3RP-071

GW monitoring report

DATE:
2004

BURLINGTON
RESOURCES
San Juan Division

March 31, 2005

RECEIVED

Certified: 70993400001842167364

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APR 06 2005
Oil Conservation Division
Environmental Bureau

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Oil Conservation Division
Environmental Bureau

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

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

Dear Mr. von Gonten:

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

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

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

Sincerely,

Gregg Wurtz
Sr. Environmental Representative

Attachments - Groundwater Investigation and Remediation Reports

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

3RP 71

BURLINGTON RESOURCES 2004 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 ground water at approximately 43 feet and a ground water 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.

2005 ACTIVITIES

The recovery of free phase hydrocarbons in the monitoring well casing will start in 2005. The amount of free phase appears to be limited to a very small but measurable layer approximately 0.20 feet thick. Given the limited amount of hydrocarbon free phase a passive recovery process will used. A passive hydrocarbon absorbing material will be placed into the well for recovery.

GROUND WATER MONITORING ACTIVITIES

Quarterly ground water monitoring continued through 2004. Groundwater analytical data are presented in Table 1. A free phase hydrocarbon layer was observed starting the last two quarters of 2003 through 2004. Samples are not collected of the ground water when free phase hydrocarbons are present due to the bias of the hydrocarbons. A measurement of the thickness of the hydrocarbons is documented.

CONCLUSIONS

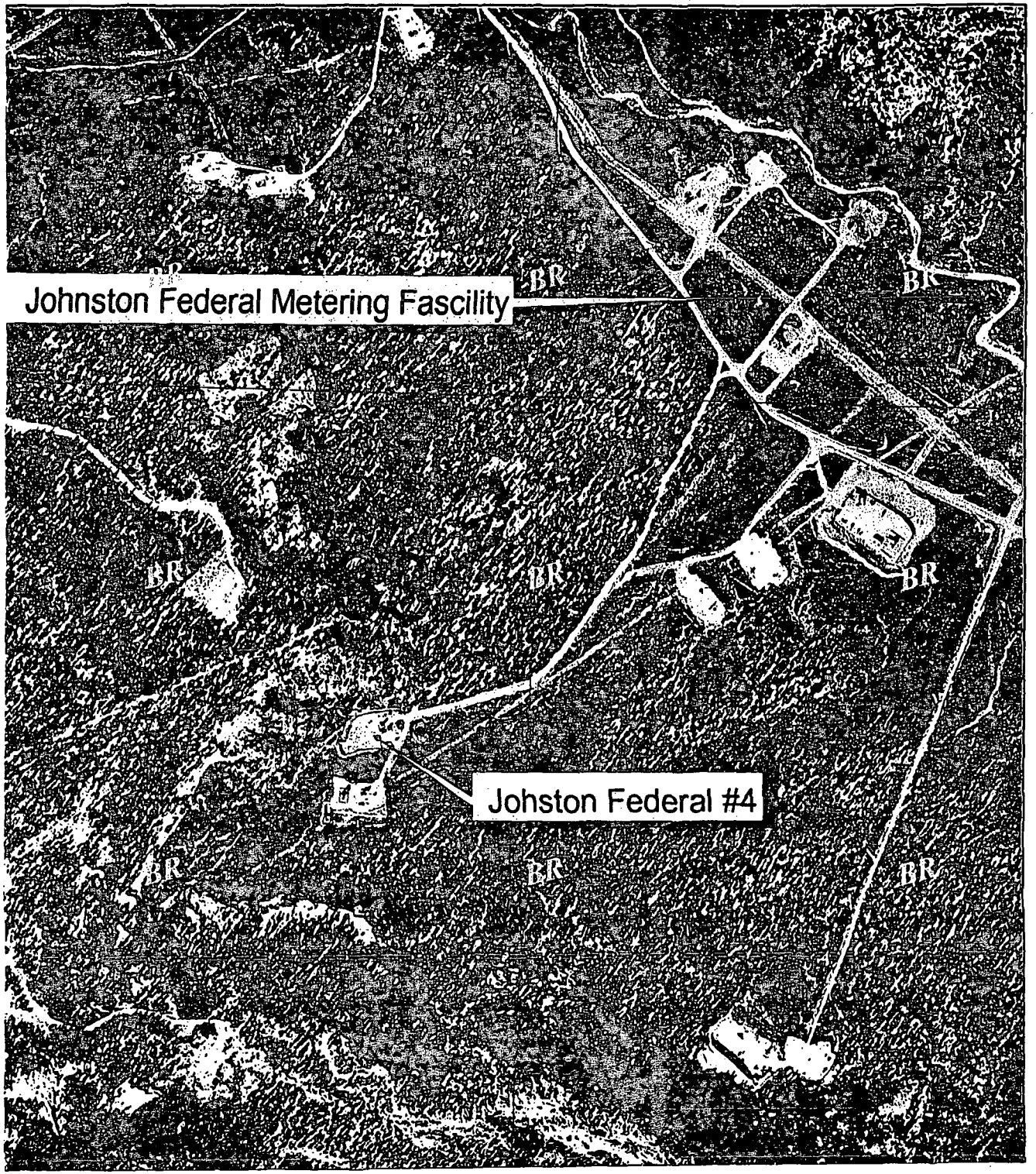
The analytical results of groundwater sampling from the monitoring well show levels of benzene, toluene, ethylbenzene and total xylenes above New Mexico Groundwater Standards. The 2000 fourth quarter sample results were significantly different. This sample was reanalyzed at the laboratory and the same result was produced. The remaining data collected in 2001, 2002, 2003, and 2004 are similar to the

historic data collected therefore the fourth quarter 2000 data is considered an anomaly and not valid. The presents of free phase hydrocarbons on the water in the monitoring well was detected in the last two quarters of 2003 and most of 2004. Product recovery was discussed in 2004 with El Paso and will be started in 2005.

RECOMMENDATIONS

- Burlington Resources proposes to continue quarterly monitoring at this site.
- Burlington Resources proposes to continue product recovery at this site.
- Burlington Resources will meet with El Paso Field Services to determine the remediation alternatives

Attachments: Figure 1 - Site Map
Table 1 - Groundwater Sampling Results Summary
2003 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

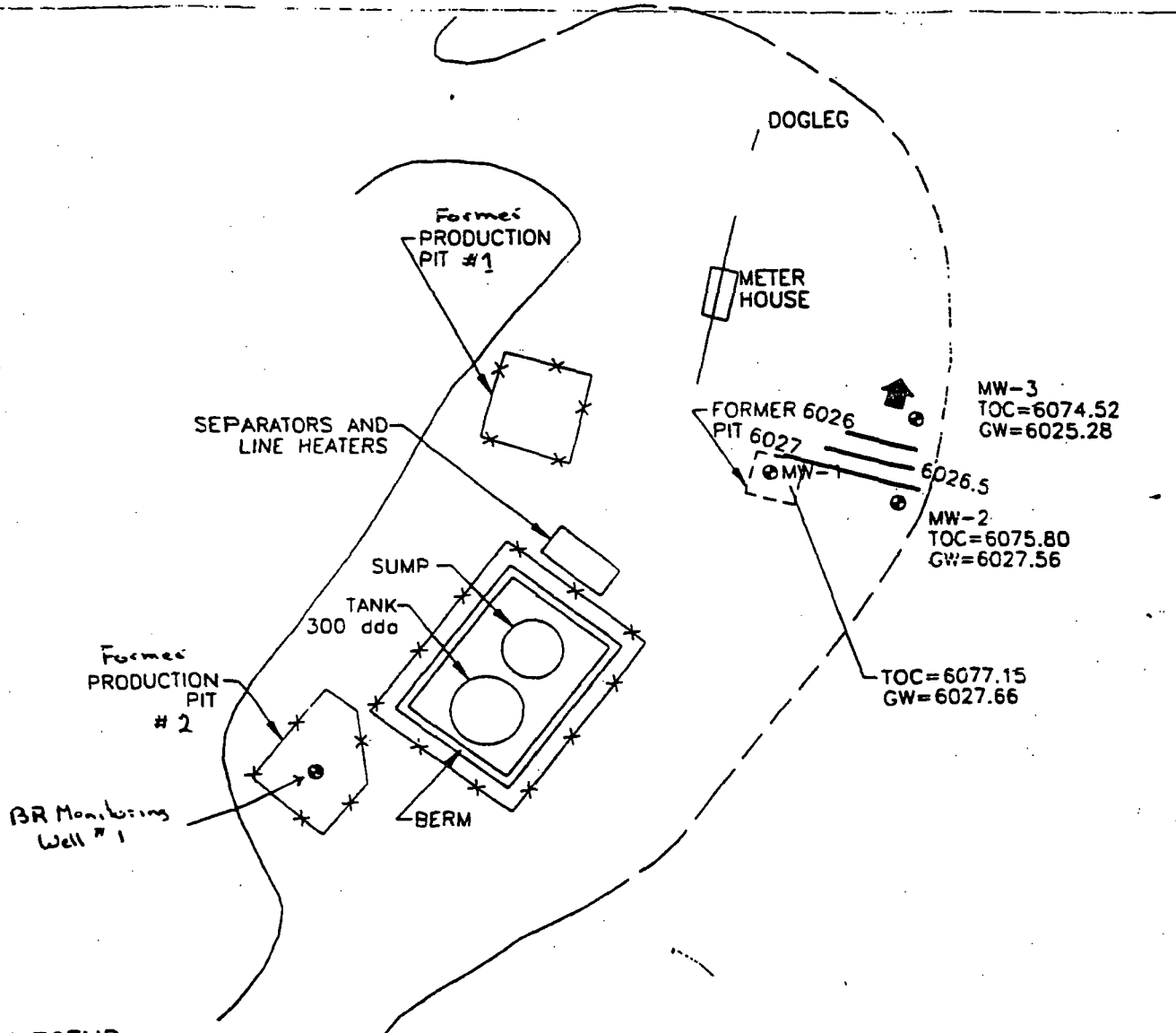
1:9654

Prepared By: Gregg Wurtz Date: 04/09/2003

File No: <Please enter file number> Revised: <Revision date>

File Name: s:\public\cw\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

17520BP-003

PHILIP SERVICES CORP

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

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

2004 GROUNDWATER ANALYTICAL RESULTS

Lodestar Services, Incorporated
PO Box 3861 Farmington, NM 87499-3861 Office (505) 334-2791

PRODUCT RECOVERY/WATER LEVEL DATA

Project Name_	**Groundwater Sampling**	**Project No.**	**30003.0**
Project Manager	**MJN**		
Client Company	**Burlington**	**Date**	**3/16/04**
Site Name	**Johnston Federal No 4**		

Well	Time	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Product Volume Removed (gal)
MW-1 initial	**1600 hrs**	**47.04**	**47.28**	**0.24**	**.25**
MW-1 final			**50.52**		

Comments
Did not sample MW-4 due to free phase hydrocarbons. Removed and disposed of 2.25 gallons water during product removal.

Signature: Martin J. Nee Date: March 16, 2004

WELL DEVELOPMENT AND SAMPLING LOG

Project No.:_____ Project Name: Johnson Federal 4 Client: Burlington
Location:_ Well No: MW-1 Development **Sampling**
Project Manager MJN Date 6/22/04/ Start Time 1230 Weather clear 70s
Depth to Water 47.06 Depth to Product na Product Thickness: na Measuring Point TOC
Water Column Height 4.89 Well Dia. 2"

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

Bottom Valve Bailer **X** Double Check Valve Bailer ☐ Stainless-Steel Kemmerer ☐

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

Gal/ft x ft of water	Water Volume in Well		Gal/**oz** to be removed
	Gallons	Ounces	
4.89 x .16	0.78		2.35

Time (military)	pH (su)	SC (umhos/cm)	Temp (°F)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. (gal)	Comments/ Flow rate
1235	**5.9**	**1530**	**72.8**				**.25**	**Strong odor, sheen**
	6	**1640**	**70.1**				**.5**	
	6.1	**1600**	**69.1**				**.75**	
	5.8	**1410**	**67.8**				**2**	
	5.9	**1420**	**67.1**				**2.25**	
1244	**6.2**	**1400**	**67.5**				**2.5**	

Final: Time	pH	SC	Temp	Eh-ORP	D.O.	Turbidity	Ferrous Iron	Vol Evac.	Comments/Flow Rate
0904	**6.92**	**1200**	**58.1**					**0.75**	**clear**

COMMENTS well bailing down

INSTRUMENTATION: pH Meter **X** _____ Temperature Meter **x**
DO Monitor _____ Other _____
Conductivity Meter **X** _____
Water Disposal onsite Sample ID MW-1 Sample Time 1247
Analysis: **BTEX**
MS/MSD_____ BD_____ BD Name/Time_____ TB_____

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

Organic Analytical Results

Burlington Resources, Inc.
Project ID: MISC SAMPLING
Sample ID: MW-1 JOHNSON FEDERAL

ACZ Sample ID: ***L46379-01***
Date Sampled: *06/22/04 12:47*
Date Received: *06/24/04*
Sample Matrix: *Ground Water*

Benzene, Toluene, Ethylbenzene & Xylene

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

Analyst: *km*
Extract Date: *07/01/04 12:00*
Analysis Date: *07/01/04 12:00*
Dilution Factor: *200*

Compound

Compound	CAS	Result	QUAL	XQ	Units	MDL	PQL
Benzene	000071-43-2	6160			ug/L	60	200
Ethylbenzene	000100-41-4	470			ug/L	40	200
m p Xylene	01330 20 7	12800			ug/L	80	400
o Xylene	00095-47- 6	3040			ug/L	40	200
Toluene	000108-88-3	8100			ug/L	40	200

Surrogate Recoveries

Surrogate	CAS	% Recovery	XQ	Units	LCL	UCL
Bromofluorobenzene	000460-00-4	103.5		%	83	117

ACZ Laboratories, Inc.

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

L46379

CHAIN of CUSTODY

Report to:

Name: Gregg Wurtz
Company: Burlington Resources
E-mail:

Address: 3401 EAST 30TH STREET
Farmington NM 87499
Telephone: 505 326 9700

Copy of Report to:

Name:
Company:

E-mail:
Telephone:

Invoice to:

Name: SAME
Company:
E-mail:

Address:
Telephone:

COPY

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES ☐ NO ☐

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified.

PROJECT INFORMATION

Quote #:
Project/PO #: Misc Sampling
Shipping Co.:
Tracking #:
Reporting State for compliance testing:

ANALYSES REQUESTED (attach list or use quote number)

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	BTEX							
MW-3 Marcote	6/21/04 1430	GW	3	+							
MW-2 Marcote	6/21/04 1510	GW	3	+							
MW-1 Flora Vista	6/21/04 1555	GW	3	+							
MW-1 Cozzens	6/21/04 1650	GW	3	+							
MW-2 Cozzens	6/21/04 1705	GW	3	+							
MW-1 Johnson Federal #4	6/22/04 1247	GW	3	+							
Trip Blank	6/22/04 1300	GW	1	+							

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

REMARKS

Please provide seperate report for each location
1) Marcote
2) Flora Vista
3) Cozzens
4) Johnson Federal

RELINQUISHED BY	DATE:TIME	RECEIVED BY	DATE:TIME	PAGE
	6/22/1600			
			6-23-04	Of
			1160	

FRMQA021.06.03.05

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 E. 30th St. PO BOX 4289
Farmington, NM 87402-4289

July 12, 2004

Project ID: MISC SAMPLING
ACZ Project ID: L46379

Gregg Wurtz:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on June 24, 2004. This project has been assigned to ACZ's project number, L46379. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 10.0. The enclosed results relate only to the samples received under L46379. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

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

All samples and sub-samples associated with this project will be disposed of after August 12, 2004. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than $10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years. Please notify your Project Manager if you have other needs.

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

12/Jul/04

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

ACCREDITED IN ACCORDANCE WITH nelac

ACIL

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

Organic Analytical Results

Burlington Resources, Inc.
Project ID: MISC SAMPLING
Sample ID: TRIP BLANK 061104-02

ACZ Sample ID: ***L46379-02***
Date Sampled: *06/22/04 13:00*
Date Received: *06/24/04*
Sample Matrix: *Ground Water*

Benzene, Toluene, Ethylbenzene & Xylene

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

Analyst: *km*
Extract Date: *07/01/04 12:44*
Analysis Date: *07/01/04 12:44*
Dilution Factor: *1*

Compound

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

Surrogate Recoveries

Surrogate	CAS	% Recovery	XQ	Units	LCL	UCL
Bromofluorobenzene	000460-00-4	101.3		%	83	117

Report Header Explanations

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

QC Sample Types

SURR	Surrogate	*LFM*	Laboratory Fortified Matrix
INTS	Internal Standard	*LFMD*	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	*LRB*	Laboratory Reagent Blank
LCSS	Laboratory Control Sample - Soil	*MS/MSD*	Matrix Spike/Matrix Spike Duplicate
LCSW	Laboratory Control Sample - Water	*PBS*	Prep Blank - Soil
LFB	Laboratory Fortified Blank	*PBW*	Prep Blank - Water

QC Sample Type Explanations

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

AcZ Qualifiers (Qual)

B	Analyte detected in daily blank
H	Analysis exceeded method hold time.
J	Analyte concentration detected at a value between MDL and PQL
R	Poor spike recovery accepted because the other spike in the set fell within the given limits.
T	High Relative Percent Difference (RPD) accepted because sample concentrations are less than 10x the MDL.
U	Analyte was analyzed for but not detected at the indicated MDL
V	High blank data accepted because sample concentration is 10 times higher than blank concentration
W	Poor recovery for Silver quality control is accepted because Silver often precipitates with Chloride.
X	Quality contreol sample is out of control.
Z	Poor spike recovery is accepted because sample concentration is four times greater than spike concentration.
P	Analyte concentration differs from second detector by more than 40%.
E	Analyte concentration is estimated due to result exceeding calibration range.
M	Analyte concentration is estimated due to matrix interferences.

Method References

(1)	EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
(2)	EPA 600/4-90/020. Methods for the Determination of Organic Compounds in Drinking Water (I), July 1990.
(3)	EPA 600/R-92/129. Methods for the Determination of Organic Compounds in Drinking Water (II), July 1990.
(5)	EPA SW-846. Test Methods for Evaluating Solid Waste, Third Edition with Update III, December, 1996.
(6)	Standard Methods for the Examination of Water and Wastewater, 19th edition, 1995.

Comments

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

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

Organic Extended Qualifier Report

Burlington Resources, Inc.

ACZ Project ID: ***L46379***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION

No extended qualifiers associated with this analysis

ACZ Laboratories, Inc.

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

Sample Receipt

Burlington Resources, Inc.
MISC SAMPLING

ACZ Project ID: L46379
Date Received: 6/24/2004
Received By:

Receipt Verification

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

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

N/A

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

N/A

Shipping Containers

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

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

Notes

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

Sample Receipt

Burlington Resources, Inc.
MISC SAMPLING

ACZ Project ID: L46379
Date Received: 6/24/2004
Received By:

Sample Container Preservation

SAMPLE	CLIENT ID	R < 2	G < 2	Y < 2	YG< 2	B < 2	BG< 2	O < 2	T >12	P >12	N/A	RAD
L46379-01	MW-1 JOHNSON FEDERAL										Ö	
L46379-02	TRIP BLANK 061104-02										Ö	

Sample Container Preservation Legend

Abbreviation	Description	Container Type	Preservative/Limits
R	Raw/Nitric	RED	pH must be < 3
B	Filtered/Sulfuric	BLUE	pH must be < 2
BG	Filtered/Sulfuric	BLUE GLASS	pH must be < 2
G	Filtered/Nitric	GREEN	pH must be < 2
O	Raw/Sulfuric	ORANGE	pH must be < 2
P	Raw/NaOH	PURPLE	pH must be > 12
T	Raw/NaOH Zinc Acetate	TAN	pH must be > 12
Y	Raw/Sulfuric	YELLOW	pH must be < 2
YG	Raw/Sulfuric	YELLOW GLASS	pH must be < 2
N/A	No preservative needed	Not applicable	
RAD	Gamma/Beta dose rate	Not applicable	must be < 250 µR/hr

Lodestar Services, Incorporated
PO Box 3861 Farmington, NM 87499-3861 Office (505) 334-2791

PRODUCT RECOVERY/WATER LEVEL DATA

Project Name_	**Groundwater Sampling**	**Project No.**	**30003.0**
Project Manager	**MJN**		
Client Company	**Burlington**	**Date**	**9/30/04**
Site Name	**Johnston Federal No 4**		

Well	Time	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Volume Removed
MW-1 initial	**0955**	**47.02**	**47.24**	**0.22**	**8 ounces product, 1.5 gallons water**
MW-2 final*		**48.23**	**48.24**	**0.01**	

Comments
*** final: measurements following bailing product and water**

Signature: *Martin J. Nee* Date: September 30, 2004

Lodestar Services, Incorporated
PO Box 3861 Farmington, NM 87499-3861 Office (505) 334-2791

San Juan Basin 4th Quarter 2004 Ground Water Sampling

Date	Unit Description	Rate	Units	Units Used	Extended Price	Description of Work
December 13, 2004	Groundwater Sample	$ 100.00	ea	1.00	$ 100.00	Marcote MW-1
December 13, 2004	Groundwater Sample	$ 100.00	ea	1.00	$ 100.00	Marcote MW-2
December 13, 2004	Groundwater Sample	$ 100.00	ea	1.00	$ 100.00	Marcote MW-3
December 13, 2004	Product Recovery	$ 100.00	ea	1.00	$ 100.00	Johnston Federal No 4
December 13, 2004	Groundwater Sample	$ 100.00	ea	1.00	$ 100.00	Cozzens MW-1
December 13, 2004	Groundwater Sample	$ 100.00	ea	1.00	$ 100.00	Cozzens MW-2
December 13, 2004	Groundwater Sample	$ 100.00	ea	1.00	$ 100.00	Flora Vista MW-1

Total **$ 700.00**

Lodestar Services, Incorporated
PO Box 3861 Farmington, NM 87499-3861 Office (505) 334-2791

PRODUCT RECOVERY/WATER LEVEL DATA

Project Name_	**Groundwater Sampling**	**Project No.**	**30003.0**
Project Manager	**MJN**		
Client Company	**Burlington**	**Date**	**12/13/04**
Site Name	**Johnston Federal No 4**		

Well	Time	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Product Volume Removed (oz)
MW-1 initial	**0755 hrs**	**46.95**	**47.14**	**0.19**	**4**
MW-1 final			**48.32**		

Comments
Did not sample MW-4 due to free phase hydrocarbons. Removed and disposed of 24 ounces water during product removal.

Signature: *Martin J. Nee* Date: December 13, 2004

ACZ Laboratories, Inc.

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

CHAIN of CUSTODY

Report to:

Name: GREGG WURTZ	Address: 3401 30TH ST
Company: BURLINGTON	FARMINGTON NM 87499
E-mail:	Telephone: 505 326 9700

Copy of Report to:

Name:	E-mail:
Company:	Telephone:

Invoice to:

Name: SAME AS ABOVE.	Email:
Company:	Telephone:

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES ☐ NO ☐

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified.

PROJECT INFORMATION

Quote #:

Project/PO #: MISC. Groundwater Sampl

Reporting state for compliance testing:

Are any samples NRC licensable material?

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

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	BTEX							
MARCOTE MW2	12/204 0925	GW	2	✓							
MARCOTE MW1	12/304 0950	GW	2	✓							
MARCOTE MW 3	12/304 1010	GW	2	✓							
COZZENS MW 1	12/304 1540	GW	2	✓							
COZZENS MW2	12/304 1555	GW	2	✓							
FLORA VISTA MW1	12/304 1607	GW	2	✓							
TB 120904-01	12/304 1720	O	1	✓							

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

REMARKS

PLEASE PROVIDE SEPARATE REPORT FOR EACH LOCATION

Please refer to ACZ's terms & conditions located on the reverse side of this COC

RELINQUISHED BY	DATE:TIME	RECEIVED BY	DATE:TIME
[illegible] (NEED)	12-13-04 2015		

SAMPLED BY:	INTERNAL USE ONLY

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)

strict II
. Drawer DD, Artesia, NM 88211
strict III
0 Rio Brazos Rd., Aztec, NM 87410

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

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

PHILIP SERVICES CORP

PRODUCTION PIT ASSESSMENT FORM

GENERAL

WELL NAME: JOHNSTON FEDERAL WELL NUMBER: 4 ~~DP NO.:~~ NDENAME: 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
O. Box 1980, Hobbs, NM
District II
O. Drawer DD, Artesia, NM 88211
District III
000 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

PHILIP SERVICES CORP.

PRODUCTION PIT ASSESSMENT FORM

GENERAL

WELL NAME: JOHNSTON FEDERAL WELL NUMBER: 4 ~~DP NO.~~: NODE NAME: BISY

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: 3/10/98 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.
Site: Johnston Fed #4, Pit #2
Sampled By: Holly Bradbury
Sample ID: BR8B1541BV

Project No: 19074
Matrix: Soil
Date Sampled: 08/10/98
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: 1962ppm

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: 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
Site: Farmington
Sampled By: R. Thompson
Sample ID: 12281416 - BOTTOM

Project No: 20440
Matrix: Soil
Date Sampled: 12/28/98
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

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

ENERGY METALS
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	Lab Name	SPL
Project Number	7A440 Phase . Task 1000 . 77	Location	Farmington
Samplers	Paul Arnholt		

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

Relinquished by:

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

Received By:

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

Carrier: Airbill No.

Shipping and Lab Notes:

PE-211 (4/96)

Drilling Log/Wellbore Diagram

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

Well # MW-B7
Page 1 of 2

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

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, A. 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						
30		5548"	gray to dark gray clay. Approx 5-10% sand, soft, low plasticity. Strong HC odor		30'	0.1	9.1	1041	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

5/6/99\Drillog.xls

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

Well # MW-B1
Page 2 of 2

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", tr yellowish brown consolidated sand at 47'			6.2		966	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

NITORING WELL INSTALLATION RECORD

Borehole # 1
Well # MW-51
Page 1 of 1

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

Project Name Evaluation Drilling

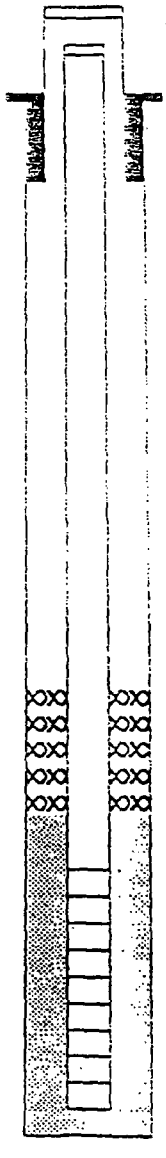
Project Number 21057 Phase 6000.55
Project Location Johnston Federal #4

ation
Location
. Depth 43'
illed By K Padilla
D Padilla
/Time Started 5/13/99 1300
/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

epths in Reference to Ground Surface

em	Material	Depth
op of Protective Casing		
ottom of Protective Casing		
op of Permanent Borehole Casing		
ottom of Permanent Borehole Casing		
op 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'

mments:

Geologist Signature Cecil G for Paul Cheney

Analytical Results - Groundwater

PINNACLE LABORATORIES

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

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GAS CHROMATOGRAPHY RESULTS

EST : EPA 8021 MODIFIED
LIENT : PHILIP SERVICES
ROJECT # : 21057
ROJECT NAME : BURL. PITS

PINNACLE I.D.: 905083

AMPLE D. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
1	PC-03JF6A89232	AQUEOUS	5/21/99	NA	5/25/99	1
2	PC-04JF470194	AQUEOUS	5/21/99	NA	5/25/99	100

ARAMETER	DET. LIMIT	UNITS	PC-03JFGA89232	PC-04JF470194
ENZENE	0.5	UG/L	< 0.5	8700
OLUENE	0.5	UG/L	< 0.5	2900
THYLBENZENE	0.5	UG/L	< 0.5	2800
OTAL XYLENES	0.5	UG/L	0.5	29000
,3,5-TRIMETHYLBENZENE	0.5	UG/L	< 0.5	1100
,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

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GAS CHROMATOGRAPHY RESULTS
REAGENT BLANK

TEST	: EPA 8021 MODIFIED	PINNACLE I.D.	: 905063
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

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GAS CHROMATOGRAPHY QUALITY CONTROL
MSMSD

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

ARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
ENZENE	<0.5	10.0	10.3	103	10.9	109	6	(80 - 120)	20
OLUENE	<0.5	10.0	10.5	105	10.6	106	1	(80 - 120)	20
THYLBENZENE	<0.5	10.0	10.7	107	10.6	106	1	(80 - 120)	20
OTAL XYLENES	<0.5	30.0	31.9	106	32.0	107	0	(80 - 120)	20
ETHYL-t-BUTYL ETHER	<2.5	10.0	9.6	96	9.4	94	2	(70 - 133)	20

HEMIST NOTES:
/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