

Project 1935



September 1, 2006

Ms. Margaret Ash  
Environmental Protection Specialist  
Colorado Oil and Gas Conservation Commission  
1120 Lincoln Street, Suite 801  
Denver, Colorado 80203

**Re: Submittal of Baseline Water Quality Data for Natural Springs Located on Red River Ranch Holdings, LLC; Las Animas County, Colorado**

Dear Margaret:

Pursuant to your letter dated March 13, 2006, which specifies that Red River Ranch Holdings, LLC (RRRH) will collect baseline samples of springs and seeps within the proposed CBM development area, O&G Environmental Consulting, LLC (O&G) on behalf of RRRH is providing your office with the baseline water quality data of four flowing springs located within the proposed project area. O&G has provided you with the analytical data in two formats, (1) the original analytical data processed by Energy Laboratories, and (2) the analytical data tabulated to track the data as quarterly samples are processed.

RRRH sampled the following natural springs that were flowing prior to the multi-well production ponds receiving produced water:

- Spring Canyon #1; labeled as Sample # 1, by Energy Labs;
- Lower Lorencito #2; labeled as Sample # 2;
- Middle Lorencito #3; labeled as Sample # 3; and
- Canadian #4; labeled as Sample #4.

Please note that RRRH will sample the springs quarterly and will provide your office with the data as it becomes available. However, please note that some of the springs may not flow in the winter months or during drought conditions. O&G has identified the spring locations and all CMB wells and associated facilities within one mile of the springs on the attached map. The Latitude and Longitude for each spring are as follows:

- Spring Canyon #1: 37.007833, -104.961388;
- Lower Lorencito #2: 36.996750, -104.942166;
- Middle Lorencito #3: 36.994416, -104.974777; and
- Canadian #4: 36.993222, -105.032372; (all are NAD 83).

Please let RRRH or O&G know if you have any questions, comments, or if you require additional information.

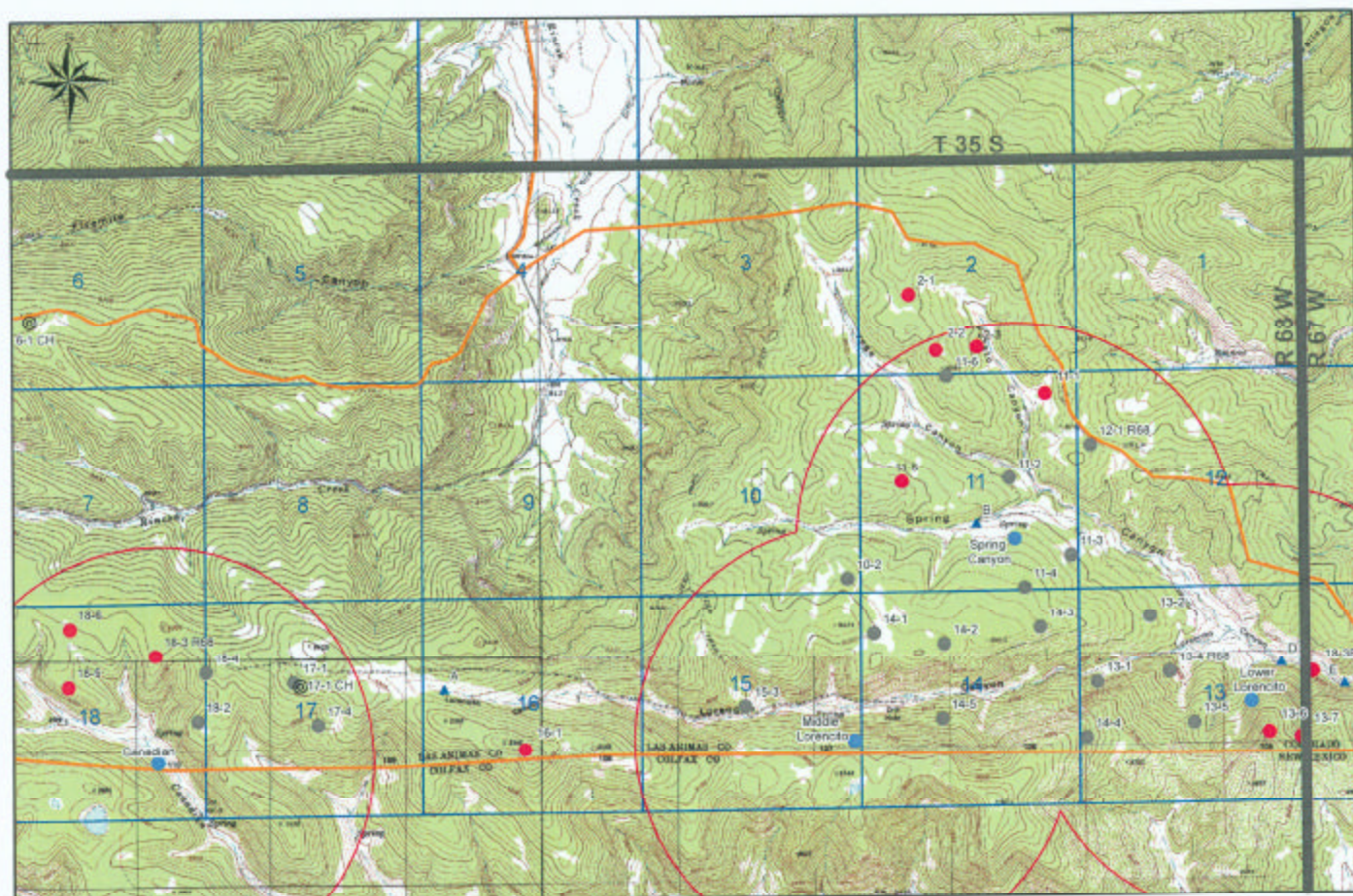
Sincerely,

Daniel Padilla  
O&G Environmental Consulting

Enclosures/

Cc: C. Taggart, RRRH; J. J. Killean, IS; S. M. Minton, Jr., DOC

*Keeping oil and gas projects flowing*



#### Legend

- Spring Locations
- ▲ Production Pond Locations
- ⊙ Core hole
- Phase I Wells
- Phase II Wells
- One Mile Spring Buffer
- Lease Boundary
- Section Boundary
- Township Boundary

## Red River Ranch Survey Data

### Las Animas County, Colorado



#1 Spring Canyon		Baseline	Quarterly	Baseline	Quarterly	
					July-September 2006	October-December 2006
	Sampling Completed Date:			8/7/2006		
Field	Flow	X	X			
	pH	X	X			
	Specific conductance	X	X			
	Temperature	X	X			
	Oil & Grease	X	X			
Laboratory	pH (lab)	X	X	8.18		
	Specific conductance	X		549		
	Total dissolved solids (TDS)	X	X	322		
	Total suspended solids (TSS)	X	X	50		
	Total Solids	X	X	372		
	Sodium	X	X	1.5		
	Potassium	X	X	3.3		
	Calcium	X	X	48		
	Magnesium	X	X	26.9		
	SAR	X	X	0.99		
	Arsenic, total recoverable	X		0.5		
	Barium, dissolved	X	X			
	Boron	X	X	ND		
	Cadmium, dissolved	X		ND		
	Chromium (III), dissolved	X		ND		
	Chromium (VI), dissolved	X		ND		
	Chromium, total dissolved	X		ND		
	Copper, Dissolved	X		2		
	Iron, total recoverable	X		290		
	Iron, dissolved	X	X	ND		
	Iron, total	X	X	291		
	Lead, dissolved	X		ND		
	Manganese, dissolved	X	X	ND		
	Manganese, total	X	X	12		
	Mercury, Total	X		ND		
	Nickel, dissolved	X		ND		
	Selenium, dissolved	X		ND		
	Silver, Dissolved	X		ND		
	Zinc, dissolved	X		ND		
	Bicarbonate	X	X	291		
	Chloride	X	X	1		
	Sulfate	X	X	52		
	Nitrate	X		ND		
	Nitrite	X		ND		
	Fluoride	X		0.2		
	Phosphate, ortho	X		0.016		
	Phosphate, total	X		0.149		
	Silica	X		13.5		
	Whole effluent toxicity, acute					

#2 Lower Lorencito		Baseline	Quarterly	Baseline	Quarterly	
					July-September 2006	October-December 2006
	Sampling Completed Date:			8/7/2006		
Field	Flow	X	X			
	pH	X	X			
	Specific conductance	X	X			
	Temperature	X	X			
	Oil & Grease	X	X			
Laboratory	pH (lab)	X	X	7.64		
	Specific conductance	X		443		
	Total dissolved solids (TDS)	X	X	244		
	Total suspended solids (TSS)	X	X	24		
	Total Solids	X	X	268		
	Sodium	X	X	21.5		
	Potassium	X	X	2.1		
	Calcium	X	X	51.7		
	Magnesium	X	X	14.3		
	SAR	X	X	0.68		
	Arsenic, total recoverable	X		ND		
	Barium, dissolved	X	X			
	Boron	X	X	ND		
	Cadmium, dissolved	X		ND		
	Chromium (III), dissolved	X		ND		
	Chromium (VI), dissolved	X		ND		
	Chromium, total dissolved	X		ND		
	Copper, Dissolved	X		ND		
	Iron, total recoverable	X		ND		
	Iron, dissolved	X	X	ND		
	Iron, total	X	X	ND		
	Lead, dissolved	X		ND		
	Manganese, dissolved	X	X	ND		
	Manganese, total	X	X	ND		
	Mercury, Total	X		ND		
	Nickel, dissolved	X		ND		
	Selenium, dissolved	X		ND		
	Silver, Dissolved	X		ND		
	Zinc, dissolved	X		ND		
	Bicarbonate	X	X	230		
	Chloride	X	X	3		
	Sulfate	X	X	28		
	Nitrate	X		0.3		
	Nitrite	X		ND		
	Fluoride	X		0.2		
	Phosphate, ortho	X		ND		
	Phosphate, total	X		0.093		
	Silica	X		12.4		
	Whole effluent toxicity, acute					



#3 Middle Lorencito		Baseline	Quarterly	Baseline	Quarterly	
					July-September 2006	October-December 2006
	Sampling Completed Date:			8/7/2006		
Field	Flow	X	X			
	pH	X	X			
	Specific conductance	X	X			
	Temperature	X	X			
	Oil & Grease	X	X			
Laboratory	pH (lab)	X	X	7.93		
	Specific conductance	X		459		
	Total dissolved solids (TDS)	X	X	258		
	Total suspended solids (TSS)	X	X	36		
	Total Solids	X	X	294		
	Sodium	X	X	49.3		
	Potassium	X	X	2		
	Calcium	X	X	36.8		
	Magnesium	X	X	10.9		
	SAR	X	X	1.83		
	Arsenic, total recoverable	X		ND		
	Barium, dissolved	X	X			
	Boron	X	X	ND		
	Cadmium, dissolved	X		ND		
	Chromium (III), dissolved	X		ND		
	Chromium (VI), dissolved	X		ND		
	Chromium, total dissolved	X		ND		
	Copper, Dissolved	X		ND		
	Iron, total recoverable	X		ND		
	Iron, dissolved	X	X	ND		
	Iron, total	X	X	ND		
	Lead, dissolved	X		ND		
	Manganese, dissolved	X	X	ND		
	Manganese, total	X	X	ND		
	Mercury, Total	X		ND		
	Nickel, dissolved	X		ND		
	Selenium, dissolved	X		ND		
	Silver, Dissolved	X		ND		
	Zinc, dissolved	X		ND		
	Bicarbonate	X	X	254		
	Chloride	X	X	3		
	Sulfate	X	X	18		
	Nitrate	X		1.1		
	Nitrite	X		ND		
	Fluoride	X		0.2		
	Phosphate, ortho	X		ND		
	Phosphate, total	X		0.058		
	Silica	X		12.6		
	Whole effluent toxicity, acute					

#4 Canadian		Baseline	Quarterly	Baseline	Quarterly	
					July-September 2006	October-December 2006
	Sampling Completed Date:			8/7/2006		
Field	Flow	X	X			
	pH	X	X			
	Specific conductance	X	X			
	Temperature	X	X			
	Oil & Grease	X	X			
Laboratory	pH (lab)	X	X	7.39		
	Specific conductance	X		249		
	Total dissolved solids (TDS)	X	X	140		
	Total suspended solids (TSS)	X	X	24		
	Total Solids	X	X	164		
	Sodium	X	X	10.5		
	Potassium	X	X	1.4		
	Calcium	X	X	26.3		
	Magnesium	X	X	8.8		
	SAR	X	X	0.45		
	Arsenic, total recoverable	X		ND		
	Barium, dissolved	X	X			
	Boron	X	X	ND		
	Cadmium, dissolved	X		ND		
	Chromium (III), dissolved	X		ND		
	Chromium (VI), dissolved	X		ND		
	Chromium, total dissolved	X		ND		
	Copper, Dissolved	X		ND		
	Iron, total recoverable	X		320		
	Iron, dissolved	X	X	ND		
	Iron, total	X	X	318		
	Lead, dissolved	X		ND		
	Manganese, dissolved	X	X	ND		
	Manganese, total	X	X	ND		
	Mercury, Total	X		ND		
	Nickel, dissolved	X		ND		
	Selenium, dissolved	X		ND		
	Silver, Dissolved	X		ND		
	Zinc, dissolved	X		ND		
	Bicarbonate	X	X	120		
	Chloride	X	X	3		
	Sulfate	X	X	13		
	Nitrate	X		0.4		
	Nitrite	X		ND		
	Fluoride	X		0.2		
	Phosphate, ortho	X		ND		
	Phosphate, total	X		0.095		
	Silica	X		13.2		
	Whole effluent toxicity, acute					





## ANALYTICAL SUMMARY REPORT

August 23, 2006

O and G Environmental  
11 Inverness Way South  
Englewood, CO 80112

Workorder No.: C06080346

Project Name: Red River Ranch CBM Wells

Energy Laboratories, Inc. received the following 4 samples from O and G Environmental on 8/8/2006 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C06080346-001	#1	08/07/06 12:40	08/08/06	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Total Metals by ICP/ICPMS, Tot. Rec. Alkalinity QA Calculations Chloride Conductivity Chromium - Dissolved, Hexavalent Chromium, Trivalent Sample Filtering Fluoride Nitrogen, Nitrite Nitrogen, Nitrate + Nitrite Nitrogen, Nitrate pH Metals Digestion by EPA 200.2 Phosphate, Total Phosphorus, Orthophosphate Phosphorus, Total Sodium Adsorption Ratio Solids, Total Dissolved Solids, Total Sulfate
C06080346-002	#2	08/07/06 13:20	08/08/06	Aqueous	Same As Above



C06080346-003	#3	08/07/06 11:37 08/08/06	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Total Metals by ICP/ICPMS, Tot. Rec. Alkalinity QA Calculations Chloride Conductivity Chromium - Dissolved, Hexavalent Chromium, Trivalent Sample Filtering Fluoride Nitrogen, Nitrite Nitrogen, Nitrate + Nitrite Nitrogen, Nitrate pH Metals Digestion by EPA 200.2 Phosphate, Total Phosphorus, Orthophosphate Phosphorus, Total Sodium Adsorption Ratio Solids, Total Dissolved Solids, Total
C06080346-004	#4	08/07/06 10:25 08/08/06	Aqueous	Same As Above

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications except where noted in the Case Narrative or Report.

If you have any questions regarding these tests results, please call.

Report Approved By:

  
ROGER GARLAND  
LABORATORY SUPERVISOR





## LABORATORY ANALYTICAL REPORT

Client: O and G Environmental  
Project: Red River Ranch CBM Wells  
Lab ID: C06080346-001  
Client Sample ID: #1

Report Date: 08/23/06  
Collection Date: 08/07/06 12:40  
Date Received: 08/08/06  
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>MAJOR IONS</b>							
Bicarbonate as HCO <sub>3</sub>	291	mg/L		1		A2320 B	08/10/06 11:04 / th
Calcium	48.0	mg/L		0.5		E200.7	08/18/06 12:53 / ts
Chloride	1	mg/L		1		A4500-Cl B	08/09/06 14:58 / jl
Fluoride	0.2	mg/L		0.1		A4500-F C	08/23/06 14:12 / th
Magnesium	26.9	mg/L		0.5		E200.7	08/18/06 12:53 / ts
Nitrogen, Nitrate as N	ND	mg/L		0.1		E353.2	08/23/06 13:20 / tae
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	08/08/06 15:41 / jel
Nitrogen, Nitrite as N	ND	mg/L		0.1		A4500-NO <sub>2</sub> B	08/08/06 15:41 / jel
Potassium	3.3	mg/L		0.5		E200.7	08/18/06 12:53 / ts
Silica	13.5	mg/L		0.1		E200.7	08/18/06 12:53 / ts
Sodium	34.5	mg/L		0.5		E200.7	08/18/06 12:53 / ts
Sulfate	52	mg/L	D	1		A4500-SO <sub>4</sub> E	08/21/06 12:29 / bm
<b>NON-METALS</b>							
Phosphate, Total	0.149	mg/L		0.003		E365.1	08/22/06 08:37 / sec
Phosphorus, Orthophosphate as P	0.016	mg/L		0.010		E365.1	08/11/06 13:55 / eli-b
<b>PHYSICAL PROPERTIES</b>							
Conductivity	549	umhos/cm		1.0		A2510 B	08/09/06 11:07 / kes
pH	8.18	s.u.		0.01		A4500-H B	08/09/06 11:07 / kes
Solids, Total @ 105 C	372	mg/L		10		A2540 B	08/11/06 08:26 / kes
Solids, Total Dissolved TDS @ 180 C	322	mg/L		10		A2540 C	08/09/06 15:29 / kes
Calcium, SAR	2.40	meq/L		0.02		E200.7	08/18/06 12:53 / ts
Magnesium, SAR	2.24	meq/L		0.04		E200.7	08/18/06 12:53 / ts
Sodium, SAR	1.50	meq/L		0.02		E200.7	08/18/06 12:53 / ts
Sodium Adsorption Ratio (SAR)	0.99	unitless		0.10		Calculation	08/21/06 13:06 / sec
<b>METALS - DISSOLVED</b>							
Cadmium	ND	ug/L		0.1		E200.8	08/15/06 12:44 / bws
Chromium	ND	ug/L		1		E200.8	08/15/06 12:44 / bws
Chromium, Hexavalent	ND	ug/L		10		A3500-Cr B	08/08/06 10:22 / jl
Chromium, Trivalent	< 10	ug/L		10		Calculation	08/17/06 14:53 / sec
Copper	2	ug/L		1		E200.8	08/15/06 12:44 / bws
Iron	ND	ug/L		30		E200.7	08/18/06 12:53 / ts
Lead	ND	ug/L		2		E200.8	08/15/06 12:44 / bws
Manganese	ND	ug/L		10		E200.8	08/15/06 12:44 / bws
Nickel	ND	ug/L		10		E200.8	08/15/06 12:44 / bws
Selenium	ND	ug/L		5		E200.8	08/15/06 12:44 / bws
Silver	ND	ug/L		3		E200.8	08/15/06 12:44 / bws
Zinc	ND	ug/L		10		E200.8	08/15/06 12:44 / bws

Report Definitions: RL - Analyte reporting limit.  
QCL - Quality control limit.  
D - RL increased due to sample matrix interference.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Client: O and G Environmental  
Project: Red River Ranch CBM Wells  
Lab ID: C06080346-001  
Client Sample ID: #1

Report Date: 08/23/06  
Collection Date: 08/07/06 12:40  
Date Received: 08/08/06  
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>METALS - TOTAL</b>							
Boron	ND	ug/L		100		E200.7	08/18/06 16:13 / ts
Iron	291	ug/L		30		E200.7	08/18/06 16:13 / ts
Manganese	12	ug/L		10		E200.8	08/15/06 12:30 / bws
Mercury	ND	ug/L		1		E200.8	08/12/06 08:14 / bws
<b>METALS - TOTAL RECOVERABLE</b>							
Arsenic	0.5	ug/L		0.1		E200.8	08/12/06 08:14 / bws
Iron	290	ug/L		30		E200.7	08/18/06 16:20 / ts
<b>DATA QUALITY</b>							
A/C Balance ( $\pm 5$ )	2.73	%				Calculation	08/22/06 16:34 / dab
Anions	5.90	meq/L				Calculation	08/22/06 16:34 / dab
Cations	6.23	meq/L				Calculation	08/22/06 16:34 / dab
Solids, Total Dissolved Calculated	323	mg/L				Calculation	08/22/06 16:34 / dab
TDS Balance (0.80 - 1.20)	1.00	dec. %				Calculation	08/22/06 16:34 / dab

Report RL - Analyte reporting limit.  
Definitions: QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Client: O and G Environmental  
Project: Red River Ranch CBM Wells  
Lab ID: C06080346-002  
Client Sample ID: #2

Report Date: 08/23/06  
Collection Date: 08/07/06 13:20  
Date Received: 08/08/06  
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>MAJOR IONS</b>							
Bicarbonate as HCO <sub>3</sub>	230	mg/L		1		A2320 B	08/10/06 11:06 / th
Calcium	51.7	mg/L		0.5		E200.7	08/18/06 14:47 / ts
Chloride	3	mg/L		1		A4500-Cl B	08/09/06 15:01 / jl
Fluoride	0.2	mg/L		0.1		A4500-F C	08/23/06 14:15 / th
Magnesium	14.3	mg/L		0.5		E200.7	08/18/06 14:47 / ts
Nitrogen, Nitrate as N	0.3	mg/L		0.1		E353.2	08/23/06 13:20 / tae
Nitrogen, Nitrate+Nitrite as N	0.3	mg/L		0.1		E353.2	08/08/06 15:43 / jal
Nitrogen, Nitrite as N	ND	mg/L		0.1		A4500-NO <sub>2</sub> B	08/09/06 13:38 / jal
Potassium	2.1	mg/L		0.5		E200.7	08/18/06 14:47 / ts
Silica	12.4	mg/L		0.1		E200.7	08/18/06 14:47 / ts
Sodium	21.5	mg/L		0.5		E200.7	08/18/06 14:47 / ts
Sulfate	28	mg/L		1		A4500-SO <sub>4</sub> E	08/21/06 12:30 / bm
<b>NON-METALS</b>							
Phosphate, Total	0.093	mg/L		0.003		E365.1	08/22/06 08:37 / sec
Phosphorus, Orthophosphate as P	ND	mg/L		0.010		E365.1	08/11/06 14:33 / eli-b
<b>PHYSICAL PROPERTIES</b>							
Conductivity	443	umhos/cm		1.0		A2510 B	08/09/06 11:16 / kes
pH	7.64	s.u.		0.01		A4500-H B	08/09/06 11:16 / kes
Solids, Total @ 105 C	268	mg/L		10		A2540 B	08/11/06 08:26 / kes
Solids, Total Dissolved TDS @ 180 C	244	mg/L		10		A2540 C	08/09/06 15:30 / kes
Calcium, SAR	2.58	meq/L		0.02		E200.7	08/18/06 14:47 / ts
Magnesium, SAR	1.19	meq/L		0.04		E200.7	08/18/06 14:47 / ts
Sodium, SAR	0.94	meq/L		0.02		E200.7	08/18/06 14:47 / ts
Sodium Adsorption Ratio (SAR)	0.68	unitless		0.10		Calculation	08/21/06 13:06 / sec
<b>METALS - DISSOLVED</b>							
Cadmium	ND	ug/L		0.1		E200.8	08/12/06 01:37 / bws
Chromium	ND	ug/L		1		E200.8	08/12/06 01:37 / bws
Chromium, Hexavalent	ND	ug/L		10		A3500-Cr B	08/08/06 10:22 / jl
Chromium, Trivalent	< 10	ug/L		10		Calculation	08/17/06 14:53 / sec
Copper	ND	ug/L		1		E200.8	08/12/06 01:37 / bws
Iron	ND	ug/L		30		E200.7	08/18/06 14:47 / ts
Lead	ND	ug/L		2		E200.8	08/12/06 01:37 / bws
Manganese	ND	ug/L		10		E200.8	08/12/06 01:37 / bws
Nickel	ND	ug/L		10		E200.8	08/15/06 12:51 / bws
Selenium	ND	ug/L		5		E200.8	08/12/06 01:37 / bws
Silver	ND	ug/L		3		E200.8	08/12/06 01:37 / bws
Zinc	ND	ug/L		10		E200.8	08/15/06 12:51 / bws

Report RL - Analyte reporting limit.  
Definitions: QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Client: O and G Environmental  
Project: Red River Ranch CBM Wells  
Lab ID: C06080346-002  
Client Sample ID: #2

Report Date: 08/23/06  
Collection Date: 08/07/06 13:20  
Date Received: 08/08/06  
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>METALS - TOTAL</b>							
Boron	ND	ug/L		100		E200.7	08/18/06 16:16 / ts
Iron	ND	ug/L		30		E200.7	08/18/06 16:16 / ts
Manganese	ND	ug/L		10		E200.8	08/12/06 01:29 / bws
Mercury	ND	ug/L		1		E200.8	08/12/06 01:29 / bws
<b>METALS - TOTAL RECOVERABLE</b>							
Arsenic	ND	ug/L		0.1		E200.8	08/12/06 01:29 / bws
Iron	ND	ug/L		30		E200.7	08/18/06 16:23 / ts
<b>DATA QUALITY</b>							
A/C Balance ( $\pm 5$ )	3.26	%				Calculation	08/22/06 16:35 / dab
Anions	4.45	meq/L				Calculation	08/22/06 16:35 / dab
Cations	4.75	meq/L				Calculation	08/22/06 16:35 / dab
Solids, Total Dissolved Calculated	247	mg/L				Calculation	08/22/06 16:35 / dab
TDS Balance (0.80 - 1.20)	0.990	dec. %				Calculation	08/22/06 16:35 / dab

Report RL - Analyte reporting limit.  
Definitions: QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.





## LABORATORY ANALYTICAL REPORT

Client: O and G Environmental  
Project: Red River Ranch CBM Wells  
Lab ID: C06080346-003  
Client Sample ID: #3

Report Date: 08/23/06  
Collection Date: 08/07/06 11:37  
Date Received: 08/08/06  
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>MAJOR IONS</b>							
Bicarbonate as HCO <sub>3</sub>	254	mg/L		1		A2320 B	08/10/06 11:07 / th
Calcium	36.8	mg/L		0.5		E200.7	08/18/06 14:50 / ts
Chloride	3	mg/L		1		A4500-Cl B	08/09/06 15:02 / jl
Fluoride	0.2	mg/L		0.1		A4500-F C	08/23/06 14:16 / th
Magnesium	10.9	mg/L		0.5		E200.7	08/18/06 14:50 / ts
Nitrogen, Nitrate as N	1.1	mg/L		0.1		E353.2	08/23/06 13:20 / tae
Nitrogen, Nitrate+Nitrite as N	1.1	mg/L		0.1		E353.2	08/08/06 15:53 / jal
Nitrogen, Nitrite as N	ND	mg/L		0.1		A4500-NO <sub>2</sub> B	08/09/06 13:38 / jal
Potassium	2.0	mg/L		0.5		E200.7	08/18/06 14:50 / ts
Silica	12.6	mg/L		0.1		E200.7	08/18/06 14:50 / ts
Sodium	49.3	mg/L		0.5		E200.7	08/18/06 14:50 / ts
Sulfate	18	mg/L		1		E200.7	08/18/06 14:50 / ts
<b>NON-METALS</b>							
Phosphate, Total	0.058	mg/L		0.003		E365.1	08/22/06 08:37 / sec
Phosphorus, Orthophosphate as P	ND	mg/L		0.010		E365.1	08/11/06 13:59 / eli-b
<b>PHYSICAL PROPERTIES</b>							
Conductivity	459	umhos/cm		1.0		A2510 B	08/09/06 11:18 / kes
pH	7.93	s.u.		0.01		A4500-H B	08/09/06 11:18 / kes
Solids, Total @ 105 C	294	mg/L		10		A2540 B	08/11/06 08:26 / kes
Solids, Total Dissolved TDS @ 180 C	258	mg/L		10		A2540 C	08/09/06 15:30 / kes
Calcium, SAR	1.84	meq/L		0.02		E200.7	08/18/06 14:50 / ts
Magnesium, SAR	0.90	meq/L		0.04		E200.7	08/18/06 14:50 / ts
Sodium, SAR	2.14	meq/L		0.02		E200.7	08/18/06 14:50 / ts
Sodium Adsorption Ratio (SAR)	1.83	unitless		0.10		Calculation	08/21/06 13:06 / sec
<b>METALS - DISSOLVED</b>							
Cadmium	ND	ug/L		0.1		E200.8	08/12/06 02:22 / bws
Chromium	ND	ug/L		1		E200.8	08/12/06 02:22 / bws
Chromium, Hexavalent	ND	ug/L		10		A3500-Cr B	08/08/06 10:22 / jl
Chromium, Trivalent	< 10	ug/L		10		Calculation	08/17/06 14:53 / sec
Copper	ND	ug/L		1		E200.8	08/12/06 02:22 / bws
Iron	ND	ug/L		30		E200.7	08/18/06 14:50 / ts
Lead	ND	ug/L		2		E200.8	08/12/06 02:22 / bws
Manganese	ND	ug/L		10		E200.8	08/12/06 02:22 / bws
Nickel	ND	ug/L		10		E200.8	08/15/06 12:57 / bws
Selenium	ND	ug/L		5		E200.8	08/12/06 02:22 / bws
Silver	ND	ug/L		3		E200.8	08/12/06 02:22 / bws
Zinc	ND	ug/L		10		E200.8	08/15/06 12:57 / bws

Report RL - Analyte reporting limit.  
Definitions: QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Client: O and G Environmental  
Project: Red River Ranch CBM Wells  
Lab ID: C06080346-003  
Client Sample ID: #3

Report Date: 08/23/06  
Collection Date: 08/07/06 11:37  
Date Received: 08/08/06  
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>METALS - TOTAL</b>							
Boron	ND	ug/L		100		E200.7	08/18/06 16:03 / ts
Iron	ND	ug/L		30		E200.7	08/18/06 16:03 / ts
Manganese	ND	ug/L		10		E200.8	08/12/06 01:44 / bws
Mercury	ND	ug/L		1		E200.8	08/12/06 01:44 / bws
<b>METALS - TOTAL RECOVERABLE</b>							
Arsenic	ND	ug/L		0.1		E200.8	08/12/06 01:44 / bws
Iron	ND	ug/L		30		E200.7	08/18/06 16:28 / ts
<b>DATA QUALITY</b>							
A/C Balance ( $\pm 5$ )	2.52	%				Calculation	08/22/06 16:35 / dab
Anions	4.69	meq/L				Calculation	08/22/06 16:35 / dab
Cations	4.94	meq/L				Calculation	08/22/06 16:35 / dab
Solids, Total Dissolved Calculated	262	mg/L				Calculation	08/22/06 16:35 / dab
TDS Balance (0.80 - 1.20)	0.980	dec. %				Calculation	08/22/06 16:35 / dab

Report RL - Analyte reporting limit.  
Definitions: QCL - Quality control limit.

MCL - Maximum contaminant level,  
ND - Not detected at the reporting limit.





## LABORATORY ANALYTICAL REPORT

Client: O and G Environmental  
Project: Red River Ranch CBM Wells  
Lab ID: C06080346-004  
Client Sample ID: #4

Report Date: 08/23/06  
Collection Date: 08/07/06 10:25  
Date Received: 08/08/06  
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>MAJOR IONS</b>							
Bicarbonate as HCO <sub>3</sub>	120	mg/L		1		A2320 B	08/10/06 11:11 / th
Calcium	26.3	mg/L		0.5		E200.7	08/18/06 15:03 / ts
Chloride	3	mg/L		1		A4500-Cl B	08/09/06 15:07 / jl
Fluoride	0.2	mg/L		0.1		A4500-F C	08/23/06 14:17 / th
Magnesium	8.8	mg/L		0.5		E200.7	08/18/06 15:03 / ts
Nitrogen, Nitrate as N	0.4	mg/L		0.1		E353.2	08/23/06 13:20 / tae
Nitrogen, Nitrate+Nitrite as N	0.4	mg/L		0.1		E353.2	08/08/06 15:56 / jal
Nitrogen, Nitrite as N	ND	mg/L		0.1		A4500-NO <sub>2</sub> B	08/09/06 13:38 / jal
Potassium	1.4	mg/L		0.5		E200.7	08/18/06 15:03 / ts
Silica	13.2	mg/L		0.1		E200.7	08/18/06 15:03 / ts
Sodium	10.5	mg/L		0.5		E200.7	08/18/06 15:03 / ts
Sulfate	13	mg/L		1		E200.7	08/18/06 15:03 / ts
<b>NON-METALS</b>							
Phosphate, Total	0.095	mg/L		0.003		E365.1	08/22/06 08:37 / sec
Phosphorus, Orthophosphate as P	ND	mg/L		0.010		E365.1	08/11/06 14:00 / eli-b
<b>PHYSICAL PROPERTIES</b>							
Conductivity	249	umhos/cm		1.0		A2510 B	08/09/06 11:21 / kes
pH	7.39	s.u.		0.01		A4500-H B	08/09/06 11:21 / kes
Solids, Total @ 105 C	164	mg/L		10		A2540 B	08/11/06 08:27 / kes
Solids, Total Dissolved TDS @ 180 C	140	mg/L		10		A2540 C	08/09/06 15:31 / kes
Calcium, SAR	1.31	meq/L		0.02		E200.7	08/18/06 15:03 / ts
Magnesium, SAR	0.73	meq/L		0.04		E200.7	08/18/06 15:03 / ts
Sodium, SAR	0.46	meq/L		0.02		E200.7	08/18/06 15:03 / ts
Sodium Adsorption Ratio (SAR)	0.45	unitless		0.10		Calculation	08/21/06 13:06 / sec
<b>METALS - DISSOLVED</b>							
Cadmium	ND	ug/L		0.1		E200.8	08/12/06 02:29 / bws
Chromium	ND	ug/L		1		F200.8	08/12/06 02:29 / bws
Chromium, Hexavalent	ND	ug/L		10		A3500-Cr B	08/08/06 10:22 / jl
Chromium, Trivalent	< 10	ug/L		10		Calculation	08/17/06 14:53 / sec
Copper	ND	ug/L		1		E200.8	08/12/06 02:29 / bws
Iron	ND	ug/L		30		E200.7	08/18/06 15:03 / ts
Lead	ND	ug/L		2		E200.8	08/12/06 02:29 / bws
Manganese	ND	ug/L		10		E200.8	08/12/06 02:29 / bws
Nickel	ND	ug/L		10		E200.8	08/15/06 13:04 / bws
Selenium	ND	ug/L		5		E200.8	08/12/06 02:29 / bws
Silver	ND	ug/L		3		E200.8	08/12/06 02:29 / bws
Zinc	ND	ug/L		10		E200.8	08/15/06 13:04 / bws

Report RL - Analyte reporting limit.  
Definitions: QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Client: O and G Environmental  
Project: Red River Ranch CBM Wells  
Lab ID: C06080346-004  
Client Sample ID: #4

Report Date: 08/23/06  
Collection Date: 08/07/06 10:25  
Date Received: 08/08/06  
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>METALS - TOTAL</b>							
Boron	ND	ug/L		100		E200.7	08/22/06 14:19 / cp
Iron	318	ug/L		30		E200.7	08/22/06 14:19 / cp
Manganese	ND	ug/L		10		E200.8	08/15/06 12:37 / bws
Mercury	ND	ug/L		1		E200.8	08/12/06 08:22 / bws
<b>METALS - TOTAL RECOVERABLE</b>							
Arsenic	ND	ug/L		0.1		E200.8	08/12/06 08:22 / bws
Iron	320	ug/L		30		E200.7	08/22/06 14:21 / cp
<b>DATA QUALITY</b>							
A/C Balance ( $\pm 5$ )	4.04	%				Calculation	08/22/06 16:35 / dab
Anions	2.35	meq/L				Calculation	08/22/06 16:35 / dab
Cations	2.55	meq/L				Calculation	08/22/06 16:35 / dab
Solids, Total Dissolved Calculated	137	mg/L				Calculation	08/22/06 16:35 / dab
TDS Balance (0.80 - 1.20)	1.02	dec. %				Calculation	08/22/06 16:35 / dab

Report Definitions: RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.





## Chain of Custody and Analytical Request Record

Page 1 of 1

PLEASE PRINT, provide as much information as possible. Refer to corresponding notes on reverse side.

Company Name: <b>Red River Ranch Holdings, LLC</b>			Project Name, PWS #, Permit #, Etc.: <b>RRR CBM</b>		
Report Mail Address: <b>15850 County Road 13 Weston, CO 81091</b>			Contact Name, Phone, Fax, E-mail: <b>Craig Taggart 719-868-2245 cell 719-868-2225 fax</b>		
Invoice Address: <b>15850 County Road 13 Weston, CO 81091</b>			Sampler Name if other than Contact: <b>Mindy Pavlek</b>		
Report Required For: POTW/WWTP <input type="checkbox"/> DW <input type="checkbox"/> Other _____			Purchase Order #:		
Special Report Formats - ELI must be notified prior to sample submittal for the following: NELAC <input type="checkbox"/> A2LA <input type="checkbox"/> Level IV <input type="checkbox"/> Other _____			ELI Quote #:		
EOD/EDT <input type="checkbox"/> Format _____			Notify ELI prior to RUSH sample submittal for additional charges and scheduling		
Number of Containers: Sample Type: A W S V B D Air Water Solids Vegetation Biosay Other			Comments:		
SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)			SEE ATTACHED		
Collection Date			Normal Turnaround (TAT)		
Collection Time			RUSH Turnaround (TAT)		
MATRIX			Shipped by: <b>Jedey</b>		
			Cooler ID(s): <b>C1807</b>		
			Receipt Temp: <b>77.0°F</b>		
			Custody Seal Intact <input checked="" type="checkbox"/> <b>Y</b> Signature Match <input checked="" type="checkbox"/> <b>N</b>		
			Lab ID		
			LABORATORY USE ONLY		
1 #1 8/7/06 12:40					
2 #2 8/7/06 12:40					
3 #3 8/7/06 12:40					
4 #4 8/7/06 12:40					
5					
6					
7					
8					
9					
10					
Custody Record MUST be Signed			Relinquished by (print): <b>Mindy Pavlek</b> Date/Time: <b>8/10/06 10:15</b> Signature: <b>[Signature]</b>		
Relinquished by (print): <b>Grant Aivazian</b> Date/Time: <b>8/10/06 10:15</b> Signature: <b>[Signature]</b>			Received by (print): <b>Grant Aivazian</b> Date/Time: <b>8/10/06 10:15</b> Signature: <b>[Signature]</b>		
Sample Disposal: Return to client: _____ Lab Disposal: _____			Sample Type: _____ # of fractions: _____		

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly noted on your analytical report. Visit our web site at [www.energylab.com](http://www.energylab.com) for additional information, downloadable test methods, forms & rates.



ENERGY LABORATORIES, INC. • 2393 Salt Creek Highway (82601) • P.O. Box 3258 • Casper, WY 82402  
Tel/Fax 866.235.0515 • 307.235.0515 • Fax 307.234.1639 • [casper@energylab.com](mailto:casper@energylab.com) • [www.energylab.com](http://www.energylab.com)



laboratories, Inc.

### Sample Receipt Checklist

Client Name Red River Ranch Holdings LLC

Date and Time Received: 8/8/2006 10:15:00

Work Order Number C06080346

Received by ga

Login completed by: Edith McPike  
Signature \_\_\_\_\_ Date 8/8/2006 10:15:00

Reviewed by \_\_\_\_\_  
Initials \_\_\_\_\_ Date \_\_\_\_\_

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	11.0 °C On Ice
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input type="checkbox"/>

Adjusted? \_\_\_\_\_ Checked by \_\_\_\_\_

Contact and Corrective Action Comments:

None





Date: 23-Aug-06

CLIENT: O and G Environmental  
Project: Red River Ranch CBM Wells  
Sample Delivery Group: C06080346

## CASE NARRATIVE

THIS IS THE FINAL PAGE OF THE LABORATORY ANALYTICAL REPORT

### BRANCH LABORATORY LOCATIONS

eli-b - Energy Laboratories, Inc. - Billings, MT  
eli-f - Energy Laboratories, Inc. - Idaho Falls, ID  
eli-g - Energy Laboratories, Inc. - Gillette, WY  
eli-h - Energy Laboratories, Inc. - Helena, MT  
eli-r - Energy Laboratories, Inc. - Rapid City, SD  
eli-t - Energy Laboratories, Inc. - College Station, TX

### ORIGINAL SAMPLE SUBMITTAL(S)

All original sample submittals have been returned with the data package. A copy of the submittal(s) has been included and tracked in the data package.

### SUBCONTRACTING ANALYSIS

Subcontracting of sample analyses to an outside laboratory may be required. If so, ENERGY LABORATORIES will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories will be indicated within the Laboratory Analytical Report.

### SAMPLE TEMPERATURE COMPLIANCE: 4°C (±2°C)

Temperature of samples received may not be considered properly preserved by accepted standards. Samples that are hand delivered immediately after collection shall be considered acceptable if there is evidence that the chilling process has begun.

ENERGY LABORATORIES, INC. - CASPER, WY certifies that certain method selections contained in this report meet requirements as set forth by NELAC. Some client specific reporting requirements may not require NELAC reporting protocol. NELAC Certification Number E87641.

### PCB ANALYSIS USING EPA 505

Data reported by ELI using EPA method 505 reflects the results for seven individual Aroclors. When the results for all seven are ND (not detected), the sample meets EPA compliance criteria for PCB monitoring.

ELI appreciates the opportunity to provide you with this analytical service. For additional information and services visit our web page [www.energylab.com](http://www.energylab.com).

The total number of pages of this report are indicated by the page number located in the lower right corner.



## Chain of Custody and Analytical Request Record

Page 1 of 1

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Invoice Address: <b>15850 County Road 13 Weston, CO 81091</b>			Invoice Contact & Phone #: <b>Craig Taggart 719-868-2245 Off 719-868-2225 Fax</b>		Sampler Name if other than Contact: <b>Mindy Paulek</b>
Report Required For: POTW/WWTP <input type="checkbox"/> DW <input type="checkbox"/> Other _____			ANALYSIS REQUESTED		Notify ELI prior to RUSH sample submittal for additional charges and scheduling
Special Report Formats - ELI must be notified prior to sample submittal for the following: NELAC <input type="checkbox"/> A2LA <input type="checkbox"/> Level IV <input type="checkbox"/> Other _____ EDD/EDT <input type="checkbox"/> Format _____			SEE ATTACHED		Comments:
SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)			Collection Date	Collection Time	MATRIX
1 #1			8/7/06	12:40	
2 #2			8/7/06	13:20	
3 #3			8/7/06	11:57	
4 #4			8/7/06	10:25	
5					
6 Time from Containers					
7 Eme					
8					
9					
10					
Custody Record MUST be Signed			LABORATORY USE ONLY		
Redesignated by (print): <b>Mindy Paulek</b>			Date/Time: <b>08/07/06 2:00pm</b>		
Redesignated by (print):			Signature: <b>Mindy Paulek</b>		
Redesignated by (print):			Signature: <b>Grant Aivazian</b>		
Redesignated by (print):			Date/Time: <b>8/8/06 10:15</b>		
Redesignated by (print):			Signature:		
Sample Disposal: Return to client: _____ Lab Disposal: _____			Sample Type: _____ # of fractions: _____		

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.

Visit our web site at [www.energylab.com](http://www.energylab.com) for additional information, downloadable fee schedule, forms, & links.