# AP - 24

# STAGE 1 & 2 REPORTS

# DATE:

# Dec. 15, 2000

DISTRICT I
P.O. Box 1980, Hobbs, NM 88240
DISTRICT II
P.O. Drawer DD, Artesia, NM 88211
DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

State of New Mexico
Energy, Minerals and Natural Resources Department

# OIL CONSERVATION DIVISION

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

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

(Revised 3/9/94)

## PIT REMEDIATION AND CLOSURE REPORT

**Operator:** Yates Petroleum Corporation **Telephone:** (505) 748-4223

**Address:** 105 South Fourth Street Artesia, New Mexico 88210

**Facility or:** Inex Unlined Surface Impoundment (pit)
**Well Name**

**Location:** Unit or Qtr/Qtr Sec SE/4, NW/4 Sec 26 T 18S R 26E County Eddy

**Pit Type:** Separator _____ Dehydrator _____ Other Production Disposal Pit

**Land Type:** BLM _____, State _____, Fee X, Other _____

**Pit Location:** (Attach diagram)
Pit dimensions: length 85', width 45', depth 9'
Reference: wellhead _____, other Stock tanks at battery
Footage from reference: 15'
Direction from reference: _____ Degrees _____ East North X of _____ West South _____

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

**RANKING SCORE (TOTAL POINTS) :** 20

RECEIVED
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OIL CONSERVATION DIVISION

**Date Remediation Started:** 5/27/99 **Date Completed:** 11/00

**Remediation Method:** (Check all appropriate sections) Excavation X Approx. cubic yards 34,425

Landfarmed X Insitu Bioremediation _____

Other _____

**Remediation Location:** (ie. landfarmed onsite, name and location of offsite facility) Onsite X Offsite _____

**General Description of Remedial Action:** Excavated contaminated soil and land farmed onsite with bioremediation nutrients and water. Once soil was remediated to OCD guideline levels, soil was used as backfill in the excavated pit.

**Ground Water Encountered:** No X Yes _____ Depth _____

**Final Pit:**
**Closure Sampling:** (if multiple samples, attach sample results and diagram of sample locations and depths)

Sample Location See enclosed risk based closure request with supporting documentation.

Sample depth enclosed

Sample date enclosed Sample time enclosed

Sample Results

Benzene (ppm) enclosed

Total BTEX (ppm) enclosed

Field headscape (ppm) enclosed

TPH enclosed

**Ground Water Sample:** Yes X No _____ (If yes, attach sample results)

I HEREBY CERTIFY THAT THE INFORMATION ABOVE IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF

DATE December 15, 2000

SIGNATURE David Haggith PRINTED NAME AND TITLE David Haggith Environmental Coordinator

1305 Stockton Rd.
P. O. Box 494
Brownfield, Texas 79316

1-800-765-3478
Office: 806/637-8033
Fax: 806/637-6926

BIOREMEDIATION CONTRACTORS & CONSULTANTS

**BCC, Inc.**

*Land Reclamation* *Weed Control*

February 28, 2000



State of New Mexico
Energy And Minerals Department
Oil Conservation Division
P.O. Box 1980
Hobbs, New Mexico 88240

**RE: Final Closure of Unlined Surface Impoundments - Eddy County, New Mexico**

Closure Report:
Locations:

Yates Petroleum Corporation
Inex Battery Pit
Sec. 26 - T18S - R26E
Eddy County, New Mexico

Yates Petroleum Corporation
Lattion Battery Pit
Sec. 23 - T18S - R26E
Eddy County, New Mexico

Yates Petroleum Corporation
Scripp Battery Pit
Sec. 25 - T18S - R26E
Eddy County, New Mexico

Yates Petroleum Corporation
Williams Battery Pit
Sec. 25 - T18S - R26E
Eddy County, New Mexico

Since satisfying the criteria for final closure, remedial actions have been completed on the above mentioned unlined surface impoundments. The attached soil analysis of these four sites demonstrate the soil remediation levels have been met. Upon approval from the OCD, final closure will begin by backfilling these four sites, contouring them as to provide drainage away from the sites.

For any questions or concerns regarding this matter, please contact Paul Porter at 1-800-765-3478.

Sincerely,

Paul Porter
Vice President

1305 Stockton Rd.
P. O. Box 494
Brownfield, Texas 79316

1-800-765-3478
Office: 806/637-8033
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BIOREMEDIATION CONTRACTORS & CONSULTANTS

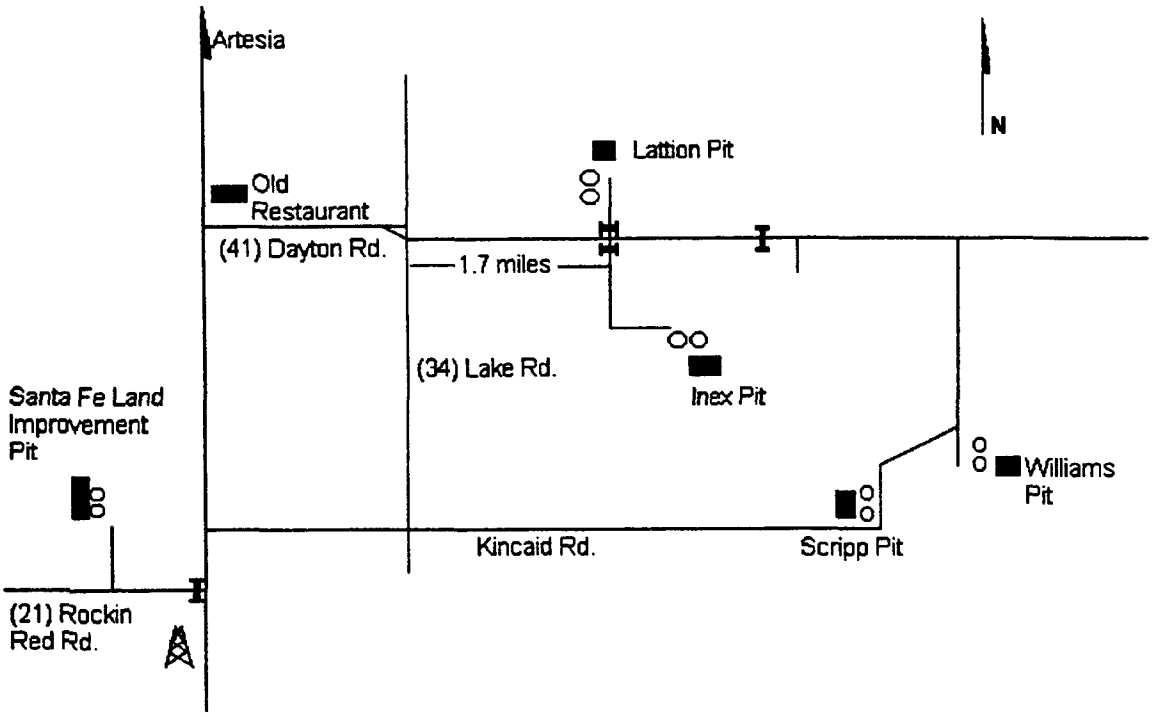
**BCC, Inc.**

*Land Reclamation* *Weed Control*

# Yates Petroleum Corporation

## Unlined Surface Impoundment Closures
## *(Pit Closures)*
## on old H & S Battery Sites

## 1999




**YATES PETROLEUM CORPORATION**

1305 Stockton Rd.
P. O. Box 494
Brownfield, Texas 79316

1-800-765-3478
Office: 806/637-8033
Fax: 806/637-6926

BIOREMEDIATION CONTRACTORS & CONSULTANTS

**BCC, Inc.**

*Land Reclamation* *Weed Control*

May 20, 1998

Mr. Darrell Atkins
YATES PETROLEUM CORPORATION
105 South 4th Street
Artesia, New Mexico 88210

RE: Pit Closures On Old H & S Battery Sites

Dear Darrell,

The following is the costs and procedure for complete pit closures on the old H & S battery sites. I have made the necessary site assessments and rankings required by the OCD. The total cost includes all monitoring, documentation and soil sampling that will be required in order to be in complete compliance with the OCD.

If you have any further questions, please call me at 1 800 765 - 3478. Thank you for the opportunity to price this project.

Sincerely,

Paul Porter
Vice President

1305 Stockton Rd.
P. O. Box 494
Seminole, Texas 79316

1-800-765-3478
Office: 806/637-8003
Fax: 806/637-8928

BIOREMEDIATION CONTRACTORS & CONSULTANTS

**BCC, Inc.**

*Land Reclamation* *Weed Control*

# ** LAND RECLAMATION PROPOSAL **
# YATES PETROLEUM CORPORATION
# PIT CLOSURES

## Procedure:

After excess fluids have been vacuumed off pit areas, BCC, Inc. would begin work with the clearing of bird netting and debris from each pit. Backhoe work would then begin in order to make pits accessible for treatment procedures. Affected areas would be deep ripped and power tilled to prepare the soil for treatment. BCC SOP 3 microbial solution would be spray applied over the sites and nutrients added to promote the hydrocarbon degradation process. Sufficient watering will be maintained throughout the project as well as periodic tilling to promote degradation. Once degradation has occurred (TPH levels at 5000 ppm or less - BTEX levels at 50 ppm or less), pit areas would be layered with 10 inches of manure, backfilled, layered with 10 more inches of manure and tandemed smooth.

## Cost:

| | | |
|---|---|---|
| Inex Pit | (based on 250 cubic yards) | $5,354.98 |
| Lattion Pit | (based on 196 cubic yards) | $4,217.48 |
| Williams Pit | (based on 196 cubic yards) | $4,217.48 |
| Scripp Pit | (based on 299 cubic yards) | $6.378.98 |
| Santa Fe Land Improvement Pit | (based on 311 cubic yards) | $6,622.93 |

Total Project: (5 pits - complete site closures) $26,791.85
(plus any applicable taxes)

Note: This proposal is for treating hydrocarbon damage only. If affected area needs treatment for produced water damage, additional costs would be incurred.

1305 Stockton Rd.
P. O. Box 494
Brc ·eld, Texas 79316

1-800-7[illegible]478
Office: 806/637-803
Fax: 806/637-6926

BIOREMEDIATION CONTRACTORS & CONSULTANTS

**BCC, Inc.**

*Land Reclamation* *Weed Control*

## ** LAND RECLAMATION PROPOSAL **
## YATES PETROLEUM CORPORATION
## PIT CLOSURES

**Cost Breakdown:** (5 pits - complete site closures)

| | |
|---|---|
| Materials - | |
| 11.5 drums BCC SOP 3 @ $1,031.25/drum | $11,859.38 |
| 635 lbs. Nutrients @ $4.00/lb. | $ 2,540.00 |
| Water | $ 250.00 |
| Total Materials..... | $14,649.38 |
| Labor & Equipment - | |
| Backhoe / Dump Trucks for Hauling Manure / Operators | $6,492.47 |
| Application Truck / Equipment / Personnel | $2,250.00 |
| Tractor & Equipment / Personnel | $1,400.00 |
| Total Labor & Equipment..... | $10,142.47 |
| Soil Sampling / Monitoring / Documentation..... | $ 2,000.00 |
| Total Project: (5 pits)..... | $26,791.85 |

(plus any applicable taxes)

Groundwater 190' ft.

Williams Battery
SE / NW
Sec. 25 - T18S - R26E
Eddy Co., NM

Scripps Battery
SW / SW
Sec. 25 - T18S - R26E
Eddy Co., NM

Inex Battery
NW / NE
Sec. 26 - T18S - R26E
Eddy Co., NM

Lattion Battery
SW / SE
Sec. 23 - T18S - R26E
Eddy Co., NM

# Yates Petroleum Corporation

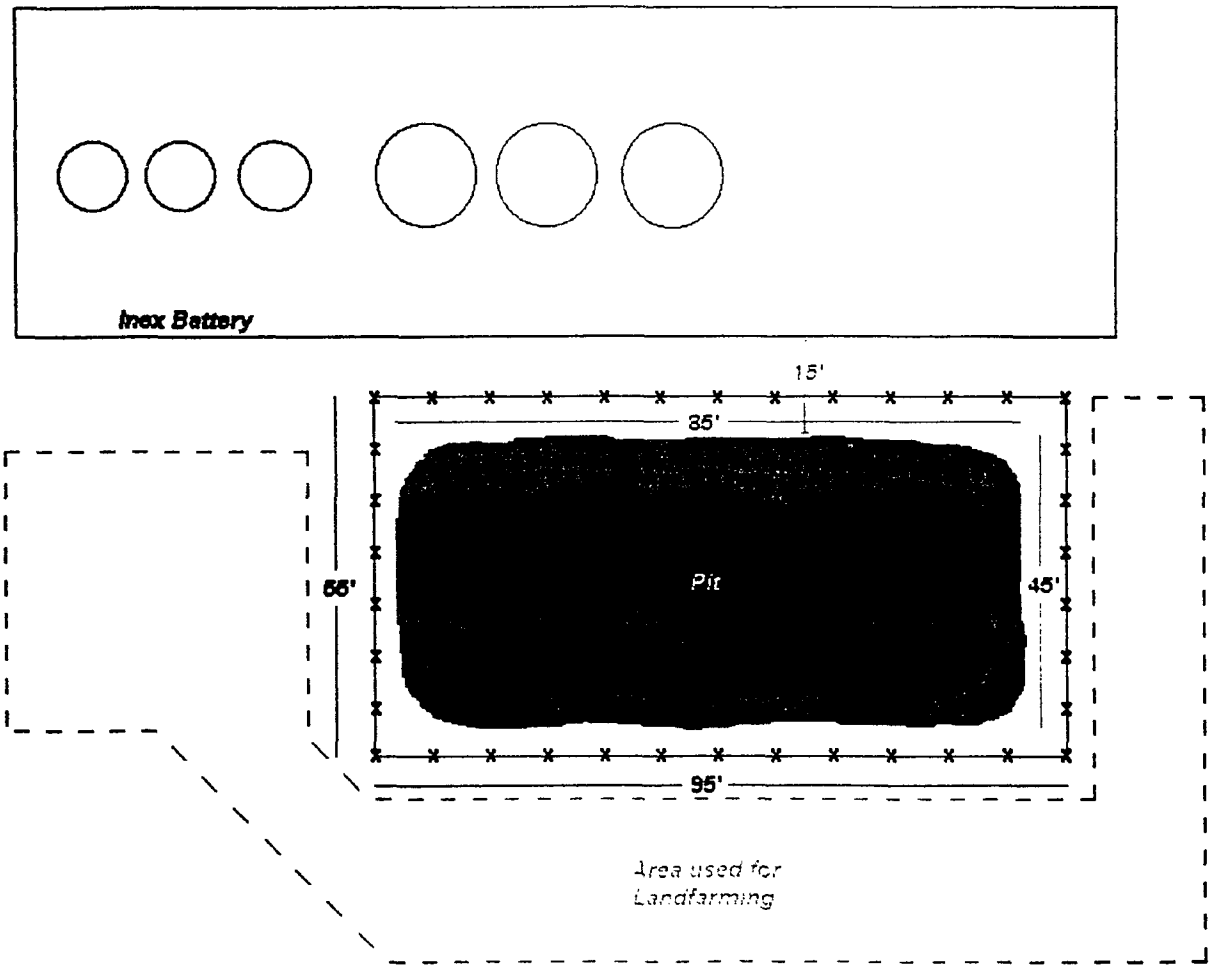
## *Inex Battery Pit*

Sec. 26 - T18S - R26E
Eddy County, New Mexico

**Yates Petroleum Corporation**
**Inex Battery Pit**
*Unlined Surface Impoundment*
Affected Surface Area - 3,825 sq. ft. / .09 acre

North

*Lease Road*



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BIOREMEDIATION CONTRACTORS & CONSULTANTS

**BCC, Inc.**

*Land Reclamation* *Weed Control*

**INVOICE TO:** YATES PETROLEUM CORPORATION
105 South 4th Street
Artesia, New Mexico 88210

**INVOICE #:** 10259B
**DATE:** 5/27/99

**LOCATION:** Inex Pit

**CNTY/STATE:** Eddy Co., NM

**AUTHORIZED BY:** Darrell Atkins / Ron Beasley

**JOB DATE:** 5/24/99

| DESCRIPTION | QUANTITY | UNIT PRICE | AMOUNT |
|---|---|---|---|
| **Phase I**<br>**Excavated Pit for Land Farming, Ripped, Power Tilled, Treated and Watered to Promote Hydrocarbon Degradation** | | | |
| 1.5 Drums BCC SOP 3 | 1.5 | $1,031.25 | $1,546.88 |
| 83 Lbs. Nutrients | 83 | $4.00 | $332.00 |
| 1 Water | 1 | $10.00 | $10.00 |
| 1 Backhoe/Equipment/Operators | 1 | $598.77 | $598.77 |
| 3 Hours Application Truck/Equipment/Operator | 3 | $50.00 | $150.00 |
| 5 Hours Tractor/Equipment/Operators | 5 | $35.00 | $175.00 |
| Subtotal | | | $2,812.65 |
| NM Gross Receipts Tax (5.625%) | | | $158.21 |
| | | | $2,970.86 |

**INVOICE TOTAL:** **(NET 30)** **$2,970.86**

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BIOREMEDIATION CONTRACTORS & CONSULTANTS

**BCC, Inc.**

*Land Reclamation* *Weed Control*

**INVOICE TO:** YATES PETROLEUM CORPORATION
105 South 4th Street
Artesia, New Mexico 88210

**INVOICE #:** 11350B
**DATE:** 3/31/00

**LOCATION:** Inex Pit

**CNTY/STATE:** Eddy, NM

**AUTHORIZED BY:** Darrell Atkins/Ron Beasley

**JOB DATE:** 3/30/00

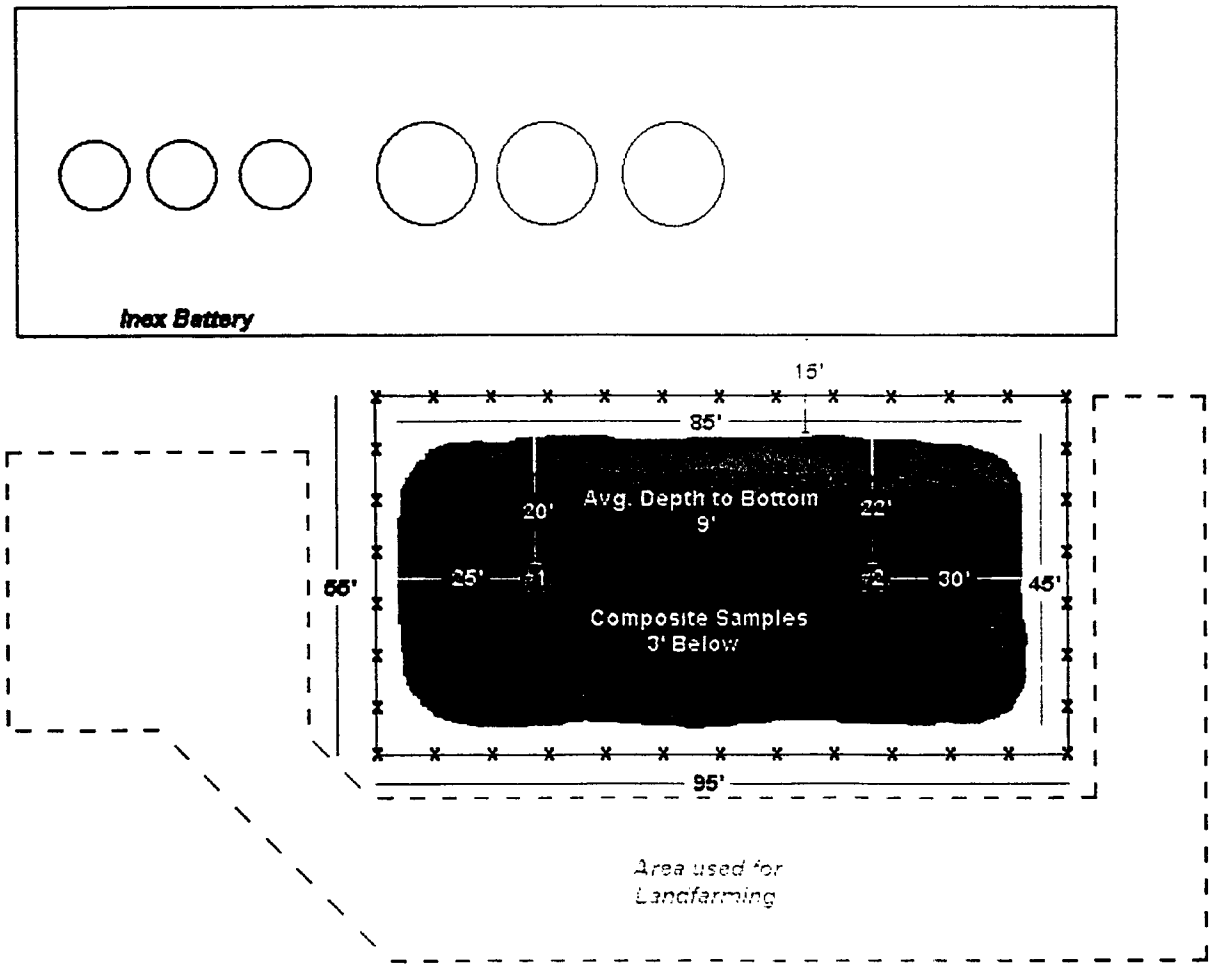
| DESCRIPTION | | QUANTITY | UNIT PRICE | AMOUNT |
|---|---|---|---|---|
| | **Phase II**<br>**Treated & watered to prepare Pit for Close Out.**<br>**Samples, Backfilled, Layered with Manure and Closed Pit** | | | |
| 1 Drum | BCC SOP 3 | 1 | $1,031.25 | $1,031.25 |
| 55 Lbs. | Nutrients | 55 | $4.00 | $220.00 |
| 1 | Water | | | $40.00 |
| 1 | Backhoe/Equipment/Operators | | | $596.08 |
| 5 Hours | Application Truck/Equipment/Operator | 5 | $50.00 | $250.00 |
| 3 Hours | Tractor/Equipment/Operators | 3 | $35.00 | $105.00 |
| 1 Soil | Sampling/Documentation | | | $300.00 |
| Subtotal | | | | $2,542.33 |
| NM Gross Receipts Tax (5.625%) | | | | $143.01 |
| | | | | $2,685.34 |

**INVOICE TOTAL:** **(NET 30)** **$2,685.34**

**Yates Petroleum Corporation**
**Inex Battery Pit**
*Unlined Surface Impoundment*
Affected Surface Area - 3,825 sq. ft. / .09 acre

North

***Lease Road***



TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

# Analytical and Quality Control Report

Paul Porter
BCC, Inc.
P. O. Box 494
Brownfield, TX 79316

Report Date: 1/28/00

Project Number: N/A
Project Name: Yates Petroleum
Project Location: Inex Pit

Order ID Number: A00012413

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to TraceAnalysis, Inc. for analysis:

| Sample Number | Sample Description | Matrix | Date Taken | Time Taken | Date Received |
|---|---|---|---|---|---|
| 139308 | Sample #1 | Soil | 1/11/00 | 13:45 | 1/24/00 |
| 139309 | Sample #2 | Soil | 1/11/00 | 13:55 | 1/24/00 |

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 3 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

# Analytical Results Report

Sample Number: 139308
Description: Sample #1

| Param | Result | Dilution | Analytical Method | Date Prepared | Date Analyzed | Analyst | Prep Batch # | QC Batch # | RDL |
|---|---|---|---|---|---|---|---|---|---|
| TPH (mg/Kg) | | | | | | | | | |
| TRPHC | 393 | 1 | E 418.1 | 1/25/00 | 1/26/00 | MA | PB00454 | QC00589 | 10 |

Sample Number: 139309
Description: Sample #2

| Param | Result | Dilution | Analytical Method | Date Prepared | Date Analyzed | Analyst | Prep Batch # | QC Batch # | RDL |
|---|---|---|---|---|---|---|---|---|---|
| TPH (mg/Kg) | | | | | | | | | |
| TRPHC | 332 | 1 | E 418.1 | 1/25/00 | 1/26/00 | MA | PB00454 | QC00589 | 10 |

## Quality Control Report
## Method Blanks

| Param | Flag | Blank Result | Reporting Limit | Date Analyzed | Prep Batch # | QC Batch # |
|---|---|---|---|---|---|---|
| TRPHC (mg/Kg) | | <10.0 | 10 | 1/26/00 | PB00454 | QC00589 |

## Quality Control Report
## Matrix Spike and Matrix Duplicate Spike

| Standard | Param | Sample Result | Dil. | Spike Amount Added | Matrix Spike Result | % Rec. | RPD | % Rec. Limit | RPD Limit | QC Batch # |
|---|---|---|---|---|---|---|---|---|---|---|
| MS | TRPHC (mg/Kg) | <10.0 | 1 | 250 | 282 | 113 | | 70 - 130 | 0 - 20 | QC00589 |
| MSD | TRPHC (mg/Kg) | <10.0 | 1 | 250 | 322 | 129 | 13 | 70 - 130 | 0 - 20 | QC00589 |

## Quality Control Report
## Lab Control Spikes and Duplicate Spike

| | Param | Blank Result | Dil. | Spike Amount Added | Matrix Spike Result | % Rec. | RPD | % Rec. Limit | RPD Limit | QC Batch # |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS | TRPHC (mg/Kg) | <10.0 | 1 | 250 | 221 | 88 | | 70 - 130 | 0 - 20 | QC00589 |
| LCSD | TRPHC (mg/Kg) | <10.0 | 1 | 250 | 233 | 93 | 5 | 70 - 130 | 0 - 20 | QC00589 |

# Quality Control Report
## Continuing Calibration Verification Standard

| Standard | Param | Flag | CCVs TRUE Conc. | CCVs Found Conc. | CCVs Percent Recovery | Percent Recovery Limits | Date Analyzed | QC Batch # |
|---|---|---|---|---|---|---|---|---|
| ICV | TRPHC (mg/Kg) | | 100 | 111 | 111 | 70 - 130 | 1/26/00 | QC00589 |
| CCV 1 | TRPHC (mg/Kg) | | 100 | 117 | 117 | 70 - 130 | 1/26/00 | QC00589 |
| CCV 2 | TRPHC (mg/Kg) | | 100 | 111 | 111 | 70 - 130 | 1/26/00 | QC00589 |

TRACEANALYSIS, INC.

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4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

# Analytical and Quality Control Report

Paul Porter
BCC, Inc.
P. O. Box 494
Brownfield, TX 79316

Report Date: 9/27/99

Project Number: N/A
Project Name: Yates Petroleum
Project Location: Inex Pit

Order ID Number: 99092315

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to TraceAnalysis, Inc. for analysis:

| Sample Number | Sample Description | Matrix | Date Taken | Time Taken | Date Received |
|---|---|---|---|---|---|
| 132211 | Sample #1 | Soil | 9/22/99 | 12:35 | 9/23/99 |
| 132212 | Sample #2 | Soil | 9/22/99 | 12:40 | 9/23/99 |

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 6 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

# Analytical Results Report

Sample Number: 132211
Description: Sample #1

| Param | Flag | Result | Dilution | Analytical Method | Date Prepared | Date Analyzed | Analyst | Prep Batch # | QC Batch # | RDL |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene (mg/Kg) | | <0.05 | 50 | S 8021B | 9/23/99 | 9/23/99 | RC | PB02443 | QC03075 | 0.001 |
| Toluene (mg/Kg) | | <0.05 | 50 | S 8021B | 9/23/99 | 9/23/99 | RC | PB02443 | QC03075 | 0.001 |
| Ethylbenzene (mg/Kg) | | 0.1 | 50 | S 8021B | 9/23/99 | 9/23/99 | RC | PB02443 | QC03075 | 0.001 |
| M.P,O-Xylene (mg/Kg) | | 0.527 | 50 | S 8021B | 9/23/99 | 9/23/99 | RC | PB02443 | QC03075 | 0.001 |
| Total BTEX (mg/Kg) | | 0.627 | 50 | S 8021B | 9/23/99 | 9/23/99 | RC | PB02443 | QC03075 | 0.001 |

| Surrogate | Result | Dilution | Spike Amount | % Rec. | % Rec. Limit | Analyst | Prep Batch # | QC Batch # |
|---|---|---|---|---|---|---|---|---|
| TFT (mg/Kg) | 4.89 | 50 | 0.1 | 98 | 72 - 128 | RC | PB02443 | QC03075 |
| 4-BFB (mg/Kg) | 5.04 | 50 | 0.1 | 101 | 72 - 128 | RC | PB02443 | QC03075 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| C6-C10 (mg/Kg) | | <1000 | 20 | TX1005 | 9/23/99 | 9/23/99 | MF | PB02435 | QC03067 | 50 |
| >C10-C28 (mg/Kg) | * | 25300 | 20 | TX1005 | 9/23/99 | 9/23/99 | MF | PB02435 | QC03067 | 50 |
| C6-C28 (mg/Kg) | * | 25300 | 20 | TX1005 | 9/23/99 | 9/23/99 | MF | PB02435 | QC03067 | 50 |

* >C10-C28 - Hydrocarbons >C28 present.
* C6-C28 - Hydrocarbons >C28 present.

Sample Number: 132212
Description: Sample #2

| Param | Flag | Result | Dilution | Analytical Method | Date Prepared | Date Analyzed | Analyst | Prep Batch # | QC Batch # | RDL |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene (mg/Kg) | | <0.05 | 50 | S 8021B | 9/23/99 | 9/23/99 | RC | PB02443 | QC03075 | 0.001 |
| Toluene (mg/Kg) | | <0.05 | 50 | S 8021B | 9/23/99 | 9/23/99 | RC | PB02443 | QC03075 | 0.001 |
| Ethylbenzene (mg/Kg) | | <0.05 | 50 | S 8021B | 9/23/99 | 9/23/99 | RC | PB02443 | QC03075 | 0.001 |
| M.P.O-Xylene (mg/Kg) | | 1.49 | 50 | S 8021B | 9/23/99 | 9/23/99 | RC | PB02443 | QC03075 | 0.001 |
| Total BTEX (mg/Kg) | | 1.49 | 50 | S 8021B | 9/23/99 | 9/23/99 | RC | PB02443 | QC03075 | 0.001 |

| Surrogate | Result | Dilution | Spike Amount | % Rec. | % Rec. Limit | Analyst | Prep Batch # | QC Batch # |
|---|---|---|---|---|---|---|---|---|
| TFT (mg/Kg) | 4.61 | 50 | 0.1 | 92 | 72 - 128 | RC | PB02443 | QC03075 |
| 4-BFB (mg/Kg) | 4.73 | 50 | 0.1 | 95 | 72 - 128 | RC | PB02443 | QC03075 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| C6-C10 (mg/Kg) | | <1000 | 20 | TX1005 | 9/23/99 | 9/23/99 | MF | PB02435 | QC03067 | 50 |
| >C10-C28 (mg/Kg) | * | 38100 | 20 | TX1005 | 9/23/99 | 9/23/99 | MF | PB02435 | QC03067 | 50 |
| C6-C28 (mg/Kg) | * | 38100 | 20 | TX1005 | 9/23/99 | 9/23/99 | MF | PB02435 | QC03067 | 50 |

* >C10-C28 - Hydrocarbons >C28 present.
* C6-C28 - Hydrocarbons >C28 present.

# Quality Control Report
## Method Blanks

| Param | Flag | Blank Result | Reporting Limit | Date Analyzed | Prep Batch # | QC Batch # |
|---|---|---|---|---|---|---|
| Benzene (mg/Kg) | | <0.050 | 0.001 | 9/23/99 | PB02443 | QC03075 |
| Toluene (mg/Kg) | | <0.050 | 0.001 | 9/23/99 | PB02443 | QC03075 |
| Ethylbenzene (mg/Kg) | | <0.050 | 0.001 | 9/23/99 | PB02443 | QC03075 |
| M,P,O-Xylene (mg/Kg) | | <0.050 | 0.001 | 9/23/99 | PB02443 | QC03075 |
| Total BTEX (mg/Kg) | | <0.050 | 0.001 | 9/23/99 | PB02443 | QC03075 |

| Surrogate | Result | Spike Amount | % Rec. | % Rec. Limit | QC Batch # |
|---|---|---|---|---|---|
| TFT (mg/Kg) | 5.16 | 0.1 | 103 | 72 - 128 | QC03075 |
| 4-BFB (mg/Kg) | 5.03 | 0.1 | 101 | 72 - 128 | QC03075 |

| Param | Flag | Blank Result | Reporting Limit | Date Analyzed | Prep Batch # | QC Batch # |
|---|---|---|---|---|---|---|
| C6-C10 (mg/Kg) | | <50 | 50 | 9/23/99 | PB02435 | QC03067 |
| >C10-C28 (mg/Kg) | | <50 | 50 | 9/23/99 | PB02435 | QC03067 |
| C6-C28 (mg/Kg) | | <50 | 50 | 9/23/99 | PB02435 | QC03067 |

# Quality Control Report
## Matrix Spike and Matrix Duplicate Spike

| Standard | Param | Sample Result | Dil. | Spike Amount Added | Matrix Spike Result | % Rec. | RPD | % Rec. Limit | RPD Limit | QC Batch # |
|---|---|---|---|---|---|---|---|---|---|---|
| MS | C6-C10 (mg/Kg) | <50 | 1 | 250 | 251 | 100 | | 70 - 130 | 0 - 30 | QC03067 |
| MS | >C10-C28 (mg/Kg) | <50 | 1 | 250 | 240 | 96 | | 70 - 130 | 0 - 30 | QC03067 |
| MS | C6-C28 (mg/Kg) | <50 | 1 | 500 | 491 | 98 | | 70 - 130 | 0 - 30 | QC03067 |
| MSD | C6-C10 (mg/Kg) | <50 | 1 | 250 | 253 | 101 | 1 | 70 - 130 | 0 - 30 | QC03067 |
| MSD | >C10-C28 (mg/Kg) | <50 | 1 | 250 | 249 | 100 | 4 | 70 - 130 | 0 - 30 | QC03067 |
| MSD | C6-C28 (mg/Kg) | <50 | 1 | 500 | 502 | 100 | 2 | 70 - 130 | 0 - 30 | QC03067 |

| Standard | Param | Sample Result | Dil. | Spike Amount Added | Matrix Spike Result | % Rec. | RPD | % Rec. Limit | RPD Limit | QC Batch # |
|---|---|---|---|---|---|---|---|---|---|---|
| MS | Benzene (mg/Kg) | <0.05 | 50 | 0.1 | 4.93 | 99 | | 80 - 120 | 0 - 20 | QC03075 |
| MS | Toluene (mg/Kg) | <0.05 | 50 | 0.1 | 4.76 | 95 | | 80 - 120 | 0 - 20 | QC03075 |
| MS | Ethylbenzene (mg/Kg) | <0.05 | 50 | 0.1 | 4.7 | 94 | | 80 - 120 | 0 - 20 | QC03075 |
| MS | M,P,O-Xylene (mg/Kg) | <0.05 | 50 | 0.3 | 13.7 | 87 | | 80 - 120 | 0 - 20 | QC03075 |

| Standard | Surrogate | Result | Dil. | Spike Amount | Analyst | % Rec. | % Rec. Limit | Prep Batch # | QC Batch # |
|---|---|---|---|---|---|---|---|---|---|
| MS | TFT (mg/Kg) | 4.39 | 50 | 0.1 | RC | 88 | 72 - 128 | PB02443 | QC03075 |
| MS | 4-BFB (mg/Kg) | 4.65 | 50 | 0.1 | RC | 89 | 72 - 128 | PB02443 | QC03075 |

| Standard | Param | Sample Result | Dil. | Spike Amount Added | Matrix Spike Result | % Rec. | RPD | % Rec. Limit | RPD Limit | QC Batch # |
|---|---|---|---|---|---|---|---|---|---|---|
| MSD | Benzene (mg/Kg) | <0.05 | 50 | 0.1 | 4.92 | 98 | 0 | 80 - 120 | 0 - 20 | QC03075 |
| MSD | Toluene (mg/Kg) | <0.05 | 50 | 0.1 | 4.99 | 100 | 5 | 80 - 120 | 0 - 20 | QC03075 |
| MSD | Ethylbenzene (mg/Kg) | <0.05 | 50 | 0.1 | 4.73 | 95 | 1 | 80 - 120 | 0 - 20 | QC03075 |
| MSD | M,P,O-Xylene (mg/Kg) | <0.05 | 50 | 0.3 | 14.4 | 96 | 5 | 80 - 120 | 0 - 20 | QC03075 |

| Standard | Surrogate | Result | Dil. | Spike Amount | Analyst | % Rec. | % Rec. Limit | Prep Batch # | QC Batch # |
|---|---|---|---|---|---|---|---|---|---|
| MSD | TFT (mg/Kg) | 4.59 | 50 | 0.1 | RC | 88 | 72 - 128 | PB02443 | QC03075 |
| MSD | 4-BFB (mg/Kg) | 4.68 | 50 | 0.1 | RC | 94 | 72 - 128 | PB02443 | QC03075 |

# Quality Control Report
## Lab Control Spikes and Duplicate Spike

| | Param | Blank Result | Dil. | Spike Amount Added | Matrix Spike Result | % Rec. | RPD | % Rec. Limit | RPD Limit | QC Batch # |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS | MTBE (mg/Kg) | <0.050 | 50 | 0.1 | 4.7 | 94 | | 80 - 120 | 0 - 20 | QC03075 |
| LCS | Benzene (mg/Kg) | <0.050 | 50 | 0.1 | 4.6 | 92 | | 80 - 120 | 0 - 20 | QC03075 |
| LCS | Toluene (mg/Kg) | <0.050 | 50 | 0.1 | 4.48 | 89 | | 80 - 120 | 0 - 20 | QC03075 |
| LCS | Ethylbenzene (mg/Kg) | <0.050 | 50 | 0.1 | 4.4 | 88 | | 80 - 120 | 0 - 20 | QC03075 |
| LCS | M,P,O-Xylene (mg/Kg) | <0.050 | 50 | 0.3 | 12.7 | 85 | | 80 - 120 | 0 - 20 | QC03075 |

| Standard | Surrogate | Dil. | Spike Amount | Result | % Rec. | % Rec. Limit | QC Batch # |
|---|---|---|---|---|---|---|---|
| LCS | TFT (mg/Kg) | 50 | 0.1 | 5.01 | 100 | 72 - 128 | QC03075 |
| LCS | 4-BFB (mg/Kg) | 50 | 0.1 | 4.95 | 99 | 72 - 128 | QC03075 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| LCSD | MTBE (mg/Kg) | <0.050 | 50 | 0.1 | 4.47 | 89 | 5 | 80 - 120 | 0 - 20 | QC03075 |
| LCSD | Benzene (mg/Kg) | <0.050 | 50 | 0.1 | 4.21 | 84 | 9 | 80 - 120 | 0 - 20 | QC03075 |
| LCSD | Toluene (mg/Kg) | <0.050 | 50 | 0.1 | 4.12 | 82 | 8 | 80 - 120 | 0 - 20 | QC03075 |
| LCSD | Ethylbenzene (mg/Kg) | <0.050 | 50 | 0.1 | 4.03 | 81 | 9 | 80 - 120 | 0 - 20 | QC03075 |
| LCSD | M,P,O-Xylene (mg/Kg) | <0.050 | 50 | 0.3 | 11.6 | 77 | 9 | 80 - 120 | 0 - 20 | QC03075 |

| Standard | Surrogate | Dil. | Spike Amount | Result | % Rec. | % Rec. Limit | QC Batch # |
|---|---|---|---|---|---|---|---|
| LCSD | TFT (mg/Kg) | 50 | 0.1 | 4.91 | 98 | 72 - 128 | QC03075 |
| LCSD | 4-BFB (mg/Kg) | 50 | 0.1 | 4.9 | 98 | 72 - 128 | QC03075 |

| | Param | Blank Result | Dil. | Spike Amount Added | Matrix Spike Result | % Rec. | RPD | % Rec. Limit | RPD Limit | QC Batch # |
|---|---|---|---|---|---|---|---|---|---|---|
| LCS | C6-C10 (mg/Kg) | <50 | 1 | 250 | 223 | 89 | | 70 - 130 | 0 - 30 | QC03067 |
| LCS | >C10-C28 (mg/Kg) | <50 | 1 | 250 | 220 | 88 | | 70 - 130 | 0 - 30 | QC03067 |
| LCS | C6-C28 (mg/Kg) | <50 | 1 | 500 | 443 | 89 | | 70 - 130 | 0 - 30 | QC03067 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| LCSD | C6-C10 (mg/Kg) | <50 | 1 | 250 | 200 | 80 | 27 | 70 - 130 | 0 - 30 | QC03067 |
| LCSD | >C10-C28 (mg/Kg) | <50 | 1 | 250 | 199 | 80 | 23 | 70 - 130 | 0 - 30 | QC03067 |
| LCSD | C6-C28 (mg/Kg) | <50 | 1 | 500 | 398 | 80 | 25 | 70 - 130 | 0 - 30 | QC03067 |

# Quality Control Report
## Continuing Calibration Verification Standard

| Standard | Param | Flag | CCVs TRUE Conc. | CCVs Found Conc. | CCVs Percent Recovery | Percent Recovery Limits | Date Analyzed | QC Batch # |
|---|---|---|---|---|---|---|---|---|
| ICV | Benzene (mg/Kg) | | 0.1 | 0.092 | 92 | 80 - 120 | 9/23/99 | QC03075 |
| ICV | Toluene (mg/Kg) | | 0.1 | 0.09 | 90 | 80 - 120 | 9/23/99 | QC03075 |
| ICV | Ethylbenzene (mg/Kg) | | 0.1 | 0.089 | 89 | 80 - 120 | 9/23/99 | QC03075 |
| ICV | M,P,O-Xylene (mg/Kg) | | 0.3 | 0.258 | 86 | 80 - 120 | 9/23/99 | QC03075 |
| CCV (1 | Benzene (mg/Kg) | | 0.1 | 0.098 | 98 | 80 - 120 | 9/23/99 | QC03075 |
| CCV (1 | Toluene (mg/Kg) | | 0.1 | 0.099 | 99 | 80 - 120 | 9/23/99 | QC03075 |
| CCV (1 | Ethylbenzene (mg/Kg) | | 0.1 | 0.099 | 99 | 80 - 120 | 9/23/99 | QC03075 |
| CCV (1 | M,P,O-Xylene (mg/Kg) | | 0.3 | 0.278 | 93 | 80 - 120 | 9/23/99 | QC03075 |

| Standard | Param | Flag | CCVs TRUE Conc. | CCVs Found Conc. | CCVs Percent Recovery | Percent Recovery Limits | Date Analyzed | QC Batch # |
|---|---|---|---|---|---|---|---|---|
| ICV | C6-C10 (mg/Kg) | | 250 | 232 | 93 | 70 - 130 | 9/23/99 | QC03067 |
| ICV | >C10-C28 (mg/Kg) | | 250 | 244 | 98 | 70 - 130 | 9/23/99 | QC03067 |
| ICV | C6-C28 (mg/Kg) | | 500 | 476 | 95 | 70 - 130 | 9/23/99 | QC03067 |
| CCV (1 | C6-C10 (mg/Kg) | | 250 | 298 | 119 | 70 - 130 | 9/23/99 | QC03067 |
| CCV (1 | >C10-C28 (mg/Kg) | | 250 | 287 | 115 | 70 - 130 | 9/23/99 | QC03067 |
| CCV (1 | C6-C28 (mg/Kg) | | 500 | 585 | 117 | 70 - 130 | 9/23/99 | QC03067 |
| CCV (2 | C6-C10 (mg/Kg) | | 250 | 294 | 118 | 70 - 130 | 9/23/99 | QC03067 |
| CCV (2 | >C10-C28 (mg/Kg) | | 250 | 309 | 124 | 70 - 130 | 9/23/99 | QC03067 |
| CCV (2 | C6-C28 (mg/Kg) | | 500 | 604 | 121 | 70 - 130 | 9/23/99 | QC03067 |