3R – 467 2004 AGWMR 03 / 31 / 2005



March 31, 2005

Certified: 70993400001842167364

Glen Von Gonten New Mexico Oil Conservation Division 1220 South St. Francis Drive Santa Fe, NM 87505

RE: 2004 Annual Groundwater Investigation and Remediation Reports San Juan Basin, New Mexico

Dear Mr. von Gonten:

As required in Burlington Resources approved Groundwater Investigation and Remediation Plan dated August, 1998, enclosed are the 2004 annual reports for Burlington's groundwater impact sites in the San Juan Basin. Separate reports are enclosed for the following locations:

Cozzens B#1 Hampton #4M Johnson Federal #4 Metering Station Flora Vista Marcotte Pool Unit #1 Sategna #2

If you have questions or additional information is needed, please contact me at (505) 326-9537.

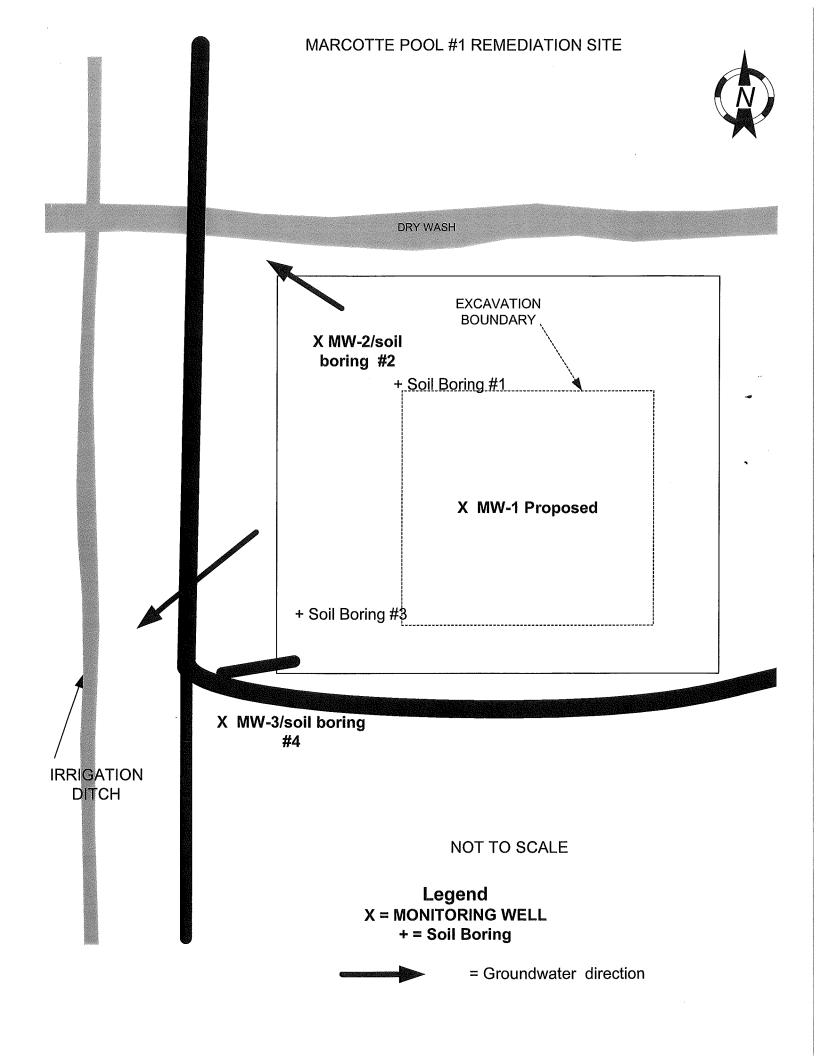
Sincerely,

Treege Min

Gregg Wurtz Sr. Environmental Representative

Attachments - Groundwater Investigation and Remediation Reports

cc: Denny Foust - NMOCD Aztec WFS - Mark Harvey (Cozzens B#1, Hampton #4M) EPFS - Scott Pope (Johnson Fed. #4,) Facility and Correspondence Files



BURLINGTON RESOURCES 2004 ANNUAL GROUNDWATER REPORT

Marcotte Pool Unit 1

SITE DETAILS

Location:Unit Letter G, Section 08, Township 31N, Range 10W; San Juan County, New MexicoLand Type:Federal

2004 ACTIVITIES

Excavation was backfilled with clean fill. Monitoring well MW-1 was installed in an area central to the excavation.

2003 ACTIVITIES

Hydrocarbon impacted soil was discovered at Burlington Resources (BR) production location Marcotte Pool Unit 1 on 9/16/03. The impacted soil was discovered during excavation work to reset the production equipment. Remediation excavation and land treatment of impacted soils started 9/17/03.

The Marcotte Pool Unit #1 is located in the OCD determined vulnerable area. A second order ephemeral wash boarders the location approximately 30 yds. to the north. A seasonal irrigation ditch is located approximately 100 yds. to the west. The soils at the location area are mainly fine to coarse sands with minor amounts of cobbles and boulders. The ground water gradient is approximately west/southwest parallel to the adjacent stream coarse.

The attached facility maps (Attachment 1) display: 1) regional and general location layout; 2) perimeter of the excavation; 3) surface water features; 4) boring and well locations and 5) proposed source well MW-1 location.

The well has been producing oil and gas since Nov. 1953.

Soil Impacts

Approximately 3000 cubic yards of impacted soil was removed and land farmed on the adjacent Marcotte #2. Permission to landfarm was obtained from OCD and BLM (Attachment 2, BLM Sundry Notice). No soil was land farmed on the Marcotte Pool Unit 1 because of the limited area available on location. The land farmed soil will be tested to confirm soil is below OCD clean up standards and filled back into the excavation.

The vertical extent of contamination and the extent of the excavation was determined by the depth to ground water. Soils were excavated down to ground water at approximately 30 feet below grade. The vertical extent of contamination appears to stop at the ground water table. A black organic decaying gravel layer marks the extent of vertical soil impacts approximately 6 inch in depth above the water table . Soils below this layer were water saturated and no hydrocarbons were detected in the field. The horizontal extent of contamination was determined by the limits of the open excavation and four soil borings. Soil monitoring using a photo ionization detector was used for field-testing. Soil samples collected during soil

boring were using a split spoon sampler every 2.5 feet . The four soil borings were used to determine the northwest, west and southwest extent of contamination (Attachment 3). Soil samples collected from the sides of the excavation determined the horizontal extent on the north, northeast, and east sides of the location. An x-section of the soil contamination plume approximates the shape of a bell at depth with the top of the bell at the source of contamination , the old earth pit, and the bottom of the bell at the ground water surface. The contamination spread at depth to form the sides of the bell. The soil contamination spread furthest from the source directly above the water table (i.e., vadose zone). The soil borings, Boring 3 and Boring 4 were completed into downgradient monitoring wells, monitoring wells MW-2 and MW-3. An additional source well (MW-1) and soil borings are proposed and will be used to confirm the north, northeast and southeast limits of contamination. Production equipment and the lack of open space prevented the subsequent drilling to start until backfilling the excavation in 2004. Boring logs and well diagrams are provided for the work completed in 2003 (Attachment 4).

Ground Water Impacts

Observations of the water in the bottom of the open excavation showed minor free phase hydrocarbons during excavation activities. Water and oil was removed from the open excavation using a pump truck over a period of 2 months. Prior to backfilling the excavation no free phase hydrocarbons were visible on the water surface in the excavation.

The downgradient extent of the groundwater contamination was defined by the monitoring wells (MW-2 and MW-3) located down gradient of the excavation. These wells where first sampled in October 2003 for a general list of water quality parameters and BTEX and then subsequently for BTEX only. No constituents of concern were detected in the general or BTEX analysis (Attachment 5).

CONCLUSIONS

The analytical results of groundwater sampling in 2003 from the downgradient wells show that levels of benzene, toluene, ethylbenzene, total xylenes and general water quality parameters are below the New Mexico Groundwater Standards in all wells.

RECOMMENDATIONS

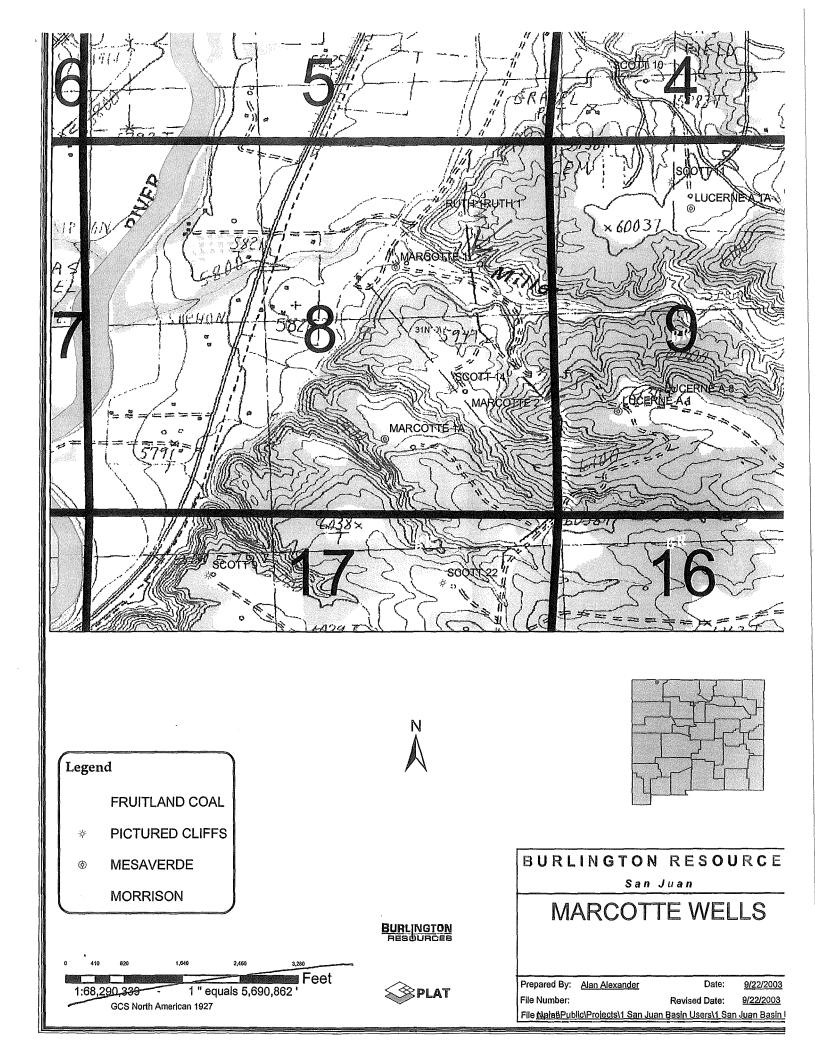
- Burlington Resources proposes to submit for closure. The wells MW-2 and MW-3 are below the standards in the last four quarters. The water quality in MW-1 has also been below the standards for the last two quarters.

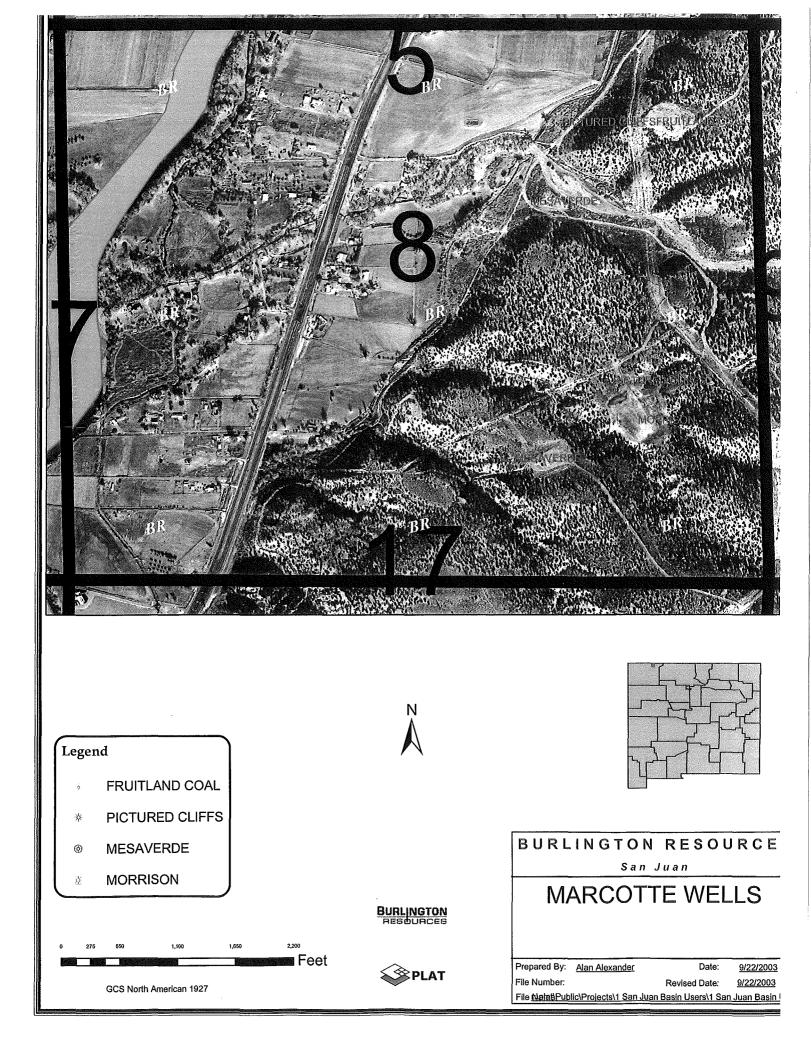
Attachments: Attachment 1 Site Maps Attachment 2 BLM Sundry Attachment 3 Soil sample analytical results Attachment 4 Drilling Log/Wellbore Diagrams Attachment 5 2003 Ground water sampling and analysis results

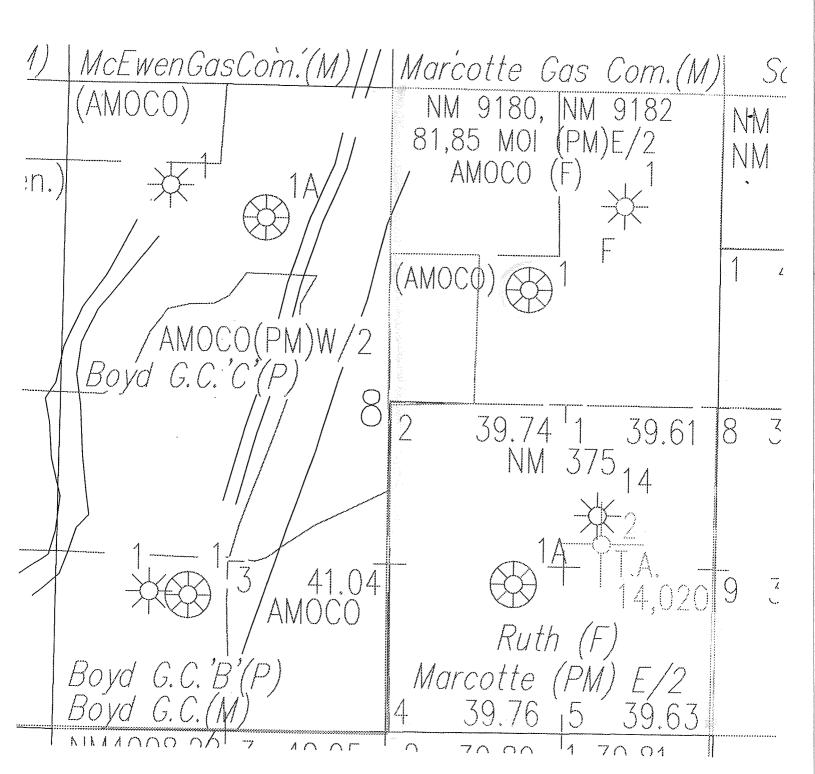
Attachment 1

Site maps

S: / grndwatr/GW-Sites/JohnFed#4/99Annual.doc







Attachment 2

BLM Sundry

S: / grndwatr/GW-Sites/JohnFed#4/99Annual.doc

submitted in lieu of Form 3160-5

UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT

Sundry Notices and Reports on Wells		
·	5.	Lease Number NMSF078604
1. Type of Well GAS	б.	If Indian, All. or Tribe Name
GAD	7.	Unit Agreement Name
2. Name of Operator BURLINGTON RESOURCES OIL & GAS COMPANY		
	8.	
3. Address & Phone No. of Operator PO Box 4289, Farmington, NM 87499 (505) 326-9700	9.	Marcotte #2 API Well No. 30-045-29466
4. Location of Well, Footage, Sec., T, R, M	10.	Field and Pool
1540'FSL, 935'FEL, Sec.8, T-31-N, R-10-W, NMPM		Wildcat Morrison
	11.	County and State San Juan Co, NM
12. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, R	EPORT, OTHER	DATA
Type of Submission Type of Action	n	
	Change of Pla New Construct	
Subsequent Report Recompletion 1		
Casing Repair	Water Shut of	f `
Final AbandonmentAltering Casing X_ Other -	Conversion to	Injection
 Attn: Ray Sanchez It is intended to move impacted soil from the Marcotte Background: The Marcotte #1 and the Marcotte #2 are in the same Mess The wells share the same spacing unit and are on fee 1a Work start date 9/22/03 The duration of the soil being placed on the Marcotte # The impacted soils will be generated from a soil remed: Marcotte #1. The soils will be transported within two weeks across of starting 9/22/03. Landfarm every 2 weeks. The area used for landfarming of We will conduct the Landfarming operations in accordance regulations. Soils will be land farmed on location to expedite the model. Upon successful remediation the excavated soils will be at the Marcotte #1 or a suitable environmentally approx Approximate amount of soils to be moved to the Marcotte	averde spacin and 2 is a maximu iation excavat gravel/soil of will be ½ to 1 ce with applic natural remedi e returned to yed use will b	ng unit. Im of 1 year tion activity at the il and gas lease roads acre. cable OCD and BLM lation of the impacted the original excavation be determined.
14. I hereby certify that the foregoing is true and cor	rect.	
Signed Tammy Wingst (GW & EH) Title Regulate	ory Specialis	Date 9/22/03
(This space for Federal or State Office use) APPROVED BY Title	Date	
CONDITION OF APPROVAL, if any: Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to United States any false, fictitious or fraudulent statements or representations as to any matter	any department or a within its jurisdic	gency of the tion.

Attachment 3

Soil Sample Analytical Results

S: / grndwatr/GW-Sites/JohnFed#4/99Annual.doc



2709-D Pan American Freeway NE Albuquerque, New Mexico 87107 Phone (505) 344-3777 Fax (505) 344-4413

Pinnacle Lab ID number October 23, 2003 310026

MARTIN NEE 26 CR 3500 FLORA VISTA, NM 87415

BURLINGTON RESOURCES P.O. BOX 4289 FARMINGTON, NM 87499

Project NameMARCOTE POOLProject Number(NONE)

Attention: MARTIN NEE/GREGG WURTZ

On 10/02/03 Pinnacle Laboratories Inc., (ADHS Lincense No. AZ0643), received a request to analyze **non-aq** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

If you have any questions or comments, please do not hesitate to contact us at (505) 344-3777.

H. Mitchell Rubenstein, Ph.D. General Manager, Pinnacle Laboratories, Inc.

MR: jt

Enclosure

2709-D Pan American Freeway NE Albuquerque, New Mexico 87107 Phone (505) 344-3777 Fax (505) 344-4413



1000

CLIENT	: MARTIN NEE	PINNACLE ID	: 310026	
PROJECT #	: (NONE)	DATE RECEIVED	: 10/02/03	
PROJECT NAME	: MARCOTE POOL	REPORT DATE	: 10/23/03	
PINNACLE			DATE	-
ID #	CLIENT DESCRIPTION	MATRIX	COLLECTED	
310026 - 01	MARCOTE BH-1, 28.5'-29'	NON-AQ	09/30/03	-
310026 - 02	MARCOTE BH-2, 33'-35'	NON-AQ	09/30/03	
310026 - 03	MARCOTE BH-3, 26'-28'	NON-AQ	09/30/03	
310026 - 04	MARCOTE BH-4, 25'-27'	NON-AQ	10/01/03	-4



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2709-D Pan American Freeway NE Albuquerque, New Mexico 87107 Phone (505) 344-3777 Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS

TEST CLIENT PROJECT # PROJECT N/	:	EPA 8021B MOE MARTIN NEE (NONE) MARCOTE POO		5B GRO		PINNACLE I.D. ANALYST		
SAMPLE			<u></u>	DATE	DATE	DATE	DIL.	-
ID. #	CLIENT I.D.		MATRIX	SAMPLED	EXTRACTED	ANALYZED	FACTOR	
01	MARCOTE BH-1	, 28.5'-29'	NON-AQ	09/30/03	10/07/03	10/09/03	1	-
02	MARCOTE BH-2	2, 33'-35'	NON-AQ	09/30/03	10/07/03	10/09/03	2 ~	
03	MARCOTE BH-3	3, 26'-28'	NON-AQ	09/30/03	10/07/03	· 10/08/03	1	
PARAMETER	2	DET. LIMIT	UN	ITS	MARCOTE BH- 1, 28.5'-29'	MARCOTE BH- 2, 33'-35'	MARCOTE BH- 3, 26'-28'	-
FUEL HYDR	OCARBONS	10	MG	/KG	< 10	79	< 10 `	-
HYDROCAR	BON RANGE				C6-C10	C6-C10	C6-C10	
HYDROCAR	BONS QUANTIT	ATED USING			GASOLINE	GASOLINE	GASOLINE	
BENZENE		0.025	MG	/KG	< 0.025	< 0.050	< 0.025	
TOLUENE		0.025	MG	/KG	< 0.025	< 0.050	< 0.025	
ETHYLBENZ	ENE	0.025	MG	/KG	< 0.025	0.37	< 0.025	
T OTAL XYLE	ENES	0.050	MG	/KG	< 0.050	1.7	< 0.050	
SURROGATE BROMOFLU(SURROGATE	OROBENZENE (%) (65 - 120)			90	113	86	

CHEMIST NOTES: N/A



.

2709-D Pan American Freeway NE Albuquerque, New Mexico 87107 Phone (505) 344-3777 Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS

TEST CLIENT PROJECT # PROJECT NAME	: EPA 8021B MOI : MARTIN NEE : (NONE) : MARCOTE POC		5B GRO	Ρ	INNACLE I.D. ANALYST		
SAMPLE			DATE	DATE	DATE	DIL.	
ID. # CLIENT I.D.		MATRIX	SAMPLED	EXTRACTED	ANALYZED	FACTOR	
04 MARCOTE BH	-4, 25'-27'	NON-AQ	10/01/03	10/07/03	10/08/03	1	
PARAMETER	DET. LIMIT		IITS	MARCOTE BH- 4, 25'-27'		4	
FUEL HYDROCARBONS	10	MO	6/KG	< 10			
HYDROCARBON RANGE				C6-C10			
HYDROCARBONS QUANT	ITATED USING			GASOLINE		•	
BENZENE	0.025	MG	6/KG	< 0.025			
TOLUENE	0.025	MG	6/KG	< 0.025			
ETHYLBENZENE	0.025	MG	6/KG	< 0.025			
TOTAL XYLENES	0.050	MG	6/KG	< 0.050			
SURROGATE: BROMOFLUOROBENZENE SURROGATE LIMITS	E (%) (65 - 120)			92			

CHEMIST NOTES:

N/A

Attachment 4 Drilling Log/Wellbore Diagrams

S: / grndwatr/GW-Sites/JohnFed#4/99Annual.doc

	WELL DEVELOPMENT AND SAMPLING LOC	3
Project No.:30003.0 Location:_Marcote Pool Unit 1 Project ManagerMJN Depth to Water28.76 Water Column Height10.09	Project Name: <u>Burlington Mareote 1</u> Well No: <u>MW-2</u> Date <u>10/6/03</u> Start Time <u>1541</u> Depth to Product <u>na</u> Product Thickness <u>na</u> Well Dia. <u>2"</u>	Client: <u>Burlington Resources</u> Development <u>Sampling</u> Weather <u>sunny 80s</u> Measuring Point <u>TOC</u>
Sampling Method: Submersible	Pump Centrifugal Pump Peristaltic Pum	p 🔲 Other 📋

Bottom Valve Bailer x

Double Check Valve Bailer
Stainless-Steel Kemmerer

Criteria: 3 to 5 Casing Volumes of Water Removal X stabilization of Indicator Parameters X Other: or bail dry

	Water Volur	ne in Well	
Gal/ft x ft of water	Gallons	Ounces	Gal/oz to be removed
10.09 x .16	1.61 x 3		4.84

Time (military)	pH (su)	SC (umhos/cm)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gal.)	Comments/ Flow rate
1607	7.47	2400	19.6				1	Silty, brown
	7.46	2250	18.0				2	Silty, brown
	7.39	2260	17.4				3	Silty, brown
	7.36	2240	17.9				4	Silty, brown
1624	7.48	2260	17.6				5	Silty, brown
			, , <u></u> , <u></u>					
400 <u> </u>			•					

Final:							Ferrous		
Time	pН	SC	Temp	Eh-ORP	D.O.	Turbidity	Iron	Vol Evac.	Comments/Flow Rate
<u>1624</u>	7.48	2260	17.6					5	Silty, brown

COMMENTS:

 INSTRUMENTATION: pH M	Aeter X		Temperature	e Meter x	
 DC	O Monitor	NATIVE AND A CONTRACT OF A	Other	an ang ang ang ang ang ang ang ang ang a	
 Conductivity	y Meter X				
 Water Disposal <u>onsite</u> Sam	ple ID <u>Marcote</u> 1	<u>MW-2</u>	Sample Tim	e <u>1630</u>	
<u>BTEX</u> VOCs Alkalinity TI Phosphorus	DS Cations	Anions Nitrate	e Nitrite Ammonia '	TKN NMWQCC N	Metals Total
 MS/MSD	BD	BD Nam	e/Time	ТВ	

WELL DEVELOPMENT AND SAMPLING LOG

	1	
	Marche (
Project No.:30001.0	Project Name: <u>Burlington Flera Vista</u>	Client: Burlington Resources
Location:_Marcote Pool Unit 1	Well No: <u>MW-3</u>	Development Sampling
Project ManagerMJN	Date <u>10/6/03</u> Start Time	1458 Weather sunny 80s
Depth to Water 30.74	Depth to Product na Product Thickness na	Measuring Point
Water Column Height 8.28	Well Dia2"	

Sampling Method: Submersible Pump 🔲 Centrifugal Pump 🔲 Peristaltic Pump 🗇 Other 📋

Bottom Valve Bailer x

Double Check Valve Bailer
Stainless-Steel Kemmerer

Criteria: 3 to 5 Casing Volumes of Water Removal X stabilization of Indicator Parameters X Other_____

Water Volur			
Gallons	Ounces	Gal/oz to be removed	
1.32 x 3		3.79	
	Gallons		

Time (military)	pH (su)	SC (umhos/cm)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gal.)	Comments/ Flow rate	-
1507	7.16	2230	19.1				0.5	muddy, brown, good flow to well	very
	7.26	2150	18.4				1	muddy, brown, good flow to well	very
	7.31	2130	17.9				1.5	muddy, brown, good flow to well	very
	7.17	2270	18.0				5	muddy, brown, good flow to well	very
	7.38	2220	17.4				10	muddy, brown, good flow to well	very
	7.48	2240	17.1				15	muddy, brown, good flow to well	very
<u>1603</u>	7.38	2390	17.3				20	muddy, brown, good flow to well	very
<u>1617</u>	7.42	2330	17.3				30	muddy, brown, good flow to well	very

Final:							Ferrous		
Time	рН	SC	Temp	Eh-ORP	D.O.	Turbidity	Iron	Vol Evac.	Comments/Flow Rate
<u>1617</u>	7.42	2330	17.3					30	muddy, brown, very good
									flow to well

COMMENTS:	

INSTRUMENTATION:	pH Meter X		Temperature Meter x
	DO Monitor		Other
Conduc	ctivity Meter X	1	
Water Disposal <u>onsite</u>	Sample ID <u>NA</u>	······································	_Sample Time <u>na</u>
BTEX VOCs Alkalinity	TDS Cations Anion	s Nitrate Nitrite Ammonia	TKN NMWQCC Metals Total Phosphorus
MS/MSD	BD	BD Name/Time	TB

Borehole 1

Lodestar Services, Inc

PO Box 3681 Farmington, New Mexico 87499 (505) 334-2791

Elevation	
Borehole Location WI	NW of former pit
GWL Depth	·29
Logged By MJN	
Drilled By Terrac	
Date/Time Started	9/30/2003 0800 hrs
Date/Time Completed	9/30/2003 1043 hrs

 Project Name
 Burlington Resources Marcote Pool Unit 1

 Project Number
 30003
 Phase

 Project Location
 1 mile south of Dutchman's Hill transfer station

 Well Logged By
 M Nee

 Personnel On-Site
 R Thompson, Tony

 Contractors On-Site
 Terracon

 Client Personnel On-Site
 G Wurtz

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Drilling Method Mobile B59 Hollow Stem Auger Air Monitoring Method Photo Vac 2020

				a a a a a a a a a a a a a a a a a a a				
	1 1	mple	1	Depth				
Depth	Sample Ty	pe & Sample Description	USCS	Lithology		r Monitor	-	Drilling Conditions
(Feet)	Interval Rec	overy Classification System: USCS	Symbol	Change	ί	Inits: NC	ບ	& Blow Counts
	(inc	ches)		(feet)	BZ	BH	S	
0								
	Spl	lit 0-13 ' Sand, Moderate Yellow Brown, Sand	1		0			
	spo			1				
		unconsolidated.	1					
	3.5 1	12	1					
	3.0	12				i i		
			1					
	6.7 1	14				1		
			1					
	7-9 1	16	1					
					l l			
10	9.11 1	16	1					
		minor gravel and cobble in sample at 10.5						
	11.13 1	16 12.5						
Ⅰ	13-15 1	13-25' Sand, moderate yellow brown, very						
- ₁₅	12.12							
		fine, minor small <1" silt stringers,	1			1		
	15.17 2	20 moderate sorted, unconsolidated. Minor						
		silt 16·17'		1				
	17.19 2	20				1		
20	19.21 2	24				1		
	21.23 2	24		1				
		-7						
	23.25 2	20						
- 25	23.25 2	20		-				
²⁰								
	25.27 1	16 25-28.5 Sand, coarse, minor gravel, well	1					
		sorted, moisture increasing, saturated at						
	27.29 1	12 28'	4					
		28.5-30.0 Silty clay lense, black	1					
30	29.31 1	12						
		30-31, Gravel, black, saturated, with	1					
	1	cobbles			0			Refusal in cobbles/gravel
		BRICH		1	ľ			31'
		TD 31'		1		1		131 1
		10.51		1		1		
35				1		1		1
	1			1				}
				ļ		1		
			1	1		ł		
			1			I		
40			1					

Comments:

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Borehole 2

Lodestar Services, Inc

PO Box 3681 Farmington, New Mexico 87499 (505) 334-2791

Elevation Borehole Location West of former pit GWL Depth 33 Logged By MJN Drilled By Terracon Date/Time Started 9/30/2003 1116 hrs Date/Time Completed 9/30/2003 1340 hrs

Project Name Bui	lington Resources Marcote Pool Unit 1					
Project Number 3	0003 Phase					
Project Location 1 m	nile south of Dutchman's Hill transfer					
sta	tion					
Well Logged By	M Nee					
Personnel On-Site	R Thompson, Tony					
Contractors On-Site	Terracon					
Client Personnel On-Site	G Wurtz					
	and the second					

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Drilling Method Mobile B59 Hollow Stem Auger Air Monitoring Method Photo Vac 2020

Depth (Feet)	Sample Interval	Sample Type & Recovery (%)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)		r Monito Jnits: NI BH		Drilling Conditions & Blow Counts
		Split	0-23' Sand moderate yellow brown, coarse to fine moderately sorted, unconsolidated, minor cobble/gravel.			0			
5 									
10									
15									
20									
25	23-25 25-27 27-29	90 90 95	27-29' fine-very fine sand, unconsolidated, well sorted. 27-29, clay, then very fine sand for 1" then into brown stiff clay to 36', some black marbleing 28.5-29						
30	29-31 31-33	100	30-31, Gravel, black, saturated, with cobbles			0		465 582	Ĺ
35 	33.35 35.37	100	36-36.5, coarse sand, saturated, black, well sorted, unconsolidated. 36.5-37, clay TD-37					2750	

Comments:

Borehole logged on cutting returns from 0-23 feet beneath ground surface.

Borehole 3, MW-3

Lodestar Services, Inc

PO Box 3681 Farmington, New Mexico 87499 (505) 334-2791

Elevation							
Borehole Location West of BH-2							
GWL Depth	27.1						
Logged By MJN							
Drilled By Terra	çon						
Date/Time Started	9/30/2003 1359 hrs						
Date/Time Completed	9/30/2003 1730 hrs						

 Project Name
 Burlington Resources Marcote Pool Unit 1

 Project Number
 30003
 Phase

 Project Location
 1 mile south of Dutchman's Hill transfer station

 Well Logged By
 M Nee

 Personnel On-Site
 R Thompson, Tony

 Contractors On-Site
 G Wurtz

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of 1

Drilling Method Mobile B59 Hollow Stem Auger Air Monitoring Method Photo Vac 2020

Depth (Feet)	Sample Interval		Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)		r Monito Jnits: Ni BH		Drilling Conditions & Blow Counts
Ē		Split spoon	0-34' Sand moderate yellow brown, fine to medium grains, moderately well sorted, unconsolidated.			0			
- 5 									
15									
20	20-22	95				0		0	
25	22·24 24·26	95 95				0 0		0	
	26·28 28·30	85 90	Saturated at 27.5			0 0		1.9 0	
- 35 			34-37 Cobbles						34-37 rough drilling,
40			TD-37						cobbles Refusal at 37'



Borehole logged on cutting returns from 0-20 and 30-37 feet beneath ground surface. Groundwater at 27.1' beneath ground surface at 1600 hrs.

Borehole 4, MW-2

Lodestar Services, Inc

PO Box 3681 Farmington, New Mexico 87499 (505) 334-2791

 Elevation

 Borehole Location
 North northwest of pit.

 GWL Depth
 26.3

 Logged By
 MJN

 Drilled By
 Terracon

 Date/Time Started
 10/1/2003 0820 hrs

 Date/Time Completed
 10/1/2003 1600 hrs

Burlington Resources Marcote Pool Unit 1 Project Name 30003 Phase Project Number 1 mile south of Dutchman's Hill transfer Project Location station Well Logged By M Nee Personnel On-Site R Thompson, Tony Contractors On-Site Terracon **Client Personnel On-Site** G Wurtz

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of 1

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Drilling Method Mobile B59 Hollow Stem Auger Air Monitoring Method Photo Vac 2020

		and the second second second							
Depth		Sample Type &	Sample Description	USCS	Depth Lithology	Δ	r Monito	rina	Drilling Conditions
(Feet)		Recovery	Classification System: USCS	Symbol	Change		Jnits: N	-	& Blow Counts
		(inches)		-,	(feet)	BZ	BH	S	
	S	split poon	0-23.5' Sand, moderate yellow brown, fine to coarse grains, moderately sorted, unconsolidated.		(feet)	0 0	BH	5	
20									
25 	23-25 25-27 27-29	8	23.5-34 gravel/sand/cobble Saturated at 26.3			0			Poor recovery due to cobbles cobbles/gravel/sand, saturated at bottom coarse sand, gravel, and cobbles in spoon. No cuttings beneath 34 feet. Lithology based on material on auger flights after retrevial
35 40			34-38.5 Clay, gray TD-38.5						



borehole logged on cuttings from 0-23 feet. Water level at 26.3' @ 1004

MONITORING WELL INSTALLATION RECORD

West of fromer pit

Terracon

26.30' beneath ground surface

10/1//03 0820

Lodestar Services, Inc PO Box 3861 Farmington, New Mexico 87499 (505) 334-2791

Elevation

Well Location

Date/Time Started

GWL Depth Installed By

Borehole #		3					
Well #		3					
Page <u>1</u>	of	1					

Project Name	Burlington Resources Flora Vista 1					
Project Number	30003.0 Cost Code					
Project Location	1 mi south of Dutchman's Hill transfer station					
On-Site Geologist	M. Nee					
Personnel On-Site	R. Thompson, Tony					
Contractors On-Site	Terracon					
Client Personnel On-Site	G. Wurtz					

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.

Date/Time Completed 10/1/03	3 1600	-			
Depths in Reference	to Ground Surface				
Item	Material	Depth (feet)		Top of Protective Casing	2.83
Top of Protective Casing	Flush to grade	2.83		Top of Riser	2.83
Bottom of Protective Casing	vault	-2.17		Ground Surface	0.0
Top of Permanent Borehole Casing		na			
Bottom of Permanent Borehole Casing		na			
Top of Concrete	2 bags quickcrete	0.31			
Bottom of Concrete		0.0			
Top of Grout	5 96# bags portland	0.0			
Bottom of Grout	with 5% bentonite chips	-16.33			
Top of Well Riser	2" flush threaded	2.83			
Bottom of Well Riser	schedule 40 pvc	-23.06			
Top of Well Screen	10 slot schedule 40	-23.06	\sim	Top of Seal	-16.33
Bottom of Well Screen	flush threaded pvc	-38.06	000		
Top of Peltonite Seal	1 bag 3/8 bentonite	-16.33	∞		
Bottom of Peltonite Seal	chips	-18.67	\sim	Top of Gravel Pack	-18.67
Top of Gravel Pack	8 #50 bags 10-20	-18.67		Top of Screen	-23.06
Bottom of Gravel Pack	silica sand	-37.5			
Top of Natural Cave-In		-37.5			
Bottom of Natural Cave-In		-38.5	7		
Top of Groundwater		-30.74		Bottom of Screen	-38,06
Total Depth of Borehole		-38.5		Bottom of Borehole	-38.5

Comments: <u>Water level is 30.74 beneath top of casing</u>

MONITORING WELL INSTALLATION RECORD

Lodestar Services, Inc PO Box 3861 Farmington, New Mexico 87499 (505) 334-2791

Elevation

North northwest of former pit Well Location **GWL** Depth 27.00' beneath ground surface Installed By Terracon Date/Time Started 9/30//03 0800 Date/Time Completed 9/30//03 1730

Borehole # 4 Well # 2 Page of 1

Project Name	Burlington Resources Flora Vista 1					
Project Number	30003.0	Cost Code				
Project Location	a 1 mi south of Dutchman's Hill transfer station					
On-Site Geologist	M. Nee					
Personnel On-Site	R. Thompson, Tony					
Contractors On-Site	Terracon					
Client Personnel On-Site	G. Wurtz					

Depths in Reference	to Ground Surface				
Item	Material	Depth (feet)		Top of Protective Casing	2.67
Top of Protective Casing	Flush to grade	2.67		Top of Riser	2.67
Bottom of Protective Casing	vault	-2.33		Ground Surface	0.0
Top of Permanent Borehole Casing		na			
Bottom of Permanent Borehole Casing		na			
Top of Concrete	2 bags quickcrete	0.31			
Bottom of Concrete		0.0			
Top of Grout	5 96# bags portland	0.0			
Bottom of Grout	with 5% bentonite chips	-12.75			
Top of Well Riser	2" flush threaded	2.67			
Bottom of Well Riser	schedule 40 pvc	-22.04			
Top of Well Screen	10 slot schedule 40	-22.04	∞	Top of Seal	-14.6
Bottom of Well Screen	flush threaded pvc	-37.04			
Top of Peltonite Seal	1 bag 3/8 bentonite	-14.60	000		
Bottom of Peltonite Seal	chips	-17.60	200	Top of Gravel Pack	-17.6
Top of Gravel Pack	9.5 #50 bags 10-20	-17.60	-	Top of Screen	-22.04
Bottom of Gravel Pack	silica sand	-34.25			
Top of Natural Cave-In		-34.25			
Bottom of Natural Cave-In		-37.00			
Top of Groundwater		-27.00		Bottom of Screen	-37.04
Total Depth of Borehole		-37.04		Bottom of Borehole	-37.04

Comments: <u>Water level is 28.76 beneath top of casing</u>

Attachment 5

2003-Ground water sampling and analysis results 2004

Table 1 Marcot Pool Unit 1 Groundwater Monitoring Well Sampling

	Sample	В	1	E	X	BTEX	IDTW (1)	Comments
MW #	Date	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ft)	
		10	750	750	620			
1	Well not ins	talled open	excavation					
	9/29/2004	U	U	38	37.9	75.9	23.2	Clear,Gray, Silty
See attached general water quality analysis for 3rd qtr.								
	12/13/2004	0.4J	0.7J	0.7J	20.2	22	23.67	Grey
2	10/6/2003	U	U	U	U	U	29.71	muddy brn, very good well flow
	12/16/2003	0.4J	U	U	U	0.4J	30.09	Brown muddy
	3/15/2004	0.4J	0.3J	U	0.2	0.9	30.62	Silty
	6/21/2004	U	U	U	U	0	30.05	Silty
	9/29/2004	U	0.3J	0.3J	0.9J	0.9		
	12/13/2004	0.3J	1.3	0.3J	11.2	13.1	29.88	Silty, Brown
3	10/6/2003	U	0.2J	U	U	0.2J	30.74	Silty, Brown
	12/16/2003	0.5J	U	U	Ū	0.5J	34.14	Silty Muddy
	3/15/2004		No Sai	mple Collec	ted Dry			
	6/21/2004	U	U	U	U	0	36.62	Very Silty
	9/29/2004	U	U	U	U	0	28.72	Brown
	12/13/2004	U	0.3J	U	1.6	1.9	32.35	Clear, Brown
	1	1 Well not ins 9/29/2004 See 12/13/2004 2 10/6/2003 12/16/2003 3/15/2004 6/21/2004 3 10/6/2003 12/16/2003 12/16/2003 3/15/2004 6/21/2004 6/21/2004 9/29/2004	Image: Normal System Image: Normal System 1 Well not installed open 9/29/2004 U See attached g 12/13/2004 0.4J 12/13/2004 0.4J 12/16/2003 U 12/16/2003 0.4J 3/15/2004 0.4J 9/29/2004 U 12/13/2004 0.4J 9/29/2004 U 12/13/2004 0.3J 3 10/6/2003 U 12/16/2003 0.5J 3/15/2004 U 12/16/2003 0.5J 3/15/2004 U 9/29/2004 U 9/29/2004 U	10 750 1 Well not installed open excavation 9/29/2004 U See attached general wate 12/13/2004 0.4J 12/13/2004 0.4J 12/13/2004 0.4J 12/16/2003 U 12/16/2003 0.4J 12/16/2004 U 3/15/2004 0.4J 9/29/2004 U 9/29/2004 U 9/29/2004 U 0.3J 1.3 12/13/2004 0.3J 12/13/2004 0.3J 12/13/2004 0.3J 12/13/2004 0.5J 12/16/2003 U 3/15/2004 No Sat 6/21/2004 U 3/15/2004 U 9/29/2004 U	10 750 750 1 10 750 750 9/29/2004 U 38 38 See attached general water quality an 12/13/2004 0.4J 0.7J 0.7J 1 10/6/2003 U U U 38 2 10/6/2003 U U U 10 12/16/2003 0.4J 0.7J 0.7J 0.7J 2 10/6/2003 U U U U 3/15/2004 0.4J 0.3J U U U 9/29/2004 U 0.3J 0.3J 0.3J 12/13/2004 0.3J 1.3 0.3J 3 10/6/2003 U 0.2J U 12/16/2003 0.5J U U U 3/15/2004 0.5J U U U 3/15/2004 U U U U 3/15/2004 U U U U <td< td=""><td>Image: Normal State Image: Norman State Image: Norman State</td><td>10 750 750 620 1 Well not installed open excavation </td><td>10 750 750 620 1 Well not installed open excavation </td></td<>	Image: Normal State Image: Norman State Image: Norman State	10 750 750 620 1 Well not installed open excavation	10 750 750 620 1 Well not installed open excavation

J= Analyte concentration detected at a value between MDL and PQL

(1) measured from top of casing

WELL DEVELOPMENT AND SAMPLING LOG

Project No.:	Project	Name: <u>Marcote</u>		Client: <u>Burlingt</u>	<u>on</u>			
Location:_ We	ell No: <u>MN</u>	/-2	Develop	oment <u>Sampli</u>	ng			
Project Manager	<u>MJN</u>		Date	3/15/04	Start Time_	0730	Weather	<u>clear 40s</u>
Depth to Water	30.62	Depth to Produc	ct <u>na</u>	Product Thickr	iess: <u>na</u>	Measur	ing Point	TOC
Water Column Heig	ght <u>8.23</u>	Well Dia	2"					

Sampling Method: Submersible Pump
Centrifugal Pump
Peristaltic Pump
Other

Bottom Valve Bailer

Double Check Valv Bailer Stainless-Steel Kemr Brer

Criteria: 3 to 5 Casing Volumes of Water Removal X stabilization of Indicator Parameters X Other_or bail dry

	Water Volu			
Gal/ft x ft of water	Gallons	Ounces	Gal/oz to be removed	
8.23 x 0.16	1.34		4.03	

Time (military)	pH (su)	SC (umhos/cm)	Temp (°F)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gal)	Comments/ Flow rate
0819	8.05	4110	60.7				0.25	silty
	7.53	3570	58.8				0.50	
	7.45	3420	57.8				0.75	
	7.46	3510	57.6				1.0	
	7.50	3500	57.3				2.0	
	7.44	3520	57.3				3.0	

Final:							Ferrous		
Time	pН	SC	Temp	Eh-ORP	D.O.	Turbidity	Iron	Vol Evac.	Comments/Flow Rate
<u>0835</u>	7.47	3500	57.4					4.0	silty

COMMENTS: well is bailing down

INSTRUMENTATION:	pH Meter	Х		Temperature Meter	x
	DO Mon	itor		Other	
Cond	uctivity Mete	r X			
Water Disposal <u>onsite</u>		Sample	ID MW-2 Sample Time	0835	
<u>BTEX</u> VOCs					
MS/MSD	BD		BD Name/Time		ТВ

AGZ Laboratories, Inc. 2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493 Organic Analy Results			
Burlington Resources, Inc. ACZ Sample ID: L44968-01 Project ID: MISC GW SAMPLING Date Sampled: 03/15/04 8:35 Sample ID: MARCOTE MW-2 Date Received: 03/17/04 Sample Matrix: Ground Water			
Analysis Method: M8021B GC/PID	03/26/04 14:29 03/26/04 14:29		
Compound Compound CAS Result QUAL XQ Units MDL	[?{@]L		
Benzene 000071-43-2 0.4 J * ug/L 0.3	1		
Ethylbenzene 000100-41-4 U ug/L 0.2	1		
m p Xylene 01330 20 7 U ug/L 0.4	2		
o Xylene 00095-47- 6 0.2 J ug/L 0.2	1		
Toluene 000108-88-3 0.3 J ug/L 0.2	1		
Surrogate Recoveries CAS % Recovery XQ Units LCL Bromofluorobenzene 000460-00-4 96.3 % 83	U(c)1. 117		

.

WELL DEVELOPMENT AND SAMPLING LOG

Location:_M Project Mana Depth to Wa	Project No.:30003.0 Project Name: Burlington Marcote 1 Client: Burlington Resources Location: Marcote Pool Unit 1 Well No: MW-3 Development Sampling Project ManagerMJN Date 3/15/04 Start Time 0715 Weather sunny 40s Depth to Waterna Depth to Productna Product Thicknessna Measuring PointTOC Water Column Heightna Well Dia 2" Sampling Method: Submersible Pump Centrifugal Pump Peristaltic Pump Other												
Sampling Method: Submersible Pump Centrifugal Pump Peristaltic Pump Other													
Bottom Valve Bailer x Double Check Valve Bailer													
Criteria: 3 to 5 Casing Volumes of Water Removal X stabilization of Indicator Parameters X Other: or bail dry													
					Water Volur	ne in Well							
Gal/ft x	ft of wat	er		Gallons Ounces Gal/oz to be					Gal/oz to be removed				
	na			na		na							
					I								
Time (military)	pH (su)		SC nos/cm)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Ev (gal		Comments/ Flow rate			
				:									
					L <u></u>								
									:				

Final:								
Time	pН	SC	Temp	Eh-ORP	D.O.	Turbidity	Vol Evac.	Comments/Flow Rate

COMMENTS: There was no water in the well. Probably due to seasonal drop in water level due to lack of local irrigation.

INSTRUMENTATION: pH	Meter X	Temperati	ure Meter x
D	O Monitor	Other	
Conductivi	ty Meter X		
Water Disposal <u>na</u> Samp	ole ID <u>na</u>	Sample Time <u>na</u>	
BTEX VOCs Alkalinity TDS	S Cations Anic	ons Nitrate Nitrite Ammonia TKN NM	WQCC Metals Total Phosphorus
MS/MSD	BD	BD Name/Time	TB

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AGZZ Laboratories, Inc. 2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

March 30, 2004

Gregg Wurtz Burlington Resources, Inc. 3401 E. 30th St. PO BOX 4289 Farmington, NM 87402-4289

Project ID: MISC GW SAMPLING ACZ Project ID: L44968

Gregg Wurtz:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on March 17, 2004. This project has been assigned to ACZ's project number, L44968. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 10.0. The enclosed results relate only to the samples received under L44968. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after April 30, 2004. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than \$10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years. Please notify your Project Manager if you have other needs.

If you have any questions, please contact your Project Manager or Customer Service Representative.

30/Mar/04

Sue Barkey, Project Manager, has reviewed and approved this report in its entirety.





L44968: Page 1 of 8

REPAD.01.11.00.01



Organic Reference

Batch			
Daton	A distinct set of samples analyzed at a specific time		
Found	Value of the QC Type of interest		
Limit	Upper limit for RPD, in %.		
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)		
LCL	Lower Control Limit		
MDL	Method Detection Limit. Same as Minimum Reporting L	imit. Allows for	instrument and annual fluctuations.
PCN/SCN	A number assigned to reagents/standards to trace to the	e manufacturer's	s certificate of analysis
PQL	Practical Quantitation Limit		
QC	True Value of the Control Sample or the amount added	to the Spike	
Rec	Amount of the true value or spike added recovered, in %	6 (except for LC	SS, mg/Kg)
RPD	Relative Percent Difference, calculation used for Duplication	ate QC Types	
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)		
UCL	Upper Control Limit		
Sample	Value of the Sample of interest		
QC Sample Ty	pes		
SURR	Surrogate	LFM	Laboratory Fortified Matrix
INTS	Internal Standard	LFMD	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	LRB	Laboratory Reagent Blank
LCSS	Laboratory Control Sample - Soil	MS/MSD	Matrix Spike/Matrix Spike Duplicate
LCSW	Laboratory Control Sample - Water	PBS	Prep Blank - Soil
LFB	Laboratory Fortified Blank	PBW	Prep Blank - Water
QC Sample Typ	pe Explanations		
Blanks	Verifies that there is no or mini	mal contamination	on in the prep method procedure.
Control San	nples Verifies the accuracy of the me	thod, including 1	he prep procedure.
Duplicates	Verifies the precision of the ins	trument and/or r	nethod.
Spikes/Forti		rferences, if any	
ACZ Qualifiers			
В	Analyte detected in daily blank		
Н	Analysis exceeded method hold time.		
J	Analyte concentration detected at a value between MDL		
R	Poor spike recovery accepted because the other spike i		•
Т	High Relative Percent Difference (RPD) accepted becau	-	entrations are less than 10x the MDL.
U	Analyte was analyzed for but not detected at the indicate		
V	High blank data accepted because sample concentration	-	
W	Poor recovery for Silver quality control is accepted beca	use Silver often	precipitates with Chloride.
x	Quality contreol sample is out of control.		
Z	Poor spike recovery is accepted because sample conce		mes greater than spike concentration.
P	Analyte concentration differs from second detector by m		
E	Analyte concentration is estimated due to result exceeding	-	nge.
M Method Refere	Analyte concentration is estimated due to matrix interfer	ences.	
(1)	EPA 600/4-83-020. Methods for Chemical Analysis of V	Vater and Waste	s, March 1983.
(2)	EPA 600/4-90/020. Methods for the Determination of O		
(3)	EPA 600/R-92/129. Methods for the Determination of O	- ,	
(5)	EPA SW-846. Test Methods for Evaluating Solid Waste	-	
	Standard Methods for the Examination of Water and Wa	istewater, 19th e	dition, 1995.
Comments			
(1)	QC results calculated from raw data. Results may vary		inded values are used in the calculations.
(2)	Organic analyses are reported on an "as received" basis	<u>. </u>	
Method Referen (1) (2) (3)	EPA 600/4-83-020. Methods for Chemical Analysis of V EPA 600/4-90/020. Methods for the Determination of O EPA 600/R-92/129. Methods for the Determination of O EPA SW-846. Test Methods for Evaluating Solid Waste	Vater and Waste rganic Compour rganic Compour , Third Edition w	nds in Drinking Water (I), July 1990. nds in Drinking Water (II), July 1990. vith Update III, December, 1996.

REPIN03.11.00.01



2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Burlington Resources, Inc.

Organic Extended Qualifier Report

ACZ Project ID: L44968

ACZ ID WORKNUM PARAMETER	METHOD	QUAL DESCRIPTION	QUAL
L44968-01 WG169653 Benzene	M8021B GC/PID	V7 Calibration verification recovery was above the method control limit for this analyte, however the average % difference or % drift for all the analytes met method criteria.	

ACZ Laboratories, Inc. 2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493			mple ceipt	
Burlington Resources, Inc. MISC GW SAMPLING	ACZ Proje Date Rec Receiv		3/	L44968 17/2004 coryd
Receipt Verification				
		YES	NO	NA
1) Does this project require special handling procedures such as CLP protocol?				Ö
2) Are the custody seals on the cooler intact?		Ö		
3) Are the custody seals on the sample containers intact?				Ö
4) Is there a Chain of Custody or other directive shipping papers present?		Ö		
5) Is the Chain of Custody complete?		Ö		
6) Is the Chain of Custody in agreement with the samples received?		Ö		
7) Is there enough sample for all requested analyses?		Ö		
8) Are all samples within holding times for requested analyses?		Ö		
9) Were all sample containers received intact?		Ö	-	
10) Are the temperature blanks present?		Ö	-	
11) Are the trip blanks (VOA and/or Cyanide) present?		Ö		
12) Are samples requiring no headspace, headspace free?		Ö		
13) Do the samples that require a Foreign Soils Permit have one?				Ö

Exceptions: If you answered no to any of the above questions, please describe

N/A

Contact (For any discrepancies, the client must be contacted)

N/A

Shipping Containers

Cooler Id	Temp (°C)	Rad (µR/hr)	Client must contact ACZ Project Manager if analysis should not proceed
ACZ	0.4	12	for samples received outside of thermal preservation acceptance criteria.

Burlington Resources, Inc.

MISC GW SAMPLING

Sample Receipt

ACZ Project ID: L44968 Date Received: 3/17/2004 Received By: coryd

Sample Container Preservation

SAMPLE	CLIENT ID	R < 2	G < 2	Y < 2	YG< 2	B < 2	BG< 2	0 < 2	T >12	P >12	N/A	RAD
L44968-01 I	MARCOTE MW-2										Ö	
Sample Co	ontainer Preservation Lege	nd										
Abbreviatio	n Description	Contai	ner Type	Pres	ervative	/Limits						
В	Filtered/Sulfuric	BLUE		pH n	nust be <	2						
BG	Filtered/Sulfuric	BLUE G	BLASS	pH n	nust be <	2						
G	Filtered/Nitric	GREEN	I	pH n	nust be <	2						
0	Raw/Sulfuric	ORANO	θE	pНn	nust be <	2						
Р	Raw/NaOH	PURPL	E	pНп	nust be >	12						
т	Raw/NaOH Zinc Acetate	TAN		pНп	nust be >	12						
Y	Raw/Sulfuric	YELLO	W	pH n	nust be <	2						
YG	Raw/Sulfuric	YELLO	N GLASS	S pH must be < 2								
N/A	No preservative needed	Not app	licable									
RAD	Gamma/Beta dose rate	Not app	licable	must	be < 250) µR/hr						

Project No.:_		Proi	ect Nam	e: Marcote		ent: Burlir	naton		
Location:_					Developm		_		
					•			mo = 1/1/9	Neathar clear 80s
Project Manager <u>MJN</u> Date <u>6/21/04</u> Start Time <u>1448</u> Weather <u>clear 80s</u> Depth to Water <u>30.05</u> Depth to Product <u>na</u> Product Thickness: <u>na</u> Measuring Point <u>TOC</u>									
Water Column Height <u>8.80</u> Well Dia. <u>2"</u>									
water Colum	in Heigh	(<u> 8.80 </u>		Dia.	2				
Sampling Me	ethod: Si	ubmersi	ible Pum		Centrifuga	IPump [Peristal	tic Pump	□ Other □
, 0				. —		. —	-		
	Be	ottom V	alve Bai	ler	Do	ouble Chec	k ValvLBa	iler S	Stainless-Steel Kemrter
Criteria: 3 t	o 5 Casi	ng Volu	mes of V	Water Rem	oval X stat	oilization of	Indicator F	Parameters	s X Other <u>or bail dry</u>
					Water Volu	me in Well			
	ft of wat	er		Gallons			Ounces		Gal/ oz to be removed
8.80) x 0.16			1.44					4.31
			- <u> </u>						
Time	pН	S	SC	Temp	ORP	D.O.	Turbidity	/ Vol Ev	vac. Comments/
(military)	(su)	(umho	os/cm)	(°F)	(millivolts)	(mg/L)	(NTU)	(ga	l) Flow rate
1448	6.59	14	00	68.2				.25	silty
	6.69	13	310	61.8				.5	silty
	6.44	13	390	60.4				.75	i silty
									-
	6.49	12	230	59.3				2.5	i silty
- <u> </u>	6.46	13	890	58.6				3.5	i silty
	6.45	13	310	58.9		-		4.0) silty
	6.45	13	90	58.6				4.2	5 silty
1504	6.49	13	40	58.3				4.5	i silty
1304	0.45	10	40	56.5					
							[
Final:							Ferrous		
Time p	I S	c I	Temp	Eh-ORP	D.O. T	urbidity	Iron	Vol Evac.	. Comments/Flow Rate
		340	58.3					4.5	silty

COMMENTS: well is bailing down	

INSTRUMENTATION: pH Meter X _____ Temperature Meter x DO Monitor _____ Other _____ Conductivity Meter X ______ Water Disposal <u>onsite</u> Sample ID <u>MW-2</u> Sample Time__1510_____ Analysis <u>BTEX</u> MS/MSD_____ BD____ BD_____ BD_Name/Time_____ TB_____

AGZ Lal	boratories, Inc nboat Springs, CO 80487	Org	anic Ar Resu	Sector Sector Sector	ical	
-	s, Inc. SC SAMPLING V-2 MARCOTE	ACZ Sample ID: L46372-02 Date Sampled: 06/21/04 15:10 Date Received: 06/24/04 Sample Matrix: Ground Water				
Benzene, Toluen Analysis Method Extract Method:		Xylene	Analyst: Extract Date: Analysis Date: Dilution Factor:	km 06/29/04 06/29/04 1		
Compound Compound		CAS	Result QUAL)X(0) IU)mikis:	IMIDIL.	12(0)L
Benzene	a foreigned a before an a second and a second and a second and a second a second a second a second a second a s	000071-43-2		* ug/L	0.3	1
Ethylbenzene		000100-41-4	U	ug/L	0.2	1
m p Xylene		01330 20 7	U	ug/L	0.4	2
o Xylene		00095-47- 6	U	ug/L	0.2	1
Toluene		000108-88-3	U	ug/L	0.2	1
Surrogate Recoveries		CAS	% Recovery	X@ Units	IT(C)F	t⊎ t ej⊑

000460-00-4

98.8

Bromofluorobenzene	
--------------------	--

%

83

117

Project No.: <u>30003.0</u>	Project Name:_ <u>Burlington Marcote 1</u>	Client: <u>Burlington Resources</u>
Location:_Marcote Pool Unit 1	Well No: <u>MW-3</u>	Development <u>Sampling</u>
Project ManagerMJN	Date6/21/04Start Time1417	Weather_ <u>_sunny 80s</u>
Depth to Water <u>36.62</u>	Depth to Product <u>na</u> Product Thickness <u>na</u>	_ Measuring PointTOC
Water Column Height2.04	Well Dia2"	

Sampling Method: Submersible Pump Centrifugal Pump
Peristaltic Pump Other

Bottom Valve Bailer x

Double Check Valve Bailer
Stainless-Steel Kemmerer

Criteria: 3 to 5 Casing Volumes of Water Removal X stabilization of Indicator Parameters X Other: or bail dry

	Water Volu		
Gal/ft x ft of water	Gallons	Ounces	Gal/oz to be removed
2.04 x .16	.33		.99

Time (military)	pH (su)	SC (umhos/cm)	Temp (°F)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gal.)	Comments/ Flow rate
1417	6.42	1560	72.4			· · · · · · · · · · · · · · · · · · ·	.14	very silty
<u></u>	6.60	1400	65.4				.31	very silty
	6.59	1380	62.8				.44	very silty
	6.55	1380	62.4			<u> </u>	.58	very silty
	6.53	1390	60.9				.72	very silty
<u>1426</u>	6.57	1350	60.7				1	very silty

Final:								
Time	pН	SC	Temp	Eh-ORP	D.O.	Turbidity	Vol Evac.	Comments/Flow Rate
<u>1426</u>	6.57	1350	60.7					very silty

COMMENTS: There was no water in the well. Probably due to seasonal drop in water level due to lack of local irrigation.

INSTRUMENTATION:	pH Meter X	Temperatu	re Meter x
	DO Monitor	Other	
Condu	uctivity Meter X		
Water Disposal <u>on site</u>	Sample ID_ <u>mw-3</u>	Sample Time1430	
Analysis <u>BTEX</u>			
MS/MSD	BD	BD Name/Time	ТВ

ACZ Laboratories, In 2773 Downhill Drive Steamboat Springs, CO 80487	C. (800) 334-5493	Org	anic Ar Resu		ical
Burlington Resources, Inc.Project ID:MISC SAMPLINGSample ID:MW-3 MARCOTE		ACZ Sample ID: Date Sampled: Date Received: Sample Matrix:	L46372-0 06/21/04 06/24/04 Ground V	14:30	
Benzene, Toluene, Ethylbenzene & Analysis Method: M8021B GC/PID Extract Method: Method	Xylene	Analyst: Extract Date: Analysis Date: Dilution Factor:	km 06/29/04 06/29/04 1		
Compound Compound	CAS	Result GUAL	X(Q) Umite	- Mayi	1:(0)L
Benzene	000071-43-2	U	* ug/L	0.3	1
Ethylbenzene	000100-41-4	U	ug/L	0.2	1
m p Xylene	01330 20 7	U	ug/L	0.4	2
o Xylene	00095-47- 6	U	ug/L	0.2	1
Toluene	000108-88-3	U	ug/L	0.2	1
Surrogate Recoveries Surrogate	CAS		XQ Units	LCL	U(c)L
Bromofluorobenzene	000460-00-4	97.8	%	83	117

AGZ Labo 2773 Downhill Drive Steamboat S Report to:			-5493	4	637	2				HAIN of	
	+2			Addr	ess: (340	E EF	ŧST	SOT	H STREE	FT-
Name: Gregg Wur Company: Burlingta	1										
E-mail:				Telep	hone:	5	05	32	69	499 1700	
Copy of Report to:			_								
Name:				E-ma	il.						
Company:			1		hone:						
Invoice to:			-J								·
				A .1.4.							
Name: SAME			-	Addre	ess;						
Company:		51.1.1.1	$\left\{ \right.$	Talan					·····		
E-mail: If sample(s) received past holdin	a time (HT) or i	if incufficien	_ ↓ HT ron		hone:					YES	
analysis before expiration, shall if "NO" then ACZ will contact clie is indicated, ACZ will proceed wi	ACZ proceed w ont for further ir	ith requestenstruction.	d short f neither	HT ana • "YES"	lyses? ' nor "N	0"	a will be	ə qualif	ied.	NO	_
PROJECT INFORMATION				AN	ALYSES	REQU	ESTED	(attaci	h list or	use quote nu	mber)
Quote #:											
Project/PO #: MISC SA	mpling			srs							
Shipping Co.:	- J]	of Containers				ļ			
Tracking #:]	ont							
Reporting State for compliance	e testing:			of C	I Ã						
				#	した						
SAMPLE IDENTIFICATION	DATE:		Matrix					<u> </u>	<u> </u>	├──	
MW-3 Marcore	6/21/04	1430	Gw		1 +						-
MW-2 marcore	6/21/04	1555	GW	9	Ŧ						
MW-1 FLORA VISTA MW-1 COZZENS	6/21/04	1650	GW	à	+						
MW-2 (OZZENS	6/21/04	1705		3	+				+		
MW-1 Johnson Federal# 4	6/22/04	1247	aw	ð	+			<u> </u>			1
TVIP DIANK	6/22/04	1300	Ø	1 1	1				1		+
	<u> </u>						 		1		1
		· · · · ·		1							
,*											
Matrix SW (Surface Water) · GW	(Ground Water)	WW (Waste W	/ater) DW	/ (Drinkii	ng Water)	· SL (SI	udgə) · S	O (Soil)	· OL (Oil)	· Other (Specify)
REMARKS											
Please provide Severo 1)marcore 3, 2) Klova Vista 4	te repor) cozzeru) Johnso	st for e s w Feder	each al	100	0410	M					
RELINQUISHED BY	:	DATE:TI	ME		REC	EIVED	BY:		D/	TE:TIME	PAG
		012210			X						
		1 and 101	<i>N</i>		Δ_{m}				1.	23-04	Of
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Analytical Report

July 08, 2004

Gregg Wurtz Burlington Resources, Inc. 3401 E. 30th St. PO BOX 4289 Farmington, NM 87402-4289

Project ID: MISC SAMPLING ACZ Project ID: L46372

Gregg Wurtz:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on June 24, 2004. This project has been assigned to ACZ's project number, L46372. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 10.0. The enclosed results relate only to the samples received under L46372. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after August 08, 2004. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than \$10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years. Please notify your Project Manager if you have other needs.

If you have any questions, please contact your Project Manager or Customer Service Representative.

08/Jul/04

Sue Barkey, Project Manager, has reviewed and approved this report in its entirety.





REPAD.01.11.00.01



Organic Reference

Rep	oorti Header	Explanations						
	Batch	A distinct set of samples analyzed at a specific time						
	Found	Value of the QC Type of interest						
	Limit	Upper limit for RPD, in %.						
	Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)						
	LCL	Lower Control Limit						
	MDL	Method Detection Limit. Same as Minimum Reporting L	imit. Allows for	instrument and annual fluctuations.				
	PCN/SCN	A number assigned to reagents/standards to trace to the	e manufacturer's	s certificate of analysis				
	PQL	Practical Quantitation Limit						
	QC	True Value of the Control Sample or the amount added t	o the Spike					
	Rec	Amount of the true value or spike added recovered, in %	o (except for LC	SS, mg/Kg)				
	RPD	Relative Percent Difference, calculation used for Duplica	ate QC Types					
	Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)						
	UCL	Upper Control Limit						
	Sample	Value of the Sample of interest						
(Q)C)	Sample Typ	Jes						
	SURR	Surrogate	LFM	Laboratory Fortified Matrix				
	INTS	Internal Standard	LFMD	Laboratory Fortified Matrix Duplicate				
	DUP	Sample Duplicate	LRB	Laboratory Reagent Blank				
	LCSS	Laboratory Control Sample - Soil	MS/MSD	Matrix Spike/Matrix Spike Duplicate				
	LCSW	Laboratory Control Sample - Water	PBS	Prep Blank - Soil				
I SAN AND AND A	LFB	Laboratory Fortified Blank	PBW	Prep Blank - Water				
(Ø)C){	Sample Typ	be Explanations						
	Blanks	Verifies that there is no or minir	nal contamination	on in the prep method procedure.				
	Control San	nples Verifies the accuracy of the me	thod, including	he prep procedure.				
	Duplicates	Verifies the precision of the inst	rument and/or r	nethod.				
Feiture	Spikes/Forti		ferences, if any	•				
All of the second	Qualifiers							
	В	Analyte detected in daily blank						
	H	Analysis exceeded method hold time.						
	J	Analyte concentration detected at a value between MDL		in the given limite				
	R T	Poor spike recovery accepted because the other spike in		•				
	T U	High Relative Percent Difference (RPD) accepted becau Analyte was analyzed for but not detected at the indicate	•	entrations are less than Tox the MDL.				
	V	High blank data accepted because sample concentration		her than blank concentration				
	W ·		-					
	X	Poor recovery for Silver quality control is accepted becau Quality control sample is out of control.	use Silver Ollen	precipitates with chilonde.				
	Z	Poor spike recovery is accepted because sample concer	atration is four ti	mas greater than spike concentration				
	2 P	Analyte concentration differs from second detector by mo		mes greater than spike concentration.				
	' E	Analyte concentration dimension and second detector by ma		nge				
	∟ M	Analyte concentration is estimated due to result exceeding	-	nge.				
Meth	nod Referen	1005						
	(1)	EPA 600/4-83-020. Methods for Chemical Analysis of W						
	(2)	EPA 600/4-90/020. Methods for the Determination of Or						
	(3)	EPA 600/R-92/129. Methods for the Determination of O	•	0 (), 3				
	(5)	EPA SW-846. Test Methods for Evaluating Solid Waste,						
Hereiteren	(6) Imentis	Standard Methods for the Examination of Water and Was						
	(1)	QC results calculated from raw data. Results may vary s		nded values are used in the calculations.				
((2)	Organic analyses are reported on an "as received" basis	•					

REPIN03.11.00.01

ACZ Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Burlington Resources, Inc.

Organic Extended Qualifier Report

ACZ Project ID: L46372

/A(C/Z B)	WORKNUM	PARAMETER	METHOD	(QU/AL	DESCRIPTION
L46372-01	WG174234	Benzene	M8021B GC/PID	V8	Calibration verification recovery was below the method control limit for this analyte, however the average % difference or % drift for all the analytes met method criteria.
L46372-02	WG174234	Benzene	M8021B GC/PID	V8	Calibration verification recovery was below the method control limit for this analyte, however the average % difference or % drift for all the analytes met method criteria.

ALGZ Laboratories, Inc. 2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493 Burlington Resources, Inc. MISC SAMPLING ACZ Project Date Receit

Sample Receipt

NO

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NA

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Х

Х

ACZ Project ID:	L46372
Date Received:	6/24/2004
Received By:	

YES

Х

Х

X

Х

X X

Х

Х

X

Receipt Verification

- 1) Does this project require special handling procedures such as CLP protocol?
- 2) Are the custody seals on the cooler intact?
- 3) Are the custody seals on the sample containers intact?
- 4) Is there a Chain of Custody or other directive shipping papers present?
- 5) Is the Chain of Custody complete?
- 6) Is the Chain of Custody in agreement with the samples received?
- 7) Is there enough sample for all requested analyses?
- 8) Are all samples within holding times for requested analyses?
- 9) Were all sample containers received intact?
- 10) Are the temperature blanks present?
- 11) Are the trip blanks (VOA and/or Cyanide) present?
- 12) Are samples requiring no headspace, headspace free?
- 13) Do the samples that require a Foreign Soils Permit have one?

Exceptions: If you answered no to any of the above questions, please describe

N/A

Contact (For any discrepancies, the client must be contacted)

N/A

Shipping Containers

Cooler Id	Temp (°C)	Rad (µR/hr)
ACZ	1.6	15

Client must contact ACZ Project Manager if analysis should not proceed for samples received outside of thermal preservation acceptance criteria.

Notes



Burlington Resources, Inc.

MISC SAMPLING

Sample Receipt

ACZ Project ID: L46372 Date Received: 6/24/2004 Received By:

Sample Container Preservation

SAMPLE C	CLIENT ID	R < 2	G < 2	Y < 2	YG< 2	B < 2	BG< 2	0 < 2	T >12	P >12	N/A	RAD
L46372-01	MW-3 MARCOTE										Ö	
L46372-02 N	MW-2 MARCOTE				1						Ö	
Sample Co	intainer Preservation Lege	માલ			1							
Abbreviation	n Description	Contair	ner Type	Pres	ervative	Limits						
R	Raw/Nitric	RED		pH m	iust be <	3						
В	Filtered/Sulfuric	BLUE		pH m	nust be <	2						
BG	Filtered/Sulfuric	BLUE G	LASS	pH m	nust be <	2						
G	Filtered/Nitric	GREEN		pH m	nust be <	2						
0	Raw/Sulfuric	ORANG	θE	pH m	nust be <	2						
Р	Raw/NaOH	PURPLI	E	pH m	iust be >	12						
т	Raw/NaOH Zinc Acetate	TAN		pH m	iust be >	12						
Υ	Raw/Sulfuric	YELLO\	N	pH m	iust be <	2						
YG	Raw/Sulfuric	YELLO	N GLASS	6 pHm	iust be <	2						
N/A	No preservative needed	Not app	licable									
RAD	Gamma/Beta dose rate	Not app	licable	must	be < 250) µR/hr						

,

Project No.: <u>30003.0</u> Location:_Marcote Pool Unit 1	Project Name: <u>Burlington Marcote 1</u> Well No: <u>MW-1</u>	Client: <u>Burlington Resources</u> Development <u>Sampling</u>
Project ManagerMJN	Date9/29/04Start Time0940	Weather <u>60s</u>
Depth to Water 23.20	Depth to Product <u>na</u> Product Thickness <u>na</u>	_ Measuring Point
Water Column Height10.75	Well Dia2"	

Sampling Method: Submersible Pump

Bottom Valve Bailer x Double Check Valve Bailer Stainless-Steel Kemmerer

Criteria: 3 to 5 Casing Volumes of Water Removal X stabilization of Indicator Parameters X Other: or bail dry

	Water Volu	ume in Well	
Gal/ft x ft of water	Gallons	Ounces	Gal/oz to be removed
10.75 x 0.16	1.72		5.17
10.75 x 0.16	1.72		5.17

Time (military)	pH (su)	SC (umhos/cm)	Temp (°F)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gal.)	Comments/ Flow rate
0943	7.04	5070	60.1				.25	clear
	6.86	4810	60.9	· · · · · · · · · · · · · · · · · · ·		.,	.5	clear
	6.87	5150	61.3				.75	gray
	7.07	4880	60.9			. Secondaria di Stati	2	gray, silty
	6.84	4830	61.0				3	gray, silty
	6.86	4790	61.0	· · · · · · · · · · · · · · · · · · ·			4.5	gray, silty
	6.89	4810	61.2				4.75	gray, silty
	6.88	4820	61.2		-	<u></u>	5	gray, silty
<u>1000</u>	6.91	4810	61.3				5.25	gray, silty

Final:					-			
Time	рН	SC	Temp	Eh-ORP	D.O.	Turbidity	Vol Evac.	Comments/Flow Rate
<u>1000</u>	6.91	4810	61.3				5.25	gray, silty

COMMENTS:		
INSTRUMENTATION:	pH Meter X	Temperature Meter x
	DO Monitor	Other
Cond	uctivity Meter X	
Water Disposal <u>na</u>	Sample ID <u>na</u>	Sample Time1005
BTEX VOCs Alkalinit	y TDS Cations	Anions Nitrate Nitrite Ammonia TKN NMWQCC Metals Total Phosphorus
MS/MSD	BD	BD Name/Time TB_tb092104-03_

A	C	\mathbb{Z}	Laboratories,	Inc.
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ANTER GE

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

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Organic Analytical Results

Burlington Res Project ID: Sample ID: Locator:	sources, Inc. MW-1 MARCOTE	ACZ Sample ID: Date Sampled: Date Received: Sample Matrix:	09/29/04 10:05 10/01/04
Benzene, To	oluene, Ethylbenzene & Xylene	Analyst:	km

Analysis Method: Extract Method:	M8021B GC/PID Method		Extrac	s Date: Factor:	10/06/04 10/06/04 1		
Compound Compound		CAS	Rosult	(010/A1L	x(e) Whiles	MDL	1240)L
Benzene		000071-43-2		U	ug/L	0.3	1
Ethylbenzene		000100-41-4	38		* ug/L	0.2	1
m p Xylene		01330 20 7	36.9		* ug/L	0.4	2
o Xylene		00095-47- 6	1	J	ug/L	0.2	1
Toluene		000108-88-3		U	ug/L	0.2	1
Surrogate Recoveries		CAS	% Recovery		x(a) Unitis	LGL	U(C)L
Bromofluorobenzene		000460-00-4	110.4		%	83	117

AGZ Laboratories, Inc. 2773 Downhill Drive Steamboat Springs, CO 80487(800) 334-5493

Burlington Resources, Inc.

Project ID:

Sample ID: **MW-1 MARCOTE**

Inorganic Analytical Results

ACZ Sample ID:	L48066-01
Date Sampled:	09/29/04 10:05
Date Received:	10/01/04
Sample Matrix:	Ground Water

Metals Analysis								
Parameter	EPA Method	Result	Qual XQ	Units	MDL	POL	Date	Analyst
Arsenic, dissolved	M200.8 ICP-MS		U	mg/L	0.001	0.005	10/24/04 0:09	sp
Barium, dissolved	M200.7 ICP	0.017	В	mg/L	0.006	0.02	10/18/04 14:28	wfg
Cadmium, dissolved	M200.8 ICP-MS	0.0009	В	mg/L	0.0002	0.001	10/24/04 0:09	sp
Calcium, dissolved	M200.7 ICP	286	*	mg/L	0.4	2	10/18/04 14:28	wfg
Chromium, dissolved	M200.8 ICP-MS	0.0003	В	mg/L	0.0002	0.001	10/24/04 0:09	sp
Copper, dissolved	M200.8 ICP-MS	0.001	В	mg/L	0.001	0.005	10/24/04 0:09	sp
Iron, dissolved	M200.7 ICP	0.19		mg/L	0.02	0.1	10/18/04 14:28	wfg
Magnesium, dissolved	M200.7 ICP	39.9		mg/L	0.4	2	10/18/04 14:28	wfg
Manganese, dissolved	M200.7 ICP	0.65		mg/L	0.01	0.05	10/18/04 14:28	wfg
Potassium, dissolved	M200.7 ICP	2.5		mg/L	0.6	2	10/18/04 14:28	wfg
Sodium, dissolved	M200.7 ICP	727		mg/L	0.6	2	10/18/04 14:28	wfg
Zinc, dissolved	M200.7 ICP		U	mg/L	0.02	0.1	10/18/04 14:28	wfg
Wet Chemistry								
Parameter	EPA Method	Result	Qual XQ	Units	MDL	POL	Date	Analiyst
Alkalinity as CaCO3	SM2320B - Titration							
Bicarbonate as		318		mg/L	2	10	10/11/04 0:00	mah
CaCO3								
Carbonate as CaCO3	3		U	mg/L	2	10	10/11/04 0:00	mah
Hydroxide as CaCO3	3		U	mg/L	2	10	10/11/04 0:00	mah
Total Alkalinity		318		mg/L	2	10	10/11/04 0:00	mah
Cation-Anion Balance	Calculation							
Cation-Anion Balance	•	-3.4		%			10/25/04 0:00	calc
Sum of Anions		53.2		meq/L	0.1	0.5	10/25/04 0:00	calc
Sum of Cations		49.7		meq/L	0.1	0.5	10/25/04 0:00	calc
Chloride	M325.2 - Colorimetric	99		mg/L	1	5	10/16/04 19:36	ksj
Conductivity @25C	M120.1 - Meter	4030		umhos/cm	1	10	10/11/04 20:16	mah
Lab Filtration	SM 3030 B						10/11/04 11:20	ktd
Lab Filtration & Acidification	SM 3030 B						10/06/04 14:56	ak
pH (lab)	M150.1 - Electrometric	7.1	Н	units	0.1	0.1	10/11/04 20:16	mah
Sulfate	M375.3 - Gravimetric	2100		mg/L	10	50	10/14/04 9:26	nlm

REPIN.01.11.00.01



Inorganic Reference

Report Header Explanations Batch A distinct set of samples analyzed at a specific time Found Value of the QC Type of interest Limit Upper limit for RPD, in %. Lower Lower Recovery Limit, in % (except for LCSS, mg/Kg) MDL. Method Detection Limit. Same as Minimum Reporting Limit. Allows for instrument and annual fluctuations. PCN/SCN A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis PQL Practical Quantitation Limit, typically 5 times the MDL. 00 True Value of the Control Sample or the amount added to the Spike Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg) Rec RPD Relative Percent Difference, calculation used for Duplicate QC Types Upper Recovery Limit, in % (except for LCSS, mg/Kg) Upper Value of the Sample of interest Sample

QC Sample T	ypes		
AS	Analytical Spike (Post Digestion)	LCSWD	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	LFB	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	LFM	Laboratory Fortified Matrix
CCV	Continuing Calivation Verification standard	LFMD	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	LRB	Laboratory Reagent Blank
ICB	Initial Calibration Blank	MS	Matrix Spike
ICV	Initial Calibration Verification standard	MSD	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	PBS	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	PBW	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	PQV	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	SDL	Serial Dilution

QC Sample Type Explanations Blanks Verifies that there is no or minimal contamination in the prep method or calibration procedure. Control Samples Verifies the accuracy of the method, including the prep procedure. Duplicates Verifies the precision of the instrument and/or method. Spikes/Fortified Matrix Determines sample matrix interferences, if any.

Verifies the validity of the calibration. ACZ Qualifiers (Qual) В Analyte concentration detected at a value between MDL and PQL. Н Analysis exceeded method hold time. pH is a field test with an immediate hold time. R Poor spike recovery accepted because the other spike in the set fell within the given limits. High Relative Percent Difference (RPD) accepted because sample concentrations are less than 10x the MDL. Т U Analyte was analyzed for but not detected at the indicated MDL v High blank data accepted because sample concentration is 10 times higher than blank concentration Poor recovery for Silver quality control is accepted because Silver often precipitates with Chloride. W Х Quality control sample is out of control. 7 Poor spike recovery is accepted because sample concentration is four times greater than spike concentration. Mathod References (1) EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983. (2) EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993. (3) EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994. (5) EPA SW-846. Test Methods for Evaluating Solid Waste, Third Edition with Update III, December 1996. (6) Standard Methods for the Examination of Water and Wastewater, 19th edition, 1995. QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations. (1) (2) Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.

(3) Animal matrices for Inorganic analyses are reported on an "as received" basis.

Standard



2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Burlington Resources, Inc.

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Inorganic Extended Qualifier Report

ACZ Project ID: L48066

ACZ ID	WORKNUM	PARAMETER	METHOD	(QU/AL	DESCRIPTION
L48066-01	WG179980	Calcium, dissolved	M200.7 ICP		The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable.

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Organic Analytical Results

Analyst: km

Burlington Reso	mple ID: MW-2 MARCOTE	ACZ Sample ID:	L48066-02		
Project ID:	DetermineDate Sampled:09/29/04ple ID:MW-2 MARCOTEDate Received:10/01/04	09/29/04 9:30			
Sample ID:	MW-2 MARCOTE	Date Received:	10/01/04		
Locator:		Sample Matrix:	Ground Water		

Benzene, Toluene, Ethylbenzene & Xylene

Analysis Method: Extract Method:	M8021B GC/PID Method		Analysi	ct Date: s Date: Factor:	10/06/04 10/06/04 1		
Compound Compound		CAS	Result	(OIUAL)	(0) Units	MIDIL	(2(0)L
Benzene		000071-43-2		υ	ug/L	0.3	1
Ethylbenzene		000100-41-4	0.3	J	* ug/L	0.2	1
m p Xylene		01330 20 7	0.7	J	* ug/L	0.4	2
o Xylene		00095-47- 6	0.2	J	ug/L	0.2	1
Toluene		000108-88-3	0.3	J	ug/L	0.2	1
Surrogate Recoveries		GAS	% Recovery		Xe Unite	LCIL	[B(0]]
Bromofluorobenzene		000460-00-4	94.6		%	83	117

Project No.: <u>30003.0</u> Location:_Marcote Pool Unit 1 Project Manager MJN	Project Name: <u>Burlington Marcote 1</u> Well No: <u>MW-3</u> Date 9/29/04 Start Time 1020	Client: <u>Burlington Resources</u> Development <u>Sampling</u> Weather 60s		
Depth to Water 28.72	Depth to Product <u>na</u> Product Thickness <u>na</u> Well Dia. <u>2"</u>	_ Measuring Point		

Sampling Method: Submersible Pump

Bottom Valve Bailer x Double Check Valve Bailer 🗆 Stainless-Steel Kemmerer 🗆

Criteria: 3 to 5 Casing Volumes of Water Removal X stabilization of Indicator Parameters X Other: or bail dry

	Water Volu		
Gal/ft x ft of water	Gallons	Ounces	Gal/oz to be removed
9.94 x .16	1.59		4.77

Time (military)	pH (su)	SC (umhos/cm)	Temp (°F)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gal.)	Comments/ Flow rate
1030	7.42	3480	57.2				.5	brown
	7.31	3380	57.5				1	brown
	7.28	3520	57.4				1.5	brown
	7.27	3240	57.4				3	brown
	7.24	3210	57.3				4	brown
	7.27	3460	57.3			<u></u>	4.5	brown
<u>1044</u>	7.30	3420	57.4				5	brown

Final: Time	pН	sc	Temp	Eh-ORP	D.O.	Turbidity	Vol Evac.	Comments/Flow Rate
<u>1044</u>	7.30	3420	57.4				5	brown

COMMENTS: There was no water in the well. Probably due to seasonal drop in water level due to lack of local irrigation.

INSTRUMENTATION: pH Meter	X Ter	nperature Meter x
DO Moni	itorOth	ner
Conductivity Meter	r X	
Water Disposal <u>on site</u> Sample	ID_mw-3 Sample Time	1045
Analysis <u>BTEX</u>		
MS/MSDBD	BD Name/Time	ТВ

AGZ	Laboratories, I	nc.
2773 Downhill Drive	Steamboat Springs, CO 8048	7 (800) 334-5493

Organic Analytical Results

Burlington Re	sources, Inc.	ACZ Sample ID:	L48066-03
Project ID:		Date Sampled:	09/29/04 10:45
Sample ID:	MW-3 MARCOTE	Date Received:	10/01/04
Locator:		Sample Matrix:	Ground Water

Benzene, Toluene, Ethylbenzene & Xylene

Analysis Method: Extract Method:	M8021B GC/PID Method	хуленея	Analyst: Extract Date: Analysis Date: Dilution Factor:	10/06/04 10/06/04		
Compound Compound		CAS	Result QUAL	X@_Units	IM(0)L	15(0)F
Benzene		000071-43-2	U	ug/L	0.3	1
Ethylbenzene		000100-41-4	U	* ug/L	0.2	1
m p Xylene		01330 20 7	U	* ug/L	0.4	2
o Xylene		00095-47- 6	U	ug/L	0.2	1
Toluene		000108-88-3	U	ug/L	0.2	1
Surrogate Recoveries						
Surrogate		CAS	% Recovery	X@Units	ILCL.	-U.C.L
Bromofluorobenzene		000460-00-4	90.4	%	83	117

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Organic Analytical Results

Analyst: km

Burlington Res	sources, Inc.	ACZ Sample ID:	L48066-07
Project ID:		Date Sampled:	09/29/04 0:00
Sample ID:	TB092104-03	Date Received:	10/01/04
Locator:		Sample Matrix:	Ground Water

Benzene, Toluene, Ethylbenzene & Xylene

Analysis Method: Extract Method:	M8021B GC/PID Method		Extract Date: Analysis Date: Dilution Factor:	10	0/06/04 0/06/04		,
Compound Compound		CAS	Result QUAL	240	Mater	1(010)	POL
a componina.		(O _m (a)	AVA-INI (CO7-1)	artes	(011102-)	MIPHE.	10.01
Benzene		000071-43-2	U		ug/L	0.3	1
Ethylbenzene		000100-41-4	U	*	ug/L	0.2	1
m p Xylene		01330 20 7	U	*	ug/L	0.4	2
o Xylene		00095-47- 6	U		ug/L	0.2	1
Toluene		000108-88-3	U		ug/L	0.2	1
Surrogate Recoveries							
Sunrogate		CAS	% Recovery	-)X(0)	Unites	IL(C)L	U(C)L
Bromofluorobenzene		000460-00-4	90.5		%	83	117



Report Header Explanations	
Batch A distinct set of samples analyzed at a specific time	
Found Value of the QC Type of interest	
Limit Upper limit for RPD, in %.	
Lower Recovery Limit, in % (except for LCSS, mg/Kg)	
LCL Lower Control Limit	
MDL Method Detection Limit. Same as Minimum Reporting Limit. Allows for instrument and annual fluctuations.	
PCN/SCN A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis	
PQL Practical Quantitation Limit	
QC True Value of the Control Sample or the amount added to the Spike	
Rec Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)	
RPD Relative Percent Difference, calculation used for Duplicate QC Types	
Upper Upper Recovery Limit, in % (except for LCSS, mg/Kg)	
UCL Upper Control Limit	
Sample Value of the Sample of interest	
QC Sample Types	
SURR Surrogate LFM Laboratory Fortified Matrix	
INTS Internal Standard LFMD Laboratory Fortified Matrix Duplicate	
DUP Sample Duplicate LRB Laboratory Reagent Blank	
LCSS Laboratory Control Sample - Soil MS/MSD Matrix Spike/Matrix Spike Duplicate	
LCSW Laboratory Control Sample - Water PBS Prep Blank - Soil	
LFB Laboratory Fortified Blank PBW Prep Blank - Water	
QC Sample Type Explanations	
Blanks Verifies that there is no or minimal contamination in the prep method procedure.	
Control Samples Verifies the accuracy of the method, including the prep procedure.	
Duplicates Verifies the precision of the instrument and/or method.	
Spikes/Fortified Matrix Determines sample matrix interferences, if any.	
ACZ Qualifiers (Qual)	
B Analyte detected in daily blank	
H Analysis exceeded method hold time.	
J Analyte concentration detected at a value between MDL and PQL	
R Poor spike recovery accepted because the other spike in the set fell within the given limits.	
T High Relative Percent Difference (RPD) accepted because sample concentrations are less than 10x the MDL.	
U Analyte was analyzed for but not detected at the indicated MDL	
V High blank data accepted because sample concentration is 10 times higher than blank concentration	
W Poor recovery for Silver quality control is accepted because Silver often precipitates with Chloride.	
X Quality control sample is out of control.	
Z Poor spike recovery is accepted because sample concentration is four times greater than spike concentration.	
P Analyte concentration differs from second detector by more than 40%.	
E Analyte concentration is estimated due to result exceeding calibration range.	
E Analyte concentration is estimated due to result exceeding calibration range. M Analyte concentration is estimated due to matrix interferences. Method References (1) EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.	
E Analyte concentration is estimated due to result exceeding calibration range. M Analyte concentration is estimated due to matrix interferences. Method References (1) (1) EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983. (2) EPA 600/4-90/020. Methods for the Determination of Organic Compounds in Drinking Water (I), July 1990.	
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REPIN03.11.00.01

ACZ Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Burlington Resources, Inc.

Organic Extended Qualifier Report

ACZ Project ID: L48066

A(C)Z []D	WORKNUM	PARAMETER	METHOD	(QU/AL,	DESCRIPTION
L48066-01	WG179312	Ethylbenzene	M8021B GC/PID	N1	See Case Narrative.
		m p Xylene	M8021B GC/PID	N1	See Case Narrative.
L48066-02	WG179312	Ethylbenzene	M8021B GC/PID	N1	See Case Narrative.
		m p Xylene	M8021B GC/PID	N1	See Case Narrative.
L48066-03	WG179312	Ethylbenzene	M8021B GC/PID	N1	See Case Narrative.
		m p Xylene	M8021B GC/PID	N1	See Case Narrative.
L48066-04	WG179312	Ethylbenzene	M8021B GC/PID	N1	See Case Narrative.
		m p Xylene	M8021B GC/PID	N1	See Case Narrative.
L48066-05	WG179312	Ethylbenzene	M8021B GC/PID	N1	See Case Narrative.
		m p Xylene	M8021B GC/PID	N1	See Case Narrative.
L48066-06	WG179312	Ethylbenzene	M8021B GC/PID	N1	See Case Narrative.
		m p Xylene	M8021B GC/PID	N1	See Case Narrative.
L48066-07	WG179312	Ethylbenzene	M8021B GC/PID	N1	See Case Narrative.
		m p Xylene	M8021B GC/PID	N1	See Case Narrative.

AGZ Laboratories, Inc. 2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Burlington Resources. Inc.

Burlington Resources, Inc.	ACZ Projec Date Recei Received	ved:	1(L48066 D/1/2004
Receipt Verification				
		YES	NO	NA
1) Does this project require special handling procedures such as CLP protocol?	[X
2) Are the custody seals on the cooler intact?		Х		
3) Are the custody seals on the sample containers intact?				X
4) Is there a Chain of Custody or other directive shipping papers present?		Х		
5) Is the Chain of Custody complete?		Х		
6) Is the Chain of Custody in agreement with the samples received?		Х		
7) Is there enough sample for all requested analyses?		Х		
8) Are all samples within holding times for requested analyses?		Х		
9) Were all sample containers received intact?		Х		
10) Are the temperature blanks present?		X		
11) Are the trip blanks (VOA and/or Cyanide) present?		Х		
12) Are samples requiring no headspace, headspace free?		Х		
13) Do the samples that require a Foreign Soils Permit have one?				X

Exceptions: If you answered no to any of the above questions, please describe

N/A

Contact (For any discrepancies, the client must be contacted)

N/A

Shipping Containers

Cooler Id		Temp (°C)	Rad (µR/hr)
ACZ		5.2	14
	<u> </u>		
			I <u></u>

Client must contact ACZ Project Manager if analysis should not proceed for samples received outside of thermal preservation acceptance criteria.

Notes



Burlington Resources, Inc.

Sample Receipt

ACZ Project ID: Date Received: Received By: L48066 10/1/2004

Sample Container Preservation

Gamma/Beta dose rate

I					· · · · · · · · · · · · · · · · · · ·			r		· · · · ·		· · · ·
	CLIENT ID	R < 2	G < 2	Y < 2	YG<2	B < 2	BG< 2	0 < 2	T >12	P >12	N/A	RAD
L48066-01	MW-1 MARCOTE										Ö	
L48066-02	MW-2 MARCOTE										Ö	
L48066-03	MW-3 MARCOTE										Ö	
L48066-04	MW-1 COZZENS										Ö	
L48066-05	MW-2 COZZENS										Ö	
L48066-06	MW-1 FLORA VISTA										Ö	
L48066-07	TB092104-03										Ö	
Sample Co	ontainer Preservation Lege	nd										
Abbreviatio	n Description	Contair	ner Type	Pres	ervative	/Limits	eventoriale and and outperformed					*****
R	Raw/Nitric	RED		pH n	nust be <	2						
R B	Raw/Nitric Filtered/Sulfuric	RED BLUE		•	nust be < nust be <							
			LASS	pH m		2						
В	Filtered/Sulfuric	BLUE		pН m pН m	nust be <	2 2						
B BG	Filtered/Sulfuric Filtered/Sulfuric	BLUE BLUE G		pHm pHm pHm	nust be < nust be <	2 2 2						
B BG G	Filtered/Sulfuric Filtered/Sulfuric Filtered/Nitric	BLUE BLUE G GREEN	θE	, pHm pHm pHm pHm	nust be < nust be < nust be <	2 2 2 2						
B BG G O	Filtered/Sulfuric Filtered/Sulfuric Filtered/Nitric Raw/Sulfuric	BLUE BLUE G GREEN ORANG	θE	рНт рНт рНт рНт рНт	าust be < าust be < าust be < าust be <	2 2 2 2 12						
B BG G O	Filtered/Sulfuric Filtered/Sulfuric Filtered/Nitric Raw/Sulfuric Raw/NaOH	BLUE BLUE G GREEN ORANG PURPLI)E E	pHm pHm pHm pHm pHm pHm	nust be < nust be < nust be < nust be < nust be >	2 2 2 2 12 12						
B BG G O P T	Filtered/Sulfuric Filtered/Sulfuric Filtered/Nitric Raw/Sulfuric Raw/NaOH Raw/NaOH Zinc Acetate	BLUE BLUE G GREEN ORANG PURPLI TAN YELLOV)E E	pH m pH m pH m pH m pH m pH m	nust be < nust be < nust be < nust be < nust be > nust be >	2 2 2 12 12 2						

Not applicable

must be < 250 µR/hr

RAD

Project No.: <u>30003.0</u> Location: <u>Marcot</u> e Pool Unit 1	Project Name: <u>Burlington Marcote 1</u> Well No: MW-1	Client: <u>Burlington Resources</u> Development <u>Sampling</u>
Project Manager MJN	Date 12/13/04 Start Time 0930	Weather <u>clear 30s</u>
Depth to Water <u>23.67</u> Water Column Height <u>10.28</u>	Depth to Product <u>na</u> Product Thickness <u>na</u> Well Dia. <u>2"</u>	_ Measuring Point <u>TOC</u>

Sampling Method: Submersible Pump Centrifugal Pump Peristaltic Pump Other

Bottom Valve Bailer x Double Check Valve Bailer Stainless-Steel Kemmerer

Criteria: 3 to 5 Casing Volumes of Water Removal X stabilization of Indicator Parameters X Other: or bail dry

Ounces	Gal/oz to be removed
	4.934
	Ounces

Time (military)	pH (su)	SC (umhos/cm)	Temp (°F)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gal.)	Comments/ Flow rate
0932	6.98	4940	53.7				.25	Clear
	6.82	6840	57.2				.50	Grey
	6.95	5190	59.0				1.0	Grey
	6.73	5120	58.7				2.0	Grey
	6.73	5210	58.3				3.0	Grey
	6.68	5010	59.0				4.0	Grey
<u>0946</u>	6.71	5160	58.6				5.0	Grey

Final: Time	pН	SC	Temp	Eh-ORP	D.O.	Turbidity	Vol Evac.	Comments/Flow Rate
<u>0946</u>	6.71	5160	58.6				5.0	Grey

0010451170

D	Meter X O Monitor	Temperature Meter x Other				
Conductivi Water Disposal <u>na</u> Samp BTEX VOCs Alkalinity TDS	ple ID <u>na</u>	Sample Time 0950 Nitrate Nitrite Ammonia TKN NMWQCC Metals Total Phosphorus				
MS/MSD	BD	BD Name/Time TB				

ACZ Laboratories, Inc.	4GZ Lak	oratories,	Inc.
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2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Burlington Resources, Inc.

Project ID: MISC GW SAMPLES Sample ID: MARCOTE MW 1 Locator:

Organic Analytical Results

12/21/04 1:27

12/21/04 1:27

ACZ Sample ID:	L49153-02
Date Sampled:	12/13/04 9:50
Date Received:	12/15/04
Sample Matrix:	Ground Water

Analyst: km

Extract Date:

Dilution Factor: 1

Analysis Date:

Benzene, Toluene, Ethylbenzene & Xylene

Analysis Method: M8021B GC/PID Extract Method: Method

Compound Compound	CAS	Result	(@Jalvaj))) (0)	(U)ai()s	IMIB)L	Proji
Benzene	000071-43-2	0.4	J	*	ug/L	0.3	1
Ethylbenzene	000100-41-4	0.7	J	*	ug/L	0.2	1
m p Xylene	01330 20 7	20.2		*	ug/L	0.4	2
o Xylene	00095-47- 6		U	*	ug/L	0.2	1
Toluene	000108-88-3	0.7	J	*	ug/L	0.2	1
Surrogate Recoveries							
Surrogate	CAS	% Recovery		X(0)	Unites	LCL,	UCL
Bromofluorobenzene	000460-00-4	105.4		*	%	83	117

Project No.:Project	Name: <u>Marcote</u>	Client: Burlingto	<u>n</u>		
Location:Well No:MV	V-2 Develop	oment <u>Samplin</u>	g		
Project Manager <u>MJN</u>	Date	12/13/04	Start Time	0855	Weather <u>clear 30s</u>
Depth to Water 29.88	Depth to Product <u>na</u>	Product Thickne	ess: <u>na</u>	Measur	ing Point <u>TOC</u>
Water Column Height 8.97	Well Dia2"	-			

Sampling Method: Submersible Pump 🛛 Centrifugal Pump 🗇 Peristaltic Pump 🗍 Other 📋

Bottom Valve Bailer

Double Check Valv Bailer Stainless-Steel Kemr Brer

Criteria: 3 to 5 Casing Volumes of Water Removal X stabilization of Indicator Parameters X Other_or bail dry

	Water Volu		
Gal/ft x ft of water	Gallons	Ounces	Gal/oz to be removed
8.97 x 0.16	1.435 x 3	· · · ·	4.306

Time (military)	pH (su)	SC (umhos/cm)	Temp (°F)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gal)	Comments/ Flow rate
0904	7.10	3430	54.4				.25	Silty/brown
	7.07	3350	55.2				.50	
	7.02	3380	55.1				.75	
	7.00	3360	54.4				2.0	
	7.12	3410	55.0				3.0	
<u></u>	7.12	3380	55.1	······			4.0	
0922	7.14	3360	55.1				5.0	
	· · · · · · · · · · · · · · · · · · ·							

Final: Time	рН	SC	Temp	Eh-ORP	D.O.	Turbidity	Ferrous Iron	Vol Evac.	Comments/Flow Rate
<u>0922</u>	7.14	3360	55.1					5.0	

COMMENTS: well is bailing down

INSTRUMENTATION:	pH Meter	X Temperature Meter x	
	DO Monito	or Other	
Cond	uctivity Meter	X	
Water Disposal onsite		Sample ID MW-2 Sample Time <u>0925</u>	
<u>BTEX</u> VOCs			
MS/MSD	BD	BD Name/Time TB_	
	·		

AGZ	Laboratories, Inc	с.
2773 Downhill Drive	Steamboat Springs, CO 80487	(800) 334-5493

Burlington Resources, Inc.

Project ID:MISC GW SAMPLESSample ID:MARCOTE MW 2Locator:

Organic Analytical Results

ACZ Sample ID:	L49153-01
Date Sampled:	12/13/04 9:25
Date Received:	12/15/04
Sample Matrix:	Ground Water

Analyst: *km* Extract Date: 12/21/04 1:37 Analysis Date: 12/21/04 1:37

Dilution Factor: 1

Benzene, Toluene, Ethylbenzene & Xylene

Analysis Method:	M8021B GC/PID
Extract Method:	Method

Compound Compound	CAS	Result	(QUJAL)	(e) Units	WDT.	POL
Benzene	000071-43-2	0.3	J	ug/L	0.3	1
Ethylbenzene	000100-41-4	0.3	J	ug/L	0.2	1
m p Xylene	01330 20 7	8.6		ug/L	0.4	2
o Xylene	00095-47- 6	2.6		ug/L	0.2	1
Toluene	000108-88-3	1.3		ug/L	0.2	1
Surrogate Recoveries Surrogate	CAS	% Recovery	λ.	(o) Unites	L(CIL	U(c)
Bromofluorobenzene	000460-00-4	99.2		%	83	117

Project No.: <u>30003.0</u>	Project Name: <u>Burlington Marcote 1</u>	Client: <u>Burlington Resources</u>
Location:_Marcote Pool Unit 1	Well No: <u>MW-3</u>	Development <u>Sampling</u>
Project Manager <u>MJN</u>	Date <u>12/13/04</u> Start Time <u>0955</u>	Weather clear 30s
Depth to Water <u>32.35</u> Water Column Height <u>6.31</u>	Depth to Product <u>na</u> Product Thickness <u>na</u> Well Dia. <u>2"</u>	_Measuring PointTOC

Sampling Method: Submersible Pump 🗌 Centrifugal Pump 🔲 Peristaltic Pump 🔲 Other 🔲

Bottom Valve Bailer x Double Check Valve Bailer 🗆 Stainless-Steel Kemmerer 🗆

Criteria: 3 to 5 Casing Volumes of Water Removal X stabilization of Indicator Parameters X Other: or bail dry

	Water Volu		
Gal/ft x ft of water	Gallons	Ounces	Gal/oz to be removed
6.31 x .16	1.01 x 3		3.03

Time (military)	pH (su)	SC (umhos/cm)	Temp (°F)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gal.)	Comments/ Flow rate
0957	7.11	3810	56.7				.25	Clear
· · · · · · · · · · · · · · · · · · ·	7.15	3480	56.6				.50	Brown
<u> </u>	7.16	3650	56.9			,,,	.75	Brown
	7.16	3773	56.7				2.0	Brown
1007	7.14	3610	56.9				3.0	Brown
								í.

Final:								
Time	pН	SC	Temp	Eh-ORP	D.O.	Turbidity	Vol Evac.	Comments/Flow Rate
1007	7.14	3610	56.9				3.0	Brown

COMMENTS: There was no water in the well. Probably due to seasonal drop in water level due to lack of local irrigation.

INSTRUMENTATION: pH Meter X	Temperature Meter x
DO Monitor	Other
Conductivity Meter X	
Water Disposal <u>on site</u> Sample ID_mw-3	Sample Time <u>1010</u>
Analysis <u>BTEX</u>	
MS/MSDBD	BD Name/Time TB

AGZ Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Burlington Resources, Inc.

Compound

Project ID: MISC GW SAMPLES Sample ID: MARCOTE MW 3 Locator:

Benzene, Toluene, Ethylbenzene & Xylene

Analysis Method: M8021B GC/PID Extract Method: Method

1-1-1	() ()	· / \	11 711 11
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	VALUE	<u>"AANN!</u>	lytical
and the second			
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		esult	
	100	CARLEN X . A . A . A . A . A . A . A . A . A .	

ACZ Sample ID:	L49153-03
Date Sampled:	12/13/04 10:10
Date Received:	12/15/04
Sample Matrix:	Ground Water

Analyst: km Extract Date: Analysis Date: 12/21/04 10:26 Dilution Factor: 1

12/21/04 10:26

Compound	CAS	Resulti	⊂(QIUIA)L ⇒	a) Uhiles	IM ID (L	P(Q)L
Benzene	000071-43-2		U	ug/L	0.3	1
Ethylbenzene	000100-41-4		U	ug/L	0.2	1
m p Xylene	01330 20 7	1.2	J	ug/L	0.4	2
o Xylene	00095-47- 6	0.4	J	ug/L	0.2	1
Toluene	000108-88-3	0.3	J	ug/L	0.2	1
Surrogate Recoveries						
Surroyate	icas	% Recovery	*	(Q) Unite	LICL	lu(e)L
Bromofluorobenzene	000460-00-4	98.6		%	83	117

ACZ Labo	ratories, Inc.									N of ODY		
2773 Downhill Drive Steamboat Sp Report to:	orings, CO_80487_(800) 334	-5493							501			
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if sample(s) received past holding	u time (HT), or if insufficier	J nt HT ren			lete				YES	T	7	
analysis before expiration, shall	ACZ proceed with requeste	ed short	HT ana	lyses?					NO]	
If "NO" then ACZ will contact clie is indicated, ACZ will proceed wi						ta will k		ified	يئت در ا	·		
PROJECT INFORMATION	m me requested analyses,	37011 II I							r use qu	uote nui	nber)	
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Project/PO #: MISC- GND	und unter Samoi]	of Containers		[[
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marcore MWI	121304 0950	GW	2	<u> </u>			_		-			
marcore mw 3	12/304 1010	GW	2			<u></u>	╁───			<u> </u>		•
COZZENS MWJ COZZENS MWJ	121304 1540		2			+			┼──			
FloraVISTAMWI			5	1 V		+	╂───	+	┼──	+		
TB 12-0904-01			1	1		<u> </u>	1		+			
				1		<u> </u>	1		1	1		
	(Ground Water) · WW (Waste Wa	ater) [:] DW	(Drinkin	g Water)	· SL (Slu	udge) · S	O (Soil)	· OL (Oil)	Other	(Specify)		
REMARKS				-21								
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D Altres (No	5) 12-13-04	2015	<u> </u>	ebeci	n K	ener			╂───			
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	per											
Grega Wrintz	~ *`` -											
RMG12/15/04												

Analytical Report

December 31, 2004

Report to: Gregg Wurtz Burlington Resources, Inc. 3401 E. 30th St. PO BOX 4289 Farmington, NM 87499 Bill to: Gregg Wurtz Burlington Resources, Inc. 3401 E. 30th St. PO BOX 4289 Farmington, NM 87499

Project ID: MISC GW SAMPLES ACZ Project ID: L49153

Gregg Wurtz:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on December 15, 2004. This project has been assigned to ACZ's project number, L49153. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 11.0. The enclosed results relate only to the samples received under L49153. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after January 31, 2005. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than \$10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years. Please notify your Project Manager if you have other needs.

If you have any questions, please contact your Project Manager or Customer Service Representative.

31/Dec/04

Sue Barkey, Project Manager, has reviewed and approved this report in its entirety.





REPAD.01.11.00.01

L49153: Page 1 of 11

Burlington Resources, Inc.

December 31, 2004

Project ID: MISC GW SAMPLES ACZ Project ID: L49153

Sample Receipt

ACZ Laboratories, Inc. (ACZ) received 4 ground water samples from Burlington Resources, Inc. on December 15, 2004. The samples were received in good condition. Upon receipt, the sample custodian removed the samples from the cooler, inspected the contents, and logged the samples into ACZ's computerized Laboratory Information Management System (LIMS). The samples were assigned ACZ LIMS project number L49153. The custodian verified the sample information entered into the computer against the chain of custody (COC) forms and sample bottle labels.

Holding Times

All analyses were performed within EPA recommended holding times.

Sample Analysis

These samples were analyzed for organic parameters. The individual methods are referenced on both, the ACZ invoice an the analytical reports. The following anomalies required further explanation not provided by the Extended Qualifier Report:

1. For sample L49153-02, Toluene was detected in the Prep Blank (PBW) so the toluene value, flagged with a "B1", is considered estimated.

2. For sample L49153-02 flagged with an "N1", Benzene recovered outside of the control charted limits but within the method limits for the LCSW/LCSWD.

ACZ	Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Burlington Resources, Inc.

Compound

Project ID:MISC GW SAMPLESSample ID:TB120904-01Locator:

Organic Analytical Results

ACZ Sample ID:	L49153-07
Date Sampled:	12/13/04 17:30
Date Received:	12/15/04
Sample Matrix:	Ground Water

Benzene, Toluene, Ethylbenzene & Xylene

Analysis Method:	M8021B GC/PID
Extract Method:	Method

Analyst:	km
Extract Date:	12/21
Analysis Date:	12/21
Dilution Factor:	1

km 12/21/04 9:43 12/21/04 9:43 1

Compound	C/A/S	Result	(010/A1L)	(0) Unite	MDI	12(0)L
Benzene	000071-43-2		U	ug/L	0.3	1
Ethylbenzene	000100-41-4		U	ug/L	0.2	1
m p Xylene	01330 20 7		U	ug/L	0.4	2
o Xylene	00095-47- 6	1	U	ug/L	0.2	1
Toluene	000108-88-3		U	ug/L	0.2	1
Surrogate Recoveries						
Surrogate	CAS	% Recovery	X	(e) Umtes	11(¢)1.	UICL
Bromofluorobenzene	000460-00-4	94		%	83	117



HGZ Laboratories, Inc. 2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Report Heade	er Explanations					
Batch	A distinct set of samples analyzed at a specific time					
Found	Found Value of the QC Type of interest					
Limit	Upper limit for RPD, in %.					
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)					
LCL	Lower Control Limit					
MDL	Method Detection Limit. Same as Minimum Reporting Li	mit. Allows for	instrument and annual fluctuations.			
PCN/SCN	A number assigned to reagents/standards to trace to the	manufacturer's	s certificate of analysis			
PQL	Practical Quantitation Limit					
QC	True Value of the Control Sample or the amount added to	o the Spike				
Rec	Amount of the true value or spike added recovered, in %	(except for LC	SS, mg/Kg)			
RPD	Relative Percent Difference, calculation used for Duplicat	e QC Types				
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)					
UCL	Upper Control Limit					
Sample	Value of the Sample of interest					
QC Sample Ty	ypes					
SURR	Surrogate	LFM	Laboratory Fortified Matrix			
INTS	Internal Standard	LFMD	Laboratory Fortified Matrix Duplicate			
DUP	Sample Duplicate	LRB	Laboratory Reagent Blank			
LCSS	Laboratory Control Sample - Soil	MS/MSD	Matrix Spike/Matrix Spike Duplicate			
LCSW	Laboratory Control Sample - Water	PBS	Prep Blank - Soil			
LFB	Laboratory Fortified Blank	PBW	Prep Blank - Water			
QC Sample Ty	ype Explanations					
Blanks	Verifies that there is no or minim	al contaminati	on in the prep method procedure.			
Control Sa	amples Verifies the accuracy of the met	hod, including	the prep procedure.			
Duplicates	s Verifies the precision of the instr	ument and/or i	method.			
Spikes/Fo	ortified Matrix Determines sample matrix interf	erences, if any				
ACZ Qualifier	rs (Qual)					
В	Analyte detected in daily blank					
Н	Analysis exceeded method hold time.					
J	Analyte concentration detected at a value between MDL a	and PQL				
R	Poor spike recovery accepted because the other spike in	the set fell wit	hin the given limits.			
Т	T High Relative Percent Difference (RPD) accepted because sample concentrations are less than 10x the MDL.					
U	U Analyte was analyzed for but not detected at the indicated MDL					
V	High blank data accepted because sample concentration is 10 times higher than blank concentration					
W	Poor recovery for Silver quality control is accepted because Silver often precipitates with Chloride.					
Х	Quality contreol sample is out of control.					
Z	Poor spike recovery is accepted because sample concentration is four times greater than spike concentration.					
Р	P Analyte concentration differs from second detector by more than 40%.					
E	Analyte concentration is estimated due to result exceedin	-	ange.			
M Analyte concentration is estimated due to matrix interferences.						
Method References						
(1)	EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.					
(2)	EPA 600/4-90/020. Methods for the Determination of Organic Compounds in Drinking Water (I), July 1990.					
(3)	EPA 600/R-92/129. Methods for the Determination of Organic Compounds in Drinking Water (II), July 1990.					
(5)	EPA SW-846. Test Methods for Evaluating Solid Waste, Third Edition with Update III, December, 1996.					
Providence and a second s	(6) Standard Methods for the Examination of Water and Wastewater, 19th edition, 1995.					
Comments						
(1)	QC results calculated from raw data. Results may vary s	lightly if the rou	unded values are used in the calculations.			
(2)	Organic analyses are reported on an "as received" basis.					

REPIN03.11.00.01

ACCZ Laboratories, Inc. 2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Burlington Resources, Inc.

Organic Extended Qualifier Report

ACZ Project ID: L49153

ACZ ID	WORKNUM	PARAMETER	METHOD	લ⊎ ∕ના	DESCRIPTION
L49153-02	WG183031	*All Compounds*	M8021B GC/PID	N1	See Case Narrative.
		Benzene	M8021B GC/PID	V8	Calibration verification recovery was below the method control limit for this analyte, however the average % difference or % drift for all the analytes met method criteria.
		Toluene	M8021B GC/PID	B1	Target analyte detected in method blank at or above the method reporting limit. See Case Narrative.

AGZ Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Х

Burlington Resources, Inc.	ACZ Proj	ect ID:	L49153		
AISC GW SAMPLES		ceived: ved By:	12/15/2004 sueb		
Receipt Verification					
		YES	NO	NA	
1) Does this project require special handling procedures such as CLP protocol?				X	
2) Are the custody seals on the cooler intact?		Х			
3) Are the custody seals on the sample containers intact?				Х	
4) Is there a Chain of Custody or other directive shipping papers present?		Х			
5) Is the Chain of Custody complete?			Х		
6) Is the Chain of Custody in agreement with the samples received?		Х			
7) Is there enough sample for all requested analyses?		Х			
8) Are all samples within holding times for requested analyses?		Х			
9) Were all sample containers received intact?		Х			
10) Are the temperature blanks present?				X	
11) Are the trip blanks (VOA and/or Cyanide) present?				Х	
12) Are samples requiring no headspace, headspace free?		X			

13) Do the samples that require a Foreign Soils Permit have one?

Exceptions: If you answered no to any of the above questions, please describe

"Sampled by" not relinquished.

Contact (For any discrepancies, the client must be contacted)

Gregg Wurtz was contacted. Gregg indicated who did the sampling.

Shipping Containers

Cooler Id	Temp (°C)	Rad (µR/hr)
acz	8.5	13
·····	 	

Client must contact ACZ Project Manager if analysis should not proceed for samples received outside of thermal preservation acceptance criteria.

Notes

ACZ Laboratories, Inc. 2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Burlington Resources, Inc. MISC GW SAMPLES

Sample Receipt

ACZ Project ID: Date Received: Received By:

L49153 12/15/2004 sueb

Sample Container Preservation

SAMPLE 0	CLIENT ID	R < 2	G < 2	Y < 2	YG< 2	B < 2	BG< 2	0 < 2	T >12	P >12	N/A	RAD
L49153-01	MARCOTE MW 2										Х	
L49153-02	MARCOTE MW 1										Х	
L49153-03	MARCOTE MW 3										Х	
L49153-07	TB120904-01										X	
Sample Co	intainer Preservation Leg	end										
Abbreviatio	n Description	Contai	ner Type	Pres	ervative	Limits				1999 (1999) - Den and State (1999)		
R	Raw/Nitric	RED		pH n	pH must be < 2							
В	Filtered/Sulfuric	BLUE		pH m	nust be <	2						
BG	Filtered/Sulfuric	BLUE G	LASS	pH n	pH must be < 2							
G	Filtered/Nitric	GREEN		pНп	pH must be < 2							
0	Raw/Sulfuric	ORANG	θE	pH n	nust be <	2						
Р	Raw/NaOH	PURPLI	Ξ	pH n	nust be >	12						
т	Raw/NaOH Zinc Acetate	TAN		pH n	nust be >	12						
Y	Raw/Sulfuric	YELLO	N	pH must be < 2								
YG	Raw/Sulfuric	YELLO	N GLASS	; pH m	nust be <	2						
N/A	No preservative needed	Not app	licable									
RAD	AD Gamma/Beta dose rate Not applicable					must be < 250 μR/hr						

	AGZ Labo			L	43	323				HAIN JSTC	
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ſ	Matrix SW (Surface Water) · GW	(Ground Water) · WW (Waste	Water) · DW	(Drinkin	ig Water) · SL (SI	udge) · S	O (Soli)	OL (OII)	• Other (Specify)
	Matrix SW (Surface Water) · GW REMARKS Ren Burlingte) · SL (SI	udge) · S	O (Soli)) • OL (Oii)	I (Specify
	C RELINQUISHED BY	e naiz langu ala sana ang dara				EIVE) BY:		D/	ATE:TIN	ИE
	114D	10/9/03	ILOD.	Aw		ANT		N		103 10.	
							1 - carta				
	-#15=		1.10-	-0							

PC,

L43323: Page 13 of 13



Analytical Report

October 30, 2003

Gregg Wurtz Burlington Resources, Inc. 3401 E. 30th St. PO BOX 4289 Farmington, NM 87402-4289

Project ID: ACZ Project ID: L43323

Gregg Wurtz:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on October 10, 2003. This project has been assigned to ACZ's project number, L43323. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 10.0. The enclosed results relate only to the samples received under L43323. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

This report shall be used or copied only in it's entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after November 30, 2003. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than \$10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years. Please notify your Project Manager if you have other needs.

If you have any questions, please contact your Project Manager or Customer Service Representative.

Sule Barkey

30/Oct/03

Sue Barkey, Project Manager, has reviewed and approved this report in its entirety.





REPAD.01.11.00.01

L43323: Page 1 of 13

ACZ Laboratories, Inc. 2773 Downhill Drive Steamboat Springs, CO 80487(800) 334-5493

Burlington Resources, Inc.

Project ID:

Sample ID: M P Unit 1 MW-2

Inorganic Analytical Results

ACZ Sample ID:	L43323-01
Date Sampled:	10/08/03 16:30
Date Received:	10/10/03
Sample Matrix:	Ground Water

Metals Analysis								
Farameter	EPA Method	Result	Qual XQ	Units	MDL.	POL	Døte	Analyst
Arsenic, dissolved	M200.8 ICP-MS	0.0036		mg/L	0.0001	0.0005	10/24/03 8:49	jb
Barium, dissolved	M200.7 ICP	0.047		mg/L	0.003	0.01	10/31/03 19:57	wfg
Cadmium, dissolved	M200.8 ICP-MS	0.0001	в	mg/L	0.0001	0.0005	10/24/03 8:49	jb
Calcium, dissolved	M200.7 ICP	266		mg/L	0.2	1	10/29/03 14:52	scp
Chromium, dissolved	M200.8 ICP-MS	0.0008		mg/L	0.0001	0.0005	10/24/03 8:49	jb
Copper, dissolved	M200.8 ICP-MS	0.0021	в	mg/L	0.0005	0.003	10/24/03 8:49	jb
Iron, dissolved	M200.7 ICP	0.98		mg/L	0.01	0.05	10/31/03 19:57	wfg
Magnesium, dissolved	M200.7 ICP	34.9		mg/L	0.2	1	10/29/03 14:52	scp
Manganese, dissolved	M200.7 ICP	2.390	*	mg/L	0.005	0.03	10/31/03 19:57	wfg
Potassium, dissolved	M200.7 ICP	1.6		mg/L	0.3	1	10/31/03 19:57	wfg
Sodium, dissolved	M200.7 ICP	419		mg/L	0.3	1	10/31/03 19:57	wfg
Zinc, dissolved	M200.7 ICP	0.02	в	mg/L	0.01	0.05	10/29/03 14:52	scp
Wet Chemistry								
Parameter	EPA Method	Result	Quel XO	Units	MDL	POL	(0)a((c)	Analysi
Alkalinity as CaCO3	SM2320B - Titration							
Bicarbonate as CaCO3		302		mg/L	2	10	10/22/03 0:00	mah
Carbonate as CaCO3	}		U	mg/L	2	10	10/22/03 0:00	mah
Hydroxide as CaCO3	1		Ū	mg/L	2	10	10/22/03 0:00	mah
Total Alkalinity		302		mg/L	2	10	10/22/03 0:00	mah
Cation-Anion Balance	Calculation			-				
Cation-Anion Balance		-0.7		%			10/30/03 0:00	calc
Sum of Anions		35.4		meq/L	0.1	0.5	10/30/03 0:00	calc
Sum of Cations		34.9		meq/L	0.1	0.5	10/30/03 0:00	calc
Chloride	M325.2 - Colorimetric	45		mg/L	1	5	10/22/03 20:09	kmc
Conductivity @25C	M120.1 - Meter	2230		umhos/cm	1	10	10/22/03 0:10	mah
Lab Filtration	SM 3030 B						10/21/03 10:21	lms
Lab Filtration & Acidification	SM 3030 B						10/14/03 11:24	scp
pH (lab)	M150.1 - Electrometric	7.9	H,	units	0.1	0.1	10/22/03 0:10	mah
Sulfate	M375.3 - Gravimetric	1340		mg/L	50	300	10/28/03 8:22	lms

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* Please refer to Extended Qualifier Report for detail.

ACZZ Laboratories, Inc. 2773 Downhill Drive Steamboat Springs, CO 80487(800) 334-5493

M P Unit 1 MW-3

Burlington Resources, Inc.

Project ID: Sample ID:

Inorganic Analytical Results

ACZ Sample ID:	L43323-02
Date Sampled:	10/08/03 17:00
Date Received:	10/10/03
Sample Matrix:	Ground Water

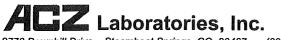
Metals Analysis								
Parameter	EPA Method	Result	Qual XQ	Units	(MDL)	12(0)L	Dette	Analyst
Arsenic, dissolved	M200.8 ICP-MS	0.0012		mg/L	0.0001	0.0005	10/24/03 8:55	jb
Barium, dissolved	M200.7 ICP	0.037		mg/L	0.003	0.01	10/31/03 20:09	wfg
Cadmium, dissolved	M200.8 ICP-MS		U	mg/L	0.0001	0.0005	10/24/03 8:55	jb
Calcium, dissolved	M200.7 ICP	262		mg/L	0.2	1	10/29/03 14:55	scp
Chromium, dissolved	M200.8 ICP-MS	0.0012		mg/L	0.0001	0.0005	10/24/03 8:55	jb
Copper, dissolved	M200.8 ICP-MS	0.0017	в	mg/L	0.0005	0.003	10/24/03 8:55	jb
Iron, dissolved	M200.7 ICP	0.47		mg/L	0.01	0.05	10/31/03 20:09	wfg
Magnesium, dissolved	M200.7 ICP	34.5		mg/L	0.2	1	10/29/03 14:55	scp
Manganese, dissolved	M200.7 ICP	0.063	*	mg/L	0.005	0.03	10/31/03 20:09	wfg
Potassium, dissolved	M200.7 ICP	1.6		mg/L	0.3	1	10/31/03 20:09	wfg
Sodium, dissolved	M200.7 ICP	409		mg/L	0.3	1	10/31/03 20:09	wfg
Zinc, dissolved	M200.7 ICP		U	mg/L	0.01	0.05	10/29/03 14:55	scp
Wet Chemistry								•
Parameter	EPA Method	Result	(Qup) (XQ)	Units	MD)	POL	Date	Amaliyest
Alkalinity as CaCO3	SM2320B - Titration	TATES INT	ALCOID FALL	Canto	JUGAN	1.12.12	-24105	lencoved.
Bicarbonate as		291		mg/L	2	10	10/22/03 0:00	mah
CaCO3					-			
Carbonate as CaCO3	}		U	mg/L	2	10	10/22/03 0:00	mah
Hydroxide as CaCO3	•		υ	mg/L	2	10	10/22/03 0:00	mah
Total Alkalinity		291		mg/L	2	10	10/22/03 0:00	mah
Cation-Anion Balance	Calculation			-				
Cation-Anion Balance	1	-4.2		%			10/30/03 0:00	calc
Sum of Anions		37.0		meq/L	0.1	0.5	10/30/03 0:00	calc
Sum of Cations		34.0		meq/L	0.1	0.5	10/30/03 0:00	calc
Chloride	M325.2 - Colorimetric	48		mg/L	1	5	10/22/03 20:09	kmc
Conductivity @25C	M120.1 - Meter	2340		umhos/cm	1	10	10/22/03 0:26	mah
Lab Filtration	SM 3030 B						10/21/03 10:31	lms
Lab Filtration &	SM 3030 B						10/14/03 11:25	scp
Acidification								
pH (lab)	M150.1 - Electrometric	7.9	Н	units	0.1	0.1	10/22/03 0:26	mah
Sulfate	M375.3 - Gravimetric	1420		mg/L	50	300	10/28/03 8:41	lms



Inorganic Reference

2113 DOWININ	Drive Steamboat Springs, CO 80487 (800) 334-3493								
Proventi Preside	r Explanations								
Charlet London Laboration and Charlet									
Batch Found	A distinct set of samples analyzed at a specific time								
	Value of the QC Type of interest								
Limit	Upper limit for RPD, in %.	-1							
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg) Mathed Datastian Limit, Some as Minimum Reporting Limit, Allows for instrument and ensuel fluctuations								
MDL.	Method Detection Limit. Same as Minimum Reporting Limit. Allows for instrument and annual fluctuations.								
PCN/SCN									
PQL	Practical Quantitation Limit, typically 5 times the MDL.								
QC	True Value of the Control Sample or the amount added to the Spike								
Rec	Amount of the true value or spike added recovered, in	n % (except for L	.CSS, mg/Kg)						
RPD	Relative Percent Difference, calculation used for Dup	licate QC Types							
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg	3)							
Sample	Value of the Sample of interest								
QC Sample Ty	nes								
AS	Analytical Spike (Post Digestion)	LCSWD	Laboratory Control Sample - Water Duplicate						
ASD	Analytical Spike (Post Digestion) Duplicate	LFB	Laboratory Fortified Blank						
CCB	Continuing Calibration Blank	LFM	Laboratory Fortified Matrix						
CCV	Continuing Calibration Verification standard	LFMD	Laboratory Fortified Matrix Duplicate						
DUP	Sample Duplicate	LRB	Laboratory Reagent Blank						
ICB	Initial Calibration Blank	MS	Matrix Spike						
ICV	Initial Calibration Verification standard	MSD	Matrix Spike Duplicate						
ICSAB	Inter-element Correction Standard - A plus B solutions		Prep Blank - Soil						
LCSS	Laboratory Control Sample - Soil	PBW	Prep Blank - Water						
LCSSD	Laboratory Control Sample - Soil Duplicate	PQV	Practical Quantitation Verification standard						
LCSW	Laboratory Control Sample - Water	SDL	Serial Dilution						
oc Sample Ty Blanks	pe Explanations Verifies that there is no or mi	nimal contamina	tion in the prep method or calibration procedure.						
Control Sar									
Duplicates	• •								
•	tified Matrix Determines sample matrix in								
Standard	Verifies the validity of the cal								
****	-								
ACZ Qualifiers	s (@(nal))								
в	Analyte concentration detected at a value between Mi	DL and PQL.							
Н	Analysis exceeded method hold time. pH is a field te	st with an immed	tlate hold time.						
R	Poor spike recovery accepted because the other spik	e in the set fell v	vithin the given limits.						
т	High Relative Percent Difference (RPD) accepted bec	cause sample co	ncentrations are less than 10x the MDL.						
U	Analyte was analyzed for but not detected at the indic	ated MDL							
V	High blank data accepted because sample concentrate	tion is 10 times h	higher than blank concentration						
W	Poor recovery for Silver quality control is accepted be	cause Silver ofte	en precipitates with Chloride.						
х	Quality control sample is out of control.								
Z	Poor spike recovery is accepted because sample con	centration is four	r times greater than spike concentration.						
Mottoral Rottone	140.00								
(1)	EPA 600/4-83-020. Methods for Chemical Analysis o	f Water and Was	stes. March 1983						
	EPA 600/R-93-100. Methods for the Determination of								
(2)		-							
(3)	EPA 600/R-94-111. Methods for the Determination of								
(5)	EPA SW-846. Test Methods for Evaluating Solid Was								
(6)	Standard Methods for the Examination of Water and V	wastewater, 19th	1 84111011, 1995.						
Commente									
(1)	OC regulte coloulated from row data. Deputte movies	ry slightly if the r	ounded values are used in the calculations.						
• •									
(2)		s are reported o	n a dry weight basis.						
		•							

REPIN03.11.00.01



2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Burlington Resources, Inc.

ACZ Project ID: L43323

ACZ (8)	WORKNUM	PARAMETER	METHOD	(QUAL	DESCRIPTION
L43323-01	WG164197	Manganese, dissolved	M200.7 ICP	МЗ	The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable.
L43323-02	WG164197	Manganese, dissolved	M200.7 ICP	МЗ	The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable.

L43323: Page 5 of 13

WELL DEVELOPMENT AND SAMPLING LOG

Location:_M Project Mana Depth to Wa Water Colun	Project No.:30001.0 Project Name: Burlington Marcote 1 Client: Burlington Resources Location: Marcote Pool Unit 1 Well No: MW-2 Development Sampling Project Manager MJN Date 10/6/03 Start Time 1627 Weather sunny 80s Depth to Water 29.71 Depth to Product na Product Thickness na Measuring Point TOC Water Column Height 9.38 Well Dia. 2" 2" 2" Sampling Method: Submersible Pump C Centrifugal Pump C Peristaltic Pump C Other C											
Sampling Method: Submersible Pump												
	B	ottom	Valve Bail	ler x	Double Che	ck Valve	Bailer 🖾 🛛 S	tainless-Ste	el Kemmerer			
Criteria: 3 (o 5 Casi	ng Voi	lumes of V	Nater Rem	oval X stabil	lization of	Indicator Pa	rameters X	Other			
		`			Water Volum	ne in Well	······					
Gal/ft x	ft of wat	er		Gallon			Ounces		Gal/oz to be removed			
9.3	8 x .16			1.50 x 3	3				4.50			
L			I	····		L						
Time	рН		SC	Temp	ORP	D.O.	Turbidity	Vol Evac.	Comments/			
(military)	(su)		nos/cm)	(°C)	(millivolts)	(mg/L)	(NTU)	(gal.)	Flow rate <			
1632	7.29		2070	17.2				1	muddy, brown, very good flow to well			
	7.45	2	2080	17.3				2	muddy, brown, very good flow to well			
	7.34	2	2000	16.9				3	muddy, brown, very good flow to well			
	7.33	2	2040	16.8				4	muddy, brown, very good flow to well			
	7.34	2	2170	16.6				5	muddy, brown, very good flow to well			
<u>1713</u>	7.36	2	180	16.4				10	muddy, brown, very good flow to well			
									,			

Final:							Ferrous]	
Time	рН	SC	Temp	Eh-ORP	D.O.	Turbidity	Iron	Vol Evac.	Comments/Flow Rate
Time <u>1713</u>	7.36	2180	16.4					10	muddy, brown, very good
		And an and the local data and the second					-		flow to well

COMMENTS:

INSTRUMENTATION:	pH Meter X		Temperature Meter x
	DO Monitor	and the second	Other
Condu	ctivity Meter X		
Water Disposal onsite	Sample ID_NA		_Sample Timena
BTEX VOCs Alkalinity	TDS Cations Anions	Nitrate Nitrite Ammonia	TKN NMWQCC Metals Total Phosphorus
MS/MSD	BD	BD Name/Time	ТВ

.

WELL DEVELOPMENT AND SAMPLING LOG

	Project Name: <u>Burlington Marcote 1</u> Well No: <u>MW-3</u> Date <u>10/6/03</u> Start Time <u>1637</u> oth to Product <u>na</u> Product Thickness <u>na</u> Il Dia. <u>2"</u>	Client: <u>Burlington Resources</u> Development <u>Sampling</u> Weather <u>sunny 80s</u> Measuring Point <u>TOC</u>
Sampling Method: Submersible Pur	np 🔲 Centrifugal Pump 🔲 Peristaltic Pum	np 🔲 Other 🔲
Bottom Valve Ba	iler 🗴 🔹 Double Check Valve Bailer 🗔 Stainle	ess-Steel Kemmerer

Criteria: 3 to 5 Casing Volumes of Water Removal X stabilization of Indicator Parameters X Other: or bail dry

	Water Volum		
Gal/ft x ft of water	Gallons	Ounces	Gal/oz to be removed
7.92 x .16	1.27 x 3		3.8

Time (military)	pH (su)	SC (umhos/cm)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gal.)	Comments/ Flow rate
1645	7.10	2470	18.0				1	Silty, brown
	7.42	2240	17.1				2	Silty, brown
	7.44	2200	16.9	· · · · · · · · · · · · · · · · · · ·		-	3	Silty, brown
<u>1656</u>	7.40	2230	17.0				4	Silty, brown
······								· · · · · · · · · · · · · · · · · · ·
								·

Final:	·							•
Time	pН	SC	Temp	Eh-ORP	D.O.	Turbidity	Vol Evac.	Comments/Flow Rate
<u>1656</u>	7.40	2230	17.0				4	Silty, brown

COMMENTS:

INSTRUMENTATION: pH Meter X		_ Temperature Meter x
DO Monitor	مىلىدىنى بىرىمى بىر	Other
Conductivity Meter X		_
Water Disposal onsite Sample ID Marc	ote 1 MW-3	Sample Time1700
<u>BTEX</u> VOCs Alkalinity TDS Cation Phosphorus	s Anions Nitrate	Nitrite Ammonia TKN NMWQCC Metals Total
MS/MSDBD	BD Name/Ti	me TB

AGZ	Laboratories, Inc.
0770 Davabill Dates	Staambaat Springs 00 00407 (000) 224 5402

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Burlington Resources, Inc.

Project ID: Sample ID: M P Unit 1 MW-2

Organic Analytical Results

ACZ Sample ID:	L43323-01
Date Sampled:	10/08/03 16:30
Date Received:	10/10/03
Sample Matrix:	Ground Water

Benzene, Toluene, Ethylbenzene & Xylene

Analysis Method: Extract Method:	MEUNYIIIIZEINEIKS ZAYI M8021B GC/PID Method	STITE	Analyst: Extract Date: Analysis Date: Dilution Factor:	km 10/13/03 10/13/03 1		
Compound Compound	(ê	ANS	Reculii OUAL X	() (Inte	Mol	1:(01
Benzene	0	00071-43-2	U	ug/L	0.3	1
Ethylbenzene	0	00100-41-4	U	ug/L	0.2	1
m p Xylene	0	1330 20 7	U	ug/L	0.4	2
o Xylene	0	0095-47- 6	U	ug/L	0.2	1 .
Toluene	0	00108-88-3	U	ug/L	0.2	1
Surrogate Recoveries	õ	AS	% Regionary	(a) Units	L(C)L	UKCIL
Bromofluorobenzene	0	00460-00-4	90.8	%	84	114

ACZ Laboratories, Inc. 2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Burlington Resources, Inc.

Project ID: Sample ID:

M P Unit 1 MW-3

Organic Analytical Results

ACZ Sample ID:	L43323-02
Date Sampled:	10/08/03 17:00
Date Received:	10/10/03
Sample Matrix:	Ground Water

Analyst: km

Benzene, Toluene, Ethylbenzene & Xylene

Analysis Method: Extract Method:	M8021B GC/PID Method		Analy	act Date: sis Date: n Factor:	10/13/03 10/13/03 1		
Compound .		CAS	ROCH	0041	(10) Unite	Male	1:(0]
Benzene		000071-43-2		U	ug/L	0.3	1
Ethylbenzene		000100-41-4		U	ug/L	0.2	1
m p Xylene		01330 20 7		U	ug/L	0.4	2
o Xylene		00095-47- 6		U	ug/L	0.2	1 .
Toluene		000108-88-3	0.2	J	ug/L	0.2	1
Surrogate Recoveries			07		V/	11/201	112-11
ទីហៅកម្មដ្រាក		CAS	% IRROGANICIAN		X0 Units	.IL(CIL	U(c)L
Bromofluorobenzene		000460-00-4	92.6		%	84	114

Laboratories,	
Laboratories,	inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Burlington Resources, Inc.

Project ID: Sample ID:

TB100303-02

Organic Analytical Results

ACZ Sample ID:	L43323-03
Date Sampled:	10/08/03 0:00
Date Received:	10/10/03
Sample Matrix:	Ground Water

Analysis Method: Extract Method:	, Ethylleenzene & Xylene M8021B GC/PID Method	Analyst: Extract Date: Analysis Date: Dilution Factor:	10/13/03 10/13/03			
Compound	ANG	in the contract	11/11/10/2012		(-Yes)	
Compound	CAS	Reisulli, IOUAL	X(0) -19miles -	M(D)L	POL	
Benzene	000071-43-2	U	ug/L	0.3	1	
Ethylbenzene	000100-41-4	U	ug/L	0.2	1	
m p Xylene	01330 20 7	U	ug/L	0.4	2	
o Xylene	00095-47- 6	U	ug/L	0.2	1	-40
Toluene	000108-88-3	U	ug/L	0.2	1	
Surrogate Recoveries						
Sunogate	IC/AS	% Recievery	XQ Units	LCCL.	IDICIL.	
Bromofluorobenzene	000460-00-4	91	%	84	114	•

$\leq p_{\rm eff}$	1. E	w	• • • •	· · · · ·		• • •	ŀ
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	oratories, Inc.								IAIN STO		
2773 Downhill Drive Steamboat S Report to:	3prings, CO 80487 (800) 334	1-5493									
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lame: <u>GBFGG WU4</u> company: BURLING	SIZ.	-				DN,					an an Firstein an State
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company:			Leieh	none.							
nvoice to:	1.0										
ame: SAME AS	ABOVE	_	Addre	ess:	and a second	un einer bestellt mit der Kallenstellt vor	24.4.4.				
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-mail:			Telep			T	Magazor and as were		VEO	<b></b>	ľ
sample(s) received past holdin nalysis before expiration, shall				•	e(0				YES NO		1
"NO" then ACZ will contact cli	ent for further instruction.	lf neithei	r "YES"	nor "N							
indicated, ACZ will proceed w	ith the requested analyses,	even if I	11/11/11/11/11/11/11/11		CONTRACTOR OF THE OWNER OF THE OWNER		Actor of the second second	CONTRACTOR OF THE			
ROJECT INFORMATION			ANA	ALYSES 1	5 REQU	ESTED (	attach l	ist or u	ise quo	ote nun	nber) I
uote #:		- ·									
roject/PO #: MISC_GW	SAMPLING	4	of Containers								
hipping Co.:		-	ntair					ĺ			
racking #:		- • •	- S		1						
eporting State for complianc	e testing:	1	# of	L.	г						
SAMPLE IDENTIFICATION	DATE:TIME	Matrix	3	5							
NIN-3 MOBCOTE	12-16-03 0847	GW	2	X					nm_thinton _{er} .		
MW-2 MARCOTE		GW	2	X							
AW-1 FLORIA VISTIA	12-16-03 1030	G-W	2	X							
NW-2 COZZENS	12-16-031105	GW	2	Х							
IW-1 COZZENS	12-16-031131	GW	2.	X							
TRIP BLANK	12-16-03 1200	0		X							
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			<u> </u>								
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Matrix SW (Surface Water) GV	V (Ground Water) · WW (Waste W	/ater) · DV	V (Drinkin	g Water)	· SL (Slu	dge) · SO	(Soil) · O	L L (Oil) ·	Other (S	Specify)	
EMARKS											
				۰ _{۴۰}							
RELINQUISHED B	Y: DATE:T	IME		REC	EIVED	BY:		DA	TE:TIN	ЛЕ	PAG
11 (DAVID NEE)	12-16-03 1										
1000 ( MINIE War )		⁷ نور ^م در مدن	<u> </u>	and the second second							Of
endationen laan en ander a									an a		

ACZ	Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

#### **Burlington Resources, Inc.**

Project ID:	MISC. GW SAMPLING
Sample ID:	M-2 MARCOTE

## Organic Analytical Results

ACZ Sample ID:	L44072-12
Date Sampled:	12/16/03 9:15
Date Received:	12/17/03
Sample Matrix:	Ground Water

## Benzene, Toluene, Ethylbenzene & Xylene

Analysis Method: Extract Method:	M8021B GC/PID Method	<u>113</u>	Analyst: Extract Date: Analysis Date: Dilution Factor:	km 12/18/03 / 12/18/03 / 1			
Compound Compound	ČA.	S Ret	autic (QUAL X	o Units	Mate	1:(011	
Benzene	000	071-43-2 0.	.4 J	ug/L	0.3	1	
Ethylbenzene	000	100-41-4	U	ug/L	0.2	1	
m p Xylene	013	30 20 7	U	ug/L	0.4	2	
o Xylene	000	95-47- 6	U	ug/L	0.2	1	-
Toluene	000	108-88-3	U	ug/L	0.2	1	
Surrogate Recoveries							
Sunogene	CAV	5 % Rec	ianvierity Xi	ā Umrtes	IL(C)L	10(0)1	
Bromofluorobenzene	000	460-00-4 78	.5	* %	84	114	•



(800) 334-5493

#### **Burlington Resources, Inc.**

Project ID:	MISC. GW SAMPLING
Sample ID:	MW-3 MARCOTE

## Organic Analytical Results

ACZ Sample ID:	L44072-11
Date Sampled:	12/16/03 8:47
Date Received:	12/17/03
Sample Matrix:	Ground Water

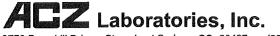
## Benzene, Toluene, Ethylbenzene & Xylene

Analysis Method: Extract Method:	M8021B GC/PID Method	ynenne.	Extra Analys	Analyst: ct Date: is Date: Factor:	km 12/18/03 12/18/03 1			
Compound Compound		(CA)8	Retarii	(OUVAL )	(e) Units	Mini	POL	
Benzene		000071-43-2	0.5	J	ug/L	0.3	1	
Ethylbenzene		000100-41-4		U	ug/L	0.2	1	
m p Xylene		01330 20 7		U	ug/L	0.4	2	-
o Xylene		00095-47- 6		U	ug/L	0.2	1	-9
Toluene		000108-88-3		U	ug/L	0.2	1	
Surrogate Recoveries		(EANS)	% Receivery	Ŷ	XQ Wintes	LCIL	IDKC (L	
Bromofluorobenzene		000460-00-4	81.7		* %	84	114	•



Report Head	ler Explanations								
Batch	A distinct set of samples analyzed at a specific time								
Found	Value of the QC Type of interest								
Limit	Upper limit for RPD, in %.								
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg								
LCL	Lower Control Limit								
MDL	Method Detection Limit. Same as Minimum Reporting	Limit. Allows for	instrument and annual fluctuations.						
PCN/SCI		-							
PQL	Practical Quantitation Limit		,						
QC	True Value of the Control Sample or the amount adde	d to the Spike							
Rec	Amount of the true value or spike added recovered, in	-	SS. ma/Ka)						
RPD	Relative Percent Difference, calculation used for Dupl	• •	,						
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg								
UCL	Upper Control Limit	,							
Sample	Value of the Sample of interest								
(OC Sample 1									
SURR	Surrogate	LFM	Laboratory Fortified Matrix						
INTS	Internal Standard	LFMD	Laboratory Fortified Matrix Duplicate						
DUP	Sample Duplicate	LRB	Laboratory Reagent Blank						
LCSS	Laboratory Control Sample - Soil	MS/MSD	Matrix Spike/Matrix Spike Duplicate						
LCSW	Laboratory Control Sample - Water	PBS	Prep Blank - Soil						
LFB	Laboratory Fortified Blank	PBW	Prep Blank - Water						
QC Sample 1	Type Explanations								
Blanks		inimal contaminatio	on in the prep method procedure.						
Control S	Samples Verifies the accuracy of the r	nethod, including t	he prep procedure.						
Duplicate	verifies the precision of the i	nstrument and/or r	nethod.						
Spikes/Fo	ortified Matrix Determines sample matrix in	terferences, if any							
ACZ Qualifie	rs (Qual)								
В	Analyte detected in daily blank								
н	Analysis exceeded method hold time.								
J	Analyte concentration detected at a value between MI	DL and PQL							
R	Poor spike recovery accepted because the other spike	e in the set fell with	nin the given limits.						
т	High Relative Percent Difference (RPD) accepted bec	ause sample conc	entrations are less than 10x the MDL.						
U	Analyte was analyzed for but not detected at the indic	ated MDL							
V	High blank data accepted because sample concentrat	ion is 10 times hig	her than blank concentration						
w	Poor recovery for Silver quality control is accepted be	cause Silver often	precipitates with Chloride.						
х	Quality contreol sample is out of control.								
Z	Poor spike recovery is accepted because sample con	Poor spike recovery is accepted because sample concentration is four times greater than spike concentration.							
Р	Analyte concentration differs from second detector by	more than 40%.							
E	Analyte concentration is estimated due to result excee	ding calibration ra	nge.						
М	M Analyte concentration is estimated due to matrix interferences.								
ালগুৱা ছিলেলে বি	NORCHED								
(1)	EPA 600/4-83-020. Methods for Chemical Analysis of	f Water and Waste	s, March 1983.						
(2)	EPA 600/4-90/020. Methods for the Determination of	Organic Compoun	ds in Drinking Water (I), July 1990.						
(3)	EPA 600/R-92/129. Methods for the Determination of	Organic Compour	nds in Drinking Water (II), July 1990.						
(5)	EPA SW-846. Test Methods for Evaluating Solid Was	ste, Third Edition w	ith Update III, December, 1996.						
(6)	Standard Methods for the Examination of Water and V	Vastewater, 19th e	dition, 1995.						
Comments									
(1)	QC results calculated from raw data. Results may var	ry slightly if the rou	nded values are used in the calculations.						
(2)	Organic analyses are reported on an "as received" ba	sis.							
<b>REDINI03 11 (</b>									

REPIN03.11.00.01



2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Organic Extended Qualifier Report

ACZ Project ID: L43323

#### Burlington Resources, Inc.

ACZ ID WORKNUM PARAMETER

QUAL DESCRIPTION

No extended qualifiers associated with this analysis

METTHOD)

L43323: Page 10 of 13

AGZ Laboratories, Inc. 2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

#### **Burlington Resources, Inc.**



L43323 ACZ Project ID: Date Received: 10/10/2003 **Received By:** tonya

Receipt Verification			
	YES	NO	NA
1) Does this project require special handling procedures such as CLP protocol?			$\checkmark$
2) Are the custody seals on the cooler intact?	$\checkmark$		
3) Are the custody seals on the sample containers intact?			$\checkmark$
4) Is there a Chain of Custody or other directive shipping papers present?	$\checkmark$		
5) Is the Chain of Custody complete?	$\checkmark$		
6) Is the Chain of Custody in agreement with the samples received?	$\checkmark$		
7) Is there enough sample for all requested analyses?	$\checkmark$		
8) Are all samples within holding times for requested analyses?	$\checkmark$		
9) Were all sample containers received intact?	$\checkmark$		
10) Are the temperature blanks present?	$\checkmark$		
11) Are the trip blanks (VOA and/or Cyanide) present?	$\checkmark$		
12) Are samples requiring no headspace, headspace free?	$\checkmark$		
13) Do the samples that require a Foreign Soils Permit have one?			$\sqrt{1}$

Exceptions: If you answered no to any of the above questions, please describe

N/A

Contact (For any discrepancies, the client must be contacted)

N/A

### Shipping Containers

Cooler Id	Temp (°C)	Rad (µR/hr)
ACZ	6.9	13





#### **Burlington Resources, Inc.**

ACZ Project ID: Date Received: L43323 10/10/2003 **Received By:** 

tonya

Sample Conintmer Presservation

SAMPLE	CLIENT ID	R<2	G < 2	Y < 2	YG< 2	B < 2	BG< 2	0<2	T >12	P >12	N/A	RAD
L43323-01	M P Unit 1 MW-2										V	
L43323-02	M P Unit 1 MW-3										$\checkmark$	
L43323-03	TB100303-02										$\checkmark$	

## WELL DEVELOPMENT AND SAMPLING LOG

Depth to Wa Water Colun Sampling Ma Criteria: 3 t	arcote Po ager ter <u>3(</u> nn Height ethod: Su Bo o 5 Casin	MJN 0.09 Dep 2.8.76 Wel ubmersible Pun ottom Valve Bai	Well N Date th to Produ I Dia I Dia I Dia Nater Rem	o: <u>MW-2</u> 12/16/03 ict <u>na</u> 2" Centrifugal Double Che	_ Start Product T Pump □ eck Valve lization of ne in Well	Time <u>0855</u> hickness <u>na</u> Peristaltic Bailer 🗆 Si Indicator Pai	Devel	Other: or bail dry
Gal/ft x ft 8.76 ک			Gallons 1.40 x 3			Ounces	Ga	al/oz to be removed 4.2
Time (military)	pH (su)	SC (umhos/cm)	Temp (°F)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gal.)	Comments/ Flow rate
0902	6.96	5930	48.0				.50	Brown Muddy
	7.0	5930	51.7				1.0	Brown Muddy
	7.06	6360	51.6				1.25	Brown Muddy ,
	7.05	6310	51.5		-		2.0	Brown Muddy
<u>0912</u>	7.10	6160	51	· · · · · · · · · · · · · · · · · · ·			3.0	Brown Muddy
							4.0	Bailing Dry
				L			]	
Final:         pl           Time         pl           0912         7		C Temp 160 51	Eh-ORP	D.O. Ti	irbidity	Ferrous Iron V		omments/Flow Rate Irown Muddy
COMMENTS	2.							
	2.							
INSTRUME	NTATION	•	Х				erature Mete	er x
	~	DO Mo onductivity Met				. Other		
Water Dispo		=	Marcote [·]	1 MW-2		Sampl	le Time <u>09</u>	15

BTEX VOCs Alkalinity TDS Cations Anions Nitrate Nitrite Ammonia TKN NMWQCC Metals Total Phosphorus

MS/MSD_____

BD Name/Time_____ TB_____ BD_____

## WELL DEVELOPMENT AND SAMPLING LOG

Project No.:30003.0       Project Name: Burlington Marcote 1       Client: Burlington Resources         Location: Marcote Pool Unit 1       Well No: MW-3       Development Sampling         Project Manager MJN       Date 12/16/03       Start Time 0830       Weather cloudy 40s         Depth to Water 34.14       Depth to Product na       Product Thickness na       Measuring Point TOC         Water Column Height 4.52       Well Dia. 2"       2"       Development Toc								
Sampling Me	ethod: S	ubmersible Pun	np 🗖	Centrifugal	Pump 🛛	Peristaltic	Pump 🔲	Other 🔲
	B	ottom Valve Bai	iler x	Double Che	ck Valve E	Bailer 🗌 🛛 Si	tainless-Stee	el Kemmerer
Criteria: 3 t	to 5 Casi	ng Volumes of N	Water Rem	noval X stabi	lization of	Indicator Pa	rameters X	Other: or bail dry
				Water Volum				
Gal/ft x ft 4.52			Gallons .72 x 3		(	Dunces	Ga	I/oz to be removed 2.2
1.02								Eu , Eu
Time (military)	pH (su)	SC (umhos/cm)	Temp (°F)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gal.)	Comments/ Flow rate
0833	6.44	6490	48.1				.25	Brown/Heavy
	6.65	6560	49.6				.5	Silt/Muddy
:	6.80	6520	.75				.75	Silt/Muddy
	6.83	6540	51.3				1.0	Silt/Muddy
	6.79	6540	51.3				2.0	Silt/Muddy
<u>0845</u>	6.80	6520	51.0				2.5	Silt/Muddy
Final: Time <u>0845</u>	рН 6.80		emp Eh- 51	ORP D.O.	Turbidi	ty Vol Eva 2.5	ac. Comme Silt/Mu	ents/Flow Rate ddy
COMMENTS	S:							
INSTRUMEN		I: pH Meter DO Moi onductivity Met				Tempe Other	erature Mete	r <b>x</b>
Water Dispo		<u>ite</u> Sample ID		1 MW-3		Sample	e Time <u>084</u>	7
BTEX VOCs Alkalinity TDS Cations Anions Nitrate Nitrite Ammonia TKN NMWQCC Metals Total Phosphorus								

MS/MSD_____ BD_____ BD Name/Time_____ TB_____



March 31, 2005

Certified: 70993400001842167364

Glen Von Gonten New Mexico Oil Conservation Division 1220 South St. Francis Drive Santa Fe, NM 87505

## RE: 2004 Annual Groundwater Investigation and Remediation Reports San Juan Basin, New Mexico

Dear Mr. von Gonten:

As required in Burlington Resources approved Groundwater Investigation and Remediation Plan dated August, 1998, enclosed are the 2004 annual reports for Burlington's groundwater impact sites in the San Juan Basin. Separate reports are enclosed for the following locations:

Cozzens B#1 Hampton #4M Johnson Federal #4 Metering Station Flora Vista Marcotte Pool Unit #1 Sategna #2

If you have questions or additional information is needed, please contact me at (505) 326-9537.

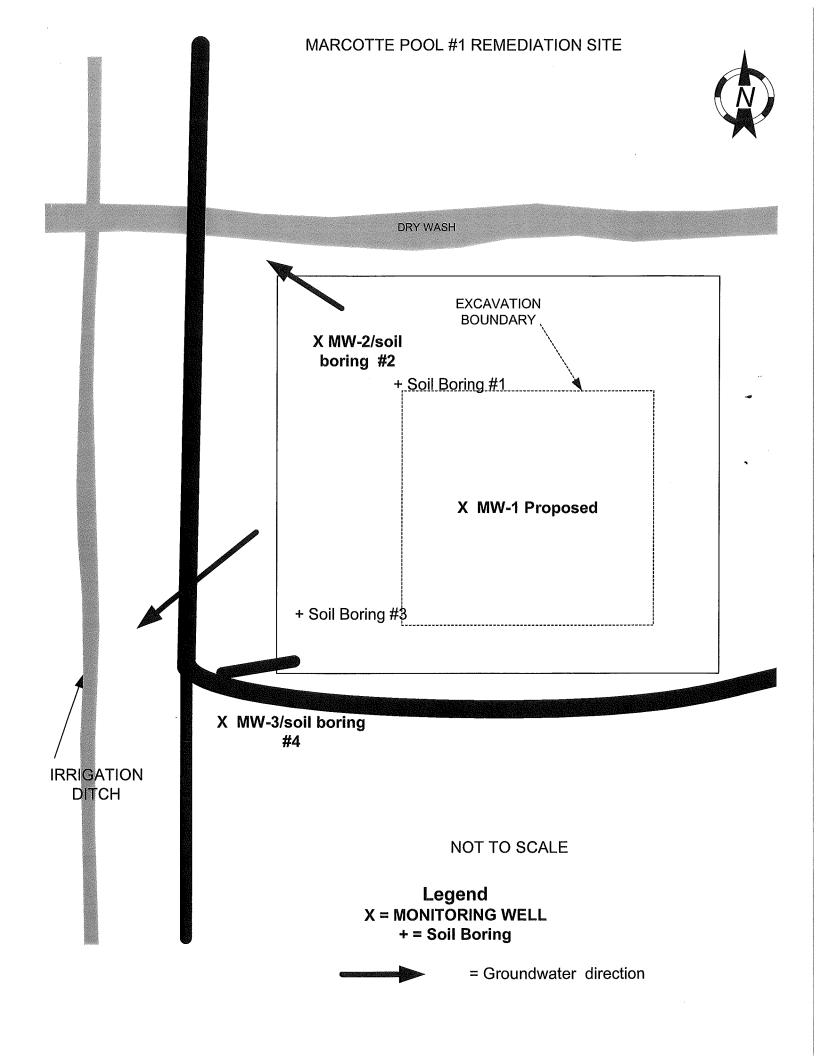
Sincerely,

Treege Min

Gregg Wurtz Sr. Environmental Representative

Attachments - Groundwater Investigation and Remediation Reports

cc: Denny Foust - NMOCD Aztec WFS - Mark Harvey (Cozzens B#1, Hampton #4M) EPFS - Scott Pope (Johnson Fed. #4,) Facility and Correspondence Files



## BURLINGTON RESOURCES 2004 ANNUAL GROUNDWATER REPORT

## Marcotte Pool Unit 1

### SITE DETAILS

Location:Unit Letter G, Section 08, Township 31N, Range 10W; San Juan County, New MexicoLand Type:Federal

### 2004 ACTIVITIES

Excavation was backfilled with clean fill. Monitoring well MW-1 was installed in an area central to the excavation.

### 2003 ACTIVITIES

Hydrocarbon impacted soil was discovered at Burlington Resources (BR) production location Marcotte Pool Unit 1 on 9/16/03. The impacted soil was discovered during excavation work to reset the production equipment. Remediation excavation and land treatment of impacted soils started 9/17/03.

The Marcotte Pool Unit #1 is located in the OCD determined vulnerable area. A second order ephemeral wash boarders the location approximately 30 yds. to the north. A seasonal irrigation ditch is located approximately 100 yds. to the west. The soils at the location area are mainly fine to coarse sands with minor amounts of cobbles and boulders. The ground water gradient is approximately west/southwest parallel to the adjacent stream coarse.

The attached facility maps (Attachment 1) display: 1) regional and general location layout; 2) perimeter of the excavation; 3) surface water features; 4) boring and well locations and 5) proposed source well MW-1 location.

The well has been producing oil and gas since Nov. 1953.

### Soil Impacts

Approximately 3000 cubic yards of impacted soil was removed and land farmed on the adjacent Marcotte #2. Permission to landfarm was obtained from OCD and BLM (Attachment 2, BLM Sundry Notice). No soil was land farmed on the Marcotte Pool Unit 1 because of the limited area available on location. The land farmed soil will be tested to confirm soil is below OCD clean up standards and filled back into the excavation.

The vertical extent of contamination and the extent of the excavation was determined by the depth to ground water. Soils were excavated down to ground water at approximately 30 feet below grade. The vertical extent of contamination appears to stop at the ground water table. A black organic decaying gravel layer marks the extent of vertical soil impacts approximately 6 inch in depth above the water table . Soils below this layer were water saturated and no hydrocarbons were detected in the field. The horizontal extent of contamination was determined by the limits of the open excavation and four soil borings. Soil monitoring using a photo ionization detector was used for field-testing. Soil samples collected during soil

boring were using a split spoon sampler every 2.5 feet . The four soil borings were used to determine the northwest, west and southwest extent of contamination (Attachment 3). Soil samples collected from the sides of the excavation determined the horizontal extent on the north, northeast, and east sides of the location. An x-section of the soil contamination plume approximates the shape of a bell at depth with the top of the bell at the source of contamination , the old earth pit, and the bottom of the bell at the ground water surface. The contamination spread at depth to form the sides of the bell. The soil contamination spread furthest from the source directly above the water table (i.e., vadose zone). The soil borings, Boring 3 and Boring 4 were completed into downgradient monitoring wells, monitoring wells MW-2 and MW-3. An additional source well (MW-1) and soil borings are proposed and will be used to confirm the north, northeast and southeast limits of contamination. Production equipment and the lack of open space prevented the subsequent drilling to start until backfilling the excavation in 2004. Boring logs and well diagrams are provided for the work completed in 2003 (Attachment 4).

### Ground Water Impacts

Observations of the water in the bottom of the open excavation showed minor free phase hydrocarbons during excavation activities. Water and oil was removed from the open excavation using a pump truck over a period of 2 months. Prior to backfilling the excavation no free phase hydrocarbons were visible on the water surface in the excavation.

The downgradient extent of the groundwater contamination was defined by the monitoring wells (MW-2 and MW-3) located down gradient of the excavation. These wells where first sampled in October 2003 for a general list of water quality parameters and BTEX and then subsequently for BTEX only. No constituents of concern were detected in the general or BTEX analysis (Attachment 5).

## **CONCLUSIONS**

The analytical results of groundwater sampling in 2003 from the downgradient wells show that levels of benzene, toluene, ethylbenzene, total xylenes and general water quality parameters are below the New Mexico Groundwater Standards in all wells.

### **RECOMMENDATIONS**

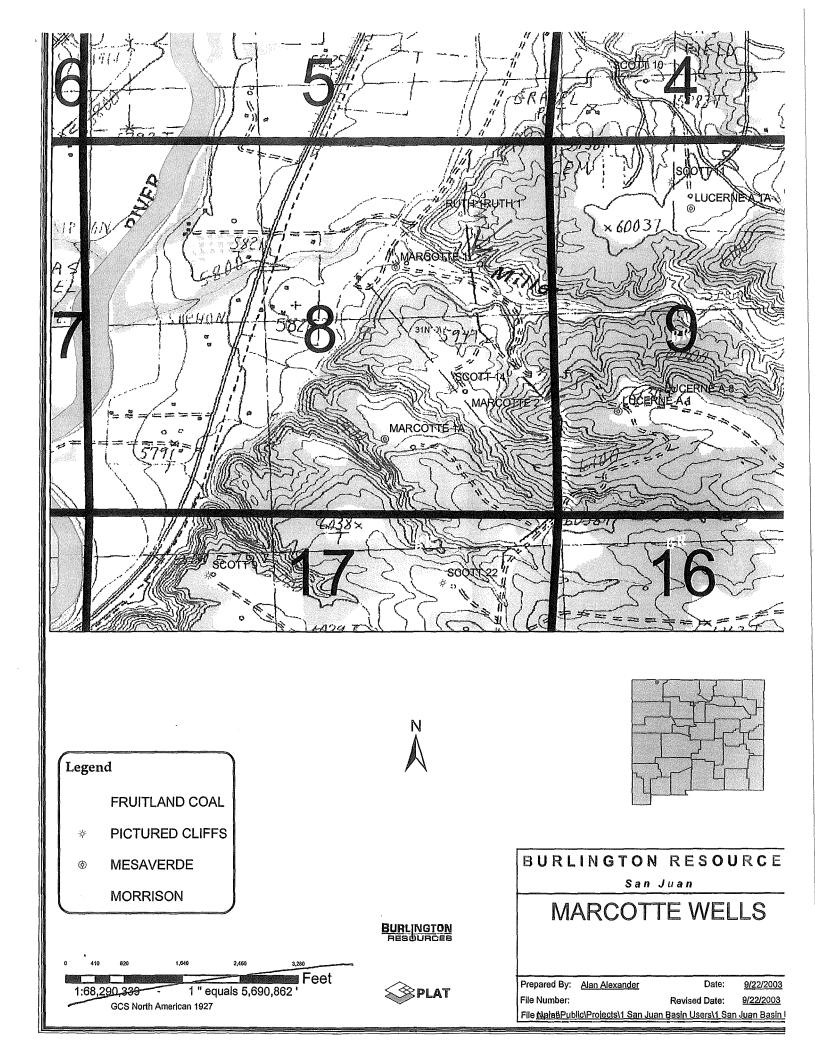
- Burlington Resources proposes to submit for closure. The wells MW-2 and MW-3 are below the standards in the last four quarters. The water quality in MW-1 has also been below the standards for the last two quarters.

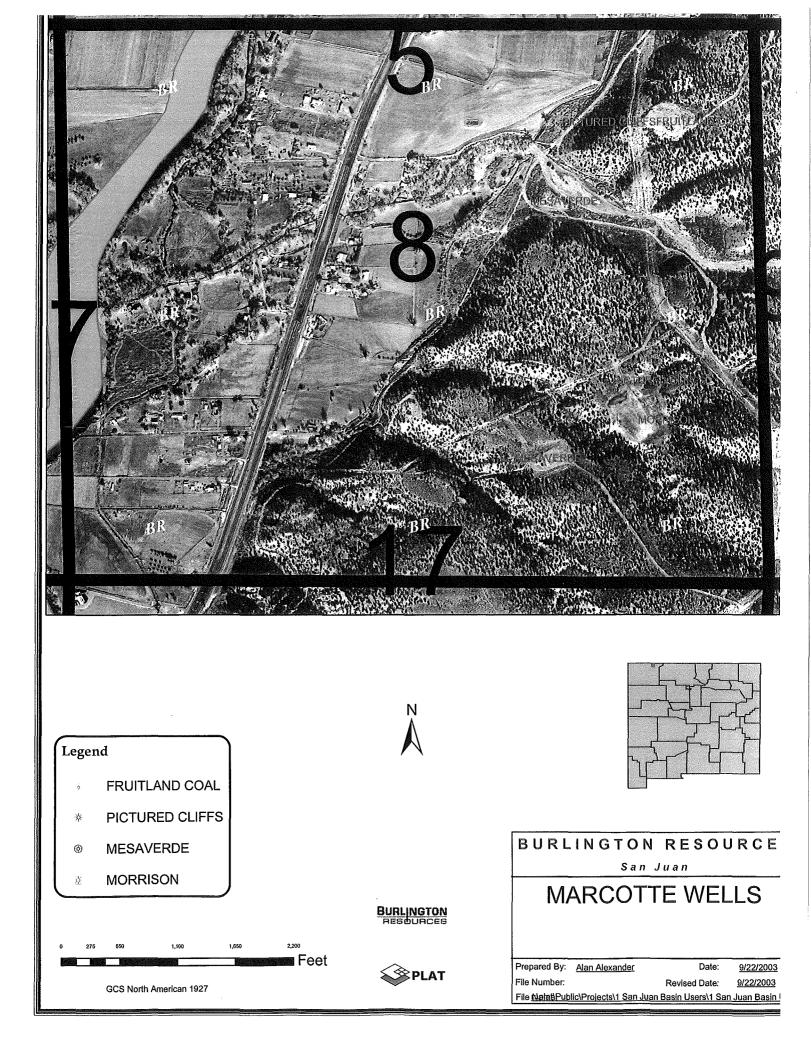
Attachments: Attachment 1 Site Maps Attachment 2 BLM Sundry Attachment 3 Soil sample analytical results Attachment 4 Drilling Log/Wellbore Diagrams Attachment 5 2003 Ground water sampling and analysis results

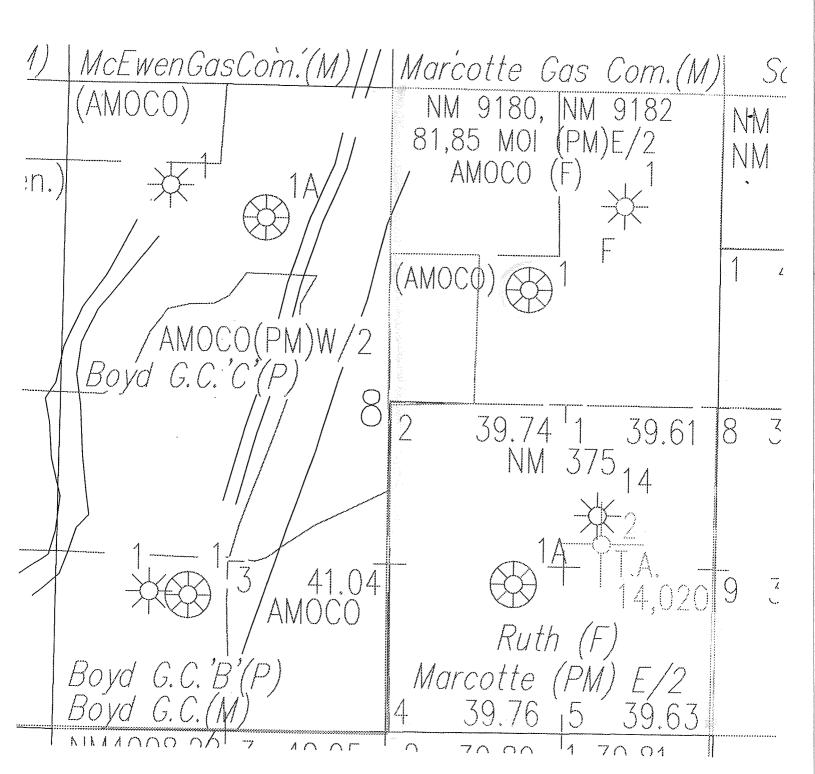
## **Attachment 1**

## Site maps

S: / grndwatr/GW-Sites/JohnFed#4/99Annual.doc







## Attachment 2

## **BLM Sundry**

S: / grndwatr/GW-Sites/JohnFed#4/99Annual.doc

submitted in lieu of Form 3160-5

UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT

Sundry Notices and Reports on Wells		
·	5.	Lease Number NMSF078604
1. Type of Well GAS	б.	If Indian, All. or Tribe Name
GAS	7.	Unit Agreement Name
2. Name of Operator BURLINGTON RESOURCES OIL & GAS COMPANY		
	8.	
3. Address & Phone No. of Operator PO Box 4289, Farmington, NM 87499 (505) 326-9700	9.	Marcotte #2 API Well No. 30-045-29466
4. Location of Well, Footage, Sec., T, R, M	10.	Field and Pool
1540'FSL, 935'FEL, Sec.8, T-31-N, R-10-W, NMPM		Wildcat Morrison
	11.	County and State San Juan Co, NM
12. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, R	EPORT, OTHER	DATA
Type of Submission Type of Actio		
	Change of Pla New Construct	
Subsequent Report Recompletion Recompletion		
Casing Repair	Water Shut of	Ef `
Final AbandonmentAltering Casing X_ Other -	Conversion to	o Injection
<ul> <li>Attn: Ray Sanchez It is intended to move impacted soil from the Marcotte Background: </li> <li>The Marcotte #1 and the Marcotte #2 are in the same Mex The wells share the same spacing unit and are on fee 1 Work start date 9/22/03 </li> <li>The duration of the soil being placed on the Marcotte The impacted soils will be generated from a soil remed Marcotte #1. The soils will be transported within two weeks across starting 9/22/03. Landfarm every 2 weeks. The area used for landfarming We will conduct the Landfarming operations in accordan regulations. Soils will be land farmed on location to expedite the soil Upon successful remediation the excavated soils will b at the Marcotte #1 or a suitable environmentally approx Approximate amount of soils to be moved to the Marcotte</li></ul>	saverde spacir and #2 is a maximu iation excavat gravel/soil o: will be ½ to : ce with applic natural remed: e returned to ved use will }	ng unit. Im of 1 year tion activity at the il and gas lease roads 1 acre. cable OCD and BLM iation of the impacted the original excavation be determined.
14. I hereby certify that the foregoing is true and cor		
		!== !=
Signed Tammy Winner (GW & EH) Title Regulat	ory Specialis	3t_Date 9/22/03
(This space for Federal or State Office use) APPROVED BY Title	Date	
CONDITION OF APPROVAL, if any: Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make t United States any false, fictitious or fraudulent statements or representations as to any matte	o any department or a r within its jurisdic	gency of the tion.

## Attachment 3

# **Soil Sample Analytical Results**

S: / grndwatr/GW-Sites/JohnFed#4/99Annual.doc



2709-D Pan American Freeway NE Albuquerque, New Mexico 87107 Phone (505) 344-3777 Fax (505) 344-4413

Pinnacle Lab ID number October 23, 2003 310026

MARTIN NEE 26 CR 3500 FLORA VISTA, NM 87415

BURLINGTON RESOURCES P.O. BOX 4289 FARMINGTON, NM 87499

Project NameMARCOTE POOLProject Number(NONE)

Attention: MARTIN NEE/GREGG WURTZ

On 10/02/03 Pinnacle Laboratories Inc., (ADHS Lincense No. AZ0643), received a request to analyze **non-aq** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

If you have any questions or comments, please do not hesitate to contact us at (505) 344-3777.

H. Mitchell Rubenstein, Ph.D. General Manager, Pinnacle Laboratories, Inc.

MR: jt

Enclosure

2709-D Pan American Freeway NE Albuquerque, New Mexico 87107 Phone (505) 344-3777 Fax (505) 344-4413



1000

CLIENT : MARTIN NEE		PINNACLE ID	: 310026	
PROJECT # : (NONE)		DATE RECEIVED	: 10/02/03	
PROJECT NAME	: MARCOTE POOL	REPORT DATE	: 10/23/03	
PINNACLE			DATE	-
ID #	CLIENT DESCRIPTION	MATRIX	COLLECTED	
310026 - 01	MARCOTE BH-1, 28.5'-29'	NON-AQ	09/30/03	-
310026 - 02	MARCOTE BH-2, 33'-35'	NON-AQ	09/30/03	
310026 - 03	MARCOTE BH-3, 26'-28'	NON-AQ	09/30/03	
310026 - 04	MARCOTE BH-4, 25'-27'	NON-AQ	10/01/03	-4



A

2709-D Pan American Freeway NE Albuquerque, New Mexico 87107 Phone (505) 344-3777 Fax (505) 344-4413

## GAS CHROMATOGRAPHY RESULTS

TEST CLIENT PROJECT # PROJECT N/	:	EPA 8021B MOE MARTIN NEE (NONE) MARCOTE POO		5B GRO		PINNACLE I.D. ANALYST		
SAMPLE			<u></u>	DATE	DATE	DATE	DIL.	-
ID. #	CLIENT I.D.		MATRIX	SAMPLED	EXTRACTED	ANALYZED	FACTOR	
01	MARCOTE BH-1	, 28.5'-29'	NON-AQ	09/30/03	10/07/03	10/09/03	1	-
02	MARCOTE BH-2	2, 33'-35'	NON-AQ	09/30/03	10/07/03	10/09/03	2 ~	
03	MARCOTE BH-3	3, 26'-28'	NON-AQ	09/30/03	10/07/03	· 10/08/03	1	
PARAMETER	2	DET. LIMIT	UN	ITS	MARCOTE BH- 1, 28.5'-29'	MARCOTE BH- 2, 33'-35'	MARCOTE BH- 3, 26'-28'	-
FUEL HYDR	OCARBONS	10	MG	/KG	< 10	79	< 10 `	-
HYDROCAR	BON RANGE				C6-C10	C6-C10	C6-C10	
HYDROCAR	BONS QUANTIT	ATED USING			GASOLINE	GASOLINE	GASOLINE	
BENZENE		0.025	MG	/KG	< 0.025	< 0.050	< 0.025	
TOLUENE		0.025	MG	/KG	< 0.025	< 0.050	< 0.025	
ETHYLBENZ	ENE	0.025	MG	/KG	< 0.025	0.37	< 0.025	
T <b>OTAL XYLE</b>	ENES	0.050	MG	/KG	< 0.050	1.7	< 0.050	
SURROGATE BROMOFLU( SURROGATE	OROBENZENE (	%) (65 - 120)			90	113	86	

CHEMIST NOTES: N/A



.

2709-D Pan American Freeway NE Albuquerque, New Mexico 87107 Phone (505) 344-3777 Fax (505) 344-4413

## GAS CHROMATOGRAPHY RESULTS

TEST CLIENT PROJECT # PROJECT NAME	: EPA 8021B MOI : MARTIN NEE : (NONE) : MARCOTE POC		5B GRO	Ρ	INNACLE I.D. ANALYST		
SAMPLE			DATE	DATE	DATE	DIL.	
ID. # CLIENT I.D.		MATRIX	SAMPLED	EXTRACTED	ANALYZED	FACTOR	
04 MARCOTE BH	-4, 25'-27'	NON-AQ	10/01/03	10/07/03	10/08/03	1	
PARAMETER	DET. LIMIT		IITS	MARCOTE BH- 4, 25'-27'	ana	4	
FUEL HYDROCARBONS	10	MO	6/KG	< 10			
HYDROCARBON RANGE				C6-C10			
HYDROCARBONS QUANT	ITATED USING			GASOLINE		•	
BENZENE	0.025	MG	6/KG	< 0.025			
TOLUENE	0.025	MG	6/KG	< 0.025			
ETHYLBENZENE	0.025	MG	6/KG	< 0.025			
TOTAL XYLENES	0.050	MG	6/KG	< 0.050			
SURROGATE: BROMOFLUOROBENZENE SURROGATE LIMITS	E (%) (65 - 120)			92			

CHEMIST NOTES:

N/A

# Attachment 4 Drilling Log/Wellbore Diagrams

S: / grndwatr/GW-Sites/JohnFed#4/99Annual.doc

	WELL DEVELOPMENT AND SAMPLING LOC	3
Project No.:30003.0 Location:_Marcote Pool Unit 1 Project ManagerMJN Depth to Water28.76 Water Column Height10.09	Project Name: <u>Burlington Mareote 1</u> Well No: <u>MW-2</u> Date <u>10/6/03</u> Start Time <u>1541</u> Depth to Product <u>na</u> Product Thickness <u>na</u> Well Dia. <u>2"</u>	Client: <u>Burlington Resources</u> Development <u>Sampling</u> Weather <u>sunny 80s</u> Measuring Point <u>TOC</u>
Sampling Method: Submersible	Pump Centrifugal Pump Peristaltic Pum	p 🔲 Other 📋

Bottom Valve Bailer x

Double Check Valve Bailer 
Stainless-Steel Kemmerer

Criteria: 3 to 5 Casing Volumes of Water Removal X stabilization of Indicator Parameters X Other: or bail dry

	Water Volume in Well					
Gal/ft x ft of water	Gallons	Ounces	Gal/oz to be removed			
10.09 x .16	1.61 x 3		4.84			

Time (military)	pH (su)	SC (umhos/cm)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gal.)	Comments/ Flow rate
1607	7.47	2400	19.6				1	Silty, brown
	7.46	2250	18.0				2	Silty, brown
	7.39	2260	17.4				3	Silty, brown
	7.36	2240	17.9				4	Silty, brown
1624	7.48	2260	17.6				5	Silty, brown
			, <b></b> , <u></u> , <u></u>					
400 <u> </u>			•					

Final:							Ferrous		
Time	pН	SC	Temp	Eh-ORP	D.O.	Turbidity	Iron	Vol Evac.	Comments/Flow Rate
<u>1624</u>	7.48	2260	17.6					5	Silty, brown

COMMENTS:

 INSTRUMENTATION: pH M	Aeter X		Temperature	e Meter x	
 DC	O Monitor	NATIVE AND A CONTRACT OF A	Other	an ang ang ang ang ang ang ang ang ang a	
 Conductivity	y Meter X				
 Water Disposal <u>onsite</u> Sam	ple ID <u>Marcote</u> 1	<u>MW-2</u>	Sample Tim	e <u>1630</u>	
<u>BTEX</u> VOCs Alkalinity TI Phosphorus	DS Cations	Anions Nitrate	e Nitrite Ammonia '	TKN <b>NMWQCC N</b>	<b>Metals</b> Total
 MS/MSD	BD	BD Nam	e/Time	ТВ	

# WELL DEVELOPMENT AND SAMPLING LOG

	1	
	Marche (	
Project No.:30001.0	Project Name: <u>Burlington Flera Vista</u>	Client: Burlington Resources
Location:_Marcote Pool Unit 1	Well No: <u>MW-3</u>	Development Sampling
Project ManagerMJN	Date <u>10/6/03</u> Start Time	1458 Weather sunny 80s
Depth to Water 30.74	Depth to Product na Product Thickness na	Measuring Point
Water Column Height 8.28	Well Dia2"	

Sampling Method: Submersible Pump 🔲 Centrifugal Pump 🔲 Peristaltic Pump 🗇 Other 📋

Bottom Valve Bailer x

Double Check Valve Bailer 
Stainless-Steel Kemmerer

Criteria: 3 to 5 Casing Volumes of Water Removal X stabilization of Indicator Parameters X Other_____

Water Volur		
Gallons	Ounces	Gal/oz to be removed
1.32 x 3		3.79
	Gallons	

Time (military)	pH (su)	SC (umhos/cm)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gal.)	Comments/ Flow rate	-
1507	7.16	2230	19.1				0.5	muddy, brown, good flow to well	very
	7.26	2150	18.4				1	muddy, brown, good flow to well	very
	7.31	2130	17.9				1.5	muddy, brown, good flow to well	very
	7.17	2270	18.0				5	muddy, brown, good flow to well	very
	7.38	2220	17.4				10	muddy, brown, good flow to well	very
	7.48	2240	17.1				15	muddy, brown, good flow to well	very
<u>1603</u>	7.38	2390	17.3				20	muddy, brown, good flow to well	very
<u>1617</u>	7.42	2330	17.3				30	muddy, brown, good flow to well	very

Final:							Ferrous		
Time	рН	SC	Temp	Eh-ORP	D.O.	Turbidity	Iron	Vol Evac.	Comments/Flow Rate
<u>1617</u>	7.42	2330	17.3					30	muddy, brown, very good
									flow to well

COMMENTS:	

INSTRUMENTATION:	pH Meter X		Temperature Meter x
	DO Monitor		Other
Conduc	ctivity Meter X	1	
Water Disposal <u>onsite</u>	Sample ID <u>NA</u>	······································	_Sample Time <u>na</u>
BTEX VOCs Alkalinity	TDS Cations Anion	s Nitrate Nitrite Ammonia	TKN NMWQCC Metals Total Phosphorus
MS/MSD	BD	BD Name/Time	TB

#### Borehole 1

#### Lodestar Services, Inc

PO Box 3681 Farmington, New Mexico 87499 (505) 334-2791

Elevation	
Borehole Location WI	NW of former pit
GWL Depth	·29
Logged By MJN	
Drilled By Terrac	
Date/Time Started	9/30/2003 0800 hrs
Date/Time Completed	9/30/2003 1043 hrs

 Project Name
 Burlington Resources Marcote Pool Unit 1

 Project Number
 30003
 Phase

 Project Location
 1 mile south of Dutchman's Hill transfer station

 Well Logged By
 M Nee

 Personnel On-Site
 R Thompson, Tony

 Contractors On-Site
 Terracon

 Client Personnel On-Site
 G Wurtz

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Drilling Method Mobile B59 Hollow Stem Auger Air Monitoring Method Photo Vac 2020

				a a a a a a a a a a a a a a a a a a a				
	1 1	mple	1	Depth				
Depth	Sample Ty	pe & Sample Description	USCS	Lithology		r Monitor	-	Drilling Conditions
(Feet)	Interval Rec	overy Classification System: USCS	Symbol	Change	ί	Inits: NC	ບ	& Blow Counts
	(inc	ches)		(feet)	BZ	BH	S	
0								
	Spl	lit 0-13 ' Sand, Moderate Yellow Brown, Sand	1		0			
	spo			1				
		unconsolidated.	1					
	3.5 1	12	1					
	3.0	12				i i		
			1					
	6.7 1	14				1		
			1					
	7-9 1	16	1					
					l l			
10	9.11 1	16	1					
		minor gravel and cobble in sample at 10.5						
	11.13 1	16 12.5						
Ⅰ	13-15 1	13-25' Sand, moderate yellow brown, very						
- ₁₅	12.12							
		fine, minor small <1" silt stringers,	1			1		
	15.17 2	20 moderate sorted, unconsolidated. Minor						
		silt 16·17'		1				
	17.19 2	20				1		
20	19.21 2	24				1		
	21.23 2	24		1				
		-7						
	23.25 2	20						
- 25	23.25 2	20		-				
²⁰								
	25.27 1	16 25-28.5 Sand, coarse, minor gravel, well	1					
		sorted, moisture increasing, saturated at						
	27.29 1	12 28'	4					
		28.5-30.0 Silty clay lense, black	1					
30	29.31 1	12						
		30-31, Gravel, black, saturated, with	1					
	1	cobbles			0			Refusal in cobbles/gravel
		BRICH		1	ľ			31'
		TD 31'		1		1		131 1
		10.51		1		1		
35				1		1		1
	1			1				}
				ļ		1		
			1	1		ł		
			1			I		
40			1			1		

**Comments:** 

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Borehole 2

#### Lodestar Services, Inc

PO Box 3681 Farmington, New Mexico 87499 (505) 334-2791

Elevation Borehole Location West of former pit GWL Depth 33 Logged By MJN Drilled By Terracon Date/Time Started 9/30/2003 1116 hrs Date/Time Completed 9/30/2003 1340 hrs

Project Name Bui	lington Resources Marcote Pool Unit 1
Project Number 3	0003 Phase
Project Location 1 m	nile south of Dutchman's Hill transfer
sta	tion
Well Logged By	M Nee
Personnel On-Site	R Thompson, Tony
Contractors On-Site	Terracon
Client Personnel On-Site	G Wurtz
	and the second

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#### Drilling Method Mobile B59 Hollow Stem Auger Air Monitoring Method Photo Vac 2020

Depth (Feet)	Sample Interval	Sample Type & Recovery (%)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)		r Monito Jnits: NI BH		Drilling Conditions & Blow Counts
		Split	0-23' Sand moderate yellow brown, coarse to fine moderately sorted, unconsolidated, minor cobble/gravel.			0			
5 									
10									
15									
20									
25	23-25 25-27 27-29	90 90 95	27-29' fine-very fine sand, unconsolidated, well sorted. 27-29, clay, then very fine sand for 1" then into brown stiff clay to 36', some black marbleing 28.5-29						
30	29-31 31-33	100	30-31, Gravel, black, saturated, with cobbles			0		465 582	Ĺ
35 	33.35 35.37	100	36-36.5, coarse sand, saturated, black, well sorted, unconsolidated. 36.5-37, clay TD-37					2750	

**Comments:** 

Borehole logged on cutting returns from 0-23 feet beneath ground surface.

Borehole 3, MW-3

#### Lodestar Services, Inc

PO Box 3681 Farmington, New Mexico 87499 (505) 334-2791

Elevation						
Borehole Location West of BH-2						
GWL Depth	27.1					
Logged By MJN						
Drilled By Terra	çon					
Date/Time Started	9/30/2003 1359 hrs					
Date/Time Completed	9/30/2003 1730 hrs					

 Project Name
 Burlington Resources Marcote Pool Unit 1

 Project Number
 30003
 Phase

 Project Location
 1 mile south of Dutchman's Hill transfer station

 Well Logged By
 M Nee

 Personnel On-Site
 R Thompson, Tony

 Contractors On-Site
 G Wurtz

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Drilling Method Mobile B59 Hollow Stem Auger Air Monitoring Method Photo Vac 2020

Depth (Feet)	Sample Interval		Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)		r Monito Jnits: Ni BH		Drilling Conditions & Blow Counts
Ē		Split spoon	0-34' Sand moderate yellow brown, fine to medium grains, moderately well sorted, unconsolidated.			0			
5 									
15									
20	20-22	95				0		0	
25	22·24 24·26	95 95				0 0		0	
	26·28 28·30	85 90	Saturated at 27.5			0 0		1.9 0	
- 35 			34-37 Cobbles						34-37 rough drilling,
40			TD-37						cobbles Refusal at 37'



Borehole logged on cutting returns from 0-20 and 30-37 feet beneath ground surface. Groundwater at 27.1' beneath ground surface at 1600 hrs.

Borehole 4, MW-2

#### Lodestar Services, Inc

PO Box 3681 Farmington, New Mexico 87499 (505) 334-2791

 Elevation

 Borehole Location
 North northwest of pit.

 GWL Depth
 26.3

 Logged By
 MJN

 Drilled By
 Terracon

 Date/Time Started
 10/1/2003 0820 hrs

 Date/Time Completed
 10/1/2003 1600 hrs

Burlington Resources Marcote Pool Unit 1 Project Name 30003 Phase Project Number 1 mile south of Dutchman's Hill transfer Project Location station Well Logged By M Nee Personnel On-Site R Thompson, Tony Contractors On-Site Terracon **Client Personnel On-Site** G Wurtz

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Drilling Method Mobile B59 Hollow Stem Auger Air Monitoring Method Photo Vac 2020

		and the second second second							
Depth		Sample Type &	Sample Description	USCS	Depth Lithology	Δ	r Monito	rina	Drilling Conditions
(Feet)		Recovery	Classification System: USCS	Symbol	Change		Jnits: N	-	& Blow Counts
		(inches)		-,	(feet)			S	
	S	split poon	0-23.5' Sand, moderate yellow brown, fine to coarse grains, moderately sorted, unconsolidated.		(feet)	0 0	BH	5	
20									
25 	23-25 25-27 27-29	8	23.5-34 gravel/sand/cobble Saturated at 26.3			0			Poor recovery due to cobbles cobbles/gravel/sand, saturated at bottom coarse sand, gravel, and cobbles in spoon. No cuttings beneath 34 feet. Lithology based on material on auger flights after retrevial
35  40			34-38.5 Clay, gray TD-38.5						



borehole logged on cuttings from 0-23 feet. Water level at 26.3' @ 1004

## MONITORING WELL INSTALLATION RECORD

West of fromer pit

Terracon

26.30' beneath ground surface

10/1//03 0820

Lodestar Services, Inc PO Box 3861 Farmington, New Mexico 87499 (505) 334-2791

Elevation

Well Location

Date/Time Started

GWL Depth Installed By

Borehole #		3
Well #		3
Page <u>1</u>	of	1

Project Name	Burlington Resources Flora Vista 1				
Project Number	30003.0 Cost Code				
Project Location	1 mi south of Dutchman's Hill transfer station				
<b>On-Site Geologist</b>	M. Nee				
Personnel On-Site	R. Thompson, Tony				
Contractors On-Site	Terracon				
Client Personnel On-Site	G. Wurtz				

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Date/Time Completed 10/1/03	3 1600	-			
Depths in Reference	to Ground Surface				
Item	Material	Depth (feet)		Top of Protective Casing	2.83
Top of Protective Casing	Flush to grade	2.83		Top of Riser	2.83
Bottom of Protective Casing	vault	-2.17		Ground Surface	0.0
Top of Permanent Borehole Casing		na			
Bottom of Permanent Borehole Casing		na			
Top of Concrete	2 bags quickcrete	0.31			
Bottom of Concrete		0.0			
Top of Grout	5 96# bags portland	0.0			
Bottom of Grout	with 5% bentonite chips	-16.33			
Top of Well Riser	2" flush threaded	2.83			
Bottom of Well Riser	schedule 40 pvc	-23.06			
Top of Well Screen	10 slot schedule 40	-23.06	$\sim$	Top of Seal	-16.33
Bottom of Well Screen	flush threaded pvc	-38.06	000		
Top of Peltonite Seal	1 bag 3/8 bentonite	-16.33	$\infty$		
Bottom of Peltonite Seal	chips	-18.67	$\infty$	Top of Gravel Pack	-18.67
Top of Gravel Pack	8 #50 bags 10-20	-18.67		Top of Screen	-23.06
Bottom of Gravel Pack	silica sand	-37.5			
Top of Natural Cave-In		-37.5			
Bottom of Natural Cave-In		-38.5	7		
Top of Groundwater		-30.74		Bottom of Screen	-38,06
Total Depth of Borehole		-38.5		Bottom of Borehole	-38.5

Comments: <u>Water level is 30.74 beneath top of casing</u>

## MONITORING WELL INSTALLATION RECORD

Lodestar Services, Inc PO Box 3861 Farmington, New Mexico 87499 (505) 334-2791

Elevation

North northwest of former pit Well Location **GWL** Depth 27.00' beneath ground surface Installed By Terracon Date/Time Started 9/30//03 0800 Date/Time Completed 9/30//03 1730

Borehole # 4 Well # 2 Page of 1

Project Name	Burlington Resources Flora Vista 1				
Project Number	30003.0	Cost Code			
Project Location	1 mi south of Dutchman's Hill transfer station				
On-Site Geologist	M. Nee				
Personnel On-Site	R. Thompso	on, Tony			
<b>Contractors On-Site</b>	Terracon				
Client Personnel On-Site	G. Wurtz				

Depths in Reference	to Ground Surface				
Item	Material	Depth (feet)		Top of Protective Casing	2.67
Top of Protective Casing	Flush to grade	2.67		Top of Riser	2.67
Bottom of Protective Casing	vault	-2.33		Ground Surface	0.0
Top of Permanent Borehole Casing		na			
Bottom of Permanent Borehole Casing		na			
Top of Concrete	2 bags quickcrete	0.31			
Bottom of Concrete		0.0			
Top of Grout	5 96# bags portland	0.0			
Bottom of Grout	with 5% bentonite chips	-12.75			
Top of Well Riser	2" flush threaded	2.67			
Bottom of Well Riser	schedule 40 pvc	-22.04			
Top of Well Screen	10 slot schedule 40	-22.04	$\infty$	Top of Seal	-14.6
Bottom of Well Screen	flush threaded pvc	-37.04			
Top of Peltonite Seal	1 bag 3/8 bentonite	-14.60	000		
Bottom of Peltonite Seal	chips	-17.60	200	Top of Gravel Pack	-17.6
Top of Gravel Pack	9.5 #50 bags 10-20	-17.60	-	Top of Screen	-22.04
Bottom of Gravel Pack	silica sand	-34.25			
Top of Natural Cave-In		-34.25			
Bottom of Natural Cave-In		-37.00			
Top of Groundwater		-27.00		Bottom of Screen	-37.04
Total Depth of Borehole		-37.04		Bottom of Borehole	-37.04

Comments: <u>Water level is 28.76 beneath top of casing</u>

# **Attachment 5**

**2003**-Ground water sampling and analysis results 2004

# Table 1 Marcot Pool Unit 1 Groundwater Monitoring Well Sampling

	Sample	В	1	E	X	BTEX	<b>IDTW (1)</b>	Comments
MW #	Date	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ft)	
		10	750	750	620			
1	Well not ins	talled open	excavation					
	9/29/2004	U	U	38	37.9	75.9	23.2	Clear,Gray, Silty
	See	attached g	eneral wate	er quality an	alysis for 3	rd qtr.		
	12/13/2004	0.4J	0.7J	0.7J	20.2	22	23.67	Grey
2	10/6/2003	U	U	U	U	U	29.71	muddy brn, very good well flow
	12/16/2003	0.4J	U	U	U	0.4J	30.09	Brown muddy
	3/15/2004	0.4J	0.3J	U	0.2	0.9	30.62	Silty
	6/21/2004	U	U	U	U	0	30.05	Silty
	9/29/2004	U	0.3J	0.3J	0.9J	0.9		
	12/13/2004	0.3J	1.3	0.3J	11.2	13.1	29.88	Silty, Brown
3	10/6/2003	U	0.2J	U	U	0.2J	30.74	Silty, Brown
	12/16/2003	0.5J	U	U	Ū	0.5J	34.14	Silty Muddy
	3/15/2004		No Sai	mple Collec	ted Dry			
	6/21/2004	U	U	U	U	0	36.62	Very Silty
	9/29/2004	U	U	U	U	0	28.72	Brown
	12/13/2004	U	0.3J	U	1.6	1.9	32.35	Clear, Brown
	1	1 Well not ins 9/29/2004 See 12/13/2004 2 10/6/2003 12/16/2003 3/15/2004 6/21/2004 3 10/6/2003 12/16/2003 12/16/2003 3/15/2004 6/21/2004 6/21/2004 9/29/2004	Image: Normal System         Image: Normal System           1         Well not installed open           9/29/2004         U           See attached g           12/13/2004         0.4J           12/13/2004         0.4J           12/16/2003         U           12/16/2003         0.4J           3/15/2004         0.4J           9/29/2004         U           12/13/2004         0.4J           9/29/2004         U           12/13/2004         0.3J           3         10/6/2003         U           12/16/2003         0.5J           3/15/2004         U           12/16/2003         0.5J           3/15/2004         U           9/29/2004         U           9/29/2004         U	10         750           1         Well not installed open excavation           9/29/2004         U           See attached general wate           12/13/2004         0.4J           12/13/2004         0.4J           12/13/2004         0.4J           12/16/2003         U           12/16/2003         0.4J           12/16/2004         U           3/15/2004         0.4J           9/29/2004         U           9/29/2004         U           9/29/2004         U           0.3J         1.3           12/13/2004         0.3J           12/13/2004         0.3J           12/13/2004         0.3J           12/13/2004         0.5J           12/16/2003         U           3/15/2004         No Sat           6/21/2004         U           3/15/2004         U           9/29/2004         U	10         750         750           1         10         750         750           9/29/2004         U         38           See attached general water quality an         12/13/2004         0.4J         0.7J         0.7J           1         10/6/2003         U         U         38           2         10/6/2003         U         U         U           12/16/2003         0.4J         0.7J         0.7J           2         10/6/2003         U         U         U           3/15/2004         0.4J         0.3J         U         U           9/29/2004         U         0.3J         0.3J         U           3/15/2004         0.4J         0.3J         0.3J         1.3           9/29/2004         U         0.3J         0.3J         1.3           3         10/6/2003         U         0.2J         U           12/16/2003         0.5J         U         U         U           3/15/2004         0.5J         U         U         U           3/15/2004         U         U         U         U           3/15/2004         U         U         U         U	Image: Normal State         Image: Norman State         Image: Norman State	10         750         750         620           1         Well not installed open excavation	10         750         750         620           1         Well not installed open excavation

J= Analyte concentration detected at a value between MDL and PQL

(1) measured from top of casing

# WELL DEVELOPMENT AND SAMPLING LOG

Project No.:	Project	Name: <u>Marcote</u>		Client: <u>Burlingt</u>	<u>on</u>			
Location:_ We	ell No: <u>MN</u>	/-2	Develop	oment <u>Sampli</u>	ng			
Project Manager	<u>MJN</u>		Date	3/15/04	Start Time_	0730	Weather	<u>clear 40s</u>
Depth to Water	30.62	Depth to Produc	ct <u>na</u>	Product Thickr	iess: <u>na</u>	Measur	ing Point	TOC
Water Column Heig	ght <u>8.23</u>	Well Dia	2"					

Sampling Method: Submersible Pump 
Centrifugal Pump 
Peristaltic Pump 
Other

Bottom Valve Bailer

Double Check Valv Bailer Stainless-Steel Kemr Brer

Criteria: 3 to 5 Casing Volumes of Water Removal X stabilization of Indicator Parameters X Other_or bail dry

	Water Volu		
Gal/ft x ft of water	Gallons	Ounces	Gal/oz to be removed
8.23 x 0.16	1.34		4.03

Time (military)	pH (su)	SC (umhos/cm)	Temp (°F)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. ( gal)	Comments/ Flow rate
0819	8.05	4110	60.7				0.25	silty
,	7.53	3570	58.8				0.50	
	7.45	3420	57.8				0.75	
	7.46	3510	57.6				1.0	
	7.50	3500	57.3				2.0	
	7.44	3520	57.3				3.0	

Final:							Ferrous		
Time	pН	SC	Temp	Eh-ORP	D.O.	Turbidity	Iron	Vol Evac.	Comments/Flow Rate
<u>0835</u>	7.47	3500	57.4					4.0	silty

COMMENTS: well is bailing down

INSTRUMENTATION:	pH Meter	Х		Temperature Meter	x
	DO Mon	itor		Other	
Cond	uctivity Mete	r <b>X</b>			
Water Disposal <u>onsite</u>		Sample	ID MW-2 Sample Time	0835	
<b><u>BTEX</u></b> VOCs					
MS/MSD	BD		BD Name/Time		ТВ

AGZ Laboratories, Inc.       Organic Analy         2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493       Results	Organic Analytical Results				
Burlington Resources, Inc.       ACZ Sample ID:       L44968-01         Project ID:       MISC GW SAMPLING       Date Sampled:       03/15/04 8:35         Sample ID:       MARCOTE MW-2       Date Received:       03/17/04         Sample Matrix:       Ground Water					
Benzene, Toluene, Ethylbenzene & XyleneAnalyst:jjAnalysis Method:M8021B GC/PIDExtract Date:03/26/04 14:29Extract Method:MethodDilution Factor:1					
Compound Compound CAS Result QUAL XQ Units MDL	[?{@]L				
Benzene 000071-43-2 0.4 J * ug/L 0.3	1				
Ethylbenzene 000100-41-4 U ug/L 0.2	1				
m p Xylene 01330 20 7 U ug/L 0.4	2				
o Xylene 00095-47- 6 0.2 J ug/L 0.2	1				
Toluene 000108-88-3 0.3 J ug/L 0.2	1				
Surrogate Recoveries     CAS     % Recovery     XQ Units     LCL       Bromofluorobenzene     000460-00-4     96.3     % 83	U(c)1				

.

# WELL DEVELOPMENT AND SAMPLING LOG

Project No.:30003.0       Project Name: Burlington Marcote 1       Client: Burlington Resources         Location: Marcote Pool Unit 1       Well No: MW-3       Development Sampling         Project ManagerMJN       Date 3/15/04       Start Time 0715       Weather sunny 40s         Depth to Waterna       Depth to Productna       Product Thicknessna       Measuring PointTOC         Water Column Heightna       Well Dia2"       Description       Description										
Sampling Method: Submersible Pump Centrifugal Pump Peristaltic Pump Other										
	Be	ottom	Valve Bai	iler <b>x</b>	Double Che	eck Valve	Bailer 🗆 🛛 S	tainless	-Stee	el Kemmerer
Criteria: 31	o 5 Casi	ng Vol	umes of \	Water Rem	oval <b>X</b> stab	ilization of	Indicator Pa	rameter	s X	Other: or bail dry
					Water Volur	ne in Well				
Gal/ft x	Gal/ft x ft of water Gallons									Gal/oz to be removed
	na	na na							na	
					I					
Time (military)	pH (su)		SC nos/cm)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Ev (gal		Comments/ Flow rate
				:						
					L <u></u>					
									:	

Final:								
Time	pН	SC	Temp	Eh-ORP	D.O.	Turbidity	Vol Evac.	Comments/Flow Rate

COMMENTS: There was no water in the well. Probably due to seasonal drop in water level due to lack of local irrigation.

INSTRUMENTATION: pH I	Meter X	Temper	ature Meter x				
D	O Monitor	Other					
Conductivit	ty Meter <b>X</b>						
Water Disposal <u>na</u> Samp	ole ID <u>na</u>	Sample Time <u>na</u>					
BTEX VOCs Alkalinity TDS Cations Anions Nitrate Nitrite Ammonia TKN NMWQCC Metals Total Phosphorus							
MS/MSD	BD	BD Name/Time	TB				

ACZ Labor	ratories, Inc.	<u>.</u>	<u>Mananan disking sekur</u>		<u>.</u>						
2773 Downhill Drive Steamboat S			1	<u> </u>	loS.			CL	ISTO	DDY	
Report to:	<u> </u>		Addre		2001	~	マム	rid	Car		
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E-mail:	UN KET	-	Telepl		unq			32		720	
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nalysis before expiration, shall	- · ·			-					NO	<u> </u>	
"NO" then ACZ will contact clie											-
Indicated, ACZ will proceed wi ROJECT INFORMATION	th the requested analyses	s, even if		-	and dat				use au	ote nu	nberl
Quote #:											
roject/PO #: 11/15 ( G	A Samplima	-	s and a second								
hipping Co.:		1	of Containers								
racking #:	<b>ul</b> ing and a second seco	1	onta							[	
eporting state for compliance	testing:	1	U V V	ि							
re any samples NRC licensab		1	#	5761							
SAMPLE IDENTIFICATION	DATE:TIME	Matrix	<								
ARLOTE MW-2	3-15-04 0835	AZO		2							
AMPTON MW-1	3-15-04 0958			2						L	
IMMOTON MW-15	3-15-04 1038	GW		2						ļ	
PAMPTON MW-9	3-15-04 1130	GW		2							
LAMPTON MW-16	3-15-04 1222		<b> </b>	2					····		
IMMPTON MW-12	3-15-01 1258	GW	+	2							
AMPTON SEEP	3-15-04 1312	GW	+	2	┣_━╋					┣	<b>  </b>
HAMPOTON MW-5	3-15-04 1345	GW GW	+	2	┝──╊					<b> </b>	
HAMPTON MW-7	3-15-04 1420	GW GW	+	2	<b></b>					<u> </u>	┨╾╍╍╍╸┨
AMPTON MW-11 Matrix SW (Surface Water) · GW	3-15-04 1510 (Ground Water) WW (Waste	<b>.</b>	W (Drinki	2 ng Wate	LL d) - SL (Slu	eobi	50 (Soil)		) · Othe	l	L
EMARKS			II (BIIIII	ng Water				02 (0	iy Oalo		y)
Please provide	2 a Seseva	fe	MPK	Dir.	$F \mathcal{L}$	2 -	00	cla			
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location, 11a	mpion, Mr	IKCU	TE	, 00	LZE	N S	·, F	1000	κiν	こうで	
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ACZ Labo	ratorie	es, Inc.	34-5493	64	1490	- 5-8				IAIN ISTOI		
Report to:												
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Name: Greag WJ, Company: Bur Imaton			7							499		·
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Company:		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1	Telep				• • • •				
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Company:	1 144 (2.**		1									*****
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If sample(s) received past holdir	a time (HT)	or if insuffici	∟ ent HT re									
analysis before expiration, shall										NO		
If "NO" then ACZ will contact cli	•	•			-					l		
is indicated, ACZ will proceed w	Ith the reque	sted analyse:	s, even if									
PROJECT INFORMATION				ANA	LYSES	REQU	ESTED	(attach	listor	use quote	numt	ber)
Quote #:												
Project/PO #: MISC Grow	INO WOTE	Spanio	1	2			[	1			Í	•
Shipping Co.:			1	of Containers								
Tracking #:	·····		1	onta	[		Í	1			1	
Reporting state for compliance	testina [,]		1	ŭ								
Are any samples NRC licensat		······································	-{	0 #	1 2		1					
SAMPLE IDENTIFICATION		E:TIME	Matrix		0			1				
			_		2							
COZZENS MW-1	3-15-0		GW	<u> </u>		┨────						
Flora Vista MW-1	3-16-04		GW	<u> </u>	2	┣		<u> </u>				
TRIP Blank	3-16-04	0920	4W		(	Ļ						
			<u> </u>									
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Matrix SW (Surface Water) · GW	Ground Wate	r) · WW (Waste '	Water) · D	W (Drinkl	ng Wate	r) · SL (S	iudae) ·	SO (Soll		l) · Other /S	pecify)	
REMARKS						,	3-1	(200)		, 5		ندي
PLEASE PRAVID	E SE	PANTE	R	Ca:	NTS	s F	-04	) C	AC	H		
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**AGZZ Laboratories, Inc.** 2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

March 30, 2004

Gregg Wurtz Burlington Resources, Inc. 3401 E. 30th St. PO BOX 4289 Farmington, NM 87402-4289

Project ID: MISC GW SAMPLING ACZ Project ID: L44968

Gregg Wurtz:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on March 17, 2004. This project has been assigned to ACZ's project number, L44968. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 10.0. The enclosed results relate only to the samples received under L44968. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after April 30, 2004. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than \$10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years. Please notify your Project Manager if you have other needs.

If you have any questions, please contact your Project Manager or Customer Service Representative.

30/Mar/04

Sue Barkey, Project Manager, has reviewed and approved this report in its entirety.





L44968: Page 1 of 8

REPAD.01.11.00.01



# Organic Reference

Report He	eader Explanations							
Batch	A distinct set of samples analyzed at a specific t	lime						
Found	Value of the QC Type of interest							
Limit	Upper limit for RPD, in %.	Upper limit for RPD, in %.						
Lower	<ul> <li>Lower Recovery Limit, in % (except for LCSS, r</li> </ul>	ng/Kg)						
LCL	Lower Control Limit							
MDL	Method Detection Limit. Same as Minimum Rep	porting Limit. Allows for	instrument and annual fluctuations.					
PCN/S	SCN A number assigned to reagents/standards to tra	ce to the manufacturer's	certificate of analysis					
PQL	Practical Quantitation Limit							
QC	True Value of the Control Sample or the amount	added to the Spike						
Rec	Amount of the true value or spike added recover	red, in % (except for LCS	SS, mg/Kg)					
RPD	Relative Percent Difference, calculation used for	r Duplicate QC Types						
Upper	<ul> <li>Upper Recovery Limit, in % (except for LCSS, r</li> </ul>	ng/Kg)						
UCL	Upper Control Limit							
Sampi	le Value of the Sample of interest							
QC Sampl	le Types							
SURR	8 Surrogate	LFM	Laboratory Fortified Matrix					
INTS	Internal Standard	LFMD	Laboratory Fortified Matrix Duplicate					
DUP	Sample Duplicate	LRB	Laboratory Reagent Blank					
LCSS	Laboratory Control Sample - Soil	MS/MSD	Matrix Spike/Matrix Spike Duplicate					
LCSW	/ Laboratory Control Sample - Water	PBS	Prep Blank - Soil					
LFB	Laboratory Fortified Blank	PBW	Prep Blank - Water					
QC Sampl	le Type Explanations							
Blanks	s Verifies that there is no	or minimal contamination	on in the prep method procedure.					
Contro	ol Samples Verifies the accuracy of	f the method, including t	he prep procedure.					
Duplic	ates Verifies the precision of	f the instrument and/or n	nethod.					
In the second		trix interferences, if any.						
	ifiers (Qual)							
В	Analyte detected in daily blank							
Н	Analysis exceeded method hold time.							
J	Analyte concentration detected at a value betwe							
R	Poor spike recovery accepted because the other	•	•					
Т	High Relative Percent Difference (RPD) accepte		entrations are less than 10x the MDL.					
U	Analyte was analyzed for but not detected at the							
V	High blank data accepted because sample conc	-						
W	Poor recovery for Silver quality control is accepted	ed because Silver often	precipitates with Chloride.					
X	Quality contreol sample is out of control.							
Z	Poor spike recovery is accepted because sample		mes greater than spike concentration.					
P	Analyte concentration differs from second detect	•						
E	Analyte concentration is estimated due to result	-	nge.					
M Method Re	Analyte concentration is estimated due to matrix eferences	interferences.						
(1)	EPA 600/4-83-020. Methods for Chemical Analy	sis of Water and Waste	s, March 1983.					
(2)	EPA 600/4-90/020. Methods for the Determinati	on of Organic Compoun	ds in Drinking Water (I), July 1990.					
(3)	EPA 600/R-92/129. Methods for the Determinat	ion of Organic Compoun	nds in Drinking Water (II), July 1990.					
(5)	EPA SW-846. Test Methods for Evaluating Solid	d Waste, Third Edition w	ith Update III, December, 1996.					
(6)	Standard Methods for the Examination of Water	and Wastewater, 19th e	dition, 1995.					
Commente	S							
(1)	QC results calculated from raw data. Results ma	av varv slightly if the rou	nded values are used in the calculations.					
10								
(2) REDINO2 4	Organic analyses are reported on an "as receive							

REPIN03.11.00.01



2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

#### **Burlington Resources, Inc.**

# Organic Extended Qualifier Report

## ACZ Project ID: L44968

ACZ ID WORKNUM PARAMETER	METHOD	QUAL DESCRIPTION	QUAL
L44968-01 WG169653 Benzene	M8021B GC/PID	V7 Calibration verification recovery was above the method control limit for this analyte, however the average % difference or % drift for all the analytes met method criteria.	

ACZ Laboratories, Inc. 2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493	Sample Receipt			
Burlington Resources, Inc. MISC GW SAMPLING	ACZ Proje Date Rec Receiv		3/	L44968 17/2004 coryd
Receipt Verification				
		YES	NO	NA
1) Does this project require special handling procedures such as CLP protocol?				Ö
2) Are the custody seals on the cooler intact?		Ö		
3) Are the custody seals on the sample containers intact?				Ö
4) Is there a Chain of Custody or other directive shipping papers present?		Ö		
5) Is the Chain of Custody complete?		Ö		
6) Is the Chain of Custody in agreement with the samples received?		Ö		
7) Is there enough sample for all requested analyses?		Ö		
8) Are all samples within holding times for requested analyses?		Ö		
9) Were all sample containers received intact?		Ö	-	
10) Are the temperature blanks present?		Ö	-	
11) Are the trip blanks (VOA and/or Cyanide) present?		Ö		
12) Are samples requiring no headspace, headspace free?		Ö		
13) Do the samples that require a Foreign Soils Permit have one?				Ö

Exceptions: If you answered no to any of the above questions, please describe

N/A

Contact (For any discrepancies, the client must be contacted)

N/A

## Shipping Containers

Cooler Id	Temp (°C)	Rad (µR/hr)	Client must contact ACZ Project Manager if analysis should not proceed
ACZ	0.4	12	for samples received outside of thermal preservation acceptance criteria.

# Burlington Resources, Inc.

MISC GW SAMPLING

Sample Receipt

ACZ Project ID: L44968 Date Received: 3/17/2004 Received By: coryd

Sample Container Preservation

SAMPLE	CLIENT ID	R < 2	G < 2	Y < 2	YG< 2	B < 2	BG< 2	0 < 2	T >12	P >12	N/A	RAD
L44968-01 I	MARCOTE MW-2										Ö	
Sample Container Preservation Legend												
Abbreviatio	n Description	Contai	ner Type	Pres	ervative	/Limits						
В	Filtered/Sulfuric	BLUE		pH n	nust be <	2						
BG	Filtered/Sulfuric	BLUE G	BLASS	pH n	nust be <	2						
G	Filtered/Nitric	GREEN	I	pH n	pH must be < 2							
0	Raw/Sulfuric	ORANO	θE	pНn	pH must be < 2							
Р	Raw/NaOH	PURPL	E	pНп	nust be >	12						
т	Raw/NaOH Zinc Acetate	TAN		pНп	nust be >	12						
Y	Raw/Sulfuric	YELLO	W	pH n	nust be <	2						
YG	Raw/Sulfuric	YELLO	N GLASS	3 pHm	pH must be < 2							
N/A	No preservative needed	Not app	licable									
RAD	Gamma/Beta dose rate	Not app	licable	must	be < 250	) µR/hr						

# WELL DEVELOPMENT AND SAMPLING LOG

Project No.:_		Proi	ect Nam	e: Marcote		ent: Burlir	naton				
Location:_					Developm		_				
					•			mo = 1/1/9	Neathar clear 80s		
Project Manager <u>MJN</u> Date <u>6/21/04</u> Start Time <u>1448</u> Weather <u>clear 80s</u> Depth to Water <u>30.05</u> Depth to Product <u>na</u> Product Thickness: <u>na</u> <u>Measuring Point TOC</u>											
Water Column Height Well Dia2"											
water Colum	in Heigh	( <u>   8.80  </u>		Dia.	2						
Sampling Me	ethod: Si	ubmersi	ible Pum		Centrifuga	IPump [	Peristal	tic Pump	□ Other □		
, 0				. —		. —	-				
	Be	ottom V	alve Bai	ler	Do	ouble Chec	k ValvLBa	iler S	Stainless-Steel Kemrter		
Criteria: 3 t	o 5 Casi	ng Volu	mes of V	Water Rem	oval X stat	oilization of	Indicator F	Parameters	s X Other <u>or bail dry</u>		
					Water Volu	me in Well					
	ft of wat	er		Gallons			Ounces		Gal/ <b>oz</b> to be removed		
8.80	) x 0.16			1.44					4.31		
			- <u> </u>								
Time	pН	S	SC	Temp	ORP	D.O.	Turbidity	/ Vol Ev	vac. Comments/		
(military)	(su)	(umho	os/cm)	(°F)	(millivolts)	(mg/L)	(NTU)	( ga	l) Flow rate		
1448	6.59	14	00	68.2				.25	silty		
	6.69	13	310	61.8				.5	silty		
	6.44	13	390	60.4				.75	i silty		
	6.49	12	230	59.3				2.5	i silty		
- <u> </u>	6.46	13	890	58.6				3.5	i silty		
	6.45	13	310	58.9		-		4.0	) silty		
	6.45	13	90	58.6				4.2	5 silty		
1504	6.49	13	40	58.3				4.5	i silty		
1304	0.45	10	40	56.5							
							[				
Final:							Ferrous				
Time p	I S	c I	Temp	Eh-ORP	D.O. T	urbidity	Iron	Vol Evac.	. Comments/Flow Rate		
		340	58.3					4.5	silty		

COMMENTS: well is bailing down	

INSTRUMENTATION: pH Meter X _____ Temperature Meter x DO Monitor _____ Other _____ Conductivity Meter X ______ Water Disposal <u>onsite</u> Sample ID <u>MW-2</u> Sample Time__1510_____ Analysis <u>BTEX</u> MS/MSD_____ BD____ BD_____ BD_Name/Time_____ TB_____

AGZ Lal	boratories, Inc nboat Springs, CO 80487	Org	Organic Analytical Results					
-	<b>s, Inc.</b> SC SAMPLING V-2 MARCOTE		ACZ Sample ID: Date Sampled: Date Received: Sample Matrix:	<b>L46372-0</b> 06/21/04 06/24/04 Ground V	15:10			
Benzene, Toluen Analysis Method Extract Method:		Xylene	Analyst: Extract Date: Analysis Date: Dilution Factor:	km 06/29/04 06/29/04 1				
Compound Compound		CAS	Result QUAL	)X(0) IU)mikis:	IMIDIL.	12(0)L		
Benzene	a foreigned a before an a second and a second and a second and a second a second a second a second a second a s	000071-43-2		* ug/L	0.3	1		
Ethylbenzene		000100-41-4	U	ug/L	0.2	1		
m p Xylene		01330 20 7	U	ug/L	0.4	2		
o Xylene		00095-47- 6	U	ug/L	0.2	1		
Toluene		000108-88-3	U	ug/L	0.2	1		
Surrogate Recoveries		CAS	% Recovery	X@ Units	IT(C)F	t⊎ <b>t</b> ejL		

000460-00-4

98.8

Bromofluorobenzene	
--------------------	--

%

83

117

# WELL DEVELOPMENT AND SAMPLING LOG

Project No.: <u>30003.0</u>	Project Name:_ <u>Burlington Marcote 1</u>	Client: <u>Burlington Resources</u>
Location:_Marcote Pool Unit 1	Well No: <u>MW-3</u>	Development <u>Sampling</u>
Project ManagerMJN	Date6/21/04Start Time1417	Weather_ <u>_sunny 80s</u>
Depth to Water <u>36.62</u>	Depth to Product <u>na</u> Product Thickness <u>na</u>	_ Measuring PointTOC
Water Column Height2.04	Well Dia2"	

Sampling Method: Submersible Pump Centrifugal Pump 
Peristaltic Pump Other

Bottom Valve Bailer x

Double Check Valve Bailer 
Stainless-Steel Kemmerer

Criteria: 3 to 5 Casing Volumes of Water Removal X stabilization of Indicator Parameters X Other: or bail dry

	Water Volu	ıme in Well	
Gal/ft x ft of water	Gallons	Ounces	Gal/oz to be removed
2.04 x .16	.33		.99

Time (military)	pH (su)	SC (umhos/cm)	Temp (°F)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gal.)	Comments/ Flow rate
1417	6.42	1560	72.4			· · · · · · · · · · · · · · · · · · ·	.14	very silty
<u></u>	6.60	1400	65.4				.31	very silty
	6.59	1380	62.8				.44	very silty
	6.55	1380	62.4			<u> </u>	.58	very silty
	6.53	1390	60.9				.72	very silty
<u>1426</u>	6.57	1350	60.7				1	very silty

Final:								
Time	pН	SC	Temp	Eh-ORP	D.O.	Turbidity	Vol Evac.	Comments/Flow Rate
<u>1426</u>	6.57	1350	60.7					very silty

COMMENTS: There was no water in the well. Probably due to seasonal drop in water level due to lack of local irrigation.

INSTRUMENTATION:	pH Meter X	Temperatu	re Meter x
	DO Monitor	Other	
Condu	uctivity Meter <b>X</b>		
Water Disposal <u>on site</u>	Sample ID_ <u>mw-3</u>	Sample Time1430	
Analysis <u>BTEX</u>			
MS/MSD	BD	BD Name/Time	ТВ

ACZ Laboratories, In 2773 Downhill Drive Steamboat Springs, CO 80487	<b>C.</b> (800) 334-5493	Org	anic Ar Resu		ical
Burlington Resources, Inc.Project ID:MISC SAMPLINGSample ID:MW-3 MARCOTE		ACZ Sample ID: Date Sampled: Date Received: Sample Matrix:	<b>L46372-0</b> 06/21/04 06/24/04 Ground V	14:30	
Benzene, Toluene, Ethylbenzene & Analysis Method: M8021B GC/PID Extract Method: Method	Xylene	Analyst: Extract Date: Analysis Date: Dilution Factor:	km 06/29/04 06/29/04 1		
Compound Compound	CAS	Result GUAL	X(Q) Umite	- Mayi	1:(0)L
Benzene	000071-43-2	U	* ug/L	0.3	1
Ethylbenzene	000100-41-4	U	ug/L	0.2	1
m p Xylene	01330 20 7	U	ug/L	0.4	2
o Xylene	00095-47- 6	U	ug/L	0.2	1
Toluene	000108-88-3	U	ug/L	0.2	1
Surrogate Recoveries Surrogate	CAS		XQ Units	LCL	U(c)L
Bromofluorobenzene	000460-00-4	97.8	%	83	117

AGZ Labo 2773 Downhill Drive Steamboat S Report to:			-5493	4	637	2				HAIN of	
	+2			Addr	ess: (	340	E EF	ŧST	SOT	H STREE	5T
Name: Gregg Wur Company: Burlingta	N Resou	vces	1								
E-mail:				Telep	hone:	5	05	32	69	499 1700	
Copy of Report to:			_								
Name:				E-ma	il.						
Company:			1		hone:						
Invoice to:											·
				A .1.4.							
Name: SAME			-	Addre	ess;						
Company:		<b>51.1.1.1</b>	$\left\{ \right.$	Talan					·····		
E-mail: If sample(s) received past holdin	a time (HT) or i	if incufficien	 At HT ron		hone:					YES	
analysis before expiration, shall if "NO" then ACZ will contact clie is indicated, ACZ will proceed wi	ACZ proceed w ont for further ir	ith requestenstruction.	d short f neither	HT ana • "YES"	lyses? ' nor "N	0"	a will be	ə qualif	ied.	NO	_
PROJECT INFORMATION				AN	ALYSES	REQU	ESTED	(attaci	h list or	use quote nu	mber)
Quote #:											
Project/PO #: MISC SA	mpling			srs							
Shipping Co.:	- J		]	of Containers				ļ			
Tracking #:			]	ont							
Reporting State for compliance	e testing:			of C	I Ã						
				#	15						
SAMPLE IDENTIFICATION	DATE:		Matrix					<u> </u>	<u> </u>	<u> </u>	
MW-3 Marcore	6/21/04	1430	Gw		1 +						-
MW-2 marcore	6/21/04	1555	GW	9	Ŧ						
MW-1 FLORA VISTA MW-1 COZZENS	6/21/04	1650	GW	à	+						
MW-2 (OZZENS	6/21/04	1705		3	+				+		
MW-1 Johnson Federal# 4	6/22/04	1247	aw	ð	+			<u> </u>			1
TVIP DIANK	6/22/04	1300	Ø	1 1	1				1		+
	<u> </u>						<b> </b>		1		1
		· · · · ·		1							
,*											
Matrix SW (Surface Water) · GW	(Ground Water)	WW (Waste W	/ater) DW	/ (Drinkii	ng Water)	· SL (SI	udgə) · S	O (Soil)	· OL (Oil)	· Other (Specify	)
REMARKS											
Please provide Severo 1)marcore 3, 2) Klova Vista 4	te repor ) cozzeru ) Johnso	st for e s w Feder	each al	100	0410	M					
RELINQUISHED BY	:	DATE:TI	ME		REC	EIVED	BY:		D/	TE:TIME	PAG
		012210			X						
		1 and 101	<i>N</i>		$\Delta_{m}$				1.	23-04	Of
			<u> </u>			5			116		1

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Analytical Report

July 08, 2004

Gregg Wurtz Burlington Resources, Inc. 3401 E. 30th St. PO BOX 4289 Farmington, NM 87402-4289

Project ID: MISC SAMPLING ACZ Project ID: L46372

Gregg Wurtz:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on June 24, 2004. This project has been assigned to ACZ's project number, L46372. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 10.0. The enclosed results relate only to the samples received under L46372. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after August 08, 2004. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than \$10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years. Please notify your Project Manager if you have other needs.

If you have any questions, please contact your Project Manager or Customer Service Representative.

08/Jul/04

Sue Barkey, Project Manager, has reviewed and approved this report in its entirety.





REPAD.01.11.00.01



Organic Reference

Rep	oorti Header	Explanations				
	Batch	A distinct set of samples analyzed at a specific time				
	Found	Value of the QC Type of interest				
	Limit	Upper limit for RPD, in %.				
	Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)				
	LCL	Lower Control Limit				
	MDL	Method Detection Limit. Same as Minimum Reporting L	imit. Allows for	instrument and annual fluctuations.		
	PCN/SCN	A number assigned to reagents/standards to trace to the	e manufacturer's	s certificate of analysis		
	PQL	Practical Quantitation Limit				
	QC	True Value of the Control Sample or the amount added t	o the Spike			
	Rec	Amount of the true value or spike added recovered, in %	o (except for LC	SS, mg/Kg)		
	RPD	Relative Percent Difference, calculation used for Duplica	ate QC Types			
	Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)				
	UCL	Upper Control Limit				
	Sample	Value of the Sample of interest				
(Q)C)	Sample Typ	Jes				
	SURR	Surrogate	LFM	Laboratory Fortified Matrix		
	INTS	Internal Standard	LFMD	Laboratory Fortified Matrix Duplicate		
	DUP	Sample Duplicate	LRB	Laboratory Reagent Blank		
	LCSS	Laboratory Control Sample - Soil	MS/MSD	Matrix Spike/Matrix Spike Duplicate		
	LCSW	Laboratory Control Sample - Water	PBS	Prep Blank - Soil		
I SAN AND AND A	LFB	Laboratory Fortified Blank	PBW	Prep Blank - Water		
(Ø)C){	Sample Typ	be Explanations				
	Blanks	Verifies that there is no or minir	nal contamination	on in the prep method procedure.		
	Control San	nples Verifies the accuracy of the me	thod, including	he prep procedure.		
	Duplicates	Verifies the precision of the inst	rument and/or r	nethod.		
<b>Feiture</b>	Spikes/Forti		ferences, if any	•		
All of the second	Qualifiers					
	В	Analyte detected in daily blank				
	H	Analysis exceeded method hold time.				
	J	Analyte concentration detected at a value between MDL		in the given limite		
	R T	Poor spike recovery accepted because the other spike in		•		
	T U	High Relative Percent Difference (RPD) accepted becau Analyte was analyzed for but not detected at the indicate	•	entrations are less than Tox the MDL.		
	V	High blank data accepted because sample concentration		her than blank concentration		
	W ·		-			
	X	Poor recovery for Silver quality control is accepted becau Quality control sample is out of control.	use Silver Ollen	precipitates with chilonde.		
			atration is four ti	mas greater than spike concentration		
	<ul> <li>Poor spike recovery is accepted because sample concentration is four times greater than spike concentration.</li> <li>Analyte concentration differs from second detector by more than 40%.</li> </ul>					
	' E	Analyte concentration dimension and second detector by ma		nge		
	∟ M	Analyte concentration is estimated due to result exceeding	-	nge.		
Meth	nod Referen	1005				
	(1)	EPA 600/4-83-020. Methods for Chemical Analysis of W				
	(2)	EPA 600/4-90/020. Methods for the Determination of Or				
	(3)	EPA 600/R-92/129. Methods for the Determination of O	•	0 (), ,		
	(5)	EPA SW-846. Test Methods for Evaluating Solid Waste,				
<b>Hereiteren</b>	(6) Imentis	Standard Methods for the Examination of Water and Was				
	(1)	QC results calculated from raw data. Results may vary s		nded values are used in the calculations.		
(	(2)	Organic analyses are reported on an "as received" basis	•			

REPIN03.11.00.01

# ACZ Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

#### **Burlington Resources, Inc.**

# Organic Extended Qualifier Report

## ACZ Project ID: L46372

/A(C/Z   B)	WORKNUM	PARAMETER	METHOD	(QU/AL	DESCRIPTION
L46372-01	WG174234	Benzene	M8021B GC/PID	V8	Calibration verification recovery was below the method control limit for this analyte, however the average % difference or % drift for all the analytes met method criteria.
L46372-02	WG174234	Benzene	M8021B GC/PID	V8	Calibration verification recovery was below the method control limit for this analyte, however the average % difference or % drift for all the analytes met method criteria.

# ALGZ Laboratories, Inc. 2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493 Burlington Resources, Inc. MISC SAMPLING ACZ Project Date Receit

# Sample Receipt

NO

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NA

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ACZ Project ID:	L46372
Date Received:	6/24/2004
Received By:	

YES

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Х

X

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X X

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X

**Receipt Verification** 

- 1) Does this project require special handling procedures such as CLP protocol?
- 2) Are the custody seals on the cooler intact?
- 3) Are the custody seals on the sample containers intact?
- 4) Is there a Chain of Custody or other directive shipping papers present?
- 5) Is the Chain of Custody complete?
- 6) Is the Chain of Custody in agreement with the samples received?
- 7) Is there enough sample for all requested analyses?
- 8) Are all samples within holding times for requested analyses?
- 9) Were all sample containers received intact?
- 10) Are the temperature blanks present?
- 11) Are the trip blanks (VOA and/or Cyanide) present?
- 12) Are samples requiring no headspace, headspace free?
- 13) Do the samples that require a Foreign Soils Permit have one?

Exceptions: If you answered no to any of the above questions, please describe

N/A

## Contact (For any discrepancies, the client must be contacted)

N/A

## Shipping Containers

Cooler Id	Temp (°C)	Rad (µR/hr)
ACZ	1.6	15

Client must contact ACZ Project Manager if analysis should not proceed for samples received outside of thermal preservation acceptance criteria.

Notes



# Burlington Resources, Inc.

MISC SAMPLING

# Sample Receipt

ACZ Project ID: L46372 Date Received: 6/24/2004 Received By:

## Sample Container Preservation

SAMPLE C	CLIENT ID	R < 2	G < 2	Y < 2	YG< 2	B < 2	BG< 2	0 < 2	T >12	P >12	N/A	RAD
L46372-01	MW-3 MARCOTE										Ö	
L46372-02 N	MW-2 MARCOTE				1						Ö	
Sample Co	intainer Preservation Lege	માલ			1							
Abbreviation	n Description	Contair	ner Type	Pres	ervative	Limits						
R	Raw/Nitric	RED		pH m	ust be <	3						
В	Filtered/Sulfuric	BLUE		pH m	nust be <	2						
BG	Filtered/Sulfuric	BLUE G	LASS	pH must be < 2								
G	Filtered/Nitric	GREEN		pH m	nust be <	2						
0	Raw/Sulfuric	ORANG	θE	pH m	nust be <	2						
Р	Raw/NaOH	PURPLI	E	pH m	iust be >	12						
т	Raw/NaOH Zinc Acetate	TAN		pH m	iust be >	12						
Υ	Raw/Sulfuric	YELLO\	N	pH must be < 2								
YG	Raw/Sulfuric	YELLO	N GLASS	6 pHm	iust be <	2						
N/A	No preservative needed	Not app	licable									
RAD	Gamma/Beta dose rate	Not app	licable	must	be < 250	) µR/hr						

,

## WELL DEVELOPMENT AND SAMPLING LOG

Project No.: <u>30003.0</u> Location:_Marcote Pool Unit 1	Project Name: <u>Burlington Marcote 1</u> Well No: <u>MW-1</u>	Client: <u>Burlington Resources</u> Development <u>Sampling</u>
Project ManagerMJN	Date9/29/04Start Time0940	Weather <u>60s</u>
Depth to Water 23.20	Depth to Product <u>na</u> Product Thickness <u>na</u>	_ Measuring Point
Water Column Height10.75	Well Dia2"	

Sampling Method: Submersible Pump

Bottom Valve Bailer x Double Check Valve Bailer Stainless-Steel Kemmerer

Criteria: 3 to 5 Casing Volumes of Water Removal X stabilization of Indicator Parameters X Other: or bail dry

	Water Volu			
Gal/ft x ft of water	Gallons	Ounces	Gal/oz to be removed	
10.75 x 0.16	1.72		5.17	

Time (military)	pH (su)	SC (umhos/cm)	Temp (°F)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gal.)	Comments/ Flow rate
0943	7.04	5070	60.1				.25	clear
· · · · · · · · · · · · · · · · · · ·	6.86	4810	60.9				.5	clear
	6.87	5150	61.3				.75	gray
	7.07	4880	60.9			. <u> </u>	2	gray, silty
	6.84	4830	61.0				3	gray, silty
	6.86	4790	61.0	· · · · · · · · · · · · · · · · · · ·			4.5	gray, silty
	6.89	4810	61.2				4.75	gray, silty
	6.88	4820	61.2		-		5	gray, silty
<u>1000</u>	<u>000</u> 6.91 4810		61.3				5.25	gray, silty
								<u></u>

Final:					-			
Time	рН	SC	Temp	Eh-ORP	D.O.	Turbidity	Vol Evac.	Comments/Flow Rate
<u>1000</u>	6.91	4810	61.3				5.25	gray, silty

COMMENTS:		
INSTRUMENTATION:	pH Meter X	Temperature Meter x
	DO Monitor	Other
Cond	uctivity Meter X	
Water Disposal <u>na</u>	Sample ID <u>na</u>	Sample Time1005
BTEX VOCs Alkalinit	y TDS Cations	Anions Nitrate Nitrite Ammonia TKN NMWQCC Metals Total Phosphorus
MS/MSD	BD	BD Name/Time TB_tb092104-03_

AGZ	Laboratories,	Inc.
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ANTER GE

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

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# Organic Analytical Results

Burlington Res Project ID: Sample ID: Locator:	sources, Inc. MW-1 MARCOTE	ACZ Sample ID: Date Sampled: Date Received: Sample Matrix:	09/29/04 10:05 10/01/04
Benzene, To	oluene, Ethylbenzene & Xylene	Analyst:	km

Analysis Method: Extract Method:	M8021B GC/PID Method		Extrac	t Date: s Date: Factor:	10/06/0 10/06/0 1		
Compound Compound		CAS	Rosult	(0]U/A/L	X(0) Unite	MD)L.	≥(0)L
Benzene		000071-43-2		U	ug/L	0.3	1
Ethylbenzene		000100-41-4	38		* ug/L	0.2	1
m p Xylene		01330 20 7	36.9		* ug/L	0.4	2
o Xylene		00095-47- 6	1	J	ug/L	0.2	1
Toluene		000108-88-3		U	ug/L	0.2	1
Surrogate Recoveries		CAS	% Recovery		XQ Units	1L(6]L	U(C)L
Bromofluorobenzene		000460-00-4	110.4		%	83	117

AGZ Laboratories, Inc. 2773 Downhill Drive Steamboat Springs, CO 80487(800) 334-5493

## **Burlington Resources, Inc.**

Project ID:

Sample ID: **MW-1 MARCOTE** 

# Inorganic Analytical Results

ACZ Sample ID:	L48066-01
Date Sampled:	09/29/04 10:05
Date Received:	10/01/04
Sample Matrix:	Ground Water

Metals Analysis								
Parameter	EPA Method	Result	Qual XQ	Units	MDL	POL	Date	Analyst
Arsenic, dissolved	M200.8 ICP-MS		U	mg/L	0.001	0.005	10/24/04 0:09	sp
Barium, dissolved	M200.7 ICP	0.017	В	mg/L	0.006	0.02	10/18/04 14:28	wfg
Cadmium, dissolved	M200.8 ICP-MS	0.0009	В	mg/L	0.0002	0.001	10/24/04 0:09	sp
Calcium, dissolved	M200.7 ICP	286	*	mg/L	0.4	2	10/18/04 14:28	wfg
Chromium, dissolved	M200.8 ICP-MS	0.0003	В	mg/L	0.0002	0.001	10/24/04 0:09	sp
Copper, dissolved	M200.8 ICP-MS	0.001	В	mg/L	0.001	0.005	10/24/04 0:09	sp
Iron, dissolved	M200.7 ICP	0.19		mg/L	0.02	0.1	10/18/04 14:28	wfg
Magnesium, dissolved	M200.7 ICP	39.9		mg/L	0.4	2	10/18/04 14:28	wfg
Manganese, dissolved	M200.7 ICP	0.65		mg/L	0.01	0.05	10/18/04 14:28	wfg
Potassium, dissolved	M200.7 ICP	2.5		mg/L	0.6	2	10/18/04 14:28	wfg
Sodium, dissolved	M200.7 ICP	727		mg/L	0.6	2	10/18/04 14:28	wfg
Zinc, dissolved	M200.7 ICP		U	mg/L	0.02	0.1	10/18/04 14:28	wfg
Wet Chemistry								
Parameter	EPA Method	Result	Qual XQ	Units	MDL	POL	Date	Analiyst
Alkalinity as CaCO3	SM2320B - Titration							
Bicarbonate as		318		mg/L	2	10	10/11/04 0:00	mah
CaCO3								
Carbonate as CaCO3	3		U	mg/L	2	10	10/11/04 0:00	mah
Hydroxide as CaCO3	3		U	mg/L	2	10	10/11/04 0:00	mah
Total Alkalinity		318		mg/L	2	10	10/11/04 0:00	mah
Cation-Anion Balance	Calculation							
Cation-Anion Balance	•	-3.4		%			10/25/04 0:00	calc
Sum of Anions		53.2		meq/L	0.1	0.5	10/25/04 0:00	calc
Sum of Cations		49.7		meq/L	0.1	0.5	10/25/04 0:00	calc
Chloride	M325.2 - Colorimetric	99		mg/L	1	5	10/16/04 19:36	ksj
Conductivity @25C	M120.1 - Meter	4030		umhos/cm	1	10	10/11/04 20:16	mah
Lab Filtration	SM 3030 B						10/11/04 11:20	ktd
Lab Filtration & Acidification	SM 3030 B						10/06/04 14:56	ak
pH (lab)	M150.1 - Electrometric	7.1	Н	units	0.1	0.1	10/11/04 20:16	mah
Sulfate	M375.3 - Gravimetric	2100		mg/L	10	50	10/14/04 9:26	nlm

REPIN.01.11.00.01



## Inorganic Reference

Report Header Explanations Batch A distinct set of samples analyzed at a specific time Found Value of the QC Type of interest Limit Upper limit for RPD, in %. Lower Lower Recovery Limit, in % (except for LCSS, mg/Kg) MDL. Method Detection Limit. Same as Minimum Reporting Limit. Allows for instrument and annual fluctuations. PCN/SCN A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis PQL Practical Quantitation Limit, typically 5 times the MDL. 00 True Value of the Control Sample or the amount added to the Spike Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg) Rec RPD Relative Percent Difference, calculation used for Duplicate QC Types Upper Recovery Limit, in % (except for LCSS, mg/Kg) Upper Value of the Sample of interest Sample

QC Sample T	ypes		
AS	Analytical Spike (Post Digestion)	LCSWD	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	LFB	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	LFM	Laboratory Fortified Matrix
CCV	Continuing Calivation Verification standard	LFMD	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	LRB	Laboratory Reagent Blank
ICB	Initial Calibration Blank	MS	Matrix Spike
ICV	Initial Calibration Verification standard	MSD	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	PBS	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	PBW	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	PQV	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	SDL	Serial Dilution

**QC Sample Type Explanations** Blanks Verifies that there is no or minimal contamination in the prep method or calibration procedure. Control Samples Verifies the accuracy of the method, including the prep procedure. Duplicates Verifies the precision of the instrument and/or method. Spikes/Fortified Matrix Determines sample matrix interferences, if any.

#### Verifies the validity of the calibration. ACZ Qualifiers (Qual) В Analyte concentration detected at a value between MDL and PQL. Н Analysis exceeded method hold time. pH is a field test with an immediate hold time. R Poor spike recovery accepted because the other spike in the set fell within the given limits. High Relative Percent Difference (RPD) accepted because sample concentrations are less than 10x the MDL. Т U Analyte was analyzed for but not detected at the indicated MDL v High blank data accepted because sample concentration is 10 times higher than blank concentration Poor recovery for Silver quality control is accepted because Silver often precipitates with Chloride. W Х Quality control sample is out of control. 7 Poor spike recovery is accepted because sample concentration is four times greater than spike concentration. Mathod References (1) EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983. (2) EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993. (3) EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994. (5) EPA SW-846. Test Methods for Evaluating Solid Waste, Third Edition with Update III, December 1996. (6) Standard Methods for the Examination of Water and Wastewater, 19th edition, 1995. QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations. (1) (2) Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.

(3) Animal matrices for Inorganic analyses are reported on an "as received" basis.

Standard



2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

#### **Burlington Resources, Inc.**

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# Inorganic Extended Qualifier Report

### ACZ Project ID: L48066

ACZ ID	WORKNUM	PARAMETER	METHOD	(QU/AL	DESCRIPTION
L48066-01	WG179980	Calcium, dissolved	M200.7 ICP		The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable.

ACCZ Laboratories, Inc. 2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

# **Organic Analytical** Results

Analyst: km

Burlington Reso	ources, Inc.	ACZ Sample ID:	L48066-02
Project ID:		Date Sampled:	09/29/04 9:30
Sample ID:	MW-2 MARCOTE	Date Received:	10/01/04
Locator:		Sample Matrix:	Ground Water

## Benzene, Toluene, Ethylbenzene & Xylene

Analysis Method: Extract Method:	M8021B GC/PID Method		Analysi	ct Date: s Date: Factor:	10/06/04 10/06/04 1		
Compound Compound		CAS	Result	(OIUAL )	(0) Units	MIDIL	(2(0)L
Benzene		000071-43-2		υ	ug/L	0.3	1
Ethylbenzene		000100-41-4	0.3	J	* ug/L	0.2	1
m p Xylene		01330 20 7	0.7	J	* ug/L	0.4	2
o Xylene		00095-47- 6	0.2	J	ug/L	0.2	1
Toluene		000108-88-3	0.3	J	ug/L	0.2	1
Surrogate Recoveries		GAS	% Recovery		Xe Unite	LCIL	[B(0]]
Bromofluorobenzene		000460-00-4	94.6		%	83	117

## WELL DEVELOPMENT AND SAMPLING LOG

Project No.: <u>30003.0</u> Location:_Marcote Pool Unit 1 Project Manager MJN	Project Name: <u>Burlington Marcote 1</u> Well No: <u>MW-3</u> Date 9/29/04 Start Time 1020	Client: <u>Burlington Resources</u> Development <u>Sampling</u> Weather 60s
Depth to Water 28.72	Depth to Product <u>na</u> Product Thickness <u>na</u> Well Dia. <u>2"</u>	_ Measuring Point

Sampling Method: Submersible Pump

Bottom Valve Bailer x Double Check Valve Bailer 🗆 Stainless-Steel Kemmerer 🗆

Criteria: 3 to 5 Casing Volumes of Water Removal X stabilization of Indicator Parameters X Other: or bail dry

	Water Volu		
Gal/ft x ft of water	Gallons	Ounces	Gal/oz to be removed
9.94 x .16	1.59		4.77

Time (military)	pH (su)	SC (umhos/cm)	Temp (°F)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gal.)	Comments/ Flow rate
1030	7.42	3480	57.2				.5	brown
	7.31	3380	57.5				1	brown
	7.28	3520	57.4				1.5	brown
	7.27	3240	57.4				3	brown
	7.24	3210	57.3				4	brown
	7.27	3460	57.3			<u></u>	4.5	brown
<u>1044</u>	7.30	3420	57.4				5	brown

Final: Time	pН	sc	Temp	Eh-ORP	D.O.	Turbidity	Vol Evac.	Comments/Flow Rate
<u>1044</u>	7.30	3420	57.4				5	brown

COMMENTS: There was no water in the well. Probably due to seasonal drop in water level due to lack of local irrigation.

INSTRUMENTATION: pH Meter	X Ter	nperature Meter x		
DO Moni	itorOth	Other		
Conductivity Meter	r X			
Water Disposal <u>on site</u> Sample	ID_mw-3 Sample Time	1045		
Analysis <u>BTEX</u>				
MS/MSDBD	BD Name/Time	ТВ		

AGZ	Laboratories, I	nc.
2773 Downhill Drive	Steamboat Springs, CO 8048	7 (800) 334-5493

Organic Analytical Results

Burlington Re	sources, Inc.	ACZ Sample ID:	L48066-03
Project ID:		Date Sampled:	09/29/04 10:45
Sample ID:	MW-3 MARCOTE	Date Received:	10/01/04
Locator:		Sample Matrix:	Ground Water

# Benzene, Toluene, Ethylbenzene & Xylene

Analysis Method: Extract Method:	M8021B GC/PID Method	хуленея	Analyst: Extract Date: Analysis Date: Dilution Factor:	10/06/04 10/06/04		
Compound Compound		CAS	Result QUAL	X@_Units	IM(0)L	15(0)F
Benzene		000071-43-2	U	ug/L	0.3	1
Ethylbenzene		000100-41-4	U	* ug/L	0.2	1
m p Xylene		01330 20 7	U	* ug/L	0.4	2
o Xylene		00095-47- 6	U	ug/L	0.2	1
Toluene		000108-88-3	U	ug/L	0.2	1
Surrogate Recoveries						
Surrogate		CAS	% Recovery	X@Units	ILCL.	-U.C.L
Bromofluorobenzene		000460-00-4	90.4	%	83	117

AGZ Laboratories, Inc. 2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

# **Organic Analytical** Results

Analyst: km

Burlington Res	sources, Inc.	ACZ Sample ID:	L48066-07
Project ID:		Date Sampled:	09/29/04 0:00
Sample ID:	TB092104-03	Date Received:	10/01/04
Locator:		Sample Matrix:	Ground Water

# Benzene, Toluene, Ethylbenzene & Xylene

Analysis Method: Extract Method:	M8021B GC/PID Method		Extract Date: Analysis Date: Dilution Factor:	10	0/06/04 0/06/04		,
Compound Compound		CAS	Result QUAL	240	Mater	1(010)	POL
a componina.		$(O_m)^{\alpha}$	AVA-INI (CO7-1)	artes	(011102-)	MIPHE.	10.01
Benzene		000071-43-2	U		ug/L	0.3	1
Ethylbenzene		000100-41-4	U	*	ug/L	0.2	1
m p Xylene		01330 20 7	U	*	ug/L	0.4	2
o Xylene		00095-47- 6	U		ug/L	0.2	1
Toluene		000108-88-3	U		ug/L	0.2	1
Surrogate Recoveries							
Sunrogate		CAS	% Recovery	-)X(0)	Unites	IL(C)L	U(C)L
Bromofluorobenzene		000460-00-4	90.5		%	83	117



Report Header Explanations									
Batch A distinct set of samples analyzed at a specific time									
Found Value of the QC Type of interest									
Limit Upper limit for RPD, in %.									
Lower Recovery Limit, in % (except for LCSS, mg/Kg)	Lower Recovery Limit, in % (except for LCSS, mg/Kg)								
LCL Lower Control Limit	Lower Control Limit								
MDL Method Detection Limit. Same as Minimum Reporting Limit. Allows for instrument and annual fluctuations.	Method Detection Limit. Same as Minimum Reporting Limit. Allows for instrument and annual fluctuations.								
PCN/SCN A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis								
PQL Practical Quantitation Limit									
QC True Value of the Control Sample or the amount added to the Spike									
Rec Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)									
RPD Relative Percent Difference, calculation used for Duplicate QC Types									
Upper Upper Recovery Limit, in % (except for LCSS, mg/Kg)									
UCL Upper Control Limit									
Sample Value of the Sample of interest									
QC Sample Types									
SURR Surrogate LFM Laboratory Fortified Matrix									
INTS Internal Standard LFMD Laboratory Fortified Matrix Duplicate									
DUP         Sample Duplicate         LRB         Laboratory Reagent Blank									
LCSS Laboratory Control Sample - Soil MS/MSD Matrix Spike/Matrix Spike Duplicate									
LCSW Laboratory Control Sample - Water PBS Prep Blank - Soil									
LFB Laboratory Fortified Blank PBW Prep Blank - Water									
QC Sample Type Explanations									
Blanks Verifies that there is no or minimal contamination in the prep method procedure.									
Control Samples Verifies the accuracy of the method, including the prep procedure.									
Duplicates Verifies the precision of the instrument and/or method.									
Spikes/Fortified Matrix Determines sample matrix interferences, if any.									
ACZ Qualifiers (Qual)									
B Analyte detected in daily blank									
H Analysis exceeded method hold time.									
J Analyte concentration detected at a value between MDL and PQL									
R Poor spike recovery accepted because the other spike in the set fell within the given limits.									
T High Relative Percent Difference (RPD) accepted because sample concentrations are less than 10x the MDL.									
U Analyte was analyzed for but not detected at the indicated MDL									
V High blank data accepted because sample concentration is 10 times higher than blank concentration									
W Poor recovery for Silver quality control is accepted because Silver often precipitates with Chloride.									
X Quality control sample is out of control.									
Z Poor spike recovery is accepted because sample concentration is four times greater than spike concentration.									
P Analyte concentration differs from second detector by more than 40%.									
E Analyte concentration is estimated due to result exceeding calibration range.									
E       Analyte concentration is estimated due to result exceeding calibration range.         M       Analyte concentration is estimated due to matrix interferences.         Method References       (1)         EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.									
E       Analyte concentration is estimated due to result exceeding calibration range.         M       Analyte concentration is estimated due to matrix interferences.         Method References       (1)         (1)       EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.         (2)       EPA 600/4-90/020. Methods for the Determination of Organic Compounds in Drinking Water (I), July 1990.									
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<ul> <li>E Analyte concentration is estimated due to result exceeding calibration range.</li> <li>M Analyte concentration is estimated due to matrix interferences.</li> <li>Method References</li> <li>(1) EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.</li> <li>(2) EPA 600/4-90/020. Methods for the Determination of Organic Compounds in Drinking Water (I), July 1990.</li> <li>(3) EPA 600/R-92/129. Methods for the Determination of Organic Compounds in Drinking Water (II), July 1990.</li> <li>(5) EPA SW-846. Test Methods for Evaluating Solid Waste, Third Edition with Update III, December, 1996.</li> <li>(6) Standard Methods for the Examination of Water and Wastewater, 19th edition, 1995.</li> </ul>									
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<ul> <li>E Analyte concentration is estimated due to result exceeding calibration range.</li> <li>M Analyte concentration is estimated due to matrix interferences.</li> <li>Method References</li> <li>(1) EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.</li> <li>(2) EPA 600/4-90/020. Methods for the Determination of Organic Compounds in Drinking Water (I), July 1990.</li> <li>(3) EPA 600/R-92/129. Methods for the Determination of Organic Compounds in Drinking Water (II), July 1990.</li> <li>(5) EPA SW-846. Test Methods for Evaluating Solid Waste, Third Edition with Update III, December, 1996.</li> <li>(6) Standard Methods for the Examination of Water and Wastewater, 19th edition, 1995.</li> </ul>									

REPIN03.11.00.01

# ACZ Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

### Burlington Resources, Inc.

# Organic Extended Qualifier Report

## ACZ Project ID: L48066

A(C)Z []D	WORKNUM	PARAMETER	METHOD	(QU/AL,	DESCRIPTION
L48066-01	WG179312	Ethylbenzene	M8021B GC/PID	N1	See Case Narrative.
		m p Xylene	M8021B GC/PID	N1	See Case Narrative.
L48066-02	WG179312	Ethylbenzene	M8021B GC/PID	N1	See Case Narrative.
		m p Xylene	M8021B GC/PID	N1	See Case Narrative.
L48066-03	WG179312	Ethylbenzene	M8021B GC/PID	N1	See Case Narrative.
		m p Xylene	M8021B GC/PID	N1	See Case Narrative.
L48066-04	WG179312	Ethylbenzene	M8021B GC/PID	N1	See Case Narrative.
		m p Xylene	M8021B GC/PID	N1	See Case Narrative.
L48066-05	WG179312	Ethylbenzene	M8021B GC/PID	N1	See Case Narrative.
		m p Xylene	M8021B GC/PID	N1	See Case Narrative.
L48066-06	WG179312	Ethylbenzene	M8021B GC/PID	N1	See Case Narrative.
		m p Xylene	M8021B GC/PID	N1	See Case Narrative.
L48066-07	WG179312	Ethylbenzene	M8021B GC/PID	N1	See Case Narrative.
		m p Xylene	M8021B GC/PID	N1	See Case Narrative.

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### **Burlington Resources. Inc.**

Burlington Resources, Inc.	ACZ Projec Date Recei Received	ved:	1(	L48066 D/1/2004
Receipt Verification				
		YES	NO	NA
1) Does this project require special handling procedures such as CLP protocol?	[			X
2) Are the custody seals on the cooler intact?		Х		
3) Are the custody seals on the sample containers intact?				X
4) Is there a Chain of Custody or other directive shipping papers present?		Х		
5) Is the Chain of Custody complete?		Х		
6) Is the Chain of Custody in agreement with the samples received?		Х		
7) Is there enough sample for all requested analyses?		Х		
8) Are all samples within holding times for requested analyses?		Х		
9) Were all sample containers received intact?		Х		
10) Are the temperature blanks present?		X		
11) Are the trip blanks (VOA and/or Cyanide) present?		Х		
12) Are samples requiring no headspace, headspace free?		Х		
13) Do the samples that require a Foreign Soils Permit have one?				X

Exceptions: If you answered no to any of the above questions, please describe

N/A

### Contact (For any discrepancies, the client must be contacted)

N/A

### Shipping Containers

Cooler Id		Temp (°C)	Rad (µR/hr)
ACZ		5.2	14
	<u> </u>		
			I <u></u>

Client must contact ACZ Project Manager if analysis should not proceed for samples received outside of thermal preservation acceptance criteria.

Notes



#### **Burlington Resources, Inc.**

# Sample Receipt

ACZ Project ID: Date Received: Received By: L48066 10/1/2004

### Sample Container Preservation

Gamma/Beta dose rate

<b>I .</b>					· · · · · · · · · · · · · · · · · · ·			r		· · · · ·		· · · ·
	CLIENT ID	R < 2	G < 2	Y < 2	YG< 2	B < 2	BG< 2	0 < 2	T >12	P >12	N/A	RAD
L48066-01	MW-1 MARCOTE										Ö	
L48066-02	MW-2 MARCOTE										Ö	
L48066-03	MW-3 MARCOTE										Ö	
L48066-04	MW-1 COZZENS										Ö	
L48066-05	MW-2 COZZENS										Ö	
L48066-06	MW-1 FLORA VISTA										Ö	
L48066-07	TB092104-03										Ö	
Sample Co	ontainer Preservation Lege	nd			1							
Abbreviatio	n Description	Contair	ner Type	Pres	ervative	/Limits	evento de sector de la companya de l					*****
R	Raw/Nitric	RED		pH n	nust be <	2						
R B	Raw/Nitric Filtered/Sulfuric	RED BLUE		•	nust be < nust be <							
			LASS	pH m		2						
В	Filtered/Sulfuric	BLUE		pН m pН m	nust be <	2 2						
B BG	Filtered/Sulfuric Filtered/Sulfuric	BLUE BLUE G		pHm pHm pHm	nust be < nust be <	2 2 2						
B BG G	Filtered/Sulfuric Filtered/Sulfuric Filtered/Nitric	BLUE BLUE G GREEN	θE	, pHm pHm pHm pHm	nust be < nust be < nust be <	2 2 2 2						
B BG G O	Filtered/Sulfuric Filtered/Sulfuric Filtered/Nitric Raw/Sulfuric	BLUE BLUE G GREEN ORANG	θE	рНт рНт рНт рНт рНт	าust be < าust be < าust be < าust be <	2 2 2 2 12						
B BG G O	Filtered/Sulfuric Filtered/Sulfuric Filtered/Nitric Raw/Sulfuric Raw/NaOH	BLUE BLUE G GREEN ORANG PURPLI	)E E	pHm pHm pHm pHm pHm pHm	nust be < nust be < nust be < nust be < nust be >	2 2 2 2 12 12						
B BG G O P T	Filtered/Sulfuric Filtered/Sulfuric Filtered/Nitric Raw/Sulfuric Raw/NaOH Raw/NaOH Zinc Acetate	BLUE BLUE G GREEN ORANG PURPLI TAN YELLOV	)E E	pH m pH m pH m pH m pH m pH m	nust be < nust be < nust be < nust be < nust be > nust be >	2 2 2 12 12 2						

Not applicable

must be < 250 µR/hr

RAD

## WELL DEVELOPMENT AND SAMPLING LOG

Project No.: <u>30003.0</u> Location: <u>Marcot</u> e Pool Unit 1	Project Name: <u>Burlington Marcote 1</u> Well No: MW-1	Client: <u>Burlington Resources</u> Development <b>Sampling</b>		
Project Manager MJN	Date 12/13/04 Start Time 0930	Weather <u>clear 30s</u>		
Depth to Water <u>23.67</u> Water Column Height <u>10.28</u>	Depth to Product <u>na</u> Product Thickness <u>na</u> Well Dia. <u>2"</u>	_ Measuring Point <u>TOC</u>		

Sampling Method: Submersible Pump Centrifugal Pump Peristaltic Pump Other

Bottom Valve Bailer x Double Check Valve Bailer Stainless-Steel Kemmerer

Criteria: 3 to 5 Casing Volumes of Water Removal X stabilization of Indicator Parameters X Other: or bail dry

Ounces	Gal/oz to be removed		
	4.934		
	Ounces		

Time (military)	pH (su)	SC (umhos/cm)	Temp (°F)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gal.)	Comments/ Flow rate
0932	6.98	4940	53.7				.25	Clear
	6.82	6840	57.2				.50	Grey
	6.95	5190	59.0				1.0	Grey
	6.73	5120	58.7				2.0	Grey
	6.73	5210	58.3				3.0	Grey
	6.68	5010	59.0				4.0	Grey
<u>0946</u>	6.71	5160	58.6				5.0	Grey

Final: Time	pН	SC	Temp	Eh-ORP	D.O.	Turbidity	Vol Evac.	Comments/Flow Rate
<u>0946</u>	6.71	5160	58.6				5.0	Grey

0010451170

D	Meter X O Monitor	Temperature Meter x Other	
Conductivi Water Disposal <u>na</u> Samp <b>BTEX</b> VOCs Alkalinity TDS	ple ID <u>na</u>	Sample Time0950 Nitrate Nitrite Ammonia TKN NMWQCC Metals Total Phosp	ohorus
MS/MSD	BD	BD Name/Time TB	

<b>ACZ</b> Laboratories, Inc.	4GZ Lak	oratories,	Inc.
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### **Burlington Resources, Inc.**

Project ID: MISC GW SAMPLES Sample ID: MARCOTE MW 1 Locator:

# Organic Analytical Results

12/21/04 1:27

12/21/04 1:27

ACZ Sample ID:	L49153-02
Date Sampled:	12/13/04 9:50
Date Received:	12/15/04
Sample Matrix:	Ground Water

Analyst: km

Extract Date:

Dilution Factor: 1

Analysis Date:

## Benzene, Toluene, Ethylbenzene & Xylene

Analysis Method: M8021B GC/PID Extract Method: Method

Compound Compound	CAS	Result	(@Jalvaj)	)) (0)	(U)ai()s	IMIB)L	Proji
Benzene	000071-43-2	0.4	J	*	ug/L	0.3	1
Ethylbenzene	000100-41-4	0.7	J	*	ug/L	0.2	1
m p Xylene	01330 20 7	20.2		*	ug/L	0.4	2
o Xylene	00095-47- 6		U	*	ug/L	0.2	1
Toluene	000108-88-3	0.7	J	*	ug/L	0.2	1
Surrogate Recoveries							
Surrogate	CAS	% Recovery		X(0)	Unites	LCL,	UCL
Bromofluorobenzene	000460-00-4	105.4		*	%	83	117

## WELL DEVELOPMENT AND SAMPLING LOG

Project No.:Project	Name: <u>Marcote</u>	Client: Burlingto	<u>n</u>		
Location:Well No:MV	V-2 Develop	oment <u>Samplin</u>	g		
Project Manager <u>MJN</u>	Date	12/13/04	Start Time	0855	Weather <u>clear 30s</u>
Depth to Water 29.88	Depth to Product <u>na</u>	Product Thickne	ess: <u>na</u>	Measur	ing Point <u>TOC</u>
Water Column Height 8.97	Well Dia2"	-			

Sampling Method: Submersible Pump 🛛 Centrifugal Pump 🗇 Peristaltic Pump 🗍 Other 📋

Bottom Valve Bailer

Double Check Valv Bailer Stainless-Steel Kemr Brer

Criteria: 3 to 5 Casing Volumes of Water Removal X stabilization of Indicator Parameters X Other_or bail dry

	Water Volu		
Gal/ft x ft of water	Gallons	Ounces	Gal/oz to be removed
8.97 x 0.16	1.435 x 3	· · · ·	4.306

Time (military)	pH (su)	SC (umhos/cm)	Temp (°F)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. ( gal)	Comments/ Flow rate
0904	7.10	3430	54.4				.25	Silty/brown
	7.07	3350	55.2				.50	
	7.02	3380	55.1				.75	
	7.00	3360	54.4				2.0	
	7.12	3410	55.0				3.0	
<u></u>	7.12	3380	55.1	······			4.0	
0922	7.14	3360	55.1				5.0	
	· · · · · · · · · · · · · · · · · · ·							

Final: Time	рН	SC	Temp	Eh-ORP	D.O.	Turbidity	Ferrous Iron	Vol Evac.	Comments/Flow Rate
<u>0922</u>	7.14	3360	55.1					5.0	

COMMENTS: well is bailing down

INSTRUMENTATION:	pH Meter	X Temperature Meter x	
	DO Monito	or Other	
Cond	uctivity Meter	X	
Water Disposal onsite		Sample ID MW-2 Sample Time <u>0925</u>	
<b><u>BTEX</u></b> VOCs			
MS/MSD	BD	BD Name/Time TB_	
	·		

AGZ	Laboratories, Inc	с.
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### **Burlington Resources, Inc.**

Project ID:MISC GW SAMPLESSample ID:MARCOTE MW 2Locator:

# Organic Analytical Results

ACZ Sample ID:	L49153-01
Date Sampled:	12/13/04 9:25
Date Received:	12/15/04
Sample Matrix:	Ground Water

Analyst: *km* Extract Date: 12/21/04 1:37 Analysis Date: 12/21/04 1:37

Dilution Factor: 1

# Benzene, Toluene, Ethylbenzene & Xylene

Analysis Method:	M8021B GC/PID
Extract Method:	Method

Compound Compound	CAS	Result	(QUJAL )	(e) Units	WDT.	POL
Benzene	000071-43-2	0.3	J	ug/L	0.3	1
Ethylbenzene	000100-41-4	0.3	J	ug/L	0.2	1
m p Xylene	01330 20 7	8.6		ug/L	0.4	2
o Xylene	00095-47- 6	2.6		ug/L	0.2	1
Toluene	000108-88-3	1.3		ug/L	0.2	1
Surrogate Recoveries Surrogate	CAS	% Recovery	λ.	(o) Unites	L(CIL	U(c)
Bromofluorobenzene	000460-00-4	99.2		%	83	117

## WELL DEVELOPMENT AND SAMPLING LOG

Project No.: <u>30003.0</u>	Project Name: <u>Burlington Marcote 1</u>	Client: <u>Burlington Resources</u>
Location:_Marcote Pool Unit 1	Well No: <u>MW-3</u>	Development <u>Sampling</u>
Project Manager <u>MJN</u>	Date <u>12/13/04</u> Start Time <u>0955</u>	Weather clear 30s
Depth to Water <u>32.35</u> Water Column Height <u>6.31</u>	Depth to Product <u>na</u> Product Thickness <u>na</u> Well Dia. <u>2"</u>	_Measuring PointTOC

Sampling Method: Submersible Pump 🗌 Centrifugal Pump 🔲 Peristaltic Pump 🔲 Other 🔲

Bottom Valve Bailer x Double Check Valve Bailer 🗆 Stainless-Steel Kemmerer 🗆

Criteria: 3 to 5 Casing Volumes of Water Removal X stabilization of Indicator Parameters X Other: or bail dry

	Water Volu		
Gal/ft x ft of water	Gallons	Ounces	Gal/oz to be removed
6.31 x .16	1.01 x 3		3.03

Time (military)	pH (su)	SC (umhos/cm)	Temp (°F)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gal.)	Comments/ Flow rate
0957	7.11	3810	56.7				.25	Clear
· · · · · · · · · · · · · · · · · · ·	7.15	3480	56.6				.50	Brown
<u> </u>	7.16	3650	56.9			,,,	.75	Brown
	7.16	3773	56.7				2.0	Brown
1007	7.14	3610	56.9				3.0	Brown
								í.

Final:								
Time	pН	SC	Temp	Eh-ORP	D.O.	Turbidity	Vol Evac.	Comments/Flow Rate
1007	7.14	3610	56.9				3.0	Brown

COMMENTS: There was no water in the well. Probably due to seasonal drop in water level due to lack of local irrigation.

INSTRUMENTATION: pH Meter X	Temperature Meter x
DO Monitor	Other
Conductivity Meter X	
Water Disposal <u>on site</u> Sample ID_mw-3	Sample Time <u>1010</u>
Analysis <u>BTEX</u>	
MS/MSDBD	BD Name/Time TB

# AGZ Laboratories, Inc.

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### **Burlington Resources, Inc.**

Compound

Project ID: MISC GW SAMPLES Sample ID: MARCOTE MW 3 Locator:

# Benzene, Toluene, Ethylbenzene & Xylene

Analysis Method: M8021B GC/PID Extract Method: Method

1-1-1	() ()	· / \	11 7.02
[ [ ] ] A A	Le Vall	A VAK	INVARIAN
	<b>VALUE</b>	<u>"AANN!</u>	lytical
and the second			
		IVI.	
		esult	
	100	CARLEY AND A	

ACZ Sample ID:	L49153-03
Date Sampled:	12/13/04 10:10
Date Received:	12/15/04
Sample Matrix:	Ground Water

Analyst: km Extract Date: Analysis Date: 12/21/04 10:26 Dilution Factor: 1

12/21/04 10:26

Compound	CAS	Result	(a)U/A)L →	ə)inW (9);	I≬I∌IL –	[:(0)]L
Benzene	000071-43-2		U	ug/L	0.3	1
Ethylbenzene	000100-41-4		U	ug/L	0.2	1
m p Xylene	01330 20 7	1.2	J	ug/L	0.4	2
o Xylene	00095-47- 6	0.4	J	ug/L	0.2	1
Toluene	000108-88-3	0.3	J	ug/L	0.2	1
Surrogate Recoveries						
Surroyate	CAS	% Recovery	*	(Q) Umilie	11(611,	lu(c)L
Bromofluorobenzene	000460-00-4	98.6		%	83	117

ACZ Labo	ratories, Inc.									N of ODY		
2773 Downhill Drive Steamboat Sp Report to:	rings, CO_80487_(800) 334	-5493							501			
	- <u></u>	1	Addre	ess: 🟅	2012	1 3	っさ	4 5	2ৰ শ		.,	1
Name: GREGG WUN Company: BU-1 NGT		1		Armi		-		IM		99		
E-mail:	<u> </u>	1		hone:		505		26				
Copy of Report to:		-1										
Name:			E-ma	i1 <i>•</i>								ĺ
Company:				<u>".</u> hone:		<u> </u>						
Invoice to:		_i					<b>1898</b>					
	102.10		Email									
Name: SAME AS A Company:	KOVD.	1	Telep								•	
if sample(s) received past holding	time (HT), or if insufficier	J nt HT ren			lete				YES	T	1	
analysis before expiration, shall	ACZ proceed with requeste	d short	HT ana	lyses?					NO		]	
If "NO" then ACZ will contact cile is indicated, ACZ will proceed will						ta will k		ified	يئت در ا	·		
PROJECT INFORMATION	n no iedassan anaihaga,	57011 II I							r use qu	uote nui	mber)	
Quote #:			S	·								
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	(Ground Water) · WW (Waste Wa	ater) [:] DW	(Drinkin	g Water)	· SL (Slu	udge) · S	O (Soil)	· OL (Oil)	Other	(Specify)		
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Grego Wrintz	~ <del>*``</del>											
RMG12/15/04	· · · · · · · · · · · · · · · · · · ·											

Analytical Report

December 31, 2004

Report to: Gregg Wurtz Burlington Resources, Inc. 3401 E. 30th St. PO BOX 4289 Farmington, NM 87499 Bill to: Gregg Wurtz Burlington Resources, Inc. 3401 E. 30th St. PO BOX 4289 Farmington, NM 87499

Project ID: MISC GW SAMPLES ACZ Project ID: L49153

Gregg Wurtz:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on December 15, 2004. This project has been assigned to ACZ's project number, L49153. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 11.0. The enclosed results relate only to the samples received under L49153. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after January 31, 2005. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than \$10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years. Please notify your Project Manager if you have other needs.

If you have any questions, please contact your Project Manager or Customer Service Representative.

31/Dec/04

Sue Barkey, Project Manager, has reviewed and approved this report in its entirety.





REPAD.01.11.00.01

L49153: Page 1 of 11

#### Burlington Resources, Inc.

December 31, 2004

Project ID: MISC GW SAMPLES ACZ Project ID: L49153

#### Sample Receipt

ACZ Laboratories, Inc. (ACZ) received 4 ground water samples from Burlington Resources, Inc. on December 15, 2004. The samples were received in good condition. Upon receipt, the sample custodian removed the samples from the cooler, inspected the contents, and logged the samples into ACZ's computerized Laboratory Information Management System (LIMS). The samples were assigned ACZ LIMS project number L49153. The custodian verified the sample information entered into the computer against the chain of custody (COC) forms and sample bottle labels.

#### Holding Times

All analyses were performed within EPA recommended holding times.

#### Sample Analysis

These samples were analyzed for organic parameters. The individual methods are referenced on both, the ACZ invoice an the analytical reports. The following anomalies required further explanation not provided by the Extended Qualifier Report:

1. For sample L49153-02, Toluene was detected in the Prep Blank (PBW) so the toluene value, flagged with a "B1", is considered estimated.

2. For sample L49153-02 flagged with an "N1", Benzene recovered outside of the control charted limits but within the method limits for the LCSW/LCSWD.

ACZ	Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

### **Burlington Resources, Inc.**

Compound

Project ID:MISC GW SAMPLESSample ID:TB120904-01Locator:

# Organic Analytical Results

ACZ Sample ID:	L49153-07
Date Sampled:	12/13/04 17:30
Date Received:	12/15/04
Sample Matrix:	Ground Water

## Benzene, Toluene, Ethylbenzene & Xylene

Analysis Method:	M8021B GC/PID
Extract Method:	Method

Analyst:	km
Extract Date:	12/21
Analysis Date:	12/21
Dilution Factor:	1

km 12/21/04 9:43 12/21/04 9:43 1

Compound	GA(S	Result	(010/A/L)	(0) Unite	MDI	12(0)L
Benzene	000071-43-2		U	ug/L	0.3	1
Ethylbenzene	000100-41-4		U	ug/L	0.2	1
m p Xylene	01330 20 7		U	ug/L	0.4	2
o Xylene	00095-47- 6	1	U	ug/L	0.2	1
Toluene	000108-88-3		U	ug/L	0.2	1
Surrogate Recoveries						
Surrogate	CAS	% Recovery	)	(e) Umbs	11(6)E	UICL
Bromofluorobenzene	000460-00-4	94		%	83	117



**HGZ** Laboratories, Inc. 2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Report Heade	er Explanations		
Batch	A distinct set of samples analyzed at a specific time		
Found	Value of the QC Type of interest		
Limit	Upper limit for RPD, in %.		
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)		
LCL	Lower Control Limit		
MDL	Method Detection Limit. Same as Minimum Reporting Li	mit. Allows for	instrument and annual fluctuations.
PCN/SCN	A number assigned to reagents/standards to trace to the	manufacturer's	s certificate of analysis
PQL	Practical Quantitation Limit		
QC	True Value of the Control Sample or the amount added to	o the Spike	
Rec	Amount of the true value or spike added recovered, in %	(except for LC	SS, mg/Kg)
RPD	Relative Percent Difference, calculation used for Duplicat	e QC Types	
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)		
UCL	Upper Control Limit		
Sample	Value of the Sample of interest		
QC Sample Ty	ypes		
SURR	Surrogate	LFM	Laboratory Fortified Matrix
INTS	Internal Standard	LFMD	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	LRB	Laboratory Reagent Blank
LCSS	Laboratory Control Sample - Soil	MS/MSD	Matrix Spike/Matrix Spike Duplicate
LCSW	Laboratory Control Sample - Water	PBS	Prep Blank - Soil
LFB	Laboratory Fortified Blank	PBW	Prep Blank - Water
QC Sample Ty	ype Explanations		
Blanks	Verifies that there is no or minim	al contaminati	on in the prep method procedure.
Control Sa	amples Verifies the accuracy of the met	hod, including	the prep procedure.
Duplicates	s Verifies the precision of the instr	ument and/or i	method.
Spikes/Fo	ortified Matrix Determines sample matrix interf	erences, if any	
ACZ Qualifier	rs (Qual)		
В	Analyte detected in daily blank		
Н	Analysis exceeded method hold time.		
J	Analyte concentration detected at a value between MDL a	and PQL	
R	Poor spike recovery accepted because the other spike in	the set fell wit	hin the given limits.
Т	High Relative Percent Difference (RPD) accepted becaus	•	centrations are less than 10x the MDL.
U	Analyte was analyzed for but not detected at the indicate	d MDL	
V	High blank data accepted because sample concentration	-	
W	Poor recovery for Silver quality control is accepted becau	se Silver often	precipitates with Chloride.
Х	Quality contreol sample is out of control.		
Z	Poor spike recovery is accepted because sample concen	tration is four t	imes greater than spike concentration.
Р	Analyte concentration differs from second detector by mo	re than 40%.	
E	Analyte concentration is estimated due to result exceedin	-	ange.
М	Analyte concentration is estimated due to matrix interfere	nces.	
Method Refer	rences		
(1)	EPA 600/4-83-020. Methods for Chemical Analysis of Wa	ater and Waste	es, March 1983.
(2)	EPA 600/4-90/020. Methods for the Determination of Org		
(3)	EPA 600/R-92/129. Methods for the Determination of Org		
(5)	EPA SW-846. Test Methods for Evaluating Solid Waste,		
(6)	Standard Methods for the Examination of Water and Was	tewater, 19th e	edition, 1995.
Comments			
(1)	QC results calculated from raw data. Results may vary s	lightly if the rou	unded values are used in the calculations.
(2)	Organic analyses are reported on an "as received" basis.		

REPIN03.11.00.01

# ACCZ Laboratories, Inc. 2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

#### Burlington Resources, Inc.

# Organic Extended Qualifier Report

## ACZ Project ID: L49153

ACZ ID	WORKNUM	PARAMETER	METHOD	<b>લ⊎</b> ∕ના	DESCRIPTION
L49153-02	WG183031	*All Compounds*	M8021B GC/PID	N1	See Case Narrative.
		Benzene	M8021B GC/PID	V8	Calibration verification recovery was below the method control limit for this analyte, however the average % difference or % drift for all the analytes met method criteria.
		Toluene	M8021B GC/PID	B1	Target analyte detected in method blank at or above the method reporting limit. See Case Narrative.

# **AGZ** Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Х

Burlington Resources, Inc.	ACZ Proj	ect ID:		L49153
MISC GW SAMPLES	Date Red		12/	/15/2004 sueb
Receipt Verification				
		YES	NO	NA
1) Does this project require special handling procedures such as CLP protocol?				X
2) Are the custody seals on the cooler intact?		Х		
3) Are the custody seals on the sample containers intact?				Х
4) Is there a Chain of Custody or other directive shipping papers present?		Х		
5) Is the Chain of Custody complete?			Х	
6) Is the Chain of Custody in agreement with the samples received?		Х		
7) Is there enough sample for all requested analyses?		Х		
8) Are all samples within holding times for requested analyses?		Х		
9) Were all sample containers received intact?		Х		
10) Are the temperature blanks present?				X
11) Are the trip blanks (VOA and/or Cyanide) present?				Х
12) Are samples requiring no headspace, headspace free?		X		

13) Do the samples that require a Foreign Soils Permit have one?

Exceptions: If you answered no to any of the above questions, please describe

"Sampled by" not relinquished.

#### Contact (For any discrepancies, the client must be contacted)

Gregg Wurtz was contacted. Gregg indicated who did the sampling.

#### Shipping Containers

Cooler Id	Temp (°C)	Rad (µR/hr)
acz	8.5	13
·····	 	

Client must contact ACZ Project Manager if analysis should not proceed for samples received outside of thermal preservation acceptance criteria.

Notes

# ACZ Laboratories, Inc. 2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Burlington Resources, Inc. MISC GW SAMPLES

Sample Receipt

ACZ Project ID: Date Received: Received By:

L49153 12/15/2004 sueb

## Sample Container Preservation

SAMPLE 0	CLIENT ID	R < 2	G < 2	Y < 2	YG< 2	B < 2	BG< 2	0 < 2	T >12	P >12	N/A	RAD
L49153-01	MARCOTE MW 2										Х	
L49153-02	MARCOTE MW 1										Х	
L49153-03	MARCOTE MW 3										Х	
L49153-07	TB120904-01										X	
Sample Co	intainer Preservation Leg	end										
Abbreviatio	n Description	Contai	ner Type	Pres	ervative	Limits				1999 (1999) - Den and State (1999)		
R	Raw/Nitric	RED		pH n	nust be <	2						
В	Filtered/Sulfuric	BLUE		pH m	nust be <	2						
BG	Filtered/Sulfuric	BLUE G	LASS	pH n	nust be <	2						
G	Filtered/Nitric	GREEN		pНп	nust be <	2						
0	Raw/Sulfuric	ORANG	θE	pH n	nust be <	2						
Р	Raw/NaOH	PURPLI	Ξ	pH n	nust be >	12						
т	Raw/NaOH Zinc Acetate	TAN		pH n	nust be >	12						
Y	Raw/Sulfuric	YELLO	N	pH must be < 2								
YG	Raw/Sulfuric	YELLO	W GLASS pH must be < 2									
N/A	No preservative needed	Not app	licable									
RAD	Gamma/Beta dose rate	Not app										

	AGZ Labo			L	43	323				HAIN JSTC	
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	E-mail:	an a		Telep	hone:	505	- 326	2970	<u>Þ</u>	ور النافيين المحمد المحمد مع	
	If sample(s) received past holdin	- • •				lete				YES	
	analysis before expiration, shall If "NO" then ACZ will contact clie	• •				10"				NO	
1	is indicated, ACZ will proceed wi						a will be	ə qualil	ied.		
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		10/8/63 1630	GW	4	X	X	$\left  \chi \right $				
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	Matrix SW (Surface Water) · GW REMARKS Ren Burlingte					 ) · SL (SI	udge) · S	O (Soli)	) • OL (Oii)	I (	Specify
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L43323: Page 13 of 13



Analytical Report

October 30, 2003

Gregg Wurtz Burlington Resources, Inc. 3401 E. 30th St. PO BOX 4289 Farmington, NM 87402-4289

Project ID: ACZ Project ID: L43323

Gregg Wurtz:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on October 10, 2003. This project has been assigned to ACZ's project number, L43323. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 10.0. The enclosed results relate only to the samples received under L43323. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

This report shall be used or copied only in it's entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after November 30, 2003. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than \$10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years. Please notify your Project Manager if you have other needs.

If you have any questions, please contact your Project Manager or Customer Service Representative.

Sule Barkey

30/Oct/03

Sue Barkey, Project Manager, has reviewed and approved this report in its entirety.





REPAD.01.11.00.01

L43323: Page 1 of 13

ACZ Laboratories, Inc. 2773 Downhill Drive Steamboat Springs, CO 80487(800) 334-5493

#### **Burlington Resources, Inc.**

Project ID:

Sample ID: M P Unit 1 MW-2

# Inorganic Analytical Results

ACZ Sample ID:	L43323-01
Date Sampled:	10/08/03 16:30
Date Received:	10/10/03
Sample Matrix:	Ground Water

Metals Analysis								
Farameter	EPA Method	Result	Qual XQ	Units	MDL.	POL	Døte	Analyst
Arsenic, dissolved	M200.8 ICP-MS	0.0036		mg/L	0.0001	0.0005	10/24/03 8:49	jb
Barium, dissolved	M200.7 ICP	0.047		mg/L	0.003	0.01	10/31/03 19:57	wfg
Cadmium, dissolved	M200.8 ICP-MS	0.0001	в	mg/L	0.0001	0.0005	10/24/03 8:49	jb
Calcium, dissolved	M200.7 ICP	266		mg/L	0.2	1	10/29/03 14:52	scp
Chromium, dissolved	M200.8 ICP-MS	0.0008		mg/L	0.0001	0.0005	10/24/03 8:49	jb
Copper, dissolved	M200.8 ICP-MS	0.0021	в	mg/L	0.0005	0.003	10/24/03 8:49	jb
Iron, dissolved	M200.7 ICP	0.98		mg/L	0.01	0.05	10/31/03 19:57	wfg
Magnesium, dissolved	M200.7 ICP	34.9		mg/L	0.2	1	10/29/03 14:52	scp
Manganese, dissolved	M200.7 ICP	2.390	*	mg/L	0.005	0.03	10/31/03 19:57	wfg
Potassium, dissolved	M200.7 ICP	1.6		mg/L	0.3	1	10/31/03 19:57	wfg
Sodium, dissolved	M200.7 ICP	419		mg/L	0.3	1	10/31/03 19:57	wfg
Zinc, dissolved	M200.7 ICP	0.02	в	mg/L	0.01	0.05	10/29/03 14:52	scp
Wet Chemistry								
Parameter	EPA Method	Result	Quel XO	Units	MDL	POL	(0)a((c)	Analysi
Alkalinity as CaCO3	SM2320B - Titration							
Bicarbonate as CaCO3		302		mg/L	2	10	10/22/03 0:00	mah
Carbonate as CaCO3	}		U	mg/L	2	10	10/22/03 0:00	mah
Hydroxide as CaCO3	1		Ū	mg/L	2	10	10/22/03 0:00	mah
Total Alkalinity		302		mg/L	2	10	10/22/03 0:00	mah
Cation-Anion Balance	Calculation			-				
Cation-Anion Balance		-0.7		%			10/30/03 0:00	calc
Sum of Anions		35.4		meq/L	0.1	0.5	10/30/03 0:00	calc
Sum of Cations		34.9		meq/L	0.1	0.5	10/30/03 0:00	calc
Chloride	M325.2 - Colorimetric	45		mg/L	1	5	10/22/03 20:09	kmc
Conductivity @25C	M120.1 - Meter	2230		umhos/cm	1	10	10/22/03 0:10	mah
Lab Filtration	SM 3030 B						10/21/03 10:21	lms
Lab Filtration & Acidification	SM 3030 B						10/14/03 11:24	scp
pH (lab)	M150.1 - Electrometric	7.9	H,	units	0.1	0.1	10/22/03 0:10	mah
Sulfate	M375.3 - Gravimetric	1340		mg/L	50	300	10/28/03 8:22	lms

.

* Please refer to Extended Qualifier Report for detail.

ACZZ Laboratories, Inc. 2773 Downhill Drive Steamboat Springs, CO 80487(800) 334-5493

M P Unit 1 MW-3

### **Burlington Resources, Inc.**

Project ID: Sample ID:

# Inorganic Analytical Results

ACZ Sample ID:	L43323-02
Date Sampled:	10/08/03 17:00
Date Received:	10/10/03
Sample Matrix:	Ground Water

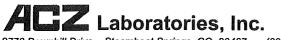
Metals Analysis								
Parameter	EPA Method	Result	Qual XQ	Units	(MDL)	12(0)L	Dette	Analyst
Arsenic, dissolved	M200.8 ICP-MS	0.0012		mg/L	0.0001	0.0005	10/24/03 8:55	jb
Barium, dissolved	M200.7 ICP	0.037		mg/L	0.003	0.01	10/31/03 20:09	wfg
Cadmium, dissolved	M200.8 ICP-MS		U	mg/L	0.0001	0.0005	10/24/03 8:55	jb
Calcium, dissolved	M200.7 ICP	262		mg/L	0.2	1	10/29/03 14:55	scp
Chromium, dissolved	M200.8 ICP-MS	0.0012		mg/L	0.0001	0.0005	10/24/03 8:55	jb
Copper, dissolved	M200.8 ICP-MS	0.0017	в	mg/L	0.0005	0.003	10/24/03 8:55	jb
Iron, dissolved	M200.7 ICP	0.47		mg/L	0.01	0.05	10/31/03 20:09	wfg
Magnesium, dissolved	M200.7 ICP	34.5		mg/L	0.2	1	10/29/03 14:55	scp
Manganese, dissolved	M200.7 ICP	0.063	*	mg/L	0.005	0.03	10/31/03 20:09	wfg
Potassium, dissolved	M200.7 ICP	1.6		mg/L	0.3	1	10/31/03 20:09	wfg
Sodium, dissolved	M200.7 ICP	409		mg/L	0.3	1	10/31/03 20:09	wfg
Zinc, dissolved	M200.7 ICP		U	mg/L	0.01	0.05	10/29/03 14:55	scp
Wet Chemistry								•
Parameter	EPA Method	Result	(Qup) (XQ)	Units	MD)	POL	Date	Amaliyest
Alkalinity as CaCO3	SM2320B - Titration	TATES INT	ALCOID FALL	Canto	010242	1.12.12	-24105	lencoved.
Bicarbonate as		291		mg/L	2	10	10/22/03 0:00	mah
CaCO3					-			
Carbonate as CaCO3	}		U	mg/L	2	10	10/22/03 0:00	mah
Hydroxide as CaCO3	•		υ	mg/L	2	10	10/22/03 0:00	mah
Total Alkalinity		291		mg/L	2	10	10/22/03 0:00	mah
Cation-Anion Balance	Calculation			-				
Cation-Anion Balance	1	-4.2		%			10/30/03 0:00	calc
Sum of Anions		37.0		meq/L	0.1	0.5	10/30/03 0:00	calc
Sum of Cations		34.0		meq/L	0.1	0.5	10/30/03 0:00	calc
Chloride	M325.2 - Colorimetric	48		mg/L	1	5	10/22/03 20:09	kmc
Conductivity @25C	M120.1 - Meter	2340		umhos/cm	1	10	10/22/03 0:26	mah
Lab Filtration	SM 3030 B						10/21/03 10:31	lms
Lab Filtration &	SM 3030 B						10/14/03 11:25	scp
Acidification								
pH (lab)	M150.1 - Electrometric	7.9	Н	units	0.1	0.1	10/22/03 0:26	mah
Sulfate	M375.3 - Gravimetric	1420		mg/L	50	300	10/28/03 8:41	lms



# Inorganic Reference

2113 DOWININ	Drive Steamboat Springs, CO 80487 (800) 334-3493								
Proventi Preside	r Explanations								
Charlet London Laboration and Charlet									
	Batch     A distinct set of samples analyzed at a specific time       Found     Value of the QC Type of interest								
	Value of the QC Type of interest								
Limit	Upper limit for RPD, in %.	-1							
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg		the state of the s						
MDL.	Method Detection Limit. Same as Minimum Reporting	-							
PCN/SCN			er's certificate of analysis						
PQL	Practical Quantitation Limit, typically 5 times the MDL								
QC	True Value of the Control Sample or the amount adde	•							
Rec	Amount of the true value or spike added recovered, in	n % (except for L	.CSS, mg/Kg)						
RPD	Relative Percent Difference, calculation used for Dup	licate QC Types							
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg	3)							
Sample	Value of the Sample of interest								
QC Sample Ty	nes								
AS	Analytical Spike (Post Digestion)	LCSWD	Laboratory Control Sample - Water Duplicate						
ASD	Analytical Spike (Post Digestion) Duplicate	LFB	Laboratory Fortified Blank						
CCB	Continuing Calibration Blank	LFM	Laboratory Fortified Matrix						
CCV	Continuing Calibration Verification standard	LFMD	Laboratory Fortified Matrix Duplicate						
DUP	Sample Duplicate	LRB	Laboratory Reagent Blank						
ICB	Initial Calibration Blank	MS	Matrix Spike						
ICV	Initial Calibration Verification standard	MSD	Matrix Spike Duplicate						
ICSAB	Inter-element Correction Standard - A plus B solutions		Prep Blank - Soil						
LCSS	Laboratory Control Sample - Soil	PBW	Prep Blank - Water						
LCSSD	Laboratory Control Sample - Soil Duplicate	PQV	Practical Quantitation Verification standard						
LCSW	Laboratory Control Sample - Water	SDL	Serial Dilution						
oc Sample Ty Blanks	pe Explanations Verifies that there is no or mi	nimal contamina	tion in the prep method or calibration procedure.						
Control Sar									
Duplicates	• •								
•	tified Matrix Determines sample matrix in								
Standard	Verifies the validity of the cal								
****	-								
ACZ Qualifiers	s (@(nal))								
в	Analyte concentration detected at a value between Mi	DL and PQL.							
Н	Analysis exceeded method hold time. pH is a field te	st with an immed	tlate hold time.						
R	Poor spike recovery accepted because the other spik	e in the set fell v	vithin the given limits.						
т	High Relative Percent Difference (RPD) accepted bec	cause sample co	ncentrations are less than 10x the MDL.						
U	Analyte was analyzed for but not detected at the indic	ated MDL							
V	High blank data accepted because sample concentrate	tion is 10 times h	higher than blank concentration						
W	Poor recovery for Silver quality control is accepted be	cause Silver ofte	en precipitates with Chloride.						
х	Quality control sample is out of control.								
Z	Poor spike recovery is accepted because sample con	centration is four	r times greater than spike concentration.						
Mottoral Rottone	140.00								
(1)	EPA 600/4-83-020. Methods for Chemical Analysis o	f Water and Was	stes, March 1983						
(2)	EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.								
(3)	EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.								
	(5) EPA SW-846. Test Methods for Evaluating Solid Waste, Third Edition with Update III, December 1996.								
(6)	Standard Methods for the Examination of Water and V	wastewater, 19th	1 84111011, 1995.						
Commente									
(1)	OC regulte coloulated from row data. Deputte movies	ry slightly if the r	ounded values are used in the calculations.						
• •	do results calculated from raw data. Results may va								
(2)		Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.							
		•							

REPIN03.11.00.01



2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

#### **Burlington Resources, Inc.**

## ACZ Project ID: L43323

ACZ (8)	WORKNUM	PARAMETER	METHOD	(QUAL	DESCRIPTION
L43323-01	WG164197	Manganese, dissolved	M200.7 ICP	МЗ	The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable.
L43323-02	WG164197	Manganese, dissolved	M200.7 ICP	МЗ	The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable.

L43323: Page 5 of 13

## WELL DEVELOPMENT AND SAMPLING LOG

Project No.:30001.0       Project Name: Burlington Marcote 1       Client: Burlington Resources         Location: Marcote Pool Unit 1       Well No: MW-2       Development         Project Manager       MJN       Date       10/6/03       Start Time       1627       Weather       sunny 80s         Depth to Water       29.71       Depth to Product       Product Thicknessna       Measuring Point         Water Column Height       9.38       Well Dia2"       2"         Sampling Method:       Submersible Pump [       Centrifugal Pump [       Peristaltic Pump [       Other [									
Sampling Me	ethod: S	ubmer	sible Pum	nb 🗖	Centrifugal	Pump 📋	Peristaltic	Pump	Other
	B	ottom	Valve Bail	ler x	Double Che	ck Valve	Bailer 🖾 🛛 S	tainless-Ste	el Kemmerer
Criteria: 3 (	o 5 Casi	ng Voi	lumes of V	Nater Rem	oval X stabil	lization of	Indicator Pa	rameters X	Other
		<b>`</b>			Water Volum	ne in Well	······		
Gal/ft x	ft of wat	er		Gallon			Ounces		Gal/oz to be removed
9.3	8 x .16			1.50 x 3	3				4.50
L			I	····		L			
Time	рН		SC	Temp	ORP	D.O.	Turbidity	Vol Evac.	Comments/
(military)	(su)		nos/cm)	(°C)	(millivolts)	(mg/L)	(NTU)	(gal.)	Flow rate <
1632	7.29		2070	17.2				1	muddy, brown, very good flow to well
	7.45	2	2080	17.3				2	muddy, brown, very good flow to well
	7.34	2	2000	16.9				3	muddy, brown, very good flow to well
	7.33	2	2040	16.8				4	muddy, brown, very good flow to well
	7.34	2	2170	16.6				5	muddy, brown, very good flow to well
<u>1713</u>	7.36	2	180	16.4				10	muddy, brown, very good flow to well
									,

Final:							Ferrous	]	
Time	рН	SC	Temp	Eh-ORP	D.O.	Turbidity	Iron	Vol Evac.	Comments/Flow Rate
Time <u>1713</u>	7.36	2180	16.4					10	muddy, brown, very good
		And an and the local data and the second					-		flow to well

COMMENTS:

INSTRUMENTATION:	pH Meter X		Temperature Meter x
	DO Monitor	and the second	Other
Condu	ctivity Meter X		
Water Disposal onsite	Sample ID_NA		_Sample Timena
BTEX VOCs Alkalinity	TDS Cations Anions	Nitrate Nitrite Ammonia	TKN NMWQCC Metals Total Phosphorus
MS/MSD	BD	BD Name/Time	ТВ

.

## WELL DEVELOPMENT AND SAMPLING LOG

	Project Name: <u>Burlington Marcote 1</u> Well No: <u>MW-3</u> Date <u>10/6/03</u> Start Time <u>1637</u> oth to Product <u>na</u> Product Thickness <u>na</u> Il Dia. <u>2"</u>	Client: <u>Burlington Resources</u> Development <u>Sampling</u> Weather <u>sunny 80s</u> Measuring Point <u>TOC</u>
Sampling Method: Submersible Pur	np 🔲 Centrifugal Pump 🔲 Peristaltic Pum	np 🔲 Other 🔲
Bottom Valve Ba	iler 🗴 🔹 Double Check Valve Bailer 🗔 Stainle	ess-Steel Kemmerer

Criteria: 3 to 5 Casing Volumes of Water Removal X stabilization of Indicator Parameters X Other: or bail dry

	Water Volum		
Gal/ft x ft of water	Gallons	Ounces	Gal/oz to be removed
7.92 x .16	1.27 x 3		3.8

Time (military)	pH (su)	SC (umhos/cm)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gal.)	Comments/ Flow rate
1645	7.10	2470	18.0				1	Silty, brown
	7.42	2240	17.1				2	Silty, brown
	7.44	2200	16.9	· · · · · · · · · · · · · · · · · · ·		-	3	Silty, brown
<u>1656</u>	7.40	2230	17.0				4	Silty, brown
······								· · · · · · · · · · · · · · · · · · ·
								·

Final:	·							•
Time	pН	SC	Temp	Eh-ORP	D.O.	Turbidity	Vol Evac.	Comments/Flow Rate
<u>1656</u>	7.40	2230	17.0				4	Silty, brown

COMMENTS:

INSTRUMENTATION: pH Meter X		_ Temperature Meter x
DO Monitor	مىلىدىنى بىرىمى بىر	Other
Conductivity Meter X		_
Water Disposal onsite Sample ID Marc	ote 1 MW-3	Sample Time1700
<b><u>BTEX</u></b> VOCs Alkalinity TDS Cation Phosphorus	<b>s Anions</b> Nitrate	Nitrite Ammonia TKN NMWQCC Metals Total
MS/MSDBD	BD Name/Ti	me TB

AGZ	Laboratories, Inc.
0770 Davabill Dates	Staambaat Springs 00 00407 (000) 224 5402

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

### **Burlington Resources, Inc.**

Project ID: Sample ID: M P Unit 1 MW-2

# Organic Analytical Results

ACZ Sample ID:	L43323-01
Date Sampled:	10/08/03 16:30
Date Received:	10/10/03
Sample Matrix:	Ground Water

## Benzene, Toluene, Ethylbenzene & Xylene

Analysis Method: Extract Method:	MEUNYIIIIZEINEIKS ZAYI M8021B GC/PID Method	STITE	Analyst: Extract Date: Analysis Date: Dilution Factor:	km 10/13/03 10/13/03 1		
Compound Compound	(ê	ANS	Reculii OUAL X	() (Inte	Mol	1:(01
Benzene	0	00071-43-2	U	ug/L	0.3	1
Ethylbenzene	0	00100-41-4	U	ug/L	0.2	1
m p Xylene	0	1330 20 7	U	ug/L	0.4	2
o Xylene	0	0095-47- 6	U	ug/L	0.2	1 .
Toluene	0	00108-88-3	U	ug/L	0.2	1
Surrogate Recoveries	õ	AS	% Regionary	(a) Units	L(C)L	UKCIL
Bromofluorobenzene	0	00460-00-4	90.8	%	84	114

# ACZ Laboratories, Inc. 2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

### **Burlington Resources, Inc.**

Project ID: Sample ID:

M P Unit 1 MW-3

# Organic Analytical Results

ACZ Sample ID:	L43323-02
Date Sampled:	10/08/03 17:00
Date Received:	10/10/03
Sample Matrix:	Ground Water

Analyst: km

## Benzene, Toluene, Ethylbenzene & Xylene

Analysis Method: Extract Method:	M8021B GC/PID Method		Analy	act Date: sis Date: n Factor:	10/13/03 10/13/03 1		
Compound .		CAS	ROCH	0041	(10) Unite	Male	1:(0]
Benzene		000071-43-2		U	ug/L	0.3	1
Ethylbenzene		000100-41-4		U	ug/L	0.2	1
m p Xylene		01330 20 7		U	ug/L	0.4	2
o Xylene		00095-47- 6		U	ug/L	0.2	1 .
Toluene		000108-88-3	0.2	J	ug/L	0.2	1
Surrogate Recoveries			07		V/	11/201	112-11
ទីហៅកម្មដ្រាក		CAS	% IRROGANICIAN		X0 Units	.ILCIL	U(c)L
Bromofluorobenzene		000460-00-4	92.6		%	84	114

Laboratories,	
Laboratories,	inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

## Burlington Resources, Inc.

Project ID: Sample ID:

TB100303-02

# Organic Analytical Results

ACZ Sample ID:	L43323-03
Date Sampled:	10/08/03 0:00
Date Received:	10/10/03
Sample Matrix:	Ground Water

Analysis Method: Extract Method:	, Ethylleenzene & Xylene M8021B GC/PID Method	Analyst: Extract Date: Analysis Date: Dilution Factor:	10/13/03 10/13/03			
Compound	ANG	in the contract	11/11/10/2012		(-Yes)	
Compound	CAS	Reisulli, IOUAL	X(0) -19miles -	M(D)L	POL	
Benzene	000071-43-2	U	ug/L	0.3	1	
Ethylbenzene	000100-41-4	U	ug/L	0.2	1	
m p Xylene	01330 20 7	U	ug/L	0.4	2	
o Xylene	00095-47- 6	U	ug/L	0.2	1	-40
Toluene	000108-88-3	U	ug/L	0.2	1	
Surrogate Recoveries						
Sunogate	IC/AS	% Recievery	XQ Units	LCCL.	IDICIL.	
Bromofluorobenzene	000460-00-4	91	%	84	114	•

$\leq p_{\rm eff}$	1. E	w	• • • •	· · · · ·		• • •	ŀ
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- 12.9 (Alternation of the second sec

	oratories, Inc.								IAIN STO		
2773 Downhill Drive Steamboat S Report to:	3prings, CO 80487 (800) 334	1-5493									
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sample(s) received past holdin nalysis before expiration, shall				•	H (0)				YES NO		1
"NO" then ACZ will contact cli	ent for further instruction.	lf neithei	r "YES"	nor "N							
indicated, ACZ will proceed w	ith the requested analyses,	even if I	11/11/11/11/11/11/11/11		CONTRACTOR OF THE OWNER OF THE OWNER		Actor of the second second	CONTRACTOR OF THE			
ROJECT INFORMATION			ANA	ALYSES 1	5 REQU	ESTED (attach l	ist or u	ise quo	ote nun	nber) I
uote #:		- ·									
roject/PO #: MISC_GW	SAMPLING	4	of Containers								
hipping Co.:		-	ntair					ĺ			
racking #:		- • •	- S		1						
eporting State for complianc	e testing:	1	# of	L.	г						
SAMPLE IDENTIFICATION	DATE:TIME	Matrix	4	5							
NIN-3 MOBCOTE	12-16-03 0847	GW	2	X					nm_thinton _{er} .		
MW-2 MARCOTE		GW	2	X							
AW-1 FLORIA VISTIA	12-16-03 1030	G-W	2	X							
NW-2 COZZENS	12-16-031105	GW	2	Х							
IW-1 COZZENS	12-16-031131	GW	2.	X							
TRIP BLANK	12-16-03 1200	0		X							
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Matrix SW (Surface Water) GV	V (Ground Water) · WW (Waste W	/ater) · DV	V (Drinkin	g Water)	· SL (Slu	dge) · SO	(Soil) · O	L L (Oil) ·	Other (S	Specify)	
EMARKS											
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RELINQUISHED B	Y: DATE:T	IME		REC	EIVED	BY:		DA	TE:TIN	ЛЕ	PAG
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AGZ	Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Burlington Resources, Inc.

Project ID:	MISC. GW SAMPLING
Sample ID:	M-2 MARCOTE

Organic Analytical Results

ACZ Sample ID:	L44072-12
Date Sampled:	12/16/03 9:15
Date Received:	12/17/03
Sample Matrix:	Ground Water

Benzene, Toluene, Ethylbenzene & Xylene

Analysis Method: Extract Method:	M8021B GC/PID Method	<u>113</u>	Analyst: Extract Date: Analysis Date: Dilution Factor:	km 12/18/03 / 12/18/03 / 1			
Compound Compound	ČA.	S Ret	autic (QUAL X	o Units	Mate	1:(011	
Benzene	000	071-43-2 0.	.4 J	ug/L	0.3	1	
Ethylbenzene	000	100-41-4	U	ug/L	0.2	1	
m p Xylene	013	30 20 7	U	ug/L	0.4	2	
o Xylene	000	95-47- 6	U	ug/L	0.2	1	-
Toluene	000	108-88-3	U	ug/L	0.2	1	
Surrogate Recoveries							
Sunogene	CAV	5 % Rec	ianvierity Xi	ā Umrtes	IL(C)L	10(0)1	
Bromofluorobenzene	000	460-00-4 78	.5	* %	84	114	•



(800) 334-5493

Burlington Resources, Inc.

Project ID:	MISC. GW SAMPLING
Sample ID:	MW-3 MARCOTE

Organic Analytical Results

ACZ Sample ID:	L44072-11
Date Sampled:	12/16/03 8:47
Date Received:	12/17/03
Sample Matrix:	Ground Water

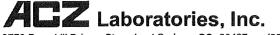
Benzene, Toluene, Ethylbenzene & Xylene

Analysis Method: Extract Method:	M8021B GC/PID Method	ynenne.	Extra Analys	Analyst: ct Date: is Date: Factor:	km 12/18/03 12/18/03 1			
Compound Compound		(CA)8	Respin	(OUVAL)	(e) Units	MOL	POL	
Benzene		000071-43-2	0.5	J	ug/L	0.3	1	
Ethylbenzene		000100-41-4		U	ug/L	0.2	1	
m p Xylene		01330 20 7		U	ug/L	0.4	2	-
o Xylene		00095-47- 6		U	ug/L	0.2	1	-9
Toluene		000108-88-3		U	ug/L	0.2	1	
Surrogate Recoveries		(EANS)	% Receivery	Ŷ	XQ Wintes	LCIL	IDKC (L	
Bromofluorobenzene		000460-00-4	81.7		* %	84	114	•



Report Head	ler Explanations						
Batch	A distinct set of samples analyzed at a specific time						
Found	Value of the QC Type of interest						
Limit	Upper limit for RPD, in %.						
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)					
LCL	Lower Control Limit						
MDL	Method Detection Limit. Same as Minimum Reporting	Limit. Allows for	instrument and annual fluctuations.				
PCN/SCI		-					
PQL	Practical Quantitation Limit		,				
QC	True Value of the Control Sample or the amount adde	d to the Spike					
Rec	Amount of the true value or spike added recovered, in	-	SS. ma/Ka)				
RPD	Relative Percent Difference, calculation used for Dupl	• •	,				
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg						
UCL	Upper Control Limit	,					
Sample	Value of the Sample of interest						
(OC Sample i							
SURR	Surrogate	LFM	Laboratory Fortified Matrix				
INTS	Internal Standard	LFMD	Laboratory Fortified Matrix Duplicate				
DUP	Sample Duplicate	LRB	Laboratory Reagent Blank				
LCSS	Laboratory Control Sample - Soil	MS/MSD	Matrix Spike/Matrix Spike Duplicate				
LCSW	Laboratory Control Sample - Water	PBS	Prep Blank - Soil				
LFB	Laboratory Fortified Blank	PBW	Prep Blank - Water				
QC Sample 1	Type Explanations						
Blanks		inimal contaminatio	on in the prep method procedure.				
Control S	Samples Verifies the accuracy of the r	nethod, including t	he prep procedure.				
Duplicate	verifies the precision of the i	nstrument and/or r	nethod.				
Spikes/Fortified Matrix Determines sample matrix interferences, if any.							
ACZ Qualifie	rs (Qual)						
В	Analyte detected in daily blank						
н	Analysis exceeded method hold time.						
J	Analyte concentration detected at a value between MI	DL and PQL					
R	Poor spike recovery accepted because the other spike	e in the set fell with	nin the given limits.				
т	High Relative Percent Difference (RPD) accepted bec	ause sample conc	entrations are less than 10x the MDL.				
U	Analyte was analyzed for but not detected at the indic	ated MDL					
V	High blank data accepted because sample concentrat	ion is 10 times hig	her than blank concentration				
w	Poor recovery for Silver quality control is accepted be	cause Silver often	precipitates with Chloride.				
х	Quality contreol sample is out of control.						
Z	Poor spike recovery is accepted because sample con	centration is four ti	mes greater than spike concentration.				
Р	Analyte concentration differs from second detector by	more than 40%.					
E	Analyte concentration is estimated due to result excee	ding calibration ra	nge.				
М	Analyte concentration is estimated due to matrix interf	erences.					
ালগুৱা ছিলেলে বি	NORCHED						
(1)	EPA 600/4-83-020. Methods for Chemical Analysis of	f Water and Waste	s, March 1983.				
(2)	EPA 600/4-90/020. Methods for the Determination of	Organic Compoun	ds in Drinking Water (I), July 1990.				
(3)	EPA 600/R-92/129. Methods for the Determination of	Organic Compour	nds in Drinking Water (II), July 1990.				
(5)	EPA SW-846. Test Methods for Evaluating Solid Was	ste, Third Edition w	ith Update III, December, 1996.				
(6)	Standard Methods for the Examination of Water and V	Vastewater, 19th e	dition, 1995.				
Comments							
(1)	QC results calculated from raw data. Results may var	ry slightly if the rou	nded values are used in the calculations.				
(2)	Organic analyses are reported on an "as received" ba	sis.					
REDINI03 11 (

REPIN03.11.00.01



2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Organic Extended Qualifier Report

ACZ Project ID: L43323

Burlington Resources, Inc.

ACZ ID WORKNUM PARAMETER

QUAL DESCRIPTION

No extended qualifiers associated with this analysis

METTHOD)

L43323: Page 10 of 13

AGZ Laboratories, Inc. 2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Burlington Resources, Inc.



L43323 ACZ Project ID: Date Received: 10/10/2003 **Received By:** tonya Representatives interesting

	YES	NO	NA
1) Does this project require special handling procedures such as CLP protocol?			V
2) Are the custody seals on the cooler intact?	V		
3) Are the custody seals on the sample containers intact?			\checkmark
4) Is there a Chain of Custody or other directive shipping papers present?	\checkmark		
5) Is the Chain of Custody complete?	\checkmark		
6) Is the Chain of Custody in agreement with the samples received?	\checkmark		
7) Is there enough sample for all requested analyses?	\checkmark		1
8) Are all samples within holding times for requested analyses?	\checkmark		
9) Were all sample containers received intact?	V		
10) Are the temperature blanks present?	\checkmark		
11) Are the trip blanks (VOA and/or Cyanide) present?	\checkmark		
12) Are samples requiring no headspace, headspace free?	V		
13) Do the samples that require a Foreign Soils Permit have one?	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC		V.

Exceptions: If you answered no to any of the above questions, please describe

N/A

Contact (For any discrepancies, the client must be contacted)

N/A

Shipping Containers

Cooler Id	Temp (°C)	Rad (µR/hr
ACZ	6.9	13
	•	

NEI AD.00.11.00.01	REF	PAD	.03.	11	.00.0	1
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L43323: Page 11 of 13





Burlington Resources, Inc.

ACZ Project ID: Date Received: L43323 10/10/2003 **Received By:**

tonya

Sample Conintmer Presservation

SAMPLE	CLIENT ID	R<2	G < 2	Y < 2	YG< 2	B < 2	BG< 2	0<2	T >12	P >12	N/A	RAD
L43323-01	M P Unit 1 MW-2										\checkmark	
L43323-02	M P Unit 1 MW-3										\checkmark	
L43323-03	TB100303-02										\checkmark	

WELL DEVELOPMENT AND SAMPLING LOG

Depth to Wa Water Colun Sampling Ma Criteria: 3 t	arcote Po ager ter <u>3(</u> nn Height ethod: Su Bo o 5 Casin	MJN 0.09 Dep 2.8.76 Wel ubmersible Pun ottom Valve Bai	Well N Date th to Produ I Dia I Dia I Dia Nater Rem	o: <u>MW-2</u> 12/16/03 ict <u>na</u> 2" Centrifugal Double Che	_ Start Product T Pump □ eck Valve lization of ne in Well	Time <u>0855</u> hickness <u>na</u> Peristaltic Bailer 🗆 Si Indicator Pai	Devel	Other: or bail dry
Gal/ft x ft 8.76 ک			Gallons 1.40 x 3			Ounces	Ga	al/oz to be removed 4.2
Time (military)	pH (su)	SC (umhos/cm)	Temp (°F)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gal.)	Comments/ Flow rate
0902	6.96	5930	48.0				.50	Brown Muddy
	7.0	5930	51.7				1.0	Brown Muddy
	7.06	6360	51.6				1.25	Brown Muddy 🕠
	7.05	6310	51.5		-		2.0	Brown Muddy
<u>0912</u>	7.10	6160	51	· · · · · · · · · · · · · · · · · · ·			3.0	Brown Muddy
							4.0	Bailing Dry
				L]	
Final: pl Time pl 0912 7		C Temp 160 51	Eh-ORP	D.O. Ti	irbidity	Ferrous Iron V		comments/Flow Rate Brown Muddy
COMMENTS	2.							
	2.							
INSTRUME	NTATION	•	Х				erature Mete	er x
	~	DO Mo onductivity Met				. Other		
Water Dispo		=	Marcote [·]	1 MW-2		Sampl	le Time <u>09</u>	15

BTEX VOCs Alkalinity TDS Cations Anions Nitrate Nitrite Ammonia TKN NMWQCC Metals Total Phosphorus

MS/MSD_____

BD Name/Time_____ TB_____ BD_____

WELL DEVELOPMENT AND SAMPLING LOG

Project No.:30003.0 Project Name: Burlington Marcote 1 Client: Burlington Resources Location: Marcote Pool Unit 1 Well No: MW-3 Development Sampling Project ManagerMJN Date 12/16/03 Start Time_0830 Weather_cloudy 40s Depth to Water34.14 Depth to Productna Product Thicknessna Measuring PointTOC Measuring PointTOC Water Column Height4.52 Well Dia2" 2" Sampling Method: Submersible Pump Centrifugal Pump Peristaltic Pump Other Other Bottom Valve Bailer x Double Check Valve Bailer Stainless-Steel Kemmerer Criteria: 3 to 5 Casing Volumes of Water Removal X_stabilization of Indicator Parameters X Other: or bail dry								
Water Volume in Well								
Gal/ft x ft	of water	[- ¹	Gallons Ounces				Gal/oz to be removed	
4.52 x.16			.72 x 3				2.2	
Time (military)	pH (su)	SC (umhos/cm)	Temp (°F)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gal.)	Comments/
0833	6.44	6490	48.1				.25	Brown/Heavy
	6.65	6560	49.6				.5	Silt/Muddy
	6.80	6520	.75				.75	Silt/Muddy
· · · · · · · · · · · · · · · · · · ·	6.83	6540	51.3				1.0	Silt/Muddy
	6.79	6540	51.3				2.0	Silt/Muddy
<u>0845</u>	6.80	6520	51.0				2.5	Silt/Muddy
Final: Time pH SC Temp Eh+ORP D.O. Turbidity Vol Evac. Comments/Flow Rate 0845 6.80 6520 51								
COMMENTS:								
INSTRUMENTATION: pH Meter X Temperature Meter x DO Monitor Other Conductivity Meter X								r x
Water Disposal onsite Sample ID Marcote 1 MW-3 Sample Time 0847								
<u>BTEX</u> VOCs Alkalinity TDS Cations Anions Nitrate Nitrite Ammonia TKN NMWQCC Metals Total Phosphorus								

MS/MSD_____ BD_____ BD Name/Time_____ TB_____