1R - 401

REPORTS

DATE:

12/9/2004



December 9, 2004

Mr Stephen Weathers Duke Energy Field Services, LP 370 17th Street, Suite 2500 Denver, CO 80202

Re: Summary of September 2004 Groundwater Monitoring Results at the C-Line 50602 Location in Lea County New Mexico (Unit O, Section 31, Township 19 South, Range 37 East)

Dear Mr. Weathers:

This report summarizes the groundwater monitoring activities completed at the C-Line 50602 Site for Duke Energy Field Services, LP (DEFS) in September 2004. The C-Line 50602 site is located in the southwestern quarter of the southeastern quarter (Unit O) of Section 31, Township 19 South, Range 37 East (Figure 1). The approximate coordinates are 32 degrees 32.5 minutes north, 103 degrees 15.3 minutes east. The site is approximately 6.25 miles south and 1.25 miles west of the town of Monument in Lea County New Mexico. The area surrounding the release sites is uninhabited and is used for ranching. At least five pipelines traverse the study area (Figure 2). DEFS owns two of these pipelines. Rice, Dynegy and SRG own the remaining pipelines. Both current and historic exploration and production components also surround the location.

BACKGROUND INFORMATION

The monitoring system includes free product removal well MW-1 and the eight monitoring wells MW-2 through MW-9 (Figure 2). Table 1 summarizes construction information for each well.

The free product collection system was installed in MW-1 in mid-November 2003. The system became operational on November 26, 2003. A local DEFS subcontractor monitors system operation and product recovery on a weekly basis. Approximately 1,212 gallons of free phase hydrocarbons had been removed as of December 6, 2004. A soil vapor extraction (SVE) system was also installed onto MW-1 and became operational in early October 2004. Preliminary measurements indicate that the system is producing an approximate vacuum of 60" water.

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GROUNDWATER SAMPLING

Groundwater samples were collected by Trident Environmental on September 28, 2004. The depth to water in each well was measured prior to the sampling activities. Well MW-1 contained 2.16 feet of free product so it was not sampled. MW-4 also contained 0.21 feet of free product so it was not sampled. This was the first time that this well contained free product. The remaining seven wells were purged and sampled using the standard protocols for this site.

The calculated groundwater elevations for all monitoring episodes are summarized in Table 2. The product thickness values measured in MW-1 throughout the project are summarized in Table 3 and graphed on Figure 3. Note that the product collection system was operating on September 28, 2004 when MW-1 was gauged so the measured product thickness may not represent the equilibrated thickness.

Each well (excepting MW-1 and MW-4) was purged using a disposable bailer until a minimum of three casing volumes of water was removed and the field parameters temperature, pH and conductivity stabilized. The well purging forms are attached. The purge water was disposed of at the DEFS Linam Ranch facility.

The samples were then collected using the disposable bailers. All samples were placed in an ice-filled chest immediately upon collection and delivered to the analytical laboratory (Environmental Labs of Texas) using standard chain-of-custody protocol. The unfiltered samples were analyzed for benzene, toluene, ethylbenzene and total xylenes (BTEX).

The laboratory analyses are summarized in Table 4 for the June 2004 sampling event. Table 5 includes the values for all of the investigative sampling episodes. The laboratory report for the June 2004 sampling episode is attached.

Table 4 also include the quality assurance/quality control information. The relative percentage difference (RPD) values for MW-1 were all under 10 percent indicating good agreement. The matrix spike and matrix spike analyses that were completed on a sample from MW-7 were also within percentage recovery limits with the exception of the p/m xylene values.

RESULTS AND INTERPRETATIONS

Figure 4 shows the September 2004 calculated groundwater contours as generated using the Surfer® program with the kriging option. Groundwater flow is toward the southeast. The flow direction corresponds well with the historic measurements.

Figure 5 includes hydrographs for all wells, with free product corrections applied to MW-1 and MW-4. The water table continues to decline even with the heavy rains that occurred over the

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past 6 months. The relative water-table elevation differences between the wells remain equivalent to the historic values indicating that equilibrated conditions are present.

Figure 6 depicts the spatial June benzene distribution. The changes in benzene concentrations over time are plotted for MW-3 on Figure 7 and for wells MW-2 and MW-5 on Figure 8. The benzene concentration increased between June 2004 and September 2004 in MW-3 and MW-5 while declining in MW-2.

The values in MW-3 and MW-5 indicate that the BTEX concentrations have not equilibrated in the interior part of the plume. Wells MW-7, MW-8 and MW-9 remain unaffected so any plume expansion is occurring upgradient from these locations.

The next groundwater-monitoring event is scheduled for December 2004. Active free product removal and SVE will continue from MW-1 in the interim. The results from the December sampling will be used to evaluate the effectiveness of the SVE system on stabilizing the BTEX concentrations within the plume. Additional source characterization activities may be necessary if the December 2004 data indicates that plume equilibration has not been achieved.

Do not hesitate to contact me if you have any questions or comments on the contents of this letter.

Sincerely,

AMERICAN ENVIRONMENTAL CONSULTING, LLC

Michael H. Stewart, P.E., C.P.G.

Muchael H. Stewart

Principal Engineer

MHS/tbm

TABLES

Table 1 – Summary of Well Construction Information

Well	Top of Casing Elevation	Ground Elevation	Screen Diameter	Screened Interval	Sand Interval	Total Depth
MW-1	3,541.21	3,538.64	4"	82.5-97.5	81-98	98
MW-2	3,540.91	3,537.70	2"	81-101	77-102	102
MW-3	3,541.41	3,539.30	2"	80-100	78-103	103
MW-4	3,541.40	3,538.51	2"	80-100	78-103	103
MW-5	3,541.45	3,538.69	2"	80-100	78-102	102
MW-6	3,543.98	3,540.94	2"	79-99	75-102	102
MW-7	3,542.42	3,540.20	2"	82.5-97.5	77-98*	98
MW-8	3,540.29	3,538.08	2"	82.5-97.5	81-98	98
MW-9	3,539.62	3,537.33	2"	82.5-97.5	81-98	98

All units in feet except as noted

^{*} Well MW-7 had a natural sand pack from 98 to 93 feet

Table 2 – Summary of Corrected Water Table Elevations

Well	Nov. 2002	Feb. 2003	Apr. 2003	Oct. 2003	Jan. 2004	Jun. 2004	Sep. 2004
MW-1	3,452.01	3,451.60	3,451.73	3,451.35	3,451.34	3,451.23	3451.19
MW-2	3,452.11	3,451.97	3,451.96	3,451.87	3,451.84	3,451.73	3451.72
MW-3	3,452.25	3,451.37	3,451.33	3,451.27	3,451.22	3,451.06	3451.01
MW-4	3,451.56	3,451.32	3,451.21	3,451.25	3,451.19	3,451.02	3450.88
MW-5	3,451.39	3,451.21	3,451.09	3,451.20	3,451.11	3,450.86	3450.75
MW-6	3,448.77	3,448.51	3,448.38	3,448.46	3,448.37	3,448.14	3448.03
MW-7				3,450.76	3,450.72	3,450.57	3450.47
MW-8				3,450.35	3,450.22	3,450.03	3449.85
MW-9				3,450.21	3,450.03	3,449.81	3449.67

Notes:

- 1) All units in feet.
- 2) The Elevation for MW-1 was corrected using a product density of 0.7
- 3) The groundwater elevation values for well MW-1 were corrected using the following formula (all values in feet):

$$GWE_{corr} = MGWE + (PT*PD)$$
: where

MGWE is the actual measured groundwater elevation; PT is the measured free-phase hydrocarbon thickness, and PD is the free phase hydrocarbon density (assumed 0.7).

Table 3 - Historical Product Thickness Measurements for C-Line Well MW-1

Date	Product Thickness (feet)
11/2/02	3.15
2/17/03	3.62
4/16/03	2.92
10/30/03	3.21
6/29/04	2.66
9/28/04	2.16

Notes 1) The product thickness of 0.28 feet measured on January 29 2004 was probably measured while the product recovery system was operating and thus was not included in the Table..

2) The system was operating during September 28, 2004 measurement episode.

Table 4 - September 28, 2004 Sample Results and QA/QC Evaluation

	Benzene	Toluene	Ethylbenzene	p/m Xylenes	o Xylenes
					:
MW-1	FP	FP	FP	FP	FP
MW-2	0.329	0.0174	< 0.001	< 0.001	< 0.001
MW-3	11.2	0.0218	0.105	0.0107J	0.0105J
MW-3D	11.7	0.0226J	0.105	0.00994J	0.00969J
MW-4	FP	FP	FP	FP	FP
MW-5	0.0336	0.0028	< 0.001	< 0.001	<0.001
MW-6	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
MW-7	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
MW-8	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
MW-9	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
ТВ	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001

Notes: All units mg/l

TB trip blank
FP Free Product

MW-3 Duplicate Sample Evaluation

,	Benzene	Toluene	Ethylbenzene	p/m Xylenes	o Xylenes
MW-3 RPD	4.3%	3.6%	0.0%	7.3%	6.5%

Matrix Spike,-Matrix Spike Duplicate Results

	Benzene	Toluene	Ethylbenzene	p/m Xylenes	o Xylenes
Matrix Spike	89.7	90.5	87.6	196	95.7
Matrix Spike Duplicate	89.7	90.5	87.6	196	95.7

Percent recovery limits are 80% to 120%

Table 5 - Summary of Analytical Results

Benzene	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9
0.01								
11/15/2002	< 0.001	0.017	0.114	< 0.001	< 0.001			
2/18/2003	0.29	2.52	1.12	0.328	0.001			
4/17/2003	0.175	3.18	0.782	0.128	0.002			
10/28/2003	0.018	5.01	0.077	0.164	< 0.001	< 0.001	< 0.001	< 0.001
1/29/2004	0.0848	6.06	0.320	0.226	0.00382	< 0.001	0.00139	<0.001
6/29/2004	0.0582	9.84	0.461	0.249	< 0.00019	0.000456J	0.00248	<0.00019
9/28/2004	0.329	11.2	FP	0.0336	< 0.001	< 0.001	<0.001	< 0.001

Toluene	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9
0.75								
11/15/2002	<0.001	0.005	0.039	< 0.001	< 0.001			
2/18/2003	0.014	0.634	0.436	0.056	< 0.001			
4/17/2003	0.007	0.513	0.45	0.007	< 0.001			
10/28/2003	0.001	0.275	0.029	0.048	< 0.001	< 0.001	< 0.001	< 0.001
1/29/2004	0.0350	0.506	0.169	0.064	0.00140	< 0.001	0.00109	< 0.001
6/29/2004	0.000219J	0.0917	0.0202	0.00172	< 0.00014	< 0.00014	< 0.00014	< 0.00014
9/28/2004	0.0174	0.0218	FP	0.00281	< 0.001	< 0.001	< 0.001	< 0.001

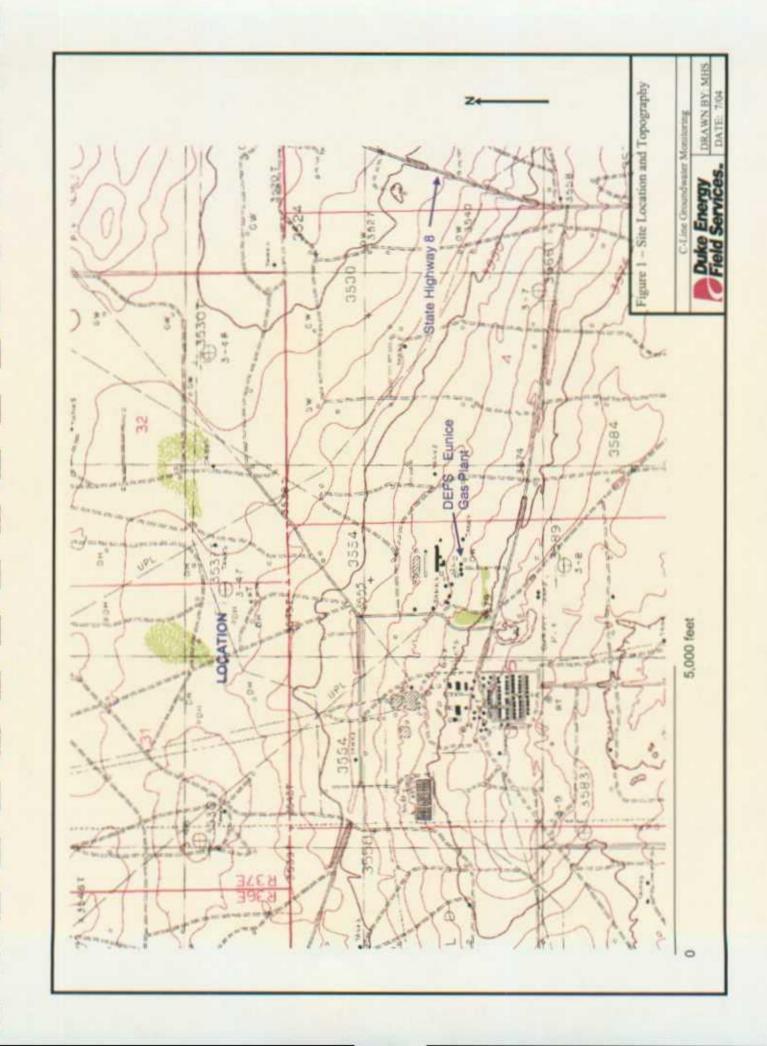
Ethylbenzene	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9
0.75								
11/15/2002	< 0.001	< 0.001	0.002	< 0.001	<0.001			
2/18/2003	0.001	0.021	0.022	0.004	< 0.001			
4/17/2003	< 0.001	0.028	0.029	< 0.001	< 0.001			
10/28/2003	< 0.001	0.031	0.002	0.002	< 0.001	< 0.001	<0.001	< 0.001
1/29/2004	0.00292	0.0679	0.0203	0.00404	0.00133	< 0.001	0.00112	< 0.001
6/29/2004	0.00534	0.0873	0.352	0.0603	< 0.00013	< 0.00013	0.000633J	< 0.00013
9/28/2004	< 0.001	0.105	FP	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001

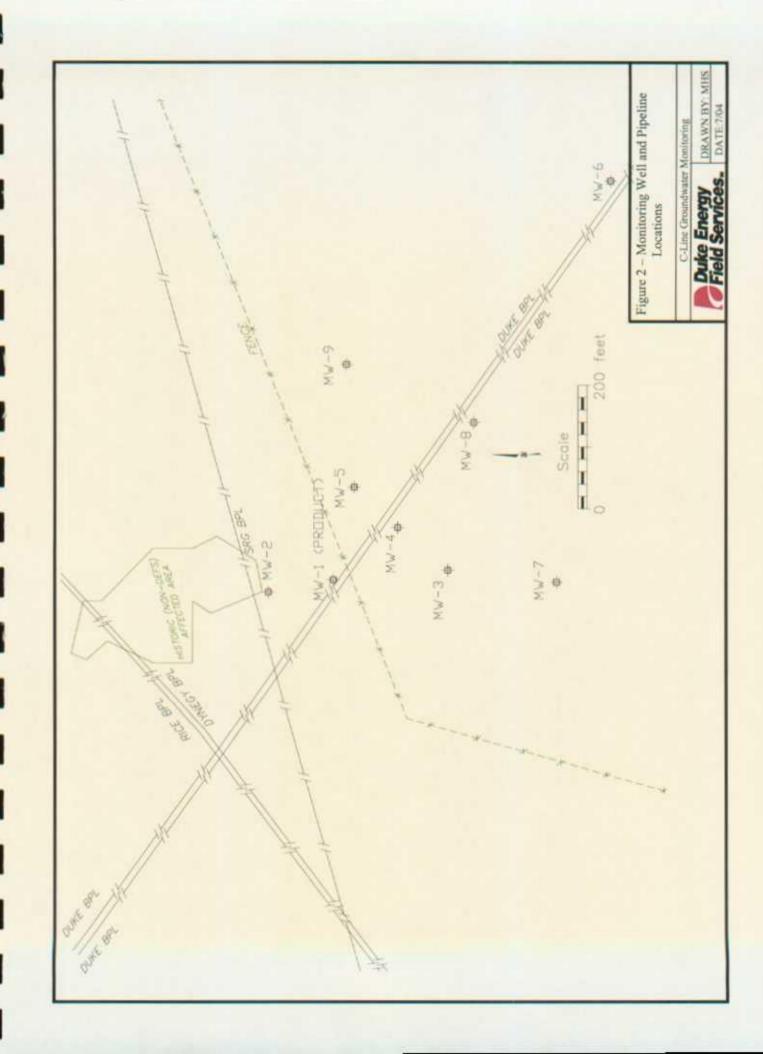
Xylenes	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9
0.62								
11/15/2002	< 0.001	< 0.001	0.003	< 0.001	< 0.001			
2/18/2003	0.001	0.064	0.032	0.004	< 0.001			
4/17/2003	< 0.001	0.1	0.055	< 0.001	< 0.001			
10/28/2003	< 0.001	0.083	0.008	0.004	< 0.001	< 0.001	< 0.001	< 0.001
1/29/2004	0.00474	0.0849	0.053	0.0074	0.00194	< 0.001	0.00217	< 0.001
6/29/2004	0.001J	0.02404	0.074	0.004	< 0.0002	< 0.0002	< 0.0002	<0.0002
9/28/2004	< 0.001	0.0213	FP	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001

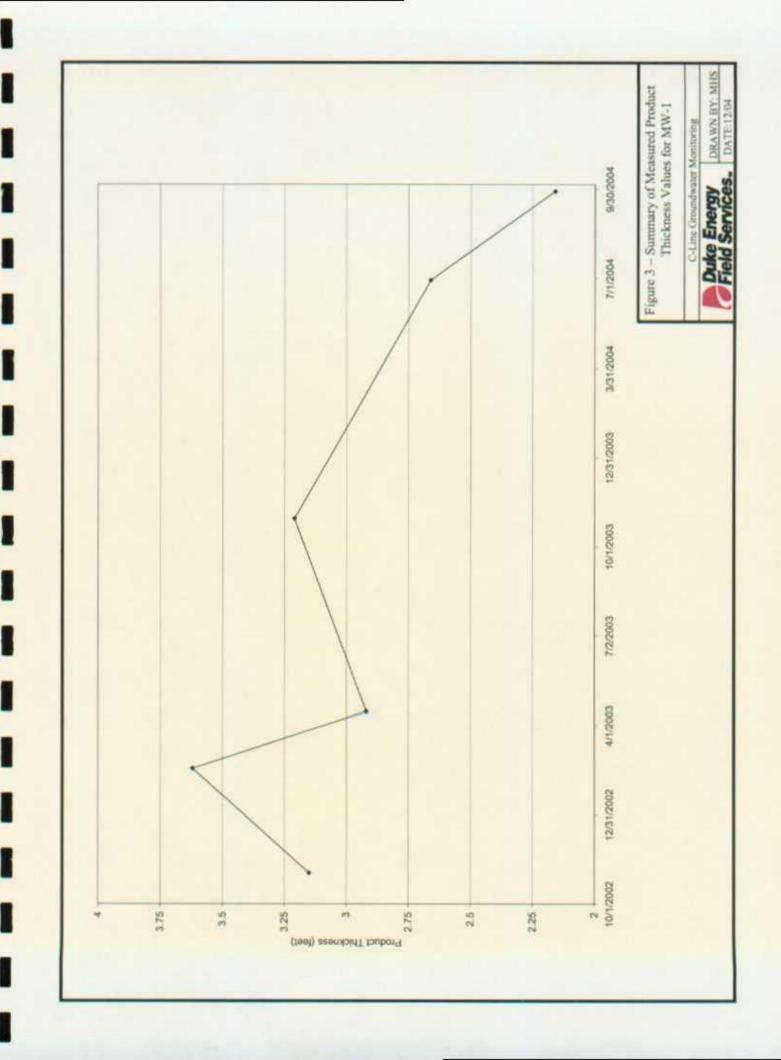
Notes:

- 1) All units mg/l
- 2) Duplicate samples not included
- 3) Samples that exceed New Mexico Water Quality Control Commission Groundwater Standards are bold.

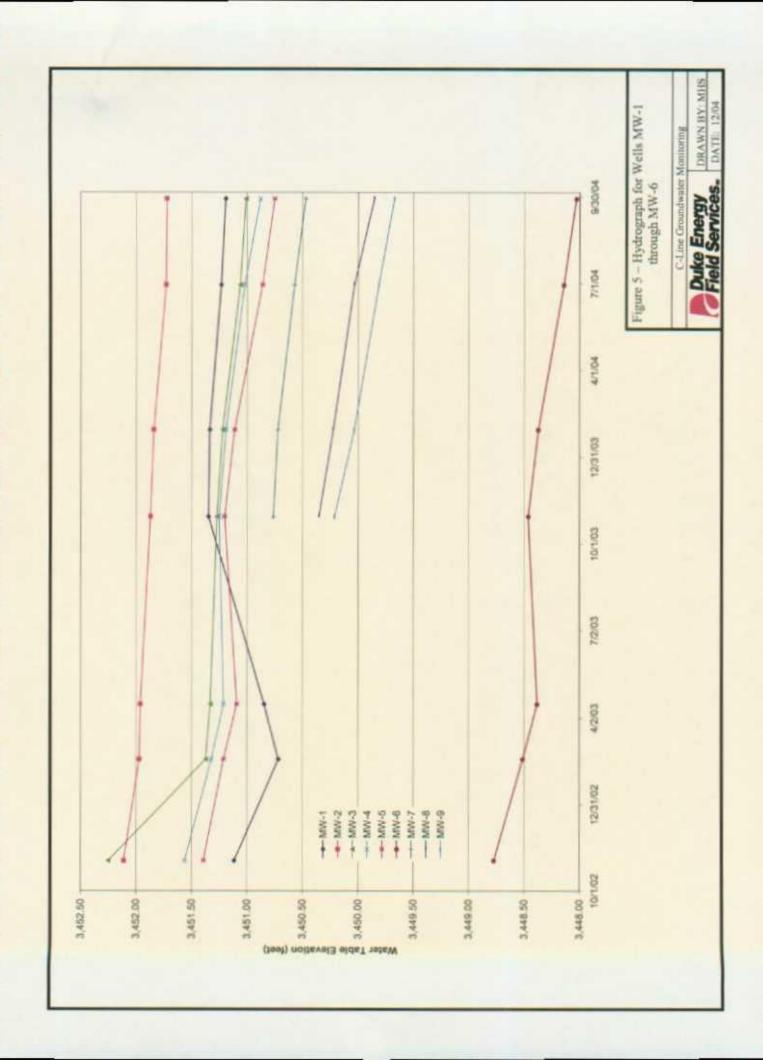
FIGURES

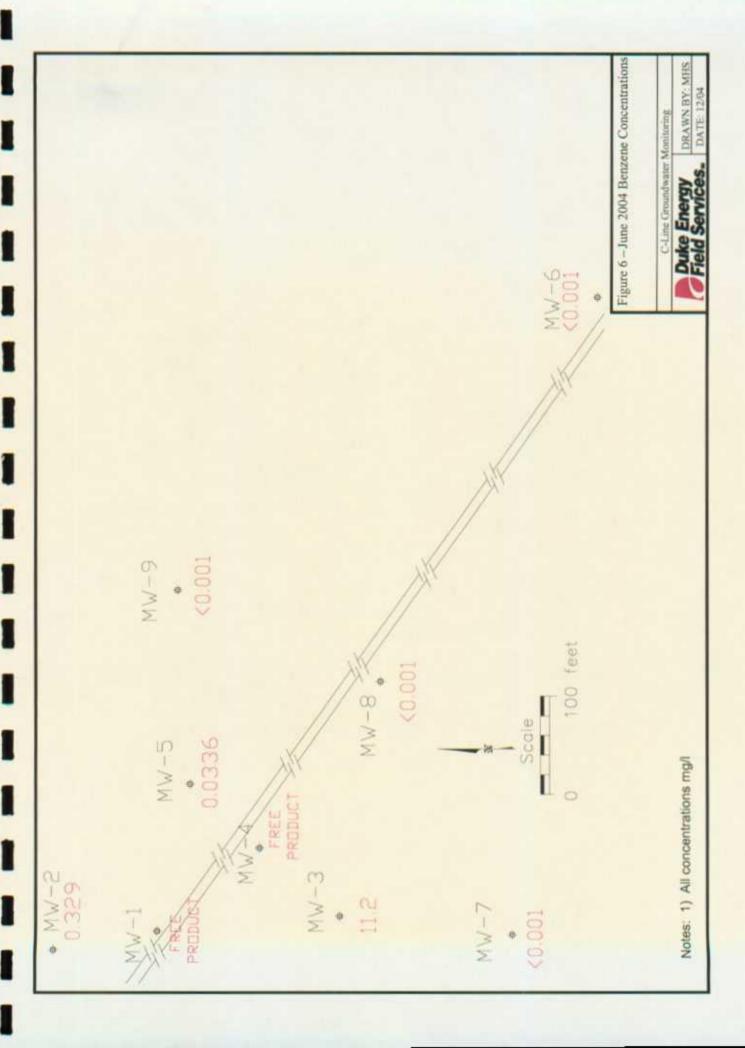


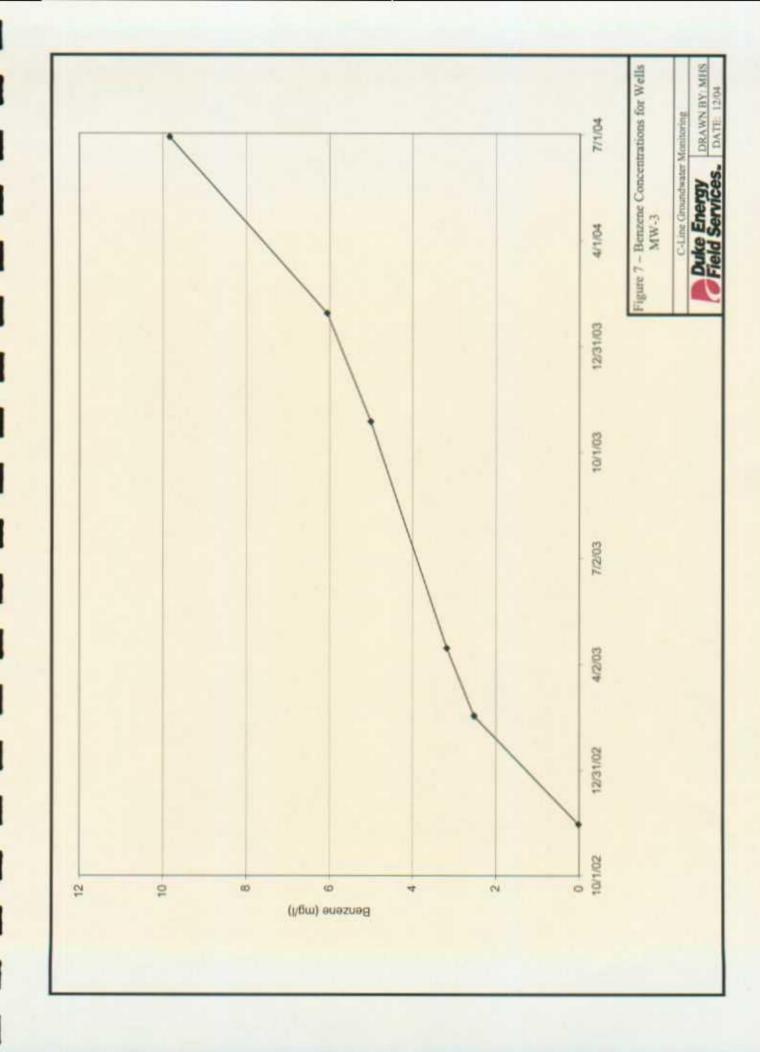


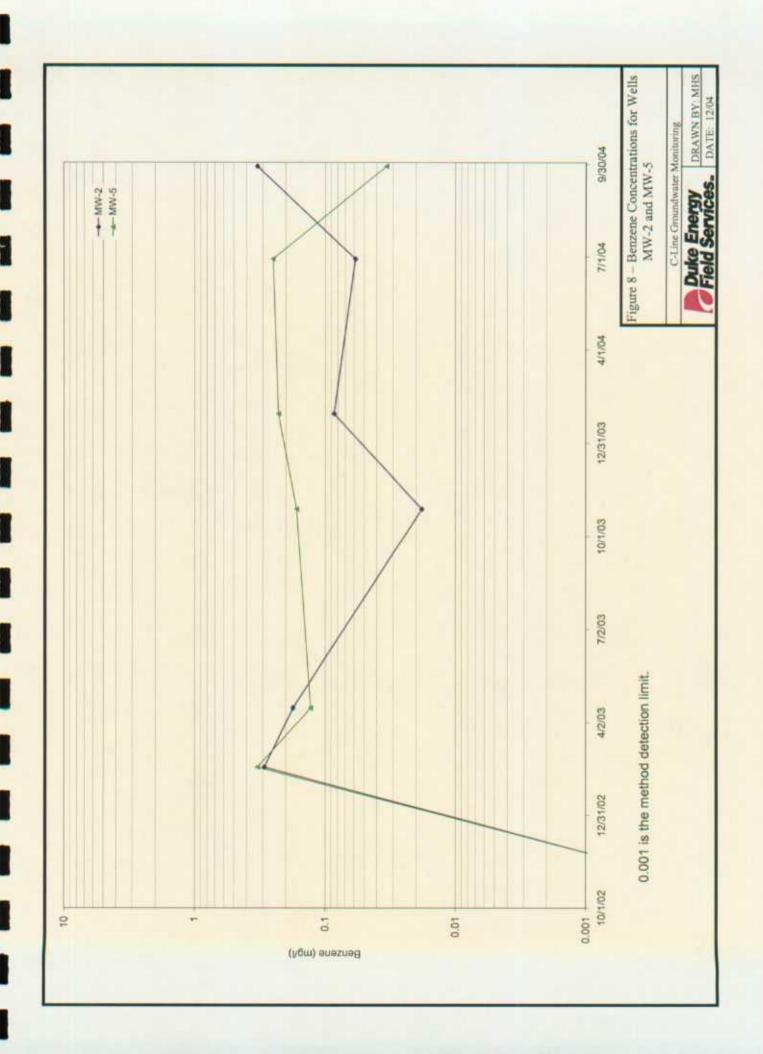












FIELD SHEETS AND ANALYTICAL LABORATORY REPORT

	CLIENT:	Duke En	ergy Field	Services		WELL ID:	RW-1			
SI	TE NAME:		C Line				9/28/2004			
PRO	JECT NO.		F-107			SAMPLER:	J. Fergerson/D. Littlejohn			
PURGING	METHOD:		☐ Hand Bai	led 🗌 Pu	mp If Pui	mp, Type:				
SAMPLIN	G METHO	D :	☐ Disposab	le Bailer	Direct f	rom Discha	rge Hose Other:			
DESCRIB	E EQUIPM	ENT DECO	NTAMINATI	ON METHO	OD BEFO	RE SAMPL	ING THE WELL:			
Glove	s 🗌 Alcono	x 🗌 Distill	ed Water Ri	nse 🗌 C	Other:					
DISPOSAL METHOD OF PURGE WATER: ☐ Surface Discharge ☐ Drums ☑ Disposal Facility										
DEPTH T	O WATER: OF WATER			Feet Feet Feet	,	0.0	Minimum Gallons to purge 3 well volumes			
ſ	VOLUME	TEMP	COND.	,	DO		(Water Column Height x 0.49) PHYSICAL APPEARANCE AND			
TIME	PURGED		m S/cm	pН	mg\L	Turb	REMARKS			
						_				
						· · · · · · · · · · · · · · · · · · ·				
0:00 :Total Time (hr:min) 0 :Total Vol (gal)							:Flow Rate (gal/min)			
	LE NO.:	Collected S	1	040928		#DIV/0!				
ANALYSES:										
	MENTS:	DID NOT S	SAMPLE DU	F TO FREE		HYDROCA	ARBONS IN WELL!			
30.1411	,	212 1101 0	, atti EE DO		_ I II/IOL		TONO III WELL.			

	CLIENT:	Duke En	nergy Field Services WELL				MW-2
SI	TE NAME:		C Line		_	DATE:	9/28/2004
PRO	JECT NO.		F-107			SAMPLER:	J. Fergerson/D. Littlejohn
PURGING	METHOD:		☑ Hand Bai	led 🗌 Pu	mp If Pu	mp, Type:	
SAMPLIN	G METHOD) :	☑ Disposab	le Bailer[Direct	from Discha	arge Hose Other:
DESCRIB	E EQUIPMI	ENT DECO	NTAMINATI	ON METH	OD BEFO	RE SAMPL	ING THE WELL:
☑ Glove:	s 🗌 Alcono	x Distill	ed Water Ri	nse 🗌 C	Other:		
DISPOSA	L METHOD	OF PURG	E WATER:	Surface	e Discharç	ge 🗌 Drur	ms 🗹 Disposal Facility
DEPTH T	O WATER:		100.94 89.19	Feet			
	OF WATER AMETER:		11.75	Feet		5.8	Minimum Gallons to purge 3 well volumes
	AVIL I LIX.						(Water Column Height x 0.49)
TIME	VOLUME PURGED		COND. mS/cm	pН	DO mg\L	Turb	PHYSICAL APPEARANCE AND REMARKS
13:02	0	-	-	_	-	_	Begin Hand Bailing
13:11	2	21.2	2.43	6.93	0.7		
13:24	4	21.2	2.41	6.96	1.2	_	
13:35	6	21.0	2.39	6.94	1.3		
	<u> </u>						
-			1	· 			
							
			<u> </u>				
		:					
0:33	:Total Time	e (hr:min)	6	:Total Vol	(gal)	0.18	:Flow Rate (gal/min)
SAMP	LE NO.:	Collected S	Sample No.:	040929	1340		
ANAL	YSES:	BTEX (802	1-B)				
COM	MENTS:						

CLIE	NT: Duke Er	nergy Field	Services		WELL ID:	MW-3
SITE NAM	⁄IE:	C Line			DATE:	9/28/2004
PROJECT N	10	F-107		. ;	SAMPLER	J. Fergerson/D. Littlejohn
PURGING METH	OD:	☑ Hand Bai	led 🗌 Pu	mp If Pu	mp, Type:	
SAMPLING MET	HOD:	☑ Disposab	le Bailer [Direct f	from Disch	arge Hose
DESCRIBE EQUI	PMENT DECC	NTAMINATI	ON METH	OD BEFO	RE SAMP	LING THE WELL:
☑ Gloves ☐ Alc	onox 🗌 Disti	lled Water Ri	nse 🗌 C	Other:		
DISPOSAL METH	OD OF PURG	SE WATER:	Surface	e Discharç	ge 🗌 Dru	ms 🗹 Disposal Facility
TOTAL DEPTH C DEPTH TO WAT HEIGHT OF WAT WELL DIAMETER	ER: ER COLUMN:	90.40 12.04	Feet		5.9	Minimum Gallons to purge 3 well volumes (Water Column Height x 0.49)
TIME VOLU		COND. mS/cm	рН	DO mg\L	Turb	PHYSICAL APPEARANCE AND REMARKS
11:52 0	-	_	_	_	-	Begin Hand Bailing
11:59 2	20.7	2.31	6.93	1.9	-	
12:10 4	20.4	2.25	7.04	2.0	-	
12:18 6	20.1	2.26	7.02	1.7	-	
ļ						
		<u> </u>				
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		<u> </u>				
						
L				<u> </u>		
	Time (hr:min)	6	:Total Vol		0.23	:Flow Rate (gal/min)
SAMPLE NO.		Sample No.:	040928	1220		
ANALYSES:	BTEX (80)					
COMMENTS:	Collected	Duplicate Sa	mple No.:	04092816	600	

	CLIENT:	Duke En	ergy Field	Services		WELL ID:	MW-4					
SI	TE NAME:		C Line			DATE:	9/28/2004					
PRO	JECT NO.		F-107		. ;		J. Fergerson/D. Littlejohn					
PURGING	METHOD	:	☐ Hand Bai	led 🗌 Pu	mp If Pui	mp, Type:						
SAMPLIN	G METHOI	D:	Disposab	le Bailer	Direct f	from Discha	arge Hose					
DESCRIB	E EQUIPM	ENT DECO	NTAMINATI	ON METH	OD BEFO	RE SAMPL	ING THE WELL:					
Glove	s 🗌 Alcond	ox 🗌 Distil	led Water Ri	nse 🗌 C	Other:							
DISPOSA	L METHO	OF PURG	E WATER:	Surface	e Discharç	ge 🗌 Drur	ms 🗹 Disposal Facility					
TOTAL DI	EPTH OF V	VELL:	103.30	Feet								
		TER: 90.38 Feet ATER COLUMN: 12.92 Feet 6.3 Minimum Gallons to										
			2.0 Inch Significant State Sta									
					,		(Water Column Height x 0.49)					
TIME	VOLUME PURGED		COND. mS/cm	pН	DO mg\L	Turb	PHYSICAL APPEARANCE AND REMARKS					
	0	-	_	_	.	- -	Begin Hand Bailing					
	2											
	4											
	6											
	7											
						·						
	 			·								
-												
0:00	:Total Tim	e (hr:min)	7	:Total Vol	(nal)	#DIV/0!	:Flow Rate (gal/min)					
	LE NO.:		Sample No.:	040928		1 "-14,01						
	YSES:	BTEX (802				 						
COMMENTS: Did Not Sample Due to FPH in We				FPH in We	ell!							

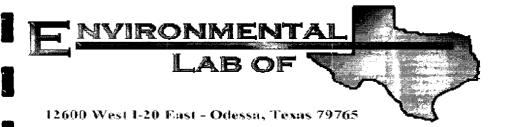
	CLIENT:	Duke En	ergy Field S	Services		WELL ID:	MVV-5				
SI	TE NAME:		C Line			DATE:	9/28/2004				
PRO	JECT NO.		F-107		_ ;	SAMPLER:	J. Fergerson/D. Littlejohn				
PURGING	METHOD:		☑ Hand Bai	led 🗌 Pu	mp If Pu	mp, Type:					
SAMPLIN	G METHOD) :	☑ Disposab	le Bailer [Direct	from Discha	rge Hose				
DESCRIB	E EQUIPM	ENT DECO	NTAMINATI	ON METH	OD BEFC	RE SAMPL	ING THE WELL:				
✓ Gloves	s 🗌 Alcono	x Distill	ed Water Ri	nse 🗌 C	Other:	· · · · · · · · · · · · · · · · · · ·					
DISPOSA	L METHOD	OF PURG	E WATER:	Surface	e Dischar	ge 🗌 Drun	ns 🗹 Disposal Facility				
TOTAL DE	EPTH OF W	VELL:	102.05								
HEIGHT (O WATER: OF WATER	O WATER: 90.70 Feet DF WATER COLUMN: 11.35 Feet 5.6 Minimum Gallons to purge 3 well volumes									
WELL DIA	AMETER:	2.0									
TIME	VOLUME		COND.	ND. DO Turb PHYSICAL APPEARANCE AN							
	PURGED	°C	<i>m</i> S/cm		mg\L -		REMARKS				
10:54	2	24.2	2.55	- 6.07		-	Begin Hand Bailing				
11:06 11:13	4	21.3 21.0	2.55 2.52	6.97 6.87							
11:22	6	20.5	2.53	6.89	2.5 2.6	-					
11.22		20.3	2.00	0.03	2.0	-					
							11 - 11 - 12 - 12 - 12 - 12 - 12 - 12 -				
ļ											
0:28	:Total Time	e (hr:min)	6	:Total Vol	(gal)	0.21	:Flow Rate (gal/min)				
SAMP	LE NO.:	Collected S	sample No.:	040928	1125						
ANAL	YSES:	BTEX (802	1-B)								
COM	MENTS:										

	CLIENT:	Duke En	ergyField S	Services	_	WELL ID:	MW-6
SI	TE NAME:		C Line			DATE:	9/28/2004
			F-107				J. Fergerson/D. Littlejohn
PURGING	METHOD:		☑ Hand Bai	led 🗌 Pu	mp If Pu	mp, Type:	
SAMPLIN	G METHOD) :	☑ Disposab	le Bailer[Direct	from Discha	rge Hose
DESCRIB	E EQUIPMI	ENT DECO	NTAMINATI	ON METH	OD BEFO	RE SAMPL	ING THE WELL:
☑ Gloves	s 🗌 Alcono	x Distill	ed Water Ri	nse 🗌 C	Other:		
DISPOSA	L METHOD	OF PURG	E WATER:	Surface	e Dischar	ge 🗌 Drur	ns 🗹 Disposal Facility
TOTAL DI	EPTH OF W O WATER:	/ELL:	103.20 95.95 7.25	Feet Feet			
HEIGHT (OF WATER	COLUMN:	7.25	Feet		Minimum Gallons to	
WELL DIA		2.0					purge 3 well volumes (Water Column Height x 0.49)
TIME	VOLUME PURGED		COND. mS/cm	pН	DO mg\L	PHYSICAL APPEARANCE AND REMARKS	
10:09	0	-	-	-		_	Begin Hand Bailing
10:20	2	20.8	2.85	7.00	5.0	_	
10:27	4	20.8	2.94	6.93	4.7	_	
10:40	6	21.0	2.93	6.97	4.9	-	
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				····			
					<u> </u>		
							
0:31	:Total Time	(hr:min)	6	:Total Vol	J (gal)	0.19	:Flow Rate (gal/min)
SAMP	MPLE NO.: Collected Sample No.: 040928 1				1045		
ANAL	.YSES:	BTEX (802	1-B)				
COM	MENTS:						

	CLIENT:	Duke En	ergy Field	Services		WELL ID:	MW-7
SI	TE NAME:		C Line			DATE:	9/28/2004
PRO	JECT NO.		F-107		. ;	SAMPLER:	J. Fergerson/D. Littlejohn
PURGING	METHOD	:	☑ Hand Bai	led 🗌 Pu	mp If Pu	mp, Type:	
SAMPLIN	G METHO	D :	☑ Disposab	le Bailer	Direct	from Discha	arge Hose
DESCRIB	E EQUIPM	ENT DECO	NTAMINATI	ON METHO	OD BEFO	RE SAMPL	ING THE WELL:
☑ Gloves	s 🗌 Alcond	x Distill	led Water Ri	nse 🗌 C	Other:		
DISPOSA	L METHOD	OF PURG	E WATER:	Surface	e Dischar	ge 🗌 Drur	ns 🗹 Disposal Facility
DEPTH TO	O WATER: OF WATER		8.45	Feet		4.1	Minimum Gallons to purge 3 well volumes (Water Column Height x 0.49)
TIME	VOLUME PURGED		COND. mS/cm	рН	DO mg\L	Turb	PHYSICAL APPEARANCE AND REMARKS
11:50	0	-	-	-	-	-	Begin Hand Bailing
11:55	2	20.7	1.86	7.22	1.5	-	
12:04	4	20.3	1.87	7.22	2.3	-	
12:13	6	20.2	1.83	7.27	2.6	-	
					<u>.</u>		
					<u> </u>	· · · · · · · · · · · · · · · · · · ·	
					<u> </u>		
						-	
0:23	:Total Time	hr:min)	6	:Total Vol	(aal)	0.26	:Flow Rate (gal/min)
	LE NO.:			040928		0.20	.i iow ixate (gai/itilit)
	SAMPLE NO.: Collected Sample No.: 040928 ANALYSES: BTEX (8021-B)						
	MENTS:		//S/MSD Sar	nples			
	- -			- 1			

	CLIENT:	Duke En	ergy Field S	MW-8			
S	ITE NAME:		C Line			DATE:	9/28/2004
PRO	DJECT NO.		F-107			SAMPLER:	J. Fergerson/D. Littlejohn
PURGING	METHOD:	:	☑ Hand Bai	led 🗌 Pu	mp If Pu	mp, Type:	
SAMPLIN	IG METHO	D:	☑ Disposab	le Bailer [Direct 1	from Discha	arge Hose
DESCRIE	BE EQUIPM	ENT DECO	NTAMINATI	ON METHO	OD BEFO	RE SAMPI	ING THE WELL:
☑ Glove	s 🗌 Alcond	x Distill	led Water Ri	nse 🗌 C	Other:		
DISPOSA	AL METHOE	OF PURG	E WATER:	Surface	e Discharç	ge 🗌 Drui	ms 🗹 Disposal Facility
			100.50	Feet			
	O WATER: OF WATER		90.44 10.06		Minimum Gallons to		
	AMETER:						purge 3 well volumes (Water Column Height x 0.49)
TIME	VOLUME		COND.	pН	DO	Turb	PHYSICAL APPEARANCE AND
	PURGED		<i>m</i> S/cm_		mg\L		REMARKS
12:32	0		- 24	7.07	-	-	Begin Hand Bailing
12:41	2	20.4	2.1	7.07	3.4	-	
12:47 12:53	6	20.6 20.5	2.16 2.25	7.09 7.15	3.8 5.1	-	
12.55	0	20.5	2.25	7.15	5.1		
	<u> </u>						
					!		
0:21	:Total Time	e (hr:min)	6	:Total Vol	(gal)	0.28	:Flow Rate (gal/min)
SAMF	SAMPLE NO.: Collected Sample No.: 040928 129			1255			
ANAI	LYSES:	BTEX (802	1-B)				
СОМІ	MENTS:						

	CLIENT:	Duke En	ergy Field S	Services	<u>MW-9</u>							
SI	TE NAME:		C Line			DATE:	9/28/2004					
PRO	JECT NO.		F-107		. ;	SAMPLER:	J. Fergerson/D. Littlejohn					
PURGING	METHOD:	•	☑ Hand Bai	led 🗌 Pu	mp If Pu	mp, Type:						
SAMPLIN	G METHO	D :	☑ Disposab	le Bailer [Direct 1	from Discha	arge Hose					
DESCRIB	E EQUIPM	ENT DECO	NTAMINATI	ON METH	OD BEFO	RE SAMPI	LING THE WELL:					
☑ Glove:	s 🗌 Alcono	x Distill	led Water Ri	nse 🗌 C	Other:		5-97-0					
DISPOSA	L METHOD	OF PURG	E WATER:	Surface	e Discharç	ge 🗌 Drui	ms 🗹 Disposal Facility					
TOTAL DI	EPTH OF V O WATER:	VELL:	100.51	Feet								
			89.95 10.56			5.2	Minimum Gallons to					
WELL DIAMETER: 2.0 Inch purge 3 well v							purge 3 well volumes					
TIME	VOLUME	(Water Column Height x 0.49) PHYSICAL APPEARANCE AND										
	PURGED	°C	<i>m</i> S/cm	pН	mg\L	Turb	REMARKS					
11:05	0	_	-	_	-	-	Begin Hand Bailing					
11:09	2	20.5	1.86	7.18	6.2	-						
11:17	4	20.2	1.90	7.11	5.8	-						
11:28	6	20.1	2.08	7.10	6.2	-						
						-						
		<u> </u>			<u> </u>							
0:23	:Total Time	•	6	:Total Vol		0.26	:Flow Rate (gal/min)					
	LE NO.:		Sample No.:	040928	1130		·					
	YSES:	BTEX (802										
COM	MENTS:	Collected N	/IS/MSD Sar	nple								



Analytical Report

Prepared for:

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

Project: DEFS-C-Line Pipeline
Project Number: None Given
Location: Lea County, New Mexico

Lab Order Number: 4I29005

Report Date: 10/07/04

Project: DEFS-C-Line Pipeline

Project Number: None Given
Project Manager: Michael Stewart

Fax: 720-528-8132

Reported:

10/07/04 10:19

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-6 (0409281045)	4129005-01	Water	09/28/04 10:45	09/29/04 09:52
MW-5 (0409281125)	4I29005-02	Water	09/28/04 11:25	09/29/04 09:52
MW-9 (0409281130)	4I29005-03	Water	09/28/04 11:30	09/29/04 09:52
MW-7 (0409281215)	4I29005-04	Water	09/28/04 12:15	09/29/04 09:52
MW-3 (0409281220)	4I29005-06	Water	09/28/04 12:20	09/29/04 09:52
MW-8 (0409281255)	4I29005-07	Water	09/28/04 12:55	09/29/04 09:52
MW-2 (0409281340)	4I29005-08	Water	09/28/04 13:40	09/29/04 09:52
Duplicate (0409281600)	4I29005-09	Water	09/28/04 16:00	09/29/04 09:52
Trip Blank	4I29005-10	Water	09/28/04 00:00	09/29/04 09:52

Project: DEFS-C-Line Pipeline

Project Number: None Given
Project Manager: Michael Stewart

Fax: 720-528-8132

Reported: 10/07/04 10:19

Organics by GC Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
MW-6 (0409281045) (4I29005-01) Water	r								
Benzene	ND	0.00100	mg/L	1	EJ40413	09/30/04	10/04/04	EPA 8021B	
Toluene	ND	0.00100	n .		n	n	**	"	
Ethylbenzene	ND	0.00100	**	**	"	"	"	**	
Xylene (p/m)	ND	0.00100	"	"	11	"	**	**	
Xylene (o)	ND	0.00100	"	"	н	17	11		
Surrogate: a,a,a-Trifluorotoluene	**************************************	91.3 %	80-12	0	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.6 %	80-12	0	#	n	"	"	
MW-5 (0409281125) (4129005-02) Wate	er								
Benzene	0.0336	0.00100	mg/L	1	EJ40413	09/30/04	10/04/04	EPA 8021B	
Toluene	0.00281	0.00100	"	"	**	**	**	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	п	
Xylene (p/m)	ND	0.00100	**	"	"	"	" '	ur.	
Xylene (o)	ND	0.00100	"	н	"	"	II.	n	
Surrogate: a,a,a-Trifluorotoluene		95.8 %	80-12	0	,,	"	,,	"	
Surrogate: 4-Bromofluorobenzene		95.9 %	80-12	0	"	"	"	n	
MW-9 (0409281130) (4129005-03) Water	er								
Benzene	ND	0.00100	mg/L	1	EJ40413	09/30/04	10/04/04	EPA 8021B	
Toluene	ND	0.00100	"	"	**	11	н	n	
Ethylbenzene	ND	0.00100	"	,,	"	n	"	**	
Xylene (p/m)	ND	0.00100	n	"	"	"	"	**	
Xylene (o)	ND	0.00100	u	"	"	"	**	"	
Surrogate: a,a,a-Trifluorotoluene		87.4 %	80-12	20	m m	"	n	"	
Surrogate: 4-Bromofluorobenzene		105 %	80-12	20	"	"	"	n	
MW-7 (0409281215) (4I29005-04) Wate	er								
Benzene	ND	0.00100	mg/L	1	EJ40413	09/30/04	10/04/04	EPA 8021B	
Toluene	ND	0.00100	11	"	"	"	"	17	
Ethylbenzene	ND	0.00100	17	"	**	"	**	"	
Xylene (p/m)	ND	0.00100	"	"	**	"	n	**	
Xylene (o)	ND	0.00100	**	"	**	v	н	#	
Surrogate: a,a,a-Trifluorotoluene		83.4 %	80-12	20	"	π	"	"	
Surrogate: 4-Bromofluorobenzene		97.6%	80-12	20	"	rt	"	"	

Project: DEFS-C-Line Pipeline

Project Number: None Given
Project Manager: Michael Stewart

Fax: 720-528-8132

Reported:
10/07/04 10:19

Organics by GC Environmental Lab of Texas

			ICHIAI L	140 UI 1 C	ALLE				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note:
MW-3 (0409281220) (4I29005-06) Wa	iter								
Benzene	11.2	0.0200	mg/L	20	EJ40603	10/05/04	10/05/04	EPA 8021B	
Toluene	0.0218	0.0200	n	"	11	*	**	11	
Ethylbenzene	0.105	0.0200	,,	"	11	,	n	n	
Xylene (p/m)	J [0.0107]	0.0200	"	п	#	"	n	n	
Xylene (o)	J [0.0105]	0.0200	#	11	n	"	н	n	
Surrogate: a,a,a-Trifluorotoluene		124 %	80-	120	"	"	"	n	S-0
Surrogate: 4-Bromofluorobenzene		92.9 %	80-	120	"	"	"	"	
MW-8 (0409281255) (4I29005-07) Wa	nter								
Benzene	ND	0.00100	mg/L	1	EJ40603	10/05/04	10/05/04	EPA 8021B	
Toluene	ND	0.00100	*	n	"	"	"	и	
Ethylbenzene	ND	0.00100	**	u	"	"	"	u	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	**	
Xylene (o)	ND	0.00100	"	"	"	11	11	17	
Surrogate: a,a,a-Trifluorotoluene		83.3 %	80-	120	"	n	"	"	
Surrogate: 4-Bromofluorobenzene		87.1 %	80-	120	n	n	n	n	
MW-2 (0409281340) (4129005-08) Wa	ater								
Benzene	0.329	0.00100	mg/L	1	EJ40603	10/05/04	10/05/04	EPA 8021B	
Toluene	0.0174	0.00100	u u	n	н	**	11	н	
Ethylbenzene	ND	0.00100	"	"	"	n	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	II .	11	n	
Xylene (o)	ND	0.00100	"	11	n	"	#	TT.	
Surrogate: a,a,a-Trifluorotoluene		140 %	80-	120	n	ft .	n	n	S-0
Surrogate: 4-Bromofluorobenzene		99.9 %	80-	120	rr .	"	"	"	
Duplicate (0409281600) (4129005-09)	Water								
Benzene	11.7	0.0250	mg/L	25	EJ40603	10/05/04	10/05/04	EPA 8021B	
Toluene	J [0.0226]	0.0250	**	"	**	"	19	"	
Ethylbenzene	0.105	0.0250	,,	"	"	"	"	"	
Xylene (p/m)	J [0.00994]	0.0250	"	"	n	"	"	**	
Xylene (o)	J [0.00969]	0.0250	"	"	n	"	"	*	
Surrogate: a,a,a-Trifluorotoluene		125 %	80-	120	"	"	"	"	S-0
Surrogate: 4-Bromofluorobenzene		95.6 %	80-	120	"	n	"	n	

Project: DEFS-C-Line Pipeline

Project Number: None Given
Project Manager: Michael Stewart

Fax: 720-528-8132

Reported:

10/07/04 10:19

Organics by GC Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Trip Blank (4129005-10) Water	<u></u>								
Benzene	ND	0.00100	mg/L	1	EJ40603	10/05/04	10/05/04	EPA 8021B	
Toluene	ND	0.00100	,,	"	Ħ	#	"	"	
Ethylbenzene	ND	0.00100	n	"	*	"	"	**	
Xylene (p/m)	ND	0.00100	n	,,	"	"	n	"	
Xylene (o)	ND	0.00100		"	"	11	**	•	
Surrogate: a,a,a-Trifluorotoluene		87.3 %	80-12	0	п	"	"	"	
Surrogate: 4-Bromofluorobenzene		82.7 %	80-12	0	#	"	n	"	

Project: DEFS-C-Line Pipeline

Project Number: None Given
Project Manager: Michael Stewart

Fax: 720-528-8132

Reported: 10/07/04 10:19

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 EJ40413 - EPA 5030C (GC)										
Blank (EJ40413-BLK1)				Prepared &	Analyzed	: 09/30/04				
Benzene	ND	0.00100	mg/L						<u> </u>	
Toluene	ND	0.00100	"							
Ethylbenzene	ND	0.00100	0							
Xylene (p/m)	ND	0.00100	17							
Xylene (o)	ND	0.00100	**							
Surrogate: a,a,a-Trifluorotoluene	91.8		ug/l	100		91.8	80-120			
Surrogate: 4-Bromofluorobenzene	80.5		"	100		80.5	80-120			
LCS (EJ40413-BS1)				Prepared &	: Analyzed	: 09/30/04				
Benzene	101		ug/l	100		101	80-120			
Toluene	102			100		102	80-120			
Ethylbenzene	91,2		**	100		91.2	80-120			
Xylene (p/m)	201		**	200		100	80-120			
Xylene (o)	94.0		17	100		94.0	80-120			
Surrogate: a,a,a-Trifluorotoluene	114		"	100		114	80-120			
Surrogate: 4-Bromofluorobenzene	111		"	100		111	80-120			
Calibration Check (EJ40413-CCV1)				Prepared: 0	9/30/04 A	nalyzed: 1	0/04/04			
Benzene	98.7		ug/l	100		98.7	80-120			
Toluene	90.4		"	100		90.4	80-120			
Ethylbenzene	82.8		"	100		82.8	80-120			
Xylene (p/m)	182		"	200		91.0	80-120			
Xylene (o)	86,6		"	100		86.6	80-120			
Surrogate: a,a,a-Trifluorotoluene	111	1.1. 10. 11.	"	100		111	80-120			
Surrogate: 4-Bromofluorobenzene	110		"	100		110	80-120			
Matrix Spike (EJ40413-MS1)	Sou	rce: 4129005-0	04	Prepared: ()9/30/04 A	Analyzed:	10/04/04			
Benzene	89.7		ug/l	100	ND	89.7	80-120			
Toluene	90.5		n	100	ND	90.5	80-120			
Ethylbenzene	87.6		"	100	ND	87.6	80-120			
Xylene (p/m)	196		"	200	ND	98.0	80-120			
Xylene (o)	95.7		19	100	ND	95.7	80-120			
Surrogate: a,a,a-Trifluorotoluene	104		"	100		104	80-120			
Surrogate: 4-Bromofluorobenzene	119		"	100		119	80-120			

Project: DEFS-C-Line Pipeline

Project Number: None Given
Project Manager: Michael Stewart

Fax: 720-528-8132

Reported: 10/07/04 10:19

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 EJ40413 - EPA 5030C (GC)			_							
Matrix Spike Dup (EJ40413-MSD1)	Sou	rce: 4129005-()4	Prepared: (09/30/04 A	nalyzed: 10	/04/04			
Benzene	89.7		ug/l	100	ND	89.7	80-120	0.00	20	
Toluene	90.5		H	100	ND	90.5	80-120	0.00	20	
Ethylbenzene	87.6		11	100	ND	87.6	80-120	0.00	20	
Xylene (p/m)	196		H	200	ND	98.0	80-120	0.00	20	
Xylene (o)	95.7		"	100	ND	95.7	80-120	0.00	20	
Surrogate: a,a,a-Trifluorotoluene	104	*	<i>n</i>	100		104	80-120			<u></u>
Surrogate: 4-Bromofluorobenzene	119		"	100		119	80-120			
Batch EJ40603 - EPA 5030C (GC)										
Blank (EJ40603-BLK1)				Prepared &	Analyzed:	10/05/04				
Benzene	ND	0.00100	mg/L							
Toluene	ND	0.00100								
Ethylbenzene	ND	0.00100	#							
Xylene (p/m)	ND	0.00100	n							
Xylene (o)	ND	0.00100	"							
Surrogate: a,a,a-Trifluorotoluene	88.0		ug/l	100	· ·	88.0	80-120			
Surrogate: 4-Bromofluorobenzene	89.6		n	100		89.6	80-120			
LCS (EJ40603-BS1)				Prepared &	Analyzed:	10/05/04				
Benzene	92.2		ug/l	100		92.2	80-120			
Toluene	93.0		Ħ	100		93.0	80-120			
Ethylbenzene	85.5		11	100		85.5	80-120			
Xylene (p/m)	190		n	200		95.0	80-120			
Xylene (o)	89.7		U	100		89.7	80-120			
Surrogate: a,a,a-Trifluorotoluene	110		"	100		110	80-120			
Surrogate: 4-Bromofluorobenzene	114		"	100		114	80-120			

Project: DEFS-C-Line Pipeline

Project Number: None Given
Project Manager: Michael Stewart

Fax: 720-528-8132

Reported: 10/07/04 10:19

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 EJ40603 - EPA 5030C (GC)				*****						
Calibration Check (EJ40603-CCV1)	***************************************			Prepared &	Analyzed:	10/05/04				
Benzene	92.6		ug/l	100		92.6	80-120			
Toluene	95.6		"	100		95.6	80-120			
Ethylbenzene	88.7		"	100		88.7	80-120			
Xylene (p/m)	196			200		98.0	80-120			
Xylene (o)	93.6		"	100		93.6	80-120			
Surrogate: a,a,a-Trifluorotoluene	109		н	100		109	80-120			
Surrogate: 4-Bromofluorobenzene	119		"	100		119	80-120			
Matrix Spike (EJ40603-MS1)	Sou	ırce: 4I29005-1	0	Prepared &	Analyzed:	10/05/04				
Benzene	85.1		ug/l	100	ND	85.1	80-120			
Toluene	84.2		н	100	ND	84.2	80-120			
Ethylbenzene	80.0		#	100	ND	80.0	80-120			
Xylene (p/m)	173			200	ND	86.5	80-120			
Xylene (o)	83.4		*	100	ND	83.4	80-120			
Surrogate: a,a,a-Trifluorotoluene	98.5		н	100	· · · · · · · · · · · · · · · · · · ·	98.5	80-120			
Surrogate: 4-Bromofluorobenzene	118		"	100		118	80-120			
Matrix Spike Dup (EJ40603-MSD1)	Sou	rce: 4I29005-1	0	Prepared &	k Analyzed:	10/05/04				
Benzene	91.3		ug/l	100	ND	91.3	80-120	7.03	20	
Toluene	91.8		"	100	ND	91.8	80-120	8.64	20	
Ethylbenzene	83.5		"	100	ND	83.5	80-120	4.28	20	
Xylene (p/m)	185		"	200	ND	92.5	80-120	6.70	20	
Xylene (o)	87.7		"	100	ND	87.7	80-120	5.03	20	
Surrogate: a,a,a-Trifluorotoluene	106		n	100		106	80-120			
Surrogate: 4-Bromofluorobenzene	120		"	100		120	80-120			

REMEDIACONProject:DEFS-C-Line PipelineFax: 720-528-8132P.O. Box 302Project Number:None GivenReported:Evergreen CO, 80437Project Manager:Michael Stewart10/07/04 10:19

Notes and Definitions

S-04 The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect. 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 Sample results reported on a dry weight basis dry Relative Percent Difference RPD LCS Laboratory Control Spike MS Matrix Spike

Report Approved By:	Kaland Kolumb	Date:	10/7/04

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.

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

Dup

Duplicate

Entropmental Lan of Texas

12600 West I-20 East Odeste, Texas 79765

Phone: 432-563-1800 Fax: 432-563-1713

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Name: DEFS - C-Line Pipeline	Project #1	Preject Loc. Lea County, New Mexico	. #Od		TCLP: Analyze For:
				Fax No. (720) 528-8132	
Project Manager Michael H. Stewart	Company Name Remediacon, Inc.	Company Address: P. O. Box 302	chysalazip: Evergreen, Colorado 80437	Telightone No: (303) 674-4370	Sampler Steinsture: N. H. H.

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

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