1R -400

REPORTS

DATE:





DUKE ENERGY FIELD SERVICES 370 17th Street Suite 2500 Denver, CO 80202

303 595 3331

December 8, 2004

Mr. Ed Martin Environmental Bureau New Mexico Oil Conservation Division 1220 S. St. Francis Dr. Santa Fe, NM 87505

18-400

RE: DEFS October 2004 Groundwater Monitoring Summary X-Line Pipeline Release (Etcheverry Ranch Lea County, NM) Unit B, Section 7, T15S, R34E (Lat 33° 02' 11", Long 103° 32' 48")

Dear Mr. Martin:

Duke Energy Field Services, LP (DEFS) is pleased to submit for your review, one copy of the DEFS October 2004 Groundwater Monitoring Report for the October 2004 groundwater sampling event at the DEFS X-Line Pipeline Release Site located within the Etcheverry Ranch, Lea County, New Mexico.

If you have any questions regarding the report, please call me at 303-605-1718.

Sincerely

Duke Energy Field Services, LP

Stephen Weathers, PG Sr. Environmental Specialist

cc: Larry Johnson, OCD Hobbs District Office Mrs. Etcheverry (Certified - 7002 2410 0002 0093 0439) Lynn Ward, DEFS Midland Office Environmental Files

AEC AMERICAN ENVIRONMENTAL CONSULTING, LLC

December 8, 2004

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

Re: October 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:)

Dear Mr. Weathers:

This letter summarizes the results of the October 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" (Figure 1).

Seven groundwater-monitoring wells, MW-1 through MW-7, were sampled at the site. The well locations are shown on Figure 2. Monitoring well construction information is summarized in Table 1. An eighth well, MW-8, is used to recover free product so it is not monitored.

The seven wells were sampled on October 18, 2004. Sampling had to be delayed from September because persistent rains made the access roads impassible. The depths to water were first measured in each well. The data was used to calculate the casing volumes. 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. The field sampling forms are attached.

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. A matrix spike/matrix spike duplicate was collected from MW-4. The laboratory also provided a trip blank. The samples were placed in an ice-filled chest immediately upon collection and documented using standard chain-of-custody protocol. The samples were delivered directly to the analytical laboratory Environmental Labs of Texas in Midland Texas. 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-7 are shown on Figure 3. Well MW-8 is not included its elevation has not been measured.

6885 South Marshall St., Suite 3, Littleton, CO 80128 phone 303-948-7733 fax 303-948-7739

Mr. Stephen Weathers December 8, 2004 Page 2

Figure 2 establishes that the relative water-table elevation differences between wells have remained essentially constant. This consistency shows that the groundwater is continuous and acting in an equilibrated condition.

A water-table contour map based upon the October 2004 measurements was generated using the Surfer program with a kriging option (Figure 4). The water-table contours in Figure 4 indicate that groundwater gradient is shallow, approximately 0.008 feet per foot, with a predominately eastward groundwater flow direction. The Etcheverry Ranch residences lie approximately 1 mile south of the site in a location that is cross-gradient from any impacted groundwater.

The free product thickness values measured in MW-8 during the monitoring program are summarized in Table 3. The thickness was measured at 3.26 feet during the October 2004 monitoring episode. Free product removal ceased in May 2004; however, well MW-8 was attached to the existing soil vapor extraction system to continue to remove product via the enhanced collection of volatized vapors. The product thickness remained nominal in the well through mid-summer. The system was down for approximately 6 weeks in August, first for maintenance and then because of impaired access from prolonged rain events.

Product recovery via the SVE system continues when site conditions permit access for the propane fuel truck. MW-8 will be subjected to a product bail-down test to evaluate the feasibility of renewing active product removal. That activity is scheduled for the December monitoring event.

Table 4 summarizes the October 2004 sampling results. A copy of the laboratory report is attached. There were no BTEX constituents detected in the trip blank. The duplicate samples from well MW-3 agree well as shown on Table 4. The laboratory quality control data included in the attached report indicated that the matrix spike and the matrix spike duplicate results were within the acceptable range. The data is acceptable for its intended use based upon this information.

The October 2004 benzene distribution is depicted on Figure 5. None of the downgradient boundary wells (MW-4, MW-5, MW-6 and MW-7) contained detectable concentrations of the BTEX constituents. The BTEX data collected for DEFS since the start of the project are summarized in Table 4. The benzene concentrations for wells MW-2 and MW-3 are graphed in Figure 6. The benzene concentrations in both wells have declined substantially from the pre-remediation concentrations. The concentration rebounded slightly in MW-2 while continuing to decline in MW-3. The air-sparge system was off line for approximately 6 weeks because of the maintenance and access issues discussed above. Mr. Stephen Weathers December 8, 2004 Page 3

Remediacon recommends that quarterly groundwater sampling be continued through September 2005. The free product collection system may have to be restarted if the product that is present in MW-8 can be readily removed. The air sparge system and soil vapor extraction systems will continue to operate on a regular basis. The thickness of free product will be measured in MW-8 each time the air sparge system and soil vapor extraction systems are maintained.

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

Respectfully Submitted, AMERICAN ENVIRONMENTAL CONSULTING, LLC

Muchael H. Stewart

Michael H. Stewart, P.E. Principal Engineer

MHS:tbm

TABLES

Î

l

ł

| | Date | Well | Completion | Top of |
|------|-----------|-------|------------|--------|
| Well | Installed | Depth | Interval | 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 |

Table 1 – Monitoring Well Completions

Notes: All units in Feet

Hydrocarbon extraction well (MW-8) completed between approximately 80 and 100 feet

İ.

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 | 6/25/04 | 10/18/04 |
|-----------|----------|----------|-----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| | | | | | | | | | | | | |
| MW-1 | 4,088.54 | 4088.53 | 4,088.55 | 4,088.55 | 4,088.52 | 4,088.54 | 4,088.53 | 4,088.60 | 4,088.59 | 4,089.19 | 4,089.12 | 4,089.22 |
| MW-2 | 4,089.02 | 4089.03 | 4,089.05 | 4,089.07 | 4,089.04 | 4,089.09 | 4,089.06 | 4,089.11 | 4,089.13 | 4,088.90 | 4,089.03 | 4,089.06 |
| MW-3 | 4,088.83 | 4088.86 | 4,088.86 | 4,088.85 | 4,088.82 | 4,088.87 | 4,088.84 | 4,088.90 | 4,088.95 | 4,088.82 | 4,088.81 | 4,088.84 |
| MW-4 | 4,088.63 | 4088.73 | 4,088.73 | 4,088.73 | 4,088.70 | 4,088.72 | 4,088.71 | 4,088.78 | 4,088.78 | 4,088.74 | 4,088.70 | 4,088.73 |
| MW-5 | 4,088.60 | 4088.68 | 4,088.67 | 4,088.65 | 4,088.63 | 4,088.66 | 4,088.65 | 4,088.70 | 4,088.70 | 4,088.65 | 4,088.60 | 4,088.63 |
| MW-6 | 4,088.69 | 4088.71 | 4,088.70 | 4,088.69 | 4,088.66 | 4,088.70 | 4,088.68 | 4,088.74 | 4,088.74 | 4,088.69 | 4,088.66 | 4,088.71 |
| MW-7 | | | | 4,088.04 | 4,088.01 | 4,088.04 | 4,088.03 | 4,088.08 | 4,088.08 | 4,087.66 | 4,087.63 | 4,087.68 |
| All units | in feet | | | | | | | | | | | |

l

| Measurement | Product |
|-------------|-----------|
| Date | Thickness |
| | (feet) |
| | |
| 9/6/02 | 5.20 |
| 4/28/03 | 5.65 |
| 6/19/03 | 4.01 |
| 7/17/03 | 3.93 |
| 8/20/03 | PR |
| 9/22/03 | 3.42 |
| 10/29/03 | 1.42 |
| 11/20/03 | 0.79 |
| 2/18/04 | PR |
| 6/25/04 | 0.03 |
| 10/18/04 | 3.26 |

Î

Table 3 – Summary of Product Thickness in MW-8

PR product recovery system known to be running so measured value does not represent equilibrated condition

| Well | Benzene | Toluene | Ethyl Benzene | Total Xylenes |
|------------|---------------------|---------------------|--------------------|--------------------|
| | | | | |
| MW-1 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| MW-2 | 0.0103 | 0.00648 | 0.00336 | 0.0052 |
| MW-3 | 0.00576/ 0.00591 | < 0.001/ < 0.001 | 0.00703/ 0.0068 | 0.00152/ 0.0014 |
| 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 |

Table 4 – October 18, 2004 Groundwater Monitoring Results

i L

1

.

Notes: 1) All units in mg/l

2) The duplicate sample results for MW-3 are separated by a slash "/"

Table 5 – Summary of Laboratory Data

Benzene

| 10/18/04 | <0.001 | 0.0103 | .00576/0.00591 | <0.001 | <0.001 | <0.001 | <0.001 |
|----------|--------|---------|----------------|--------|--------|--------|--------|
| 6/25/04 | <0.001 | 0.00156 | 0.0173 | <0.001 | <0.001 | <0.001 | <0.001 |
| 2/18/04 | <0.001 | <0.001 | 0.0280 | <0.001 | <0.001 | <0.001 | <0.001 |
| 11/20/03 | <0.001 | 0.013 | 0.048 | <0.001 | <0.001 | <0.001 | 0.001 |
| 10/29/03 | <0.001 | 0.001 | 0.044 | <0.001 | <0.001 | <0.001 | 0.001 |
| 9/22/03 | <0.001 | 0.022 | 0.049 | <0.001 | <0.001 | <0.001 | <0.001 |
| 8/20/03 | <0.001 | 0.024 | 0.017 | <0.001 | <0.001 | <0.001 | <0.001 |
| 7/17/03 | <0.001 | 0.155 | 0.063 | <0.001 | <0.001 | <0.001 | <0.001 |
| 6/19/03 | <0.001 | 0.074 | 0.047 | <0.001 | <0.001 | <0.001 | <0.001 |
| 4/28/03 | <0.001 | 0.182 | 0.099 | <0.001 | 0.005 | 0.003 | <0.001 |
| 5/21/02 | 0.002 | 0.145 | 0.176 | <0.002 | <0.002 | 0.002 | |
| 4/24/02 | <0.002 | 0.0255 | 0.061 | <0.002 | <0.002 | <0.002 | - |
| Well | MW-1 | MW-2 | MW-3 | MW-4 | MW-5 | MW-6 | MW-7 |

Tol

| lei | le | | | | | | | | | | | |
|-----|----------|-----------|-----------|-----------|-----------|----------|-----------|----------|----------|---------|----------|---------------|
| | 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 | 2/18/04 | 6/25/04 | 10/18/04 |
| *** | | | | | | | | | | | | |
| | <0.002 | 0.003 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| - | 0.107 | 0.833 | 0.092 | 0.066 | 0.15 | 0.092 | 0.051 | 0.004 | 0.017 | 0.00652 | 0.00108 | 0.00648 |
| 3 | <0.002 | 0.004 | 0.005 | <0.001 | 0.002 | <0.001 | <0.001 | <0.001 | 0.003 | <0.001 | 0.000158 | <0.001/<0.001 |
| 4 | <0.002 | <0.002 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| 5 | <0.002 | <0.002 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| 5 | <0.002 | <0.002 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| | 1 | | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| 1 | All unit | s in mg/l | . Duplica | te sample | e results | were ave | raged tog | ether | | | 1 | |

·---

-

.

Indicators for estimated (J) values not shown

Table 5 - Summary of Laboratory Data (continued)

.

I

Ethylbenzene

| 10/18/04 | <0.001 | 0.00336 | 0.00703/0.0068 | <0.001 | <0.001 | <0.001 | <0.001 |
|----------|--------|---------|----------------|--------|--------|--------|--------|
| 6/25/04 | <0.001 | 0.0005 | 0.0136 | <0.001 | <0.001 | <0.001 | <0.001 |
| 2/18/04 | <0.001 | 0.00301 | 0.0138 | <0.001 | <0.001 | <0.001 | <0.001 |
| 11/20/03 | <0.001 | 0.005 | 0.017 | <0.001 | <0.001 | <0.001 | <0.001 |
| 10/29/03 | <0.001 | 0.002 | 0.018 | <0.001 | <0.001 | <0.001 | 0.001 |
| 9/22/03 | <0.001 | 0.012 | 0.02 | <0.001 | <0.001 | <0.001 | <0.001 |
| 8/20/03 | <0.001 | 0.012 | 0.006 | <0.001 | <0.001 | <0.001 | <0.001 |
| 7/17/03 | <0.001 | 0.112 | 0.023 | <0.001 | <0.001 | 0.004 | <0.001 |
| 6/19/03 | <0.001 | 0.069 | 0.02 | <0.001 | <0.001 | <0.001 | <0.001 |
| 4/28/03 | <0.001 | 0.121 | 0.03 | <0.001 | <0.001 | 0.002 | <0.001 |
| 5/21/02 | <0.002 | 0.062 | 0.023 | <0.002 | <0.002 | 0.002 | - |
| 4/24/02 | <0.002 | 0.013 | 0.023 | <0.002 | <0.002 | 0.004 | ; |
| Well | MW-1 | MW-2 | MW-3 | MW-4 | MW-5 | MW-6 | MW-7 |

Total Xvle

| I OTAL | Aylenes | | | | | | | | | | | |
|--------|----------|------------|---------|---------|---------|---------|---------|----------|----------|---------|----------|---------------|
| 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 | 2/18/04 | 6/25/04 | 10/18/04 |
| | | | | | | | | | | | | |
| MW-1 | <0.006 | <0.006 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.0514 | <0.001 | <0.001 |
| MW-2 | 0.38 | 1.27 | 0.133 | 0.103 | 0.186 | 0.179 | 0.079 | 0.017 | 0.034 | 0.00067 | 0.00106 | 0.0052 |
| MW-3 | 0.189 | 0.451 | 0.039 | 0.006 | 0.007 | 0.001 | 0.001 | 0.001 | 0.004 | <0.001 | 0.000118 | 0.0015/0.0014 |
| MW-4 | <0.006 | <0.006 | <0.001 | <0.001 | <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 | <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 | <0.001 | <0.001 |
| MW-7 | 1 | - | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.006 | 0.001 | <0.001 | <0.001 | <0.001 |
| Notes: | All unit | ts in mg/l | | | | | | | | | | |

Duplicate sample results were averaged together Indicators for estimated (J) values not shown

. . .

FIGURES















FIELD SAMPLING FORMS

,

AND

LABORATORY ANALYTICAL REPORT

1

L

L

B

| | CLIENT: | Duke Ei | nergy Field Se | ervices | | WELL ID: | MW- 1 | | |
|--|---|-------------------------|---------------------------------|----------------------|------------|------------|--|--|--|
| SI | TE NAME: | X Line | (Etcheverry R | anch) | _ | DATE: | 10/18/2004 | | |
| PRC | JECT NO. | | F-106 | | - | SAMPLER: | J. Fergerson/G. Van Deventer | | |
| PURGING | METHOD: | | ⊡ Hand Bai | led 🗌 Pu | mp If Pu | mp, Type: | | | |
| SAMPLIN | |): | ⊡ Disposab | le Bailer |] Direct 1 | rom Discha | | | |
| DESCRIB | | | NTAMINATI | | OD BEFO | RE SAMPL | LING THE WELL: | | |
| Glove: | s 🔄 Alcono | x ⊡ Distill | ed Water Ri | nse 📋 🤇 | Other: | | | | |
| DISPOSA | | OF PURG | E WATER: | Surface | e Discharç | ge 🗌 Drui | ms 🗹 Disposal Facility | | |
| TOTAL DI DEPTH T HEIGHT (WELL DIA | EPTH OF W O WATER: OF WATER METER: | VELL: COLUMN: 2.0 | 94.30 77.47 16.83 Inch | Feet Feet Feet | | 8.2 | Minimum Gallons to purge 3 well volumes (Water Column Height x 0.49) | | |
| TIME | VOLUME PURGED | TEMP. °C | COND. <i>m</i> S/cm | ρН | DO mg\L | Turb | PHYSICAL APPEARANCE AND REMARKS | | |
| 11:37 | 0 | - | - | | | - | Begin Hand Bailing | | |
| 11:42 | 2 | 19.8 | 0.68 | 7.16 | 6.9 | | ······································ | | |
| 11.42 2 19.8 0.68 7.16 0.8 2 11:47 4 18.8 0.63 7.09 6.9 - 11:55 6 18.6 0.65 7.09 7.0 - | | | | | | | | | |
| 11:47 4 18.8 0.63 7.09 6.9 - 11:55 6 18.6 0.65 7.09 7.0 - 12:02 8 18.8 0.65 7.11 7.0 - | | | | | | | | | |
| 11:55 6 18.6 0.65 7.09 7.0 - 12:02 8 18.8 0.65 7.11 7.0 - | | | | | | | | | |
| 12:02 8 18.8 0.65 7.11 7.0 - | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | / | | |
| | | | | | | | | | |
| | | | | | | | ····· | | |
| | | | | | | | ······································ | | |
| | | | | | | | | | |
| 0:25 | :Total Time | e (hr:min) | 8 | :Total Vol | (gal) | 0.32 | :Flow Rate (gal/min) | | |
| SAMP | LE NO.: | Collected S | ample No.: | 041018 | 1205 | | | | |
| ANAL | YSES: | BTEX (802 | 1-B) | | | | | | |
| COM | IENTS: | | | | | | | | |

C:\DEFS-X LINE\Purge & Sample

ļ

I.

ļ.

İ

Ì

Í

Î

ĺ

Í

| | CLIENT: | Duke E | nergy Field S | ervices | _ | WELL ID: | MW-2 | | | |
|--|--|-------------------------|---------------------------------|----------------------|------------|-----------|---|--|--|--|
| SI | TE NAME: | X Line | (Etcheverry F | lanch) | _ | DATE | 10/18/2004 | | | |
| PRC | JECT NO. | | F-106 | | _ \$ | SAMPLER | J. Fergerson/G. Van Deventer | | | |
| PURGING | G METHOD: | | 🗹 Hand Bai | led 🗌 Pu | ımp If Pui | np, Type: | | | | |
| SAMPLIN | G METHOD |): | 🗸 Disposab | le Bailer [| Direct f | rom Disch | arge Hose 🔲 Other: | | | |
| DESCRIB | | ENT DECO | NTAMINATI | | OD BEFO | RE SAMP | LING THE WELL: | | | |
| Glove | s 🗹 Alcono | x 🗹 Distill | ed Water Ri | nse 🗌 (| Other: | | | | | |
| DISPOSA | | OF PURG | E WATER: | Surface | e Discharç | je 🗌 Dru | ms 🗹 Disposal Facility | | | |
| TOTAL DI DEPTH T HEIGHT (WELL DIA | EPTH OF V O WATER: OF WATER AMETER: | VELL: COLUMN: 2.0 | 89.90 77.46 12.44 Inch | Feet Feet Feet | | 6.1 | _Minimum Gallons to purge 3 well volumes | | | |
| | | TEMD | | | | | (Water Column Height x 0.49) | | | |
| TIME | PURGED | ° C | m S/cm | pН | mg\L | Turb | REMARKS | | | |
| 11:41 | 0 | - | _ | - | _ | - | Begin Hand Bailing | | | |
| 11:43 | 2 | 19.4 | 0.85 | 6.88 | 1.7 | | | | | |
| 11:43 2 19:4 0.65 6.86 1.7 - 11:52 4 19.0 0.76 6.98 2.5 - 12:01 6 18.8 0.75 7.00 3.4 - | | | | | | | | | | |
| 11:52 4 19.0 0.76 6.98 2.5 - 12:01 6 18.8 0.75 7.00 3.4 - 12:00 8 10.0 0.72 7.01 4.0 | | | | | | | | | | |
| 12:01 6 18.8 0.75 7.00 3.4 - 12:09 8 19.0 0.73 7.01 4.0 - | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | · | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| 0:28 | :Total Time | e (hr:min) | 8 | :Total Vol | (gal) | 0.28 | :Flow Rate (gal/min) | | | |
| SAMP | LE NO.: | Collected S | ample No.: | 041018 | 1210 | | | | | |
| ANAL | YSES: | BTEX (802 | 1-В) | | | | | | | |
| COM | | | / | <u></u> | | | | | | |

C:\DEFS-X LINE\Purge & Sample

Î

9

| | CLIENT: | Duke E | nergy Field S | ervices | | WELL ID: | MW-3 | | | |
|--|--|-------------------------|---------------------------------|----------------------|------------|-------------|--|--|--|--|
| S | ITE NAME: | X Line | (Etcheverry F | lanch) | | DATE: | 10/18/2004 | | | |
| PRO | OJECT NO. | | F-106 | | . : | SAMPLER: | J. Fergerson/G. Van Deventer | | | |
| PURGIN | G METHOD | : | ☑ Hand Bai | led 🗌 Pu | mp If Pu | mp, Type: | | | | |
| SAMPLIN | | D: | 🕗 Disposab | le Bailer | Direct | from Discha | rge Hose | | | |
| DESCRIE | BE EQUIPM | ENT DECO | NTAMINATI | ON METH | OD BEFC | RE SAMPL | ING THE WELL: | | | |
| Glove | es 🗹 Alconc | ox 🗹 Distill | ed Water Ri | nse 🗌 C | Other: | | | | | |
| DISPOS | AL METHOE | OF PURG | E WATER: | Surface | e Dischar | ge 🗌 Drun | ns 🗹 Disposal Facility | | | |
| TOTAL D DEPTH T HEIGHT WELL DI | DEPTH OF V TO WATER: OF WATER AMETER: | VELL: COLUMN: 2.0 | 92.80 77.49 15.31 Inch | Feet Feet Feet | | 7.5 | Minimum Gallons to purge 3 well volumes (Water Column Height x 0.49) | | | |
| TIME | VOLUME PURGED | TEMP. ° C | COND. <i>m</i> S/cm | pН | DO mg\L | Turb | PHYSICAL APPEARANCE AND REMARKS | | | |
| 11:00 | 0 | - | - | - | _ | - | Begin Hand Bailing | | | |
| 11:03 2 19.7 0.87 6.90 0.7 - 11:09 4 19.5 0.87 6.92 1.9 - 11:17 6 19.5 0.83 6.92 2.2 - | | | | | | | | | | |
| 11:03 2 19.7 0.87 0.90 0.7 - 11:09 4 19.5 0.87 6.92 1.9 - 11:17 6 19.5 0.83 6.92 2.2 - | | | | | | | | | | |
| 11:09 4 19.5 0.87 6.92 1.9 - 11:17 6 19.5 0.83 6.92 2.2 - 11:23 8 19.1 0.83 6.99 2.3 | | | | | | | | | | |
| 11:17 6 19.5 0.83 6.92 2.2 - 11:23 8 19.1 0.83 6.89 2.3 - | | | | | | | | | | |
| <u>11:23 8 19.1 0.83 6.89 2.3 -</u> | | | | | | | | | | |
| <u></u> | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| 0:23 | :Total Time | e (hr:min) | 8 | :Total Vol | (gal) | 0.35 | :Flow Rate (gal/min) | | | |
| SAMF | PLE NO.: | Collected S | Sample No.: | 041018 | 1120 | | | | | |
| ANA | LYSES: | BTEX (802 | 1-B) | | <u></u> | | | | | |
| COM | MENTS: | Collected E | Duplicate Sa | mple No.: | 04101820 | 00 for BTE | X (8021-B) | | | |

C:\DEFS-X LINE\Purge & Sample

Î

| | CLIENT: | Duke E | nergy Field Se | ervices | | WELL ID: | MW-4 | | |
|--|--|-------------------------|---------------------------------|----------------------|------------|-----------|--|--|--|
| SI | TE NAME: | X Line | (Etcheverry R | anch) | | DATE: | 10/18/2004 | | |
| PRC | JECT NO. | | F-106 | <u></u> | . 9 | SAMPLER: | J. Fergerson/G. Van Deventer | | |
| PURGING | | | Hand Bai | led 🗌 Pu | mp If Pu | mp, Type: | | | |
| SAMPLIN | | | | | | | | | |
| | | | od Motor Di | | | | | | |
| Giove: | s 🗹 Alcond | IX [⊻] DIStill | ed water Ri | nse 🖸 C | Juner | | | | |
| DISPOSA | | OF PURG | E WATER: | Surface | e Dischar | ge 🗌 Drui | ms 🗹 Disposal Facility | | |
| TOTAL DI DEPTH T HEIGHT (WELL DIA | EPTH OF V O WATER: DF WATER AMETER: | VELL: COLUMN: 2.0 | 93.40 77.60 15.80 Inch | Feet Feet Feet | | 7.7 | Minimum Gallons to purge 3 well volumes (Water Column Height x 0.49) | | |
| TIME | VOLUME PURGED | TEMP. ° C | COND. mS/cm | pН | DO mg\L | Turb | PHYSICAL APPEARANCE AND REMARKS | | |
| 13:10 | 0 | _ | - | - | - | - | Begin Hand Bailing | | |
| 13:16 | 2 | 19.4 | 0.67 | 7.25 | 6.2 | - | | | |
| 13:25 | 4 | 19.2 | 0.66 | 7.14 | 6.2 | - | | | |
| 13:25 4 19.2 0.66 7.14 6.2 - 13:34 6 19.3 0.65 7.13 6.1 - 13:43 8 19.4 0.66 7.16 6.3 - | | | | | | | | | |
| 13:34 6 19.3 0.65 7.13 6.1 - 13:43 8 19.4 0.66 7.16 6.3 - | | | | | | | | | |
| 13:43 8 19.4 0.66 7.16 6.3 - | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | - | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | L | | | | | | | | |
| 0:33 | :Total Time | e (hr:min) | 8 | :Total Vol | (gal) | 0.24 | :Flow Rate (gal/min) | | |
| SAMP | LE NO.: | Collected S | Sample No.: | 041018 | 1400 | | | | |
| ANAL | YSES: | BTEX (802 | 1-B) | | | | | | |
| COM | MENTS: | Collected N | IS/MSD Sar | nple | | | | | |

C:\DEFS-X LINE\Purge & Sample

1

Ì

| | CLIENT: | Duke E | uke Energy Field Services | | | WELL ID: | MW-5 |
|--|---|-------------------------|---------------------------------|----------------------------------|---|-------------------------|------------------------------------|
| SI | TE NAME: | X Line | (Etcheverry F | anch) | | DATE | 10/18/2004 |
| PRO | JECT NO. | | F-106 | | . : | SAMPLER | J. Fergerson/G. Van Deventer |
| PURGING | METHOD: G METHOE |): | ☑ Hand Bai ☑ Disposab | led Pu le Bailer [| mp If Pui | mp, Type: from Disch | arge Hose |
| DESCRIB | E EQUIPMI | ENT DECO | NTAMINATI | ON METH | OD BEFO | RE SAMP | LING THE WELL: |
| Gloves | s 🗹 Alcono | x 🗹 Distill | ed Water Ri | nse 🗌 C | Other: | | |
| DISPOSA | L METHOD | OF PURG | E WATER: | Surface | e Discharç | ge 🗌 Dru | ms 🖸 Disposal Facility |
| TOTAL DI DEPTH TO HEIGHT (WELL DIA | EPTH OF W O WATER: DF WATER METER: | VELL: COLUMN: 2.0 | 91.10 77.27 13.83 Inch | Feet Feet Feet | _Minimum Gallons to purge 3 well volumes (Water Column Height x 0.49) | | |
| TIME | VOLUME PURGED | TEMP. ° C | COND. mS/cm | pН | DO mg\L | Turb | PHYSICAL APPEARANCE AND REMARKS |
| 13:15 | 0 | - | - | - | | - | Begin Hand Bailing |
| 13:18 | 2 ` | 18.9 | 0.69 | 7.13 | 4.8 | | |
| 13:25 | 4 | 19.1 | 0.66 | 7.12 | 5.3 | - | |
| 13:36 | 6 | 19.1 | 0.66 | 7.16 | 6.3 | | |
| 13:44 | 8 | 19.0 | 0.68 | 7.08 | 6.3 | - | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | · | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | ······ | |
| | | | | | | | |
| | | | | | | | |
| 0:29 | :Total Time | e (hr:min) | 8 | :Total Vol | (gal) | 0.27 | :Flow Rate (gal/min) |
| SAMP | LE NO.: | Collected S | ample No.: | 041018 | 1355 | | |
| ANAL | YSES: | BTEX (802 | 1-B) | | | | |
| COMN | IENTS: | | | | | · · · · · | |

C:\DEFS-X LINE\Purge & Sample

l

I

ľ

Ĵ

| SITE NAME: X Line (Etchevery Ranch) DATE: 10/18/2004 PROJECT NO. F-106 SAMPLER: J. Fergerson/G. Van Deventer PURGING METHOD: Ølsposable Bailed Pump If Pump, Type: | | CLIENT: | Duke E | nergy Field Se | ervices | | WELL ID: | MW-6 |
|---|---|--|-------------------------|---------------------------------|----------------------|------------|------------|---|
| PROJECT NO. F-106 SAMPLER: J. Fergerson/G. Van Deventer PURGING METHOD: Imade Bailed Pump If Pump, Type: | SI | | X Line | (Etcheverry R | anch) | | DATE: | 10/18/2004 |
| PURGING METHOD: | PRC | JECT NO. | | F-106 | | | SAMPLER: | J. Fergerson/G. Van Deventer |
| SAMPLING METHOD: Disposable Bailer Disposable Bailer Disposable Bailer Disposable SAMPLING THE WELL: Gloves Alconox Dispilled Water Rinse Other: Disposal METHOD OF PURGE WATER: Surface Discharge Drums Disposal Facility TOTAL DEPTH OF WELL: 92.90 Feet 77.18 Feet T.7 Minimum Gallons to purge 3 well volumes Disposal Facility TOTAL DEPTH OF WELL: 92.90 Feet 7.7 Minimum Gallons to purge 3 well volumes Welt Column 15.72 Feet 7.7 Minimum Gallons to purge 3 well volumes Water Column Height X 0.49) Turb PH SIGAL APPEARANCE AND REMARKS 12:26 0 - - - Begin Hand Bailing 12:30 19.7 0.72 7.17 4.2 - Begin Hand Bailing 12:39 4 19.3 0.72 7.13 4.3 - <li< td=""><td>PURGING</td><td>G METHOD:</td><td></td><td>✓ Hand Bai</td><td>led 🗌 Pu</td><td>mp If Pur</td><td>np, Type:</td><td></td></li<> | PURGING | G METHOD: | | ✓ Hand Bai | led 🗌 Pu | mp If Pur | np, Type: | |
| DESCRIBE EQUIPMENT DECONTAMINATION METHOD BEFORE SAMPLING THE WELL: Gloves I Alconox Distilled Water Rinse Other: DISPOSAL METHOD OF PURGE WATER: Surface Discharge Drums Disposal Facility TOTAL DEPTH OF WELL: 92.90 Feet 77.18 Feet 7.7 Minimum Gallons to DEPTH TO WATER: 2.0 Inch 7.7 Minimum Gallons to VELL DIAMETER: 2.0 Inch 7.7 Minimum Gallons to VELL DIAMETER: 2.0 Inch Water Column Height x0.49) TIME VOLUME TEMP. COND. pH mglL Turb PHYSICAL APPEARANCE AND 12:26 0 - - - - Begin Hand Bailing 12:30 2 19.7 0.72 7.17 4.2 - 12:39 4 19.3 0.72 7.13 4.3 - 12:46 6 19.0 0.71 7.12 4.4 - 12:55 8 18.9 0.71 7.09 4.5 - 12:55 18 19.0 19.0 19.0 19.0 <td>SAMPLIN</td> <td>G METHOD</td> <td>):</td> <td>🗹 Disposab</td> <td>le Bailer [</td> <td>Direct f</td> <td>rom Discha</td> <td>arge Hose</td> | SAMPLIN | G METHOD |): | 🗹 Disposab | le Bailer [| Direct f | rom Discha | arge Hose |
| ☑ Gloves ☑ Alconox ☑ Distilled Water Rinse □ Other: DISPOSAL METHOD OF PURGE WATER: □ Surface Discharge □ Drums ☑ Disposal Facility TOTAL DEPTH OF WELL: 92.80 Feet DEPTH TO WATER: 15.72 Feet PURGED VGLUMN: 15.72 Feet 1100 TemP. COND. mg\L TIME VOLUME PURGED °C mS/cm pH mg\L Turb PHYSICAL APPEARANCE AND REMARKS 12:26 0 0 - 12:30 2 19.7 0.72 7.13 4.3 12:39 4 19.3 0.72 7.13 4.3 12:46 6 19.0 0.71 7.12 4.4 12:55 8 18.9 0.71 7.09 4.5 10.1 10.1 10.1 10.1 10.1 10.1 12:55 8 18.9 0.71 19.1 | DESCRIB | | ENT DECO | NTAMINATI | ON METH | OD BEFO | RE SAMPI | LING THE WELL: |
| DISPOSAL METHOD OF PURGE WATER: Surface Discharge Drums Disposal Facility TOTAL DEPTH OF WELL: 92.90 Feet 77.18 Feet DEPTH TO WATER 15.72 Feet 7.7 Minimum Galions to purge 3 well volumes (Water Column Heights 0.49) TIME VOLUME TEMP. COND. pH DO PHYSICAL APPEARANCE AND REMARKS 12:26 0 - - - - Begin Hand Bailing 12:26 0 - - - - Begin Hand Bailing 12:26 0 - - - Begin Hand Bailing 12:30 2 19.7 0.72 7.17 4.2 - 12:39 4 19.3 0.72 7.13 4.3 - 12:46 6 19.0 0.71 7.12 4.4 - 12:55 8 18.9 0.71 7.09 4.5 - - 12:55 8 18.9 0.71 7.09 4.5 - - 12:55 10.1 10.1 10.1 10.1 <td>Glove:</td> <td>s 🗹 Alcono</td> <td>x 🗹 Distill</td> <td>ed Water Ri</td> <td>nse 🗌 C</td> <td>Other:</td> <td></td> <td></td> | Glove: | s 🗹 Alcono | x 🗹 Distill | ed Water Ri | nse 🗌 C | Other: | | |
| TOTAL DEPTH OF WELL: 92.90 Feet 77.18 Feet 77.18 Feet DEPTH TO WATER COLUMN: 15.72 Feet TIME VOLUME TEMP. COND. pH mg\L Turb PHYSICAL APPEARANCE AND TIME VOLUME TEMP. COND. pH mg\L Turb PHYSICAL APPEARANCE AND 12:26 0 - - - Begin Hand Bailing 12:26 0 - - - Begin Hand Bailing 12:30 2 19.7 0.72 7.17 4.2 - 12:39 4 19.3 0.72 7.13 4.3 - 12:46 6 19.0 0.71 7.12 4.4 - 12:55 8 18.9 0.71 7.09 4.5 - | DISPOSA | L METHOD | OF PURG | E WATER: | Surface | e Discharg | je 🗌 Drui | ms 🗹 Disposal Facility |
| TIME VOLUME TEMP. COND. pH DO Turb PHYSICAL APPEARANCE AND REMARKS 12:26 0 - - - - Begin Hand Bailing 12:30 2 19.7 0.72 7.17 4.2 - - 12:39 4 19.3 0.72 7.13 4.3 - - 12:46 6 19.0 0.71 7.12 4.4 - - 12:55 8 18.9 0.71 7.09 4.5 - - 12:55 8 18.9 0.71 7.09 4.5 - - 12:55 8 18.9 0.71 7.09 4.5 - - 12:55 8 18.9 0.71 7.09 4.5 - - 12:55 8 18.9 0.71 7.09 1.5 - - 12:0 1 1 1 1 1 1 1 <td>TOTAL DI DEPTH T HEIGHT (WELL DIA</td> <td>EPTH OF W O WATER: OF WATER AMETER:</td> <td>VELL: COLUMN: 2.0</td> <td>92.90 77.18 15.72 Inch</td> <td>Feet Feet Feet</td> <td></td> <td>7.7</td> <td>_Minimum Gallons to purge 3 well volumes (Water Column Height x 0.49)</td> | TOTAL DI DEPTH T HEIGHT (WELL DIA | EPTH OF W O WATER: OF WATER AMETER: | VELL: COLUMN: 2.0 | 92.90 77.18 15.72 Inch | Feet Feet Feet | | 7.7 | _Minimum Gallons to purge 3 well volumes (Water Column Height x 0.49) |
| 12:26 0 - - - - Begin Hand Bailing 12:30 2 19.7 0.72 7.17 4.2 - - 12:39 4 19.3 0.72 7.13 4.3 - - 12:36 6 19.0 0.71 7.12 4.4 - - 12:46 6 19.0 0.71 7.09 4.5 - - 12:55 8 18.9 0.71 7.09 4.5 - - 12:55 8 18.9 0.71 7.09 4.5 - - 12:55 8 18.9 0.71 7.09 4.5 - - 12:55 8 18.9 0.71 7.09 4.5 - - 12:55 8 18.9 0.71 7.09 4.5 - - - 12:55 8 18.9 0.71 1.09 1.5 - - - 12:55 8 1.2 1.2 1.2 1.2 - | TIME | VOLUME PURGED | TEMP. _° C | COND. mS/cm | pН | DO mg\L | Turb | PHYSICAL APPEARANCE AND REMARKS |
| 12:30 2 19.7 0.72 7.17 4.2 - 12:39 4 19.3 0.72 7.13 4.3 - 12:46 6 19.0 0.71 7.12 4.4 - 12:55 8 18.9 0.71 7.09 4.5 - 12:55 8 18.9 0.71 7.09 4.5 - 12:55 8 18.9 0.71 7.09 4.5 - 12:55 8 18.9 0.71 7.09 4.5 - 12:55 8 18.9 0.71 7.09 4.5 - 12:55 8 18.9 0.71 7.09 4.5 - 12:55 8 18.9 0.71 7.09 4.5 - 12:55 8 18.9 0.71 7.09 4.5 - - 12:55 13:0 1 1 1 1 1 1 14:0 1 1 1 1 1 1 1 | 12:26 | 0 | - | - | | - | | Begin Hand Bailing |
| 12:39 4 19.3 0.72 7.13 4.3 - 12:46 6 19.0 0.71 7.12 4.4 - 12:55 8 18.9 0.71 7.09 4.5 - 12:55 8 18.9 0.71 7.09 4.5 - 12:55 8 18.9 0.71 7.09 4.5 - 12:57 8 18.9 0.71 7.09 4.5 - 12:57 8 18.9 0.71 7.09 4.5 - 12:57 8 18.9 0.71 7.09 4.5 - 12:57 8 18.9 0.71 7.09 4.5 - 12:57 1 1 1 1 1 1 12:57 1 1 1 1 1 1 13:50 1 1 1 1 1 1 14:1 1 1 1 1 1 1 14:1 1 1 1 | 12:30 | 2 | 19.7 | 0.72 | 7.17 | 4.2 | | |
| 12:46 6 19.0 0.71 7.12 4.4 - 12:55 8 18.9 0.71 7.09 4.5 - 12:55 8 18.9 0.71 7.09 4.5 - 12:55 8 18.9 0.71 7.09 4.5 - 12:55 8 18.9 0.71 7.09 4.5 - 12:55 8 18.9 0.71 7.09 4.5 - 12:55 8 18.9 0.71 7.09 4.5 - 12:55 8 1 1 1 1 1 12:55 1 1 1 1 1 1 12:55 1 1 1 1 1 1 13:5 1 1 1 1 1 1 14:5 1 1 1 1 1 1 15:5 1:01 1 1 1 1 1 16:29 :Total Time (hr:min) 8 :Total Vol (gal) </td <td>12:39</td> <td>4</td> <td>19.3</td> <td>0.72</td> <td>7.13</td> <td>4.3</td> <td></td> <td></td> | 12:39 | 4 | 19.3 | 0.72 | 7.13 | 4.3 | | |
| 12:55 8 18.9 0.71 7.09 4.5 - Image: | 12:46 | 6 | 19.0 | 0.71 | 7.12 | 4.4 | - | |
| Image: Second system Image: Second system <td< td=""><td>12:55</td><td>8</td><td>18.9</td><td>0.71</td><td>7.09</td><td>4.5</td><td></td><td></td></td<> | 12:55 | 8 | 18.9 | 0.71 | 7.09 | 4.5 | | |
| Image: Solution of the second seco | | | | | | | | |
| Image: Solution of the second seco | | | | | | | | |
| Image: Solution of the second seco | | | | | | | | |
| Image: Solution of the second seco | | | | | | | | ····· |
| 0:29 :Total Time (hr:min) 8 :Total Vol (gal) 0.27 :Flow Rate (gal/min) SAMPLE NO.: Collected Sample No.: 041018 1300 | | | | | | | | |
| 0:29 :Total Time (hr:min) 8 :Total Vol (gal) 0.27 :Flow Rate (gal/min) SAMPLE NO.: Collected Sample No.: 041018 1300 | | | | | | | | |
| 0:29 :Total Time (hr:min) 8 :Total Vol (gal) 0.27 :Flow Rate (gal/min) SAMPLE NO.: Collected Sample No.: 041018 1300 | | | | | | | | |
| 0:29 :Total Time (hr:min) 8 :Total Vol (gal) 0.27 :Flow Rate (gal/min) SAMPLE NO.: Collected Sample No.: 041018 1300 | | | | | | | | |
| 0:29 :Total Time (hr:min) 8 :Total Vol (gal) 0.27 :Flow Rate (gal/min) SAMPLE NO.: Collected Sample No.: 041018 1300 | | | | | | | | l |
| SAMPLE NO.: Collected Sample No.: 041018 1300 ANALYSES: BTEX (8021-B) | 0:29 | :Total Time | e (hr:min) | 8 | :Total Vol | (gal) | 0.27 | :Flow Rate (gal/min) |
| ANALYSES: BTEX (8021-B) | SAMP | LE NO.: | Collected S | Sample No.: | 041018 | 1300 | | ······································ |
| | ANAL | YSES: | BTEX (802 | 1-B) | | | | |
| COMMENTS: | COM | MENTS: | | | | | | |

C:\DEFS-X LINE\Purge & Sample

| | CLIENT: | Duke E | nergy Field Se | ervices | - | MW-7 | |
|---|--|------------------------------------|---|---|------------------------|---------------------------------------|---------------------------------------|
| SI | | X Line | (Etcheverry R | anch) | - | DATE: | 10/18/2004 |
| PRC | JECT NO. | | F-106 | · | _ : | SAMPLER: | J. Fergerson/G. Van Deventer |
| PURGINO SAMPLIN DESCRIB | G METHOD: IG METHOE IE EQUIPM |): ENT DECO | ☑ Hand Bai ☑ Disposab NTAMINATI | led Pu le Bailer [ON METH | Imp If Pui Direct 1 | mp, Type: from Discha PRE SAMPI | arge Hose |
| ✓ Glove | s 🗹 Alcono | x 🗹 Distill | ed Water Ri | nse 🗌 (| Other: | | |
| DISPOSA TOTAL D DEPTH T HEIGHT (WELL DIA | L METHOD EPTH OF V O WATER: OF WATER AMETER: | OF PURG VELL: COLUMN: 2.0 | E WATER: 92.80 76.75 16.05 Inch | ☐ Surface Feet Feet Feet | e Discharg | ge 🗌 Drui | ms |
| | | | | | | | (Water Column Height x 0.49) |
| TIME | PURGED | °C | m S/cm | pН | mg\L | Turb | REMARKS |
| 12:24 | 0 | | | <u>-</u> . | - | - | Begin Hand Bailing |
| 12:29 | 2 | 19.6 | 0.64 | 7.37 | 6.1 | | |
| 12:34 | 4 | 18.7 | 0.61 | 7.27 | 6.1 | | |
| 12:42 | 6 | 18.4 | 0.62 | 7.22 | 6.2 | | |
| 12:50 | 8 | 18.3 | 0.61 | 7.26 | 6.1 | - | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | · · · · · · · · · · · · · · · · · · · |
| | | | | | | <u> </u> | |
| | | | | | | | |
| | | | | | | | <u> </u> |
| | } | | | | | | |
| 0:26 | :Total Time | e (hr:min) | 8 | :Total Vol | (gal) | 0.31 | :Flow Rate (gal/min) |
| SAMP | LE NO.: | Collected S | ample No.: | 041018 | 1255 | | |
| ANAL | YSES: | BTEX (802 | 1-B) | | | | , |
| COM | MENTS: | | | | | | |
| | | | | | <u> </u> | | |

C:\DEFS-X LINE\Purge & Sample

ł

ļ



Analytical Report

Prepared for: Michael Stewart REMEDIACON P.O. Box 302 Evergreen, CO 80437

Project: Duke Energy Field Services Project Number: None Given Location: X Line (Etcheverry Ranch)

Lab Order Number: 4J19003

Report Date: 10/22/04

| REMEDIACON | Project: Duke Energy Field Services | Fax: 720-528-8132 |
|---------------------|-------------------------------------|-------------------|
| P.O. Box 302 | Project Number: None Given | Reported: |
| Evergreen CO, 80437 | Project Manager: Michael Stewart | 10/22/04 17:23 |

ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled | Date Received |
|------------------------|---------------|--------|----------------|----------------|
| MW-3 (0410181120) | 4J19003-01 | Water | 10/18/04 11:20 | 10/19/04 10:20 |
| MW-1 (0410181205) | 4J19003-02 | Water | 10/18/04 12:05 | 10/19/04 10:20 |
| MW-2 (0410181210) | 4J19003-03 | Water | 10/18/04 12:10 | 10/19/04 10:20 |
| MW-7 (0410181255) | 4J19003-04 | Water | 10/18/04 12:55 | 10/19/04 10:20 |
| MW-6 (0410181300) | 4J19003-05 | Water | 10/18/04 13:00 | 10/19/04 10:20 |
| MW-5 (0410181355) | 4J19003-06 | Water | 10/18/04 13:55 | 10/19/04 10:20 |
| MW-4 (0410181400) | 4J19003-07 | Water | 10/18/04 14:00 | 10/19/04 10:20 |
| MW-4 (MS/MSD) | 4J19003-08 | Water | 10/18/04 14:00 | 10/19/04 10:20 |
| Duplicate (0410182000) | 4J19003-09 | Water | 10/18/04 20:00 | 10/19/04 10:20 |
| Trip Blank | 4J19003-10 | Water | 10/18/04 00:00 | 10/19/04 10:20 |

| REMEDIACON | ield Service | s | | Fax: 720-52 | 28-8132 | | | | |
|-----------------------------------|--------------|--------------------|------------|-------------|---------|----------|----------|-----------|-------|
| P.O. Box 302 | | Project Nu | Reported: | | | | | | |
| Evergreen CO, 80437 | | Project Ma | nager: Mic | hael Stewa | rt | | | 10/22/04 | 17:23 |
| | | Or | ganics by | y GC | | | | | |
| | | Environm | nental La | ab of Te | exas | | | | |
| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Note |
| WW-3 (0410181120) (4J19003-01) W | ater | | | | | | | | |
| Benzene | 0.00576 | 0.00100 | mg/L | 1 | EJ42206 | 10/21/04 | 10/22/04 | EPA 8021B | |
| Foluene | ND | 0.00100 | " | " | " | | " | ** | |
| Ethylbenzene | 0.00703 | 0.00100 | | " | " | " | " | ** | |
| Kylene (p/m) | 0.00135 | 0.00100 | | " | " | | " | | |
| Kylene (0) | J [0.000168] | 0.00100 | | " | | н | " | 11 | |
| Surrogate: a,a,a-Trifluorotoluene | | 128 % | 80-1 | 20 | " | " | " | " | S- |
| Surrogate: 4-Bromofluorobenzene | | 102 % | \$ 80-120 | | " | " | " | " | |
| MW-1 (0410181205) (4J19003-02) W | ater | | | | | | | | |
| Benzene | ND | 0.00100 | mg/L | 1 | EJ42206 | 10/21/04 | 10/22/04 | EPA 8021B | |
| Foluene | ND | 0.00100 | • | | n | " | " | " | |
| Ethylbenzene | ND | 0.00100 | | | | * | " | " | |
| Xylene (p/m) | ND | 0.00100 | | " | " | H | " | " | |
| Xylene (o) | ND | 0.00100 | | " | | | " | " | |
| Surrogate: a,a,a-Trifluorotoluene | | 116 % | 80-1 | 20 | " | " | " | " | |
| Surrogate: 4-Bromofluorobenzene | | 90.5 % | 80-1 | 20 | " | 11 | " | n | |
| MW-2 (0410181210) (4J19003-03) W | /ater | | | | | | | | |
| Benzene | 0.0103 | 0.00100 | mg/L | 1 | EJ42206 | 10/21/04 | 10/22/04 | EPA 8021B | |
| Toluene | 0.00648 | 0.00100 | " | | " | | " | | |
| Ethylbenzene | 0.00336 | 0.00100 | " | | H | * | • | " | |
| Xylene (p/m) | 0.00268 | 0.00100 | | * | " | | | " | |
| Xylene (0) | 0.00250 | 0.00100 | " | " | | 11 | " | | |
| Surrogate: a,a,a-Trifluorotoluene | | 124 % | 80-1 | 20 | " | " | " | " | S- |
| Surrogate: 4-Bromofluorobenzene | | 111 % | 80-1 | 20 | " | " | n | " | |
| MW-7 (0410181255) (4J19003-04) W | /ater | | | | | | | | |
| Benzene | ND | 0.00100 | mg/L | 1 | EJ42206 | 10/21/04 | 10/22/04 | EPA 8021B | |
| Toluene | ND | 0.00100 | " | " | " | n | " | | |
| Ethylbenzene | ND | 0.00100 | | " | | " | | ** | |
| Xylene (p/m) | ND | 0.00100 | " | * | | " | | " | |
| Xylene (o) | ND | 0.00100 | | | | " | | " | |
| Surrogate: a,a,a-Trifluorotoluene | | 116% | 80-1 | 20 | " | " | " | " | |
| | | 08.0.00 | 00 1 | 20 | " | " | " | | |

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.

Ŀ

ł

| REMEDIACON | roject: Dul | e Energy I | Fax: 720-528-8132 | | | | | | |
|--------------------------------------|-------------|--------------------|-------------------|------------|---------|----------|----------|-----------|-------|
| P.O. Box 302 | Project Nu | Reported: | | | | | | | |
| Evergreen CO, 80437 | | Project Ma | nager: Mic | hael Stewa | rt | | | 10/22/04 | 17:23 |
| | | Or | ganics b | y GC | | | | | |
| | | Environn | nental L | ab of Te | exas | | | | |
| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Note |
| MW-6 (0410181300) (4J19003-05) Water | | | | | | | | | |
| Benzene | ND | 0.00100 | mg/L | 1 | EJ42206 | 10/21/04 | 10/22/04 | EPA 8021B | |
| Toluene | ND | 0.00100 | " | " | " | | n | " | |
| Ethylbenzene | ND | 0.00100 | * | " | | " | " | | |
| Xylene (p/m) | ND | 0.00100 | " | | " | | " | | |
| Xylene (0) | ND | 0.00100 | " | " | " | n | " | " | |
| Surrogate: a,a,a-Trifluorotoluene | | 114 % | 80-1 | 20 | " | " | " | " | |
| Surrogate: 4-Bromofluorobenzene | | 98.0 % | 80-1 | 20 | " | " | " | " | |
| MW-5 (0410181355) (4J19003-06) Water | | | | | | | | | |
| Benzene | ND | 0.00100 | mg/L | 1 | EJ42206 | 10/21/04 | 10/22/04 | EPA 8021B | |
| Foluene | ND | 0.00100 | • | * | " | | " | " | |
| Ethylbenzene | ND | 0.00100 | | " | " | " | | | |
| Xylene (p/m) | ND | 0.00100 | | | " | 11 | ** | 11 | |
| Xylene (o) | ND | 0.00100 | ** | | " | ** | " | ** | |
| Surrogate: a,a,a-Trifluorotoluene | | 120 % | 80-1 | 20 | " | " | " | " | |
| Surrogate: 4-Bromofluorobenzene | | 93.0 % | 80-1 | 20 | " | " | " | " | |
| MW-4 (0410181400) (4J19003-07) Water | | | | | | | | | |
| Benzene | ND | 0.00100 | mg/L | 1 | EJ42206 | 10/21/04 | 10/22/04 | EPA 8021B | |
| Toluene | ND | 0.00100 | " | * | " | " | " | " | |
| Ethylbenzene | ND | 0.00100 | " | | | " | " | " | |
| Xylene (p/m) . | ND | 0.00100 | " | | " | " | " | " | |
| Xylene (0) | ND | 0.00100 | n | " | " | " | " | " | |
| Surrogate: a,a,a-Trifluorotoluene | | 116 % | 80-1 | 20 | " | " | " | " | |
| Surrogate: 4-Bromofluorobenzene | | 86.5 % | 80-1 | 20 | " | " | " | " | |
| MW-4 (MS/MSD) (4J19003-08) Water | | | | | | | | | |
| Benzene | ND | 0.00100 | mg/L | 1 | EJ42206 | 10/21/04 | 10/22/04 | EPA 8021B | |
| Toluene | ND | 0.00100 | " | " | | " | " | " | |
| Ethylbenzene | ND | 0.00100 | " | * | " | " | " | " | |
| Xylene (p/m) | ND | 0.00100 | * | " | " | " | " | 19 | |
| Xylene (0) | ND | 0.00100 | ** | | " | " | " | " | |
| Surrogate: a,a,a-Trifluorotoluene | | 116% | 80-1 | 20 | " | " | " | " | |
| Surrogate: 4-Bromofluorobenzene | | 94.0 % | 80-1 | 20 | " | " | " | " | |

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.

Page 3 of 7

ł

| Organics by GC | | | | | | | | | |
|---------------------|------------------|----------------------------|-------------------|--|--|--|--|--|--|
| Evergreen CO, 80437 | Project Manager: | Michael Stewart | 10/22/04 17:23 | | | | | | |
| P.O. Box 302 | Project Number: | None Given | Reported: | | | | | | |
| REMEDIACON | Project: | Duke Energy Field Services | Fax: 720-528-8132 | | | | | | |

| Environmental Lab of Texas | |
|----------------------------|--|
|----------------------------|--|

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------------------|-----------------|--------------------|--------|----------|---------|----------|----------|-----------|-------|
| Duplicate (0410182000) (4J19003-09 |) Water | | | | | | | | |
| Benzene | 0.00591 | 0.00100 | mg/L | 1 | EJ42206 | 10/21/04 | 10/22/04 | EPA 8021B | |
| Toluene | ND | 0.00100 | " | | • | " | " | ** | |
| Ethylbenzene | 0.00680 | 0.00100 | " | " | " | " | " | | |
| Xylene (p/m) | 0.00129 | 0.00100 | n | | " | " | | " | |
| Xylene (0) | J [0.000122] | 0.00100 | " | " | " | n | " | | 1 |
| Surrogate: a,a,a-Trifluorotoluene | | 122 % | 80-12 | 20 | " | " | " | " | S-04 |
| Surrogate: 4-Bromofluorobenzene | | 104 % | 80-120 | | " | " | " | ** | |
| Trip Blank (4J19003-10) Water | | | | | | | _ | | |
| Benzene | ND | 0.00100 | mg/L | 1 | EJ42206 | 10/21/04 | 10/22/04 | EPA 8021B | |
| Toluene | ND | 0.00100 | " | | • | " | " | | |
| Ethylbenzene | ND | 0.00100 | " | | " | " | | | |
| Xylene (p/m) | ND | 0.00100 | " | | n | " | " | ** | |
| Xylene (o) | ND | 0.00100 | | " | | " | " | H | |
| Surrogate: a,a,a-Trifluorotoluene | ··· <u>····</u> | 115 % | 80-12 | 20 | " | " | " | " | |
| Surrogate: 4-Bromofluorobenzene | | 90.5 % | 80-12 | 20 | 11 | " | " | " | |

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.

Page 4 of 7

| REMEDIACON | Project: Duke Energy Field Services | | | | | | | | | Fax: 720-528-8132 | | |
|-----------------------------------|-------------------------------------|--------------------|---------|----------------|------------------|-------------|----------------|------|----------------|-------------------|--|--|
| P.O. Box 302 | Project Number: None Given | | | | | | | | | Reported: | | |
| Evergreen CO, 80437 | Project Manager: Michael Stewart | | | | | | | | 10/22/04 17:23 | | | |
| | 0 | rganics by | GC - Q | uality Co | ontrol | | | | | | | |
| | | Environm | ental L | ab of Te | xas | | | | | | | |
| Analyte | Result | Reporting Límit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes | | |
| Batch EJ42206 - EPA 5030C (GC) | <u></u> | | | | | | | | | | | |
| Blank (EJ42206-BLK1) | Prepared & Analyzed: 10/21/04 | | | | | | | | | | | |
| Benzene | ND | 0.00100 | mg/L | | | | | | | | | |
| Toluene | ND | 0.00100 | • | | | | | | | | | |
| Ethylbenzene | ND | 0.00100 | | | | | | | | | | |
| Xylene (p/m) | ND | 0.00100 | " | | | | | | | | | |
| Xylene (0) | ND | 0.00100 | | | | | | | | | | |
| Surrogate: a,a,a-Trifluorotoluene | 23.8 | | ug/l | 20.0 | | 119 | 80-120 | | | | | |
| Surrogate: 4-Bromofluorobenzene | 17.6 | | " | 20.0 | | 88.0 | 80-120 | | | | | |
| LCS (EJ42206-BS1) | Prepared & Analyzed: 10/21/04 | | | | | | | | | | | |
| Benzene | 82.9 | | ug/l | 100 | | 82.9 | 80-120 | | | | | |
| Toluene | 93.3 | | " | 100 | | 93.3 | 80-120 | | | | | |
| Ethylbenzene | 92.3 | | | 100 | | 92.3 | 80-120 | | | | | |
| Xylene (p/m) | 200 | | " | 200 | | 100 | 80-120 | | | | | |
| Xylene (0) | 98.3 | | " | 100 | | 98.3 | 80-120 | | | | | |
| Surrogate: a,a,a-Trifluorotoluene | 20.9 | | " | 20.0 | | 104 | 80-120 | · | | | | |
| Surrogate: 4-Bromofluorobenzene | 19.0 | | " | 20.0 | | 95.0 | 80-120 | | | | | |
| LCS Dup (EJ42206-BSD1) | | | | Prepared & | Analyzed: | 10/21/04 | | | | | | |
| Benzene | 95.5 | | ug/l | 100 | | 95.5 | 80-120 | 14.1 | 20 | | | |
| Toluene | 111 | | | 100 | | 111 | 80-120 | 17.3 | 20 | | | |
| Ethylbenzene | 109 | | " | 100 | | 109 | 80-120 | 16.6 | 20 | | | |
| Xylene (p/m) | 233 | | n | 200 | | 116 | 80-120 | 14.8 | 20 | | | |
| Xylene (o) | 110 | | | 100 | | 110 | 80-120 | 11.2 | 20 | | | |
| Surrogate: a,a,a-Trifluorotoluene | 23.9 | | ,, | 20.0 | ** | 120 | 80-120 | | | | | |
| Surrogate: 4-Bromofluorobenzene | 21.6 | | " | 20.0 | | 108 | 80-120 | | | | | |
| Calibration Check (EJ42206-CCV1) | | | | Prepared: | 10/21/04 A | nalyzed: 10 |)/22/04 | | | | | |
| Benzene | 87.4 | | ug/l | 100 | | 87.4 | 80-120 | | | | | |
| Toluene | 96.7 | | ۳ | 100 | | 96.7 | 80-120 | | | | | |
| Ethylbenzene | 98.6 | | " | 100 | | 98.6 | 80-120 | | | | | |
| Xylene (p/m) | 204 | | | 200 | | 102 | 80-120 | | | | | |
| Xylene (o) | 101 | | " | 100 | | 101 | 80-120 | | | | | |
| Surrogate: a,a,a-Trifluorotoluene | 22.6 | | " | 20.0 | | 113 | 80-120 | | | | | |
| Surrogate: 4-Bromofluorobenzene | 19.0 | | " | 20.0 | | 95.0 | 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.

| REMEDIACON | Project: Duke Energy Field Services | Fax: 720-528-8132 |
|---------------------|-------------------------------------|-------------------|
| P.O. Box 302 | Project Number: None Given | Reported: |
| Evergreen CO, 80437 | Project Manager: Michael Stewart | 10/22/04 17:23 |

Organics by GC - Quality Control

Environmental Lab of Texas

| | | Reporting | | Spike | Source | | %REC | | RPD | |
|---------|--------|-----------|-------|-------|--------|------|--------|-----|-------|-------|
| Analyte | Result | Limit | Units | Level | Result | %REC | Limits | RPD | Limit | Notes |

Batch EJ42206 - EPA 5030C (GC)

| Matrix Spike (EJ42206-MS1) | Source: 4. | 19003-08 | Prepared: 1 | 10/21/04 A | nalyzed: 1 | 0/22/04 | | | |
|-----------------------------------|------------|---------------------------------------|-------------|------------|------------|---------|-------|----|--|
| Benzene | 87.1 | ug/l | 100 | ND | 87.1 | 80-120 | | | |
| Toluene | 100 | " | 100 | ND | 100 | 80-120 | | | |
| Ethylbenzene | 93.8 | " | 100 | ND | 93.8 | 80-120 | | | |
| Xylene (p/m) | 208 | " | 200 | ND | 104 | 80-120 | | | |
| Xylene (0) | 97.0 | " | 100 | ND | 97.0 | 80-120 | | | |
| Surrogate: a,a,a-Trifluorotoluene | 20.7 | " | 20.0 | | 104 | 80-120 | | | |
| Surrogate: 4-Bromofluorobenzene | 20.7 | " | 20.0 | | 104 | 80-120 | | | |
| Matrix Spike Dup (EJ42206-MSD1) | Source: 4. | Prepared: 10/21/04 Analyzed: 10/22/04 | | | | | | | |
| Benzene | 89.9 | ug/l | 100 | ND | 89.9 | 80-120 | 3.16 | 20 | |
| Toluene | 101 | " | 100 | ND | 101 | 80-120 | 0.995 | 20 | |
| Ethylbenzene | 100 | | 100 | ND | 100 | 80-120 | 6.40 | 20 | |
| Xylene (p/m) | 209 | " | 200 | ND | 104 | 80-120 | 0.00 | 20 | |
| Xylene (0) | 95.2 | * | 100 | ND | 95.2 | 80-120 | 1.87 | 20 | |
| Surrogate: a,a,a-Trifluorotoluene | 23.0 | " | 20.0 | | 115 | 80-120 | | | |
| Surrogate: 4-Bromofluorobenzene | 19.1 | " | 20.0 | | 95.5 | 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.

-

i.

| REMEDIACON | | Project: | Project: Duke Energy Field Services | | | | |
|--------------|--|--------------------|-------------------------------------|----------------|--|--|--|
| P.O. Box 302 | | Project Number: | Project Number: None Given | | | | |
| Evergree | en CO, 80437 | Project Manager: | Michael Stewart | 10/22/04 17:23 | | | |
| | | Notes and De | finitions | | | | |
| 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 | ne reporting limit | | | | | |
| NR | Not Reported | | | | | | |
| dry | Sample results reported on a dry weight | basis | | | | | |
| RPD | Relative Percent Difference | | | | | | |
| LCS | Laboratory Control Spike | | | | | | |
| MS | Matrix Spike | | | | | | |
| Dup | Duplicate | | | | | | |

Report Approved By:

Raland Kelouts

Date:

10/22/04

Raland K. Tuttle, Lab Manager Celey D. Keene, Lab Director, Org. Tech Director Peggy Allen, QA Officer Jeanne Mc Murrey, Inorg. Tech Director James L. Hawkins, Chemist/Geologist Sandra Biezugbe, Lab Tech.

This material is intended only for the use of the individual (s) or entity to whom it is addressed, and may contain information that is privileged and confidential.

If you have received this material in error, please notify us immediately at 432-563-1800.

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.

ł