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El Paso Tennessee
Pipeline Company

San Juan Basin Pit Program
Groundwater Sites Project

Final 2010 Annual Report
Navajo Sites (Volume 3)

March 2011



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1801 California Street, Suite 2900
Denver, Colorado 80202

**2010 ANNUAL GROUNDWATER REPORT
NAVAJO SITES VOLUME III
EL PASO TENNESSEE PIPELINE COMPANY**

TABLE OF CONTENTS

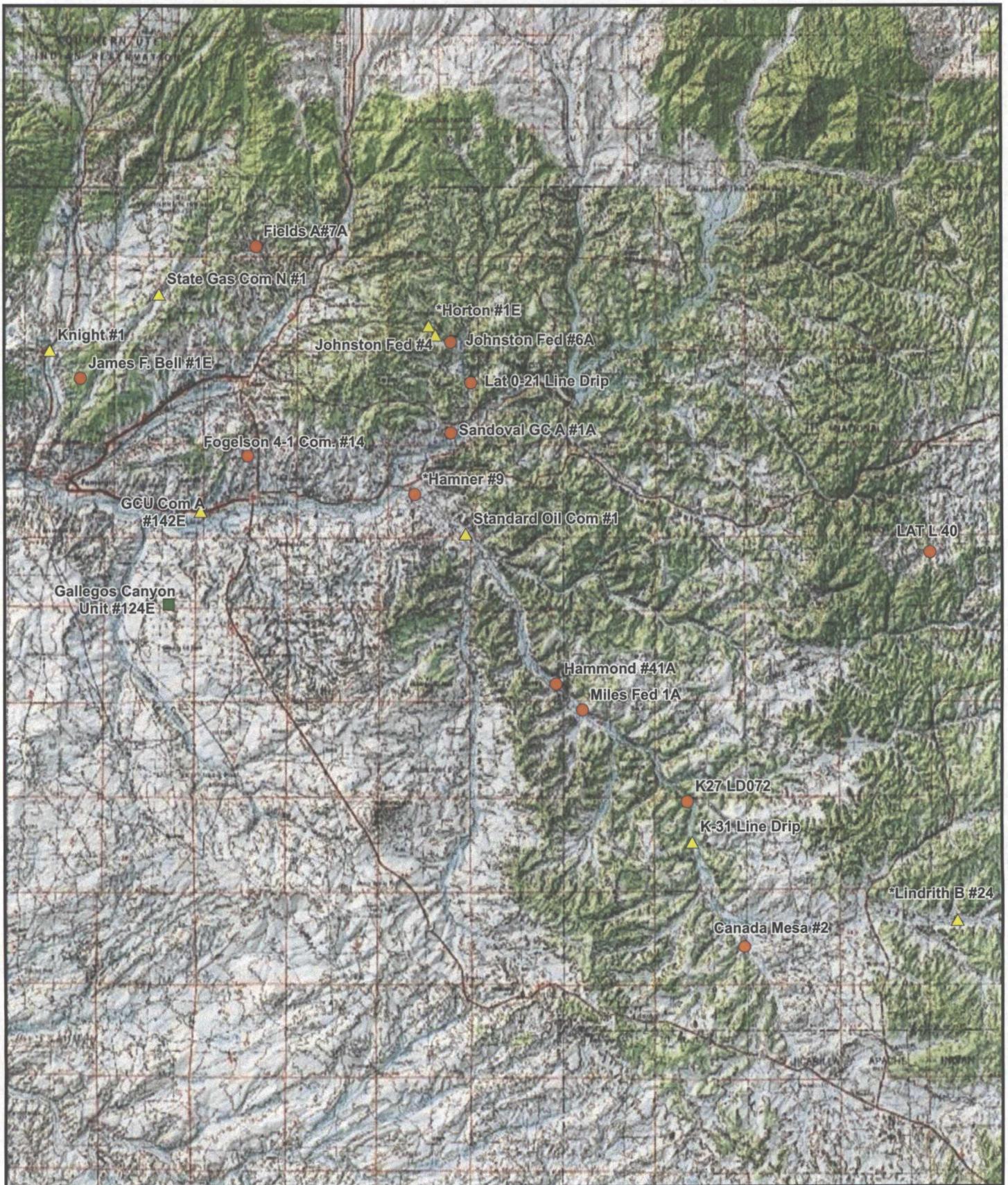
METER or LINE ID	NMOCD CASE NO.	SITE NAME	TOWNSHIP	RANGE	SECTION	UNIT
95608	3RP-407-0	Gallegos Canyon Unit #124E	28N	12W	35	N



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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



LEGEND

- Sites on Federal Land
- Sites on Navajo Nation Land
- ▲ Sites on State/Fee "Non-Federal" Lands

*Closure Request Pending with the NMOCD.



PROJECT: SAN JUAN RIVER BASIN

TITLE: Site Locations, February 2011

FIGURE:

1

**EPTPC GROUNDWATER SITES
2010 ANNUAL GROUNDWATER REPORT**

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

SITE DETAILS

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

PREVIOUS ACTIVITIES

Site Assessment:	Jan/95	Excavation:	Oct/95 (196 cy)	Soil Boring:	Mar/98
Monitor Well:	Jun/98	Geoprobe:	NA	Additional MWs:	*
Downgradient MWs:	*	Replace MW:	NA	Quarterly Initiated:	Jun/98
ORC Nutrient Injection:	NA	Re-Excavation:	NA	PSH Removal Initiated:	Apr/99
Annual Initiated:	NA	Quarterly Resumed:	NA	PSH Removal in 2010?	No

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

SUMMARY OF 2010 ACTIVITIES

MW-1: Semiannual groundwater sampling (February and September) was performed in 2010. Quarterly water level monitoring was also conducted in 2010.

Site-Wide Activities: No other activities were performed at this Site during 2010.

SITE MAP

Site maps (February and September) are attached as Figures 1 and 2.

SUMMARY TABLES AND GRAPHS

- Historic analytical and water level data are summarized in Table 1 and presented graphically in Figure 3.
- Historic free-product recovery data are summarized in Table 2 and presented graphically in Figure 3.
- The 2010 laboratory reports are presented in Attachment 1 (included on CD).
- The 2010 field documentation is presented in Attachment 2 (included on CD).

**EPTPC GROUNDWATER SITES
2010 ANNUAL GROUNDWATER REPORT**

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

GEOLOGIC LOGS AND WELL COMPLETION DIAGRAMS

No subsurface activities were performed at this Site during 2010.

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 2010.

RESULTS

- Benzene concentrations in 2010 were within a similar range as those measured in 2009. The semiannual benzene results were 98.3 µg/L and 159 µg/L for February and September 2010, 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.
- The other BTEX constituent concentrations were below all applicable standards during 2010. While concentrations of total xylenes still fluctuate with static water level, they are well below the historical highs, indicating continued attenuation.
- Gauging at MW-1 did not detect any free-product in 2010. Measurable free-product has not been detected in the well since 2003. Virtually all of the free-product recovery was completed by the end of 2002 (approximately 19 gallons). At times, a sheen is still observed on the water during bailing activities.

REMAINING CLOSURE REQUIREMENTS

- This site is being managed per the procedures set forth in the document entitled, "Remediation Plan for Groundwater Encountered During Pit Closure Activities" (El Paso Natural Gas Company / El Paso Field Services Company, 1995). This remediation plan was conditionally approved by the New Mexico Oil Conservation Division (OCD) in correspondence dated November 30, 1995; and the OCD approval conditions were adopted into El Paso's program methods.
- In order to meet the remaining closure requirements at this site, the following condition must be achieved: groundwater contaminant concentrations in the monitor wells must meet the NMWQCC standards for at least 4 consecutive quarters. Alternatively, concentrations must be reduced to below background levels; however, there are no established background concentrations for the remaining constituents of concern. Currently, MW-1 requires additional

**EPTPC GROUNDWATER SITES
2010 ANNUAL GROUNDWATER REPORT**

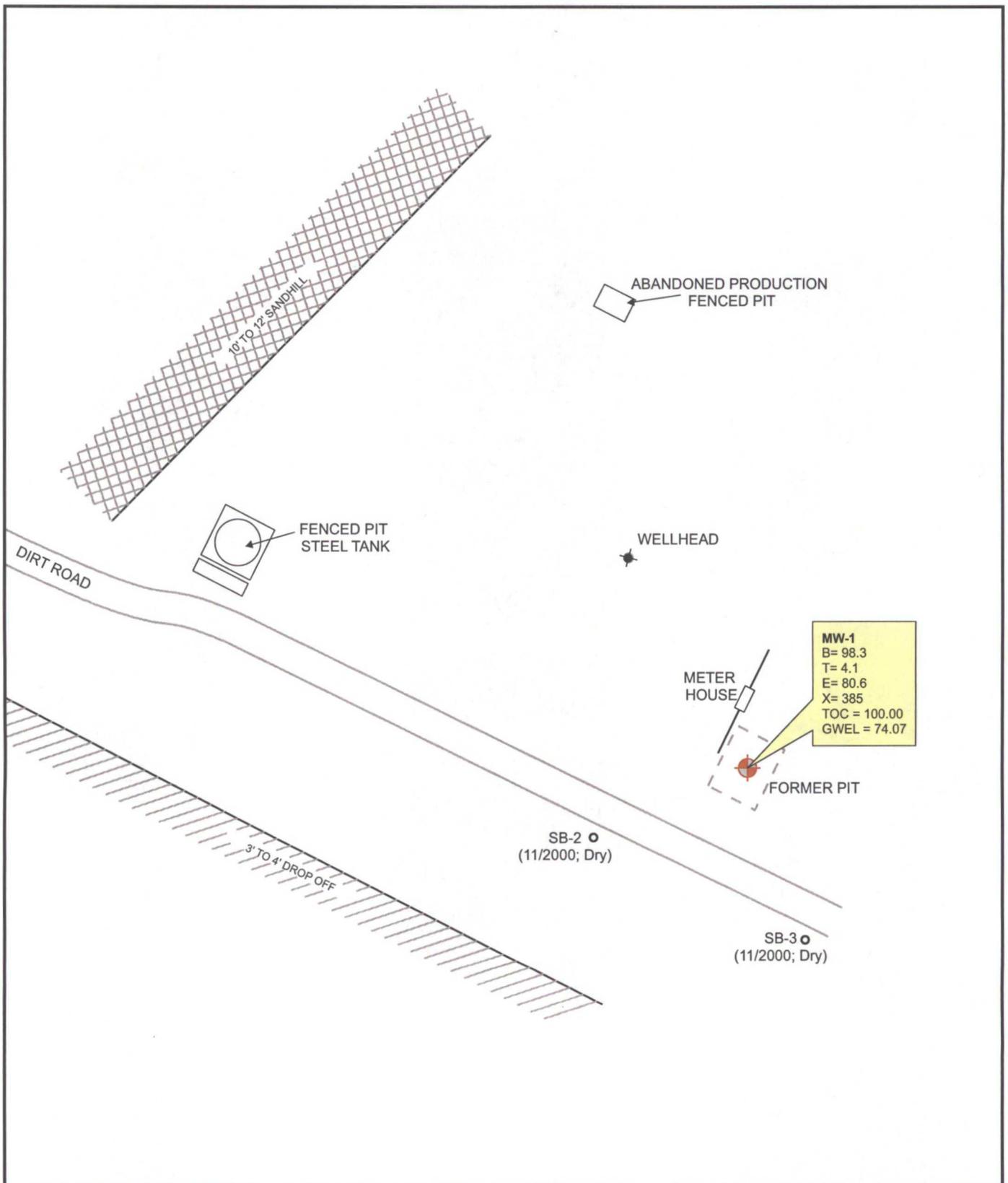
**GCU #124E
Meter Code: 95608**

monitoring. The remaining applicable standards are:

Constituent	NMWQCC GW Standard (µg/L)
Benzene	10
Toluene	750
Ethylbenzene	750
Total Xylenes	620

RECOMMENDATIONS

- EPTPC recommends continued semiannual sampling at MW-1, along with quarterly water level gauging.
- 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.



LEGEND

MW-4 Existing Monitoring / Observation Well

B Benzene (ug/L)

T Toluene (ug/L)

E Ethylbenzene (ug/L)

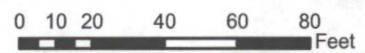
X Total Xylenes (ug/L)

GWEL Groundwater Elevation (ft. *)

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

ND Not Detected; Reporting Limit Shown in Parentheses

J Result Flagged as Estimated



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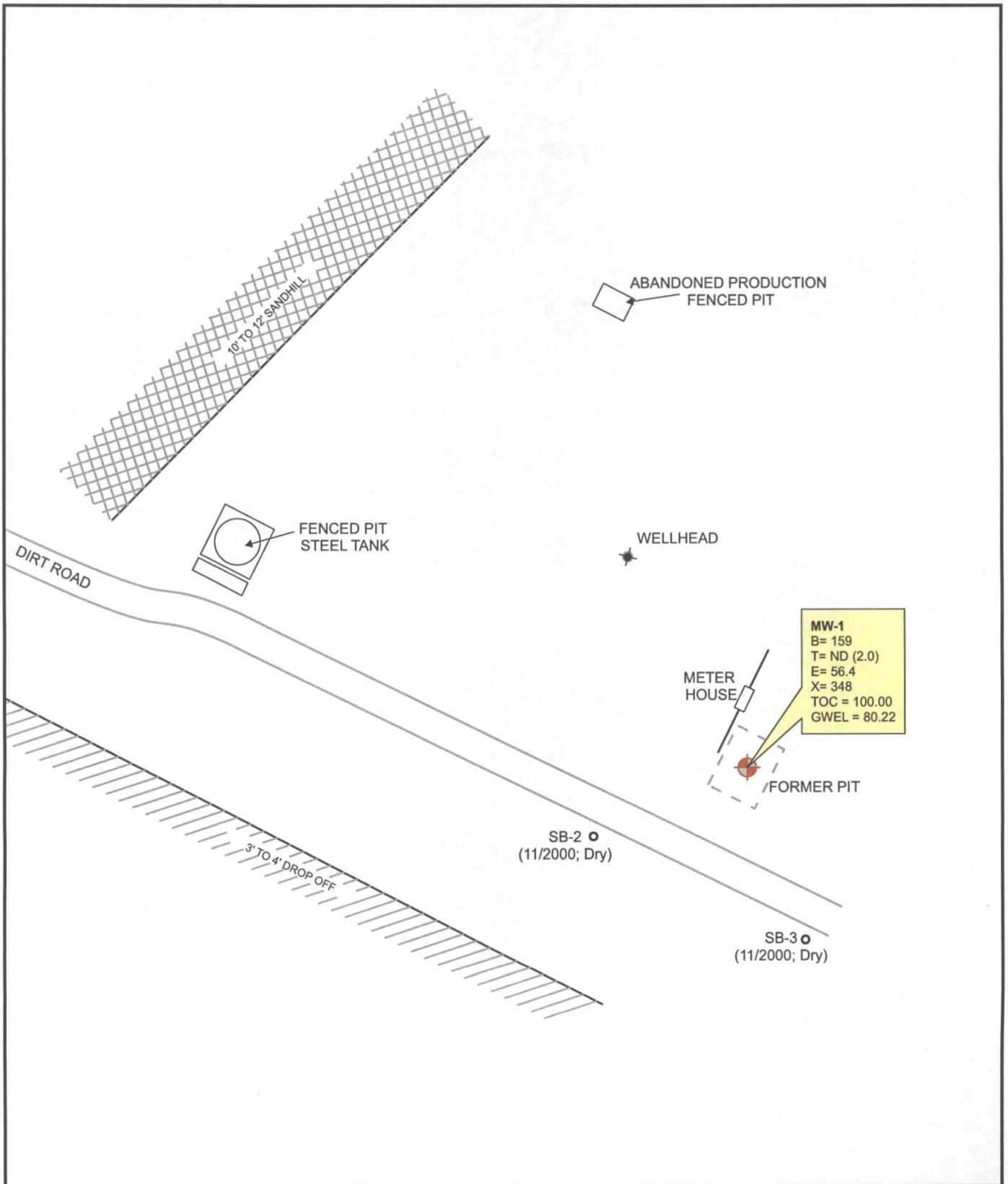


PROJECT: GALLEGOS CANYON UNIT #124E

TITLE: Groundwater Potentiometric Surface Map,
and BTEX Concentrations - February 25, 2010

FIGURE:

1



LEGEND

MW-4 Existing Monitoring / Observation Well

B Benzene (ug/L)

T Toluene (ug/L)

E Ethylbenzene (ug/L)

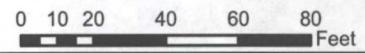
X Total Xylenes (ug/L)

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

ND Not Detected; Reporting Limit Shown in Parentheses

J Result Flagged as Estimated



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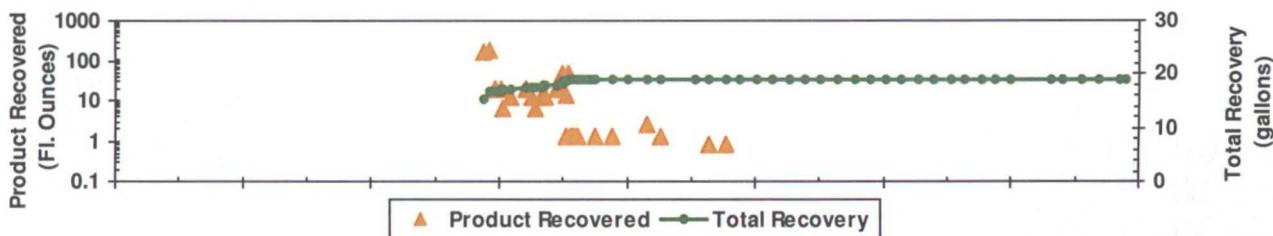
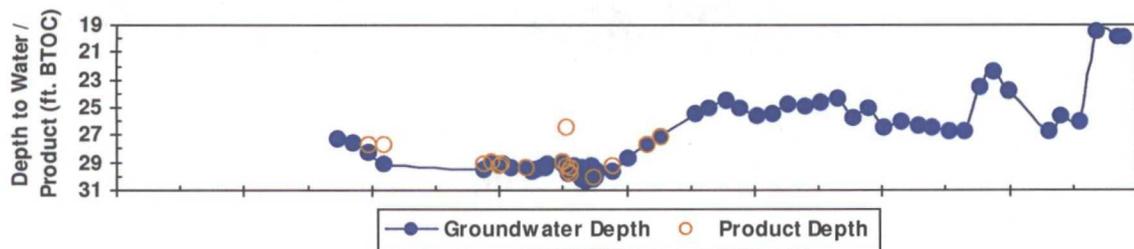
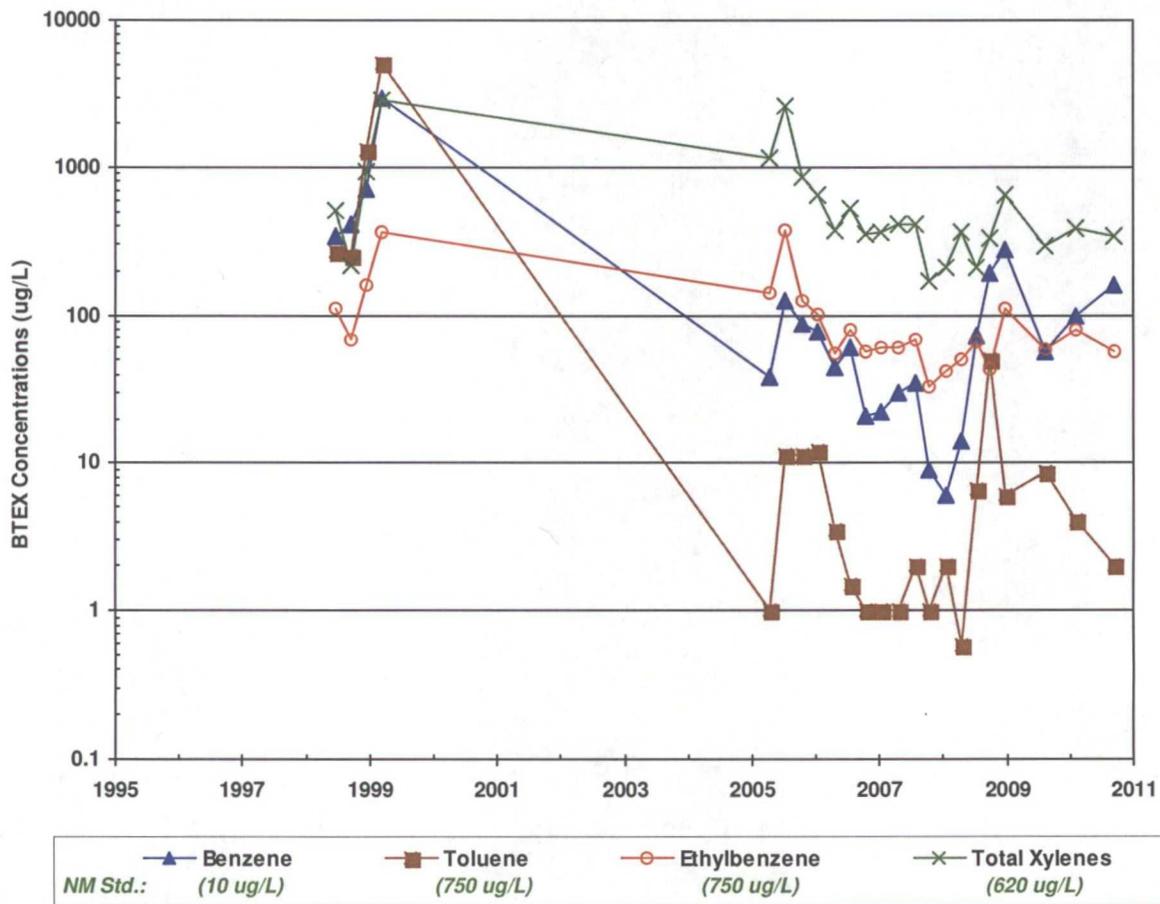
PROJECT: GALLEGOS CANYON UNIT #124E

TITLE: Groundwater Potentiometric Surface Map, and BTEX Concentrations - September 27, 2010

FIGURE:

2

FIGURE 3
SUMMARY OF GROUNDWATER BTEX CONCENTRATIONS, FLUID LEVELS, AND PRODUCT RECOVERY
 GCU #124E (METER #95608)
 MW01



**In some cases, older recovery event data are not available. However, the cumulative totals still include all historic recovery.*

TABLE 1

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

Monitor Well	Sample Date	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	Depth to Water (ft BTOC)	Corrected GW Elevation (Feet*)
NMWQCC GW Std.:		10	750	750	620		
MW01	6/25/1998	340	271	111	510	27.21	72.79
MW01	9/14/1998	410	251	68.3	220	27.50	72.50
MW01	12/15/1998	710	1300	160	940	28.16	72.28
MW01	3/16/1999	2960	5130	367	2890	29.02	72.12
MW01	4/19/2005	38.8	<1.0	142	1160	25.45	74.55
MW01	7/20/2005	125	11.4	371	2640	24.73	75.27
MW01	10/20/2005	86.8	11.3	125	864	24.85	75.15
MW01	1/19/2006	77.9	12.0	101	656	24.53	75.47
MW01	4/24/2006	45.1	3.5J	56.1	377	24.25	75.75
MW01	7/31/2006	60.8	1.5J	79.3	524	25.68	74.32
MW01	10/24/2006	21.1	<1.0	56.6	349	24.94	75.06
MW01	1/19/2007	22.4	<1.0	60.0	367	26.33	73.67
MW01	4/24/2007	30.3	<1.0	60.6	407	25.97	74.03
MW01	7/31/2007	35.3	<2.0	68.4	416	26.26	73.74
MW01	10/25/2007	9.0	<1.0	33.2	173	26.44	73.56
MW01	1/28/2008	6.0	<2.0	41.6	210	26.67	73.33
MW01	4/23/2008	14.1	0.59J	50.1	360	26.67	73.33
MW01	7/23/2008	72.7	6.7	65.8	210	23.49	76.51
MW01	10/8/2008	194	<50	43.6J	328	22.30	77.70
MW01	1/7/2009	281	6J	110	653	23.74	76.26
MW01	8/25/2009	57.9	8.8J	58.4	298	26.65	73.35
MW01	2/15/2010	98.3	4.1	80.6	385	25.93	74.07
MW01	9/27/2010	159	<2.0	56.4	348	19.78	80.22

Notes:

Results shown in bold typeface exceed their respective New Mexico Water Quality Control Commission standards.

"J" = result is qualified as estimated. See laboratory report and/or supplemental data validation report for further detail.

"<" = analyte was not detected at the indicated reporting limit.

Static groundwater elevations have been corrected for product thickness where applicable. Specific gravity of 0.8 used.

*This site has a benchmark elevation of 100 feet rather than mean sea level.

TABLE 2

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

Monitor Well	Removal Date	Depth to Product (ft BTOC)	Depth to Water (ft BTOC)	Product Thickness (feet)	Volume Removed (gallons)	Cumulative Removal (gallons)	Corrected GW Elevation (Feet*)
MW01	12/15/1998	27.61	28.16	0.55	NA	NA	72.28
MW01	3/16/1999	27.60	29.02	1.42	NA	NA	72.12
MW01	10/5/2000	29.04	29.46	0.42	1.25	15.30	70.88
MW01	11/15/2000	28.93	28.93	0.00	1.50	16.80	71.07
MW01	12/20/2000	--	28.98	0.00	0.15	16.95	71.02
MW01	1/9/2001	29.18	29.21	0.03	--	16.95	70.81
MW01	1/15/2001	29.04	29.07	0.03	--	16.95	70.95
MW01	1/22/2001	--	28.99	0.00	0.15	17.10	71.01
MW01	1/30/2001	--	29.09	0.00	0.05	17.15	70.91
MW01	3/12/2001	--	29.26	0.00	0.10	17.25	70.74
MW01	6/5/2001	29.28	29.32	0.04	0.15	17.40	70.71
MW01	7/13/2001	--	29.65	0.00	0.10	17.50	70.35
MW01	8/2/2001	--	29.53	0.00	0.05	17.55	70.47
MW01	8/31/2001	--	29.27	0.00	0.10	17.65	70.73
MW01	9/21/2001	--	29.33	0.00	0.10	17.75	70.67
MW01	10/2/2001	--	28.98	0.00	0.10	17.85	71.02
MW01	12/5/2001	NA	NA	NA	0.16	18.01	NA
MW01	1/2/2002	28.85	28.96	0.11	0.16	18.16	71.13
MW01	1/7/2002	28.94	28.99	0.05	0.38	18.54	71.05
MW01	1/23/2002	26.35	29.35	3.00	0.11	18.65	73.05
MW01	1/30/2002	29.22	29.24	0.02	0.01	18.66	70.78
MW01	2/7/2002	29.66	29.70	0.04	0.38	19.04	70.33
MW01	2/14/2002	29.28	29.29	0.01	0.01	19.05	70.72
MW01	2/20/2002	29.75	29.76	0.01	0.01	19.06	70.25
MW01	3/4/2002	--	29.30	0.00	0.01	19.07	70.70
MW01	3/11/2002	--	29.17	0.00	0.01	19.08	70.83
MW01	3/21/2002	--	29.47	0.00	0.01	19.09	70.53
MW01	3/28/2002	--	29.33	0.00	0.01	19.10	70.67
MW01	4/3/2002	--	29.33	0.00	0.01	19.11	70.67
MW01	7/2/2002	29.98	29.99	0.01	--	19.11	70.02
MW01	7/15/2002	--	29.63	0.00	0.01	19.12	70.37
MW01	10/16/2002	29.24	29.65	0.41	0.01	19.13	70.68
MW01	5/5/2003	27.69	27.72	0.03	0.02	19.15	72.30
MW01	7/18/2003	27.06	27.08	0.02	0.01	19.16	72.94

TABLE 2
SUMMARY OF FREE-PRODUCT REMOVAL
GCU #124E (METER #95608)

Monitor Well	Removal Date	Depth to Product (ft BTOC)	Depth to Water (ft BTOC)	Product Thickness (feet)	Volume Removed (gallons)	Cumulative Removal (gallons)	Corrected GW Elevation (Feet*)
MW01	4/15/2004	--	24.98	0.00	0.01	19.17	75.02
MW01	7/26/2004	--	24.50	0.00	0.01	19.18	75.50

Notes:

"--" indicates either that product was not measurably detected or that product was not recovered.

"NA" indicates that the respective data point is not available.

Groundwater elevations may not be static due to removal of equipment. Corrections for product thickness utilize SG of 0.8.

*This site has a benchmark elevation of 100 feet rather than mean sea level.