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**ANNUAL  
MONITORING  
REPORTS**

**DATE:**

3/2006

**RECEIVED**

**2005 ANNUAL GROUNDWATER REPORT**  
**FEDERAL SITES VOLUME I**

**EL PASO TENNESSEE PIPELINE COMPANY**    **MAR 17 2006**

Oil Conservation Division  
Environmental Bureau

**TABLE OF CONTENTS**

METER or LINE ID	SITE NAME	TOWNSHIP	RANGE	SECTION	UNIT
89961	Fields A#7A	32N	11W	34	E
89232	Johnston Fed #6A	31N	09W	35	F
94715	James F. Bell #1E	30N	13W	10	P
89620	Sandoval GC A #1A	30N	09W	35	C
LD151	Lat 0-21 Line Drip	30N	09W	12	O
73220	Fogelson 4-1 Com. #14	29N	11W	4	P
97213	Hamner #9	29N	09W	20	A
LD174	LAT L 40	28N	04W	13	H
89894	Hammond #41A	27N	08W	25	O
94810	Miles Fed 1A	26N	07W	5	F
LD072	K27 LD072	25N	06W	4	E
87640	Canada Mesa #2	24N	06W	24	I

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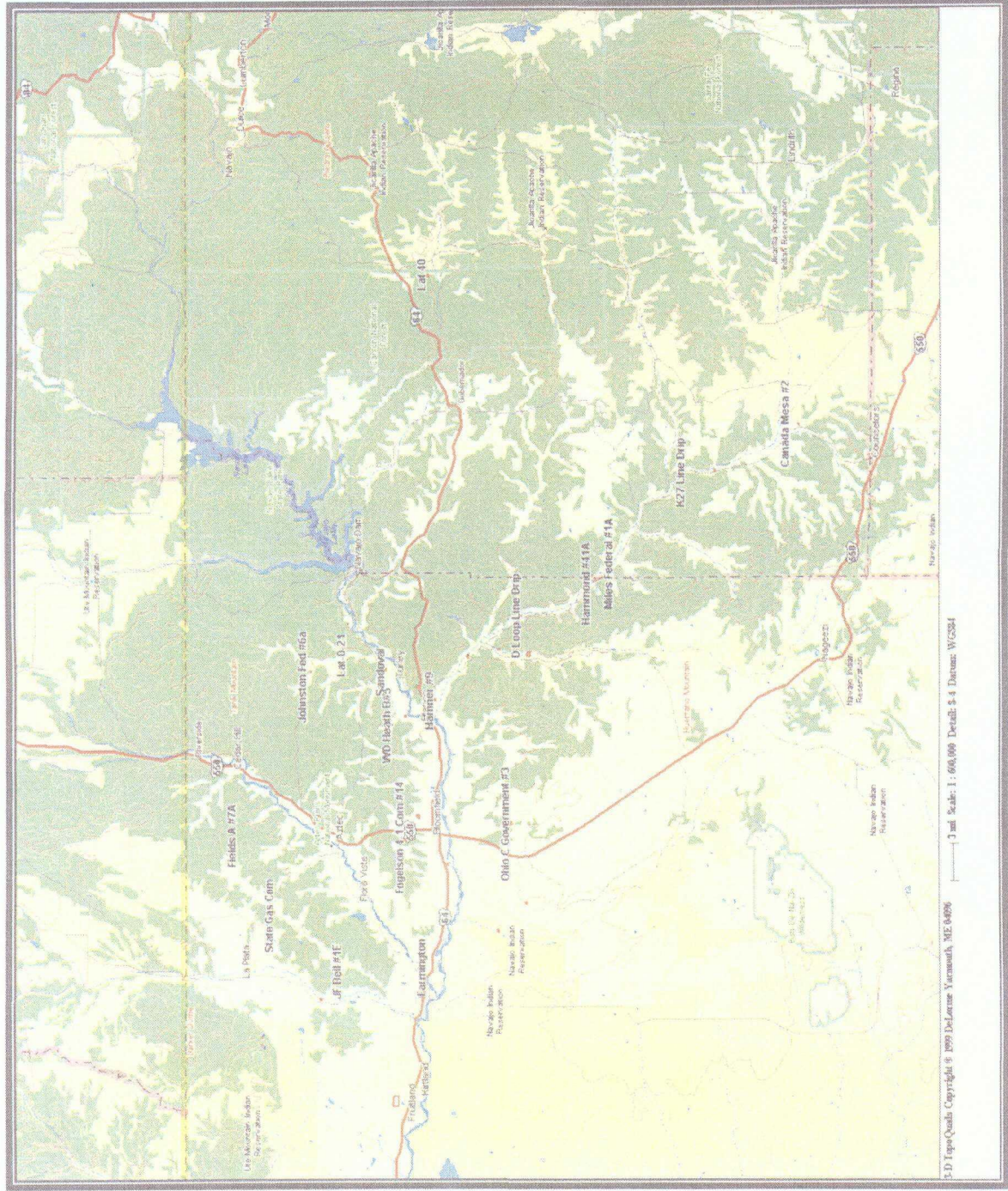
**MWH**

MONTGOMERY WATSON HARZA

## LIST OF ACRONYMS

B	benzene
btoc	below top of casing
E	ethylbenzene
EPFS	El Paso Field Services
ft	foot/feet
GWEL	groundwater elevation
ID	identification
MW	monitoring well
PSH	phase-separated hydrocarbons
NMWQCC	New Mexico Water Quality Control Commission
T	toluene
TOC	top of casing
NA	not applicable
NE	not established
NM	not measured
NMOCD	New Mexico Oil Conservation Division
NS	not sampled
ORC	oxygen-releasing compound
ppb	parts per billion
µg/L	micrograms per liter
X	total xylenes

# Federal Groundwater Site Map



**EPTPC GROUNDWATER SITES  
2005 ANNUAL GROUNDWATER REPORT**

3R235

**Sandoval GC A #1A  
Meter Code: 89620**

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**SITE DETAILS**

<b>Legal Description:</b>	<b>Town:</b> 30N	<b>Range:</b> 9W	<b>Sec:</b> 35	<b>Unit:</b> C
<b>NMOCD Haz Ranking:</b>	10	<b>Land Type:</b>	Federal	<b>Operator:</b> BP \ Amoco Production Company

**PREVIOUS ACTIVITIES**

<b>Site Assessment:</b>	5/94	<b>Excavation:</b>	9/94 (50 cy)	<b>Soil Boring:</b>	5/95
<b>Monitor Well:</b>	5/95	<b>Geoprobe:</b>	NA*	<b>Additional MWs:</b>	NA*
<b>Downgradient MWs:</b>	NA	<b>Replace MW:</b>	8/97	<b>Quarterly Initiated:</b>	4/96
<b>ORC Nutrient Injection:</b>	10/01	<b>Re-Excavation:</b>	7/97 (504cy)	<b>PSH Removal Initiated:</b>	NA
<b>Annual Initiated:</b>	4/99	<b>Quarterly Resumed:</b>	NA		

\*Downgradient monitoring wells were attempted in 1995, but met with drilling refusal. In 1997, geoprobe borings were attempted, but were again met with drilling refusal.

**SUMMARY OF 2005 ACTIVITIES**

**MW-1:** Annual groundwater sampling and dissolved oxygen measurements were conducted in November 2005. Oxygen releasing compound (ORC) socks in MW-1 were replaced during November 2005.

**Site-Wide Activities:** No other activities were performed at this site during 2005.

**SITE MAP**

A site map (November) is attached in Figure 1.

**SUMMARY TABLES AND GRAPHS**

- Analytical data for 2005 are summarized in Table 1, and historic data are presented graphically in Figure 2.
- Analytical reports are presented in Attachment 1 (included on CD).
- Field documentation is presented in Attachment 2 (included on CD).

**EPTPC GROUNDWATER SITES  
2005 ANNUAL GROUNDWATER REPORT**

**Sandoval GC A #1A  
Meter Code: 89620**

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**GEOLOGIC LOGS AND WELL COMPLETION DIAGRAMS**

No subsurface activities were performed at this site during 2005.

**DISPOSITION OF GENERATED WASTES**

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

**ISOCONCENTRATION MAPS**

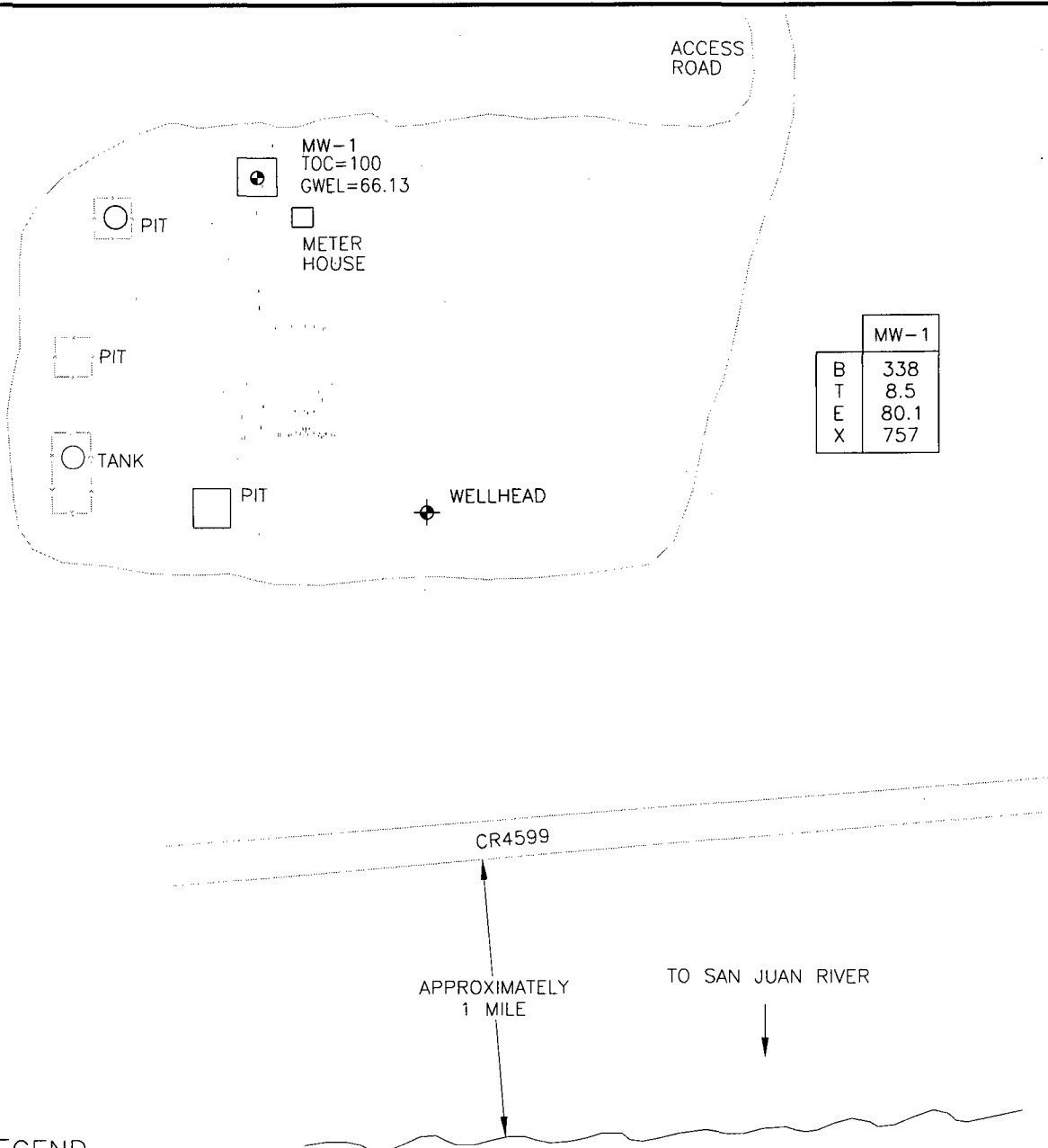
No isoconcentration maps were prepared for this site, however, the attached site map presents the analytical data collected during 2005.

**CONCLUSIONS**

- Regional groundwater flow is estimated to be toward the south.
- The dissolved oxygen concentration in MW-1 was 2.73 mg/L in November, indicating that the ORC is providing oxygen to enhance natural biodegradation and that the oxygen is being used up in the process.
- The benzene concentration in MW-1 has decreased in 2005 with a measured concentration of 338 µg/L, as compared with the measured concentration of 2,490 µg/L in 2004. Benzene concentrations continue to decrease from the historic high concentration of 10,400 µg/L in 1996.
- Previous attempts to install downgradient monitoring wells in December 1995 resulted in drilling refusal. Therefore, additional wells are not considered to be feasible at this site.

**RECOMMENDATIONS**

- EPTPC will continue annual groundwater sampling (including dissolved oxygen measurements) at MW-1.
- EPTPC will continue to inspect the ORC socks installed in MW-1, and will replace them annually.



# LEGEND

- MW-1
 Approximate Monitoring Well Location and Number
- GWEL
 Groundwater Elevation (FT Above Mean Sea Level Unless Noted Otherwise)
- TOC
 Top of Casing
- B
 Benzene ( $\mu\text{g/L}$ )
- T
 Toluene ( $\mu\text{g/L}$ )
- E
 Ethylbenzene ( $\mu\text{g/L}$ )
- X
 Total Xylenes ( $\mu\text{g/L}$ )



NOT TO SCALE

SANDOVAL GAS COM A #1A, METER 89620  
NOVEMBER 2005

GROUNDWATER SITES  
EL PASO TENNESSEE PIPELINE COMPANY

FIGURE 1



TABLE 1

SUMMARY OF BTEX COMPOUNDS IN 2005 GROUNDWATER SAMPLES  
SANDOVAL GC A #1A (METER #89620)

Site Name	Sample Date	Monitoring Well	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	Depth to Water (feet btoc)
Sandoval GC A #1A	11/8/2005	MW-1	338	8.5	80.1	757	33.87



FIGURE 2  
HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER DEPTHS  
SANDOVAL GC A #1A  
MW-1

