3RP-037

GW monitoring report

DATE:
2004

BURLINGTON
RESOURCES
San Juan Division

March 31, 2005

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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:

3RP 66	Cozzens B#1
3RP 69	Hampton #4M
3RP 71	Johnson Federal #4 Metering Station
3RP 173	Flora Vista (ENTERPRISE FIELD SVCS — FLORANCE VISTA #1
3RP 37	Marcotte Pool Unit #1 ~~(BLM)~~ 30-045-29466
	Sategna #2 (30-045-07974)

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

Sincerely,

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

3RP - 37

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BURLINGTON RESOURCES 2004 ANNUAL GROUNDWATER REPORT

Sategna #2

SITE DETAILS

Sec 21, 29N, 11W

Location: Unit Letter K, Section 22, Township 30N, Range 12W; San Juan County, New Mexico
Land Type: FEE

Background

The Sategna #2 is a Dakota well that was drilled and completed in 1960. Historic petroleum impacted soils were discovered during berm maintenance and open top water pit tank replacement activities. Approximately 6000 cu yds of contaminated soil were removed and replaced during remediation activities. The potential sources of the contamination include earthen pits operated by Southland Royalty, BR, and PNM/Williams. The extent of contamination and remediation was compounded by a shallow ground water regime.

Hydrology and Geology

The location is located in an OCD designated vulnerable area. The San Jun River channel is located approximately 1/2 mile to the south. The surface is used for farming grass and alfalfa crops. The southern boundary of the landowner's property and the approximate extent of contamination is an irrigation return flow ditch. The landowner reported the ditch was constructed to receive ground water from the upgradient irrigation activities and flow to a small pond within the flood plane of the San Juan River. No flowing water into or along the irrigation ditch was observed at the time of the excavation and concurrent with irrigation. No evidence of ground water contamination was observed in the irrigation ditch south of the excavation.

The geology of the immediate area is silty sand topsoil from the surface to a depth of approximately 3 feet. The subsoil consists of a fine to medium grained clean sand from 4 to 10 feet. The water table was discovered to be shallow at approximately 3.5 to 4 feet below surface. The hydraulic gradient is estimated to be toward the south in a direction toward the river. Actively irrigated fields surround the location to the north and west of the area and extend approximately one mile to the north. The Bloomfield highway is the northern boundary of the landowners property.

The hydrology of the area is directly affected by the irrigation activities of the landowner and the San Juan River regime. The seasonal irrigation activities may have cause fluctuations in the level of the water table in the area of the impacted soils. The irrigation activities have increased the quantity of water flowing in the unconfined water bearing formation that underlies this area. In addition, the proximity of the location to the flood plain of the San Juan River may also cause natural fluctuations in the water table. Moreover, the natural paleo sand channels (i.e., zones of higher hydraulic conductivity) were observed during the excavation work and may have directed

and facilitated movement of water and contamination in the subsurface soils. These fluctuations in the water table and the concentrating effect of buried sand channels increased and controlled the extent and volume of soil impacted.

The only domestic use of ground water is by the landowner. The landowner obtains his potable water supply from two ground water wells on the property. The wells are completed in a lower sandstone aquifer at approximately 90 feet and approximately 0.5 miles upgradient of the petroleum impacted soil discovered. The potential for impacting these wells is considered very unlikely.

Environmental Clean-up

Contamination Discovery

Petroleum impacted soils were discovered on the location during routine berm maintenance activities. In addition, below grade fiberglass drain tank installed in 1992 was replaced with a steel drain tank.

Contamination Investigation

Single backhoe bucket test holes, field monitor testing, and visual staining were used to delineate horizontal and vertical extent of contamination prior to the major excavation activities (Figure 1 Site Map). In addition, current and historical BR lease operators were contacted and a file search was completed to determine possible historic sources including old earthen pits and locations of spills and tanks.

The soil impacts observed during the excavation work were typical of a light phase hydrocarbon release to the water table. The subsoil horizon contamination range of 2 to 6 feet is mostly from the season irrigation impacted fluctuations of the water table causing smearing the soils with the oil suspended on the water table.

Potential Sources of Contamination

Based on well records and operator and landowner knowledge three earthen pits were believed to exist on the location: 1) old Southland Royalty location; 2) current BR fiberglass pit location, and 3) PNM/Williams dehydrator pit. The landowner also reported a history of well problems.

Southland Earth Pit

The Southland Royalty pit location was approximate and minor contamination was identified during excavation activities.

BR Earthen Pit

The BR drain pit was an earthen pit until the fiberglass tank was installed in 1993. The BR fiberglass tank and production condensate tank were visually examined and no obvious structural problems or leaks were observed. The plastic secondary containment liner of the fiberglass tank

and the tank excavation soils displayed evidence of condensate. The excavation activities determined this pit as one of the potential source of contamination.

PNM/Williams Earthen Pit

The historic PNM/Williams dehydrator pit location was identified from operator knowledge. Based on the excavation results the historic PNM/Williams dehydrator pit was a major source of contamination. Williams was contacted but denied they had a pit at this location. The landowner remembered the pit being closed within the last three years. No record of OCD pit closers was found and William's provided two filed forms that documented no pit was on the location. A soil sample was collected from beneath the PNM/Williams location to fingerprint the presence of glycol in the soil in an effort to demonstrate William's responsibility in the remediation. Moreover, Williams was contacted asked to visit the location during excavation work.

Well Head

No contamination was identified near the Sategna #2 well head. The landowner remembered the well might have had problems that caused condensate to seep to the surface on the side of the irrigation return ditch. No evidence of this seepage was identified.

Soil Remediation

Approximately 400 cu. yds. of topsoil overburden was removed and stockpiled on location. Approximately 6000 cu. yds. of contaminated soil was removed above and below the water table. Initially the contaminated soils were land farmed off location at a commercial landfarm on Crouch Mesa and later on BR Production locations Congress 5E and Congress 16. The OCD and BLM were contacted and a written proposal was approved to allow land farming on the selected BR production locations. The land farms on the Congress 5E and Congress 16 were cleaned and the soil reused in a suitable manner.

Approximately 5500 cu. yds of sandy loam subsoil suitable for the landowner's agricultural uses was backfilled into the excavation. The landowner was also provided soil fertilizer amendments and seed to rehabilitate the disturbed land.

Remedial Action

Soil three point composite samples were collected from the walls and bottom of the excavation to confirm soil contamination was below OCD standards. In addition, 80 bbls of a potassium permanganate solution was added to the excavation. The potassium permanganate was added to enhance remediation of any residual low-level petroleum impacts remaining. A water grab sample was collected from the standing water that accumulated in the excavation during excavation. The Site Map of the excavation shows the sample locations and the laboratory analysis results are include in Attachment 1. The soil and water samples collected were analyzed for BTEX and total petroleum hydrocarbons. The analyses reported were below the OCD contaminate specific remediation levels.

The installation of a temporary source ground water well (i.e., Monitoring Well TMW-1) and another downgradient temporary well (i.e., Monitoring Well TMW-2) were deferred until 2005

because of the rehabilitation and farming activities. The wells were installed in the first quarter of 2005 while farming was stopped. The two temporary wells were used to characterize the water quality given the large size of the excavation. The temporary wells are being used to minimize impacts to the landowners farming activities. The temporary wells installed were analyzed for a general list of WCCC parameters and BTEX. A map of the site is included as Figure 1.

CONCLUSIONS

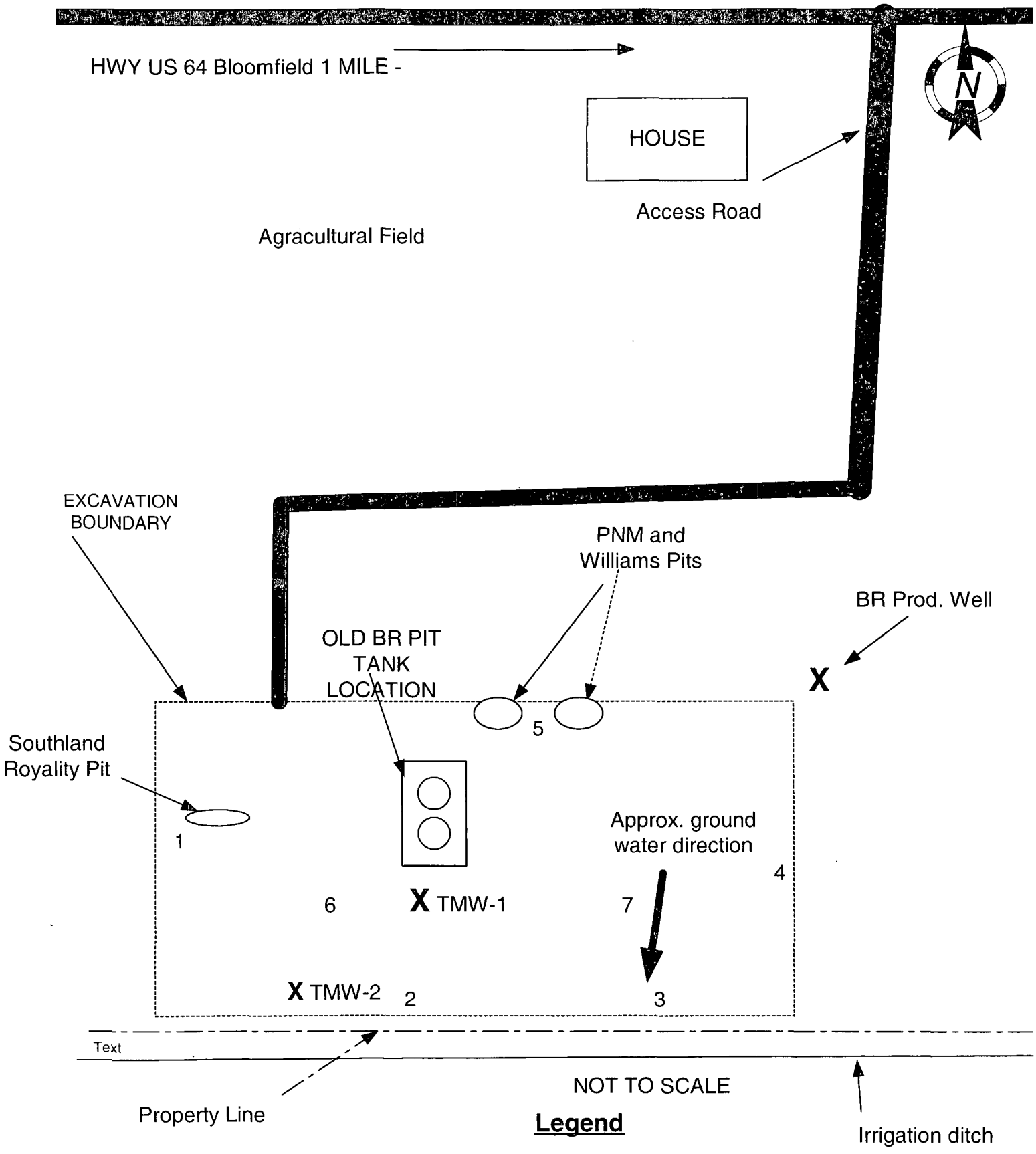
The petroleum impacted soil was removed to the extent practical at this location. The soil and water sampling analysis from the walls and bottom of the excavation were determined to be below the OCD contaminate specific remediation levels. The monitoring wells were sampled Feb. 2005 to determine compliance with the New Mexico Groundwater Standards. No parameters were reported above the New Mexico Groundwater Standards from the samples collected from TMW-1 and TMW-2.

RECOMMENDATIONS

- Burlington Resources to submit for closure.

Attachments: Figure 1 - Site Map and Sampling Location Table
Table 1 – Excavation Soil and Water Analytical Results
Table 2 – 2005 Ground Water Analytical Results

FIGURE 1 SATEGNA #2 Site map



Legend

X = TEMPORARY MONITORING WELL

= Groundwater direction

3 **Soil or Water Sample location**

Table 1
2002 Soil and Ground Water
ANALYTICAL RESULTS

Excavation Soil sample Location	Laboratory Identifier name	Matrix	Excavation Location (See Site Map)
1	Sategna #2 BR#2	Soil	West wall
2	Sategna 3	Soil	South wall
3	Sategna 1A NE	Soil	South wall
4	Sategna A	Soil	East wall
5	Sategna B	Soil	North Wall
6	Sategna 3 A	Soil	Excavation bottom
7	Sategna #2	Water	Grab location

Table 1

Sategna #2
Soil Sampling Data

Well Name	Soil sample	Sample Lab #	B mg/kg	T mg/kg	E mg/Kg	X mg/Kg	BTEX mg/Kg	TPH mg/Kg
Action Levels			*10*	*na*	*na*	*na*	*50*	*100*
Sategna #2								
Soil								
	1	Sategna #2 BR#2	<5	<5	<5	<15	<30	<100
	2	Sategna 3#	<5	<5	<5	<15	<30	<100
	3	Sategna 1A NE	<5	<5	<5	<15	<30	<100
	4	Sategna A	<5	<5	<5	<15	<30	<100
	5	Sategna B	<5	<5	<5	<15	<30	<100
	6	Sategna 3A	<5	<5	<5	<15	<30	<100
Water								
Action levels			10 ppb	750 ppb	750ppb	620ppb	na	na
Grab sample	7	Sategna #2	<5	<5	<5	66	66	355.00

na = not applicable

Client:	**Burlington Resources**		
Project:	**San Juan Division**	**Date Reported:**	05/28/02
Sample ID:	SATEGNA #2 BR#2	**Date Sampled:**	04/28/02
Lab ID:	0302W02001	**Date Received:**	05/03/02
Matrix:	Soil	**Date Extracted:**	05/10/02
Condition:	Cool/Intact	**Date Analyzed:**	05/10/02

Parameter	Analytical Result	PQL	Units
BTEX - Method 8021B			
Benzene	<5	5	mg/Kg
Toluene	<5	5	mg/Kg
Ethylbenzene	<5	5	mg/Kg
Xylenes (total)	<15	15	mg/Kg
Total BTEX	<30	30	mg/Kg

Quality Control - Surrogate Recovery	%	QC Limits
a,a,a-Trifluorotoluene(SUR-8021B)	95	70 - 130
4-Bromofluorobenzene(SUR-8021B)	95	70 - 130

Reference: Method 8021b, Volatile Organic Compounds, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, United States Environmental Protection Agency, SW-846, Volume IB.

Reviewed By: _____

Analyst: _____

Client:	**Burlington Resources**		
Project:	**San Juan Division**	**Date Reported:**	05/28/02
Sample ID:	SATEGNA #2 BR#2	**Date Sampled:**	04/28/02
Lab ID:	0302W02001	**Date Received:**	05/03/02
Matrix:	Soil	**Date Extracted:**	05/10/02
Condition:	Cool/Intact	**Date Analyzed:**	05/10/02

Parameter	Analytical Result	PQL	Units
DRO - METHOD 8015			
Diesel Range Organics (C10 - C22)	<50	50	mg/Kg
Gasoline Range Organics(C6-C10)	<50	50	mg/Kg
Total Petroleum Hydrocarbons (C6-C22)	<100	100	mg/Kg

Reference: Method 8015AZ, C10 - C32 Hydrocarbons in Soil, Arizona Department of Health Services, Revision - 1.0, 09/25/98.

Reviewed By: _____

Analyst: _____

Client:	**Burlington Resources**		
Project:	**TPH/BTEX**	**Date Reported:**	08/01/02
Sample ID:	Sategna #3	**Date Sampled:**	07/09/02
Lab ID:	0302W02853	**Date Received:**	07/18/02
Matrix:	Soil	**Date Extracted:**	N/A
Condition:	Cool/Intact	**Date Analyzed:**	07/31/02

Parameter	Analytical Result	PQL	Units
BTEX - Method 8021B			
Benzene	<5	5	mg/Kg
Toluene	<5	5	mg/Kg
Ethylbenzene	<5	5	mg/Kg
Total BTEX	<30	30	mg/Kg
Xylenes (total)	<15	15	mg/Kg

Quality Control - Surrogate Recovery	%	QC Limits
a,a,a-Trifluorotoluene(SUR-8021B)	74	70 - 130
4-Bromofluorobenzene(SUR-8020	68	70 - 130

Reference: Method 8021b, Volatile Organic Compounds, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, United States Environmental Protection Agency, SW-846, Volume IB.

Reviewed By: _____

Analyst: _____

Client:	**Burlington Resources**		
Project:	**TPH/BTEX**	**Date Reported:**	08/01/02
Sample ID:	Sategna #3	**Date Sampled:**	07/09/02
Lab ID:	0302W02853	**Date Received:**	07/18/02
Matrix:	Soil	**Date Extracted:**	N/A
Condition:	Cool/Intact	**Date Analyzed:**	07/31/02

Parameter	Analytical Result	PQL	Units
TPH - METHOD 8015			
Gasoline Range Organics(C6-C10)	<50	50	mg/Kg
Diesel Range Organics (C10 - C22)	<50	50	mg/Kg
Total Petroleum Hydrocarbons (C6-C22)	<100	100	mg/Kg

Quality Control - Surrogate Recovery	%	QC Limits
o-Terphenyl(SUR-8015)	79	70 - 130

Reference: Method 8015AZ, C10 - C32 Hydrocarbons in Soil, Arizona Department of Health Services, Revision - 1.0, 09/25/98. SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, November, 1986.

Reviewed By: _____

Analyst: _____

Client:	**Burlington Resources**		
Project:	**TPH/BTEX**	**Date Reported:**	08/01/02
Sample ID:	Sategna 1A NE	**Date Sampled:**	07/10/02
Lab ID:	0302W02855	**Date Received:**	07/18/02
Matrix:	Soil	**Date Extracted:**	N/A
Condition:	Cool/Intact	**Date Analyzed:**	07/31/02

Parameter	Analytical Result	PQL	Units
BTEX - Method 8021B			
Benzene	<5	5	mg/Kg
Toluene	<5	5	mg/Kg
Ethylbenzene	<5	5	mg/Kg
Total BTEX	<30	30	mg/Kg
Xylenes (total)	<15	15	mg/Kg

Quality Control - Surrogate Recovery	%	QC Limits
a,a,a-Trifluorotoluene(SUR-8021B)	97	70 - 130
4-Bromofluorobenzene(SUR-8020	82	70 - 130

Reference: Method 8021b, Volatile Organic Compounds, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, United States Environmental Protection Agency, SW-846, Volume IB.

Reviewed By: _____

Analyst: _____

Client:	**Burlington Resources**		
Project:	**TPH/BTEX**	**Date Reported:**	08/01/02
Sample ID:	Sategna 1A NE	**Date Sampled:**	07/10/02
Lab ID:	0302W02855	**Date Received:**	07/18/02
Matrix:	Soil	**Date Extracted:**	N/A
Condition:	Cool/Intact	**Date Analyzed:**	07/31/02

Parameter	Analytical Result	PQL	Units
TPH - METHOD 8015			
Gasoline Range Organics(C6-C10)	<50	50	mg/Kg
Diesel Range Organics (C10 - C22)	<50	50	mg/Kg
Total Petroleum Hydrocarbons (C6-C22)	<100	100	mg/Kg

Quality Control - Surrogate Recovery	%	QC Limits
o-Terphenyl(SUR-8015)	79	70 - 130

Reference: Method 8015AZ, C10 - C32 Hydrocarbons in Soil, Arizona Department of Health Services, Revision - 1.0, 09/25/98.
SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, November, 1986.

Reviewed By: _____

Analyst: _____

Client:	**Burlington Resources**		
Project:	**TPH/BTEX**	**Date Reported:**	08/01/02
Sample ID:	Sategna A	**Date Sampled:**	07/08/02
Lab ID:	0302W02852	**Date Received:**	07/18/02
Matrix:	Soil	**Date Extracted:**	N/A
Condition:	Cool/Intact	**Date Analyzed:**	07/31/02

Parameter	Analytical Result	PQL	Units
BTEX - Method 8021B			
Benzene	<5	5	mg/Kg
Toluene	<5	5	mg/Kg
Ethylbenzene	<5	5	mg/Kg
Total BTEX	<30	30	mg/Kg
Xylenes (total)	<15	15	mg/Kg

Quality Control - Surrogate Recovery	%	QC Limits
a,a,a-Trifluorotoluene(SUR-8021B)	77	70 - 130
4-Bromofluorobenzene(SUR-8020	71	70 - 130

Reference: Method 8021b, Volatile Organic Compounds, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, United States Environmental Protection Agency, SW-846, Volume IB.

Reviewed By: _____

Analyst: _____

Client:	**Burlington Resources**		
Project:	**TPH/BTEX**	**Date Reported:**	08/01/02
Sample ID:	Sategna A	**Date Sampled:**	07/08/02
Lab ID:	0302W02852	**Date Received:**	07/18/02
Matrix:	Soil	**Date Extracted:**	N/A
Condition:	Cool/Intact	**Date Analyzed:**	07/31/02

Parameter	Analytical Result	PQL	Units
TPH - METHOD 8015			
Gasoline Range Organics(C6-C10)	<50	50	mg/Kg
Diesel Range Organics (C10 - C22)	<50	50	mg/Kg
Total Petroleum Hydrocarbons (C6-C22)	<100	100	mg/Kg

Quality Control - Surrogate Recovery	%	QC Limits
o-Terphenyl(SUR-8015)	75	70 - 130

Reference: Method 8015AZ, C10 - C32 Hydrocarbons in Soil, Arizona Department of Health Services, Revision - 1.0, 09/25/98.
SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, November, 1986.

Reviewed By: _____

Analyst: _____

Client:	**Burlington Resources**		
Project:	**TPH/BTEX**	**Date Reported:**	08/01/02
Sample ID:	Sategna B	**Date Sampled:**	07/10/02
Lab ID:	0302W02856	**Date Received:**	07/18/02
Matrix:	Soil	**Date Extracted:**	N/A
Condition:	Cool/Intact	**Date Analyzed:**	07/31/02

Parameter	Analytical Result	PQL	Units
BTEX - Method 8021B			
Benzene	<5	5	mg/Kg
Toluene	<5	5	mg/Kg
Ethylbenzene	<5	5	mg/Kg
Total BTEX	<30	30	mg/Kg
Xylenes (total)	<15	15	mg/Kg

Quality Control - Surrogate Recovery	%	QC Limits
a,a,a-Trifluorotoluene(SUR-8021B)	90	70 - 130
4-Bromofluorobenzene(SUR-8020	76	70 - 130

Reference: Method 8021b, Volatile Organic Compounds, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, United States Environmental Protection Agency, SW-846, Volume IB.

Reviewed By: _____

Analyst: _____

Client:	**Burlington Resources**		
Project:	**TPH/BTEX**	**Date Reported:**	08/01/02
Sample ID:	Sategna B	**Date Sampled:**	07/10/02
Lab ID:	0302W02856	**Date Received:**	07/18/02
Matrix:	Soil	**Date Extracted:**	N/A
Condition:	Cool/Intact	**Date Analyzed:**	07/31/02

Parameter	Analytical Result	PQL	Units
TPH - METHOD 8015			
Gasoline Range Organics(C6-C10)	<50	50	mg/Kg
Diesel Range Organics (C10 - C22)	<50	50	mg/Kg
Total Petroleum Hydrocarbons (C6-C22)	<100	100	mg/Kg

Quality Control - Surrogate Recovery	%	QC Limits
o-Terphenyl(SUR-8015)	80	70 - 130

Reference: Method 8015AZ, C10 - C32 Hydrocarbons in Soil, Arizona Department of Health Services, Revision - 1.0, 09/25/98.
SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, November, 1986.

Reviewed By: _____

Analyst: _____

Client:	**Burlington Resources**		
Project:	**TPH**	**Date Reported:**	08/01/02
Sample ID:	Sategna 3A	**Date Sampled:**	07/01/02
Lab ID:	0302W02859	**Date Received:**	07/18/02
Matrix:	Soil	**Date Extracted:**	N/A
Condition:	Cool/Intact	**Date Analyzed:**	07/30/02

Parameter	Analytical Result	PQL	Units
BTEX - Method 8021B			
Benzene	<5	5	mg/Kg
Toluene	<5	5	mg/Kg
Ethylbenzene	<5	5	mg/Kg
Xylenes (total)	<15	15	mg/Kg
Total BTEX	<30	30	mg/Kg

Quality Control - Surrogate Recovery	%	QC Limits
4-Bromofluorobenzene(SUR-8021B)	80	70 - 130
a,a,a-Trifluorotoluene(SUR-8021B)	88	70 - 130

Reference: Method 8021b, Volatile Organic Compounds, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, United States Environmental Protection Agency, SW-846, Volume IB.

Reviewed By: _____

Analyst: _____

Client:	**Burlington Resources**		
Project:	**TPH**	**Date Reported:**	08/01/02
Sample ID:	Sategna 3A	**Date Sampled:**	07/01/02
Lab ID:	0302W02859	**Date Received:**	07/18/02
Matrix:	Soil	**Date Extracted:**	07/31/02
Condition:	Cool/Intact	**Date Analyzed:**	07/30/02

Parameter	Analytical Result	PQL	Units
TPH - METHOD 8015			
Gasoline Range Organics(C6-C10)	<50	50	mg/Kg
Diesel Range Organics (C10 - C22)	<50	50	mg/Kg
Total Petroleum Hydrocarbons (C6-C22)	<100	100	mg/Kg

Quality Control - Surrogate Recovery	%	QC Limits
o-Terphenyl(SUR-8015)	82	70 - 130

Reference: Method 8015AZ, C10 - C32 Hydrocarbons in Soil, Arizona Department of Health Services, Revision - 1.0, 09/25/98.
SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, November, 1986.

Reviewed By: _____

Analyst: _____

Client:	**Burlington Resources**		
Project:	**San Juan Division**	**Date Reported:**	05/28/02
Sample ID:	SATEGNA #2	**Date Sampled:**	05/03/03
Lab ID:	0302W02003	**Date Received:**	05/03/02
Matrix:	Water	**Date Extracted:**	N/A
Condition:	Cool/Intact	**Date Analyzed:**	05/06/02

Parameter	Analytical Result	PQL	Units
BTEX - Method 8021B			
Benzene	<5	5	µg/L
Toluene	<5	5	µg/L
Ethylbenzene	<5	5	µg/L
Xylenes (total)	66	15	µg/L
Total BTEX	68	30	µg/L

Quality Control - Surrogate Recovery	%	QC Limits
a,a,a-Trifluorotoluene(SUR-8021B)	105	70 - 130
4-Bromofluorobenzene(SUR-8021B)	80	70 - 130

Reference:

Reviewed By: _____

Analyst: _____

Client:	**Burlington Resources**		
Project:	**San Juan Division**	**Date Reported:**	05/28/02
Sample ID:	SATEGNA #2	**Date Sampled:**	05/03/03
Lab ID:	0302W02003	**Date Received:**	05/03/02
Matrix:	Water	**Date Extracted:**	N/A
Condition:	Cool/Intact	**Date Analyzed:**	05/06/02

Parameter	Analytical Result	PQL	Units
DRO - METHOD 8015			
Diesel Range Organics (C10 - C22)	17	5	µg/L
Gasoline Range Organics(C6-C10)	338	10	µg/L

Reference:

Reviewed By: _____

Analyst: _____

Table 2
2005 Ground Water
ANALYTICAL RESULTS

Sategna #2
Ground Water Monitoring Sampling Data

Well Name	Depth to Water	Sample Lab #	B mg/kg	T mg/kg	E mg/Kg	X mg/Kg	BTEX mg/Kg	TPH mg/Kg
Action Levels			10 ppb	750 ppb	750ppb	620ppb	*50*	*100*
Sategna #2								
TMW#1	50"	Sategna TMW-1	1.2	2.7	0.9J	48.2	48.2	
	See general water quality analysis attached							
TMW#2	48"	Sategena TMW-2	0.3J	0.6	0.5J	31.1	31.1	
	See general water quality analysis attached							

na = not applicable

WELL DEVELOPMENT AND SAMPLING LOG

Project No.:Draft_____ Project Name:_SATEGNA___ Client:_Burlington__
Location: Well No:__TMW-1_____ Development __**INSTALLATION AND Sampling**
Project Manager ___MJN_____ Date___2/10/05___ Start Time__1550___ Weather__clear 40s
Depth to Water __4.16 feet__ Depth to Product _na__ Product Thickness:__na__ Measuring Point __TOC____
Water Column Height _2.75_ Well Dia. _____2"_____

Sampling Method: Submersible Pump ☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Other ☐

Bottom Valve Bailer Double Check Valv☐Bailer Stainless-Steel Kemr☐rer

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

Gal/ft x ft of water	Water Volume in Well		Gal/**oz** to be removed
	Gallons	Ounces	
2.75 x 0.16	0.44		1.32

Time (military)	pH (su)	SC (umhos/cm)	Temp (°F)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gal)	Comments/ Flow rate
1550	**9.16**	**2210**	**55.4**				**0.44**	**Clear**
1602	**8.14**	**2010**	**51.1**				**.44**	**Clear**
1606	**7.6**	**2040**	**51.7**				**.44**	**Clear**

Final: Time	pH	SC	Temp	Eh-ORP	D.O.	Turbidity	Ferrous Iron	Vol Evac.	Comments/Flow Rate
1609	**7.55**	**1910**	**52.0**					**4.0**	**Clear**

COMMENTS: Pump depleting well

INSTRUMENTATION: pH Meter **X** _____ Temperature Meter **x**
DO Monitor _____ Other _____
Conductivity Meter **X** _____
Water Disposal onsite_____ Sample ID TMW-1 Sample Time_____
BTEX VOCs
MS/MSD_____ BD_____ BD Name/Time_____ TB_____

WELL DEVELOPMENT AND SAMPLING LOG

Project No.:Draft_____ Project Name:_SATEGNA____ Client:_Burlington__
Location: Well No:___TMW-2_____ Development __**INSTALLATION AND Sampling**
Project Manager ____MJN_____ Date___2/10/05___ Start Time__1550___ Weather__clear 40s
Depth to Water ___4.00__ Depth to Product _na__ Product Thickness:__na__ Measuring Point __TOC____
Water Column Height _2.70 Well Dia. _____2"_____

Sampling Method: Submersible Pump ☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Other ☐

Bottom Valve Bailer Double Check Valv☐Bailer Stainless-Steel Kemr☐rer

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

Gal/ft x ft of water	Water Volume in Well		Gal/**oz** to be removed
	Gallons	Ounces	
2.70 x 0.16	0.43		1.32

Time (military)	pH (su)	SC (umhos/cm)	Temp (°F)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gal)	Comments/ Flow rate
1650	**9.16**	**2210**	**55.4**				**0.44**	**Clear**
1702	**8.14**	**2010**	**51.1**				**.44**	**Clear**
1706	**7.6**	**2040**	**51.7**				**.44**	**Clear**

Final: Time	pH	SC	Temp	Eh-ORP	D.O.	Turbidity	Ferrous Iron	Vol Evac.	Comments/Flow Rate
1709	**7.55**	**1910**	**52.0**					**4.0**	**Clear**

COMMENTS: Pump depleting well

INSTRUMENTATION: pH Meter **X** _____ Temperature Meter **x**
DO Monitor _____ Other _____
Conductivity Meter **X** _____
Water Disposal onsite_____ Sample ID TMW-2 Sample Time_____
BTEX VOCs
MS/MSD_____ BD_____ BD Name/Time_____ TB_____

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

Analytical Report

March 01, 2005

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:
ACZ Project ID: L49852

Gregg Wurtz:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on February 11, 2005. This project has been assigned to ACZ's project number, L49852. 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 L49852. 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 01, 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.

01/Mar/05

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

ACCREDITED IN ACCORDANCE WITH nelac

ACIL

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

Inorganic Analytical Results

Burlington Resources, Inc.
Project ID:
Sample ID: SATEGNA TMW-1

ACZ Sample ID: ***L49852-01***
Date Sampled: *02/10/05 09:25*
Date Received: *02/11/05*
Sample Matrix: *Surface Water*

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, dissolved	M200.8 ICP-MS	0.0031			mg/L	0.0005	0.003	02/18/05 2:51	jag
Barium, dissolved	M200.7 ICP	0.095			mg/L	0.003	0.01	02/16/05 1:25	wfg
Cadmium, dissolved	M200.8 ICP-MS	0.0002	B		mg/L	0.0001	0.0005	02/18/05 2:51	jag
Calcium, dissolved	M200.7 ICP	441			mg/L	0.2	1	02/16/05 1:25	wfg
Chromium, dissolved	M200.8 ICP-MS	0.0012			mg/L	0.0001	0.0005	02/18/05 2:51	jag
Copper, dissolved	M200.8 ICP-MS	0.0037			mg/L	0.0005	0.003	02/18/05 2:51	jag
Iron, dissolved	M200.7 ICP	0.03	B	*	mg/L	0.01	0.05	02/16/05 1:25	wfg
Magnesium, dissolved	M200.7 ICP	62.1			mg/L	0.2	1	02/16/05 1:25	wfg
Manganese, dissolved	M200.7 ICP	3.820		*	mg/L	0.005	0.03	02/16/05 1:25	wfg
Potassium, dissolved	M200.7 ICP	10.2			mg/L	0.3	1	02/16/05 1:25	wfg
Sodium, dissolved	M200.7 ICP	453			mg/L	0.3	1	02/16/05 1:25	wfg
Zinc, dissolved	M200.7 ICP		U	*	mg/L	0.01	0.05	02/16/05 1:25	wfg

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO3	SM2320B - Titration								
Bicarbonate as CaCO3		527			mg/L	2	10	02/24/05 0:00	ct
Carbonate as CaCO3			U		mg/L	2	10	02/24/05 0:00	ct
Hydroxide as CaCO3			U		mg/L	2	10	02/24/05 0:00	ct
Total Alkalinity		527			mg/L	2	10	02/24/05 0:00	ct
Cation-Anion Balance	Calculation								
Cation-Anion Balance		-6.8			%			03/01/05 0:00	calc
Sum of Anions		54.5			meq/L	0.1	0.5	03/01/05 0:00	calc
Sum of Cations		47.6			meq/L	0.1	0.5	03/01/05 0:00	calc
Chloride	M325.2 - Colorimetric	19			mg/L	1	5	02/12/05 23:41	erf
Conductivity @25C	M120.1 - Meter	3820			umhos/cm	1	10	02/21/05 10:25	jtl
Lab Filtration	SM 3030 B			*				02/17/05 17:07	mpj
Lab Filtration & Acidification	SM 3030 B			*				02/11/05 14:53	ak
pH (lab)	M150.1 - Electrometric	7.6	H		units	0.1	0.1	02/24/05 17:58	ct
Sulfate	M375.3 - Gravimetric	2070			mg/L	10	50	02/25/05 19:47	mcb

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

Inorganic Analytical Results

Burlington Resources, Inc.
Project ID:
Sample ID: SATEGNA TMW-2

ACZ Sample ID: ***L49852-02***
Date Sampled: *02/10/05 10:45*
Date Received: *02/11/05*
Sample Matrix: *Surface Water*

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, dissolved	M200.8 ICP-MS	0.004	B		mg/L	0.003	0.01	02/18/05 20:06	jag
Barium, dissolved	M200.7 ICP	0.057			mg/L	0.003	0.01	02/16/05 1:29	wfg
Cadmium, dissolved	M200.8 ICP-MS	0.0018	B		mg/L	0.0005	0.003	02/18/05 20:06	jag
Calcium, dissolved	M200.7 ICP	369			mg/L	0.2	1	02/16/05 1:29	wfg
Chromium, dissolved	M200.8 ICP-MS	0.0016	B		mg/L	0.0005	0.003	02/18/05 20:06	jag
Copper, dissolved	M200.8 ICP-MS	0.036			mg/L	0.003	0.01	02/18/05 20:06	jag
Iron, dissolved	M200.7 ICP	0.5			mg/L	0.1	0.5	02/16/05 22:30	mea
Magnesium, dissolved	M200.7 ICP	102			mg/L	0.2	1	02/16/05 1:29	wfg
Manganese, dissolved	M200.7 ICP	0.26	B		mg/L	0.05	0.3	02/16/05 22:30	mea
Potassium, dissolved	M200.7 ICP	17.4			mg/L	0.3	1	02/16/05 1:29	wfg
Sodium, dissolved	M200.7 ICP	3210			mg/L	3	10	02/16/05 22:30	mea
Zinc, dissolved	M200.7 ICP	0.1	B		mg/L	0.1	0.5	02/16/05 22:30	mea

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO3	SM2320B - Titration								
Bicarbonate as CaCO3		1600			mg/L	2	10	02/24/05 0:00	ct
Carbonate as CaCO3			U		mg/L	2	10	02/24/05 0:00	ct
Hydroxide as CaCO3			U		mg/L	2	10	02/24/05 0:00	ct
Total Alkalinity		1600			mg/L	2	10	02/24/05 0:00	ct
Cation-Anion Balance	Calculation								
Cation-Anion Balance		-8.4			%			03/01/05 0:00	calc
Sum of Anions		200			meq/L	0.1	0.5	03/01/05 0:00	calc
Sum of Cations		169			meq/L	0.1	0.5	03/01/05 0:00	calc
Chloride	M325.2 - Colorimetric	14			mg/L	1	5	02/12/05 23:41	erf
Conductivity @25C	M120.1 - Meter	14000			umhos/cm	1	10	02/21/05 10:29	jtl
Lab Filtration	SM 3030 B			*				02/17/05 17:09	mpj
Lab Filtration & Acidification	SM 3030 B			*				02/11/05 15:00	ak
pH (lab)	M150.1 - Electrometric	7.5	H		units	0.1	0.1	02/24/05 18:13	ct
Sulfate	M375.3 - Gravimetric	7970			mg/L	100	500	02/25/05 19:56	mcb

** Please refer to Extended Qualifier Report for detail.*

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.
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)
Sample	Value of the Sample of interest

QC Sample Types

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.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL.
H	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.
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.

Method 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.

Comments

(1)	QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
(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.

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

Inorganic Extended Qualifier Report

Burlington Resources, Inc.

ACZ Project ID: ***L49852***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L49852-01	WG185390	Iron, dissolved	M200.7 ICP	M3	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.
		Manganese, dissolved	M200.7 ICP	M3	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.
		Zinc, dissolved	M200.7 ICP	M3	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.
	WG185522	Lab Filtration	SM 3030 B	TB	Analyte is not covered by NELAC certificate 02111CA, or ACZ does not maintain NELAC certification for this analyte.
	WG185244	Lab Filtration & Acidification	SM 3030 B	TB	Analyte is not covered by NELAC certificate 02111CA, or ACZ does not maintain NELAC certification for this analyte.
L49852-02	WG185522	Lab Filtration	SM 3030 B	TB	Analyte is not covered by NELAC certificate 02111CA, or ACZ does not maintain NELAC certification for this analyte.
	WG185244	Lab Filtration & Acidification	SM 3030 B	TB	Analyte is not covered by NELAC certificate 02111CA, or ACZ does not maintain NELAC certification for this analyte.

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

Organic Analytical Results

Burlington Resources, Inc.
Project ID:
Sample ID: SATEGNA TMW-1
Locator:

ACZ Sample ID: ***L49852-01***
Date Sampled: *02/10/05 9:25*
Date Received: *02/11/05*
Sample Matrix: *Surface Water*

Benzene, Toluene, Ethylbenzene & Xylene

Analysis Method: **M8021B GC/PID**
Extract Method: **Method**

Analyst: *jj*
Extract Date: *02/16/05 12:10*
Analysis Date: *02/16/05 12:10*
Dilution Factor: *1*

Compound

Compound	CAS	Result	QUAL	XQ	Units	MDL	PQL
Benzene	000071-43-2	1.2		*	ug/L	0.3	1
Ethylbenzene	000100-41-4	0.9	J	*	ug/L	0.2	1
m p Xylene	01330 20 7	10.4		*	ug/L	0.4	2
o Xylene	00095-47- 6	37.8		*	ug/L	0.2	1
Toluene	000108-88-3	2.7		*	ug/L	0.2	1

Surrogate Recoveries

Surrogate	CAS	% Recovery	XQ	Units	LCL	UCL
Bromofluorobenzene	000460-00-4	112.8	*	%	83	117

** Please refer to Extended Qualifier Report for details.*

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

Organic Analytical Results

Burlington Resources, Inc.
Project ID:
Sample ID: SATEGNA TMW-2
Locator:

ACZ Sample ID: ***L49852-02***
Date Sampled: *02/10/05 10:45*
Date Received: *02/11/05*
Sample Matrix: *Surface Water*

Benzene, Toluene, Ethylbenzene & Xylene

Analysis Method: **M8021B GC/PID**
Extract Method: **Method**

Analyst: *jj*
Extract Date: *02/16/05 14:21*
Analysis Date: *02/16/05 14:21*
Dilution Factor: *1*

Compound

Compound	CAS	Result	QUAL	XQ	Units	MDL	PQL
Benzene	000071-43-2	0.3	J		ug/L	0.3	1
Ethylbenzene	000100-41-4	0.5	J	*	ug/L	0.2	1
m p Xylene	01330 20 7	0.8	J	*	ug/L	0.4	2
o Xylene	00095-47- 6	30.3		*	ug/L	0.2	1
Toluene	000108-88-3	0.6	J		ug/L	0.2	1

Surrogate Recoveries

Surrogate	CAS	% Recovery	XQ	Units	LCL	UCL
Bromofluorobenzene	000460-00-4	98.6		%	83	117

** Please refer to Extended Qualifier Report for details.*

Burlington Resources, Inc.
Project ID:
Sample ID: TB030904-03
Locator:

ACZ Sample ID: ***L49852-03***
Date Sampled: *02/10/05 0:00*
Date Received: *02/11/05*
Sample Matrix: *Ground Water*

Benzene, Toluene, Ethylbenzene & Xylene

Analysis Method: **M8021B GC/PID**
Extract Method: **Method**

Analyst: *jj*
Extract Date: *02/16/05 15:04*
Analysis Date: *02/16/05 15:04*
Dilution Factor: *1*

Compound

Compound	CAS	Result	QUAL	XQ	Units	MDL	PQL
Benzene	000071-43-2		U		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	0.4	J	*	ug/L	0.2	1
Toluene	000108-88-3		U		ug/L	0.2	1

Surrogate Recoveries

Surrogate	CAS	% Recovery	XQ	Units	LCL	UCL
Bromofluorobenzene	000460-00-4	99.3		%	83	117

** Please refer to Extended Qualifier Report for details.*

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)
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 contreol 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.
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.
(6)	Standard Methods for the Examination of Water and Wastewater, 19th edition, 1995.

Comments

(1)	QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
(2)	Organic analyses are reported on an "as received" basis.

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

Organic Extended Qualifier Report

Burlington Resources, Inc.

ACZ Project ID: ***L49852***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L49852-01	WG185432	*All Compounds*	M8021B GC/PID	Q3	*Sample received with improper chemical preservation.*
		Ethylbenzene	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.
		m p Xylene	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.*
		o Xylene	M8021B GC/PID	M2	Matrix spike recovery was low, the method control sample recovery was acceptable.
			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.
L49852-02	WG185432	Ethylbenzene	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.*
		m p Xylene	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.
		o Xylene	M8021B GC/PID	M2	Matrix spike recovery was low, the method control sample recovery was acceptable.
			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.
L49852-03	WG185432	Ethylbenzene	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.
		m p Xylene	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.
		o Xylene	M8021B GC/PID	M2	Matrix spike recovery was low, the method control sample *recovery was acceptable.*
			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.

ACZ Project ID: L49852
Date Received: 2/11/2005
Received By:

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?			X
3) Are the custody seals on the sample containers intact?			X
4) Is there a Chain of Custody or other directive shipping papers present?	X		
5) Is the Chain of Custody complete?	X		
6) Is the Chain of Custody in agreement with the samples received?	X		
7) Is there enough sample for all requested analyses?	X		
8) Are all samples within holding times for requested analyses?	X		
9) Were all sample containers received intact?	X		
10) Are the temperature blanks present?			X
11) Are the trip blanks (VOA and/or Cyanide) present?	X		
12) Are samples requiring no headspace, headspace free?		X	
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

Headspace found in trip blank.

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

N/A

Shipping Containers

Cooler Id		Temp (°C)	Rad (µR/hr)
ACZ #417		3.7	24

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

Sample Receipt

Burlington Resources, Inc.

ACZ Project ID: L49852
Date Received: 2/11/2005
Received By:

Sample Container Preservation

SAMPLE	CLIENT ID	R < 2	G < 2	Y < 2	YG< 2	B < 2	BG< 2	O < 2	T >12	P >12	N/A	RAD
L49852-01	SATEGNA TMW-1										X	
L49852-02	SATEGNA TMW-2										X	
L49852-03	TB030904-03										X	

Sample Container Preservation Legend

Abbreviation	*Description*	*Container Type*	*Preservative/Limits*
R	Raw/Nitric	RED	pH must be < 2
B	Filtered/Sulfuric	BLUE	pH must be < 2
BG	Filtered/Sulfuric	BLUE GLASS	pH must be < 2
G	Filtered/Nitric	GREEN	pH must be < 2
O	Raw/Sulfuric	ORANGE	pH must be < 2
P	Raw/NaOH	PURPLE	pH must be > 12
T	Raw/NaOH Zinc Acetate	TAN	pH must be > 12
Y	Raw/Sulfuric	YELLOW	pH must be < 2
YG	Raw/Sulfuric	YELLOW GLASS	pH must be < 2
N/A	No preservative needed	Not applicable	
RAD	Gamma/Beta dose rate	Not applicable	must be < 250 µR/hr

ACZ Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493 L49852

CHAIN of CUSTODY

Report to:

Name: Gregg Wurtz
Company: Burlington Resources
E-mail:
Address: PO Box 4289
Farmington NM 87499
Telephone: 505 326 9537

Copy of Report to:

Name:
Company:
E-mail:
Telephone:

Invoice to:

Name: Gregg Wurtz
Company: Burlington Resources
E-mail:
Address: PO Box 4289
Farmington NM 87499
Telephone: 5053269537

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES ☐ NO ☐
If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified.

PROJECT INFORMATION

Quote #:
Project/PO #:
Shipping Co.: FedEx
Tracking #: 847982594171
Reporting state for compliance testing: NM
Are any samples NRC licensable material? No

ANALYSES REQUESTED *(attach list or use quote number)*

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	Extended Burlington Pram								
SATEGNA TMW-1	21005 0925	WG	6	X								
SATEGNA TMW-2	21005 1045	WG	6	X								
Trip		W	1									

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
	21005 1400	ACZ	21105 11:00

Page Of

FRMQA021.12.03.06 White - Return with sample. Yellow - Retain for your records.