0
Preparation: N/A

MS Lab Sample ID:	280-30379-A-4 MS	Analysis Batch:	280-125605	Instrument ID:	WC_IC6
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	122.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	06/23/2012 1429			Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	N/A				

MSD Lab Sample ID:	280-30379-A-4 MSD	Analysis Batch:	280-125605	Instrument ID:	WC_IC6
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	123.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	06/23/2012 1446			Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Bromide	99	99	80 - 120	1	20		
Chloride	103	103	80 - 120	0	20	E	E
Fluoride	96	97	80 - 120	1	20		
Sulfate	96	95	80 - 120	0	20	E	E

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-125605

Method: 300.0
Preparation: N/A

MS Lab Sample ID:	280-30379-A-4 MS	Units:	mg/L	MSD Lab Sample ID:	280-30379-A-4 MSD
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	06/23/2012 1429			Analysis Date:	06/23/2012 1446
Prep Date:	N/A			Prep Date:	N/A
Leach Date:	N/A			Leach Date:	N/A

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Bromide	0.46	5.00	5.00	5.40	5.43
Chloride	40	25.0	25.0	65.5 E	65.6 E
Fluoride	0.47 J	5.00	5.00	5.28	5.31
Sulfate	48	25.0	25.0	71.5 E	71.4 E

Quality Control Results

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Duplicate - Batch: 280-125605

Method: 300.0
Preparation: N/A

Lab Sample ID:	280-30379-A-4 DU	Analysis Batch:	280-125605	Instrument ID:	WC_IC6
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	121.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	06/23/2012 1411	Units:	mg/L	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Bromide	0.46		0.455	0.4	15	
Chloride	40		39.8	0.02	15	
Fluoride	0.47	J	0.470	0.2	15	J
Sulfate	48		47.6	0.03	15	

Client: Colorado Oil&Gas Conservation Commision Job Number: 280-30378-2

Method Blank - Batch: 280-125734

Method: SM 2320B
Preparation: N/A

Lab Sample ID:	MB 280-125734/6	Analysis Batch:	280-125734	Instrument ID:	WC-AT3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	062612.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	06/26/2012 0851	Units:	mg/L	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Total Alkalinity	ND		1.1	5.0
Bicarbonate Alkalinity as CaCO3	ND		1.1	5.0
Carbonate Alkalinity as CaCO3	ND		1.1	5.0
Hydroxide Alkalinity	ND		1.1	5.0

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-125734

Method: SM 2320B
Preparation: N/A

LCS Lab Sample ID:	LCS 280-125734/4	Analysis Batch:	280-125734	Instrument ID:	WC-AT3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	062612.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	06/26/2012 0842	Units:	mg/L	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-125734/5	Analysis Batch:	280-125734	Instrument ID:	WC-AT3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	062612.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	06/26/2012 0847	Units:	mg/L	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	N/A				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Total Alkalinity	104	104	90 - 110	1	10		

Quality Control Results

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Laboratory Control/
Laboratory Duplicate Data Report - Batch: 280-125734

Method: SM 2320B
Preparation: N/A

LCS Lab Sample ID:	LCS 280-125734/4	Units:	mg/L	LCSD Lab Sample ID:	LCSD 280-125734/5
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	06/26/2012 0842			Analysis Date:	06/26/2012 0847
Prep Date:	N/A			Prep Date:	N/A
Leach Date:	N/A			Leach Date:	N/A

Analyte	LCS Spike Amount	LCSD Spike Amount	LCS Result/Qual	LCSD Result/Qual
Total Alkalinity	200	200	208	207

Duplicate - Batch: 280-125734

Method: SM 2320B
Preparation: N/A

Lab Sample ID:	280-30361-B-1 DU	Analysis Batch:	280-125734	Instrument ID:	WC-AT3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	062612.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	06/26/2012 0917	Units:	mg/L	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Total Alkalinity	84	83.1	2	10	

Client: Colorado Oil&Gas Conservation Commision Job Number: 280-30378-2

Method Blank - Batch: 280-125960

Method: SM 2510B
Preparation: N/A

Lab Sample ID:	MB 280-125960/5	Analysis Batch:	280-125960	Instrument ID:	No Equipment
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	06/28/2012 1108	Units:	umhos/cm	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Specific Conductance	ND		2.0	2.0

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-125960

Method: SM 2510B
Preparation: N/A

LCS Lab Sample ID:	LCS 280-125960/3	Analysis Batch:	280-125960	Instrument ID:	No Equipment
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	06/28/2012 1108	Units:	umhos/cm	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-125960/4	Analysis Batch:	280-125960	Instrument ID:	No Equipment
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	06/28/2012 1108	Units:	umhos/cm	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	N/A				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Specific Conductance	102	101	90 - 110	1	10		

Laboratory Control/
Laboratory Duplicate Data Report - Batch: 280-125960

Method: SM 2510B
Preparation: N/A

LCS Lab Sample ID:	LCS 280-125960/3	Units:	umhos/cm	LCSD Lab Sample ID:	LCSD 280-125960/4
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	06/28/2012 1108			Analysis Date:	06/28/2012 1108
Prep Date:	N/A			Prep Date:	N/A
Leach Date:	N/A			Leach Date:	N/A

Analyte	LCS Spike Amount	LCSD Spike Amount	LCS Result/Qual	LCSD Result/Qual
Specific Conductance	1420	1420	1440	1430

Quality Control Results

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Duplicate - Batch: 280-125960

Method: SM 2510B
Preparation: N/A

Lab Sample ID:	280-30301-A-2 DU	Analysis Batch:	280-125960	Instrument ID:	No Equipment
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	06/28/2012 1108	Units:	umhos/cm	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Specific Conductance	1200	1220	0.5	10	

Client: Colorado Oil&Gas Conservation Commision Job Number: 280-30378-2

Method Blank - Batch: 280-125916

Method: SM 2540C
Preparation: N/A

Lab Sample ID:	MB 280-125916/1	Analysis Batch:	280-125916	Instrument ID:	No Equipment
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	100 mL
Analysis Date:	06/28/2012 0900	Units:	mg/L	Final Weight/Volume:	100 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Total Dissolved Solids	ND		4.7	10

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-125916

Method: SM 2540C
Preparation: N/A

LCS Lab Sample ID:	LCS 280-125916/2	Analysis Batch:	280-125916	Instrument ID:	No Equipment
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	100 mL
Analysis Date:	06/28/2012 0900	Units:	mg/L	Final Weight/Volume:	100 mL
Prep Date:	N/A				
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-125916/3	Analysis Batch:	280-125916	Instrument ID:	No Equipment
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	100 mL
Analysis Date:	06/28/2012 0900	Units:	mg/L	Final Weight/Volume:	100 mL
Prep Date:	N/A				
Leach Date:	N/A				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Total Dissolved Solids	96	96	86 - 110	0	20		

Laboratory Control/
Laboratory Duplicate Data Report - Batch: 280-125916

Method: SM 2540C
Preparation: N/A

LCS Lab Sample ID:	LCS 280-125916/2	Units:	mg/L	LCSD Lab Sample ID:	LCSD 280-125916/3
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	06/28/2012 0900			Analysis Date:	06/28/2012 0900
Prep Date:	N/A			Prep Date:	N/A
Leach Date:	N/A			Leach Date:	N/A

Analyte	LCS Spike Amount	LCSD Spike Amount	LCS Result/Qual	LCSD Result/Qual
Total Dissolved Solids	501	501	482	480

Quality Control Results

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Duplicate - Batch: 280-125916

Method: SM 2540C
Preparation: N/A

Lab Sample ID:	280-30357-A-12 DU	Analysis Batch:	280-125916	Instrument ID:	No Equipment
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	100 mL
Analysis Date:	06/28/2012 0900	Units:	mg/L	Final Weight/Volume:	100 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Total Dissolved Solids	250	255	2	10	

Client: Colorado Oil&Gas Conservation Commision Job Number: 280-30378-2

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-125326

Method: SM 4500 H+ B
Preparation: N/A

LCS Lab Sample ID:	LCS 280-125326/5	Analysis Batch:	280-125326	Instrument ID:	No Equipment
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	06/23/2012 1158	Units:	SU	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-125326/16	Analysis Batch:	280-125326	Instrument ID:	No Equipment
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	06/23/2012 1219	Units:	SU	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	N/A				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
pH	100	100	99 - 101	1	5		

Laboratory Control/
Laboratory Duplicate Data Report - Batch: 280-125326

Method: SM 4500 H+ B
Preparation: N/A

LCS Lab Sample ID:	LCS 280-125326/5	Units:	SU	LCSD Lab Sample ID:	LCSD 280-125326/16
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	06/23/2012 1158			Analysis Date:	06/23/2012 1219
Prep Date:	N/A			Prep Date:	N/A
Leach Date:	N/A			Leach Date:	N/A

Analyte	LCS Spike Amount	LCSD Spike Amount	LCS Result/Qual	LCSD Result/Qual
pH	7.00	7.00	6.970	7.010

Duplicate - Batch: 280-125326

Method: SM 4500 H+ B
Preparation: N/A

Lab Sample ID:	280-30378-E-1 DU	Analysis Batch:	280-125326	Instrument ID:	No Equipment
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	06/23/2012 1200	Units:	SU	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
pH	8.12	8.180	0.7	5	HF

Client: Colorado Oil&Gas Conservation Commision Job Number: 280-30378-2

Method Blank - Batch: 280-126107

Method: SM 5310B
Preparation: N/A

Lab Sample ID:	MB 280-126107/25	Analysis Batch:	280-126107	Instrument ID:	WC_SHI2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	062712.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	06/28/2012 0339	Units:	mg/L	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Total Organic Carbon - Average	0.282	J	0.16	1.0

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-126107

Method: SM 5310B
Preparation: N/A

LCS Lab Sample ID:	LCS 280-126107/23	Analysis Batch:	280-126107	Instrument ID:	WC_SHI2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	062712.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	200 mL
Analysis Date:	06/28/2012 0301	Units:	mg/L	Final Weight/Volume:	200 mL
Prep Date:	N/A				
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-126107/24	Analysis Batch:	280-126107	Instrument ID:	WC_SHI2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	062712.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	200 mL
Analysis Date:	06/28/2012 0320	Units:	mg/L	Final Weight/Volume:	200 mL
Prep Date:	N/A				
Leach Date:	N/A				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Total Organic Carbon - Average	98	97	88 - 112	1	15		

Laboratory Control/
Laboratory Duplicate Data Report - Batch: 280-126107

Method: SM 5310B
Preparation: N/A

LCS Lab Sample ID:	LCS 280-126107/23	Units:	mg/L	LCSD Lab Sample ID:	LCSD 280-126107/24
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	06/28/2012 0301			Analysis Date:	06/28/2012 0320
Prep Date:	N/A			Prep Date:	N/A
Leach Date:	N/A			Leach Date:	N/A

Analyte	LCS Spike Amount	LCSD Spike Amount	LCS Result/Qual	LCSD Result/Qual
Total Organic Carbon - Average	25.0	25.0	24.6	24.3

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-126107

Method: SM 5310B
Preparation: N/A

MS Lab Sample ID:	280-30328-B-1 MS	Analysis Batch:	280-126107	Instrument ID:	WC_SHI2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	062712.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	06/28/2012 0413			Final Weight/Volume:	50 mL
Prep Date:	N/A				
Leach Date:	N/A				

MSD Lab Sample ID:	280-30328-B-1 MSD	Analysis Batch:	280-126107	Instrument ID:	WC_SHI2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	062712.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	06/28/2012 0509			Final Weight/Volume:	50 mL
Prep Date:	N/A				
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Total Organic Carbon - Average	95	96	88 - 112	1	15		

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-126107

Method: SM 5310B
Preparation: N/A

MS Lab Sample ID:	280-30328-B-1 MS	Units:	mg/L	MSD Lab Sample ID:	280-30328-B-1 MSD
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	06/28/2012 0413			Analysis Date:	06/28/2012 0509
Prep Date:	N/A			Prep Date:	N/A
Leach Date:	N/A			Leach Date:	N/A

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Total Organic Carbon - Average	1.5	25.0	25.0	25.4	25.6

DATA REPORTING QUALIFIERS

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Lab Section	Qualifier	Description
GC/MS VOA		
	B	Compound was found in the blank and sample.
	J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
GC/MS Semi VOA		
	J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
	X	Surrogate is outside control limits
GC VOA		
	J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
Metals		
	B	Compound was found in the blank and sample.
	F	MS or MSD exceeds the control limits
	4	MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.
	J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
General Chemistry		
	B	Compound was found in the blank and sample.
	HF	Field parameter with a holding time of 15 minutes
	E	Result exceeded calibration range.
	J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS VOA					
Analysis Batch:280-125949					
LCS 280-125949/4	Lab Control Sample	T	Water	8260B	
MB 280-125949/5	Method Blank	T	Water	8260B	
280-30310-D-1 MS	Matrix Spike	T	Water	8260B	
280-30310-D-1 MSD	Matrix Spike Duplicate	T	Water	8260B	
280-30378-3	GUTHRIE	T	Water	8260B	
GC/MS Semi VOA					
Prep Batch: 280-125338					
LCS 280-125338/2-A	Lab Control Sample	T	Water	3520C	
LCSD 280-125338/3-A	Lab Control Sample Duplicate	T	Water	3520C	
MB 280-125338/1-A	Method Blank	T	Water	3520C	
280-30378-3	GUTHRIE	T	Water	3520C	
Analysis Batch:280-126328					
LCS 280-125338/2-A	Lab Control Sample	T	Water	8270C	280-125338
LCSD 280-125338/3-A	Lab Control Sample Duplicate	T	Water	8270C	280-125338
MB 280-125338/1-A	Method Blank	T	Water	8270C	280-125338
280-30378-3	GUTHRIE	T	Water	8270C	280-125338

Report Basis
T = Total

Report Basis
T = Total

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC VOA					
Analysis Batch:600-83033					
LCS 600-83033/3	Lab Control Sample	T	Water	RSK-175	
MB 600-83033/2	Method Blank	T	Water	RSK-175	
280-30378-P-1 MS	Matrix Spike	T	Water	RSK-175	
280-30378-P-1 MSD	Matrix Spike Duplicate	T	Water	RSK-175	
280-30378-3	GUTHRIE	T	Water	RSK-175	
Analysis Batch:280-125760					
LCS 280-125760/3	Lab Control Sample	T	Water	8015B	
LCSD 280-125760/4	Lab Control Sample Duplicate	T	Water	8015B	
MB 280-125760/5	Method Blank	T	Water	8015B	
280-30378-L-1 MS	Matrix Spike	T	Water	8015B	
280-30378-L-1 MSD	Matrix Spike Duplicate	T	Water	8015B	
280-30378-3	GUTHRIE	T	Water	8015B	

Report Basis
T = Total

GC Semi VOA					
Prep Batch: 280-125504					
LCS 280-125504/2-A	Lab Control Sample	T	Water	3510C	
LCSD 280-125504/3-A	Lab Control Sample Duplicate	T	Water	3510C	
MB 280-125504/1-A	Method Blank	T	Water	3510C	
280-30378-3	GUTHRIE	T	Water	3510C	
Analysis Batch:280-125910					
LCS 280-125504/2-A	Lab Control Sample	T	Water	8015B	280-125504
LCSD 280-125504/3-A	Lab Control Sample Duplicate	T	Water	8015B	280-125504
MB 280-125504/1-A	Method Blank	T	Water	8015B	280-125504
280-30378-3	GUTHRIE	T	Water	8015B	280-125504

Report Basis
T = Total

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
Metals					
Prep Batch: 280-125463					
LCS 280-125231/2-C	Lab Control Sample	D	Water	200.7	
MB 280-125231/1-C	Method Blank	D	Water	200.7	
280-30333-I-1-F MS	Matrix Spike	D	Water	200.7	
280-30333-I-1-G MSD	Matrix Spike Duplicate	D	Water	200.7	
280-30378-3	GUTHRIE	D	Water	200.7	
Prep Batch: 280-125466					
LCS 280-125420/2-B	Lab Control Sample	D	Water	200.8	
MB 280-125420/1-B	Method Blank	D	Water	200.8	
280-30378-F-1-D MS	Matrix Spike	D	Water	200.8	
280-30378-F-1-E MSD	Matrix Spike Duplicate	D	Water	200.8	
280-30378-3	GUTHRIE	D	Water	200.8	
Analysis Batch:280-125550					
MB 280-125550/1	Method Blank	T	Water	20B	
280-30378-3	GUTHRIE	T	Water	20B	
Prep Batch: 280-125678					
LCS 280-125420/2-C	Lab Control Sample	D	Water	245.1	
MB 280-125420/1-C	Method Blank	D	Water	245.1	
280-30378-3	GUTHRIE	D	Water	245.1	
280-30378-3MS	Matrix Spike	D	Water	245.1	
280-30378-3MSD	Matrix Spike Duplicate	D	Water	245.1	
Analysis Batch:280-125764					
LCS 280-125231/2-C	Lab Control Sample	D	Water	200.7 Rev 4.4	280-125463
MB 280-125231/1-C	Method Blank	D	Water	200.7 Rev 4.4	280-125463
280-30333-I-1-F MS	Matrix Spike	D	Water	200.7 Rev 4.4	280-125463
280-30333-I-1-G MSD	Matrix Spike Duplicate	D	Water	200.7 Rev 4.4	280-125463
280-30378-3	GUTHRIE	D	Water	200.7 Rev 4.4	280-125463
Analysis Batch:280-125775					
LCS 280-125420/2-B	Lab Control Sample	D	Water	200.8	280-125466
MB 280-125420/1-B	Method Blank	D	Water	200.8	280-125466
280-30378-F-1-D MS	Matrix Spike	D	Water	200.8	280-125466
280-30378-F-1-E MSD	Matrix Spike Duplicate	D	Water	200.8	280-125466
280-30378-3	GUTHRIE	D	Water	200.8	280-125466
Analysis Batch:280-125895					
LCS 280-125420/2-C	Lab Control Sample	D	Water	245.1	280-125678
MB 280-125420/1-C	Method Blank	D	Water	245.1	280-125678
280-30378-3	GUTHRIE	D	Water	245.1	280-125678
280-30378-3MS	Matrix Spike	D	Water	245.1	280-125678
280-30378-3MSD	Matrix Spike Duplicate	D	Water	245.1	280-125678

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch

Report Basis
D = Dissolved
T = Total

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
General Chemistry					
Analysis Batch:280-125326					
LCS 280-125326/5	Lab Control Sample	T	Water	SM 4500 H+ B	
LCSD 280-125326/16	Lab Control Sample Duplicate	T	Water	SM 4500 H+ B	
280-30378-E-1 DU	Duplicate	T	Water	SM 4500 H+ B	
280-30378-3	GUTHRIE	T	Water	SM 4500 H+ B	
Analysis Batch:280-125604					
LCS 280-125604/5	Lab Control Sample	T	Water	300.0	
LCSD 280-125604/6	Lab Control Sample Duplicate	T	Water	300.0	
MB 280-125604/7	Method Blank	T	Water	300.0	
280-30378-3	GUTHRIE	T	Water	300.0	
280-30379-A-4 DU	Duplicate	T	Water	300.0	
280-30379-A-4 MS	Matrix Spike	T	Water	300.0	
280-30379-A-4 MSD	Matrix Spike Duplicate	T	Water	300.0	
Analysis Batch:280-125605					
LCS 280-125605/5	Lab Control Sample	T	Water	300.0	
LCSD 280-125605/6	Lab Control Sample Duplicate	T	Water	300.0	
MB 280-125605/7	Method Blank	T	Water	300.0	
280-30378-3	GUTHRIE	T	Water	300.0	
280-30379-A-4 DU	Duplicate	T	Water	300.0	
280-30379-A-4 MS	Matrix Spike	T	Water	300.0	
280-30379-A-4 MSD	Matrix Spike Duplicate	T	Water	300.0	
Analysis Batch:280-125734					
LCS 280-125734/4	Lab Control Sample	T	Water	SM 2320B	
LCSD 280-125734/5	Lab Control Sample Duplicate	T	Water	SM 2320B	
MB 280-125734/6	Method Blank	T	Water	SM 2320B	
280-30361-B-1 DU	Duplicate	T	Water	SM 2320B	
280-30378-3	GUTHRIE	T	Water	SM 2320B	
Analysis Batch:280-125916					
LCS 280-125916/2	Lab Control Sample	T	Water	SM 2540C	
LCSD 280-125916/3	Lab Control Sample Duplicate	T	Water	SM 2540C	
MB 280-125916/1	Method Blank	T	Water	SM 2540C	
280-30357-A-12 DU	Duplicate	T	Water	SM 2540C	
280-30378-3	GUTHRIE	T	Water	SM 2540C	
Analysis Batch:280-125960					
LCS 280-125960/3	Lab Control Sample	T	Water	SM 2510B	
LCSD 280-125960/4	Lab Control Sample Duplicate	T	Water	SM 2510B	
MB 280-125960/5	Method Blank	T	Water	SM 2510B	
280-30301-A-2 DU	Duplicate	T	Water	SM 2510B	
280-30378-3	GUTHRIE	T	Water	SM 2510B	

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
General Chemistry					
Analysis Batch:280-126107					
LCS 280-126107/23	Lab Control Sample	T	Water	SM 5310B	
LCSD 280-126107/24	Lab Control Sample Duplicate	T	Water	SM 5310B	
MB 280-126107/25	Method Blank	T	Water	SM 5310B	
280-30328-B-1 MS	Matrix Spike	T	Water	SM 5310B	
280-30328-B-1 MSD	Matrix Spike Duplicate	T	Water	SM 5310B	
280-30378-3	GUTHRIE	T	Water	SM 5310B	

Report Basis

T = Total

Client: Colorado Oil&Gas Conservation Commision Job Number: 280-30378-2

Laboratory Chronicle

Lab ID: 280-30378-3 **Client ID:** GUTHRIE

Sample Date/Time: 06/22/2012 09:45 Received Date/Time: 06/23/2012 09:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	280-30378-M-3		280-125949		06/28/2012 13:38	1	TAL DEN	MD
A:8260B	280-30378-M-3		280-125949		06/28/2012 13:38	1	TAL DEN	MD
P:3520C	280-30378-A-3-A		280-126328	280-125338	06/24/2012 08:15	1	TAL DEN	CRC
A:8270C	280-30378-A-3-A		280-126328	280-125338	06/29/2012 14:33	1	TAL DEN	MGH
P:5030B	280-30378-J-3		280-125760		06/27/2012 00:11	1	TAL DEN	AMB
A:8015B	280-30378-J-3		280-125760		06/27/2012 00:11	1	TAL DEN	AMB
A:RSK-175	280-30378-P-3		600-83033		07/02/2012 16:51	1	TAL HOU	JAL
P:3510C	280-30378-C-3-A		280-125910	280-125504	06/25/2012 19:06	1	TAL DEN	SPF
A:8015B	280-30378-C-3-A		280-125910	280-125504	06/27/2012 21:06	1	TAL DEN	AMP
P:200.7	280-30378-F-3-B		280-125764	280-125463	06/26/2012 14:00	1	TAL DEN	JM
A:200.7 Rev 4.4	280-30378-F-3-B		280-125764	280-125463	06/27/2012 00:06	1	TAL DEN	HEB
P:200.8	280-30378-F-3-C		280-125775	280-125466	06/26/2012 14:00	1	TAL DEN	JM
A:200.8	280-30378-F-3-C		280-125775	280-125466	06/27/2012 00:23	1	TAL DEN	TEL
A:20B	280-30378-F-3		280-125550		06/26/2012 07:10	1	TAL DEN	JKH
P:245.1	280-30378-F-3-D		280-125895	280-125678	06/27/2012 10:35	1	TAL DEN	BLR
A:245.1	280-30378-F-3-D		280-125895	280-125678	06/27/2012 15:03	1	TAL DEN	CLI
A:300.0	280-30378-E-3		280-125604		06/23/2012 16:30	2	TAL DEN	JCB
A:300.0	280-30378-E-3		280-125605		06/23/2012 16:30	2	TAL DEN	JCB
A:300.0	280-30378-E-3		280-125605		06/24/2012 12:30	50	TAL DEN	JCB
A:SM 2320B	280-30378-E-3		280-125734		06/26/2012 09:32	1	TAL DEN	BMG
A:SM 2510B	280-30378-H-3		280-125960		06/28/2012 11:08	1	TAL DEN	JMH
A:SM 2540C	280-30378-E-3		280-125916		06/28/2012 09:00	1	TAL DEN	BJD
A:SM 4500 H+ B	280-30378-E-3		280-125326		06/23/2012 12:05	1	TAL DEN	DA
A:SM 5310B	280-30378-I-3		280-126107		06/28/2012 06:20	1	TAL DEN	DFB

Lab ID: 280-30378-3 MS **Client ID:** GUTHRIE

Sample Date/Time: 06/22/2012 09:45 Received Date/Time: 06/23/2012 09:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:245.1	280-30378-F-3-E MS		280-125895	280-125678	06/27/2012 10:35	1	TAL DEN	BLR
A:245.1	280-30378-F-3-E MS		280-125895	280-125678	06/27/2012 15:10	1	TAL DEN	CLI

Lab ID: 280-30378-3 MSD **Client ID:** GUTHRIE

Sample Date/Time: 06/22/2012 09:45 Received Date/Time: 06/23/2012 09:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:245.1	280-30378-F-3-F MSD		280-125895	280-125678	06/27/2012 10:35	1	TAL DEN	BLR
A:245.1	280-30378-F-3-F MSD		280-125895	280-125678	06/27/2012 15:12	1	TAL DEN	CLI

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Laboratory Chronicle

Lab ID: **MB** **Client ID:** **N/A**

Sample Date/Time: N/A Received Date/Time: N/A

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	MB 280-125949/5		280-125949		06/28/2012 07:50	1	TAL DEN	MD
A:8260B	MB 280-125949/5		280-125949		06/28/2012 07:50	1	TAL DEN	MD
P:3520C	MB 280-125338/1-A		280-126328	280-125338	06/24/2012 08:15	1	TAL DEN	CRC
A:8270C	MB 280-125338/1-A		280-126328	280-125338	06/29/2012 12:11	1	TAL DEN	MGH
P:5030B	MB 280-125760/5		280-125760		06/26/2012 14:58	1	TAL DEN	AMB
A:8015B	MB 280-125760/5		280-125760		06/26/2012 14:58	1	TAL DEN	AMB
A:RSK-175	MB 600-83033/2		600-83033		07/02/2012 14:38	1	TAL HOU	JAL
P:3510C	MB 280-125504/1-A		280-125910	280-125504	06/25/2012 19:06	1	TAL DEN	SPF
A:8015B	MB 280-125504/1-A		280-125910	280-125504	06/27/2012 19:05	1	TAL DEN	AMP
P:200.7	MB 280-125231/1-C		280-125764	280-125463	06/26/2012 14:00	1	TAL DEN	JM
A:200.7 Rev 4.4	MB 280-125231/1-C		280-125764	280-125463	06/26/2012 23:40	1	TAL DEN	HEB
P:200.8	MB 280-125420/1-B		280-125775	280-125466	06/26/2012 14:00	1	TAL DEN	JM
A:200.8	MB 280-125420/1-B		280-125775	280-125466	06/26/2012 23:45	1	TAL DEN	TEL
A:20B	MB 280-125550/1		280-125550		06/26/2012 07:10	1	TAL DEN	JKH
P:245.1	MB 280-125420/1-C		280-125895	280-125678	06/27/2012 10:35	1	TAL DEN	BLR
A:245.1	MB 280-125420/1-C		280-125895	280-125678	06/27/2012 14:54	1	TAL DEN	CLI
A:300.0	MB 280-125604/7		280-125604		06/23/2012 11:03	1	TAL DEN	JCB
A:300.0	MB 280-125605/7		280-125605		06/23/2012 11:03	1	TAL DEN	JCB
A:SM 2320B	MB 280-125734/6		280-125734		06/26/2012 08:51	1	TAL DEN	BMG
A:SM 2510B	MB 280-125960/5		280-125960		06/28/2012 11:08	1	TAL DEN	JMH
A:SM 2540C	MB 280-125916/1		280-125916		06/28/2012 09:00	1	TAL DEN	BJD
A:SM 5310B	MB 280-126107/25		280-126107		06/28/2012 03:39	1	TAL DEN	DFB

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Laboratory Chronicle

Lab ID: LCS **Client ID:** N/A

Sample Date/Time: N/A Received Date/Time: N/A

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	LCS 280-125949/4		280-125949		06/28/2012 07:30	1	TAL DEN	MD
A:8260B	LCS 280-125949/4		280-125949		06/28/2012 07:30	1	TAL DEN	MD
P:3520C	LCS 280-125338/2-A		280-126328	280-125338	06/24/2012 08:15	1	TAL DEN	CRC
A:8270C	LCS 280-125338/2-A		280-126328	280-125338	06/29/2012 12:32	1	TAL DEN	MGH
P:5030B	LCS 280-125760/3		280-125760		06/26/2012 13:34	1	TAL DEN	AMB
A:8015B	LCS 280-125760/3		280-125760		06/26/2012 13:34	1	TAL DEN	AMB
A:RSK-175	LCS 600-83033/3		600-83033		07/02/2012 14:52	1	TAL HOU	JAL
P:3510C	LCS 280-125504/2-A		280-125910	280-125504	06/25/2012 19:06	1	TAL DEN	SPF
A:8015B	LCS 280-125504/2-A		280-125910	280-125504	06/27/2012 19:29	1	TAL DEN	AMP
P:200.7	LCS 280-125231/2-C		280-125764	280-125463	06/26/2012 14:00	1	TAL DEN	JM
A:200.7 Rev 4.4	LCS 280-125231/2-C		280-125764	280-125463	06/26/2012 23:43	1	TAL DEN	HEB
P:200.8	LCS 280-125420/2-B		280-125775	280-125466	06/26/2012 14:00	1	TAL DEN	JM
A:200.8	LCS 280-125420/2-B		280-125775	280-125466	06/26/2012 23:48	1	TAL DEN	TEL
P:245.1	LCS 280-125420/2-C		280-125895	280-125678	06/27/2012 10:35	1	TAL DEN	BLR
A:245.1	LCS 280-125420/2-C		280-125895	280-125678	06/27/2012 14:56	1	TAL DEN	CLI
A:300.0	LCS 280-125604/5		280-125604		06/23/2012 10:29	1	TAL DEN	JCB
A:300.0	LCS 280-125605/5		280-125605		06/23/2012 10:29	1	TAL DEN	JCB
A:SM 2320B	LCS 280-125734/4		280-125734		06/26/2012 08:42	1	TAL DEN	BMG
A:SM 2510B	LCS 280-125960/3		280-125960		06/28/2012 11:08	1	TAL DEN	JMH
A:SM 2540C	LCS 280-125916/2		280-125916		06/28/2012 09:00	1	TAL DEN	BJD
A:SM 4500 H+ B	LCS 280-125326/5		280-125326		06/23/2012 11:58	1	TAL DEN	DA
A:SM 5310B	LCS 280-126107/23		280-126107		06/28/2012 03:01	1	TAL DEN	DFB

Lab ID: LCSD **Client ID:** N/A

Sample Date/Time: N/A Received Date/Time: N/A

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3520C	LCSD 280-125338/3-A		280-126328	280-125338	06/24/2012 08:15	1	TAL DEN	CRC
A:8270C	LCSD 280-125338/3-A		280-126328	280-125338	06/29/2012 12:52	1	TAL DEN	MGH
P:5030B	LCSD 280-125760/4		280-125760		06/26/2012 14:16	1	TAL DEN	AMB
A:8015B	LCSD 280-125760/4		280-125760		06/26/2012 14:16	1	TAL DEN	AMB
P:3510C	LCSD 280-125504/3-A		280-125910	280-125504	06/25/2012 19:06	1	TAL DEN	SPF
A:8015B	LCSD 280-125504/3-A		280-125910	280-125504	06/27/2012 19:53	1	TAL DEN	AMP
A:300.0	LCSD 280-125604/6		280-125604		06/23/2012 10:46	1	TAL DEN	JCB
A:300.0	LCSD 280-125605/6		280-125605		06/23/2012 10:46	1	TAL DEN	JCB
A:SM 2320B	LCSD 280-125734/5		280-125734		06/26/2012 08:47	1	TAL DEN	BMG
A:SM 2510B	LCSD 280-125960/4		280-125960		06/28/2012 11:08	1	TAL DEN	JMH
A:SM 2540C	LCSD 280-125916/3		280-125916		06/28/2012 09:00	1	TAL DEN	BJD
A:SM 4500 H+ B	LCSD 280-125326/16		280-125326		06/23/2012 12:19	1	TAL DEN	DA
A:SM 5310B	LCSD 280-126107/24		280-126107		06/28/2012 03:20	1	TAL DEN	DFB

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Laboratory Chronicle

Lab ID: MRL **Client ID:** N/A

Sample Date/Time: N/A Received Date/Time: N/A

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:300.0	MRL 280-125604/3		280-125604		06/23/2012 09:54	1	TAL DEN	JCB
A:300.0	MRL 280-125605/3		280-125605		06/23/2012 09:54	1	TAL DEN	JCB

Lab ID: MS **Client ID:** N/A

Sample Date/Time: N/A Received Date/Time: N/A

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	280-30310-D-1 MS		280-125949		06/28/2012 10:54	1	TAL DEN	MD
A:8260B	280-30310-D-1 MS		280-125949		06/28/2012 10:54	1	TAL DEN	MD
P:5030B	280-30378-L-1 MS		280-125760		06/26/2012 16:23	1	TAL DEN	AMB
A:8015B	280-30378-L-1 MS		280-125760		06/26/2012 16:23	1	TAL DEN	AMB
A:RSK-175	280-30378-P-1 MS		600-83033		07/02/2012 17:29	1	TAL HOU	JAL
P:200.7	280-30333-I-1-F MS		280-125764	280-125463	06/26/2012 14:00	1	TAL DEN	JM
A:200.7 Rev 4.4	280-30333-I-1-F MS		280-125764	280-125463	06/26/2012 23:51	1	TAL DEN	HEB
P:200.8	280-30378-F-1-D MS		280-125775	280-125466	06/26/2012 14:00	1	TAL DEN	JM
A:200.8	280-30378-F-1-D MS		280-125775	280-125466	06/26/2012 23:54	1	TAL DEN	TEL
A:300.0	280-30379-A-4 MS		280-125604		06/23/2012 14:29	1	TAL DEN	JCB
A:300.0	280-30379-A-4 MS		280-125605		06/23/2012 14:29	1	TAL DEN	JCB
A:SM 5310B	280-30328-B-1 MS		280-126107		06/28/2012 04:13	1	TAL DEN	DFB

Lab ID: MSD **Client ID:** N/A

Sample Date/Time: N/A Received Date/Time: N/A

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	280-30310-D-1 MSD		280-125949		06/28/2012 11:14	1	TAL DEN	MD
A:8260B	280-30310-D-1 MSD		280-125949		06/28/2012 11:14	1	TAL DEN	MD
P:5030B	280-30378-L-1 MSD		280-125760		06/26/2012 17:06	1	TAL DEN	AMB
A:8015B	280-30378-L-1 MSD		280-125760		06/26/2012 17:06	1	TAL DEN	AMB
A:RSK-175	280-30378-P-1 MSD		600-83033		07/02/2012 17:46	1	TAL HOU	JAL
P:200.7	280-30333-I-1-G MSD		280-125764	280-125463	06/26/2012 14:00	1	TAL DEN	JM
A:200.7 Rev 4.4	280-30333-I-1-G MSD		280-125764	280-125463	06/26/2012 23:54	1	TAL DEN	HEB
P:200.8	280-30378-F-1-E MSD		280-125775	280-125466	06/26/2012 14:00	1	TAL DEN	JM
A:200.8	280-30378-F-1-E MSD		280-125775	280-125466	06/26/2012 23:57	1	TAL DEN	TEL
A:300.0	280-30379-A-4 MSD		280-125604		06/23/2012 14:46	1	TAL DEN	JCB
A:300.0	280-30379-A-4 MSD		280-125605		06/23/2012 14:46	1	TAL DEN	JCB
A:SM 5310B	280-30328-B-1 MSD		280-126107		06/28/2012 05:09	1	TAL DEN	DFB

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Laboratory Chronicle

Lab ID: DU **Client ID:** N/A

Sample Date/Time: N/A Received Date/Time: N/A

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:300.0	280-30379-A-4 DU		280-125604		06/23/2012 14:11	1	TAL DEN	JCB
A:300.0	280-30379-A-4 DU		280-125605		06/23/2012 14:11	1	TAL DEN	JCB
A:SM 2320B	280-30361-B-1 DU		280-125734		06/26/2012 09:17	1	TAL DEN	BMG
A:SM 2510B	280-30301-A-2 DU		280-125960		06/28/2012 11:08	1	TAL DEN	JMH
A:SM 2540C	280-30357-A-12 DU		280-125916		06/28/2012 09:00	1	TAL DEN	BJD
A:SM 4500 H+ B	280-30378-E-1 DU		280-125326		06/23/2012 12:00	1	TAL DEN	DA

Lab ID: SD **Client ID:** N/A

Sample Date/Time: N/A Received Date/Time: N/A

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:200.7	280-30333-I-1-E SD ^5		280-125764	280-125463	06/26/2012 14:00	5	TAL DEN	JM
A:200.7 Rev 4.4	280-30333-I-1-E SD ^5		280-125764	280-125463	06/26/2012 23:49	5	TAL DEN	HEB

Lab References:

TAL DEN = TestAmerica Denver

TAL HOU = TestAmerica Houston

Certification Summary

Received 7/13/2012 Rifle COGCC

Client: Colorado Oil&Gas Conservation Commision
TestAmerica Job ID: 280-30378-2
Project/Site: Tim Guthrie Silt, CO

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Denver	A2LA	DoD ELAP		2907.01
TestAmerica Denver	A2LA	ISO/IEC 17025		2907.01
TestAmerica Denver	Alabama	State Program	4	40730
TestAmerica Denver	Alaska (UST)	State Program	10	UST-30
TestAmerica Denver	Arizona	State Program	9	AZ0713
TestAmerica Denver	Arkansas DEQ	State Program	6	88-0687
TestAmerica Denver	California	State Program	9	2513
TestAmerica Denver	Colorado	State Program	8	N/A
TestAmerica Denver	Connecticut	State Program	1	PH-0686
TestAmerica Denver	Florida	NELAC	4	E87667
TestAmerica Denver	Georgia	State Program	4	N/A
TestAmerica Denver	Idaho	State Program	10	CO00026
TestAmerica Denver	Illinois	NELAC	5	200017
TestAmerica Denver	Iowa	State Program	7	370
TestAmerica Denver	Kansas	NELAC	7	E-10166
TestAmerica Denver	Louisiana	NELAC	6	30785
TestAmerica Denver	Maine	State Program	1	CO0002
TestAmerica Denver	Maryland	State Program	3	268
TestAmerica Denver	Minnesota	NELAC	5	8-999-405
TestAmerica Denver	Nevada	State Program	9	CO0026
TestAmerica Denver	New Jersey	NELAC	2	CO004
TestAmerica Denver	New Mexico	State Program	6	N/A
TestAmerica Denver	New York	NELAC	2	11964
TestAmerica Denver	North Carolina DENR	State Program	4	358
TestAmerica Denver	North Dakota	State Program	8	R-034
TestAmerica Denver	Oklahoma	State Program	6	8614
TestAmerica Denver	Oregon	NELAC	10	CO200001
TestAmerica Denver	Pennsylvania	NELAC	3	68-00664
TestAmerica Denver	South Carolina	State Program	4	72002
TestAmerica Denver	Tennessee	State Program	4	TN02944
TestAmerica Denver	Texas	NELAC	6	T104704183-08-TX
TestAmerica Denver	USDA	Federal		P330-08-00036
TestAmerica Denver	Utah	NELAC	8	QUAN5
TestAmerica Denver	Virginia	NELAC	3	
TestAmerica Denver	Washington	State Program	10	C1284
TestAmerica Denver	West Virginia DEP	State Program	3	354
TestAmerica Denver	Wisconsin	State Program	5	999615430
TestAmerica Denver	Wyoming (UST)	A2LA	8	
TestAmerica Houston	Arkansas DEQ	State Program	6	88-0759
TestAmerica Houston	Oklahoma	State Program	6	9503
TestAmerica Houston	Texas	NELAC	6	T104704223-10-6-TX
TestAmerica Houston	USDA	Federal		P330-08-00217
TestAmerica Houston	Utah	NELAC	8	GULF

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

Method 8260B

Volatile Organic Compounds (GC/MS) by Method 8260B

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-30378-2

SDG No.:

Client Sample ID: GUTHRIE | Lab Sample ID: 280-30378-3

Matrix: Water | Lab File ID: R7222.D

Analysis Method: 8260B | Date Collected: 06/22/2012 09:45

Sample wt/vol: 20(mL) | Date Analyzed: 06/28/2012 13:38

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: DB-624 (60.25) ID: 0.25(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 125949 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
630-20-6	1,1,1,2-Tetrachloroethane	ND		1.0	0.21
71-55-6	1,1,1-Trichloroethane	ND		1.0	0.16
79-34-5	1,1,2,2-Tetrachloroethane	ND		1.0	0.21
79-00-5	1,1,2-Trichloroethane	ND		1.0	0.27
75-34-3	1,1-Dichloroethane	ND		1.0	0.22
75-35-4	1,1-Dichloroethene	ND		1.0	0.23
563-58-6	1,1-Dichloropropene	ND		1.0	0.19
87-61-6	1,2,3-Trichlorobenzene	ND		1.0	0.21
96-18-4	1,2,3-Trichloropropane	ND		2.5	0.33
120-82-1	1,2,4-Trichlorobenzene	ND		1.0	0.21
95-63-6	1,2,4-Trimethylbenzene	ND		1.0	0.15
96-12-8	1,2-Dibromo-3-Chloropropane	ND		5.0	0.47
106-93-4	1,2-Dibromoethane	ND		1.0	0.18
95-50-1	1,2-Dichlorobenzene	ND		1.0	0.15
107-06-2	1,2-Dichloroethane	ND		1.0	0.13
540-59-0	1,2-Dichloroethene, Total	ND		1.0	0.24
78-87-5	1,2-Dichloropropane	ND		1.0	0.18
108-67-8	1,3,5-Trimethylbenzene	ND		1.0	0.16
541-73-1	1,3-Dichlorobenzene	ND		1.0	0.13
142-28-9	1,3-Dichloropropane	ND		1.0	0.22
106-46-7	1,4-Dichlorobenzene	ND		1.0	0.16
594-20-7	2,2-Dichloropropane	ND		1.0	0.18
78-93-3	2-Butanone (MEK)	ND		6.0	2.0
95-49-8	2-Chlorotoluene	ND		1.0	0.17
591-78-6	2-Hexanone	ND		5.0	1.7
106-43-4	4-Chlorotoluene	ND		1.0	0.21
99-87-6	4-Isopropyltoluene	ND		1.0	0.20
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98
67-64-1	Acetone	ND		10	1.9
71-43-2	Benzene	ND		1.0	0.16
108-86-1	Bromobenzene	ND		1.0	0.17
75-25-2	Bromoform	ND		1.0	0.19
74-83-9	Bromomethane	ND		2.0	0.21
56-23-5	Carbon tetrachloride	ND		1.0	0.19
108-90-7	Chlorobenzene	ND		1.0	0.17
74-97-5	Chlorobromomethane	ND		1.0	0.10

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 280-30378-2

SDG No.:

Client Sample ID: GUTHRIE Lab Sample ID: 280-30378-3

Matrix: Water Lab File ID: R7222.D

Analysis Method: 8260B Date Collected: 06/22/2012 09:45

Sample wt/vol: 20(mL) Date Analyzed: 06/28/2012 13:38

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: DB-624 (60.25) ID: 0.25(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 125949 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
124-48-1	Chlorodibromomethane	ND		1.0	0.17
75-00-3	Chloroethane	ND		2.0	0.41
67-66-3	Chloroform	ND		1.0	0.16
74-87-3	Chloromethane	ND		2.0	0.30
156-59-2	cis-1,2-Dichloroethene	ND		1.0	0.15
10061-01-5	cis-1,3-Dichloropropene	ND		1.0	0.16
74-95-3	Dibromomethane	ND		1.0	0.17
75-27-4	Dichlorobromomethane	ND		1.0	0.17
75-71-8	Dichlorodifluoromethane	ND		2.0	0.31
100-41-4	Ethylbenzene	ND		1.0	0.16
87-68-3	Hexachlorobutadiene	ND		1.0	0.36
98-82-8	Isopropylbenzene	ND		1.0	0.19
1634-04-4	Methyl tert-butyl ether	ND		5.0	0.25
75-09-2	Methylene Chloride	0.36	J B	2.0	0.32
179601-23-1	m-Xylene & p-Xylene	ND		2.0	0.34
91-20-3	Naphthalene	ND		1.0	0.22
104-51-8	n-Butylbenzene	ND		1.0	0.32
103-65-1	N-Propylbenzene	ND		1.0	0.16
95-47-6	o-Xylene	ND		1.0	0.19
135-98-8	sec-Butylbenzene	ND		1.0	0.17
100-42-5	Styrene	ND		1.0	0.17
98-06-6	tert-Butylbenzene	ND		1.0	0.16
127-18-4	Tetrachloroethene	ND		1.0	0.20
108-88-3	Toluene	ND		1.0	0.17
156-60-5	trans-1,2-Dichloroethene	ND		1.0	0.15
10061-02-6	trans-1,3-Dichloropropene	ND		3.0	0.19
79-01-6	Trichloroethene	ND		1.0	0.16
75-69-4	Trichlorofluoromethane	ND		2.0	0.29
75-01-4	Vinyl chloride	ND		1.0	0.10
1330-20-7	Xylenes, Total	ND		2.0	0.19

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 280-30378-2

SDG No.:

Client Sample ID: GUTHRIE Lab Sample ID: 280-30378-3

Matrix: Water Lab File ID: R7222.D

Analysis Method: 8260B Date Collected: 06/22/2012 09:45

Sample wt/vol: 20(mL) Date Analyzed: 06/28/2012 13:38

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: DB-624 (60.25) ID: 0.25(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 125949 Units: ug/L

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	96		70-127
460-00-4	4-Bromofluorobenzene (Surr)	83		78-120
1868-53-7	Dibromofluoromethane (Surr)	92		77-120
2037-26-5	Toluene-d8 (Surr)	93		80-125

TestAmerica

VOLATILE REPORT SW-846

Data file : \\DenSvr03\Public\chem\MSV\R1.i\062812.b\R7222.D
Lab Smp Id: 280-30378-M-3 Client Smp ID: GUTHRIE
Inj Date : 28-JUN-2012 13:38
Operator : DOBRANSKYM Inst ID: R1.i
Smp Info : 280-30378-m-3,,PH<2
Misc Info : 280-30378-M-3
Comment :
Method : \\DenSvr03\Public\chem\MSV\R1.i\062812.b\8260B-H2O.m
Meth Date : 29-Jun-2012 08:35 R1.i Quant Type: ISTD
Cal Date : 12-JUN-2012 13:31 Cal File: R7024.D
Als bottle: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: TALS.sub
Target Version: 4.14
Processing Host: DENPC364

Concentration Formula: Amt * DF * Vp/Vs * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Vp	20.000	Purge Volume (mL)
Vs	20.000	Sample Volume purged (mL)
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
*	68 Fluorobenzene	96	7.654	7.647	(1.000)	1751344	12.5000	
*	96 Chlorobenzene-d5	119	9.918	9.918	(1.000)	356213	12.5000	
*	121 1,4-Dichlorobenzene-d4	152	11.759	11.752	(1.000)	445463	12.5000	
$	53 Dibromofluoromethane (Surr)	111	7.096	7.096	(0.927)	234890	8.76643	8.76642
$	62 1,2-Dichloroethane-d4	65	7.396	7.389	(0.966)	199980	9.11459	9.11459
$	83 Toluene-d8	98	8.843	8.836	(0.892)	1125107	8.80062	8.80062
$	107 4-Bromofluorobenzene (Surr)	95	10.792	10.785	(0.918)	298102	7.88298	7.88298
M	1 1,2-Dichloroethene (total)	96	Compound Not Detected.					
M	2 Xylene (total)	106	Compound Not Detected.					
	5 dichlorodifluoromethane	85	Compound Not Detected.					
	6 1,2-Dichlorotetrafluoroethane	85	Compound Not Detected.					
	7 Chloromethane	50	Compound Not Detected.					
	8 Vinyl Chloride	62	Compound Not Detected.					
	9 Ethylene Oxide	43	Compound Not Detected.					
	10 Bromomethane	94	Compound Not Detected.					
	11 Chloroethane	64	Compound Not Detected.					
	12 Dichlorofluoromethane	67	Compound Not Detected.					
	14 Trichlorofluoromethane	101	Compound Not Detected.					
	13 Ethanol	45	Compound Not Detected.					
	15 1,2-dichloro-1,1,2-trifluoroe	117	Compound Not Detected.					
	16 Ethyl Ether	59	Compound Not Detected.					
	17 2,2-dichloro-1,1,1-trifluoroe	83	Compound Not Detected.					

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
19 Acrolein	56	Compound Not Detected.					
20 Acetone	43	Compound Not Detected.					
21 Trichlorotrifluoroethane	151	Compound Not Detected.					
22 2-propanol	45	Compound Not Detected.					
23 1,1-Dichloroethene	96	Compound Not Detected.					
26 Iodomethane	142	Compound Not Detected.					
25 Acetonitrile	41	Compound Not Detected.					
24 Methyl Acetate	43	Compound Not Detected.					
28 Carbon Disulfide	76	Compound Not Detected.					
27 Allyl Chloride	41	Compound Not Detected.					
29 tert-Butyl alcohol	59	Compound Not Detected.					
30 Methylene Chloride	84	5.783	5.783 (0.756)		12270	0.36491	0.364913(a)
31 Acrylonitrile	53	Compound Not Detected.					
32 Methyl t-butyl ether	73	Compound Not Detected.					
33 trans-1,2-Dichloroethene	96	Compound Not Detected.					
34 Hexane	57	Compound Not Detected.					
35 Vinyl acetate	43	Compound Not Detected.					
36 Isopropyl ether	87	Compound Not Detected.					
37 1,1-Dichloroethane	63	Compound Not Detected.					
38 Chloroprene	53	Compound Not Detected.					
39 ETBE	59	Compound Not Detected.					
42 2-Butanone	43	Compound Not Detected.					
41 Ethyl Acetate	43	Compound Not Detected.					
46 cis-1,2-Dichloroethene	96	Compound Not Detected.					
45 Propionitrile	54	Compound Not Detected.					
47 2,2-Dichloropropane	77	Compound Not Detected.					
48 Methacrylonitrile	41	Compound Not Detected.					
50 Bromochloromethane	128	Compound Not Detected.					
51 Chloroform	83	Compound Not Detected.					
52 Tetrahydrofuran	42	Compound Not Detected.					
55 1,1,1-Trichloroethane	97	Compound Not Detected.					
54 Isobutanol	41	Compound Not Detected.					
58 Cyclohexane	56	Compound Not Detected.					
59 1,1-Dichloropropene	75	Compound Not Detected.					
60 Carbon Tetrachloride	117	Compound Not Detected.					
64 1,2-Dichloroethane	62	Compound Not Detected.					
66 Benzene	78	Compound Not Detected.					
65 TAME	73	Compound Not Detected.					
69 n-Butanol	56	Compound Not Detected.					
71 Trichloroethene	130	Compound Not Detected.					
72 2-Pentanone	43	Compound Not Detected.					
73 Methyl Methacrylate	100	Compound Not Detected.					
74 1,2-Dichloropropane	63	Compound Not Detected.					
75 Methyl Cyclohexane	55	Compound Not Detected.					
76 1,4-Dioxane	88	Compound Not Detected.					
77 Dibromomethane	93	Compound Not Detected.					
78 Bromodichloromethane	83	Compound Not Detected.					
79 2-nitropropane	41	Compound Not Detected.					
80 2-Chloroethyl vinyl ether	63	Compound Not Detected.					
81 cis-1,3-Dichloropropene	75	Compound Not Detected.					
82 4-Methyl-2-pentanone	43	Compound Not Detected.					
85 Toluene	91	Compound Not Detected.					
87 trans-1,3-Dichloropropene	75	Compound Not Detected.					
86 Ethyl methacrylate	69	Compound Not Detected.					

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/L)
88	1,1,2-Trichloroethane	97	Compound Not Detected.					
89	2-Hexanone	43	Compound Not Detected.					
90	1,3-Dichloropropane	76	Compound Not Detected.					
91	Tetrachloroethene	164	Compound Not Detected.					
92	Dibromochloromethane	129	Compound Not Detected.					
93	Tetrahydrothiophene	60	Compound Not Detected.					
94	1,2-Dibromoethane	107	Compound Not Detected.					
95	1-Chlorohexane	91	Compound Not Detected.					
97	Chlorobenzene	112	Compound Not Detected.					
98	1,1,1,2-Tetrachloroethane	131	Compound Not Detected.					
99	Ethylbenzene	106	Compound Not Detected.					
100	m and p-Xylene	106	Compound Not Detected.					
102	o-Xylene	106	Compound Not Detected.					
101	Styrene	104	Compound Not Detected.					
103	Bromoform	173	Compound Not Detected.					
104	isopropyl benzene	105	Compound Not Detected.					
105	cis-1,4-dichloro-2-butene	53	Compound Not Detected.					
106	Cyclohexanone	55	Compound Not Detected.					
108	1,1,2,2-Tetrachloroethane	83	Compound Not Detected.					
109	t-1,4-Dichloro-2-butene	53	Compound Not Detected.					
110	1,2,3-Trichloropropane	110	Compound Not Detected.					
112	Bromobenzene	156	Compound Not Detected.					
111	n-Propylbenzene	120	Compound Not Detected.					
114	2-Chlorotoluene	126	Compound Not Detected.					
113	1,3,5-Trimethylbenzene	105	Compound Not Detected.					
115	4-Chlorotoluene	126	Compound Not Detected.					
116	tert-Butylbenzene	119	Compound Not Detected.					
117	1,2,4-Trimethylbenzene	105	Compound Not Detected.					
118	sec-Butylbenzene	134	Compound Not Detected.					
119	4-Isopropyltoluene	119	Compound Not Detected.					
120	1,3-Dichlorobenzene	146	Compound Not Detected.					
122	1,4-dichlorobenzene	146	Compound Not Detected.					
123	1,2,3-Trimethylbenzene	105	Compound Not Detected.					
124	n-Butylbenzene	91	Compound Not Detected.					
125	1,2-Dichlorobenzene	146	Compound Not Detected.					
127	1,2-Dibromo-3-chloropropane	157	Compound Not Detected.					
129	1,2,4-Trichlorobenzene	180	Compound Not Detected.					
131	Hexachlorobutadiene	225	Compound Not Detected.					
132	Naphthalene	128	Compound Not Detected.					
133	1,2,3-Trichlorobenzene	180	Compound Not Detected.					

QC Flag Legend

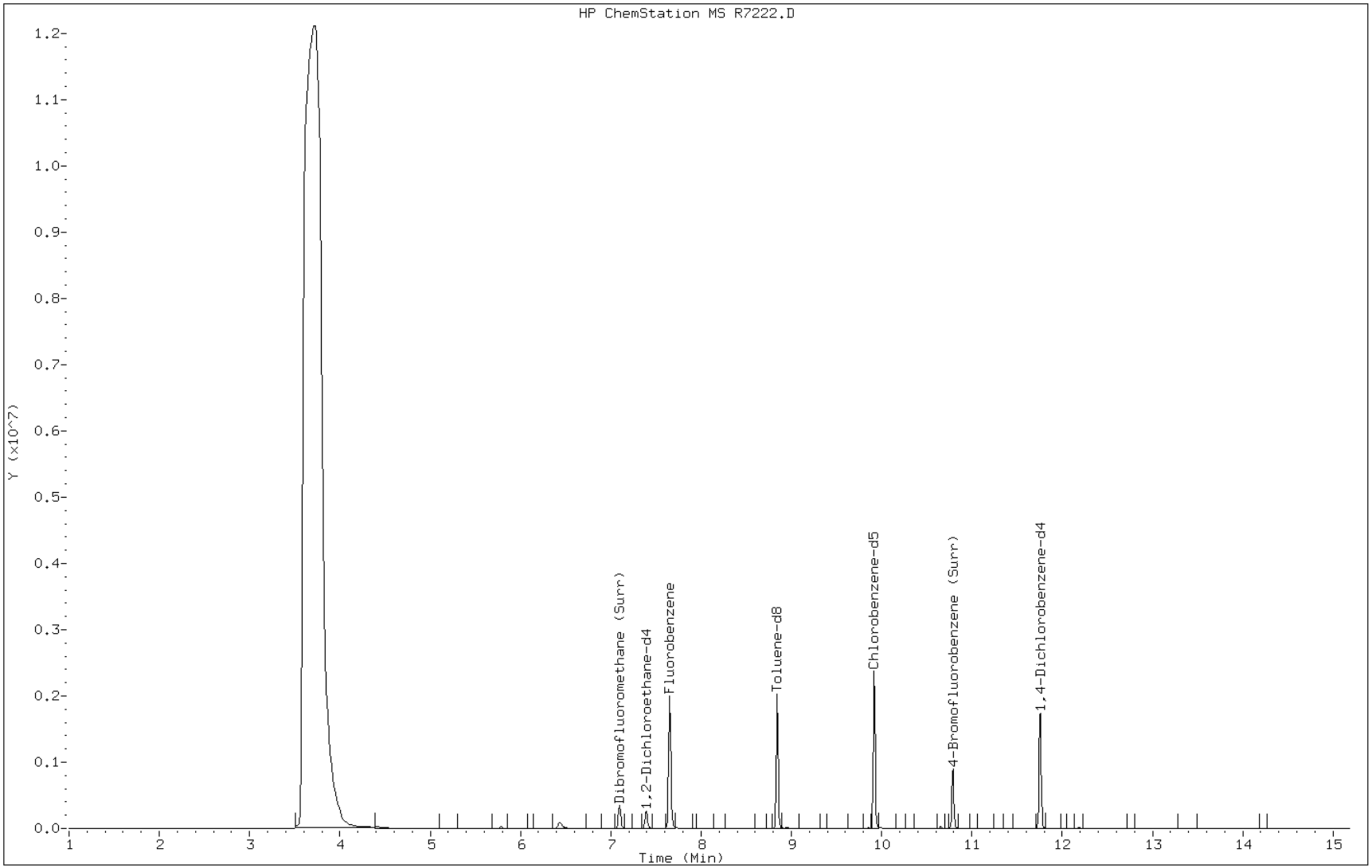
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

Data File: R7222.D

Date: 28-JUN-2012 13:38

Client ID: GUTHRIE Instrument: R1.i

Sample Info: 280-30378-m-3,,PH<2 Operator: DOBRANSKYM



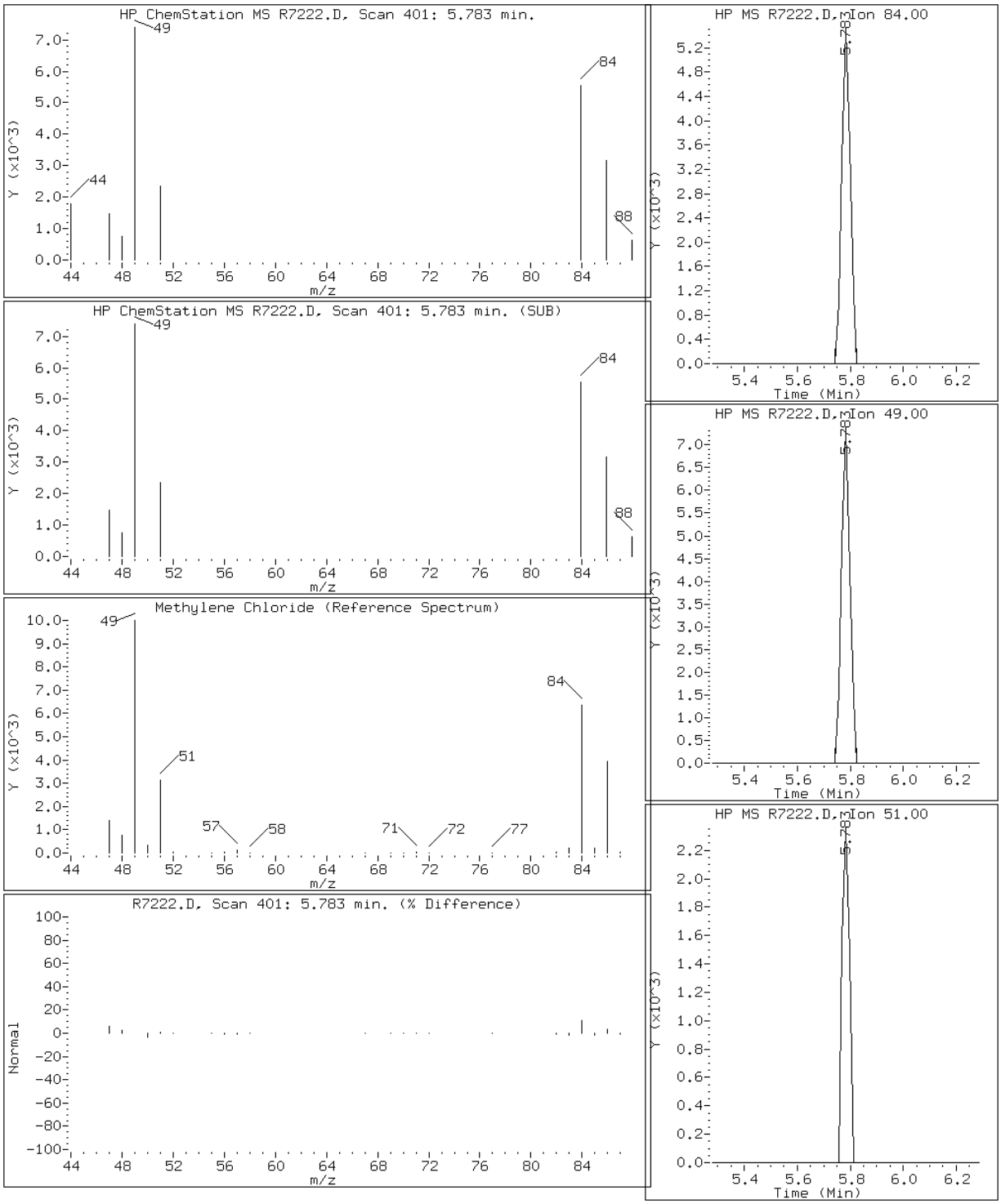
Data File: R7222.D

Date: 28-JUN-2012 13:38

Client ID: GUTHRIE Instrument: R1.i

Sample Info: 280-30378-m-3,,PH<2 Operator: DOBRANSKYM

30 Methylene Chloride



Method 8270C

Semivolatile Organic Compounds (GC/MS) by Method 8270C

FORM I

GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 280-30378-2

SDG No.:

Client Sample ID: GUTHRIE Lab Sample ID: 280-30378-3

Matrix: Water Lab File ID: Y8517.D

Analysis Method: 8270C Date Collected: 06/22/2012 09:45

Extract. Method: 3520C Date Extracted: 06/24/2012 08:15

Sample wt/vol: 1057.2(mL) Date Analyzed: 06/29/2012 14:33

Con. Extract Vol.: 1000(uL) Dilution Factor: 1

Injection Volume: 0.5(uL) Level: (low/med) Low

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 126328 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-60-1	2,2'-oxybis[1-chloropropane]	ND		9.5	0.26
95-95-4	2,4,5-Trichlorophenol	ND		9.5	0.43
88-06-2	2,4,6-Trichlorophenol	ND		9.5	0.27
120-83-2	2,4-Dichlorophenol	ND		9.5	0.61
105-67-9	2,4-Dimethylphenol	ND		9.5	0.55
51-28-5	2,4-Dinitrophenol	ND		28	9.5
121-14-2	2,4-Dinitrotoluene	ND		9.5	1.6
606-20-2	2,6-Dinitrotoluene	ND		9.5	1.8
91-58-7	2-Chloronaphthalene	ND		3.8	0.25
95-57-8	2-Chlorophenol	ND		9.5	1.9
91-57-6	2-Methylnaphthalene	ND		3.8	0.27
95-48-7	2-Methylphenol	ND		9.5	0.93
88-74-4	2-Nitroaniline	ND		9.5	1.6
88-75-5	2-Nitrophenol	ND		9.5	0.37
15831-10-4	3 & 4 Methylphenol	ND		9.5	0.24
91-94-1	3,3'-Dichlorobenzidine	ND		47	1.9
99-09-2	3-Nitroaniline	ND		9.5	1.9
534-52-1	4,6-Dinitro-2-methylphenol	ND		47	3.8
101-55-3	4-Bromophenyl phenyl ether	ND		9.5	0.41
59-50-7	4-Chloro-3-methylphenol	ND		9.5	2.3
106-47-8	4-Chloroaniline	ND		9.5	2.0
7005-72-3	4-Chlorophenyl phenyl ether	ND		9.5	1.6
100-01-6	4-Nitroaniline	ND		9.5	1.9
100-02-7	4-Nitrophenol	ND		9.5	1.2
83-32-9	Acenaphthene	ND		3.8	0.26
208-96-8	Acenaphthylene	ND		3.8	0.46
98-86-2	Acetophenone	ND		9.5	0.23
120-12-7	Anthracene	ND		3.8	0.40
1912-24-9	Atrazine	ND		9.5	0.69
92-87-5	Benzidine	ND		95	47
56-55-3	Benzo[a]anthracene	ND		3.8	0.33
50-32-8	Benzo[a]pyrene	ND		3.8	0.29
205-99-2	Benzo[b]fluoranthene	ND		3.8	0.50
191-24-2	Benzo[g,h,i]perylene	ND		3.8	0.47

FORM I

GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 280-30378-2

SDG No.:

Client Sample ID: GUTHRIE Lab Sample ID: 280-30378-3

Matrix: Water Lab File ID: Y8517.D

Analysis Method: 8270C Date Collected: 06/22/2012 09:45

Extract. Method: 3520C Date Extracted: 06/24/2012 08:15

Sample wt/vol: 1057.2(mL) Date Analyzed: 06/29/2012 14:33

Con. Extract Vol.: 1000(uL) Dilution Factor: 1

Injection Volume: 0.5(uL) Level: (low/med) Low

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 126328 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
207-08-9	Benzo[k]fluoranthene	ND		3.8	0.44
111-91-1	Bis(2-chloroethoxy)methane	ND		9.5	0.92
111-44-4	Bis(2-chloroethyl)ether	ND		9.5	0.39
117-81-7	Bis(2-ethylhexyl) phthalate	ND		9.5	0.53
85-68-7	Butyl benzyl phthalate	ND		3.8	0.95
105-60-2	Caprolactam	ND		9.5	4.7
86-74-8	Carbazole	ND		3.8	0.41
218-01-9	Chrysene	ND		3.8	0.51
1319-77-3	Cresols, Total	ND		9.5	0.24
53-70-3	Dibenz(a,h)anthracene	ND		3.8	0.48
132-64-9	Dibenzofuran	ND		3.8	0.27
84-66-2	Diethyl phthalate	ND		3.8	0.36
131-11-3	Dimethyl phthalate	ND		3.8	0.20
84-74-2	Di-n-butyl phthalate	ND		3.8	1.1
117-84-0	Di-n-octyl phthalate	ND		3.8	0.33
206-44-0	Fluoranthene	ND		3.8	0.19
86-73-7	Fluorene	ND		3.8	0.29
118-74-1	Hexachlorobenzene	ND		9.5	0.62
87-68-3	Hexachlorobutadiene	ND		9.5	3.1
77-47-4	Hexachlorocyclopentadiene	ND		47	9.5
67-72-1	Hexachloroethane	ND		9.5	2.0
193-39-5	Indeno[1,2,3-cd]pyrene	ND		3.8	0.61
91-20-3	Naphthalene	ND		3.8	0.27
98-95-3	Nitrobenzene	ND		9.5	0.77
621-64-7	N-Nitrosodi-n-propylamine	ND		9.5	0.33
86-30-6	n-Nitrosodiphenylamine(as diphenylamine)	ND		9.5	0.42
87-86-5	Pentachlorophenol	ND		47	19
85-01-8	Phenanthrene	ND		3.8	0.25
108-95-2	Phenol	ND		9.5	1.9
129-00-0	Pyrene	ND		9.5	0.35

FORM I

GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 280-30378-2

SDG No.:

Client Sample ID: GUTHRIE Lab Sample ID: 280-30378-3

Matrix: Water Lab File ID: Y8517.D

Analysis Method: 8270C Date Collected: 06/22/2012 09:45

Extract. Method: 3520C Date Extracted: 06/24/2012 08:15

Sample wt/vol: 1057.2(mL) Date Analyzed: 06/29/2012 14:33

Con. Extract Vol.: 1000(uL) Dilution Factor: 1

Injection Volume: 0.5(uL) Level: (low/med) Low

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 126328 Units: ug/L

CAS NO.	SURROGATE	%REC	Q	LIMITS
118-79-6	2,4,6-Tribromophenol	111		57-120
321-60-8	2-Fluorobiphenyl	85		38-120
367-12-4	2-Fluorophenol	82		51-120
4165-60-0	Nitrobenzene-d5	88		48-120
4165-62-2	Phenol-d5	89		51-120
1718-51-0	Terphenyl-d14	108		50-120

TestAmerica

BNA ANALYSIS QUANTITATION REPORT

Data file : \\DenSvr03\Public\chem\MSS\Y.i\062912a.b\Y8517.D
Lab Smp Id: 280-30378-A-3-A Client Smp ID: GUTHRIE
Inj Date : 29-JUN-2012 14:33
Operator : hoffmanm Inst ID: Y.i
Smp Info : 280-30378-a-3-a
Misc Info : 280-30378-A-3-A
Comment : 8270C / 625
Method : \\DenSvr03\Public\chem\MSS\Y.i\062912a.b\8270C.m
Meth Date : 02-Jul-2012 10:16 hoffmanm Quant Type: ISTD
Cal Date : 27-JUN-2012 08:25 Cal File: Y8404.D
Als bottle: 19
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: H.sub
Target Version: 4.14
Processing Host: DENPC246

Concentration Formula: Amt * DF * Vf/Vs * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Vf	1000.000	final volume at end of extraction (uL)
Vs	1057.200	volume of sample extracted (mL)
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/ml)	FINAL (ug/L)
*	26 1,4-Dichlorobenzene-d4	152	4.662	4.666	(1.000)	334329	40.0000	
*	58 Naphthalene-d8	136	5.890	5.900	(1.000)	1300490	40.0000	
*	96 Acenaphthene-d10	164	7.617	7.627	(1.000)	799677	40.0000	
*	135 Phenanthrene-d10	188	8.980	8.990	(1.000)	1446036	40.0000	
*	166 Chrysene-d12	240	11.272	11.287	(1.000)	1552977	40.0000	
*	179 Perylene-d12	264	12.594	12.615	(1.000)	1517626	40.0000	
$	8 2-Fluorophenol	112	3.463	3.463	(0.743)	1287297	122.786	116.142
$	15 Phenol-d5	99	4.286	4.291	(0.919)	1804532	133.154	125.950
$	43 Nitrobenzene-d5	82	5.191	5.196	(0.881)	1145923	88.4873	83.6997
$	81 2-Fluorobiphenyl	172	6.936	6.947	(0.911)	2170636	85.0883	80.4846
$	118 2,4,6-Tribromophenol	330	8.352	8.369	(1.096)	665072	167.135	158.092
$	154 Terphenyl-d14	244	10.326	10.349	(0.916)	3393843	108.217	102.362
$	29 1,2-Dichlorobenzene-d4	152	4.815	4.820	(1.033)	664758	81.9093	77.4775
$	22 2-Chlorophenol-d4	132	4.450	4.456	(0.955)	1502524	134.215	126.953
	4 1,4-Dioxane	88	Compound Not Detected.					
	6 Pyridine	79	Compound Not Detected.					
	5 N-Nitrosodimethylamine	74	Compound Not Detected.					
	18 Aniline	93	Compound Not Detected.					
	16 Phenol	94	Compound Not Detected.					
	20 Bis(2-chloroethyl) ether	93	Compound Not Detected.					
	23 2-Chlorophenol	128	Compound Not Detected.					
	25 1,3-Dichlorobenzene	146	Compound Not Detected.					

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/ml)	FINAL (ug/L)
27	1,4-Dichlorobenzene	146	Compound Not Detected.					
28	Benzyl alcohol	108	4.773	4.779	(1.024)	13047	1.80680	1.70904(a)
30	1,2-Dichlorobenzene	146	Compound Not Detected.					
32	2-Methylphenol	108	Compound Not Detected.					
34	2,2'-oxybis(1-chloropropane)	45	Compound Not Detected.					
138	3-Methylphenol	108	Compound Not Detected.					
36	4-Methylphenol	108	Compound Not Detected.					
139	3 & 4-Methylphenol	108	Compound Not Detected.					
37	N-nitrosodi-n-propylamine	70	Compound Not Detected.					
41	Hexachloroethane	117	Compound Not Detected.					
44	Nitrobenzene	77	Compound Not Detected.					
47	Isophorone	82	Compound Not Detected.					
49	2-Nitrophenol	139	Compound Not Detected.					
50	2,4-Dimethylphenol	107	Compound Not Detected.					
52	Bis(2-chloroethoxy)methane	93	Compound Not Detected.					
53	Benzoic acid	122	Compound Not Detected.					
54	2,4-Dichlorophenol	162	Compound Not Detected.					
57	1,2,4-Trichlorobenzene	180	Compound Not Detected.					
59	Naphthalene	128	Compound Not Detected.					
60	4-Chloroaniline	127	Compound Not Detected.					
62	Hexachlorobutadiene	225	Compound Not Detected.					
68	4-Chloro-3-methylphenol	107	Compound Not Detected.					
71	2-Methylnaphthalene	142	Compound Not Detected.					
72	1-Methylnaphthalene	142	Compound Not Detected.					
74	Hexachlorocyclopentadiene	237	Compound Not Detected.					
78	2,4,6-Trichlorophenol	196	Compound Not Detected.					
80	2,4,5-Trichlorophenol	196	Compound Not Detected.					
86	2-Chloronaphthalene	162	Compound Not Detected.					
88	2-Nitroaniline	65	Compound Not Detected.					
91	Dimethyl phthalate	163	Compound Not Detected.					
93	2,6-Dinitrotoluene	165	Compound Not Detected.					
94	Acenaphthylene	152	Compound Not Detected.					
95	3-Nitroaniline	138	Compound Not Detected.					
97	Acenaphthene	153	Compound Not Detected.					
98	2,4-Dinitrophenol	184	Compound Not Detected.					
99	4-Nitrophenol	109	Compound Not Detected.					
101	2,4-Dinitrotoluene	165	Compound Not Detected.					
102	Dibenzofuran	168	Compound Not Detected.					
107	Diethyl phthalate	149	Compound Not Detected.					
109	4-Chlorophenyl phenyl ether	204	Compound Not Detected.					
110	Fluorene	166	Compound Not Detected.					
112	4-Nitroaniline	138	Compound Not Detected.					
113	4,6-Dinitro-2-methylphenol	198	Compound Not Detected.					
115	N-nitrosodiphenylamine	169	Compound Not Detected.					
116	Azobenzene	77	Compound Not Detected.					
234	1,2-DPH(as Azobenzene)	77	Compound Not Detected.					
124	4-Bromophenyl phenyl ether	248	Compound Not Detected.					
125	Hexachlorobenzene	284	Compound Not Detected.					
129	Pentachlorophenol	266	Compound Not Detected.					
136	Phenanthrene	178	Compound Not Detected.					
137	Anthracene	178	Compound Not Detected.					
140	Carbazole	167	Compound Not Detected.					
143	Di-n-butyl phthalate	149	Compound Not Detected.					
149	Fluoranthene	202	Compound Not Detected.					

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/ml)	FINAL (ug/L)
151	Benzidine	184	Compound Not Detected.					
152	Pyrene	202	Compound Not Detected.					
159	Butyl benzyl phthalate	149	Compound Not Detected.					
164	3 3'-Dichlorobenzidine	252	Compound Not Detected.					
165	Benzo(a)anthracene	228	Compound Not Detected.					
167	Chrysene	228	Compound Not Detected.					
162	Bis(2-ethylhexyl) phthalate	149	Compound Not Detected.					
168	Di-n-octyl phthalate	149	Compound Not Detected.					
171	Benzo(b)fluoranthene	252	Compound Not Detected.					
172	Benzo(k)fluoranthene	252	Compound Not Detected.					
178	Benzo(a)pyrene	252	Compound Not Detected.					
186	Indeno(1,2,3-cd)pyrene	276	Compound Not Detected.					
185	Dibenz(a,h)anthracene	278	Compound Not Detected.					
188	Benzo(g,h,i)perylene	276	Compound Not Detected.					
35	1H-Indene	116	Compound Not Detected.					
38	Acetophenone	105	Compound Not Detected.					
19	Methyl Styrene	118	Compound Not Detected.					
141	Alachlor	188	Compound Not Detected.					
127	Atrazine	200	Compound Not Detected.					
67	Caprolactam	55	Compound Not Detected.					
79	2,3-Dichlorobenzeneamine	161	Compound Not Detected.					
158	Famphur	218	Compound Not Detected.					

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

Data File: Y8517.D

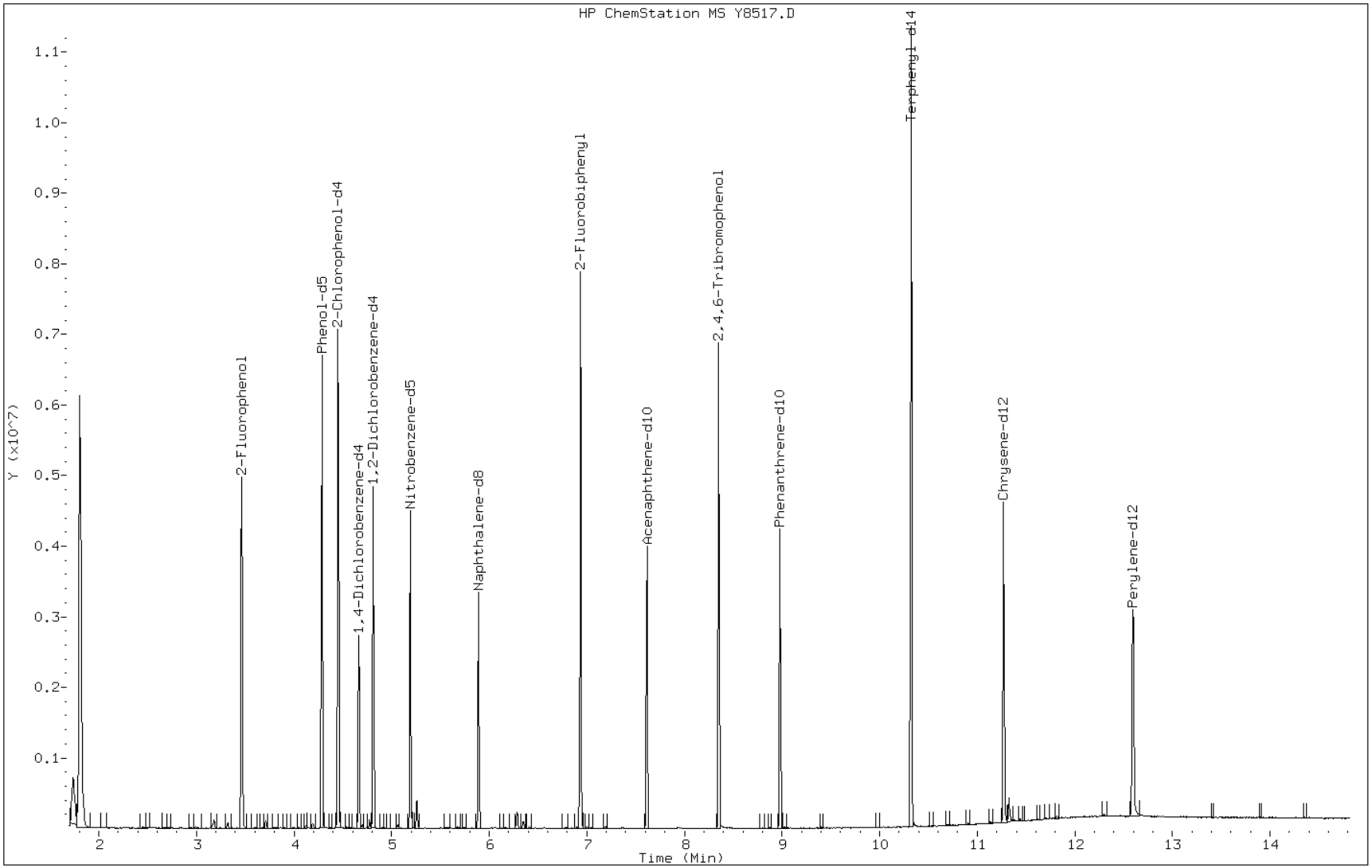
Date: 29-JUN-2012 14:33

Client ID: GUTHRIE

Instrument: Y.i

Sample Info: 280-30378-a-3-a

Operator: hoffmanm



Method 8015B - GRO

Gasoline Range Organics (GC) by Method 8015B

FORM I

GASOLINE RANGE ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 280-30378-2

SDG No.:

Client Sample ID: GUTHRIE Lab Sample ID: 280-30378-3

Matrix: Water Lab File ID: 211F1801.D

Analysis Method: 8015B Date Collected: 06/22/2012 09:45

Sample wt/vol: 5(mL) Date Analyzed: 06/27/2012 00:11

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: RTX 502.2 (60) ID: 0.53(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 125760 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
8006-61-9	Gasoline Range Organics (GRO)-C6-C10	ND		25	10

CAS NO.	SURROGATE	%REC	Q	LIMITS
98-08-8	a,a,a-Trifluorotoluene	89		82-110

TestAmerica

Method 8015 GRO

Data file : \\DenSvr03\Public\chem\GCV\GC_K.i\0626121.B\211F1801.D
Lab Smp Id: 280-30378-J-3 Client Smp ID: GUTHRIE
Inj Date : 27-JUN-2012 00:11
Operator : AMB Inst ID: GC_K.i
Smp Info : 280-30378-J-3
Misc Info : 280-30378-J-3
Comment : 8015 GRO
Method : \\DenSvr03\Public\chem\GCV\GC_K.i\0626121.B\8015.m
Meth Date : 26-Jun-2012 12:50 byla Quant Type: ESTD
Cal Date : 11-APR-2012 19:01 Cal File: 202F0801.D
Als bottle: 211
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: GRO.A.01.sub
Target Version: 4.14
Processing Host: DENPC382

Concentration Formula: Amt * DF * Vp/Vs * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Vp	5.000	final purge volume (ml)
Vs	5.000	vlm of sample added to purge vessel (ml)
Cpnd Variable		Local Compound Variable

						CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
Compounds		RT	EXP RT	DLT RT	RESPONSE		
$	2 Trifluorotoluene	10.543	10.566	-0.023	96448	26.8276	26.8276
S	3 GRO - C6 to C10	6.477	-22.423		4488	4.91697	4.91697(a)
	4 1-Chloro-4-Fluorobenzene	15.346	15.370	-0.024	94314	27.3068	27.3068
$	1 Chlorobenzene	15.680	15.706	-0.026	113855	26.7540	26.7540

QC Flag Legend

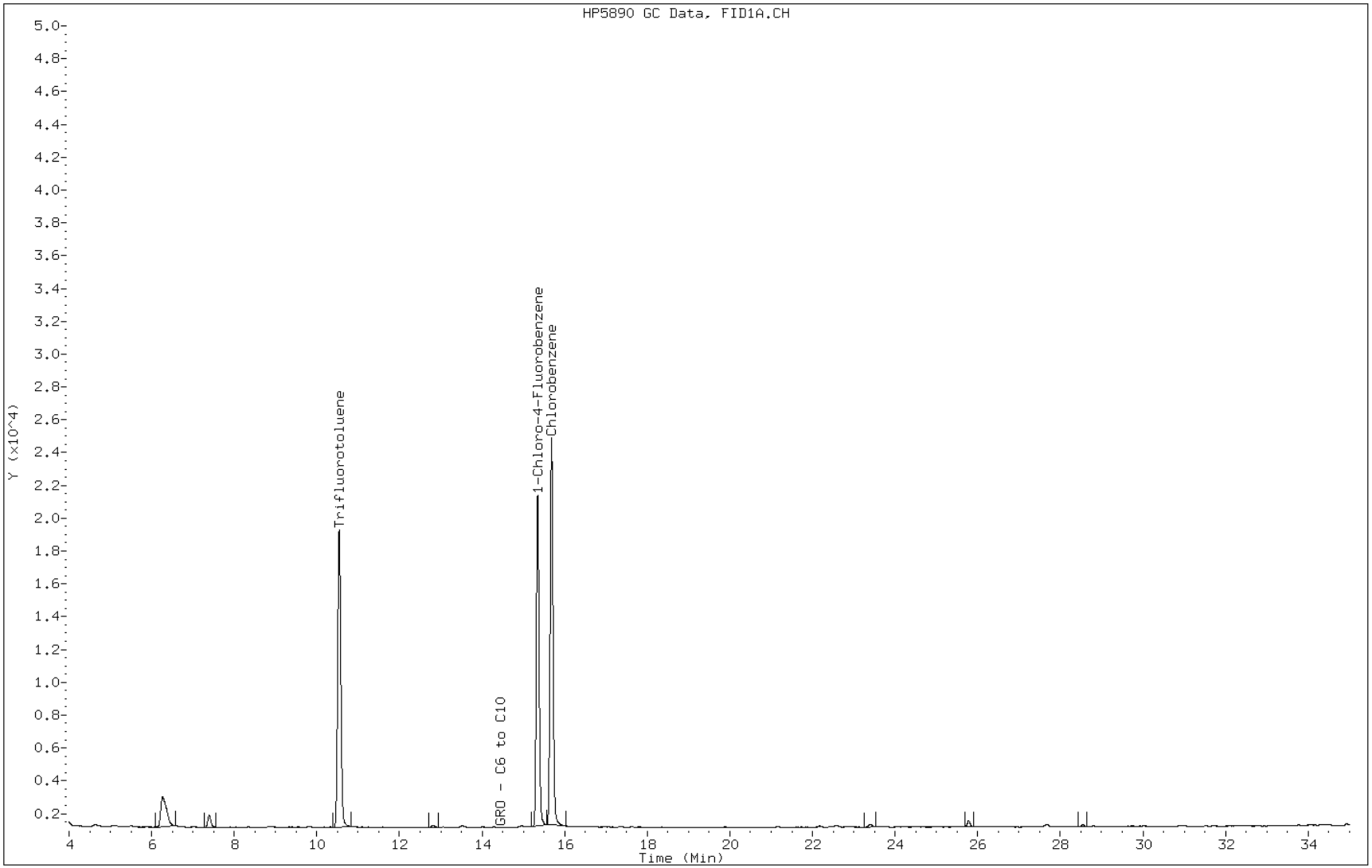
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

Data File: 211F1801.D

Date: 27-JUN-2012 00:11

Client ID: GUTHRIE Instrument: GC_K.i

Sample Info: 280-30378-J-3 Operator: AMB



Method RSK-175

Dissolved Gases (GC) by Method RSK_175

FORM I
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Houston Job No.: 280-30378-2

SDG No.:

Client Sample ID: GUTHRIE Lab Sample ID: 280-30378-3

Matrix: Water Lab File ID: rsk070212_011.d

Analysis Method: RSK-175 Date Collected: 06/22/2012 09:45

Sample wt/vol: 1(mL) Date Analyzed: 07/02/2012 16:51

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: RTX-5 ID: 0.53(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 83033 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
74-84-0	Ethane	0.42	J	2.0	0.30
74-82-8	Methane	2.5		1.0	0.36
74-98-6	Propane	ND		2.0	0.75

TestAmerica Houston

Data file : \\housvr4\chem\FID14.i\070212.b\rsk070212_011.d
Lab Smp Id: 280-30378-P-3 Client Smp ID: GUTHRIE
Inj Date : 02-JUL-2012 16:51
Operator : lamj Inst ID: FID14.i
Smp Info : 280-30378-P-3
Misc Info : 280-30378-P-3
Comment :
Method : \\housvr4\chem\FID14.i\070212.b\RSK175.m
Meth Date : 14-Jun-2012 17:10 Quant Type: ESTD
Cal Date : 28-MAR-2012 15:34 Cal File: rsk032812_006.d
Als bottle: 1
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: all.sub
Target Version: 4.14
Processing Host: HOUSVR3

Concentration Formula: Amt * DF * Vt/Va * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Vt	10.000	Final Volume
Va	10.000	Aliquot Volume
Cpnd Variable		Local Compound Variable

					CONCENTRATIONS	
					ON-COLUMN	FINAL
Compounds	RT	EXP RT	DLT RT	RESPONSE	(ug/L)	(mg/L)
1 Methane	0.966	0.914	0.052	26334	2.51833	2.52(M)
2 Ethane	1.150	1.097	0.053	3010	0.42234	0.422(aM)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.

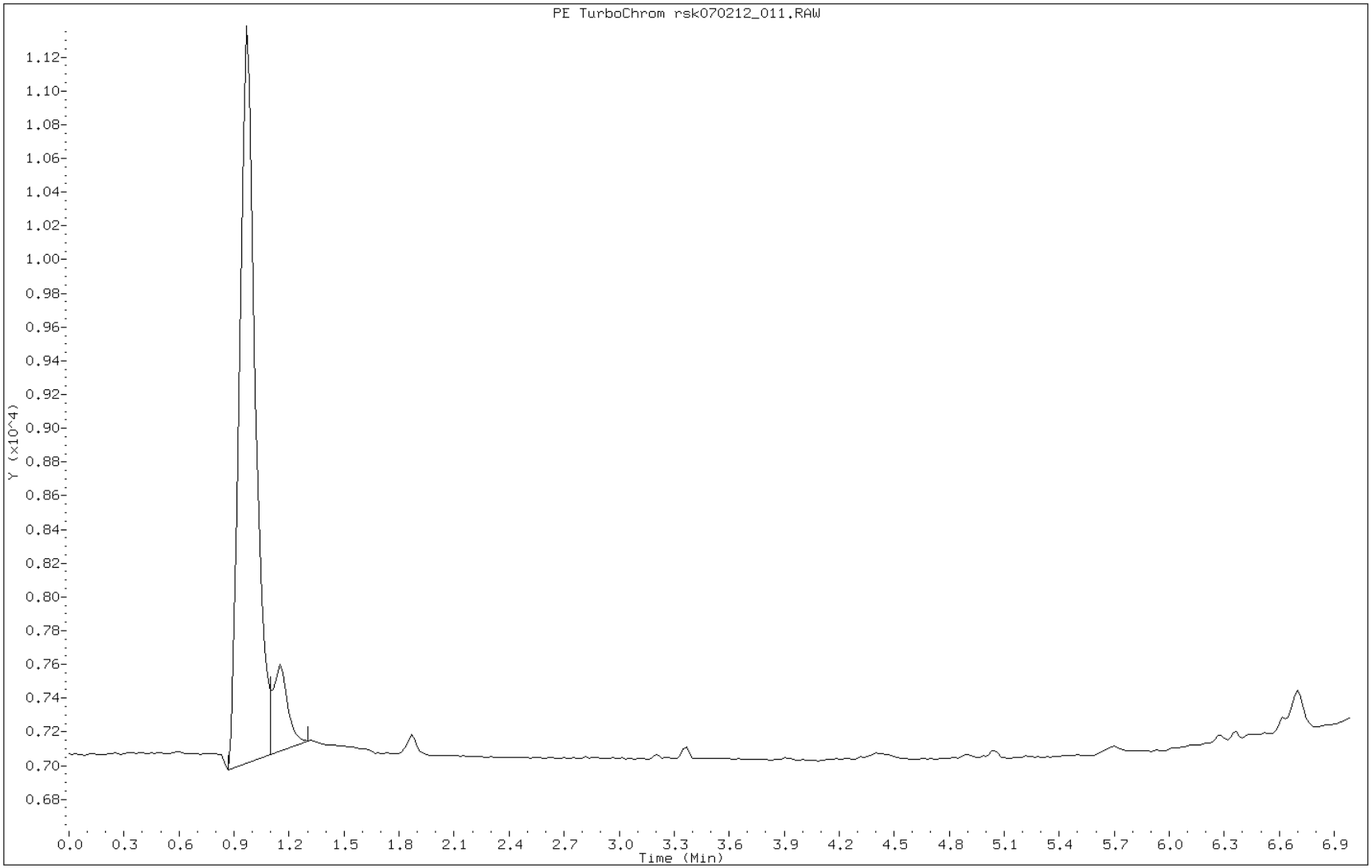
Received 7/13/2012 Rifle COGCC

Data File: rsk070212_011.d

Date: 02-JUL-2012 16:51

Client ID: GUTHRIE Instrument: FID14.i

Sample Info: 280-30378-P-3 Operator: lamj



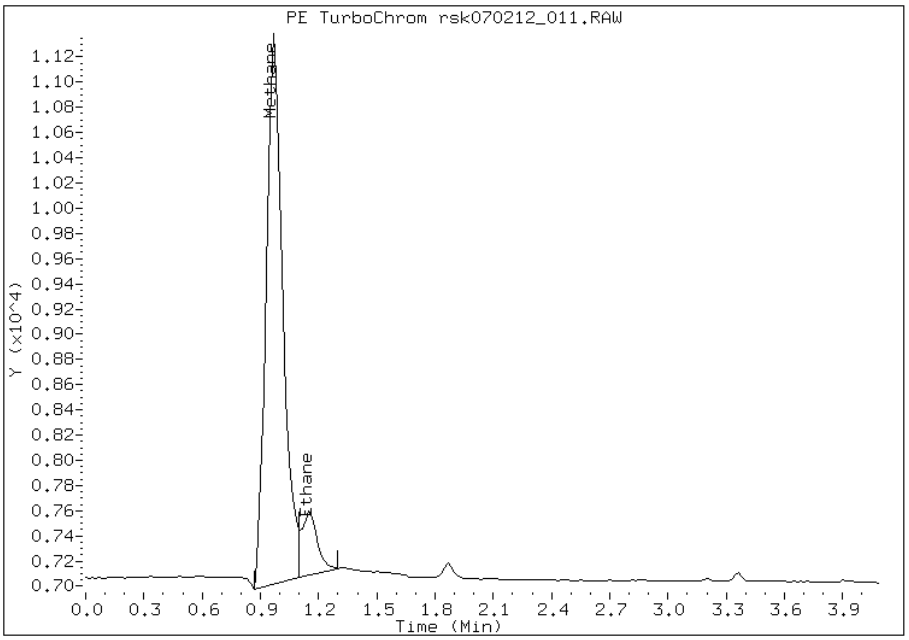
Manual Integration Report

Data File: rsk070212_011.d
Inj. Date and Time: 02-JUL-2012 16:51
Instrument ID: FID14.i
Client ID: GUTHRIE
Compound: 2 Ethane
CAS #: 74-84-0
Report Date: 07/03/2012

Processing Integration Results

Not Detected

Expected RT: 1.10



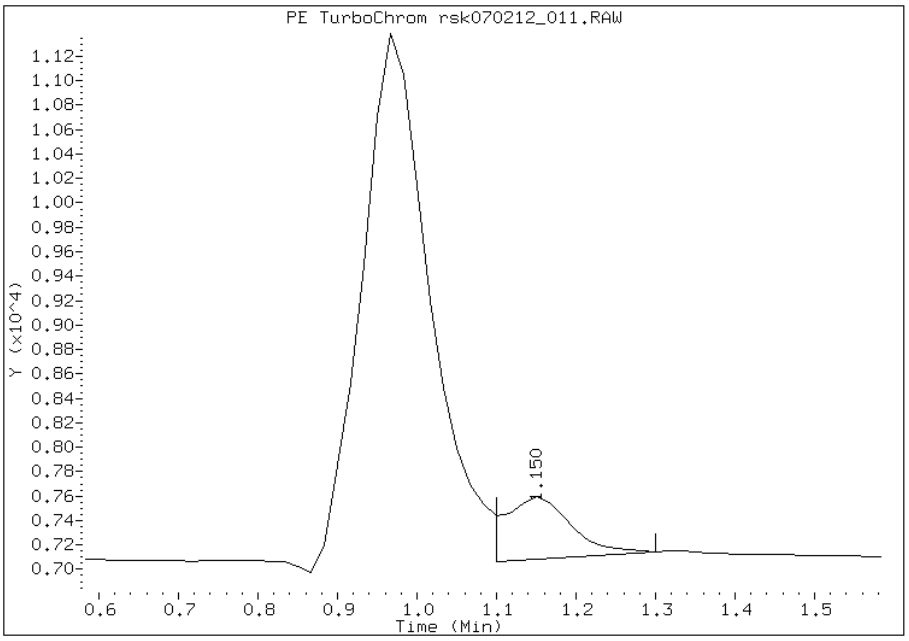
Manual Integration Results

RT: 1.15

Response: 3010

Amount: 0.42

Conc: 0.42



Manually Integrated By: lamj
Modification Date:
Manual Integration Reason: Peak Integrated Incorrectly

Manual Integration Report

Data File: rsk070212_011.d
Inj. Date and Time: 02-JUL-2012 16:51
Instrument ID: FID14.i
Client ID: GUTHRIE
Compound: 1 Methane
CAS #: 74-82-8
Report Date: 07/03/2012

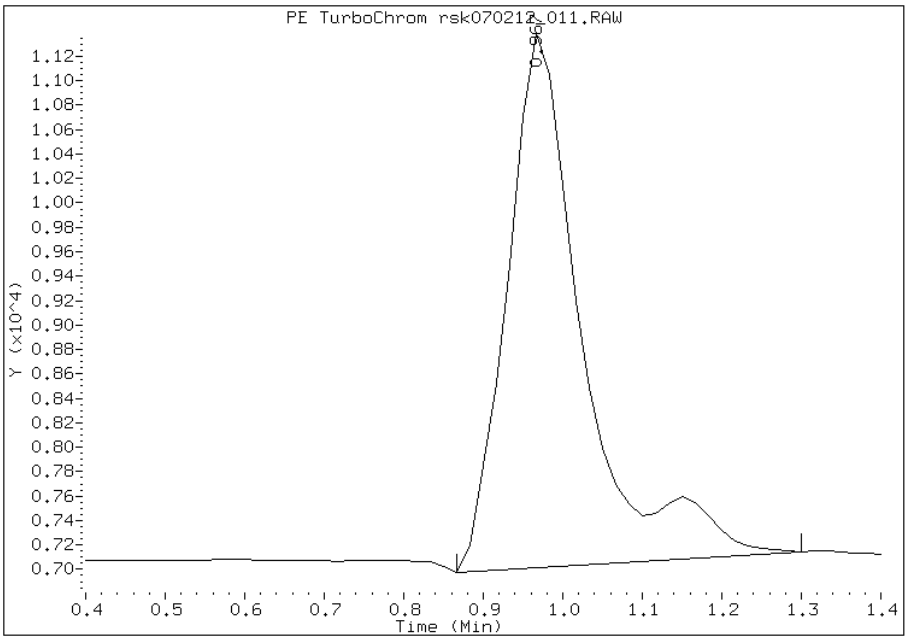
Processing Integration Results

RT: 0.97

Response: 28996

Amount: 2.94

Conc: 2.94



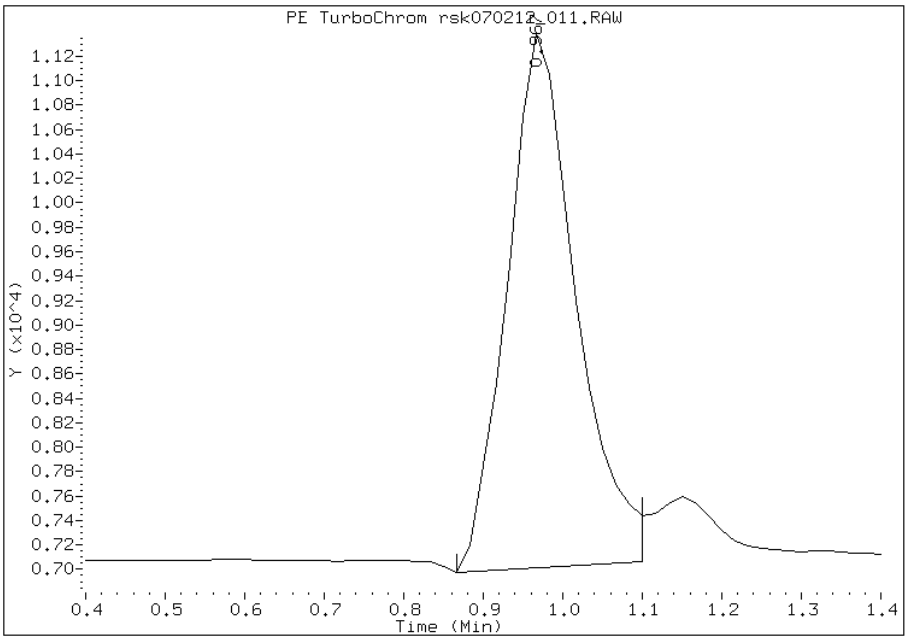
Manual Integration Results

RT: 0.97

Response: 26334

Amount: 2.52

Conc: 2.52



Manually Integrated By: lamj
Modification Date: 03-Jul-2012 16:00
Manual Integration Reason: Peak Integrated Incorrectly

Method 8015B - DRO

Diesel Range Organics (DRO) (GC) by Method 8015B

FORM I

DIESEL RANGE ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 280-30378-2

SDG No.:

Client Sample ID: GUTHRIE Lab Sample ID: 280-30378-3

Matrix: Water Lab File ID: 020F2001.D

Analysis Method: 8015B Date Collected: 06/22/2012 09:45

Extraction Method: 3510C Date Extracted: 06/25/2012 19:06

Sample wt/vol: 1055(mL) Date Analyzed: 06/27/2012 21:06

Con. Extract Vol.: 1000(uL) Dilution Factor: 1

Injection Volume: 1(uL) GC Column: RTX-1 (30.32) ID: 0.25(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 125910 Units: mg/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00255	C10-C36	ND		0.47	0.053

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	71		50-115
630-02-4	n-Octacosane	92		26-152

Data File: \\DenSvr03\Public\chem\GCS\GC_U2.i\0627121.B\020F2001.D
Report Date: 28-Jun-2012 08:29

TestAmerica

SW846 8015 mod.

Data file : \\DenSvr03\Public\chem\GCS\GC_U2.i\0627121.B\020F2001.D
Lab Smp Id: 280-30378-C-3-A Client Smp ID: GUTHRIE
Inj Date : 27-JUN-2012 21:06
Operator : MB Inst ID: GC_U2.i
Smp Info : 280-1486356,3
Misc Info : 280-30378-C-3-A
Comment   : DEN-GC-0002
Method   : \\DenSvr03\Public\chem\GCS\GC_U2.i\0627121.B\DR01.m
Meth Date : 27-Jun-2012 16:55 pavlakoa Quant Type: ESTD
Cal Date : 26-APR-2012 17:36 Cal File: 010F1001.D
Als bottle: 20
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: C10-C36sub.sub
Target Version: 4.14
Processing Host: DENPC064

Concentration Formula: Amt * DF * Vf / Vs * * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Vf	1000.000	Final Extract Volume (uL)
Vs	1055.000	Volume of Sample Extracted (mL)
Cpnd Variable		Local Compound Variable

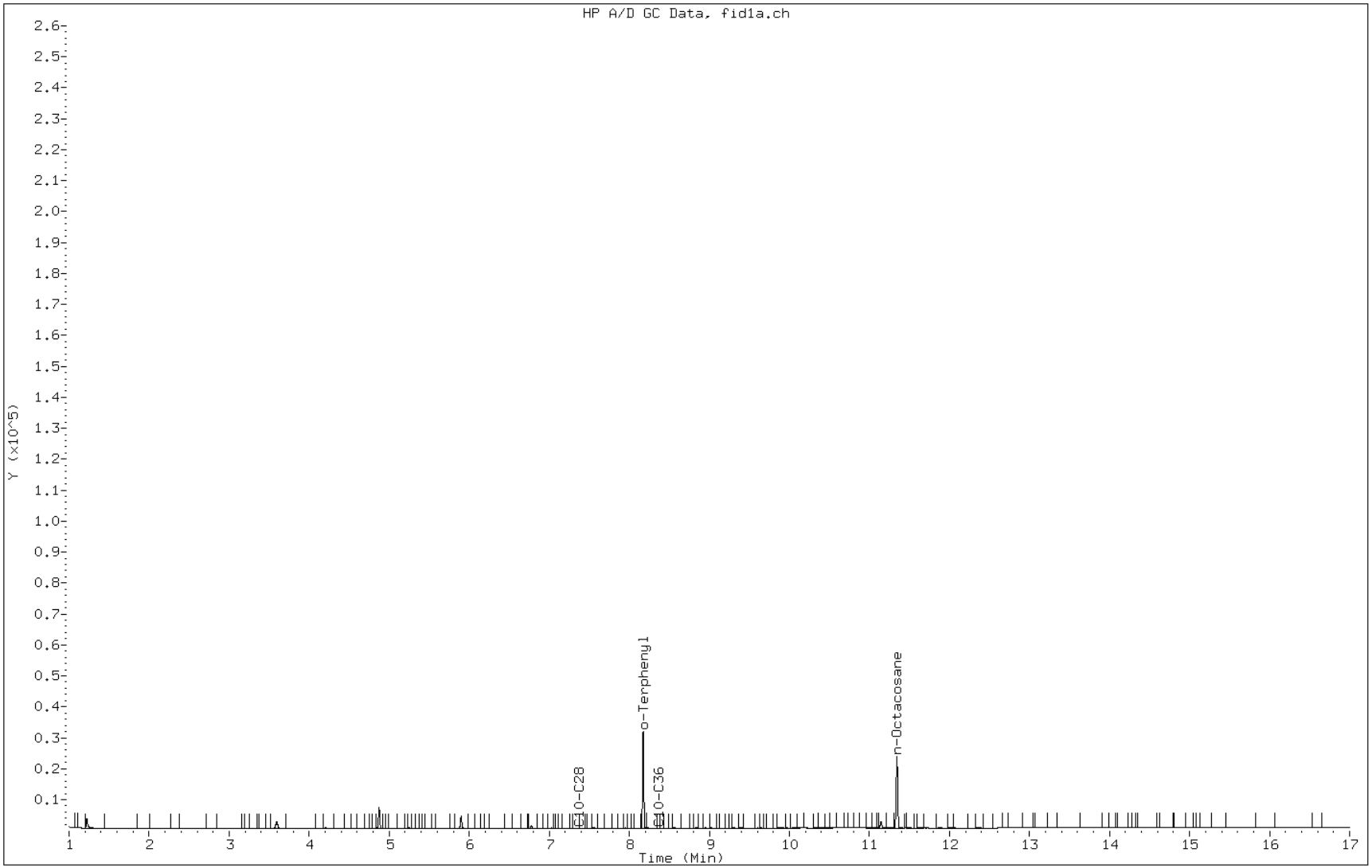
						CONCENTRATIONS ON-COLUMN (ug/ml)	CONCENTRATIONS FINAL (ug/L)
Compounds		RT	EXP RT	DLT RT	RESPONSE		
$	1 o-Terphenyl	8.173	8.180	-0.007	33011	14.1918	13.45
S	9 C10-C36	3.390	13.340		28436	18.5982	17.63
S	8 C10-C28	3.390	11.360		26749	17.5070	16.59
$	11 n-Octacosane	11.344	11.349	-0.005	31457	18.4462	17.48

Data File: 020F2001.D

Date: 27-JUN-2012 21:06

Client ID: GUTHRIE Instrument: GC_U2.i

Sample Info: 280-1486356,3 Operator: MB



Subcontract Data

Shipping and Receiving Documents

Chain of Custody Record

Sampler ID DCH

Temperature on Receipt 2.8 °C

Drinking Water? Yes ☐ No ☐ 6/23/12 TP

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TAL-4124-280 (0508)

Client: COGCC	Project Manager: Linda Spry O'Rourke	Date:	Chain of Custody Number: 161158
Address: 707 Wapiti Court	Telephone Number (Area Code)/Fax Number: (970) 625-2497	Lab Number:	Page 1 of 1
City: Rifle / State: CO / Zip Code: 81650	Site Contact: Heydenbert	Lab Contact: Joe Egry	
Project Name and Location (State): Tim Guthrie Silt CO	Carrier/Waybill Number: Fed Ex		
Contract/Purchase Order/Quote No.: 17802			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis (Attach list if more space is needed): Spec Cond	TDS	Dis Metals Icp	Dis Metals	Mercury	Emerg Inorg	Alkalinity	Dis Gases	GRO BTEX	SVOC PAH	VOCs SAR	TOC	Special Instructions/ Conditions of Receipt
Guthrie				X				1		9			X	X	X	X	X	X	X	X	X	X	X	X	
See attached Bottle Order - June 18, 2012 for list of Parameters and Analytes With Method Numbers																									

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
(A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other Standard

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: DCH Heydenbert	6/22/12	16:00	1. Received By:	6/23/12	0900
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

From: Spry ORourk, Linda [mailto:Linda.SpryORourk@state.co.us]
Sent: Monday, June 18, 2012 1:49 PM
To: Egry, Joseph J.
Cc: Fischer, Alex
Subject: RE: Bottle Order

Joe,

I mis-spoke in the email below; we need to receive the bottles in Rifle on Wednesday 6/20/2012.

Linda Spry O'Rourke
Environmental Protection Specialist, Northwest Region
Colorado Oil & Gas Conservation Commission
707 Wapiti Court
Suite 204
Rifle, CO 81650

(970) 625-2497 Office
(970) 625-5682 Fax
(970) 309-3356 Cellular
linda.spryorourk@state.co.us

From: Spry ORourk, Linda
Sent: Monday, June 18, 2012 1:41 PM
To: 'Egry, Joseph J.'
Cc: Fischer, Alex
Subject: Bottle Order

Hi.

Please ship sample containers for the following tests to the Rifle COGCC office and let me know when they can be shipped and arrive. If possible, I'd like to receive these by the end of this week. We anticipate collecting 3 samples late this week or early next. There may be a delay before the other 3 samples are collected. Thanks.

Test	Test Method	Number Water Samples
SPECIFIC CONDUCTIVITY	EPA120.1	6
PH	EPA150.1	6
TOTAL DISSOLVED SOLIDS	EPA160.1	6
Dissolved METALS - ICP	EPA200.7	6
Dissolved Metals	EPA200.8	6
Mercury	E245.1	6
Inorganic anions (Br,Cl,Fl,N02 asN,NO3asN,SO4)	EPA300.0	6
Alkalinity (bicarb as CaCO3, total alk as CaCO3, carbonate as CaCO3)	EPA310.1	6
dissolved gases (methane, ethane, propane)	RSK175	6
GASOLINE RANGE ORGANICS	SW8015	6
DIESEL RANGE ORGANICS	SW8015	6
Semi-VOCs/PAH	SW8270	6

VOCs	SW8260	6
SODIUM ADSORPTION RATIO	Lab calculated	6
Total Organic Carbon	Method 413.1	6

Linda Spry O'Rourke
Environmental Protection Specialist, Northwest Region
Colorado Oil & Gas Conservation Commission
707 Wapiti Court
Suite 204
Rifle, CO 81650

(970) 625-2497 Office
(970) 625-5682 Fax
(970) 309-3356 Cellular
linda.spryorourk@state.co.us

Login Sample Receipt Checklist

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Login Number: 30378

List Source: TestAmerica Denver

List Number: 1

Creator: Paulsen, Lindsay T

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	Refer to Job Narrative for details.
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-30378-2

Login Number: 30378
List Number: 1
Creator: Capps, Dana

List Source: TestAmerica Houston
List Creation: 06/26/12 10:03 AM

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

Attachment 4

Interpretations of Drinking Water Quality for Colorado

Test Name	Lab Result	Interpretation	Excellent	Satisfactory	Additional Comments
1) Routine Water Analysis					
Alkalinity as $CaCO_3$	470 mg/L	Objectionable		<= 400.0 mg/L ***	This water is considered objectionable because it exceeds the recommended guideline of 400 mg/L. Since calcium is a major component of water hardness, water softeners are the main method of treatment. Chemical softening, reverse osmosis, electrodialysis, and ion exchange are also applicable treatments. For more information on drinking water please visit: ¿ CSU Extension: Drinking Water Quality and Health ¿ Well Educated Fact Sheet - Alkalinity, pH and Total Dissolved Solids
Bicarbonate	470 mg/L	No Guideline			At this time, there is no drinking water quality guideline for bicarbonate because no documented threshold of injury has been shown to occur. For general information on drinking water quality, please visit: ¿ CSU Fact Sheet 0.513 - Domestic Water Quality Criteria
Boron (B)	0.37 mg/L	No Guideline			At this time, there is no USEPA drinking water quality standard for boron because no documented threshold of injury has been shown to occur. Low dietary levels of boron may protect against fluorosis and bone demineralization and may indirectly influence calcium, phosphorus, and magnesium metabolism. In high doses boron can be toxic. For more information on boron in drinking water please visit: ¿ Water Quality Criteria for Boron
Calcium (Ca)	290 mg/L	No Guideline			At this time, there is no drinking water quality guideline for calcium because no documented threshold of injury has been shown to occur. Treatment can be accomplished with a cation exchange water softener. For general information on drinking water quality, please visit: ¿ CSU Fact Sheet 0.513 - Domestic Water Quality Criteria
Carbonate (CO_3)	1.1 mg/L	No Guideline			At this time, there is no drinking water quality guideline for carbonate because no documented threshold of injury has been shown to occur. For general information on drinking water quality, please visit: ¿ CSU Fact Sheet 0.513 - Domestic Water Quality Criteria
Chloride (Cl)	79 mg/L	Satisfactory	<= 20.0 mg/L **	<= 250.0 mg/L **	This water is considered satisfactory because it is less than the secondary standard of 250 mg/L. Chloride tends to affect the taste of water and can cause corrosion in water distribution systems. Demineralization processes such as reverse osmosis or electro dialysis can be used to remove chloride from drinking water. For more information on chloride in drinking water please visit: ¿ BC Ministry of Environment: Ambient Water Quality Guidelines for Chloride ¿ EPA Drinking Water Criteria
Electrical Conductivity (EC)	3100 dS/m (mmhos/cm)	No Guideline			At this time, there is no drinking water quality guideline for electrical conductivity because no documented threshold of injury has been shown to occur. For general information on drinking water quality, please visit:

					¿ CSU Fact Sheet 0.513 - Domestic Water Quality Criteria
Magnesium (Mg)	170 mg/L	No Guideline			At this time, there is no drinking water quality guideline for magnesium because no documented threshold of injury has been shown to occur. Treatment can be accomplished with a cation exchange water softener. For general information on drinking water quality please visit: ¿ CSU Fact Sheet 0.513 - Domestic Water Quality Criteria
Nitrate as Nitrogen (NO_3-N)	0.5 mg/L	Excellent	<= 1.0 mg/L *	<= 10.0 mg/L *	This water is considered excellent because it is less than the primary excellence standard of 1.0 mg/L as nitrate-nitrogen (NO_3-N). In drinking water, high nitrate concentrations can have serious effects on the health of infants. These consequences occur when nitrate is converted to nitrite and then combines with hemoglobin in the blood to form methemoglobin. Since methemoglobin does not absorb oxygen, the reduced capacity of the blood to absorb oxygen can be fatal. Nitrate problems in drinking water are usually seen when groundwater is the water source. Nitrate is best removed by reverse osmosis. Biological denitrification and anion exchange are also potential methods of removal. Elimination of the nitrogen source is often the best solution. For more information on nitrate in drinking water please visit: ¿ EPA Factsheet on NITRATE/NITRITE ¿ Well Educated Fact Sheet - Nitrate & Nitrite
Nitrite as Nitrogen (NO_2-N)	0.098 mg/L	Excellent	<= 1.0 mg/L *	<= 1.0 mg/L *	This water is considered excellent because it is less than the primary excellence standard of 1.0 mg/L. Like nitrate, nitrite may also harm the oxygen-carrying capacity of the blood by reducing hemoglobin to methemoglobin. Its presence is an indicator of high concentrations of either nitrate or ammonia. Treatment can be accomplished with chemical oxidation, anion exchange, reverse osmosis, or distillation. For more information on nitrite in drinking water, please visit: ¿ EPA: Basic Information About Nitrite in Drinking Water ¿ Well Educated Fact Sheet - Nitrate & Nitrite

Test Name	Lab Result	Interpretation	Acceptable	Additional Comments
3) Individual Metals Analysis				
Aluminum (Al)	0.018 mg/L	Acceptable	<= 0.05 mg/L **	This water is considered satisfactory because it is less than the secondary standard of 0.05 mg/L. For healthy people, the gastrointestinal tract and skin are usually effective barriers against the absorption of aluminum. High tissue levels of aluminum in people may be associated with the development of brain and central nervous system disorders. Ion exchange and demineralization are potential methods for removal of aluminum from water. For more information on drinking water quality please visit: ¿ EPA Drinking Water Criteria
Barium (Ba)	0.01 mg/L	Acceptable	<= 2.0 mg/L *	This water is considered satisfactory because it is less than the primary standard of 2.0 mg/L. Acute exposure to barium results in gastrointestinal, neuromuscular, and cardiac effects including blood pressure to animals and humans. Barium does not accumulate in bones, muscles, kidneys, or other tissues. Lime softening (pH = 10 to 11) or an ion exchange softener may reduce barium by 95%. Reverse osmosis is also listed among the USEPA's best available

				technology. For more information on barium in drinking water please visit: ¿ EPA Factsheet on BARIUM ¿ Well Educated Fact Sheet - Antimony, Barium and Beryllium
Cadmium (Cd)	0.000095 mg/L	Acceptable	<= 0.005 mg/L *	This water is considered satisfactory because it is less than the primary standard of 0.005 mg/L. Long term consumption of water with cadmium concentrations in excess of 0.005 mg/L have been linked to kidney damage in some cases and concentrations of 15 mg/L may cause nausea and vomiting. There is no accepted, economically effective method for direct removal of cadmium at high concentrations. Lime softening may help to remove cadmium when concentrations are less than 0.5 mg/L. For more information on this constituent in drinking water, please visit: ¿ EPA: Consumer Factsheet on: CADMIUM ¿ Well Educated Fact Sheet: Cadmium and Selenium
Chromium (Cr)	0.00066 mg/L	Acceptable	<= 0.1 mg/L *	This water is considered satisfactory because it is less than the primary standard of 0.1 mg/L. Trivalent chromium may be nutritionally safe at a level of 0.20 mg/day. Hexavalent chromium has a deleterious effect on the liver, kidney, and respiratory organs with hemorrhagic effects, dermatitis, and ulceration of the skin for chronic and sub chronic exposure. Chromium can be treated by coagulation with filtration, lime softening (Cr III), and under specialized processes such as ion exchange and reverse osmosis. For more information on chromium in drinking water please visit: ¿ EPA Factsheet on CHROMIUM ¿ MSU: Chromium, Mercury and Thallium Fact Sheet
Copper (Cu)	0.0063 mg/L	Acceptable	<= 1.3 mg/L *	This water is considered satisfactory because it is less than the primary standard of 1.3 mg/L. Copper is an essential element, aiding in human metabolism. However, the ingestion of too much copper can be problematic. Ingested doses of copper, up to 100 mg, can cause symptoms of gastroenteritis, including nausea and vomiting, and long term exposure may lead to liver or kidney damage. People with Wilson's Disease should consult their doctor if the copper in their water exceeds the primary standard. Coagulation/filtration, ion exchange, lime softening, and reverse osmosis are recommended treatment methods for copper. Lime softening is the most economical, with reverse osmosis the most expensive. For more information on copper in drinking water please visit: ¿ EPA Factsheet on COPPER ¿ Well Educated Fact Sheet - Copper
Iron (Fe)	0.022 mg/L	Acceptable	<= 0.3 mg/L **	This water is considered satisfactory because it is less than the secondary standard of 0.3 mg/L. Solutions for iron include: cation exchange, distillation, chlorination, or filtration. For more information on drinking water, please visit: ¿ EPA Drinking Water Criteria ¿ Well Educated Fact Sheet - Total Iron
				This water is considered objectionable because it exceeds the secondary standard of 0.05 mg/L. Manganese is an essential element in trace amounts for plants and animals. It is an important component of the enzyme processes that metabolizes proteins and energy in animals. Manganese is also involved in the formation of healthy joints. In humans, manganese is an important component in the processes of

Manganese (Mn)	0.053 mg/L	Objectionable	<= 0.05 mg/L **	digestion and food absorption. It is also involved in the synthesis of fatty acids and cholesterol, metabolizing sugars, and the utilization of thiamine, biotin, and vitamin C. Foul taste and its tendency to stain plumbing and laundry are the main problems of manganese in drinking water. Cation exchange, distillation, chlorination, and/or filtration are recommended manganese treatment technologies. For more information on drinking water quality please visit: ¿ EPA Drinking Water Criteria
Molybdenum (Mo)	0.0043 mg/L	No Guideline		At this time, there is no drinking water quality standard for molybdenum because no documented threshold of injury has been shown to occur. Molybdenum interferes with the metabolism of copper. This interference can create a copper deficiency. Molybdenum has been shown to cause joint pain, similar to gout in humans. Furthermore, laboratory studies have shown that molybdenum can alter the absorption rate of calcium into the bones. For more information on molybdenum in drinking water please visit: ¿ Water Quality Criteria for Molybdenum
Nickel (Ni)	0.0013 mg/L	Acceptable	<= 0.1 mg/L *	This water is considered satisfactory because it is less than the primary standard of 0.1 mg/L. Nickel has a low toxicity comparable to zinc, manganese, and chromium. Nickel does not accumulate in tissues. Ion exchange, reverse osmosis, and/or lime softening are recommended treatment solutions. For more information on drinking water, please visit: ¿ EPA Drinking Water Criteria
Zinc (Zn)	0.091 mg/L	Acceptable	<= 5.0 mg/L **	This water is considered satisfactory because it is less than the secondary standard of 5.0 mg/L. In trace amounts, zinc is a necessary element for animals and plants. In mammals, it plays an important role in the formation of nucleic acids, RNA, and DNA. It is involved in the processes that promote healthy tissues in the body. Zinc is also necessary for hormone metabolism and immune system responsiveness. Symptoms of zinc deficiency include growth reduction, skin changes, testicular disintegration, and reduced appetite. Zinc toxicity is not common, however zinc poisoning in humans, from consumables stored in galvanized containers, has been recorded. When detected in drinking water, it is likely that corrosion of piping has increased the concentration of zinc. Control of raw water to identify possible contamination and corrosion control measures may reduce the concentrations to a reasonable level. Otherwise, lime softening or cation exchange can remove zinc. For more information on zinc drinking water please visit: ¿ EPA Drinking Water Criteria
5) Trace Elements Analysis				
Antimony (Sb)	0.002 mg/L	Acceptable	<= 0.006 mg/L *	This water is considered satisfactory because it is less than the primary standard of 0.006 mg/L. The health effects of antimony include decreased growth and decrease longevity of humans. Prolonged exposure can also cause an increase in blood cholesterol and a decrease in blood sugar. To remove antimony, coagulation/filtration or reverse osmosis is recommended. For more information on this constituent in drinking water, please go to this EPA link: ¿ EPA: Consumer Factsheet on ANTIMONY ¿ Well Educated Fact Sheet - Antimony, Barium and Beryllium
				This water is considered satisfactory because it is less than the primary standard of 0.01 mg/L. Arsenic is poisonous in humans at 100 mg or more and has proven lethal at 130 mg.

Arsenic (As)	0.0055 mg/L	Acceptable	<= 0.01 mg/L *	Studies have linked long-term exposure to arsenic in drinking water to cancer of the bladder, lungs, skin, kidney, nasal passages, liver, and prostate. Non-carcinogenic effects of arsenic include cardiovascular, pulmonary, immunological, neurological, and endocrine effects. Short-term exposure to high doses of arsenic can cause other detrimental health effects, but are unlikely to occur from public water supplies in compliance with the existing arsenic standard of 0.01 mg/L. Accumulation in the body is expected to rise progressively in humans with low intake of arsenic. By using activated alumina, reverse osmosis, ion exchange, or electro dialysis, the concentration of arsenic can be significantly lowered. For more information on arsenic in drinking water please visit: ¿ EPA Factsheet on ARSENIC ¿ Well Educated Fact Sheet- Arsenic
Beryllium (Be)	0.00047 mg/L	Acceptable	<= 0.004 mg/L *	This water is considered satisfactory because it is less than the primary standard of 0.004 mg/L. In some cases of long exposure to beryllium concentrations in excess of 0.004 mg/L intentional lesions were developed. Coagulation and filtration, lime softening, activated alumina, ion exchange, and reverse osmosis are recommended for removal of beryllium. For more information on beryllium in drinking water please visit: ¿ EPA Factsheet on BERYLLIUM ¿ Well Educated Fact Sheet - Antimony, Barium and Beryllium
Cobalt (Co)	0.00013 mg/L	No Guideline		At this time, there is no drinking water quality standard for cobalt because no documented threshold of injury has been shown to occur. For general information on drinking water quality, please visit: ¿ CSU Fact Sheet 0.513 - Domestic Water Quality Criteria
Fluoride (F)	0.43 mg/L	Acceptable	<= 4.0 mg/L *	This water is considered satisfactory because it is less than the primary standard of 4.0 mg/L. Fluoride accumulates in the mineralized tissues of the body, such as bones and teeth. People with diabetes and whose diets are deficient in calcium, manganese, iodine, or vitamin C are at a greater risk of fluoride toxicity. People receiving dialysis for malfunction or removal of a kidney are very susceptible to fluoride toxicity. The major source of fluoride pollution is wastewater from steel, aluminum, and phosphate fertilizer factories. Activated alumina adsorption, reverse osmosis, and modified lime softening are proven methods of fluoride concentration reduction. For more information on fluoride in drinking water please visit: ¿ EPA: Basic Information about Fluoride in Drinking Water ¿ EPA: Fluoride Risk Assessment and Relative Source Contribution
				This water is considered satisfactory because it is less than the primary standard of 0.015 mg/L. Some health effects of lead include a decrease in function of the nervous system, weakness in fingers, wrists or ankles, small increases in blood pressure, anemia, and decreased sperm production in men. Exposure to high lead levels can cause severe damage to the brain and kidneys. Small and unborn children are particularly susceptible to lead poisoning. Lead can be passed from the mother to an unborn child. Some harmful effect include: premature birth, smaller birth size, decreased mental ability, learning difficulties, and slowed growth. Lead based plumbing was common until it was banned in

Lead (Pb)	0.00013 mg/L	Acceptable	<= 0.015 mg/L *	1986, however some modern plumbing materials contain trace amounts of lead, this is a primary source of contamination. Treatment of water with high lead concentrations include: raising the pH of treated water to reduce corrosivity, replace old plumbing fixtures and pipes (especially when older than 1986), use only cold water for drinking and cooking, and run the faucet until it becomes cold before collecting water for drinking, cooking and making baby formula. For more information on lead in drinking water, please visit: ¿ EPA: Basic Information about Lead in Drinking Water ¿ Well Educated Fact Sheet - Lead ¿ ATSDR: Toxic Substances Portal - Lead
Lithium (Li)	0.053 mg/L	No Guideline		At this time, there is no drinking water quality standard for lithium because no documented threshold of injury has been shown to occur. For general information on drinking water quality please visit: ¿ CSU Fact Sheet 0.513 - Domestic Water Quality Criteria
Mercury (Hg)	0.000027 mg/L	Acceptable	<= 0.002 mg/L *	This water is considered satisfactory because it is less than the primary standard of 0.002 mg/L. Mercury is hazardous to both animals and humans. Mercury compounds have been used in paints, drywall compounds, pharmaceuticals, and fungicides. Mercury can damage the nervous, reproductive, renal, and developmental systems of humans and animals. The chemical form of mercury and point of entry are important factors in the toxicity of mercury. Ingestion of inorganic mercury is mainly responsible for the deterioration of intestines and kidney damage in both animals and humans. Methyl mercury and short-chained organic mercury compounds kill cells in central nervous system which assist in sensory and coordination functions. The EPA has found that short-term exposure to mercury has the potential to cause kidney damage when people are exposed to it at levels above the 0.002 mg/L. The following treatment methods have been approved by EPA for removing mercury: coagulation/filtration; granular activated carbon; lime softening; reverse osmosis. For more information on mercury in drinking water please visit: ¿ EPA: Basic Information about Mercury in Drinking Water ¿ MSU: Chromium, Mercury and Thallium Fact Sheet
Selenium (Se)	0.005 mg/L	Acceptable	<= 0.05 mg/L *	This water is acceptable because it is less than the primary standard of 0.05 mg/L. Although selenium is an essential nutrient at low levels, it is toxic at high levels (such as in the case of accidental exposure). Selenium is a trace element essential for humans and animals. However, it can be toxic at higher levels of concentration. The effects of selenium in water and food depend on the amount ingested and the length of exposure. Changes in respiratory, cardiovascular, gastrointestinal, musculoskeletal, renal, dermal, endocrine, and body weight have been documented in humans and animals exposed to selenium. Skin, nail, and hair damage are important symptoms of selenium toxicity. Signs of selenium poisoning in animals and humans include excessive salivation, shallow breathing, breath odor, and diarrhea. Other signs of acute selenium poisoning are vomiting, spasms, and death from respiratory failure. Reverse osmosis, anion exchange, activated alumina, and/or distillation are recommended treatment solutions for water with high concentrations of selenium. For more information on selenium in drinking water please visit:

				¿ EPA: Basic Information about Selenium in Drinking Water ¿ Well Educated Fact Sheet - Cadmium and Selenium
Silver (Ag)	0.000051 mg/L	Acceptable	<= 0.05 mg/L *	This water is considered satisfactory because it is less than the primary standard of 0.05 mg/L. Silver is removed by the liver after it combines with plasma proteins. The majority of silver is excreted in the bile of the feces. The skin and mucous tissues absorb the silver which is not excreted. People most susceptible to the toxic effects of silver are those with dietary or metabolism deficiencies of vitamin E or selenium. Also at greater risk are people with liver problems and those with high selenium levels in their diet. Treatments for removing silver are: coagulation/filtration, submicron filtration/activated carbon, ion exchange, distillation, and reverse osmosis. For more information on drinking water please visit: ¿ EPA Drinking Water Criteria
Thallium (Tl)	0.000066 mg/L	Acceptable	<= 0.002 mg/L *	This water is considered satisfactory because it is less than the primary standard of 0.002 mg/L. High levels of thallium can cause hair loss or damage to the kidney, liver, brain and intestine. Treatment can be accomplished with activated alumina, cation exchange and distillation. For more information on this constituent in drinking water, please visit: ¿ EPA: Basic Information About Thallium in Drinking Water ¿ MSU: Chromium, Mercury and Thallium Fact Sheet
Vanadium (V)	0.0016 mg/L	No Guideline		At this time, there is no drinking water quality standard for vanadium because no documented threshold of injury has been shown to occur. For general information on drinking water quality please visit: ¿ CSU Fact Sheet 0.513 - Domestic Water Quality Criteria
6) Radionuclides				
Uranium (U)	0.03 ug/L	Acceptable	<= 30.0 ug/L *	This water meets the primary standard of 30 ug/L for Uranium. Uranium is a radioactive atom that will very slowly decay into Radium and subsequently several other radioactive isotopes. During each decay alpha and/or beta particles are emitted. These radioactive particles can cause damage to cells and molecules in the body such as DNA. Prolonged exposure to radiation may cause cancer and consumption of water containing Uranium in excess of 30 ug/L may be toxic to the kidneys. Effective treatments for Uranium are ion exchange, reverse osmosis, lime softening, and coagulation/filtration. For more information on Uranium and other Radionuclides please visit: ¿ EPA Information on Radionuclides in Water
8) Volatile Contaminants				
benzene	0.16 ug/L	Acceptable	<= 5.0 ug/L *	This water is considered satisfactory because it is less than the primary standard of 5.0 ug/L. The potential health consequences associated with drinking water that exceeds this standard over a prolonged period of time are anemia, decrease in blood platelets, and an increased risk of cancer. Treatment can be accomplished with activated carbon. Also, this compound is a potential indicator of activity related to oil & gas exploration and/or leaking petroleum facilities. For more information on benzene in drinking water please visit: ¿ EPA Factsheet on BENZENE

				¿ Agency for Toxic Substances and Disease Registry
o-dichlorobenzene	0.16 ug/L	Acceptable	<= 600.0 ug/L *	This water is considered satisfactory because it is less than the primary standard of 600 ug/L. The potential health consequences associated with drinking water that exceeds this standard over a prolonged period of time are liver, kidney, or circulatory system problems. Treatment can be accomplished with activated carbon. Also, this compound is a potential indicator of activity related to oil & gas exploration and/or leaking petroleum facilities. For more information on this constituent in drinking water please visit: ¿ EPA Factsheet on ORTHO-DICHLOROBENZENE (o-DCB) ¿ Agency for Toxic Substances and Disease Registry
p-dichlorobenzene	0.16 ug/L	Acceptable	<= 75.0 ug/L *	This water is considered satisfactory because it is less than the primary standard of 75.0 ug/L. The potential health consequences associated with drinking water that exceeds this standard over a prolonged period of time are anemia and may also be linked to liver, kidney or spleen damage and changes in the blood. Treatment can be accomplished with activated carbon. Also, this compound is a potential indicator of activity related to oil & gas exploration and/or leaking petroleum facilities. For more information on this constituent in drinking water, please go to this EPA link: ¿ EPA Factsheet on PARA-DICHLOROBENZENE (p-DCB) ¿ Agency for Toxic Substances and Disease Registry
ethylbenzene	0.16 ug/L	Acceptable	<= 700.0 ug/L *	This water is considered satisfactory because it is less than the primary standard of 700 ug/L. When humans are exposed to ethylbenzene at levels above700 ug/L for short periods of time, the following health consequences may occur: drowsiness, fatigue, respiratory irritation, and headache. Furthermore, ethylbenzene at levels above 700 ug/L, over a person's lifetime, can cause damage to the liver, kidneys, eyes, and central nervous system. Treatment can be accomplished with activated carbon. Also, this compound is a potential indicator of activity related to oil & gas exploration and/or leaking petroleum facilities. For more information on ethylbenzene in drinking water, please visit: ¿ EPA Factsheet on ETHYLBENZENE ¿ Agency for Toxic Substances and Disease Registry
monochlorobenzene	0.17 ug/L	Acceptable	<= 100.0 ug/L *	This water is considered satisfactory because it is less than the primary standard of 100 ug/L. The potential health consequences associated with drinking water that exceeds this standard over a prolonged period of time are liver or kidney problems. Also, this compound is a potential indicator of activity related to oil & gas exploration and/or leaking petroleum facilities. For general information on drinking water quality please visit: ¿ EPA Factsheet on CHLOROBENZENE ¿ Agency for Toxic Substances and Disease Registry
styrene	0.17 ug/L	Acceptable	<= 100.0 ug/L *	This water is considered satisfactory because it is less than the primary standard of 100 ug/L. The potential health consequences associated with drinking water that exceeds this standard over a prolonged period of time are liver, kidney, and/or circulatory system problems. For more information on styrene in drinking water please visit: ¿ EPA Factsheet on STYRENE
				This water is considered satisfactory because it is less than the primary standard of 1000 ug/L. The potential health

toluene	0.17 ug/L	Acceptable	<= 1000.0 ug/L *	consequences associated with drinking water that exceeds this standard over a prolonged period of time are nervous system, kidney, or liver problems. Toluene is found naturally in coal and crude oil. It is also used in carpet cleaners, paints, cosmetics, upholstery, cigarettes, pesticides and gasoline. Toluene can be removed from water by biodegradation and volatilization, however does not usually hydrolyze or adsorb into sediments. Toluene is volatile, with a half-life of up to two weeks in water and may leach into groundwater when deposited onto land. Also, this compound is a potential indicator of activity related to oil & gas exploration and/or leaking petroleum facilities. For more information on toluene in drinking water please visit: ¿ EPA Factsheet on TOLUENE ¿ Agency for Toxic Substances and Disease Registry
trichloroethane	0.16 ug/L	Acceptable	<= 200.0 ug/L *	This water is considered satisfactory because it is less than the primary standard of 200 ug/L. The potential health consequences associated with drinking water that exceeds this standard over a prolonged period of time are liver, nervous system, or circulatory problems. For more information on this constituent in drinking water, please visit: ¿ EPA Factsheet on 1,1,1-TRICHLOROETHANE
xylenes (total)	0.19 ug/L	Acceptable	<= 10000.0 ug/L *	This water is considered satisfactory because it is less than the primary standard of 10,000 ug/L. The potential health consequence associated with drinking water that exceeds this standard over a prolonged period of time is nervous system damage. Also, this compound is a potential indicator of activity related to oil & gas exploration and/or leaking petroleum facilities. For more information on xylene in drinking water please visit: ¿ EPA Factsheet on XYLENES ¿ Agency for Toxic Substances and Disease Registry
9) Organic Contaminants				
Vinyl Chloride	0.10 ug/L	Acceptable	<= 2.0 ug/L *	This water is satisfactory because it contains less vinyl chloride than the maximum contaminate level (MCL) of 2 ug/L. Vinyl chloride is used to make many products including PVC piping that is sometimes used for plumbing. Vinyl chloride can leach into the water from PVC piping. Prolonged consumption of water containing vinyl chloride in excess of the MCL may increase the risk of cancer. For more information about vinyl chloride please visit: ¿ EPA: Basic Information About Vinyl Chloride in Drinking Water

* MCL (Primary Standard)
** SMCL (Secondary Standard)
*** Upper Limit Guideline

Northern Plains & Mountains
Regional Water Program
Applying knowledge to improve water quality
A Partnership of USDA NIFA & Land Grant Colleges & Universities

Water Quality Interpretation Tool

Interpretations of Irrigation Water Quality for Colorado

Test Name	Lab Result	Interpretation	Excellent	Satisfactory	Additional Comments
1) Routine Water Analysis					
Alkalinity as $CaCO_3$	470 mg/L	**No Guideline**			Alkalinity as CaCO3 is not commonly used alone to evaluate irrigation water quality so there is no numeric guideline for this parameter. Alkalinity as measured as HCO3 and CO3 and are evaluated separately. For more information on alkalinity in irrigation water please visit: • CSU Pub 0.506_Irrigation Water Quality Criteria • Water Quality for Agriculture
Bicarbonate	470 mg/L	**No Guideline**			High concentrations (>100 mg L-1) of bicarbonate and carbonate can be detrimental to the soil and are usually associated with high pH water. There is no set irrigation water quality level for bicarbonate problems, because the problems it causes are dependent upon soil and water characteristics. When bicarbonate and carbonate enter the soil, they tie up calcium as CaCO3 and lower its concentration in the soil solution. This process can increase the sodium hazard as measured as SAR and cause infiltration and soil physical problems. For general information on bicarbonate in irrigation water, please visit: • CSU Pub 0.506_Irrigation Water Quality Criteria • Water Quality for Agriculture
Boron (B)	0.37 mg/L	**Excellent**	<= 0.5 mg/L ***	<= 2.0 mg/L ***	This water is suitable for irrigation use on sensitive crops because it is less than 0.50 mg/l. Boron is essential to plant growth, with optimum yields for many crops supplied with a few-tenths mg/l in nutrient solutions. However, boron toxicity is highly dependent on plant type and can be toxic to many sensitive plants (e.g., citrus) at less than 0.5 mg/L. Most grasses are relatively tolerant to boron at 2.0 to 10 mg/L. North Dakota soils and irrigation waters contain enough boron that additional application is not required in most situations. Fertilization may cause toxicity if boron is present in the water. Boron toxicity is closely associated with problems of salinity in regions that are hot and arid. Boron in irrigation water is one of the main causes of boron toxicity in plants. Symptoms of boron toxicity in plants include stunted growth, leaf browning, chlorosis, wilting, mildew, and germination problems. • CSU Pub 0.506_Irrigation Water Quality Criteria • Water Quality for Agriculture
Calcium (Ca)	290 mg/L	**No Guideline**			At this time, there is no irrigation water quality guideline for calcium because no documented threshold of crop injury has been shown to occur. For general information on irrigation water quality please visit: • CSU Pub 0.506_Irrigation Water Quality Criteria • Water Quality for Agriculture
Carbonate (CO_3)	1.1 mg/L	**No Guideline**			High concentrations (>100 mg L-1) of carbonate and bicarbonate can be detrimental to the soil and are usually associated with high pH water. There is no set irrigation water quality level for bicarbonate problems, because the problems it causes are dependent upon soil and water characteristics. When bicarbonate and carbonate enter the soil, they tie up calcium as CaCO3 and lower its concentration in the soil solution. This process can increase the sodium hazard as measured as SAR and cause infiltration and soil physical problems. For more information on irrigation water quality please visit: • CSU Pub 0.506_Irrigation Water Quality Criteria

					• Water Quality for Agriculture
Chloride (Cl)	79 mg/L	**Satisfactory**	<= 20.0 mg/L **	<= 350.0 mg/L **	This water may be suitable for irrigation use because it is less than the guideline of 350 mg/l. Although chloride is essential to plants in low amounts, it will cause toxicity to plants when levels exceed 350 mg/l. Like sodium, high chloride concentrations cause more problems when applied with sprinkler irrigation. Leaf burn under sprinkler from both sodium and chloride can be reduced by night time irrigation or application on cool, cloudy days. For more information on chloride in irrigation water please visit: • CSU Pub 0.506_Irrigation Water Quality Criteria • Water Quality for Agriculture
Electrical Conductivity (EC)	3100 dS/m (mmhos/cm)	**Objectionable**	<= 0.25 dS/m (mmhos/cm) ***	<= 2.0 dS/m (mmhos/cm) ***	The electrical conductivity (ECw) of a water sample is a measure of the amount of minerals dissolved in the water and is proportional to the Total Dissolved Solids (TDS). The primary effect of high ECw water on crop productivity is the inability of the plant to compete with ions in the soil solution for water (physiological drought). The higher the EC, the less water is available to plants, even though the soil may appear wet. Because plants can only transpire "pure" water, usable plant water in the soil solution decreases dramatically as EC increases. For more information on EC in irrigation water, please visit: • CSU Pub 0.506_Irrigation Water Quality Criteria • Assessing the Suitability of Water (Quality) for Irrigation - Salinity and Sodium • Water Quality for Agriculture
Magnesium (Mg)	170 mg/L	**No Guideline**			At this time, there is no irrigation water quality guideline for magnesium because no documented threshold of crop injury has been shown to occur. For general information on irrigation water quality please visit: • CSU Pub 0.506_Irrigation Water Quality Criteria • Water Quality for Agriculture
NO_3-N + NO_2-N (Total)	0.598 mg/L	**No Guideline**			None
pH	7.33 pH	**Excellent**	7.0 <= 7.5 pH ***	6.5 <= 8.5 pH ***	This water quality is considered excellent because it falls between the excellence pH guideline of 7 to 7.5. At low pH (acidic) levels, irrigation equipment may corrode. At high pH (alkaline) levels, certain nutrients may be less available to plants. For more information on irrigation water quality please visit: • CSU Pub 0.506_Irrigation Water Quality Criteria • Water Quality for Agriculture
Potassium (K)	7.3 mg/L	**No Guideline**			At this time, there is no irrigation water quality guideline for potassium because no documented threshold of crop injury has been shown to occur. For general information on irrigation water, please visit: • CSU Pub 0.506_Irrigation Water Quality Criteria • Water Quality for Agriculture
Sodium (Na)	280 mg/L	**Satisfactory**		<= 350.0 mg/L ***	This water may be suitable for irrigation use because it is less than the guideline of 350 mg/l. Like chloride, high sodium concentrations cause more problems when applied with sprinkler irrigation. Leaf burn under sprinkler from both sodium and chloride can be reduced by night time irrigation or application on cool, cloudy days. High sodium water should also be evaluated in related to Ca and Mg concentrations by calculating and an SAR. For more information on sodium in irrigation water, please visit: • CSU Pub 0.506_Irrigation Water Quality Criteria • Water Quality for Agriculture
Sulfate (SO_4)	1400 mg/L	**No Guideline**			At this time, there is no irrigation water quality guideline for sulfate. The sulfate ion is a major contributor to salinity in many North Dakota irrigation waters sources. However, toxicity is rarely a problem, except at very high concentrations where high sulfate may interfere with uptake of other nutrients. Sulfate in irrigation water has some fertility benefits. For more information on irrigation water quality please visit: • CSU Pub 0.506_Irrigation Water Quality Criteria • Water Quality for Agriculture
					This water is not recommended for irrigation use because it exceeds the guideline of 2000 mg/l. Water with high levels of TDS are saline and can harm crops. TDS is a direct measurement of the quantity of dissolved cations and anions in the irrigation water. EC is an indirect measure of the quantity of ions in the water. For long term irrigation of the same of

Total Dissolved Solids (TDS)	2500 mg/L	**Objectionable**	<= 1000.0 mg/L ***	<= 2000.0 mg/L ***	land with sprinklers, the TDS should not exceed 2500 for the coarse soils (sand to fine sandy loams), 1800 for finer soils (very fine sandy loam to silty clay loams) and 1000 for the finest soils that are irrigable (loams to clay loams). For more information on irrigation water, please visit: • CSU Pub 0.506_Irrigation Water Quality Criteria • Assessing the Suitability of Water (Quality) for Irrigation - Salinity and Sodium • Water Quality for Agriculture

Test Name	Lab Result	Interpretation	Suitable	Additional Comments
3) Individual Metals Analysis				
Aluminum (Al)	0.018 mg/L	**Acceptable**	<= 5.0 mg/L ***	This water may be suitable for irrigation use because it is less than the guideline of 5.0 mg/l. Aluminum can cause plants to not be productive in acidic soils, but soils at pH 5.5 to 8.0 will precipitate the ion and eliminate toxicity. The effects of aluminum toxicity can be similar to phosphorus deficiency with plants having small leaves, stunting, and purple coloring. The effects of aluminum toxicity may also be similar to calcium deficiency with symptoms of leaf curl. For more information on aluminum in irrigation water please visit: • Water Quality for Agriculture
Barium (Ba)	0.01 mg/L	**No Guideline**		At this time, there is no irrigation water quality guideline for barium. For more information on irrigation water quality please visit: • CSU Pub 0.506_Irrigation Water Quality Criteria • Water Quality for Agriculture
Cadmium (Cd)	0.000095 mg/L	**Acceptable**	<= 0.01 mg/L ***	This water is recommended for irrigation use because it is less than the guideline of 0.01 mg/l. Cadmium can be toxic to beans, beets, and turnips at concentrations as low as 0.1 mg/L in nutrient solution. Low limits for cadmium are recommended because cadmium can accumulate in plant tissue and become harmful for humans consuming the crop. For more information on cadmium in irrigation water, please visit: • Water Quality for Agriculture
Chromium (Cr)	0.00066 mg/L	**Acceptable**	<= 0.1 mg/L ***	This water may be suitable for irrigation use because it is less than the guideline of 0.1 mg/l. Chromium is not generally recognized as an essential growth element and conservative limits are recommended due to lack of research data on toxicity to plants. For more information on chromium in irrigation water please visit: • Water Quality for Agriculture
Copper (Cu)	0.0063 mg/L	**Acceptable**	<= 0.2 mg/L ***	This water may be suitable for irrigation use because it is less than the guideline of 0.2 mg/l. Copper is an important nutrient for plants. However, copper is toxic to a number of plants at 0.1 to 1.0 mg/L in nutrient solution. The amount of copper available to plants depends on numerous soil factors, including soil texture, composition, and type. Its availability also depends on soil microbiology, pH, moisture, and species of plant/crop. Typically, copper has the least availability in soils with an elevated pH and/or a high content of organic materials. For more information on copper in irrigation water please visit: • Water Quality for Agriculture
Iron (Fe)	0.022 mg/L	**Acceptable**	<= 5.0 mg/L ***	This water may be suitable for irrigation use because it is less than the guideline of 5.0 mg/l. Iron is not toxic to plants in aerated soils, but can contribute to soil acidification and reduced plant availability of essential phosphorus and molybdenum. Sprinkler irrigation may cause staining on plants and wetted objects. For more information on iron in irrigation water, please visit: • Water Quality for Agriculture
Manganese (Mn)	0.053 mg/L	**Acceptable**	<= 0.2 mg/L ***	This water may be suitable for irrigation use because it is less than the guideline of 0.2 mg/l. Manganese is toxic to a number of crops at a few-tenths to a few mg/l in acid soils. For more information on manganese in irrigation water, please visit: • Water Quality for Agriculture
Molybdenum (Mo)	0.0043 mg/L	**Acceptable**	<= 0.01 mg/L ***	This water may be suitable for irrigation use because it is less than the guideline of 0.01 mg/l. Molybdenum is nontoxic to plants at normal concentrations in soil and water. The main problem related to irrigating with water which has high molybdenum concentrations is that molybdenum is absorbed and concentrated by plants. Although plant growth is rarely affected by high molybdenum concentrations, high concentrations in the

				plants can be toxic to ruminant animals that feed on the plants. For more information on molybdenum in irrigation water please visit: • Water Quality for Agriculture
Nickel (Ni)	0.0013 mg/L	**Acceptable**	<= 0.2 mg/L ***	This water may be suitable for irrigation use because it is less than the guideline of 0.2 mg/l. Nickel is toxic to a number of plants in the 0.5 to 1.0 mg/l range. Its toxicity is reduced in neutral or alkaline soils. For more information on nickel in irrigation water, please visit: • Water Quality for Agriculture
Zinc (Zn)	0.091 mg/L	**Acceptable**	<= 2.0 mg/L ***	This water may be suitable for irrigation use because it is less than the guideline of 2.0 mg/l. Zinc is toxic to many plants at widely varying concentrations. Zinc toxicity is reduced with increased pH (6 or above) and in fine-textured or organic soils. For more information on zinc in irrigation water please visit: • Water Quality for Agriculture
5) Trace Elements Analysis				
Antimony (Sb)	0.002 mg/L	**No Guideline**		At this time, there is no irrigation water quality guideline for antimony. For more information on irrigation water quality please visit: • CSU Pub 0.506 Irrigation Water Quality Criteria • Water Quality for Agriculture
Arsenic (As)	0.0055 mg/L	**Acceptable**	<= 0.1 mg/L ***	This water may be suitable for irrigation use because it is less than the guideline of 0.1 mg/l. Arsenic toxicity to plants varies widely, ranging from 12 mg/l for sudan grass to less than 0.05 mg/l for rice. Arsenic has also been shown to reduce growth in green beans. For more information on arsenic in irrigation water please visit: • Water Quality for Agriculture
Beryllium (Be)	0.00047 mg/L	**Acceptable**	<= 0.1 mg/L ***	This water may be suitable for irrigation use because it is less than the guideline of 0.1 mg/l. Beryllium toxicity to plants varies widely, ranging from 5 mg/L for kale to 0.5 mg/L for bush beans. For more information on beryllium in irrigation water quality please visit: • Water Quality for Agriculture
Cobalt (Co)	0.00013 mg/L	**Acceptable**	<= 0.05 mg/L ***	This water may be suitable for irrigation use because it is less than the guideline of 0.05 mg/l. Cobalt is toxic to tomato plants at 0.1 mg/L in nutrient solution. It also has the tendency to be inactivated by neutral and alkaline soils. For more information on cobalt in irrigation water, please visit: • Water Quality for Agriculture
Fluoride (F)	0.43 mg/L	**Acceptable**	<= 1.0 mg/L	This water may be suitable for irrigation use because it is less than the guideline of 1.0 mg/l. This concentration is designed to protect crops grown in acid soils since Fluoride is inactivated by neutral and alkaline soils. For more information on fluoride in irrigation water please visit: • Water Quality for Agriculture
Lead (Pb)	0.00013 mg/L	**Acceptable**	<= 5.0 mg/L ***	This water may be suitable for irrigation use because it is less than the guideline of 5.0 mg/l. Generally, lead is retained in soils by sorption and/or by forming with organic and inorganic constituents in soils. Lead enters plants through the leaves and root system. The following conditions determine the amount of lead a plant will absorb: lead concentration and form, soil (pH, texture, moisture, cation exchange capacity, and content of organic matter), species of crop, rooting depth, and climate. Furthermore, lead in irrigation water can inhibit plant cell growth at very high concentrations. For more information on lead in irrigation water please visit: • Water Quality for Agriculture
Lithium (Li)	0.053 mg/L	**Acceptable**	<= 2.5 mg/L ***	This water may be suitable for irrigation use because it is less than the guideline of 2.5 mg/l. However, lithium can be tolerated by most crops at up to 5 mg/L and is mobile in soil. It is toxic to citrus plants at low doses and the recommended limit for citrus crops is 0.075 mg/l. For more information on lithium in irrigation water, please visit: • Water Quality for Agriculture
Mercury (Hg)	0.000027 mg/L	**No Guideline**		At this time, there is no irrigation water quality guideline for mercury. For more information on irrigation water, please visit: • CSU Pub 0.506 Irrigation Water Quality Criteria • Water Quality for Agriculture
				This water may be suitable for irrigation use because it is less than the

Selenium (Se)	0.005 mg/L	**Acceptable**	<= 0.02 mg/L ***	guideline of 0.02 mg/l. Selenium is toxic to some plants at low concentrations and to livestock if forage is grown in soils with high levels of available selenium. Selenium poisoning of animals has been documented in areas where soils have high selenium concentrations. Conversely, plants and animals cultivated in areas with low selenium concentrations have the potential to develop diseases as a result of selenium deficiency. For more information on selenium in irrigation water please visit: • Water Quality for Agriculture
Silver (Ag)	0.000051 mg/L	**No Guideline**		At this time, there is no irrigation water quality guideline for silver. For more information on irrigation water quality please visit: • CSU Pub 0.506_Irrigation Water Quality Criteria • Water Quality for Agriculture
Thallium (Tl)	0.000066 mg/L	**No Guideline**		At this time, there is no irrigation water quality guideline for thallium. For more information on irrigation water, please visit: • CSU Pub 0.506_Irrigation Water Quality Criteria • Water Quality for Agriculture
Vanadium (V)	0.0016 mg/L	**Acceptable**	<= 0.1 mg/L	This water may be suitable for irrigation use because it is less than the guideline of 0.1 mg/l. Vanadium is toxic to many plants at relatively low concentrations. For more information on Vanadium in irrigation water please visit: • Water Quality for Agriculture
8) Volatile Contaminants				
benzene	0.16 ug/L	**No Guideline**		At this time, there is no irrigation water quality guideline for benzene. However, crop injury could occur but, these levels would be plant specific and at concentrations not typically found in irrigation water. For more information on irrigation water quality please visit: • CSU Pub 0.506_Irrigation Water Quality Criteria • Water Quality for Agriculture
o-dichlorobenzene	0.16 ug/L	**No Guideline**		At this time, there is no irrigation water quality guideline for o-dichlorobenzene. However, crop injury could occur but, these levels would be plant specific and at concentrations not typically found in irrigation water. For more information on irrigation water, please visit: • CSU Pub 0.506_Irrigation Water Quality Criteria • Water Quality for Agriculture
p-dichlorobenzene	0.16 ug/L	**No Guideline**		At this time, there is no irrigation water quality guideline for p-dichlorobenzene. However, crop injury could occur but, these levels would be plant specific and at concentrations not typically found in irrigation water. For more information on irrigation water quality please visit: • CSU Pub 0.506_Irrigation Water Quality Criteria • Water Quality for Agriculture
ethylbenzene	0.16 ug/L	**No Guideline**		At this time, there is no irrigation water quality guideline for ethylbenzene. However, crop injury could occur but, these levels would be plant specific and at concentrations not typically found in irrigation water. For more information on irrigation water quality please visit: • CSU Pub 0.506_Irrigation Water Quality Criteria • Water Quality for Agriculture
monochlorobenzene	0.17 ug/L	**No Guideline**		At this time, there is no irrigation water quality guideline for monochlorobenzene. However, crop injury could occur but, these levels would be plant specific and at concentrations not typically found in irrigation water. For more information on irrigation water, please visit: • CSU Pub 0.506_Irrigation Water Quality Criteria • Water Quality for Agriculture
styrene	0.17 ug/L	**No Guideline**		At this time, there is no irrigation water quality guideline for styrene. However, crop injury could occur but, these levels would be plant specific and at concentrations not typically found in irrigation water. For more information on irrigation water quality please visit: • CSU Pub 0.506_Irrigation Water Quality Criteria • Water Quality for Agriculture
toluene	0.17 ug/L	**No Guideline**		At this time, there is no irrigation water quality guideline for toluene. However, crop injury could occur but, these levels would be plant specific and at concentrations not typically found in irrigation water. For more information on irrigation water quality please visit:

				• CSU Pub 0.506_Irrigation Water Quality Criteria • Water Quality for Agriculture
trichloroethane	0.16 ug/L	**No Guideline**		At this time, there is no irrigation water quality guideline for trichloroethane 111. However, crop injury could occur but, these levels would be plant specific and at concentrations not typically found in irrigation water. For more information on irrigation water, please visit: • CSU Pub 0.506_Irrigation Water Quality Criteria • Water Quality for Agriculture
xylenes (total)	0.19 ug/L	**No Guideline**		At this time, there is no irrigation water quality guideline for xylenes. However, crop injury could occur but these levels would be plant specific and at concentrations not typically found in irrigation water. For more information on irrigation water quality please visit: • CSU Pub 0.506_Irrigation Water Quality Criteria • Water Quality for Agriculture

* MCL (Primary Standard)
** SMCL (Secondary Standard)
*** Upper Limit Guideline

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