1R - 400

# REPORTS

# DATE:

3/16/2004

**Remediacon Incorporated**
Geological and Engineering Services
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PO Box 302, Evergreen, Colorado 80437
Telephone: 303.674.4370
Facsimile:720.528.8132

March 16, 2004

Mr. Stephen Weathers
Duke Energy Field Services, LP
370 Seventeenth Street, Suite 2500
Denver, Colorado 80202

Re: February 2004 Groundwater Monitoring Summary at the X-Line Pipeline Release, Etcheverry Ranch, Lea County, New Mexico
(Unit B, Section 7, Township 15 South, Range 34 East:)

1R-400

Dear Mr. Weathers:

This letter summarizes the results of the February 2004 groundwater monitoring activities completed for Duke Energy Field Services, LP (DEFS) at the X-Line Pipeline Release on the Etcheverry Ranch at coordinates latitude 33° 02' 11", longitude 103° 32' 48".

The X-line remediation system includes the following components as shown on Figure 1:

- A free product removal system located in well MW-8. The free product thickness appears to be declining.
- An air sparge (AS) system that includes 14 sparge points that are shown as yellow circles on Figure 1:
- A soil vapor extraction (SVE) system that includes eight vapor extraction wells in four clusters (red circles, Figure 1). The SVE system will be attached to MW-8 to expedite the removal of free product.

The AS and SVE components became fully operational in mid-June 2003. The free product collection system has operated since the last week in July 2003.

Groundwater Monitoring Procedures and Results

Seven groundwater-monitoring wells, MW-1 through MW-7, are present at the site. The well locations are shown on Figure 1. Monitoring well construction information is summarized in Table 1. These wells are sampled on a quarterly basis, and the samples are analyzed for benzene, toluene, ethylbenzene and xylenes (BTEX).

The seven wells were sampled on February 18, 2004. The depths to water were first measured in each well. The wells were then purged and sampled using disposable bailers. Well purging consisted of evacuating a minimum of three casing volumes of water and then continuing bailing until the field parameters temperature, pH and conductivity stabilized.

Unfiltered samples were collected from each well upon stabilization. Each sample was analyzed for benzene, toluene, ethylbenzene and xylenes (BTEX). A field duplicate was collected from well MW-3. The laboratory also provided a trip blank. The samples were placed in an ice-filled chest immediately upon collection. The samples were delivered directly to the analytical laboratory Environmental Labs of Texas in Midland Texas using standard chain-of-custody protocol. All development and purge water was disposed of at an approved OCD facility.

The groundwater elevation measurements for all sampling episodes are summarized in Table 2. Hydrographs for wells MW-1 through MW-6 are included on Figure 2. Well MW-8 is not included in the data because the periodic removal of free product results in a continuing non-equilibrated state.

The relative water-table elevation differences between wells have remained essentially constant over the approximate 21-month measurement period demonstrating that deployment of the AS and SVE systems has not substantially affected the equilibrated groundwater flow regime. Wells MW-2 and MW-3 showed a greater decrease in the water-table elevations than the other wells based upon the February 2004 measurements. These decreases may originate from the SVE system sucking water along with vapors during December and early January. Lowering the vacuum on the system rectified this condition.

A water-table contour map based upon the February 2004 measurements was generated using the Surfer program with a kriging option. The map is reproduced as Figure 3. The water-table contours in Figure 3 indicate that groundwater gradient is shallow with a predominately eastward groundwater flow direction across the site. The Etcheverry Ranch residences lie approximately 1 mile south of the release location and cross-gradient from any impacted groundwater.

Table 3 summarizes the February 2004 sampling results. A copy of the laboratory report is attached. The February 2004 benzene distribution is depicted on Figure 4. None of the down-gradient boundary wells (MW-4, MW-5, MW-6 and MW-7) contained detectable concentrations of the BTEX constituents.

The laboratory quality control data included in the attached report indicated that: 1) the surrogate spikes for MW-2 were outside the acceptable range; and 2) the m/p xylene concentrations were estimated in the original and duplicate from MW-3 because they were both below the method detection limit. The duplicate samples from well MW-2 agree well as shown on Table 4. There were no BTEX constituents detected in the trip blank. Based upon this information, Remediacon concludes that the data is acceptable for its intended use.

The BTEX data collected for DEFS since the start of the project are summarized in Table 4. Examination of Table 4 indicates the following:

1. BTEX constituents have either never been detected or reported at the reporting limit in wells MW-1 (up-gradient), MW-4 and MW-7;

2. The trace hydrocarbon constituent concentrations initially detected in MW-5 and MW-6 have remained below the method detection limits since July 2003;

3. The BTEX concentrations in interior wells MW-2 and MW-3 have declined substantially from the pre-remediation concentrations. The benzene concentrations for these wells are graphed in Figure 5. This continued decline demonstrates that the remediation system has stabilized the plume.

Remediacon recommends that groundwater samples be collected from MW-1 through MW-7 in June 2004. The results will be evaluated and, if appropriate, recommendations for modification of the monitoring program will be made. The free product collection system, the AS system, and the SVE system will continue to operate.

Do not hesitate to contact me if you have any questions or comments on this summary.

Respectfully Submitted,
**REMEDIACOM INCORPORATED**

Michael H. Stewart

Michael H. Stewart, P.E.
Principal Engineer

MHS:tbm

# TABLES

Table 1 – Monitoring Well Completions

| Well | Date Installed | Well Depth | Completion Interval | Top of Sand |
|---|---|---|---|---|
| | | | | |
| MW-1 | 3/02 | 91 | 71-91 | 68 |
| MW-2 | 3/02 | 88 | 68-88 | 62 |
| MW-3 | 3/02 | 91 | 71-91 | 61 |
| MW-4 | 4/02 | 91 | 71-91 | 68 |
| MW-5 | 4/02 | 89 | 69-89 | 56 |
| MW-6 | 4/02 | 90 | 70-90 | 68 |
| MW-7 | 5/02 | 85 | 65-85 | 59 |

Notes: All units in Feet
Hydrocarbon extraction well (MW-8) completed between approximately 80 and 100 feet

Table 2- Measured Water Table Elevations

| Well | 5/1/2002 | 9/6/2002 | 4/28/2003 | 6/19/03 | 7/17/03 | 8/20/03 | 9/22/03 | 10/29/03 | 11/20/03 | 2/18/04 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | |
| MW-1 | 4,088.54 | 4088.53 | 4,088.55 | 4088.55 | 4088.52 | 4088.54 | 4088.53 | 4088.60 | 4088.59 | 4089.19 |
| MW-2 | 4,089.02 | 4089.03 | 4,089.05 | 4089.07 | 4089.04 | 4089.09 | 4089.06 | 4089.11 | 4089.13 | 4088.90 |
| MW-3 | 4,088.83 | 4088.86 | 4,088.86 | 4088.85 | 4088.82 | 4088.87 | 4088.84 | 4088.90 | 4088.95 | 4088.82 |
| MW-4 | 4,088.63 | 4088.73 | 4,088.73 | 4088.73 | 4088.70 | 4088.72 | 4088.71 | 4088.78 | 4088.78 | 4088.74 |
| MW-5 | 4,088.60 | 4088.68 | 4,088.67 | 4088.65 | 4088.63 | 4088.66 | 4088.65 | 4088.70 | 4088.70 | 4088.65 |
| MW-6 | 4,088.69 | 4088.71 | 4,088.70 | 4088.69 | 4088.66 | 4088.70 | 4088.68 | 4088.74 | 4088.74 | 4088.69 |
| MW-7 | | | | 4088.04 | 4088.01 | 4088.04 | 4088.03 | 4088.08 | 4088.08 | 4087.66 |

All units in feet

Table 3 – February 2004 Groundwater Monitoring Results

| Well | Benzene | Toluene | Ethyl Benzene | Total Xylenes |
|---|---|---|---|---|
| | | | | |
| MW-1 | <0.001 | <0.001 | <0.001 | <0.001 |
| MW-2 | <0.001 | 0.00652 | 0.00301 | 0.0514 |
| MW-3 | 0.0273/0.0287 | <0.001/<0.001 | 0.0132/0.0144 | 0.00069*/0.00064* |
| MW-4 | <0.001 | <0.001 | <0.001 | <0.001 |
| MW-5 | <0.001 | <0.001 | <0.001 | <0.001 |
| MW-6 | <0.001 | <0.001 | <0.001 | <0.001 |
| MW-7 | <0.001 | <0.001 | <0.001 | <0.001 |
| Trip blank | <0.001 | <0.001 | <0.001 | <0.001 |

Notes: 1) All units in mg/l
2) Duplicate sample results separated by a slash "/"
3) * The xylene concentrations from MW-3 are below the method detection limit and are qualified as estimates.

Table 4 – Summary of Laboratory Data

Benzene

| Well | 4/24/02 | 5/21/02 | 4/28/03 | 6/19/03 | 7/17/03 | 8/20/03 | 9/22/03 | 10/29/03 | 11/20/03 | 2/18/2004 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | |
| MW-1 | <0.002 | 0.002 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| MW-2 | 0.0255 | 0.145 | 0.182 | 0.074 | 0.155 | 0.024 | 0.022 | 0.001 | 0.013 | <0.001 |
| MW-3 | 0.061 | 0.176 | 0.099 | 0.047 | 0.063 | 0.017 | 0.049 | 0.044 | 0.048 | 0.0273/0.0287 |
| MW-4 | <0.002 | <0.002 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| MW-5 | <0.002 | <0.002 | 0.005 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| MW-6 | <0.002 | 0.002 | 0.003 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| MW-7 | --- | --- | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.001 | 0.001 | <0.001 |

Notes: All units in mg/l. Duplicate sample results were averaged together

Toluene

| Well | 4/24/02 | 5/21/02 | 4/28/03 | 6/19/03 | 7/17/03 | 8/20/03 | 9/22/03 | 10/29/03 | 11/20/03 | 2/18/2004 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | |
| MW-1 | <0.002 | 0.003 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| MW-2 | 0.107 | 0.833 | 0.092 | 0.066 | 0.15 | 0.092 | 0.051 | 0.004 | 0.017 | 0.00652 |
| MW-3 | <0.002 | 0.004 | 0.005 | <0.001 | 0.002 | <0.001 | <0.001 | <0.001 | 0.003 | <0.001/<0.001 |
| MW-4 | <0.002 | <0.002 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| MW-5 | <0.002 | <0.002 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| MW-6 | <0.002 | <0.002 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| MW-7 | --- | --- | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.001 | <0.001 | <0.001 |

Notes: All units in mg/l. Duplicate sample results were averaged together

Table 4 – Summary of Laboratory Data (continued)

Ethylbenzene

| Well | 4/24/02 | 5/21/02 | 4/28/03 | 6/19/03 | 7/17/03 | 8/20/03 | 9/22/03 | 10/29/03 | 11/20/03 | 2/18/2004 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | |
| MW-1 | <0.002 | <0.002 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| MW-2 | 0.013 | 0.062 | 0.121 | 0.069 | 0.112 | 0.012 | 0.012 | 0.002 | 0.005 | 0.00301 |
| MW-3 | 0.023 | 0.023 | 0.03 | 0.02 | 0.023 | 0.006 | 0.02 | 0.018 | 0.017 | 0.0132/0.0144 |
| MW-4 | <0.002 | <0.002 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| MW-5 | <0.002 | <0.002 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| MW-6 | 0.004 | 0.002 | 0.002 | <0.001 | 0.004 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| MW-7 | --- | --- | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.001 | <0.001 | <0.001 |

Total Xylenes

| Well | 4/24/02 | 5/21/02 | 4/28/03 | 6/19/03 | 7/17/03 | 8/20/03 | 9/22/03 | 10/29/03 | 11/20/03 | 2/18/2004 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | <0.001 |
| MW-1 | <0.006 | <0.006 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.0514 |
| MW-2 | 0.38 | 1.27 | 0.133 | 0.103 | 0.186 | 0.179 | 0.079 | 0.017 | 0.034 | 0.00069*/0.00064* |
| MW-3 | 0.189 | 0.451 | 0.039 | 0.006 | 0.007 | 0.001 | 0.001 | 0.001 | 0.004 | <0.001 |
| MW-4 | <0.006 | <0.006 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| MW-5 | 0.011 | <0.006 | 0.003 | 0.003 | 0.002 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| MW-6 | 0.123 | 0.047 | 0.01 | <0.001 | 0.004 | <0.001 | <0.001 | 0.003 | <0.001 | <0.001 |
| MW-7 | --- | --- | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.006 | 0.001 | <0.001 |

Notes: All units in mg/l
Duplicate sample results were averaged together

FIGURES


Figure 1 – Facility Configuration

X-Line Remediation

Duke Energy Field Services

| | |
|---|---|
| DRAWN BY: | MHS |
| REVISED: | |
| DATE: | 3/04 |

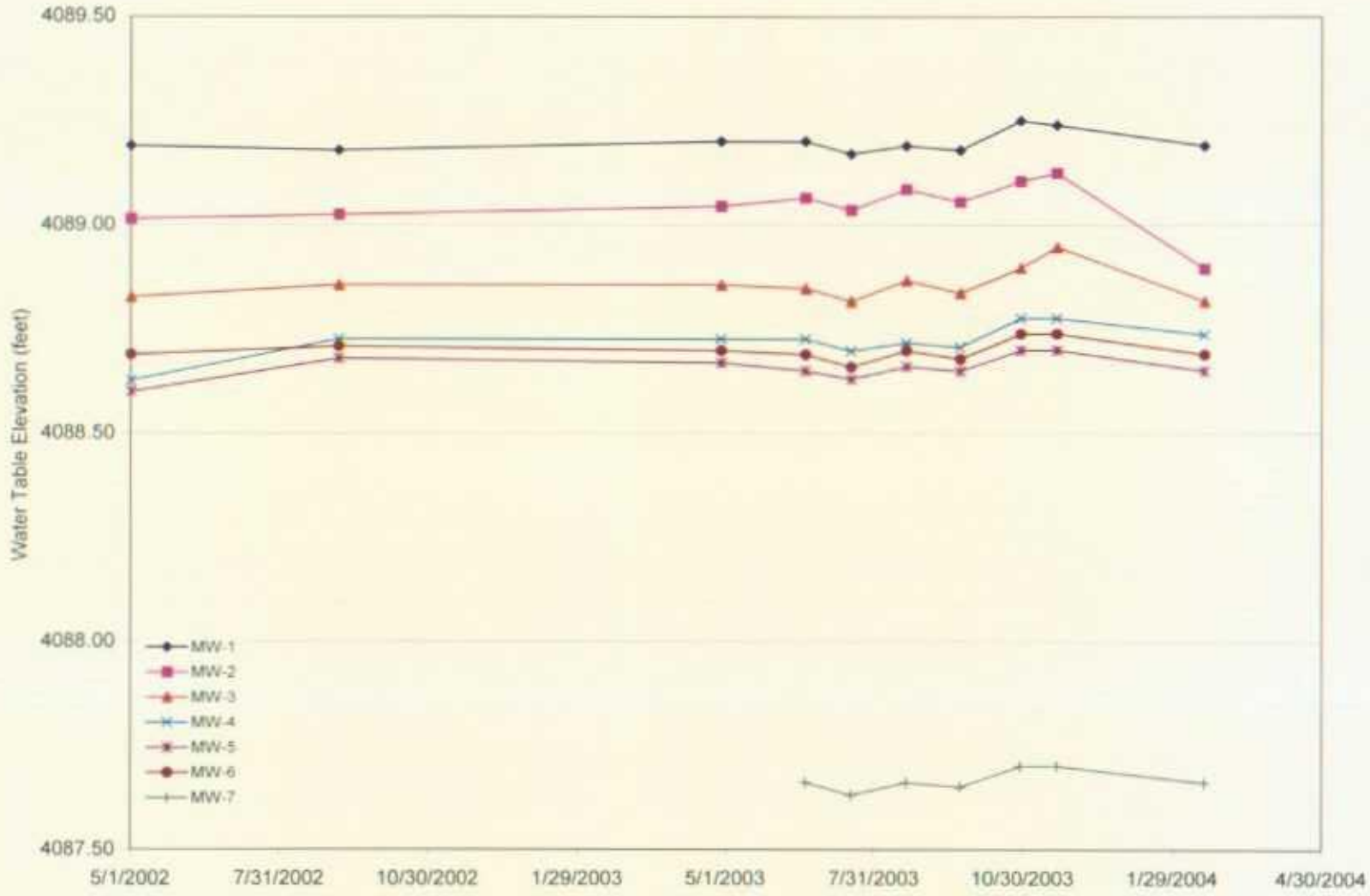


Figure 2 – Well Hydrographs

X-Line Remediation

Duke Energy Field Services

DRAWN BY: MHS

DATE: 3/04

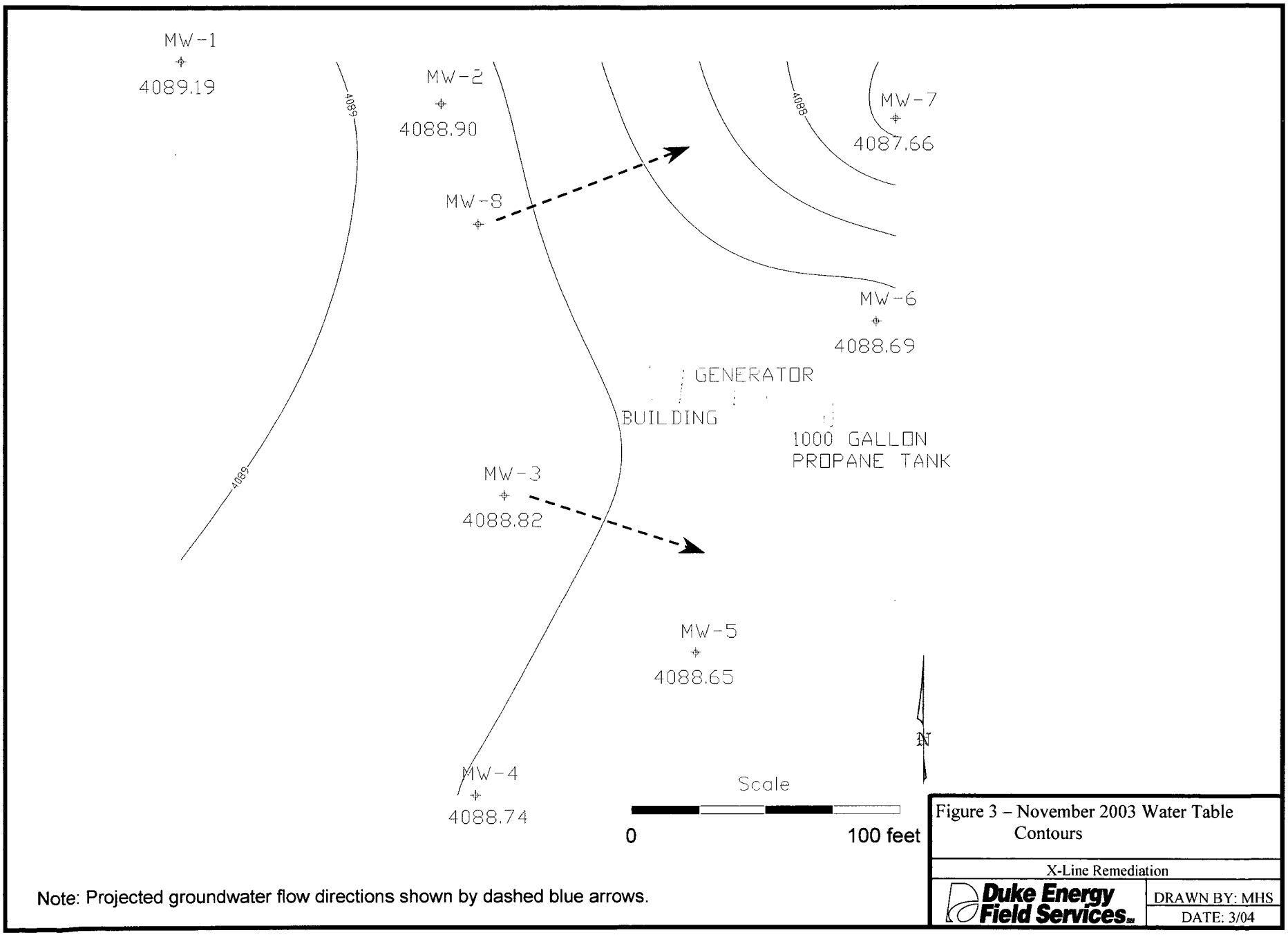


Figure 3 – November 2003 Water Table Contours

X-Line Remediation

Duke Energy Field Services

DRAWN BY: MHS

DATE: 3/04

Note: Projected groundwater flow directions shown by dashed blue arrows.

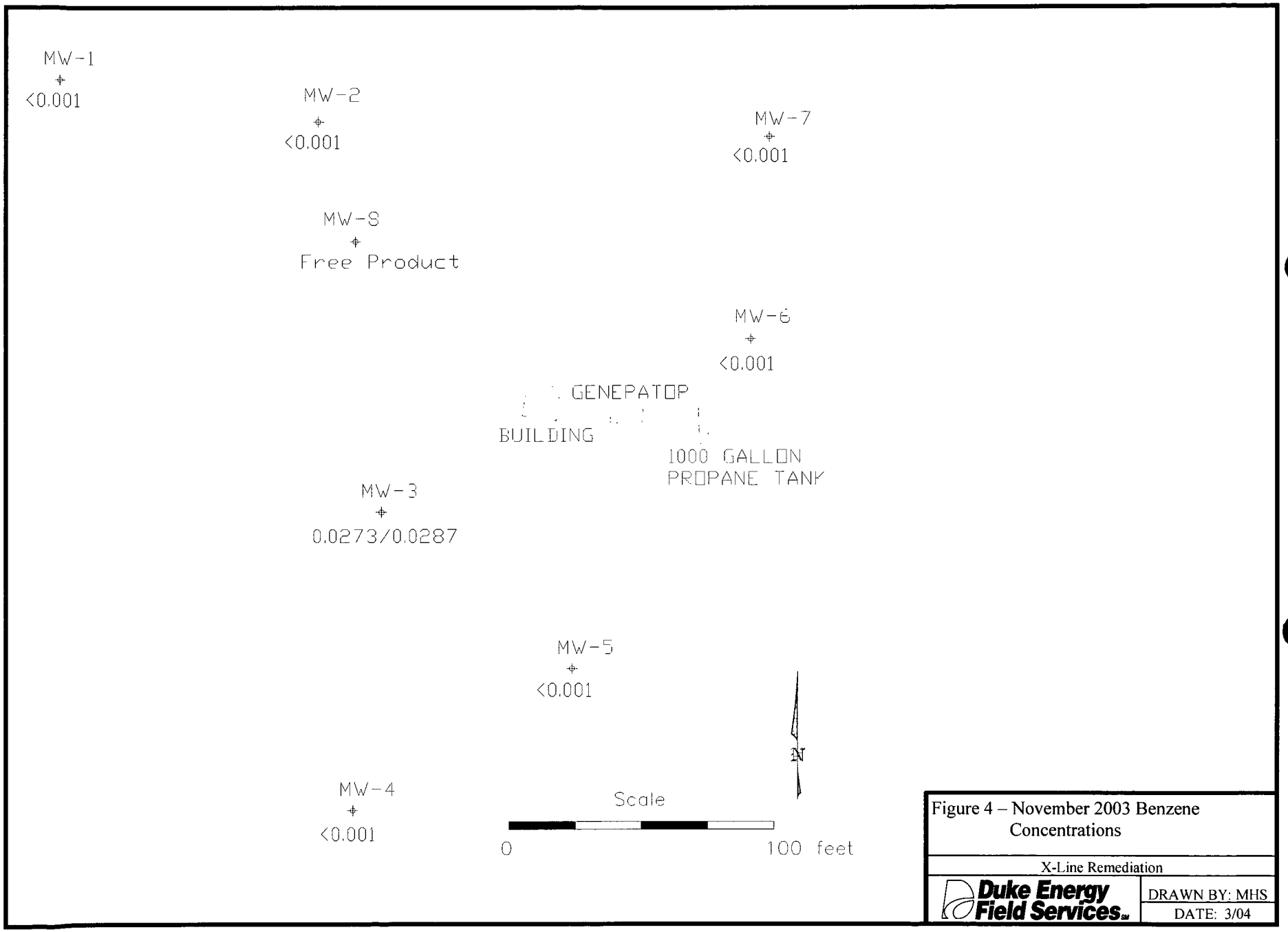


Figure 4 – November 2003 Benzene Concentrations

X-Line Remediation

Duke Energy Field Services

DRAWN BY: MHS

DATE: 3/04


Figure 5 – Benzene Concentrations in MW-2 and MW-3

X-Line Remediation

Duke Energy Field Services

DRAWN BY: MHS

DATE: 3/04

ANALYTICAL LABORATORY REPORT

ENVIRONMENTAL LAB OF

12600 West I-20 East - Odessa, Texas 79765

# Analytical Report

**Prepared for:**

Michael Stewart

REMEDIACON

P.O. Box 302

Evergreen, CO 80437

Project: DEFS-X-Line

Project Number: None Given

Location: Lea Co., NM

Lab Order Number: 4B20007

Report Date: 02/26/04

REMEDIACON
P.O. Box 302
Evergreen CO, 80437

Project: DEFS-X-Line
Project Number: None Given
Project Manager: Michael Stewart

Fax: 720-528-8132

**Reported:**
02/26/04 11:27

## ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled | Date Received |
|---|---|---|---|---|
| MW-1 | 4B20007-01 | Water | 02/18/04 12:05 | 02/20/04 12:35 |
| MW-2 | 4B20007-02 | Water | 02/18/04 13:00 | 02/20/04 12:35 |
| MW-7 | 4B20007-03 | Water | 02/18/04 14:40 | 02/20/04 12:35 |
| MW-6 | 4B20007-04 | Water | 02/18/04 15:00 | 02/20/04 12:35 |
| MW-5 | 4B20007-05 | Water | 02/18/04 15:35 | 02/20/04 12:35 |
| MW-4 | 4B20007-06 | Water | 02/18/04 16:05 | 02/20/04 12:35 |
| MW-3 | 4B20007-07 | Water | 02/18/04 16:45 | 02/20/04 12:35 |
| Duplicate | 4B20007-08 | Water | 02/18/04 20:00 | 02/20/04 12:35 |
| Trip Blank | 4B20007-09 | Water | 02/18/04 00:00 | 02/20/04 12:35 |



12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

| | | |
|---|---|---|
| REMEDIACON | Project: DEFS-X-Line | Fax: 720-528-8132 |
| P.O. Box 302 | Project Number: None Given | **Reported:** |
| Evergreen CO, 80437 | Project Manager: Michael Stewart | 02/26/04 11:27 |

## Organics by GC

## Environmental Lab of Texas

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|
| **MW-1 (4B20007-01)** | | | | | | | | | |
| Benzene | ND | 0.00100 | mg/L | 1 | EB42507 | 02/24/04 | 02/24/04 | EPA 8021B | |
| Toluene | ND | 0.00100 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 0.00100 | " | " | " | " | " | " | |
| Xylene (p/m) | ND | 0.00100 | " | " | " | " | " | " | |
| Xylene (o) | ND | 0.00100 | " | " | " | " | " | " | |
| *Surrogate: a,a,a-Trifluorotoluene* | | *119 %* | *80-120* | | " | " | " | " | |
| *Surrogate: 4-Bromofluorobenzene* | | *87.5 %* | *80-120* | | " | " | " | " | |
| **MW-2 (4B20007-02)** | | | | | | | | | |
| Benzene | ND | 0.00100 | mg/L | 1 | EB42507 | 02/24/04 | 02/24/04 | EPA 8021B | |
| **Toluene** | **0.00652** | 0.00100 | " | " | " | " | " | " | |
| **Ethylbenzene** | **0.00301** | 0.00100 | " | " | " | " | " | " | |
| **Xylene (p/m)** | **0.0367** | 0.00100 | " | " | " | " | " | " | |
| **Xylene (o)** | **0.0147** | 0.00100 | " | " | " | " | " | " | |
| *Surrogate: a,a,a-Trifluorotoluene* | | *143 %* | *80-120* | | " | " | " | " | *S-04* |
| *Surrogate: 4-Bromofluorobenzene* | | *180 %* | *80-120* | | " | " | " | " | *S-04* |
| **MW-7 (4B20007-03)** | | | | | | | | | |
| Benzene | ND | 0.00100 | mg/L | 1 | EB42507 | 02/24/04 | 02/24/04 | EPA 8021B | |
| Toluene | ND | 0.00100 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 0.00100 | " | " | " | " | " | " | |
| Xylene (p/m) | ND | 0.00100 | " | " | " | " | " | " | |
| Xylene (o) | ND | 0.00100 | " | " | " | " | " | " | |
| *Surrogate: a,a,a-Trifluorotoluene* | | *114 %* | *80-120* | | " | " | " | " | |
| *Surrogate: 4-Bromofluorobenzene* | | *100 %* | *80-120* | | " | " | " | " | |
| **MW-6 (4B20007-04)** | | | | | | | | | |
| Benzene | ND | 0.00100 | mg/L | 1 | EB42507 | 02/24/04 | 02/24/04 | EPA 8021B | |
| Toluene | ND | 0.00100 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 0.00100 | " | " | " | " | " | " | |
| Xylene (p/m) | ND | 0.00100 | " | " | " | " | " | " | |
| Xylene (o) | ND | 0.00100 | " | " | " | " | " | " | |
| *Surrogate: a,a,a-Trifluorotoluene* | | *112 %* | *80-120* | | " | " | " | " | |
| *Surrogate: 4-Bromofluorobenzene* | | *98.0 %* | *80-120* | | " | " | " | " | |

Environmental Lab of Texas

*The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory.. This analytical report must be reproduced in its entirety, with written approval of Environmental Lab of Texas.*

Quality Assurance Review



12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

REMEDIACON
P.O. Box 302
Evergreen CO, 80437

Project: DEFS-X-Line
Project Number: None Given
Project Manager: Michael Stewart

Fax: 720-528-8132

**Reported:**
02/26/04 11:27

## Organics by GC

## Environmental Lab of Texas

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|
| **MW-5 (4B20007-05)** | | | | | | | | | |
| Benzene | ND | 0.00100 | mg/L | 1 | EB42507 | 02/24/04 | 02/24/04 | EPA 8021B | |
| Toluene | ND | 0.00100 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 0.00100 | " | " | " | " | " | " | |
| Xylene (p/m) | ND | 0.00100 | " | " | " | " | " | " | |
| Xylene (o) | ND | 0.00100 | " | " | " | " | " | " | |
| *Surrogate: a,a,a-Trifluorotoluene* | | *108 %* | *80-120* | | " | " | " | " | |
| *Surrogate: 4-Bromofluorobenzene* | | *94.5 %* | *80-120* | | " | " | " | " | |
| **MW-4 (4B20007-06)** | | | | | | | | | |
| Benzene | ND | 0.00100 | mg/L | 1 | EB42507 | 02/24/04 | 02/24/04 | EPA 8021B | |
| Toluene | ND | 0.00100 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 0.00100 | " | " | " | " | " | " | |
| Xylene (p/m) | ND | 0.00100 | " | " | " | " | " | " | |
| Xylene (o) | ND | 0.00100 | " | " | " | " | " | " | |
| *Surrogate: a,a,a-Trifluorotoluene* | | *114 %* | *80-120* | | " | " | " | " | |
| *Surrogate: 4-Bromofluorobenzene* | | *101 %* | *80-120* | | " | " | " | " | |
| **MW-3 (4B20007-07)** | | | | | | | | | |
| **Benzene** | **0.0273** | 0.00100 | mg/L | 1 | EB42507 | 02/24/04 | 02/24/04 | EPA 8021B | |
| Toluene | ND | 0.00100 | " | " | " | " | " | " | |
| **Ethylbenzene** | **0.0132** | 0.00100 | " | " | " | " | " | " | |
| Xylene (p/m) | J [0.000692] | 0.00100 | " | " | " | " | " | " | J |
| Xylene (o) | ND | 0.00100 | " | " | " | " | " | " | |
| *Surrogate: a,a,a-Trifluorotoluene* | | *110 %* | *80-120* | | " | " | " | " | |
| *Surrogate: 4-Bromofluorobenzene* | | *116 %* | *80-120* | | " | " | " | " | |
| **Duplicate (4B20007-08)** | | | | | | | | | |
| **Benzene** | **0.0287** | 0.00100 | mg/L | 1 | EB42507 | 02/24/04 | 02/24/04 | EPA 8021B | |
| Toluene | ND | 0.00100 | " | " | " | " | " | " | |
| **Ethylbenzene** | **0.0144** | 0.00100 | " | " | " | " | " | " | |
| Xylene (p/m) | J [0.000638] | 0.00100 | " | " | " | " | " | " | J |
| Xylene (o) | ND | 0.00100 | " | " | " | " | " | " | |
| *Surrogate: a,a,a-Trifluorotoluene* | | *119 %* | *80-120* | | " | " | " | " | |
| *Surrogate: 4-Bromofluorobenzene* | | *120 %* | *80-120* | | " | " | " | " | |

Environmental Lab of Texas

*The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory.. This analytical report must be reproduced in its entirety, with written approval of Environmental Lab of Texas.*

Quality Assurance Review



12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

| | | |
|---|---|---|
| REMEDIACON | Project: DEFS-X-Line | Fax: 720-528-8132 |
| P.O. Box 302 | Project Number: None Given | **Reported:** |
| Evergreen CO, 80437 | Project Manager: Michael Stewart | 02/26/04 11:27 |

## Organics by GC

## Environmental Lab of Texas

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|
| **Trip Blank (4B20007-09)** | | | | | | | | | |
| Benzene | ND | 0.00100 | mg/L | 1 | EB42507 | 02/24/04 | 02/24/04 | EPA 8021B | |
| Toluene | ND | 0.00100 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 0.00100 | " | " | " | " | " | " | |
| Xylene (p/m) | ND | 0.00100 | " | " | " | " | " | " | |
| Xylene (o) | ND | 0.00100 | " | " | " | " | " | " | |
| *Surrogate: a,a,a-Trifluorotoluene* | | *112 %* | *80-120* | | " | " | " | " | |
| *Surrogate: 4-Bromofluorobenzene* | | *85.0 %* | *80-120* | | " | " | " | " | |

Environmental Lab of Texas

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Roland K. Tuttle

Quality Assurance Review



12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

REMEDIACON
P.O. Box 302
Evergreen CO, 80437

Project: DEFS-X-Line
Project Number: None Given
Project Manager: Michael Stewart

Fax: 720-528-8132
Reported:
02/26/04 11:27

# Organics by GC - Quality Control
## Environmental Lab of Texas

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch EB42507 - EPA 5030C (GC)** | | | | | | | | | | |
| **Blank (EB42507-BLK1)** | | | | Prepared & Analyzed: 02/24/04 | | | | | | |
| Benzene | ND | 0.00100 | mg/L | | | | | | | |
| Toluene | ND | 0.00100 | " | | | | | | | |
| Ethylbenzene | ND | 0.00100 | " | | | | | | | |
| Xylene (p/m) | ND | 0.00100 | " | | | | | | | |
| Xylene (o) | ND | 0.00100 | " | | | | | | | |
| *Surrogate: a,a,a-Trifluorotoluene* | *23.3* | | *ug/l* | *20.0* | | *116* | *80-120* | | | |
| *Surrogate: 4-Bromofluorobenzene* | *23.9* | | *"* | *20.0* | | *120* | *80-120* | | | |
| **LCS (EB42507-BS1)** | | | | Prepared & Analyzed: 02/24/04 | | | | | | |
| Benzene | 87.3 | | ug/l | 100 | | 87.3 | 80-120 | | | |
| Toluene | 90.1 | | " | 100 | | 90.1 | 80-120 | | | |
| Ethylbenzene | 94.1 | | " | 100 | | 94.1 | 80-120 | | | |
| Xylene (p/m) | 203 | | " | 200 | | 102 | 80-120 | | | |
| Xylene (o) | 97.8 | | " | 100 | | 97.8 | 80-120 | | | |
| *Surrogate: a,a,a-Trifluorotoluene* | *19.8* | | *"* | *20.0* | | *99.0* | *80-120* | | | |
| *Surrogate: 4-Bromofluorobenzene* | *22.9* | | *"* | *20.0* | | *114* | *80-120* | | | |
| **Calibration Check (EB42507-CCV1)** | | | | Prepared: 02/24/04 Analyzed: 02/25/04 | | | | | | |
| Benzene | 92.7 | | ug/l | 100 | | 92.7 | 80-120 | | | |
| Toluene | 94.7 | | " | 100 | | 94.7 | 80-120 | | | |
| Ethylbenzene | 94.2 | | " | 100 | | 94.2 | 80-120 | | | |
| Xylene (p/m) | 194 | | " | 200 | | 97.0 | 80-120 | | | |
| Xylene (o) | 98.5 | | " | 100 | | 98.5 | 80-120 | | | |
| *Surrogate: a,a,a-Trifluorotoluene* | *19.1* | | *"* | *20.0* | | *95.5* | *80-120* | | | |
| *Surrogate: 4-Bromofluorobenzene* | *20.1* | | *"* | *20.0* | | *100* | *80-120* | | | |
| **Duplicate (EB42507-DUP1)** | | **Source: 4B20007-09** | | Prepared: 02/24/04 Analyzed: 02/25/04 | | | | | | |
| Benzene | ND | 0.00100 | mg/L | | ND | | | | 20 | |
| Toluene | ND | 0.00100 | " | | ND | | | | 20 | |
| Ethylbenzene | ND | 0.00100 | " | | ND | | | | 20 | |
| Xylene (p/m) | ND | 0.00100 | " | | ND | | | | 20 | |
| Xylene (o) | ND | 0.00100 | " | | ND | | | | 20 | |
| *Surrogate: a,a,a-Trifluorotoluene* | *16.9* | | *ug/l* | *20.0* | | *84.5* | *80-120* | | | |
| *Surrogate: 4-Bromofluorobenzene* | *19.7* | | *"* | *20.0* | | *98.5* | *80-120* | | | |





Roland K. Tuttle
Quality Assurance Review

| | | |
|---|---|---|
| REMEDIACON | Project: DEFS-X-Line | Fax: 720-528-8132 |
| P.O. Box 302 | Project Number: None Given | **Reported:** |
| Evergreen CO, 80437 | Project Manager: Michael Stewart | 02/26/04 11:27 |

## Notes and Definitions

| | |
|---|---|
| S-04 | The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect. |
| J | Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag). |
| DET | Analyte DETECTED |
| ND | Analyte NOT DETECTED at or above the reporting limit |
| NR | Not Reported |
| dry | Sample results reported on a dry weight basis |
| RPD | Relative Percent Difference |





Quality Assurance Review



12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

# Environmental Lab of Texas

12600 West I-20 East
Odessa, Texas 79765
Phone: 432-563-1800
Fax: 432-563-1713

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Michael H. Stewart
Company Name: Remediacon, Inc.
Company Address: PO Box 302
City/State/Zip: Evergreen, CO 80437
Telephone No: 303-674-4370 Fax No: 720-528-8132
Sampler Signature: Dale Littlejohn

Project Name: DEFS - X-Line
Project #:
Project Loc: Lea Co. NM
PO #:

4820007

| LAB # (lab use only) | FIELD CODE | Date Sampled | Time Sampled | No. of Containers 40mlg 4ss | Preservative: Ice | $HNO_3$ | HCl | NaOH | $H_2SO_4$ | None | Other (Specify) | Matrix: Water | Sludge | Soil | Other (specify): | Analyze For: TCLP: TOTAL: TPH: 418.1 8015M 1005 1006 | Cations (Ca, Mg, Na, K) | Anions (Cl, SO4, CO3, HCO3) | SAR / ESP / CEC | Metals: As Ag Ba Cd Cr Pb Hg Se | Volatiles | Semivolatiles | BTEX 8021B/5030 or BTEX 8260 | RCI | N.O.R.M. | RUSH TAT (Pre-Schedule) | Standard TAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -01 | MW-1 | 2/19/04 | 1205 | 2 | ✓ | | ✓ | | | | | ✓ | | | | | | | | | | | ✓ | | | | ✓ |
| -02 | MW-2 | " | 1300 | 2 | ✓ | | ✓ | | | | | ✓ | | | | | | | | | | | ✓ | | | | ✓ |
| -03 | MW-7 | " | 1440 | 2 | ✓ | | ✓ | | | | | ✓ | | | | | | | | | | | ✓ | | | | ✓ |
| -04 | MW-6 | " | 1500 | 2 | ✓ | | ✓ | | | | | ✓ | | | | | | | | | | | ✓ | | | | ✓ |
| -05 | MW-5 | " | 1535 | 2 | ✓ | | ✓ | | | | | ✓ | | | | | | | | | | | ✓ | | | | ✓ |
| -06 | MW-4 | " | 1605 | 2 | ✓ | | ✓ | | | | | ✓ | | | | | | | | | | | ✓ | | | | ✓ |
| -07 | MW-3 | " | 1645 | 2 | ✓ | | ✓ | | | | | ✓ | | | | | | | | | | | ✓ | | | | ✓ |
| -08 | Duplicate | " | 2000 | 2 | ✓ | | ✓ | | | | | ✓ | | | | | | | | | | | ✓ | | | | ✓ |
| -09 | Trip Blank | — | — | 2 | ✓ | | ✓ | | | | | ✓ | | | | | | | | | | | ✓ | | | | ✓ |

Special Instructions: Send original results and invoice to Steve Weathers, DEFS, Denver.

Sample Containers Intact? Y N
Temperature Upon Receipt:
Laboratory Comments: 3.5°C

| Relinquished by: | Date | Time | Received by: | Date | Time |
|---|---|---|---|---|---|
| Dale Littlejohn | 2/20/04 | 1235 | | | |
| Relinquished by: | Date | Time | Received by ELOT: | Date | Time |
| | | | Joanne McMurry | 2-20-04 | 1235 |

# Environmental Lab of Texas
## Variance / Corrective Action Report – Sample Log-In

Client: Remediacon, Inc.

Date/Time: 02-20-04 @ 1330

Order #: 4320007

Initials: JMM

### Sample Receipt Checklist

| | | | |
|---|---|---|---|
| Temperature of container/cooler? | (Yes) | No | 3.5 C |
| Shipping container/cooler in good condition? | (Yes) | No | |
| Custody Seals intact on shipping container/cooler? | Yes | No | (Not present) |
| Custody Seals intact on sample bottles? | Yes | No | (Not present) |
| Chain of custody present? | (Yes) | No | |
| Sample Instructions complete on Chain of Custody? | (Yes) | No | |
| Chain of Custody signed when relinquished and received? | (Yes) | No | |
| Chain of custody agrees with sample label(s) | (Yes) | No | |
| Container labels legible and intact? | (Yes) | No | |
| Sample Matrix and properties same as on chain of custody? | (Yes) | No | |
| Samples in proper container/bottle? | (Yes) | No | |
| Samples properly preserved? | (Yes) | No | |
| Sample bottles intact? | (Yes) | No | |
| Preservations documented on Chain of Custody? | (Yes) | No | |
| Containers documented on Chain of Custody? | (Yes) | No | |
| Sufficient sample amount for indicated test? | (Yes) | No | |
| All samples received within sufficient hold time? | (Yes) | No | |
| VOC samples have zero headspace? | (Yes) | No | Not Applicable |

Other observations:

### Variance Documentation:

Contact Person: - _____ Date/Time: _____ Contacted by: _____

Regarding:

Corrective Action Taken: