

1R - 432

# REPORTS

DATE:

3-6-06



**Whole Earth Environmental, Inc.**

2103 Arbor Cove  
Katy, Tx. 77494  
281.394.2050  
whearth@msn.com

March 6, 2006

NMOCD  
1220 South Saint Francis Dr.  
Sante Fe, NM 87505

Attn: Wayne Price

Dear Wayne:

Enclosed, please find a copy of the laboratory analytical results, hydro geologic gradient chart & spreadsheet summary for the Devon Dickinson site situated east of Lovington in Lea County New Mexico.

The Patsy Battery was acquired by Devon Energy in 2001 as a part of a larger asset purchase. Prior to the acquisition, all of the tanks and ancillary equipment were removed leaving only cement slabs and a few joints of 2" flow lines. Devon does not own or operate any other properties in the immediate area.

Upon notification of potential environmental defects, Devon undertook an independent study of the site which included the advancement, development and monitoring of a series of seven monitor wells. An initial analysis of the waters from within the wells showed no BTEX concentration above the NMWQCC Standards and two monitor wells in which minor chloride impacts could be measured.

The soils within the pit and battery areas were excavated, aerated mixed and blended to achieve chloride and BTEX concentrations in accordance with the approved remediation protocol. The pit area was extensively modeled and a compacted clay layer was erected at an approximate depth of 25' below ground surface.

New water samples were collected on February 13, 2006 and sent to Environmental Lab of Texas for analysis of BTEX and chlorides. As before, no detectable concentration of BTEX were found in any well. The chloride concentrations in all but one well declined to acceptable standards. The exception was found in a newly drilled well (North Well) which previously tested to be within acceptance standards.

We propose to continue testing monitor wells nos. 1, 6 and the north well for a minimum of four years until we achieve four consecutive tests with acceptable concentrations. We request that we be able to plug the remaining wells on the location, as they have never exceeded NMWQCC standards for any constituent of concern.

Thank you in advance for your consideration of our proposal. I very much look forward to discussing this with you in the near future.

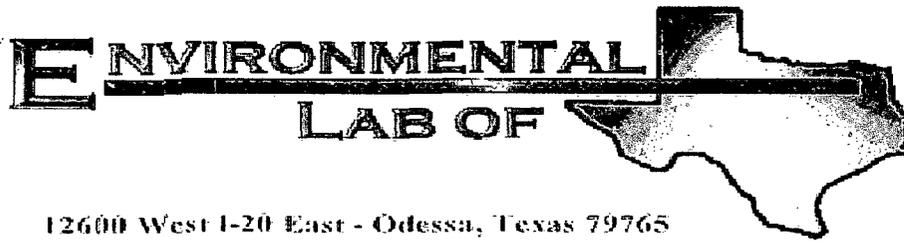
Warmest personal regards,

A handwritten signature in black ink, appearing to read "Mike Griffin". The signature is fluid and cursive, with a large initial "M" and "G".

Mike Griffin  
President  
Whole Earth Environmental, Inc.

Cc: Chris Biagi / Devon Energy Corporation

Attachments: Environmental Lab of Tx. Analytical Report 6B14001  
Gradient and Monitor Well Location Map  
Historical Analytical Analysis Summary  
Hydrological Gradient Chart



12600 West I-20 East - Odessa, Texas 79765

## Analytical Report

**Prepared for:**

Mike Griffin

WHOLE EARTH ENVIRONMENTAL

2103 Arbor Cove

Katy, TX 77494

Project: Dickinson Project

Project Number: None Given

Location: Lovington

Lab Order Number: 6B14002

Report Date: 02/22/06

WHOLE EARTH ENVIRONMENTAL  
2103 Arbor Cove  
Katy TX, 77494

Project: Dickinson Project  
Project Number: None Given  
Project Manager: Mike Griffin

Fax: (281) 394-2051

**Reported:**  
02/22/06 09:12

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
A MW-5	6B14002-01	Water	02/13/06 11:45	02/14/06 08:10
B MW-4	6B14002-02	Water	02/13/06 12:05	02/14/06 08:10
C MW-1	6B14002-03	Water	02/13/06 12:25	02/14/06 08:10
D MW-6	6B14002-04	Water	02/13/06 12:50	02/14/06 08:10
E MW-N	6B14002-05	Water	02/13/06 13:20	02/14/06 08:10
F MW-S	6B14002-06	Water	02/13/06 14:00	02/14/06 08:10
G MW-7	6B14002-07	Water	02/13/06 14:30	02/14/06 08:10

WHOLE EARTH ENVIRONMENTAL  
2103 Arbor Cove  
Katy TX, 77494

Project: Dickinson Project  
Project Number: None Given  
Project Manager: Mike Griffin

Fax: (281) 394-2051

Reported:  
02/22/06 09:12

**Organics by GC**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>A MW-5 (6B14002-01) Water</b>									
Benzene	ND	0.00100	mg/L	1	EB61616	02/16/06	02/20/06	EPA 8021B	
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		110 %	80-120		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		118 %	80-120		"	"	"	"	
<b>B MW-4 (6B14002-02) Water</b>									
Benzene	ND	0.00100	mg/L	1	EB61616	02/16/06	02/20/06	EPA 8021B	
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		105 %	80-120		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		114 %	80-120		"	"	"	"	
<b>C MW-1 (6B14002-03) Water</b>									
Benzene	ND	0.00100	mg/L	1	EB61616	02/16/06	02/20/06	EPA 8021B	
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		105 %	80-120		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		114 %	80-120		"	"	"	"	
<b>D MW-6 (6B14002-04) Water</b>									
Benzene	ND	0.00100	mg/L	1	EB61616	02/16/06	02/20/06	EPA 8021B	
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		85.5 %	80-120		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		95.2 %	80-120		"	"	"	"	

WHOLE EARTH ENVIRONMENTAL  
2103 Arbor Cove  
Katy TX, 77494

Project: Dickinson Project  
Project Number: None Given  
Project Manager: Mike Griffin

Fax: (281) 394-2051

Reported:  
02/22/06 09:12

**Organics by GC**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>E MW-N (6B14002-05) Water</b>									
Benzene	ND	0.00100	mg/L	1	EB61616	02/16/06	02/20/06	EPA 8021B	
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		103 %	80-120		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		120 %	80-120		"	"	"	"	
<b>F MW-S (6B14002-06) Water</b>									
Benzene	ND	0.00100	mg/L	1	EB61616	02/16/06	02/20/06	EPA 8021B	
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		100 %	80-120		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		119 %	80-120		"	"	"	"	
<b>G MW-7 (6B14002-07) Water</b>									
Benzene	ND	0.00100	mg/L	1	EB61616	02/16/06	02/21/06	EPA 8021B	
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		102 %	80-120		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		116 %	80-120		"	"	"	"	

**General Chemistry Parameters by EPA / Standard Methods**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>A MW-5 (6B14002-01) Water</b>									
Chloride	49.7	5.00	mg/L	10	EB61711	02/17/06	02/20/06	EPA 300.0	
<b>B MW-4 (6B14002-02) Water</b>									
Chloride	54.9	5.00	mg/L	10	EB61711	02/17/06	02/20/06	EPA 300.0	
<b>C MW-1 (6B14002-03) Water</b>									
Chloride	138	5.00	mg/L	10	EB61711	02/17/06	02/20/06	EPA 300.0	
<b>D MW-6 (6B14002-04) Water</b>									
Chloride	97.1	5.00	mg/L	10	EB61711	02/17/06	02/20/06	EPA 300.0	
<b>E MW-N (6B14002-05) Water</b>									
Chloride	478	12.5	mg/L	25	EB61711	02/17/06	02/20/06	EPA 300.0	
<b>F MW-S (6B14002-06) Water</b>									
Chloride	73.0	5.00	mg/L	10	EB61711	02/17/06	02/20/06	EPA 300.0	
<b>G MW-7 (6B14002-07) Water</b>									
Chloride	59.4	5.00	mg/L	10	EB61711	02/17/06	02/20/06	EPA 300.0	

WHOLE EARTH ENVIRONMENTAL  
2103 Arbor Cove  
Katy TX, 77494

Project: Dickinson Project  
Project Number: None Given  
Project Manager: Mike Griffin

Fax: (281) 394-2051

Reported:  
02/22/06 09:12

**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
<b>Batch EB61616 - EPA 5030C (GC)</b>										
<b>Blank (EB61616-BLK1)</b>										
Prepared & Analyzed: 02/16/06										
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	34.1		ug/l	40.0		85.2	80-120			
Surrogate: 4-Bromofluorobenzene	36.3		"	40.0		90.8	80-120			
<b>LCS (EB61616-BS1)</b>										
Prepared & Analyzed: 02/16/06										
Benzene	0.104	0.00100	mg/L	0.100		104	80-120			
Toluene	0.111	0.00100	"	0.100		111	80-120			
Ethylbenzene	0.115	0.00100	"	0.100		115	80-120			
Xylene (p/m)	0.206	0.00100	"	0.200		103	80-120			
Xylene (o)	0.120	0.00100	"	0.100		120	80-120			
Surrogate: a,a,a-Trifluorotoluene	40.1		ug/l	40.0		100	80-120			
Surrogate: 4-Bromofluorobenzene	43.5		"	40.0		109	80-120			
<b>Calibration Check (EB61616-CCV1)</b>										
Prepared: 02/16/06 Analyzed: 02/17/06										
Benzene	107		ug/l	100		107	80-120			
Toluene	112		"	100		112	80-120			
Ethylbenzene	106		"	100		106	80-120			
Xylene (p/m)	188		"	200		94.0	80-120			
Xylene (o)	102		"	100		102	80-120			
Surrogate: a,a,a-Trifluorotoluene	40.2		"	40.0		100	80-120			
Surrogate: 4-Bromofluorobenzene	36.5		"	40.0		91.2	80-120			
<b>Matrix Spike (EB61616-MS1)</b>										
Source: 6B09004-01 Prepared: 02/16/06 Analyzed: 02/17/06										
Benzene	0.0988	0.00100	mg/L	0.100	ND	98.8	80-120			
Toluene	0.116	0.00100	"	0.100	ND	116	80-120			
Ethylbenzene	0.119	0.00100	"	0.100	ND	119	80-120			
Xylene (p/m)	0.217	0.00100	"	0.200	ND	108	80-120			
Xylene (o)	0.119	0.00100	"	0.100	ND	119	80-120			
Surrogate: a,a,a-Trifluorotoluene	41.9		ug/l	40.0		105	80-120			
Surrogate: 4-Bromofluorobenzene	39.5		"	40.0		98.8	80-120			

WHOLE EARTH ENVIRONMENTAL 2103 Arbor Cove Katy TX, 77494	Project: Dickinson Project Project Number: None Given Project Manager: Mike Griffin	Fax: (281) 394-2051  Reported: 02/22/06 09:12
--	---	--

**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 EB61616 - EPA 5030C (GC)**

Matrix Spike Dup (EB61616-MSD1)	Source: 6B09004-01			Prepared: 02/16/06 Analyzed: 02/17/06						
Benzene	0.0968	0.00100	mg/L	0.100	ND	96.8	80-120	2.04	20	
Toluene	0.114	0.00100	"	0.100	ND	114	80-120	1.74	20	
Ethylbenzene	0.115	0.00100	"	0.100	ND	115	80-120	3.42	20	
Xylene (p/m)	0.204	0.00100	"	0.200	ND	102	80-120	5.71	20	
Xylene (o)	0.115	0.00100	"	0.100	ND	115	80-120	3.42	20	
Surrogate: a,a,a-Trifluorotoluene	41.6		ug/l	40.0		104	80-120			
Surrogate: 4-Bromofluorobenzene	34.2		"	40.0		85.5	80-120			

WHOLE EARTH ENVIRONMENTAL 2103 Arbor Cove Katy TX, 77494	Project: Dickinson Project Project Number: None Given Project Manager: Mike Griffin	Fax: (281) 394-2051  <b>Reported:</b> 02/22/06 09:12
--	---	---

**General Chemistry Parameters by EPA / Standard Methods - Quality Control**  
**Environmental Lab of Texas**

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

**Batch EB61711 - General Preparation (WetChem)**

<b>Blank (EB61711-BLK1)</b>				Prepared: 02/17/06 Analyzed: 02/20/06						
Chloride	ND	0.500	mg/L							
<b>LCS (EB61711-BS1)</b>				Prepared: 02/17/06 Analyzed: 02/20/06						
Chloride	8.76	0.500	mg/L	10.0		87.6	80-120			
<b>Calibration Check (EB61711-CCV1)</b>				Prepared: 02/17/06 Analyzed: 02/20/06						
Chloride	8.59		mg/L	10.0		85.9	80-120			
<b>Duplicate (EB61711-DUP1)</b>				Source: 6B13006-01 Prepared: 02/17/06 Analyzed: 02/20/06						
Chloride	641	12.5	mg/L		629			1.89	20	

WHOLE EARTH ENVIRONMENTAL  
2103 Arbor Cove  
Katy TX, 77494

Project: Dickinson Project  
Project Number: None Given  
Project Manager: Mike Griffin

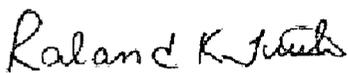
Fax: (281) 394-2051

Reported:  
02/22/06 09:12

### Notes and Definitions

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:



Date: 2/22/2006

Raland K. Tuttle, Lab Manager  
Celey D. Keene, Lab Director, Org. Tech Director  
Peggy Allen, QA Officer

Jeanne Mc Murrey, Inorg. Tech Director  
LaTasha Cornish, Chemist  
Sandra Sanchez, 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**  
**Variance / Corrective Action Report – Sample Log-In**

Client: Whole Earth  
 Date/Time: 2/14/06 8:10  
 Order #: 10B14002  
 initials: OK

**Sample Receipt Checklist**

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

Other observations:

Samples not frozen.

**Variance Documentation:**

Contact Person: - \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted by: \_\_\_\_\_  
 Regarding: \_\_\_\_\_

Corrective Action Taken:

---

---

---

---

---

---

---

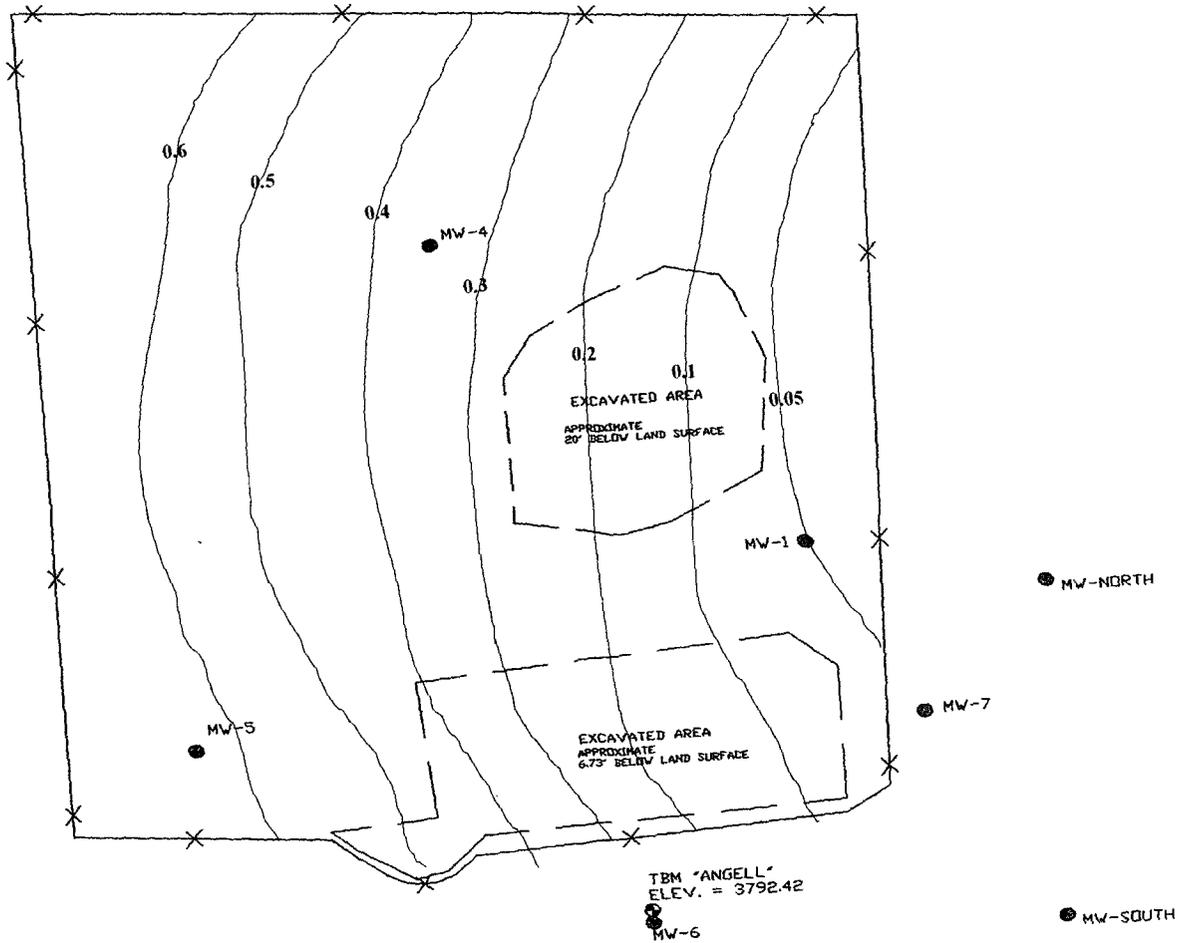
---

---

---



Devon Energy Corporation  
B.C. Dickinson Remediation Project  
Hydrostatic Gradient





**Devon Energy Company**  
**Patsy Battery**  
**Water Analytical Summary**

<b>MW-1</b>						
<b>Date</b>	<b>Lab. No</b>	<b>Benzene</b>	<b>Toluene</b>	<b>Ethylbenzene</b>	<b>Xylene</b>	<b>Chlorides</b>
5/10/2005	5E10010-02	ND	ND	ND	ND	368
2/13/2006	6B14002-03	ND	0.0010	0.0080	0.0020	138

<b>MW-4</b>						
<b>Date</b>	<b>Lab. No</b>	<b>Benzene</b>	<b>Toluene</b>	<b>Ethylbenzene</b>	<b>Xylene</b>	<b>Chlorides</b>
5/10/2005	5E10010-03	ND	ND	ND	ND	58
2/13/2006	6B14001-02	ND	ND	ND	ND	54

<b>MW-5</b>						
<b>Date</b>	<b>Lab. No</b>	<b>Benzene</b>	<b>Toluene</b>	<b>Ethylbenzene</b>	<b>Xylene</b>	<b>Chlorides</b>
5/10/2005	5E10010-01	ND	ND	ND	ND	53
2/13/2006	6B14001-03	ND	ND	ND	ND	49

<b>MW-6</b>						
<b>Date</b>	<b>Lab. No</b>	<b>Benzene</b>	<b>Toluene</b>	<b>Ethylbenzene</b>	<b>Xylene</b>	<b>Chlorides</b>
5/10/2005	5E10010-05	ND	ND	ND	ND	565
2/13/2006	6B14001-04	ND	ND	ND	ND	97

<b>MW-7</b>						
<b>Date</b>	<b>Lab. No</b>	<b>Benzene</b>	<b>Toluene</b>	<b>Ethylbenzene</b>	<b>Xylene</b>	<b>Chlorides</b>
5/10/2005	5E10010-06	ND	ND	ND	ND	95
2/13/2006	6B14001-07	ND	ND	ND	ND	59

<b>North Well</b>						
<b>Date</b>	<b>Lab. No</b>	<b>Benzene</b>	<b>Toluene</b>	<b>Ethylbenzene</b>	<b>Xylene</b>	<b>Chlorides</b>
7/6/2005	5F3000-02	ND	ND	ND	ND	99
2/13/2006	6B14001-05	ND	ND	ND	ND	478

<b>South Well</b>						
<b>Date</b>	<b>Lab. No</b>	<b>Benzene</b>	<b>Toluene</b>	<b>Ethylbenzene</b>	<b>Xylene</b>	<b>Chlorides</b>
7/6/2005	5F3000-03	ND	ND	ND	ND	73
2/13/2006	6B14001-06	ND	ND	ND	ND	73

Whole Earth Environmental, Inc.  
Devon/Darr Angell Site

Well #	State Plane Northing	State Plane Easting	Land Surface Northing	Land Surface Easting	M.S.L. Elevation
MW-1	745232.03	901340.68	745232.06	901340.69	3792.79
MW-4	745432.03	901147.63	745432.08	901147.61	3793.41
MW-5	745124.35	901004.03	745124.37	901004.00	3792.86
MW-6	744996.87	901245.15	744996.87	901245.15	3792.52
MW-7	745120.57	901399.10	745120.58	901399.12	3792.80
MW-South	744985.34	901468.30	744985.34	901468.33	3792.48
MW-North	745198.28	901468.49	745198.30	901468.52	3793.45
TBM	745000.81	901244.20	745000.81	901244.20	3792.42

Notes:

1. Horizontal coordinates are State Plane NAVD 83 datum referenced to USCGS Triangulation Station named "CREAK".
2. Elevations are NAVD 88 datum referenced to USCGS Bench Mark named "G-35".
3. Elevations on monitor wells are taken on top of 2'x2' cement pad as requested by Mike Griffin in field 4-12-05.
4. TBM is ½" reinforcing bar with aluminum cap marked "ANGELL" located on the north side of the cement 2'x2' pad of monitor well 6.