

**3R - 385**

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# **REPORTS**

**DATE:**

**1999-2000**

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3R385

# **CROSS TIMBERS OPERATING COMPANY**

## **GROUNDWATER REMEDIATION REPORT**

**1999-2000**

JOHNSON, E.J. C #1E  
(C) SECTION 21, T27N, R10W, NMPM  
SAN JUAN COUNTY, NEW MEXICO

**PREPARED FOR:**  
**MR. WILLIAM C. OLSON**  
**NEW MEXICO OIL CONSERVATION DIVISION**

**MAY 2001**

**PREPARED BY:**  
**BLAGG ENGINEERING, INC.**

*Consulting Petroleum / Reclamation Services*  
*P.O. Box 87*  
*Bloomfield, New Mexico 87413*

**Cross Timbers Operating Company (CTOC)  
Johnson, E.J. C # 1E - Production Tank Pit  
Ne/4 Nw/4 Sec. 21, T27N, R10W**

**Pit Closure Dates:** 8/24/94 & 1/27/95  
(Documentation Included)  
**Monitor Well Installation Date:** September 22, 1999  
**Monitor Well Sampling Dates:** 9/27/99, 2/18/00, 6/20/00

**Groundwater Monitor Well Sampling Procedures:**

Groundwater samples were collected from site monitor wells (MW's) following US EPA: SW-846 protocol. The samples were collected using new disposable bailers and placed in new laboratory supplied 40 ml glass vials with teflon septa caps. Samples were analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) per US EPA Method 8021. Additional groundwater was collected and placed in laboratory supplied 500 ml plastic containers and analyzed for general water quality per US EPA Method 600/4-79-020. The samples were preserved cool (BTEX samples also preserved with mercuric chloride) and hand delivered to a qualified laboratory for testing. Waste generated during monitor well sampling and development was disposed of utilizing the separator tank pit located on the well site.

**Water Quality Information:**

BTEX and general chemistry results for the three (3) quarterly sampling events are summarized in the following tables. All MW BTEX constituents satisfactorily meet the New Mexico Water Quality Control Commission's (NMWQCC) allowable concentrations for groundwater. The general water quality results also met NMWQCC standards for groundwater or was less than/statistically equal to the apparent background levels (judging by and utilizing the results obtained from MW #3).

**Summary:**

Based on the determined groundwater gradient (figures 2, 3, and 4), the direct down gradient direction has not been delineated; however, the flow direction is apparently moving towards the well pad area and away from the nearby surface drainage (Kutz wash). MW #1 and #3 are located in the down gradient direction, but are in a more lateral position. In addition, there isn't any indication, based on all site monitor well's laboratory data, that residual contamination from the pit poses a threat to nearby freshwater supplies, public health, or the environment.

In accordance with the attached correspondence (refer to letter dated May 11, 2001 - RE: CTOC, 2000 Annual Groundwater Reports, San Juan County, NM, Permanent Closure Requested) and the NMOCD previously approved groundwater management plan (GMP), specifically Section 2.0, CTOC respectfully request permanent closure for the site production tank pit.

This document contains all pertinent information detailed in section 5.0 (Reporting) of the GMP. Upon receiving permanent closure notification from NMOCD, CTOC will conduct plug and abandonment of all sampling points as addressed in Section 6.0 of the GMP.

# CROSS TIMBERS GROUNDWATER MONITOR WELL LAB RESULTS

SUBMITTED BY BLAGG ENGINEERING, INC.

JOHNSON, E.J. C #1E - PROD. TANK PIT  
UNIT C, SEC. 21, T27N, R10W

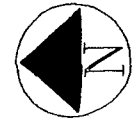
REVISED: JUNE 20, 2000

FILENAME: (EJ-2Q-00.WK4) NJV

| SAMPLE<br>DATE | MONITOR<br>WELL No: | D.T.W.<br>(ft) | T.D.<br>(ft) | TDS<br>mg/L | COND.<br>umhos | pH  | PRODUCT<br>(in) | BTEX EPA METHOD 8021 (PPB) |         |                  |                 |
|----------------|---------------------|----------------|--------------|-------------|----------------|-----|-----------------|----------------------------|---------|------------------|-----------------|
|                |                     |                |              |             |                |     |                 | Benzene                    | Toluene | Ethyl<br>Benzene | Total<br>Xylene |
| 27-Sep-99      | MW #1               | 15.32          | 20.00        | 3,440       | 6,920          | 7.5 |                 | 13.9                       | 11.0    | 17.2             | 10.0            |
| 18-Feb-00      |                     | 15.39          |              |             | 3,100          | 7.7 |                 | 2.4                        | ND      | 11.0             | ND              |
| 20-Jun-00      |                     | 15.19          |              |             | 2,700          | 7.6 |                 | 3.8                        | 1.6     | 16               | ND              |
| 27-Sep-99      | MW #2               | 12.96          | 20.00        | 720         | 1,472          | 8.1 |                 | 58.7                       | 39.0    | 90.2             | 107.4           |
| 18-Feb-00      |                     | 13.08          |              |             | 1,500          | 8.2 |                 | ND                         | ND      | 86               | 42.6            |
| 20-Jun-00      |                     | 12.86          |              |             | 1,500          | 8.2 |                 | ND                         | ND      | 41               | 12.5            |
| 27-Sep-99      | MW #3               | 8.24           | 20.00        | 3,410       | 6,840          | 8.0 |                 | 22.7                       | 3.3     | 2.1              | 11.6            |
| 18-Feb-00      |                     | 8.51           |              |             | 3,100          | 8.0 |                 | ND                         | ND      | ND               | ND              |
| 20-Jun-00      |                     | 8.14           |              |             | 3,100          | 7.8 |                 | ND                         | ND      | ND               | ND              |

**GENERAL WATER QUALITY**  
**CROSS TIMBERS OPERATING COMPANY**  
**JOHNSON, E.J. C # 1E**  
**SAMPLE DATE : September 27 , 1999**

| PARAMETERS                     | MW # 1 | MW # 2 | MW # 3 | Units      |
|--------------------------------|--------|--------|--------|------------|
| LAB pH                         | 7.51   | 8.09   | 7.85   | s. u.      |
| LAB CONDUCTIVITY @ 25 C        | 6,920  | 1,472  | 6,840  | umhos / cm |
| TOTAL DISSOLVED SOLIDS @ 180 C | 3,440  | 720    | 3,410  | mg / L     |
| TOTAL DISSOLVED SOLIDS (Calc)  | 3,400  | 710    | 3,320  | mg / L     |
| SODIUM ABSORPTION RATIO        | 27.4   | 11.5   | 29.3   | ratio      |
| TOTAL ALKALINITY AS CaCO3      | 648    | 482    | 376    | mg / L     |
| TOTAL HARDNESS AS CaCO3        | 260    | 72.0   | 220    | mg / L     |
| BICARBONATE as HCO3            | 648    | 482    | 376    | mg / L     |
| CARBONATE AS CO3               | < 1    | < 1    | < 1    | mg / L     |
| HYDROXIDE AS OH                | < 1    | < 1    | < 1    | mg / L     |
| NITRATE NITROGEN               | 0.2    | 0.2    | 0.1    | mg / L     |
| NITRITE NITROGEN               | 0.005  | 0.015  | 0.005  | mg / L     |
| CHLORIDE                       | 5.0    | 15.0   | 18.0   | mg / L     |
| FLUORIDE                       | 2.10   | 0.96   | 1.66   | mg / L     |
| PHOSPHATE                      | 0.7    | 3.4    | 0.5    | mg / L     |
| SULFATE                        | 1,870  | 140    | 1,990  | mg / L     |
| IRON                           | 0.011  | 0.147  | 0.008  | mg / L     |
| CALCIUM                        | 88.0   | 25.6   | 60.0   | mg / L     |
| MAGNESIUM                      | 9.8    | 2.0    | 17.1   | mg / L     |
| POTASSIUM                      | 7.5    | 7.5    | 7.5    | mg / L     |
| SODIUM                         | 1020   | 225    | 1000   | mg / L     |
| CATION / ANION DIFFERENCE      | 0.14   | 0.19   | 0.24   | %          |



WASH FLOW  
DIRECTION  
DUE WEST  
PASSED MW #3

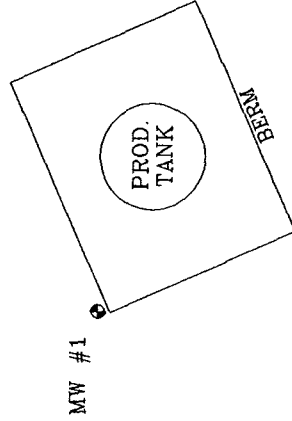
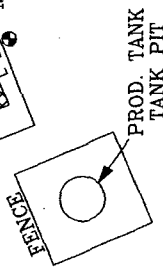
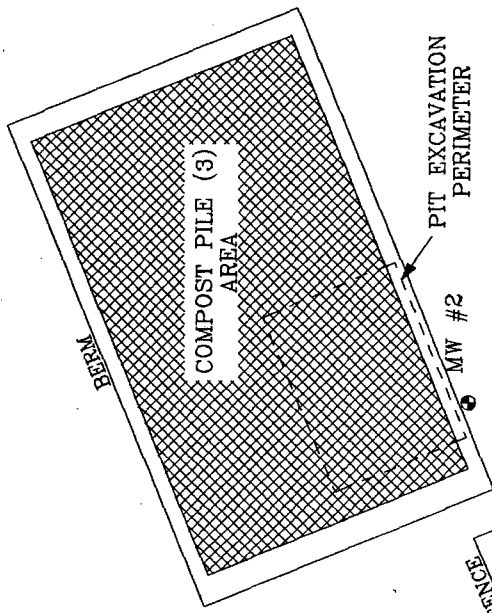
FIGURE 1

TO WASH  
APPROX.  
165 FT.  
FROM MW #3

WASH FLOW  
DIRECTION  
N50W PRIOR  
TO MW #3

WELL  
HEAD  
⊕

METER  
RUN



SEP

ACCESS ROAD

MONITOR WELL LOCATIONS ARE ONLY AS ACCURATE  
AS THE INSTRUMENTS USED IN OBTAINING THE  
FOOTAGE AND BEARING FROM THE WELL HEAD  
(BRUNTON COMPASS AND LASER RANGE FINDER).  
ALL OTHER STRUCTURES DISPLAYED ON THE SITE  
MAP ARE SOLELY FOR REFERENCE AND ARE NOT TO  
SCALE.

1 INCH = 40 FT.  
0 40 80 FT.

CROSS TIMBERS OPERATING CO.

JOHNSON, E.J. C #1E  
NE/4 NW/4 SEC. 21, T27N, R10W  
SAN JUAN COUNTY, NEW MEXICO

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87

BLOOMFIELD, NEW MEXICO 87413

PHONE: (505) 632-1199

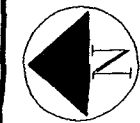
PROJECT: MW INSTALL.

DRAWN BY: NJV

FILENAME: EJC1E-SM.SKD

SITE  
MAP

09/99

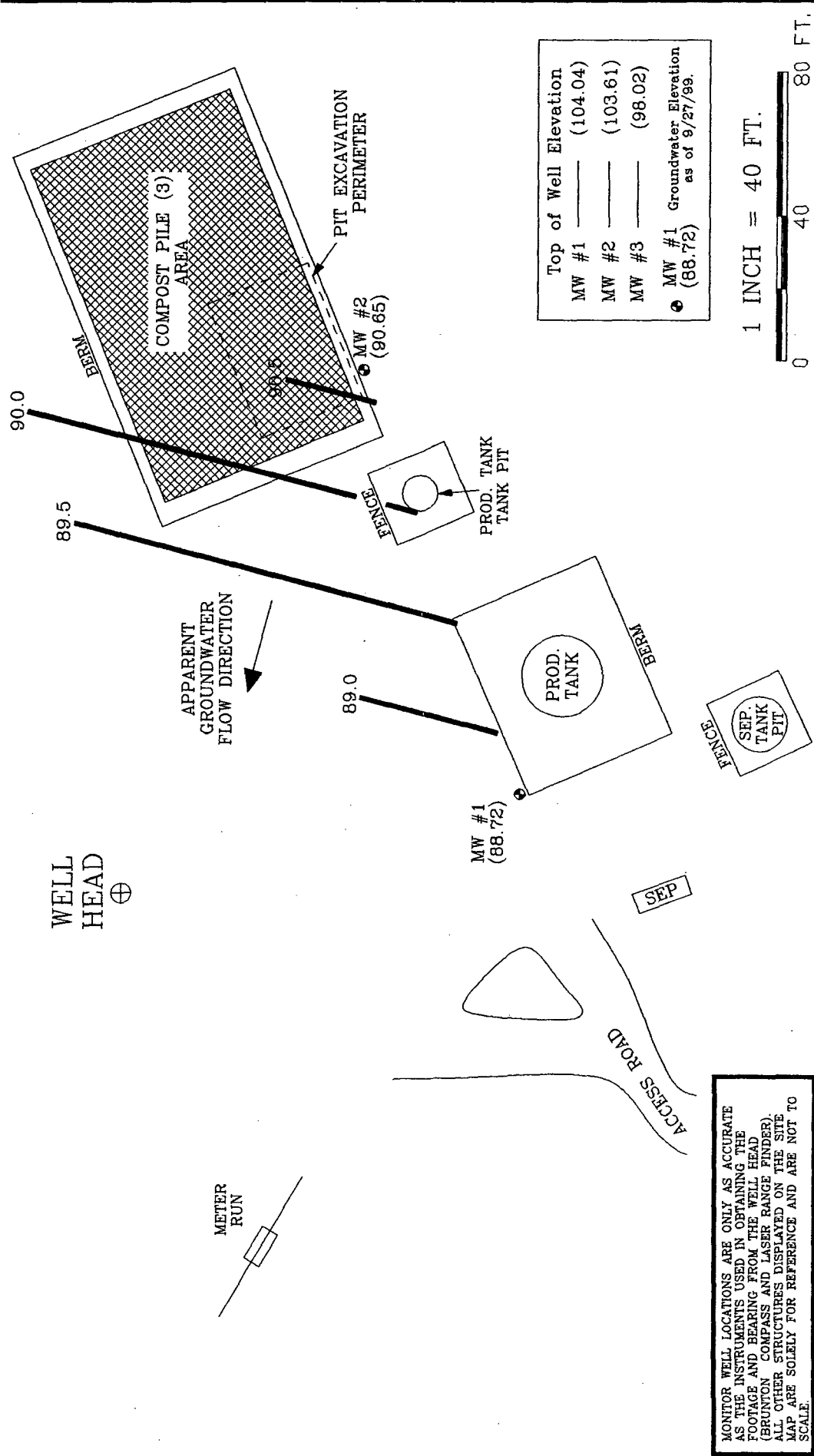


WASH FLOW  
DIRECTION  
DUE WEST  
PASSED MW #3

FIGURE 2  
(3rd 1/4, 1999)

TO WASH  
APPROX.  
165 FT.  
FROM MW #3

WASH FLOW  
DIRECTION  
N50W PRIOR  
TO MW #3



| Top of Well Elevation                        |          |
|----------------------------------------------|----------|
| MW #1                                        | (104.04) |
| MW #2                                        | (103.61) |
| MW #3                                        | (98.02)  |
| ● MW #1 Groundwater Elevation as of 9/27/99. |          |
| ●                                            | (88.72)  |

MONITOR WELL LOCATIONS ARE ONLY AS ACCURATE AS THE INSTRUMENTS USED IN OBTAINING THE FOOTAGE AND BEARING FROM THE WELL HEAD (BRUNTON COMPASS AND LASER RANGE FINDER). ALL OTHER STRUCTURES DISPLAYED ON THE SITE MAP ARE SOLELY FOR REFERENCE AND ARE NOT TO SCALE.

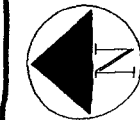
1 INCH = 40 FT.  
0 40 80 FT.

CROSS TIMBERS OPERATING CO.  
JOHNSON, E.J. C #1E  
NE/4 NW/4 SEC. 21, T27N, R10W  
SAN JUAN COUNTY, NEW MEXICO

BLAGG ENGINEERING, INC.  
CONSULTING PETROLEUM / RECLAMATION SERVICES  
P.O. BOX 87  
BLOOMFIELD, NEW MEXICO 87413  
PHONE: (505) 632-1199

PROJECT: MW INSTALL.  
DRAWN BY: NJV  
FILENAME: 09-27-GW.SKD

GROUNDWATER  
CONTOUR  
MAP  
09/99



WASH FLOW  
DIRECTION  
DUE WEST  
PASSED MW #3

FIGURE 3  
(1st 1/4, 2000)

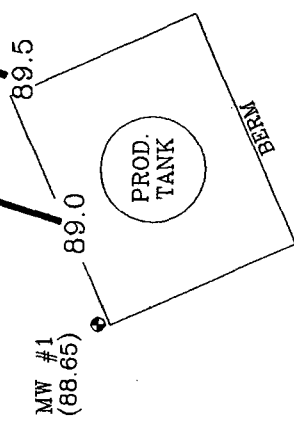
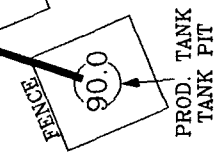
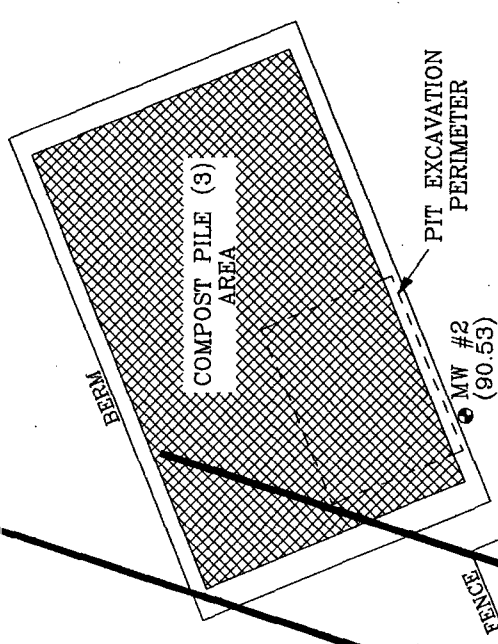
TO WASH  
APPROX.  
165 FT.  
FROM MW #3

WASH FLOW  
DIRECTION  
NSOW PRIOR  
TO MW #3

WELL  
HEAD

APPARENT  
GROUNDWATER  
FLOW DIRECTION

METER  
RUN



| Top of Well Elevation |                                                    |
|-----------------------|----------------------------------------------------|
| MW #1                 | (104.04)                                           |
| MW #2                 | (103.61)                                           |
| MW #3                 | (98.02)                                            |
| ● MW #1               | Groundwater Elevation<br>as of 2/18/00.<br>(88.65) |

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ALL OTHER STRUCTURES DISPLAYED ON THE SITE  
MAP ARE SOLELY FOR REFERENCE AND ARE NOT TO  
SCALE.

1 INCH = 40 FT.  
0 40 80 FT.

CROSS TIMBERS OPERATING CO.

JOHNSON, E.J. C #1E  
NE/4 NW/4 SEC. 21, T27N, R10W  
SAN JUAN COUNTY, NEW MEXICO

BLAGG ENGINEERING, INC.  
CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87  
BLOOMFIELD, NEW MEXICO 87413  
PHONE: (505) 632-1199

PROJECT: MW SAMPLING

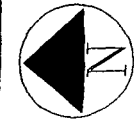
DRAWN BY: NJV

FILENAME: 02-18-GW.SKD

GROUNDWATER  
CONTOUR  
MAP

02/00





WASH FLOW  
DIRECTION  
DUE WEST  
PASSED MW #3

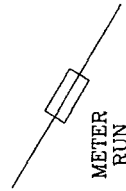
FIGURE 4  
(2nd 1/4, 2000)

TO WASH  
APPROX.  
165 FT.  
FROM MW #3

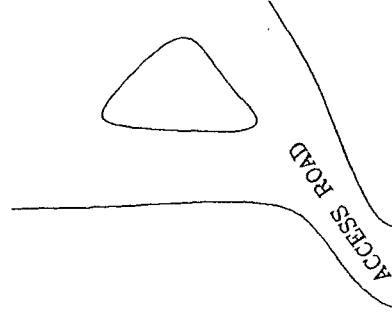
WASH FLOW  
DIRECTION  
N50W PRIOR  
TO MW #3

WELL  
HEAD

APPARENT  
GROUNDWATER  
FLOW DIRECTION



METER  
RUN



ACCESS ROAD

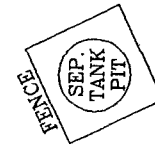
SEP

MW #1  
(88.85)

89.5

PROD.  
TANK

BERM



FENCE

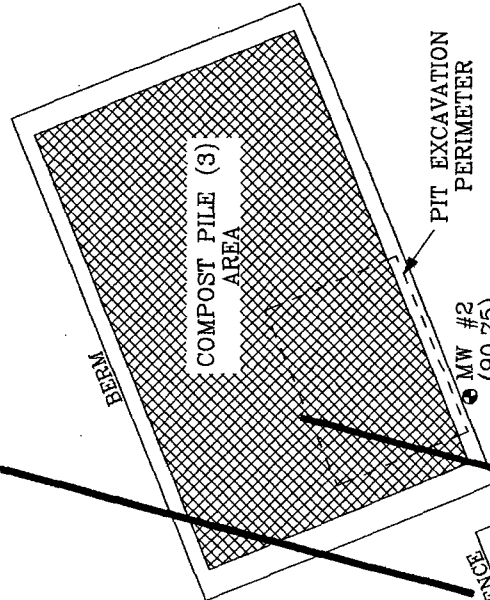
90.0

PROD. TANK  
TANK PIT

90.5

MW #2  
(90.75)

PIT EXCAVATION  
PERIMETER



| Top of Well Elevation                                      |          |
|------------------------------------------------------------|----------|
| MW #1                                                      | (104.04) |
| MW #2                                                      | (103.61) |
| MW #3                                                      | (98.02)  |
| ● MW #1 Groundwater Elevation<br>as of 6/20/00.<br>(88.85) |          |

1 INCH = 40 FT.



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AS THE INSTRUMENTS USED IN OBTAINING THE  
FOOTAGE AND BEARING FROM THE WELL HEAD  
(BRUNTON COMPASS AND LASER RANGE FINDER).  
ALL OTHER STRUCTURES DISPLAYED ON THE SITE  
MAP ARE SOLELY FOR REFERENCE AND ARE NOT TO  
SCALE.

CROSS TIMBERS OPERATING CO.

JOHNSON, E.J. C #1E

NE/4 NW/4 SEC. 21, T27N, R10W

SAN JUAN COUNTY, NEW MEXICO

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87

BLOOMFIELD, NEW MEXICO 87413

PHONE: (505) 632-1199

PROJECT: MW SAMPLING

DRAWN BY: NJV

FILENAME: 06-20-GW.SKD

GROUNDWATER  
CONTOUR  
MAP

06/00

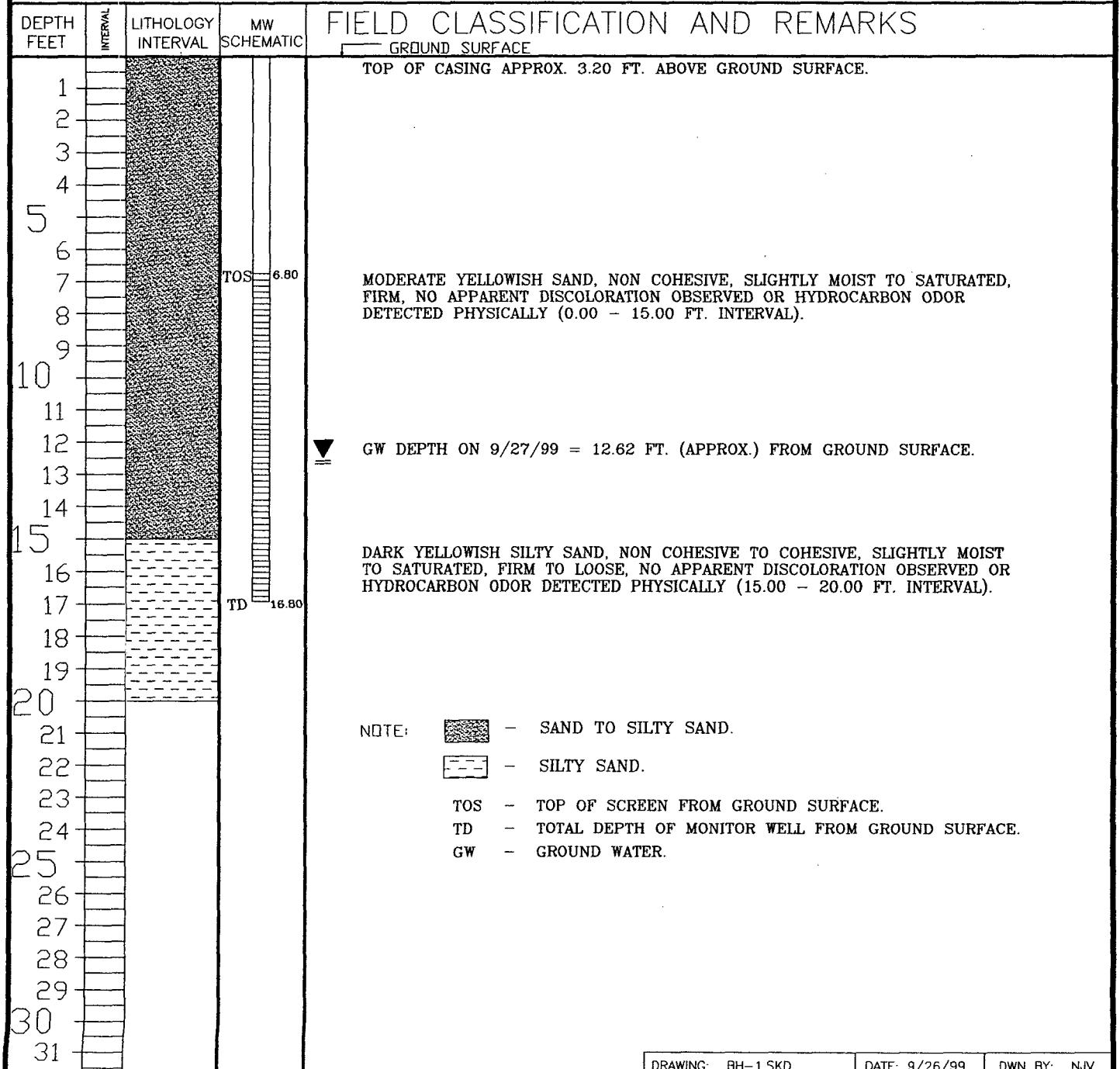
# BLAGG ENGINEERING, Inc.

P.O. BOX 87  
BLOOMFIELD, NM 87413  
(505) 632-1199

## BORE / TEST HOLE REPORT

CLIENT: CROSS TIMBERS OPERATING COMPANY  
LOCATION NAME: JOHNSON, E.J. C #1E  
CONTRACTOR: BLAGG ENGINEERING, INC.  
EQUIPMENT USED: MOBILE DRILL RIG ( EARTHPROBE )  
BORING LOCATION: 114 FT., S14E FEET FROM WELL HEAD.

BORING #..... BH - 1  
MW #..... 1  
PAGE #..... 1  
DATE STARTED 9/22/99  
DATE FINISHED 9/22/99  
OPERATOR..... REP  
PREPARED BY NJV



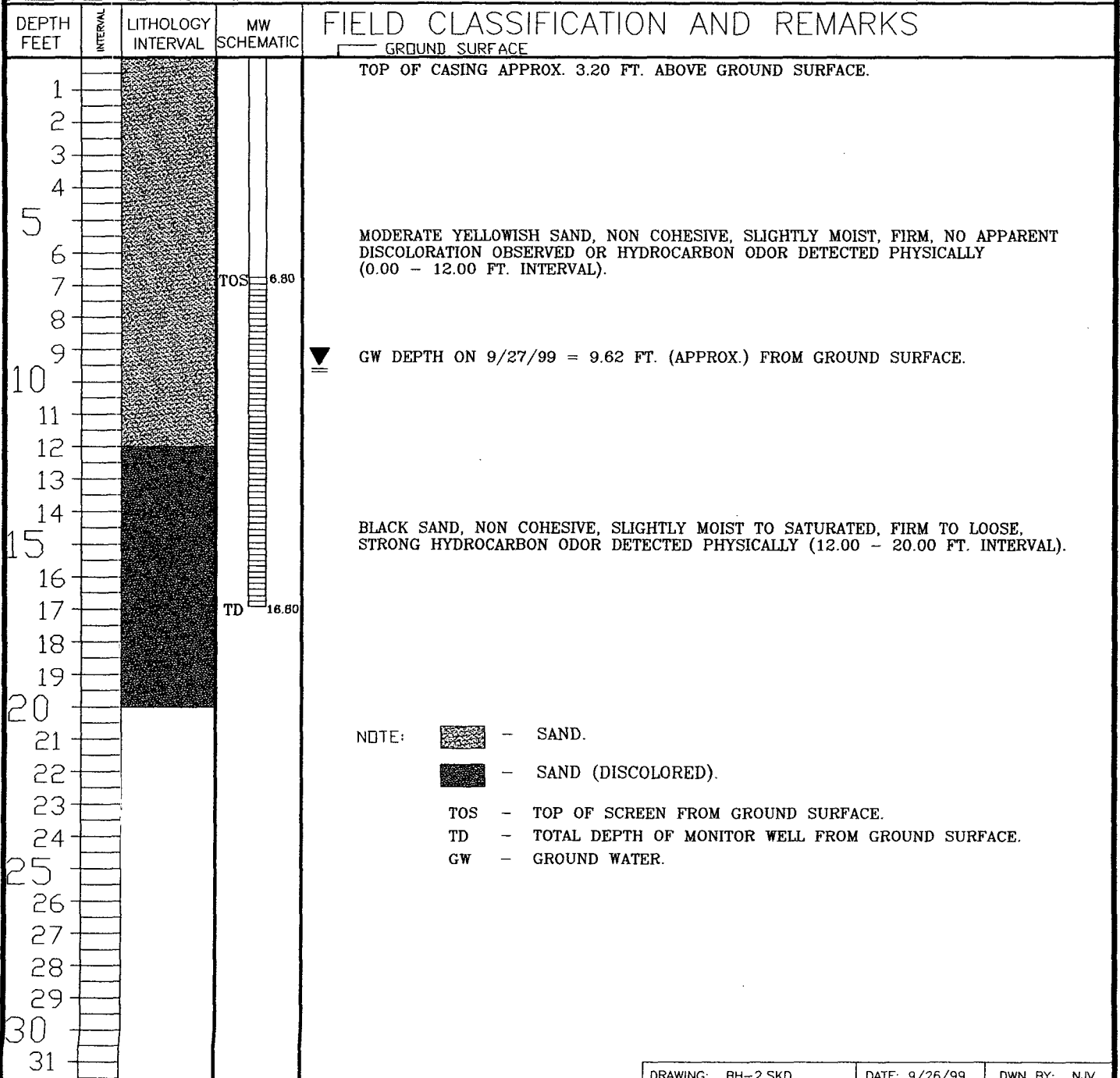
# BLAGG ENGINEERING, Inc.

P.O. BOX 87  
BLOOMFIELD, NM 87413  
(505) 632-1199

## BORE / TEST HOLE REPORT

CLIENT: CROSS TIMBERS OPERATING COMPANY  
LOCATION NAME: JOHNSON, E.J. C #1E  
CONTRACTOR: BLAGG ENGINEERING, INC.  
EQUIPMENT USED: MOBILE DRILL RIG ( EARTHPROBE )  
BORING LOCATION: 159 FT., S65E FEET FROM WELL HEAD.

BORING #..... BH - 2  
MW #..... 2  
PAGE #..... 2  
DATE STARTED 9/22/99  
DATE FINISHED 9/22/99  
OPERATOR..... REP  
PREPARED BY NJV



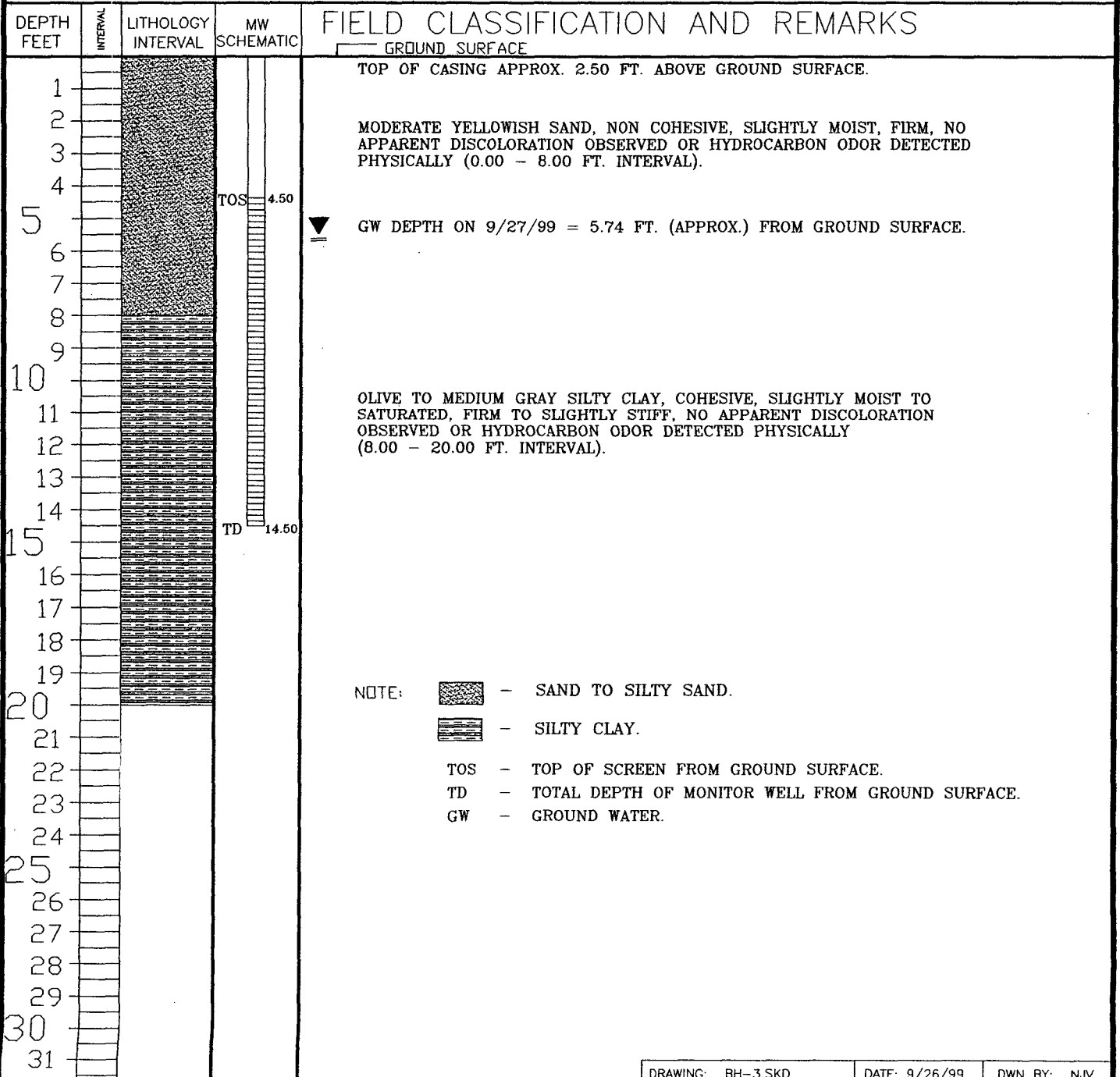
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P.O. BOX 87  
BLOOMFIELD, NM 87413  
(505) 632-1199

## BORE / TEST HOLE REPORT

CLIENT: CROSS TIMBERS OPERATING COMPANY  
LOCATION NAME: JOHNSON, E.J. C #1E  
CONTRACTOR: BLAGG ENGINEERING, INC.  
EQUIPMENT USED: MOBILE DRILL RIG ( EARTHPROBE )  
BORING LOCATION: 141 FT., N66E FEET FROM WELL HEAD.

BORING #..... BH - 3  
MW #..... 3  
PAGE #..... 3  
DATE STARTED 9/22/99  
DATE FINISHED 9/22/99  
OPERATOR..... REP  
PREPARED BY NJV



# MONITOR WELL #1

INSTALLED WITH MOBILE RIG

MONITOR WELL CONSTRUCTION & COMPLETION

HARE GC B # 1E

CROSS TIMBERS OPERATING CO.

BLAGG ENGINEERING, INC.  
CONSULTING PETROLEUM / RECLAMATION SERVICES  
P.O. BOX 87  
BLOOMFIELD, NEW MEXICO 87413  
PHONE: (505) 632-1199

MONITOR WELL SCHEMATIC  
DRAFTED BY: NJV  
INSTALL. DATE: JAN. '00  
FILENAME: MW-1

2" DIA. SCH. 40 PVC  
WELL CASING WITH SLIP  
CAP (approx. 3.20 ft.  
above ground surface)

TOTAL CASING  
LENGTH = 6.80 ft.  
FROM GROUND SURFACE  
TO TOP OF SCREEN

0.02 INCH SLOTTED  
SCREEN SCH 40  
(top of screen  
approx. 5.82 ft.  
above water table)

0.02 INCH SLOTTED  
SCREEN SCH 40 WITH  
POINTED END CAP  
(10 ft. total length;  
approx. 4.18 ft. below  
water table)

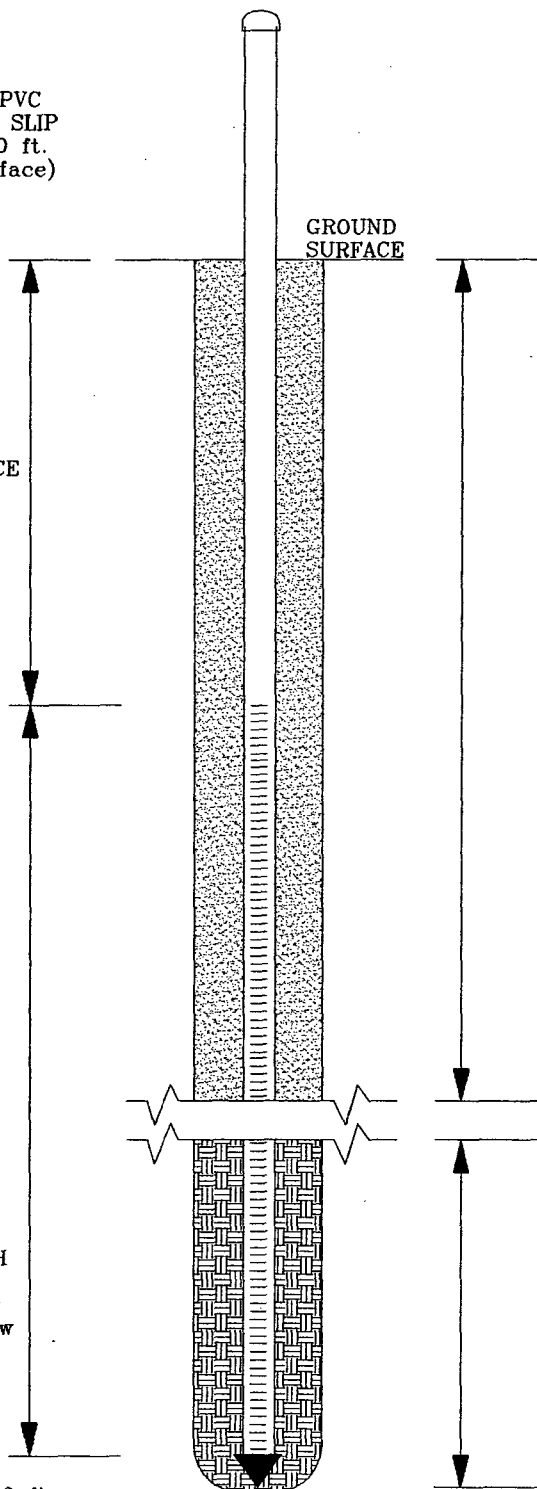
TOTAL DEPTH = 16.80 ft.  
FROM GROUND SURFACE

GROUND  
SURFACE

12.62 ft. ANNULAR ABOVE  
WATER TABLE COMPLETED  
WITH COLORADO SILICA SAND

WATER TABLE  
APPROX. 12.62 ft. FROM  
GROUND SURFACE  
(measured 9/27/99)

7.38 ft. ANNULAR BELOW  
WATER TABLE COMPLETED  
WITH EXISTING SOIL

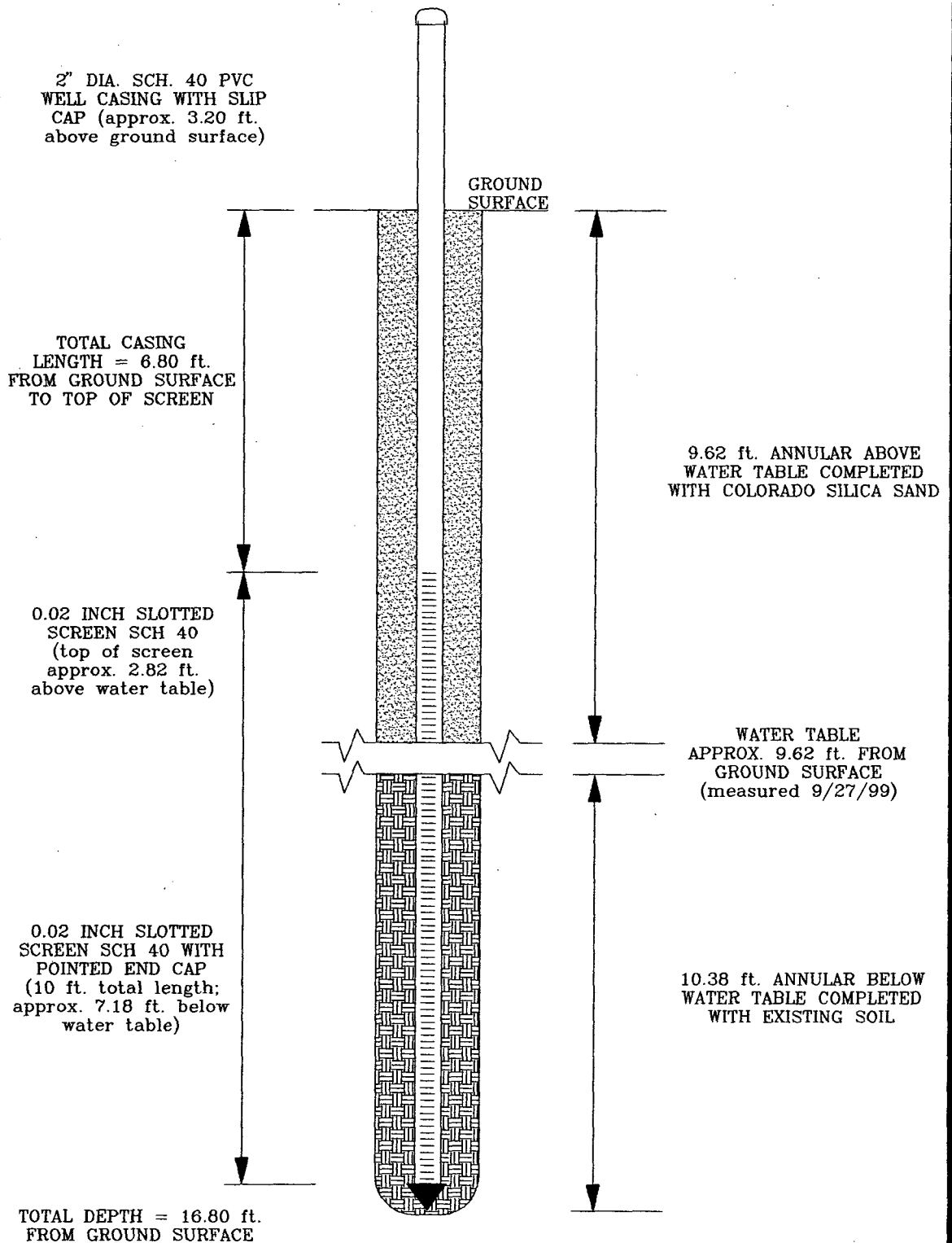


# MONITOR WELL #2

CROSS TIMBERS OPERATING CO.  
HARE GC B # 1E  
MONITOR WELL CONSTRUCTION & COMPLETION  
INSTALLED WITH MOBILE RIG

BLAGG ENGINEERING, INC.  
CONSULTING PETROLEUM / RECLAMATION SERVICES  
P.O. BOX 87  
BLOOMFIELD, NEW MEXICO 87413  
PHONE: (505) 632-1199

MONITOR WELL SCHEMATIC  
DRAFTED BY: NJV  
INSTALL. DATE: JAN. '00  
FILENAME: MW-2



# MONITOR WELL #3

2" DIA. SCH. 40 PVC  
WELL CASING WITH SLIP  
CAP (approx. 2.50 ft.  
above ground surface)

GROUND  
SURFACE

TOTAL CASING  
LENGTH = 4.50 ft.  
FROM GROUND SURFACE  
TO TOP OF SCREEN

0.02 INCH SLOTTED  
SCREEN SCH 40  
(top of screen  
approx. 1.24 ft.  
above water table)

0.02 INCH SLOTTED  
SCREEN SCH 40 WITH  
POINTED END CAP  
(10 ft. total length;  
approx. 8.76 ft. below  
water table)

5.74 ft. ANNULAR ABOVE  
WATER TABLE COMPLETED  
WITH COLORADO SILICA SAND

WATER TABLE  
APPROX. 5.74 ft. FROM  
GROUND SURFACE  
(measured 9/27/99)

14.26 ft. ANNULAR BELOW  
WATER TABLE COMPLETED  
WITH EXISTING SOIL

TOTAL DEPTH = 14.50 ft.  
FROM GROUND SURFACE

CROSS TIMBERS OPERATING CO.

HARE GC B # 1E

MONITOR WELL CONSTRUCTION & COMPLETION

INSTALLED WITH MOBILE RIG

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87

BLOOMFIELD, NEW MEXICO 87413

PHONE: (505) 632-1199

MONITOR WELL SCHEMATIC

DRAFTED BY: NJV

INSTALL. DATE: JAN. '00

FILENAME: MW-3

**BLAGG ENGINEERING, INC.****MONITOR WELL SAMPLING DATA**CLIENT : CROSS TIMBERS OPER. CO.CHAIN-OF-CUSTODY # : 7300LOCATION : JOHNSON, E. J. C #1ELABORATORY (S) USED : ENVIROTECH, INC.Date : September 27, 1999SAMPLER : REPFilename : 09-27-99.WK4PROJECT MANAGER : NJV

| WELL # | WELL ELEV. (ft) | WATER ELEV. (ft) | DEPTH TO WATER (ft) | TOTAL DEPTH (ft) | SAMPLING TIME | pH  | CONDUCT (umhos) | VOLUME PURGED (gal.) | FREE PRODUCT (ft) |
|--------|-----------------|------------------|---------------------|------------------|---------------|-----|-----------------|----------------------|-------------------|
| 1      | 104.04          | 88.72            | 15.32               | 20.00            | 1005          | 7.5 | 2000            | 2.25                 | -                 |
| 2      | 103.61          | 90.65            | 12.96               | 20.00            | 1040          | 8.1 | 1400            | 3.50                 | -                 |
| 3      | 98.02           | 89.78            | 8.24                | 17.00            | 1120          | 8.0 | 3200            | 4.25                 | -                 |

NOTES : Volume of water purged from well prior to sampling:  $V = \pi \times r^2 \times h \times 7.48 \text{ gal./ft}^3 \times 3 \text{ (wellbores)}$   
(i.e. 2" MW  $r = (1/12) \text{ ft}$ .  $h = 1 \text{ ft}$ .) (i.e. 4" MW  $r = (2/12) \text{ ft}$ .  $h = 1 \text{ ft}$ .)

Ideally a minimum of three (3) wellbore volumes:

1.25 " well diameter = 0.19 gallons per foot of water ( or 24 oz. ).

2 bails per foot - small teflon bailer.

3 bails per foot - 3 / 4 " teflon bailer.

2.00 " well diameter = 0.49 gallons per foot of water.

4.00 " well diameter = 1.95 gallons per foot of water.

Comments or note well diameter if not standard 2 "

Poor recovery in MW #'s 1 & 3. Collected BTEX and anion / cation samples for  
all MW's listed above .



# ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

## EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

|                    |                          |                     |          |
|--------------------|--------------------------|---------------------|----------|
| Client:            | Blagg / Cross Timbers    | Project #:          | 403410   |
| Sample ID:         | MW #1                    | Date Reported:      | 09-30-99 |
| Chain of Custody:  | 7300                     | Date Sampled:       | 09-27-99 |
| Laboratory Number: | G124                     | Date Received:      | 09-28-99 |
| Sample Matrix:     | Water                    | Date Analyzed:      | 09-30-99 |
| Preservative:      | HgCl <sub>2</sub> & Cool | Analysis Requested: | BTEX     |
| Condition:         | Cool & Intact            |                     |          |

| Parameter    | Concentration<br>(ug/L) | Dilution<br>Factor | Det.<br>Limit<br>(ug/L) |
|--------------|-------------------------|--------------------|-------------------------|
| Benzene      | 13.9                    | 1                  | 0.2                     |
| Toluene      | 11.0                    | 1                  | 0.2                     |
| Ethylbenzene | 17.2                    | 1                  | 0.2                     |
| p,m-Xylene   | 6.7                     | 1                  | 0.2                     |
| o-Xylene     | 3.3                     | 1                  | 0.1                     |
| Total Xylene | 10.0                    |                    |                         |
| Total BTEX   | 52.1                    |                    |                         |

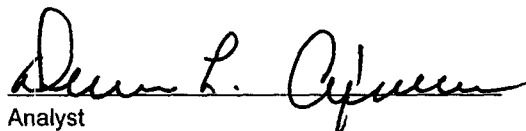
ND - Parameter not detected at the stated detection limit.

| Surrogate Recoveries: | Parameter          | Percent Recovery |
|-----------------------|--------------------|------------------|
|                       | Trifluorotoluene   | 97 %             |
|                       | Bromofluorobenzene | 97 %             |

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments: E J Johnson C # 1E.

  
Analyst

  
Review

# ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

## EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

|                    |                       |                     |          |
|--------------------|-----------------------|---------------------|----------|
| Client:            | Blagg / Cross Timbers | Project #:          | 403410   |
| Sample ID:         | MW #2                 | Date Reported:      | 09-30-99 |
| Chain of Custody:  | 7300                  | Date Sampled:       | 09-27-99 |
| Laboratory Number: | G125                  | Date Received:      | 09-28-99 |
| Sample Matrix:     | Water                 | Date Analyzed:      | 09-30-99 |
| Preservative:      | HgCl2 & Cool          | Analysis Requested: | BTEX     |
| Condition:         | Cool & Intact         |                     |          |

| Parameter    | Concentration<br>(ug/L) | Dilution<br>Factor | Det.<br>Limit<br>(ug/L) |
|--------------|-------------------------|--------------------|-------------------------|
| Benzene      | 58.7                    | 1                  | 0.2                     |
| Toluene      | 39.0                    | 1                  | 0.2                     |
| Ethylbenzene | 90.2                    | 1                  | 0.2                     |
| p,m-Xylene   | 84.4                    | 1                  | 0.2                     |
| o-Xylene     | 23.0                    | 1                  | 0.1                     |
| Total Xylene | 107                     |                    |                         |
| Total BTEX   | 295                     |                    |                         |

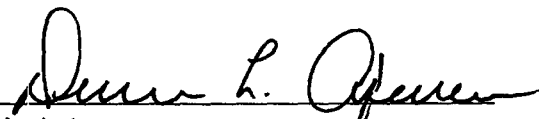
ND - Parameter not detected at the stated detection limit.

| Surrogate Recoveries: | Parameter          | Percent Recovery |
|-----------------------|--------------------|------------------|
|                       | Trifluorotoluene   | 97 %             |
|                       | Bromofluorobenzene | 97 %             |

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments: E J Johnson C # 1E.

  
Analyst

  
Review

# ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

## EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

|                    |                       |                     |          |
|--------------------|-----------------------|---------------------|----------|
| Client:            | Blagg / Cross Timbers | Project #:          | 403410   |
| Sample ID:         | MW #3                 | Date Reported:      | 09-30-99 |
| Chain of Custody:  | 7300                  | Date Sampled:       | 09-27-99 |
| Laboratory Number: | G126                  | Date Received:      | 09-28-99 |
| Sample Matrix:     | Water                 | Date Analyzed:      | 09-30-99 |
| Preservative:      | HgCl2 & Cool          | Analysis Requested: | BTEX     |
| Condition:         | Cool & Intact         |                     |          |

| Parameter    | Concentration<br>(ug/L) | Dilution<br>Factor | Det.<br>Limit<br>(ug/L) |
|--------------|-------------------------|--------------------|-------------------------|
| Benzene      | 22.7                    | 1                  | 0.2                     |
| Toluene      | 3.3                     | 1                  | 0.2                     |
| Ethylbenzene | 2.1                     | 1                  | 0.2                     |
| p,m-Xylene   | 9.3                     | 1                  | 0.2                     |
| o-Xylene     | 2.3                     | 1                  | 0.1                     |
| Total Xylene | 11.6                    |                    |                         |
| Total BTEX   | 39.7                    |                    |                         |

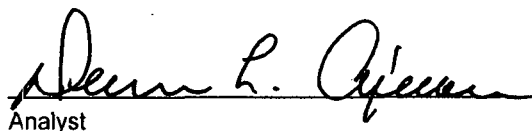
ND - Parameter not detected at the stated detection limit.

| Surrogate Recoveries: | Parameter          | Percent Recovery |
|-----------------------|--------------------|------------------|
|                       | Trifluorotoluene   | 100 %            |
|                       | Bromofluorobenzene | 100 %            |

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments: E J Johnson C # 1E.

  
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# ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

## CATION / ANION ANALYSIS

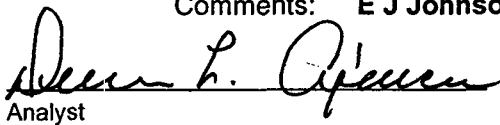
Client: Blagg / Cross Timbers  
Sample ID: MW #1  
Laboratory Number: G124  
Chain of Custody: 7300  
Sample Matrix: Water  
Preservative: Cool  
Condition: Cool & Intact

Project #: 403410  
Date Reported: 09-30-99  
Date Sampled: 09-27-99  
Date Received: 09-28-99  
Date Extracted: N/A  
Date Analyzed: 09-29-99

| Parameter                     | Analytical Result | Units    | Units       |
|-------------------------------|-------------------|----------|-------------|
| pH                            | 7.51              | s.u.     |             |
| Conductivity @ 25° C          | 6,920             | umhos/cm |             |
| Total Dissolved Solids @ 180C | 3,440             | mg/L     |             |
| Total Dissolved Solids (Calc) | 3,400             | mg/L     |             |
| SAR                           | 27.5              | ratio    |             |
| Total Alkalinity as CaCO3     | 648               | mg/L     |             |
| Total Hardness as CaCO3       | 260               | mg/L     |             |
| Bicarbonate as HCO3           | 648               | mg/L     | 10.62 meq/L |
| Carbonate as CO3              | <1                | mg/L     | 0.00 meq/L  |
| Hydroxide as OH               | <1                | mg/L     | 0.00 meq/L  |
| Nitrate Nitrogen              | 0.2               | mg/L     | 0.00 meq/L  |
| Nitrite Nitrogen              | 0.005             | mg/L     | 0.00 meq/L  |
| Chloride                      | 5.0               | mg/L     | 0.14 meq/L  |
| Fluoride                      | 2.10              | mg/L     | 0.11 meq/L  |
| Phosphate                     | 0.7               | mg/L     | 0.02 meq/L  |
| Sulfate                       | 1,870             | mg/L     | 38.93 meq/L |
| Iron                          | 0.011             | mg/L     |             |
| Calcium                       | 88.0              | mg/L     | 4.39 meq/L  |
| Magnesium                     | 9.8               | mg/L     | 0.81 meq/L  |
| Potassium                     | 7.5               | mg/L     | 0.19 meq/L  |
| Sodium                        | 1,020             | mg/L     | 44.37 meq/L |
| Cations                       |                   |          | 49.76 meq/L |
| Anions                        |                   |          | 49.83 meq/L |
| Cation/Anion Difference       |                   |          | 0.14%       |

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.  
Water And Waste Water", 18th ed., 1992.

Comments: E J Johnson C # 1E.

  
Analyst

  
Review

# ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

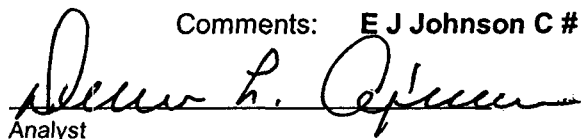
## CATION / ANION ANALYSIS

|                    |                       |                 |          |
|--------------------|-----------------------|-----------------|----------|
| Client:            | Blagg / Cross Timbers | Project #:      | 403410   |
| Sample ID:         | MW #2                 | Date Reported:  | 09-30-99 |
| Laboratory Number: | G125                  | Date Sampled:   | 09-27-99 |
| Chain of Custody:  | 7300                  | Date Received:  | 09-28-99 |
| Sample Matrix:     | Water                 | Date Extracted: | N/A      |
| Preservative:      | Cool                  | Date Analyzed:  | 09-29-99 |
| Condition:         | Cool & Intact         |                 |          |

| Parameter                     | Analytical Result | Units    | Units       |
|-------------------------------|-------------------|----------|-------------|
| pH                            | 8.09              | s.u.     |             |
| Conductivity @ 25° C          | 1,472             | umhos/cm |             |
| Total Dissolved Solids @ 180C | 720               | mg/L     |             |
| Total Dissolved Solids (Calc) | 710               | mg/L     |             |
| SAR                           | 11.5              | ratio    |             |
| Total Alkalinity as CaCO3     | 482               | mg/L     |             |
| Total Hardness as CaCO3       | 72.0              | mg/L     |             |
| Bicarbonate as HCO3           | 482               | mg/L     | 7.90 meq/L  |
| Carbonate as CO3              | <1                | mg/L     | 0.00 meq/L  |
| Hydroxide as OH               | <1                | mg/L     | 0.00 meq/L  |
| Nitrate Nitrogen              | 0.2               | mg/L     | 0.00 meq/L  |
| Nitrite Nitrogen              | 0.015             | mg/L     | 0.00 meq/L  |
| Chloride                      | 15.0              | mg/L     | 0.42 meq/L  |
| Fluoride                      | 0.96              | mg/L     | 0.05 meq/L  |
| Phosphate                     | 3.4               | mg/L     | 0.11 meq/L  |
| Sulfate                       | 140               | mg/L     | 2.91 meq/L  |
| Iron                          | 0.147             | mg/L     |             |
| Calcium                       | 25.6              | mg/L     | 1.28 meq/L  |
| Magnesium                     | 2.0               | mg/L     | 0.16 meq/L  |
| Potassium                     | 7.5               | mg/L     | 0.19 meq/L  |
| Sodium                        | 225               | mg/L     | 9.79 meq/L  |
| Cations                       |                   |          | 11.42 meq/L |
| Anions                        |                   |          | 11.40 meq/L |
| Cation/Anion Difference       |                   |          | 0.19%       |

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.  
Water And Waste Water", 18th ed., 1992.

Comments: E J Johnson C # 1E.

  
Analyst

  
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PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

## CATION / ANION ANALYSIS

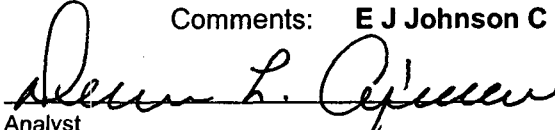
Client: Blagg / Cross Timbers  
Sample ID: MW #3  
Laboratory Number: G126  
Chain of Custody: 7300  
Sample Matrix: Water  
Preservative: Cool  
Condition: Cool & Intact

Project #: 403410  
Date Reported: 09-30-99  
Date Sampled: 09-27-99  
Date Received: 09-28-99  
Date Extracted: N/A  
Date Analyzed: 09-29-99

| Parameter                     | Analytical Result | Units    |       | Units |
|-------------------------------|-------------------|----------|-------|-------|
| pH                            | 7.85              | s.u.     |       |       |
| Conductivity @ 25° C          | 6,840             | umhos/cm |       |       |
| Total Dissolved Solids @ 180C | 3,410             | mg/L     |       |       |
| Total Dissolved Solids (Calc) | 3,320             | mg/L     |       |       |
| SAR                           | 29.3              | ratio    |       |       |
| Total Alkalinity as CaCO3     | 376               | mg/L     |       |       |
| Total Hardness as CaCO3       | 220               | mg/L     |       |       |
| Bicarbonate as HCO3           | 376               | mg/L     | 6.16  | meq/L |
| Carbonate as CO3              | <1                | mg/L     | 0.00  | meq/L |
| Hydroxide as OH               | <1                | mg/L     | 0.00  | meq/L |
| Nitrate Nitrogen              | 0.1               | mg/L     | 0.00  | meq/L |
| Nitrite Nitrogen              | 0.005             | mg/L     | 0.00  | meq/L |
| Chloride                      | 18.0              | mg/L     | 0.51  | meq/L |
| Fluoride                      | 1.66              | mg/L     | 0.09  | meq/L |
| Phosphate                     | 0.5               | mg/L     | 0.02  | meq/L |
| Sulfate                       | 1,990             | mg/L     | 41.43 | meq/L |
| Iron                          | 0.008             | mg/L     |       |       |
| Calcium                       | 60.0              | mg/L     | 2.99  | meq/L |
| Magnesium                     | 17.1              | mg/L     | 1.41  | meq/L |
| Potassium                     | 7.5               | mg/L     | 0.19  | meq/L |
| Sodium                        | 1,000             | mg/L     | 43.50 | meq/L |
| Cations                       |                   |          | 48.09 | meq/L |
| Anions                        |                   |          | 48.21 | meq/L |
| Cation/Anion Difference       |                   |          | 0.24% |       |

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.  
Water And Waste Water", 18th ed., 1992.

Comments: E J Johnson C # 1E.

  
Analyst

  
Review

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[illegible]

# ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

## EPA METHOD 8021 AROMATIC VOLATILE ORGANICS QUALITY ASSURANCE REPORT

|                    |                  |                |          |
|--------------------|------------------|----------------|----------|
| Client:            | N/A              | Project #:     | N/A      |
| Sample ID:         | 09-30-BTEX QA/QC | Date Reported: | 09-30-99 |
| Laboratory Number: | G124             | Date Sampled:  | N/A      |
| Sample Matrix:     | Water            | Date Received: | N/A      |
| Preservative:      | N/A              | Date Analyzed: | 09-30-99 |
| Condition:         | N/A              | Analysis:      | BTEX     |

| Calibration and<br>Detection Limits (ug/L) | I-Cal RF    | C-Cal RF             | %Diff | Blank<br>Conc | Detect<br>Limit |
|--------------------------------------------|-------------|----------------------|-------|---------------|-----------------|
|                                            |             | Accept Range 0 - 15% |       |               |                 |
| Benzene                                    | 3.6219E-001 | 3.6335E-001          | 0.32% | ND            | 0.2             |
| Toluene                                    | 2.7867E-002 | 2.7872E-002          | 0.02% | ND            | 0.2             |
| Ethylbenzene                               | 4.1931E-002 | 4.1981E-002          | 0.12% | ND            | 0.2             |
| p,m-Xylene                                 | 3.6569E-002 | 3.6576E-002          | 0.02% | ND            | 0.2             |
| o-Xylene                                   | 3.1955E-002 | 3.2051E-002          | 0.30% | ND            | 0.1             |

| Duplicate Conc. (ug/L) | Sample | Duplicate | %Diff | Accept Limit |
|------------------------|--------|-----------|-------|--------------|
| Benzene                | 13.9   | 13.8      | 0.7%  | 0 - 30%      |
| Toluene                | 11.0   | 11.3      | 2.7%  | 0 - 30%      |
| Ethylbenzene           | 17.2   | 17.2      | 0.0%  | 0 - 30%      |
| p,m-Xylene             | 6.7    | 6.8       | 1.5%  | 0 - 30%      |
| o-Xylene               | 3.3    | 3.3       | 0.0%  | 0 - 30%      |

| Spike Conc. (ug/L) | Sample | Amount Spiked | Spiked Sample | % Recovery | Accept Limits |
|--------------------|--------|---------------|---------------|------------|---------------|
| Benzene            | 13.9   | 50.0          | 63.6          | 100%       | 39 - 150      |
| Toluene            | 11.0   | 50.0          | 60.9          | 100%       | 46 - 148      |
| Ethylbenzene       | 17.2   | 50.0          | 67.0          | 100%       | 32 - 160      |
| p,m-Xylene         | 6.7    | 100.0         | 107           | 100%       | 46 - 148      |
| o-Xylene           | 3.3    | 50.0          | 53.3          | 100%       | 46 - 148      |

ND - Parameter not detected at the stated detection limit.

\* - Administrative level set at 80 - 120.

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.  
Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments: QA/QC for samples G124 - G129.

Analyst

Review



**BLAGG ENGINEERING, INC.**  
**MONITOR WELL SAMPLING DATA**

CLIENT : CROSS TIMBERS OPER. CO.

CHAIN-OF-CUSTODY # : 10352

LOCATION : JOHNSON, E. J. C # 1E

LABORATORY (S) USED : ON - SITE TECH.

Date : February 18, 2000

SAMPLER : N J V

Filename : 02-18-00.WK4

PROJECT MANAGER : N J V

| WELL<br># | WELL<br>ELEV.<br>(ft) | WATER<br>ELEV.<br>(ft) | DEPTH TO<br>WATER<br>(ft) | TOTAL<br>DEPTH<br>(ft) | SAMPLING<br>TIME | pH  | CONDUCT<br>(umhos) | VOLUME<br>PURGED<br>(gal.) | FREE<br>PRODUCT<br>(ft) |
|-----------|-----------------------|------------------------|---------------------------|------------------------|------------------|-----|--------------------|----------------------------|-------------------------|
| 1         | 104.04                | 88.65                  | 15.39                     | 20.00                  | 1110             | 7.7 | 3,100              | 2.25                       | -                       |
| 2         | 103.61                | 90.53                  | 13.08                     | 20.00                  | 1230             | 8.2 | 1,500              | 3.50                       | -                       |
| 3         | 98.02                 | 89.51                  | 8.51                      | 17.00                  | 1150             | 8.0 | 3,100              | 4.25                       | -                       |

NOTES : Volume of water purged from well prior to sampling:  $V = \pi \times r^2 \times h \times 7.48 \text{ gal./ft}^3 \times 3 \text{ (wellbores)}$ .  
(i.e. 2" MW  $r = (1/12) \text{ ft. } h = 1 \text{ ft.}$  (i.e. 4" MW  $r = (2/12) \text{ ft. } h = 1 \text{ ft.}$ )

Ideally a minimum of three (3) wellbore volumes:

1.25 " well diameter = 0.19 gallons per foot of water ( or 24 oz. ).

2 bails per foot - small teflon bailer.

3 bails per foot - 3 / 4 " teflon bailer.

2.00 " well diameter = 0.49 gallons per foot of water.

4.00 " well diameter = 1.95 gallons per foot of water.

Comments or note well diameter if not standard 2 "

Poor recovery in MW #3 . Fair recovery in MW #'s 1 & 2 . Collected BTEX from  
all MW 's listed above .

OFF: (505) 325-5667



LAB: (505) 325-1556

## ANALYTICAL REPORT

Date: 01-Mar-00

|                    |                     |                            |                       |
|--------------------|---------------------|----------------------------|-----------------------|
| <b>Client:</b>     | Blagg Engineering   | <b>Client Sample Info:</b> | Johnson, E.J. C #1E   |
| <b>Work Order:</b> | 0002043             | <b>Client Sample ID:</b>   | MW #1                 |
| <b>Lab ID:</b>     | 0002043-01A         | <b>Matrix:</b>             | AQUEOUS               |
| <b>Project:</b>    | Johnson, E.J. C #1E | <b>Collection Date:</b>    | 2/18/2000 11:10:00 AM |
|                    |                     | <b>COC Record:</b>         | 10352                 |

| Parameter                    | Result | PQL     | Qual | Units       | DF | Date Analyzed |
|------------------------------|--------|---------|------|-------------|----|---------------|
| AROMATIC VOLATILES BY GC/PID |        | SW8021B |      | Analyst: DM |    |               |
| Benzene                      | 2.4    | 0.5     |      | µg/L        | 1  | 2/25/2000     |
| Toluene                      | ND     | 0.5     |      | µg/L        | 1  | 2/25/2000     |
| Ethylbenzene                 | 11     | 0.5     |      | µg/L        | 1  | 2/25/2000     |
| m,p-Xylene                   | ND     | 1       |      | µg/L        | 1  | 2/25/2000     |
| o-Xylene                     | ND     | 0.5     |      | µg/L        | 1  | 2/25/2000     |

|                    |                                                         |                                                     |
|--------------------|---------------------------------------------------------|-----------------------------------------------------|
| <b>Qualifiers:</b> | PQL - Practical Quantitation Limit                      | S - Spike Recovery outside accepted recovery limits |
|                    | ND - Not Detected at Practical Quantitation Limit       | R - RPD outside accepted recovery limits            |
|                    | J - Analyte detected below Practical Quantitation Limit | E - Value above quantitation range                  |
|                    | B - Analyte detected in the associated Method Blank     | Surr: - Surrogate                                   |

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1 of 1

OFF: (505) 325-5667



LAB: (505) 325-1556

## ANALYTICAL REPORT

Date: 01-Mar-00

|                    |                     |                            |                       |
|--------------------|---------------------|----------------------------|-----------------------|
| <b>Client:</b>     | Blagg Engineering   | <b>Client Sample Info:</b> | Johnson, E.J. C #1E   |
| <b>Work Order:</b> | 0002043             | <b>Client Sample ID:</b>   | MW #2                 |
| <b>Lab ID:</b>     | 0002043-02A         | <b>Matrix:</b>             | AQUEOUS               |
| <b>Project:</b>    | Johnson, E.J. C #1E | <b>Collection Date:</b>    | 2/18/2000 12:30:00 PM |
|                    |                     | <b>COC Record:</b>         | 10352                 |

| Parameter                    | Result | PQL     | Qual | Units       | DF | Date Analyzed |
|------------------------------|--------|---------|------|-------------|----|---------------|
| AROMATIC VOLATILES BY GC/PID |        | SW8021B |      | Analyst: DM |    |               |
| Benzene                      | ND     | 0.5     |      | µg/L        | 1  | 2/28/2000     |
| Toluene                      | ND     | 0.5     |      | µg/L        | 1  | 2/28/2000     |
| Ethylbenzene                 | 86     | 0.5     |      | µg/L        | 1  | 2/28/2000     |
| m,p-Xylene                   | 36     | 1       |      | µg/L        | 1  | 2/28/2000     |
| o-Xylene                     | 6.6    | 0.5     |      | µg/L        | 1  | 2/28/2000     |

**Qualifiers:**

PQL - Practical Quantitation Limit

ND - Not Detected at Practical Quantitation Limit

J - Analyte detected below Practical Quantitation Limit

B - Analyte detected in the associated Method Blank

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Surr: - Surrogate

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- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

1 of 1

OFF: (505) 325-5667



LAB: (505) 325-1556

## ANALYTICAL REPORT

Date: 01-Mar-00

|                    |                     |                            |                       |
|--------------------|---------------------|----------------------------|-----------------------|
| <b>Client:</b>     | Blagg Engineering   | <b>Client Sample Info:</b> | Johnson, E.J. C #1E   |
| <b>Work Order:</b> | 0002043             | <b>Client Sample ID:</b>   | MW #3                 |
| <b>Lab ID:</b>     | 0002043-03A         | <b>Matrix:</b>             | AQUEOUS               |
| <b>Project:</b>    | Johnson, E.J. C #1E | <b>Collection Date:</b>    | 2/18/2000 11:50:00 AM |
|                    |                     | <b>COC Record:</b>         | 10352                 |

| Parameter                    | Result | PQL     | Qual | Units       | DF | Date Analyzed |
|------------------------------|--------|---------|------|-------------|----|---------------|
| AROMATIC VOLATILES BY GC/PID |        | SW8021B |      | Analyst: DM |    |               |
| Benzene                      | ND     | 0.5     |      | µg/L        | 1  | 2/25/2000     |
| Toluene                      | ND     | 0.5     |      | µg/L        | 1  | 2/25/2000     |
| Ethylbenzene                 | ND     | 0.5     |      | µg/L        | 1  | 2/25/2000     |
| m,p-Xylene                   | ND     | 1       |      | µg/L        | 1  | 2/25/2000     |
| o-Xylene                     | ND     | 0.5     |      | µg/L        | 1  | 2/25/2000     |

|                    |                                                         |                                                     |
|--------------------|---------------------------------------------------------|-----------------------------------------------------|
| <b>Qualifiers:</b> | PQL - Practical Quantitation Limit                      | S - Spike Recovery outside accepted recovery limits |
|                    | ND - Not Detected at Practical Quantitation Limit       | R - RPD outside accepted recovery limits            |
|                    | J - Analyte detected below Practical Quantitation Limit | E - Value above quantitation range                  |
|                    | B - Analyte detected in the associated Method Blank     | Surr: - Surrogate                                   |

1 of 1

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- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -



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Tel. 505/267-1496

CHAIN OF

Date: 2/18/00 page: 1 of 1

[illegible]

# On Site Technologies, LTD.

Date: 01-Mar-00

CLIENT: Blagg Engineering  
 Work Order: 0002043  
 Project: Johnson, E.J. C #1E

## QC SUMMARY REPORT

Method Blank

|                         |                       |                      |             |                         |            |          |           |             |      |          |      |
|-------------------------|-----------------------|----------------------|-------------|-------------------------|------------|----------|-----------|-------------|------|----------|------|
| Sample ID: MB1          | Batch ID: GC-1_000225 | Test Code: SW8021B   | Units: µg/L | Analysis Date 2/25/2000 | Prep Date: |          |           |             |      |          |      |
| Client ID:              | 0002043               | Run ID: GC-1_000225A |             | SeqNo: 24479            |            |          |           |             |      |          |      |
| Analyte                 | Result                | PQL                  | SPK value   | SPK Ref Val             | %REC       | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Benzene                 | .139                  | 0.5                  |             |                         |            |          |           |             |      |          | J    |
| Ethylbenzene            | .0595                 | 0.5                  |             |                         |            |          |           |             |      |          | J    |
| m,p-Xylene              | .1049                 | 1                    |             |                         |            |          |           |             |      |          | J    |
| Methyl tert-Butyl Ether | ND                    | 1                    |             |                         |            |          |           |             |      |          | J    |
| o-Xylene                | .0485                 | 0.5                  |             |                         |            |          |           |             |      |          | J    |
| Toluene                 | .1347                 | 0.5                  |             |                         |            |          |           |             |      |          | J    |

|                         |                       |                      |             |                         |            |          |           |             |      |          |      |
|-------------------------|-----------------------|----------------------|-------------|-------------------------|------------|----------|-----------|-------------|------|----------|------|
| Sample ID: MB1          | Batch ID: GC-1_000228 | Test Code: SW8021B   | Units: µg/L | Analysis Date 2/28/2000 | Prep Date: |          |           |             |      |          |      |
| Client ID:              | 0002043               | Run ID: GC-1_000228A |             | SeqNo: 24562            |            |          |           |             |      |          |      |
| Analyte                 | Result                | PQL                  | SPK value   | SPK Ref Val             | %REC       | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Benzene                 | ND                    | 0.5                  |             |                         |            |          |           |             |      |          |      |
| Ethylbenzene            | ND                    | 0.5                  |             |                         |            |          |           |             |      |          |      |
| m,p-Xylene              | ND                    | 1                    |             |                         |            |          |           |             |      |          |      |
| Methyl tert-Butyl Ether | ND                    | 1                    |             |                         |            |          |           |             |      |          |      |
| o-Xylene                | ND                    | 0.5                  |             |                         |            |          |           |             |      |          |      |
| Toluene                 | .0832                 | 0.5                  |             |                         |            |          |           |             |      |          | J    |

Qualifiers: ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits  
 R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

# On Site Technologies, LTD.

Date: 01-Mar-00

**CLIENT:** Blagg Engineering  
**Work Order:** 0002043  
**Project:** Johnson, E.J. C #1E

## QC SUMMARY REPORT

Sample Matrix Spike

|                          |        |                       |                    |              |                         |          |            |             |      |          |      |
|--------------------------|--------|-----------------------|--------------------|--------------|-------------------------|----------|------------|-------------|------|----------|------|
| Sample ID: 0002042-02AMS |        | Batch ID: GC-1_000225 | Test Code: SW8021B | Units: µg/L  | Analysis Date 2/25/2000 |          | Prep Date: |             |      |          |      |
| Client ID:               |        | 0002043               | Run ID:            | GC-1_000225A | SeqNo: 24480            |          |            |             |      |          |      |
| Analyte                  | Result | PQL                   | SPK value          | SPK Ref Val  | %REC                    | LowLimit | HighLimit  | RPD Ref Val | %RPD | RPDLimit | Qual |
| Benzene                  | 21250  | 120                   | 10000              | 12000        | 92.6%                   | 73       | 126        |             |      |          | ES ✓ |
| Ethylbenzene             | 11460  | 120                   | 10000              | 1328         | 101.3%                  | 88       | 113        |             |      |          |      |
| m,p-Xylene               | 19960  | 250                   | 20000              | 539.9        | 97.1%                   | 83       | 112        |             |      |          |      |
| Methyl tert-Butyl Ether  | 52230  | 250                   | 10000              | 45200        | 70.2%                   | 81       | 125        |             |      |          |      |
| o-Xylene                 | 10540  | 120                   | 10000              | 336.6        | 102.1%                  | 93       | 110        |             |      |          |      |
| Toluene                  | 11160  | 120                   | 10000              | 1020         | 101.5%                  | 76       | 126        |             |      |          |      |

|                           |        |                       |           |                    |        |              |           |                         |      |            |      |
|---------------------------|--------|-----------------------|-----------|--------------------|--------|--------------|-----------|-------------------------|------|------------|------|
| Sample ID: 0002042-02AMSD |        | Batch ID: GC-1_000225 |           | Test Code: SW8021B |        | Units: µg/L  |           | Analysis Date 2/25/2000 |      | Prep Date: |      |
| Client ID:                |        | 0002043               |           | Run ID:            |        | GC-1_000225A |           | SeqNo: 24481            |      |            |      |
| Analyte                   | Result | PQL                   | SPK value | SPK Ref Val        | %REC   | LowLimit     | HighLimit | RPD Ref Val             | %RPD | RPDLimit   | Qual |
| Benzene                   | 20810  | 120                   | 10000     | 12000              | 88.2%  | 73           | 126       | 21250                   | 2.1% | 6          |      |
| Ethylbenzene              | 11230  | 120                   | 10000     | 1328               | 99.0%  | 88           | 113       | 11460                   | 2.0% | 5          |      |
| m,p-Xylene                | 19580  | 250                   | 20000     | 539.9              | 95.2%  | 83           | 112       | 19960                   | 1.9% | 7          |      |
| Methyl tert-Butyl Ether   | 52130  | 250                   | 10000     | 45200              | 69.3%  | 81           | 125       | 52230                   | 0.2% | 9          | ES ✓ |
| o-Xylene                  | 10390  | 120                   | 10000     | 336.6              | 100.5% | 93           | 110       | 10540                   | 1.4% | 6          |      |
| Toluene                   | 10940  | 120                   | 10000     | 1020               | 99.2%  | 76           | 126       | 11160                   | 2.0% | 6          |      |

— CONFIRMED LCS @ 3/1/00

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 S - Spike Recovery outside accepted recovery limits  
 R - RPD outside accepted recovery limits  
 B - Analyte detected in the associated Method Blank

**CLIENT:** Blagg Engineering  
**Work Order:** 0002043  
**Project:** Johnson, E.J. C #1E

**QC SUMMARY REPORT**  
 Sample Matrix Spike

|                          |                       |                    |             |                          |                                                        |
|--------------------------|-----------------------|--------------------|-------------|--------------------------|--------------------------------------------------------|
| Sample ID: 0002039-02AMS | Batch ID: GC-1_000228 | Test Code: SW8021B | Units: µg/L | Analysis Date: 2/28/2000 | Prep Date:                                             |
| Client ID: 0002043       | Run ID: GC-1_000228A  | PQL                | SPK value   | SPK Ref Val              | SeqNo: 24563                                           |
| Analyte                  | Result                | PQL                | SPK value   | SPK Ref Val              | %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual |
| Benzene                  | 893.8                 | 10                 | 800         | 119.1                    | 96.8% 73 126                                           |
| Ethylbenzene             | 1399                  | 10                 | 800         | 637.1                    | 95.3% 88 113                                           |
| m,p-Xylene               | 6044                  | 20                 | 1600        | 4542                     | 93.8% 83 112                                           |
| Methyl tert-Butyl Ether  | 812.5                 | 20                 | 800         | 35.51                    | 97.1% 81 125                                           |
| o-Xylene                 | 1389                  | 10                 | 800         | 617.7                    | 96.5% 93 110                                           |
| Toluene                  | 2642                  | 10                 | 800         | 1861                     | 97.7% 76 126                                           |

|                           |                       |                    |             |                          |                                                        |
|---------------------------|-----------------------|--------------------|-------------|--------------------------|--------------------------------------------------------|
| Sample ID: 0002039-02AMSD | Batch ID: GC-1_000228 | Test Code: SW8021B | Units: µg/L | Analysis Date: 2/28/2000 | Prep Date:                                             |
| Client ID: 0002043        | Run ID: GC-1_000228A  | PQL                | SPK value   | SPK Ref Val              | SeqNo: 24564                                           |
| Analyte                   | Result                | PQL                | SPK value   | SPK Ref Val              | %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual |
| Benzene                   | 891.7                 | 10                 | 800         | 119.1                    | 96.6% 73 126 893.8 0.2% 6                              |
| Ethylbenzene              | 1394                  | 10                 | 800         | 637.1                    | 94.6% 88 113 1399 0.4% 5                               |
| m,p-Xylene                | 6019                  | 20                 | 1600        | 4542                     | 92.3% 83 112 6044 0.4% 7                               |
| Methyl tert-Butyl Ether   | 819.4                 | 20                 | 800         | 35.51                    | 98.0% 81 125 812.5 0.8% 9                              |
| o-Xylene                  | 1390                  | 10                 | 800         | 617.7                    | 96.6% 93 110 1389 0.0% 6                               |
| Toluene                   | 2634                  | 10                 | 800         | 1861                     | 96.7% 76 126 2642 0.3% 6                               |

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 S - Spike Recovery outside accepted recovery limits  
 R - RPD outside accepted recovery limits  
 B - Analyte detected in the associated Method Blank



# On Site Technologies, LTD.

Date: 01-Mar-00

CLIENT: Blagg Engineering  
 Work Order: 0002043  
 Project: Johnson, E.J. C #1E

## QC SUMMARY REPORT

Laboratory Control Spike - generic

|                         |         |                       |                    |             |                         |          |            |             |      |          |      |
|-------------------------|---------|-----------------------|--------------------|-------------|-------------------------|----------|------------|-------------|------|----------|------|
| Sample ID: LCS WATER    |         | Batch ID: GC-1_000225 | Test Code: SW8021B | Units: µg/L | Analysis Date 2/25/2000 |          | Prep Date: |             |      |          |      |
| Client ID:              | 0002043 | Run ID:               | GC-1_000225A       |             | SeqNo:                  | 24478    |            |             |      |          |      |
| Analyte                 | Result  | PQL                   | SPK value          | SPK Ref Val | %REC                    | LowLimit | HighLimit  | RPD Ref Val | %RPD | RPDLimit | Qual |
| Benzene                 | 40.92   | 0.5                   | 40                 | 0.139       | 102.0%                  | 89       | 112        |             |      |          |      |
| Ethylbenzene            | 41.42   | 0.5                   | 40                 | 0.0595      | 103.4%                  | 93       | 112        |             |      |          |      |
| m,p-Xylene              | 78.63   | 1                     | 80                 | 0.1049      | 98.2%                   | 88       | 108        |             |      |          |      |
| Methyl tert-Butyl Ether | 41.32   | 1                     | 40                 | 0           | 103.3%                  | 87       | 115        |             |      |          |      |
| o-Xylene                | 41.44   | 0.5                   | 40                 | 0.0485      | 103.5%                  | 93       | 112        |             |      |          |      |
| Toluene                 | 41.14   | 0.5                   | 40                 | 0.1347      | 102.5%                  | 92       | 111        |             |      |          |      |

| Sample ID: LCS WATER    | Batch ID: GC-1_000228 | Test Code: SW8021B   | Units: µg/L | Analysis Date 2/28/2000 | Prep Date: |          |           |             |      |          |      |
|-------------------------|-----------------------|----------------------|-------------|-------------------------|------------|----------|-----------|-------------|------|----------|------|
| Client ID:              | 0002043               | Run ID: GC-1_000228A |             | SeqNo: 24561            |            |          |           |             |      |          |      |
| Analyte                 | Result                | PQL                  | SPK value   | SPK Ref Val             | %REC       | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Benzene                 | 40.38                 | 0.5                  | 40          | 0                       | 100.9%     | 89       | 112       |             |      |          |      |
| Ethylbenzene            | 41.28                 | 0.5                  | 40          | 0                       | 103.2%     | 93       | 112       |             |      |          |      |
| m,p-Xylene              | 78.41                 | 1                    | 80          | 0                       | 98.0%      | 88       | 108       |             |      |          |      |
| Methyl tert-Butyl Ether | 40.59                 | 1                    | 40          | 0                       | 101.5%     | 87       | 115       |             |      |          |      |
| o-Xylene                | 41.17                 | 0.5                  | 40          | 0                       | 102.9%     | 93       | 112       |             |      |          |      |
| Toluene                 | 40.9                  | 0.5                  | 40          | 0.0832                  | 102.0%     | 92       | 111       |             |      |          |      |

Qualifiers: ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits  
 R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

# On Site Technologies, LTD.

Date: 01-Mar-00

**CLIENT:** Blagg Engineering  
**Work Order:** 0002043  
**Project:** Johnson, E.J. C #1E

## QC SUMMARY REPORT

Continuing Calibration Verification Standard

| Sample ID: CCV1 BTEX_0001 |        | Batch ID: GC-1_000225 |           | Test Code: SW8021B |        | Units: µg/L  |           | Analysis Date 2/25/2000 |      | Prep Date: |      |
|---------------------------|--------|-----------------------|-----------|--------------------|--------|--------------|-----------|-------------------------|------|------------|------|
| Client ID:                |        | 0002043               |           | Run ID:            |        | GC-1_000225A |           | SeqNo: 24475            |      |            |      |
| Analyte                   | Result | PQL                   | SPK value | SPK Ref Val        | %REC   | LowLimit     | HighLimit | RPD Ref Val             | %RPD | RPDLimit   | Qual |
| Benzene                   | 20.45  | 0.5                   | 20        | 0                  | 102.2% | 85           | 115       |                         |      |            |      |
| Ethylbenzene              | 20.85  | 0.5                   | 20        | 0                  | 104.3% | 85           | 115       |                         |      |            |      |
| m,p-Xylene                | 39.34  | 1                     | 40        | 0                  | 98.3%  | 85           | 115       |                         |      |            |      |
| Methyl tert-Butyl Ether   | 20.41  | 1                     | 20        | 0                  | 102.0% | 85           | 115       |                         |      |            |      |
| o-Xylene                  | 20.78  | 0.5                   | 20        | 0                  | 103.9% | 85           | 115       |                         |      |            |      |
| Toluene                   | 20.31  | 0.5                   | 20        | 0                  | 101.6% | 85           | 115       |                         |      |            |      |
| 1,4-Difluorobenzene       | 90.02  | 0                     | 100       | 0                  | 90.0%  | 80           | 105       |                         |      |            |      |
| 4-Bromochlorobenzene      | 89.28  | 0                     | 100       | 0                  | 89.3%  | 78           | 108       |                         |      |            |      |
| Fluorobenzene             | 89.34  | 0                     | 100       | 0                  | 89.3%  | 78           | 108       |                         |      |            |      |

| Sample ID: CCV2 BTEX_0001 |        | Batch ID: GC-1_000225 |           | Test Code: SW8021B |        | Units: µg/L  |           | Analysis Date 2/25/2000 |      |          | Prep Date: |  |
|---------------------------|--------|-----------------------|-----------|--------------------|--------|--------------|-----------|-------------------------|------|----------|------------|--|
| Client ID:                |        | 0002043               |           | Run ID:            |        | GC-1_000225A |           | SeqNo:                  |      | 24476    |            |  |
| Analyte                   | Result | PQL                   | SPK value | SPK Ref Val        | %REC   | LowLimit     | HighLimit | RPD Ref Val             | %RPD | RPDLimit | Qual       |  |
| Benzene                   | 19.74  | 0.5                   | 20        | 0                  | 98.7%  | 85           | 115       |                         |      |          |            |  |
| Ethylbenzene              | 20.35  | 0.5                   | 20        | 0                  | 101.8% | 85           | 115       |                         |      |          |            |  |
| m,p-Xylene                | 38.38  | 1                     | 40        | 0                  | 95.9%  | 85           | 115       |                         |      |          |            |  |
| Methyl tert-Butyl Ether   | 20.52  | 1                     | 20        | 0                  | 102.6% | 85           | 115       |                         |      |          |            |  |
| o-Xylene                  | 20.42  | 0.5                   | 20        | 0                  | 102.1% | 85           | 115       |                         |      |          |            |  |
| Toluene                   | 19.92  | 0.5                   | 20        | 0                  | 99.6%  | 85           | 115       |                         |      |          |            |  |
| 1,4-Difluorobenzene       | 89.37  | 0                     | 100       | 0                  | 89.4%  | 80           | 105       |                         |      |          |            |  |
| 4-Bromochlorobenzene      | 89.5   | 0                     | 100       | 0                  | 89.5%  | 78           | 108       |                         |      |          |            |  |
| Fluorobenzene             | 89.36  | 0                     | 100       | 0                  | 89.4%  | 78           | 108       |                         |      |          |            |  |

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits  
R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

**CLIENT:** Blagg Engineering  
**Work Order:** 0002043  
**Project:** Johnson, E.J. C #1E

**QC SUMMARY REPORT**  
 Continuing Calibration Verification Standard

| Sample ID: CCV3 BTEX_0001 |        | Batch ID: GC-1_000225 | Test Code: SW8021B | Units: µg/L |             | Analysis Date 2/25/2000 |          | Prep Date: |             |      |          |      |
|---------------------------|--------|-----------------------|--------------------|-------------|-------------|-------------------------|----------|------------|-------------|------|----------|------|
| Client ID: 0002043        |        | Run ID: GC-1_000225A  | PQL                | SPK value   | SPK Ref Val | %REC                    | LowLimit | HighLimit  | RPD Ref Val | %RPD | RPDLimit | Qual |
| Analyte                   | Result |                       |                    |             |             |                         |          |            |             |      |          |      |
| Benzene                   | 40.08  |                       | 0.5                | 40          | 0           | 100.2%                  | 85       | 115        |             |      |          |      |
| Ethylbenzene              | 40.36  |                       | 0.5                | 40          | 0           | 100.9%                  | 85       | 115        |             |      |          |      |
| m,p-Xylene                | 76.66  |                       | 1                  | 80          | 0           | 95.8%                   | 85       | 115        |             |      |          |      |
| Methyl tert-Butyl Ether   | 41.52  |                       | 1                  | 40          | 0           | 103.8%                  | 85       | 115        |             |      |          |      |
| o-Xylene                  | 40.6   |                       | 0.5                | 40          | 0           | 101.5%                  | 85       | 115        |             |      |          |      |
| Toluene                   | 40.21  |                       | 0.5                | 40          | 0           | 100.5%                  | 85       | 115        |             |      |          |      |
| 1,4-Difluorobenzene       | 88.88  |                       | 0                  | 100         | 0           | 88.9%                   | 80       | 105        |             |      |          |      |
| 4-Bromochlorobenzene      | 89.24  |                       | 0                  | 100         | 0           | 89.2%                   | 78       | 108        |             |      |          |      |
| Fluorobenzene             | 88.61  |                       | 0                  | 100         | 0           | 88.6%                   | 78       | 108        |             |      |          |      |

| Sample ID: GCV1 BTEX_0001 |        | Batch ID: GC-1_000228 | Test Code: SW8021B | Units: µg/L |           | Analysis Date 2/28/2000 |        |          | Prep Date: |             |      |          |      |
|---------------------------|--------|-----------------------|--------------------|-------------|-----------|-------------------------|--------|----------|------------|-------------|------|----------|------|
| Client ID: 0002043        |        | Run ID:               | GC-1_000228A       | PQL         | SPK value | SPK Ref Val             | %REC   | LowLimit | HighLimit  | RPD Ref Val | %RPD | RPDLimit | Qual |
| Analyte                   | Result |                       |                    |             |           |                         |        |          |            |             |      |          |      |
| Benzene                   | 20.18  |                       |                    | 0.5         | 20        | 0                       | 100.9% | 85       | 115        |             |      |          |      |
| Ethylbenzene              | 20.93  |                       |                    | 0.5         | 20        | 0                       | 104.7% | 85       | 115        |             |      |          |      |
| m,p-Xylene                | 39.52  |                       |                    | 1           | 40        | 0                       | 98.8%  | 85       | 115        |             |      |          |      |
| Methyl tert-Butyl Ether   | 19.8   |                       |                    | 1           | 20        | 0                       | 99.0%  | 85       | 115        |             |      |          |      |
| o-Xylene                  | 20.84  |                       |                    | 0.5         | 20        | 0                       | 104.2% | 85       | 115        |             |      |          |      |
| Toluene                   | 20.44  |                       |                    | 0.5         | 20        | 0                       | 102.2% | 85       | 115        |             |      |          |      |
| 1,4-Difluorobenzene       | 89.71  |                       |                    | 0           | 100       | 0                       | 89.7%  | 80       | 105        |             |      |          |      |
| 4-Bromochlorobenzene      | 89.1   |                       |                    | 0           | 100       | 0                       | 89.1%  | 78       | 108        |             |      |          |      |
| Fluorobenzene             | 88.62  |                       |                    | 0           | 100       | 0                       | 88.6%  | 78       | 108        |             |      |          |      |

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 S - Spike Recovery outside accepted recovery limits  
 R - RPD outside accepted recovery limits  
 B - Analyte detected in the associated Method Blank

CLIENT: Blagg Engineering

Work Order: 0002043

Project: Johnson, E.J. C #1E

## QC SUMMARY REPORT

Continuing Calibration Verification Standard

| Sample ID: CCV2 BTEX_0001 |        | Batch ID: GC-1_000228 | Test Code: SW8021B   | Units: µg/L |        | Analysis Date 2/28/2000 |           | Prep Date:  |      |
|---------------------------|--------|-----------------------|----------------------|-------------|--------|-------------------------|-----------|-------------|------|
| Client ID:                |        | 0002043               | Run ID: GC-1_000228A |             |        | SeqNo: 24559            |           |             |      |
| Analyte                   | Result | PQL                   | SPK value            | SPK Ref Val | %REC   | LowLimit                | HighLimit | RPD Ref Val | Qual |
| Benzene                   | 19.4   | 0.5                   | 20                   | 0           | 97.0%  | 85                      | 115       |             |      |
| Ethylbenzene              | 20.04  | 0.5                   | 20                   | 0           | 100.2% | 85                      | 115       |             |      |
| m,p-Xylene                | 37.84  | 1                     | 40                   | 0           | 94.6%  | 85                      | 115       |             |      |
| Methyl tert-Butyl Ether   | 20.64  | 1                     | 20                   | 0           | 103.2% | 85                      | 115       |             |      |
| o-Xylene                  | 20.14  | 0.5                   | 20                   | 0           | 100.7% | 85                      | 115       |             |      |
| Toluene                   | 19.68  | 0.5                   | 20                   | 0           | 98.4%  | 85                      | 115       |             |      |
| 1,4-Difluorobenzene       | 89.28  | 0                     | 100                  | 0           | 89.3%  | 80                      | 105       |             |      |
| 4-Bromochlorobenzene      | 89.66  | 0                     | 100                  | 0           | 89.7%  | 78                      | 108       |             |      |
| Fluorobenzene             | 88.78  | 0                     | 100                  | 0           | 88.8%  | 78                      | 108       |             |      |

| Sample ID: CCV3 BTEX_0001 |        | Batch ID: GC-1_000228 | Test Code: SW8021B   | Units: µg/L |        | Analysis Date 2/28/2000 |           | Prep Date:  |      |
|---------------------------|--------|-----------------------|----------------------|-------------|--------|-------------------------|-----------|-------------|------|
| Client ID:                |        | 0002043               | Run ID: GC-1_000228A |             |        | SeqNo: 24560            |           |             |      |
| Analyte                   | Result | PQL                   | SPK value            | SPK Ref Val | %REC   | LowLimit                | HighLimit | RPD Ref Val | Qual |
| Benzene                   | 38.89  | 0.5                   | 40                   | 0           | 97.2%  | 85                      | 115       |             |      |
| Ethylbenzene              | 39.58  | 0.5                   | 40                   | 0           | 99.0%  | 85                      | 115       |             |      |
| m,p-Xylene                | 75.31  | 1                     | 80                   | 0           | 94.1%  | 85                      | 115       |             |      |
| Methyl tert-Butyl Ether   | 41.12  | 1                     | 40                   | 0           | 102.8% | 85                      | 115       |             |      |
| o-Xylene                  | 40.19  | 0.5                   | 40                   | 0           | 100.5% | 85                      | 115       |             |      |
| Toluene                   | 39.55  | 0.5                   | 40                   | 0           | 98.9%  | 85                      | 115       |             |      |
| 1,4-Difluorobenzene       | 89.13  | 0                     | 100                  | 0           | 89.1%  | 80                      | 105       |             |      |
| 4-Bromochlorobenzene      | 92.77  | 0                     | 100                  | 0           | 92.8%  | 78                      | 108       |             |      |
| Fluorobenzene             | 87.92  | 0                     | 100                  | 0           | 87.9%  | 78                      | 108       |             |      |

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: 01-Mar-00

CLIENT: Blagg Engineering  
 Work Order: 0002043  
 Project: Johnson, E.J. C #1E  
 Test No: SW8021B

## QC SUMMARY REPORT SURROGATE RECOVERIES

Aromatic Volatiles by GC/PID

| Sample ID      | 14FBZ | 4BCBZ | FLBZ |  |  |  |  |  |
|----------------|-------|-------|------|--|--|--|--|--|
| 0002039-02A    | 87.2  | 88    | 87.8 |  |  |  |  |  |
| 0002039-02AMS  | 87.3  | 89.3  | 86   |  |  |  |  |  |
| 0002039-02AMSD | 87.1  | 89.6  | 86.4 |  |  |  |  |  |
| 0002039-03A    | 84.8  | 89.3  | 86.2 |  |  |  |  |  |
| 0002039-05A    | 86.3  | 87.9  | 86.5 |  |  |  |  |  |
| 0002039-06A    | 84.6  | 86    | 84.8 |  |  |  |  |  |
| 0002042-02A    | 89    | 89.1  | 88.1 |  |  |  |  |  |
| 0002042-02AMS  | 88.4  | 90.4  | 87.3 |  |  |  |  |  |
| 0002042-02AMSD | 87.9  | 90.4  | 87.2 |  |  |  |  |  |
| 0002042-03A    | 90.5  | 89.2  | 89.5 |  |  |  |  |  |
| 0002042-04A    | 88.4  | 89.7  | 86.8 |  |  |  |  |  |
| 0002042-05A    | 90.6  | 89.4  | 89.6 |  |  |  |  |  |
| 0002042-06A    | 90    | 88.2  | 89.1 |  |  |  |  |  |
| 0002042-07A    | 89.1  | 88.8  | 89.2 |  |  |  |  |  |
| 0002042-09A    | 90    | 89.4  | 89.6 |  |  |  |  |  |
| 0002043-01A    | 89.6  | 88.3  | 89   |  |  |  |  |  |
| 0002043-02A    | 85.4  | 89.5  | 85.3 |  |  |  |  |  |
| 0002043-03A    | 90.4  | 89.5  | 89.6 |  |  |  |  |  |
| 0002044-01A    | 90.4  | 89.8  | 89.6 |  |  |  |  |  |
| 0002044-02A    | 91.2  | 90    | 90.4 |  |  |  |  |  |
| 0002044-03A    | 90    | 89.1  | 90.1 |  |  |  |  |  |
| 0002046-01A    | 90.2  | 89.4  | 89.6 |  |  |  |  |  |
| 0002046-02A    | 90.8  | 90.4  | 91.4 |  |  |  |  |  |
| 0002047-01A    | 90.6  | 89.1  | 89.6 |  |  |  |  |  |
| 0002047-02A    | 90    | 89.1  | 90   |  |  |  |  |  |
| 0002048-01A    | 90    | 89.6  | 89   |  |  |  |  |  |
| 0002048-02A    | 91.4  | 91.1  | 90   |  |  |  |  |  |

### Acronym

### Surrogate

### QC Limits

|       |   |                      |        |
|-------|---|----------------------|--------|
| 14FBZ | = | 1,4-Difluorobenzene  | 80-105 |
| 4BCBZ | = | 4-Bromochlorobenzene | 78-108 |
| FLBZ  | = | Fluorobenzene        | 78-108 |

\* Surrogate recovery outside acceptance limits

**CLIENT:** Blagg Engineering  
**Work Order:** 0002043  
**Project:** Johnson, E.J. C #1E  
**Test No:** SW8021B

## QC SUMMARY REPORT SURROGATE RECOVERIES

Aromatic Volatiles by GC/PID

| Sample ID       | 14FBZ | 4BCBZ | FLBZ |  |  |  |  |  |
|-----------------|-------|-------|------|--|--|--|--|--|
| 0002049-01A     | 89.8  | 89.3  | 90.1 |  |  |  |  |  |
| 0002050-01A     | 90.1  | 90.4  | 89   |  |  |  |  |  |
| 0002050-02A     | 90.4  | 89.4  | 89.2 |  |  |  |  |  |
| 0002050-03A     | 89.8  | 89.5  | 89.7 |  |  |  |  |  |
| 0002050-04A     | 90.7  | 89.9  | 89   |  |  |  |  |  |
| 0002051-01A     | 89.5  | 89.9  | 89.5 |  |  |  |  |  |
| 0002053-01A     | 89.1  | 88.1  | 89.6 |  |  |  |  |  |
| 0002053-02A     | 89.6  | 89.5  | 88.4 |  |  |  |  |  |
| 0002053-03A     | 89.6  | 88.6  | 89.7 |  |  |  |  |  |
| 0002053-04A     | 89.5  | 89.7  | 89.4 |  |  |  |  |  |
| CCV1 BTEX_00010 | 89.7  | 89.1  | 88.6 |  |  |  |  |  |
| CCV2 BTEX_00010 | 89.3  | 89.6  | 88.8 |  |  |  |  |  |
| CCV3 BTEX_00010 | 89.1  | 92.8  | 87.9 |  |  |  |  |  |
| LCS WATER       | 88.9  | 89.1  | 87.8 |  |  |  |  |  |
| MB1             | 90.2  | 88.3  | 89.7 |  |  |  |  |  |

| Acronym | Surrogate              | QC Limits |
|---------|------------------------|-----------|
| 14FBZ   | = 1,4-Difluorobenzene  | 80-105    |
| 4BCBZ   | = 4-Bromochlorobenzene | 78-108    |
| FLBZ    | = Fluorobenzene        | 78-108    |

\* Surrogate recovery outside acceptance limits

**BLAGG ENGINEERING, INC.**  
**MONITOR WELL SAMPLING DATA**

CLIENT : CROSS TIMBERS OPER. CO.

CHAIN-OF-CUSTODY # : 10600

LOCATION : JOHNSON, E. J. C # 1E

LABORATORY (S) USED : ON - SITE TECH.

Date : June 20, 2000

SAMPLER : N J V

Filename : 06-20-00.WK4

PROJECT MANAGER : N J V

| WELL<br># | WELL<br>ELEV.<br>(ft) | WATER<br>ELEV.<br>(ft) | DEPTH TO<br>WATER<br>(ft) | TOTAL<br>DEPTH<br>(ft) | SAMPLING<br>TIME | pH  | CONDUCT<br>(umhos) | VOLUME<br>PURGED<br>(gal.) | FREE<br>PRODUCT<br>(ft) |
|-----------|-----------------------|------------------------|---------------------------|------------------------|------------------|-----|--------------------|----------------------------|-------------------------|
| 1         | 104.04                | 88.85                  | 15.19                     | 20.00                  | 1235             | 7.6 | 2,700              | 2.50                       | -                       |
| 2         | 103.61                | 90.75                  | 12.86                     | 20.00                  | 1305             | 8.2 | 1,500              | 3.50                       | -                       |
| 3         | 98.02                 | 89.88                  | 8.14                      | 17.00                  | 1255             | 7.8 | 3,100              | 4.50                       | -                       |

NOTES : Volume of water purged from well prior to sampling:  $V = \pi \times r^2 \times h \times 7.48 \text{ gal./ft}^3 \times 3 \text{ (wellbores)}$ .

(i.e. 2" MW  $r = (1/12) \text{ ft. } h = 1 \text{ ft.}$  (i.e. 4" MW  $r = (2/12) \text{ ft. } h = 1 \text{ ft.}$ )

Ideally a minimum of three (3) wellbore volumes:

1.25 " well diameter = 0.19 gallons per foot of water ( or 24 oz. ).

2 bails per foot - small teflon bailer.

3 bails per foot - 3 / 4 " teflon bailer.

2.00 " well diameter = 0.49 gallons per foot of water.

4.00 " well diameter = 1.95 gallons per foot of water.

Comments or note well diameter if not standard 2 "

Poor recovery in MW #3. Fair recovery in MW #'s 1 & 2. Collected BTEX from  
all MW 's listed above .

OFF: (505) 325-5667  
FAX: (505) 327-1496



LAB: (505) 325-1556  
FAX: (505) 327-1496

## ANALYTICAL REPORT

Date: 30-Jun-00

|                    |                                    |                            |                      |
|--------------------|------------------------------------|----------------------------|----------------------|
| <b>Client:</b>     | Blagg Engineering                  | <b>Client Sample Info:</b> | E.J. Johnson C #1E   |
| <b>Work Order:</b> | 0006049                            | <b>Client Sample ID:</b>   | MW #1                |
| <b>Lab ID:</b>     | 0006049-01A                        | <b>Matrix:</b>             | AQUEOUS              |
| <b>Project:</b>    | Cross Timbers - E.J. Johnson C #1E | <b>Collection Date:</b>    | 6/20/2000 1:05:00 PM |
|                    |                                    | <b>COC Record:</b>         | 10600                |

| Parameter                           | Result | PQL            | Qual | Units | DF | Date Analyzed |
|-------------------------------------|--------|----------------|------|-------|----|---------------|
| <b>AROMATIC VOLATILES BY GC/PID</b> |        | <b>SW8021B</b> |      |       |    | Analyst: DM   |
| Benzene                             | 3.8    | 0.5            |      | µg/L  | 1  | 6/27/2000     |
| Toluene                             | 1.6    | 0.5            |      | µg/L  | 1  | 6/27/2000     |
| Ethylbenzene                        | 16     | 0.5            |      | µg/L  | 1  | 6/27/2000     |
| m,p-Xylene                          | ND     | 1              |      | µg/L  | 1  | 6/27/2000     |
| o-Xylene                            | ND     | 0.5            |      | µg/L  | 1  | 6/27/2000     |

|                    |                                                         |                                                     |
|--------------------|---------------------------------------------------------|-----------------------------------------------------|
| <b>Qualifiers:</b> | PQL - Practical Quantitation Limit                      | S - Spike Recovery outside accepted recovery limits |
|                    | ND - Not Detected at Practical Quantitation Limit       | R - RPD outside accepted recovery limits            |
|                    | J - Analyte detected below Practical Quantitation Limit | E - Value above quantitation range                  |
|                    | B - Analyte detected in the associated Method Blank     | Surr: - Surrogate                                   |

P.O. BOX 2606 • FARMINGTON, NM 87499

- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

1 of 3



OFF: (505) 325-5667  
FAX: (505) 327-1496



LAB: (505) 325-1556  
FAX: (505) 327-1496

## ANALYTICAL REPORT

Date: 30-Jun-00

|                    |                                    |                            |                      |
|--------------------|------------------------------------|----------------------------|----------------------|
| <b>Client:</b>     | Blagg Engineering                  | <b>Client Sample Info:</b> | E.J. Johnson C #1E   |
| <b>Work Order:</b> | 0006049                            | <b>Client Sample ID:</b>   | MW #2                |
| <b>Lab ID:</b>     | 0006049-02A                        | <b>Matrix:</b>             | AQUEOUS              |
| <b>Project:</b>    | Cross Timbers - E.J. Johnson C #1E | <b>Collection Date:</b>    | 6/20/2000 1:05:00 PM |
|                    |                                    | <b>COC Record:</b>         | 10600                |

| Parameter                    | Result | PQL     | Qual | Units       | DF | Date Analyzed |
|------------------------------|--------|---------|------|-------------|----|---------------|
| AROMATIC VOLATILES BY GC/PID |        | SW8021B |      | Analyst: DM |    |               |
| Benzene                      | ND     | 0.5     |      | µg/L        | 1  | 6/27/2000     |
| Toluene                      | ND     | 0.5     |      | µg/L        | 1  | 6/27/2000     |
| Ethylbenzene                 | 41     | 0.5     |      | µg/L        | 1  | 6/27/2000     |
| m,p-Xylene                   | 10     | 1       |      | µg/L        | 1  | 6/27/2000     |
| o-Xylene                     | 2.5    | 0.5     |      | µg/L        | 1  | 6/27/2000     |

|                    |                                                         |                                                     |
|--------------------|---------------------------------------------------------|-----------------------------------------------------|
| <b>Qualifiers:</b> | PQL.- Practical Quantitation Limit                      | S - Spike Recovery outside accepted recovery limits |
|                    | ND - Not Detected at Practical Quantitation Limit       | R - RPD outside accepted recovery limits            |
|                    | J - Analyte detected below Practical Quantitation Limit | E - Value above quantitation range                  |
|                    | B - Analyte detected in the associated Method Blank     | Sur: - Surrogate                                    |

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P.O. BOX 2606 • FARMINGTON, NM 87499

- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

OFF: (505) 325-5667  
FAX: (505) 327-1496



LAB: (505) 325-1556  
FAX: (505) 327-1496

## ANALYTICAL REPORT

Date: 30-Jun-00

|                    |                                    |                            |                       |
|--------------------|------------------------------------|----------------------------|-----------------------|
| <b>Client:</b>     | Blagg Engineering                  | <b>Client Sample Info:</b> | E.J. Johnson C #1E    |
| <b>Work Order:</b> | 0006049                            | <b>Client Sample ID:</b>   | MW #3                 |
| <b>Lab ID:</b>     | 0006049-03A                        | <b>Matrix:</b>             | AQUEOUS               |
| <b>Project:</b>    | Cross Timbers - E.J. Johnson C #1E | <b>Collection Date:</b>    | 6/20/2000 12:55:00 PM |
|                    |                                    | <b>COC Record:</b>         | 10600                 |

| Parameter                    | Result | PQL     | Qual | Units       | DF | Date Analyzed |
|------------------------------|--------|---------|------|-------------|----|---------------|
| AROMATIC VOLATILES BY GC/PID |        | SW8021B |      | Analyst: DM |    |               |
| Benzene                      | ND     | 0.5     |      | µg/L        | 1  | 6/27/2000     |
| Toluene                      | ND     | 0.5     |      | µg/L        | 1  | 6/27/2000     |
| Ethylbenzene                 | ND     | 0.5     |      | µg/L        | 1  | 6/27/2000     |
| m,p-Xylene                   | ND     | 1       |      | µg/L        | 1  | 6/27/2000     |
| o-Xylene                     | ND     | 0.5     |      | µg/L        | 1  | 6/27/2000     |

|                    |                                                         |                                                     |
|--------------------|---------------------------------------------------------|-----------------------------------------------------|
| <b>Qualifiers:</b> | PQL - Practical Quantitation Limit                      | S - Spike Recovery outside accepted recovery limits |
|                    | ND - Not Detected at Practical Quantitation Limit       | R - RPD outside accepted recovery limits            |
|                    | J - Analyte detected below Practical Quantitation Limit | E - Value above quantitation range                  |
|                    | B - Analyte detected in the associated Method Blank     | Surr: - Surrogate                                   |

3 of 3

P.O. BOX 2606 • FARMINGTON, NM 87499

- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

# CHAIN OF CUSTODY RECORD

0061

# THIS

**TECHNOLOGIES, LTD.**

612 E. Murray Dr. • P.O. Box 2606 • Farmington, NM 87499  
LAB: (505) 325-5667 • FAX: (505) 327-1496

Date:

Page:

|                                              |  |      |              |        |  |                                                                      |  |            |              |             |  |
|----------------------------------------------|--|------|--------------|--------|--|----------------------------------------------------------------------|--|------------|--------------|-------------|--|
| Purchase Order No.: _____                    |  |      |              |        |  | Project No.: _____                                                   |  |            |              |             |  |
| Name: <b>JEFF BLAGG</b>                      |  |      | Dept.: _____ |        |  | Name: <b>NELSON VANCEZ</b>                                           |  |            | Title: _____ |             |  |
| Company: <b>BLAGG ENGINEERING INC.</b>       |  |      |              |        |  | Company: <b>SAME</b>                                                 |  |            |              |             |  |
| Address: <b>P.O. BOX 87</b>                  |  |      |              |        |  | Mailing Address: _____                                               |  |            |              |             |  |
| City, State, Zip: <b>Bloomfield NM 87813</b> |  |      |              |        |  | City, State, Zip: _____                                              |  |            |              |             |  |
| PROJECT LOCATION:                            |  |      |              |        |  | Telephone No.: <b>632-1199</b>                                       |  |            |              |             |  |
| CROSS TIMBERS - E.T. JOHNSON C #1E           |  |      |              |        |  | Telefax No.: <b>632-3903</b>                                         |  |            |              |             |  |
| SAMPLER'S SIGNATURE: <i>[Signature]</i>      |  |      |              |        |  | ANALYSIS REQUESTED                                                   |  |            |              |             |  |
| SAMPLE IDENTIFICATION                        |  |      |              |        |  | LAB ID                                                               |  |            |              |             |  |
| DATE                                         |  | TIME |              | MATRIX |  | PRES.                                                                |  | RESULTS TO |              | Containers  |  |
| 5/20/00                                      |  | 1235 |              | WATER  |  | HEAT COOL                                                            |  | 2 ✓        |              | 0000-19 01A |  |
| 5/20/00                                      |  | 1305 |              | WATER  |  | HEAT COOL                                                            |  | 2 ✓        |              | 02A         |  |
| 5/20/00                                      |  | 1255 |              | WATER  |  | HEAT COOL                                                            |  | 2 ✓        |              | 03A         |  |
| Relinquished by: <i>[Signature]</i>          |  |      |              |        |  | Received by: <b>Hoda Rana</b>                                        |  |            |              |             |  |
| Date/Time: 5/20/00 1258                      |  |      |              |        |  | Date/Time: 5/20/00 1258                                              |  |            |              |             |  |
| Relinquished by: _____                       |  |      |              |        |  | Received by: _____                                                   |  |            |              |             |  |
| Date/Time: _____                             |  |      |              |        |  | Date/Time: _____                                                     |  |            |              |             |  |
| Relinquished by: _____                       |  |      |              |        |  | Received by: _____                                                   |  |            |              |             |  |
| Date/Time: _____                             |  |      |              |        |  | Date/Time: _____                                                     |  |            |              |             |  |
| Method of Shipment: _____                    |  |      |              |        |  | Rush: _____ 24-48 Hours: _____ 10 Working Days: _____ By Date: _____ |  |            |              |             |  |
| Special Instructions / Remarks: _____        |  |      |              |        |  | Special Instructions / Remarks: _____                                |  |            |              |             |  |
| Authorized by: _____ Date: _____             |  |      |              |        |  | Authorized by: _____ Date: _____                                     |  |            |              |             |  |
| (Client Signature Must Accompany Request)    |  |      |              |        |  |                                                                      |  |            |              |             |  |

| Disiribution: | White | On Site | Yellow | LAB | Pink | Sampler | Goldenrod | Client |
|---------------|-------|---------|--------|-----|------|---------|-----------|--------|
|---------------|-------|---------|--------|-----|------|---------|-----------|--------|

To Re-order Call 325-9600 or Fax 325-9764 [alphabet@translins.com](mailto:alphabet@translins.com) FORM # 01

# On Site Technologies, LTD.

Date: 30-Jun-00

CLIENT: Blagg Engineering  
 Work Order: 0006049  
 Project: Cross Timbers - E.J. Johnson C #1E

## QC SUMMARY REPORT

Method Blank

|                         |                       |                    |              |                          |                                                        |
|-------------------------|-----------------------|--------------------|--------------|--------------------------|--------------------------------------------------------|
| Sample ID: MB1          | Batch ID: GC-1_000627 | Test Code: SW8021B | Units: µg/L  | Analysis Date: 6/27/2000 | Prep Date:                                             |
| Client ID:              | 0006049               | Run ID:            | GC-1_000627A | SeqNo: 29412             |                                                        |
| Analyte                 | Result                | PQL                | SPK value    | SPK Ref Val              | %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual |
| Benzene                 | .0393                 | 0.5                |              |                          | J                                                      |
| Ethylbenzene            | .0995                 | 0.5                |              |                          | J                                                      |
| m,p-Xylene              | .1968                 | 1                  |              |                          | J                                                      |
| Methyl tert-Butyl Ether | ND                    | 1                  |              |                          |                                                        |
| o-Xylene                | .2037                 | 0.5                |              |                          | J                                                      |
| Toluene                 | .2611                 | 0.5                |              |                          | J                                                      |

Qualifiers: ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits  
 R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

# On Site Technologies, LTD.

Date: 30-Jun-00

## QC SUMMARY REPORT

Sample Matrix Spike

CLIENT: Blagg Engineering  
Work Order: 0006049  
Project: Cross Timbers - E.J. Johnson C #1E

| Sample ID:              | 0006050-17AMS | Batch ID: | GC-1_000627  | Test Code: | SW8021B   | Units:      | µg/L | Analysis Date: | 6/27/2000 | Prep Date: |
|-------------------------|---------------|-----------|--------------|------------|-----------|-------------|------|----------------|-----------|------------|
| Client ID:              | 0006049       | Run ID:   | GC-1_000627A | PQL        | SPK value | SPK Ref Val | %REC | LowLimit       | HighLimit | SeqNo:     |
| Analyte                 | Result        |           |              |            |           |             |      |                |           |            |
| Benzene                 | 223.5         | 2.5       | 200          | 21.68      | 100.9%    | 73          | 126  |                |           |            |
| Ethylbenzene            | 409.5         | 2.5       | 200          | 215.8      | 96.9%     | 88          | 113  |                |           |            |
| m,p-Xylene              | 378.7         | 5         | 400          | 0          | 94.7%     | 83          | 112  |                |           |            |
| Methyl tert-Butyl Ether | 228.3         | 5         | 200          | 22.43      | 103.0%    | 81          | 125  |                |           |            |
| o-Xylene                | 204.2         | 2.5       | 200          | 2.268      | 101.0%    | 93          | 110  |                |           |            |
| Toluene                 | 210.7         | 2.5       | 200          | 4.871      | 102.9%    | 76          | 126  |                |           |            |

| Sample ID:              | 0006050-17AMS | Batch ID: | GC-1_000627  | Test Code: | SW8021B   | Units:      | µg/L | Analysis Date: | 6/27/2000 | Prep Date: |
|-------------------------|---------------|-----------|--------------|------------|-----------|-------------|------|----------------|-----------|------------|
| Client ID:              | 0006049       | Run ID:   | GC-1_000627A | PQL        | SPK value | SPK Ref Val | %REC | LowLimit       | HighLimit | SeqNo:     |
| Analyte                 | Result        |           |              |            |           |             |      |                |           |            |
| Benzene                 | 223.9         | 2.5       | 200          | 21.68      | 101.1%    | 73          | 126  | 223.5          | 0.2%      | 6          |
| Ethylbenzene            | 412.8         | 2.5       | 200          | 215.8      | 98.5%     | 88          | 113  | 409.5          | 0.8%      | 5          |
| m,p-Xylene              | 381.6         | 5         | 400          | 0          | 95.4%     | 83          | 112  | 378.7          | 0.8%      | 7          |
| Methyl tert-Butyl Ether | 231.7         | 5         | 200          | 22.43      | 104.6%    | 81          | 125  | 228.3          | 1.5%      | 9          |
| o-Xylene                | 205.9         | 2.5       | 200          | 2.268      | 101.8%    | 93          | 110  | 204.2          | 0.9%      | 6          |
| Toluene                 | 210.2         | 2.5       | 200          | 4.871      | 102.7%    | 76          | 126  | 210.7          | 0.2%      | 6          |

Qualifiers: ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits  
S - Spike Recovery outside accepted recovery limits  
R - RPD outside accepted recovery limits  
B - Analyte detected in the associated Method Blank

# On Site Technologies, LTD.

Date: 30-Jun-00

**CLIENT:** Blagg Engineering  
**Work Order:** 0006049  
**Project:** Cross Timbers - E.J. Johnson C #1E

## QC SUMMARY REPORT

Laboratory Control Spike - generic

| Sample ID: LCS WATER    | Batch ID: GC-1_000627 | Test Code: SW8021B | Units: µg/L  | Analysis Date: 6/27/2000 | Prep Date: |          |           |             |      |          |      |
|-------------------------|-----------------------|--------------------|--------------|--------------------------|------------|----------|-----------|-------------|------|----------|------|
| Client ID:              | 0006049               | Run ID:            | GC-1_000627A | SeqNo: 29411             |            |          |           |             |      |          |      |
| Analyte                 | Result                | PQL                | SPK value    | SPK Ref Val              | %REC       | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Benzene                 | 43.46                 | 0.5                | 40           | 0.0393                   | 108.6%     | 89       | 112       |             |      |          |      |
| Ethylbenzene            | 43.38                 | 0.5                | 40           | 0.0995                   | 108.2%     | 93       | 112       |             |      |          |      |
| m,p-Xylene              | 82.31                 | 1                  | 80           | 0.1968                   | 102.6%     | 88       | 108       |             |      |          |      |
| Methyl tert-Butyl Ether | 42.71                 | 1                  | 40           | 0                        | 106.8%     | 87       | 115       |             |      |          |      |
| o-Xylene                | 43.53                 | 0.5                | 40           | 0.2037                   | 108.3%     | 93       | 112       |             |      |          |      |
| Toluene                 | 43.75                 | 0.5                | 40           | 0.2611                   | 108.7%     | 92       | 111       |             |      |          |      |

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits  
R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

# On Site Technologies, LTD.

Date: 30-Jun-00

**CLIENT:** Blagg Engineering  
**Work Order:** 0006049  
**Project:** Cross Timbers - E.J. Johnson C #1E

## QC SUMMARY REPORT

Continuing Calibration Verification Standard

| Sample ID: CCV1 BTEX_0004 | Batch ID: GC-1_000627 | Test Code: SW8021B | Units: µg/L | Analysis Date: 6/27/2000 |        |          |           | Prep Date:  |      |          |      |
|---------------------------|-----------------------|--------------------|-------------|--------------------------|--------|----------|-----------|-------------|------|----------|------|
| Client ID: 0006049        | Run ID: GC-1_000627A  | PQL                | SPK value   | SPK Ref Val              | %REC   | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Analyte                   | Result                |                    |             |                          |        |          |           |             |      |          |      |
| Benzene                   | 21.53                 | 0.5                | 20          | 0                        | 107.7% | 85       | 115       |             |      |          |      |
| Ethylbenzene              | 21.6                  | 0.5                | 20          | 0                        | 108.0% | 85       | 115       |             |      |          |      |
| m,p-Xylene                | 41.25                 | 1                  | 40          | 0                        | 103.1% | 85       | 115       |             |      |          |      |
| Methyl tert-Butyl Ether   | 20.97                 | 1                  | 20          | 0                        | 104.9% | 85       | 115       |             |      |          |      |
| o-Xylene                  | 21.82                 | 0.5                | 20          | 0                        | 109.1% | 85       | 115       |             |      |          |      |
| Toluene                   | 21.82                 | 0.5                | 20          | 0                        | 109.1% | 85       | 115       |             |      |          |      |
| 1,4-Difluorobenzene       | 90                    | 0                  | 100         | 0                        | 90.0%  | 80       | 105       |             |      |          |      |
| 4-Bromochlorobenzene      | 84.74                 | 0                  | 100         | 0                        | 84.7%  | 78       | 108       |             |      |          |      |
| Fluorobenzene             | 88.88                 | 0                  | 100         | 0                        | 88.9%  | 78       | 108       |             |      |          |      |

| Sample ID: CCV2 BTEX_0004 |         | Batch ID: GC-1_000627 | Test Code: SW8021B | Units: µg/L |           | Analysis Date: 6/27/2000 |        | Prep Date: |           |             |      |          |      |
|---------------------------|---------|-----------------------|--------------------|-------------|-----------|--------------------------|--------|------------|-----------|-------------|------|----------|------|
| Client ID:                | 0006049 | Run ID:               | GC-1_000627A       | PQL         | SPK value | SPK Ref Val              | %REC   | LowLimit   | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Analyte                   | Result  |                       |                    |             |           |                          |        |            |           |             |      |          |      |
| Benzene                   | 20.93   |                       |                    | 0.5         | 20        | 0                        | 104.7% | 85         | 115       |             |      |          |      |
| Ethylbenzene              | 20.83   |                       |                    | 0.5         | 20        | 0                        | 104.1% | 85         | 115       |             |      |          |      |
| m,p-Xylene                | 39.71   |                       |                    | 1           | 40        | 0                        | 99.3%  | 85         | 115       |             |      |          |      |
| Methyl tert-Butyl Ether   | 21.37   |                       |                    | 1           | 20        | 0                        | 106.8% | 85         | 115       |             |      |          |      |
| o-Xylene                  | 21.04   |                       |                    | 0.5         | 20        | 0                        | 105.2% | 85         | 115       |             |      |          |      |
| Toluene                   | 21.03   |                       |                    | 0.5         | 20        | 0                        | 105.2% | 85         | 115       |             |      |          |      |
| 1,4-Difluorobenzene       | 90.94   |                       |                    | 0           | 100       | 0                        | 90.9%  | 80         | 105       |             |      |          |      |
| 4-Bromochlorobenzene      | 84.85   |                       |                    | 0           | 100       | 0                        | 84.8%  | 78         | 108       |             |      |          |      |
| Fluorobenzene             | 89.38   |                       |                    | 0           | 100       | 0                        | 89.4%  | 78         | 108       |             |      |          |      |

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits  
R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

**CLIENT:** Blagg Engineering  
**Work Order:** 0006049  
**Project:** Cross Timbers - E.J. Johnson C #1E

**QC SUMMARY REPORT**  
 Continuing Calibration Verification Standard

|                           |        |                       |                    |             |                          |      |              |             |
|---------------------------|--------|-----------------------|--------------------|-------------|--------------------------|------|--------------|-------------|
| Sample ID: CCV3 BTEX_0004 |        | Batch ID: GC-1_000627 | Test Code: SW8021B | Units: µg/L | Analysis Date: 6/27/2000 |      | Prep Date:   |             |
| Client ID: 0006049        |        | Run ID: GC-1_000627A  | PQL                | SPK value   | SPK Ref Val              | %REC | LowLimit     | HighLimit   |
| Analyte                   | Result |                       |                    |             |                          |      | SeqNo: 29410 | RPD Ref Val |
| Benzene                   | 41.25  | 0.5                   | 40                 | 0           | 103.1%                   | 85   | 115          |             |
| Ethylbenzene              | 40.94  | 0.5                   | 40                 | 0           | 102.3%                   | 85   | 115          |             |
| m,p-Xylene                | 77.72  | 1                     | 80                 | 0           | 97.1%                    | 85   | 115          |             |
| Methyl tert-Butyl Ether   | 43.03  | 1                     | 40                 | 0           | 107.6%                   | 85   | 115          |             |
| o-Xylene                  | 41.38  | 0.5                   | 40                 | 0           | 103.4%                   | 85   | 115          |             |
| Toluene                   | 41.45  | 0.5                   | 40                 | 0           | 103.6%                   | 85   | 115          |             |
| 1,4-Difluorobenzene       | 89.97  | 0                     | 100                | 0           | 90.0%                    | 80   | 105          |             |
| 4-Bromochlorobenzene      | 85.27  | 0                     | 100                | 0           | 85.3%                    | 78   | 108          |             |
| Fluorobenzene             | 88.73  | 0                     | 100                | 0           | 88.7%                    | 78   | 108          |             |



On Site Technologies, LTD.

Date: 30-Jun-00

CLIENT: Blagg Engineering  
 Work Order: 0006049  
 Project: Cross Timbers - E.J. Johnson C #1E  
 Test No: SW8021B

## QC SUMMARY REPORT SURROGATE RECOVERIES

Aromatic Volatiles by GC/PID

| Sample ID       | 14FBZ | 4BCBZ  | FLBZ |  |  |  |  |  |
|-----------------|-------|--------|------|--|--|--|--|--|
| 0006046-01A     | 90.5  | 83.4   | 89.3 |  |  |  |  |  |
| 0006046-02A     | 90.8  | 84.1   | 89.7 |  |  |  |  |  |
| 0006047-03A     | 87    | 80.1   | 92.4 |  |  |  |  |  |
| 0006048-01A     | 91    | 85.2   | 90   |  |  |  |  |  |
| 0006048-02A     | 90.2  | 83.6   | 89.1 |  |  |  |  |  |
| 0006048-03A     | 91    | 85.1   | 90   |  |  |  |  |  |
| 0006049-01A     | 90    | 83.2   | 88.6 |  |  |  |  |  |
| 0006049-02A     | 84.4  | 82.3   | 83.1 |  |  |  |  |  |
| 0006049-03A     | 90.8  | 84.9   | 89.9 |  |  |  |  |  |
| 0006050-01A     | 90.3  | 83.7   | 89.6 |  |  |  |  |  |
| 0006050-02A     | 91    | 84.9   | 89.8 |  |  |  |  |  |
| 0006050-03A     | 91.1  | 84.4   | 89.8 |  |  |  |  |  |
| 0006050-04A     | 91    | 84.6   | 90   |  |  |  |  |  |
| 0006050-05A     | 90.8  | 83.4   | 89.6 |  |  |  |  |  |
| 0006050-07A     | 89.9  | 85.3   | 89.1 |  |  |  |  |  |
| 0006050-17A     | 90.1  | 84.5   | 91.6 |  |  |  |  |  |
| 0006050-17AMS   | 89.7  | 84.6   | 90.2 |  |  |  |  |  |
| 0006050-17AMSD  | 89.5  | 85.1   | 90.3 |  |  |  |  |  |
| 0006057-01A     | 83.5  | 76.6 * | 86.9 |  |  |  |  |  |
| CCV1 BTEX_00040 | 90    | 84.7   | 88.9 |  |  |  |  |  |
| CCV2 BTEX_00040 | 90.9  | 84.8   | 89.4 |  |  |  |  |  |
| CCV3 BTEX_00040 | 90    | 85.3   | 88.7 |  |  |  |  |  |
| LCS WATER       | 89.6  | 85     | 88.7 |  |  |  |  |  |
| MBI             | 90.4  | 84.2   | 89.8 |  |  |  |  |  |

| Acronym | Surrogate              | QC Limits |
|---------|------------------------|-----------|
| 14FBZ   | = 1,4-Difluorobenzene  | 80-105    |
| 4BCBZ   | = 4-Bromochlorobenzene | 78-108    |
| FLBZ    | = Fluorobenzene        | 78-108    |

\* Surrogate recovery outside acceptance limits

Form 3160-5  
(June 1990)UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENTFORM APPROVED  
Budget Bureau No. 1004-0135  
Expires: March 31, 1993

## SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.  
Use "APPLICATION FOR PERMIT—" for such proposals

5. Lease Designation and Serial No.

SF - 077386 A

6. If Indian, Allottee or Tribe Name

7. If Unit or CA, Agreement Designation

## SUBMIT IN TRIPLICATE

1. Type of Well

☐ Oil Well ☒ Gas Well ☐ Other

2. Name of Operator

Amoco Production Company

3. Address and Telephone No.

200 Amoco Court, Farmington, N.M. 87401 Tel: (505) 326-9200

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

NE / NW. SEC. 21, T27N, R10W NMPM

8. Well Name and No.

EJ JOHNSON C #1E

9. API Well No.

3004524206

10. Field and Pool, or Exploratory Area

Dakota

11. County or Parish, State

SAN JUAN, N.M.

## 12. CHECK APPROPRIATE BOX(S) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

## TYPE OF SUBMISSION

- ☐
- Notice of Intent
- 
- ☒
- Subsequent Report
- 
- ☐
- Final Abandonment Notice

## TYPE OF ACTION

- ☐
- Abandonment
- 
- ☐
- Recompletion
- 
- ☐
- Plugging Back
- 
- ☐
- Casing Repair
- 
- ☐
- Altering Casing
- 
- ☒
- Other Pit closure
- 
- ☐
- Change of Plans
- 
- ☐
- New Construction
- 
- ☐
- Non-Routine Fracturing
- 
- ☐
- Water Shut-Off
- 
- ☐
- Conversion to Injection
- 
- ☐
- Dispose Water

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)\*

Pit closure verification - see attached documentation.

PRODUCTION PIT - ABANDONED - WATER SAMPLE



PREVIOUSLY SUBMITTED - ●

14. I hereby certify that the foregoing is true and correct

Signed

B. Shaw

Title

Enviro. Coordinator

Date

2-9-95

(This space for Federal or State office use)

Approved by

Conditions of approval, if any:

Title

Date

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

\*See Instruction on Reverse Side

80115

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

**Operator:** Amoco Production Company **Telephone:** (505) - 326-9200

**Address:** 200 Amoco Court, Farmington, New Mexico 87401

**Facility Or:** E. J. JOHNSON C # 1E  
**Well Name**

**Location:** Unit or Qtr/Qtr Sec C Sec 21 T 27N R 10W County SAN JUAN

**Pit Type:** Separator Dehydrator Other PRODUCTION TANK

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

**Pit Location:** Pit dimensions: length 40', width 30', depth 10'  
(Attach diagram)

**Reference:** wellhead X, other

**Footage from reference:** 75

**Direction from reference:** 90 Degrees East North X  
X West South

**Depth To Ground Water:** Less than 50 feet (20 points)  
(Vertical distance from 50 feet to 99 feet (10 points)  
contaminants to seasonal Greater than 100 feet (0 Points) 20  
high water elevation of  
ground water)

**Wellhead Protection Area:** Yes (20 points)  
(Less than 200 feet from a private No (0 points) 0  
domestic water source, or; less than  
1000 feet from all other water sources)

**Distance To Surface Water:** Less than 200 feet (20 points)  
(Horizontal distance to perennial 200 feet to 1000 feet (10 points)  
lakes, ponds, rivers, streams, creeks, Greater than 1000 feet (0 points) 0  
irrigation canals and ditches)

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

Date Remediation Started: \_\_\_\_\_ Date Completed: 1-27-95

Remediation Method: Excavation X Approx. cubic yards \_\_\_\_\_  
(Check all appropriate sections) Landfarmed \_\_\_\_\_ Insitu Bioremediation \_\_\_\_\_  
Other SOIL COMPOSTED

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

General Description Of Remedial Action: \_\_\_\_\_

Excavation - PUMPING + AERATION OF CONTAMINATED WATER,

PIT PREVIOUSLY SUBMITTED AS ONGOING GROUNDWATER REMEDIATION.

SOIL COMPOST PILE REPORT SUBMITTED WITH BLOW & SEPARATOR PIT CLOSURES & APPROVED BY

NMOCED - 11/25/96 LETTER CORRESPONDENCE (ATTACHED). PROD. TANK PIT CLOSURE DESIGNED BY NMOCED - 11/26/96 LETTER - 5/10/01 - 910

Ground Water Encountered: No \_\_\_\_\_ Yes X Depth 10'

Final Pit: Sample location see Attached Documents

Closure Sampling:  
(if multiple samples, attach sample results and diagram of sample locations and depths)  
Sample depth \_\_\_\_\_

Sample date \_\_\_\_\_ Sample time \_\_\_\_\_

Sample Results

Benzene (ppm) \_\_\_\_\_

Total BTEX (ppm) \_\_\_\_\_

Field headspace (ppm) \_\_\_\_\_

TPH \_\_\_\_\_

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 2-9-95  
SIGNATURE B. Shaw PRINTED NAME AND TITLE Buddy D. Shaw Environmental Coordinator

|                      |                                                                                |                                               |
|----------------------|--------------------------------------------------------------------------------|-----------------------------------------------|
| CLIENT: <u>AMOCO</u> | BLAGG ENGINEERING, INC.<br>P.O. BOX 87, BLOOMFIELD, NM 87413<br>(505) 632-1199 | LOCATION NO: <u>80115</u><br>C.O.C. NO: _____ |
|----------------------|--------------------------------------------------------------------------------|-----------------------------------------------|

FIELD REPORT: PIT CLOSURE VERIFICATION

|                                                                                                                 |                                             |
|-----------------------------------------------------------------------------------------------------------------|---------------------------------------------|
| LOCATION: NAME: <u>EJ JOHNSON</u> <u>C</u> WELL #: <u>1E</u> PIT: <u>PROD.</u>                                  | DATE STARTED: <u>8-24-94</u>                |
| QUAD/UNIT: <u>C</u> SEC: <u>21</u> TWP: <u>27</u> N RNG: <u>10W</u> BM: <u>Nm</u> CNTY: <u>ST</u> ST: <u>Nm</u> | DATE FINISHED: _____                        |
| QTR/FOOTAGE: <u>NE /NW</u> CONTRACTOR: <u>EPC</u>                                                               | ENVIRONMENTAL SPECIALIST: <u>F.M. / PEO</u> |

EXCAVATION APPROX. 40 FT. x 30 FT. x 10 FT. DEEP. CUBIC YARDS: 350  
DISPOSAL FACILITY: ON SITE REMEDIATION METHOD: COMPOST  
LAND USE: RANGE LEASE: SF-077386A FORMATION: OK NW

FIELD NOTES & REMARKS: PIT LOCATED APPROXIMATELY 75 FEET WEST FROM WELLHEAD.  
DEPTH TO GROUNDWATER: 10' NEAREST WATER SOURCE: >1000' NEAREST SURFACE WATER: >100'  
NMOC D RANKING SCORE: 20 NMOC D TPH CLOSURE STD: 100 PPM

SOIL AND EXCAVATION DESCRIPTION: PIT DISPOSITION: ? OPEN -

ENVIROTECH took ORIGINAL SAMPLE - NO FIELD REPORT PRODUCED, MET ON SITE WITH FRANK McDONALD - WATER NOT REMEDIATED AS OF 10-7-84. R60.

12-14-94

11/27/95

CONTAMINATED WATER BEING PUMPED.

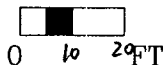
CONTAM. WATER BEING PUMPED

FIELD 418.1 CALCULATIONS

| FIELD USE ONLY - CALCULATIONS |         |            |           |          |         |           |
|-------------------------------|---------|------------|-----------|----------|---------|-----------|
| SAMPLE I.D.                   | LAB No: | WEIGHT (g) | mL. FREON | DILUTION | READING | CALC. ppm |
|                               |         |            |           |          |         |           |
|                               |         |            |           |          |         |           |
|                               |         |            |           |          |         |           |

G.W

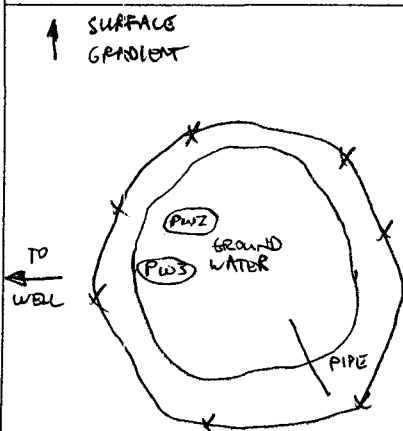
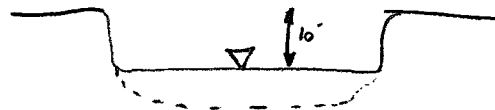
SCALE



## PIT PERIMETER

## OVM RESULTS

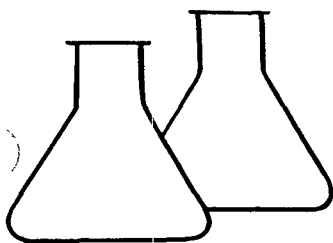
# PIT PROFILE

[illegible]

|                |      |                           |
|----------------|------|---------------------------|
| P1 WATER @ 10' | BTEX | 8/24/94                   |
| PW2 @ 6W (10') | BTEX | 10/20/94 91V 12/16/94 91V |
| PW3 @ 6W (10') | BTEX | 1/27/95 91V               |

B-2.0 T-80.4 E-57.2 X-403 pbb

TRAVEL NOTES:      CALLOUT: \_\_\_\_\_      ONSITE: \_\_\_\_\_



# ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401  
PHONE: (505) 632-0615 • FAX: (505) 632-1865

## EPA METHOD 8020 AROMATIC VOLATILE ORGANICS

|                    |                              |                     |          |
|--------------------|------------------------------|---------------------|----------|
| Client:            | Amoco                        | Project #:          | 92140    |
| Sample ID:         | <del>MW #1</del> GROUNDWATER | Date Reported:      | 09-02-94 |
| Laboratory Number: | 7039                         | Date Sampled:       | 08-24-94 |
| Sample Matrix:     | Water                        | Date Received:      | 08-24-94 |
| Preservative:      | HgCl & Cool                  | Date Analyzed:      | 09-01-94 |
| Condition:         | Cool & Intact                | Analysis Requested: | BTEX     |

| Parameter    | Concentration<br>(ug/L) | Det.<br>Limit<br>(ug/L) |
|--------------|-------------------------|-------------------------|
| Benzene      | 258                     | 0.3                     |
| Toluene      | 0.3                     | 0.3                     |
| Ethylbenzene | 0.5                     | 0.2                     |
| p,m-Xylene   | 0.7                     | 0.3                     |
| o-Xylene     | 1.6                     | 0.3                     |

| SURROGATE RECOVERIES: | Parameter          | Percent Recovery |
|-----------------------|--------------------|------------------|
|                       | Trifluorotoluene   | 104 %            |
|                       | Bromofluorobenzene | 105 %            |

Method: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

ND - Parameter not detected at the stated detection limit.

Comments: EJ Johnson C #1E Production Pit A0099

Ray R. Haffin  
Analyst

Morris D. Young  
Review

OFF: (505) 325-8786



LAB: (505) 325-5667

**AROMATIC VOLATILE ORGANICS**

Attn: *Nelson Velez*  
Company: *Blagg Engineering*  
Address: *P.O. Box 87*  
City, State: *Bloomfield, NM 87413*

Date: *10/21/94*  
Lab ID: *2157*  
Sample ID: *3673*  
Job No. *2-1000*

Project Name: *E. J. Johnson C 1 E*  
Project Location: *PW 2 @ GW ( 10' )*  
Sampled by: *NV* Date: *10/20/94*  
Analyzed by: *DLA* Date: *10/21/94*  
Sample Matrix: *Water*

Time: *9:45*

**Aromatic Volatile Organics**

| <b>Component</b>    | <b>Measured<br/>Concentration ug/L</b> | <b>Detection Limit<br/>Concentration ug/L</b> |
|---------------------|----------------------------------------|-----------------------------------------------|
| <i>Benzene</i>      | <i>33.6</i>                            | <i>0.2</i>                                    |
| <i>Toluene</i>      | <i>21.2</i>                            | <i>0.2</i>                                    |
| <i>Ethylbenzene</i> | <i>ND</i>                              | <i>0.2</i>                                    |
| <i>m,p-Xylene</i>   | <i>16.0</i>                            | <i>0.2</i>                                    |
| <i>o-Xylene</i>     | <i>58.3</i>                            | <i>0.2</i>                                    |
|                     | <i>TOTAL 129.1 ug/L</i>                |                                               |

*ND - Not Detectable*

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

Approved by: *[Signature]*

Date: *10/24/94*

P. O. BOX 2606 • FARMINGTON, NM 87499

— TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT —

OFF: (505) 325-8786



LAB: (505) 325-5667

**AROMATIC VOLATILE ORGANICS**

Attn: *Nelson Velez*  
Company: *Blagg Engineering*  
Address: *P.O. Box 87*  
City, State: *Bloomfield, NM 87413*

Date: *12/17/94*  
Lab ID: *2333*  
Sample ID: *4421*  
Job No. *2-1000*

Project Name: *E. J. Johnson C 1 E*  
Project Location: *PW 2 @ GW ( 10' ) - Prod. Pit*  
Sampled by: *NV* Date: *12/16/94*  
Analyzed by: *DLA* Date: *12/17/94*  
Sample Matrix: *Water*

Time: *14:35*

**Aromatic Volatile Organics**

| <b>Component</b>    | <b>Measured<br/>Concentration ug/L</b> | <b>Detection Limit<br/>Concentration ug/L</b> |
|---------------------|----------------------------------------|-----------------------------------------------|
| <i>Benzene</i>      | <i>154.9</i>                           | <i>0.2</i>                                    |
| <i>Toluene</i>      | <i>54.2</i>                            | <i>0.2</i>                                    |
| <i>Ethylbenzene</i> | <i>126.9</i>                           | <i>0.2</i>                                    |
| <i>m,p-Xylene</i>   | <i>577.2</i>                           | <i>0.2</i>                                    |
| <i>o-Xylene</i>     | <i>43.2</i>                            | <i>0.2</i>                                    |
|                     | <b>TOTAL</b> <i>956.3 ug/L</i>         |                                               |

*ND - Not Detectable*

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

Approved by: 

Date: *12/19/94*

P. O. BOX 2606 • FARMINGTON, NM 87499

- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -



OFF: (505) 325-8786



LAB: (505) 325-5667

**AROMATIC VOLATILE ORGANICS**

Attn: *Nelson Velez*  
Company: *Blagg Engineering*  
Address: *P.O. Box 87*  
City, State: *Bloomfield, NM 87413*

Date: *1/28/95*  
Lab ID: *2529*  
Sample ID: *4933*  
Job No. *2-1000*

Project Name: *E. J. Johnson C 1 E*  
Project Location: *PW 3 @ GW ( 10' ) - Prod*  
Sampled by: *NV* Date: *1/27/95*  
Analyzed by: *DLA* Date: *1/28/95*  
Sample Matrix: *Water*

Time: *10:20*

**Aromatic Volatile Organics**

| <b>Component</b>    | <b>Measured<br/>Concentration ug/L</b> | <b>Detection Limit<br/>Concentration ug/L</b> |
|---------------------|----------------------------------------|-----------------------------------------------|
| <i>Benzene</i>      | <i>2.0</i>                             | <i>0.2</i>                                    |
| <i>Toluene</i>      | <i>80.4</i>                            | <i>0.2</i>                                    |
| <i>Ethylbenzene</i> | <i>57.2</i>                            | <i>0.2</i>                                    |
| <i>m,p-Xylene</i>   | <i>338.2</i>                           | <i>0.2</i>                                    |
| <i>o-Xylene</i>     | <i>64.8</i>                            | <i>0.2</i>                                    |
|                     | <b>TOTAL</b> <i>542.7 ug/L</i>         |                                               |

*ND - Not Detectable*

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

Approved by: *Ja 4*  
Date: *1/30/95*

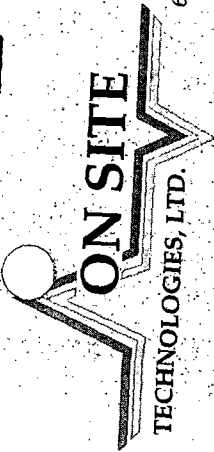
P. O. BOX 2606 • FARMINGTON, NM 87499

- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

80115

## CHAIN OF CUSTODY RECORD

[illegible]



# CHAIN OF CUSTODY RECORD

657 W. Maple • P. O. Box 2606 • Farmington NM 87499  
LAB: (505) 325-5667 • FAX: (505) 325-6256

Page 1 of 1

|                                           |  |                        |  |
|-------------------------------------------|--|------------------------|--|
| Purchase Order No.:                       |  | Reference No.:         |  |
| Name                                      |  | Title                  |  |
| Company                                   |  | Company                |  |
| Address                                   |  | Mailing Address        |  |
| City, State, Zip                          |  | City, State, Zip       |  |
| Telephone No.                             |  | Telefax No.            |  |
| Special Instructions:                     |  | ANALYSIS REQUESTED     |  |
| E.T. JOHNSON CIE                          |  |                        |  |
| Sampler:                                  |  | Remarks (matrix)       |  |
| Nelson Velez                              |  | 3673-2157              |  |
| SAMPLE IDENTIFICATION                     |  | Date/Time Sampled      |  |
| Pwze 6w(10')                              |  | 01/24/94               |  |
| DATE/TIME SAMPLED                         |  | COMPOSITE/GRAB         |  |
| 01/24/94 0945                             |  | GRAB                   |  |
| PRESERVATIVES                             |  | -                      |  |
| Number of Containers                      |  | RESULTS TO REPORT TO   |  |
| 2                                         |  |                        |  |
| Relinquished by:                          |  | Date/Time Relinquished |  |
| Nelson Velez                              |  | 01/24/94 0947          |  |
| Relinquished by:                          |  | Date/Time Relinquished |  |
|                                           |  |                        |  |
| Relinquished by:                          |  | Date/Time Relinquished |  |
|                                           |  |                        |  |
| Method of Shipment:                       |  | Received by:           |  |
|                                           |  | Nelson Velez           |  |
| Authorized by:                            |  | Date/Time              |  |
| (Client Signature Must Accompany Request) |  | 01/24/94 0947          |  |
| Date                                      |  | Date/Time              |  |
|                                           |  |                        |  |
| Distribution: White - On Site             |  | Yellow - LAB           |  |
| Pink - Sampler                            |  | Goldenrod - Client     |  |



# CHAIN OF CUSTODY RECORD

2333

657 W. Maple • P. O. Box 2606 • Farmington NM 87499  
LAB: (505) 325-5667 • FAX: (505) 325-6256

Date:

12/16/94

Page 1 of 1

|                                           |  |                    |  |
|-------------------------------------------|--|--------------------|--|
| Purchase Order No.:                       |  | Reference No.:     |  |
| Name                                      |  | Name               |  |
| Company                                   |  | Company            |  |
| Address                                   |  | Mailing Address    |  |
| City, State, Zip                          |  | City, State, Zip   |  |
| Telephone No.                             |  | Telephone No.      |  |
| Title                                     |  | Title              |  |
| INVOICE TO                                |  | RESULTS TO         |  |
| SEND                                      |  | REPORT             |  |
| Special Instructions:                     |  | ANALYSIS REQUESTED |  |
| Sampler:                                  |  | Containers         |  |
| Sample Identification                     |  | COMPOSITE/ GRAB    |  |
| DATE/TIME SAMPLED                         |  | PRESERVATIVES      |  |
| Aw 2 @ 6w (10') - PROD. PIT 12/16/94 1435 |  | H <sub>2</sub> O   |  |
| Remarks (matrix)                          |  | WATER              |  |
| Received by:                              |  | Received by:       |  |
| Date/Time                                 |  | Date/Time          |  |
| Relinquished by:                          |  | Relinquished by:   |  |
| Date/Time                                 |  | Date/Time          |  |
| Relinquished by:                          |  | Relinquished by:   |  |
| Date/Time                                 |  | Date/Time          |  |
| Method of Shipment:                       |  | Rush               |  |
| Authorized by:                            |  | 5 Working Days     |  |
| (Client Signature Must Accompany Request) |  | 10 Working Days    |  |
| Date                                      |  | Sampling Location: |  |
| Distribution: White - On Site             |  | Pink - Sampler     |  |
| Yellow - LAB                              |  | Goldenrod - Client |  |



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○  
○  
○

Date:

12/25

Page

**TECHNOLOGIES, LTD.**  
657 W. Maple • P. O. Box 2606 • Farmington NM 87499  
LAB: (505) 325-5667 • FAX: (505) 325-6256

80115

|                        |  |         |  |      |  |         |  |       |  |
|------------------------|--|---------|--|------|--|---------|--|-------|--|
| Purchase Order No.:    |  | Job No. |  | Name |  | Company |  | Title |  |
| SEND INVOICE TO        |  | Company |  | Name |  | Company |  | Title |  |
| Address                |  | Company |  | Name |  | Company |  | Title |  |
| City, State, Zip       |  | Company |  | Name |  | Company |  | Title |  |
| Sampling Location:     |  | Company |  | Name |  | Company |  | Title |  |
| E.J. JOHNSON C.I.E.    |  | Company |  | Name |  | Company |  | Title |  |
| Sampler:               |  | Company |  | Name |  | Company |  | Title |  |
| Nelson Vely            |  | Company |  | Name |  | Company |  | Title |  |
| SAMPLE IDENTIFICATION  |  | Company |  | Name |  | Company |  | Title |  |
| DATE                   |  | Company |  | Name |  | Company |  | Title |  |
| TIME                   |  | Company |  | Name |  | Company |  | Title |  |
| MATRIX                 |  | Company |  | Name |  | Company |  | Title |  |
| PRES                   |  | Company |  | Name |  | Company |  | Title |  |
| PW 3 C 6w (10') - PROD |  | Company |  | Name |  | Company |  | Title |  |
| PW C 6w (10') - PROD   |  | Company |  | Name |  | Company |  | Title |  |
| DATE                   |  | Company |  | Name |  | Company |  | Title |  |
| TIME                   |  | Company |  | Name |  | Company |  | Title |  |
| MATRIX                 |  | Company |  | Name |  | Company |  | Title |  |
| PRES                   |  | Company |  | Name |  | Company |  | Title |  |
| PW 3 C 6w (10') - PROD |  | Company |  | Name |  | Company |  | Title |  |
| PW C 6w (10') - PROD   |  | Company |  | Name |  | Company |  | Title |  |
| DATE                   |  | Company |  | Name |  | Company |  | Title |  |
| TIME                   |  | Company |  | Name |  | Company |  | Title |  |
| MATRIX                 |  | Company |  | Name |  | Company |  | Title |  |
| PRES                   |  | Company |  | Name |  | Company |  | Title |  |
| PW 3 C 6w (10') - PROD |  | Company |  | Name |  | Company |  | Title |  |
| PW C 6w (10') - PROD   |  | Company |  | Name |  | Company |  | Title |  |
| DATE                   |  | Company |  | Name |  | Company |  | Title |  |
| TIME                   |  | Company |  | Name |  | Company |  | Title |  |
| MATRIX                 |  | Company |  | Name |  | Company |  | Title |  |
| PRES                   |  | Company |  | Name |  | Company |  | Title |  |
| PW 3 C 6w (10') - PROD |  | Company |  | Name |  | Company |  | Title |  |
| PW C 6w (10') - PROD   |  | Company |  | Name |  | Company |  | Title |  |
| DATE                   |  | Company |  | Name |  | Company |  | Title |  |
| TIME                   |  | Company |  | Name |  | Company |  | Title |  |
| MATRIX                 |  | Company |  | Name |  | Company |  | Title |  |
| PRES                   |  | Company |  | Name |  | Company |  | Title |  |
| PW 3 C 6w (10') - PROD |  | Company |  | Name |  | Company |  | Title |  |
| PW C 6w (10') - PROD   |  | Company |  | Name |  | Company |  | Title |  |
| DATE                   |  | Company |  | Name |  | Company |  | Title |  |
| TIME                   |  | Company |  | Name |  | Company |  | Title |  |
| MATRIX                 |  | Company |  | Name |  | Company |  | Title |  |
| PRES                   |  | Company |  | Name |  | Company |  | Title |  |
| PW 3 C 6w (10') - PROD |  | Company |  | Name |  | Company |  | Title |  |
| PW C 6w (10') - PROD   |  | Company |  | Name |  | Company |  | Title |  |
| DATE                   |  | Company |  | Name |  | Company |  | Title |  |
| TIME                   |  | Company |  | Name |  | Company |  | Title |  |
| MATRIX                 |  | Company |  | Name |  | Company |  | Title |  |
| PRES                   |  | Company |  | Name |  | Company |  | Title |  |
| PW 3 C 6w (10') - PROD |  | Company |  | Name |  | Company |  | Title |  |
| PW C 6w (10') - PROD   |  | Company |  | Name |  | Company |  | Title |  |
| DATE                   |  | Company |  | Name |  | Company |  | Title |  |
| TIME                   |  | Company |  | Name |  | Company |  | Title |  |
| MATRIX                 |  | Company |  | Name |  | Company |  | Title |  |
| PRES                   |  | Company |  | Name |  | Company |  | Title |  |
| PW 3 C 6w (10') - PROD |  | Company |  | Name |  | Company |  | Title |  |
| PW C 6w (10') - PROD   |  | Company |  | Name |  | Company |  | Title |  |
| DATE                   |  | Company |  | Name |  | Company |  | Title |  |
| TIME                   |  | Company |  | Name |  | Company |  | Title |  |
| MATRIX                 |  | Company |  | Name |  | Company |  | Title |  |
| PRES                   |  | Company |  | Name |  | Company |  | Title |  |
| PW 3 C 6w (10') - PROD |  | Company |  | Name |  | Company |  | Title |  |
| PW C 6w (10') - PROD   |  | Company |  | Name |  | Company |  | Title |  |
| DATE                   |  | Company |  | Name |  | Company |  | Title |  |
| TIME                   |  | Company |  | Name |  | Company |  | Title |  |
| MATRIX                 |  | Company |  | Name |  | Company |  | Title |  |
| PRES                   |  | Company |  | Name |  | Company |  | Title |  |
| PW 3 C 6w (10') - PROD |  | Company |  | Name |  | Company |  | Title |  |
| PW C 6w (10') - PROD   |  | Company |  | Name |  | Company |  | Title |  |
| DATE                   |  | Company |  | Name |  | Company |  | Title |  |
| TIME                   |  | Company |  | Name |  | Company |  | Title |  |
| MATRIX                 |  | Company |  | Name |  | Company |  | Title |  |
| PRES                   |  | Company |  | Name |  | Company |  | Title |  |
| PW 3 C 6w (10') - PROD |  | Company |  | Name |  | Company |  | Title |  |
| PW C 6w (10') - PROD   |  | Company |  | Name |  | Company |  | Title |  |
| DATE                   |  | Company |  | Name |  | Company |  | Title |  |
| TIME                   |  | Company |  | Name |  | Company |  | Title |  |
| MATRIX                 |  | Company |  | Name |  |         |  |       |  |



STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

2040 S. PACHECO  
SANTA FE, NEW MEXICO 87505  
(505) 827-7131

November 25, 1996

**CERTIFIED MAIL**  
**RETURN RECEIPT NO. P-269-269-219**

Mr. B.D. Shaw  
Amoco Production Company  
200 Amoco Court  
Farmington, New Mexico 87401

**RE: FINAL SAN JUAN BASIN PIT CLOSURE REPORTS**

Dear Mr. Shaw:

The New Mexico Oil Conservation Division (OCD) has completed a review of Amoco Production Company's (Amoco) December 14, 1994 "AMOCO PRODUCTION COMPANY PIT CLOSURE VERIFICATIONS" which were submitted on behalf of Amoco by their consultant Blagg Engineering, Inc. This document contains "PIT REMEDIATION AND CLOSURE REPORTS" for 35 unlined pits in the San Juan Basin of Northwestern New Mexico.

The OCD's review of the above referenced document is addressed below:

A. The pit closure/soil remediation activities conducted at the sites listed below are **approved**.

- |      |                                   |                              |
|------|-----------------------------------|------------------------------|
| 1.   | Candelaria Gas Com #1 (Blow pit)  | Unit K, Sec. 18, T29N, R09W. |
| 2.   | Florance K #29 (Dehy pit)         | Unit K, Sec. 25, T30N, R08W. |
| ✓3.  | M.N. Galt J#2 (Blow pit)          | Unit D, Sec. 06, T27N, R10W. |
| ✓4.  | M.N. Galt J#2 (Separator pit)     | Unit D, Sec. 06, T27N, R10W. |
| ✓5.  | R.P. Hargrave B#2 (Blow pit)      | Unit K, Sec. 04, T27N, R10W. |
| ✓6.  | E.J. Johnson C#1E (Blow pit)      | Unit C, Sec. 21, T27N, R10W. |
| ✓7.  | E.J. Johnson C#1E (Separator pit) | Unit C, Sec. 21, T27N, R10W. |
| ✓8.  | Johnston LS#1 (Blow pit)          | Unit N, Sec. 11, T28N, R09W. |
| ✓9.  | Kutz J. Federal #2 (Blow pit)     | Unit B, Sec. 06, T27N, R10W. |
| ✓10. | C.A. McAdams C#1 (Blow pit)       | Unit P, Sec. 05, T27N, R10W. |
| ✓11. | C.A. McAdams C#1 (Separator pit)  | Unit P, Sec. 05, T27N, R10W. |
| ✓12. | C.A. McAdams C#2 (Blow pit)       | Unit K, Sec. 05, T27N, R10W. |
| ✓13. | Michener #1 (Tank pit)            | Unit E, Sec. 28, T28N, R09W. |
| ✓14. | Michener LS #5 (Separator pit)    | Unit I, Sec. 15, T28N, R09W. |
| ✓15. | P.O. Pipkin #1 (Blow pit)         | Unit H, Sec. 08, T27N, R10W. |
| ✓16. | P.O. Pipkin #1 (Separator pit)    | Unit H, Sec. 08, T27N, R10W. |

Please be advised that OCD approval does not relieve Amoco of liability if remaining contaminants are found to pose a future threat to surface water, ground water, human health or the environment. In addition, OCD approval does not relieve Amoco of responsibility for compliance with any other federal, state or local laws and/or regulations.

- B. The pit remedial activities conducted at the sites listed below are satisfactory. However, according to the reports, onsite landfarming and/or composting actions are still continuing at the sites. Subsequently, the OCD cannot issue final closure approval at this time and approval of closure actions at these sites is **denied**. Please resubmit final closure reports for these sites upon completion of the landfarming and/or composting activities. The final reports will include the results of the soil remediation levels achieved, the laboratory analyses and associated quality assurance/quality control data and the disposition of the remediated soils.

- |     |                                  |                              |
|-----|----------------------------------|------------------------------|
| ✓1. | Johnston A#1E (Dehy pit)         | Unit H, Sec. 17, T28N, R09W. |
| ✓2. | Johnston A#1E (Separator pit)    | Unit H, Sec. 17, T28N, R09W. |
| ✓3. | Johnston A#1E (Tank pit)         | Unit H, Sec. 17, T28N, R09W. |
| ✓4. | C.A. McAdams C#2 (Separator pit) | Unit K, Sec. 05, T27N, R10W. |
| 5.  | McCulley LS #4 (Blow pit)        | Unit K, Sec. 14, T28N, R09W. |
| 6.  | McCulley LS #4 (Separator pit)   | Unit K, Sec. 14, T28N, R09W. |
| 7.  | Michener LS #3 (Blow pit)        | Unit M, Sec. 15, T28N, R09W. |
| 8.  | Michener LS #4 (Separator pit)   | Unit N, Sec. 15, T28N, R09W. |

- C. The final pit remedial contaminant levels at the sites listed below are in excess of the OCD's recommended remediation levels. Subsequently, the OCD cannot issue final closure approval and approval of closure actions at these sites is **denied**. The OCD requests that Amoco address the extent of the remaining contamination at these sites. The OCD will reconsider issuing closure approval upon resubmission of pit closure forms which address the remaining extent of contamination at the sites. The resubmitted forms should include the completed form and all pertinent information related to the extent of contamination, the results of the soil remediation levels achieved, the laboratory analyses and associated quality assurance/quality control data and the disposition of all remediated soils.

- |     |                                    |                              |
|-----|------------------------------------|------------------------------|
| ✓1. | Kutz J. Federal #2 (Separator pit) | Unit B, Sec. 06, T27N, R10W. |
| ✓2. | Michener #1 (Blow pit)             | Unit E, Sec. 28, T28N, R09W. |
| ✓3. | Michener #1 (Separator pit)        | Unit E, Sec. 28, T28N, R09W. |

- D. Ground water at the site listed below is contaminated with petroleum related constituents in excess of New Mexico Water Quality Control Commission ground water standards and the extent of ground water contamination at the site has not been determined. Therefore, approval of this pit closure form is **denied**. The OCD requests that Amoco investigate the extent of contamination and, if necessary, remediate contaminated ground water pursuant to Amoco's November 21, 1995 ground water investigation/remediation work plan which was approved by the OCD on November 29, 1995.

- |     |                              |                              |
|-----|------------------------------|------------------------------|
| ✓1. | E.J. Johnson C#1E (Tank pit) | Unit C, Sec. 21, T27N, R10W. |
|-----|------------------------------|------------------------------|

Mr. B.D. Shaw  
November 25, 1996  
Page 3

E. The reports for the sites listed below do not contain the benzene, toluene, ethylbenzene and xylene (BTEX) final contaminant concentrations in soils at the base of the excavations; the BTEX and total petroleum hydrocarbon (TPH) final contaminant concentrations of the onsite remediated soils; the laboratory analytical data sheets and associated quality assurance/quality control data for the TPH soil analyses listed in the reports; nor the final disposition of the remediated soils. Subsequently, the OCD cannot issue final closure approval at this time and approval of closure actions at these sites is **denied**. The OCD will reconsider approval of the closure actions at these sites when the reports are resubmitted with the above information.

- |                                     |                              |
|-------------------------------------|------------------------------|
| ✓ 1. Federal Gas Com F#1 (Blow pit) | Unit A, Sec. 07, T27N, R12W. |
| 2. GCU #124 (Blow pit)              | Unit D, Sec. 35, T28N, R12W. |
| 3. GCU #190E (Blow pit)             | Unit K, Sec. 32, T28N, R12W. |
| 4. GCU #190E (Separator pit)        | Unit K, Sec. 32, T28N, R12W. |
| 5. GCU #219 (Separator pit)         | Unit A, Sec. 23, T28N, R12W. |
| 6. Johnson Gas Com C#1E (Blow pit)  | Unit L, Sec. 07, T27N, R12W. |
| 7. Johnson Gas Com C#1E (Separator) | Unit L, Sec. 07, T27N, R12W. |

To simplify the approval process for both Amoco and OCD, the OCD requests that Amoco submit all future pit closure reports only upon completion of all closure activities including onsite landfarming or composting of contaminated soils. The reports should include the completed form and all pertinent information related to the extent of contamination, the results of the soil remediation levels in the pits and landfarms, all laboratory analyses and associated quality assurance/quality control data and the disposition of all remediated soils.

If you have any questions, please call me at (505) 827-7154.

Sincerely,



William C. Olson  
Hydrogeologist  
Environmental Bureau

xc: OCD Aztec District Office  
Bill Liess, BLM Farmington District Office  
Nelson Velez, Blagg Engineering, Inc.