

**3R - 407**

**ANNUAL  
MONITORING  
REPORT**

**2/28/2009**

**MWH****BUILDING A BETTER WORLD**

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2009 MAR 2 AM 9 51

February 28, 2009

Mr. Glenn von Gonten  
New Mexico Oil Conservation Division (NMOCD)  
1220 South St., Francis Drive  
Santa Fe, New Mexico 87505

**RE: El Paso Tennessee Pipeline Company Pit Groundwater Remediation Sites  
2008 Annual Reports**

Dear Mr. Von Gonten:

MWH Americas, Inc., on behalf of El Paso Tennessee Pipeline Company (EPTPC), is submitting the enclosed 2008 Annual Reports for each of EPTPC's 21 remaining San Juan River Basin pit groundwater remediation Sites. The reports present the 2008 sampling and product recovery data and include recommendations for 2009 activities at these Sites.

The 2008 Annual Reports are divided into three volumes based on location type. The volumes are as follows:

Volume    Location Type

- |   |  |
|---|--|
| 1 | Federal Land                           |
| 2 | Non-Federal Land (Excl. Navajo Nation) |
| 3 | Navajo Nation                          |

If you have any questions concerning the enclosed reports, please call either Doug Stavinoha of EPTPC (713-420-5150) or me (303-291-2276).

Sincerely,

Jed Smith  
Project Manager

encl.

cc: Bill Freeman – NNEPA, Shiprock, NM (Volume 3 Only)  
Bill Liese – BLM, Farmington, NM (Volume 1 Only)  
Brandon Powell – NMOCD, Aztec, NM (Volumes 1, 2, and 3)  
Doug Stavinoha – EPTPC (Volumes 1, 2, and 3)

**2008 ANNUAL GROUNDWATER REPORT  
FEDERAL SITES VOLUME I  
EL PASO TENNESSEE PIPELINE COMPANY**

**TABLE OF CONTENTS**

<b>METER or LINE ID</b>	<b>NMOCD CASE NO.</b>	<b>SITE NAME</b>	<b>TOWNSHIP</b>	<b>RANGE</b>	<b>SECTION</b>	<b>UNIT</b>
87640	3RP-155-0	Canada Mesa #2	24N	06W	24	I
89961	3RP-170-0	Fields A#7A	32N	11W	34	E
73220	3RP-068-0	Fogelson 4-1 Com. #14	29N	11W	4	P
89894	3RP-186-0	Hammond #41A	27N	08W	25	O
97213	3RP-190-0	Hamner #9	29N	09W	20	A
94715	3RP-196-0	James F. Bell #1E	30N	13W	10	P
70194	3RP-201-0	Johnston Fed #4	31N	09W	33	H
89232	3RP-202-0	Johnston Fed #6A	31N	09W	35	F
LD072	3RP-204-0	K27 LD072	25N	06W	4	E
LD174	3RP-212-0	LAT L 40	28N	04W	13	H
LD151	3RP-213-0	Lat 0-21 Line Drip	30N	09W	12	O
94810	3RP-223-0	Miles Fed 1A	26N	07W	5	F
89620	3RP-235-0	Sandoval GC A #1A	30N	09W	35	C



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**2008 ANNUAL GROUNDWATER REPORT  
NON-FEDERAL SITES VOLUME II  
EL PASO TENNESSEE PIPELINE COMPANY**

**TABLE OF CONTENTS**

<b>METER or LINE ID</b>	<b>NMOCD CASE NO.</b>	<b>SITE NAME</b>	<b>TOWNSHIP</b>	<b>RANGE</b>	<b>SECTION</b>	<b>UNIT</b>
03906	3RP-179-0	GCU Com A #142E	29N	12W	25	G
93388	3RP-192-0	Horton #1E	31N	09W	28	H
LD087	3RP-205-0	K-31 Line Drip	25N	06W	16	N
72556	3RP-207-0	Knight #1	30N	13W	5	A
94967	3RP-214-0	*Lindrith B #24	24N	03W	9	N
70445	3RP-074-0	Standard Oil Com #1	29N	09W	36	N
71669	3RP-239-0	State Gas Com N #1	31N	12W	16	H

\* Lindrith B#24 Site was submitted for closure in 2006, and is pending approval from NMOCD.  
There were no activities for this site in 2008.



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2008 ANNUAL GROUNDWATER REPORT  
NAVAJO SITES VOLUME III

EL PASO TENNESSEE PIPELINE COMPANY

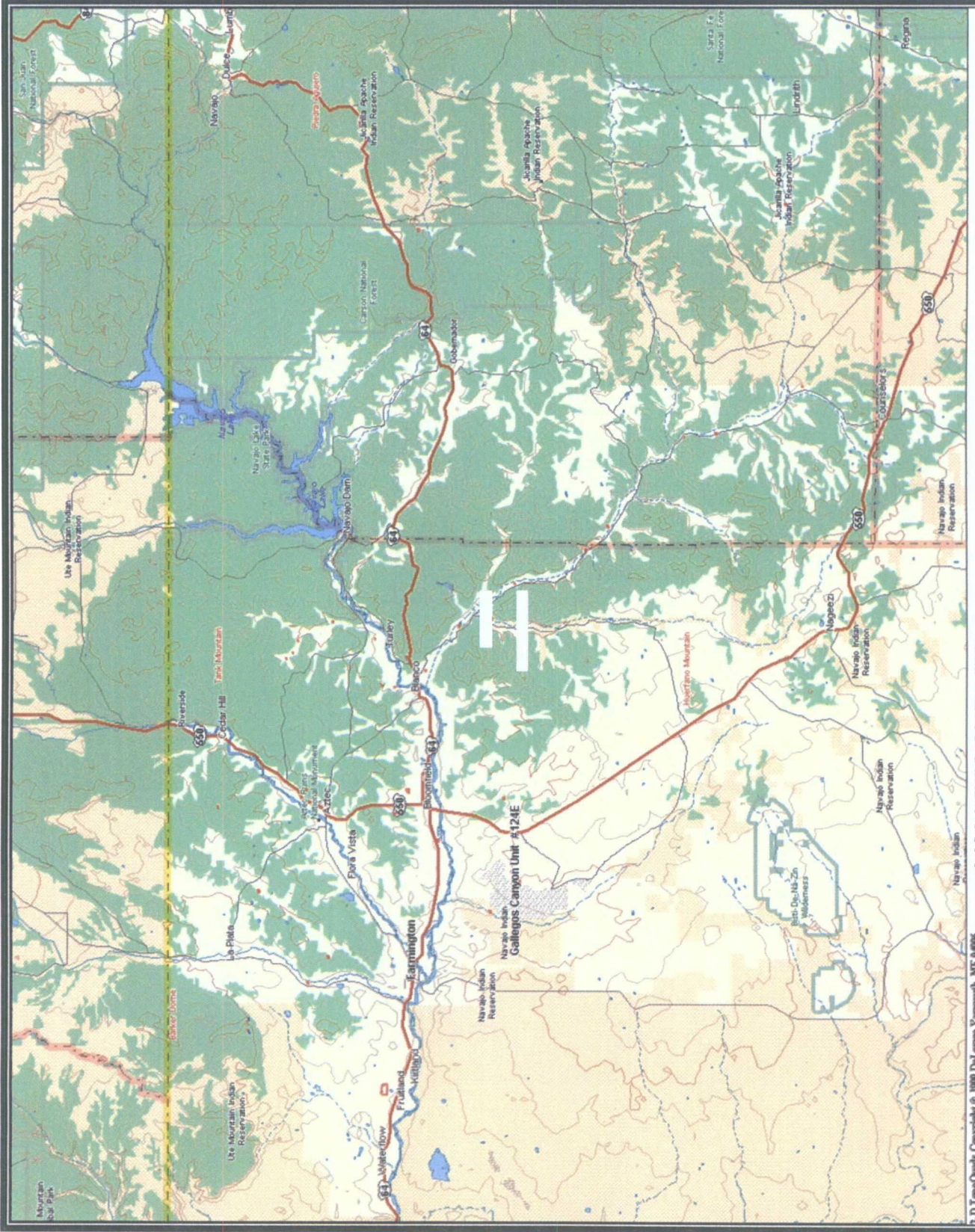
TABLE OF CONTENTS

METER or LINE ID	NMOCD CASE NO.	SITE NAME	TOWNSHIP	RANGE	SECTION	UNIT
95608	3RP-407-0	Gallegos Canyon Unit #124E	28N	12W	35	N





# Navajo Groundwater Site Map



## **LIST OF ACRONYMS**

AMSL	above mean sea level
B	benzene
btoc	below top of casing
E	ethylbenzene
EPTPC	El Paso Tennessee Pipeline Company
ft	foot/feet
GWEL	groundwater elevation
ID	identification
MW	monitor well
NMWQCC	New Mexico Water Quality Control Commission
T	toluene
TOC	top of casing
NA	not applicable
NMOCD	New Mexico Oil Conservation Division
NS	not sampled
ORC	oxygen-releasing compound
µg/L	micrograms per liter
X	total xylenes

**EPTPC GROUNDWATER SITES  
2008 ANNUAL GROUNDWATER REPORT**

**GCU #124E  
Meter Code: 95608**

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**SITE DETAILS**

<b>Legal Description:</b>	<b>Town:</b>	28N	<b>Range:</b>	12W	<b>Sec:</b>	35	<b>Unit:</b>	N
<b>NMOCD Haz Ranking:</b>	20	<b>Land Type:</b>	Navajo	<b>Operator:</b>	BP / Amoco Production			

**PREVIOUS ACTIVITIES**

<b>Site Assessment:</b>	Jan/95	<b>Excavation:</b>	Oct/95 (196 cy)	<b>Soil Boring:</b>	Mar/98
<b>Monitor Well:</b>	Jun/98	<b>Geoprobe:</b>	NA	<b>Additional MWs:</b>	*
<b>Downgradient MWs:</b>	*	<b>Replace MW:</b>	NA	<b>Quarterly Initiated:</b>	Jun/98
<b>ORC Nutrient Injection:</b>	NA	<b>Re-Excavation:</b>	NA	<b>PSH Removal Initiated:</b>	Apr/99
<b>Annual Initiated:</b>	NA	<b>Quarterly Resumed:</b>	NA	<b>PSH Removal in 2008?</b>	No

\* Attempts were made in November 2000 to install additional wells that resulted in dry holes.

**SUMMARY OF 2008 ACTIVITIES**

**MW-1:** Quarterly groundwater sampling was performed in 2008.

**Site-Wide Activities:** No other activities were performed at this Site during 2008.

**SITE MAP**

Site maps (January, April, July, and October) are attached as Figures 1 through 4.

**SUMMARY TABLES AND GRAPHS**

- Historic analytical and water level data are summarized in Table 1 and presented graphically in Figure 5.
- Historic free-product recovery data are summarized in Table 2 and presented graphically in Figure 6.
- The 2008 laboratory reports are presented in Attachment 1 (included on CD).
- The 2008 field documentation is presented in Attachment 2 (included on CD).



**EPTPC GROUNDWATER SITES  
2008 ANNUAL GROUNDWATER REPORT**

**GCU #124E  
Meter Code: 95608**

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**GEOLOGIC LOGS AND WELL COMPLETION DIAGRAMS**

No subsurface activities were performed at this Site during 2008.

**DISPOSITION OF GENERATED WASTES**

All purge water was taken to the El Paso Natural Gas Rio Vista Compressor Station.

**ISOCONCENTRATION MAPS**

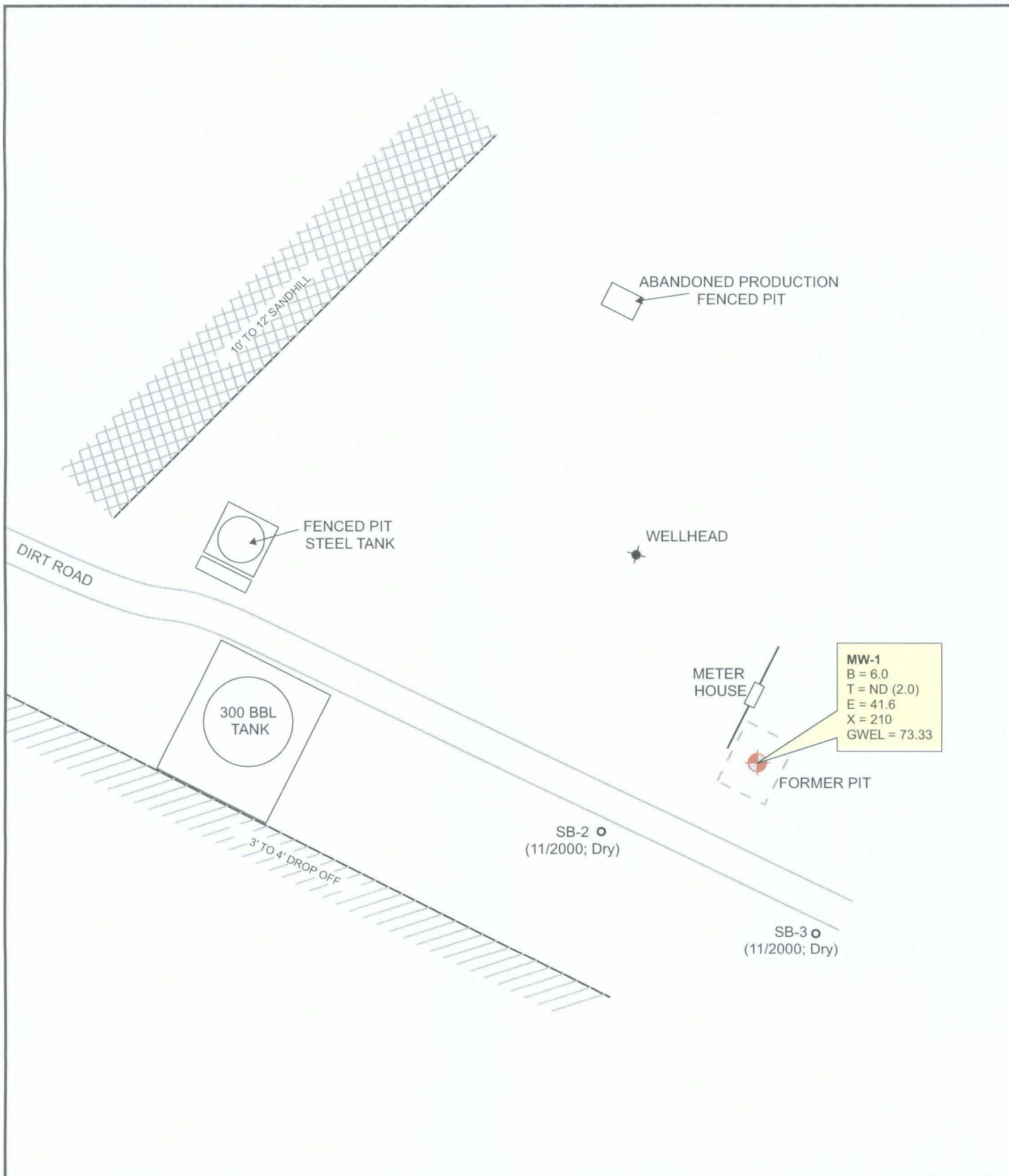
No isoconcentration maps were generated for this Site; however, the attached Site maps present the analytical data collected during 2008.

**RESULTS**

- Benzene concentrations increased during 2008, apparently related to the increase in water level elevation observed throughout the year. The quarterly benzene results were 6.0 µg/L, 14.1 µg/L, 72.7 µg/L, and 194 µg/L for January, April, July, and October 2008, respectively. As a long-term trend, the benzene concentrations appear to be attenuating steadily from a high of 2,960 µg/L observed in 1999.
- Toluene, ethylbenzene, and total xylenes concentrations were below all applicable standards during 2008.
- Quarterly gauging at MW-1 did not detect any free-product in 2008. Measurable free-product has not been detected in the well since 2003. The majority of free-product was removed from MW-1 by 2002 (approximately 19 gallons); between 2003 and 2005, a total of only 0.03 gallons of product was removed, and an oily sheen was periodically detected on the water. At times, a sheen is still observed on the water during bailing activities.

**RECOMMENDATIONS**

- Because the benzene concentrations in MW-1 have now increased to well above the NMWQCC standard of 10 µg/L. EPTPC will sample MW-1 semiannually and gauge water levels quarterly.
- Once the benzene concentrations again approach the standard, sampling will return to a quarterly frequency until BTEX concentrations are below the applicable NNEPA/USEPA standards for three consecutive quarters and NMWQCC standards for four consecutive quarters.
- Following approval for closure by both the NNEPA/USEPA and the NMOCDD, the monitoring well will be removed in accordance with the approved EPTPC Monitoring Well Abandonment Plan.



### LEGEND

MW-4 Existing Monitoring / Observation Well

B Benzene (ug/L)  
 T Toluene (ug/L)  
 E Ethylbenzene (ug/L)  
 X Total Xylenes (ug/L)

GWEL Groundwater Elevation (ft. \*)

\* = Elevations in feet relative to a 100 ft benchmark.

0 10 20 40 60 80 Feet



MWH



PROJECT:

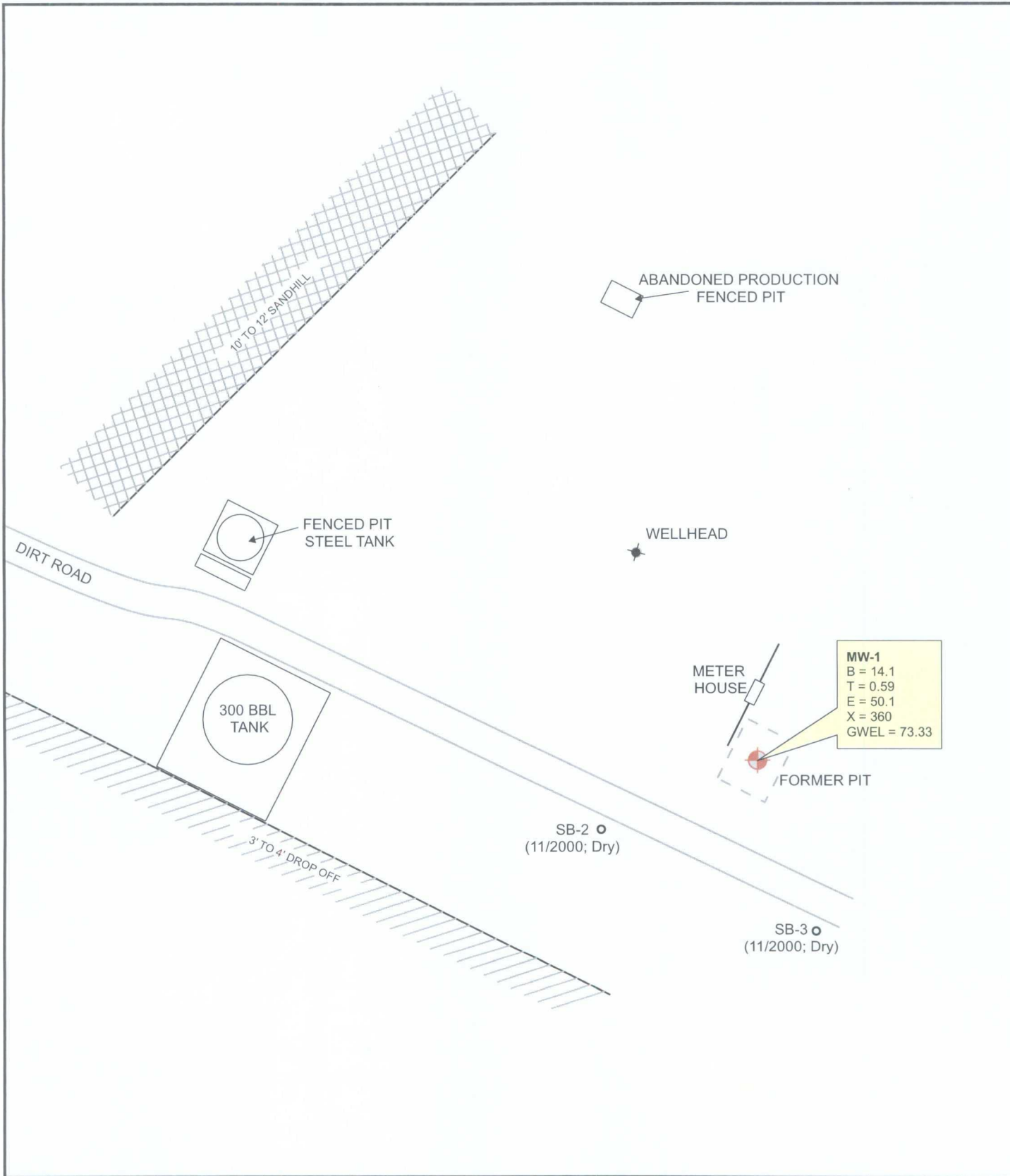
GALLEGOS CANYON UNIT #124E

TITLE:

Groundwater Potentiometric Surface Map,  
 and BTEX Concentrations - January 28, 2008

FIGURE:

1



### LEGEND

**MW-4** Existing Monitoring / Observation Well

**B** Benzene (ug/L)

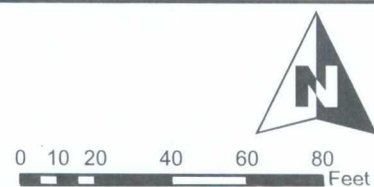
**T** Toluene (ug/L)

**E** Ethylbenzene (ug/L)

**X** Total Xylenes (ug/L)

**GWEL** Groundwater Elevation (ft. \*)

\* = Elevations in feet relative to a 100 ft benchmark.



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PROJECT:

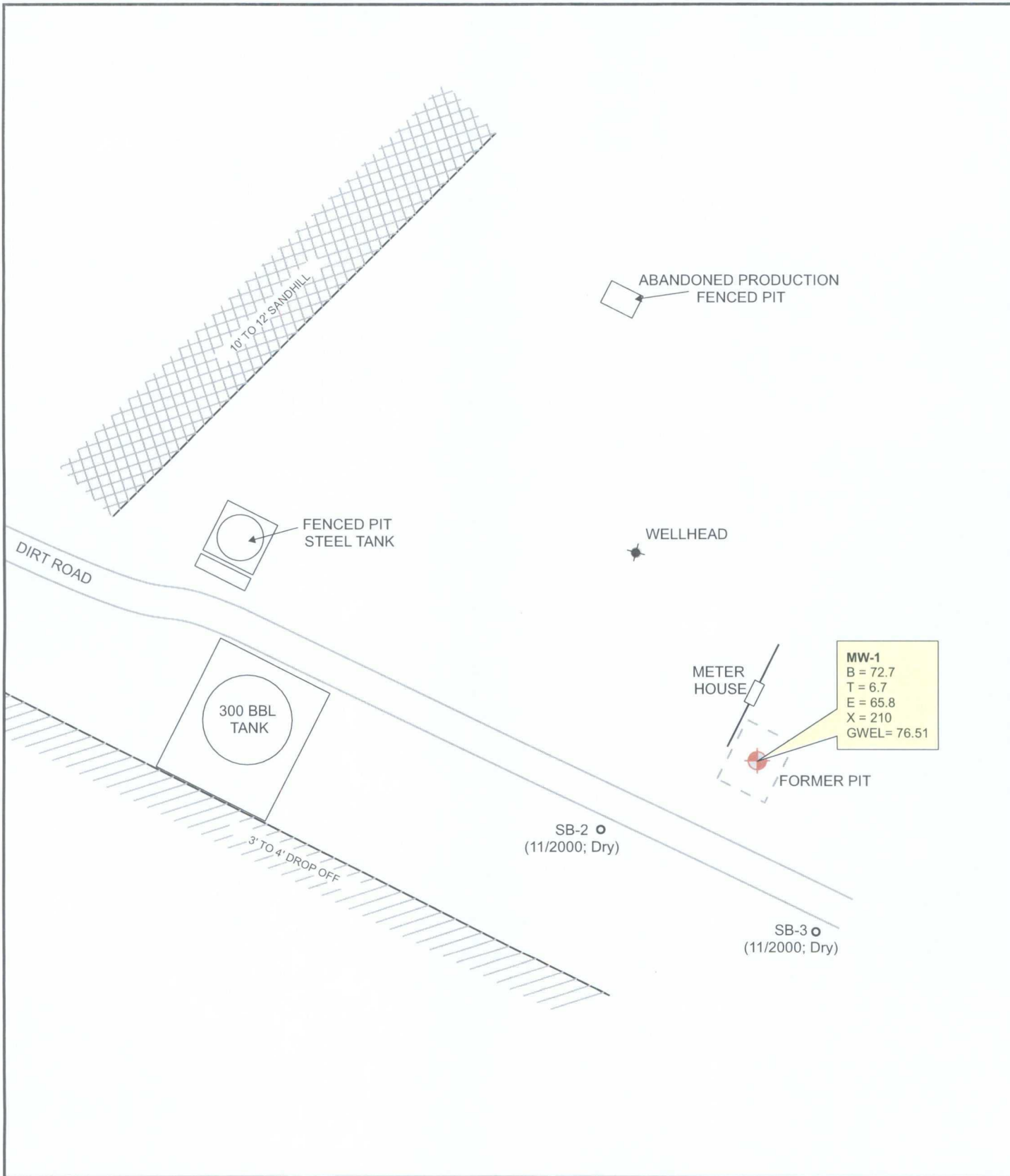
GALLEGOS CANYON UNIT #124E

TITLE:

Groundwater Potentiometric Surface Map,  
and BTEX Concentrations - April 23, 2008

FIGURE:

**2**



### LEGEND

**MW-4** Existing Monitoring / Observation Well

**B** Benzene (ug/L)

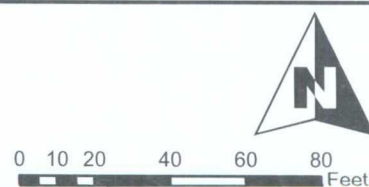
**T** Toluene (ug/L)

**E** Ethylbenzene (ug/L)

**X** Total Xylenes (ug/L)

**GWEL** Groundwater Elevation (ft. \*)

\* = Elevations in feet relative to a 100 ft benchmark.



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PROJECT:

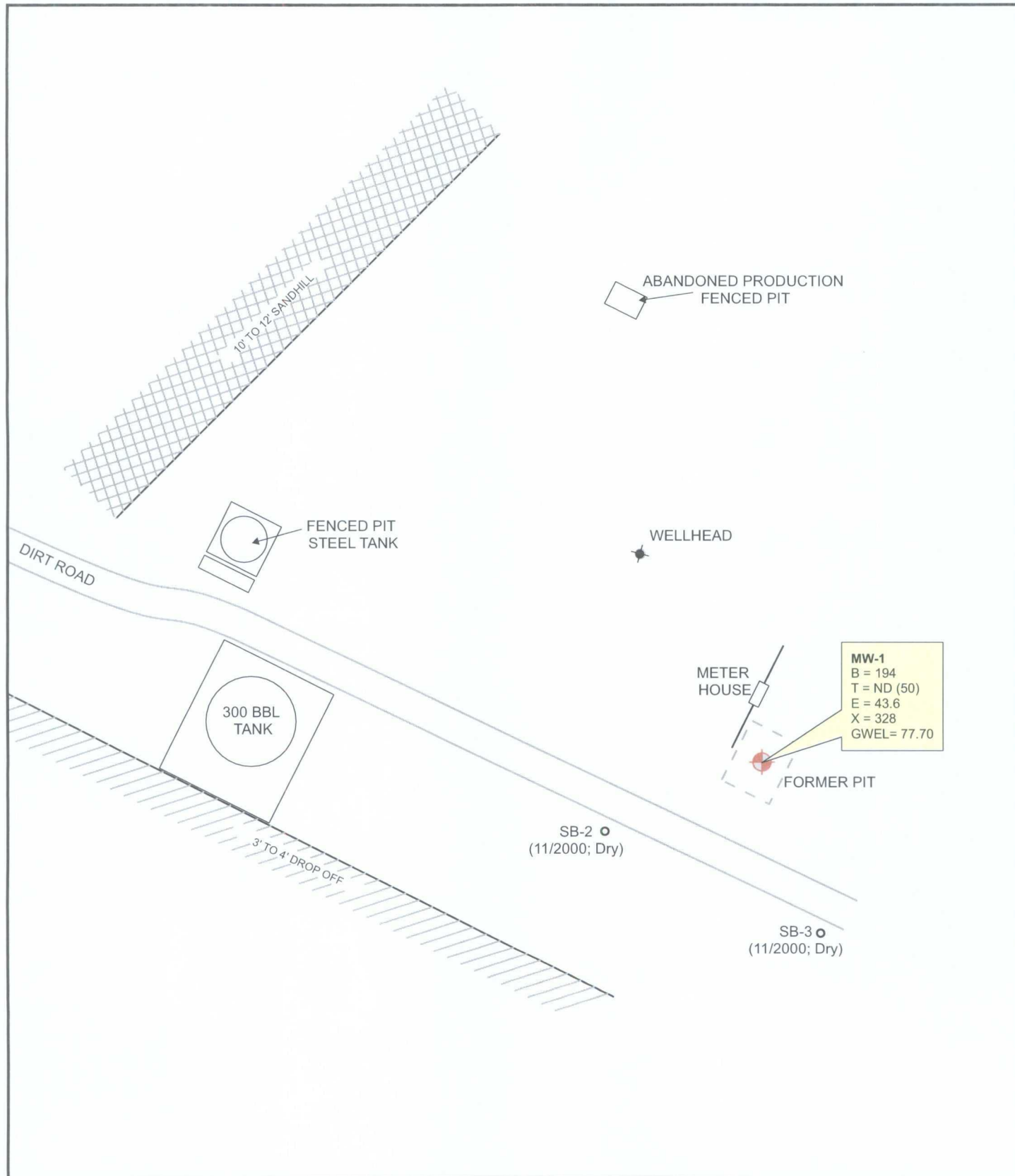
GALLEGOS CANYON UNIT #124E

TITLE:

Groundwater Potentiometric Surface Map,  
and BTEX Concentrations - July 23, 2008

FIGURE:

**3**



### LEGEND

**MW-4** Existing Monitoring / Observation Well

**B** Benzene (ug/L)  
**T** Toluene (ug/L)  
**E** Ethylbenzene (ug/L)  
**X** Total Xylenes (ug/L)

**GWEL** Groundwater Elevation (ft. \*)

\* = Elevations in feet relative to a 100 ft benchmark.

**ND** Not Detected; Reporting Limit Shown in Parentheses

0 10 20 40 60 80 Feet



PROJECT: GALLEGOS CANYON UNIT #124E

TITLE: Groundwater Potentiometric Surface Map,  
and BTEX Concentrations - October 8, 2008

FIGURE:

4



FIGURE 5  
SUMMARY OF BTEX COMPOUNDS IN GROUNDWATER SAMPLES  
GCU #124E (METER #95608)  
MW01

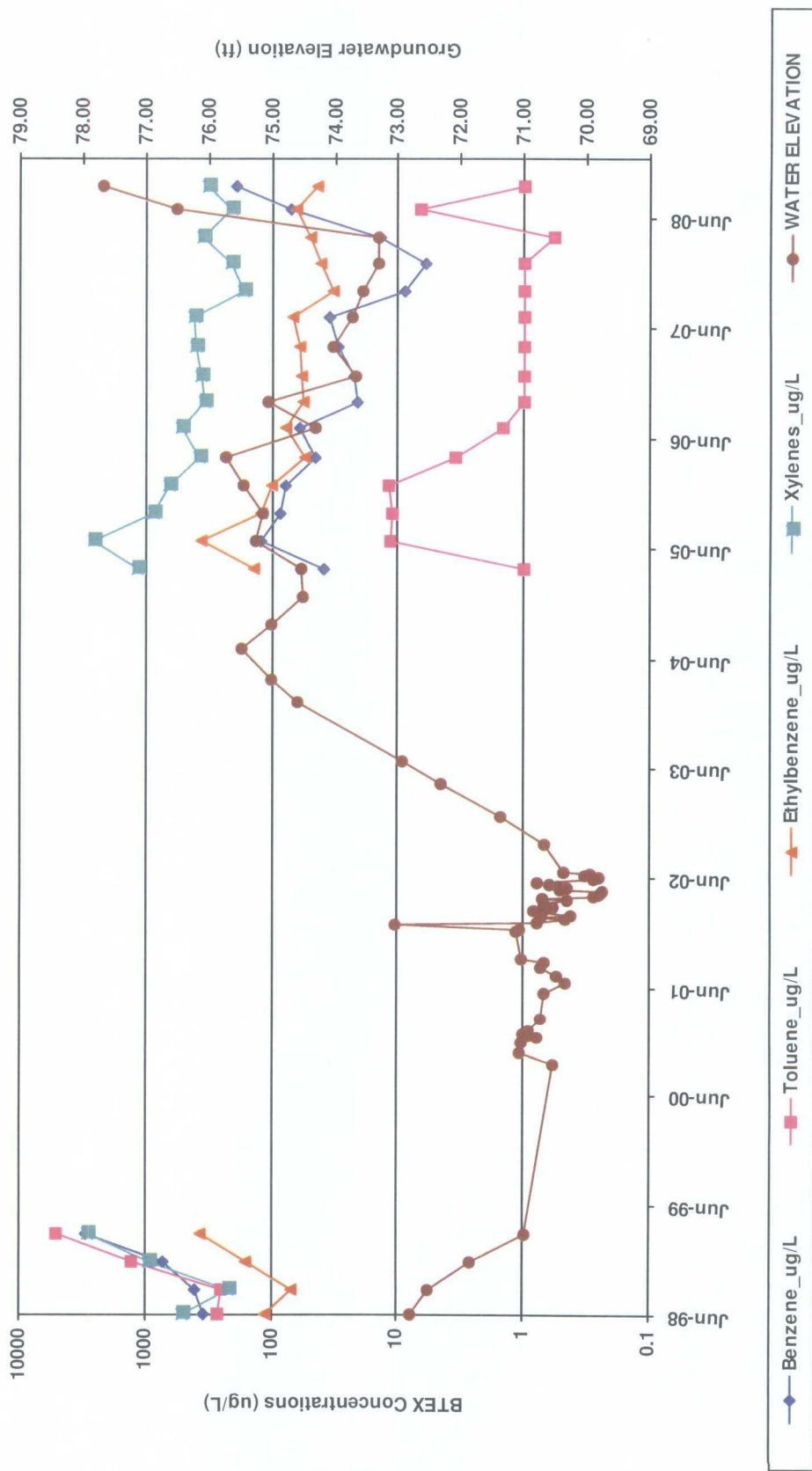




FIGURE 6  
SUMMARY OF FREE-PRODUCT REMOVAL  
GCU #124E (METER #95608)  
MW01

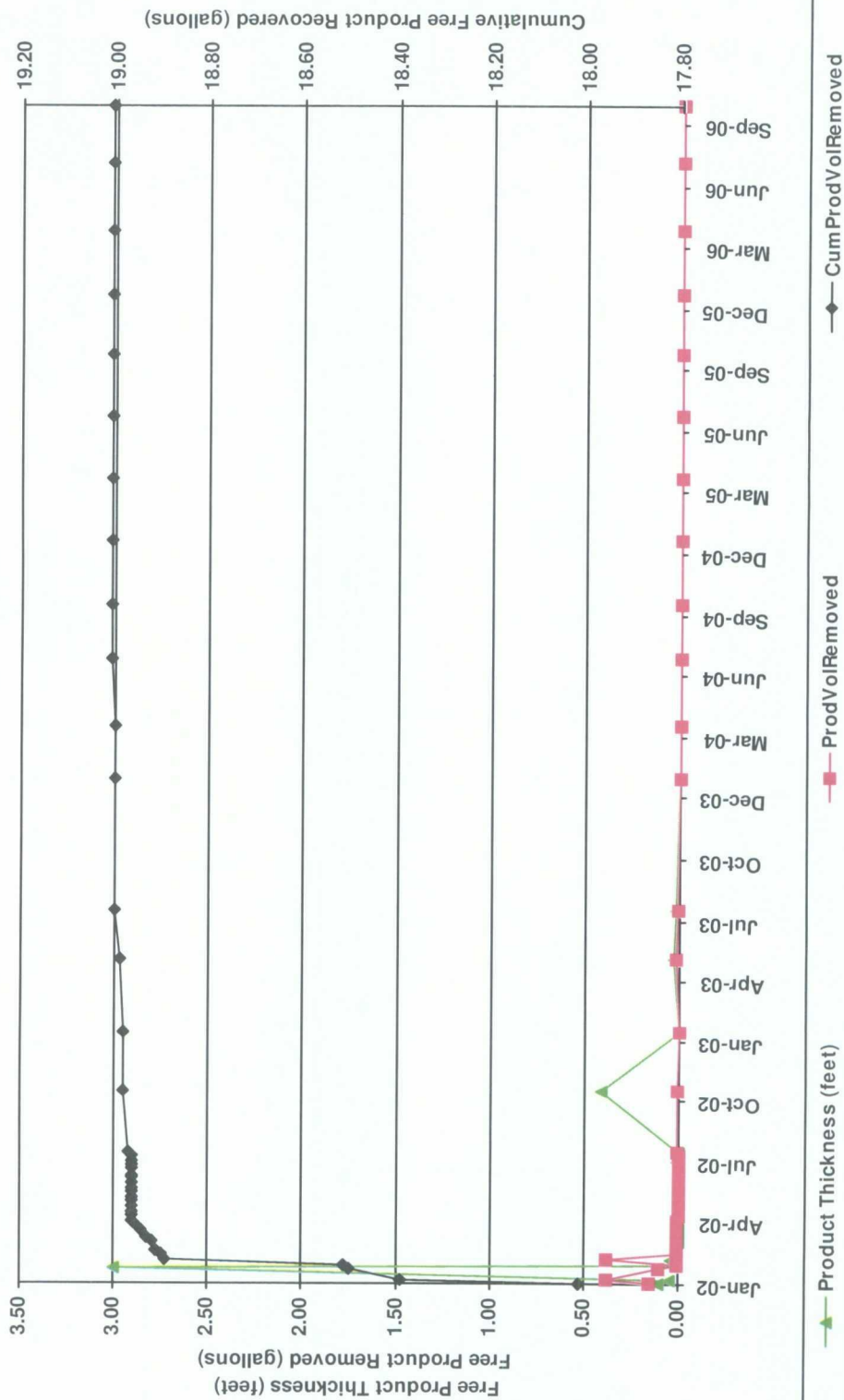


TABLE 1

**SUMMARY OF BTEX COMPOUNDS IN GROUNDWATER SAMPLES  
GCU #124E (METER #95608)**

Monitoring Well	Sample Date	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	Depth to Water (ft BTOC)
MW01	6/25/1998	340	271	111	510	27.21
	9/14/1998	410	251	68.3	220	27.50
	12/15/1998	710	1300	160	940	28.16
	3/16/1999	2960	5130	367	2890	29.02
	4/19/2005	38.8	1	142	1160	25.45
	7/20/2005	125	11.4	371	2640	24.73
	10/20/2005	86.8	11.3	125	864	24.85
	1/19/2006	77.9	12	101	656	24.53
	4/24/2006	45.1	3.5	56.1	377	24.25
	7/31/2006	60.8	1.5	79.3	524	25.68
	10/24/2006	21.1	1	56.6	349	24.94
	1/19/2007	22.4	1	60	367	26.33
	4/24/2007	30.3	1	60.6	407	25.97
	7/31/2007	35.3	1	68.4	416	26.26
	10/25/2007	9	1	33.2	173	26.44
	1/28/2008	6	1	41.6	210	26.67
	4/23/2008	14.1	0.59	50.1	360	26.67
	7/23/2008	72.7	6.7	65.8	210	23.49
	10/8/2008	194	1	43.6	328	22.30

Note: Non Detects are represented by a value of 1.

TABLE 2

**SUMMARY OF FREE-PRODUCT REMOVAL**  
**GCU #124E (METER #95608)**

Monitoring Well	Removal Date	Depth to Product (feet btoc)	Depth to Water (feet btoc)	Product Thickness (feet)	Volume Removed (gallons)	Cumulative Volume of Product Removed (gallons)
MW01	1/2/2002	28.85	28.96	0.11	0.16	18.01
	1/7/2002	28.94	28.99	0.05	0.38	18.39
	1/23/2002	26.35	29.35	3.00	0.11	18.50
	1/30/2002	29.22	29.24	0.02	0.01	18.51
	2/7/2002	29.66	29.70	0.04	0.38	18.89
	2/14/2002	29.28	29.29	0.01	0.01	18.90
	2/20/2002	29.75	29.76	0.01	0.01	18.91
	3/4/2002		29.30	0.00	0.01	18.92
	3/11/2002		29.17	0.00	0.01	18.93
	3/21/2002		29.47	0.00	0.01	18.94
	3/28/2002		29.33	0.00	0.01	18.95
	4/3/2002		29.33	0.00	0.01	18.96
	4/12/2002		29.70	0.00	0.00	18.96
	4/18/2002		29.31	0.00	0.00	18.96
	4/25/2002		30.11	0.00	0.00	18.96
	5/3/2002		30.18	0.00	0.00	18.96
	5/10/2002		30.25	0.00	0.00	18.96
	5/17/2002		29.57	0.00	0.00	18.96
	5/24/2002		29.70	0.00	0.00	18.96
	5/31/2002		29.54	0.00	0.00	18.96
	6/7/2002		29.42	0.00	0.00	18.96
	6/12/2002		29.21	0.00	0.00	18.96
	6/21/2002		30.12	0.00	0.00	18.96
	6/27/2002		30.18	0.00	0.00	18.96
	7/2/2002	29.98	29.99	0.01	0.00	18.96
	7/11/2002		30.06	0.00	0.00	18.96
	7/15/2002		29.63	0.00	0.01	18.97
	10/16/2002	29.24	29.65	0.41	0.01	18.98
	1/15/2003		28.63	0.00	0.00	18.98
	5/5/2003	27.69	27.72	0.03	0.02	18.99
	7/18/2003	27.06	27.08	0.02	0.01	19.00
	1/29/2004		25.40	0.00	0.00	19.00
	4/15/2004		24.98	0.00	0.00	19.00
	7/26/2004		24.50	0.00	0.00	19.01
	10/15/2004		24.98	0.00	0.00	19.01
	1/17/2005		25.49	0.00	0.00	19.01
	4/19/2005		25.45	0.00	0.00	19.01
	7/20/2005		24.73	0.00	0.00	19.01
	10/20/2005		24.85	0.00	0.00	19.01

TABLE 2

**SUMMARY OF FREE-PRODUCT REMOVAL  
GCU #124E (METER #95608)**

Monitoring Well	Removal Date	Depth to Product (feet btoc)	Depth to Water (feet btoc)	Product Thickness (feet)	Volume Removed (gallons)	Cumulative Volume of Product Removed (gallons)
MW01	1/19/2006		24.53	0.00	0.00	19.01
	4/24/2006		24.25	0.00	0.00	19.01
	7/31/2006		25.68	0.00	0.00	19.01
	10/24/2006		24.94	0.00	0.00	19.01