



# CONOCOPHILLIPS

## EVGSAU #3127-002 FLOWLINE LEAK

### ENVIRONMENTAL SITE INVESTIGATION

PERFORMED BY:

**BBC INTERNATIONAL, INC.**  
WORLD-WIDE ENVIRONMENTAL SPECIALISTS  
1324 W. MARLAND BLVD.  
P. O. BOX 805  
HOBBS, NEW MEXICO 88240  
(505)397-6388 • FAX (505)397-0397  
EMAIL: [bbc@bbcinternational.com](mailto:bbc@bbcinternational.com)  
WEBSITE: [www.bbcinternational.com](http://www.bbcinternational.com)

**AUGUST 23, 2005**

PREPARED FOR:

**MR. STEPHEN R. WILSON**  
**CONOCOPHILLIPS**  
**29 VACUUM COMPLEX RD.**  
**LOVINGTON, NEW MEXICO 88260-9613**



*Incident - n PAC0605540817*  
*Application - p PAC0605540966*



# NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

**BILL RICHARDSON**

Governor

**Joanna Prukop**

Cabinet Secretary

**Mark E. Fesmire, P.E.**

Director

**Oil Conservation Division**

September 15, 2005

Steve Wilson  
Conoco Phillips  
29 Vacuum Complex Rd.  
Lovington, NM 88260

Re: Work Plan Approval  
EVGSAU #3127-002 Flowline Leak  
Dated: 08/23/05  
UL-M, Sec 32-T17S-R35E

The remediation closure referenced above and submitted to the New Mexico Oil Conservation Division (OCD) for ConocoPhillips by BBC is **hereby approved** according to the information provided.

Please be advised that OCD approval of this plan does not relieve ConocoPhillips of liability should their operations fail to adequately investigate and remediate contaminants that threaten ground water, surface water, human health or the environment. In addition, OCD approval does not relieve ConocoPhillips of responsibility for compliance with any other federal, state, or local laws and/or regulations.

If you have any questions or need assistance please write or call: (505) 393-6161, ext. 113, or e-mail: [psheeeley@state.nm.us](mailto:psheeeley@state.nm.us)

Sincerely,

Paul Sheeley-Environmental Engineer

Cc: Roger Anderson - Environmental Bureau Chief  
Chris Williams - District I Supervisor  
Larry Johnson - Environmental Engineer  
Ken Swinny - BBC

# **ConocoPhillips**

## **EVGSAU #3127-002 Flowline Leak**

### **(05-31-05)**

#### **1.0 INTRODUCTION**

The subject site is located east of Buckeye, New Mexico in unit letter M of Section 32, Township 17 South, and Range 35 East. The site consists of undeveloped rangeland and petroleum production facilities. On May 5, 2005, the 3" flowline from well # 3127-002 leaked approximately 14 bbls of oil and 9 bbls of water with approximately 6 bbls of oil and 4 bbls of water being recovered.

#### **2.0 SITE CHARACTERIZATION**

The leak area runs north to south and measures approximately 138 feet by 40 feet. A diagram of the leak area including the sample points can be reviewed in Appendix I of this report. Site photographs are located in Appendix IV of this report. The surface soil is brown topsoil. There is no water source within 1,000 feet of the site. There is no surface water within 1,000 feet of the site. Data from the New Mexico Office of the State Engineer indicates that there is one recorded water well located in Section 32, Township 17 South, and Range 35 East. The depth to groundwater in this well is 86.08 feet. The rock layer in the Buckeye area is very shallow and at this site it is approximately one foot below the surface of the topsoil. A soil boring drilled on 8-3-05 to 119 feet BGS (Below Ground Surface) at the center of the leak site did not encounter groundwater. Therefore the ranking criteria for this site, using New Mexico Oil Conservation Division "Guidelines for Remediation of Leaks Spills and Releases" (August 13, 1993), is 0 - 9.

#### **3.0 SITE INVESTIGATION ACTIVITIES**

On 6-6-05 BBC personnel conducted a site visit and concluded that the surface soil should be excavated and disposed of to prevent further vertical migration of hydrocarbons and chloride at the site.

On 6-9-05 BBC personnel and equipment mobilized to the site and began excavating surface soils. During the excavation and disposal of the surface soil samples were taken at various points and shallow depths to determine the remaining hydrocarbon and chloride impact at the site. A backhoe was used to sample to a depth of 13.5 feet BGS (Below Ground Surface). All samples were taken to Cardinal Laboratories for analysis. Soil analysis from these samples indicated that further vertical delineation of the site was warranted. The sample

point locations can be reviewed on the site diagram located in Appendix I. The laboratory analysis reports can be reviewed in Appendix II.

On 8-4-05 an air rotary drilling rig was used to drill two soil borings at the site. SB1 was drilled at the approximate point of the leak to a depth of 50 feet BGS. SB2 was drilled at the approximate center of the leak site to a depth of 119 feet BGS. No groundwater was encountered at SB2. Field chloride analysis and a PID were used to screen the samples. Samples were taken at 5' intervals in both soil borings. All samples from SB1 were analyzed for chlorides, additionally since this boring was the nearest to the leak point the 5', 25' and 50' samples were also analyzed for TPH and BTEX. All samples from SB2 were analyzed for chlorides, additionally the 5', and 119' samples were analyzed for TPH and BTEX. Soil boring records can be reviewed in Appendix III.

#### **4.0 CONCLUSION AND RECOMMENDATION**

The laboratory data for this site indicates that TPH and BTEX concentrations are below OCD guidelines for areas where depth to groundwater is greater than 100 feet, and the area of greatest chloride contamination is in the near surface portion of the leak area. Therefore, it is recommended that approximately 3 feet of soil be removed and disposed of. This soil would be transported to an OCD approved landfarm or disposal site. An impermeable barrier would then be installed, the site backfilled with clean soil, and reseeded with the appropriate BLM seed mix.

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
1301 W. Grand Avenue, Artesia, NM 88210  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy Minerals and Natural Resources

Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Form C-141  
Revised October 10, 2003

Submit 2 Copies to appropriate  
District Office in accordance  
with Rule 116 on back  
side of form

**Release Notification and Corrective Action**

**OPERATOR**

Initial Report  Final Report

Name of Company <b>ConocoPhillips</b>	Contact <b>Stephen Wilson</b>
Address <b>HC60 Box 66, Lovington, NM</b>	Telephone No. <b>505-396-7962</b>
Facility Name <b>EVGSAU well #3127-002</b>	Facility Type <b>Oil and Gas</b>

Surface Owner <b>State of NM</b>	Mineral Owner	Lease No <b>30-025-02961-00-00</b>
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**LOCATION OF RELEASE**

Unit Letter <b>m</b>	Section <b>32</b>	Township <b>17S</b>	Range <b>35E</b>	Feet from the	North/South Line	Feet from the	East/West Line	County <b>Lea, NM</b>
-------------------------	----------------------	------------------------	---------------------	---------------	------------------	---------------	----------------	--------------------------

Latitude N 32° 47.282' Longitude W 103° 29.213'

**NATURE OF RELEASE**

Type of Release <b>Crude and Produced water</b>	Volume of Release <b>23bbl (14oil, 9water)</b>	Volume Recovered <b>(6oil, 4water)</b>
Source of Release <b>Flowline</b>	Date and Hour of Occurrence <b>05-31-05 9:00am</b>	Date and Hour of Discovery <b>05-31-05 10:00am</b>
Was Immediate Notice Given? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.\*

Describe Cause of Problem and Remedial Action Taken.\*

**Flow line leak due to external corrosion. Vacuum truck out to pick up free liquids and backhoe out to sand location to secure site.**

Describe Area Affected and Cleanup Action Taken.\*

**150' X 30" of pasture. Vacuum truck out to pick up free liquids and backhoe out to sand location to secure site.**

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

<b>OIL CONSERVATION DIVISION</b>	
Signature:	Approved by District Supervisor:
Printed Name: <b>Stephen R. Wilson</b>	Approval Date:
Title: <b>Sr. SHEAR Specialist</b>	Expiration Date:
E-mail Address: <b>Stephen.R.Wilson@ConocoPhillips.com</b>	Conditions of Approval:
Date: <b>06-1-05</b> Phone: <b>505-396-7962</b>	Attached <input type="checkbox"/>

\* Attach Additional Sheets If Necessary

**Table 1**

Analyte	Method	SP1 @ 1'	SP2 @ 1'	SP3 @ 1'	Background
		Sample : H9872-1 6/10/2005	Sample : H9872-2 6/10/2005	Sample : H9872-3 6/10/2005	Sample : H9872-4 6/10/2005
		mg/Kg	mg/Kg	mg/Kg	mg/Kg
<b>Chloride</b>	Std. Methods 4500-CIB	<b>8560</b>	<b>8880</b>	<b>12600</b>	<b>48</b>
<b>GRO</b>	EPA SW-846 8015 M	<b>22.7</b>	<10.0	<10.0	<10.0
<b>DRO</b>	EPA SW-846 8015 M	<b>1890</b>	<10.0	<10.0	<10.0
<b>Benzene</b>	EPA SW-846 8260	<0.005	<0.005	<0.005	<0.005
<b>Toluene</b>	EPA SW-846 8260	<0.005	<0.005	<0.005	<0.005
<b>Ethylbenzene</b>	EPA SW-846 8260	<0.005	<0.005	<0.005	<0.005
<b>Total Xylenes</b>	EPA SW-846 8260	<b>0.078</b>	<0.0015	<0.0015	<0.0015

**Table 2**

Analyte	Method	SP @ 3'	SP @ 5'	SP @ 7.5'	SP @ 10'	SP @ 13.5'
		Sample : H9874-1 6/15/2005	Sample : H9874-2 6/15/2005	Sample : H9874-3 6/15/2005	Sample : H9874-4 6/15/2005	Sample : H9874-5 6/15/2005
		mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
<b>Chloride</b>	Std. Methods 4500-CIB	<b>8320</b>	<b>3840</b>	<b>4240</b>	<b>4240</b>	<b>3520</b>
<b>GRO</b>	EPA SW-846 8015 M	<10.0	<10.0	<10.0	<10.0	<10.0
<b>DRO</b>	EPA SW-846 8015 M	<10.0	<10.0	<10.0	<10.0	<10.0
<b>Benzene</b>	EPA SW-846 8260	<0.005	<0.005	<0.005	<0.005	<0.005
<b>Toluene</b>	EPA SW-846 8260	<0.005	<0.005	<0.005	<0.005	<0.005
<b>Ethylbenzene</b>	EPA SW-846 8260	<0.005	<0.005	<0.005	<0.005	<0.005
<b>Total Xylenes</b>	EPA SW-846 8260	<0.015	<0.015	<0.015	<0.015	<0.015

Table 3

Analyte	Method	SB1 @ 5'	SB1 @ 10'	SB1 @ 15'	SB1 @ 20'	SB1 @ 25'
		Sample: H10052-1 8/3/2005	Sample: H10052-2 8/3/2005	Sample: H10052-3 8/3/2005	Sample: H10052-4 8/3/2005	Sample: H10052-5 8/3/2005
		mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Chloride	Std. Methods 4500-ClB	2159	3439	3439	1280	1280
GRO	EPA SW-846 8015 M	<10.0				<10.0
DRO	EPA SW-846 8015 M	<10.0				<10.0
Benzene	EPA SW-846 8260	<0.005				<0.005
Toluene	EPA SW-846 8260	<0.005				<0.005
Ethylbenzen	EPA SW-846 8260	<0.005				<0.005
Total Xylene	EPA SW-846 8260	<0.015				<0.015

Analyte	Method	SB1 @ 30'	SB1 @ 35'	SB1 @ 40'	SB1 @ 45'	SB1 @ 50'
		Sample: H10052-6 8/3/2005	Sample: H10052-7 8/3/2005	Sample: H10052-8 8/3/2005	Sample: H10052-9 8/3/2005	Sample: H10052-10 8/3/2005
		mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Chloride	Std. Methods 4500-ClB	432	256	256	224	192
GRO	EPA SW-846 8015 M					<10.0
DRO	EPA SW-846 8015 M					<10.0
Benzene	EPA SW-846 8260					<0.005
Toluene	EPA SW-846 8260					<0.005
Ethylbenzen	EPA SW-846 8260					<0.005
Total Xylene	EPA SW-846 8260					<0.015



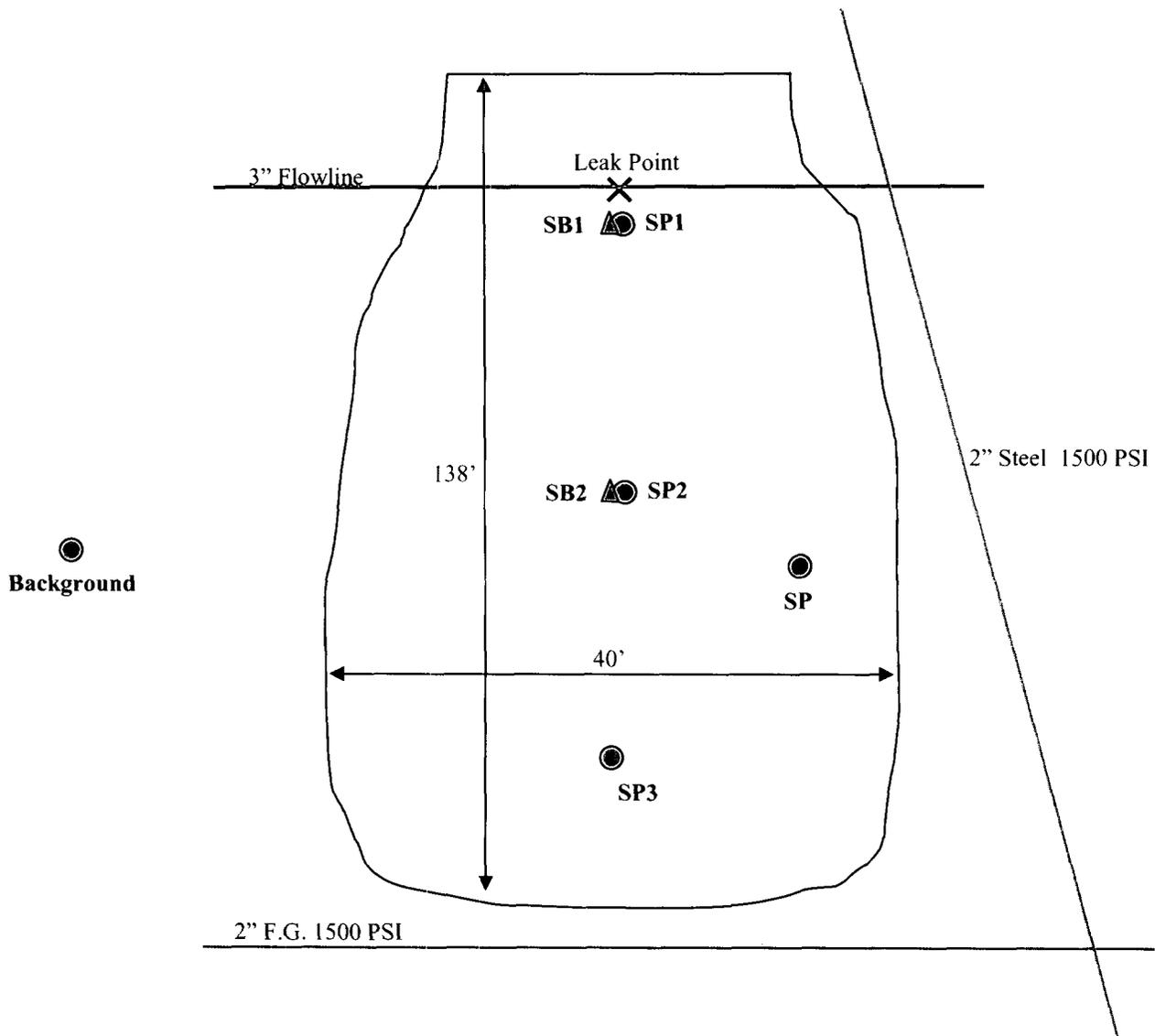
### Groundwater Search Results

UL	SEC	TWN	RNG	SPOT	COUNTY	SOURCE	QTY	SITE LOCATION	DATE	LEVEL
B	32	17S	35E	21142	LEA	SEO	1	17S.35E.32.21142	1990-12-20	86.08

# Appendix I



# CONOCOPHILLIPS EVGSAU 3127-002 FLOWLINE LEAK



## LEGEND

- × Leak point
- Sample point
- ▲ Soil Boring

BBC INTERNATIONAL, INC.

CONOCOPHILLIPS  
Well 3127-002

Date: 6-16-05	Drawn By: JG
Disk:	Sheet 1 of 1 Sheets
Scale: Not to Scale	File Name

**CONOCOPHILLIPS  
WELL #3127-002  
GPS Coordinates**

**SP-1**            N. 32° 47.291'  
                      W. 103° 29.221'

**SP-2**            N. 32° 47.284'  
                      W. 103° 29.221'

**SP-3**            N. 32° 47.277'  
                      W. 103° 29.220'

**SP**                N. 32° 47.283'  
                      W. 103° 29.219'

**BACKGROUND**    N. 32° 47.280'  
                      W. 103° 29.236'

**SB-1**            N. 32° 47.291'  
                      W. 103° 29.221'

**SB-2**            N. 32° 47.284'  
                      W. 103° 29.221'

# Appendix II



**ARDINAL  
LABORATORIES**

PHONE (325) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603

PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR  
BBC INTERNATIONAL, INC.  
ATTN: CLIFF BRUNSON  
P.O. BOX 805  
HOBBS, NM 88240  
FAX TO: (505) 397-0397

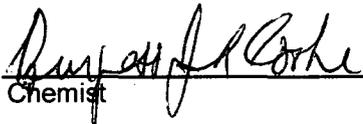
Receiving Date: 06/15/05  
Reporting Date: 06/16/05  
Project Owner: CONOCO PHILLIPS  
Project Name: EVGSAU #3127-002 FLOWLINE LEAK  
Project Location: BUCKEYE, NM

Sampling Date: 06/10/05  
Sample Type: SOIL  
Sample Condition: COOL & INTACT  
Sample Received By: AH  
Analyzed By: BC/AH

LAB NUMBER SAMPLE ID	GRO	DRO	CI*
	(C <sub>6</sub> -C <sub>10</sub> ) (mg/Kg)	(>C <sub>10</sub> -C <sub>28</sub> ) (mg/Kg)	(mg/Kg)

ANALYSIS DATE	06/15/05	06/15/05	06/16/05
H9872-1 SP1 @1'	22.7	1890	8560
H9872-2 SP2 @1'	<10.0	<10.0	8880
H9872-3 SP3 @1'	<10.0	<10.0	12600
H9872-4 BACKGROUND	<10.0	<10.0	48
Quality Control	784	815	1030
True Value QC	800	800	1000
% Recovery	98.0	102	103
Relative Percent Difference	1.0	4.6	2.0

METHODS: TPH GRO & DRO: EPA SW-846 8015 M; CI: Std. Methods 4500-CI'B  
\*Analyses performed on 1:4 w:v aqueous extracts.

  
\_\_\_\_\_  
Chemist

6/16/05  
\_\_\_\_\_  
Date

H9872A.XLS



**ARDINAL  
LABORATORIES**

PHONE (325) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603

PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

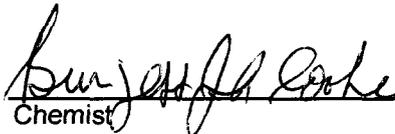
ANALYTICAL RESULTS FOR  
BBC INTERNATIONAL, INC.  
ATTN: CLIFF BRUNSON  
P.O. BOX 805  
HOBBS, NM 88240  
FAX TO: (505) 397-0397

Receiving Date: 06/15/05  
Reporting Date: 06/16/05  
Project Owner: CONOCO PHILLIPS  
Project Name: EVGSAU #3127-002 FLOWLINE LEAK  
Project Location: BUCKEYE, NM

Sampling Date: 06/10/05  
Sample Type: SOIL  
Sample Condition: COOL & INTACT  
Sample Received By: AH  
Analyzed By: BC

LAB NUMBER	SAMPLE ID	BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL BENZENE (mg/Kg)	TOTAL XYLENES (mg/Kg)
ANALYSIS DATE		06/15/05	06/15/05	06/15/05	06/15/05
H9872-1	SP1 @1'	<0.005	<0.005	<0.005	0.078
H9872-2	SP2 @1'	<0.005	<0.005	<0.005	<0.015
H9872-3	SP3 @1'	<0.005	<0.005	<0.005	<0.015
H9872-4	BACKGROUND	<0.005	<0.005	<0.005	<0.015
Quality Control		0.094	0.099	0.099	0.302
True Value QC		0.100	0.100	0.100	0.300
% Recovery		94.4	98.7	99.1	101.0
Relative Percent Difference		4.5	2.6	1.7	2.2

METHOD: EPA SW-846 8260

  
Chemist

6/16/05  
Date





# ARDINAL LABORATORIES

PHONE (325) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603

PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR  
BBC INTERNATIONAL, INC.  
ATTN: CLIFF BRUNSON  
P.O. BOX 805  
HOBBS, NM 88241  
FAX TO: (505) 397-0397

Receiving Date: 06/17/05  
Reporting Date: 06/20/05  
Project Number: NOT GIVEN  
Project Name: EVGSAV #3127-002 FLOWLINE LEAK  
Project Location: BUCKEYE, NM

Analysis Date: 06/17/05  
Sampling Date: 06/15/05  
Sample Type: SOIL  
Sample Condition: COOL & INTACT  
Sample Received By: NF  
Analyzed By: AH

LAB NUMBER	SAMPLE ID	Cl <sup>-</sup> (mg/Kg)
H9874-1	SP @ 3'	8320
H9874-2	SP @ 5'	3840
H9874-3	SP @ 7.5'	4240
H9874-4	SP @ 10'	4240
H9874-5	SP @ 13.5'	3520
Quality Control		1020
True Value QC		1000
% Recovery		102
Relative Percent Difference		1.0

METHOD: Std. Methods	4500-Cl <sup>-</sup> B
----------------------	------------------------

NOTE: Analyses performed on 1:4 w:v aqueous extracts.

Chemist

6/20/05  
Date



PHONE (325) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603

PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR  
 BBC INTERNATIONAL, INC.  
 ATTN: CLIFF BRUNSON  
 P.O. BOX 805  
 HOBBS, NM 88241  
 FAX TO: (505) 397-0397

Receiving Date: 06/17/05  
 Reporting Date: 06/21/05  
 Project Number: NOT GIVEN  
 Project Name: EVGSAV #3127-002 FLOWLINE LEAK  
 Project Location: BUCKEYE, NM

Sampling Date: 06/15/05  
 Sample Type: SOIL  
 Sample Condition: COOL & INTACT  
 Sample Received By: NF  
 Analyzed By: BC

LAB NUMBER	SAMPLE ID	GRO (C <sub>6</sub> -C <sub>10</sub> ) (mg/Kg)	DRO (>C <sub>10</sub> -C <sub>28</sub> ) (mg/Kg)	BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL BENZENE (mg/Kg)	TOTAL XYLENES (mg/Kg)
ANALYSIS DATE:		06/19/05	06/19/05	06/20/05	06/20/05	06/20/05	06/20/05
H9874-1	SP @ 3'	<10.0	<10.0	<0.005	<0.005	<0.005	<0.015
H9874-5	SP @ 13.5'	<10.0	<10.0	<0.005	<0.005	<0.005	<0.015
Quality Control		784	815	0.094	0.086	0.087	0.270
True Value QC		800	800	0.100	0.100	0.100	0.300
% Recovery		98.0	102	94.2	86.1	87.4	90.0
Relative Percent Difference		1.0	4.6	0.2	14.6	13.4	12.0

METHODS: TPH GRO & DRO - EPA SW-846 8015 M; BTEX - SW-846 8260.

  
 Burgess J. A. Cooke, Ph. D.

6/21/05  
 Date

H9874A.XLS

PLEASE NOTE: **Liability and Damages.** Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above-stated reasons or otherwise.







# ARDINAL LABORATORIES

PHONE (325) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603

PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

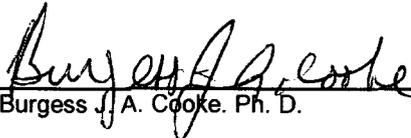
ANALYTICAL RESULTS FOR  
BBC INTERNATIONAL, INC.  
ATTN: CLIFF BRUNSON  
P.O. BOX 805  
HOBBS, NM 88241  
FAX TO: (505) 397-0397

Receiving Date: 08/08/05  
Reporting Date: 08/09/05  
Project Owner: CONOCO PHILLIPS  
Project Name: EVGSAU #3127-002 FLOWLINE LEAK  
Project Location: BUCKEYE, NM

Sampling Date: 08/03/05  
Sample Type: SOIL  
Sample Condition: COOL & INTACT  
Sample Received By: NF  
Analyzed By: BC

LAB NUMBER	SAMPLE ID	GRO (C <sub>6</sub> -C <sub>10</sub> ) (mg/Kg)	DRO (>C <sub>10</sub> -C <sub>28</sub> ) (mg/Kg)	BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL BENZENE (mg/Kg)	TOTAL XYLENES (mg/Kg)
ANALYSIS DATE:		08/08/05	08/08/05	08/08/05	08/08/05	08/08/05	08/08/05
H10052-1	SB 1 @ 5'	<10.0	<10.0	<0.005	<0.005	<0.005	<0.015
H10052-5	SB 1 @ 25'	<10.0	<10.0	<0.005	<0.005	<0.005	<0.015
H10052-10	SB 1 @ 50'	<10.0	<10.0	<0.005	<0.005	<0.005	<0.015
Quality Control		759	754	0.096	0.091	0.098	0.308
True Value QC		800	800	0.100	0.100	0.100	0.300
% Recovery		94.9	94.2	95.8	90.5	97.5	103
Relative Percent Difference		3.6	1.2	0.6	3.3	4.9	4.9

METHODS: TPH GRO & DRO - EPA SW-846 8015 M; BTEX - SW-846 8260.

  
Burgess J. A. Cooke, Ph. D.

8/19/05  
Date

H10052A.XLS

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# ARDINAL LABORATORIES

PHONE (325) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603

PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR  
BBC INTERNATIONAL, INC.  
ATTN: CLIFF BRUNSON  
P.O. BOX 805  
HOBBS, NM 88241  
FAX TO: (505) 397-0397

Receiving Date: 08/08/05

Reporting Date: 08/09/05

Project Owner: CONOCO PHILLIPS

Project Name: EVGSAU #3127-002 FLOWLINE LEAK

Project Location: BUCKEYE, NM

Analysis Date: 08/09/05

Sampling Date: 08/03/05

Sample Type: SOIL

Sample Condition: COOL & INTACT

Sample Received By: NF

Analyzed By: NF

LAB NUMBER	SAMPLE ID	Cl <sup>-</sup> (mg/Kg)
H10053-1	SB 2 @ 5'	2719
H10053-2	SB 2 @ 10'	3839
H10053-3	SB 2 @ 15'	4799
H10053-4	SB 2 @ 20'	3359
H10053-5	SB 2 @ 25'	3039
H10053-6	SB 2 @ 30'	2559
H10053-7	SB 2 @ 35'	1999
H10053-8	SB 2 @ 40'	2159
H10053-9	SB 2 @ 45'	1919
H10053-10	SB 2 @ 50'	2079
H10053-11	SB 2 @ 55'	1999
H10053-12	SB 2 @ 60'	1919
H10053-13	SB 2 @ 64'	1440
H10053-14	SB 2 @ 69'	1280
H10053-15	SB 2 @ 74'	1120
H10053-16	SB 2 @ 79'	1200
H10053-17	SB 2 @ 84'	1120
H10053-18	SB 2 @ 89'	1200
H10053-19	SB 2 @ 94'	1280
H10053-20	SB 2 @ 99'	1120
H10053-21	SB 2 @ 104'	720
H10053-22	SB 2 @ 109'	704
H10053-23	SB 2 @ 114'	560
Quality Control		1000
True Value QC		1000
% Recovery		100
Relative Percent Difference		2.0

METHOD: Standard Methods

4500-Cl<sup>-</sup>B

Note: Analyses performed on 1:4 w:v aqueous extracts.

*Amy Hill*  
Chemist

*8/9/05*  
Date

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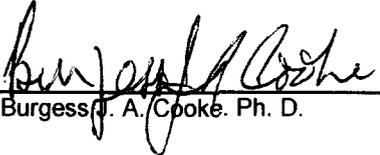
ANALYTICAL RESULTS FOR  
BBC INTERNATIONAL, INC.  
ATTN: CLIFF BRUNSON  
P.O. BOX 805  
HOBBS, NM 88241  
FAX TO: (505) 397-0397

Receiving Date: 08/08/05  
Reporting Date: 08/09/05  
Project Owner: CONOCO PHILLIPS  
Project Name: EVGSAU #3127-002 FLOWLINE LEAK  
Project Location: BUCKEYE, NM

Sampling Date: 08/03/05  
Sample Type: SOIL  
Sample Condition: COOL & INTACT  
Sample Received By: NF  
Analyzed By: BC

LAB NUMBER	SAMPLE ID	GRO (C <sub>6</sub> -C <sub>10</sub> ) (mg/Kg)	DRO (>C <sub>10</sub> -C <sub>28</sub> ) (mg/Kg)	BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL BENZENE (mg/Kg)	TOTAL XYLENES (mg/Kg)
ANALYSIS DATE:		08/08/05	08/08/05	08/08/05	08/08/05	08/08/05	08/08/05
H10053-1	SB 2 @ 5'	<10.0	<10.0	<0.005	<0.005	<0.005	<0.015
Quality Control		759	754	0.096	0.091	0.098	0.308
True Value QC		800	800	0.100	0.100	0.100	0.300
% Recovery		94.9	94.2	95.8	90.5	97.5	103
Relative Percent Difference		3.6	1.2	0.6	3.3	4.9	4.9

METHODS: TPH GRO & DRO - EPA SW-846 8015 M; BTEX - SW-846 8260.

  
Burgess A. Cooke, Ph. D.

8/9/05  
Date

H10053A.XLS

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

CARDINAL LABORATORIES, INC.

2111 Beechwood, Abilene, TX 79603 101 East Marland, Hobbs, NM 88240  
 (915) 673-7001 Fax (915) 673-7020 (505) 393-2326 Fax (505) 393-2476

**Company Name:** BBC International, Inc  
**Project Manager:** Cliff Brunson  
**Address:** 1324 W Marland  
**City:** Hobbs  
**State:** N.M. **Zip:** 88240  
**Phone #:** (505) 397-6288 **Fax #:** (505) 397-0397  
**Project #:** -  
**Project Name:** EVGSAH #3117-CO2 Flowline leak  
**Project Location:** Buckeye N.M.  
**Sampler Name:** Ken Swainey

**Matrix:** # CONTAINERS: 1  
 GROUNDWATER:   
 WASTEWATER:   
 SOIL:   
 CRUDE OIL:   
 SLUDGE:   
 OTHER:   
 ACID/BASE:   
 ICE/COOL:   
 OTHER:

**Lab I.D.:** Sample I.D.

Lab I.D.	DATE	TIME	ANALYSIS REQUEST
10053-1 SB2 @ 5'	8-3-05	15:40	Chloride TPH DTEX
-2 SB2 @ 10'	8-3-05	15:42	
-3 SB2 @ 15'	8-3-05	15:44	
-4 SB2 @ 20'	8-3-05	15:46	
-5 SB2 @ 25'	8-3-05	15:49	
-6 SB2 @ 30'	8-3-05	15:55	
-7 SB2 @ 35'	8-3-05	16:04	
-8 SB2 @ 40'	8-3-05	16:06	
-9 SB2 @ 45'	8-3-05	16:25	
-10 SB2 @ 50'	8-3-05	16:27	

Terms and Conditions: Inferred not to be charged on 14 consecutive days from 30 days past due at the rate of 2% per annum from the original date of invoice, and all costs of collection, including attorney's fees.

**Received By:** R-H  
**Date:** 8-3-05  
**Time:** 9:10

**Received By:** R-H  
**Date:** 8-8-05  
**Time:** 9:20

**Delivered By:** (Circle One)  
 Sampler - UPS - Bus - Other:

**Sample Condition:**  
 Cool:  In tact:   
 Yes:  No:

**Checked By:** [Signature]

**Remarks:**









PHONE (325) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603

PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR  
 BBC INTERNATIONAL, INC  
 ATTN: C. BRUNSON  
 1324 W MARLAND  
 HOBBS, NM 88240  
 FAX TO: 505-397-0397

Receiving Date: 8/4/2005  
 Project Owner: CONOCO PHILLIPS  
 Project Number: NONE GIVEN  
 Project Name: EVGSAU #3127-002 FLOWLINE LEAK  
 Project Location: BUCKEYE N.M.

Sampling Date: 8/4/2005  
 Sample Type: SOIL  
 Sample Condition: COOL & INTACT  
 Sample Received By: AH  
 Analyzed By: JD

LAB ID	SAMPLE ID	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TOTAL TPH (mg/kg)
ANALYSIS DATE		8/5/05	8/5/05	8/5/05
H10043-1	SB2 @ 119'	<50.0	<50.0	<50.0
Blank		<50.0	<50.0	<50.0
Matrix Spike		178	205	383
Matrix Spike Duplicate		171	211	382
True Value		200	200	400
% Recovery (Ave)		87.3	104	95.6
Relative Percent Difference		4	2.8	0.3

METHOD: EPA SW 846-8015M GRO; TRPHC by Gas Chromatography

*Jennell DeBain*  
 \_\_\_\_\_  
 Chemist

*8/8/05*  
 \_\_\_\_\_  
 Date

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PHONE (325) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603

PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR  
 BBC INTERNATIONAL, INC.  
 ATTN: CLIFF BRUNSON  
 P.O. BOX 805  
 HOBBS, NM 88241  
 FAX TO: (505) 397-0397

Receiving Date: 08/04/05  
 Reporting Date: 08/08/05  
 Project Owner: CONOCO PHILLIPS  
 Project Name: EVGSAU #3127-002 FLOWLINE LEAK  
 Project Location: BUCKEYE, NM

Sampling Date: 08/04/05  
 Sample Type: SOIL  
 Sample Condition: COOL & INTACT  
 Sample Received By: AH  
 Analyzed By: BC

LAB NUMBER	SAMPLE ID	BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL BENZENE (mg/Kg)	TOTAL XYLENES (mg/Kg)
ANALYSIS DATE		08/04/05	08/04/05	08/04/05	08/04/05
H10043-1	SB2 @ 119'	<0.005	<0.005	<0.005	<0.015
Quality Control		0.096	0.091	0.098	0.306
True Value QC		0.100	0.100	0.100	0.300
% Recovery		95.6	90.8	97.8	102
Relative Percent Difference		<0.1	0.2	2.5	2.7

METHOD: EPA SW-846 8260

Burgess J. Cooke  
 Chemist

8/8/05  
 Date

PLEASE NOTE: **Liability and Damages.** Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above-stated reasons or otherwise.



# Appendix III

File Number: \_\_\_\_\_

NEW MEXICO OFFICE OF THE STATE ENGINEER  
WELL RECORD

1. OWNER OF WELL

Name: ConocoPhillips Work Phone: \_\_\_\_\_  
Contact: \_\_\_\_\_ Home Phone: \_\_\_\_\_  
Address: 29 Vacuum Rd.  
City: Lovington State: NM Zip: 88260

2. LOCATION OF WELL (A, B, C, or D required, E or F if known)

A. 1/4 1/4 1/4 Section: 32 Township: 17S Range: 38E N.M.P.M.  
in Unit Letter M, Lea Co. County.

B. X = \_\_\_\_\_ feet, Y = \_\_\_\_\_ feet, N.M. Coordinate System  
\_\_\_\_\_ Zone in the \_\_\_\_\_ Grant.  
U.S.G.S. Quad Map \_\_\_\_\_

C. Latitude: 32 d 47 m 17.1 s Longitude: 103 d 29 m 13.0 s

D. East \_\_\_\_\_ (m), North \_\_\_\_\_ (m), UTM Zone 13, NAD \_\_\_\_\_ (27 or 83)

E. Tract No. \_\_\_\_\_, Map No. \_\_\_\_\_ of the \_\_\_\_\_ Hydrographic Survey

F. Lot No. \_\_\_\_\_, Block No. \_\_\_\_\_ of Unit/Tract \_\_\_\_\_ of the  
\_\_\_\_\_ Subdivision recorded in \_\_\_\_\_ County.

G. Other: \_\_\_\_\_

H. Give State Engineer File Number if existing well: \_\_\_\_\_

I. On land owned by (required): ConocoPhillips

3. DRILLING CONTRACTOR

License Number: WD-1456  
Name: White Drilling Company, Inc. Work Phone: 325-893-2950  
Agent: John W. White Home Phone: 325-893-2950  
Mailing Address: P.O. Box 906  
City: Clyde State: TX Zip: 79510

4. DRILLING RECORD: SB-1

Drilling began: 8/03/05; Completed: 8/03/05; Type tools: Air Rotary;  
Size of hole: 4 3/4 in.; Total depth of well: 55.0 ft.;  
Completed well is: shallow (shallow, artesian);  
Depth to water upon completion of well: DRY ft.

File Number: \_\_\_\_\_ Trn Number: \_\_\_\_\_  
Form: wr-20 page 1 of 4

File Number: \_\_\_\_\_

NEW MEXICO OFFICE OF THE STATE ENGINEER  
WELL RECORD

5. PRINCIPAL WATER-BEARING STRATA: SB-1

Depth in Feet From	To	Thickness in feet	Description of water-bearing formation	Estimated Yield (GPM)
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

6. RECORD OF CASING

Diameter (inches)	Pounds per ft.	Threads per in.	Depth in Feet Top	Bottom	Length (feet)	Type of Shoe	Perforations From	To
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

7. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	To	Hole Diameter	Sacks of mud	Cubic Feet of Cement	Method of Placement
55.0	5.0	4 3/4	10		Pour/bentonite pellets
5.0	0.0	4 3/4	2	0.99	Hand mix/cement
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

8. PLUGGING RECORD

Plugging Contractor: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 Plugging Method: \_\_\_\_\_  
 Date Well Plugged: \_\_\_\_\_

Plugging approved by: \_\_\_\_\_  
 State Engineer Representative

No.	Depth in Feet		Cubic Feet of Cement
	Top	Bottom	
1	_____	_____	_____
2	_____	_____	_____
3	_____	_____	_____
4	_____	_____	_____
5	_____	_____	_____

File Number: \_\_\_\_\_

Trn Number: \_\_\_\_\_





File Number: \_\_\_\_\_

NEW MEXICO OFFICE OF THE STATE ENGINEER  
WELL RECORD

1. OWNER OF WELL

Name: ConocoPhillips Work Phone: \_\_\_\_\_  
Contact: \_\_\_\_\_ Home Phone: \_\_\_\_\_  
Address: 29 Vacuum Rd.  
City: Lovington State: NM Zip: 88260

2. LOCATION OF WELL (A,B,C, or D required, E or F if known)

A. \_\_\_\_\_ 1/4 \_\_\_\_\_ 1/4 \_\_\_\_\_ 1/4 Section: 32 Township: 17S Range: 38E N.M.P.M.  
in Unit Letter M, Lea Co. County.  
B. X = \_\_\_\_\_ feet, Y = \_\_\_\_\_ feet, N.M. Coordinate System  
\_\_\_\_\_ Zone in the \_\_\_\_\_ Grant.  
U.S.G.S. Quad Map \_\_\_\_\_  
C. Latitude: 32 d 47 m 17.1 s Longitude: 103 d 29 m 13.0 s  
D. East \_\_\_\_\_ (m), North \_\_\_\_\_ (m), UTM Zone 13, NAD \_\_\_\_\_ (27 or 83)  
E. Tract No. \_\_\_\_\_, Map No. \_\_\_\_\_ of the \_\_\_\_\_ Hydrographic Survey  
F. Lot No. \_\_\_\_\_, Block No. \_\_\_\_\_ of Unit/Tract \_\_\_\_\_ of the  
\_\_\_\_\_ Subdivision recorded in \_\_\_\_\_ County.  
G. Other: \_\_\_\_\_  
H. Give State Engineer File Number if existing well: \_\_\_\_\_  
I. On land owned by (required): ConocoPhillips

3. DRILLING CONTRACTOR

License Number: WD-1456  
Name: White Drilling Company, Inc. Work Phone: 325-893-2950  
Agent: John W. White Home Phone: 325-893-2950  
Mailing Address: P.O. Box 906  
City: Clyde State: TX Zip: 79510

4. DRILLING RECORD: SB-2

Drilling began: 8/03/05; Completed: 8/04/05; Type tools: Air Rotary;  
Size of hole: 4 3/4 in.; Total depth of well: 119.0 ft.;  
Completed well is: shallow (shallow, artesian);  
Depth to water upon completion of well: DRY ft.

File Number: \_\_\_\_\_ Trn Number: \_\_\_\_\_

File Number: \_\_\_\_\_

NEW MEXICO OFFICE OF THE STATE ENGINEER  
WELL RECORD

5. PRINCIPAL WATER-BEARING STRATA: SB-2

Depth in Feet From	To	Thickness in feet	Description of water-bearing formation	Estimated Yield (GPM)
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

6. RECORD OF CASING

Diameter (inches)	Pounds per ft.	Threads per in.	Depth in Feet Top	Bottom	Length (feet)	Type of Shoe	Perforations From	To
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

7. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	To	Hole Diameter	Sacks of mud	Cubic Feet of Cement	Method of Placement
119.0	5.0	4 3/4	23		Pour/bentonite pellets
5.0	0.0	4 3/4	2	0.99	Hand mix/cement
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

8. PLUGGING RECORD

Plugging Contractor: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 Plugging Method: \_\_\_\_\_  
 Date Well Plugged: \_\_\_\_\_  
 Plugging approved by: \_\_\_\_\_  
 State Engineer Representative

No.	Depth in Feet Top	Bottom	Cubic Feet of Cement
1	_____	_____	_____
2	_____	_____	_____
3	_____	_____	_____
4	_____	_____	_____
5	_____	_____	_____





North Permian Basin Region  
P.O. Box 740  
Sundown, TX 79372-0740  
(806) 229-8121  
Lab Team Leader - Sheila Hernandez  
(432) 495-7240

## Water Analysis Report by Baker Petrolite

Company:	CONOCO - PHILLIPS PETROLEUM CO	Sales RDT:	33506
Region:	PERMIAN BASIN	Account Manager:	KENNY KEARNEY (505) 390-9370
Area:	MALJAMAR, NM	Sample #:	308282
Lease/Platform:	EAST VACUUM GRAYBURG SA UNIT	Analysis ID #:	40883
Entity (or well #):	3333 - 001	Analysis Cost:	\$40.00
Formation:	UNKNOWN		
Sample Point:	WELLHEAD		

Summary		Analysis of Sample 308282 @ 75 °F					
Sampling Date:	1/20/04	<b>Anions</b>	mg/l	meq/l	<b>Cations</b>	mg/l	meq/l
Analysis Date:	1/23/04	<b>Chloride:</b>	<b>64278.0</b>	<b>1813.05</b>	<b>Sodium:</b>	<b>39523.1</b>	<b>1719.16</b>
Analyst:	JAMES AHRLETT	<b>Bicarbonate:</b>	<b>2123.0</b>	<b>34.79</b>	<b>Magnesium:</b>	<b>737.0</b>	<b>60.63</b>
TDS (mg/l or g/m3):	113277.2	<b>Carbonate:</b>	<b>0.0</b>	<b>0.</b>	<b>Calcium:</b>	<b>2613.0</b>	<b>130.39</b>
Density (g/cm3, tonne/m3):	1.081	<b>Sulfate:</b>	<b>3548.0</b>	<b>73.87</b>	<b>Strontium:</b>	<b>48.0</b>	<b>1.1</b>
Anion/Cation Ratio:	1	Phosphate:			<b>Barium:</b>	<b>0.1</b>	<b>0.</b>
Carbon Dioxide:	310 PPM	Borate:			<b>Iron:</b>	<b>3.0</b>	<b>0.11</b>
Oxygen:		Silicate:			Potassium:	404.0	10.33
Comments:		Hydrogen Sulfide:		30 PPM	Aluminum:		
		pH at time of sampling:		6.33	Chromium:		
		pH at time of analysis:			Copper:		
		<b>pH used in Calculation:</b>		<b>6.33</b>	Lead:		
					Manganese:		
					Nickel:		

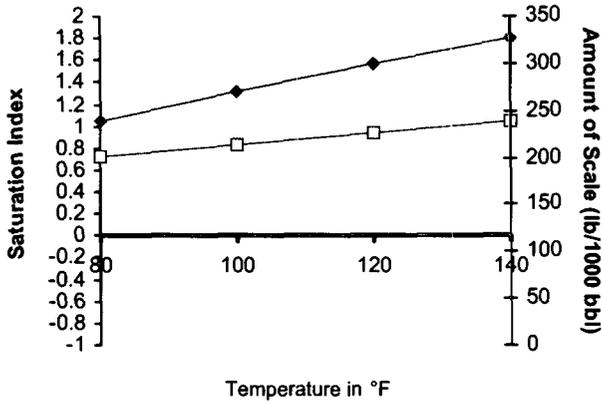
Conditions		Values Calculated at the Given Conditions - Amounts of Scale in lb/1000 bbl										
Temp	Gauge Press.	Calcite CaCO <sub>3</sub>		Gypsum CaSO <sub>4</sub> *2H <sub>2</sub> O		Anhydrite CaSO <sub>4</sub>		Celestite SrSO <sub>4</sub>		Barite BaSO <sub>4</sub>		CO <sub>2</sub> Press
		Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount	
°F	psi											psi
80	0	0.73	239.73	-0.02	0.00	-0.04	0.00	0.01	0.63	0.44	0.00	7.75
100	0	0.83	269.53	-0.08	0.00	-0.03	0.00	-0.01	0.00	0.26	0.00	9.75
120	0	0.94	299.03	-0.12	0.00	0.01	21.02	-0.02	0.00	0.09	0.00	11.85
140	0	1.05	327.90	-0.16	0.00	0.07	157.83	-0.02	0.00	-0.05	0.00	13.96

Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered.  
Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the five scales.  
Note 3: The reported CO2 pressure is actually the calculated CO2 fugacity. It is usually nearly the same as the CO2 partial pressure.

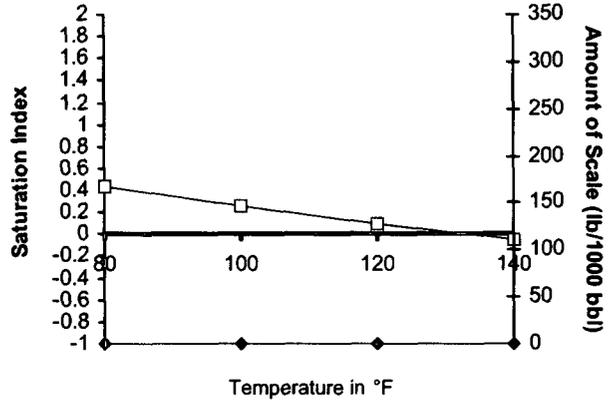
# Scale Predictions from Baker Petrolite

Analysis of Sample 308282 @ 75 °F for CONOCO - PHILLIPS PETROLEUM CO, 1/23/04

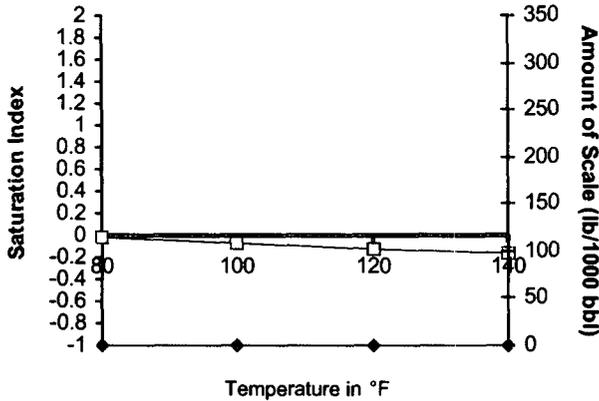
### Calcite - CaCO<sub>3</sub>



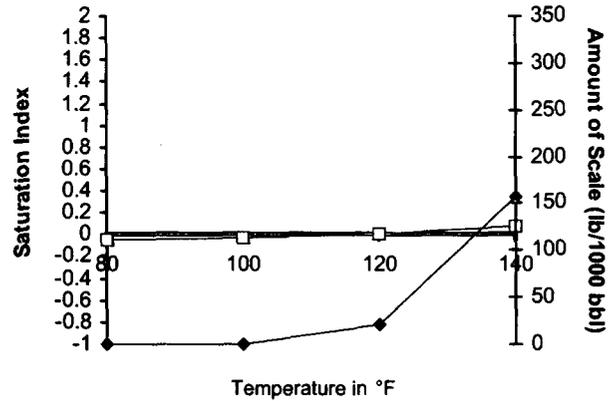
### Barite - BaSO<sub>4</sub>



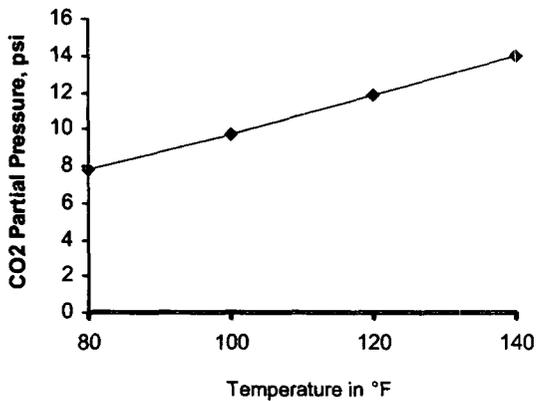
### Gypsum - CaSO<sub>4</sub>·2H<sub>2</sub>O



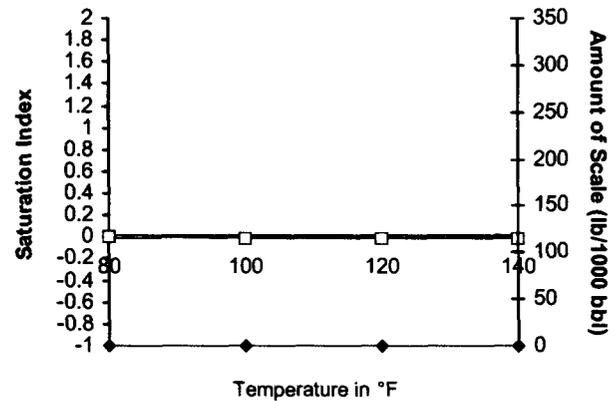
### Anhydrite - CaSO<sub>4</sub>



### Carbon Dioxide Partial Pressure



### Celestite - SrSO<sub>4</sub>



# Appendix IV

