3R - 74

REPORTS

DATE:

2002

SAN JUAN DIVISION

April 14, 2003

Certified: 70993400001842167708

RECEIVED

Bill Olson New Mexico Oil Conservation Division 2040 S. Pacheco Santa Fe, NM 87505

APR 1 8 2003

ENVIRONMENTAL BUREAU
OIL CONSERVATION DIVISION

RE: 2002 Annual Groundwater Investigation and Remediation Reports San Juan Basin, New Mexico

Dear Mr. Olson:

As required in Burlington Resources' approved Groundwater Investigation and Remediation Plan dated August, 1998, enclosed are the 2002 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
Standard @il Com #1
Maddox Com 1A

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

Sincerely,

Gregg Wurtz

Sr. Environmental Representative

Grapy Mente

Attachments - Groundwater Investigation and Remediation Reports

cc:

Denny Foust - NMOCD Aztec

Bruce Gantner - BR

WFS - Mark Harvey (Cozzens B#1, Hampton #4M)

EPFS - Scott Pope (Johnson Fed. #4, Standard Oil Com.#1)

Facility and Correspondence Files

BURLINGTON RESOURCES 2002 ANNUAL GROUNDWATER REPORT

Standard Oil Com. #1

SITE DETAILS

Location:

Unit Letter N, Section 36, Township 29N, Range 9 W; San Juan County, New Mexico

Land Type:

State

PREVIOUS ACTIVITIES

El Paso Field Services excavated approximately 60 cubic yards from their pit at this location in 1994 and installed a monitoring well in 1995.

Burlington Resources conducted the initial site assessment of our pit in August, 1998. Excavation of approximately 1140 cubic yards of impacted soil to a depth of 31 feet occurred in December, 1998.

1999 ACTIVITIES

Clean overburden was used to partially backfill the excavation. The landfarm associated with the pit closure work tested below cleanup standards and was used to completely backfill the excavation. Vertical extent drilling encountered groundwater at approximately 26 feet and a ground water monitoring well was installed on August 11, 1999. After developing the well and allowing it to stabilize for one week, the well was purged and sampled on August 18, 1999.

2001ACTIVITIES

Quarterly groundwater monitoring continued through 2001. Groundwater analytical data are presented in Table 1.

2001ACTIVITIES

Quarterly groundwater monitoring continued through 2002. Groundwater analytical data are presented in Table 1. A site map is presented as Figure 1.

CONCLUSIONS

Analytical results of groundwater sampling from the monitoring well in 2001 and 2002 show no levels above New Mexico Groundwater Standards. The analytical results suggest the levels of constituents of concern have naturally degraded and the site is recommended for clean closure and no additional monitoring will be performed.

RECOMMENDATIONS

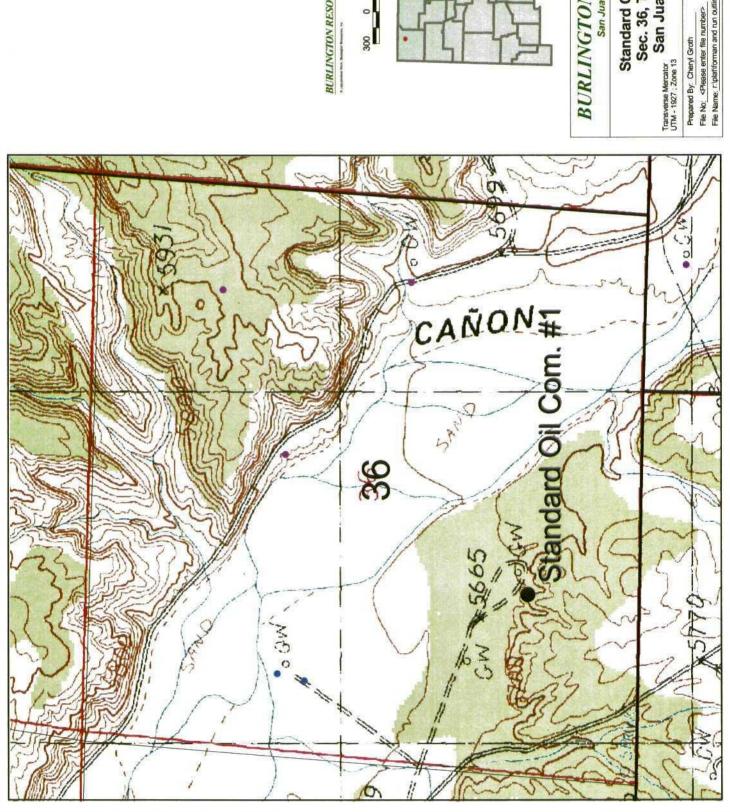
Burlington Resources proposes to discontinue sampling at this site and recommends clean closure granted for the area under BR responsibility, which includes the area disturbed surrounding the well location. A separate closure reported will be submitted.

Attachments: Figure 1 - Site Map

Table 1 - Groundwater Sampling Results Summary

2001 Groundwater Analytical

Letter to Olson dated September 10, 1999 including the Drilling Log/Wellbore Diagram



BURLINGTON RESOURCES PLAT 600 Feet

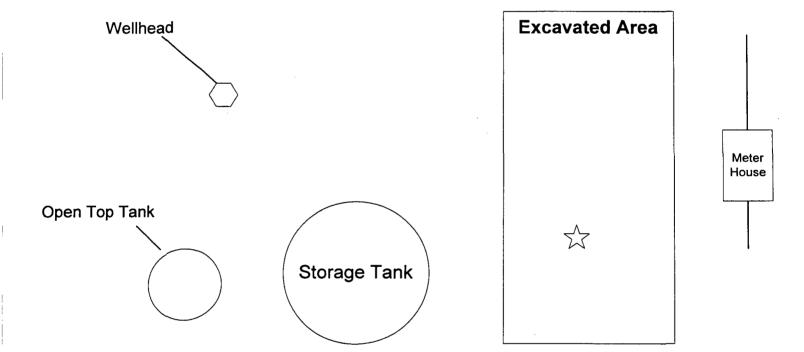
BURLINGTON RESOURCES

San Juan Division

Standard Oil Com. #1 Sec. 36, T29N-R9W San Juan Co., NM

Date: 03/27/2002

Standard Oil Com.
#1



2002 GROUNDWATER ANALYTICAL RESULTS

Groundwater Monitoring Well Sampling

Table 1

		Sample	В	T	Е	X	BTEX	DTW
Well Name	MW#	Date	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ft)
Standard			10	750	750	620		
Standard Oil Com #1	1	8/18/1999	1500	135	106	586	2327	
(EPNG)		12/1/1999	78	170	100	1300	1648	28.14
		1/19/2000	180	1100	610	5200	7090	28.14
		5/18/2000	14	3.1	29	110	156.1	27.97
		9/21/2000	13	4.5	51	290	358.5	
		12/13/2000	19	18	93	570	700	26.37
		3/27/2001	5.4	1.3	11.2	24.5	42.4	lost
	H2s odor	6/28/2001	3.7	1.8	5.3	6.7	17.5	28.28
		9/17/2001	4 J	5	20	116	141	28.47
		12/19/2001	3.9	3.8	13.1	86.9	107.7	28.34
		3/25/2002	3.8	1.3	0.9	6.2	12.2	28.17
		6/25/2002	4.8	0.7	4.6	3.7	13.8	28.65
		9/25/2002	5.4	0.6	6.1	2.8	14.9	29.02
		12/29/2002	4.3	0.6	6.8	20.1	31.8	28.6

WELL OBSERVATION DATA



Project Name:	BR Ground	water Sampl	ing			Project No.:	151700138*
Project Mngr:	Don Fernal	d	······································			Task:	6
Client Co.:	Burlington	Resources				Date:	12-29.02
Site Name:	Standard O	il #1					
Well or Piezometer	Time	Reason Not Measured	Depth to Floating Product (Feet)	Depth to Water (Feet)	Total Well Depth (Feet)	Floating Product Thickness	Comments
MW-1	3130			28,16	36.45		cloudy Black w/No
							oil Sheen
							Task Canala Cana
							Took Sumple from MW LaheLed "E"- Yellow- closest to meter
							"E" - Yellow -
							closest to meter
							run
	:						
Reason Not Measur Comments:	-		1		0x 2.5	gal,	waired, bailed
Signature:	Lame	0 9/1	wire	>		Date:	12-29-02 4:50

amec

Development Purging

WELL DEVELOPMENT AND PURGING DATA FORM

Well Number			Page / of
Project Name 13.R hall Schangling	Project Manager L'S & Linn		Project No. K/2000
Client Company Bunding TON / Rec	Resources	'	-
#	Site Address Range Sure Town CO	(2) Yan	
)	
Development Criteria	Water Volume Calculation	Instruments	Serial No. (If a
2 3 to 5 Casing Volumes of Water Removal	Initial Depth of Well (feet)	7	t
D Stabilization of Indicator Parameters	Initial Depth to Water (feet) 25.17	1 рн метег	100

(aldballe)

15T

Conductivity Meter **Á** Temperature Meter

> Gallons to be Removed

Water Volume in Well

Gravel Pack

Height of Water Column in Well (feet)

Initial Depth to Water (feet)

Diameter (inches): Well 2"

□ DO Monitor 1 pH Meter

Water Disposal

□ Other

とX7L,

Drilling Fluids Gravel Pack Well Casing Item

☐ Stainless-steel Kemmerer

Deortom Valve D Double Check Valve

☐ Centrifugal ☐ Submersible □ Peristaltic

Pump

□Other

Methods of Development

□ Other

otal

Gallons

Cubic Feet

	Comments			T	Cloudy hote Brannill Scottle Object					
	Dissolved Oxygen (mg/L)		_							
	Conductivity (mmhos/cm)			535	535	\$ 35 \$ 43 \$ 50 \$ 50	5.35	\$ 35 \$ 43 \$,50 \$ Lo	\$5.35 \$5.43 \$5.60 \$1.00	\$ 35 \$ 43 \$,50 \$ 40
	Hd			(b. 9)	66	6.000	2000	2,00	7,09	20.00.00
	Temperature (°C)	•		7.2	アゴン	14.5 G	ユヹヹ	ココココ	ユンアニ	エイアア
.	Product Volume Removed (gallons)	Increment Cumulative								
	red Prodi									
	Water Volume Removed (gallons)	Cumulative			- 4	-40	- ついて	-407	していり	- 1007
	Water Vol	Increment								
	Removal Indake Depth Ending Wa Rate (feet) Water Depth (gat/min)						35.95	35.95	35.95	35.98
	Intake Depti (feet)			·						
	Removal Rate (gal/min)									
2	Development Method	Pump Bailer		×	XX	XXX	XXXX	XXX	XXX	× × × ×
15		Time P		1233	033	933	2320	123 1036 1040 1040	2000	1232 1232 1232 1232
Water Inchiloval Data		Date	•	3-28-021 143-2	3-38-02	3.48.50	3.25.02	3-92-07	3-45-62	3-45-02

LOT RECOVER Briles well Dry Comments (ETER Briling Approxim Jely for BTex 1255

Developer's Signature(s)

Date 3 - 35-03 Reviewer MMM Bate 3/38/09

L Laboratories, Inc.

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

Organic Analytical Results

Burlington Resources, Inc.

Project ID:

1517000138

Sample ID:

STANDARD OIL MW1

ACZ ID: L36252-05

Date Sampled:

03/25/02 12:55

Date Received:

03/27/02

Sample Matrix: Ground Water

Benzene, Toluene, Ethylbenzene & Xylene

Analyst: mwb

Analysis Method: M8021

Extract Date: 04/03/02 22:45 Analysis Date: 04/03/02 22:45

Extract Method: Method

Dilution Factor: 1

Compound

Compound	CAS	Result	GUAL	Liifs	MDL	POL
Benzene	000071-43-2	3.8		ug/L	0.2	0.5
Ethylbenzene	000100-41-4	0.9	JB	ug/L	0.2	1
Toluene	000108-88-3	1.3		ug/L	0.2	1
Xylenes	0001330-207	6.2	В	ug/L	0.2	1

Surrogate Recoveries

Surrogate	CAS	Ya Receivery	Units	LCL	(I (e))
Bromofluorobenzene	000460-00-4	105	%	80	120

Note: PBW contains Ethylbenzene at 0.3ug/L and for Xylenes at 1.4ug/L.

REPOR.01.01.01.02

L36252: Page 7 of 13



WELL DEVELOPMENT AND PURGING DATA FORM

☐ Development

☐ Purging

Well Number MW - 1				Page	1 of [
Project Name BR WELL SAMPLING		Project Manager LISM (WINN	SA WINN	Project No.	Project No. 1517000138
Client Company BURLINGTON RESOURCES					
Site Name STANDARD OIL COM #1		Site Address RURAL SAN JUAN COUNTY	SAN JU	AN COUNTY	
Development Criteria	Water Volur	Water Volume Calculation	_	Instruments	Serial No. (If applicable)
凶多to 5 Casing Volumes of Water Removal	Initial Depth	Initial Depth of Well (feet) 37.05 To R	TOR.		UCT 1/2
X Stabilization of Indicator Parameters	Initial Depth	nitial Depth to Water (feet) 28,65' 70R	5' tor	Melei Melei	104 60
□ Other	Height of Wc	Height of Water Column in Well (feet) 8.40	8.40	□ DO Monitor	
	Diameter (in	Diameter (inches): Well 2" Gravel Pack	l Pack	::	0/ 100
Methods of Development		Water Volume in Well	Gallons to be	X Conductivity Meter	126 03
Pump Bailer	Item	Cubic Feet Gallons	Removed	M Temperature Meter	75T 63
	Well Casing	8.40 1.37	1.37 × 3		
<u>e</u>	Gravel Pack			□ Other	
☐ Peristaltic ☐ Stainless-steel Kemmerer	Drilling Fluids				
□ Other	Total		3.90	Water Disposal	Ė
				CN 2116 IN 1	1.1

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	Comments		CLoudy	11647 BROWN-51LTY						
	Dissolved Oxygen (mg/L)									
	Conductivity (mmhos/cm)		5.85	5.87						
	펍		6.93	7.06						
	Temperature (°C)		19.3 6.93	16.5						
	Product Volume Removed (gallons)	Increment Cumulative								
	Produc	Increment								
	Water Volume Removed (gallons)	Cumulative	0	1						
		Increment	0	1						
	Intake Depth Ending (feet) Water Depth (feet)									
	Intake Depth (feet)									
	Removal Rate (gal/min)									
] 	Development Method	Pump Bailer	×	×						
Oval Dal	<u> </u>	Time	5141	1421						
Water Nerrioval Data		Date	SIH1 20-52-9	128-02 1421						

Comments WELL BAILED DRY AT APPROXIMATELY 1.5 GAL. LET RECHARGE AND SAMPLED FOR BTEX

Developer's Signature(s)

Date 6-25-02

Reviewed Walte 7/2/02

L:\forms\MW Dvlpmnt 2.dot 11/29/01

Z Laboratories, Inc.

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

Organic Analytical Results

Burlington Resources, Inc.

Project ID:

1517000138

Sample ID:

STANDARD OIL COM#1

ACZ ID: L37484-01

Date Sampled:

06/25/02 14:46

Date Received:

07/02/02

Sample Matrix: Ground Water

Benzene, Toluene, Ethylbenzene & Xylene

Analysis Method: M8021B

Extract Method:

Method

Analyst: cbr/km on

Extract Date: 07/03/02 21:48

Analysis Date: 07/03/02 21:48

Dilution Factor: 1

Compound							
Compound	MAS (1.3	Result	e i jar	Units	ME	PQL	
Benzene	000071-43-2	4.8		ug/L	0.2	1	
Ethylbenzene	000100-41-4	4.6		ug/L	0.2	1	
m p xylene	01330 20 7	2.4		ug/L	0.2	2	
o xylene	00095-47- 6	1.3		ug/L	0.2	1	
Toluene	000108-88-3	0.7	J	ug/L	0.2	1	

Surrogate Recoveries

Surrogate	CAS	% Recovery	Units	i C L	1161
Bromofluorobenzene	000460-00-4	93.9	%	80	120

See case narrative.

REPOR.01.01.01.02

L37484: Page 3 of 14

Laboratories, Inc.

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

Organic Analytical Results

Burlington Resources, Inc.

Analysis Method:

Extract Method:

Project ID:

1517000138

Sample ID:

STANDARD OIL#1 MW1

M8021B GC/PID

ACZ ID: L38684-05

Date Sampled:

09/25/02 10:00

Date Received:

09/27/02

Sample Matrix: Ground Water

Benzene, Toluene, Ethylbenzene & Xylene

Method

Analyst: km

Extract Date: 09/27/02 22:08

Analysis Date: 09/27/02 22:08

Dilution Factor: 1

Compound	CAS	Result		Units	la b	Fol
Benzene	000071-43-2	5.4		ug/L	0.2	1
Ethylbenzene	000100-41-4	6.1		ug/L	0.2	1
m p Xylene	01330 20 7	2.8		ug/L	0.2	2
o Xylene	00095-47- 6		U	ug/L	0.2	1
Toluene	000108-88-3	0.6	J	ug/L	0.2	1

Surrogate Recoveries

Surrogate	CAS	% Recovery	in the LOC LUCKS.
Bromofluorobenzene	000460-00-4	110	% 84 114

See case narrative.

REPOR.01.01.01.02

L38684: Page 7 of 14

Development
Development
Development

WELL DEVELOPMENT AND PURGING DATA FORM

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Spild Septic Odor	1.55	bs.7 B	16.		7	1_	2			×	09-55	व अङ्क	
Comments	Conductivity Dissolved (mmhas/cm) Oxygen (mg/L)		dilons) (°C)	Removed (gallors)	Water Volume Removed (gallons) narement Cumulative		water Depth (feet)	Intake Depth (feet)	Removal Rate (gal/min)	Developmen Method Fump Batter	Time	Date	
	1	1	J	-			7			ata	noval D	Water Removal Data	سند 1
in pit	Water Disposal Oん Si7で	~ ×	3.9			Drilling Fluids Total	·	mmerer	-steel Ke	□ Stainless-steel Kemmerer		□ Peristaltic	
TSX T	☐ Other ☐ Other	ă. p	ns Removed	water volume in Well ubic Feet Gallons O3 //3/ X3	20	Item Well Casing Gravel Pack	○ ○	alve	Valve Check V	Bajler A Bottom Valve D Double Check Valve	adisisisa di perentanta di per	Pump Bajler Centrifugal Destron Submersible Double	
Weter XX X3	Conductivity Meter		Gravel Pack_	当 (G)	Diameter (inches): Well	Diameter (- - - -				5		
Serial No. (If applicable)	Instruments Depth Meter		7.08 7.08	llation (et) (7) (et)	Water Volume Calculation Initial Depth of Well (feet) 3 7 Initial Depth to Water (feet) 3 7 Initial Depth to Water (feet) 3 7 Initial Depth to Water Column in Well (feet)	Vater Vol nitial Dept nitial Dept		noval.	Vater Rer rameters	yelopment Criteria 3 to 5 Casing Volumes of Water Removal Stabilization of Indicator Parameters	ent Crite asing Vol tion of In	Development Criteria (1) to 5 Casing Volume (1) Stabilization of Indica	_
	j. O.	IN JAUKI	al Sh	ess Rura	Site Address K				8/1#	DARD	TANI	Site Name STAN DARD	S
Project No. 577000/58	Proje	inn	isa WI	Project Manager	Project N	(V)	8) 7 ' 52	MO-	SAN	welln	ne B.R.	Project Name B.R. We Client Company Burlin	0 70
Pageof	· · · · · · · · · · · · · · · · · · ·		- !	1	i]]]				\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Well Number	5

L:\forms\MW Dvlpmnt 2.dot 11/29/01

L Laboratories, Inc.

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

Organic Analytical Results

Burlington Resources, Inc.

Extract Method:

Project ID:

1517000138

Sample ID:

MW-1 STANDARD OIL #1

ACZ ID: L39827-01

Date Sampled: 12/29/02 16:50

Date Received: 01/02/03

Sample Matrix: Ground Water

Benzene, Toluene, Ethylbenzene & Xylene

Method

Analysis Method: M8021B GC/PID

Analyst: km

Extract Date: 01/07/03 19:30

Analysis Date: 01/07/03 19:30

Dilution Factor: 1

Compound

CAS	Result	QUAL	Units	MDL	Pal
000071-43-2	4.3		ug/L	0.3	1
000100-41-4	6.8		ug/L	0.2	1
01330 20 7	16.3		ug/L	0.4	2
00095-47- 6	3.8		ug/L	0.2	1
000108-88-3	0.6	J	ug/L	0.2	1
	000071-43-2 000100-41-4 01330 20 7 00095-47- 6	000071-43-2 4.3 000100-41-4 6.8 01330 20 7 16.3 00095-47-6 3.8	000071-43-2 4.3 000100-41-4 6.8 01330 20 7 16.3 00095-47- 6 3.8	000071-43-2 4.3 ug/L 000100-41-4 6.8 ug/L 01330 20 7 16.3 ug/L 00095-47-6 3.8 ug/L	000071-43-2 4.3 ug/L 0.3 000100-41-4 6.8 ug/L 0.2 01330 20 7 16.3 ug/L 0.4 00095-47-6 3.8 ug/L 0.2

Surrogate Recoveries

Carrogato recoversos					
Surrogate	CAS	% Recovery	Units	iei i	IGE
Bromofluorobenzene	000460-00-4	100	%	84	114

WELL DEVELOPMENT AND PIRGING DATA	ne Calculation Well (feet) 36.45 Water (feet) 28.6 T Column in Well (feet) es): Well \(\mathcal{I} \) Gravel Water Volume in Well Cubic Feet Gallons \(\mathcal{S}_{\alpha} \mathcal{Z}_{\alpha} \)	Water Initial I Initial I Height Diamet Walve Gravel	Development Criteria (XXX) to 5 Casing Volumes of Water Removal Stabilization of Indicator Parameters Other Development	☐ Stabilization ☐ Other Methods of Dount Jump ☐ Centrifugal ☐ Submersible ☐ Pericaltic
Page of Page of Page of Project No. 151700138* Sew factor Country Fhase Task No. Country Brighticable Serial No. (if applicable) Fight Meter VSI 63 Removed Washare Meter VSI 63 Removed Washare Meter VSI 63		السلط	Ole Control	Other
Project Phase. Phase. Instruments Instruments Instruments Instruments Conductivity Meter Instruments				Uther
Project Phase. Phase. Instruments A-PH Meter B-PH Meter DO Monitor Conductivity Meter moved W. Temperature Meter Cother		10		• (
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Project Phase. Phase. Instruments A PH Meter D D Monitor Ons to be			☐ Double Chec	☐ Submersible
Project Phase. Phase. Instruments A-PH Meter SS DO Monitor Ons to be Moved	8,35 1,36X3	L	A Bottom Valv	☐ Centrifugal
Project Project Phase. Instruments A-PH Meter SS DO Monitor Ons to be A-Conductivity Meter	Gallons		Bailer	Pump
Project Project Phase. Instruments A PH Meter S S D D Monitor	\vdash		evelopment	Methods of Development
Project Phase. The County Instruments Physical Physic	ches): Well 2" Gravel Pack	Diameter (ir		
Page of Project No. 151700138* Project No. 151700138* Phase Task No. (a phicable) Instruments Serial No. (if applicable)	iter Column in Well (feet) 8, 35	Height of W	or marcator radameters	Other
Page of Of Project No. 151700138* Project No. 151700138* Phase Task No. (a applicable)	of Well (feet) \$6.4\$	Initial Tritial Tritial	g Volumes of Water Remover Indicator Parameters	Ctabilization
Page of Of Project No. 151700138* Project No. 151700138* Phase Task No. (2)	ume Calculation		Criteria	XXO to 5 Casin
Page of Project No. 151700138* Phase. Task No. (2				Development Criteria
Page / of / Project No. 151700138* Phase. Task No.	Site Address Rutul San	1, to 1,		Development
Page / of / Project No. 151700138*		~ 3	Stundard O	Site Name Development
Page of				Client Company Site Name Development
A LECT MALINE TAILE & CANCELLO DISSIE	Project Manager Don Fernald	oundwater Sampling	Burlington Resources Groundwater Sampling Burlington Resources Stantlington A. i.	Project Name Client Company Site Name Development
DEVELOPMENT AND PURCING DATA	lager	WDPD- Groundwater Sampling	Burlington Resources Gramington Resources Burlington Resources Steantlear	Project Name Client Company Site Name Development
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Date Time Pump	Development Ke	Removal Rate	Intake Depth	Ending Water Depth	Water Volu (gal	Volume Removed (gallons)	Product Volume Removed (gallons)	Volume Removed (gallons)	Temperature		Conductivity	Oxygen	
6.34	T	<u>ਦ</u>		(feet)	Increment	Cumulative	Increment	Cumulative	(D)	Ηd	(mmhos/cm)	(mg/L)	Comments
**	X				245	2,5			14.0	16.41	1742 1742		
	×				/	3.5			13.6	7.40	1.40 2761		
	×			36.95	5'	77			12.4	241/	4652 2H'		
									,				
Circle the date and time that the development criteria are met.	development of	enteria are	met		1								

Comments 12/2/1/2/1/2 tork som DIPS Developer's Signature (s)

Date 12-35-02 Reviewer

Date

L:\forms\WELLDEV.DOC

SAN JUAN DIVISION

March 27, 2001

Certified: 70993400001842165308

RECEIVED

APR 0 1 2002

ENVIRONMENTAL BUREAU
OIL CONSERVATION DIVISION

Bill Olson New Mexico Oil Conservation Division 2040 S. Pacheco Santa Fe, NM 87505

RE: 2001 Annual Groundwater Investigation and Remediation Reports San Juan Basin, New Mexico

Dear Mr. Olson:

As required in Burlington Resources' approved Groundwater Investigation and Remediation Plan dated August, 1998, enclosed are the 2001 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
Standard Oil Com. #150
Maddox Com 1A

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

Sincerely,

Gregg Wurtz

Gregg Wurtz

Sr. Environmental Representative

Attachments - Groundwater Investigation and Remediation Reports

cc:

Denny Foust - NMOCD Aztec

Bruce Gantner - BR

WFS - Mark Harvey (Cozzens B#1, Hampton #4M)

EPFS - Scott Pope (Johnson Fed. #4, Standard Oil Com.#1)

Facility and Correspondence Files



APR 0 1 2002

ENVIRONMENTAL BUREAU

BURLINGTON RESOURCES 2001 ANNUAL GROUPEDWATEVRICEPORT

Standard Oil Com. #1

SITE DETAILS

Location:

Unit Letter N, Section 36, Township 29N, Range 9 W; San Juan County, New Mexico

Land Type:

State

PREVIOUS ACTIVITIES

El Paso Field Services excavated approximately 60 cubic yards from their pit at this location in 1994 and installed a monitoring well in 1995.

Burlington Resources conducted the initial site assessment of our pit in August, 1998. Excavation of approximately 1140 cubic yards of impacted soil to a depth of 31 feet occurred in December, 1998.

1999 ACTIVITIES

Clean overburden was used to partially backfill the excavation. The landfarm associated with the pit closure work tested below cleanup standards and was used to completely backfill the excavation. Vertical extent drilling encountered groundwater at approximately 26 feet and a ground water monitoring well was installed on August 11, 1999. After developing the well and allowing it to stabilize for one week, the well was purged and sampled on August 18, 1999.

2001ACTIVITIES

Quarterly groundwater monitoring continued through 2001. Groundwater analytical data are presented in Table 1. A site map is presented as Figure 1.

CONCLUSIONS

Analytical results of groundwater sampling from the monitoring well in 2001 show no levels above New Mexico Groundwater Standards for four quaters. The analytical results suggest the levels of constituents of concern have naturally degraded and the site is recommended for clean closure and no additional monitoring will be performed.

RECOMMENDATIONS

Burlington Resources proposes to discontinue sampling at this site and recommends clean closure granted for the area under BR responsibility, which includes the area disturbed surrounding the well location

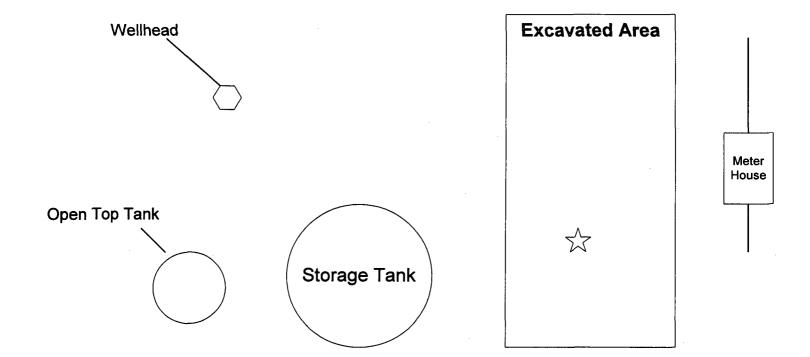
Attachments:

Figure 1 - Site Map

Table 1 - Groundwater Sampling Results Summary

2001 Groundwater Analytical

Standard Oil Com. #1



2001 GROUNDWATER ANALYTICAL RESULTS

Table 1

Groundwater Monitoring Well Sampling

	i.	Sample	В	T	E	X	BTEX	DTW
Well Name	MW#	Date	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ft)
Standard			10	750	750	620		
Standard Oil Com #1	1	8/18/1999	1500	135	106	586	2327	
(EPNG)		12/1/1999	78	170	100	1300	1648	28.14
		1/19/2000	180	1100	610	5200	7090	28.14
		5/18/2000	14	3.1	29	110	156.1	27.97
		9/21/2000	13	4.5	51	290	358.5	
		12/13/2000	19	18	93	570	700	26.37
		3/27/2001	5.4	1.3	11.2	24.5	42.4	lost
	H2s odor	6/28/2001	3.7	1.8	5.3	6.7	17.5	28.28
		9/17/2001	4 J	5	20	116	141	28.47
	i	12/19/2001	3.9	3.8	13.1	86.9	107.7	28.34



2773 Downhill Drive Steamboat Springs, CO 80487

(800) 334-5493

Organic Analytical Results

Burlington Resources, Inc.

Project ID:

B.R. Well Sampling

Sample ID:

Standard Oil MW 1

ACZ ID: L31380-01

Date Sampled: 03/27/01 56:00

Date Received: 03/31/2001

Sample Matrix: Ground Water

Benzene, Toluene, Ethylbenzene & Xylenes

Analyst: smp

Extract Date: 4/2/01

Analysis Date: 4/2/01

Dilution Factor: 1

Analysis Method: M8020

Extract Method: Method

Compound

Parameter	CAS	Result	Qual Units	MDL	PQL
Benzene	000071-43-2	5.4	ug/L	0.2	0.5
Ethylbenzene	000100-41-4	11.2	ug/L	0.2	1
Toluene	000108-88-3	1.3	ug/L	0.2	1
Xylenes	001330-20-7	24.5	ug/L	0.2	1

Surrogate Recoveries

Bro	mofluorobenzene	00000460004	122	%	80	120	
Park	meler	CAS	Result	Qual Units	MDL	PQL	

REPRC.01.01.01.02

L31380: Page 5 of 30







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

Quote #:		ACZ Project #:
CLIENTINFORMATION		
Name to appear on Report and Invoice		Carbon Copy: Report X Invoice
Burlineton Resources		GOLDEN ENVIRONMENTAL MGT.
Burlington Resources DU. BOX 4289	· · · · · · · · · · · · · · · · · · ·	906 Sen Tann BIVD. 5-17 D
Farmineton N.M. 8749	19-4289	906 Sen Jann BIVD. 5-17 D Farmington N.M. 87401
Farmington U.M. 8749 Attn: Greg wartz Tel:503	7)326-9537	Attn: List winn TE1:508) 566-9116
Email:		Email:
PROJECT INFORMATION		ANALYSES REQUESTED (required or attach bid/list
Client Project name and/or PO#:		
B.R. well Sampling		2 802.)
Shipping Company:		
Tracking #:		
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Well Development and Purging Data

Page / of / A winn Serial No. (if applicable) Hydee	Dissolved Oxygen (mg/L) Cloudy 131 min Coll Styck 17 Style Coll Mu Chenge	Senys/cd Fur
Project Manager Lis Instruments Pro Monitor Conductivity Meter	Water Disposal Oh Site in ampling Activities re of Container Uc rameters Sampled For Conductivity C.92 \$210 7.03\$000	Reviewer (M) WWA
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Project No. CANG Task No. Site Well No. Mw. Site Name/ Client/Project Name Calling Con R Development Criteria (13) o 5 Casing Volumes of Water Removal Stabilization of Indicator Parameters	Methods of Development Pump Centrifugal Submersible Peristaltic Other Water Removal Data Date Time Pump Cacol 1274 A37	Comments AFT2 Scall of Ax Ball of Boselopnen criteria are met. Sometime of State of

ACZ Laboratories, Inc.

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Organic Analytical Results

Burlington Resources, Inc.

Analysis Method: M8021

Extract Method: Method

Project ID:

B.R. well sampling

Sample ID:

Standard Com #1-MW 1

ACZ ID: L32735-04

Date Sampled:

06/28/01 13:00

Date Received: 06/30/01

Sample Matrix: Ground Water

Benzene, Toluene, Ethylbenzene & Xylene

Analyst: smp

Extract Date: 07/12/01 19:53

Analysis Date: 07/12/01 19:53

Dilution Factor: 1

Compound

Compound	CAS	Result	QUAL Units	MDL	POL
Benzene	000071-43-2	3.7	ug/L	0.2	0.5
Ethylbenzene	000100-41-4	5.3	ug/L	0.2	1
Toluene	000108-88-3	1.8	ug/L	0.2	1
Xylenes	001330-20-7	6.7	ug/L	0.2	1

Surrogate Recoveries

Surrogate	CAS	% Recovery	Units	LCL	UCL
Bromofluorobenzene	000460-00-4	110	%	80	120

REPOR.01.01.01.02

L32735: Page 5 of 15



Well Development and Purging Data

Page Of Project Manager Lisa Winn	Instruments PH Meter	Recover Sampled for BPX er Himm Date 9/27/21
Project No. 6/78 Task No. Well No. Min. Site Address Pured St.	Water Volume Calculation Initial Depth of Well (feet) Paritial Depth of Well (feet) 2 2 4 4 4 4 4 4 4 4	Sincte the date and time that the development criteria are met. Soluments AFTOX Bailing Application of the Date AM Date AM DO LOT SOLUMENTS Signature (s) And A. M. A. Beviewer

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

CHAIN of

Quote #:	ACZ Project #:
CLIENT INFORMATION	
Name to appear on Report and Invoice	Carbon Copy: Report Invoice
Burlington Resources	G.E.M.
PO. BOX 4269	906 Sanjaun BUD Scite D
Farmination NM. 87499-4289	Farmington MM. 82401
Farmington WM. 87499-4289 Attn: Greg wartz (596)326 9537	Attn: L154 winn Tel: 505) 566-9114
Email:	Email:
PROJECT INFORMATION	ANALYSES REQUESTED (required or attach bid/list)
Client Project name and/or PO#:	
BR Well Jampling	
Shipping Company:	of Containers
Tracking #:	
SAMPLE IDENTIFICATION DATE: TIME Matrix	[2] [2] [2] [2] [2] [2] [2] [2] [2] [2]
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Laboratories, Inc.

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

Organic Analytical Results

Burlington Resources, Inc.

Analysis Method:

Extract Method:

Project ID:

BR Well Sampling

Sample ID:

STANDARD OIL #1 MW1

ACZ ID: L33990-06

Date Sampled:

09/17/01 15:00

Date Received:

09/20/01

Sample Matrix:

Ground Water

Benzene, Toluene, Ethylbenzene & Xylene

Method

M8021

Analyst: smp

Extract Date: 09/27/01 19:43

Analysis Date: 09/27/01 19:43

Dilution Factor:

Compound

Compound	CAS	Result	GUAL	Units	MDL.	P/G/L
Benzene	000071-43-2	4	J	ug/L	2	5
Ethylbenzene	000100-41-4	20		ug/L	2	10
Toluene	000108-88-3	5	J	ug/L	2	10
Xylenes	0001330-207	116		ug/L	2	10

Surrogate Recoveries

Surrogate	045°	% Recovery	Units	LGL	
Bromofluorobenzene	000460-00-4	108	%	80	120

Development
Development

WELL DEVELOPMENT AND PURGING DATA FORM

ameco

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ACZ Laboratories, Inc.

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

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ACZ Laboratories, Inc.

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

Organic Analytical Results

Burlington Resources, Inc.

Project ID:

1517000138

Sample ID:

Standard Oil #1 MW 1

ACZ ID: L35290-05

Date Sampled:

12/19/01 13:15

Date Received:

12/20/01

Sample Matrix:

Ground Water

Benzene, Toluene, Ethylbenzene & Xylene

Analyst: mwb

Analysis Method:

M8021

Analysis Date: 12/29/01 2:39

Extract Date: 12/29/01 2:39

Extract Method: Method

Dilution Factor: 1

Compound

Compound	CAS	Result	QUAL Units	MDL	POL
Benzene	000071-43-2	3.9	ug/L	0.2	0.5
Ethylbenzene	000100-41-4	13.1	ug/L	0.2	1
Toluene	000108-88-3	3.8	ug/L	0.2	1
Xylenes	0001330-207	86.9	ug/L	0.2	1

Surrogate Recoveries

REPOR.01.01.01.02

L35290: Page 7 of 14

Laboratories, Inc.

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

Organic Analytical Results

Burlington Resources, Inc.

Project ID:

1517000138

Sample ID:

Trip Blank

ACZ ID:

L35290-08

Date Sampled:

12/19/01 0:00

Date Received:

12/20/01

Sample Matrix: Ground Water

Benzene, Toluene, Ethylbenzene & Xylene

M8021

Analysis Method: Extract Method: Method Analyst: mwb

Extract Date: 12/29/01 7:14

Analysis Date: 12/29/01 7:14

Dilution Factor: 1

Compound

Compound	CAS	Result	QUAL	Units	MDL	POL
Benzene	000071-43-2		U	ug/L	0.2	0.5
Ethylbenzene	000100-41-4	1.2		ug/L	0.2	1
Toluene	000108-88-3		U	ug/L	0.2	1
Xylenes	0001330-207		U	ug/L	0.2	1

Surrogate Recoveries

Surrogate	CAS	% Recovery	Units	LCL	UGL
Bromofluorobenzene	000460-00-4	99	%	80	120

Note: Due to sample carry over, Ethylbenzene was high in CCV at 127%.

REPOR.01.01.01.02

L35290: Page 10 of 14



Organic Reference

	hill Drive Steamboat Springs, CO 80487 (800	1) 334-5493	Reference			
Report Hea	der Explanations					
Batch	A distinct set of samples analyzed at a spec	ific time				
Found	Value of the QC Type of interest					
Limit	Upper limit for RPD, in %.					
Lower	Lower Recovery Limit, in % (except for LC	SS, mg/Kg)				
LCL	Lower Control Limit	, 0 0,				
MDL	Method Detection Limit. Same as Minimum	Reporting Limit. All	ows for instrument and annual fluctuations.			
PCN/SC	N A number assigned to reagents/standards t					
PQL	Practical Quantitation Limit					
QC	True Value of the Control Sample or the am	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 use		. • •			
Upper	Upper Recovery Limit, in % (except for LC	•	.,,,,,			
UCL	Upper Control Limit	50,g,g,				
Sample	Value of the Sample of interest					
	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			
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Blanks		o or minimal contam	ination in the prep method procedure.			
Control S			ding the prep procedure.			
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Spikes/F Spi	ortified Matrix Determines sample mers (Qual) Analyte detected in daily blank Analysis exceeded method hold time. Analyte concentration detected at a value be Poor spike recovery accepted because the High Relative Percent Difference (RPD) accepted was analyzed for but not detected at High blank data accepted because sample of Poor recovery for Silver quality control is accepted because sample is out of control. Poor spike recovery is accepted because sample is poor spike recovery is accepted because sample.	etween MDL and PC other spike in the se epted because sam the indicated MDL concentration is 10 ti cepted because Silv	ot. AL It fell within the given limits. It ple concentrations are less than 10x the M It mes higher than blank concentration It often precipitates with Chloride. It is four times greater than spike concentrate.			
Spikes/F Spi	ortified Matrix Determines sample mers (Qual) Analyte detected in daily blank Analysis exceeded method hold time. Analyte concentration detected at a value be Poor spike recovery accepted because the High Relative Percent Difference (RPD) accepted was analyzed for but not detected at High blank data accepted because sample of Poor recovery for Silver quality control is accepted because sample is out of control. Poor spike recovery is accepted because sample of the Poor spike recovery is accepted because sample to the Poor s	etween MDL and PC other spike in the se epted because same to the indicated MDL concentration is 10 to cepted because Silver ample concentration etector by more than	at any. AL It fell within the given limits. It fell within the given li			
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QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculated

Organic analyses are reported on an "as received" basis.

REPIN03.11.00.01

(1)



SAN JUAN DIVISION March 27, 2001

Certified: 709932200028981 4004



MAR 2 9 2001

SERVATION SIVICE

Bill Olson New Mexico Oil Conservation Division 2040 S. Pacheco Santa Fe, NM 87505

RE: 2000 Annual Groundwater Investigation and Remediation Reports San Juan Basin, New Mexico

Dear Mr. Olson:

As required in Burlington Resources' approved Groundwater Investigation and Remediation Plan dated August, 1998, enclosed are the 2000 annual reports for Burlington's groundwater impact sites in the San Juan Basin. Separate reports are enclosed for the following locations:

Cozzens B#1
Fogelson #4-1
Hampton #4M
Johnson Federal #4 Metering Station
Standard Oil Com. #1
Taylor Com. #2A
Maddox Com 1A

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

Bruce Gantner - BR

WFS - Mark Harvey (Cozzens B#1, Hampton #4M)

EPFS - Scott Pope (Fogelson #4-1, Johnson Fed. #4, Standard Oil Com.#1)

Facility and Correspondence Files

Standard Oil Com. #1

SITE DETAILS

Location:

Unit Letter N, Section 36, Township 29N, Range 9 W; San Juan County, New Mexico

Land Type:

State

PREVIOUS ACTIVITIES

El Paso Field Services excavated approximately 60 cubic yards from their pit at this location in 1994 and installed a monitoring well in 1995.

Burlington Resources conducted the initial site assessment of our pit in August, 1998. Excavation of approximately 1140 cubic yards of impacted soil to a depth of 31 feet occurred in December, 1998.

1999 ACTIVITIES

Clean overburden was used to partially backfill the excavation. The landfarm associated with the pit closure work tested below cleanup standards and was used to completely backfill the excavation. Vertical extent drilling encountered groundwater at approximately 26 feet and a ground water monitoring well was installed on August 11, 1999. After developing the well and allowing it to stabilize for one week, the well was purged and sampled on August 18, 1999.

2000 ACTIVITIES

Quarterly groundwater monitoring continued through 2000. Groundwater analytical data are presented in Table 1. A site map is presented as Figure 1.

CONCLUSIONS

Analytical results of groundwater sampling from the monitoring well in the 4th quarter of 2000 show only levels of benzene above New Mexico Groundwater Standards. The analytical results suggest the levels of constituents of concern are trending downward.

RECOMMENDATIONS

- Burlington Resources proposes to continue quarterly sampling at this site.
- Burlington Resources will initiate discussions with El Paso Field Service to assure proper assessment and closure of this site.

Attachments:

Figure 1 - Site Map

Table 1 - Groundwater Sampling Results Summary

2000 Groundwater Analytical

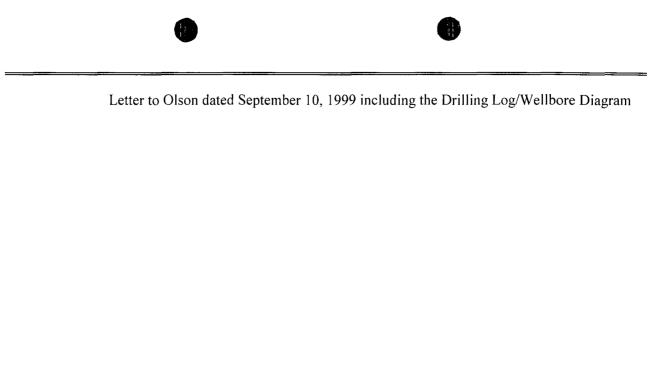
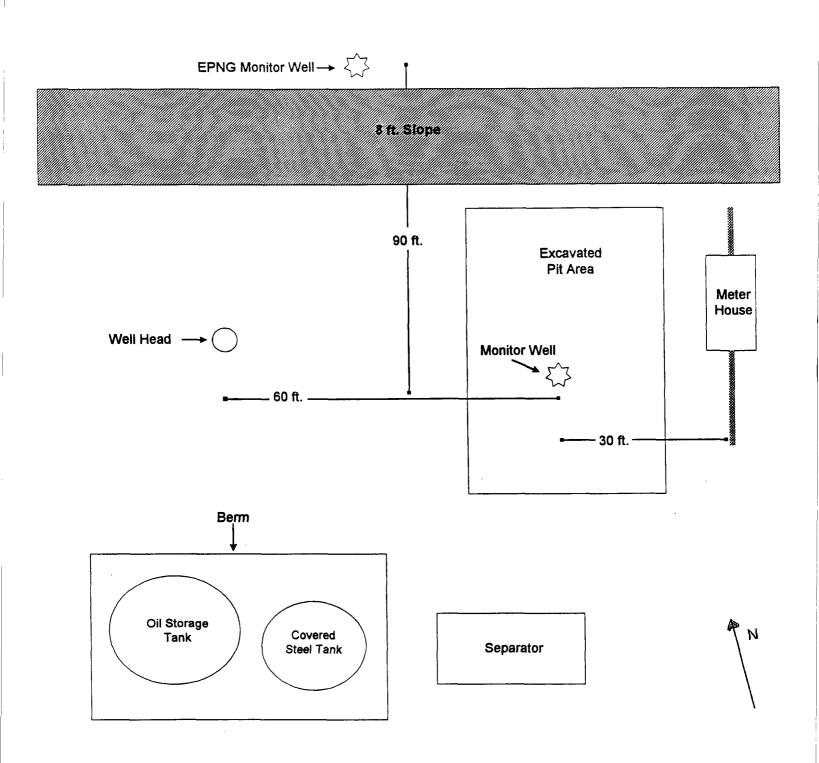


Figure 1

BURLINGTON RESOURCES

STANDARD OIL COM No. 1
MONITOR WELL INSTALLATION



Not to scale - distances are approximate

stdoil1.vsd 9/10/99

Table 1

Groundwater Monitoring Well Sampling

		Sample	В	T	E	Χ	BTEX	DTW
Well Name	MW #	Date	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ft)
Standard			10	750	750	620		
Standard Oil Com #1	1	8/18/1999	1500	135	106	586	2327	
(EPNG)		12/1/1999	78	170	100	1300	1648	28.14
		1/19/2000	180	1100	610	5200	7090	28.14
		5/18/2000	14	3.1	29	110	156.1	27.97
	<u> </u>	9/21/2000	13	4.5	51	290	358.5	
		12/13/2000	19	18	93	570	700	26.37

2000 GROUNDWATER ANALYTICAL RESULTS

O Perchapuent

WELL DEVELOPMENT AND PURGING DATA

	Date	Doviovjer	Davi	19-00	1 - 16				D	1.0	f -	ianahwa	Davidonar's Signatura (s)
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Commanls	Dissolved Oxygen (mg/l)	Conductivity Immihos/cml	Н	lemperatore (°C)	Paction L'Actions Removael (galland)	Water Volume Pernovect 1 (pollors) 6		Ib Ending Water Depth	hnloke Depth (feet)	Removal Rate Igal/mini	Developmen Melhod		
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:	osal	Water Disposal	<u> </u>				Joilling Fluids Hotal		emmerei	🗅 Stainless-steel Kennmerei	Stainle		□ Peristallic
		□ Other_		6	N	12.56,164	Well Closing Flower Pact	_ = ()	/alve	風 Boffom Valve 日 Double Check Valve	Bottom Valve Double Check	al ole	☐ Centrilugal
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Serial No. (Il applicable)	. S	Instruments	-	7		Water Volume Calculation Initial Depth of Wolf (col) _	Water ⊻o Inilliat bep		emoval	l Water R	eria lumes oi	ent Crite asing Vol	Development Criteria 図 3 to 5 Casing Volumes of Water Removal
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Pageof										Serial No. WDPD			STATES ST
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Pinnacle Lab ID number January 24, 2000

001040

PHILIP ENVIRONMENTAL 4000 MONROE ROAD

FARMINGTON,

NM

87401

Project Name

BURLINGTON DRILLING

Project Number

62800025

Attention:

CECIL IRBY

On 01/20/00 Pinnacle Laboratories, Inc. Inc., (ADHS License No. AZ0592 pending), received a request to analyze **aqueous** 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.

Kimberly D. McNeill Project Manager H. Mitchell Rubenstein, Ph. D.

General Manager

MR: jt

Enclosure





CLIENT PROJECT#	: PHILIP ENVIRONMENTAL : 62800025	PINNACLE ID DATE RECEIVED	: 001040 : 01/20/00
PROJECT NAME	: BURLINGTON DRILLING	REPORT DATE	: 01/24/00
PIN			DATE
ID. #	CLIENT DESCRIPTION	MATRIX	COLLECTED
01	COZ0001MW1-1	AQUEOUS	01/19/00
02	SOC0001MW1-1	AQUEOUS	01/19/00
03	TAY0001MW3-1	AQUEOUS	01/19/00
04	TAY0001MW2-1	AQUEOUS	01/19/00
05	TAY0001MW1-1	AQUEOUS	01/19/00



PINNACLE I.D.: 001040



GAS CHROMATOGRAPHY RESULTS

TEST

: EPA 8021 MODIFIED

CLIENT

: PHILIP ENVIRONMENTAL

PROJECT#

: 62800025

PROJECT NAME

· BURLINGTON DRILLING

PROJEC	T NAME :	BURLINGTON	DRILLING				
SAMPLE				DATE	DATE	DATE	DIL.
ID. #	CLIENT I.D.		MATRIX	SAMPLED	EXTRACTED	ANALYZED	FACTOR
01	COZ0001MW1-1		AQUEOUS	01/19/00	NA	01/20/00	1
02	SOC0001MW1-1		AQUEOUS	01/19/00	NA	01/20/00	10
03	TAY0001MW3-1		AQUEOUS	01/19/00	NA	01/20/00	1
PARAME	TER	DET. LIMIT		UNITS	COZ0001MW1- 1	SOC0001MW1- 1	TAY0001MW3-1
BENZEN	IE .	0.5		UG/L	1.7	180	< 0.5
TOLUEN	IE	0.5		UG/L	13	1100	< 0.5
ETHYLB	ENZENE	0.5		UG/L	7.6	610	< 0.5
TOTAL X	KYLENES	0.5		UG/L	28	5200	< 0.5
SURRO	GATE:						
BROMO	FLUOROBENZENE (9	%)			90	102	95
SURRO	GATE LIMITS	(80 - 120)					

CHEMIST NOTES:

N/A



PINNACLE I.D.: 001040



GAS CHROMATOGRAPHY RESULTS

TEST

: EPA 8021 MODIFIED

CLIENT

: PHILIP ENVIRONMENTAL

PROJECT#

: 62800025

PROJECT NAME

· BURLINGTON DRILLING

PROJEC	I NAME : I	BURLINGTON	DRILLING				
SAMPLE				DATE	DATE	DATE	DIL.
ID. #	CLIENT I.D.		MATRIX	SAMPLED	EXTRACTED	ANALYZED	FACTOR
04	TAY0001MW2-1		AQUEOUS	01/19/00	NA	01/20/00	1
05	TAY0001MW1-1		AQUEOUS	01/19/00	NA	01/20/00	1 .
PARAME	TER	DET. LIMIT		UNITS	TAY0001MW2-1	TAY0001MW1-1	
BENZEN	E	0.5		UG/L	< 0.5	0.6	
TOLUEN	E	0.5		UG/L	< 0.5	1.9	
ETHYLB	ENZENE	0.5		UG/L	< 0.5	0.8	
TOTAL X	(YLENES	0.5		UG/L	< 0.5	3.3	
SURRO							
	FLUOROBENZENE (% BATE LIMITS	6) (80 - 120)			96	97	

CHEMIST NOTES:

N/A





CHEMIST NOTES:

N/A

GAS CHROMATOGRAPHY RESULTS REAGENT BLANK

TEST	: EPA 8021 MODIFIED	PINNACLE I.D.	: 001040	
BLANK I. D.	: 012000	DATE EXTRACTED	: N/A	
CLIENT	: PHILIP ENVIRONMENTAL	DATE ANALYZED	: 01/20/00	
PROJECT#	: 62800025	SAMPLE MATRIX	: AQUEOUS	
PROJECT NAME	: BURLINGTON DRILLING			
PARAMETER	UNITS			
BENZENE	UG/L	<0.5		
TOLUENE	UG/L	<0.5		
ETHYLBENZENE	UG/L	<0.5		
TOTAL XYLENES	UG/L	<0.5		
SURROGATE:				
BROMOFLUOROBENZENE (%) SURROGATE LIMITS:	(80 - 120)	95		
SURRUGATE LIMITS.	(00 - 120)		,	





GAS CHROMATOGRAPHY QUALITY CONTROL **MSMSD**

TEST

: EPA 8021 MODIFIED

MSMSD# CLIENT

: 012000

: PHILIP ENVIRONMENTAL

PROJECT#

: 62800025

PROJECT NAME

: BURLINGTON DRILLING

PINNACLE I.D.

001040

DATE EXTRACTED

N/A

DATE ANALYZED SAMPLE MATRIX

01/21/00 AQUEOUS

UNITS

UG/L

					011110			O O, C	
	SAMPLE	CONC	SPIKED	%	DUP	DUP		REC	RPD
PARAMETER	RESULT	SPIKE	SAMPLE	REC	SPIKE_	% REC	RPD	LIMITS	LIMITS
BENZENE	<0.5	20.0	20.8	104	21.6	108	4	(80 - 120)	20
TOLUENE	<0.5	20.0	19.3	97	19.4	97	1	(80 - 120)	20
ETHYLBENZENE	<0.5	20.0	20.9	105	20.9	105	0	(80 - 120)	20
TOTAL XYLENES	<0.5	60.0	60.9	102	59.4	99	2	(80 - 120)	20

CHEMIST NOTES:

N/A

(Spike Sample Result - Sample Result)

% Recovery =

----- X 100

Spike Concentration

(Sample Result - Duplicate Result)

RPD (Relative Percent Difference) =

Average Result

-----X 100



Chain of Custody Record 4000 Monroe Road (505) 326-2262 Phone Farmington, NM 87401 (505) 326-2388 FAX

4000 Monroe Road Farmington, NM 87401

COC Serial No. C 2484

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Pinnacle Lab ID number May 26, 2000

005082

PHILIP ENVIRONMENTAL 4000 MONROE ROAD FARMINGTON. NM

87401

Project Name

BR WELL SAMPLING

Project Number

62800228

Attention: ROBERT THOMPSON

Pinnacle Laboratories, Inc. Inc., (ADHS License No. AZ0592 pending), received a On 05/19/00 request to analyze aqueous 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

MR: jt

Enclosure



CLIENT	: PHILIP ENVIRONMENTAL	PINNACLE ID	: 005082
PROJECT#	: 62800228	DATE RECEIVED	: 05/19/00
PROJECT NAME	: BR WELL SAMPLING	REPORT DATE	: 05/26/00
PIN			DATE
ID. #	CLIENT DESCRIPTION	MATRIX	COLLECTED
01	STANDARD OIL COM#1 MW1	AQUEOUS	05/18/00



PINNACLE I.D.: 005082

GAS CHROMATOGRAPHY RESULTS

TEST

: EPA 8021 MODIFIED

CLIENT

: PHILIP ENVIRONMENTAL

PROJECT#

: 62800228

PROJECT NAME

: BR WELL SAMPLING

	, 5, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,	11117					
SAMPLE			DATE	DATE	DATE	DIL.	
ID. #	CLIENT I.D.	MATRIX	SAMPLED	EXTRACTED	ANALYZED	FACTOR	
01	STANDARD OIL COM#1 MW1	AQUEOUS	05/18/00	NA	05/23/00	2	

STANDARD OIL

PARAMETER	DET. LIMIT	UNITS	COM#1 MW1	
BENZENE	0.5	UG/L	14	
TOLUENE	0.5	UG/L	3.1	
ETHYLBENZENE	0.5	UG/L	29	
TOTAL XYLENES	0.5	UG/L	110	
SURROGATE: BROMOFLUOROBENZE SURROGATE LIMITS	:NE (%) (80 - 120)		118	

CHEMIST NOTES:

N/A



N/A

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

GAS CHROMATOGRAPHY RESULTS REAGENT BLANK

TEST : EPA 8021 MODIFIED PINNACLE I.D. 005082 BLANK I. D. DATE EXTRACTED NA : 052300 **CLIENT** : PHILIP ENVIRONMENTAL DATE ANALYZED 05/23/00 PROJECT# **AQUEOUS** SAMPLE MATRIX : 62800228 PROJECT NAME : BR WELL SAMPLING **PARAMETER** UNITS **BENZENE** UG/L <0.5 **TOLUENE** UG/L < 0.5 **ETHYLBENZENE** UG/L <0.5 **TOTAL XYLENES** UG/L < 0.5 SURROGATE: **BROMOFLUOROBENZENE (%)** 106 SURROGATE LIMITS: (80 - 120)**CHEMIST NOTES:**



GAS CHROMATOGRAPHY QUALITY CONTROL MSMSD

TEST

: EPA 8021 MODIFIED

MSMSD#

: 005081-02

CLIENT

: PHILIP ENVIRONMENTAL

PROJECT#

: 62800228

PROJECT NAME

: BR WELL SAMPLING

PINNACLE I.D.

005082

DATE EXTRACTED DATE ANALYZED

NA

SAMPLE MATRIX

05/23/00 AQUEOUS

UNITS

UG/L

SAMPLE	CONC	SPIKED	%	DUP	DUP		REC	RPD
RESULT	SPIKE	SAMPLE	REC	SPIKE	% REC	RPD	LIMITS	LIMITS
<0.5	20.0	20.4	102	20.1	101	1	(80 - 120)	20
<0.5	20.0	20.5	103	20.6	103	0	(80 - 120)	20
<0.5	20.0	20.8	104	20.8	104	0	(80 - 120)	20
<0.5	60.0	63.0	105	62.1	104	1	(80 - 120)	20
	<0.5 <0.5 <0.5	RESULT SPIKE <0.5 20.0 <0.5 20.0 <0.5 20.0	RESULT SPIKE SAMPLE <0.5	RESULT SPIKE SAMPLE REC <0.5	SAMPLE CONC SPIKED % DUP RESULT SPIKE SAMPLE REC SPIKE <0.5	SAMPLE CONC SPIKED % DUP DUP RESULT SPIKE SAMPLE REC SPIKE % REC <0.5	SAMPLE CONC SPIKED % DUP DUP RESULT SPIKE SAMPLE REC SPIKE % REC RPD <0.5	SAMPLE CONC SPIKED % DUP DUP REC RESULT SPIKE SAMPLE REC SPIKE % REC RPD LIMITS <0.5

CHEMIST NOTES: N/A

(Spike Sample Result - Sample Result)

% Recovery =

-----X 100

Spike Concentration

(Sample Result - Duplicate Result)

RPD (Relative Percent Difference) =

ipio i todati i bapitoato i todati,

Average Result



Chain of Custody Record

4000 Monroe Road Farmington, NM 87401

(505) 326-2262 Phone (505) 326-2388 FAX

coc Serial No. C 2549

☐ Metals	Y for Water Samples)Sodium hyroxide (NaOH)ShriosisHydrochloric acid (HCl)	Samples iced: 🗴 Yes 🗆 No	The state of the s		Relinquished by:				STANDARD OIL COM#1 5/18/20 1540	Date Time	. 1	Project Name DK WELL SAMPUNG Project Number 62800228 Phase Task 0301. Samplers P THOMPSON
, S	Shipping and Lab	Carrier: 60E	3/14/00	Date					1/20 2		Z Z tal Num	ber of Bottles
ion iù "	S	1 OMUNHABUS	Caco	Time			-		×	87	Ex to	Analysis and Bottle
	SEND MORE	LINES	1strans-fre	Signature	Received By:							
7,14	GREYHOUND AIRBILLS	Airbill No. 6LI /60 665076(71.6	Date Time						Comments		



2 200n OCT

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

Pinnacle Lab ID number September 28, 2000

009129

PHILIP ENVIRONMENTAL 4000 MONROE ROAD FARMINGTON, NM

87401

Project Name

B.R. WELL SAMPLING

Project Number

62800228

Attention: ROBERT THOMPSON

On 09/26/00 Pinnacle Laboratories, Inc., (ADHS License No. AZ0592 pending), received a request to analyze aqueous 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

MR: jt

Enclosure



CLIENT	: PHILIP ENVIRONMENTAL	PINNACLE ID	: 009129
PROJECT#	: 62800228	DATE RECEIVED	: 09/26/00
PROJECT NAME	: B.R. WELL SAMPLING	REPORT DATE	: 09/29/00
PIN			DATE
ID. #	CLIENT DESCRIPTION	MATRIX	COLLECTED
01	STANDARD OIL COM #1-MW01	AQUEOUS	09/21/00



PINNACLE I.D.: 009129

GAS CHROMATOGRAPHY RESULTS

TEST

: EPA 8021 MODIFIED

CLIENT

: PHILIP ENVIRONMENTAL

PROJECT#

: 62800228

PROJECT NAME

: B.R. WELL SAMPLING

FIVOSEGI	1 AV-VIAIR	· D.IV. VALLE OAIV	II LING				
SAMPLE				DATE	DATE	DATE	DIL.
ID.#	CLIENT I.D.		MATRIX	SAMPLED	EXTRACTED	ANALYZED	FACTOR
01	STANDARD O	IL COM #1-MW01	AQUEOUS	09/21/00	NA	09/27/00	1
PARAMET	ER	DET. LIMIT		UNITS	STANDARD OIL COM #1-MW01		
BENZENE		0.5		UG/L	13		
TOLUENE		0.5		UG/L	4.5		
ETHYLBE	NZENE	0.5		UG/L	51		
TOTAL XY	LENES	0.5		UG/L	290		
SURROGA	ATE: .UOROBENZENE	= (%)			162*		

SURROGATE LIMITS

(80 - 120)

CHEMIST NOTES:

Surrogate high due to matrix interference.

^{* =} Sample was analyzed twice.



N/A

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

GAS CHROMATOGRAPHY RESULTS REAGENT BLANK

TEST : EPA 8021 MODIFIED PINNACLE I.D. 009129 : 092700 DATE EXTRACTED BLANK I. D. NA CLIENT : PHILIP ENVIRONMENTAL DATE ANALYZED 09/27/00 PROJECT# : 62800228 SAMPLE MATRIX **AQUEOUS** : B.R. WELL SAMPLING PROJECT NAME PARAMETER **UNITS** <0.5 BENZENE UG/L < 0.5 **TOLUENE** UG/L UG/L <0.5 **ETHYLBENZENE** TOTAL XYLENES UG/L < 0.5 SURROGATE: **BROMOFLUOROBENZENE (%)** 103 SURROGATE LIMITS: (80 - 120)**CHEMIST NOTES:**



GAS CHROMATOGRAPHY QUALITY CONTROL MSMSD

TEST

: EPA 8021 MODIFIED

MSMSD#

: 009128-02

CLIENT

: PHILIP ENVIRONMENTAL

PROJECT#

: 62800228

PROJECT NAME

: B.R. WELL SAMPLING

PINNACLE I.D.

009129

DATE EXTRACTED

009129 NA

DATE ANALYZED

09/27/00

SAMPLE MATRIX

AQUEOUS

UNITS

X 100

UG/L

							•		
	SAMPLE	CONC	SPIKED	%	DUP	DUP		REC	RPD
PARAMETER	RESULT	SPIKE	SAMPLE	REC	SPIKE	% REC	RPD	LIMITS	LIMITS
BENZENE	<0.5	20.0	18.5	93	19.4	97	5	(80 - 120)	20
TOLUENE	<0.5	20.0	20.4	102	21.0	105	3	(80 - 120)	20
ETHYLBENZENE	<0.5	20.0	21.1	106	21.5	108	2	(80 - 120)	20
TOTAL XYLENES	<0.5	60.0	63.6	106	64.4	107	1	(80 - 120)	20

CHEMIST NOTES:

N/A

(Spike Sample Result - Sample Result)

% Recovery =

----X 100

Spike Concentration

(Sample Result - Duplicate Result)

RPD (Relative Percent Difference) =

Jampio Modale Dapiloato Modale,

Average Result



4000 Monroe Road Farmington, NM 87401 **Chain of Custody Record**

(505) 326-2262 Phone (505) 326-2388 FAX

009129

coc serial No. C 2458

Samples iced:	nature	Relinquished by:	Sample Number (and depth) STANDARD OF I COMPLIED OG 1235	Project Name BR. Lell Sampling Project Number (2800228 Phase Task 030 Samplers C. Mac2 Name DININACLE
Carrier: Grey Hound Shipping and Lab Notes:	Date 90 - 9-9-90		Matrix Matrix	\bar{\cappa}
Ib Notes:	Time /5 00			umber of Bottles Type of Analysis and Bottle
AIRDINO.CIII	Signature ,	Received By:		
AIRDIN NO. GLI 160 691 8687	1/21/00		STAMO	
06918687	Time 1135		Comments STAUDARD Oil Com.	

eveloper's Signature(s)	incle the date and time that the development calend are met. Comments AFTER Bailing Approximately 3 galloins Sample 1510	7.35./	-/3-00/43(1 X 1,35) 14-43 X 1,35 14-49 X 1,35	Development Removal Intoke Devil Lading Water Walters Parasitive Method (gal/min) Date Time Tump Bailer (gal/min) Date Time Tump Bailer (gal/min)	Mater Removal Data	of Developmerit Bailer itugal Debottom Valve ersible Double Check Valve allic Dstainless-steel Kemmerer	Development Criteria Mo 5 Casing Volumes of Water Removal Stabilization of Indicator Parameters Other Other	Client Company Burling Ton Resources site Name STANDARD Dil COM#	ell Samp	TACINI THE TACK TO SEE THE TAC
1) ate 12/18/00 Reviewer RT Date 12/18/00	Aluns Bailed well Dry 1450 Let Decover Collected		1.25 11.4 6.52 1140 Charge " 3.75 11.7 6.63/1870 10 Charge "	Emberred (2 dbm) (2.1) (Sidal in pit on site	City Feet Sollows Removed Wemperature Meter Hydas [0:68 174X3 S. J. J. City Other] Water Disposal	hilliof Departs of Value (1991) 32.05 Instruments Serial No. III applicable) hilliof Departs of Value (1991) 32.05 Instruments Height of Value (1991) 32.05	Phase. Task No. OSO1	Project Manager, R. Thompson Project No. 62100228	Page / of /



January 10, 2001

Robert Thompson Philip Services 4000 Monroe Road Farmington, NM 87401

Project: L30205

Dear Robert Thompson:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on December 19, 2000. This project has been assigned to ACZ's project number, L30205. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 7.0. The enclosed results relate only to the samples received under L30205.

Please assess the enclosed report only in its entirety. ACZ prohibits the reproduction of this report, except in full, without the written approval of ACZ. 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 February 10, 2001. 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.

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

Sincerely,

ACZ Laboratories, Inc.

reta Coran

Document Control

PAGE 1 of 24







Analytical Results

ACZ Laboratories, Inc. 2773 Downhill Drive

Steamboat Springs, CO 80487

(800) 334-5493

Philip Services 4000 Monroe Road Farmington, NM 87401 Robert Thompson Lab Sample ID: *L30205-02*

Client Sample ID: Standard 1 MW01

Client Project ID: 62800228 ACZ Report ID: RG137217

Date Sampled: 12/13/00 15:10 Date Received: 12/19/00

Date Reported: 12/31/00

Sample Matrix: Ground Water

Benzene, Toluene, Ethylbenzene & Xylenes

Analysis Method: M8020

Extract Method: M5030

Analyst: smp

Extract Date: 12/20/00 Analysis Date: 12/20/00

Dilution Factor: 1

Compound

Compound	CASION - ARE	Result	OUAL.	Units	MDL	PQL
Benzene	000071-43-2	19	U	ug/L	0.2	0.5
Toluene	000108-88-3	18	U	ug/L	0.2	1
Ethylbenzene	000100-41-4	93	U	ug/L	0.2	1
Xylenes (total)	001330-20-7	570	U	ug/L	0.2	1

Surrogate Recoveries

Surrogate	CAS	% Recovery	Units	LCL	TOL
4-Bromofluorobenzene (Surr)	000460-00-4	170	%	80	120

Surrogate recovery elevated due to hydrocarbon coelution.

Organic Notes and Qualifiers

MDL = Method Detection Limit; PQL = Practical Quantitation Limit

LCL = Lower Control Limit; UCL = Upper Control Limit

Qualifiers: (Based on EPA CLP 3/90)

U = Analyte was analyzed for but not detected at the indicated MDL

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

B = Analyte found in daily method blank

Organic Supervisor Paul Leschensky

Chain of Custody Record

L 30205.

4000 Monroe Road Farmington, NM 87401

(505) 326-2262 Phone (505) 326-2388 FAX

coc serial No. C 2842

	Airbill No.		4.p.5.	Ab Notes:	Carrier: () / Br - O	Samples Iced: Yes No Preservatives (ONLY for Water Samples) Cyanide Sodium hyroxide (NaOH) Volatile Organic Analysis Hydrochloric acid (HCt) Metals Nitric acid (HNO3) Other (Specify)
(0:2:	12/19	/ Act.		15 00	J 18 00	the k May
Time	Date	By:	Received By:	Time	Date	Relinquished by:
Comments STALIOARD OIL CON_#1				Total Number of Bo	Matrix H2O	Samplers C. Mac. Z. Laboratory Name A.C. Z. LAISS Location T.B. L. B. T. Springs Sample Number (and depth) Date Time SIANDARD OIL COm. 12-13-001510
				Type of Analysis		Project Name B.R. Inell Sompling

LETTER TO MR. OLSON DATED SEPTEMBER 10, 1999

BURLINGTON RESOURCES

SAN JUAN DIVISION

September 10, 1999

Certified Mail: Z 186 732 855

Bill Olson New Mexico Oil Conservation Division 2040 S. Pacheco Santa Fe, NM 87505

RE: Standard Oil Com #1
Unit Letter N, Section 36, Township 29N, Range 9W
Notification of Groundwater Impact

Dear Mr. Olson:

As per the e-mail notification dated August 31, 1999 (Mr. Hasely to Mr. Olson), this letter is Burlington Resources' (BR) written notification of groundwater impact at the subject location. The final analytical results and final paperwork from the consultant did not make it to my attention until recently.

Due to El Paso having groundwater impacts at this location, BR conducted an initial assessment of an earthen pit that was no longer in use on the Standard Oil Com #1 location. The former separator/tank drain earthen pit had levels above closure standards and BR excavated soils to 31 feet below ground surface. Groundwater seeped into the excavation at this depth. Soil samples from the bottom of the excavation were collected and tested above pit closure standards. Clean overburden was pushed into the excavation to partially backfill the hole. The excavated soils were landfarmed until the soils tested below cleanup standards, and then the landfarmed soils were used to finish backfilling the excavation. BR conducted vertical extent determination in the center of BR's former earthen pit and encountered groundwater at approximately 26 feet. BR installed a temporary groundwater monitoring well. After developing the well and allowing it to stabilize for one week, the well was purged and sampled on August 18, 1999. The sample results are as follows:

Benzene	1500 ppb
Toluene	135 ppb
Ethylbenzene	106 ppb
Total Xylenes	586 ppb

Included with this letter are the original Pit Remediation and Closure Reports for the BR earthen pit along with the analytical results of the soil testing. Also attached are the groundwater lab analysis, the drilling log, the monitoring well installation record, and a location diagram.

The temporary monitoring well will be completed as permanent. BR will conduct future activities at the site pursuant to Burlington Resources' Groundwater Management Plan, and it is our intention to work in conjunction with El Paso to assure proper assessment and closure. If you have questions or additional information is needed, please contact me at (505) 326-9841.

Sincerely,

Ed Hasely

Sr. Staff Environmental Representative

Attachments:

Pit Remediation and Closure Report

Drilling Log/Wellbore Diagram Analytical Results - Groundwater

Location Diagram

cc:

Denny Foust - NMOCD Aztec

Sandra Miller - El Paso

Ken Raybon Ward Arnold Bruce Gantner Facility File Correspondence

Pit Remediation and Closure Report

District I
P.O. Box 1980, Hobbs, NM
District II
P.O. Drawer DD, Artesus, NM 88211
District III
1000 Rio Brazos Rd, Azzec, NM 87410

State of New Mexico Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, New Mexico 87504-2088

SUBMIT 1 COPY TO APPROPRIATE DISTRICT OFFICE AND 1 COPY TO SANTA FE OFFICE

(Revised 3/9/94)

PIT REMEDIATION AND CLOSURE REPORT

		Telephone: (505) 324-9700
Address: 35	35 E. 30th Farmington	NM 87402
Facility Or:	Standard O.1 Com #	<u> </u>
Location: Unit	or Qtr/Qtr Sec N Sec	c 36 T 29N R 9W County Sin Juan
Pit Type: Separ	rator <u>X</u> Dehydrator Ot	ther Tank Diain
Land Type: BL	M, State <u>X</u> , Fee	, Other
Pit Location: (Attach diagram)	Reference: wellhead x Footage from reference:	25 , width 10 , depth 1 , other 60 \$\frac{1}{2}\$ e: 75 Degrees \(\times \) East North of West South \(\times \)
(Vertical distance from contaminants to seasonal high water elevation of ground water) : Wellhead Protection Area:		Less than 50 feet (20 points) 50 feet to 99 feet (10 points) Greater than 100 feet (0 Points) Yes (20 points) No (0 points)
(Less than 200 feet from a private domestic water source, or; less than 1000 feet from all other water sources) Distance To Surface Water: (Horizontal distance to perennial lakes, ponds, rivers, streams, creeks,		Less than 200 feet (20 points) 200 feet to 1000 feet (10 points) Greater than 1000 feet (0 points)
irrigation canals	s and ditches;	RANKING SCORE (TOTAL POINTS): 20

Date Remediation Star	rted: 12/10/98 Date Completed:
Remediation Method:	
(Check all appropriate	Landfarmed X Insitu Bioremediation
,	Other
Remediation Location (ie. landfarmed onsite, name and location of offsite facility)	: Onsite X Offsite Standard O. (cm * 1A · = 5e 36 - 29N · 9W
General Description	Of Remedial Action: Soils were removed to an
	1h of 31 fl which was practical extent. Soil samples
•	Grandwater seeped into execution The execution
	ckfilled with clean overburden the completely backfilled
,	ted landform soil. A groundwater monitoring well
	the center of the former executation.
	ered: No Yes X Depth 31 ft
Ground Habba Indount	ered. No res _X septin
	*
Final Pit: Closure Sampling: (if multiple samples,	Sample location Bottom of executation
Closure Sampling: (if multiple samples, attach sample results and diagram of sample	Sample location Bottom of executation Sample depth 31 ft
Closure Sampling: (if multiple samples, attach sample results and diagram of sample	
Closure Sampling: (if multiple samples, attach sample results and diagram of sample	Sample depth 31 ft
Closure Sampling: (if multiple samples, attach sample results and diagram of sample locations and depths)	Sample depth 31 {} Sample date 12/19/98 Sample time 2:30 pm
Closure Sampling: (if multiple samples, attach sample results and diagram of sample locations and depths)	Sample depth 31 ft Sample date 12/19/98 Sample time 1:30 pm Sample Results
Closure Sampling: (if multiple samples, attach sample results and diagram of sample locations and depths)	Sample depth 31 ft Sample date 12/14/98 Sample time 2:30 pm Sample Results Benzene(ppm) 1.7 Total BTEX(ppm) 126.9
Closure Sampling: (if multiple samples, attach sample results and diagram of sample locations and depths)	Sample depth 31 ft Sample date 12/19/98 Sample time 2:30 pm Sample Results Benzene(ppm) 1.7 Total BTEX(ppm) 126.9 Field headspace(ppm) 321
Closure Sampling: (if multiple samples, attach sample results and diagram of sample locations and depths)	Sample depth 31 ft Sample date 12/14/98 Sample time 2:30 pm Sample Results Benzene(ppm) 1.7 Total BTEX(ppm) 126.9
Closure Sampling: (if multiple samples, attach sample results and diagram of sample locations and depths)	Sample depth 31 ft Sample date 12/19/98 Sample time 2:30 pm Sample Results Benzene(ppm) 1.7 Total BTEX(ppm) 126.9 Field headspace(ppm) 321
Closure Sampling: (if multiple samples, attach sample results and diagram of sample locations and depths)	Sample depth 31 ft Sample date 12/19/98 Sample time 2:30 pm Sample Results Benzene(ppm) 1.7 Total BTEX(ppm) 126.9 Field headspace(ppm) 321 TPH 2160 Yes No (If yes, attach sample results)
Closure Sampling: (if multiple samples, attach sample results and diagram of sample locations and depths)	Sample depth 3/ 14 Sample date 12/14/98 Sample time 2:30 pm Sample Results Benzene(ppm) 1-7 Total BTEX(ppm) 126.9 Field headspace(ppm) 321 TPH 2160 TYES NO (If yes, attach sample results) AT THE INFORMATION ABOVE IS TRUE AND COMPLETE TO THE BEST
Closure Sampling: (if multiple samples, attach sample results and diagram of sample locations and depths) Ground Water Sample I HEREBY CERTIFY TH	Sample depth 3



PRODUCTION PIT REMEDIATION FORM

WELL NAME: Standard Oil Con# WELL NO .:	DP No.:		
OPERATOR NAME: Doctington Resources P/L DISTRICT:			
COORDINATES: LETTER: N SECTION: 36 TOWNSHIP: 029N	RANGE: COGW		
PIT TYPE: DEHYDRATOR: LOCATION DRIP: LINE DRIP: OTHER:			
FOREMAN NO .: Wayne Ritter AREA: Largo Cany	<u>an</u>		
INITIAL REMEDIATION ACTIVITIES			
DATE: 12-10-03 TIME: 7:00			
GROUND WATER ENCOUNTERED? XY / N			
INSIDE NMOCD ZONE			
FINAL EXCAVATION DIMENSIONS: LENGTH: 53 WIDTH: 41	DEPTH: 3)		
APPROX. CUBIC YARDS: 2,642 FINAL PID READING: 321 ppr			
THE PROPERTY OF THE PROPERTY O	`		
REMEDIATION METHOD: ONSITE LANDFARM X 340 CU X			
OFFSITE LANDFARM X LOCATION:			
OTHER	300 cu. yal		
LANDFARM DIMENSIONS: LENGTH: WIDTH:	· '		
OUTSIDE NMOCD ZONE			
FINAL SAMPLE DEPTH: FINAL PID READING:			
EXCAVATION SAMPLING INFORMATION			
IF PID READINGS ARE LESS THAN 100 PPM, SAMPLE TAKEN DURING EXC.	Δ.ΛΑΤΙΟΝ.)		
SAMPLE DATE:SAMPLE NOS	AVAIION)		
SAMPLE ANALYSIS: TPH METHOD 8015 MODIFIED			
IF PID READINGS ARE GREATER THAN 100 PPM, NO SAMPLE WILL BE TAKEN DURING EXCAVATION. THE EXCAVATION WILL BE SAMPLED PRIOR TO BACKFILLING (SEE ADDITIONAL SAMPLING SECTION).			
REMARKS: TPH - Bottom 1103 ppm Contaminate	d Soil = 1/140 cu.yd.		
TPH - composite 241 ppm Claum 50:1	= 1,505 cold.		
SIGNATURE: DATE:	12/10/98		
	- \		

ADDITIONAL REME	DIATIONACTIVI	TIES
SOIL TILLING		
DATE:	PID READING:	SIGNATURE:
REMARKS:		
		Signature:
REMARKS:		
TEMARKS.	*************************************	
DATE:	PID READING: _	SIGNATURE:
REMARKS:		
DATE:	PID READING:	SIGNATURE:
ADDITIONAL SAMI	PLING INFORMA	TION
EXCAVATION SAMPLIN	IG(IF REQUIRED)	
IF NO SAMPLE BACKFILLING).		G EXCAVATION, THE EXCAVATION WILL BE SAMPLED BEFORE
SAMPLE DATE	:	SAMPLE NOS
		PM , SAMPLE ANALYSIS: TPH METHOD 8015 MODIFIED
IF PID READINGS 8015 MODIFIED	ARE GREATER THAN 10	00 PPM, SAMPLE ANALYSES: BTEX METHOD 8020 AND TPH METHOD
SOIL REMEDIATION V	ERIFICATION SAMPI	LE
SAMPLE DATE	E:	SAMPLE NOS
SIGNATURE:_	·	
SAMPLE ANAL	LYSIS: TPH METHO	D 8015 MODIFIED
BACKFILLING IN	ORMATION	
DATE:		TIME:
BACKFILL SOURCE:	ONSITE LANDEARM	<i>n</i> '
		APPROX. VOLUME:
REMARKS:		/ TROX. TOZOWE
		
SIGNATURE:		DATE:

J:\RST\Forms\pitform.doc



Certificate of Analysis No. 9812099-01a

807 S. CARLTON AVE. FARMINGTON. NEW MEXICO 87401 PHONE (505) 326-2588 FAX (505) 326-2875

Philip Environmental Services

4000 Monroe Road

Farmington, NM 87401

Attn: Robert Thompson Date: 12/29/98

Project: BR Pits Project No: 20440
Site: Farmington Matrix: Soil

Site: Farmington Matrix: Soil Sampled By: R. Thompson Date Sampled: 12/14/98

Sample ID: Standard Oil COM #1-BOT Date Received: 12/15/98

	Analytical Data		
	•	DETECTION	
PARAMETER	RESULTS	LIMIT	UNITS
Benzene	1700	1000 (P)	μg/Kg
Toluene	23000	1000 (P)	μ g/Kg
Ethylbenzene	9200	1000 (P)	μg/Kg
Total Xylene	93000	1000 (P)	μg/Kg
Total Volatile Aromatic Hydrocarbons	126900		μg/Kg

Surrogate % Recovery
1,4,Difluorobenzene 100
4-Bromofluorobenzene 127

Method 8020A***
Analyzed by: AA

Date: 12/19/98

ND-Not Detected MI-Matrix Interference (P)-Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA

**Ref: Standard Methods for Examination of Water & Wastewater, 18th Ed

***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

Comments: Sample contains petroleum hydrocarbons from C10 - C24 that do not resemble a

diesel pattern. (C10 - C24)RR

Billy G. Rich, Lab Director



Certificate of Analysis No. 9812099-01b

807 S. CARLTON AVE. FARMINGTON, NEW MEXICO 87401 PHONE (505) 326-2588 FAX (505) 326-2875

Philip Environmental Services

4000 Monroe Road

Farmington, NM 87401

Attn: Robert Thompson Date: 12/29/98

Project: BR Pits Project No: 20440

Site: Farmington Matrix: Soil
Sampled By: R. Thompson Date Sampled: 12/14/98

Sampled By: R. Thompson

Date Sampled: 12/14/98

Sample ID: Standard Oil COM #1-BOT

Date Received: 12/15/98

Analytical Data

PARAMETER RESULTS DETECTION UNITS

Gasoline Range Organics 2000 100 (P) mg/kg

Surrogate % Recovery

1,4,Difluorobenzene 83 4-Bromofluorobenzene 223MI

Method 8015B*** for Gasoline

Analyzed by: AA

Date: 12/19/98

Total Petroleum Hydrocarbons-Diesel 160 10 (P) mg/kg

Surrogate % Recovery

n-Pentacosane 96

Method 8015B*** for Diesel

Analyzed by: RR

Date: 12/18/98

MI-Matrix interference (P)-Practical Quantitation Limit ND-Not Detected

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA

**Ref: Standard Methods for Examination of Water & Wastewater, 18th Ed

***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

Comments: Sample contains petroleum hydrocarbons from C10 - C24 that do not resemble a

diesel pattern. (C10 - C24)RR

Billy G. Rich, Lab Director

the A. Austo



Certificate of Analysis No. 9812099-02a

807 S. CARLTON AVE. FARMINGTON, NEW MEXICO 87401 PHONE (505) 326-2588 FAX (505) 326-2875

Philip Environmental Services

4000 Monroe Road Farmington, NM 87401

Attn: Robert Thompson

BR Pits Project:

Site: Farmington

Sampled By: R. Thompson Sample ID:

Standard Oil COM #1-WALL

Date:

12/29/98

Project No: 20440

Matrix:

Date Sampled:

Soil 12/14/98

Date Received:

12/15/98

	Analytical Data		
PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Benzene	ND	5.0 (P)	μg/Kg
Toluene	5.5	5.0 (P)	μg/Kg
Ethylbenzene	44	5.0 (P)	,μg/Kg
Total Xylene	540	5.0 (P)	μg/Kg
Total Volatile Aromatic Hydrocarbons	589.5		μg/Kg

Surrogate	% Recovery
1,4,Difluorobenzene	100
4-Bromofluorobenzene	133

Method 8020A***

Analyzed by: AA

Date: 12/16/98

ND-Not Detected

MI-Matrix Interference

(P)-Practical Quantitation Limit

Notes:

*Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA

Ref: Standard Methods for Examination of Water & Wastewater, 18th Ed *Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

Comments: Sample contains petroleum hydrocarbons from C10 - C24 that do not resemble

a diesel pattern. (C10 - C24) RR

Billy G. Rich, Lab Director



Certificate of Analysis No. 9812099-02b

807 S. CARLTON AVE. FARMINGTON, NEW MEXICO 87401 PHONE (505) 326-2588 FAX (505) 326-2875

Soil

Matrix:

Philip Environmental Services

4000 Monroe Road

Site:

Farmington, NM 87401

Attn: Robert Thompson Date: 12/29/98

Project: BR Pits Project No: 20440

Sampled By: R. Thompson Date Sampled: 12/14/98

Sample ID: Standard Oil COM #1-WALL Date Received: 12/15/98

Analytical Data

PARAMETER RESULTS LIMIT UNITS

Gasoline Range Organics 12 0.5 (P) mg/kg

Surrogate % Recovery

1,4,Difluorobenzene 93

4-Bromofluorobenzene 533MI

Method 8015B*** for Gasoline

Analyzed by: AA

Farmington

Date: 12/16/98

Total Petroleum Hydrocarbons-Diesel 190 10 (P) mg/kg

Surrogate % Recovery

n-Pentacosane 80

Method 8015B*** for Diesel

Analyzed by: RR

Date: 12/18/98

MI-Matrix Interference (P)-Practical Quantitation Limit

D-Diluted, limits not applicable

A. Aid

Notes:

*Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA

***Ref: Standard Methods for Examination of Water & Wastewater, 18th Ed

***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

Comments:

Sample contains petroleum hydrocarbons from C10 - C24 that do not resemble

a diesel pattern. (C10 - C24) RR

Billy G. Rich, Lab Director



έπ., Ξ

Chain of Custody Record

4000 Monroe Road Farmington, NM 87401

(505) 326-2262 Phone (505) 326-2388 FAX

coc Serial No. C 2327

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Project Name	<u> </u>				ies	Type of		20		•			\		\		/
Project Number	No. 200	Phase . Task			Bott	and Bottle		300						\ \ !	\	\	
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aboratory	Name				lumi	.\						\					
	Location		2 273		otai l	() ()	- `						\				
Sample Number (and depth)	er (and depth)	Date	Time	Matrix	T								\uparrow			Comments	nts
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147 CORGORAL.	1.38 × 1. 1 × 11.	12/14/38	1150	7	_	1 1 1							-		101	321 D	Dr/W
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Samples Iced:	d: 🗂 Yes	□ No		Carrier:									Airbill No.	No.			
Preservatives (C	Y for Water S	Samples) Sodium hyroxide (NaOH)	xide (NaOH)	Shipping and Lab Notes:	d Lab No	otes:							٠,٠				
Metals	Alialysis	Nitric acid (HNO3)	ecid (HNO3)														
[] TPH (418.1)			Sulfuric acid (H2SO4)	,													



Hydrocarbon Test Kit - Field Data Sheet

Date: 12-14-98	Calibration Time/Date: 20 12-14 = 2
Operator: Proi RArchuleta	Calibration Temperature: 37.5
Location: Star Cil Cont	

No.	Sample ID	Weight	Time/Date	Reading (ppm)	DF ¹	RF ²	Actual (ppm)	Comments
1	#1	109	210	241ppm 1103ppm				Conposite Suran Suran
2	#2	100	2:20	1103 ppm				Sumple
3	,							
4							,	
5								
6								
7								
8								
9								
10								
11			<u> </u>					
12								
13								
14								
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16								
17								
18								
19								
20								

 $^{^{1}}DF = Dilution Factor$, e.g., for 5 gram soil sample DF=10g/5g=2, and actual concentration equals reading times DF (reading (ppm) x DF = actual concentration).

²RF = Response Factor, selected for the hydrocarbon contamination at the site.



Hydrocarbon Test Kit - Field Data Sheet

Date: 12/10/98	Calibration Time/Date:_	10:30	12/10/98
Operator:	Calibration Temperature		· · · · · · · · · · · · · · · · · · ·
Location: Stenderd Col Cont	+1		

No.	Sample ID	Weight	Time/Date	Reading (ppm)	DF:	RF ²	Actual (ppm)	Comments
1	1	100	12:17 12/0/98	285 ppm				erce Granes
2	2	109	13:17 12/19/48	285 ppm 1276 ppm				ind - su
3_								
4								
5								
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18								
19								
20		1						

 $^{^{1}}$ DF = Dilution Factor. e.g., for 5 gram soil sample DF=10g/5g=2. and actual concentration equals reading times DF (reading (ppm) x DF = actual concentration).

²RF = Response Factor, selected for the hydrocarbon contamination at the site.



Sketched by (signature) _

SITE SKETCH

Serial No. <u>SS-</u>	Title		
oject Name BR PITS			CT NO. 20440
oject Manager Robert Thompson	٩	Phase	e.ĭask No. <u>4000,77</u>
ient Company Burlington & Sou	ces		
e Name Standard oil Cont	*)		
e Address			
nclude north arrow and scale or dimensions, if available,	. prepnnt CAD drawing of s	ile on this form.j	
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AGRA Earth & Environmental, Inc. 2060 Afton Place Farmington, NM 87401 Tel: (505) 327-7928 Fax: (505) 326-5721

December 15, 1998 AEE Project No. 8529-000203

Philip Environmental Services Corp. 4000 Monroe Road Farmington, New Mexico 87401

Attention:

Mr. Robert Thompson

Regarding:

Environmental Cleanup Excavation

Burlington Resources Oil and Gas Company

Standard Oil Com # 1 Well Site 1090 Feet FSL and 1850 Feet FWL

Section 36 Township 29 North, Range 9 West, N.M.P.M.

Lease No. B-111221 - Elevation 5683

San Juan County, New Mexico

Ladies and Gentlemen:

In accordance with the request of Mr. Robert Thompson of Philip Environmental, AGRA Earth and Environmental, Inc. (AEE) personnel visited the referenced site on Friday, December 11, 1998. The purpose of this visit was to observe the existing excavation and provide guidelines for expanding the excavation. The excavation was about 31 feet deep at the time of our site visit. It is understood that the excavation will be expanded laterally until the contaminated soil is removed.

The soils observed consisted of a fairly loose silty sand which exhibited signs of sloughing in the open excavation. The west side of the excavation appeared to be sandstone. It is recommended that in all areas, where equipment will be working in the excavation, the sides of the excavation in the soil be laid-back at an angle not to exceed 2:1 (horizontal to vertical). The sandstone side of the excavation should be laid back at an angle not to exceed 3:1 (horizontal to vertical). The equipment should not enter into the excavation any deeper than is absolutely necessary. In areas where existing facilities prevent the 2:1 layback, the sides may be benched at a minimum of 8 feet horizontal to 8 feet vertical. Work in areas where the benching is used should be for short periods of time as the instability of these areas will increase as the soils begin to dry. Spoils and equipment should be kept away from the edge of the excavation a distance at least equal to the depth of the excavation. The edges of the excavation should be checked regularly for tension cracks or other signs of possible slope failure. Any areas showing signs of slope failure should be repaired prior to personnel or equipment entering the excavation.

We appreciate the opportunity to be of service on this project. If you should have any questions, please do not hesitate to contact the undersigned.

Respectfully submitted,

AGRA Earth & Environmental, Inc.

Kim M. Preston, P.E.

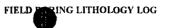
Four Corners Area Manager

Copies:

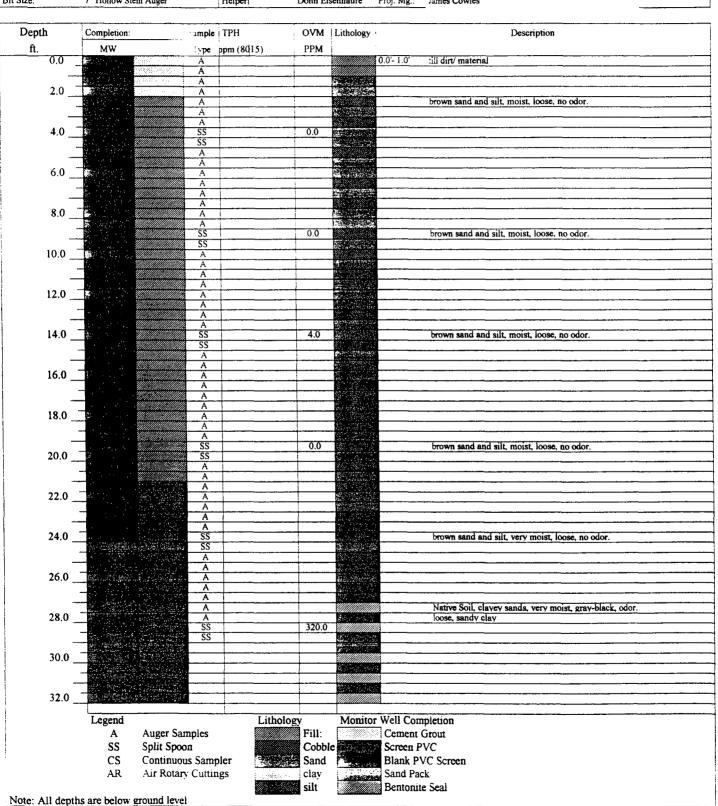
Addressee (3)

FIRE PROFESSIONAL CAN

Drilling Log/Wellbore Diagram



Soil Boring #	PROJECT #		CLIENT NAME: Burlington Resources	Page
MW-1	9219701		Standard Oil Com. #1	1 of 1/2
Date Started:	08/11/99	Location:	Largo Canyon, Blanco. New Mexico	
Date Completed:	08/11/99	Elevation:	TOC:	
Type of Drill:	Mobil B-61	Drilleri	Matt Cain Geotech: James Cowles	
Bit Size:	7" Hollow Stem Auger	Helperi	Donn Eisenhaure Proj. Mg.: James Cowles	



ENVIROTECH INC.



Soil Boring #	PROJECT =		CLIENT NAME:	Burlington Resources	Page
MW-1	9219701		Standard Oil Co	om. #1	2 of 2
Date Started:	08/11/99	Location:	Largo Canyon,	Blanco, New Mexico	
Date Completed:	08/11/99	Elevation:	TOC:		
Type of Drill:	Mobil B-61	Drillen	Matt Cain	Geotech: James Cowies	
Bit Size:	7" Hollow Stem Auger	Helpen:	Donn Eisenhaure	Proj. Mg.: James Cowies	

Depth	Completion:	Sample : TPH	OVM Lithology	Description
ft.	MW	Type ppm (8015)	PPM	
32.0		A		
		A	100	
		A		
34.0		SS		Native Soil, clayey sands, dry, gray, no odor.
		SS		hard sandy clay
		A		The state of the s
_		A		
36.0		A	27.0	
_	75.50	A		dia dia dia dia dia dia dia dia dia dia
		A	\$ 0.5 S	
_		A		
38.0		A		
		A A		TD 39', Native Soil, clayey sands, dry, gray, no odor.
39.0	=	SS		very hard
-		:		
				
-				
	 - - - - - 		 -	
	+			
				
-			- - - 	
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egend:				

Legend:

Sample type:

Auger Samples

SS Split Spoon

CS Continuous Sampler

AR Air Rotary Cuttings Lithology

Fill: Cobble

clay

Sand

Monitor Well Completion Cement Grout Screen PVC

Blank PVC Screen Sand Pack

Bentonite Seal

Note: All depths are below ground level

Analytical Results - Groundwater





EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

Client:	Burlington	Project #:	219701
Sample ID:	WS - 1	Date Reported:	08-19-99
Chain of Custody:	7285	Date Sampled:	08-18-99
Laboratory Number:	F932	Date Received:	08-18-99
Sample Matrix:	Water	Date Analyzed:	08-19-99
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	1,500	10	1.8
Toluene	135	10	1.7
Ethylbenzene	106	10	1.5
p,m-Xylene	409	10	2.2
o-Xylene	177	10	1.0

Total BTEX 2,330

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	99 %
	Bromofluorobenzene	99 %

References:

Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA,

December 1996.

Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using

Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments:

Standard Oil Com #1.

Deu L. Open





EPA METHOD 8021 AROMATIC VOLATILE ORGANICS QUALITY ASSURANCE REPORT

Client: N/A Project #: N/A Sample ID: 08-19-BTEX QA/QC 08-19-99 Date Reported: Laboratory Number: F932 Date Sampled: N/A Sample Matrix: Water Date Received: N/A Preservative: N/A Date Analyzed: 08-19-99 Condition: N/A Analysis: **BTEX**

Calibration and Detection Limits (ug/L)	I-Cal RF:	C-Cal RF: Accept Rand	%Diff. ge 0 = 15%	Blank Conc	Detect 22
Benzene	3.6219E-001	3.6335E-001	0.32%	ND	0.2
Toluene	2.7867E-002	2.7872E-002	0.02%	ND	0.2
Ethylbenzene	4.1931E-002	4.1981E-002	0.12%	ND	0.2
p,m-Xylene	3.6569E-002	3.6576E-002	0.02%	ND	0.2
o-Xylene	3.1955E-002	3.2051E-002	0.30%	ND	0.1

Duplicate Conc. (ug/L)	Sample	Duplicate	%Diff.	AcceptaLimit*
Benzene	1,500	1,430	4.7%	0 - 30%
Toluene	135	130	3.8%	0 - 30%
Ethylbenzene	106	102	3.8%	0 - 30%
p,m-Xylene	409	408	0.4%	0 - 30%
o-Xylene	177	170	4.0%	0 - 30%

Spike Conc. (ug/L)	Sample /	Amount Spiked i Spl	ed Sample	% Recovery	Accept Limits
Benzene	1,500	50.0	1,540	99%	39 - 150
Toluene	135	50.0	187	101%	46 - 148
Ethylbenzene	106	50.0	157	101%	32 - 160
p,m-Xylene	409	100.0	507	100%	46 - 148
o-Xylene	177	50.0	228	101%	46 - 148

ND - Parameter not detected at the stated detection limit.

* - Administrative Limits set at 80 - 120%.

References:

Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA,

December 1996.

Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using

Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments:

QA/QC for sample F932.

Analyst

Review





Client:	Burlington	Project #:	219701
Sample ID:	WS - 2	Date Reported:	08-19-99
Laboratory Number:	F933	Date Sampled:	08-18-99
Chain of Custody:	7285	Date Received:	08-18-99
Sample Matrix:	Water	Date Extracted:	N/A
Preservative:	Cool	Date Analyzed:	08-19-99
Condition:	Cool & Intact		

Donomatan	Analytical	l luite		11-:4-
Parameter	Result	Units		Units
рΗ	7.10	s.u.		
Conductivity @ 25° C	16,170	umhos/cm		
Total Dissolved Solids @ 180C	8,070	mg/L		
Total Dissolved Solids (Calc)	7,930	mg/L		
SAR	18.5	ratio		
Total Alkalinity as CaCO3	780	mg/L		
Total Hardness as CaCO3	1,850	mg/L		
Bicarbonate as HCO3	780	mg/L	12.78	meq/L
Carbonate as CO3	<1	mg/L	0.00	meq/L
Hydroxide as OH	<1	mg/L	0.00	meq/L
Nitrate Nitrogen	10.5	mg/L	0.17	meq/L
Nitrite Nitrogen	1.72	mg/L	0.04	meq/L
Chloride	192	mg/L	5.42	meq/L
Fluoride	1.46	mg/L	0.08	meq/L
Phosphate	8.6	mg/L	0.27	meq/L
Sulfate	4,700	mg/L	97.85	meq/L
Iron	0.038	mg/L		
Calcium	650	mg/L	32.44	meq/L
Magnesium	53.7	mg/L	4.42	meq/L
Potassium	8.5	mg/L	0.22	meq/L
Sodium	1,830	mg/L	79.61	meq/L
Cations			116.68	meq/L
Anions			116.61	meq/L
Cation/Anion Difference			0.06%	

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983. Water And Waste Water", 18th ed., 1992.

Comments:

Standard Oil Com #1.

Analyst



EPA METHOD 1311 TOXICITY CHARACTERISTIC LEACHING PROCEDURE TRACE METAL ANALYSIS

Parameter	Concentration	Det. Limit (mg/l)	Regulatory Level
Condition:	Cool & Intact	Analysis Needed:	TCLP metals
Preservative:	Cool	Date Extracted:	N/A
Sample Matrix:	Water	Date Analyzed:	08-19-99
Chain of Custody:	7285	Date Received:	08-18-99
Laboratory Number:	F934	Date Sampled:	08-18-99
Sample ID:	WS - 3	Date Reported:	08-19-99
Client:	Burlington	Project #:	219701

(mg/L)	(mg/L)	(mg/L)
ND	0.001	5.0
5.20	0.01	21
ND	0.001	0.11
0.05	0.01	0.60
ND	0.05	0.75
ND	0.0001	0.025
ND	0.001	5.7
ND	0.01	0.14
	(mg/L) ND 5.20 ND 0.05 ND ND ND ND	(mg/L) (mg/L) ND 0.001 5.20 0.01 ND 0.001 0.05 0.01 ND 0.05 ND 0.05 ND 0.0001 ND 0.0001

ND - Parameter not detected at the stated detection limit.

References:

Method 1311, Toxicity Characteristic Leaching Procedure, SW-846, USEPA,

December 1996.

Methods 3010, 3020, Acid Digestion of Aqueous Samples and Extracts for Total

Metals, SW-846, USEPA, December 1996.

Methods 7060, 7080, 7131, 7191, 7470, 7421, 7740, 7761 Analysis of Metals by

GFAA and Cold Vapor Techniques, SW-846, USEPA. December 1996.

Note:

Regulatory Limits based on 40 CFR part 261 subpart C

section 261.24, August 24, 1998.

Comments:

Standard Oil Com #1.

Analyst



EPA METHOD 1311 TOXICITY CHARACTERISTIC LEACHING PROCEDURE TRACE METAL ANALYSIS Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	08-19-TCM QA/QC	Date Reported:	08-19-99
Laboratory Number:	F925	Date Sampled:	N/A
Sample Matrix:	TCLP Extract	Date Received:	N/A
Analysis Requested:	TCLP Metals	Date Analyzed:	08-19-99
Condition:	N/A	Date Extracted:	N/A

Blank & Duplicate Conc. (mg/L)	Instrument	Method Blank	Detection Limit	Samp	le Duplicate	% Diff.	Acceptance Range
Arsenic	ND	ND	0.001	ND	ND	0.0%	0% - 30%
Barium	ND	ND	0.01	0.20	0.20	0.0%	0% - 30%
Cadmium	ND	ND	0.001	ND	ND	0.0%	0% - 30%
Chromium	ND	ND	0.01	0.01	0.01	0.0%	0% - 30%
Lead	ND	ND	0.05	ND	ND	0.0%	0% - 30%
Mercury	ND	ND	0.0001	ND	ND	0.0%	0% - 30%
Selenium	ND	ND	0.001	ND	ND	0.0%	0% - 30%
Silver	ND	ND	0.01	ND	ND	0.0%	0% - 30%

Spike Conc. (mg/L)	Spike Added	Samp	le Spiked Sample	Percent Recovery	Acceptance Range
Arsenic	0.100	ND	0.098	98.0%	80% - 120%
Barium	1.00	0.20	1.20	100.0%	80% - 120%
Cadmium	0.500	ND	0.490	98.0%	80% - 120%
Chromium	0.50	0.01	0.51	100.0%	80% - 120%
Lead	2.00	ND	2.00	100.0%	80% - 120%
Mercury	0.0250	ND	0.0248	99.2%	80% - 120%
Selenium	0.100	ND	0.097	97.0%	80% - 120%
Silver	0.50	ND	0.49	98.0%	80% - 120%

ND - Parameter not detected at the stated detection limit.

References:

Method 1311, Toxicity Characteristic Leaching Procedure, SW-846, USEPA, Dec. 1996

Methods 3010, 3020, Acid Digestion of Aqueous Samples and Extracts for Total Metals,

SW-846, USEPA, December 1996.

 $Methods\ 7060B,\ 7081,\ 7131A,\ 7191,\ 7470A,\ 7421,\ 7740,\ 7761\ Analysis\ of\ Metals\ by$

GFAA and Cold Vapor Techniques, SW-846, USEPA, December 1996.

Comments:

QA/QC for samples F925, F928, F931, F934 and F922.

advet

Review

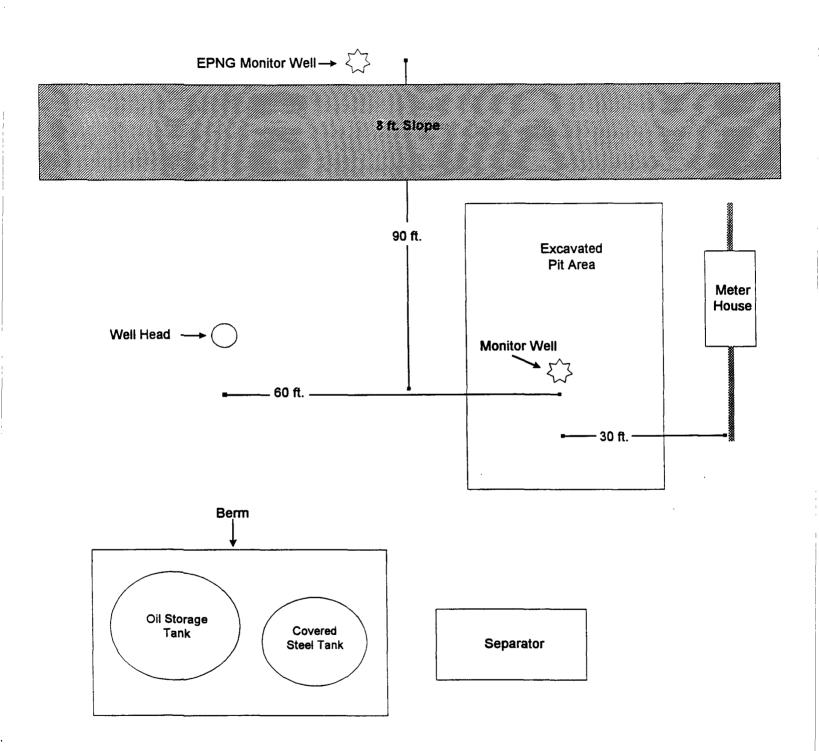
CHAIN OF CUSTODY RECORD

			•							
Client / Project Name	·	Project Location	# 6			ANALYSIS / PARAMETERS	RAMETERS			
- Darlyator		Stand ord	0;/ (con #1							
Sampler:		Client No.		S1		3		Remarks	83	
The Contract of the Contract o	Ŕ	126	10-16126	o. of	10 又 /2	172.				
Sample	Sample	Lab Number	Sample Matrix	moO	SOS Son Son Son Son Son Son Son Son Son So	tow tow				
66-81-8	9:30	F932	Water	2	×					
8-18-49	9:35	4933	Water	\	λ					
8-18-49	9:40	F934	Water	/		×				D
				<		,				
Relipquished by: (Signature)	M.	1	Date Time Reco	eived by:	Received by: (Signature)	Wese		Date 8.18.88	-1	Time 11.00
Reliperatived by: (Signature)				eived by: (Received by: (Signature)	1) 		
Relinquished by: (Signature)			Rec	eived by: (Received by: (Signature)					
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		İ	5796 U.S. Highway 64	ghway (54		Received Intact	<u>ر</u>		
			Farmington, New Mexico 87401 (505) 632-0615	MEXICO :-0615	10470		Cool - Ice/Blue Ice	lce 7		

Location Diagram

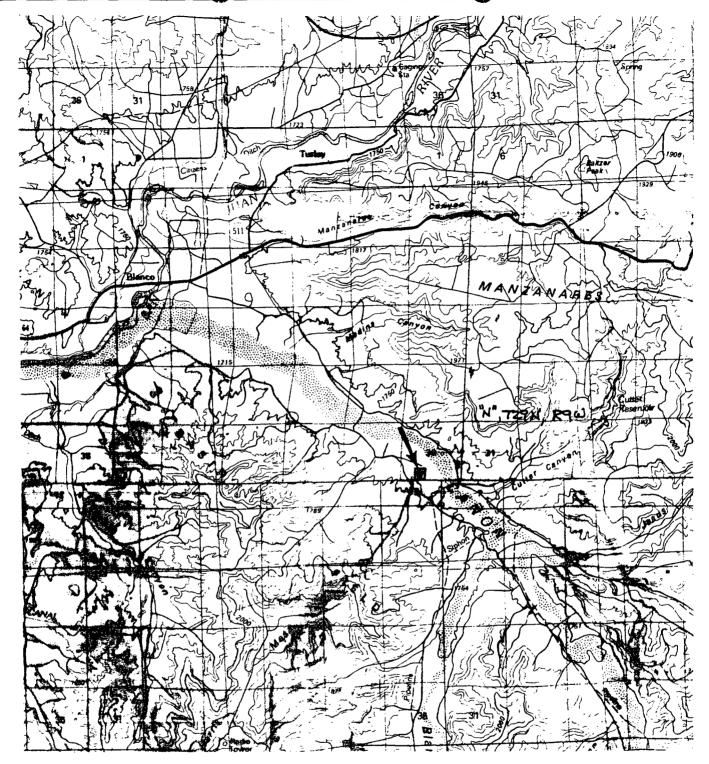
BURLINGTON RESOURCES

STANDARD OIL COM No. 1
MONITOR WELL INSTALLATION



Not to scale - distances are approximate

stdoil1.vsd 9/10/99



All angles, directions, and distances determined by sighting and pacing from existing site features. Accuracy of measurementis implied only to the degree of accuracy of method.

Burlington Resources
Standard Oil Com #1
Monitor Well Installation
Largo Canyon
Blanco, New Mexico
San Juan County, NM
Project No.: 92197-01

Envirotech Inc.

Environmental Scientists & Engineers 5796 US Highway 64 Farmington, New Mexico

Vicinity Map

Figure 1 Date: 08/99

DRW: JAC PRJ MGR: JAC