1R - 400

REPORTS

DATE:

12/8/2004

Duke Energy®
Field Services

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

1R-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.

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 down-gradient 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.

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

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	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

Table 3 – Summary of Product Thickness in MW-8

Measurement Date	Product 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

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

Table 4 – October 18, 2004 Groundwater Monitoring Results

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

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

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	<0.002	0.002	<0.001	<0.001	<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	0.00156	0.0103
MW-3	0.061	0.176	0.099	0.047	0.063	0.017	0.049	0.044	0.048	0.0280	0.0173	.00576/0.00591
MW-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
MW-5	<0.002	<0.002	0.005	<0.001	<0.001	<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	<0.001	<0.001
MW-7	---	---	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.001	<0.001	<0.001	<0.001

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	2/18/04	6/25/04	10/18/04
MW-1	<0.002	0.003	<0.001	<0.001	<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	0.00108	0.00648
MW-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
MW-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
MW-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
MW-6	<0.002	<0.002	<0.001	<0.001	<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	<0.001	<0.001

Notes: All units in mg/l. Duplicate sample results were averaged together
Indicators for estimated (J) values not shown

Table 5 – 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	2/18/04	6/25/04	10/18/04
MW-1	<0.002	<0.002	<0.001	<0.001	<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	0.0005	0.00336
MW-3	0.023	0.023	0.03	0.02	0.023	0.006	0.02	0.018	0.017	0.0138	0.0136	0.00703/0.0068
MW-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
MW-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
MW-6	0.004	0.002	0.002	<0.001	0.004	<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	<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	2/18/04	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	---	---	<0.001	<0.001	<0.001	<0.001	<0.001	0.006	0.001	<0.001	<0.001	<0.001

Notes: All units in mg/l
Duplicate sample results were averaged together
Indicators for estimated (J) values not shown

FIGURES

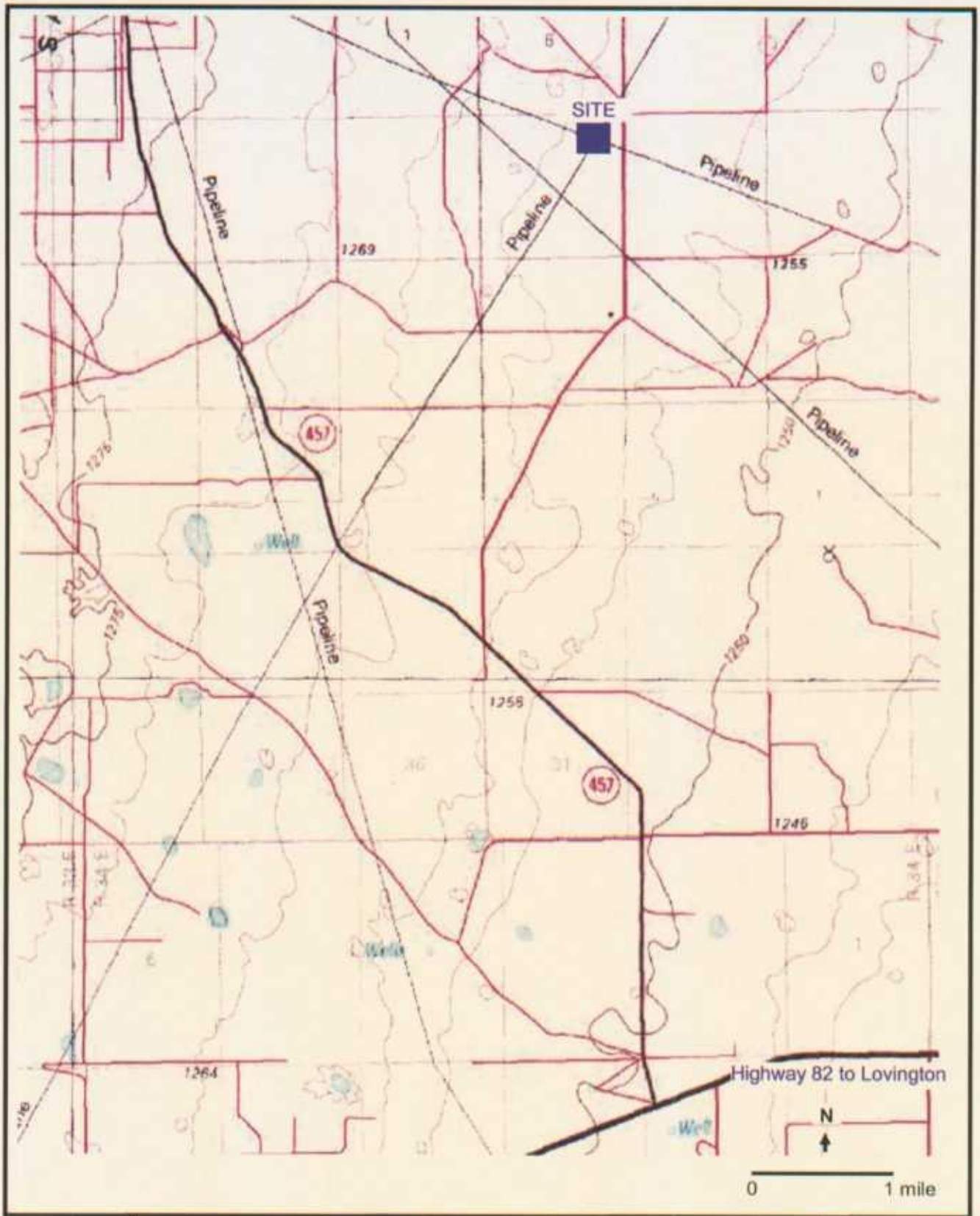

Figure 1 – Site Location

X-Line Remediation

Duke Energy Field Services

DRAWN BY:	MHS
REVISED:	
DATE:	

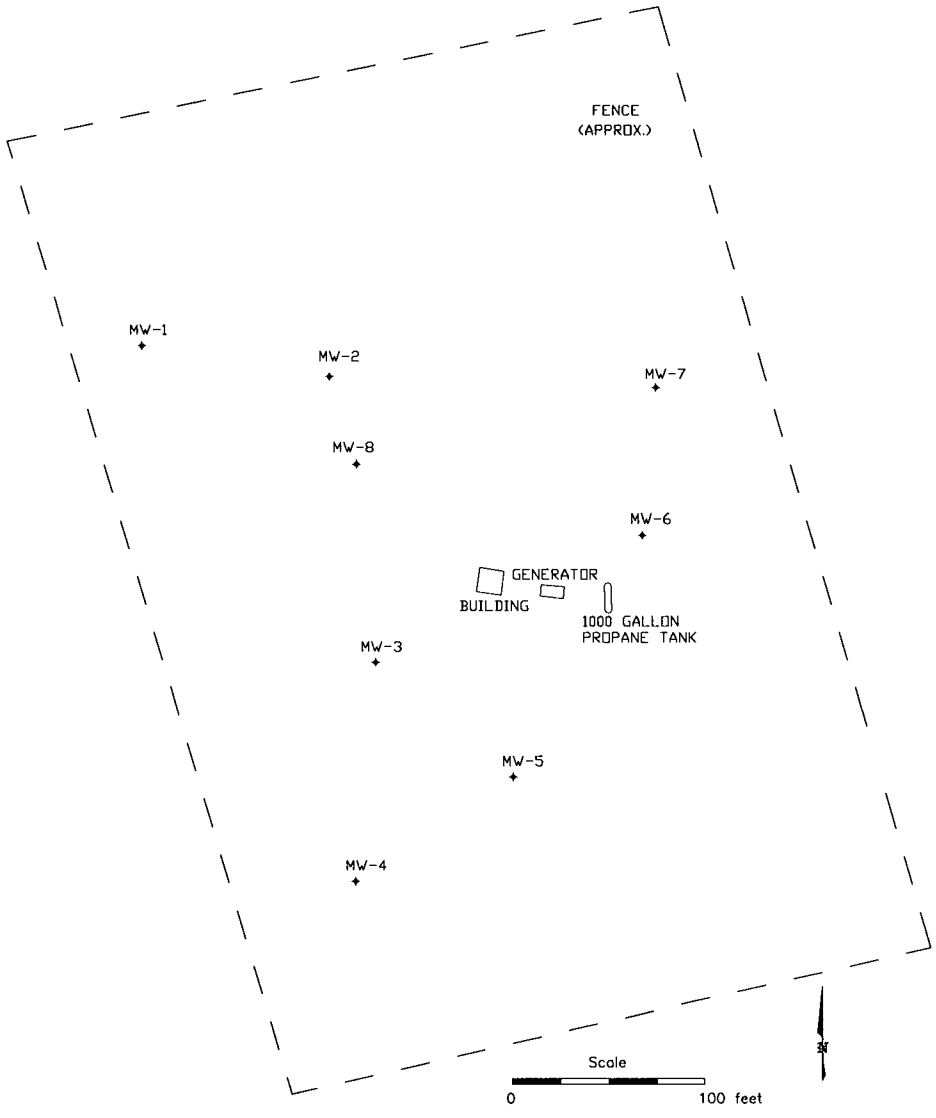

Figure 2 – Facility Configuration

X-Line Remediation

Duke Energy Field Services

DRAWN BY:	MHS
REVISED:	
DATE:	6/04

Figure 3 – Well Hydrographs

X-Line Remediation

Duke Energy Field Services.

DRAWN BY: MHS

DATE: 11/04

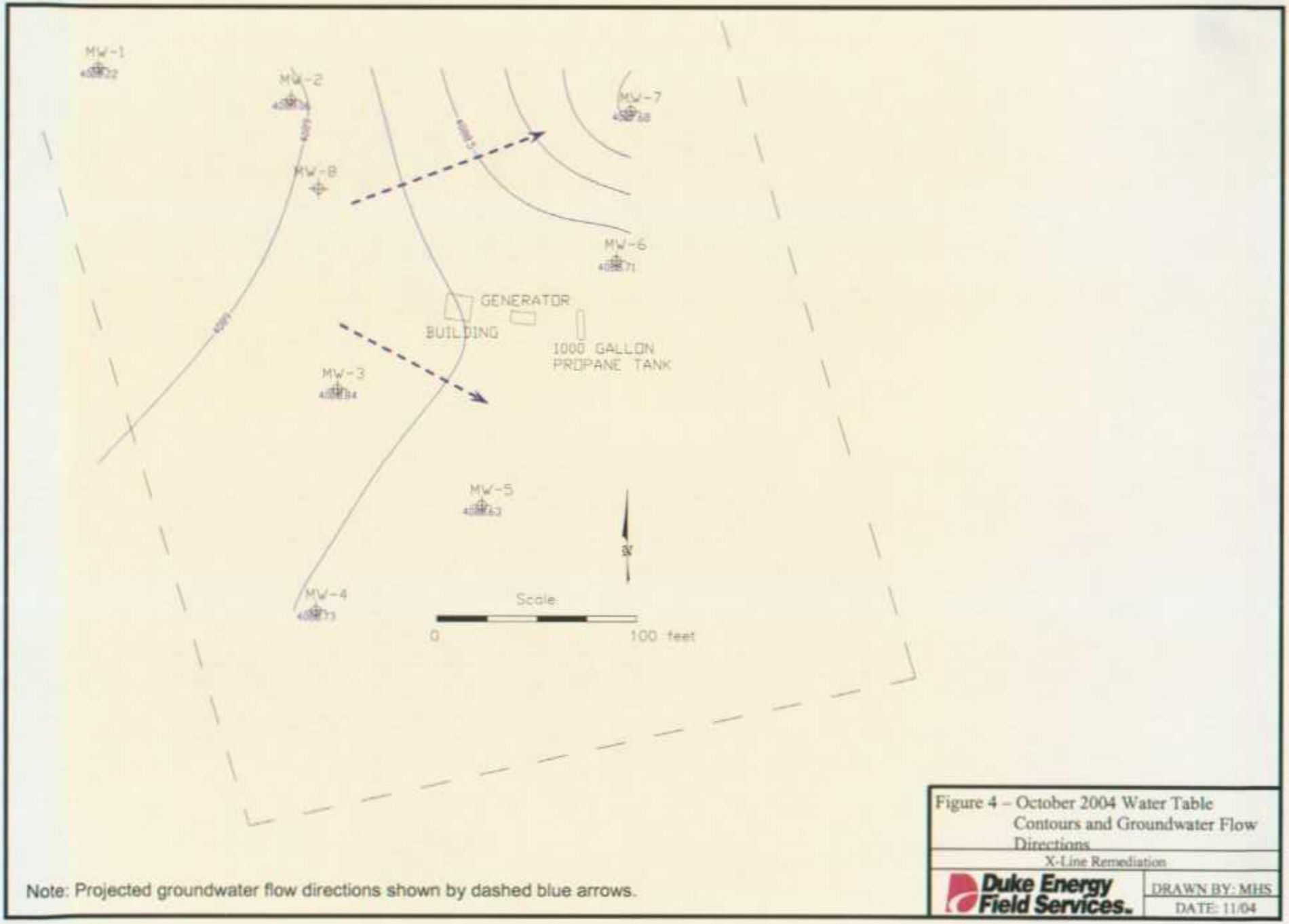

Figure 4 – October 2004 Water Table Contours and Groundwater Flow Directions

X-Line Remediation

Duke Energy Field Services.

DRAWN BY: MHS

DATE: 11/04

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

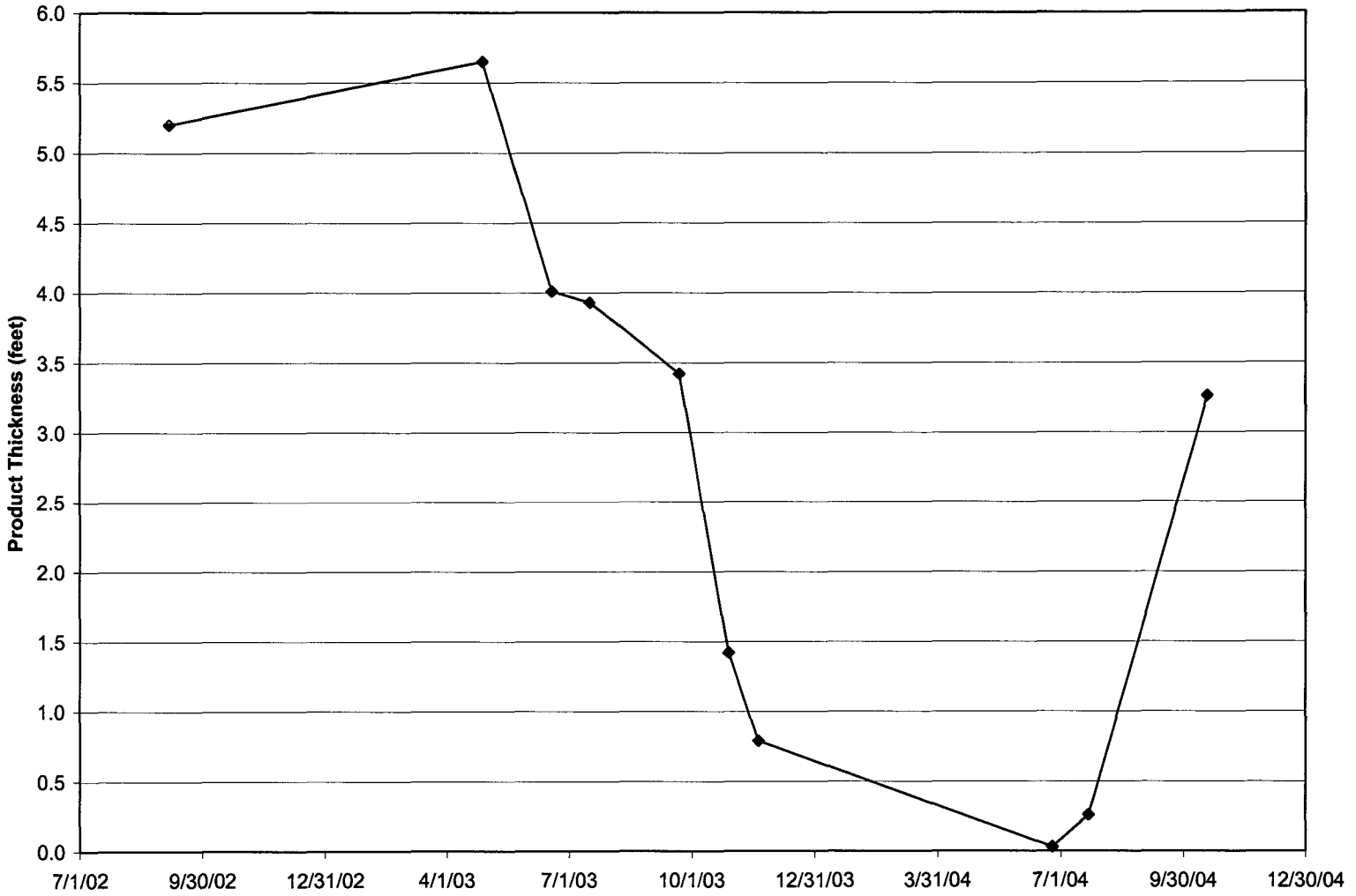

Figure 5 – Product Thickness Verses Time

X-Line Remediation

Duke Energy Field Services

DRAWN BY: MHS

DATE: 11/04

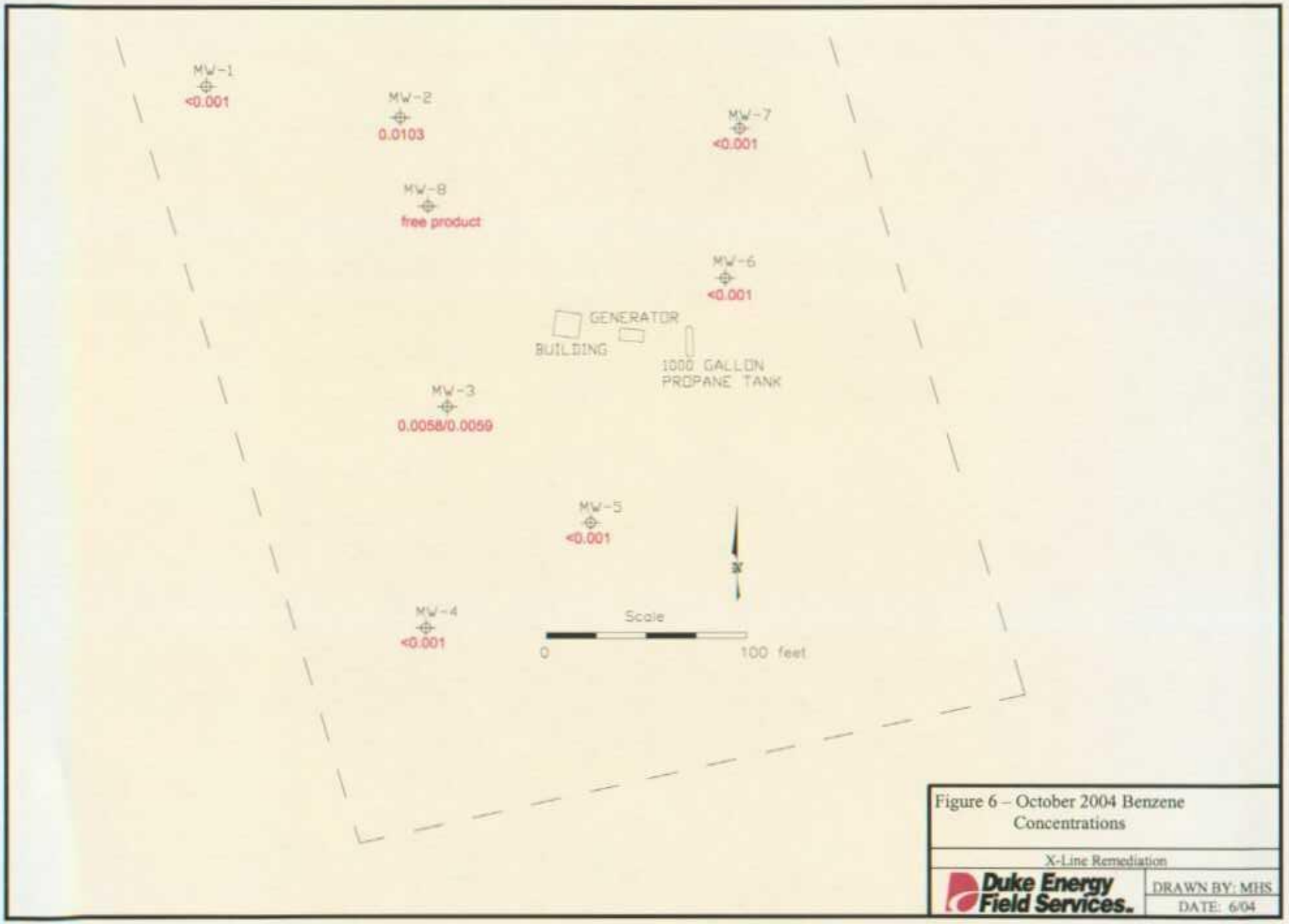

Figure 6 – October 2004 Benzene Concentrations

X-Line Remediation

Duke Energy Field Services.

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DATE: 6/04

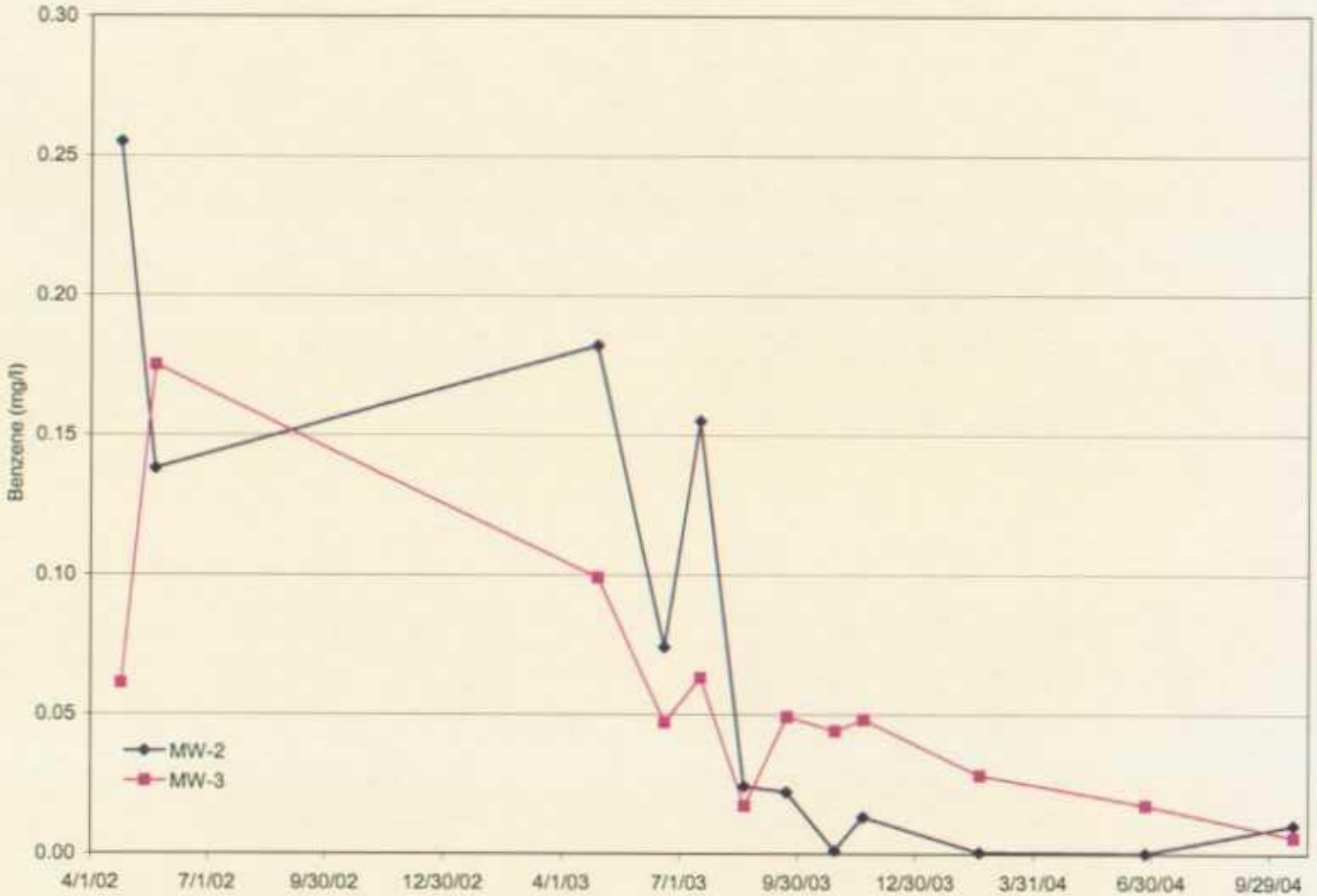

Figure 7 – Benzene Concentrations in MW-2 and MW-3

X-Line Remediation

Duke Energy Field Services

DRAWN BY: MHS

DATE: 11\04

FIELD SAMPLING FORMS

AND

LABORATORY ANALYTICAL REPORT

WELL SAMPLING DATA FORM

CLIENT: Duke Energy Field Services
WELL ID: **MW-1**
SITE NAME: X Line (Etcheverry Ranch)
DATE: 10/18/2004
PROJECT NO. F-106
SAMPLER: J. Fergerson/G. Van Deventer

PURGING METHOD: ☑ Hand Bailed ☐ Pump If Pump, Type: _____

SAMPLING METHOD: ☑ Disposable Bailer ☐ Direct from Discharge Hose ☐ Other: _____

DESCRIBE EQUIPMENT DECONTAMINATION METHOD BEFORE SAMPLING THE WELL:

☑ Gloves ☑ Alconox ☑ Distilled Water Rinse ☐ Other: _____

DISPOSAL METHOD OF PURGE WATER: ☐ Surface Discharge ☐ Drums ☑ Disposal Facility

TOTAL DEPTH OF WELL: 94.30 Feet
DEPTH TO WATER: 77.47 Feet
HEIGHT OF WATER COLUMN: 16.83 Feet
WELL DIAMETER: 2.0 Inch

8.2 Minimum Gallons to purge 3 well volumes (Water Column Height x 0.49)

TIME	VOLUME PURGED	TEMP. °C	COND. mS/cm	pH	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	-	
11:47	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	-	
0:25	:Total Time (hr:min)		**8**	:Total Vol (gal)		**0.32**	:Flow Rate (gal/min)

SAMPLE NO.: Collected Sample No.: 041018 1205

ANALYSES: BTEX (8021-B)

COMMENTS: _____

WELL SAMPLING DATA FORM

CLIENT: Duke Energy Field Services
WELL ID: **MW-2**
SITE NAME: X Line (Etcheverry Ranch)
DATE: 10/18/2004
PROJECT NO. F-106
SAMPLER: J. Fergerson/G. Van Deventer

PURGING METHOD: ☑ Hand Bailed ☐ Pump If Pump, Type: _____

SAMPLING METHOD: ☑ Disposable Bailer ☐ Direct from Discharge Hose ☐ Other: _____

DESCRIBE EQUIPMENT DECONTAMINATION METHOD BEFORE SAMPLING THE WELL:

☑ Gloves ☑ Alconox ☑ Distilled Water Rinse ☐ Other: _____

DISPOSAL METHOD OF PURGE WATER: ☐ Surface Discharge ☐ Drums ☑ Disposal Facility

TOTAL DEPTH OF WELL: 89.90 Feet
DEPTH TO WATER: 77.46 Feet
HEIGHT OF WATER COLUMN: 12.44 Feet
WELL DIAMETER: 2.0 Inch

6.1 Minimum Gallons to purge 3 well volumes (Water Column Height x 0.49)

TIME	VOLUME PURGED	TEMP. °C	COND. *m* S/cm	pH	DO mg\L	Turb	PHYSICAL APPEARANCE AND REMARKS
11:41	0	-	-	-	-	-	Begin Hand Bailing
11:43	2	19.4	0.85	6.88	1.7	-	
11:52	4	19.0	0.76	6.98	2.5	-	
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 (hr:min) **8** :Total Vol (gal) **0.28** :Flow Rate (gal/min)

SAMPLE NO.: Collected Sample No.: 041018 1210

ANALYSES: BTEX (8021-B)

COMMENTS: _____

WELL SAMPLING DATA FORM

CLIENT: Duke Energy Field Services
WELL ID: **MW-3**
SITE NAME: X Line (Etcheverry Ranch)
DATE: 10/18/2004
PROJECT NO. F-106
SAMPLER: J. Fergerson/G. Van Deventer

PURGING METHOD: ☑ Hand Bailed ☐ Pump If Pump, Type: _____

SAMPLING METHOD: ☑ Disposable Bailer ☐ Direct from Discharge Hose ☐ Other: _____

DESCRIBE EQUIPMENT DECONTAMINATION METHOD BEFORE SAMPLING THE WELL:

☑ 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: 77.49 Feet
HEIGHT OF WATER COLUMN: 15.31 Feet
WELL DIAMETER: 2.0 Inch

7.5 Minimum Gallons to purge 3 well volumes (Water Column Height x 0.49)

TIME	VOLUME PURGED	TEMP. °C	COND. *m* S/cm	pH	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	-	
11:23	8	19.1	0.83	6.89	2.3	-	
0:23	:Total Time (hr:min)		**8**	:Total Vol (gal)		**0.35**	:Flow Rate (gal/min)

SAMPLE NO.: Collected Sample No.: 041018 1120

ANALYSES: BTEX (8021-B)

COMMENTS: Collected Duplicate Sample No.: 0410182000 for BTEX (8021-B)

WELL SAMPLING DATA FORM

CLIENT: Duke Energy Field Services
WELL ID: **MW-4**
SITE NAME: X Line (Etcheverry Ranch)
DATE: 10/18/2004
PROJECT NO. F-106
SAMPLER: J. Fergerson/G. Van Deventer

PURGING METHOD: ☑ Hand Bailed ☐ Pump If Pump, Type: _____

SAMPLING METHOD: ☑ Disposable Bailer ☐ Direct from Discharge Hose ☐ Other: _____

DESCRIBE EQUIPMENT DECONTAMINATION METHOD BEFORE SAMPLING THE WELL:

☑ Gloves ☑ Alconox ☑ Distilled Water Rinse ☐ Other: _____

DISPOSAL METHOD OF PURGE WATER: ☐ Surface Discharge ☐ Drums ☑ Disposal Facility

TOTAL DEPTH OF WELL: 93.40 Feet
DEPTH TO WATER: 77.60 Feet
HEIGHT OF WATER COLUMN: 15.80 Feet
WELL DIAMETER: 2.0 Inch

7.7 Minimum Gallons to purge 3 well volumes (Water Column Height x 0.49)

TIME	VOLUME PURGED	TEMP. °C	COND. mS/cm	pH	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	-	
13:34	6	19.3	0.65	7.13	6.1	-	
13:43	8	19.4	0.66	7.16	6.3	-	
0:33 :Total Time (hr:min)			**8** :Total Vol (gal)			**0.24**	:Flow Rate (gal/min)

SAMPLE NO.: Collected Sample No.: 041018 1400

ANALYSES: BTEX (8021-B)

COMMENTS: Collected MS/MSD Sample

WELL SAMPLING DATA FORM

CLIENT: Duke Energy Field Services
WELL ID: **MW-5**
SITE NAME: X Line (Etcheverry Ranch)
DATE: 10/18/2004
PROJECT NO. F-106
SAMPLER: J. Fergerson/G. Van Deventer

PURGING METHOD: ☑ Hand Bailed ☐ Pump If Pump, Type: _____

SAMPLING METHOD: ☑ Disposable Bailer ☐ Direct from Discharge Hose ☐ Other: _____

DESCRIBE EQUIPMENT DECONTAMINATION METHOD BEFORE SAMPLING THE WELL:

☑ Gloves ☑ Alconox ☑ Distilled Water Rinse ☐ Other: _____

DISPOSAL METHOD OF PURGE WATER: ☐ Surface Discharge ☐ Drums ☑ Disposal Facility

TOTAL DEPTH OF WELL: 91.10 Feet
DEPTH TO WATER: 77.27 Feet
HEIGHT OF WATER COLUMN: 13.83 Feet
WELL DIAMETER: 2.0 Inch

6.8 Minimum Gallons to purge 3 well volumes (Water Column Height x 0.49)

TIME	VOLUME PURGED	TEMP. °C	COND. *m* S/cm	pH	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 (hr:min)		**8**	:Total Vol (gal)		**0.27**	:Flow Rate (gal/min)

SAMPLE NO.: Collected Sample No.: 041018 1355
ANALYSES: BTEX (8021-B)
COMMENTS: _____

WELL SAMPLING DATA FORM

CLIENT: Duke Energy Field Services
WELL ID: **MW-6**
SITE NAME: X Line (Etcheverry Ranch)
DATE: 10/18/2004
PROJECT NO. F-106
SAMPLER: J. Fergerson/G. Van Deventer

PURGING METHOD: ☑ Hand Bailed ☐ Pump If Pump, Type: _____

SAMPLING METHOD: ☑ Disposable Bailer ☐ Direct from Discharge Hose ☐ Other: _____

DESCRIBE EQUIPMENT DECONTAMINATION METHOD BEFORE SAMPLING THE WELL:

☑ Gloves ☑ Alconox ☑ Distilled Water Rinse ☐ Other: _____

DISPOSAL METHOD OF PURGE WATER: ☐ Surface Discharge ☐ Drums ☑ Disposal Facility

TOTAL DEPTH OF WELL: 92.90 Feet
DEPTH TO WATER: 77.18 Feet
HEIGHT OF WATER COLUMN: 15.72 Feet
WELL DIAMETER: 2.0 Inch

7.7 Minimum Gallons to purge 3 well volumes (Water Column Height x 0.49)

TIME	VOLUME PURGED	TEMP. °C	COND. *m*S/cm	pH	DO mg\L	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	-	
0:29	:Total Time (hr:min)		**8**	:Total Vol (gal)		**0.27**	:Flow Rate (gal/min)

SAMPLE NO.: Collected Sample No.: 041018 1300

ANALYSES: BTEX (8021-B)

COMMENTS: _____

WELL SAMPLING DATA FORM

CLIENT: Duke Energy Field Services
WELL ID: **MW-7**
SITE NAME: X Line (Etcheverry Ranch)
DATE: 10/18/2004
PROJECT NO. F-106
SAMPLER: J. Fergerson/G. Van Deventer

PURGING METHOD: ☑ Hand Bailed ☐ Pump If Pump, Type: _____

SAMPLING METHOD: ☑ Disposable Bailer ☐ Direct from Discharge Hose ☐ Other: _____

DESCRIBE EQUIPMENT DECONTAMINATION METHOD BEFORE SAMPLING THE WELL:

☑ 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: 76.75 Feet
HEIGHT OF WATER COLUMN: 16.05 Feet
WELL DIAMETER: 2.0 Inch

7.9 Minimum Gallons to purge 3 well volumes (Water Column Height x 0.49)

TIME	VOLUME PURGED	TEMP. °C	COND. *m*S/cm	pH	DO mg\L	Turb	PHYSICAL APPEARANCE AND REMARKS
12:24	0	-	-	-	-	-	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	-	
0:26	:Total Time (hr:min)		**8**	:Total Vol (gal)		**0.31**	:Flow Rate (gal/min)

SAMPLE NO.: Collected Sample No.: 041018 1255

ANALYSES: BTEX (8021-B)

COMMENTS: _____

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: 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

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

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

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-3 (0410181120) (4J19003-01) Water									
Benzene	**0.00576**	0.00100	mg/L	1	EJ42206	10/21/04	10/22/04	EPA 8021B	
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	**0.00703**	0.00100	"	"	"	"	"	"	
Xylene (p/m)	**0.00135**	0.00100	"	"	"	"	"	"	
Xylene (o)	**J [0.000168]**	0.00100	"	"	"	"	"	"	J
Surrogate: a,a,a-Trifluorotoluene		*128 %*	*80-120*		"	"	"	"	*S-04*
Surrogate: 4-Bromofluorobenzene		*102 %*	*80-120*		"	"	"	"	
MW-1 (0410181205) (4J19003-02) 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 (o)	ND	0.00100	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*116 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*90.5 %*	*80-120*		"	"	"	"	
MW-2 (0410181210) (4J19003-03) Water									
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	"	"	"	"	"	"	
Xylene (p/m)	**0.00268**	0.00100	"	"	"	"	"	"	
Xylene (o)	**0.00250**	0.00100	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*124 %*	*80-120*		"	"	"	"	*S-04*
Surrogate: 4-Bromofluorobenzene		*111 %*	*80-120*		"	"	"	"	
MW-7 (0410181255) (4J19003-04) 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 (o)	ND	0.00100	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*116 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*98.0 %*	*80-120*		"	"	"	"	

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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

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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	"	"	"	"	"	"	
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		*98.0 %*		*80-120*	"	"	"	"	
MW-5 (0410181355) (4J19003-06) 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 (o)	ND	0.00100	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*120 %*		*80-120*	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*93.0 %*		*80-120*	"	"	"	"	
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 (o)	ND	0.00100	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*116 %*		*80-120*	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*86.5 %*		*80-120*	"	"	"	"	
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	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*116 %*		*80-120*	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*94.0 %*		*80-120*	"	"	"	"	

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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

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	"	"	"	"	"	"	
Xylene (o)	**J [0.000122]**	0.00100	"	"	"	"	"	"	J
Surrogate: a,a,a-Trifluorotoluene		*122 %*		*80-120*	"	"	"	"	*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	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*115 %*		*80-120*	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*90.5 %*		*80-120*	"	"	"	"	

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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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EJ42206 - EPA 5030C (GC)										
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 (o)	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 (o)	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		"	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 Analyzed: 10/22/04						
Benzene	87.4		ug/l	100		87.4	80-120			
Toluene	96.7		"	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*			

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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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EJ42206 - EPA 5030C (GC)										
Matrix Spike (EJ42206-MS1)	**Source: 4J19003-08**			Prepared: 10/21/04 Analyzed: 10/22/04						
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 (o)	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: 4J19003-08**			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 (o)	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*			

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

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

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
LCS	Laboratory Control Spike
MS	Matrix Spike
Dup	Duplicate

Report Approved By: Raland K Tuttle 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.