3R - 71

REPORTS

DATE:

2002

BURLINGTON RESOURCES

SAN JUAN DIVISION

April 14, 2003

Certified: 70993400001842167708

RECEIVED

APR 18 2003

ENVIRONMENTAL BUREAU
OIL CONSERVATION DIVISION

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

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 Oil 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

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

3401 East 30th Street, 87402-8807, P.O. Box 4289, Farmington, New Mexico 87499-4289, Telephone 505-326-9700, Fax 505-326-9833

BURLINGTON RESOURCES 2002 ANNUAL GROUNDWATER REPORT

Johnston Federal #4 Metering Facility

SITE DETAILS

Location: Unit Letter M, Section 27, Township 31N, Range 9W; San Juan County, New Mexico
Land Type: Federal

PREVIOUS ACTIVITIES

El Paso Field Services (EPFS) excavated approximately 60 cubic yards from their pit at this location in 1994 and installed a monitoring well in 1995. Please note that in past reports, EPFS has incorrectly shown the location of their monitoring wells at the Johnson Federal #4 producing location, which is in a different section from where the metering facility and groundwater impact are located.

Burlington Resources conducted the initial site assessments of our two pits in August 1998. The separator pit tested clean and was closed. The tank drain pit had levels above standards and excavation of approximately 3055 cubic yards of impacted soil to a depth of 30 feet occurred in December 1998.

1999 ACTIVITIES

Prior to backfilling, the excavation was sprayed with 20 barrels of Oxy-1. Clean overburden and soils from a nearby wash were used to backfill the excavation. Vertical extent drilling encountered groundwater at approximately 43 feet and a groundwater monitoring well was installed on May 13, 1999. After developing the well and allowing it to stabilize, the well was purged and sampled on May 25, 1999.

2000, 2001, and 2002 ACTIVITIES

Quarterly groundwater monitoring continued through 2000. A new laboratory was added for analysis, ACZ Laboratories in Steamboat Colorado starting in the fourth quarter. Groundwater analytical data are presented in Table 1.

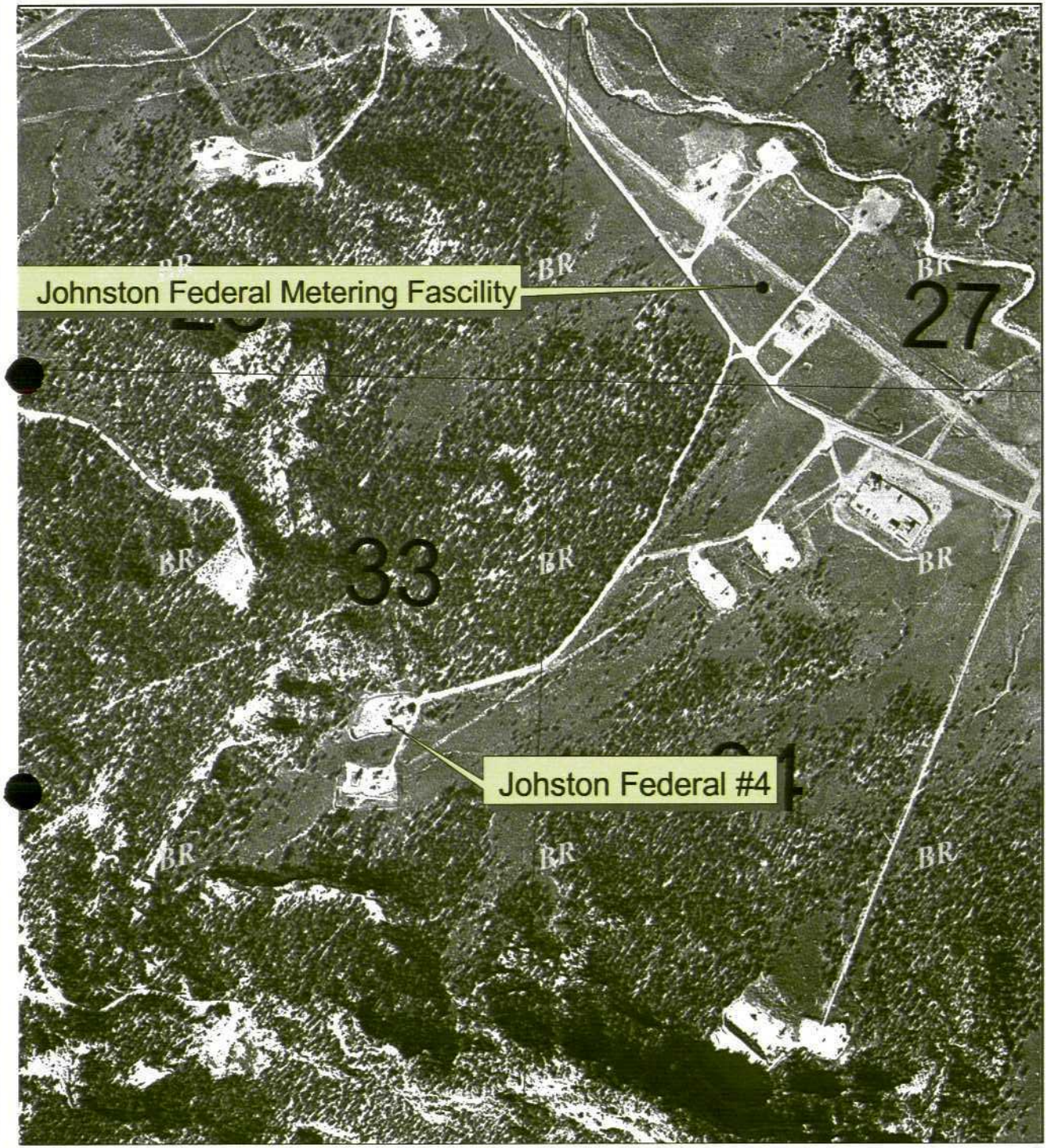
CONCLUSIONS

Analytical results of groundwater sampling from the monitoring well in 2000, 2001 and 2002 show levels of benzene, toluene, ethylbenzene and total xylenes above New Mexico Groundwater Standards. Burlington Resources will initiate discussions with EPFS to assure proper assessment and closure of this site. The 2000 fourth quarter sample results were significantly different. This sample was reanalyzed at the laboratory and the same result was produced. The remaining data collected in 2001 and 2002 are similar to the historic data collected therefore the fourth quarter 2000 data is considered an anomaly and not valid.

RECOMMENDATIONS

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

Attachments: Figure 1 - Site Map
Table 1 - Groundwater Sampling Results Summary
2002 Groundwater Analytical Results
Letter to Olson dated July 29, 1999 including the Drilling Log/Wellbore Diagram



Town Outlines
San Juan Federal Units
Counties
Sections
Townships

N

BURLINGTON RESOURCES PLAT

300 0 300 600 Feet

BURLINGTON RESOURCES
< San Juan >

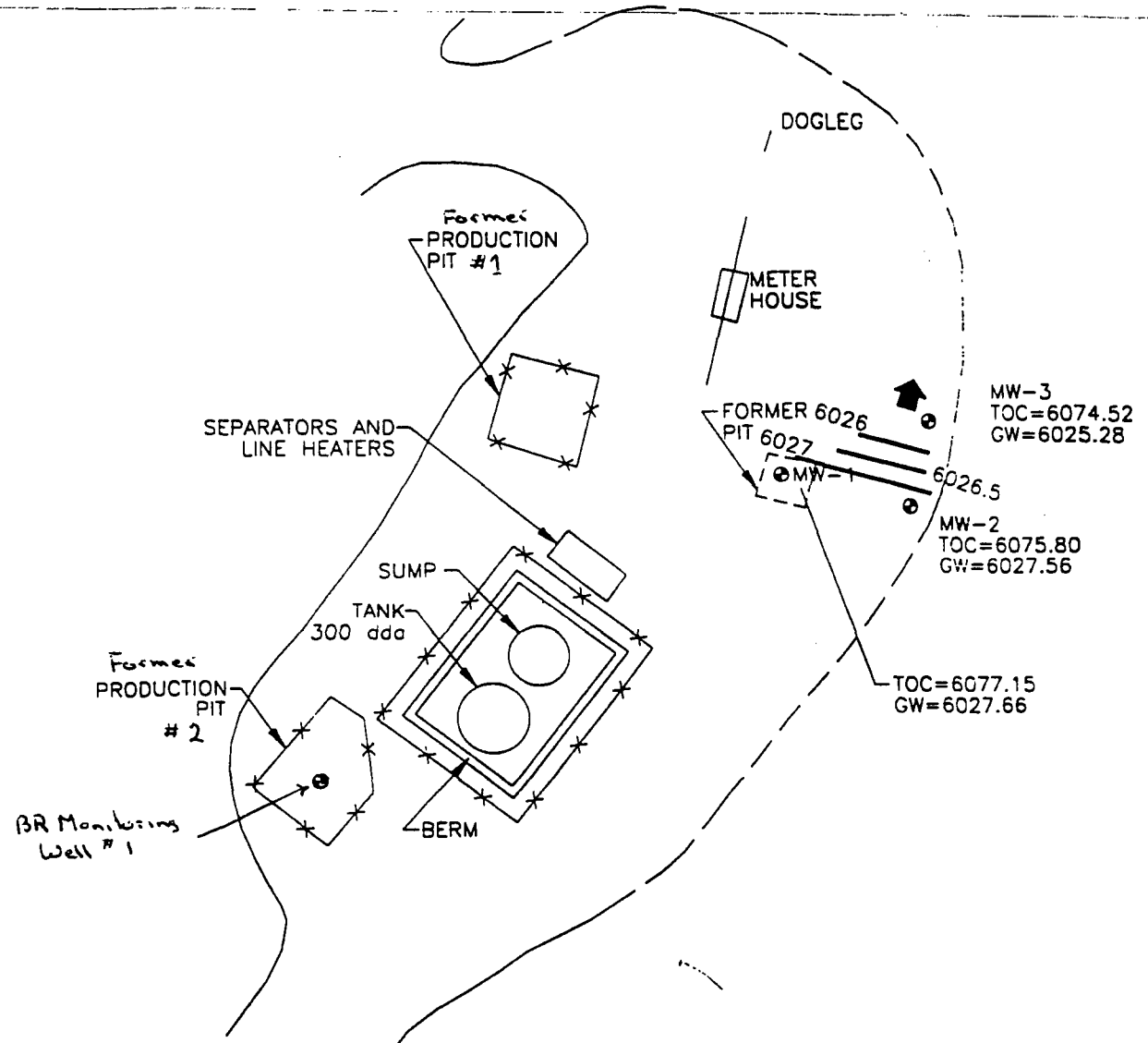
Johnston Federal # 4
Sec 33 -3 1N - 9W
Monitoring Well Location

Transverse Mercator
UTM - 1927 ; Zone 13

1:9654

Prepared By: Gregg Wurtz Date: 04/09/2003
File No: <Please enter file number> Revised: <Revision date>
File Name: s:\public\jgw\plat\trash map.apr

Figure 1



LEGEND

⊕ MW-1	APPROXIMATE MONITORING WELL LOCATION AND NUMBER
TOC	TOP OF CASING ELEVATION
GW	GROUNDWATER POTENTIOMETRIC SURFACE
	GROUNDWATER GRADIENT
25.0	GROUNDWATER POTENTIOMETRIC SURFACE

0 40
FEET
N

17520BP-003

PHILIP SERVICES CORP

TITLE:
JOHNSTON FEDERAL NO. 4
METER 70194
2/23/99
(BR Modified 3/22/00)

DWN:	DES.:	PROJECT NO.: 175
TMM	CC	EPFS GW PITS
CHKD:	APPD:	
CC		
DATE:	REV.:	FIGURE 1
3/22/99	0	

2002 GROUNDWATER ANALYTICAL RESULTS

Table 1

Groundwater Monitoring Well Sampling

Well Name	MW #	Sample Date	B (ppb)	T (ppb)	E (ppb)	X (ppb)	BTEX (ppb)	DTW (1) (ft)
Standard			*10*	*750*	*750*	*620*		
Johnson Fed #4 (EPNG)	1	5/25/1999	**8700**	**2900**	**2800**	**29000**	43400	
		9/1/1999	Product Thickness = .005 ft			No Sample.		47.015*
		12/1/1999	**4700**	**1300**	**900**	**10000**	16900	46.96
		1/18/2000	**3600**	**820**	**840**	**7500**	12760	44.05
		5/17/2000	**6900**	**1100**	**1500**	**17000**	26500	46.90
		9/8/2000	**4600**	620	**930**	**10000**	16150	46.91
ACZ labs		12/20/2000	<0.2	0.5	34	61	95.5	46.88
ACZ labs		3/27/2001	**5430**	641	**991**	**9830**	16892	Lost
ACZ labs	h2s odor	6/27/2001	**5870**	**900**	**990**	**10400**	18160	47.05
ACZ labs		9/17/2001	**5910**	**750**	**980**	**10700**	18340	46.93
ACZ labs	sheen	12/19/2001	**7200**	650	**1020**	**11300**	20170	46.97
ACZ labs	sheen/product odor	3/25/2002	**5520**	**830**	**1190**	**10500**	18040	46.99
ACZ labs		6/26/2002	**516**	66.2	78.7	**863**	1523.9	47.01
ACZ labs	sheen/product odor	9/24/2002	**5310**	**8000**	**880**	**13960**	28150	46.98
ACZ labs	sheen	12/30/2002	**7660**	**10200**	**760**	**14140**	32760	47.4

* Depth to Product.
(1) measured from top of casing

amec

☐ Development
☑ Purging

WELL DEVELOPMENT AND PURGING DATA FORM

Well Number: MW 4 Page 1 of 1

Project Name: BR. well Sampling Project Manager: Lisa Winn Project No. 1517000

Client Company: Burlington Resources

Site Name: Johnston Fed. #4 Site Address: Rural San Juan CO

Development Criteria
- ☑ (3) to 5 Casing Volumes of Water Removal
- ☑ Stabilization of Indicator Parameters
- ☐ Other

Methods of Development

Pump
- ☐ Centrifugal
- ☐ Submersible
- ☐ Peristaltic
- ☐ Other

Bailer
- ☑ Bottom Valve
- ☐ Double Check Valve
- ☐ Stainless-steel Kemmerer

Water Volume Calculation

Initial Depth of Well (feet) 52.09
Initial Depth to Water (feet) 46.99
Height of Water Column in Well (feet) 5.1
Diameter (inches): Well 2" Gravel Pack

Item	Water Volume in Well: Cubic Feet	Water Volume in Well: Gallons	Gallons to be Removed
Well Casing	5.1	0.83X3	2.49
Gravel Pack			
Drilling Fluids			
Total			2.49

Instruments — Serial No. (If applicable)
- ☑ pH Meter YSI 63
- ☐ DO Monitor
- ☑ Conductivity Meter YSI 63
- ☑ Temperature Meter YSI 63
- ☐ Other

Water Disposal
On Site in pit

Water Removal Data

Date	Time	Development Method: Pump	Development Method: Bailer	Removal Rate (gal/min)	Intake Depth (feet)	Ending Water Depth (feet)	Water Volume Removed (gallons): Increment	Water Volume Removed (gallons): Cumulative	Product Volume Removed (gallons): Increment	Product Volume Removed (gallons): Cumulative	Temperature (°C)	pH	Conductivity (mmhos/cm)	Dissolved Oxygen (mg/L)	Comments
3-25-02	0901						.5	.5			12.6	6.67	1571		Cloudy sheen product odor
	0903						.5	1			13.8	6.97	1608		
	0905						.5	1.5			14.4	7.04	1626		
	0907						.5	2			14.5	7.08	1634		
	0909					49.23	.5	2.5			14.6	7.08	1639		no Change

Comments: Sampled for BTEX 0920

Developer's Signature(s): [signature] Date 3 25 02 Reviewer [signature] Date 3/28/02

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

Organic Analytical Results

Burlington Resources, Inc.
Project ID: 1517000138
Sample ID: JOHNSTON MW4

ACZ ID: ***L36252-01***
Date Sampled: *03/25/02 9:20*
Date Received: *03/27/02*
Sample Matrix: *Ground Water*

Benzene, Toluene, Ethylbenzene & Xylene

Analysis Method: **M8021**
Extract Method: **Method**

Analyst: *mbw*
Extract Date: *04/04/02 17:30*
Analysis Date: *04/04/02 17:30*
Dilution Factor: *200*

Compound

Compound	CAS	Result	QUAL	Units	MDL	PQL
Benzene	000071-43-2	5520	B	ug/L	40	100
Ethylbenzene	000100-41-4	1190	B	ug/L	40	200
Toluene	000108-88-3	830	B	ug/L	40	200
Xylenes	0001330-207	10500	B	ug/L	40	200

Surrogate Recoveries

Surrogate	CAS	% Recovery	Units	LCL	UCL
Bromofluorobenzene	000460-00-4	105	%	80	120

B indicates that prep blank showed positive hits for this analyte.

☐ Development
☒ Purging

WELL DEVELOPMENT AND PURGING DATA FORM

Well Number MW-4

Project Name BR WELL SAMPLING Project Manager LISA WINN Project No. 1517000138

Client Company BURLINGTON RESOURCES

Site Name JOHNSTON FEDERAL #4 Site Address RURAL SAN JUAN Co.

Development Criteria

☒ 3 to 5 Casing Volumes of Water Removal
☒ Stabilization of Indicator Parameters
☐ Other _____

Methods of Development

Pump	Bailer
☐ Centrifugal	☒ Bottom Valve
☐ Submersible	☐ Double Check Valve
☐ Peristaltic	☐ Stainless-steel Kemmerer

☐ Other _____

Water Volume Calculation

Initial Depth of Well (feet) 52.09' TOR
Initial Depth to Water (feet) 47.01' TOR
Height of Water Column in Well (feet) 5.08'
Diameter (inches): Well 2" Gravel Pack _____

Item	Water Volume in Well: Cubic Feet	Water Volume in Well: Gallons	Gallons to be Removed
Well Casing	5.08	0.83	0.83 x3
Gravel Pack			
Drilling Fluids			
Total			2.49

Instruments

	Serial No. (If applicable)
☒ pH Meter	YSI 63
☐ DO Monitor	
☒ Conductivity Meter	YSI 63
☒ Temperature Meter	YSI 63
☐ Other _____	

Water Disposal

ON SITE IN PIT

Water Removal Data

Date	Time	Development Method: Pump	Development Method: Bailer	Removal Rate (gal/min)	Intake Depth (feet)	Ending Water Depth (feet)	Water Volume Removed (gallons): Increment	Water Volume Removed (gallons): Cumulative	Product Volume Removed (gallons): Increment	Product Volume Removed (gallons): Cumulative	Temperature (°C)	pH	Conductivity (mmhos/cm)	Dissolved Oxygen (mg/L)	Comments
6-26-02	1500		X				0	0			20.0	7.00	1726		GRAYISH-BLACK
6-26-02	1506		X				.75	.75			18.3	6.94	1746		GRAYISH-BLACK
6-26-02	1513		X				1.0	1.75			17.2	7.00	1694		GRAYISH-BLACK
6-26-02	1519		X				.75	2.50			16.9	7.03	1740		GRAYISH-BLACK

Comments SAMPLED FOR BTEX AT 1530

Developer's Signature(s) Pat Thompson Date 6/26/02 Reviewer [signature] Date 7/2/02

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

Organic Analytical Results

Burlington Resources, Inc.
Project ID: 1517000138
Sample ID: JOHNSTON FEDERAL #4

ACZ ID: ***L37484-04***
Date Sampled: *06/26/02 15:30*
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 23:58*
Analysis Date: *07/03/02 23:58*
Dilution Factor: *1*

Compound

Compound	CAS	Result	QUAL	Units	MDL	PQL
Benzene	000071-43-2	516	E	ug/L	0.2	1
Ethylbenzene	000100-41-4	78.7		ug/L	0.2	1
m p xylene	01330 20 7	711		ug/L	0.2	2
o xylene	00095-47- 6	152		ug/L	0.2	1
Toluene	000108-88-3	66.2		ug/L	0.2	1

Surrogate Recoveries

Surrogate	CAS	% Recovery	Units	LCL	UCL
Bromofluorobenzene	000460-00-4	102	%	80	120

See case narrative.

☐ Development
☑ Purging

WELL DEVELOPMENT AND PURGING DATA FORM

Well Number MW 4

Page 1 of 1

Project Name B.R. well SAMPLing

Project Manager LISA WINN

Project No. 151200158

Client Company BURLINGTON RESOURCES

Site Name JOHNSON FED. #4

Site Address Rural SAN JUAN CO.

Development Criteria

☑ 3 to 5 Casing Volumes of Water Removal
☐ Stabilization of Indicator Parameters
☐ Other _____

Methods of Development

Pump	Bailer
☐ Centrifugal	☑ Bottom Valve
☐ Submersible	☐ Double Check Valve
☐ Peristaltic	☐ Stainless-steel Kemmerer

☐ Other _____

Water Volume Calculation

Initial Depth of Well (feet) 52.09
Initial Depth to Water (feet) 46.98
Height of Water Column in Well (feet) 5.11
Diameter (inches): Well 2" Gravel Pack ____

Item	Water Volume in Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing	5.11	0.83x3	2.49
Gravel Pack			
Drilling Fluids			
Total			2.49

Instruments

	Serial No. (If applicable)
☑ pH Meter	YSI 63
☐ DO Monitor	
☑ Conductivity Meter	YSI 63
☑ Temperature Meter	YSI 63
☐ Other	

Water Disposal

ON SITE IN PIT

Water Removal Data

Date	Time	Development Method: Pump	Development Method: Bailer	Removal Rate (gal/min)	Intake Depth (feet)	Ending Water Depth (feet)	Water Volume Removed (gallons): Increment	Water Volume Removed (gallons): Cumulative	Product Volume Removed (gallons): Increment	Product Volume Removed (gallons): Cumulative	Temperature (°C)	pH	Conductivity (mmhos/cm)	Dissolved Oxygen (mg/L)	Comments
9-24-02	1236		X				.5	.5			17.7	7.15	1754		Cloudy Grey, Sheen Product odor
	1239		X				.5	1			16.4	7.19	1642		" "
	1240		X				.5	1.5			16.5	7.21	1433		" "
	1243		X				.5	2			16.2	7.14	1599		" "
	1245		X			49.46	.5	2.5			16.3	7.19	1525		NO CHANGE

Comments SAMPLED FOR BTEX 1300

Developer's Signature(s) Chris A. May Date 9-24-02 Reviewed JWinn Date 9/30/02

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

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

Organic Analytical Results

Burlington Resources, Inc.
Project ID: 1517000138
Sample ID: JOHNSON FED#4 MW4

ACZ ID: ***L38684-01***
Date Sampled: *09/24/02 13:00*
Date Received: *09/27/02*
Sample Matrix: *Ground Water*

Benzene, Toluene, Ethylbenzene & Xylene

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

Analyst: *km*
Extract Date: *09/27/02 18:31*
Analysis Date: *09/27/02 18:31*
Dilution Factor: *200*

Compound

Compound	CAS	Result	QUAL	Units	MDL	PQL
Benzene	000071-43-2	5310		ug/L	40	200
Ethylbenzene	000100-41-4	880		ug/L	40	200
m p Xylene	01330 20 7	11000		ug/L	40	400
o Xylene	00095-47- 6	2960		ug/L	40	200
Toluene	000108-88-3	8000		ug/L	40	200

Surrogate Recoveries

Surrogate	CAS	% Recovery	Units	LCL	UCL
Bromofluorobenzene	000460-00-4	102	%	84	114

See case narrative.

WELL OBSERVATION DATA

Project Name: BR Groundwater Sampling

Project No.: 151700138*

Project Mngr: Don Fernald

Task: 4

Client Co.: Burlington Resources

Date: 12-30-02

Site Name: Johnston Federal #4

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	1200		46.95	47.4	51.87	.45	Cloudy Gray w/ Heavy oil sheen

Reason Not Measured: D = Dry; O = Obstructed; N = Not Accessible

Comments: Bailed approx. 1.5 at product & 2.75 gal water took Sample at 12:40

Signature: James Hancock

Date: 12-30-02

WELL DEVELOPMENT AND PURGING DATA

amec

Well Number MW-1 ☒ Development ☒ Purging

Serial No. WDPD-

Page 1 of 1

Project Name Burlington Resources Groundwater Sampling | Project Manager Don Fernald | Project No. 151700138*

Client Company Burlington Resources | Phase.Task No. 4

Site Name Johnston Federal #1 | Site Address Rural San Juan County

Development Criteria

☒ 3 to 5 Casing Volumes of Water Removal
☐ Stabilization of Indicator Parameters
☐ Other

Water Volume Calculation

Initial Depth of Well (feet) 51.87
Initial Depth to Water (feet) 47.4
Height of Water Column in Well (feet) 4.47
Diameter (inches): Well 2" Gravel Pack

Item	Water Volume in Well: Cubic Feet	Water Volume in Well: Gallons	Gallons to be Removed
Well Casing	4.47	.73x3	2.19
Gravel Pack			
Drilling Fluids			
Total			2.19

Instruments

Instruments	Serial No. (if applicable)
☒ PH Meter	YSI 63
☐ DO Monitor	
☒ Conductivity Meter	YSI 63
☒ Temperature Meter	YSI 63
☐ Other	

Methods of Development

Pump
☐ Centrifugal
☐ Submersible
☐ Peristaltic

Bailer
☒ Bottom Valve
☐ Double Check Valve
☐ Stainless-steel Kemmerer

☐ Other

Water Disposal

On Site Pit

Water Removal Data

Date	Time	Development Method: Pump	Development Method: Bailer	Removal Rate (gal/min)	Intake Depth (feet)	Ending Water Depth (feet)	Water Volume Removed (gallons): Increment	Water Volume Removed (gallons): Cumulative	Product Volume Removed (gallons): Increment	Product Volume Removed (gallons): Cumulative	Temperature (°C)	pH	Conductivity (mmhos/cm)	Dissolved Oxygen (mg/L)	Comments
12-30-02	1200		X				3	3	.5		12.9	6.99	1213		cloudy Gray w/
						49.3									heavy oil sheen

Circle the date and time that the development criteria are met.

Comments Bailed approx. 5 at product and 2.75 gal water Sampled at 12:40

Developer's Signature (s) James Hanson Date 12-30-02 Reviewer _____ Date _____

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

Organic Analytical Results

Burlington Resources, Inc.
Project ID: 1517000138
Sample ID: MW-1 JOHNSTON FEDERA

ACZ ID: ***L39827-03***
Date Sampled: *12/30/02 12:40*
Date Received: *01/02/03*
Sample Matrix: *Ground Water*

Benzene, Toluene, Ethylbenzene & Xylene

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

Analyst: *km*
Extract Date: *01/08/03 12:19*
Analysis Date: *01/08/03 12:19*
Dilution Factor: *200*

Compound

Compound	CAS	Result	QUAL	Units	MDL	PQL
Benzene	000071-43-2	7660		ug/L	60	200
Ethylbenzene	000100-41-4	760		ug/L	40	200
m p Xylene	01330 20 7	11300		ug/L	80	400
o Xylene	00095-47- 6	2840		ug/L	40	200
Toluene	000108-88-3	10200		ug/L	40	200

Surrogate Recoveries

Surrogate	CAS	% Recovery	Units	LCL	UCL
Bromofluorobenzene	000460-00-4	103	%	84	114

LETTER TO MR. OLSON
DATED JULY 29, 1999

BURLINGTON RESOURCES

SAN JUAN DIVISION

July 29, 1999

Certified Mail: Z 186 732 886

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

RE: Johnson Federal #4 Metering Location
Unit Letter M, Section 27, Township 31N, Range 9W
Notification of Groundwater Impact

Dear Mr. Olson:

As per the e-mail notification dated June 1, 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 initial assessments of two earthen pits on the Johnson Federal #4 metering location. The separator pit tested clean and was closed. The tank drain earthen pit had levels above closure standards and BR excavated soils to 30 feet below ground surface. At that point, soil samples from the bottom of the excavation were collected and tested above pit closure standards. The excavation was sprayed with 20 barrels of Oxy-1 and backfilled with clean fill. BR conducted vertical extent determination in the center of BR's former earthen pit and encountered groundwater at approximately 43 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 May 25, 1999. The sample results are as follows:

Benzene	8700 ppb
Toluene	2900 ppb
Ethylbenzene	2800 ppb
Total Xylenes	29000 ppb

Included with this letter are the original Pit Remediation and Closure Reports for the BR earthen pits 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 from El Paso's 1997 Annual Groundwater Report.

The temporary monitoring well has since been completed as permanent. BR will conduct future activities at the site pursuant to Burlington Resources' Groundwater Management Plan, and it is our plan 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 Reports (Pit #1)
Pit Remediation and Closure Reports (Pit #2)
Drilling Log/Wellbore Diagram
Analytical Results - Groundwater
Location Diagram

cc: Denny Foust - NMOCD Aztec
Sandra Miller - El Paso
Rob Stanfield
Gary Osborne
Bruce Gantner
Facility File
Correspondence

Pit Remediation and Closure Reports (Pit #1)

District I
P.O. Box 1980, Hobbs, NM
District II
P.O. Drawer DD, Artesia, NM 88211
District III
1000 Rio Brazos Rd, Aztec, 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

Operator: Burlington Resources Telephone: (505) 326-9700

Address: 3535 E. 30th Farmington NM 87402

Facility Or: Johnston Federal #4 (Metering Location) Pit #1
Well Name

Location: Unit or Qtr/Qtr Sec H Sec 27 T 31N R 9W County San Juan

Pit Type: Separator X Dehydrator ___ Other ___

Land Type: BLM X, State ___, Fee ___, Other ___

Pit Location: (Attach diagram)

Pit dimensions: length 19', width 12', depth 4'

Reference: wellhead ___, other Dogleg

Footage from reference: 81.5'

Direction from reference: 55 Degrees ___ East North ___ of X West South X

Depth To Ground Water: (Vertical distance from contaminants to seasonal high water elevation of ground water)	Less than 50 feet (20 points) 50 feet to 99 feet (10 points) Greater than 100 feet (0 Points)	20
Wellhead Protection Area: (Less than 200 feet from a private domestic water source, or; less than 1000 feet from all other water sources)	Yes (20 points) No (0 points)	0
Distance To Surface Water: (Horizontal distance to perennial lakes, ponds, rivers, streams, creeks, irrigation canals and ditches)	Less than 200 feet (20 points) 200 feet to 1000 feet (10 points) Greater than 1000 feet (0 points)	0
	RANKING SCORE (TOTAL POINTS):	20

Pit #1

PHILIP SERVICES CORP

PRODUCTION PIT ASSESSMENT FORM

GENERAL

WELL NAME: JOHNSTON FEDERAL WELL NUMBER: 4 ~~DP NO.~~ NDE NAME B154

OPERATOR NAME: BURLINGTON RESOURCES P\L DISTRICT:

COORDINATES: TOWNSHIP 31N RANGE 9W SECTION 27 LETTER H

PIT TYPE: DEHYDRATOR ☐ SEPARATOR ☐ BLOW PIT ☐ OTHER: UNKNOWN

CATHODIC PROTECTION WELL: ☐ YES ☒ NO

SITE ASSESSMENT DATE: 8/10/98 MOI FOREMAN NO. AREA:

SITE ASSESSMENT

NMOCD ZONE: (from NMOCD Maps): Inside ☒ Outside ☐

LAND TYPE: BLM ☒(1) STATE ☐(2) FEE ☐(3) INDIAN:

DEPTH TO GROUNDWATER:

LESS THAN 50 FT	(1)☒	(20 POINTS)
50 FT TO 99 FT	(2)☐	(10 POINTS)
GREATER THAN 100 FT	(3)☐	(0 POINTS)

WELLHEAD PROTECTION AREA: Is it less than 1,000 feet from wells, springs, or other sources of fresh water extraction?, or; is it less than 200 ft from a private domestic water source (or 1,000' on Navajo surface)?

YES☐ (20 POINTS) NO☒ (0 POINTS)

HORIZONTAL DISTANCE TO SURFACE WATER BODY:

LESS THAN 200 FT	(1)☐	(20 POINTS)
200 FT TO 1,000 FT	(2)☐	(10 POINTS)
GREATER THAN 1,000 FT	(3)☒	(0 POINTS)

NAME OF SURFACE WATER BODY _____

SURFACE WATER BODY: PERENNIAL RIVERS, STREAMS, CREEKS, IRRIGATION CANALS, DITCHES, LAKES, PONDS

DISTANCE TO NEAREST EPHEMERAL STREAM (1)☐ <100 FEET (NAVAJO PITS ONLY)
(2)☐ >100 FEET

TOTAL HAZARD RANKING SCORE: 20 POINTS

FARMINGTON LABORATORY
807 S. CARLTON
FARMINGTON, NM 87499-1289
(505) 326-2588

Certificate of Analysis No. 9803038-02

Philip Environmental Services
4000 Monroe Road
Farmington, NM 87401
Attn: Cory Chance

Date: 08/17/98

Project:	BR Misc.	Project No:	19074
Site:	Johnston Fed. #4, Pit #1	Matrix:	Soil
Sampled By:	Holly Bradbury	Date Sampled:	08/10/98
Sample ID:	BR8B1541AV	Date Received:	08/11/98

Analytical Data

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Gasoline Range Organics	1.2	0.1 (P)	mg/kg
Surrogate	**% Recovery**		
1,4,Difluorobenzene	147		
4-Bromofluorobenzene	310MI		
Method 8015B*** for Gasoline			
Analyzed by: AA			
Date: 08/12/98			
Total Petroleum Hydrocarbons-Diesel	ND	10 (P)	mg/kg
Surrogate	**% Recovery**		
n-Pentacosane	118		
Method 8015B*** for Diesel			
Analyzed by: RR			
Date: 08/14/98			

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.

Billy G. Rich, Lab Director

Pit Remediation and Closure Reports (Pit #2)

District I
P.O. Box 1980, Hobbs, NM
District II
P.O. Drawer DD, Artesia, NM 88211
District III
1000 Rio Brazos Rd. Aztec, 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

Operator: Burlington Resources Telephone: (505) 326-9700

Address: 3535 E. 30th Farmington NM 87402

Facility or: Johnston Federal #4 (Metering Location) Pit #2
Well Name

Location: Unit or Qtr/Qtr Sec H Sec 27 T 31N R 9W County San Juan

Pit Type: Separator ___ Dehydrator ___ Other Tank Drain

Land Type: BLM X, State ___, Fee ___, Other ___

Pit Location: (Attach diagram)
Pit dimensions: length 21, width 20, depth 3
Reference: wellhead ___, other Dogleg
Footage from reference: 173'
Direction from reference: 45 Degrees ___ East North ___ of X West South X

Depth To Ground Water: (Vertical distance from contaminants to seasonal high water elevation of ground water)	Less than 50 feet (20 points) 50 feet to 99 feet (10 points) Greater than 100 feet (0 Points)	20
Wellhead Protection Area: (Less than 200 feet from a private domestic water source, or; less than 1000 feet from all other water sources)	Yes (20 points) No (0 points)	0
Distance To Surface Water: (Horizontal distance to perennial lakes, ponds, rivers, streams, creeks, irrigation canals and ditches)	Less than 200 feet (20 points) 200 feet to 1000 feet (10 points) Greater than 1000 feet (0 points)	0
	RANKING SCORE (TOTAL POINTS):	20

Pit #2

PHILIP SERVICES CORP

PRODUCTION PIT ASSESSMENT FORM

GENERAL

WELL NAME: JOHNSTON FEDERAL WELL NUMBER: 4 ~~DP NO.~~: NMOE NAME: B154

OPERATOR NAME: BURLINGTON RESOURCES P/L DISTRICT:

COORDINATES: TOWNSHIP 31N RANGE 9W SECTION 27 LETTER H

PIT TYPE: DEHYDRATOR ☐ SEPARATOR ☐ BLOW PIT ☐ OTHER:

CATHODIC PROTECTION WELL: ☐ YES ☒ NO UNKNOWN

SITE ASSESSMENT DATE: 8/10/98 MOI FOREMAN NO. AREA:

SITE ASSESSMENT

NMOCD ZONE: (from NMOCD Maps): Inside ☒ Outside ☐

LAND TYPE: BLM ☒(1) STATE ☐(2) FEE ☐(3) INDIAN:

DEPTH TO GROUNDWATER:

LESS THAN 50 FT	(1)☒	(20 POINTS)
50 FT TO 99 FT	(2)☐	(10 POINTS)
GREATER THAN 100 FT	(3)☐	(0 POINTS)

WELLHEAD PROTECTION AREA: Is it less than 1,000 feet from wells, springs, or other sources of fresh water extraction?, or; is it less than 200 ft from a private domestic water source (or 1.000' on Navajo surface)?

YES☐ (20 POINTS) NO☒ (0 POINTS)

HORIZONTAL DISTANCE TO SURFACE WATER BODY:

LESS THAN 200 FT	(1)☐	(20 POINTS)
200 FT TO 1,000 FT	(2)☐	(10 POINTS)
GREATER THAN 1,000 FT	(3)☒	(0 POINTS)

NAME OF SURFACE WATER BODY _____

SURFACE WATER BODY: PERENNIAL RIVERS, STREAMS, CREEKS, IRRIGATION CANALS, DITCHES, LAKES, PONDS

DISTANCE TO NEAREST EPHEMERAL STREAM (1)☐ <100 FEET (NAVAJO PITS ONLY)
(2)☐ >100 FEET

TOTAL HAZARD RANKING SCORE: 20 POINTS

FARMINGTON LABORATORY
807 S. CARLTON
FARMINGTON, NM 87499-1289
(505) 326-2588

Certificate of Analysis No. 9803038-03a

Philip Environmental Services
4000 Monroe Road
Farmington, NM 87401
Attn: Cory Chance

Date: 08/17/98

Project:	BR Misc.	Project No:	19074
Site:	Johnston Fed #4, Pit #2	Matrix:	Soil
Sampled By:	Holly Bradbury	Date Sampled:	08/10/98
Sample ID:	BR8B1541BV	Date Received:	08/11/98

Analytical Data

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Benzene	81000	5000 (P)	µg/Kg
Toluene	41000	5000 (P)	µg/Kg
Ethylbenzene	85000	5000 (P)	µg/Kg
Total Xylene	780000	5000 (P)	µg/Kg
Total Volatile Aromatic Hydrocarbons	987000		µg/Kg

Surrogate	% Recovery
1,4,Difluorobenzene	120
4-Bromofluorobenzene	193MI

Method 8020A***
Analyzed by: AA
Date: 08/13/98

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.

Billy G. Rich, Lab Director

FARMINGTON LABORATORY
807 S. CARLTON
FARMINGTON, NM 87499-1289
(505) 326-2588

Certificate of Analysis No. 9803038-03b

Philip Environmental Services
4000 Monroe Road
Farmington, NM 87401
Attn: Cory Chance

		Date:	08/17/98
Project:	BR Misc.	Project No:	19074
Site:	Johnston Fed #4, Pit #2	Matrix:	Soil
Sampled By:	Holly Bradbury	Date Sampled:	08/10/98
Sample ID:	BR8B1541BV	Date Received:	08/11/98

Analytical Data

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Gasoline Range Organics	17000	1000 (P)	mg/kg
Surrogate	**% Recovery**		
1,4,Difluorobenzene	123		
4-Bromofluorobenzene	367MI		
Method 8015B*** for Gasoline			
Analyzed by: AA			
Date: 08/13/98			
Total Petroleum Hydrocarbons-Diesel	2700	200 (P)	mg/kg
Surrogate	**% Recovery**		
n-Pentacosane	D		
Method 8015B*** for Diesel			
Analyzed by: RR			
Date: 08/14/98			

MI_Matrix interference (P)-Practical Quantitation Limit D-Diluted, limits not applicable.

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 no resemble a diesel pattern. (C10 - C24) RR

Billy G. Rich, Lab Director

PHILIP SERVICES CORP

PRODUCTION PIT REMEDIATION FORM

WELL NAME: Johnston Fed. #4 WELL NO.: _____ DP NO.: _____

OPERATOR NAME: Burlington Resources P/L DISTRICT: _____

COORDINATES: LETTER: H SECTION: 27 TOWNSHIP: 31N RANGE: 9W

PIT TYPE: DEHYDRATOR: _____ LOCATION DRIP: _____ LINE DRIP: _____ OTHER: X
TANK DRAIN PIT

FOREMAN NO.: GARY OSBORNE AREA: Aztec

INITIAL REMEDIATION ACTIVITIES

DATE: 12-17-98 TIME: _____

GROUND WATER ENCOUNTERED? ☐Y / ☒N

INSIDE NMOCD ZONE

FINAL EXCAVATION DIMENSIONS: LENGTH: 58 WIDTH: 45 DEPTH: 30

APPROX. CUBIC YARDS: 4,702 FINAL PID READING: 1962 ppm

REMEDIATION METHOD: ONSITE LANDFARM ___

OFFSITE LANDFARM X LOCATION: Johnston FD 22R #4

OTHER _____

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 EXCAVATION)

SAMPLE DATE: _____ SAMPLE NOS _____ _____

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: Contaminated Soil 3,055 cu. yd
Clean Soil 1,647 cu. yd.

SIGNATURE: Robert Thompson DATE: 12/17/98

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

Certificate of Analysis No. 9812150-01a

Philip Environmental Services
4000 Monroe Road
Farmington, NM 87401
Attn: Robert Thompson

		Date:	01/06/99
Project:	BR Pits	Project No:	20440
Site:	Farmington	Matrix:	Soil
Sampled By:	R. Thompson	Date Sampled:	12/28/98
Sample ID:	12281416 - BOTTOM	Date Received:	12/30/98

Analytical Data

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Benzene	ND	500 (P)	µg/Kg
Toluene	20000	500 (P)	µg/Kg
Ethylbenzene	8100	500 (P)	µg/Kg
Total Xylene	120000	500 (P)	µg/Kg
Total Volatile Aromatic Hydrocarbons	148100		µg/Kg

Surrogate	% Recovery
1,4,Difluorobenzene	100
4-Bromofluorobenzene	160MI

Method 8020A***
Analyzed by: AA
Date: 01/05/99

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.

Billy G. Rich, Lab Director

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

Certificate of Analysis No. 9812150-01b

Philip Environmental Services
4000 Monroe Road
Farmington, NM 87401
Attn: Robert Thompson

		Date:	01/06/99
Project:	BR Pits	Project No:	20440
Site:	Farmington	Matrix:	Soil
Sampled By:	R. Thompson	Date Sampled:	12/28/98
Sample ID:	12281416 - BOTTOM	Date Received:	12/30/98

Analytical Data

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Gasoline Range Organics	2100	50 (P)	mg/kg
Surrogate	**% Recovery**		
1,4,Difluorobenzene	80		
4-Bromofluorobenzene	613MI		
Method 8015B*** for Gasoline			
Analyzed by: AA			
Date: 01/05/99			
Total Petroleum Hydrocarbons-Diesel	430	250 (P)	mg/kg
Surrogate	**% Recovery**		
n-Pentacosane	96		
Method 8015B*** for Diesel			
Analyzed by: RR			
Date: 01/04/99			

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.

Billy G. Rich, Lab Director

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

Certificate of Analysis No. 9812150-02a

Philip Environmental Services
4000 Monroe Road
Farmington, NM 87401
Attn: Robert Thompson

Date: 01/06/99

Project:	BR Pits	Project No:	20440
Site:	Farmington	Matrix:	Soil
Sampled By:	R. Thompson	Date Sampled:	12/28/98
Sample ID:	12281410 - WALLS	Date Received:	12/30/98

Analytical Data

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Benzene	ND	500 (P)	µg/Kg
Toluene	6100	500 (P)	µg/Kg
Ethylbenzene	3400	500 (P)	µg/Kg
Total Xylene	75000	500 (P)	µg/Kg
Total Volatile Aromatic Hydrocarbons	84500		µg/Kg

Surrogate	% Recovery
1,4,Difluorobenzene	100
4-Bromofluorobenzene	167MI

Method 8020A***
Analyzed by: AA
Date: 01/05/99

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.

Billy G. Rich, Lab Director

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

Certificate of Analysis No. 9812150-02b

Philip Environmental Services
4000 Monroe Road
Farmington, NM 87401
Attn: Robert Thompson

Date: 01/06/99

Project:	BR Pits	Project No:	20440
Site:	Farmington	Matrix:	Soil
Sampled By:	R. Thompson	Date Sampled:	12/28/98
Sample ID:	12281410 – WALLS	Date Received:	12/30/98

Analytical Data

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Gasoline Range Organics	1600	50 (P)	mg/kg
Surrogate	**% Recovery**		
1,4,Difluorobenzene	87		
4-Bromofluorobenzene	667MI		
Method 8015B*** for Gasoline			
Analyzed by: AA			
Date: 01/05/99			
Total Petroleum Hydrocarbons-Diesel	250	50 (P)	mg/kg
Surrogate	**% Recovery**		
n-Pentacosane	92		
Method 8015B*** for Diesel			
Analyzed by: RR			
Date: 01/04/99			

MI-Matrix Interference (P)-Practical Quantitation Limit D-Diluted, limits not applicable

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.

Billy G. Rich, Lab Director

Lab WO#: 9812150

PHILIP ENVIRONMENTAL

Chain of Custody Record — Nonchemical Samples

210 West Sand Bank Road
P.O. Box 230
Columbia, IL 62236-0230

(618) 281-7173 Phone
(618) 281-5120 FAX

COC Serial No. G 3232

Project Name	BEPITS			Lab	Name	SPL					
Project Number	20440	Phase . Task	1000 . 77		Location	Farmington					
Samplers	Paul Arnholt				Analysis Type						
Sample Number	Date	Time	Matrix		X	X				Comments	
01 12281416	12-28-98	1416	Soil		TPH	BTEX				PID reading 1469 ppm	
02 12281410	12-28-98	1410	Soil		TPH	BTEX				PID reading 2026 ppm	

White

12/31/98

Relinquished by:

Signature	Date	Time
Walter Jarrett	12/30/98	1333hrs

Received By:

Signature	Date	Time
[illegible]	12/30/98	1333

Carrier: Airbill No.

Shipping and Lab Notes:

PE-211 (4/95)

Drilling Log/Wellbore Diagram

RECORD OF SUBSURFACE EXPLORATION

Borehole # 1
Well # MW-B1
Page 1 of 2

Philip Environmental Services Corp.
4000 Monroe Road
Farmington, New Mexico 87401
(505) 326-2262 FAX (505) 326-2388

Project Name Burlington
Project Number 21057 Phase 1000.99
Project Location Johnston Fed #1

Elevation
Borehole Location
GWL Depth 43'
Logged By P. Cheney
Drilled By K. Padilla
Date/Time Started 5/13/99 0920
Date/Time Completed 5/13/99 1200

Well Logged By P. Cheney
Personnel On-Site P. Cheney, K. Padilla, D. Padilla
Contractors On-Site
Client Personnel On-Site Ed Hasely

Drilling Method 4 1/4" ID HSA
Air Monitoring Method PID

Depth (Feet)	Sample Interval	Sample Type & Recovery (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	Air Monitoring Units: NDU BZ	BH	S	Drilling Conditions & Blow Counts
0			Pit has been excavated and backfilled to 30' (ed Hasely) First sample will be from 30'-32' Backfill is a yellowish brown, medium to coarse grained sand						
5									
10									
15									
20									
25									
30		55/18"	gray to dark gray clay. Approx 5-10% sand, soft, low plasticity. Strong HC odor		30'	0.1	9.1	1064	BC = 5 S/HS = 1133
35	35		dark gray, fine grained clayey sand, strong HC odor						
40	37					0.2	11.5	560	BC = 12 S/HS = 1103

Comments:

Geologist Signature

RECORD OF SUBSURFACE EXPLORATION

Borehole # 1
Well # MW-B1
Page 2 of 2

Philip Environmental Services Corp.
4000 Monroe Road
Farmington, New Mexico 87401
(505) 326-2262 FAX (505) 326-2388

Project Name Burlington
Project Number 21057 Phase 1000.99
Project Location Johnston Fed #4

Elevation
Borehole Location
GWL Depth
Logged By P. Cheney
Drilled By K. Padilla
Date/Time Started 5/13/99 0920
Date/Time Completed 5/13/99 1200

Well Logged By P Cheney
Personnel On-Site P. Cheney, K. Padilla, D Padilla
Contractors On-Site
Client Personnel On-Site Ed Hasely
Drilling Method 4 1/4" Id HSA
Air Monitoring Method PID

Depth (Feet)	Sample Interval	Sample Type & Recovery (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	Air Monitoring Units: NDU BZ	BH	S	Drilling Conditions & Blow Counts
40	40		light gray, fine to medium grained clayey sand Frm			11.6	5.0	1075	BC= 7 S/HS = 291
	42	▼							
45	45		gray, very coarse grained sand w/ 5% small gravel. Strong odor. Approx 2", tight yellowish brown consolidated sand at 47'			6.2		946	BC= 36 S/HS = 252
	47								
50	50		gray, fine to medium grained sand. 2-5% black mineral grains well consolidated			0.3		77	BC= 50 (7") S/HS = 141
	52								
55			TD = 50' set screen 35-50						
20									
25									
30									
35									
40									

Comments: Materials: 1 silt trap + 10' screen 1-5' screen, 4-10' risers, 1-5' riser
7 sacks silica sand

Geologist Signature

MONITORING WELL INSTALLATION RECORD

Philip Environmental Services Corp.
4000 Monroe Road
Farmington, New Mexico 87401
(505) 326-2262 FAX (505) 326-2388

Borehole # 1
Well # MW-B1
Page 1 of 1

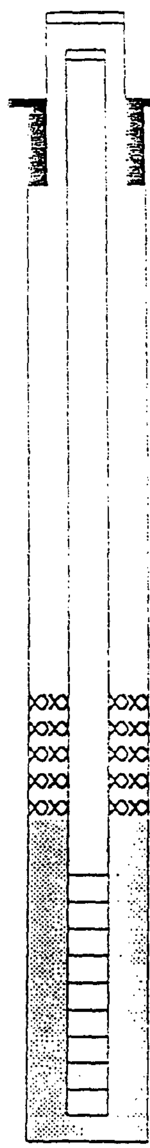
Project Name: Burlington Drilling
Project Number: 21057 Phase: 6000.99
Project Location: Johnston Federal #4

On-Site Geologist: P Cheney
Personnel On-Site: K Padilla / D Padilla
Contractors On-Site:
Client Personnel On-Site: Ed Hasely

Elevation:
Well Location:
GWL Depth: 43'
Installed By: K Padilla
D Padilla
Date/Time Started: 5/13/99 1300
Date/Time Completed: 6/4/99 1300

Depths in Reference to Ground Surface

Item	Material	Depth
Top of Protective Casing		
Bottom of Protective Casing		
Top of Permanent Borehole Casing		
Bottom of Permanent Borehole Casing		
Top of Concrete		
Bottom of Concrete		
Top of Grout		
Bottom of Grout		
Top of Well Riser		
Bottom of Well Riser		
Top of Well Screen		
Bottom of Well Screen		
Top of Peltonite Seal		
Bottom of Peltonite Seal		
Top of Gravel Pack		
Bottom of Gravel Pack		
Top of Natural Cave-In		
Bottom of Natural Cave-In		
Top of Groundwater		
Total Depth of Borehole		



Comments:

Geologist Signature: Cecil [signature] for Paul Cheney

Analytical Results - Groundwater

PINNACLE LABORATORIES

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

Pinnacle Lab ID number **905083**
July 14, 1999

PHILIP SERVICES
4000 MONROE RD.
FARMINGTON, NM 87401

Project Name BURL. PITS
Project Number 21057

Attention: C. IRBY

On 5/22/99 Pinnacle Laboratories, Inc. Inc., (ADHS License No. AZ0592), 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.

Due to the lateness of this report, there will be no charge for the analyses.

EPA method 8021 was performed by Pinnacle Laboratories, Inc., Albuquerque, NM.

All other parameters were performed by ESL (OR) Inc., Portland, OR.

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: mt

Enclosure

PINNACLE LABORATORIES

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

CLIENT	: PHILIP SERVICES	PINNACLE ID	: 905083
PROJECT #	: 21057	DATE RECEIVED	: 5/22/99
PROJECT NAME	: BURL. PITS	REPORT DATE	: 7/14/99

PIN ID. #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	PC-03JF6A89232	AQUEOUS	5/21/99
02	PC-04JF470194	AQUEOUS	5/21/99

PINNACLE LABORATORIES

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

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : PHILIP SERVICES
PROJECT # : 21057
PROJECT NAME : BURL. PITS

PINNACLE I.D.: 905083

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	PC-03JFGA89232	AQUEOUS	5/21/99	NA	5/25/99	1
02	PC-04JF470194	AQUEOUS	5/21/99	NA	5/25/99	100

PARAMETER	DET. LIMIT	UNITS	PC-03JFGA89232	PC-04JF470194
BENZENE	0.5	**UG/L**	< 0.5	**8700**
TOLUENE	0.5	**UG/L**	< 0.5	**2900**
ETHYLBENZENE	0.5	**UG/L**	< 0.5	**2800**
TOTAL XYLENES	0.5	**UG/L**	**0.5**	**29000**
1,3,5-TRIMETHYLBENZENE	0.5	**UG/L**	< 0.5	**1100**
1,2,4-TRIMETHYLBENZENE	0.5	**UG/L**	< 0.5	**2300**
METHYL-t-BUTYL ETHER	2.5	UG/L	< 2.5	< 250
SURROGATE:				
BROMOFLUOROBENZENE (%)			103	82
SURROGATE LIMITS	(80 - 120)			

CHEMIST NOTES:
N/A

PINNACLE LABORATORIES

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.	: 905083
BLANK I. D.	: 052599	DATE EXTRACTED	: NA
CLIENT	: PHILIP SERVICES	DATE ANALYZED	: 5/25/99
PROJECT #	: 21057	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: BURL. PITS		

PARAMETER	UNITS	
BENZENE	UG/L	<0.5
TOLUENE	UG/L	<0.5
ETHYLBENZENE	UG/L	<0.5
TOTAL XYLENES	UG/L	<0.5
METHYL-t-BUTYL ETHER	UG/L	<2.5
1,3,5-TRIMETHYLBENZENE	UG/L	<0.5
1,2,4-TRIMETHYLBENZENE	UG/L	<0.5
SURROGATE: BROMOFLUOROBENZENE (%)		102
SURROGATE LIMITS:	(80 - 120)	

CHEMIST NOTES:
N/A

PINNACLE LABORATORIES

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

GAS CHROMATOGRAPHY QUALITY CONTROL
MSMSD

TEST	: EPA 8021 MODIFIED	PINNACLE I.D.	: 905083
MSMSD #	: 905065-03	DATE EXTRACTED	: NA
CLIENT	: PHILIP SERVICES	DATE ANALYZED	: 5/25/99
PROJECT #	: 21057	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: BURL. PITS	UNITS	: UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
BENZENE	<0.5	10.0	10.3	103	10.9	109	6	(80 - 120)	20
TOLUENE	<0.5	10.0	10.5	105	10.6	106	1	(80 - 120)	20
ETHYLBENZENE	<0.5	10.0	10.7	107	10.6	106	1	(80 - 120)	20
TOTAL XYLENES	<0.5	30.0	31.9	106	32.0	107	0	(80 - 120)	20
METHYL-t-BUTYL ETHER	<2.5	10.0	9.6	96	9.4	94	2	(70 - 133)	20

CHEMIST NOTES:
N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

Environmental Services Laboratory, Inc. E S L

17400 SW Upper Boones Ferry Road • Suite 270 • Portland, OR 97224 • (503) 670-8520

July 09, 1999

Kim McNeill
Pinnacle Laboratories
2709-D Pan American Fwy NE
Albuquerque, NM 87107
TEL: 505-344-3777
FAX (505) 344-4413

RE: 905083/PHIL/Barl. Pits Order No.: 9905121

Dear Kim McNeill,

Environmental Services Laboratory received 2 samples on 05/25/99 for the analyses presented in the following report.

The Samples were analyzed for the following tests:

CHLORIDE (Chloride)
ICP Metals (ICPMET)
MERCURY (Mercury)
Nitrate/Nitrite (Nitrogen)
Sulfate (Sulfate)
TOTAL DISSOLVED SOLIDS (E160.1)

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications except where noted in the Case Narrative. Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety, without the written approval from the Laboratory.

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

Sincerely,

Kimberly Hill
Project Manager

Technical Review

Environmental Services Laboratory

Date: *13-Jul-99*

CLIENT:	Pinnacle Laboratories	**Client Sample ID:**	905083-01
Lab Order:	9905121	**Tag Number:**	
Project:	905083/PHIL/Barl. Pits	**Collection Date:**	05/21/99
Lab ID:	9905121-01A	**Matrix:**	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
CHLORIDE		**EPA 325.3**				Analyst: kfl
Chloride	15	50		mg/L	20	05/26/99
NITRATE/NITRITE		**EPA 353.3**				Analyst: sld
Nitrogen, N+N	ND	0.05		mg/L	1	05/28/99
SULFATE		**EPA 375.4**				Analyst: sld
Sulfate	1100	420		mg/L	83.3	05/27/99
TOTAL DISSOLVED SOLIDS		**EPA 160.1**				Analyst: kfl
Total Dissolved Solids (Residue, Filterable)	2000	10		mg/L	1	05/25/99
MERCURY		**SW 7470 / EPA 245.**				Analyst: btn
Mercury	ND	0.002		mg/L	1	06/08/99
ICP METALS		**SW 6010 / EPA 200.**				Analyst: btn
Arsenic	ND	0.05		mg/L	1	06/16/99
Barium	ND	0.3		mg/L	1	06/16/99
Cadmium	ND	0.005		mg/L	1	06/16/99
Chromium	ND	0.05		mg/L	1	06/16/99
Lead	ND	0.05		mg/L	1	06/16/99
Selenium	ND	0.05		mg/L	1	06/16/99
Silver	ND	0.05		mg/L	1	06/16/99

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Environmental Services Laboratory

Date: *13-Jul-99*

CLIENT:	Pinnacle Laboratories	Client Sample ID:	905083-02
Lab Order:	9905121	Tag Number:	
Project:	905083/PHIL/Barl. Pits	Collection Date:	05/21/99
Lab ID:	9905121-02A	Matrix:	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
CHLORIDE		**EPA 325.3**				Analyst: kfl
Chloride	75	50		mg/L	100	05/26/99
NITRATE/NITRITE		**EPA 353.3**				Analyst: sld
Nitrogen, N+N	ND	0.05		mg/L	1	05/28/99
SULFATE		**EPA 375.4**				Analyst: sld
Sulfate	170	62		mg/L	12.5	05/27/99
TOTAL DISSOLVED SOLIDS		**EPA 160.1**				Analyst: kfl
Total Dissolved Solids (Residue, Filterable)	1800	10		mg/L	1	05/25/99
MERCURY		**SW 7470 / EPA 245.**				Analyst: btn
Mercury	ND	0.002		mg/L	1	06/08/99
ICP METALS		**SW 6010 / EPA 200.**				Analyst: btn
Arsenic	ND	0.05		mg/L	1	06/16/99
Barium	ND	0.3		mg/L	1	06/16/99
Cadmium	ND	0.005		mg/L	1	06/16/99
Chromium	ND	0.05		mg/L	1	06/16/99
Lead	ND	0.05		mg/L	1	06/16/99
Selenium	ND	0.05		mg/L	1	06/16/99
Silver	ND	0.05		mg/L	1	06/16/99

Qualifiers:

- ND - Not Detected at the Reporting Limit
- J - Analyte detected below quantitation limits
- B - Analyte detected in the associated Method Blank
- * - Value exceeds Maximum Contaminant Level
- S - Spike Recovery outside accepted recovery limits
- R - RPD outside accepted recovery limits
- E - Value above quantitation range

3R71

BURLINGTON RESOURCES

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. #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

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

3401 East 30th Street, 87402-8807, P.O. Box 4289, Farmington, New Mexico 87499-4289, Telephone 505-326-9700, Fax 505-326-9833

RECEIVED
APR 0 1 2002
ENVIRONMENTAL BUREAU
OIL CONSERVATION DIVISION

BURLINGTON RESOURCES 2001 ANNUAL GROUNDWATER REPORT

Johnson Federal #4 Metering Facility

SITE DETAILS

Location: Unit Letter M, Section 27, Township 31N, Range 9W; San Juan County, New Mexico
Land Type: Federal

PREVIOUS ACTIVITIES

El Paso Field Services (EPFS) excavated approximately 60 cubic yards from their pit at this location in 1994 and installed a monitoring well in 1995. Please note that in past reports, EPFS has incorrectly shown the location of their monitoring wells at the Johnson Federal #4 producing location, which is in a different section from where the metering facility and groundwater impact are located.

Burlington Resources conducted the initial site assessments of our two pits in August 1998. The separator pit tested clean and was closed. The tank drain pit had levels above standards and excavation of approximately 3055 cubic yards of impacted soil to a depth of 30 feet occurred in December 1998.

1999 ACTIVITIES

Prior to backfilling, the excavation was sprayed with 20 barrels of Oxy-1. Clean overburden and soils from a nearby wash were used to backfill the excavation. Vertical extent drilling encountered groundwater at approximately 43 feet and a groundwater monitoring well was installed on May 13, 1999. After developing the well and allowing it to stabilize, the well was purged and sampled on May 25, 1999.

2000 ACTIVITIES

Quarterly groundwater monitoring continued through 2000. A new laboratory was added for analysis, ACZ Laboratories in Steamboat Colorado starting in the fourth quarter. Groundwater analytical data are presented in Table 1. A site map, which was taken from EPFS's 1998 Annual Groundwater Report and modified with Burlington's information, is presented as Figure 1.

2001 ACTIVITIES

Quarterly groundwater monitoring continued through 2001. Groundwater analytical data are presented in Table 1. A site map, which was taken from EPFS's 1998 Annual Groundwater Report and modified with Burlington's information, is presented as Figure 1.

CONCLUSIONS

Analytical results of groundwater sampling from the monitoring well in 2000 and 2001 show levels of benzene, toluene, ethylbenzene and total xylenes above New Mexico Groundwater Standards except for the fourth quarter of 2000 and the first and fourth quarters of 2001. The fourth quarter sample was

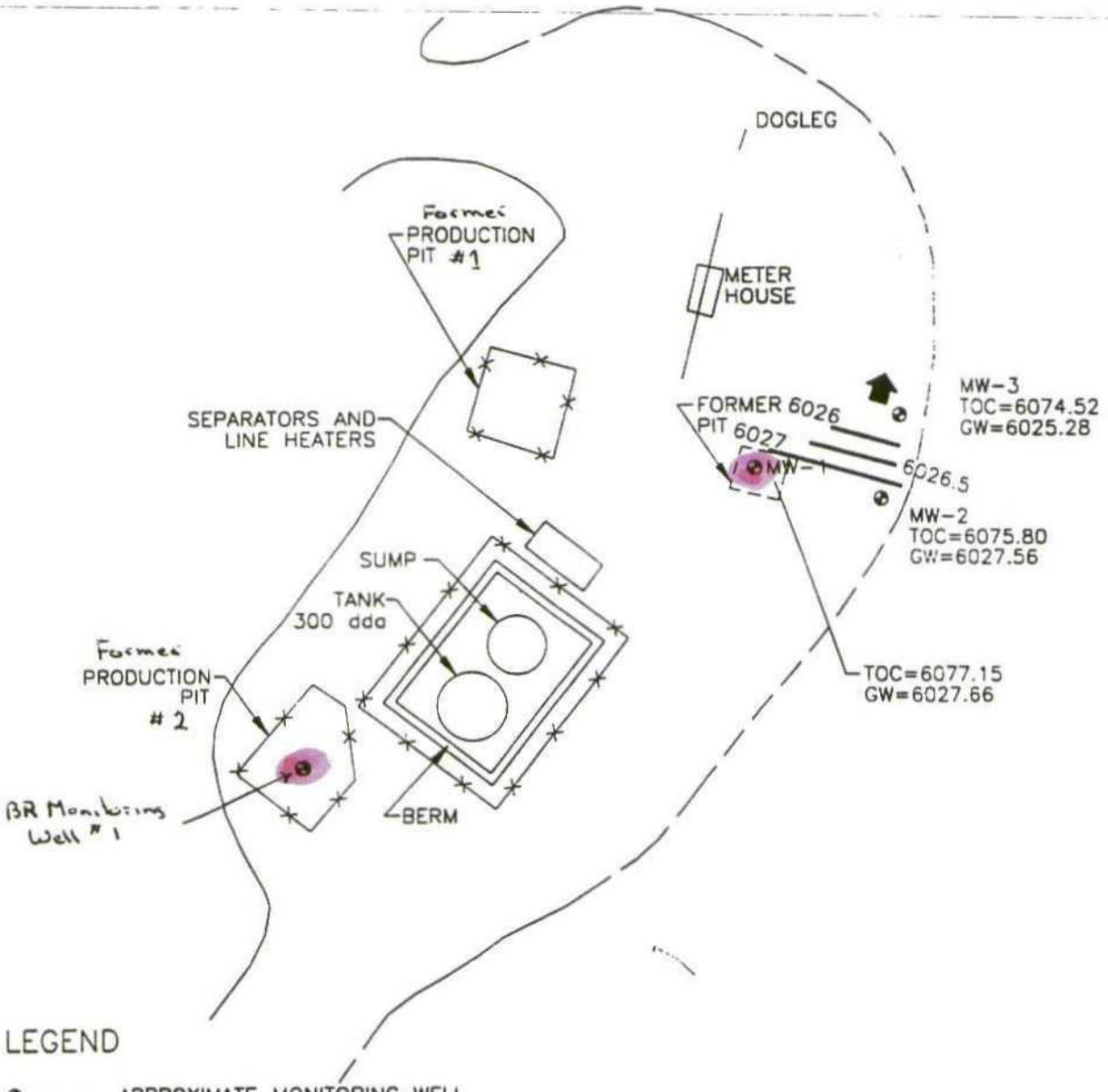
reanalyzed at the laboratory and the same result was produced. The remaining data collected in 2001 is similar to the historic data collected therefore the fourth quarter 2000 data is considered an anomaly and not valid.

RECOMMENDATIONS

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

Attachments: Figure 1 - Site Map
Table 1 - Groundwater Sampling Results Summary
2001 Groundwater Analytical Results
Letter to Olson dated July 29, 1999 including the Drilling Log/Wellbore Diagram

Figure 1



LEGEND

MW-1	APPROXIMATE MONITORING WELL LOCATION AND NUMBER
TOC	TOP OF CASING ELEVATION
GW	GROUNDWATER POTENTIOMETRIC SURFACE
	GROUNDWATER GRADIENT
25.0	GROUNDWATER POTENTIOMETRIC SURFACE

0 40
FEET
N

PHILIP SERVICES CORP

TITLE:
JOHNSTON FEDERAL NO. 4
METER 70194
2/23/99
(BR Modified 3/22/00)

DWN:	DES.:	PROJECT NO.: 175
TMM	CC	EPFS GW PITS
CHKD: CC	APPD:	
DATE: 3/22/99	REV.: 0	FIGURE 1

COL 175208P-003

Table 1

Groundwater Monitoring Well Sampling

Well Name	MW #	Sample Date	B (ppb)	T (ppb)	E (ppb)	X (ppb)	BTEX (ppb)	DTW (1) (ft)
Standard			*10*	*750*	*750*	*620*		
Johnson Fed #4	1	5/25/1999	**8700**	**2900**	**2800**	**29000**	43400	
(EPNG)		9/1/1999	Product Thickness = .005 ft			No Sample.		47.015*
		12/1/1999	**4700**	**1300**	**900**	**10000**	16900	46.96
		1/18/2000	**3600**	**820**	**840**	**7500**	12760	44.05
		5/17/2000	**6900**	**1100**	**1500**	**17000**	26500	46.90
		9/8/2000	**4600**	620	**930**	**10000**	16150	46.91
ACZ labs		12/20/2000	<0.2	0.5	34	61	95.5	46.88
ACZ labs		3/27/2001	**5430**	641	**991**	**9830**	16892	Lost
ACZ labs	h2s odor	6/27/2001	**5870**	**900**	**990**	**10400**	18160	47.05
ACZ labs		9/17/2001	**5910**	**750**	**980**	**10700**	18340	46.93
ACZ labs	sheen	12/19/2001	**7200**	650	**1020**	**11300**	20170	46.97

* Depth to Product.
(1) measured from top of casing

2001 GROUNDWATER ANALYTICAL RESULTS

L31380

2

PHILIP ENVIRONMENTAL

Chain of Custody Record

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

COC Serial No. C 2828

Project Name B.R. well Sampling
Project Number 62800298 Phase . Task 0309
Samplers C MAEZ
Laboratory Name ACZ LABS
Location STEAMBOAT SPRINGS CO.

Sample Number (and depth)	Date	Time	Matrix	Total Number of Bottles	Type of Analysis and Bottle: BTEX 8021	Comments
JOHNSON FED MW4	3-27-01	1444	H2O	X		JOHNSON Fed #4

Relinquished by:

Signature	Date	Time
Chris L Mac	3-29-01	1600

Received By:

Signature	Date	Time

Samples Iced: ☑ Yes ☐ No

Preservatives (ONLY for Water Samples)
- ☐ Cyanide ..... Sodium hyroxide (NaOH)
- ☒ Volatile Organic Analysis ..... Hydrochloric acid (HCl)
- ☐ Metals ..... Nitric acid (HNO_3)
- ☐ TPH (418.1) ..... Sulfuric acid (H_2SO_4)
- ☑ Other (Specify) HCL
- ☐ Other (Specify) _____

Carrier: UPS
Airbill No.
Shipping and Lab Notes:

PE-176 4/95

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

Organic Analytical Results

Burlington Resources, Inc.

Project ID: B.R. Well Sampling
Sample ID: Johnson Fed. MW 4

ACZ ID: *L31380-02*
Date Sampled: 03/27/01 44:00
Date Received: 03/31/2001
Sample Matrix: Ground Water

Benzene, Toluene, Ethylbenzene & Xylenes

Analysis Method: M8020
Extract Method: Method

Analyst: smp
Extract Date: 4/2/01
Analysis Date: 4/2/01
Dilution Factor: 25

Compound

Parameter	CAS	Result	Qual	Units	MDL	PQL
Benzene	000071-43-2	5430		ug/L	5	10
Ethylbenzene	000100-41-4	991		ug/L	5	30
Toluene	000108-88-3	641		ug/L	5	30
Xylenes	001330-20-7	9830		ug/L	5	30

Surrogate Recoveries

Parameter	CAS	Result	Qual	Units	MDL	PQL
Bromofluorobenzene	00000460004	119		%	80	120

Well Development and Purging Data

Project No. 6178 Development ☐
Task No. Purging ☑
Well No. MW 4 Site Name/Identification JOHNSTON FED #4 Site Address Rural San Juan CO.
Client/Project Name Burlington Resources B.R well Sampling Project Manager LISA WINN

Page 1 of 1

Development Criteria
☑ 3 to 5 Casing Volumes of Water Removal
☑ Stabilization of Indicator Parameters
☐ Other

Water Volume Calculation
Initial Depth of Well (feet) 52.09
Initial Depth to Water (feet) 47.05
Height of Water Column in Well (feet) 5.04
Diameter (inches): Well ____ Gravel Pack ____

Item	Water Volume in Well: Cubic Feet	Water Volume in Well: Gallons	Gallons to be Removed
Well Casing	5.04	0.82X3	2.46
Gravel Pack			
Drilling Fluids			
Total			2.46

Instruments
Serial No. (if applicable)
☑ PH Meter Hydac
☐ DO Monitor
☑ Conductivity Meter
☑ Temperature Meter
☐ Other

Water Disposal
On site in pit

Sampling Activities
Type of Container VOA No. of Containers 2
Parameters Sampled For BTEX

Methods of Development
Pump
☐ Centrifugal
☐ Submersible
☐ Peristaltic

Bailer
☑ Bottom Valve
☐ Double Check Valve
☐ Stainless-steel Kemmerer

☐ Other

Water Removal Data

Date	Time	Development Method: Pump	Development Method: Bailer	Removal Rate (gal/min)	Intake Depth (feet)	Ending Water Depth (feet)	Water Volume Removed (gallons): Increment	Water Volume Removed (gallons): Cumulative	Product Volume Removed (gallons): Increment	Product Volume Removed (gallons): Cumulative	Temperature (°C)	pH	Conductivity (mmhos/cm)	Dissolved Oxygen (mg/L)	Comments
6/27/01	1436		X				.5	.5			22.5	7.32	1850		Cloudy Light Grey Slight Petrol Odor
	1441		X				.5	1			20.8	7.33	1770		"
	1443		X				.5	1.5			19.4	7.38	1760		"
	1446		X				.5	2			19.1	7.34	1750		"
	1448		X			48.04	.5	2.5			18.9	7.34	1750		no Change

Circle the date and time that the development criteria are met

Comments Sampled for BTEX 1500

Developer's Signature (s) Chris A. May Date 6-27-01 Reviewer J Winn Date 7/3/01

ACZ Laboratories, Inc.

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

CHAIN of CUSTODY

Quote #: **ACZ Project #:**

CLIENT INFORMATION

Name to appear on Report and Invoice

Burlington Resources
P.O. BOX 4289
Farmington N.M. 87499-4289
Attn: Greg Hunt Tel: (505) 326-9537

Carbon Copy: Report X **Invoice** ___

Golden Environmental MGT
906 San Juan Blvd. Suite D
Farmington N.M. 87401
Attn: Lisa Linn Tel: (505) 566-9115

Email:

Email:

PROJECT INFORMATION

Client Project name and/or PO#:
B.R. well Samplings

Shipping Company:

Tracking #:

ANALYSES REQUESTED *(required or attach bid/list)*

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	BTEX 8021							
JOHNSTON FEDERAL MW-6	6-21-01 1500	H_2O	2	X							

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

REMARKS

RELINQUSIHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME	PAGE
[signature]	6-29-01 1305			of

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

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

Analytical Report

Gregg Wurtz
Burlington Resources, Inc.
3401 East 30th Street PO Box 4289
Farmington, NM 87499-4289

July 20, 2001

cc: Lisa Winn

Project: L32735

Gregg Wurtz:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on June 30, 2001. This project has been assigned to ACZ's project number, L32735. 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 L32735. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

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 August 20, 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.

Sue Barkey 20/Jul/01

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

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

Organic Analytical Results

Burlington Resources, Inc.

Project ID: B.R. well sampling
Sample ID: Johnston Fed #4-MW 4

ACZ ID: ***L32735-05***
Date Sampled: *06/27/01 15:00*
Date Received: *06/30/01*
Sample Matrix: *Ground Water*

Benzene, Toluene, Ethylbenzene & Xylene

Analysis Method: **M8021**
Extract Method: **Method**

Analyst: *smp*
Extract Date: *07/12/01 20:38*
Analysis Date: *07/12/01 20:38*
Dilution Factor: *50*

Compound

Compound	CAS	Result	QUAL	Units	MDL	PQL
Benzene	000071-43-2	5870		ug/L	10	30
Ethylbenzene	000100-41-4	990		ug/L	10	50
Toluene	000108-88-3	900		ug/L	10	50
Xylenes	001330-20-7	10400		ug/L	10	50

Surrogate Recoveries

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

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

Organic Analytical Results

Burlington Resources, Inc.
Project ID: B.R. well sampling
Sample ID: Trip Blank

ACZ ID: ***L32735-07***
Date Sampled: *06/29/01 0:00*
Date Received: *06/30/01*
Sample Matrix: *Ground Water*

Benzene, Toluene, Ethylbenzene & Xylene

Analysis Method: **M8021**
Extract Method: **Method**

Analyst: *smp*
Extract Date: *07/13/01 13:22*
Analysis Date: *07/13/01 13:22*
Dilution Factor: *1*

Compound

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

Surrogate Recoveries

Surrogate	CAS	% Recovery	Units	LCL	UCL
Bromofluorobenzene	000460-00-4	86	%	80	120

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

Organic Reference

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
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
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 MDI
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 concentratic
E	Analyte concentration exceeds calibration range.
P	Analyte concentration differs from second detector by more than 40%.
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 II, September 1994.
(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 calculat
(2)	Organic analyses are reported on an "as received" basis.

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

Sample Receipt

Burlington Resources, Inc.
B.R. well sampling

ACZ Project ID: L32735
Date Received: 7/2/01
Received By: dale

Receipt Verification

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

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

N/A

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

N/A

Shipping Containers

Cooler Id		Temp (°C)	Rad (µR/hr)
acz		7.3	13

Notes

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

Sample Receipt

Burlington Resources, Inc.
B.R. well sampling

ACZ Project ID: L32735
Date Received: 7/2/01
Received By: dale

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
L32735-01	Maddox Com #1										O	
L32735-02	Maddox Com #1										O	
L32735-03	Maddox Com #1										O	
L32735-04	Standard Com #										O	
L32735-05	Johnston Fed #4-										O	
L32735-06	COZZENSB#1 M										O	
L32735-07	Trip Blank										O	

Well Development and Purging Data

Project No. 6178 Development ☐ Purging ☑ Page 1 of 1

Task No.

Well No. MW 4 Site Name/Identification JOHNSTON FED #4 Site Address Rural San Jann CO.

Client/Project Name Burlington Resources BR well Sampling Project Manager Lisa Wimm

Development Criteria

☑ 3 to 5 Casing Volumes of Water Removal
☑ Stabilization of Indicator Parameters
☐ Other

Water Volume Calculation

Initial Depth of Well (feet) 52.09
Initial Depth to Water (feet) 46.93
Height of Water Column in Well (feet) 5.16
Diameter (inches): Well 2" Gravel Pack

Item	Water Volume in Well: Cubic Feet	Water Volume in Well: Gallons	Gallons to be Removed
Well Casing		0.84x3	2.52
Gravel Pack			
Drilling Fluids			
Total			2.52

Instruments

Instruments	Serial No. (if applicable)
☑ PH Meter	Hydac
☐ DO Monitor	
☑ Conductivity Meter	Hydac
☑ Temperature Meter	Hydac
☐ Other	

Methods of Development

Pump
☐ Centrifugal
☐ Submersible
☐ Peristaltic

Bailer
☑ Bottom Valve
☐ Double Check Valve
☐ Stainless-steel Kemmerer

☐ Other

Water Disposal

Onsite in pit

Sampling Activities

Type of Container VOA No. of Containers 2
Parameters Sampled For BTEX

Water Removal Data

Date	Time	Development Method: Pump	Development Method: Bailer	Removal Rate (gal/min)	Intake Depth (feet)	Ending Water Depth (feet)	Water Volume Removed (gallons): Increment	Water Volume Removed (gallons): Cumulative	Product Volume Removed (gallons): Increment	Product Volume Removed (gallons): Cumulative	Temperature (°C)	pH	Conductivity (mmhos/cm)	Dissolved Oxygen (mg/L)	Comments
9-17-01	1117		X				.75	.75			19.3	6.55	1910		clear product odor sheen
	1119		X				.75	1.5			19.1	6.74	1860		clear product odor sheen
	1121		X				.75	2.25			17.6	6.93	1850		cloudy product odor sheen
	1123		X				.75	3			17.2	6.91	1860		cloudy light grey product odor, sheen
	1127		X			49.67	.75	3.75			17	6.91	1950		no change

Circle the date and time that the development criteria are met.

Comments Sampled For BTEX 1140

Developer's Signature (s) Chris A. May Date 9-17-01 Reviewer Lisa Wimm Date 9/26/01

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

Organic Analytical Results

Burlington Resources, Inc.
Project ID: BR Well Sampling
Sample ID: JOHNSTON FED MW4

ACZ ID: ***L33990-02***
Date Sampled: *09/17/01 11:40*
Date Received: *09/20/01*
Sample Matrix: *Ground Water*

Benzene, Toluene, Ethylbenzene & Xylene

Analysis Method: **M8021**
Extract Method: **Method**

Analyst: *smp*
Extract Date: *09/27/01 16:39*
Analysis Date: *09/27/01 16:39*
Dilution Factor: *100*

Compound

Compound	CAS	Result	QUAL	Units	MDL	PQL
Benzene	000071-43-2	5910		ug/L	20	50
Ethylbenzene	000100-41-4	980		ug/L	20	100
Toluene	000108-88-3	750		ug/L	20	100
Xylenes	0001330-207	10700		ug/L	20	100

Surrogate Recoveries

Surrogate	CAS	% Recovery	Units	LCL	UCL
Bromofluorobenzene	000460-00-4	111	%	80	120

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

Organic Analytical Results

Burlington Resources, Inc.
Project ID: BR Well Sampling
Sample ID: TRIP BLANK

ACZ ID: ***L33990-07***
Date Sampled: *09/01/01 0:00*
Date Received: *09/20/01*
Sample Matrix: *Ground Water*

Benzene, Toluene, Ethylbenzene & Xylene

Analysis Method: **M8021**
Extract Method: **Method**

Analyst: *smp*
Extract Date: *09/27/01 15:05*
Analysis Date: *09/27/01 15:05*
Dilution Factor: *1*

Compound

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

Surrogate Recoveries

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

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

Organic Reference

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
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 MDI
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 concentratic
P	Analyte concentration differs from second detector by more than 40%.
D	A non-SPCC or non-CCC compound in CCV exceeds 20 % Difference (%D) from the initial calibration curve.
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 calcula
(2)	Organic analyses are reported on an "as received" basis.

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

Sample Receipt

Burlington Resources, Inc.
BR Well Sampling

ACZ Project ID: L33990
Date Received: 09/20/2001
Received By: TONY

Receipt Verification

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

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

N/A

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

N/A

Shipping Containers

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

Notes

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

Sample Receipt

Burlington Resources, Inc.
BR Well Sampling

ACZ Project ID: L33990
Date Received: 09/21/2001
Received By: TONY

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
L33990-01	COZZENS MW4										O	
L33990-02	JOHNSTON FED										O	
L33990-03	MADDOX COM#										O	
L33990-04	MADDOX COM#										O	
L33990-05	MADDOX COM#										O	
L33990-06	STANDARD OIL										O	
L33990-07	TRIP BLANK										O	

amec

☑ Development
☐ Purging

WELL DEVELOPMENT AND PURGING DATA FORM

Well Number MW 4

Page 1 of 1

Project Name BP. well Sampling Project Manager Lisa winn Project No. 15170000138

Client Company Burlington Dolle Resources

Site Name JOHNSTON FED. #4 Site Address Rural SAN JUAN CO.

Development Criteria

☑ 3 to 5 Casing Volumes of Water Removal (10)
☑ Stabilization of Indicator Parameters
☐ Other

Methods of Development

Pump	Bailer
☐ Centrifugal	☑ Bottom Valve
☐ Submersible	☐ Double Check Valve
☐ Peristaltic	☐ Stainless-steel Kemmerer

☐ Other

Water Volume Calculation

Initial Depth of Well (feet) 52.09
Initial Depth to Water (feet) 46.97
Height of Water Column in Well (feet) 5.12
Diameter (inches): Well 2" Gravel Pack

Item	Water Volume in Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing	5.12	0.83x3	2.49
Gravel Pack			
Drilling Fluids			
Total			2.49

Instruments

	Serial No. (If applicable)
☑ pH Meter	YSI 63
☐ DO Monitor	
☑ Conductivity Meter	YSI 63
☑ Temperature Meter	YSI 63
☐ Other	

Water Disposal

On site in pit

Water Removal Data

Date	Time	Development Method: Pump	Development Method: Bailer	Removal Rate (gal/min)	Intake Depth (feet)	Ending Water Depth (feet)	Water Volume Removed (gallons): Increment	Water Volume Removed (gallons): Cumulative	Product Volume Removed (gallons): Increment	Product Volume Removed (gallons): Cumulative	Temperature (°C)	pH	Conductivity (mmhos/cm)	Dissolved Oxygen (mg/L)	Comments
12-19-01	0919						.5	.5			14.8	7.02	1612		Cloudy, H.C. odor, sheen
	0921						.5	1			14.5	7.05	1636		" "
	0923						.5	1.5			14.7	7.05	1610		" "
	0926						.5	2			14.6	7.10	1600		no change
	0929					47.63	.5	2.5			14.4	7.08	1615		Cloudy, Light Grey HC odor sheen

Comments Sampled for BTEX 0934

Developer's Signature(s) Chris A. May Date 12-19-01 Reviewer [signature] Date 12/21/01

ACZ Laboratories, Inc.

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

L35290

CHAIN of CUSTODY

Report to:

Name: Greg Wurtz	Address: P.O. BOX 4289
Company: Burlington Resources	Farmington NM. 87499-4289
E-mail: GWurtz@BR-inc.com	Telephone: (505) 326-9700

Copy of Report to:

Name: Lisa Winn	E-mail: Lisa.winn@amec.com
Company: AMEC	Telephone: (505) 327-7928

Invoice to:

Name: Greg Wurtz	Address: PO. BOX 4289
Company: Burlington Resources	Farmington, N.M. 87499-4289
E-mail: GWurtz@BR-inc.com	Telephone: (505) 326-9700

PROJECT INFORMATION

Quote #:

Project/PO #: 15170000138

Shipping Co.:

Tracking #:

Reporting State for compliance testing:

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

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	BTEX 8021							
JOHNSTON FED#4 MW4	12/19/01 0934	H_2O	2	X							
MADDOX MW 1	12/19/01 1043	H_2O	2	X							
MADDOX MW 2	12/19/01 1200	H_2O	2	X							
MADDOX MW 3	12/19/01 1120	H_2O	2	X							
STANDARD OIL #1 MW1	12/19/01 1315	H_2O	2	X							
COZZENS B-1 MW4	12/19/01 1425	H_2O	2	X							
COZZENS B-1 MW5	12/19/01 1445	H_2O	2	X							
Trip Blank		H_2O	2	X							

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	PAGE
	12-19-01/1800		12/20/01 1055	Of

FRMQA021.10.01.04

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

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

Case Narrative

Burlington Resources, Inc.
Project: L35290

January 16, 2002

Sample Receipt

ACZ Laboratories, Inc. (ACZ) received 8 ground water samples from Burlington Resources, Inc. on December 20, 2001. The samples were received in good condition. Upon receipt, the sample custodian removed the samples from the cooler, inspected the contents, and logged the samples into ACZ's computerized Laboratory Information Management System (LIMS). The samples were assigned ACZ LIMS project number L35290. The custodian verified the sample information entered into the computer against the chain of custody (COC) forms and sample bottle labels.

Holding Times

All analyses were performed within EPA recommended holding times except for sample L35290-01, which was re-analyzed outside of the hold time.

Sample Analysis

These samples were analyzed for organic parameters. The individual methods are referenced on both, the ACZ invoice and the analytical reports. The following anomaly was identified during the analysis of these samples:

1. The data for L25290-01 is estimated due to middle and ending CCV (Continuing Calibration Verification) failures. The recoveries were high from 116% to 129%. All other QC was acceptable including the LCSW (Laboratory Control Sample - Water) and the Surrogates.

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

Organic Analytical Results

Burlington Resources, Inc.
Project ID: 1517000138
Sample ID: Johnston FED #4 MW4

ACZ ID: ***L35290-01***
Date Sampled: *12/19/01 9:34*
Date Received: *12/20/01*
Sample Matrix: *Ground Water*

Benzene, Toluene, Ethylbenzene & Xylene

Analysis Method: **M8021**
Extract Method: **Method**

Analyst: *mwb*
Extract Date: *01/11/02 1:27*
Analysis Date: *01/11/02 1:27*
Dilution Factor: *50*

Compound

Compound	CAS	Result	QUAL	Units	MDL	PQL
Benzene	000071-43-2	7200	H	ug/L	10	30
Ethylbenzene	000100-41-4	1020	H	ug/L	10	50
Toluene	000108-88-3	650	H	ug/L	10	50
Xylenes	0001330-207	11300	H	ug/L	10	50

Surrogate Recoveries

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

Note: See Case Narrative.

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

Sample Receipt

Burlington Resources, Inc.
1517000138

ACZ Project ID: L35290
Date Received: 12/20/2001
Received By: TONY

Receipt Verification

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

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

N/A

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

N/A

Shipping Containers

Cooler Id		Temp (°C)	Rad (µR/hr)
ACZ		2.0	13

Notes

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

Sample Receipt

Burlington Resources, Inc.
1517000138

ACZ Project ID: L35290
Date Received: 12/20/2001
Received By: TONY

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
L35290-01	Johnston FED #4										O	
L35290-02	Maddox MW 1										O	
L35290-03	Maddox MW 2										O	
L35290-04	Maddox MW3										O	
L35290-05	Standard Oil #1										O	
L35290-06	Cozzens B-1 MW										O	
L35290-07	Cozzens B-1 MW										O	
L35290-08	Trip Blank										O	

LETTER TO MR. OLSON
DATED JULY 29, 1999

BURLINGTON RESOURCES

SAN JUAN DIVISION

July 29, 1999

Certified Mail: Z 186 732 886

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

RE: Johnson Federal #4 Metering Location
Unit Letter M, Section 27, Township 31N, Range 9W
Notification of Groundwater Impact

Dear Mr. Olson:

As per the e-mail notification dated June 1, 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 initial assessments of two earthen pits on the Johnson Federal #4 metering location. The separator pit tested clean and was closed. The tank drain earthen pit had levels above closure standards and BR excavated soils to 30 feet below ground surface. At that point, soil samples from the bottom of the excavation were collected and tested above pit closure standards. The excavation was sprayed with 20 barrels of Oxy-1 and backfilled with clean fill. BR conducted vertical extent determination in the center of BR's former earthen pit and encountered groundwater at approximately 43 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 May 25, 1999. The sample results are as follows:

Benzene	8700 ppb
Toluene	2900 ppb
Ethylbenzene	2800 ppb
Total Xylenes	29000 ppb

Included with this letter are the original Pit Remediation and Closure Reports for the BR earthen pits 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 from El Paso's 1997 Annual Groundwater Report.

The temporary monitoring well has since been completed as permanent. BR will conduct future activities at the site pursuant to Burlington Resources' Groundwater Management Plan, and it is our plan 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 Reports (Pit #1)
Pit Remediation and Closure Reports (Pit #2)
Drilling Log/Wellbore Diagram
Analytical Results - Groundwater
Location Diagram

cc: Denny Foust - NMOCD Aztec
Sandra Miller - El Paso
Rob Stanfield
Gary Osborne
Bruce Gantner
Facility File
Correspondence

Pit Remediation and Closure Reports (Pit #1)

District I
P.O. Box 1980, Hobbs, NM
District II
P.O. Drawer DD, Artesia, NM 88211
District III
1000 Rio Brazos Rd, Aztec, 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

Operator: Burlington Resources Telephone: (505) 326-9700

Address: 3535 E. 30th Farmington NM 87402

Facility Or: Johnston Federal #4 (Metering Location) Pit #1
Well Name

Location: Unit or Qtr/Qtr Sec H Sec 27 T 31N R 9W County San Juan

Pit Type: Separator X Dehydrator ___ Other ___

Land Type: BLM X, State ___, Fee ___, Other ___

Pit Location: (Attach diagram)

Pit dimensions: length 19', width 12', depth 4'

Reference: wellhead ___, other Dogleg

Footage from reference: 81.5'

Direction from reference: 55 Degrees ___ East North ___ of X West South X

Depth To Ground Water: (Vertical distance from contaminants to seasonal high water elevation of ground water)	Less than 50 feet (20 points) 50 feet to 99 feet (10 points) Greater than 100 feet (0 Points)	20
Wellhead Protection Area: (Less than 200 feet from a private domestic water source, or; less than 1000 feet from all other water sources)	Yes (20 points) No (0 points)	0
Distance To Surface Water: (Horizontal distance to perennial lakes, ponds, rivers, streams, creeks, irrigation canals and ditches)	Less than 200 feet (20 points) 200 feet to 1000 feet (10 points) Greater than 1000 feet (0 points)	0
	RANKING SCORE (TOTAL POINTS):	20

Pit #1

PHILIP SERVICES CORP.

PRODUCTION PIT ASSESSMENT FORM

GENERAL

WELL NAME: JOHNSTON FEDERAL WELL NUMBER: 4 ~~DP NO.~~: NDE NAME B154

OPERATOR NAME: BURLINGTON RESOURCES P\L DISTRICT:

COORDINATES: TOWNSHIP 31N RANGE 9W SECTION 27 LETTER H

PIT TYPE: DEHYDRATOR ☐ SEPARATOR ☐ BLOW PIT ☐ OTHER: UNKNOWN

CATHODIC PROTECTION WELL: ☐ YES ☒ NO

SITE ASSESSMENT DATE: 8/10/98 MOI FOREMAN NO. AREA:

SITE ASSESSMENT

NMOCD ZONE: (from NMOCD Maps): Inside ☒ Outside ☐

LAND TYPE: BLM ☒(1) STATE ☐(2) FEE ☐(3) INDIAN:

DEPTH TO GROUNDWATER:

LESS THAN 50 FT	(1)☒	(20 POINTS)
50 FT TO 99 FT	(2)☐	(10 POINTS)
GREATER THAN 100 FT	(3)☐	(0 POINTS)

WELLHEAD PROTECTION AREA: Is it less than 1,000 feet from wells, springs, or other sources of fresh water extraction?, or; is it less than 200 ft from a private domestic water source (or 1,000' on Navajo surface)?

YES☐ (20 POINTS) NO☒ (0 POINTS)

HORIZONTAL DISTANCE TO SURFACE WATER BODY:

LESS THAN 200 FT	(1)☐	(20 POINTS)
200 FT TO 1,000 FT	(2)☐	(10 POINTS)
GREATER THAN 1,000 FT	(3)☒	(0 POINTS)

NAME OF SURFACE WATER BODY _____

SURFACE WATER BODY: PERENNIAL RIVERS, STREAMS, CREEKS, IRRIGATION CANALS, DITCHES, LAKES, PONDS

DISTANCE TO NEAREST EPHEMERAL STREAM (1)☐ <100 FEET (NAVAJO PITS ONLY) (2)☐ >100 FEET

TOTAL HAZARD RANKING SCORE: 20 POINTS

FARMINGTON LABORATORY
807 S. CARLTON
FARMINGTON, NM 87499-1289
(505) 326-2588

Certificate of Analysis No. 9803038-02

Philip Environmental Services
4000 Monroe Road
Farmington, NM 87401
Attn: Cory Chance

Date: 08/17/98

Project:	BR Misc.	Project No:	19074
Site:	Johnston Fed. #4, Pit #1	Matrix:	Soil
Sampled By:	Holly Bradbury	Date Sampled:	08/10/98
Sample ID:	BR8B1541AV	Date Received:	08/11/98

Analytical Data

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Gasoline Range Organics	1.2	0.1 (P)	mg/kg
Surrogate	**% Recovery**		
1,4,Difluorobenzene	147		
4-Bromofluorobenzene	310MI		
Method 8015B*** for Gasoline			
Analyzed by: AA			
Date: 08/12/98			
Total Petroleum Hydrocarbons-Diesel	ND	10 (P)	mg/kg
Surrogate	**% Recovery**		
n-Pentacosane	118		
Method 8015B*** for Diesel			
Analyzed by: RR			
Date: 08/14/98			

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.

Billy G. Rich, Lab Director

Pit Remediation and Closure Reports (Pit #2)

District I
P.O. Box 1980, Hobbs, NM
District II
P.O. Drawer DD, Artesia, NM 88211
District III
1000 Rio Brazos Rd, Aztec, 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

Operator: Burlington Resources Telephone: (505) 326-9700

Address: 3535 E. 30th Farmington NM 87402

Facility or: Johnston Federal #4 (Metering Location) Pit #2
Well Name

Location: Unit or Qtr/Qtr Sec H Sec 27 T 31N R 9W County San Juan

Pit Type: Separator ___ Dehydrator ___ Other Tank Drain

Land Type: BLM X, State ___, Fee ___, Other ___

Pit Location: (Attach diagram)
Pit dimensions: length 21, width 20, depth 3
Reference: wellhead ___, other Dogleg
Footage from reference: 173'
Direction from reference: 45 Degrees ___ East North ___ of X West South X

Depth To Ground Water: (Vertical distance from contaminants to seasonal high water elevation of ground water)	Less than 50 feet (20 points) 50 feet to 99 feet (10 points) Greater than 100 feet (0 Points)	20
Wellhead Protection Area: (Less than 200 feet from a private domestic water source, or; less than 1000 feet from all other water sources)	Yes (20 points) No (0 points)	0
Distance To Surface Water: (Horizontal distance to perennial lakes, ponds, rivers, streams, creeks, irrigation canals and ditches)	Less than 200 feet (20 points) 200 feet to 1000 feet (10 points) Greater than 1000 feet (0 points)	0
	RANKING SCORE (TOTAL POINTS):	20

Pit #2

PHILIP SERVICES CORP.

PRODUCTION PIT ASSESSMENT FORM

GENERAL

WELL NAME: JOHNSTON FEDERAL WELL NUMBER: 4 ~~DP NO.~~: NMOE Name: B154

OPERATOR NAME: BURLINGTON RESOURCES P\L DISTRICT:

COORDINATES: TOWNSHIP 31N RANGE 9W SECTION 27 LETTER H

PIT TYPE: DEHYDRATOR ☐ SEPARATOR ☐ BLOW PIT ☐ OTHER:

CATHODIC PROTECTION WELL: ☐ YES ☒ NO UNKNOWN

SITE ASSESSMENT DATE: 8/10/98 MOI FOREMAN NO. AREA:

SITE ASSESSMENT

NMOCD ZONE: (from NMOCD Maps): Inside ☒ Outside ☐

LAND TYPE: BLM ☒(1) STATE ☐(2) FEE ☐(3) INDIAN:

DEPTH TO GROUNDWATER:

LESS THAN 50 FT	(1)☒	(20 POINTS)
50 FT TO 99 FT	(2)☐	(10 POINTS)
GREATER THAN 100 FT	(3)☐	(0 POINTS)

WELLHEAD PROTECTION AREA: Is it less than 1,000 feet from wells, springs, or other sources of fresh water extraction?, or; is it less than 200 ft from a private domestic water source (or 1,000' on Navajo surface)?

YES☐ (20 POINTS) NO☒ (0 POINTS)

HORIZONTAL DISTANCE TO SURFACE WATER BODY:

LESS THAN 200 FT	(1)☐	(20 POINTS)
200 FT TO 1,000 FT	(2)☐	(10 POINTS)
GREATER THAN 1,000 FT	(3)☒	(0 POINTS)

NAME OF SURFACE WATER BODY _____

SURFACE WATER BODY: PERENNIAL RIVERS, STREAMS, CREEKS, IRRIGATION CANALS, DITCHES, LAKES, PONDS

DISTANCE TO NEAREST EPHEMERAL STREAM (1)☐<100 FEET (NAVAJO PITS ONLY)
(2)☐>100 FEET

TOTAL HAZARD RANKING SCORE: 20 POINTS

FARMINGTON LABORATORY
807 S. CARLTON
FARMINGTON, NM 87499-1289
(505) 326-2588

Certificate of Analysis No. 9803038-03a

Philip Environmental Services
4000 Monroe Road
Farmington, NM 87401
Attn: Cory Chance

Date: 08/17/98

Project:	BR Misc.	Project No:	19074
Site:	Johnston Fed #4, Pit #2	Matrix:	Soil
Sampled By:	Holly Bradbury	Date Sampled:	08/10/98
Sample ID:	BR8B1541BV	Date Received:	08/11/98

Analytical Data

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Benzene	81000	5000 (P)	µg/Kg
Toluene	41000	5000 (P)	µg/Kg
Ethylbenzene	85000	5000 (P)	µg/Kg
Total Xylene	780000	5000 (P)	µg/Kg
Total Volatile Aromatic Hydrocarbons	987000		µg/Kg

Surrogate	% Recovery
1,4,Difluorobenzene	120
4-Bromofluorobenzene	193MI

Method 8020A***
Analyzed by: AA
Date: 08/13/98

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.

Billy G. Rich, Lab Director

FARMINGTON LABORATORY
807 S. CARLTON
FARMINGTON, NM 87499-1289
(505) 326-2588

Certificate of Analysis No. 9803038-03b

Philip Environmental Services
4000 Monroe Road
Farmington, NM 87401
Attn: Cory Chance

Date: 08/17/98

Project:	BR Misc.	Project No:	19074
Site:	Johnston Fed #4, Pit #2	Matrix:	Soil
Sampled By:	Holly Bradbury	Date Sampled:	08/10/98
Sample ID:	BR8B1541BV	Date Received:	08/11/98

Analytical Data

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Gasoline Range Organics	17000	1000 (P)	mg/kg
Surrogate	**% Recovery**		
1,4,Difluorobenzene	123		
4-Bromofluorobenzene	367MI		
Method 8015B*** for Gasoline			
Analyzed by: AA			
Date: 08/13/98			
Total Petroleum Hydrocarbons-Diesel	2700	200 (P)	mg/kg
Surrogate	**% Recovery**		
n-Pentacosane	D		
Method 8015B*** for Diesel			
Analyzed by: RR			
Date: 08/14/98			

MI_Matrix Interference (P)-Practical Quantitation Limit D-Diluted, limits not applicable.

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 no resemble a diesel pattern. (C10 - C24) RR

Billy G. Rich, Lab Director

PHILIP SERVICES CORP

PRODUCTION PIT REMEDIATION FORM

WELL NAME: Johnston Fed #4 WELL NO.: _____ DP NO.: _____

OPERATOR NAME: Burlington Resources P/L DISTRICT: _____

COORDINATES: LETTER: I SECTION: 27 TOWNSHIP: 31N RANGE: 9W

PIT TYPE: DEHYDRATOR: _____ LOCATION DRIP: _____ LINE DRIP: _____ OTHER: X
TANK DRAIN PIT

FOREMAN NO.: GARY OSBORNE AREA: Aztec

INITIAL REMEDIATION ACTIVITIES

DATE: 12-17-98 TIME: _____

GROUND WATER ENCOUNTERED? ☐Y / ☒N

INSIDE NMOCD ZONE

FINAL EXCAVATION DIMENSIONS: LENGTH: 58 WIDTH: 45 DEPTH: 30

APPROX. CUBIC YARDS: 4,702 FINAL PID READING: 1962 ppm

REMEDIATION METHOD: ONSITE LANDFARM ___

OFFSITE LANDFARM X LOCATION: Johnston FED 22R #4

OTHER _____

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 EXCAVATION)

SAMPLE DATE: _____ SAMPLE NOS _____ _____

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: Contaminated Soil 3,055 cu. yd
Clean Soil 1,647 cu. yd.

SIGNATURE: Pat Thompson **DATE:** 12/17/98

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

Certificate of Analysis No. 9812150-01a

Philip Environmental Services
4000 Monroe Road
Farmington, NM 87401
Attn: Robert Thompson

		Date:	01/06/99
Project:	BR Pits	Project No:	20440
Site:	Farmington	Matrix:	Soil
Sampled By:	R. Thompson	Date Sampled:	12/28/98
Sample ID:	12281416 - BOTTOM	Date Received:	12/30/98

Analytical Data

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Benzene	ND	500 (P)	µg/Kg
Toluene	20000	500 (P)	µg/Kg
Ethylbenzene	8100	500 (P)	µg/Kg
Total Xylene	120000	500 (P)	µg/Kg
Total Volatile Aromatic Hydrocarbons	148100		µg/Kg

Surrogate	% Recovery
1,4,Difluorobenzene	100
4-Bromofluorobenzene	160MI

Method 8020A***
Analyzed by: AA
Date: 01/05/99

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.

Billy G. Rich, Lab Director

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

Certificate of Analysis No. 9812150-01b

Philip Environmental Services
4000 Monroe Road
Farmington, NM 87401
Attn: Robert Thompson

Date: 01/06/99

Project:	BR Pits	Project No:	20440
Site:	Farmington	Matrix:	Soil
Sampled By:	R. Thompson	Date Sampled:	12/28/98
Sample ID:	12281416 - Bottom	Date Received:	12/30/98

Analytical Data

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Gasoline Range Organics	2100	50 (P)	mg/kg
Surrogate	**% Recovery**		
1,4,Difluorobenzene	80		
4-Bromofluorobenzene	613MI		
Method 8015B*** for Gasoline			
Analyzed by: AA			
Date: 01/05/99			
Total Petroleum Hydrocarbons-Diesel	430	250 (P)	mg/kg
Surrogate	**% Recovery**		
n-Pentacosane	96		
Method 8015B*** for Diesel			
Analyzed by: RR			
Date: 01/04/99			

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.

Billy G. Rich, Lab Director

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

Certificate of Analysis No. 9812150-02a

Philip Environmental Services
4000 Monroe Road
Farmington, NM 87401
Attn: Robert Thompson

Project:	BR Pits	Date:	01/06/99
Site:	Farmington	Project No:	20440
Sampled By:	R. Thompson	Matrix:	Soil
Sample ID:	12281410 – WALLS	Date Sampled:	12/28/98
		Date Received:	12/30/98

Analytical Data

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Benzene	ND	500 (P)	µg/Kg
Toluene	6100	500 (P)	µg/Kg
Ethylbenzene	3400	500 (P)	µg/Kg
Total Xylene	75000	500 (P)	µg/Kg
Total Volatile Aromatic Hydrocarbons	84500		µg/Kg

Surrogate	% Recovery
1,4,Difluorobenzene	100
4-Bromofluorobenzene	167MI

Method 8020A***
Analyzed by: AA
Date: 01/05/99

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.

Billy G. Rich, Lab Director

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

Certificate of Analysis No. 9812150-02b

Philip Environmental Services
4000 Monroe Road
Farmington, NM 87401
Attn: Robert Thompson

Date: 01/06/99

Project:	BR Pits	Project No:	20440
Site:	Farmington	Matrix:	Soil
Sampled By:	R. Thompson	Date Sampled:	12/28/98
Sample ID:	12281410 – WALLS	Date Received:	12/30/98

Analytical Data

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Gasoline Range Organics	1600	50 (P)	mg/kg
Surrogate	**% Recovery**		
1,4,Difluorobenzene	87		
4-Bromofluorobenzene	667MI		
Method 8015B*** for Gasoline			
Analyzed by: AA			
Date: 01/05/99			
Total Petroleum Hydrocarbons-Diesel	250	50 (P)	mg/kg
Surrogate	**% Recovery**		
n-Pentacosane	92		
Method 8015B*** for Diesel			
Analyzed by: RR			
Date: 01/04/99			

MI-Matrix Interference (P)-Practical Quantitation Limit D-Diluted, limits not applicable

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.

Billy G. Rich, Lab Director

Lab. Log #: 9812150

PHILIP ENVIRONMENTAL

Chain of Custody Record – Nonchemical Samples

210 West Sand Bank Road
P.O. Box 230
Columbia, IL 62236-0230

(618) 281-7173 Phone
(618) 281-5120 FAX

COC Serial No. G 3232

Project Name BCPITS

Project Number 20440 Phase . Task 1000 . 77

Samplers Paul Arnhulter

Lab Name SPL

Location Farmington

Sample Number	Date	Time	Matrix	Analysis Type: X	Analysis Type: X	Comments
01 12281416	12-28-98	1416	Soil	TPH	BTEX	PID reading 1467 ppm
02 12281410	12-28-98	1410	Soil	TPH	BTEX	PID reading 2026 ppm

Relinquished by: **Received By:**

Signature	Date	Time	Signature	Date	Time
Walter Gamble	12/30/98	1333hrs	[illegible]	12/30/98	1333hrs

Carrier: Airbill No.

Shipping and Lab Notes:

PE-211 (4/95)

LAB COPY

Drilling Log/Wellbore Diagram

RECORD OF SUBSURFACE EXPLORATION

Borehole # 1
Well # MW-B2
Page 1 of 2

Philip Environmental Services Corp.
4000 Monroe Road
Farmington, New Mexico 87401
(505) 326-2262 FAX (505) 326-2388

Project Name Burlington
Project Number 21057 Phase 1000.99
Project Location Johnston Fed #1

Elevation
Borehole Location
GWL Depth 43'
Logged By P. Cheney
Drilled By K. Padilla
Date/Time Started 5/13/99 0920
Date/Time Completed 5/13/99 1200

Well Logged By P. Cheney
Personnel On-Site P. Cheney, K. Padilla, B. Padilla
Contractors On-Site
Client Personnel On-Site Ed Hasely
Drilling Method 4 1/4" ID HSA
Air Monitoring Method PID

Depth (Feet)	Sample Interval	Sample Type & Recovery (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	Air Monitoring Units: NDU BZ	BH	S	Drilling Conditions & Blow Counts
0			Pit has been excavated and backfilled to 30' (ed Hasely) First sample will be from 30'-32' Backfill is a yellowish brown, medium to coarse grained sand						
5									
10									
15									
20									
25									
30		5548"	gray to dark gray clay. Approx 5-10% sand, soft, low plasticity. Strong HC odor		30'	0.1	9.1	1064	BC = 5 S/HS = 1133
35	35		dark gray, fine grained clayey sand, strong HC odor			0.2	11.5	560	BC = 12 S/HS = 1103
	37								
40									

Comments:

Geologist Signature

RECORD OF SUBSURFACE EXPLORATION

Borehole # 1
Well # MW-B1
Page 2 of 2

Philip Environmental Services Corp.
4000 Monroe Road
Farmington, New Mexico 87401
(505) 326-2262 FAX (505) 326-2388

Project Name Burlington
Project Number 21057 Phase 1000.99
Project Location Johnston Fed #4

Elevation
Borehole Location
GWL Depth
Logged By P. Cheney
Drilled By K. Padilla
Date/Time Started 5/13/99 0920
Date/Time Completed 5/13/99 1200

Well Logged By P Cheney
Personnel On-Site P. Cheney, K. Padilla, D Padilla
Contractors On-Site
Client Personnel On-Site Ed Hasely
Drilling Method 4¼" ID HSA
Air Monitoring Method PID

Depth (Feet)	Sample Interval	Sample Type & Recovery (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	Air Monitoring Units: NDU BZ	BH	S	Drilling Conditions & Blow Counts
40	40		light gray, fine to medium grained clayey sand firm			11.6	5.0	1015	BC = 7 S/HS = 291
	42	▼							
45	45		gray, very coarse grained sand w/ 5% sm. gravel. Strong odor. Approx 2" ± yellowish brown consolidated sand at 47'			6.2		946	BC = 36 S/HS = 252
	47								
50	50		gray, fine to medium grained sand. 2-5% black mineral grains well consolidated			0.3		77	BC = 50 (7") S/HS = 141
	52								
55			TD = 50'						
			set screen 35-50						
20									
25									
30									
35									
40									

Comments: Materials: 1 silt trap, 1-10' screen, 1-5' screen, 4-10' risers, 1-5' riser, 7 sacks silica sand

Geologist Signature

MONITORING WELL INSTALLATION RECORD

Philip Environmental Services Corp.
4000 Monroe Road
Farmington, New Mexico 87401
(505) 326-2262 FAX (505) 326-2388

Borehole # 1
Well # MW-B1
Page 1 of 1

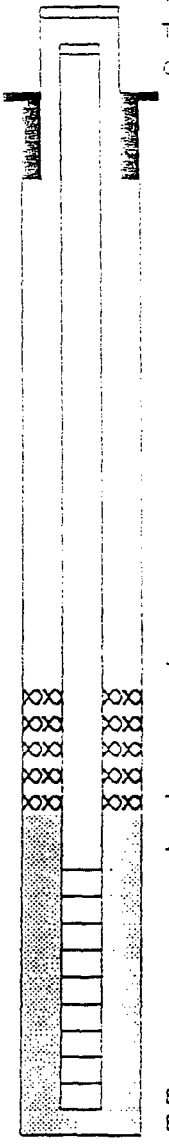
Project Name Sublimation Drilling
Project Number 21057 Phase 4000.09
Project Location Johnson Federal #4

Elevation
Well Location
GWL Depth 43'
Installed By K Padilla
D Padilla
Date/Time Started 5/13/99 1300
Date/Time Completed 6/4/99 1300

On-Site Geologist P Cheney
Personnel On-Site K Padilla / D Padilla
Contractors On-Site
Client Personnel On-Site Ed Hasely

Depths in Reference to Ground Surface

Item	Material	Depth
Top of Protective Casing		
Bottom of Protective Casing		
Top of Permanent Borehole Casing		
Bottom of Permanent Borehole Casing		
Top of Concrete		
Bottom of Concrete		
Top of Grout		
Bottom of Grout		
Top of Well Riser		
Bottom of Well Riser		
Top of Well Screen		
Bottom of Well Screen		
Top of Peltonite Seal		
Bottom of Peltonite Seal		
Top of Gravel Pack		
Bottom of Gravel Pack		
Top of Natural Cave-In		
Bottom of Natural Cave-In		
Top of Groundwater		
Total Depth of Borehole		



Top of Protective Casing +3'
Top of Riser +2'
Ground Surface --
Top of Seal 31
Top of Gravel Pack 33
Top of Screen 35
Bottom of Screen 50'
Bottom of Borehole 52'

Comments:

Geologist Signature Paul Cheney for Paul Cheney

Analytical Results - Groundwater

PINNACLE LABORATORIES

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

Pinnacle Lab ID number **905083**
July 14, 1999

PHILIP SERVICES
4000 MONROE RD.
FARMINGTON, NM 87401

Project Name BURL. PITS
Project Number 21057

Attention: C. IRBY

On 5/22/99 Pinnacle Laboratories, Inc. Inc., (ADHS License No. AZ0592), 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.

Due to the lateness of this report, there will be no charge for the analyses.

EPA method 8021 was performed by Pinnacle Laboratories, Inc., Albuquerque, NM.

All other parameters were performed by ESL (OR) Inc., Portland, OR.

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: mt

Enclosure

PINNACLE LABORATORIES

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

CLIENT	: PHILIP SERVICES	PINNACLE ID	: 905083
PROJECT #	: 21057	DATE RECEIVED	: 5/22/99
PROJECT NAME	: BURL. PITS	REPORT DATE	: 7/14/99

PIN ID. #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	PC-03JFGA89232	AQUEOUS	5/21/99
02	PC-04JF470194	AQUEOUS	5/21/99

PINNACLE LABORATORIES

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

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : PHILIP SERVICES
PROJECT # : 21057
PROJECT NAME : BURL. PITS

PINNACLE I.D.: 905083

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	PC-03JFGA89232	AQUEOUS	5/21/99	NA	5/25/99	1
02	PC-04JF470194	AQUEOUS	5/21/99	NA	5/25/99	100

PARAMETER	DET. LIMIT	UNITS	PC-03JFGA89232	PC-04JF470194
BENZENE	0.5	**UG/L**	< 0.5	**8700**
TOLUENE	0.5	**UG/L**	< 0.5	**2900**
ETHYLBENZENE	0.5	**UG/L**	< 0.5	**2800**
TOTAL XYLENES	0.5	**UG/L**	**0.5**	**29000**
1,3,5-TRIMETHYLBENZENE	0.5	**UG/L**	< 0.5	**1100**
1,2,4-TRIMETHYLBENZENE	0.5	**UG/L**	< 0.5	**2300**
METHYL-t-BUTYL ETHER	2.5	UG/L	< 2.5	< 250

SURROGATE:
BROMOFLUOROBENZENE (%) 103 82
SURROGATE LIMITS (80 - 120)

CHEMIST NOTES:
N/A

PINNACLE LABORATORIES

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.	: 905083
BLANK I. D.	: 052599	DATE EXTRACTED	: NA
CLIENT	: PHILIP SERVICES	DATE ANALYZED	: 5/25/99
PROJECT #	: 21057	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: BURL. PITS		

PARAMETER	UNITS	
BENZENE	UG/L	<0.5
TOLUENE	UG/L	<0.5
ETHYLBENZENE	UG/L	<0.5
TOTAL XYLENES	UG/L	<0.5
METHYL-t-BUTYL ETHER	UG/L	<2.5
1,3,5-TRIMETHYLBENZENE	UG/L	<0.5
1,2,4-TRIMETHYLBENZENE	UG/L	<0.5
SURROGATE: BROMOFLUOROBENZENE (%)		102
SURROGATE LIMITS:	(80 - 120)	

CHEMIST NOTES:
N/A

PINNACLE LABORATORIES

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

GAS CHROMATOGRAPHY QUALITY CONTROL
MSMSD

TEST	: EPA 8021 MODIFIED		
MSMSD #	: 905065-03	PINNACLE I.D.	: 905083
CLIENT	: PHILIP SERVICES	DATE EXTRACTED	: NA
PROJECT #	: 21057	DATE ANALYZED	: 5/25/99
PROJECT NAME	: BURL. PITS	SAMPLE MATRIX	: AQUEOUS
		UNITS	: UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
BENZENE	<0.5	10.0	10.3	103	10.9	109	6	(80 - 120)	20
TOLUENE	<0.5	10.0	10.5	105	10.6	106	1	(80 - 120)	20
ETHYLBENZENE	<0.5	10.0	10.7	107	10.6	106	1	(80 - 120)	20
TOTAL XYLENES	<0.5	30.0	31.9	106	32.0	107	0	(80 - 120)	20
METHYL-t-BUTYL ETHER	<2.5	10.0	9.6	96	9.4	94	2	(70 - 133)	20

CHEMIST NOTES:
N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

Environmental Services Laboratory, Inc. E S L

17400 SW Upper Boones Ferry Road • Suite 270 • Portland, OR 97224 • (503) 670-8520

July 09, 1999

Kim McNeill
Pinnacle Laboratories
2709-D Pan American Fwy NE
Albuquerque, NM 87107
TEL: 505-344-3777
FAX (505) 344-4413

RE: 905083/PHIL/Barl. Pits Order No.: 9905121

Dear Kim McNeill,

Environmental Services Laboratory received 2 samples on 05/25/99 for the analyses presented in the following report.

The Samples were analyzed for the following tests:

CHLORIDE (Chloride)
ICP Metals (ICPMET)
MERCURY (Mercury)
Nitrate/Nitrite (Nitrogen)
Sulfate (Sulfate)
TOTAL DISSOLVED SOLIDS (E160.1)

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications except where noted in the Case Narrative. Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety, without the written approval from the Laboratory.

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

Sincerely,

Kimberly Hill
Project Manager

Technical Review

Environmental Services Laboratory

Date: *13-Jul-99*

CLIENT:	Pinnacle Laboratories	**Client Sample ID:**	905083-01
Lab Order:	9905121	**Tag Number:**	
Project:	905083/PHIL/Barl. Pits	**Collection Date:**	05/21/99
Lab ID:	9905121-01A	**Matrix:**	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
CHLORIDE		**EPA 325.3**				Analyst: kfl
Chloride	15	50		mg/L	20	05/26/99
NITRATE/NITRITE		**EPA 353.3**				Analyst: sld
Nitrogen, N+N	ND	0.05		mg/L	1	05/28/99
SULFATE		**EPA 375.4**				Analyst: sld
Sulfate	1100	420		mg/L	83.3	05/27/99
TOTAL DISSOLVED SOLIDS		**EPA 160.1**				Analyst: kfl
Total Dissolved Solids (Residue, Filterable)	2000	10		mg/L	1	05/25/99
MERCURY		**SW 7470 / EPA 245.**				Analyst: btn
Mercury	ND	0.002		mg/L	1	06/08/99
ICP METALS		**SW 6010 / EPA 200.**				Analyst: btn
Arsenic	ND	0.05		mg/L	1	06/16/99
Barium	ND	0.3		mg/L	1	06/16/99
Cadmium	ND	0.005		mg/L	1	06/16/99
Chromium	ND	0.05		mg/L	1	06/16/99
Lead	ND	0.05		mg/L	1	06/16/99
Selenium	ND	0.05		mg/L	1	06/16/99
Silver	ND	0.05		mg/L	1	06/16/99

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Environmental Services Laboratory

Date: *13-Jul-99*

CLIENT:	Pinnacle Laboratories	Client Sample ID:	905083-02
Lab Order:	9905121	Tag Number:	
Project:	905083/PHIL/Barl. Pits	Collection Date:	05/21/99
Lab ID:	9905121-02A	Matrix:	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
CHLORIDE		**EPA 325.3**				Analyst: **kfl**
Chloride	75	50		mg/L	100	05/26/99
NITRATE/NITRITE		**EPA 353.3**				Analyst: **sld**
Nitrogen, N+N	ND	0.05		mg/L	1	05/28/99
SULFATE		**EPA 375.4**				Analyst: **sld**
Sulfate	170	62		mg/L	12.5	05/27/99
TOTAL DISSOLVED SOLIDS		**EPA 160.1**				Analyst: **kfl**
Total Dissolved Solids (Residue, Filterable)	1800	10		mg/L	1	05/25/99
MERCURY		**SW 7470 / EPA 245.**				Analyst: **btn**
Mercury	ND	0.002		mg/L	1	06/08/99
ICP METALS		**SW 6010 / EPA 200.**				Analyst: **btn**
Arsenic	ND	0.05		mg/L	1	06/16/99
Barium	ND	0.3		mg/L	1	06/16/99
Cadmium	ND	0.005		mg/L	1	06/16/99
Chromium	ND	0.05		mg/L	1	06/16/99
Lead	ND	0.05		mg/L	1	06/16/99
Selenium	ND	0.05		mg/L	1	06/16/99
Silver	ND	0.05		mg/L	1	06/16/99

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range