3RP-066

GW monitoring report

DATE: 2004



March 31, 2005

RECEIVEL

Certified: 70993400001842167364

Glen Von Gonten

New Mexico Oil Conservation Division APR 06 2005

1220 South St. Francis Drive
Santa Fe, NM 87505

Conservation Division

Conservation Division

RE: 2004 Annual Groundwater Investigation and Remediation Reports

San Juan Basin, New Mexico

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APR 06 2005

Conservation Division

REPORT OF THE CHARMED

APR 06 2005

Environmental Bureau

Environmental Bureau

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 |
| 31771 | Johnson Federal #4 Metering Station |
| 3RP173 | Flora Vista (ENTER PRISE FIELD SUICE) - FLORANCE VISTA #1 |
| 38P 37 | Marcotte Pool Unit #1 (Bum) 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

ROUND.

Oil Conservation Division Medico **BURLINGTON RESOURCES 2004 ANNUAL GROUNDW**

Cozzens B #1

SITE DETAILS

Location:

Unit Letter L, Section 19, Township 29N, Range 11W; San Juan Coun

Land Type:

PREVIOUS ACTIVITIES

PNM had conducted pit closure work and installed monitoring wells on this site in 1996 and 1997. Burlington Resources also had participated in excavation of impacted soils.

In December 1997, Burlington Resources excavated approximately 334 cubic yards of impacted soil from an area near an oil storage tank that had leaked. No groundwater was encountered at this time. The excavation was backfilled with clean soils. A report prepared by Philip Services Corporation detailing the excavation work and soil sampling is attached.

1999 ACTIVITIES

Burlington installed a groundwater monitoring well (MW-1) near the oil storage tank on this location in May 1999. At the same time, a second monitoring well (MW-2) was installed at a shallow depth (i.e., 3 feet) at the toe of the slope immediately downgradient and south of location. Auger refusal was encountered at approximately 3 feet during the installation of the second monitoring well (MW-2). Due to the shallow depth of MW-2, BR has been unable to collect water samples during several of the quarterly sampling events. After developing the wells and allowing them to stabilize, the wells were purged and sampled on May 26, 1999. Water samples were collected from MW-2 during the 3rd and 4th quarters and results showed levels of benzene and xylene above standards.

2000 through 2004 ACTIVITIES

Quarterly groundwater monitoring continued through 2004. Groundwater analytical data are presented in Table 1. A site map is presented as Figure 1.

CONCLUSIONS

The ground water regime being monitored at this location appears to be artificially created and influenced by an irrigation ditch approximately 60 feet to the east and upgradient from the location. The irrigation ditch may be contributing water to the subsurface strata and artificially creating a shallow perched ground water zone. This perched zone may be the source of the ground water being monitored at the location. The irrigation ditch is flowing approximately April 15 through October 15 annually. Without the ditch influence there may not be any shallow groundwater beneath the location and none is expected upgradient of the ditch at these shallow depths. A project to clay line the ditch to prevent water seepage was started March 2001. The clay lining included the reach of the ditch upgradient from the production location and was performed by local residents. The residential properties are located down

stream from the location and were concerned about water structural damage to near by residential properties from the ditch. The ground water gradient is approximated to be in a west/southwest direction. The influence of the ditch water on MW-1 and MW-2 can be observed in the water level measurements collected and coincides with the water flow schedule of the ditch. An apparent lag in hydraulic conductivity between the ditch and the monitoring wells is assumed to be three months or more.

The analytical results of ground water sampling from the source monitoring well (MW-1) in May 1999 showed levels of benzene constituents above New Mexico Ground Water Standards. Since the initial sampling event in May 1999, six quarterly sampling events have shown all BTEX constituents below the standards in MW-1. However, sampling results for 2001 show elevated levels of BTEX. The effect of a minor condensate spill on 1/30/01 of approximately 1 bbl coupled with the soil being previously disturbed during the historic excavation activities may be responsible for the recent increase in the levels of BTEX in MW-1. The impacted soils were removed after the 1/30/01 spill. Further monitoring may determine if the recent elevated concentrations are related to a minor slug of contamination. No evidence of a change in the groundwater regime from the ditch lining project was observed in MW-1 and it is possible the lining project did not impact the ditch reach adjacent and upgradient of the location. One detection of benzene identified in the second quarter of 2003 from MW-1 was determined to be questionable. No additional analysis results in subsequent or historic monitoring detected similar elevated concentrations therefore the result is considered not valid.

The quarterly sampling results from MW-2 have shown BTEX constituents above the standards except for the third quarter of 2000. A trend of natural degradation of the hydrocarbons and of a downward trend in BTEX levels appears possible in well MW-2. Insufficient water prevented the collection of data from this well in 2001. In 2002 a downward trend in benzene and total BTEX concentration was established in the monitoring data. The concentration reported for MW-1 show a decrease in benzene. The concentrations reported for MW-2 show a decrease in benzene and total BTEX.

2004

One full year of sampling and analysis show no concentrations above the standards.

RECOMMENDATIONS

- Burlington Resources proposes to stop quarterly sampling at this site based on the analytical results being below standards for one full year.
- Burlington Resources will request official closure of this site.

Attachments:

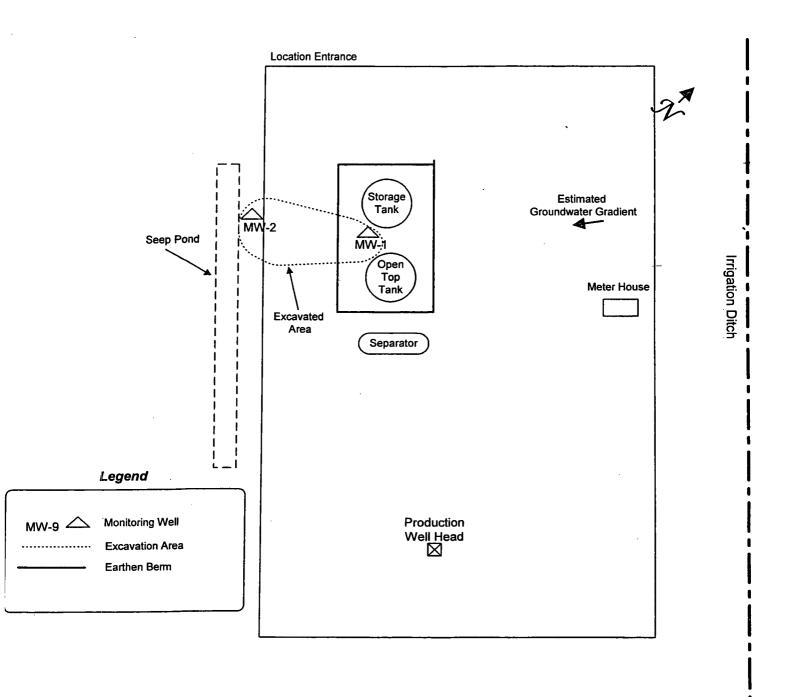
Figure 1 - Site Map

Table 1 - Groundwater Sampling Results Summary

2003Groundwater Analytical Results Drilling Logs/Wellbore Diagrams Philip Report on Excavation Work

Figure 1

Cozzens B#1 - Site Diagram



| | | | Table 1 | | | | | |
|----------------|--------------|-------------------------|--|--|----------------|----------------|--|--------------|
| | | B.A. | | \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\ | | | | |
| | Ground | water IVI | onitoring | wells | sampiir | ng | | |
| × | | Sample | В | T | E | Х | BTEX | DTW |
| Well Name | MW # | Date | (ppb) | (ppb) | (ppb) | (ppb) | (ppb) | (ft) |
| Well Hallie | 10.00 # | Dute | 10 | 750 | 750 | 620 | (pps) | (11.7) |
| | <u> </u> | | 10 | 730 | 750 | 020 | | |
| Cozzens B #1 | MW-1 | 5/26/1999 | 28 | 11 | 23 | 99 | 161 | |
| COZZONO B II I | (aka MW-4) | 9/2/1999 | 2.5 | 2.1 | 5.6 | 22 | 32.2 | 2.31 |
| | , | 12/2/1999 | <0.5 | 11 | 5 | 27 | 43 | 4.43 |
| | | 1/19/2000 | 1.7 | 13 | 7.6 | 28 | 50.3 | 6.48 |
| | | 5/11/2000 | 6.8 | 1.2 | 2.6 | 14 | 24.6 | 4.03 |
| | | 9/7/2000 | 1.1 | <0.5 | 6.2 | 10 | 17.3 | 3.8 |
| | | 12/15/2000 | 2 | 3 | 11 | 4 | 10 | 4.57 |
| | ! | 3/28/2001 | 50.3 | <0.2 | 1.3 | 3.6 | 55.2 | lost |
| - | | 6/28/2001 | 4170 12.9 | <0.2 | 220 | 370 | 4760 | 5.26 |
| | <u></u> | 9/17/2001 12/19/2001 | 39.6 | <0.2 3.1 | 0.5 6.3 | 4.3 14.1 | 17.7 63.1 | 3.51 4.64 |
| - | | 3/27/2002 | 50.8 | 4.5 | 5.9 | 21.1 | 82.3 | 7.81 |
| | | 6/25/2002 | 6 | 3.1 | 0.5 | 8.4 | 18 | 3.8 |
| | | 9/25/2002 | 0.8 | 0.6 | 0.5 | 0.6 | 2.5 | 3.05 |
| | | 12/30/2002 | 5.6 | 10.6 | 7.7 | 8.3 | 32.2 | 5.7 |
| | | 3/28/2003 | 9 | 16.9 | 13.5 | 26.3 | 65.7 | 7.42 |
| | | 6/27/2003 | 1.8 | 11.6 | 6 | 15.6 | 35 | 4.29 |
| | | 9/23/2003 | 0.5 | 6.9 | 2.6 | 8.2 | 18.2 | 4.94 |
| | | 12/16/2003 | 6 | 25 | 15 | 51 | 97 | 5.84 |
| | | 3/15/2004 | (*)/ (9J.) | U. | 4J | 40 | ₹53 | 7.92 |
| | | 6/21/2004 | I. U. | XXVVXX | StU. | 20 | 20 | |
| | | 9/29/2004 | . V. V. S. | , 4J 🐫 | WITUME | 5. 7 | 9 | 3.15 |
| | | 12/13/2004 | U | .₹′.U∀.ŏ | . 10.2 ₹ | 30.9 | 41.1 | 5.6 |
| | MW-2 | 5/26/1999 | | Vell was dr | | lo Sampl | | |
| | (aka MW-5) | 9/2/1999 | 120 | 55 | 440 | 450 | 1065 | 1.28 |
| | | 12/2/1999 | 250 | 39 | 480 | 980 | 1749 | 4.35 |
| | | 1/19/2000 | 550 | Vell was dr | | lo Sampl | | 2.52 |
| | | 5/11/2000 9/7/2000 | 4.7 | 140 1.9 | 830 6.2 | 2400 23 | 3920 35.8 | 3.53 3.36 |
| | | 12/15/2000 | 65 | 4 | 25 | 59 | 153 | 3.63 |
| | | 3/28/2001 | | | sample colle | | 100 | Dry |
| | | 6/28/2001 | | | ample colle | | | Dry |
| | | 9/17/2001 | | | ample colle | | | 3.74 |
| | | 12/19/2001 | 31.8 | 3 | 18.9 | 29.9 | 83.6 | 3.87 |
| | | 3/27/2002 | | no sa | mple collect | ed Dry | | |
| | | 6/25/2002 | 22.3 | 6.5 | 7.4 | 9.5 | 45.7 | 3.8 |
| | | 9/25/2002 | 1.8 | 2.4 | 1.2 | 30.1 | 35.5 | 3.7 |
| | | 12/30/2002 | | ample colle | | | 0 | Dry |
| | | 3/28/2003 | | mple collec | | | | |
| | | 6/27/2003 | 48.8 | 54 | 48.6 | 148.2 | 299.6 | 3.95 |
| | | 9/23/2003 | 0.7 | 14.9 | 1.7 | 5.1 | 22.4 | 4.01 |
| | | 12/16/2003 | | 10.3 | 3.3 | 6.9 | 21.4 | 4.12 |
| | | 3/15/2004 | | no sample | collected | | The second secon | dry |
| | | | ************************************** | | | ₹0.7% | 151111 | 4.2 |
| | | ≈9/29/2004° | 0.3J | 14.9 | 4.2 | × 21 | 40.4 | 3.34 |
| | | 12/13/2004 | | 沙型U对多 | 3.8 | 10:6 | 15.1 , . | 3.95 |
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2004 GROUNDWATER ANALYTICAL RESULTS

| Project No.: | | Pri | oiect Nam | ne: Cozzen | ıs C | lient: Burlir | naton | | |
|---------------|---------------|--|----------------------|------------|-----------------|----------------|--------------------|---|---------------------------------|
| Location: | | | | | | ent <u>Sam</u> | | | |
| Project Man | | | | | | | | me 1550 | Weatherclear 40s |
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| Water Colum | miriegn | · _0.5. | <u> </u> | | | | | | |
| Sampling Me | ethod: S | ubmer | sible Pun | np 🗌 🕆 | Centrifuga | l Pump |] Peristal | tic Pump 🛚 | Other |
| | В | ottom | Valve Ba | iler | D | ouble Chec | k Valv ⊡ Ba | iler Sta | inless-Steel Kemr⊡erer |
| Criteria: 3 | to 5 Casi | ng Vo | lumes of | Water Rem | oval X sta | bilization of | Indicator F | Parameters | X Other <u>or bail dry</u> |
| | | | | | Water Volu | me in Well | | | |
| | ft of wat | er | | Gallons | | | Ounces | | Gal/ oz to be removed |
| 6.90 | 3 x 0.16 | | | 1.13 | | | | | 3.39 |
| Time | рН | 1 | SC | Temp | ORP | D.O. | Turbidity | / Vol Evad | c. Comments/ |
| (military) | (su) | 1 | hos/cm) | (°F) | (millivolts | | (NTU) | (gal) | Flow rate |
| 1550 | 9.16 | 2 | 2210 | 55.4 | | | | 0.25 | Clear Heavy Hydrocarbon odor |
| | 8.78 | 2 | 2140 | 52.2 | | | | 0.50 | |
| | 9.21 | 2 | 2080 | 51.8 | | | | 0.75 | |
| <u>1602</u> | 8.14 | | 2010 | 51.1 | | | | 1.0 | · |
| | 8.22 | 1990 | | 51.0 | | | | 2.0 | |
| <u>1606</u> | 7.6 | 2 | 2040 | 51.7 | | | | 3.0 | |
| | | | | | | | | | |
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| | | | | | | | | | |
| Final: | | ************************************** | | | | | Ferrous | | |
| Time pl | | <u>C : .</u> | Temp | Eh-ORP | D.O. 1 | urbidity | Iron | Vol Evac. | Comments/Flow Rate |
| <u>1609</u> 7 | '.55 1 | 1910 | 52.0 | | e in the second | | | 4.0 | clear |
| | | | | | | | | | |
| COMMENTS | S: Pump | deplet | ing well | | | | | | |
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| INSTRUME | OITATI | 1 : | pH Meter | | | | | perature Me | eter x |
| | (| Conduc | DO Mo ctivity Met | | | <u> </u> | Oth | er | |
| Water Dispo | | | 2y 14101 | | e ID MW-1 | Sample Tir | ne 1612 | | |
| BTEX VO | | | | Campi | iiii i | Campio III | | | |
| MS/MSD_ | -5 | | RD | | RI | O Name/Tir | ne | | TB |
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| Water Colum Sampling Me | ozzens ager terna nn Height ethod: Si | MJN_a tba ubmers | Wel Dep Well sible Pum | th to Produ | V-2 Date ctna _2" Centrifu Double | F F rgal F | 5/04_ Product T Pump □ | Start Ti hickness_ Peristal Bailer □ | Developme me1500 na | weather_sunny 40s assuring Point _TOC Other _ Steel Kemmerer _ X Other |
|---|--|------------------------|------------------------|----------------------------|-----------------------------------|------------------|------------------------------|---|---------------------|---|
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| Gal/ft x | ft of waten | er | | Gallons na | | | | Ounces | | Gal/oz to be removed na |
| Time (military) | pH (su) | 1 | SC nos/cm) | Temp (°C) | ORP (millivo | 1 | D.O. (mg/L) | Turbidity (NTU) | Vol Eva | c. Comments/ Flow rate |
| | | | | | | | | | | |
| Final: Time pl | ı s | С | Temp | Eh-ORP | D.O. | Tu | rbidity | Ferrous Iron | Vol Evac. | Comments/Flow Rate |
| , | | | | , vien | | - | | | | |
| COMMENTS | 3: There | e was i | no water i | in the well. | I | | | | | |
| Water Dispo BTEX VOO Total Phospl MS/MSD | C sal <u>ons</u> Os Alkal norus | Conductions Site Site | TDS Cati | nitor ter X) | | na_ e N | | Oth monia TKI | Sample Tir | ne <u>na</u> C Metals |

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| analysis before expiration, shall If "NO" then ACZ will contact cli | | | | | 10" | | | NO [| |
| is indicated, ACZ will proceed w | ith the requested analyses | s, even if | HT is e | xpired, | and data | | | | |
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Analytical Report

March 26, 2004

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

Project ID: MISC. GW SAMPLING

ACZ Project ID: L44981

Gregg Wurtz:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on March 17, 2004. This project has been assigned to ACZ's project number, L44981. 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 L44981. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

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

All samples and sub-samples associated with this project will be disposed of after April 26, 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.

26/Mar/04

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





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

Organic l∋xiended Qualifier Report

Burlington Resources, Inc.

ACZ Project ID: L44981

ACZID WORKNUM PARAMETER METHOD QUAL DESCRIPTION

No extended qualifiers associated with this analysis

EXTQUAL.11.20.02.01

L44981: Page 4 of 7

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

Organic Analytical Results

Burlington Resources, Inc.

Extract Method:

Project ID:

MISC. GW SAMPLING

Sample ID:

COZZENS

ACZ Sample ID: L449

L44981-01

Date Sampled:

03/15/04 16:13

Date Received:

03/17/04

Sample Matrix:

Ground Water

Benzene, Toluene, Ethylbenzene & Xylene.

Analyst:

: *km*

Analysis Method: M8021B GC/PID

Method

Extract Date:

03/25/04 6:40

Analysis Date:

03/25/04 6:40

Dilution Factor:

r: 10

Compound

| | CAS | ROSULL | (QUAL) | KQ - ២៧ថេ | MOL | ्राज्य |
|---|-------------|---|---|---|--|--|
| • | 000071-43-2 | 9 | J | ug/L | 3 | 10 |
| | 000100-41-4 | 4 | J | ug/L | 2 | 10 |
| | 01330 20 7 | 40 | | ug/L | 4 | 20 |
| | 00095-47- 6 | | U | ug/L | 2 | 10 |
| | 000108-88-3 | | U | ug/L | 2 | 10 |
| | • | · 000071-43-2 000100-41-4 01330 20 7 00095-47- 6 | · 000071-43-2 9 000100-41-4 4 01330 20 7 40 00095-47- 6 | · 000071-43-2 9 J 000100-41-4 4 J 01330 20 7 40 00095-47- 6 U | · 000071-43-2 9 J ug/L 000100-41-4 4 J ug/L 01330 20 7 40 ug/L 00095-47-6 U ug/L | . 000071-43-2 9 J ug/L 3 000100-41-4 4 J ug/L 2 01330 20 7 40 ug/L 4 00095-47-6 U ug/L 2 |

Surrogate Recoveries

| Surgeria | (MASA) | % Recovery | @ Unite: | inde. | ner. |
|--------------------|-------------|------------|----------|-------|------|
| Bromofluorobenzene | 000460-00-4 | 109.3 | % | 83 | 117 |

REPOR.01.01.01.02

L44981: Page 2 of 7



Sample 2. Receipt

Burlington Resources, Inc.

MISC. GW SAMPLING

ACZ Project ID: Date Received:

L44981

Received By:

3/17/2004 coryd

RecipiValiletion

- 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?

| NO | NA |
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| | NO |

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 Continues

| Cooler Id | Temp (°C) | Rad (µR/hr) |
|-----------|-----------|-------------|
| ACZ | 0.4 | 12 |
| | | |
| | | |
| | | |

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

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

| Ro | oon Gerder | rExplanations | | A STATE OF THE STA | | | | | | | |
|--------------|--|--|--|--|--|--|--|--|--|--|--|
| | 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 ins | strument and annual fluctuations. | | | | | | | |
| | PCN/SCN | A number assigned to reagents/standards to trace to the mar | nufacturer's ce | ertificate 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 % (exc | ept 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 | | , | | | | | | | |
| <u>@</u> | Sample Ty | pes | \mathcal{A}_{i_1} or \mathcal{A}_{i_2} | | | | | | | | |
| | SURR | Surrogate LF | =M | Laboratory Fortified Matrix | | | | | | | |
| | INTS | Internal Standard | =MD | Laboratory Fortified Matrix Duplicate | | | | | | | |
| | DUP | Sample Duplicate | RB | Laboratory Reagent Blank | | | | | | | |
| | LCSS | Laboratory Control Sample - Soil M | S/MSD | Matrix Spike/Matrix Spike Duplicate | | | | | | | |
| | LCSW | Laboratory Control Sample - Water Pi | BS | Prep Blank - Soil | | | | | | | |
| | LFB | Laboratory Fortified Blank Pt | BW . | Prep Blank - Water | | | | | | | |
| @ | Sample Ty | rpe Explanations | | | | | | | | | |
| | Blanks | Verifies that there is no or minimal or | ontamination | in the prep method procedure. | | | | | | | |
| | Control Sar | mples Verifies the accuracy of the method, | including the | prep procedure. | | | | | | | |
| | Duplicates | Verifies the precision of the instrume | ent and/or me | thod. | | | | | | | |
| ENTER COMM | COLUMN TO THE PARTY OF THE PART | tified Matrix Determines sample matrix interferen | ices, if any. | | | | | | | | |
| Via | Z Qualifiers | s (Qual) | | | | | | | | | |
| | В | Analyte detected in daily blank | | | | | | | | | |
| | Н | 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 | | • | | | | | | | |
| | Т | High Relative Percent Difference (RPD) accepted because sa | ample concen | trations are less than 10x the MDL. | | | | | | | |
| | U | Analyte was analyzed for but not detected at the indicated MI | | | | | | | | | |
| | V | High blank data accepted because sample concentration is 1 | = | | | | | | | | |
| | W | Poor recovery for Silver quality control is accepted because S | Silver often pre | ecipitates with Chloride. | | | | | | | |
| | X | Quality contreol sample is out of control. | | | | | | | | | |
| | Z | Poor spike recovery is accepted because sample concentration | | es greater than spike concentration. | | | | | | | |
| | P | Analyte concentration differs from second detector by more the | | | | | | | | | |
| | E | Analyte concentration is estimated due to result exceeding ca | • | e. | | | | | | | |
| 2207 | M | Analyte concentration is estimated due to matrix interferences | S. | | | | | | | | |
| Ma | | ences | | | | | | | | | |
| | (1) | EPA 600/4-83-020. Methods for Chemical Analysis of Water | | | | | | | | | |
| | (2) | EPA 600/4-90/020. Methods for the Determination of Organic | | · · · · · · · · · · · · · · · · · · · | | | | | | | |
| | (3) | EPA 600/R-92/129. Methods for the Determination of Organic | • | . , , | | | | | | | |
| | (5) | EPA SW-846. Test Methods for Evaluating Solid Waste, Thir | | | | | | | | | |
| and the same | (6) | Standard Methods for the Examination of Water and Wastewa | ater, 19th edit | ion, 1995. | | | | | | | |
| CO | nnents | | | | | | | | | | |
| | (1) | QC results calculated from raw data. Results may vary slight | ly if the round | ed values are used in the calculations. | | | | | | | |
| | (2) | Organic analyses are reported on an "as received" basis. | | | | | | | | | |
| REF | ⊇IN03.11.00 | ነ በ 1 | | | | | | | | | |

REPIN03.11.00.01

L44981: Page 3 of 7

| Project No.: Location:_C Project Man Depth to Wa Water Colum | ozzens ager ater4 | MJN .20 | Wel | l No: <u>MV</u> | V-2 Date ctna_ | 6/2 F | 1/04 | Start Tir | Developmene1700_ | ent <u>Sampling</u> Weather <u>sunny 40s</u> easuring Point <u>TOC</u> |
|--|-------------------------|------------|----------------------|-----------------|----------------------|------------|----------------|--------------------|------------------|--|
| Sampling M | ethod: S | ubmer | sible Pur | ıp 🗆 | Centrifu | gal F | Pump 🔲 | Peristalt | ic Pump |] Other [|
| Criteria: 3 | | | | | oval X st | tabil | ization of | Indicator P | | Steel Kemmerer X Other |
| Gal/ft x | t ft of wat | er | | Gallons | water vo | olum | e in Well | Ounces | | Gal/oz to be removed |
| | x .16 | | | .03 | - | | | | | .09 |
| | | | | | | _l | | | | |
| Time (military) | pH (su) | L | SC hos/cm) | Temp (°C) | ORP (millivol | | D.O. (mg/L) | Turbidity (NTU) | Vol Eva (oz) | ac. Comments/ Flow rate |
| | | | | | | | | | | not enough water to collect field data |
| 1 | | | | | | | | | | |
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| | l | <u> </u> | | | | | | | | |
| Final: | нѕ | С | Temp | Eh-ORP | D.O. | Τü | rbidity | Ferrous Iron | Vol Evac. | Comments/Flow Rate |
| , , , , , , , , , , , , , , , , , , , | | | | | | | | | | not enough water to collect field data |
| | | | <u> </u> | | | | | | | |
| COMMENT | S: There | was i | no water i | in the well. | | | | | | |
| INSTRUME | NTATION | N: | oH Meter | | | | | | perature M | leter x |
| | _ | ondus | DO Mo ctivity Met | | | | | Oth | er | |
| Water Dispo | | | Sample IE | | | MW | 1-2 | | Sa | mple Time 1705 |
| Analysis: | BTE | X | · | | | D C | NI 77' | _ | | |
| MS/MSD | | | BD_ | | | RD | Name/Tin | ne | | TB |

| 73 Downhill Drive Steamboat Sp | ratories | • | E402 | 1-46 | 37 | 3 | | CU | MIAI STO | ot ∉ DY≔ | |
|---|-------------------|---|---------------|-------------------|--------------------------|-------------------------|--------------|--------------|--------------|--------------|----------|
| portito | irings, CO 8048 | 7 (800) 334- | -5493 | Virginia | | | | | | | |
| ame: Grega Wur. | + | | | Addres | s ? | 401 E | AST | 307 | <u> </u> | REE- | |
| ompany: Burlington | J Resou | 1005 | 1 | | | aton | NW | | 499 | | |
| mail: | <u>y 10 (500</u> | <u>, , , , , , , , , , , , , , , , , , , </u> | 1 | Teleph | | 505 | 37 | 69 | 700 | | |
| opy of Report to: | - 10 PM - 10 | | | RIFE > 3 | 1 8 7 1 4 1 0 0 1 0 1 | | | | | The state of | E . |
| ame: | Land Control | a start | * \$ \$ \$ \$ | E-mail: | | A A STATE | | | THE THE | | |
| ompany: | | | 1 | Teleph | one: | | | | | | |
| | And the | de la serie | | # 3. · | one. | A AN AC | | W Char | - Sel | ina. Es | ad E |
| voice to | | | | | | | | | ir Nie | | 1. A. A. |
| ame: SAME | - | | 1 | Addres | s: | 2 | MA | | 7 | | |
| ompany: mail: | | | | Tolonh | \mathcal{J}_{-} | 3 () | H | + | | | · |
| maii: sample(s) received past holdin | g time (HT), or i | f insufficien | J t HT rem | Teleph ains to | | | | | YES | | |
| alysis before expiration, shall | ACZ proceed wi | ith requeste | d short l | HT analy | ses? | | | | NO | | |
| 'NO" then ACZ will contact clie | | | | | | | L •/- | اسدا | | | |
| indicated, ACZ will proceed wit ROJECT:INFORMATION | in the requested | a analyses, | | | | d data will REQUESTE | | | use quo | të num | ber) |
| iote #: | | | | | | | | | | | |
| oject/PO#: MISC Sa | molina | | | S 5 | | | | | | | |
| ipping Co.: | <u> </u> | | | Containers | | | | | | Ì | |
| acking #: | | | | Son | | | | ţ | | | |
| eporting State for compliance | testing: | |] | 5 | W | l | | | | | |
| SAMPLE IDENTIFICATION | DATE. | TIME | Matrix | # | 12 | | | | | | |
| 1W-3 Marcore | 6/a1/04 | 1430 | GW | 9 | 7 | | +- | | | | |
| 1W-2 marcore | 6/21/04 | 1510 | GW | 9 | + | | | | | | |
| 1W-1 FLORA VISTA | 6/21/04 | 1555 | GW | 9 | + | | | | | | |
| 1W-1 COZZENS | 40/1610 | 1650 | GW | a | + | | | | | | |
| IW-2 COZZENS | 6131104 | 1705 | | 9 | + | | | <u> </u> | | | · |
| W-1 Johnson Federal#4 | 6193104 | 1247 | aw | Э | + | | | | | | |
| irip blank | 40/50/91 | 1300 | a | | + | | _ | ļ | ļ | | |
| | | | | | | | | | | | |
| | | | | | | | +- | | | | |
| | 1 | | | | | | | 1 | | i | |
| | | | | | | | | - | | | |
| | | | | | | | | | | | |

1 - 100

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

Analytical Report

July 12, 2004

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

Project ID: MISC SAMPLING ACZ Project ID: L46373

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, L46373. 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 L46373. 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.





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

Burlington Resources, Inc.

Analysis Method:

Extract Method:

Project ID:

MISC SAMPLING

Sample ID:

MW-2 COZZENS

ACZ Sample ID:

L46373-02

Date Sampled:

06/21/04 17:05

Date Received:

06/24/04

Sample Matrix:

Ground Water

Benzene I oluene Ethylbenzene & Xylene

Method

M8021B GC/PID

Analyst: km

Extract Date:

06/29/04 23:45

Analysis Date:

06/29/04 23:45

Dilution Factor:

Compound

| Compound 19 | The OAS | Result | ्वास्तर, स | e (Unite) | WDP: | (POL |
|--------------|-------------|--------|------------|-----------|------|------|
| Benzene | 000071-43-2 | | U * | ug/L | 0.3 | 1 |
| Ethylbenzene | 000100-41-4 | | U | ug/L | 0.2 | 1 |
| m p Xylene | 01330 20 7 | 0.7 | J | ug/L | 0.4 | 2 |
| o Xylene | 00095-47- 6 | | U | ug/L | 0.2 | 1 |
| Toluene | 000108-88-3 | 0.3 | J | ug/L | 0.2 | 1 |

Surrogate Recoveries

| Surcence | (9 AS(75) 3.34 | % Refevery | XII Unite | FGF | ingr! |
|--------------------|------------------------|------------|-----------|-----|-------|
| Bromofluorobenzene | 000460-00-4 | 103.1 | % | 83 | 117 |

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

Burlington Resources, Inc.

Analysis Method:

Extract Method:

Project ID:

MISC SAMPLING

Sample ID:

MW-1 COZZENS

ACZ Sample ID:

L46373-01

Date Sampled:

06/21/04 16:50

Date Received:

06/24/04

Sample Matrix:

Ground Water

Benzene, Toluene, Ethylbenzene & Xylene

Method

M8021B GC/PID

Analyst: km

Extract Date:

07/01/04 22:02

Analysis Date:

07/01/04 22:02

Dilution Factor: 20

Compound

| Compound : | OASE: ** | Result | W. TANDO | g (Unite) | Mor. | ; |
|--------------|-------------|--------|----------|-----------|------|----|
| Benzene | 000071-43-2 | | U | ug/L | 6 | 20 |
| Ethylbenzene | 000100-41-4 | | U | ug/L | 4 | 20 |
| m p Xylene | 01330 20 7 | 20 | J | ug/L | 8 | 40 |
| o Xylene | 00095-47- 6 | | U | ug/L | 4 | 20 |
| Toluene | 000108-88-3 | | U | ug/L | 4 | 20 |

Surrogate Recoveries

| Surogale | (V.G 717) | % Recovery | | ीत्वर | ng j |
|--------------------|-------------|------------|---|-------|------|
| Bromofluorobenzene | 000460-00-4 | 109.3 | % | 83 | 117 |

| 2773 Downhill L | Laboratories, Inc. Drive Steamboat Springs, CO 80487 (800) 334-549 | 3 | Organie Reference |
|--|---|--|--|
| Report Headel | Explanations_ | | |
| Batch | A distinct set of samples analyzed at a specific time | 9 | |
| 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 Report | ing Limit. Allows for | instrument and annual fluctuations. |
| PCN/SCN | A number assigned to reagents/standards to trace to | o the manufacturer's | s certificate of analysis |
| PQL | Practical Quantitation Limit | | |
| QC | True Value of the Control Sample or the amount ad | ded to the Spike | |
| Rec | Amount of the true value or spike added recovered, | in % (except for LC | SS, mg/Kg) |
| RPD | Relative Percent Difference, calculation used for Du | plicate QC Types | |
| Upper | Upper Recovery Limit, in % (except for LCSS, mg/l | 〈 g) | |
| UCL | Upper Control Limit | | |
| Sample | Value of the Sample of interest | | |
| QC Sample Ty | /Pes | | |
| SURR | Surrogate | LFM | Laboratory Fortified Matrix |
| INTS | Internal Standard | LFMD | Laboratory Fortified Matrix Duplicate |
| DUP | Sample Duplicate | LRB | Laboratory Reagent Blank |
| LCSS | Laboratory Control Sample - Soil | MS/MSD | Matrix Spike/Matrix Spike Duplicate |
| LCSW | Laboratory Control Sample - Water | PBS | Prep Blank - Soil |
| LFB | Laboratory Fortified Blank | PBW | Prep Blank - Water |
| QC Sample Ty | /ρe/Explanations | | The second secon |
| Blanks | | | on in the prep method procedure. |
| Control Sar | | * | , , , |
| Duplicates | · | | |
| COLUMN TRANSPORT OF THE PARTY O | tified Matrix Determines sample matrix | interferences, if any | |
| ACZ Qualifiers | | ## 12 Control | |
| В | Analyte detected in daily blank | | |
| Н | Analysis exceeded method hold time. | MDLI DOL | |
| J | Analyte concentration detected at a value between | | hin the misses limite |
| R T | Poor spike recovery accepted because the other sp | | - |
| U | High Relative Percent Difference (RPD) accepted b | · | centrations are less than TUX the MDL. |
| | Analyte was analyzed for but not detected at the inc | | that than blank conceptiation |
| ,V W | High blank data accepted because sample concent Poor recovery for Silver quality control is accepted l | ~ | |
| X | Quality control sample is out of control. | occade onver onen | predipitates with Chiloride. |
| Z | Poor spike recovery is accepted because sample of | oncentration is four ti | imes greater than spike concentration |
| P | Analyte concentration differs from second detector | | ines greater than spike concentration. |
| E | Analyte concentration is estimated due to result exc | • | ange |
| M | Analyte concentration is estimated due to matrix int | _ | |
| BOTH THE STATE OF | ences | · Month | |
| MALICAL STREET & BILL CONTROL CO. | | - f \ \ / = t 1 \ \ \ / = - t | es. March 1983. |
| *************************************** | EPA 600/4-83-020. Methods for Chemical Analysis | oi water and waste | |
| (1) | EPA 600/4-83-020. Methods for Chemical Analysis EPA 600/4-90/020. Methods for the Determination | | |
| (1) (2) | EPA 600/4-90/020. Methods for the Determination | of Organic Compour | nds in Drinking Water (I), July 1990. |
| (1) (2) (3) | EPA 600/4-90/020. Methods for the Determination EPA 600/R-92/129. Methods for the Determination | of Organic Compour of Organic Compou | nds in Drinking Water (I), July 1990. nds in Drinking Water (II), July 1990. |
| (1) (2) (3) (5) | EPA 600/4-90/020. Methods for the Determination EPA 600/R-92/129. Methods for the Determination EPA SW-846. Test Methods for Evaluating Solid W | of Organic Compour of Organic Compour /aste, Third Edition w | nds in Drinking Water (I), July 1990. nds in Drinking Water (II), July 1990. vith Update III, December, 1996. |
| (1) (2) (3) (5) (6) | EPA 600/4-90/020. Methods for the Determination EPA 600/R-92/129. Methods for the Determination | of Organic Compour of Organic Compour /aste, Third Edition w | nds in Drinking Water (I), July 1990. nds in Drinking Water (II), July 1990. vith Update III, December, 1996. |
| (1) (2) (3) (5) | EPA 600/4-90/020. Methods for the Determination EPA 600/R-92/129. Methods for the Determination EPA SW-846. Test Methods for Evaluating Solid W Standard Methods for the Examination of Water and | of Organic Compour of Organic Compour /aste, Third Edition w d Wastewater, 19th e | nds in Drinking Water (I), July 1990. nds in Drinking Water (II), July 1990. vith Update III, December, 1996. edition, 1995. |

REPIN03.11.00.01

Organic Extended Qualifier Report

Burlington Resources, Inc.

ACZ Project ID: L46373

| AOZID. | WORKNUM | PARAMETE | R () | METHOD | QUAL | DESCRIPTION |
|-----------|----------|----------|-------|---------------|------|--|
| L46373-02 | WG174234 | Benzene | | M8021B GC/PID | RA | Relative Percent Difference (RPD) exceeded limit; sample concentrations are less than 10x the MDL. |
| | | | | M8021B GC/PID | V8 | Calibration verification recovery was below the method control limit for this analyte, however the average % difference or % drift for all the analytes met method criteria. |



Burlington Resources, Inc.

MISC SAMPLING

ACZ Project ID:

L46373

Date Received: Received By:

6/24/2004

Receipt Verilieation

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?

| YES | NO | NA |
|-----------------------|----|-------|
| | | X |
| Х | | |
| | | X |
| Х | | i egy |
| Х | | |
| Х | | |
| Х | | |
| Х | | |
| X X X X X | | |
| Х | | |
| | | X |
| Х | | |
| | | 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.

Burlington Resources, Inc.

MISC SAMPLING

ACZ Project ID: Date Received:

L46373 6/24/2004

Received By:

| | MILES William | | 100 | 5.33.00 | |
|------------|---------------|----------|-------|---------|---|
| | EN CHAT | 7.77 | 771 | Y-1-1-1 | 1 |
| A 150 Line | | بالمسلقا | 10 10 | | |

| SAMPLE | CLIENT ID | R < 2 | G < 2 | Y < 2 | YG< 2 | B < 2 | BG< 2 | 0 < 2 | T >12 | P >12 | N/A | RAD |
|-----------|-----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----|-----|
| L46373-01 | MW-1 COZZENS | | | | | | | | | | Ö | |
| L46373-02 | MW-2 COZZENS | | | | | | | | | | Ö | |
| Sample 6 | ontainer Preservation Legen | d | | | | 1 | | | | | | 2.5 |

| Abbreviation | Description | Container Type | Preservative/Limits |
|--------------|------------------------|----------------|---------------------|
| R | Raw/Nitric | RED | pH must be < 3 |
| В | Filtered/Sulfuric | BLUE | pH must be < 2 |
| BG | Filtered/Sulfuric | BLUE GLASS | pH must be < 2 |
| G | Filtered/Nitric | GREEN | pH must be < 2 |
| 0 | Raw/Sulfuric | ORANGE | pH must be < 2 |
| Р | Raw/NaOH | PURPLE | pH must be > 12 |
| T | Raw/NaOH Zinc Acetate | TAN | pH must be > 12 |
| Υ | 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 |

| | | | | | | · | | | 4 | |
|--|--|---------------|-----------------|--------------|---|--------------|----------------|-------------------|-------------------|------------------------|
| , - | | | | | - | | | | Burlington | |
| Location: | Wel | l N o: | MW-1 | | | | nt <u>Sam</u> | | | |
| Project Ma | anager | <u>MJN</u> | | | Date | 9/2 | <u>9/04</u> St | tart Time1 | 1 <u>727</u> Weat | ther <u>cloudy 60s</u> |
| Depth to V | Vater | 3.15 | Dep | oth to Produ | ıct <u>na</u> | Pro | duct Thi | ckness: <u>na</u> | a Meas | suring PointTOC |
| Water Col | umn Heigl | nt <u>9.9</u> | <u>5</u> We | II Dia | 2" | . | | | | |
| | | | | | | | | | | |
| Sampling Method: Submersible Pump | | | | | | | | | | |
| | | | | | | | | | | |
| | Bottom Valve Bailer Double Check Valv□Bailer Stainless-Steel Kemr□erer | | | | | | | | | |
| Criteria: 3 to 5 Casing Volumes of Water Removal X stabilization of Indicator Parameters X Other_or bail_dry | | | | | | | | | | |
| | | | T | | Water V | olum | e in Wel | 1 | | |
| Gal/f | t x ft of wa | iter | | Gallons | | | | Ounces | | Gal/oz to be removed |
| 1 | 1.7 x 0.16 | | | 1.87 | | | | - | | 5.62 |
| | | | l | | | | | | | |
| Time | nU | T | SC | Temp | ORF |) | D.O. | Turbidity | Vol Evac. | Comments/ |
| (military) | pH (su) | (um | ನ್ನರ hos/cm) | (°F) | (millivo | | (mg/L) | | (gal) | Flow rate |
| | | <u> </u> | · | | (************************************** | | (9. = / | () | | |
| 1732 | 5.85 | | 1020 | 67.0 | | | | | 0.25 | clear |
| | 5.99 | ' | 1010 | 66.4 | | | | • | 0.5 | clear |
| | 6.08 | | 1030 | 66.9 | | | | | 0.75 | clear |
| | 6.13 | | 1030 | 67.2 | | | | | 4.75 | clear |
| | 6.08 | • | 1010 | 67.0 | | | | | 5.0 | clear |
| <u>1750</u> | 6.09 | • | 1030 | 66.9 | | | | | 5.75 | clear |
| | | <u> </u> | | | | | | | | |
| | - | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | **** |
| Final: | | | | | | |] | | | |
| | | SC | Temp | Eh-ORP | D.O. | Tu | rbidity | Vol Evac. | Comments/I | Flow Rate |
| <u>1750</u> | 6.09 | 1030 | 66.9 | | | | | 5.75 | clear | |
| | - H | | | <u> </u> | L | <u> </u> | l | | | |
| COMMEN | TS: Pump | denlet | ing well | | | | | | | |
| OOMMILI | ro. r ump | dopioi | ing won | | | | | _ ,, | | |
| INSTRUM | ENTATIO | N: | pH Meter | Х | | | | Tem | perature Mete | er x |
| | | | DO Mo | | | | | Othe | • | |
| | (| Condu | ctivity Met | | | - | | _ | | |
| Water Dis | | | Javily IVIG | | -\/\/\/ | 1 5 | amnle Ti | - me 1800 | | |
| Analysis: | 005ai <u>01151</u> <u>BT</u>] | | | Jampi | 10 141AA- | , 0 | ampie III | c <u>1000</u> | | |
| , • | DII | <u></u> | חר | | | ם י | Nam - Ti- | | | TD #5000404-04 |
| MS/MSD_ | | | BD_ | | | ן טם | Name/Ti | ше | | TB_tb092104-01_ |

Burlington Resources, Inc.

Analysis Method:

Extract Method:

Project ID:

Sample ID:

MW-1 COZZENS

Locator:

ACZ Sample ID: L48066-04

Date Sampled: 09/29/04 18:00

Date Received:

10/01/04

Sample Matrix:

Ground Water

Benzene Toluene, Ethylbenzene & Xylene.

Method

M8021B GC/PID

Analyst:

km

Extract Date: Analysis Date: 10/06/04 17:25 10/06/04 17:25

Dilution Factor:

10

Compound

| Gompound - | CAS | Result | (OUA)E | XQ Office | MOL | ્રાભા |
|--------------|-------------|--------|--------|-----------|-----|-------|
| Benzene | 000071-43-2 | | U | ug/L | 3 | 10 |
| Ethylbenzene | 000100-41-4 | | Ū | * ug/L | 2 | 10 |
| m p Xylene | 01330 20 7 | 5 | J | * ug/L | 4 | 20 |
| o Xylene | 00095-47- 6 | | U | ug/L | 2 | 10 |
| Toluene | 000108-88-3 | 4 | J | ug/L | 2 | 10 |

Surrogate Recoveries

| Surregete: | Line CAS 1.5 Section 1. | %Recovery | XO Units | FIGE | nar. |
|--------------------|-------------------------|-----------|----------|------|------|
| Bromofluorobenzene | 000460-00-4 | 97.1 | % | 83 | 117 |

| Project No.: | | | - | | | _ | ington Resou | ırces | |
|--------------------|--|------------------|---------------|-----------------------|--------------------|--|--------------------|---------------------------------------|-----------------------|
| Location:_C | ozzens | | We | II No: <u>M</u> ' | | | | | nt <u>Sampling</u> |
| Project Man | ager | MJN | | | Date | 9/29/04 | Start Tin | ne <u>1803</u> | Weather cloudy 60s |
| Depth to Wa | ter3 | .34 | _ Dep | oth to Produ | uct <u>na</u> | _ Product | Thickness | na Mea | asuring Point |
| Water Colur | nn Heigh | t <u>1.</u> | 06 We | II Dia | 2" | | | | |
| Sampling M | | | | np □ iler x | _ | • | | . — | Other □ |
| Criteria: 3 | | | | | | | | | teel Kemmerer L |
| [| | | 1 | | Motor Vol | ume in We | <u> </u> | | |
| Gal/ft v | ft of wat | or. | | Gallons | | unie in vve | Ounces | | Ounces to be removed |
| | 6 x .16 | CI | | .17 | | | 21.71 | | 65.13 |
| | | | | | | | | | 00.10 |
| | | , , , | | | , | | | · · · · · · · · · · · · · · · · · · · | |
| Time (military) | pH (su) | | SC hos/cm) | Temp (°F) | ORP (millivolts | D.O. s) (mg/L) | Turbidity (NTU) | Vol Evad | Comments/ Flow rate |
| 1805 | 3.83 | 1 | 1730 | 65.0 | | | | 20 | clear |
| <u>1807</u> | 4.96 | 1 | 2140 | 66.5 | | | | 28 | well is dry |
| | | | | | | | | | |
| | | ļ <u></u> | | | | | | | |
| | | , | | | | | | | |
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| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | - | | |
| Final: | | | | | | | | | |
| Time pl | | С | Temp | Eh-ORP | D.O. | Turbidity | Vol Evac. | Comments | |
| <u>1807</u> 4 | 1.96 2 | 2140 | 66.5 | | | | 28 | well is dry | |
| <u> </u> | | | l | | | | | · · · · · · · · · · · · · · · · · · · | |
| COMMENTS | | | | | | | | | |
| COMMENT | | | | | <u> </u> | | · | | |
| INSTRUME | UTATION. | 1. | oH Meter | Y | | - | To | noroturo Man | tor w |
| HASTKOME | TIATION | ۷. | DO Mo | | | | | oerature Me | ICI A |
| | _ | الدعاء | | | | ······································ | _ Othe | · | |
| 14/-4- D: | | | tivity Met | | | BALO | _ | _ | |
| Water Dispo | | | sample ID |) | N | <u>1W-2</u> | | Sam | nple Time <u>1815</u> |
| Analysis: | <u>BTE</u> | <u>X</u> | | | | | | | |
| MS/MSD | MS/MSD BD BD Name/Time TB_tb092104-01_ | | | | | | | TB_tb092104-01 | |

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

Burlington Resources, Inc.

Analysis Method:

Extract Method:

Project ID:

Sample ID:

MW-2 COZZENS

Locator:

ACZ Sample ID: L48066-05

Date Sampled: 09/29/04 18:15

Date Received:

10/01/04

km

Sample Matrix:

Analyst:

Ground Water

Benzene, Toluene, Ethylbenzene & Xylene,

Method

M8021B GC/PID

Extract Date: Analysis Date: 10/06/04 18:08

10/06/04 18:08

Dilution Factor:

Compound

| Compound | CAS TO | . Resill | QUAL X | ej Unite | MDE. | POL |
|--------------|-------------|----------|--------|----------|------|-----|
| Benzene | 000071-43-2 | 0.3 | J | ug/L | 0.3 | 1 |
| Ethylbenzene | 000100-41-4 | 4.2 | • | ug/L | 0.2 | 1 |
| m p Xylene | 01330 20 7 | 7.4 | * | ug/L | 0.4 | 2 |
| o Xylene | 00095-47- 6 | 13.6 | | ug/L | 0.2 | 1 |
| Toluene | 000108-88-3 | 14.9 | | ug/L | 0.2 | 1 |
| | | | | | | |

Surrogate Recoveries

| Surrice at the second s | OAS I | % Recovery XΩ | | - Irole | nar- |
|--|-------------|---------------|---|---------|------|
| Bromofluorobenzene | 000460-00-4 | 95.2 | % | 83 | 117 |

| , • | Well ager ater4 nn Height ethod: So | No: MJN .90 t9.95 ubmers | MW-1 Dep Wel sible Pum | th to Produ I Dia np ler | Develope Date ct _na 2" Centrifug | ment 9/21/04 Product gal Pump | Samr Sta Thic | oling urt Time1 kness:na Peristalti ∢ Valv⊡Bail | Mea c Pump □ er Sta | atherclear 80s asuring PointTOC Other □ inless-Steel Kemr⊡rer X Other_or bail dry |
|--------------------|-------------------------------------|--------------------------------------|----------------------------------|---------------------------------|-----------------------------------|-------------------------------|---------------------|---|---------------------------|---|
| | | | | | Water Vo | | | | | |
| | t ft of wat x 0.16 | er | | Gallons 1.62 | vva.c. vo | idilio III | | Ounces | | Gal/ oz to be removed 4.86 |
| Time (military) | pH (su) | l | SC nos/cm) | Temp (°F) | ORP (millivolt | | O. g/L) | Turbidity (NTU) | Vol Evad (gal) | C. Comments/ Flow rate |
| 1637 | 6.18 | 1 | 020 | 76.5 | | | | | .25 | clear |
| | 6.20 | | 990 | 70.1 | | | | | .5 | clear |
| | 6.18 | - | 940 | 67.2 | | | | | .75 | clear |
| | 6.38 | | 920 | 65.7 | | | | | 4.25 | clear |
| | 6.12 | | 910 | 65.2 | | | | | 4.5 | clear |
| | 6.18 | - 9 | 920 | 65.4 | | | | | 4.75 | clear |
| 1648 | 6.14 | | 910 | 65.8 | | | | | 5.0 | clear |
| | | | | | | | | | | |
| Final: | | _ | Temp | | D.O. | در ا عالم الحالث " Tr | | Ferrous Iron | Wal Evas | Commente/Flow Date |
| Time pl | | 910 | 65.8 | Eh-ORP | D.U. | Turbidit | У | IFON : | Vol Evac. 5.0 | Comments/Flow Rate clear |
| | Q. D | do-lot | na well | | | | | | | |
| COMMENT | s. Pump | uepieli | ng well | | | | | | | |
| INSTRUME | | · | oH Meter DO Mod tivity Met | | | | | Temp Othe | perature Me r | eter x |
| Water Dispo | | | | | = ID MW-1 | Sampl | e Tim | ne <u>1650</u> | | |
| Analysis: | BTE | | | | | • | | | - | |
| MS/MSD | | | BD_ | | | 3D Nam | e/Tim | ne | · | TB |

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

Organic Analytical Results

Burlington Resources, Inc.

Analysis Method:

Extract Method:

Project ID:

Sample ID:

MW-2 COZZENS

Locator:

ACZ Sample ID: L48066-05

Date Sampled:

09/29/04 18:15

Date Received:

10/01/04

Sample Matrix: Gi

Ground Water

Benzene Toluene, Ethylbenzene & Xylene

Method

M8021B GC/PID

Analyst:

km

Extract Date:

10/06/04 18:08

Analysis Date:

10/06/04 18:08

Dilution Factor: 1

Compound

| CASC 7.5 | Result, | CONVE S | ০ প্রাঞ্জ | MOL. | PGE: |
|-------------|---|--|--|--|--|
| 000071-43-2 | 0.3 | J | ug/L | 0.3 | 1 |
| 000100-41-4 | 4.2 | | * ug/L | 0.2 | 1 |
| 01330 20 7 | 7.4 | | * ug/L | 0.4 | 2 |
| 00095-47- 6 | 13.6 | | ug/L | 0.2 | 1 |
| 000108-88-3 | 14.9 | | ug/L | 0.2 | 1 |
| | 000071-43-2 000100-41-4 01330 20 7 00095-47- 6 | 000071-43-2 0.3 000100-41-4 4.2 01330 20 7 7.4 00095-47- 6 13.6 | 000071-43-2 0.3 J 000100-41-4 4.2 01330 20 7 7.4 00095-47- 6 13.6 | 000071-43-2 0.3 J ug/L 000100-41-4 4.2 * ug/L 01330 20 7 7.4 * ug/L 00095-47-6 13.6 ug/L | 000071-43-2 0.3 J ug/L 0.3 000100-41-4 4.2 * ug/L 0.2 01330 20 7 7.4 * ug/L 0.4 00095-47-6 13.6 ug/L 0.2 |

Surrogate Recoveries

| Sungerto: | OAS + C+ | % Recovery | effinia Ox | Trat! | :OGC |
|--------------------|-------------|------------|------------|-------|------|
| Bromofluorobenzene | 000460-00-4 | 95.2 | % | 83 | 117 |

GAS RECOVERY FUND APPLICATION

This information is required to be filled out and submitted to the Gas Recovery coordinator. The Gas Recovery team will then allocate funds if project meets qualifications. Also included is our partner information which must be completed. Local EH&S or project engineers will be able to help in filling out this application. See attached estimating spread sheet.

| Type Of Application | | |
|--|--------------------------------|-----------------------------------|
| Engineering study: Yes / No / Type | Yes | Flow Controller Logic Pilot Study |
| Equipment Purchase: Yes / No / Type | Yes | Field measurement flow meters |
| | | |
| Contact / Facility Information | | |
| Division | San Juan | |
| Name of applicant | Christy McMullan/Neale Roberts | |
| Contact Number | (505) 324-6163 | |
| E-Mail Address | cmcmullan@br-inc.com | |
| Name of Facility | | |
| Facility Location | San Juan / La Plata County | |
| Approximate age of facility | 2- 15 years | |
| Operating Division | San Juan Division | |
| State / Province | New Mexico / Colorado | |
| Country | United States | |
| Field | San Juan Basin | |
| Estimated Life expectancy of well / facility | | |
| TT A I . T' I S . I | 10 yr minimum | |
| Hydrocarbon Liquids Production bbl/day | N/A | |
| Gas Production mscf/day | N/A | |
| Economic Summary | | (|
| See attached spread sheet | | |
| Partner (s) Information | | |
| Company and contact name | Morious | |
| Number | Various | |
| | | |
| %working interst | | |
| Company and contact name | Varoius | |
| Number | | |
| %working interst | | |
| Other criteria, which will effect decision | | |
| omer criccia, which will effect decision | | |
| Close proximity to residence - distance | Site specific | |
| Close proximity to schools – distance | Site specific | |
| Close proximity to other - specify type and | | |
| distance | Site specific | |
| Odor complaints | Odor Reduction | |
| Regulatory issues | Emisions Reduction | |
| Safety considerations | Venting Gas Reduction | |
| Other | | |
| Ralph Wieler | | |
| Gas Recovery EH&S Coordinator | | 1 |
| Fax 713-624-5272 | | |

E-mail: rwieler@br-inc.ca Ph: 713-624-9508

| | | Gas Recovery Ecomor | nics S | preadshe | eet |
|------------------|---------------------------------------|--------------------------------|----------------------------|------------------|---|
| | Highlic | hted boxes are required entri | | | |
| | inginig | CALCULATION ASS | SHMPTIC | NS OTHERW | ise maleuted |
| 00/ | Voor 2 Dooling Date | (% of Year 1 Production) | | | Starting Year |
| 0% | Vear 3 Decline Rate | (% of Year 1 Production) | - | | Year 4+ Decline Rate |
| | Current Market Gas | | \dashv \vdash \vdash | | Equipment Cost |
| | | ent Gas Base (\$/MMBTU)** | ┥├─ | 7, | Shipping, Installation Cost |
| \$ 76.00 | Expected Gas Rate (| MCED) | \dashv | | Annual Maintenance Cost |
| | Net Revenue Interes | | | | Total Cost |
| 75% | Working Interest (WI | r (tatin) | - | 7 1 | Total Net Cost |
| *use current m | |) | ┪ ├─ | | BTU of Recovered Gas (BTU/scf) |
| | stment price deck, adju | sted for differential | ┥ ├─ | 1100 | of necovered das (B16/36) |
| | processing days | INVESTMENT A | VALYSIS | <u>-</u> . | |
| Investment C | ase Purchase Analys | S | | | Investment Summary |
| Recovered | | | 7 H | | - |
| Gas Volume | Monthly Revenue | | 1 1 | | |
| (Mcfd) | (\$/Mnth) | Capital Pay Out (Years) | \$ | 46,600.00 | Purchase Cost of unit |
| 10 | 829.86 | 7.5 | \$ | 53,400.00 | Estimated Shipping, Installation Cost |
| 20 | | 3.8 | \$ | • | *see below explanation for cost |
| . 30 | 2489.57 | 2.5 | 7 | \$0 | Annual Maintenance Cost |
| 40 | 3319.43 | 1.9 | \$ | 100,000.00 | Total Cost of equipment |
| 50 | 4149.29 | 1.5 | \$ | | Annual Gross Revenue |
| 60 | 4979.15 | 1.3 | \$ | | First Year Net Profit |
| 70 | 5809.00 | 1.1 | \$ | 51,366.03 | 2 Year Net Profit |
| 80 | 6638.86 | 0.9 | \$ | (0.32) | Profit / Investment Ratio 1st yr |
| 90 | 7468.72 | 0.8 | \$ | | P/I Ratio for 2yrs |
| 100 | 8298.58 | 0.8 | 1 [| 362 | Days Until Payout |
| 110 | 9128.43 | 0.7 | *Er | iter cost of fla | re and permit if it is an alternate option. |
| 120 | 9958.29 | 0.6 | | | tential Earnings Summary |
| 130 | 10788.15 | 0.6 | \$ | | Purchase Cost of unit |
| 140 | | 0.5 | \$ | | Estimated Shipping, Installation Cost |
| 150 | | 0.5 | 1 s | • ` | *see below explanation for cost |
| 160 | | 0.5 | 7 F | \$0 | Annual Maintenance Cost |
| 170 | | 0.4 | 1 \$ | | Total Cost of equipment |
| 180 | 14937.44 | 0.4 | \$ | 85,143.39 | Annual Gross Revenue |
| , | | | \$ | (14,856.61) | First Year Net Profit |
| Location of fa | cility | | 7 5 | | 2 Year Net Profit |
| Application da | ate | 3/30/2009 | | (0.20) | Profit / Investment Ratio 1st yr |
| Name of appli | cant | Christy McMullan/Neale Roberts | \$ | | P/I Ratio for 2yrs |
| | · · · · · · · · · · · · · · · · · · · | | - | | Days Until Payout |
| | | | *Er | | re and permit if it is an alternate option. |
| | 1 Year Rental A | nalysis (invest.) | | | ation Assumptions (describe here) |
| Gross Rental C | Cost for one year (est.) | \$ - | 1 | | |
| | cost explanation | \$ - | 1 I | | |
| Total Cost | | \$ - | 1 I | | |
| Annual Gas sa | les | \$ | 1 | | |
| Year 1 rental (d | cost) / profit | \$ | 1 | | |
| *Subtract cost | of flare and permit if it i | s an alternate option. | 7 I | | |

S. L. FRIZAM "Three class Recovery Engine de nations Recovery. Applich obstains _thou controlled logic is object xts(Project). Economics

| Starting Year | 2005 | Net Annual Operation Cost | \$12,000.00 |
|----------------|--------|---------------------------|-------------|
| WI | 75.00% | Net Capital Cost | \$75,000.00 |
| NRI | 62.00% | Initial Gas Volume (MCFD) | 0.00 |
| Realized price | \$4.00 | , , | |

| | 8/8 Volume, | Net | Net Op | | | Cum Net | Discounted Net Cash |
|------|-------------|------------|--------|-------------|---------------|------------------|------------------------|
| Year | mcfd | Revenue | Cost | Net Capital | Net Cash Flow | Cash Flow | Flow |
| 2005 | 0 | \$0 | \$0 | \$75,000 | -\$75,000 | -\$75,000 | -\$71,510 |
| 2006 | 0 | \$0 | \$0 | | \$0 | -\$75,000 | \$0 |
| 2007 | 0 | \$0 | \$0 | | \$0 | -\$75,000 | \$0 |
| 2008 | 0 | \$0 | \$0 | | \$0 | -\$75,000 | \$0 |
| 2009 | 0 | \$0 | \$0 | | \$0 | -\$75,000 | \$0 |
| 2010 | 0 | \$0 | \$0 | | \$0 | -\$75,000 | \$0 |
| 2011 | 0 | \$0 | \$0 | | \$0 | -\$75,000 | \$0 |
| 2012 | 0 | \$0 | \$0 | | \$0 | -\$75,000 | \$0 |
| 2013 | 0 | \$0 | \$0 | | \$0 | -\$75,000 | \$0 |
| 2014 | 0 | \$0 | \$0 | | \$0 | -\$75,000 | \$0 |
| 2015 | 0 | \$0 | \$0 | | \$0 | -\$75,000 | \$0 |
| 2016 | 0 | \$0 | \$0 | | \$0 | -\$75,000 | \$0 |
| 2017 | 0 | \$0 | \$0 | | \$0 | -\$75,000 | \$0 |
| 2018 | 0 | \$0 | \$0 | | \$0 | -\$75,000 | \$0 |
| 2019 | 0 | \$0 | \$0 | | \$0 | -\$75,000 | \$0 |
| 2020 | 0 | \$0 | \$O | | \$0 | -\$75,000 | \$0 |
| 2021 | 0 | \$0 | \$0 | | \$0 | -\$75,000 | \$0 |
| 2022 | 0 | \$0 | \$0 | | \$0 | -\$75,000 | \$0 |
| 2023 | 0 | \$0 | \$0 | | \$0 | -\$75,000 | \$0 |
| 2024 | 0 | \$0 | \$O | | \$0 | -\$75,000 | \$0 |
| 2025 | 0 | \$0 | \$0 | | \$0 | -\$75,000 | \$0 |
| 2026 | 0 | \$0 | \$0 | | \$0 | -\$75,000 | \$0 |
| 2027 | 0 | \$0 | \$0 | | \$0 | -\$75,000 | \$0 |
| 2028 | 0 | \$0 | \$0 | | \$0 | -\$75,000 | \$0 |
| 2029 | 0 | \$0 | \$0 | | \$0 | -\$75,000 | \$0 |
| 2030 | 0 | <u>\$0</u> | \$0 | | <u>\$0</u> | <u>-\$75,000</u> | <u>\$0</u> |
| | 0 | \$0 | \$0 | \$75,000 | -\$75,000 | -\$75,000 | -\$71,510 |

| Project Ma Depth to W Water Colu | Cozzens nager /ater5 umn Heigh | MJN 5.60 nt 9.2 | We Der 5_ We | II No: MY oth to Produ | W-1 Date uct_ <u>na</u> 2" | De 12/13/04 Product Th | nickness: na | Sampling 1522 | Weather <u>clear 30s</u> uring Point <u>TOC</u> Other □ | |
|---|----------------------------------|-----------------------|--------------------|-------------------------|-------------------------------------|------------------------------|-----------------|------------------|--|--|
| | | ing Vo | Valve Ba | | oval X s | | of Indicator P | arameters X | ess-Steel Kemr⊡erer Other <u>or bail dry</u> Gal/oz to be removed | |
| | 25 x 0.16 | | | 1.48 x 3 | | | 0411000 | | 4.44 | |
| Time (military) | pH (su) | (um | SC hos/cm) | Temp (°F) | ORP (millivo | | , | Vol Evac. | Comments/ Flow rate | |
| 1522 | 7.70 | ` | 1490 | 54.4 | , | , (Mg/2) | | .25 | | |
| | 7.49 | | 1440 | 53.3 | | - | | .50 | | |
| | | | 1430 | 52.8 | | _ | | 2.5 | | |
| | 7.44 | ╁. | 1450 | 52.8 | | | | 4.5 | | |
| <u>1536</u> | 7.55 | ļ., | 1450 | 52.8 | | | | 5.0 | | |
| | | | | | | | | | | |
| Final: Time 1536 | | 6C 1450 | Temp 52.8 | Eh-ORP | D.O. | Turbidity . | Vol Evac. | Comments/F | low Rate | |
| COMMEN | ΓS: Pump | deplet | ing well | | | | | | | |
| INSTRUMENTATION: pH Meter X DO Monitor Conductivity Meter X | | | | | | Temperature Meter x Other | | | | |
| Water Disp Analysis: MS/MSD_ | oosal <u>onsit</u> <u>BTI</u> | <u>EX</u> | BD_ | Sampl | | 1 Sample T BD Name/T | ime <u>1540</u> | | _ TB | |

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

Organic Analydeal Results

Burlington Resources, Inc.

Project ID:

MISC GW SAMPLES

Sample ID:

COZZENS MW 1

Locator:

ACZ Sample ID: L49178-01

12/13/04 15:40 Date Sampled:

Date Received: 12/15/04

Sample Matrix: Ground Water

Benzene Toluene, Ethylbenzene & Xylene

Analysis Method:

M8021B GC/PID

Extract Method:

Method

Analyst: km

Extract Date:

12/21/04 11:09

Analysis Date:

12/21/04 11:09

Dilution Factor:

Compound

| Compounds | GAS 4 CAS 4 | Result | MAL & | O Unite | (Mals | FROE |
|--------------|-------------|--------|-------|---------|-------|------|
| Benzene | 000071-43-2 | | υ | ug/L | 0.3 | 1 |
| Ethylbenzene | 000100-41-4 | 10.2 | | ug/L | 0.2 | 1 |
| m p Xylene | 01330 20 7 | 24.1 | | ug/L | 0.4 | 2 |
| o Xylene | 00095-47- 6 | 6.8 | | ug/L | 0.2 | 1 |
| Toluene | 000108-88-3 | | U | ug/L | 0.2 | 1 |

Surrogate Recoveries

| Swiregele | CAS | % Recovery_ | XQ /Units | THOR | _ nor_ |
|--------------------|-------------|-------------|-----------|------|--------|
| Bromofluorobenzene | 000460-00-4 | 85.6 | % | 83 | 117 |

| Project No. | 30003 | <u>1.0</u> Pr | oject Nan | ne: <u>Cozzer</u> | <u>ns</u> C | lient: <u>Burli</u> | ngton Resou | ırces | | | |
|----------------------|--------------|---------------|---------------------------|-------------------|--------------------|------------------------|----------------|---|------------------------|--|--|
| .ocation: <u>C</u> | ozzens | | We | ll No: <u>M</u> \ | | | | Development | | | |
| Project Mar | | | | | | | | ne <u>1549</u> | | | |
| | | | | | | _ Product ⁻ | Thickness | <u>na </u> | uring Point <u>TOC</u> | | |
| Vater Colu | mn Hei | ght <u>.4</u> | <u>5</u> We | II Dia | 2" | | | | | | |
| Sampling M | lethod: | Subme | rsible Pur | mp 🗆 | Centrifuga | al Pump [|] Peristalt | ic Pump 🔲 | Other | | |
| | | Bottom | Valve Ba | iler x | Double C | heck Valve | Bailer 🗆 | Stainless-Stee | el Kemmerer 🛚 | | |
| Criteria: 3 | to 5 Ca | asing Vo | lumes of | Water Rem | noval X sta | bilization o | f Indicator Pa | arameters X | Other | | |
| | | | | | | ume in Wel | | | | | |
| | x ft of v | | | Gallons | | | Ounces | | Ounces to be removed | | |
| .4 | 5 x .16 | | | .072 x 3 | | | 9.216 x 3 | | 27.65 | | |
| Time | рН | | SC | Temp | ORP | D.O. | Turbidity | Vol Evac. | Comments/ | | |
| (military) | (su) | | hos/cm) | (°F) | (millivolts | I | (NTU) | (oz) | Flow rate | | |
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| Conductivity Meter X | | | | | | | _ 0016 | | | | |
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| nalysis: | <u>B</u>] | <u>TEX</u> | 55 | | - | D Na 7 | | | TD | | |
| IS/MSD | | | RD. | | в | ו /Name ע | me | | _ TB | | |

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

Organic Analytical: Results :

Burlington Resources, Inc.

Project ID:

MISC GW SAMPLES

Sample ID:

COZZENS MW 2

Locator:

ACZ Sample ID: L49178-02

Date Sampled: 12/13/04 15:55

Date Received: 12/15/04

Sample Matrix: Ground Water

Benzene, Toluene, Ethylbenzene & Xylene

Analysis Method:

M8021B GC/PID

Extract Method:

Method

Analyst: km

Extract Date:

12/21/04 11:53 Analysis Date: 12/21/04 11:53

Dilution Factor: 1

Compound

| Result QU | AL KO Date | | 7 (2015) |
|-----------|--------------------------|--|---|
| 0.7 | l ug/L | 0.3 | 1 |
| 3.8 | ug/L | 0.2 | 1 |
| 8.4 | ug/L | 0.4 | 2 |
| 2.2 | ug/L | 0.2 | 1 |
| L | J ug/L | 0.2 | 1 |
| | 0.7 3.8 8.4 2.2 | 0.7 J ug/L 3.8 ug/L 8.4 ug/L 2.2 ug/L | 0.7 J ug/L 0.3 3.8 ug/L 0.2 8.4 ug/L 0.4 2.2 ug/L 0.2 |

Surrogate Recoveries

| Surgeric + | GAS | % Recovery * : | XO Units | degr: | . UGL |
|--------------------|-------------|----------------|----------|-------|-------|
| Bromofluorobenzene | 000460-00-4 | 99.8 | % | 83 | 117 |

T53 RMG12/17/04

Laboratories, Inc.

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

| | Report to: | Saup. | | | | | | | | |
|----|--|------------------------|------------|---------------------------------------|----------------------|------------------|---------------|-------------------|---------------------------------------|----------------|
| | Name: GREGG Wurtz | | Addre | ss: 3 | 401 | 32 | 7 === | 54 | | |
| | Company: BUILMGFON | | FA | mia | JOT | 01 | NN | 1 87 | 499 | |
| İ | E-mail: | | Teleph | ione: | 5 | 05 | 320 | 09. | 70 <i>0</i> | |
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| | Name: | | E-mail | · · · · · · · · · · · · · · · · · · · | # AUS. | **** ** <u>*</u> | P. 1.46 T. 49 | 10.5° × 980° | | 7 37 |
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| | Company: | | Teleph | | | | | | ES | ·γ |
| | If sample(s) received past holding time (HT), or if insufficien analysis before expiration, shall ACZ proceed with requeste | | | | e (e | | | | 10 | -{ |
| | If "NO" then ACZ will contact client for further instruction. If | f neither | "YES" | nor "NO | | | | | <u> </u> | -] |
| | is Indicated, ACZ will proceed with the requested analyses, | | | | | | | | 4-6 | - p |
| | PROJECT INFORMATION | | ANA | LYSES | REQUE | STED (| attach li | st or use | guote nu | mber) |
| | Quote #: | | ers | | 1 | | | | | |
| | Project/PO#: Misc. Ground undersampl | | ıtain | ۱ . د | ļ | | | | | ' |
| | Reporting state for compliance testing: | | Containers | C | | - | | | | |
| | Are any samples NRC licensable material? | Matrix | # of | 87 | 1 | ļ | | | | |
| | SAMPLE IDENTIFICATION DATE: TIME | GW | a | 7 | | | | | | +1 |
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| | Marcore MW 3 12/304 1010 Cozzens MW 1 12/304 1540 | Gu | 3 | \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ | | | | | | |
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| | Matrix SW (Surface Water) - GW (Ground Water) - WW (Waste Water) | ater) · DW | (Drinkin | g Water) | SL (Sluc | ge) · SO | (Soil) · O | L (Oil) · Ot | her (Specify |) |
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| | EACH LOCATION | | | | | | | | | |
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| | Please refer to ACZ's terms & con | ditions l | ocated | on the | reverse | side o | f this CO | OC . | | |
| | RELINQUISHED BY | IME 🎎 | 1 | | RECÉIV | ÉD BY | | | DATE | ΓίΜΕ |
| | D 1000 (NEE) 12-13-04 | 2015 | R | ssect | a Mis | کار در | _ | 1 | 2/15/2 | 1/000 |
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| | SAMPLED BY: | ing. | 16.20. | INTE | RNAL | USE O | NLY , | , | | Raj sto. |
| | Martin Nee as per | الأوالة وعدده | | | | | | | 1 1 1 1 1 1 1 | |
| | Grego Wantz | | | | | | | | | |
| | KMG72/15/04 | | | | | | - | | | |





December 30, 2004

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

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

Project ID: MISC GW SAMPLES

ACZ Project ID: L49178

Gregg Wurtz:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on December 15, 2004. This project has been assigned to ACZ's project number, L49178. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 11.0. The enclosed results relate only to the samples received under L49178. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

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

All samples and sub-samples associated with this project will be disposed of after January 30, 2005. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than \$10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years. Please notify your Project Manager if you have other needs.

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

30/Dec/04

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





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

Organic Reference

| Report Header | er,Explanations | | |
|---|---|--|--|
| Batch | A distinct set of samples analyzed at a specific time | | |
| Found | Value of the QC Type of interest | | |
| Limit | Upper limit for RPD, in %. | | |
| Lower | Lower Recovery Limit, in % (except for LCSS, mg/Kg) | | |
| LCL | Lower Control Limit | | |
| MDL | Method Detection Limit. Same as Minimum Reporting L | imit. Allows for | instrument and annual fluctuations. |
| PCN/SCN | A number assigned to reagents/standards to trace to the | e manufacturer's | s certificate of analysis |
| PQL | Practical Quantitation Limit | | |
| QC | True Value of the Control Sample or the amount added | to the Spike | |
| Rec | Amount of the true value or spike added recovered, in % | (except for LC | SS, mg/Kg) |
| RPD | Relative Percent Difference, calculation used for Duplica | ate QC Types | |
| Upper | Upper Recovery Limit, in % (except for LCSS, mg/Kg) | | |
| UCL | Upper Control Limit | | |
| Sample | Value of the Sample of interest | | |
| QC Sample Ty | ypes | | |
| SURR | Surrogate | LFM | Laboratory Fortified Matrix |
| INTS | Internal Standard | LFMD | Laboratory Fortified Matrix Duplicate |
| DUP | Sample Duplicate | LRB | Laboratory Reagent Blank |
| LCSS | Laboratory Control Sample - Soil | MS/MSD | Matrix Spike/Matrix Spike Duplicate |
| LCSW | Laboratory Control Sample - Water | PBS | Prep Blank - Soil |
| LFB | Laboratory Fortified Blank | PBW | Prep Blank - Water |
| QC Sample Ty | ype Explanations | | |
| Blanks | | mal contaminati | on in the prep method procedure. |
| Control Sai | • | _ | , , , |
| Duplicates | s Verifies the precision of the ins | trument and/or i | method. |
| PARTY AND A CONTRACT OF THE PARTY AND ADDRESS | ortified Matrix Determines sample matrix inte | rferences, if any | |
| ACZ Qualifiers | | the state of the s | 是一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个 |
| В | Analyte detected in daily blank | | |
| н | Analysis exceeded method hold time. | | |
| J | Analyte concentration detected at a value between MDL | | later the control of the state |
| R | Poor spike recovery accepted because the other spike i | | • |
| T U | High Relative Percent Difference (RPD) accepted becau | | centrations are less than TOX the MDL. |
| V | Analyte was analyzed for but not detected at the indicate | | ther then blank concentration |
| ٧٨/ | High blank data accepted because sample concentration Poor recovery for Silver quality control is accepted because | - | |
| X | Quality control sample is out of control. | use Silver Oileir | precipitates with Gritonide. |
| Z | Poor spike recovery is accepted because sample conce | ntration is four t | imes greater than spike concentration |
| P | Analyte concentration differs from second detector by m | | arrod groater than opine concentration. |
| E | Analyte concentration is estimated due to result exceeding | | ange. |
| M | Analyte concentration is estimated due to matrix interfer | • | 50. |
| DANSER STORY STORY STORY STORY STORY | rences | | 4 Table 1 |
| (1) | EPA 600/4-83-020. Methods for Chemical Analysis of V | Vater and Waste | es. March 1983. |
| (2) | EPA 600/4-90/020. Methods for the Determination of O | | |
| (3) | EPA 600/R-92/129. Methods for the Determination of C | - | |
| (5) | EPA SW-846. Test Methods for Evaluating Solid Waste | - | |
| (6) | Standard Methods for the Examination of Water and Wa | | · |
| Comments : | | | A CONTRACTOR OF THE PROPERTY O |
| (1) | QC results calculated from raw data. Results may vary | slightly if the rou | unded values are used in the calculations. |
| (2) | Organic analyses are reported on an "as received" basis | | |
| (2) | Organio analyces are reported on an as reserved sacr | | |

REPIN03.11.00.01



Burlington Resources, Inc.

ACZ Project ID: L49178

ACZ ID WORKNUM PARAMETER METHOD QUAL DESCRIPTION

No extended qualifiers associated with this analysis

EXTQUAL.11.20.02.01

L49178: Page 5 of 8

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



Burlington Resources, Inc.

MISC GW SAMPLES

ACZ Project ID: Date Received:

L49178 12/15/2004

Received By:

Receipt Verification

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

| YES | NO | NA |
|-------------|----|----|
| | | Х |
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| | | X |

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

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

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

Shipping Containers

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

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

KORES

REPAD.03.11.00.01

L49178: Page 6 of 8

[&]quot;Sampled by" not relingished



Burlington Resources, Inc.

MISC GW SAMPLES

ACZ Project ID:

L49178 12/15/2004

Date Received:

Received By:

| gample@ | ontainer Preservation, 💌 | 1.1 | | | | | | | - 1 | | | |
|---------|--------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----|-----|
| SAMPLE | CLIENT ID | R < 2 | G < 2 | Y < 2 | YG< 2 | B < 2 | BG< 2 | 0 < 2 | T >12 | P >12 | N/A | RAD |

| 1 | | | | | | | | |
|-----------|-----------------------------|---|------|------|------|--|---|--|
| L49178-01 | COZZENS MW 1 | 1 | | | | | Х | |
| L49178-02 | COZZENS MW 2 | | | | | | X | |
| Sample | ontained Preservation Leger | ď | 6.46 | | | | | |

| Abbreviation | Description | Container Type | Preservative/Limits |
|--------------|------------------------|----------------|---------------------|
| R | Raw/Nitric | RED | pH must be < 2 |
| В | Filtered/Sulfuric | BLUE | pH must be < 2 |
| BG | Filtered/Sulfuric | BLUE GLASS | pH must be < 2 |
| G | Filtered/Nitric | GREEN | pH must be < 2 |
| 0 | Raw/Sulfuric | ORANGE | pH must be < 2 |
| Р | Raw/NaOH | PURPLE | pH must be > 12 |
| T | Raw/NaOH Zinc Acetate | TAN | pH must be > 12 |
| Υ | 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 |

DRILLING LOGS/WELLBORE DIAGRAMS

RECORD OF SUBSURFACE EXPLORATION

Philip Environmental Services Corp.

4000 Monroe Road

Farmington, New Mexico 87401

(505) 326-2282 FAX (505) 326-2388

Elevation (MAGA Monzano) Borehole Location Carzens GWL Depth

Logged By Chiney Drilled By K. Paulilla

000 Date/Time Started Date/Time Completed 5/14 15 10 Borehole # 111-1

Project Name Project Number Project Location

21077

Phase 0777115 Mes

1000 99

Well Logged By Personnel On-Site Contractors On-Site

Client Personnei On-Site

Drilling Method

Air Monitoring Method

| Depth | Sa | ımple | Sample Type & | Sample Description | uscs | Depth Lithology | Air | Monitori | ng | Drilling Conditions | - |
|--------|-----|----------|------------------|--|--------|--------------------|-----|----------|-----|----------------------------|---|
| (Feet) | Int | terval | Recovery | Classification System: USCS | Symbol | Change | | nite: ND | | & Blow Counts | 1 |
| F | | | (inches) | Fill 10 approx 15 (Ed Hasely. 5/19). := Sumpr at 5-7' | | (feet) | BZ | ВН | S | | |
| 5 | ~ | 5 | - | | | | | | | | |
| 1111 | 7 | 7 | | Brown medium to coarse stained poorly surted sound wipea gravel wet at 3', bluet staining at 5', no odor | | | a) | | 7.6 | se= 8 s/its= 3.6 | |
| 10 | 1 | /o ユー | - | yellowish moun silty clay. Low glasticity, Hard | | | 0.5 | | 0.0 | BC= 50 (10") S/175= 126 | |
| 15 | | | | TO=13! Set 10' screen from 13 to 3', sanvi to | | | | | | | |
| 20 | | | | I'ngs, bentonie no surface | | | | | | | |
| 25 | | | - | | | | | | | | |
| 30 | | | | | | | | | | | |
| 35 | | | | | | | | | | | |
| 40 | | | | | | | | | | | |

| Comments: | makenials | 1 <1+ | trap, | 1-101 | soreen | 1-5 | <u> </u> | - 6 | sacks | silica | serd. | |
|-----------|-----------|--------|-------|-------|--------|-----|----------|-----|-------|--------|-------|--|
| | 2 501 C | nen en | بتر | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | 7 | 1 | (| | | |

Geologist Signature

RECORD OF SUBSURFACE EXPLORATION Cozzens B# 1 Philip Environmental Services Corp. 4000 Monroe Road Project Name Farmington, New Mexico 87401 Project Number 21171 Phase 1800.99 (505) 326-2262 FAX (505) 328-2388 **Project Location** oftens 1 mess monzaro P. Chener Well Logged By Elevation Personnel On-Site **Borehole Location** Contractors On-Site GWL Depth Logged By Client Personnel On-Site Drilled By Date/Time Started **Drilling Method** Date/Time Completed Air Monitoring Method Depth uscs Lithology Air Monitoring **Drilling Conditions** Type & Sample Description Depth Samula (Feet) Classification System: USCS Symbol Chenge Unite: NDU & Blow Counts Interval Recovery (feet) (inches) ΒZ вн 0 Hand ruger to 3! mough sand cookles and gravel Anger refusal at 3: Set 2 of screen from 3' 101; sand no approx 0.5; herrion. Le to surface 20 25 30 35 Comments:

Geologist Signature

ITTORING WELL INSTALLATION RECORD

Environmental Services Corp.

Monroe Road

Iton, New Mexico 37401

26-2252 FAX (805) 326-2388

mmems: TD= 13 1

Insalled

screen

Geologist Signature

tion Location うそそとれら Depth Hed Sy K. Yadilla 0800 Mime Staned Mime Completed 1015

| Well # MW-/ Page 1 of / |
|---|
| Project Name |
| Project Number 21073 Phase 100.91 Project Location (1220) |
| On-Site Geologist Personnei On-Site Contractors On-Site Client Personnei On-Site Ed Inselv |

| ipths in Reference to Ground S | Suriace | | | | Top of Protective Casing | |
|--------------------------------------|--------------|---------|---|-----------------|--|-------------|
| | | | | _; | Top of Riser | 21 |
| im | Material | Depth | | | Ground Surface | |
| po of Protective Casing | | | A STANSON AND A | No. of Paris | | |
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| op of Grout | | N.A. | | | | |
| ottom or Green | | N.A. | . : | | | • |
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| ottom of Well Screen | 1 | Grown d |))) | XX | | surmi |
| op of Peltonite Seal | | Surlaid | ∞ | ∞x | Tan of Occ. 17 | . / |
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| op of Gravei Pack | | , ' | |] | rop or screen | |
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| op of Natural Cave-in | | N.A | | | | |
| ottom of Natural Cave-In | <u> </u> | N.A. | | | | |
| op of Groundwater | 1 | 3' | | | Bottom of Screen Bottom of Borehole | 13' |
| tal Death of Borehole | 1 | 1/3' | | | | |

sand 10

bentrnice

PHILIP REPORT ON EXCAVATION DATED 1/8/98



Project 19914

Mr. Ed Hasely Burlington Resources Oil and Gas Company P.O. Box 4289 Farmington, New Mexico 87499-4289

RE: Report for work performed at the Cozzen B-1 site

Dear Mr. Hasely:

Philip Services Corporation (Philip) is pleased to submit to Burlington Resources Oil and Gas Company (Burlington) this report of the work performed at the Cozzen B-1 site approximately 3 miles east of Bloomfield, New Mexico.

SCOPE OF WORK

On November 21, 1997 Burlington requested Philip to perform the following scope of work at the Cozzen B-1 site:

- Provide technician, pickup truck and photoionization detector (PID) to monitor soil contamination levels at a previous spill.
- Provide loader, trackhoe and two operators to excavate contaminated soil from the tank pad across the road to an old reserve pit.
- Landfarm contaminated soil on site and backfill excavation using soil removed from location.

RESULTS

On December 9, 1997 at approximately 7:00 a.m. Philip began excavation activities at the spill area as designated by Burlington. At approximately 9:00 a.m. Burlington's representative arrived to observe the excavation. At approximately 10:00 a.m. Denny Foutz with the New Mexico Oil Conservation District (NMOCD) arrived. Philip field screened the excavated soil with a PID to monitor the extent of contamination. Results of the first screened readings were 192 parts per million (ppm) on the north side; 5 ppm on the east side; and 681 ppm and 573 ppm on the south side. Based on the field screening results, excavation continued to the south and west.

At 12:00 p.m. Philip collected heated headspace samples, with the following results: 179 ppm on the north side, 5 ppm on the east side and 480 ppm on the south side. Philip resumed excavation

Combining the Strengths of Philip Services Corp., Allwaste and Serv-Tech



on all sides. At 1:00 p.m. Philip collected samples for a second heated headspace analysis. The results were: 38 ppm and 32 ppm on the north side, 5 ppm on the east side, 81 ppm and 49 ppm on the south side and 118 ppm on the west side.

At the request of Denny Foutz, Philip collected two samples on the down gradient side of the excavation and sent them to Onsite Laboratory in Farmington, New Mexico. The samples were analyzed for Benzene, Toluene, Ethylbenzene and Total Xylenes (BTEX) by USEPA method 8020, and Total Petroleum Hydrocarbons (TPH) by USEPA method 8015 modified for gasoline and diesel range. Sample No. Cozzen-01 was collected from the south side of the excavation and sample No. Cozzen-02 was collected from the west. Laboratory analysis indicated BTEX and TPH results to be below NMOCD standards for soil. Results of laboratory analysis are included in Attachment A.

The excavation was approximately 50 feet long, 30 feet wide and approximately 6 feet deep. Philip estimates 334 cubic yards of contaminated soil were removed. No groundwater was encountered. All impacted soil excavated was landfarmed on site.

Once the excavation was complete, Mr. Foutz approved backfilling to the sample locations. Once backfilling was completed, Philip personnel and equipment demobilized from the site.

Philip appreciates the opportunity to provide Burlington with professional services and looks forward to providing additional services in the future. If you have any questions or require additional information, please contact Robert Thompson or Martin Nee at (505) 326-2262.

Respectfully submitted,

PHILIP SERVICES CORPORATION

Robert Thompson Project Manager

J:\19914\PM\cozzrpt.doc

Attachment A

Results of Laboratory Analysis

OFF: (505) 325-5667



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Scott Pope

Date:

12-Dec-97

Company: Philip Environmental

COC No.:

Job No.:

G3688

Address:

4000 Monroe Road

Sample No.:

17062

City, State: Farmington, NM 87401

2-1000

Burlington Resources - Cozzen B-1

Project Name: Project Location:

Cozzen-01

Date:

9-Dec-97 Time:

12:10

Sampled by: Analyzed by:

DC/HR

GRO Date: DRO Date: 10-Dec-97 11-Dec-97

Sample Matrix:

Soil

DB

Laboratory Analysis

| Parameter | Results as Received | Unit of Measure | Limit of Quantitation | Unit of Measure |
|-----------------------------------|------------------------|--------------------|--------------------------|--------------------|
| Gasoline Range Organics (C5 - C9) | 3.0 | mg/kg | 0.5 | mg/kg |
| Diesel Range Organics (C10 - C28) | ND | mg/kg | 10 | mg/kg |

ND - Not Detected at Limit of Quantitation

Quality Assurance Report

GRO QC No.: 0554-STD

DRO QC No.: 0555-STD

Continuing Calibration Verification

| Parameter | Method Blank | Unit of Measure | True Value | Analyzed Value | RPD | RPD Limit |
|--------------------------|-----------------|--------------------|---------------|-------------------|------|--------------|
| Gasoline Range (C5 - C9) | ND | ррь | 1,801 | 2,000 | 10.5 | 15% |
| Diesel Range (C10 - C28) | ND | րթա | 200 | 195 | 2.4 | 15% |

Matrix Spike

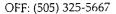
| Parameter | 1- Percent Recovered | 2 - Percent Recovered | Limit | RPD | RPD Limit |
|------------------------|-------------------------|--------------------------|----------|-----|--------------|
| Gasoline Range (C5-C9) | 105 | 105 | (80-120) | 0 | 20% |
| Diesel Range (C10-C28) | 95 | 98 | (75-125) | 3 | 20% |

Method: SW-846 EPA Method 8015A mod. - Nonhalogenated Volatile Hydrocarbons by Gas Chromatography

Approved by:

Date: 12/12/97

P.O. BOX 2606 • FARMINGTON, NM 87499





LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Scott Pope

City, State: Farmington, NM 87401

Date:

11-Dec-97

Company: Philip Environmental

COC No.:

G3688

Sample No.:

Address:

4000 Monroe Road

Job No.:

17062 2-1000

Project Name:

Sampled by:

Burlington Resources - Cozzen B-1

Project Location:

Cozzen-01

DB

Date: Date: 9-Dec-97 Time:

12:10

Analyzed by: Sample Matrix: DC Soil 10-Dec-97

Laboratory Analysis

| Parameter | ` <u>`</u> | Results as Received | Unit of Measure | Limit of | Unit of Measure |
|--------------|------------|------------------------|--------------------|------------|--------------------|
| i diameter | ~~ | - ad thecented | Websure | Guerrandia | |
| Benzene | | 19 | ug-kg | _ 2 | ug/kg |
| Toluene | | 55 | ug/kg | 2 | u&∖ka |
| Ethylbenzene | | 95 | ug/ kg | 2 | ug/kg |
| m,p-Xylene | | 497 | ug/kg | 2 | ug/kg |
| o-Xylene | | 13 | ug/kg | 2 | ug/kg |
| | TOTAL | 679 | ug/kg | | |

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Scott Pope

Date:

12-Dec-97

Company: Philip Environmental

COC No.:

G3688

Address:

4000 Monroe Road

Sample No.:

17063

City, State: Farmington, NM 87401

Job No.:

2-1000

Project Name:

Burlington Resources - Cozzen B-1

Project Location:

Cozzen-02 DB

Date:

9-Dec-97 Time:

12:12

Sampled by: Analyzed by: Sample Matrix:

DC/HR Soil

GRO Date: DRO Date: 10-Dec-97 11-Dec-97

Laboratory Analysis

| Parameter | Results as Received | Unit of Measure | Limit of Quantitation | Unit of Measure |
|-----------------------------------|------------------------|--------------------|-----------------------|--------------------|
| Gasoilne Range Organics (C5 - C9) | 3.5 | mg/kg | 0.5 | mg/kg |
| Diesei Range Organics (C10 - C28) | ND | mg/kg | 10 | mg/kg |

ND - Not Detected at Limit of Quantitation

Quality Assurance Report

GRO QC No.: 0554-STD

DRO QC No.: 0555-STD

Continuing Calibration Verification

| Parameter | Method Blank | Unit of Measure | True Value | Analyzed Value | RPD | RPD Limit |
|--------------------------|-----------------|--------------------|---------------|-------------------|------|--------------|
| Gasoline Range (C5 - C9) | ND | ppb | 1,801 | 2,000 | 10.5 | 15% |
| Diesei Eunge (CH) - C28) | ND | ppm | 200 | 195 | 2.4 | 15% |

Matrix Spike

| matha op. | 1- Percent | 2 - Percent | | | RPD |
|------------------------|------------|-------------|----------|-----|-------|
| Parameter | Recovered | Recovered | Limit | RPD | Limit |
| Gasoline Range (C5-C9) | 105 | 105 | (80-120) | 0 | 20% |
| Diesel Runge (C10-C28) | 95 | 98 | (75-125) | 3 | 20% |

Method: SW-846 EPA Method 8015A mod. - Nonhalogenated Volatile Hydrocarbons by Gas Chromatography

Approved by:

P.O. BOX 2606 • FARMINGTON, NM 87499



OFF: (505) 325-5667

LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Scott Pope

Date: 11-Dec-97

Company: Philip Environmental

COC No.:

G3688

Address:

Sample No.:

17063

4000 Monroe Road

City, State: Farmington, NM 87401

Job No.:

2-1000

Project Name:

Burlington Resources - Cozzen B-1

Project Location: Sampled by:

Cozzen-02 DB

Date:

9-Dec-97 Time:

12:12

Analyzed by:

DC

Date:

10-Dec-97

Sample Matrix:

Soil

Laboratory Analysis

| Parameter | is . | Results as Received | Unit of Measure | Limit of Quantitation | Unit of Measure |
|--------------|-------|------------------------|--------------------|-----------------------|--------------------|
| Benzene | | 96 | ug/kg | 2 | ug/kg |
| Toluene | | 43 | ug/kg | 2 | ug/kg |
| Ethylbenzene | | 133 | ug/kg | 2 | ug/kg |
| m,p-Xylene | | 508 | ug/kg | 2 | ug/kg |
| o-Xylene | | 16 | ug/kg | 2 | ug/kg |
| | TOTAL | 796 | ug/kg | | |

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

LAB: (505) 325-1556

QUALITY ASSURANCE REPORT

for EPA Method 8020

Date Analyzed: 10-Dec-97

Internal QC No.:

0559-STD

Surrogate QC No.:

0556-STD

Reference Standard QC No.: 0529/30-QC

Method Blank

| | | Unit of |
|---|--------|---------|
| Parameter | Result | Measure |
| Average Amount of All Analytes In Blank | < 1.0 | ppb |

Calibration Check

| | A 12 Mg (**) | Unit of | True | Analyzed | | |
|--------------|---------------|---------|-------|----------|-------|-------|
| Parameter | : | Measure | Value | Value | RPD . | Limit |
| | | .* | | <u> </u> | | |
| Benzene | | ppb | 60.0 | 62.1 | 3 | 15% |
| Toluene | ` . | ppb | 60.0 | 63.3 | 5 | 15% |
| Ethylbenzene | | ppb | 60.0 | 62.0 | 3 | 15% |
| m,p-Xylene | | ppb | 120.0 | 120.9 | 1 | 15% |
| o-Xylene | | ppb | 60.0 | 62.1 | 3 | 15% |

Matrix Spike

| Matrix Opine | | | | | | | |
|--------------|------------|-------------|----------|-----|-------|--|--|
| | 1- Percent | 2 - Percent | | | | | |
| Parameter | Recovered | Recovered | Limit | RPD | Limit | | |
| Benzene | 91 | 85 | (39-150) | 7 | 20% | | |
| Toluene | 88 | 83 | (46-148) | 6 | 20% | | |
| Ethylbenzene | 86 | 82 | (32-160) | 4 | 20% | | |
| m,p-Xylene | 75 | 70 | (35-145) | 6 | 20% | | |
| o-Xylene | 89 | 87 | (35-145) | 3 | 20% | | |

Surrogate Recoveries

| | \$1 | S2 | | S1 | S2 |
|---------------------------|--|-----------|---------------------------|--------------|-----------|
| | Percent | Percent | | Percent | Percent |
| Laboratory Identification | Recovered | Recovered | Laboratory Identification | Recovered | Recovered |
| Limit Percent Recovered | (70-130) | | Limit Percent Recovered | (70-130) | |
| 17062-G3688 | 84 | | | | |
| 17063-G3688 | 84 | | | | |
| | | | <u> </u> | | |
| | | | | 1/n | (ne) |
| | | | | 1/2/15/97 | 12/11/97 |



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** 3688

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| Project Name Burking Ton Res Cozzen B. 1 Project Number Phase . Task 2000 . 77 | | | | | Location F | ARMILETGA | | |
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