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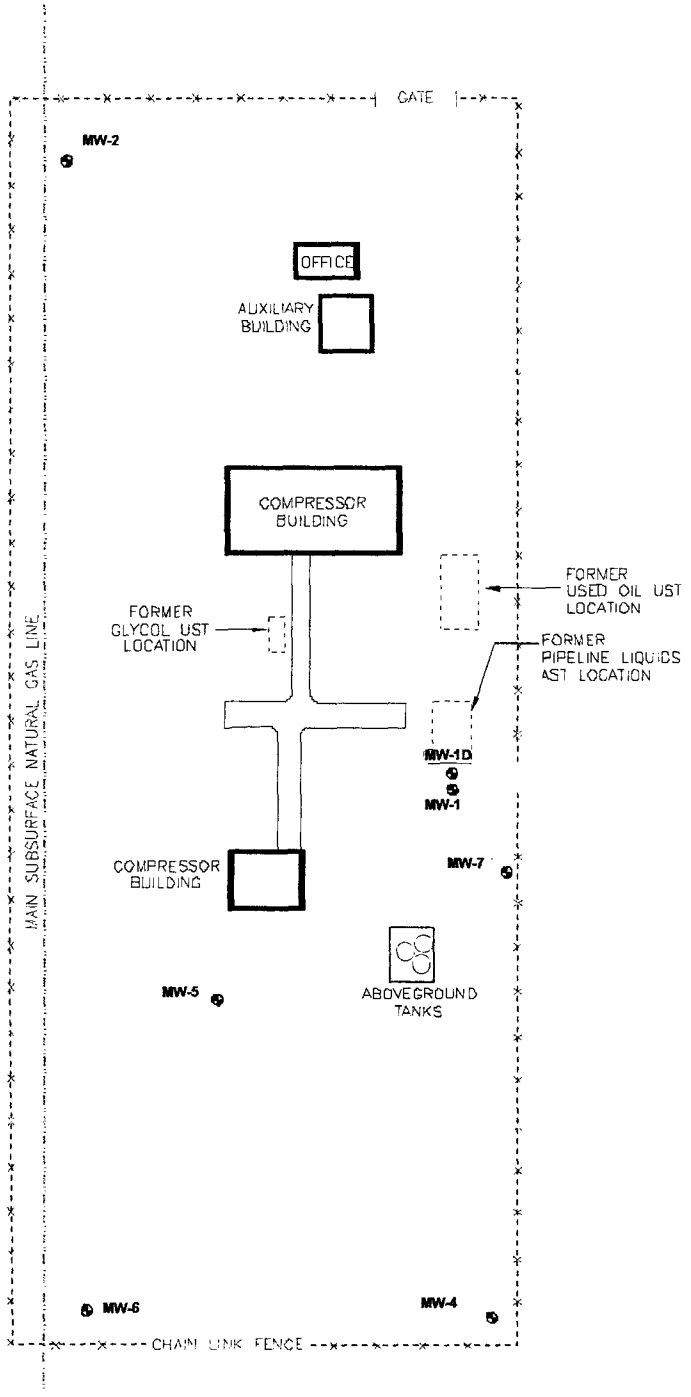
REPORTS

DATE:

2002

2002 Annual Groundwater Monitoring and Remediation Performance Report
Duke Energy Field Services
Monument Booster Station
Lea County, New Mexico

MARCH 27, 2003



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2002 Annual Groundwater Monitoring Report
Duke Energy Field Services
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1.0 Executive Summary

Trident Environmental (Trident) was retained by Duke Energy Field Services Inc. (DEFS) to perform the groundwater monitoring operations at the Monument Booster Station. This 2002 annual report documents the two semi-annual groundwater sampling events performed by Trident at the DEFS Monument Booster Station on February 13, 2002 and September 27, 2002. The report also contains the historical groundwater elevation and analytical data since the beginning of the monitoring and sampling program in May 1995. The monitoring and sampling activities were conducted in accordance with the guidelines specified by Mr. Bill Olson of the New Mexico Oil Conservation Division (OCD) in his letter dated December 9, 1999.

Based on the groundwater monitoring and remediation system performance data to date, the following conclusions at the Monument Booster Station are evident:

- Benzene, toluene, ethylbenzene, and xylenes (BTEX) concentrations in monitoring wells MW-1D, MW-2, MW-3, MW-4, and MW-6 are presently below New Mexico Water Quality Control Commission (WQCC) standards. With the exception of the August 1999 sample recovered from MW-2 and the August 1999 and February 2000 samples recovered from MW-3, the BTEX concentrations in each of these wells have remained below the WQCC standard levels since 1995.

- Only the benzene concentrations from the current and historic groundwater samples recovered from MW-7 exceed the WQCC standard. The BTEX concentrations in monitoring well MW-7 were at their lowest level during the last sampling event since monitoring began in 1995.

- As of December 17, 2002, a total of approximately 157 gallons of light non-aqueous phase liquids (LNAPL) has been removed from monitoring wells MW-1 and MW-5 using a combination of gravity siphoning, hand bailing, passive skimmer, adsorbent sock, and pneumatic pump recovery methods.

- The biodegradation capacity of electron acceptors and metabolic byproducts (33.36 mg/L) far exceeds the highest benzene concentration observed on site in the past (1.13 mg/L in MW-7 during the January 1996 sampling event) by a ratio of 30 to 1. The most recent benzene concentration in MW-7 was 0.015 mg/L during the August 2002 sampling event. This indicates that the biodegradation process has been occurring and will continue.

The following recommendations are suggested for the remediation system and monitoring operations at the Monument Booster Station.

- Continue LNAPL recovery operations utilizing absorbent socks in MW-1 and MW-5. This method appears to have been effective in recovering free product over the last two annual monitoring periods.

- Discontinue analyses for aluminum, arsenic, and chromium since those constituents have been below the WQCC standards for over seven years.

- Continue the groundwater-monitoring program on a semi-annual basis. The next sampling event is scheduled during the first quarter of 2003.

2.0 Chronology of Events

July 1992	Benge Construction Company of Lovington, New Mexico removed three underground storage tanks (USTs) near the main compressor building for ENRON at the Hobbs Compressor Station #2). The USTs formally contained used oil and pipeline liquids (oil and/or natural gas liquid condensate). Hydrocarbon-impacted soils were removed from the used oil and pipeline liquids UST tank holds.
February 4, 1994	Geoscience Consultants Ltd (GCL) installed two monitoring wells (MW-1 and MW-2) during a subsurface investigation for ENRON. Hydrocarbon-impacted groundwater was confirmed in MW-1.
May 17, 1994	Benge Construction Company returned during a subsurface investigation conducted by Daniel B. Stevens and Associates (DBS&A) and removed an additional amount of hydrocarbon-impacted soils from the pipeline liquids and used oil UST tank holds. The amount of hydrocarbon-impacted soils removed from the used oil and pipeline liquids UST tank holds in 1992 and 1994 was not well documented, however it was estimated by DBS&A that a total of 1,064 cubic yards were excavated from the two tank holds based on the amount of backfill required to fill the excavations.
May 16-19, 1994	Six soil borings (SB-1 through SB-6) were completed as temporary drive point wells for ENRON by DBS&A to delineate the horizontal extent of hydrocarbon-impacted soils and groundwater.
October 7, 1994	The OCD requested ENRON to provide a work plan to completely define the extent of groundwater contamination at the Hobbs Compressor Station #2 site.
November 1994	GPM Gas Corporation (GPM) acquired ownership and operation of the Monument Booster Station (formerly Hobbs Compressor Station #2) from ENRON.
February 23, 1995	GPM submitted a subsurface investigation work plan to the OCD to address the groundwater conditions at Monument Booster Station.
April 5, 1995	The OCD approved the subsurface investigation work plan for Monument Booster Station.
May 8-10, 1995	GCL completed a subsurface investigation for GPM to delineate the extent of the hydrocarbon-impacted groundwater. The investigation included the installation and sampling of four monitoring wells (MW-1D, MW-3, MW-4, and MW-5) and one soil boring (SB-7).
July 28, 1995	GPM submitted the *Subsurface Investigation and Preliminary Remedial Response* report for the Monument Booster Station to the OCD.

August 24, 1995	The OCD approved GPM's recommendations for remedial action. The OCD requested a work plan for an additional monitoring well, new recovery well and product recovery system.
September 29, 1995	GPM submitted the *Remediation and Monitoring Work Plan for the Monument Booster Station* to the OCD.
October 25, 1995	The OCD approved the remediation and monitoring work plan for Monument Booster Station.
November 14-16, 1995	GCL installed two additional monitoring wells (MW-6 and MW-7) and conducted the fourth quarter 1995 sampling event at Monument Booster Station.
January 18, 1996	GCL conducted the first quarter 1996 sampling event at Monument Booster Station.
April 24, 1996	GCL conducted the annual (second quarter 1996) sampling event at Monument Booster Station. The annual report included recommendations to the OCD for remedial response.
January 22, 1997	BDM International, Inc. (formerly GCL) conducted the first quarter 1997 sampling event at Monument Booster Station.
January 31, 1997	The OCD completed the review of the annual report for the second quarter 1996 sampling event and approved the groundwater monitoring modifications for Monument Booster Station.
January 31, 1997	BDM International, Inc. (BDM) and GPM installed an automated pneumatic product recovery pump system in monitoring wells MW-1 and MW-5 to replace the hand bailing and gravity siphoning techniques used previously.
August 11, 1997	BDM conducted the annual (third quarter 1997) sampling event at Monument Booster Station.
January 23, 1998	TRW conducted the semi-annual (first quarter 1998) sampling event at Monument Booster Station.
August 3, 1998	TRW conducted the annual (third quarter 1998) sampling event at Monument Booster Station.
February 10, 1999	TRW conducted the semi-annual (first quarter 1999) sampling event at Monument Booster Station.
August 17, 1999	TRW conducted the annual (third quarter 1999) sampling event at Monument Booster Station.

September 14, 1999	TRW conducted O & M on Xitech product recovery system (MW-1) checked and/or replaced absorbent sock and hand bailed excess product from MW-5.
October 26, 1999	TRW conducted O & M on Xitech system and manual product removal.
November 5, 1999	TRW conducted manual product removal from MW-5.
November 22, 1999	TRW conducted O & M on Xitech system and manual product removal.
December 20, 1999	TRW removed the Xitech pump for update and repair. An absorbent sock was installed in MW-1 and replaced in MW-5. Excess product was removed from MW-5 using a hand bailer.
January 26, 2000	TRW measured product thickness and installed new absorbent socks in MW-1 and MW-5.
February 17-18, 2000	TRW conducted the semi-annual (first quarter 2000) sampling event and product removal operations. Groundwater samples were recovered from MW-1D, MW-2, MW-3, MW-4, MW-6 and MW-7.
April 4, 2000	TRW measured product thickness, installed new absorbent socks in MW-1 and MW-5, and removed excess product using a hand bailer.
April 24, 2000	TRW measured product thickness and check and/or replaced absorbent socks in MW-1 and MW-5.
June 15, 2000	TRW measured product thickness and installed new absorbent socks in MW-1 and MW-5.
July 19, 2000	TRW measured product thickness and installed new absorbent socks in MW-1 and MW-5.
August 23, 2000	TRW conducted the annual (third quarter 2000) sampling event and product removal operations. Groundwater samples were recovered from MW-1D, MW-2, MW-3, MW-4, MW-6 and MW-7.
October 3, 2000	TRW measured product thickness and installed new absorbent socks in MW-1 and MW-5.
December 14, 2001	TRW measured product thickness and installed new absorbent socks in MW-1 and MW-5.
January 23, 2001	TRW measured product thickness and installed new absorbent socks in MW-1 and MW-5.

February 8-9, 2001	TRW conducted the semi-annual (first quarter 2001) sampling event and product removal operations. Groundwater samples were recovered from MW-1D, MW-2, MW-3, MW-4, MW-6 and MW-7.
April 4, 2001	TRW measured product thickness and installed new absorbent socks in MW-1 and MW-5.
May 1, 2001	Trident Environmental acquired the Midland Texas resources of TRW, Inc.
May 16, 2001	Trident measured product thickness and installed new absorbent socks in MW-1 and MW-5.
June 19, 2001	Trident measured product thickness and installed new absorbent socks in MW-1 and MW-5.
July 20, 2001	Trident measured product thickness and installed new absorbent socks in MW-1 and MW-5.
July 30, 2001	Trident conducted the annual (third quarter 2001) sampling event and product removal operations. Groundwater samples were recovered from MW-1D, MW-2, MW-3, MW-4, MW-6 and MW-7.
September 10, 2001	Trident measured product thickness and installed new absorbent socks in MW-1 and MW-5.
October 7, 2001	Trident measured product thickness and installed new absorbent socks in MW-1 and MW-5.
November 8, 2001	Trident measured product thickness and installed new absorbent socks in MW-1 and MW-5.
December 11, 2001	Trident measured product thickness and installed new absorbent socks in MW-1 and MW-5.
January 18, 2002	Trident measured product thickness and installed new absorbent socks in MW-1 and MW-5.
February 13, 2002	Trident conducted the semi-annual (first quarter 2002) sampling event and product removal operations. Groundwater samples were recovered from MW-1D, MW-2, MW-3, MW-4, MW-6 and MW-7.
March 14, 2002	Trident measured product thickness and installed new absorbent socks in MW-1 and MW-5.
April 10, 2002	Trident measured product thickness and installed new absorbent socks in MW-1 and MW-5.

May 14, 2002	Trident measured product thickness and installed new absorbent socks in MW-1 and MW-5.
June 18, 2002	Trident measured product thickness and installed new absorbent socks in MW-1 and MW-5.
July 12, 2002	Trident measured product thickness and installed new absorbent socks in MW-1 and MW-5.
August 24, 2002	Trident measured product thickness and installed new absorbent socks in MW-1 and MW-5.
September 10, 2001	Trident conducted the annual (third quarter 2001) sampling event and product removal operations. Groundwater samples were recovered from MW-1D, MW-2, MW-3, MW-4, MW-6 and MW-7.
October 24, 2002	Trident measured product thickness and installed new absorbent socks in MW-1 and MW-5.
November 22, 2002	Trident measured product thickness and installed new absorbent socks in MW-1 and MW-5.
December 17, 2002	Trident measured product thickness and installed new absorbent socks in MW-1 and MW-5.

3.0 Procedures

Prior to sampling, all monitoring wells (MW-1 through MW-7) were gauged for depth to groundwater using a Heron Model H.01L oil/water interface probe. Each monitoring well designated for groundwater sampling was purged using a clean, decontaminated submersible pump. Groundwater parameters, including pH, conductivity, temperature, turbidity, and dissolved oxygen (DO) were measured during the purging operation using a Horiba Model U10 multi-parameter instrument, and Hanna Model 9143 DO meter. A total of 278 gallons of water was purged from monitoring wells MW-1D, MW-2, MW-3, MW-4, MW-6, and MW-7 during the February 13, 2002 and September 27, 2002 sampling events. On September 27, 2002, MW-5 was sampled for the first time since 1995 due to the lack of presence of LNAPL. All groundwater samples were obtained following the purging operation using a new, decontaminated, disposable bailer.

The first sets were transferred into airtight, septum-sealed, 40-ml glass VOA sample vials with zero headspace for analysis of BTEX using EPA Method 8021B. A duplicate sample of MW-7 was collected during both sampling events. The second set of water samples were transferred into appropriately preserved containers for analysis of nitrate (NO_3) and sulfate (SO_4), to assess the efficacy of intrinsic bioremedial activity currently taking place. During the annual sampling event conducted on September 27, 2002, a third and fourth set of water samples were transferred into appropriately preserved containers for analysis of major ions (chloride, fluoride, and total dissolved solids) and WQCC metals (aluminum, arsenic, boron, chromium, iron, and manganese). Also, ferrous iron was measured in the field using a Hach DR2010 spectrophotometer (Method 8146). A summary of purging and sampling methods is provided in Table 1 below. Chain-of-custody (COC) forms documenting sample identification numbers, collection times, and delivery times to the laboratories were completed for each set of samples. A monitoring well sampling data sheet was prepared for each well to document the parameter readings during the purge operation. The water samples were placed in an ice-filled cooler immediately after collection and shipped to Trace Analysis, Inc. of Lubbock, Texas for laboratory analysis.

Table 1
Summary of Purging and Sampling Methods

Monitoring Well No.	Sample Date	Purge Method	Purge Volume (gallons)	Sampling Method	Groundwater Analytes
MW-1D	02/13/02	Pump	15	Disposable bailer	BTEX and Bio-indicators
	09/02/02	Hand Bail	5	Disposable bailer	BTEX, Metals, Ions, Bio-indicators
MW-2	02/13/02	Pump	25	Disposable bailer	BTEX and Bio-indicators
	09/02/02	Pump	30	Disposable bailer	BTEX, Metals, Ions, Bio-indicators
MW-3	02/13/02	Pump	23	Disposable bailer	BTEX and Bio-indicators
	09/02/02	Pump	14	Disposable bailer	BTEX, Metals, Ions, Bio-indicators
MW-4	02/13/02	Pump	25	Disposable bailer	BTEX and Bio-indicators
	09/02/02	Pump	16	Disposable bailer	BTEX, Metals, Ions, Bio-indicators
MW-5	09/02/02	Hand Bail	20	Disposable bailer	BTEX, Metals, Ions, Bio-indicators
MW-6	02/13/02	Pump	25	Disposable bailer	BTEX and Bio-indicators
	09/02/02	Pump	30	Disposable bailer	BTEX, Metals, Ions, Bio-indicators
MW-7	02/13/02	Pump	25	Disposable bailer	BTEX and Bio-indicators
	09/02/02	Pump	25	Disposable bailer	BTEX, Metals, Ions, Bio-indicators

* Indicates monitoring well was bailed dry or pumped off.
BTEX - benzene, toluene, ethylbenzene, xylenes
WQCC Metals - Al, As, B, Cr, Fe,and Mn
Ions - F, Cl, NO3, SO4, and TDS
Bio-indicatoras - DO, NO3, SO4
MW-1 and MW-5 not sampled due to presence of product.

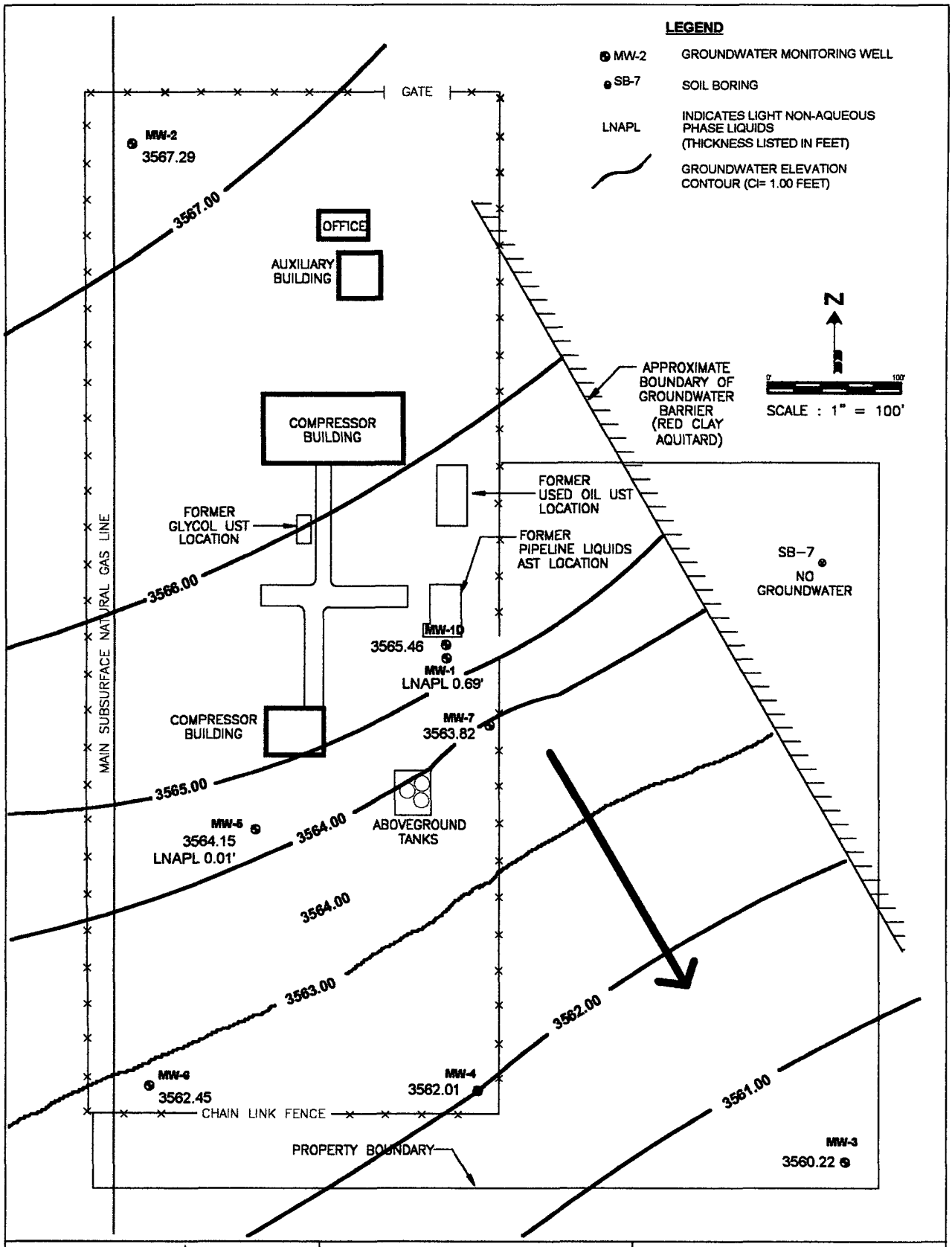
4.0 Groundwater Elevations, Hydraulic Gradient and Flow Direction

Based on the most recent gauging data collected by Trident on September 27, 2002, the groundwater conditions at the Monument Booster Station are characterized below.

- The depth to the water table across the site varies from approximately 21 to 27 feet below ground surface
- The hydraulic gradient is approximately 0.007 feet/foot
- The direction of groundwater flow is to the southeast

The direction of groundwater flow and hydraulic gradient has remained consistent for the past six and one-half years. Groundwater elevation maps depicting the water table elevation and direction of groundwater flow using the gauging data obtained during the two 2002 sampling events are presented in Figure 1A (February 13, 2002) and Figure 1B (September 27, 2002).

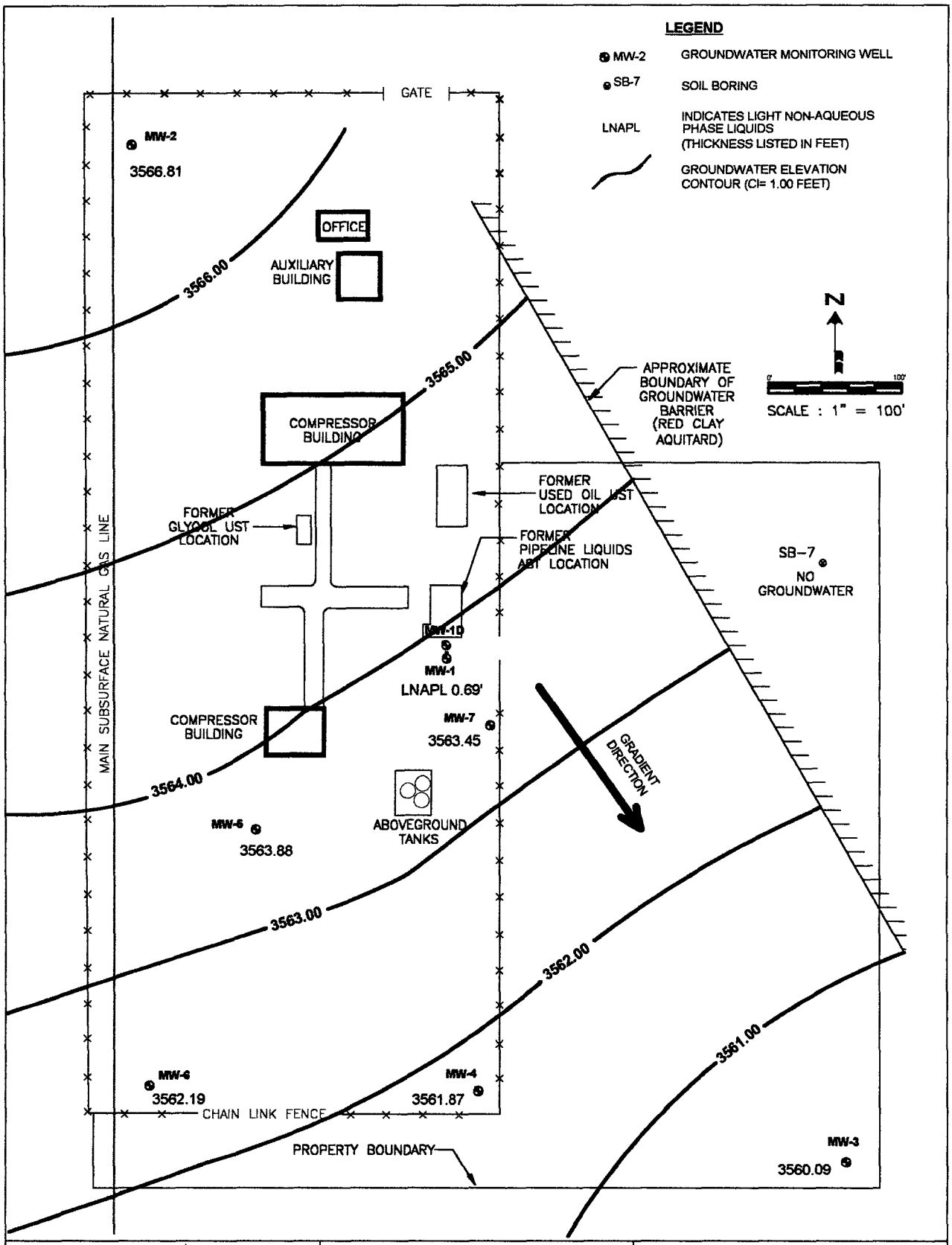
Figure 2 depicts the changes in groundwater elevations in monitoring wells MW-1 through MW-7 with time. Historical groundwater elevations and depth to water measurements are summarized in Table 2.



TRIDENT ENVIRONMENTAL

SITE: MONUMENT BOOSTER STATION	
DATE: 02/13/02	REV. NO.:
AUTHOR: GJV	DRN BY: DTL
CK'D BY: DTL	FILE:monument

Figure 1
MONUMENT BOOSTER STATION
GROUNDWATER ELEVATION MAP
Gauging Date:February 13, 2002



TRIDENT ENVIRONMENTAL	SITE: MONUMENT BOOSTER STATION	
	DATE: 09/27/02	REV. NO.:
	AUTHOR: GJV	DRN BY: DTL
	CK'D BY: DTL	FILE:monument

Figure 1B
MONUMENT BOOSTER STATION
GROUNDWATER ELEVATION MAP
Gauging Date: September 27, 2002

Figure 2
Groundwater Elevation Versus Time

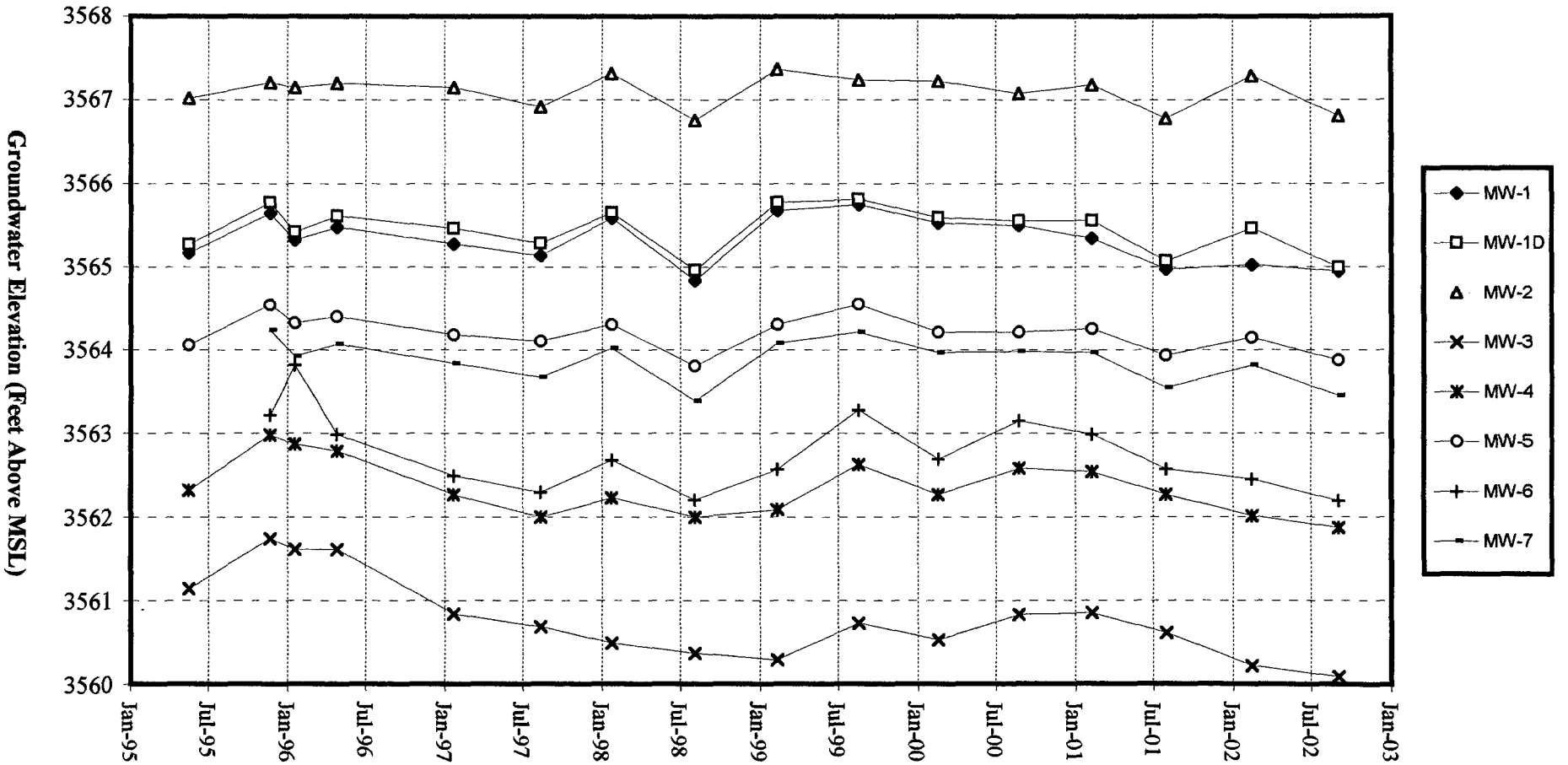


Table 1
Summary of Groundwater Elevations

Monitoring Well Number	Gauging Date	Ground Surface Elevations (Feet)	Top of Casing Elevation (Feet)	Groundwater Depth Below Top of Casing (Feet)	Groundwater Elevation (Feet)	LNAPL Thickness (Feet)
MW-1	05/16/95	3588.85	3591.15	28.05	3565.17	2.52
	11/21/95	3588.85	3591.15	27.03	3565.65	1.86
	01/18/96	3588.85	3591.15	27.62	3565.32	2.18
	04/24/96	3588.85	3591.15	27.39	3565.47	2.09
	01/22/97	3588.85	3591.15	27.68	3565.27	2.20
	08/11/97	3588.85	3591.15	26.03	3565.14	0.02
	01/23/98	3588.85	3591.15	25.63	3565.59	0.08
	08/03/98	3588.85	3591.15	26.32	3564.84	0.01
	02/10/99	3588.85	3591.15	25.55	3565.67	0.09
	08/17/99	3588.85	3591.15	25.41	3565.75	0.01
	02/17/00	3588.85	3591.15	25.69	3565.53	0.08
	08/23/00	3588.85	3591.15	25.73	3565.49	0.09
	02/08/01	3588.85	3591.15	26.32	3565.34	0.62
	07/30/01	3588.85	3591.15	26.26	3564.97	0.10
	02/13/02	3588.85	3591.15	26.69	3565.03	0.69
	09/02/02	3588.85	3591.15	26.77	3564.95	0.69
MW-1D	05/16/95	3589.06	3591.31	26.04	3565.27	0.00
	11/21/95	3589.06	3591.31	25.54	3565.77	0.00
	01/18/96	3589.06	3591.31	25.89	3565.42	0.00
	04/24/96	3589.06	3591.31	25.70	3565.61	0.00
	01/22/97	3589.06	3591.31	25.85	3565.46	0.00
	08/11/97	3589.06	3591.31	26.03	3565.28	0.00
	01/23/98	3589.06	3591.31	25.66	3565.65	0.00
	08/03/98	3589.06	3591.31	26.35	3564.96	0.00
	02/10/99	3589.06	3591.31	25.54	3565.77	0.00
	08/17/99	3589.06	3591.31	25.50	3565.81	0.00
	02/17/00	3589.06	3591.31	25.72	3565.59	0.00
	08/23/00	3589.06	3591.31	25.76	3565.55	0.00
	02/08/01	3589.06	3591.31	25.76	3565.55	0.00
	07/30/01	3589.06	3591.31	26.24	3565.07	0.00
	02/13/02	3589.06	3591.31	25.85	3565.46	0.00
	09/02/02	3589.06	3591.31	26.32	3564.99	0.00
MW-2	05/16/95	3594.13	3596.30	29.28	3567.02	0.00
	11/21/95	3594.13	3596.30	29.09	3567.21	0.00
	01/18/96	3594.13	3596.30	29.15	3567.15	0.00
	04/24/96	3594.13	3596.30	29.10	3567.20	0.00
	01/22/97	3594.13	3596.30	29.15	3567.15	0.00
	08/11/97	3594.13	3596.30	29.38	3566.92	0.00
	01/23/98	3594.13	3596.30	28.98	3567.32	0.00
	08/03/98	3594.13	3596.30	29.54	3566.76	0.00
	02/10/99	3594.13	3596.30	28.93	3567.37	0.00
	08/17/99	3594.13	3596.30	29.06	3567.24	0.00
	02/17/00	3594.13	3596.30	29.07	3567.23	0.00
	08/23/00	3594.13	3596.30	29.22	3567.08	0.00
	02/08/01	3594.13	3596.30	29.12	3567.18	0.00
	07/30/01	3594.13	3596.30	29.52	3566.78	0.00
	02/13/02	3594.13	3596.30	29.01	3567.29	0.00
	09/02/02	3594.13	3596.30	29.49	3566.81	0.00

Table 1 (Continued)
Summary of Groundwater Elevations

Monitoring Well Number	Gauging Date	Ground Surface Elevations (Feet)	Top of Casing Elevation (Feet)	Groundwater Depth Below Top of Casing (Feet)	Groundwater Elevation (Feet)	LNAPL Thickness (Feet)
MW-3	05/16/95	3581.46	3583.86	22.72	3561.14	0.00
	11/21/95	3581.46	3583.86	22.12	3561.74	0.00
	01/18/96	3581.46	3583.86	22.25	3561.61	0.00
	04/24/96	3581.46	3583.86	22.25	3561.61	0.00
	01/22/97	3581.46	3583.86	23.02	3560.84	0.00
	08/11/97	3581.46	3583.86	23.18	3560.68	0.00
	01/23/98	3581.46	3583.86	23.37	3560.49	0.00
	08/03/98	3581.46	3583.86	23.49	3560.37	0.00
	02/10/99	3581.46	3583.86	23.57	3560.29	0.00
	08/17/99	3581.46	3583.86	23.13	3560.73	0.00
	02/17/00	3581.46	3583.86	23.33	3560.53	0.00
	08/23/00	3581.46	3583.86	23.03	3560.83	0.00
	02/08/01	3581.46	3583.86	23.01	3560.85	0.00
	07/30/01	3581.46	3583.86	23.25	3560.61	0.00
	02/13/01	3581.46	3583.86	23.64	3560.22	0.00
	09/02/02	3581.46	3583.86	23.77	3560.09	0.00
MW-4	05/16/95	3586.10	3588.77	26.45	3562.32	0.00
	11/21/95	3586.10	3588.77	25.79	3562.98	0.00
	01/18/96	3586.10	3588.77	25.90	3562.87	0.00
	04/24/96	3586.10	3588.77	25.98	3562.79	0.00
	01/22/97	3586.10	3588.77	26.50	3562.27	0.00
	08/11/97	3586.10	3588.77	26.77	3562.00	0.00
	01/23/98	3586.10	3588.77	26.54	3562.23	0.00
	08/03/98	3586.10	3588.77	26.77	3562.00	0.00
	02/10/99	3586.10	3588.77	26.68	3562.09	0.00
	08/17/99	3586.10	3588.77	26.14	3562.63	0.00
	02/17/00	3586.10	3588.77	26.50	3562.27	0.00
	08/23/00	3586.10	3588.77	26.19	3562.58	0.00
	02/08/01	3586.10	3588.77	26.23	3562.54	0.00
	07/30/01	3586.10	3588.77	26.50	3562.27	0.00
	02/13/02	3586.10	3588.77	26.76	3562.01	0.00
	09/02/02	3586.10	3588.77	26.90	3561.87	0.00
MW-5	05/16/95	3589.62	3592.16	28.10	3564.06	0.00
	11/21/95	3589.62	3592.16	28.24	3564.54	0.76
	01/18/96	3589.62	3592.16	28.45	3564.33	0.75
	04/24/96	3589.62	3592.16	28.41	3564.40	0.79
	01/22/97	3589.62	3592.16	28.45	3564.18	0.57
	08/11/97	3589.62	3592.16	28.13	3564.10	0.09
	01/23/98	3589.62	3592.16	27.89	3564.30	0.04
	08/03/98	3589.62	3592.16	28.79	3563.80	0.53
	02/10/99	3589.62	3592.16	28.48	3564.30	0.76
	08/17/99	3589.62	3592.16	27.93	3564.55	0.39
	02/17/00	3589.62	3592.16	28.03	3564.21	0.10
	08/23/00	3589.62	3592.16	28.07	3564.21	0.15
	02/08/01	3589.62	3592.16	27.92	3564.25	0.01
	07/30/01	3589.62	3592.16	28.24	3563.94	0.02
	02/13/02	3589.62	3592.16	28.02	3564.15	0.01
	09/02/02	3589.62	3592.16	28.28	3563.88	<0.00

Table 1 (Continued)
Summary of Groundwater Elevations

Monitoring Well Number	Gauging Date	Ground Surface Elevations (Feet)	Top of Casing Elevation (Feet)	Groundwater Depth Below Top of Casing (Feet)	Groundwater Elevation (Feet)	LNAPL Thickness (Feet)
MW-6	11/16/95	3586.15	3587.93	24.71	3563.22	0.00
	01/18/96	3586.15	3587.93	24.11	3563.82	0.00
	04/24/96	3586.15	3587.93	24.94	3562.99	0.00
	01/22/97	3586.15	3587.93	25.44	3562.49	0.00
	08/11/97	3586.15	3587.93	25.64	3562.29	0.00
	01/23/98	3586.15	3587.93	25.25	3562.68	0.00
	08/03/98	3586.15	3587.93	25.73	3562.20	0.00
	02/10/99	3586.15	3587.93	25.36	3562.57	0.00
	08/17/99	3586.15	3587.93	24.65	3563.28	0.00
	02/17/00	3586.15	3587.93	25.24	3562.69	0.00
	08/23/00	3586.15	3587.93	24.78	3563.15	0.00
	02/08/01	3586.15	3587.93	24.94	3562.99	0.00
	07/30/01	3586.15	3587.93	25.36	3562.57	0.00
	02/13/02	3586.15	3587.93	25.48	3562.45	0.00
	09/02/02	3586.15	3587.93	25.74	3562.19	0.00
MW-7	11/21/95	3588.06	3589.40	25.16	3564.24	0.00
	01/18/96	3588.06	3589.40	25.48	3563.92	0.00
	04/24/96	3588.06	3589.40	25.33	3564.07	0.00
	01/22/97	3588.06	3589.40	25.56	3563.84	0.00
	08/11/97	3588.06	3589.40	25.73	3563.67	0.00
	01/23/98	3588.06	3589.40	25.38	3564.02	0.00
	08/03/98	3588.06	3589.40	26.01	3563.39	0.00
	02/10/99	3588.06	3589.40	25.32	3564.08	0.00
	08/17/99	3588.06	3589.40	25.19	3564.21	0.00
	02/17/00	3588.06	3589.40	25.43	3563.97	0.00
	08/23/00	3588.06	3589.40	25.42	3563.98	0.00
	02/08/01	3588.06	3589.40	25.43	3563.97	0.00
	07/30/01	3588.06	3589.40	25.85	3563.55	0.00
	02/13/02	3588.06	3589.40	25.58	3563.82	0.00
	09/02/02	3588.06	3589.40	25.95	3563.45	0.00

* Elevations initially surveyed by John W. West Engineering Company of Hobbs, NM.

The monitoring well casings were marked on the north side to provide consistent reference points for future gauging operations.

** Groundwater Elev. Corrected for LNAPL = Top of Casing Elev. - [Groundwater Depth - (SG x LNAPL Thickness)].

Groundwater direction is to the southeast with a hydraulic gradient of approximately 0.008 feet/foot.

5.0 Groundwater Quality Conditions

5.1 Distribution of Hydrocarbons in Groundwater

A historical listing of BTEX concentrations obtained from the sampled monitoring wells is summarized in Table 3. Hydrocarbon concentration maps depicting the BTEX concentrations for the two 2002 sampling events conducted on February 13, 2002 and September 27, 2002, are presented in Figures 3A and 3B, respectively. Figure 4 depicts the historic benzene concentrations in the groundwater versus time over the life of the monitoring project. The historic BTEX concentrations in the groundwater versus time at MW-7 are depicted in Figure 5. Based on the most recent analytical, the distribution of hydrocarbons at the Monument Booster Station is described below.

- BTEX concentrations in MW-1D, MW-2, MW-3, MW-4, and MW-6 are presently below WQCC standards. With the exception of the August 1999 sample recovered from MW-2 and the August 1999 and February 2000 samples recovered from MW-3, the BTEX concentrations in each of these wells have remained below the WQCC standard levels since 1995.

- Only the benzene concentrations from the current and historic groundwater samples recovered from MW-5 and MW-7 exceed the WQCC standard. MW-5 was sampled on September 27, 2002, for the first time since 1995 due to the lack of presence of LNAPL. The benzene concentration in MW-7 was at its lowest level (0.015 mg/L) during the last sampling event since monitoring began in 1995.

5.2 Distribution of Dissolved WQCC Metals and Ions in Groundwater

Historical groundwater sample analytical results for metals and ions are presented in Tables 4. The WQCC standards are listed in the tables for comparison and constituents with concentrations above the WQCC standards are highlighted in boldface type. The laboratory reports and COC documentation are included in Appendix A. A graph that depicts the historic concentrations of total dissolved solids (TDS), chlorides, and sulfates versus time for monitoring well MW-2 is provided in Figure 6.

The WQCC metal results for the 2002 annual sampling event indicate no constituents exceeded the WQCC standards with the exception of manganese in MW-5, MW-6, and MW-7, and iron in MW-5 and MW-7. These elevated levels may be due to the reduced chemical environment caused by the presence of dissolved hydrocarbons. Under this condition, certain metal ions (particularly manganese and iron) have a greater affinity to go into the dissolved state. In addition, iron and manganese are byproducts from natural biodegradation processes, thus resulting in higher concentrations. In contrast, upgradient monitoring well MW-2, and downgradient monitoring wells MW-3, and MW-4 contain very low concentrations of iron or manganese. Based on the results of the metal analyses during the 2002 annual sampling event, the groundwater in the site area is not adversely affected or impacted with dissolved metals.

The major ion analyses for the 2002 annual sampling event indicate that no constituents exceeded the WQCC standards with the exception of chloride and TDS in MW-2, fluoride in MW-1D, MW-2, MW-3, MW-5, and MW-7, arsenic in MW-5, and boron in MW-5 and MW-6.

Chloride (2,170 mg/L) and TDS (4,440 mg/L) concentrations in MW-2 have increased since August 1998 and may indicate a potential upgradient release of produced water north and/or west of the Monument Booster Station.

Since fluoride is not a constituent for the gas processing activities on site, its presence is likely due to natural conditions as it is a common naturally occurring compound in groundwater (USGS Water-Supply Paper 2254, 1989, pgs.120-123).

Before 1980, arsenic compounds, such as lead arsenate and sodium arsenite, were commonly used in the pest and weed control business (*Groundwater Geochemistry – Fundamentals and Applications to Contamination*, William J. Deutsch, 1997, pg. 168). The concentration of arsenic in monitoring well MW-5 (0.119 mg/L) is very near the WQCC standard (0.1 mg/L). Arsenic compounds are not known to have been used at the facility, therefore the presence of arsenic is likely due to some anthropogenic (offsite) input or may be naturally occurring.

Boron has numerous industrial uses, most commonly as a cleaning agent (Borax) and is also found naturally in the evaporite deposits of certain closed basins and in oceanic water (USGS Water-Supply Paper 2254, 1989, pg.129). The concentration of boron in monitoring wells MW-5 (0.774 mg/L) and MW-6 (1.17 mg/L) is very near the WQCC standard (0.75 mg/L). Boron is not a constituent for the known gas processing activities on site, therefore its presence is likely due to natural conditions.

Since the groundwater on site is not used for potable drinking water, nor will it be in the foreseeable future, and the constituents of concern above WQCC standards are limited to being on site, there is low risk to human health and the environment.

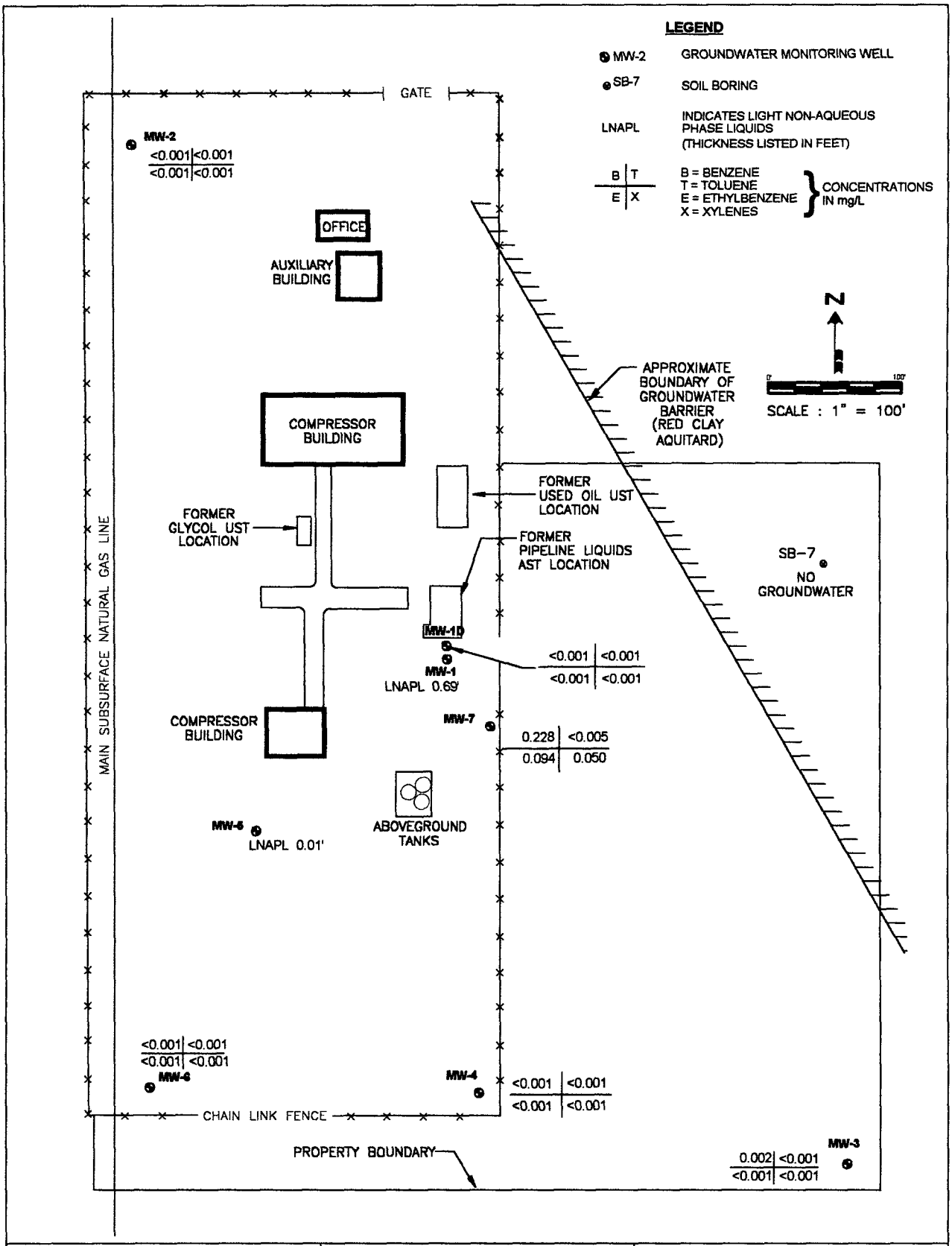
Table 2
Summary of Dissolved BTEX Concentrations
Monument Booster Station

Monitoring Well	Sampling Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)
MW-1D	05/16/95	**0.018**	0.006	0.015	0.016
	11/15/95	0.003	<0.001	0.002	0.001
	01/18/96	0.004	<0.001	0.003	0.009
	04/24/96	<0.001	<0.001	<0.001	<0.001
	01/22/97	0.001	<0.001	0.001	<0.001
	08/11/97	<0.001	<0.001	<0.001	<0.001
	01/23/98	<0.001	<0.001	<0.001	<0.001
	08/03/98	<0.001	<0.001	<0.001	<0.001
	02/10/99	<0.001	<0.001	<0.001	<0.001
	08/17/99	<0.001	<0.001	<0.001	<0.001
	02/18/00	0.002	<0.001	0.003	0.001
	08/23/00	<0.005	<0.005	<0.005	<0.005
	02/09/01	<0.001	<0.001	<0.001	0.001
	07/30/01	<0.001	<0.001	<0.001	<0.001
	02/13/02	<0.001	<0.001	<0.001	<0.001
	09/27/02	<0.001	<0.001	<0.001	<0.001
MW-2	05/16/95	<0.001	<0.001	<0.001	<0.001
	11/15/95	**0.044***	0.002*	0.006*	0.009*
	01/18/96	<0.001	<0.001	<0.001	<0.001
	04/24/96	<0.001	<0.001	<0.001	<0.001
	01/22/97	<0.001	<0.001	<0.001	<0.001
	08/11/97	<0.001	<0.001	<0.001	<0.001
	01/23/98	<0.001	<0.001	<0.001	<0.001
	08/03/98	<0.001	<0.001	<0.001	<0.001
	02/10/99	<0.001	<0.001	<0.001	<0.001
	08/17/99	**0.017**	0.013	0.002	0.003
	02/18/00	<0.001	<0.001	<0.001	<0.001
	08/23/00	<0.001	<0.001	<0.001	<0.001
	02/08/01	<0.001	<0.001	<0.001	<0.001
	07/30/01	<0.001	<0.001	<0.001	<0.001
	02/13/02	<0.001	<0.001	<0.001	<0.001
	09/27/02	<0.001	<0.001	<0.001	<0.001
MW-3	05/16/95	<0.001	<0.001	<0.001	<0.001
	11/15/95	<0.001	<0.001	<0.001	<0.001
	01/18/96	<0.001	<0.001	<0.001	<0.001
	04/24/96	<0.001	<0.001	<0.001	<0.001
	01/22/97	<0.001	<0.001	<0.001	<0.001
	08/11/97	<0.001	<0.001	<0.001	<0.001
	01/23/98	<0.001	<0.001	<0.001	<0.001
	08/03/98	0.007	<0.001	<0.001	<0.001
	02/10/99	<0.005	<0.005	<0.005	<0.005
	08/17/99	**0.043**	<0.005	<0.005	<0.005
	02/17/00	**0.021**	<0.005	<0.005	<0.005
	08/23/00	0.006	<0.005	<0.005	<0.005
	02/08/01	0.004	0.002	0.001	0.005
	07/30/01	0.002	<0.001	<0.001	<0.001
	02/13/02	0.002	<0.001	<0.001	<0.001
	09/27/02	<0.005	<0.005	<0.005	<0.005

Table 2 (Continued)
Summary of Dissolved BTEX Concentrations
Monument Booster Station

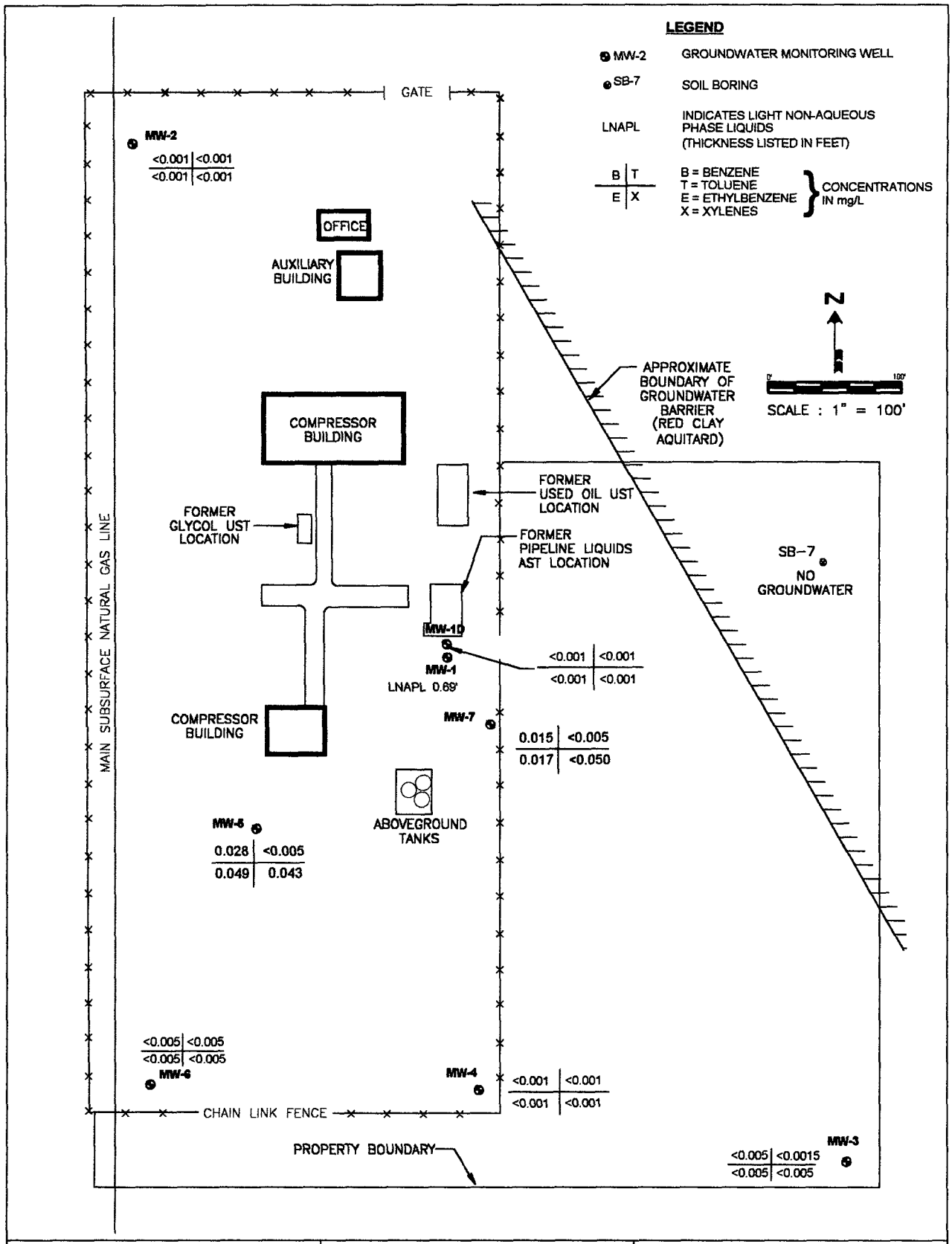
Monitoring Well	Sampling Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)
MW-4	05/16/95	<0.001	<0.001	<0.001	<0.001
	11/15/95	**0.045***	0.002*	0.006*	0.010*
	01/18/96	0.003	<0.001	<0.001	<0.001
	04/24/96	<0.002	<0.002	<0.002	<0.002
	01/22/97	0.002	<0.001	<0.001	<0.001
	08/11/97	0.001	<0.001	<0.001	<0.001
	01/23/98	<0.001	<0.001	<0.001	<0.001
	08/03/98	<0.001	<0.001	<0.001	<0.001
	02/10/99	<0.001	<0.001	<0.001	<0.001
	08/17/99	<0.001	<0.001	<0.001	0.001
	02/18/00	<0.005	<0.005	<0.005	<0.005
	08/23/00	<0.005	<0.005	<0.005	<0.005
	02/08/01	0.002	<0.001	<0.001	0.002
	07/30/01	<0.001	<0.001	<0.001	<0.001
	02/13/02	<0.001	<0.001	<0.001	<0.001
	09/27/02	<0.001	<0.001	<0.001	<0.001
MW-5	05/16/95	**0.265**	0.009	0.261	0.050
	09/27/02	**0.028**	<0.005	0.049	0.043
MW-6	11/16/95	0.003	<0.001	0.001	0.003
	01/17/96	0.002	<0.001	<0.001	<0.001
	04/24/96	<0.001	<0.001	<0.001	<0.001
	01/22/97	0.001	<0.001	<0.001	<0.001
	08/11/97	<0.001	<0.001	<0.001	0.001
	01/23/98	<0.001	<0.001	<0.001	<0.001
	08/03/98	<0.001	<0.001	<0.001	<0.001
	02/10/99	<0.001	<0.001	<0.001	0.014
	08/17/99	0.002	<0.001	<0.001	0.012
	02/18/00	<0.001	<0.001	0.004	0.006
	08/23/00	<0.001	<0.001	0.004	0.011
	02/08/01	<0.001	<0.001	<0.001	0.011
	07/30/01	<0.001	<0.001	<0.001	<0.001
	02/13/02	<0.001	<0.001	<0.001	<0.001
	09/27/02	<0.005	<0.005	<0.005	<0.005
MW-7	11/15/95	**0.465**	<0.001	0.205	0.163
	01/17/96	**1.130**	0.003	0.476	0.365
	04/24/96	**0.585**	<0.002	0.251	0.013
	01/22/97	**0.896**	<0.005	0.240	0.330
	08/11/97	**0.317**	0.020	0.155	0.049
	01/23/98	**0.876**	<0.005	0.486	0.181
	08/03/98	**0.094**	<0.005	0.064	0.007
	02/10/99	**0.597**	<0.005	0.440	0.120
	08/17/99	**0.705**	<0.005	0.060	0.556
	02/18/00	**0.573**	<0.005	0.490	0.226
	08/23/00	**0.546**	0.006	0.484	0.177
	02/09/01	**0.355**	<0.005	0.424	0.052
	07/30/01	**0.017**	<0.005	0.058	<0.005
	02/13/02	**0.228**	<0.005	0.094	0.050
	09/27/02	**0.015**	<0.005	0.017	<0.005
WQCC Standards		0.010	0.75	0.75	0.62

Analyses performed by Trace Analysis, Inc., Lubbock, Texas.
All samples analyzed for BTEX using EPA Method 8020 except for samples obtained on May 16, 1995 (EPA Method 8240).
Values listed in **boldface** type indicate concentrations exceed New Mexico Water Quality Control Commission (WQCC) standards.
Monitoring wells MW-1 and MW-5 (after May 16, 1995) were not sampled (due to presence of LNAPL).
* BTEX cross-contamination occurred on samples obtained from monitoring wells MW-2 & MW-4 during the 11/15/95 sampling event.



TRIDENT ENVIRONMENTAL	SITE: MONUMENT BOOSTER STATION	
	DATE: 02/13/02	REV. NO.:
	AUTHOR: GJV	DRN BY: DTL
	CK'D BY: DTL	FILE:monument

Figure 3A
MONUMENT BOOSTER STATION
BTEX CONCENTRATION MAP
Sampling Date: February 13, 2002



TRIDENT ENVIRONMENTAL	SITE: MONUMENT BOOSTER STATION	
	DATE: 09/27/02	REV. NO.:
	AUTHOR: GJV	DRN BY: DTL
	CK'D BY: DTL	FILE:monument

Figure 3B
MONUMENT BOOSTER STATION
BTEX CONCENTRATION MAP
Sampling Date: September 27, 2002

Figure 4
Benzene Versus Time

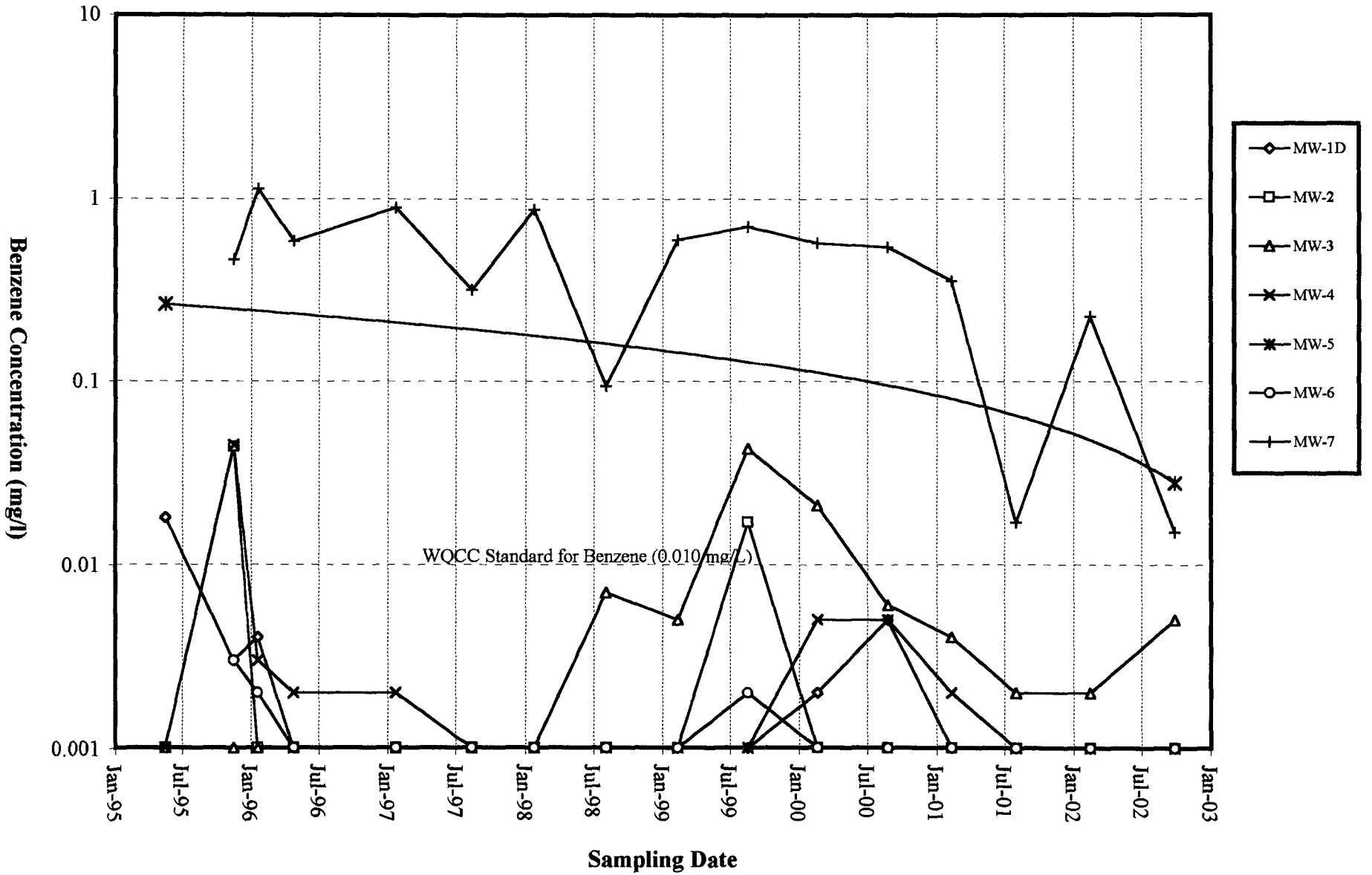


Figure 5
BTEX Concentrations and Groundwater Elevation vs Time (MW-7)

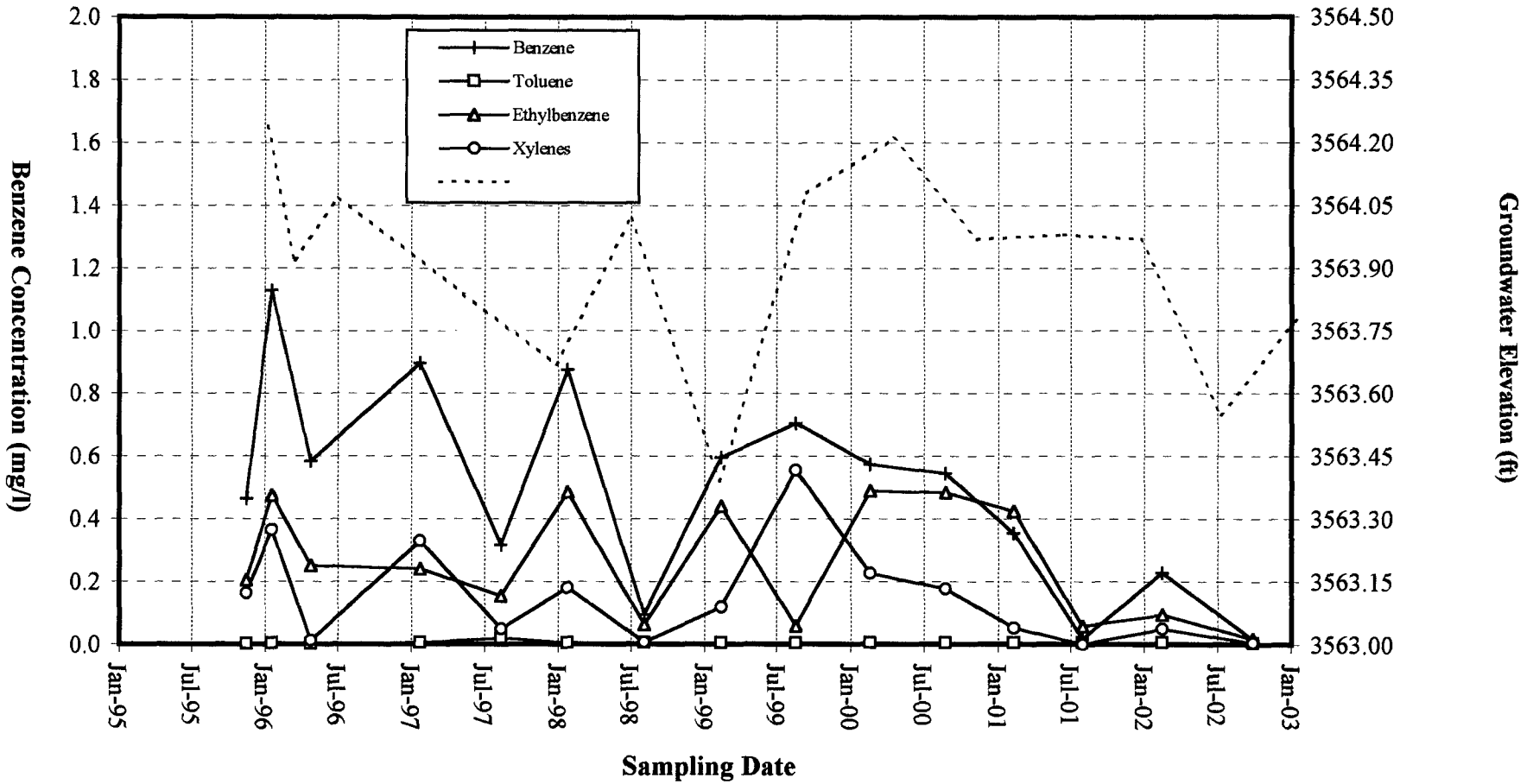


Figure 6
TDS, Chloride, and Sulfate Concentrations Versus Time (MW-2)

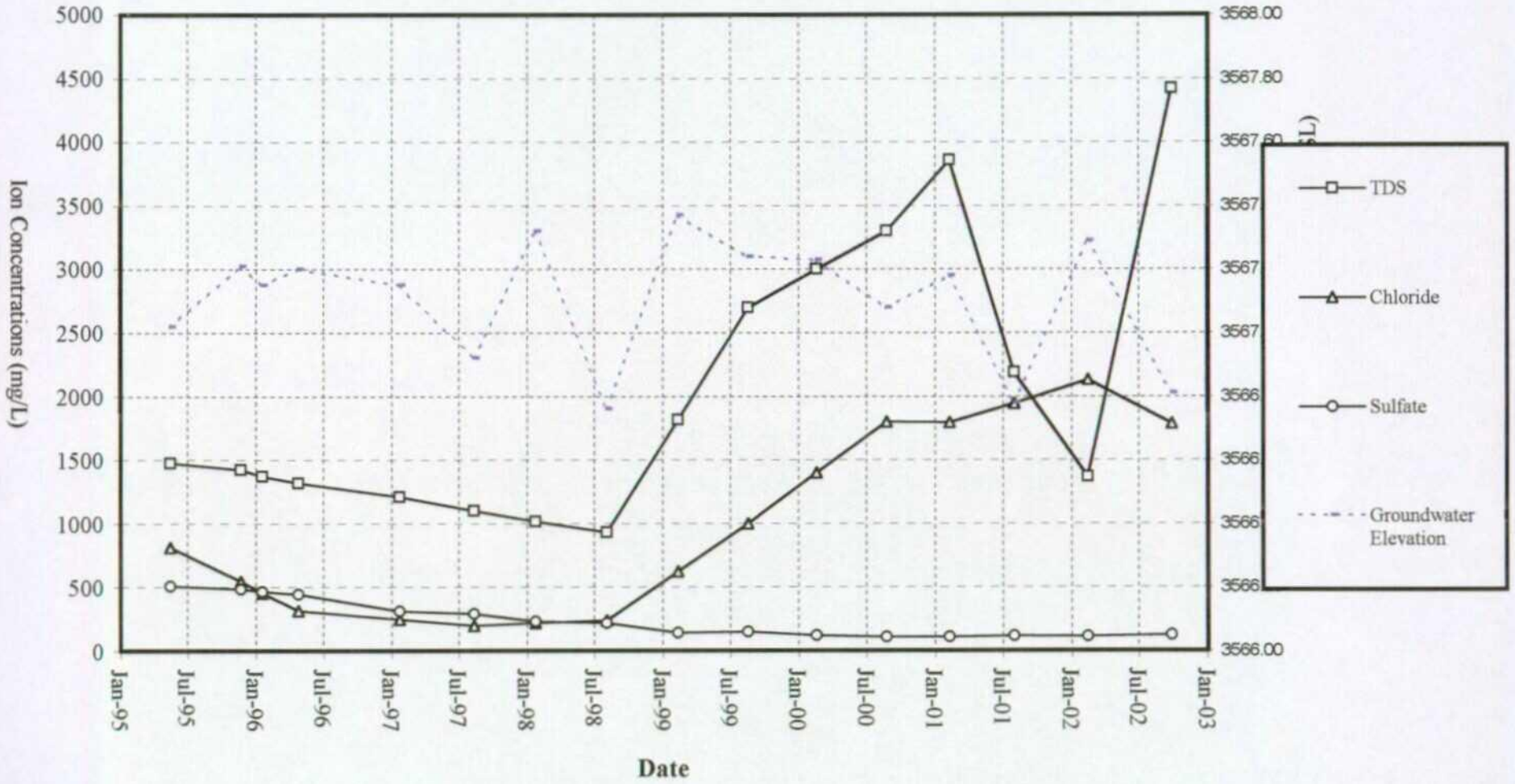


Table 4
Summary of Metal and Major Ion Analytical Results

Constituent	Date	MW-1 (mg/L)	MW-1D (mg/L)	MW-2 (mg/L)	MW-3 (mg/L)	MW-4 (mg/L)	MW-5 (mg/L)	MW-6 (mg/L)	MW-7 (mg/L)	WQCC Standards (mg/L)
Aluminum (Al)	05-16-96	0.55	1.34	**13.10**	0.88	**8.04**	0.24	---	---	5
	04-24-96	NS	0.2	<0.2	<0.2	<0.2	NS	0.2	0.3	
	08-11-97	NS	<0.2	0.32	<0.2	<0.2	NS	0.23	<0.2	
	08-03-98	NS	<0.1	0.17	1.7	0.10	NS	<0.1	0.14	
	08-17-99	NS	<0.1	<0.1	<0.1	<0.1	NS	<0.1	<0.1	
	08-23-00	NS	<0.2	<0.2	<0.2	<0.2	NS	<0.2	<0.2	
	07-30-01	NS	<0.1	<0.1	<0.1	<0.1	NS	<0.1	<0.1	
	09-27-02	NS	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Arsenic (As)	05-16-96	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	---	---	0.1
	04-24-96	NS	0.012	0.011	0.019	0.008	NS	**0.238**	0.004	
	08-11-97	NS	<0.1	<0.1	<0.1	<0.1	NS	<0.1	<0.1	
	08-03-98	NS	<0.1	<0.1	<0.1	<0.1	NS	<0.1	<0.1	
	08-17-99	NS	<0.1	<0.1	<0.1	<0.1	NS	<0.1	<0.1	
	08-23-00	NS	<0.05	<0.05	<0.05	<0.05	NS	<0.05	0.06	
	07-30-01	NS	<0.05	<0.05	<0.05	<0.05	NS	<0.05	0.07	
	09-27-02	NS	<0.05	<0.05	<0.05	<0.05	**0.119**	<0.05	<0.05	
Boron (B)	05-16-96	**0.85**	0.22	0.37	0.09	0.14	0.39	---	---	0.75
	04-24-96	NS	0.11	0.38	<0.03	0.06	NS	0.22	0.6	
	08-11-97	NS	<0.2	<0.2	<0.2	<0.2	NS	**0.79**	<0.2	
	08-03-98	NS	<0.75	<0.75	<0.75	<0.75	NS	<0.75	<0.75	
	08-17-99	NS	0.15	0.23	0.19	0.21	NS	0.38	**0.85**	
	07-30-01	NS	0.14	0.18	0.16	0.18	NS	0.38	0.35	
	09-27-02	NS	0.299	0.527	0.510	0.500	**0.774**	**1.17**	0.610	

Analyses performed by Trace Analysis, Inc. using EPA Methods 200.7, 239.2, 270.2, 272.2, 6010B, 160.1 and 300.
Standards **Bold** values indicate concentrations exceed WQCC groundwater standards as listed as specified in Regulation 3-103.
NS Indicates monitoring well was not sampled (due to presence of free product).
--- Indicates monitoring well was installed after this sampling date.
Samples were not filtered on 05-17-95, therefore results indicate total (dissolved and undissolved) metal concentrations.
Samples were filtered with a 45 mm element between 04-24-96 and 09-27-02 therefore results indicate dissolved metal concentrations.

Table 4 (continued)
Summary of Metal and Major Ion Analytical Results

Constituent	Date	MW-1 (mg/L)	MW-1D (mg/L)	MW-2 (mg/L)	MW-3 (mg/L)	MW-4 (mg/L)	MW-5 (mg/L)	MW-6 (mg/L)	MW-7 (mg/L)	WQCC Standards (mg/L)
Chromium (Cr)	05-16-96	0.01	<0.01	0.02	0.01	0.02	0.02	---	---	0.05
	04-24-96	NS	<0.05	**0.06**	<0.05	<0.05	NS	**0.06**	<0.05	
	08-11-97	NS	<0.05	<0.05	<0.05	<0.05	NS	<0.05	<0.05	
	08-03-98	NS	<0.05	<0.05	<0.05	<0.05	NS	<0.05	<0.05	
	08-17-99	NS	<0.05	<0.05	<0.05	<0.05	NS	<0.05	<0.05	
	08-23-00	NS	<0.01	0.02	<0.01	<0.01	NS	<0.01	<0.01	
	07-30-01	NS	<0.01	0.02	<0.01	<0.01	NS	<0.01	<0.01	
	09-27-02	NS	<0.01	0.033	<0.01	<0.01	<0.01	<0.01	<0.01	
Iron (Fe)	05-16-96	**25.58**	**4.6**	**5.82**	0.53	**4.68**	**1.75**	---	---	1
	04-24-96	NS	0.06	0.07	0.17	0.08	NS	0.15	<0.03	
	08-11-97	NS	0.28	0.24	0.14	0.08	NS	0.21	0.43	
	08-03-98	NS	<0.1	<0.1	0.55	<0.1	NS	0.26	**6.1**	
	08-17-99	NS	0.19	<0.1	<0.1	<0.1	NS	0.42	**8.1**	
	08-23-00	NS	0.20	<0.05	<0.05	<0.05	NS	<0.05	**7.4**	
	07-30-01	NS	0.21	<0.05	<0.05	<0.05	NS	0.36	**5.3**	
	02-13-02	NS	0.149	<0.05	<0.05	<0.05	NS	0.484	**8.25**	
	09-27-02	NS	<0.05	<0.05	<0.05	<0.05	**3.37**	0.52	**4.21**	
Manganese (Mn)	05-16-96	**0.67**	**0.31**	0.12	0.08	0.11	**0.58**	---	---	0.2
	04-24-96	NS	**0.37**	<0.01	<0.01	<0.01	NS	**0.28**	**0.38**	
	08-11-97	NS	**0.35**	<0.01	<0.01	<0.01	NS	**0.30**	**0.37**	
	08-03-98	NS	**0.22**	<0.1	<0.1	<0.1	NS	**0.36**	**0.41**	
	08-17-99	NS	0.18	<0.1	<0.1	<0.1	NS	**0.27**	0.19	
	08-23-00	NS	**0.20**	<0.01	<0.01	0.03	NS	**0.34**	**0.22**	
	07-30-01	NS	**0.20**	<0.025	0.03	0.07	NS	**0.34**	**0.33**	
	02-13-02	NS	0.186	<0.025	0.525	0.066	NS	**0.289**	**0.261**	
	09-27-02	NS	0.157	<0.025	0.057	0.063	**0.397**	**0.351**	**0.310**	

Table 4 (continued)
Summary of Metal and Major Ion Analytical Results

Constituent	Date	MW-1 (mg/L)	MW-1D (mg/L)	MW-2 (mg/L)	MW-3 (mg/L)	MW-4 (mg/L)	MW-5 (mg/L)	MW-6 (mg/L)	MW-7 (mg/L)	WQCC Standards (mg/L)
Chloride (Cl)	05-16-95	NS	77	**812**	188	152	80	---	---	250
	04-24-96	NS	124	**314**	134	167	NS	186	143	
	08-11-97	NS	180	200	140	140	NS	160	180	
	08-03-98	NS	120	240	160	160	NS	150	160	
	08-17-99	NS	91	**1,000**	190	170	NS	160	120	
	08-23-00	NS	65	**1,800**	190	150	NS	140	74	
	07-30-01	NS	59	**1,790**	183	146	NS	123	67	
	09-27-02	NS	46	**2,170**	181	139	50	126	50	
Fluoride (F)	05-16-95	NS	**1.8**	1.1	**1.8**	1.2	1.4	---	---	1.6
	04-24-96	NS	1.6	1.1	1.5	1.1	NS	0.9	**1.8**	
	08-11-97	NS	1.9	1.3	1.5	1.1	NS	0.85	**1.8**	
	08-03-98	NS	**2.4**	**1.8**	**1.6**	1.3	NS	1.3	**1.8**	
	08-17-99	NS	**2.7**	**1.7**	**2.0**	1.5	NS	1.5	**2.7**	
	08-23-00	NS	**2.9**	**1.8**	**2.0**	**1.8**	NS	**1.8**	**2.7**	
	07-30-01	NS	**3.0**	**1.9**	**2.1**	**1.9**	NS	**2.0**	**2.5**	
	09-27-02	NS	**2.9**	**1.5**	**1.8**	1.5	**2.1**	1.5	**2.3**	
Nitrate (NO_3-N)	05-16-95	NS	1.37	7.42	5.62	3.69	0.56	---	---	10.0
	04-24-96	NS	<0.1	0.3	0.3	0.1	NS	<0.1	<0.1	
	08-11-97	NS	<1.0	9	9.4	<1.0	NS	<1.0	<1.0	
	01-23-98	NS	2.8	30	15	1	NS	0.28	0.39	
	08-03-98	NS	4.0	4.0	4.0	2.9	NS	<1.0	<1.0	
	08-17-99	NS	3.8	4.0	3.5	2.5	NS	<1.0	<1.0	
	08-23-00	NS	3.4	2.0	3.3	2.6	NS	<0.1	<1.0	
	07-30-01	NS	2.1	2.6	1.8	1.1	NS	<1.0	<1.0	
	02-13-02	NS	2.03	2.69	1.49	<1.0	NS	<1.0	0.3	
	09-27-02	NS	0.5	1.3	0.1	0.1	0.6	0.2		

Standards **Bold** values indicate concentrations exceed WQCC groundwater standards as listed as specified in Regulation 3-103.
NS Indicates monitoring well was not sampled (due to presence of free product).
--- Indicates monitoring well was installed after this sampling date.
Samples were not filtered on 05-17-95, therefore results indicate total (dissolved and undissolved) metal concentrations.
Samples were filtered with a 45 mm element between 04-24-96 and 09-27-02 therefore results indicate dissolved metal concentrations.

Table 4 (continued)
Summary of Metal and Major Ion Analytical Results

Constituent	Date	MW-1 (mg/L)	MW-1D (mg/L)	MW-2 (mg/L)	MW-3 (mg/L)	MW-4 (mg/L)	MW-5 (mg/L)	MW-6 (mg/L)	MW-7 (mg/L)	WQCC Standards (mg/L)
Sulfate (SO_4)	05-16-95	NS	174	509	115	136	67	---	---	600
	04-24-96	NS	169	443	95	115	NS	70	149	
	08-11-97	NS	110	290	75	96	NS	37	76	
	01-23-98	NS	190	230	240	180	NS	230	180	
	08-03-98	NS	100	220	80	100	NS	45	90	
	08-17-99	NS	120	150	84	120	NS	82	14	
	08-23-00	NS	98	110	72	100	NS	57	19	
	07-30-01	NS	93	116	67	92	NS	63	66	
	02-13-02	NS	86.3	115	67.6	90.6	NS	48.9	30.9	
	09-27-02	NS	83	125	74	94	57	39	71	
Total Dissolved Solids (TDS)	05-16-95	NS	634	**1,478**	516	716	692	---	---	1,000
	04-24-96	NS	702	**1,318**	598	759	NS	929	828	
	08-11-97	NS	770	**1,100**	670	800	NS	810	860	
	08-03-98	NS	640	930	640	750	NS	870	800	
	08-17-99	NS	790	**2,700**	830	790	NS	920	850	
	08-23-00	NS	560	**3,300**	770	780	NS	900	790	
	07-30-01	NS	548	**4,420**	844	791	NS	907	658	
	09-27-02	NS	493	**4,440**	776	810	549	934	574	

Analyses performed by Trace Analysis, Inc. using EPA Methods 200.7, 239.2, 270.2, 272.2, 6010B, 160.1 and 300.
Standards **Bold** values indicate concentrations exceed WQCC groundwater standards as listed as specified in Regulation 3-103.
NS Indicates monitoring well was not sampled (due to presence of free product).
--- Indicates monitoring well was installed after this sampling date.
Samples were not filtered on 05-17-95, therefore results indicate total (dissolved and undissolved) metal concentrations.
Samples were filtered with a 45 mm element between 04-24-96 and 07-30-01 therefore results indicate dissolved metal concentrations.

6.0 Monitoring Natural Attenuation

The following assessment for intrinsic bioremediation occurring on site is identical to last year's annual report and is being repeated because the same trends and conditions are present.

During biodegradation, dissolved BTEX is ultimately transformed into carbon dioxide, methane, and water. Biodegradation of BTEX dissolved in groundwater results in a reduction of contaminant concentration (and mass) and slowing (retardation) of the contaminant relative to the average advective groundwater flow velocity. Indigenous hydrocarbon-degrading microorganisms transform available nutrients into forms useful for energy and cell reproduction by facilitating the transfer of electrons from donors to acceptors. This results in oxidation of the electron donor and reduction of the electron acceptor. Electron donors include natural organic material and petroleum hydrocarbons. Electron acceptors are elements or compounds that occur in relatively oxidized states. The more important electron acceptors in groundwater, in order of utilization, include dissolved oxygen, (DO), nitrate (NO_3), ferric iron (Fe^{3+}), sulfate (SO_4), and carbon dioxide (CO_2).

Biodegradation causes measurable changes in groundwater geochemistry. During aerobic respiration, oxygen is reduced to water, and dissolved oxygen concentrations decrease. In anaerobic systems where nitrate is the electron acceptor, the nitrate is reduced (denitrification) to NO_2^-, N_2O, NO, NH^{4+}, or N_2, and nitrate concentrations decrease. In anaerobic systems where ferric iron (Fe^{3+}) is the electron acceptor, it is reduced (iron reduction) to ferrous iron (Fe^{2+}), and Fe^{2+} concentrations increase. In anaerobic systems where sulfate is the electron acceptor, it is reduced to hydrogen sulfide (H_2S), and sulfate concentrations decrease (sulfate reduction). In anaerobic systems where CO_2 is used as an electron acceptor, methanogenic bacteria reduce it (methanogenosis) to methane (CH_4).

Using the stoichiometric derivations, the mass of benzene degraded per unit mass of electron acceptor utilized and metabolic byproduct produced was calculated to determine the biodegradation capacity of these constituents relative to the highest observed benzene concentration on site. A conservative approach was taken in this analysis in that microbial cell mass production was not taken into account for nitrate or sulfate and only average concentrations of electron acceptors and metabolic byproducts were used. The table below summarizes this comparison.

Electron Acceptor/ Byproduct	Terminal Electron Accepting Process (in order of preferred utilization)	Trend in Analyte Concentration During Biodegradation	Mass of benzene Degraded per unit mass of Electron Acceptor Utilized	Mass of benzene Degraded per unit mass of Metabolic Byproduct Produced	Average Concentrations of Electron Acceptors/ Byproducts (mg/L)	Biodegradation Capacity of Electron Acceptors/ Byproducts (mg/L)
DO	Aerobic Respiration	Decreases	0.97	---	4.54	4.40
NO_3*	Denitrification	Decreases	0.21	---	2.60	0.55
Fe^{2+}	Ferric Iron Reduction	Increases	---	0.046	1.18	0.05
SO_4*	Sulfate Reduction	Decreases	0.22	---	129	28.36
					Total Biodegradation Capacity	33.36
					Highest Observed Benzene Concentration	1.13

* Concervative assumption (does not take into account microbial cell mass production)

Our suite of biological parameters included dissolved oxygen, nitrate, sulfate, dissolved iron, and manganese. These electron acceptor results are summarized in Table 5. Changes in dissolved oxygen, nitrate, sulfate, iron, and manganese concentrations with time are depicted in Figures 7, 8, 9, 10, and 11, respectively.

Hydrocarbon-impacted wells (MW-1D and MW-7) are compared against upgradient and downgradient wells (MW-2, MW-3, MW-4, and MW-6) to observe whether or not significant differences are observed in electron acceptor concentrations that may be related to subsurface biodegradation. The relationships in the electron acceptor data are observed:

- Generally, dissolved oxygen levels have been lower within the hydrocarbon-impacted plume area compared to the downgradient and upgradient wells indicating active aerobic biodegradation conditions.

- Nitrate concentrations fluctuate over time therefore no trend relationship is noted. However, the presence of nitrate as an electron acceptor indicates its availability for microorganisms in the course of hydrocarbon degradation.

- Generally, sulfate concentrations have decreased with time indicating its utilization as an electron acceptor under anaerobic conditions.

- Increased concentrations of the metabolic byproducts iron and manganese in monitoring well MW-7 indicates iron and manganese reduction conditions that are the result of anaerobic biodegradation processes.

- The biodegradation capacity of electron acceptors and metabolic byproducts (33.36 mg/L) far exceeds the highest benzene concentration observed on site in the past (1.13 mg/L in MW-7 during the January 1996 sampling event) by a ratio of 30 to 1. The most recent benzene concentration in MW-7 was 0.015 mg/L during the August 2002 sampling event. This indicates that the biodegradation process has been occurring and will continue.

Table 5
Summary of Biological Parameter Results
Monument Booster Station

Monitoring Well	Sampling Date	DO (mg/L)	Nitrate (mg/L)	Sulfate (mg/L)	Total Iron (mg/L)	Ferrous Iron (mg/L)	Manganese (mg/L)
MW-1D	05/16/95	1.05	1.37	174	4.6	---	0.3
	11/15/95	1.26	<0.01	119	---	---	---
	01/18/96	4.8	0.6	168	---	---	---
	04/24/96	2.6	<0.1	169	0.06	---	0.37
	01/22/97	7.0	<0.1	83	---	---	---
	08/11/97	3.6	<0.1	110	0.28	---	0.35
	01/23/98	4.6	2.8	190	---	---	---
	08/03/98	2.16	4.0	100	<0.1	---	0.22
	02/10/99	2.7	4.6	110	---	---	---
	08/17/99	1.03	3.8	120	0.19	---	0.18
	02/18/00	0.41	3.6	92	---	---	---
	08/23/00	1.01	3.4	98	0.20	---	0.20
	02/09/01	0.00	2.0	95	---	---	---
	07/30/01	2.00	2.1	93	0.21	---	0.20
	02/13/02	2.64	2.03	86.3	0.149	---	0.186
	09/27/02	2.73	0.5	82.5	<0.05	0.05	0.157
MW-2	05/16/95	6.48	7.42	509	5.82	---	0.12
	11/15/95	6.13	---	---	---	---	---
	01/18/96	6.2	---	---	---	---	---
	04/24/96	1.5	0.3	443	0.07	---	<0.01
	01/22/97	9.0	2.1	310	---	---	---
	08/11/97	7.6	9.0	290	0.24	---	<0.01
	01/23/98	8.2	30.0	230	---	---	---
	08/03/98	7.00	4.0	220	<0.1	---	<0.1
	02/10/99	8.3	4.8	140	---	---	---
	08/17/99	5.98	4.0	150	<0.1	---	<0.1
	02/18/00	5.65	4.1	120	---	---	---
	08/23/00	6.39	2.0	110	<0.05	---	<0.01
	02/08/01	7.58	2.6	110	---	---	---
	07/30/01	7.57	2.6	116	<0.05	---	<0.025
	02/13/02	9.39	2.69	115	<0.05	---	<0.025
	09/27/02	8.19	1.3	125	<0.05	0.11	<0.025
MW-3	05/16/95	6.85	5.62	115	0.53	---	0.08
	11/15/95	1.29	---	---	---	---	---
	01/18/96	4.9	---	---	---	---	---
	04/24/96	1.0	0.3	95	0.17	---	<0.01
	01/22/97	8.75	2.7	76	---	---	---
	08/11/97	9.2	9.4	75	0.14	---	<0.01
	01/23/98	7.7	15.0	240	---	---	---
	08/03/98	3.43	4.0	80	0.55	---	<0.1
	02/10/99	5.80	4.9	74	---	---	---
	08/17/99	4.04	3.5	84	<0.1	---	<0.1
	02/17/00	6.24	3.7	69	---	---	---
	08/23/00	6.25	3.3	72	<0.05	---	<0.01
	02/08/01	6.90	1.8	67	---	---	---
	07/30/01	5.75	1.8	67	<0.05	---	0.029
	02/13/02	9.32	1.49	67.6	<0.05	---	0.053
	09/27/02	6.36	0.1	73.5	<0.05	0.14	0.057

Table 5
Summary of Biological Parameter Results
Monument Booster Station

Monitoring Well	Sampling Date	DO (mg/L)	Nitrate (mg/L)	Sulfate (mg/L)	Total Iron (mg/L)	Ferrous Iron (mg/L)	Manganese (mg/L)
MW-4	05/16/95	4.85	3.69	136	4.68	---	0.11
	11/15/95	1.30	---	---	---	---	---
	01/18/96	4.0	---	---	---	---	---
	04/24/96	1.9	0.1	115	0.08	---	<0.01
	01/22/97	9.0	<0.1	100	---	---	---
	08/11/97	3.5	<0.1	96	0.08	---	<0.01
	01/23/98	7.0	1.0	180	---	---	---
	08/03/98	3.66	2.9	100	<0.1	---	<0.1
	02/10/99	5.0	3.7	110	---	---	---
	08/17/99	2.64	2.5	120	<0.1	---	<0.1
	02/18/00	6.51	2.8	98	---	---	---
	08/23/00	6.06	2.6	100	<0.05	---	0.03
	02/08/01	6.72	<1.0	97	---	---	---
	07/30/01	6.11	1.1	92	<0.05	---	0.07
	02/13/02	9.02	<1.0	90.6	<0.05	---	0.066
	09/27/02	7.52	0.1	94.2	<0.05	0.04	0.063
MW-5	09/27/02	1.19	0.6	56.9	3.37	1.84	0.397
MW-6	05/16/95	---	---	---	---	---	---
	11/16/95	5.40	0.06	233	---	---	---
	01/18/96	4.1	<0.05	93	---	---	---
	04/24/96	1.7	<0.1	70	0.15	---	0.28
	01/22/97	11.0	<0.1	37	---	---	---
	08/11/97	3.7	<0.1	37	0.21	---	0.30
	01/23/98	4.7	0.3	230	---	---	---
	08/03/98	1.96	<1.0	45	0.26	---	0.36
	02/10/99	2.6	<1.0	42	---	---	---
	08/17/99	0.8	<1.0	82	0.42	---	0.27
	02/18/00	0.53	<1.0	59	---	---	---
	08/23/00	0.61	<0.1	57	<0.05	---	0.34
	02/08/01	0.10	<1.0	60	---	---	---
	07/30/01	1.40	<1.0	63	0.36	---	0.34
	02/13/02	2.94	<1.0	48.9	0.484	---	0.289
	09/27/02	0.28	0.2	38.8	0.521	0.46	0.351
MW-7	05/16/95	---	---	---	---	---	---
	11/15/95	1.6	5.00	418	---	---	---
	01/18/96	4.8	6.54	180	---	---	---
	04/24/96	2.1	0.2	149	<0.03	---	0.38
	01/22/97	13.2	<0.1	25	---	---	---
	08/11/97	3.0	<0.1	76	0.43	---	0.37
	01/23/98	4.1	0.4	180	---	---	---
	08/03/98	1.9	<1.0	90	6.1	---	0.41
	02/10/99	2.6	<1.0	44	---	---	---
	08/17/99	0.9	<1.0	14	8.1	---	0.19
	02/18/00	0.28	<1.0	27	---	---	---
	08/23/00	0.59	<1.0	19	7.4	---	0.22
	02/09/01	0.00	<1.0	22	---	---	---
	07/30/01	1.50	<1.0	66	5.3	---	0.33
	02/13/02	2.47	<1.0	30.9	8.250	---	0.261
	09/27/02	0.23	0.3	70.8	4.21	2.67	0.310

Analyses performed by Trace Analysis, Inc., Lubbock, Texas.
Dissolved oxygen (DO) readings obtained with Hanna Model 9143 DO meter or comparable model.
Monitoring wells MW-1 and MW-5 were not analyzed if light non-aqueous phase liquids (LNAPL) are present.

Figure 7
Dissolved Oxygen Concentrations Versus Time

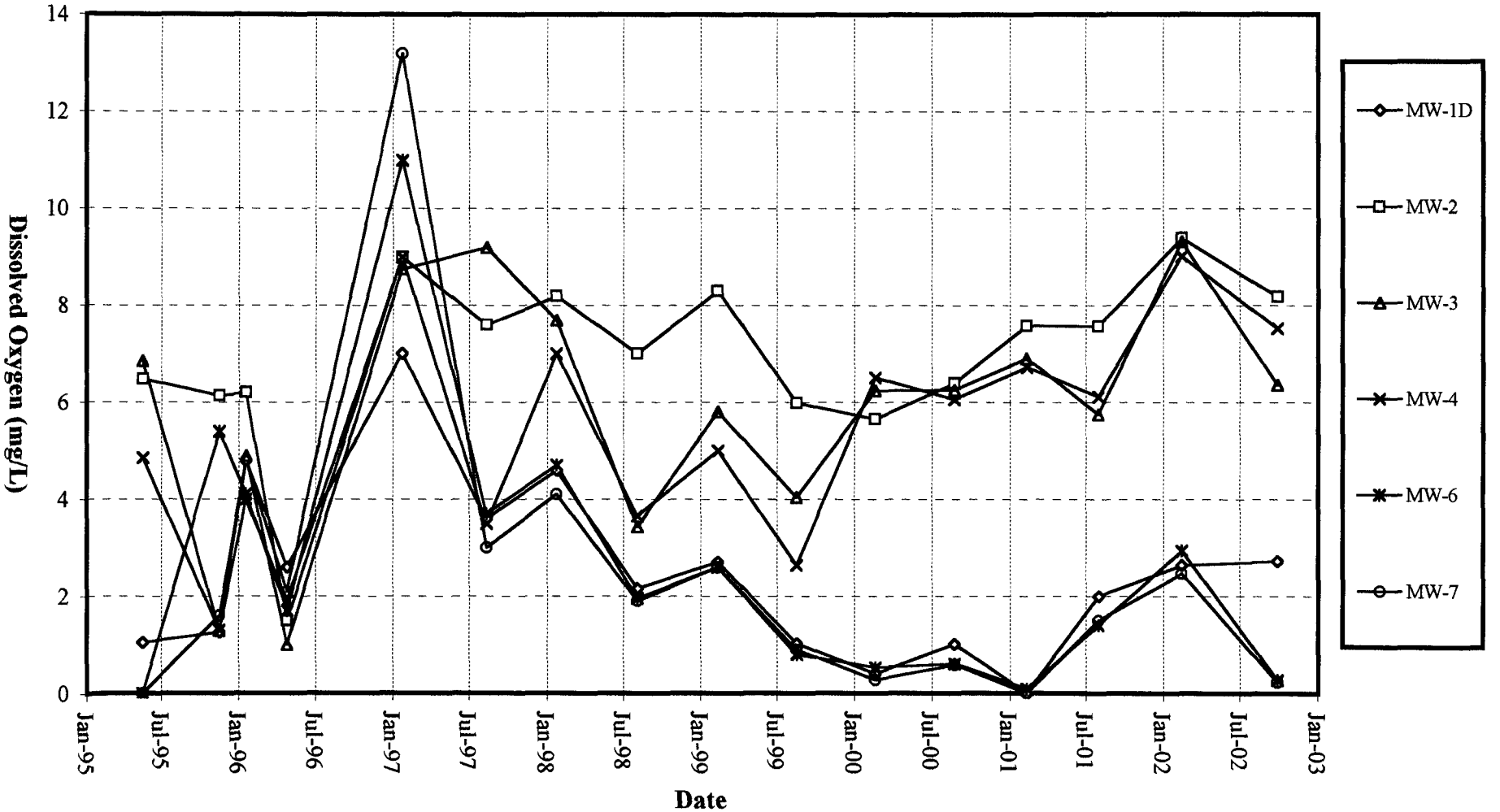


Figure 8
Nitrate Concentrations Versus Time

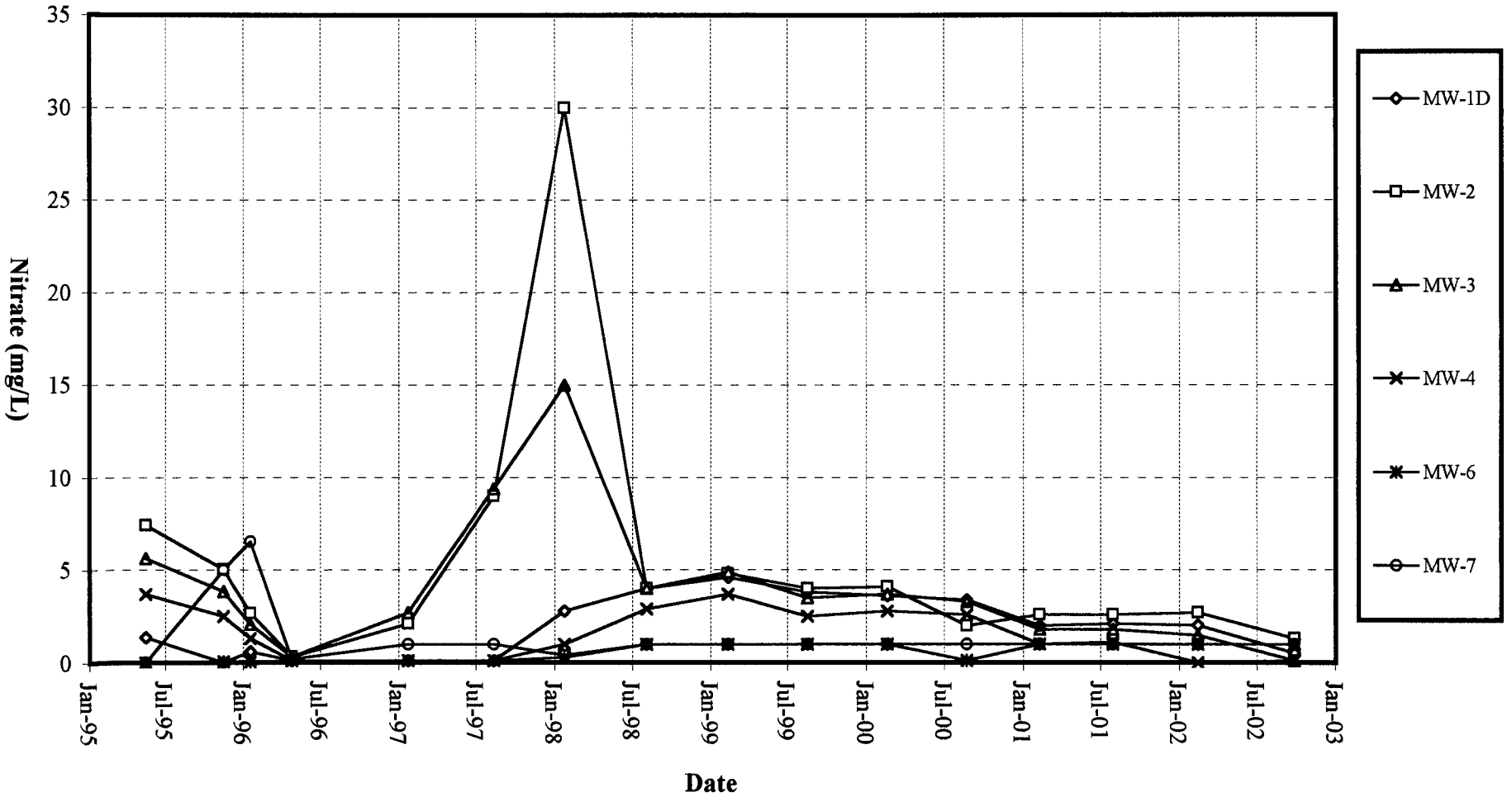


Figure 9
Sulfate Concentrations Versus Time

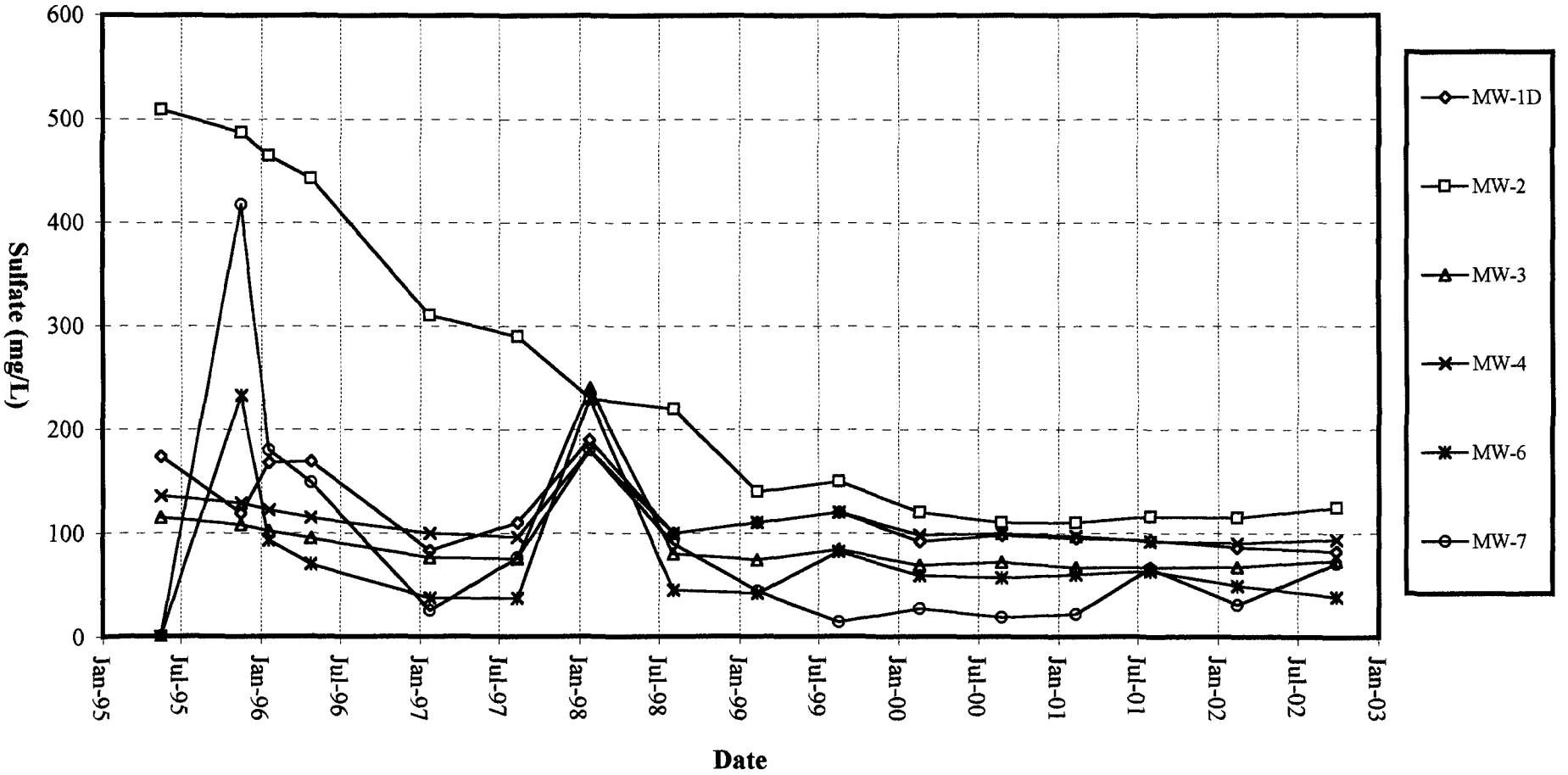


Figure 10
Total Dissolved Iron Concentrations Versus Time

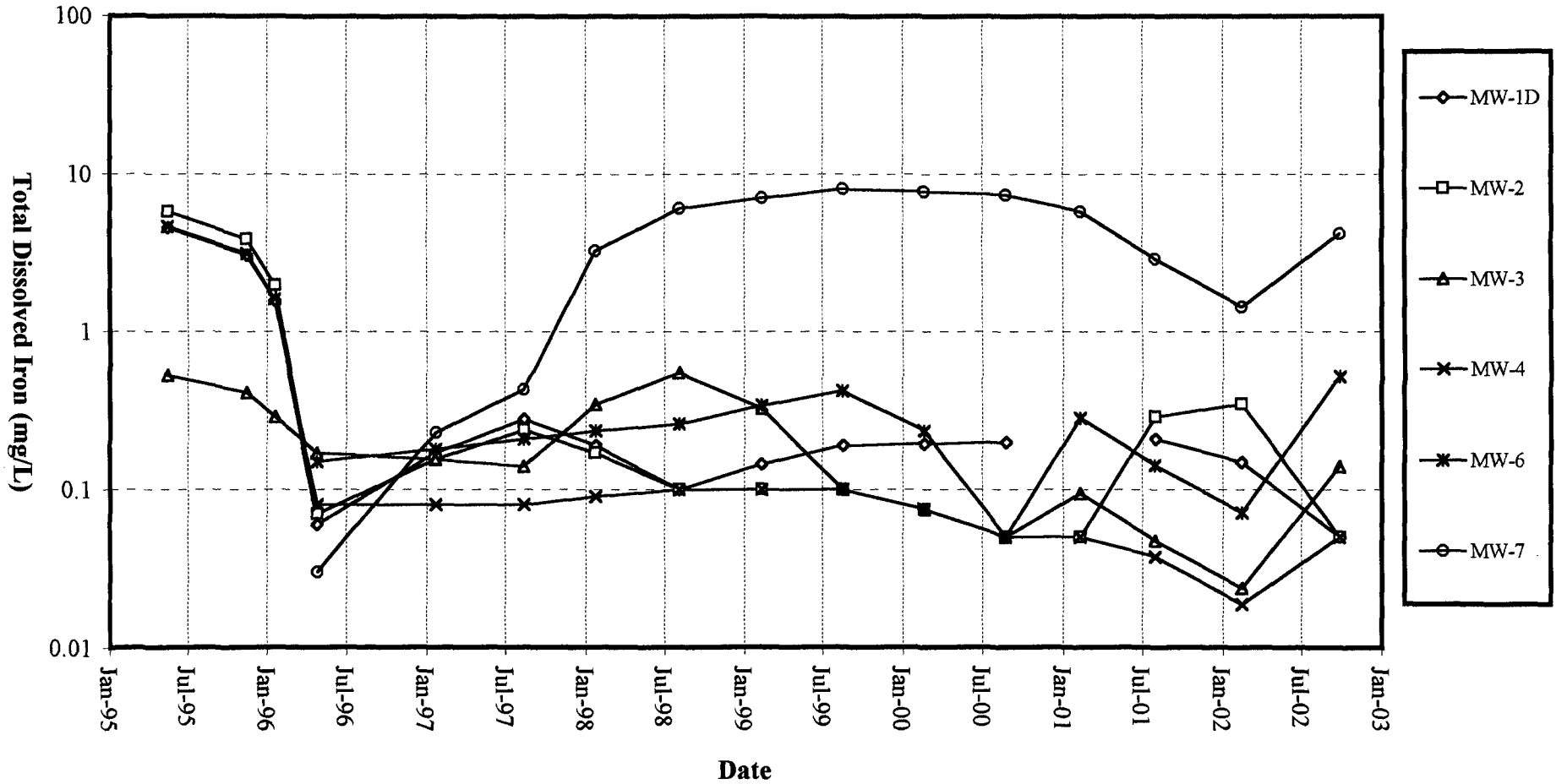
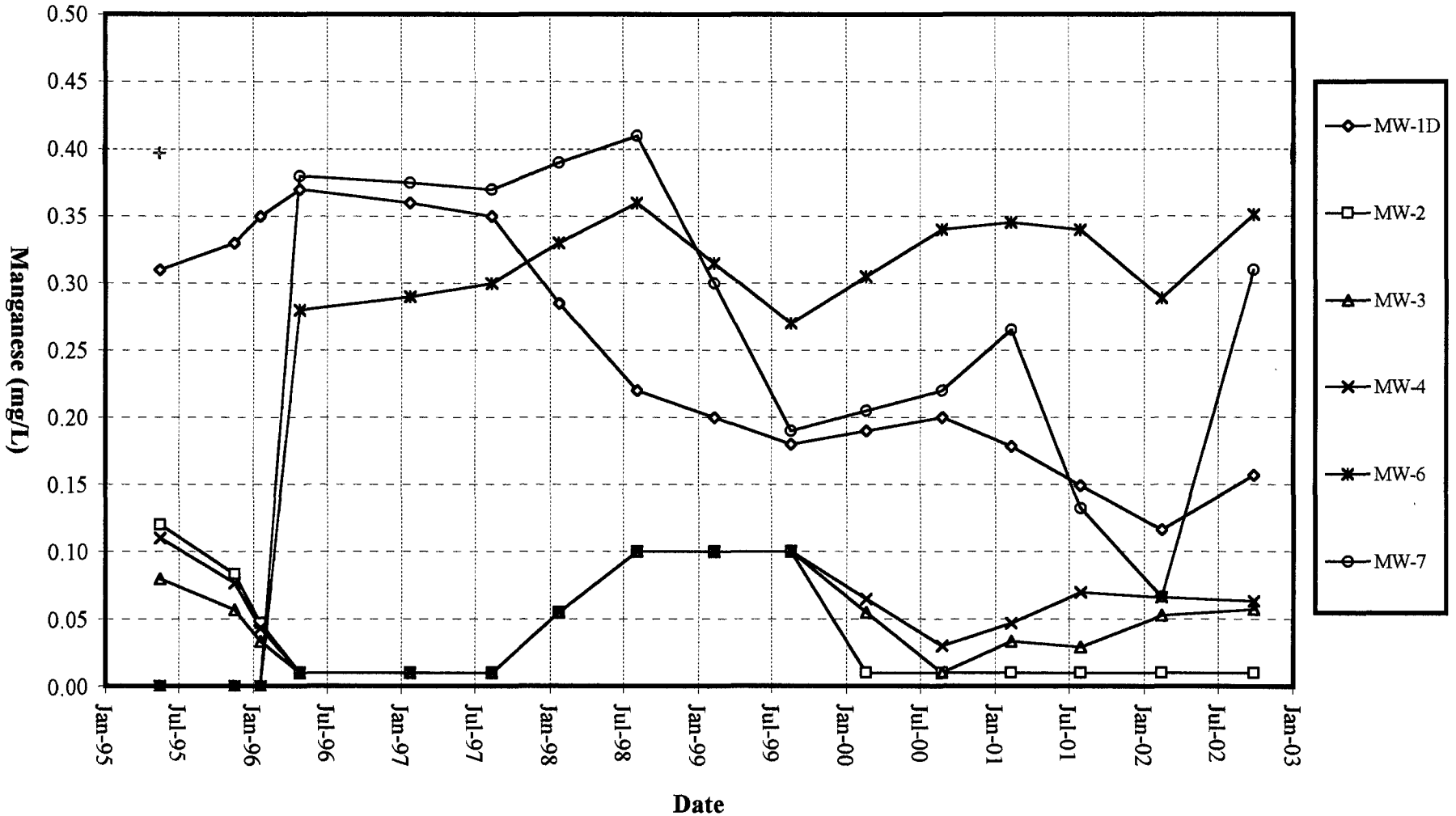


Figure 11
Manganese Concentrations Versus Time



7.0 Remediation System Performance

LNAPL remediation at the Monument Booster Station is presently being conducted utilizing hydrophobic absorbent socks in both MW-1 and MW-5. Xitech product recovery pumps were initially installed in monitoring wells MW-1 and MW-5 on January 31, 1997 to replace the hand bailing and gravity siphoning techniques used previously. On March 13, 1998 the Xitech pump in MW-5 was replaced with a passive bailer. On April 20, 1999, the passive bailer in MW-5 was replaced with a hydrophobic adsorbent sock. On December 20, 1999 the Xitech pump in MW-1 was removed and replaced with an adsorbent sock. As of December 17, 2002, a total of approximately 157 gallons of LNAPL (condensate) have been removed from monitoring wells MW-1 and MW-5. Product recovery volumes are listed below in Table 6. A graph of LNAPL thickness measurements from each of the impacted wells and the cumulative LNAPL recovery versus time is provided in Figure 12.

Table 6
LNAPL Recovery Volumes
Duke Energy Field Services - Monument Booster Station

Date	LNAPL Thickness (feet)		LNAPL Recovered (gallons)				Cumulative LNAPL Recovered (gallons)
	MW-1	MW-5	MW-1		MW-5		
07/24/95	2.48	---	10	HB	---		10
07/27/95	0.53	---	2	SWAP	---		12
11/15/95	1.35	0.77	1.4	SWAP	---		13.4
11/21/95	1.86	0.76			---		13.4
12/20/95	2.14	0.75			---		13.4
01/18/96	2.18	0.75			---		13.4
03/08/96	---	---	15	Pump	---		28.4
04/24/96	2.09	0.79					28.4
06/14/96	2.27	0.82	12	Pump	1.5	HB	41.9
01/27/97	2.21	0.59	4	Pump	0	Pump	45.9
01/31/97	---	---		Pump	0		45.9
02/07/97	---	---	4	Pump	2	Pump	51.9
02/19/97	---	---	10	Pump	0	Pump	61.9
08/11/97	0.02	0.09	23	Pump	6	Pump	90.9
08/09/97	0.03	0.08	1.5	Pump	0	Pump	92.4
09/18/97	0.04	---	2.5	Pump	0	Pump	94.9
10/07/97	---	---	1.5	Pump	0	Pump	96.4
10/22/97	---	0.04	1	Pump	0	Pump	97.4
11/25/97	---	0.09	1.5	Pump	0.5	Pump	99.4
12/09/97	---	0.22	0.0	Pump	0	Pump	99.4
01/09/98	---	---	2	Pump	0.0	Pump	101.4
01/23/98	0.08	0.04	0.0	Pump	0.5	Pump	101.9
02/24/98	0.03	0.33	2	Pump	0.00	PB	103.9
03/23/98	0.00	0.38	2	Pump	0.07	PB	106.0
06/23/98	0.03	0.58	5	Pump	0.04	PB	111.0
08/03/98	0.01	0.53	0.0	Pump	0.05	PB	111.1
09/18/98	0.09	0.36	3	Pump	0.16	PB	114.2
10/28/98	0.07	0.31	0.5	Pump	0.00	PB	114.7
11/17/98	0.03	0.27	0.5	Pump	0.01	PB	115.2
02/10/99	0.09	0.76	1.5	Pump	0.01	PB	116.7
03/24/99	0.27	1.20		Pump		PB	116.7
04/20/99	0.49	1.64	0.5	Pump	0.9	PB	118.1
05/13/99	0.02	0.19	3	Pump	0.4	PB	121.5
06/14/99	0.02	0.32	1	Pump	0.5	Sock	123.0
08/04/99	0.03	0.51	0.0	Pump	0.4	Sock	123.4
08/17/99	0.01	0.39	0.0	Pump	0.5	Sock	123.9
09/14/99	0.04	0.37	1	Pump	0.6	Sock	125.5
10/26/99	0.22	0.53	1	Pump	0.5	Sock	127.0
11/22/99	0.24	0.37	0.5	Pump	0.5	Sock	128.0
12/20/99	0.01	0.32	0.5	Pump	0.4	Sock	128.9

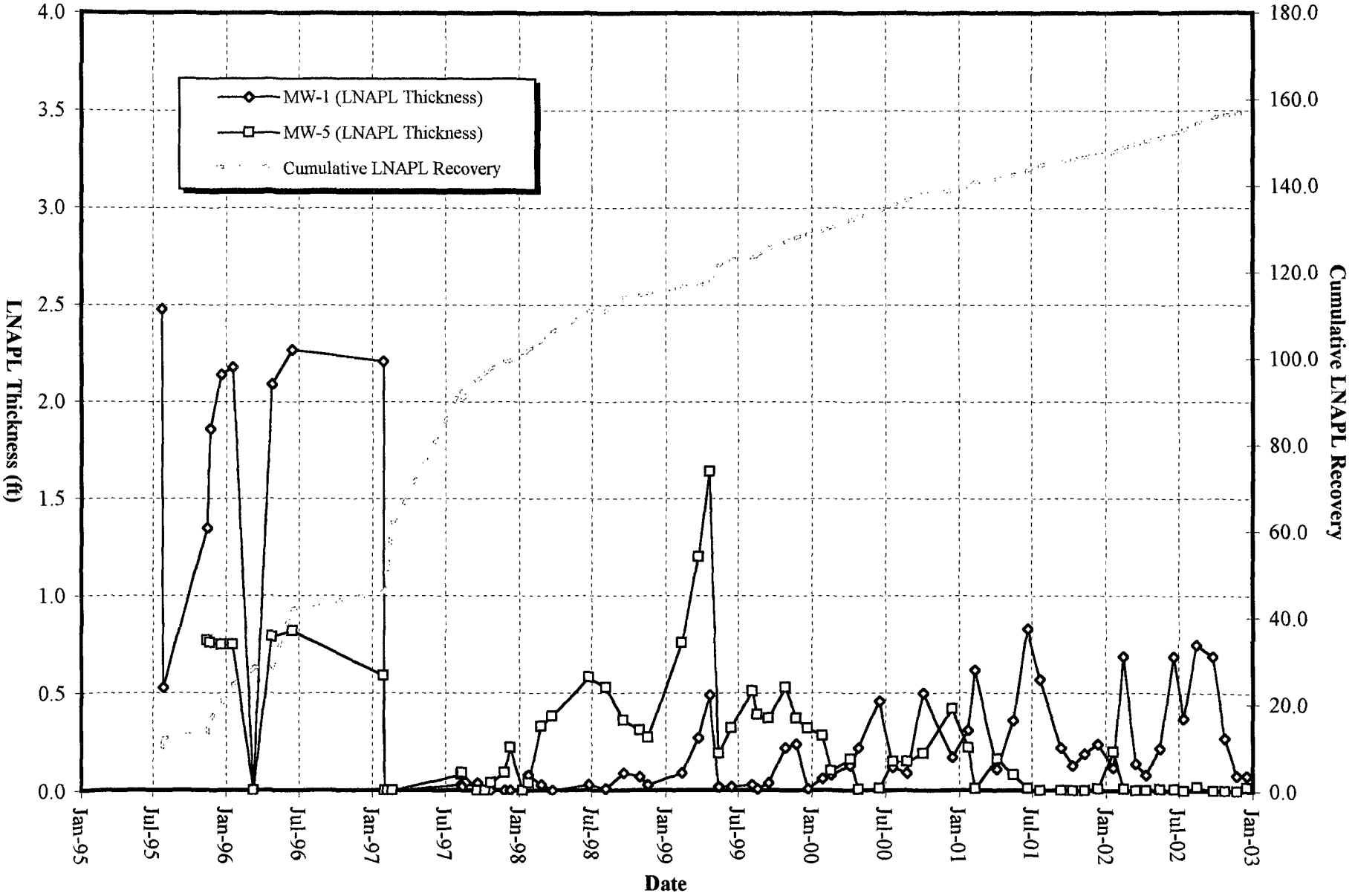
LNAPL recovery methods used:
HB: Hand bailing using PVC bailer
SWAP: Gravity siphon demonstration
Pump: Xitech ADJ 1000 Smart Skimmer (Product Recovery System)
PB: Passive bailer with hydrophobic filter
Sock: Hydrophobic (oil adsorbent) sock

Table 6 (Continued)
LNAPL Recovery Volumes
Duke Energy Field Services - Monument Booster Station

Date	LNAPL Thickness (feet)		LNAPL Recovered (gallons)				Cumulative LNAPL Recovered (gallons)
	MW-1	MW-5	MW-1		MW-5		
01/26/00	0.06	0.28	0.4	Sock	0.4	Sock	129.7
02/17/00	0.08	0.10	0.4	Sock	0.2	Sock	130.3
04/04/00	0.13	0.16	0.6	Sock	1.2	Sock	132.1
04/24/00	0.22	0.01	0.5	Sock	0.4	Sock	132.9
06/15/00	0.46	0.01	1.1	Sock	0.3	Sock	134.3
07/19/00	0.12	0.15	0.6	Sock	0.6	Sock	135.5
08/23/00	0.09	0.15	0.5	Sock	0.7	Sock	136.7
10/03/00	0.50	0.19	1.1	Sock	0.4	Sock	138.3
12/14/00	0.17	0.42	0.5	Sock	0.5	Sock	139.2
01/23/01	0.31	0.22	0.5	Sock	0.3	Sock	140.0
02/09/01	0.62	0.01	0.8	Sock	0.2	Sock	141.0
04/04/01	0.11	0.16	0.35	Sock	0.34	Sock	141.7
05/16/01	0.36	0.08	0.73	Sock	0.26	Sock	142.7
06/19/01	0.83	0.01	0.95	Sock	0.08	Sock	143.7
07/20/01	0.57	0.00	1.18	Sock	0.01	Sock	144.9
09/10/01	0.22	0.00	0.79	Sock	0.06	Sock	145.7
10/09/01	0.13	<0.01	0.44	Sock	0.02	Sock	146.2
11/08/01	0.19	<0.01	0.58	Sock	0.02	Sock	146.8
12/11/01	0.24	0.01	0.57	Sock	0.01	Sock	147.3
01/18/02	0.12	0.20	0.35	Sock	0.08	Sock	147.8
02/13/02	0.69	0.01	1.11	Sock	0.13	Sock	149.0
03/14/02	0.14	<0.01	0.55	Sock	0.16	Sock	149.7
04/10/02	0.08	<0.01	0.42	Sock	0.16	Sock	150.3
05/14/02	0.22	0.01	0.62	Sock	0.18	Sock	151.1
06/18/02	0.69	0.01	1.09	Sock	0.15	Sock	152.4
07/12/02	0.37	<0.01	0.61	Sock	0.01	Sock	153.0
08/14/02	0.75	0.02	1.36	Sock	0.04	Sock	154.4
09/24/02	0.69	<0.01	1.39	Sock	0.03	Sock	155.8
10/24/02	0.27	<0.01	0.70	Sock	0.00	Sock	156.5
11/22/02	0.08	<0.01	0.16	Sock	0.08	Sock	156.7
12/17/02	0.08	0.02	0.22	Sock	0.15	Sock	157.1
Total Volume of Product Recovered:			134.5	(MW-1)	22.6	(MW-5)	157.1

LNAPL recovery methods used:
HB: Hand bailing using PVC bailer
SWAP: Gravity siphon demonstration
Pump: Xitech ADJ 1000 Smart Skimmer (Product Recovery System)
PB: Passive bailer with hydrophobic filter
Sock: Hydrophobic (oil adsorbent) sock

Figure 12
LNAPL Recovery Versus Time



8.0 Conclusions

Conclusions relevant to groundwater conditions and the remediation performance at the Monument Booster Station are presented below.

- Benzene, toluene, ethylbenzene, and xylenes (BTEX) concentrations in monitoring wells MW-1D, MW-2, MW-3, MW-4, and MW-6 are presently below New Mexico Water Quality Control Commission (WQCC) standards. With the exception of the August 1999 sample recovered from MW-2 and the August 1999 and February 2000 samples recovered from MW-3, the BTEX concentrations in each of these wells have remained below the WQCC standard levels since 1995.

- Only the benzene concentrations from the current and historic groundwater samples recovered from MW-7 exceed the WQCC standard. The BTEX concentrations in monitoring well MW-7 were at their lowest level during the last sampling event since monitoring began in 1995.

- As of December 17, 2002, a total of approximately 157 gallons of light non-aqueous phase liquids (LNAPL) has been removed from monitoring wells MW-1 and MW-5 using a combination of gravity siphoning, hand bailing, passive skimmer, adsorbent sock, and pneumatic pump recovery methods.

- The biodegradation capacity of electron acceptors and metabolic byproducts (33.36 mg/L) far exceeds the highest benzene concentration (1.13 mg/L in MW-7 during the January 1996 sampling event) observed on site by a ratio of 30 to 1. The most recent benzene concentration in MW-7 was 0.015 mg/L during the August 2002 sampling event. This indicates that the biodegradation process has been occurring and will continue.

- The biodegradation capacity of electron acceptors and metabolic byproducts (33.36 mg/L) far exceeds the highest benzene concentration observed on site in the past (1.13 mg/L in MW-7 during the January 1996 sampling event) by a ratio of 30 to 1. The most recent benzene concentration in MW-7 was 0.015 mg/L during the August 2002 sampling event. This indicates that the biodegradation process has been occurring and will continue. Continued semi-annual monitoring is necessary to demonstrate the effectiveness of intrinsic bioremediation in limiting the migration of the dissolved hydrocarbon plume.

9.0 Recommendations

The following recommendations are proposed for the remediation system and monitoring operations at the Monument Booster Station.

- Continue LNAPL recovery operations utilizing absorbent socks in MW-1 and MW-5. This system appears to have been effective in recovering LNAPL over the last two annual monitoring periods.
- Discontinue analyses for aluminum, arsenic, and chromium since those constituents have been below the WQCC standards for over five years.
- Continue the groundwater-monitoring program on a semi-annual basis. The next sampling event is scheduled during the first quarter of 2002.

Appendix A

Laboratory Analytical Reports

and

Chain-of-Custody Documentation

Summary Report

Gil Van Deventer
Trident Environmental
P.O. Box 7624
Midland, Tx. 79708

Report Date: February 22, 2002

Order ID Number: A02021515

Project Number: Duke Energy Field Services
Project Name: V-104
Project Location: Monument Booster

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
191077	MW-4	Water	2/13/02	9:30	2/15/02
191078	MW-6	Water	2/13/02	10:20	2/15/02
191079	MW-3	Water	2/13/02	11:20	2/15/02
191080	MW-2	Water	2/13/02	13:20	2/15/02
191081	MW-7	Water	2/13/02	14:00	2/15/02
191082	MW-1D	Water	2/13/02	14:40	2/15/02
191083	Rinsate	Water	2/13/02	11:50	2/15/02
191084	Duplicate	Water	2/13/02	:	2/15/02

0 This report consists of a total of 3 page(s) and is intended only as a summary of results for the sample(s) listed above.

	BTEX				
Sample - Field Code	Benzene (ppm)	Toluene (ppm)	Ethylbenzene (ppm)	M,P,O-Xylene (ppm)	Total BTEX (ppm)
191077 - MW-4	<0.001	<0.001	<0.001	<0.001	<0.001
191078 - MW-6	<0.001	<0.001	<0.001	<0.001	<0.001
191079 - MW-3	0.0017	<0.001	<0.001	<0.001	0.0017
191080 - MW-2	<0.001	<0.001	<0.001	<0.001	<0.001
191081 - MW-7	0.228	<0.005	0.0944	0.0495	0.372
191082 - MW-1D	<0.001	<0.001	<0.001	<0.001	<0.001
191083 - Rinsate	<0.001	<0.001	<0.001	<0.001	<0.001
191084 - Duplicate	0.275	<0.001	0.115	0.063	0.453

Sample: 191077 - MW-4

Param	Flag	Result	Units
ferrous iron	1	0.84	mg/L
Nitrate-N	2	<1.00	mg/L
Sulfate		90.6	mg/L
Total Iron		<0.050	mg/L
Total Manganese		0.0659	mg/L

[1] Out of hold time
[2] Sample received out of hold time for NO3.

Sample: 191078 - MW-6

Param	Flag	Result	Units
ferrous iron	[3]	0.56	mg/L
Nitrate-N	[4]	<1.00	mg/L
Sulfate		48.9	mg/L
Total Iron		0.484	mg/L
Total Manganese		0.289	mg/L

Sample: 191079 - MW-3

Param	Flag	Result	Units
ferrous iron	[5]	0.56	mg/L
Nitrate-N	[6]	1.49	mg/L
Sulfate		67.6	mg/L
Total Iron		<0.050	mg/L
Total Manganese		0.0525	mg/L

Sample: 191080 - MW-2

Param	Flag	Result	Units
ferrous iron	[7]	0.56	mg/L
Nitrate-N	[8]	2.69	mg/L
Sulfate		115	mg/L
Total Iron		<0.050	mg/L
Total Manganese		<0.025	mg/L

Sample: 191081 - MW-7

Param	Flag	Result	Units
ferrous iron	[9]	0.56	mg/L
Nitrate-N	[10]	<1.00	mg/L
Sulfate		30.9	mg/L
Total Iron		8.25	mg/L
Total Manganese		0.261	mg/L

Sample: 191082 - MW-1D

Param	Flag	Result	Units
ferrous iron	[11]	0.56	mg/L
Nitrate-N	[12]	2.03	mg/L

Continued on next page ...

[3] out of hold time
[4] Sample out of hold time for NO3.
[5] out of hold time
[6] Sample out of hold time for NO3.
[7] out of hold time
[8] Sample out of hold time for NO3.
[9] out of hold time
[10] Sample out of hold time for NO3.
[11] out of hold time
[12] Sample out of hold time for NO3.

Sample 191082 continued ...

Param	Flag	Result	Units
Sulfate		86.3	mg/L
Total Iron		0.149	mg/L
Total Manganese		0.186	mg/L

TRACEANALYSIS, INC.

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155 McCutcheon, Suite H El Paso, Texas 79932 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Gil Van Deventer
Trident Environmental
P.O. Box 7624
Midland, Tx. 79708

Report Date: February 22, 2002

Order ID Number: A02021515

Project Number: Duke Energy Field Services
Project Name: V-104
Project Location: Monument Booster

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
191077	MW-4	Water	2/13/02	9:30	2/15/02
191078	MW-6	Water	2/13/02	10:20	2/15/02
191079	MW-3	Water	2/13/02	11:20	2/15/02
191080	MW-2	Water	2/13/02	13:20	2/15/02
191081	MW-7	Water	2/13/02	14:00	2/15/02
191082	MW-1D	Water	2/13/02	14:40	2/15/02
191083	Rinsate	Water	2/13/02	11:50	2/15/02
191084	Duplicate	Water	2/13/02	:	2/15/02

0
These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed. Note: the RDL is equal to MQL for all organic analytes including TPH.

This report consists of a total of 12 pages and shall not be reproduced except in its entirety including the chain of custody (COC), without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Analytical Report

Sample: 191077 - MW-4

Analysis: BTEX | Analytical Method: S 8021B | QC Batch: QC18170 | Date Analyzed: 2/15/02
Analyst: CG | Preparation Method: S 5030B | Prep Batch: PB17702 | Date Prepared: 2/15/02

Param	Flag	Result	Units	Dilution	RDL
Benzene		<0.001	mg/L	1	0.001
Toluene		<0.001	mg/L	1	0.001
Ethylbenzene		<0.001	mg/L	1	0.001
M,P,O-Xylene		<0.001	mg/L	1	0.001
Total BTEX		<0.001	mg/L	1	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.107	mg/L	1	0.10	107	70 - 130
4-BFB		0.105	mg/L	1	0.10	105	70 - 130

Sample: 191077 - MW-4

Analysis: Ferrous Iron | Analytical Method: Hach IR-1 | QC Batch: QC18168 | Date Analyzed: 2/15/02
Analyst: JSW | Preparation Method: N/A | Prep Batch: PB17696 | Date Prepared: 2/15/02

Param	Flag	Result	Units	Dilution	RDL
ferrous iron	[1]	0.84	mg/L	1	0.01

Sample: 191077 - MW-4

Analysis: Ion Chromatography (IC) | Analytical Method: E 300.0 | QC Batch: QC18222 | Date Analyzed: 2/15/02
Analyst: JS | Preparation Method: N/A | Prep Batch: PB17740 | Date Prepared: 2/15/02

Param	Flag	Result	Units	Dilution	RDL
Nitrate N	[2]	<1.00	mg/L	5	0.20
Sulfate		90.6	mg/L	5	0.50

Sample: 191077 - MW-4

Analysis: Total Metals | Analytical Method: S 6010B | QC Batch: QC18306 | Date Analyzed: 2/21/02
Analyst: RR | Preparation Method: S 3010A | Prep Batch: PB17725 | Date Prepared: 2/18/02

Param	Flag	Result	Units	Dilution	RDL
Total Iron		<0.050	mg/L	1	0.05
Total Manganese		0.0659	mg/L	1	0.02

Sample: 191078 - MW-6

Analysis: BTEX | Analytical Method: S 8021B | QC Batch: QC18170 | Date Analyzed: 2/15/02
Analyst: CG | Preparation Method: S 5030B | Prep Batch: PB17702 | Date Prepared: 2/15/02

[1] out of hold time
[2] Sample out of hold time for NO3.

Param	Flag	Result	Units	Dilution	RDL
Benzene		<0.001	mg/L	1	0.001
Toluene		<0.001	mg/L	1	0.001
Ethylbenzene		<0.001	mg/L	1	0.001
M,P,O-Xylene		<0.001	mg/L	1	0.001
Total BTEX		<0.001	mg/L	1	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.0944	mg/L	1	0.10	94	70 - 130
4-BFB		0.092	mg/L	1	0.10	92	70 - 130

Sample: 191078 - MW-6

Analysis: Ferrous Iron | Analytical Method: Hach IR-1 | QC Batch: QC18168 | Date Analyzed: 2/15/02
Analyst: JSW | Preparation Method: N/A | Prep Batch: PB17696 | Date Prepared: 2/15/02

Param	Flag	Result	Units	Dilution	RDL
ferrous iron	[3]	0.56	mg/L	1	0.01

Sample: 191078 - MW-6

Analysis: Ion Chromatography (IC) | Analytical Method: E 300.0 | QC Batch: QC18222 | Date Analyzed: 2/15/02
Analyst: JS | Preparation Method: N/A | Prep Batch: PB17740 | Date Prepared: 2/15/02

Param	Flag	Result	Units	Dilution	RDL
Nitrate-N	[4]	<1.00	mg/L	5	0.20
Sulfate		48.9	mg/L	5	0.50

Sample: 191078 - MW-6

Analysis: Total Metals | Analytical Method: S 6010B | QC Batch: QC18306 | Date Analyzed: 2/21/02
Analyst: RR | Preparation Method: S 3010A | Prep Batch: PB17725 | Date Prepared: 2/18/02

Param	Flag	Result	Units	Dilution	RDL
Total Iron		0.484	mg/L	1	0.05
Total Manganese		0.289	mg/L	1	0.02

Sample: 191079 - MW-3

Analysis: BTEX | Analytical Method: S 8021B | QC Batch: QC18170 | Date Analyzed: 2/15/02
Analyst: CG | Preparation Method: S 5030B | Prep Batch: PB17702 | Date Prepared: 2/15/02

Param	Flag	Result	Units	Dilution	RDL
Benzene		0.0017	mg/L	1	0.001
Toluene		<0.001	mg/L	1	0.001
Ethylbenzene		<0.001	mg/L	1	0.001
M,P,O-Xylene		<0.001	mg/L	1	0.001
Total BTEX		0.0017	mg/L	1	0.001

[3]out of hold time
[4]Sample out of hold time for NO3.

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.086	mg/L	1	0.10	86	70 - 130
4-BFB		0.0835	mg/L	1	0.10	84	70 - 130

Sample: 191079 - MW-3

Analysis: Ferrous Iron Analytical Method: Hach IR-1 QC Batch: QC18168 Date Analyzed: 2/15/02
Analyst: JSW Preparation Method: N/A Prep Batch: PB17696 Date Prepared: 2/15/02

Param	Flag	Result	Units	Dilution	RDL
ferrous iron	[5]	0.56	mg/L	1	0.01

Sample: 191079 - MW-3

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC18222 Date Analyzed: 2/15/02
Analyst: JS Preparation Method: N/A Prep Batch: PB17740 Date Prepared: 2/15/02

Param	Flag	Result	Units	Dilution	RDL
Nitrate-N	[6]	1.49	mg/L	5	0.20
Sulfate		67.6	mg/L	5	0.50

Sample: 191079 - MW-3

Analysis: Total Metals Analytical Method: S 6010B QC Batch: QC18306 Date Analyzed: 2/21/02
Analyst: RR Preparation Method: S 3010A Prep Batch: PB17725 Date Prepared: 2/18/02

Param	Flag	Result	Units	Dilution	RDL
Total Iron		<0.050	mg/L	1	0.05
Total Manganese		0.0525	mg/L	1	0.02

Sample: 191080 - MW-2

Analysis: BTEX Analytical Method: S 8021B QC Batch: QC18170 Date Analyzed: 2/15/02
Analyst: CG Preparation Method: S 5030B Prep Batch: PB17702 Date Prepared: 2/15/02

Param	Flag	Result	Units	Dilution	RDL
Benzene		<0.001	mg/L	1	0.001
Toluene		<0.001	mg/L	1	0.001
Ethylbenzene		<0.001	mg/L	1	0.001
M,P,O-Xylene		<0.001	mg/L	1	0.001
Total BTEX		<0.001	mg/L	1	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.0728	mg/L	1	0.10	73	70 - 130
4-BFB		0.0702	mg/L	1	0.10	70	70 - 130

[5]out of hold time
[6]Sample out of hold time for NO3.

Sample: 191080 - MW-2

Analysis: Ferrous Iron | Analytical Method: Hach IR-1 | QC Batch: QC18168 | Date Analyzed: 2/15/02
Analyst: JSW | Preparation Method: N/A | Prep Batch: PB17696 | Date Prepared: 2/15/02

Param	Flag	Result	Units	Dilution	RDL
ferrous iron	[7]	0.56	mg/L	1	0.01

Sample: 191080 - MW-2

Analysis: Ion Chromatography (IC) | Analytical Method: E 300.0 | QC Batch: QC18222 | Date Analyzed: 2/15/02
Analyst: JS | Preparation Method: N/A | Prep Batch: PB17740 | Date Prepared: 2/15/02

Param	Flag	Result	Units	Dilution	RDL
Nitrate-N	[8]	2.69	mg/L	5	0.20
Sulfate		115	mg/L	5	0.50

Sample: 191080 - MW-2

Analysis: Total Metals | Analytical Method: S 6010B | QC Batch: QC18306 | Date Analyzed: 2/21/02
Analyst: RR | Preparation Method: S 3010A | Prep Batch: PB17725 | Date Prepared: 2/18/02

Param	Flag	Result	Units	Dilution	RDL
Total Iron		<0.050	mg/L	1	0.05
Total Manganese		<0.025	mg/L	1	0.02

Sample: 191081 - MW-7

Analysis: BTEX | Analytical Method: S 8021B | QC Batch: QC18170 | Date Analyzed: 2/15/02
Analyst: CG | Preparation Method: S 5030B | Prep Batch: PB17702 | Date Prepared: 2/15/02

Param	Flag	Result	Units	Dilution	RDL
Benzene		0.228	mg/L	5	0.001
Toluene		<0.005	mg/L	5	0.001
Ethylbenzene		0.0944	mg/L	5	0.001
M,P,O-Xylene		0.0495	mg/L	5	0.001
Total BTEX		0.372	mg/L	5	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.088	mg/L	5	0.10	88	70 - 130
4-BFB		0.097	mg/L	5	0.10	97	70 - 130

Sample: 191081 - MW-7

Analysis: Ferrous Iron | Analytical Method: Hach IR-1 | QC Batch: QC18168 | Date Analyzed: 2/15/02
Analyst: JSW | Preparation Method: N/A | Prep Batch: PB17696 | Date Prepared: 2/15/02

Continued ...

[7] out of hold time
[8] Sample out of hold time for NO3.

... *Continued* Sample: 191081 Analysis: Ferrous Iron

Param	Flag	Result	Units	Dilution	RDL
ferrous iron	[9]	0.56	mg/L	1	0.01

Sample: 191081 - MW-7

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC18222 Date Analyzed: 2/15/02
Analyst: JS Preparation Method: N/A Prep Batch: PB17740 Date Prepared: 2/15/02

Param	Flag	Result	Units	Dilution	RDL
Nitrate-N	[10]	<1.00	mg/L	5	0.20
Sulfate		30.9	mg/L	5	0.50

Sample: 191081 - MW-7

Analysis: Total Metals Analytical Method: S 6010B QC Batch: QC18306 Date Analyzed: 2/21/02
Analyst: RR Preparation Method: S 3010A Prep Batch: PB17725 Date Prepared: 2/18/02

Param	Flag	Result	Units	Dilution	RDL
Total Iron		8.25	mg/L	1	0.05
Total Manganese		0.261	mg/L	1	0.02

Sample: 191082 - MW-1D

Analysis: BTEX Analytical Method: S 8021B QC Batch: QC18170 Date Analyzed: 2/15/02
Analyst: CG Preparation Method: S 5030B Prep Batch: PB17702 Date Prepared: 2/15/02

Param	Flag	Result	Units	Dilution	RDL
Benzene		<0.001	mg/L	1	0.001
Toluene		<0.001	mg/L	1	0.001
Ethylbenzene		<0.001	mg/L	1	0.001
M,P,O-Xylene		<0.001	mg/L	1	0.001
Total BTEX		<0.001	mg/L	1	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.0886	mg/L	1	0.10	89	70 - 130
4-BFB		0.0892	mg/L	1	0.10	89	70 - 130

Sample: 191082 - MW-1D

Analysis: Ferrous Iron Analytical Method: Hach IR-1 QC Batch: QC18168 Date Analyzed: 2/15/02
Analyst: JSW Preparation Method: N/A Prep Batch: PB17696 Date Prepared: 2/15/02

Param	Flag	Result	Units	Dilution	RDL
ferrous iron	[11]	0.56	mg/L	1	0.01

[9] out of hold time
[10] Sample out of hold time for NO3.
[11] out of hold time

Sample: 191082 - MW-1D

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC18222 Date Analyzed: 2/15/02
Analyst: JS Preparation Method: N/A Prep Batch: PB17740 Date Prepared: 2/15/02

Param	Flag	Result	Units	Dilution	RDL
Nitrate-N	[12]	2.03	mg/L	5	0.20
Sulfate		86.3	mg/L	5	0.50

Sample: 191082 - MW-1D

Analysis: Total Metals Analytical Method: S 6010B QC Batch: QC18306 Date Analyzed: 2/21/02
Analyst: RR Preparation Method: S 3010A Prep Batch: PB17725 Date Prepared: 2/18/02

Param	Flag	Result	Units	Dilution	RDL
Total Iron		0.149	mg/L	1	0.05
Total Manganese		0.186	mg/L	1	0.02

Sample: 191083 - Rinsate

Analysis: BTEX Analytical Method: S 8021B QC Batch: QC18170 Date Analyzed: 2/15/02
Analyst: CG Preparation Method: S 5030B Prep Batch: PB17702 Date Prepared: 2/15/02

Param	Flag	Result	Units	Dilution	RDL
Benzene		<0.001	mg/L	1	0.001
Toluene		<0.001	mg/L	1	0.001
Ethylbenzene		<0.001	mg/L	1	0.001
M,P,O-Xylene		<0.001	mg/L	1	0.001
Total BTEX		<0.001	mg/L	1	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.0697	mg/L	1	0.10	70	70 - 130
4-BFB		0.0706	mg/L	1	0.10	71	70 - 130

Sample: 191084 - Duplicate

Analysis: BTEX Analytical Method: S 8021B QC Batch: QC18170 Date Analyzed: 2/15/02
Analyst: CG Preparation Method: S 5030B Prep Batch: PB17702 Date Prepared: 2/15/02

Param	Flag	Result	Units	Dilution	RDL
Benzene		0.275	mg/L	1	0.001
Toluene		<0.001	mg/L	1	0.001
Ethylbenzene		0.115	mg/L	1	0.001
M,P,O-Xylene		0.063	mg/L	1	0.001
Total BTEX		0.453	mg/L	1	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT	[13]	0.0616	mg/L	1	0.10	61	70 - 130

Continued ...

[12] Sample out of hold time for NO3.
[13] Low surrogate recovery due to prep. ICV, CCV, CCV show the method to be in control.

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
4-BFB	[14]	0.0652	mg/L	1	0.10	65	70 - 130

[14]Low surrogate recovery due to prep. ICV, CCV, CCV show the method to be in control.

Quality Control Report
Method Blank

Method Blank

QCBatch: QC18168

Param	Flag	Results	Units	Reporting Limit
ferrous iron		0.84	mg/L	0.01

Method Blank

QCBatch: QC18170

Param	Flag	Results	Units	Reporting Limit
Benzene		<0.001	mg/L	0.001
Toluene		<0.001	mg/L	0.001
Ethylbenzene		<0.001	mg/L	0.001
M,P,O-Xylene		<0.001	mg/L	0.001
Total BTEX		<0.001	mg/L	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.0995	mg/L	1	0.10	99	70 - 130
4-BFB		0.101	mg/L	1	0.10	101	70 - 130

Method Blank

QCBatch: QC18222

Param	Flag	Results	Units	Reporting Limit
Nitrate-N		<0.2	mg/L	0.20
Sulfate		<2.0	mg/L	0.50

Method Blank

QCBatch: QC18306

Param	Flag	Results	Units	Reporting Limit
Total Iron		<0.050	mg/L	0.05
Total Manganese		<0.025	mg/L	0.02

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Laboratory Control Spikes

QCBatch: QC18170

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
MTBE	0.0956	0.0981	mg/L	1	0.10	<0.001	96	2	82 - 111	20
Benzene	0.0978	0.0997	mg/L	1	0.10	<0.001	98	2	86 - 106	20
Toluene	0.0972	0.0993	mg/L	1	0.10	<0.001	97	2	82 - 108	20
Ethylbenzene	0.0941	0.0962	mg/L	1	0.10	<0.001	94	2	86 - 115	20
M,P,O-Xylene	0.268	0.274	mg/L	1	0.30	<0.001	89	2	79 - 122	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
TFT	0.0992	0.102	mg/L	1	0.10	99	102	70 - 130
4-BFB	0.122	0.125	mg/L	1	0.10	122	125	70 - 130

Laboratory Control Spikes

QCBatch: QC18222

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	11.53	11.50	mg/L	1	12.50	<2.0	92	0	90 - 110	20
Nitrate-N	2.37	2.37	mg/L	1	2.50	<0.2	94	0	90 - 110	20
Sulfate	11.61	11.67	mg/L	1	12.50	<2.0	92	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC18306

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Iron	0.501	0.510	mg/L	1	0.50	<0.050	100	1	75 - 125	20
Total Manganese	0.250	0.257	mg/L	1	0.25	<0.025	100	2	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Quality Control Report
Matrix Spikes and Duplicate Spikes

Matrix Spikes

QCBatch: QC18222

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Nitrate-N	30.89	31.00	mg/L	1	25		93	0	84 - 105	20
Sulfate	[15] 722.57	729.70	mg/L	1	125		72	1	79 - 104	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC18306

[15]Sulfate matrix spike %EA was low. LCS spikes show that the test was in contro.

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Iron	0.492	0.505	mg/L	1	0.50	<0.050	98	2	75 - 125	20
Total Manganese	0.300	0.305	mg/L	1	0.25	0.0659	93	2	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Quality Control Report
Continuing Calibration Verification Standards

CCV (1)

QCBatch: QC18170

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
MTBE		mg/L	0.10	0.0979	98	85 - 115	2/15/02
Benzene		mg/L	0.10	0.0988	99	85 - 115	2/15/02
Toluene		mg/L	0.10	0.0986	99	85 - 115	2/15/02
Ethylbenzene		mg/L	0.10	0.0949	95	85 - 115	2/15/02
M,P,O-Xylene		mg/L	0.30	0.269	90	85 - 115	2/15/02

CCV (2)

QCBatch: QC18170

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
MTBE		mg/L	0.10	0.097	97	85 - 115	2/15/02
Benzene		mg/L	0.10	0.1	100	85 - 115	2/15/02
Toluene		mg/L	0.10	0.099	99	85 - 115	2/15/02
Ethylbenzene		mg/L	0.10	0.096	96	85 - 115	2/15/02
M,P,O-Xylene		mg/L	0.30	0.273	91	85 - 115	2/15/02

ICV (1)

QCBatch: QC18170

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
MTBE		mg/L	0.10	0.0991	99	85 - 115	2/15/02
Benzene		mg/L	0.10	0.100	100	85 - 115	2/15/02
Toluene		mg/L	0.10	0.100	100	85 - 115	2/15/02
Ethylbenzene		mg/L	0.10	0.0967	97	85 - 115	2/15/02
M,P,O-Xylene		mg/L	0.30	0.274	91	85 - 115	2/15/02

CCV (1)

QCBatch: QC18222

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	11.53	92	90 - 110	2/15/02
Nitrate-N		mg/L	2.50	2.37	94	90 - 110	2/15/02
Sulfate		mg/L	12.50	11.78	94	90 - 110	2/15/02

ICV (1)

QCBatch: QC18222

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	11.48	91	90 - 110	2/15/02
Nitrate-N		mg/L	2.50	2.36	94	90 - 110	2/15/02
Sulfate		mg/L	12.50	11.65	93	90 - 110	2/15/02

CCV (1)

QCBatch: QC18306

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Iron		mg/L	1	1.00	100	90 - 110	2/21/02
Total Manganese		mg/L	0.50	0.498	100	90 - 110	2/21/02

ICV (1)

QCBatch: QC18306

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Iron		mg/L	1	0.999	100	90 - 110	2/21/02
Total Manganese		mg/L	0.50	0.499	100	90 - 110	2/21/02

AO2021515

TRIDENT ENVIRONMENTAL

Trident Environmental
P.O. Box 7624
Midland, Texas 79708
(915) 682-0808
(915) 682-0727 (Fax)

V-104-0202

Chain of Custody

Date 2-13-02 Page 1 of 1

Lab Name: TraceAnalysis Inc.
Address: 6701 Aberdeen, Ste. 9
Lubbock, Texas 79424
Telephone: 800-378-1296

Samplers (SIGNATURES): Gil Van Det

Sample Identification		Matrix	Date	Time	Sample Type: G - Grab, C- Composite	BTEX (EPA 8021B)	MTBE (EPA 8021B)	SVOC (EPA 8270)	PAH (EPA 8270)	VOC (EPA 8260)	TPH (EPA 418.1)	TPH (TX-1005)	TPH (TX-1006)	GRO (EPA 8015G)	DRO (EPA 8015D)	TDS (EPA 160.1)	Sulfate & Nitrate	Ferric iron, ferrous iron, manganese	Methane	Number of Containers
MW-4	191077	Water	2-13-02	0930		✓											✓	✓		4
MW-6	78	Water	2-13-02	1020		✓											✓	✓		4
MW-3	79	Water	2-13-02	1120		✓											✓	✓		4
MW-2	80	Water	2-13-02	1320		✓											✓	✓		4
MW-7	81	Water	2-13-02	1400		✓											✓	✓		4
MW-1d	82	Water	2-13-02	1440		✓											✓	✓		4
Rinsate	83	Water	2-13-02	1150		✓														2
Duplicate	84	Water	2-13-02	0000		✓														2

Analysis Request

Project Information		Sample Receipt	
Project Name:	Duke Energy Field Services	Total Containers:	
Project Location:	Monument Booster	COC Seals:	
Project Manager:	Gil Van Deventer	Rec'd Good Cond/Cold:	
Cost Center No.:	V-104	Conforms to Records:	
Shipping ID No.:		Lab No.:	
Bill to (see below):			

Special Instructions/Comments: Please send invoice direct to client:
Duke Energy Field Svcs, Attn: Steve Weathers, PO Box 5493, Denver, CO 80217

Relinquished By: (1) (Company)	Relinquished By: (2) (Company)	Relinquished By: (3) (Company)
Trident Environmental	TRACE ANALYSIS	
(Printed Name) Gil Van Deventer	(Printed Name) HELEN SHELTON	(Printed Name)
(Signature) Gil Van Det	(Signature) Helen Shelton	(Signature)
(Date) 2-13-02 (Time) 6:20 pm	(Date) 2/14/02 (Time) 6:30 PM	(Date) (Time)
Received By: (1) (Company)	**Received By: (2) (Company)**	**Received By: (3) (Company)**
TRACE ANALYSIS	Trace Analysis	
(Printed Name) HELEN SHELTON	(Printed Name) Vicki Hopsky	(Printed Name)
(Signature) Helen Shelton	(Signature) Vicki Hopsky	(Signature)
(Date) 2-13-02 (Time) 6:20 PM	(Date) 2-15-02 (Time) 10:00	(Date) (Time)

Shipped Greyhound

Copy signed original form for Trident Environmental records

Summary Report

Dale Littlejohn
Trident Environmental
P.O. Box 7624
Midland, Tx. 79708

Report Date: October 9, 2002

Order ID Number: A02093019

Project Number: Duke Energy Field Services
Project Name: V-104
Project Location: Monument Booster

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
209280	MW-4	Water	9/27/02	8:00	9/28/02
209281	MW-1D	Water	9/27/02	8:20	9/28/02
209282	MW-3	Water	9/27/02	9:25	9/28/02
209283	MW-5	Water	9/27/02	11:20	9/28/02
209284	MW-6	Water	9/27/02	10:40	9/28/02
209285	MW-2	Water	9/27/02	12:10	9/28/02
209286	MW-7	Water	9/27/02	13:00	9/28/02
209287	Duplicate	Water	9/27/02	:	9/28/02
209288	Rinsate	Water	9/27/02	13:10	9/28/02
209289	Trip Blank	Water	9/27/02	:	9/28/02

0 This report consists of a total of 3 page(s) and is intended only as a summary of results for the sample(s) listed above.

	BTEX				
Sample - Field Code	Benzene (ppm)	Toluene (ppm)	Ethylbenzene (ppm)	M,P,O-Xylene (ppm)	Total BTEX (ppm)
209280 - MW-4	<0.001	<0.001	<0.001	<0.001	<0.001
209281 - MW-1D	<0.001	<0.001	<0.001	<0.001	<0.001
209282 - MW-3	<0.005	<0.005	<0.005	<0.005	<0.005
209283 - MW-5	0.0284	<0.005	0.0489	0.0429	0.120
209284 - MW-6	<0.005	<0.005	<0.005	<0.005	<0.005
209285 - MW-2	<0.001	<0.001	<0.001	<0.001	<0.001
209286 - MW-7	0.0148	<0.005	0.0174	<0.005	0.0322
209287 - Duplicate	0.0142	<0.005	0.0176	<0.005	0.0318
209288 - Rinsate	<0.001	<0.001	0.001	<0.001	0.001
209289 - Trip Blank	<0.005	<0.005	<0.005	<0.005	<0.005

Sample: 209280 - MW-4

Param	Flag	Result	Units
Chloride		139	mg/L
Fluoride		1.54	mg/L
Sulfate		94.2	mg/L
Total Dissolved Solids		810	mg/L

Continued on next page ...

Sample 209280 continued ...

Param	Flag	Result	Units
Total Aluminum		<0.100	mg/L
Total Arsenic		<0.050	mg/L
Total Boron		0.500	mg/L
Total Chromium		<0.010	mg/L
Total Iron		<0.050	mg/L
Total Manganese		0.0633	mg/L

Sample: 209281 - MW-1D

Param	Flag	Result	Units
Chloride		45.7	mg/L
Fluoride		2.87	mg/L
Sulfate		82.5	mg/L
Total Dissolved Solids		493	mg/L
Total Aluminum		<0.100	mg/L
Total Arsenic		<0.050	mg/L
Total Boron		0.299	mg/L
Total Chromium		<0.010	mg/L
Total Iron		<0.050	mg/L
Total Manganese		0.157	mg/L

Sample: 209282 - MW-3

Param	Flag	Result	Units
Chloride		181	mg/L
Fluoride		1.83	mg/L
Sulfate		73.5	mg/L
Total Dissolved Solids		776	mg/L
Total Aluminum		<0.100	mg/L
Total Arsenic		<0.050	mg/L
Total Boron		0.510	mg/L
Total Chromium		<0.010	mg/L
Total Iron		<0.050	mg/L
Total Manganese		0.057	mg/L

Sample: 209283 - MW-5

Param	Flag	Result	Units
Chloride		50.2	mg/L
Fluoride		2.05	mg/L
Sulfate		56.9	mg/L
Total Dissolved Solids		549	mg/L
Total Aluminum		<0.100	mg/L
Total Arsenic		0.119	mg/L
Total Boron		0.774	mg/L

Continued on next page ...

Sample 209283 continued ...

Param	Flag	Result	Units
Total Chromium		<0.010	mg/L
Total Iron		3.37	mg/L
Total Manganese		0.397	mg/L

Sample: 209284 - MW-6

Param	Flag	Result	Units
Chloride		126	mg/L
Fluoride		1.52	mg/L
Sulfate		38.8	mg/L
Total Dissolved Solids		934	mg/L
Total Aluminum		<0.100	mg/L
Total Arsenic		<0.050	mg/L
Total Boron		1.17	mg/L
Total Chromium		<0.010	mg/L
Total Iron		0.521	mg/L
Total Manganese		0.351	mg/L

Sample: 209285 - MW-2

Param	Flag	Result	Units
Chloride		2170	mg/L
Fluoride		1.50	mg/L
Sulfate		125	mg/L
Total Dissolved Solids		4440	mg/L
Total Aluminum		<0.100	mg/L
Total Arsenic		<0.050	mg/L
Total Boron		0.527	mg/L
Total Chromium		0.0329	mg/L
Total Iron		<0.050	mg/L
Total Manganese		<0.025	mg/L

Sample: 209286 - MW-7

Param	Flag	Result	Units
Chloride		49.5	mg/L
Fluoride		2.26	mg/L
Sulfate		70.8	mg/L
Total Dissolved Solids		574	mg/L
Total Aluminum		<0.100	mg/L
Total Arsenic		<0.050	mg/L
Total Boron		0.610	mg/L
Total Chromium		<0.010	mg/L
Total Iron		4.21	mg/L
Total Manganese		0.310	mg/L

This is only a summary. Please, refer to the complete report package for quality control data.

TRACEANALYSIS, INC.

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E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Dale Littlejohn
Trident Environmental
P.O. Box 7624
Midland, Tx. 79708

Report Date: October 9, 2002

Order ID Number: A02093019

Project Number: Duke Energy Field Services
Project Name: V-104
Project Location: Monument Booster

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
209280	MW-4	Water	9/27/02	8:00	9/28/02
209281	MW-1D	Water	9/27/02	8:20	9/28/02
209282	MW-3	Water	9/27/02	9:25	9/28/02
209283	MW-5	Water	9/27/02	11:20	9/28/02
209284	MW-6	Water	9/27/02	10:40	9/28/02
209285	MW-2	Water	9/27/02	12:10	9/28/02
209286	MW-7	Water	9/27/02	13:00	9/28/02
209287	Duplicate	Water	9/27/02	:	9/28/02
209288	Rinsate	Water	9/27/02	13:10	9/28/02
209289	Trip Blank	Water	9/27/02	:	9/28/02

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed. Note: the RDL is equal to MQL for all organic analytes including TPH.
The test results contained within this report meet all requirements of LAC 33:I unless otherwise noted.

Note: Samples will be disposed of 30 days from the report date unless the lab is contacted before the 30 days has past.

Dr. Blair Leftwich, Director

Analytical Report

Sample: 209280 - MW-4

Analysis: BTEX | Analytical Method: S 8021B | QC Batch: QC23858 | Date Analyzed: 9/30/02
Analyst: CG | Preparation Method: S 5030B | Prep Batch: PB22304 | Date Prepared: 9/30/02

Param	Flag	Result	Units	Dilution	RDL
Benzene		<0.001	mg/L	1	0.001
Toluene		<0.001	mg/L	1	0.001
Ethylbenzene		<0.001	mg/L	1	0.001
M,P,O-Xylene		<0.001	mg/L	1	0.001
Total BTEX		<0.001	mg/L	1	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.104	mg/L	1	0.10	104	70 - 130
4-BFB		0.0951	mg/L	1	0.10	95	70 - 130

Sample: 209280 - MW-4

Analysis: Ion Chromatography (IC) | Analytical Method: E 300.0 | QC Batch: QC23893 | Date Analyzed: 10/1/02
Analyst: JSW | Preparation Method: N/A | Prep Batch: PB22339 | Date Prepared: 10/1/02

Param	Flag	Result	Units	Dilution	RDL
Chloride		139	mg/L	5	1
Fluoride		1.54	mg/L	5	0.20
Sulfate		94.2	mg/L	5	1

Sample: 209280 - MW-4

Analysis: TDS | Analytical Method: E 160.1 | QC Batch: QC23889 | Date Analyzed: 10/1/02
Analyst: JSW | Preparation Method: N/A | Prep Batch: PB22340 | Date Prepared: 10/1/02

Param	Flag	Result	Units	Dilution	RDL
Total Dissolved Solids		810	mg/L	2	10

Sample: 209280 - MW-4

Analysis: Total Metals | Analytical Method: S 6010B | QC Batch: QC23935 | Date Analyzed: 10/3/02
Analyst: RR | Preparation Method: S 3010A | Prep Batch: PB22342 | Date Prepared: 10/2/02

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		<0.100	mg/L	1	0.10
Total Arsenic		<0.050	mg/L	1	0.05
Total Boron		0.500	mg/L	10	0.005
Total Chromium		<0.010	mg/L	1	0.01
Total Iron		<0.050	mg/L	1	0.05
Total Manganese		0.0633	mg/L	1	0.02

Sample: 209281 - MW-1D

Analysis: BTEX | Analytical Method: S 8021B | QC Batch: QC23858 | Date Analyzed: 9/30/02
Analyst: CG | Preparation Method: S 5030B | Prep Batch: PB22304 | Date Prepared: 9/30/02

Param	Flag	Result	Units	Dilution	RDL
Benzene		<0.001	mg/L	1	0.001
Toluene		<0.001	mg/L	1	0.001
Ethylbenzene		<0.001	mg/L	1	0.001
M,P,O-Xylene		<0.001	mg/L	1	0.001
Total BTEX		<0.001	mg/L	1	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.102	mg/L	1	0.10	102	70 - 130
4-BFB		0.0938	mg/L	1	0.10	94	70 - 130

Sample: 209281 - MW-1D

Analysis: Ion Chromatography (IC) | Analytical Method: E 300.0 | QC Batch: QC23893 | Date Analyzed: 10/1/02
Analyst: JSW | Preparation Method: N/A | Prep Batch: PB22339 | Date Prepared: 10/1/02

Param	Flag	Result	Units	Dilution	RDL
Chloride		45.7	mg/L	5	1
Fluoride		2.87	mg/L	5	0.20
Sulfate		82.5	mg/L	5	1

Sample: 209281 - MW-1D

Analysis: TDS | Analytical Method: E 160.1 | QC Batch: QC23889 | Date Analyzed: 10/1/02
Analyst: JSW | Preparation Method: N/A | Prep Batch: PB22340 | Date Prepared: 10/1/02

Param	Flag	Result	Units	Dilution	RDL
Total Dissolved Solids		493	mg/L	1	10

Sample: 209281 - MW-1D

Analysis: Total Metals | Analytical Method: S 6010B | QC Batch: QC23935 | Date Analyzed: 10/3/02
Analyst: RR | Preparation Method: S 3010A | Prep Batch: PB22342 | Date Prepared: 10/2/02

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		<0.100	mg/L	1	0.10
Total Arsenic		<0.050	mg/L	1	0.05
Total Boron		0.299	mg/L	10	0.005
Total Chromium		<0.010	mg/L	1	0.01
Total Iron		<0.050	mg/L	1	0.05
Total Manganese		0.157	mg/L	1	0.02

Sample: 209282 - MW-3

Analysis: BTEX | Analytical Method: S 8021B | QC Batch: QC23858 | Date Analyzed: 9/30/02
Analyst: CG | Preparation Method: S 5030B | Prep Batch: PB22304 | Date Prepared: 9/30/02

Param	Flag	Result	Units	Dilution	RDL
Benzene		<0.005	mg/L	5	0.001
Toluene		<0.005	mg/L	5	0.001
Ethylbenzene		<0.005	mg/L	5	0.001
M,P,O-Xylene		<0.005	mg/L	5	0.001
Total BTEX		<0.005	mg/L	5	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.094	mg/L	5	0.10	94	70 - 130
4-BFB		0.0845	mg/L	5	0.10	84	70 - 130

Sample: 209282 - MW-3

Analysis: Ion Chromatography (IC) | Analytical Method: E 300.0 | QC Batch: QC23892 | Date Analyzed: 10/1/02
Analyst: JSW | Preparation Method: N/A | Prep Batch: PB22338 | Date Prepared: 10/1/02

Param	Flag	Result	Units	Dilution	RDL
Chloride		181	mg/L	5	1
Fluoride		1.83	mg/L	5	0.20
Sulfate		73.5	mg/L	5	1

Sample: 209282 - MW-3

Analysis: TDS | Analytical Method: E 160.1 | QC Batch: QC23933 | Date Analyzed: 10/3/02
Analyst: JSW | Preparation Method: N/A | Prep Batch: PB22365 | Date Prepared: 10/1/02

Param	Flag	Result	Units	Dilution	RDL
Total Dissolved Solids		776	mg/L	2	10

Sample: 209282 - MW-3

Analysis: Total Metals | Analytical Method: S 6010B | QC Batch: QC23935 | Date Analyzed: 10/3/02
Analyst: RR | Preparation Method: S 3010A | Prep Batch: PB22342 | Date Prepared: 10/2/02

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		<0.100	mg/L	1	0.10
Total Arsenic		<0.050	mg/L	1	0.05
Total Boron		0.510	mg/L	10	0.005
Total Chromium		<0.010	mg/L	1	0.01
Total Iron		<0.050	mg/L	1	0.05
Total Manganese		0.057	mg/L	1	0.02

Sample: 209283 - MW-5

Analysis: BTEX | Analytical Method: S 8021B | QC Batch: QC23882 | Date Analyzed: 10/1/02
Analyst: CG | Preparation Method: S 5030B | Prep Batch: PB22325 | Date Prepared: 10/1/02

Param	Flag	Result	Units	Dilution	RDL
Benzene		0.0284	mg/L	5	0.001
Toluene		<0.005	mg/L	5	0.001
Ethylbenzene		0.0489	mg/L	5	0.001
M,P,O-Xylene		0.0429	mg/L	5	0.001
Total BTEX		0.120	mg/L	5	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.0836	mg/L	5	0.10	83	70 - 130
4-BFB		0.0796	mg/L	5	0.10	79	70 - 130

Sample: 209283 - MW-5

Analysis: Ion Chromatography (IC) | Analytical Method: E 300.0 | QC Batch: QC23892 | Date Analyzed: 10/1/02
Analyst: JSW | Preparation Method: N/A | Prep Batch: PB22338 | Date Prepared: 10/1/02

Param	Flag	Result	Units	Dilution	RDL
Chloride		50.2	mg/L	5	1
Fluoride		2.05	mg/L	5	0.20
Sulfate		56.9	mg/L	5	1

Sample: 209283 - MW-5

Analysis: TDS | Analytical Method: E 160.1 | QC Batch: QC23932 | Date Analyzed: 10/3/02
Analyst: JSW | Preparation Method: N/A | Prep Batch: PB22366 | Date Prepared: 10/1/02

Param	Flag	Result	Units	Dilution	RDL
Total Dissolved Solids		549	mg/L	1	10

Sample: 209283 - MW-5

Analysis: Total Metals | Analytical Method: S 6010B | QC Batch: QC23935 | Date Analyzed: 10/3/02
Analyst: RR | Preparation Method: S 3010A | Prep Batch: PB22342 | Date Prepared: 10/2/02

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		<0.100	mg/L	1	0.10
Total Arsenic		0.119	mg/L	1	0.05
Total Boron		0.774	mg/L	10	0.005
Total Chromium		<0.010	mg/L	1	0.01
Total Iron		3.37	mg/L	1	0.05
Total Manganese		0.397	mg/L	1	0.02

Sample: 209284 - MW-6

Analysis: BTEX | Analytical Method: S 8021B | QC Batch: QC23882 | Date Analyzed: 10/1/02
Analyst: CG | Preparation Method: S 5030B | Prep Batch: PB22325 | Date Prepared: 10/1/02

Param	Flag	Result	Units	Dilution	RDL
Benzene		<0.005	mg/L	5	0.001
Toluene		<0.005	mg/L	5	0.001
Ethylbenzene		<0.005	mg/L	5	0.001
M,P,O-Xylene		<0.005	mg/L	5	0.001
Total BTEX		<0.005	mg/L	5	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.0896	mg/L	5	0.10	89	70 - 130
4-BFB		0.390	mg/L	1	0.10	78	70 - 130

Sample: 209284 - MW-6

Analysis: Ion Chromatography (IC) | Analytical Method: E 300.0 | QC Batch: QC23892 | Date Analyzed: 10/1/02
Analyst: JSW | Preparation Method: N/A | Prep Batch: PB22338 | Date Prepared: 10/1/02

Param	Flag	Result	Units	Dilution	RDL
Chloride		126	mg/L	5	1
Fluoride		1.52	mg/L	5	0.20
Sulfate		38.8	mg/L	5	1

Sample: 209284 - MW-6

Analysis: TDS | Analytical Method: E 160.1 | QC Batch: QC23932 | Date Analyzed: 10/3/02
Analyst: JSW | Preparation Method: N/A | Prep Batch: PB22366 | Date Prepared: 10/1/02

Param	Flag	Result	Units	Dilution	RDL
Total Dissolved Solids		934	mg/L	1	10

Sample: 209284 - MW-6

Analysis: Total Metals | Analytical Method: S 6010B | QC Batch: QC23935 | Date Analyzed: 10/3/02
Analyst: RR | Preparation Method: S 3010A | Prep Batch: PB22342 | Date Prepared: 10/2/02

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		<0.100	mg/L	1	0.10
Total Arsenic		<0.050	mg/L	1	0.05
Total Boron		1.17	mg/L	10	0.005
Total Chromium		<0.010	mg/L	1	0.01
Total Iron		0.521	mg/L	1	0.05
Total Manganese		0.351	mg/L	1	0.02

Sample: 209285 - MW-2

Analysis: BTEX | Analytical Method: S 8021B | QC Batch: QC23858 | Date Analyzed: 9/30/02
Analyst: CG | Preparation Method: S 5030B | Prep Batch: PB22304 | Date Prepared: 9/30/02

Param	Flag	Result	Units	Dilution	RDL
Benzene		<0.001	mg/L	1	0.001
Toluene		<0.001	mg/L	1	0.001
Ethylbenzene		<0.001	mg/L	1	0.001
M,P,O-Xylene		<0.001	mg/L	1	0.001
Total BTEX		<0.001	mg/L	1	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.102	mg/L	1	0.10	102	70 - 130
4-BFB		0.094	mg/L	5	0.10	94	70 - 130

Sample: 209285 - MW-2

Analysis: Ion Chromatography (IC) | Analytical Method: E 300.0 | QC Batch: QC23892 | Date Analyzed: 10/1/02
Analyst: JSW | Preparation Method: N/A | Prep Batch: PB22338 | Date Prepared: 10/1/02

Param	Flag	Result	Units	Dilution	RDL
Chloride		2170	mg/L	50	1
Fluoride		1.50	mg/L	5	0.20
Sulfate		125	mg/L	5	1

Sample: 209285 - MW-2

Analysis: TDS | Analytical Method: E 160.1 | QC Batch: QC23932 | Date Analyzed: 10/3/02
Analyst: JSW | Preparation Method: N/A | Prep Batch: PB22366 | Date Prepared: 10/1/02

Param	Flag	Result	Units	Dilution	RDL
Total Dissolved Solids		4440	mg/L	1	10

Sample: 209285 - MW-2

Analysis: Total Metals | Analytical Method: S 6010B | QC Batch: QC23935 | Date Analyzed: 10/3/02
Analyst: RR | Preparation Method: S 3010A | Prep Batch: PB22342 | Date Prepared: 10/2/02

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		<0.100	mg/L	1	0.10
Total Arsenic		<0.050	mg/L	1	0.05
Total Boron		0.527	mg/L	10	0.005
Total Chromium		0.0329	mg/L	1	0.01
Total Iron		<0.050	mg/L	1	0.05
Total Manganese		<0.025	mg/L	1	0.02

Sample: 209286 - MW-7

Analysis: BTEX | Analytical Method: S 8021B | QC Batch: QC23858 | Date Analyzed: 9/30/02
Analyst: CG | Preparation Method: S 5030B | Prep Batch: PB22304 | Date Prepared: 9/30/02

Param	Flag	Result	Units	Dilution	RDL
Benzene		0.0148	mg/L	5	0.001
Toluene		<0.005	mg/L	5	0.001
Ethylbenzene		0.0174	mg/L	5	0.001
M,P,O-Xylene		<0.005	mg/L	5	0.001
Total BTEX		0.0322	mg/L	5	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.0914	mg/L	5	0.10	91	70 - 130
4-BFB		0.0836	mg/L	5	0.10	83	70 - 130

Sample: 209286 - MW-7

Analysis: Ion Chromatography (IC) | Analytical Method: E 300.0 | QC Batch: QC23892 | Date Analyzed: 10/1/02
Analyst: JSW | Preparation Method: N/A | Prep Batch: PB22338 | Date Prepared: 10/1/02

Param	Flag	Result	Units	Dilution	RDL
Chloride		49.5	mg/L	5	1
Fluoride		2.26	mg/L	5	0.20
Sulfate		70.8	mg/L	5	1

Sample: 209286 - MW-7

Analysis: TDS | Analytical Method: E 160.1 | QC Batch: QC23932 | Date Analyzed: 10/3/02
Analyst: JSW | Preparation Method: N/A | Prep Batch: PB22366 | Date Prepared: 10/1/02

Param	Flag	Result	Units	Dilution	RDL
Total Dissolved Solids		574	mg/L	1	10

Sample: 209286 - MW-7

Analysis: Total Metals | Analytical Method: S 6010B | QC Batch: QC23935 | Date Analyzed: 10/3/02
Analyst: RR | Preparation Method: S 3010A | Prep Batch: PB22342 | Date Prepared: 10/2/02

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		<0.100	mg/L	1	0.10
Total Arsenic		<0.050	mg/L	1	0.05
Total Boron		0.610	mg/L	10	0.005
Total Chromium		<0.010	mg/L	1	0.01
Total Iron		4.21	mg/L	1	0.05
Total Manganese		0.310	mg/L	1	0.02

Sample: 209287 - Duplicate

Analysis:	BTEX	Analytical Method:	S 8021B	QC Batch:	QC23858	Date Analyzed:	9/30/02
Analyst:	CG	Preparation Method:	S 5030B	Prep Batch:	PB22304	Date Prepared:	9/30/02

Param	Flag	Result	Units	Dilution	RDL
Benzene		0.0142	mg/L	5	0.001
Toluene		<0.005	mg/L	5	0.001
Ethylbenzene		0.0176	mg/L	5	0.001
M,P,O-Xylene		<0.005	mg/L	5	0.001
Total BTEX		0.0318	mg/L	5	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.0899	mg/L	5	0.10	89	70 - 130
4-BFB		0.0833	mg/L	5	0.10	83	70 - 130

Sample: 209288 - Rinsate

Analysis:	BTEX	Analytical Method:	S 8021B	QC Batch:	QC23858	Date Analyzed:	9/30/02
Analyst:	CG	Preparation Method:	S 5030B	Prep Batch:	PB22304	Date Prepared:	9/30/02

Param	Flag	Result	Units	Dilution	RDL
Benzene		<0.001	mg/L	1	0.001
Toluene		<0.001	mg/L	1	0.001
Ethylbenzene		0.001	mg/L	1	0.001
M,P,O-Xylene		<0.001	mg/L	1	0.001
Total BTEX		0.001	mg/L	1	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.102	mg/L	1	0.10	102	70 - 130
4-BFB		0.094	mg/L	1	0.10	94	70 - 130

Sample: 209289 - Trip Blank

Analysis:	BTEX	Analytical Method:	S 8021B	QC Batch:	QC23858	Date Analyzed:	9/30/02
Analyst:	CG	Preparation Method:	S 5030B	Prep Batch:	PB22304	Date Prepared:	9/30/02

Param	Flag	Result	Units	Dilution	RDL
Benzene		<0.005	mg/L	5	0.001
Toluene		<0.005	mg/L	5	0.001
Ethylbenzene		<0.005	mg/L	5	0.001
M,P,O-Xylene		<0.005	mg/L	5	0.001
Total BTEX		<0.005	mg/L	5	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.0914	mg/L	5	0.10	91	70 - 130
4-BFB		0.0829	mg/L	5	0.10	82	70 - 130

Quality Control Report
Method Blank

Method Blank

QCBatch: QC23858

Param	Flag	Results	Units	Reporting Limit
Benzene		<0.001	mg/L	0.001
Toluene		<0.001	mg/L	0.001
Ethylbenzene		<0.001	mg/L	0.001
M,P,O-Xylene		<0.001	mg/L	0.001
Total BTEX		<0.001	mg/L	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT	[1]	0.0553	mg/L	1	0.10	55	70 - 130
4-BFB	[2]	0.0557	mg/L	1	0.10	55	70 - 130

Method Blank

QCBatch: QC23882

Param	Flag	Results	Units	Reporting Limit
Benzene		<0.001	mg/L	0.001
Toluene		<0.001	mg/L	0.001
Ethylbenzene		<0.001	mg/L	0.001
M,P,O-Xylene		<0.001	mg/L	0.001
Total BTEX		<0.001	mg/L	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.0895	mg/L	1	0.10	90	70 - 130
4-BFB		0.0769	mg/L	1	0.10	77	70 - 130

Method Blank

QCBatch: QC23889

Param	Flag	Results	Units	Reporting Limit
Total Dissolved Solids		<10	mg/L	10

Method Blank

QCBatch: QC23892

[1] Low surrogate recovery due to prep. ICV, CCV show the method to be in control.
[2] Low surrogate recovery due to prep. ICV, CCV show the method to be in control.

Param	Flag	Results	Units	Reporting Limit
Chloride		<1.0	mg/L	1
Fluoride		<0.2	mg/L	0.20
Sulfate		<1.0	mg/L	1

Method Blank QCBatch: QC23893

Param	Flag	Results	Units	Reporting Limit
Chloride		<1.0	mg/L	1
Fluoride		<0.2	mg/L	0.20
Sulfate		<1.0	mg/L	1

Method Blank QCBatch: QC23932

Param	Flag	Results	Units	Reporting Limit
Total Dissolved Solids		<10	mg/L	10

Method Blank QCBatch: QC23933

Param	Flag	Results	Units	Reporting Limit
Total Dissolved Solids		<10	mg/L	10

Method Blank QCBatch: QC23935

Param	Flag	Results	Units	Reporting Limit
Total Aluminum		<0.100	mg/L	0.10
Total Arsenic		<0.050	mg/L	0.05
Total Boron		<0.010	mg/L	0.005
Total Chromium		<0.010	mg/L	0.01
Total Iron		<0.050	mg/L	0.05
Total Manganese		<0.025	mg/L	0.02

Quality Control Report
Duplicate Samples

Duplicate QCBatch: QC23889

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids		2818	2834	mg/L	1	0	9.7

Duplicate QCBatch: QC23932

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids		928	934	mg/L	1	0	9.7

Duplicate QCBatch: QC23933

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids		826	776	mg/L	1	6	9.7

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Laboratory Control Spikes

QCBatch: QC23858

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
MTBE	0.092	0.0917	mg/L	1	0.10	<0.001	92	0	70 - 130	20
Benzene	0.0936	0.0946	mg/L	1	0.10	<0.001	94	1	70 - 130	20
Toluene	0.0936	0.094	mg/L	1	0.10	<0.001	94	0	70 - 130	20
Ethylbenzene	0.0939	0.094	mg/L	1	0.10	<0.001	94	0	70 - 130	20
M,P,O-Xylene	0.273	0.276	mg/L	1	0.30	<0.001	92	0	70 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
TFT	0.101	0.102	mg/L	1	0.10	101	102	70 - 130
4-BFB	0.0982	0.0981	mg/L	1	0.10	98	98	70 - 130

Laboratory Control Spikes

QCBatch: QC23882

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
MTBE	0.0934	0.0902	mg/L	1	0.10	<0.001	93	3	70 - 130	20
Benzene	0.0935	0.0911	mg/L	1	0.10	<0.001	94	3	70 - 130	20
Toluene	0.0922	0.0907	mg/L	1	0.10	<0.001	92	2	70 - 130	20
Ethylbenzene	0.0894	0.0903	mg/L	1	0.10	<0.001	89	1	70 - 130	20
M,P,O-Xylene	0.269	0.269	mg/L	1	0.30	<0.001	90	0	70 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
TFT	0.0937	0.0908	mg/L	1	0.10	94	91	70 - 130
4-BFB	0.0894	0.0866	mg/L	1	0.10	89	87	70 - 130

Laboratory Control Spikes

QCBatch: QC23892

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	11.88	11.85	mg/L	1	12.50	<1.0	95	0	90 - 110	20
Fluoride	2.41	2.36	mg/L	1	2.50	<0.2	96	2	90 - 110	20
Sulfate	11.92	11.92	mg/L	1	12.50	<1.0	95	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC23893

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Nitrate-N	2.42	2.42	mg/L	1	2.50	<0.2	96	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC23935

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Aluminum	0.964	0.957	mg/L	1	1	<0.100	96	0	75 - 125	20
Total Arsenic	0.572	0.556	mg/L	1	0.50	<0.050	114	2	75 - 125	20
Total Boron	0.105	0.103	mg/L	1	0.10	<0.010	105	1	75 - 125	20
Total Chromium	0.102	0.101	mg/L	1	0.10	<0.010	102	0	75 - 125	20
Total Iron	0.522	0.501	mg/L	1	0.50	<0.050	104	4	75 - 125	20
Total Manganese	0.253	0.250	mg/L	1	0.25	<0.025	101	1	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Quality Control Report
Matrix Spikes and Duplicate Spikes

Matrix Spikes

QCBatch: QC23892

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	[3] 3125	[4] 3116	mg/L	1	1250	2170	76	0	48 - 127	20

[3]This sample was spiked at a different dilution. MS %EA = 91 and RPD = 0.
[4]This sample was spiked at a different dilution. MS %EA = 91 and RPD = 0.

Continued ...

... Continued

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Fluoride	[5] 271	[6] 272	mg/L	1	250	1.50	107	0	82 - 101	20
Sulfate	[7] 1310	[8] 1284	mg/L	1	1250	125	94	2	59 - 121	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC23893

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	[9] 1210	[10] 1200	mg/L	1	1250	45.7	93	0	48 - 127	20
Fluoride	[11] 272	[12] 270	mg/L	1	250	2.87	107	0	82 - 101	20
Sulfate	[13] 1260	[14] 1270	mg/L	1	1250	82.5	94	0	59 - 121	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC23935

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Aluminum	1.09	1.09	mg/L	1	1	<0.100	109	0	75 - 125	20
Total Arsenic	0.565	0.562	mg/L	1	0.50	<0.050	113	0	75 - 125	20
Total Boron	[15] 0.634	0.646	mg/L	10	0.10	0.500	134	8	75 - 125	20
Total Chromium	0.0967	0.0969	mg/L	1	0.10	<0.010	96	0	75 - 125	20
Total Iron	0.495	0.497	mg/L	1	0.50	<0.050	99	0	75 - 125	20
Total Manganese	0.304	0.305	mg/L	1	0.25	0.0633	96	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Quality Control Report
Continuing Calibration Verification Standards

CCV (1)

QCBatch: QC23858

[5]This sample was spiked at a different dilution. MS %EA = 108 and RPD = 0.
[6]This sample was spiked at a different dilution. MS %EA = 108 and RPD = 0.
[7]This sample was spiked at a different dilution. MS %EA = 93 and RPD = 2.
[8]This sample was spiked at a different dilution. MS %EA = 93 and RPD = 2.
[9]This sample was spiked at a different dilution. MS %EA = 87 and RPD = 1.
[10]This sample was spiked at a different dilution. MS %EA = 87 and RPD = 1.
[11]This sample was spiked at a different dilution. MS %EA = 102 and RPD = 1.
[12]This sample was spiked at a different dilution. MS %EA = 102 and RPD = 1.
[13]This sample was spiked at a different dilution. MS %EA = 93 and RPD = 0.
[14]This sample was spiked at a different dilution. MS %EA = 93 and RPD = 0.
[15]Matrix spike recovery invalid due to matrix effects. LCS demonstrates process under control.

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
MTBE		mg/L	0.10	0.0928	93	85 - 115	9/30/02
Benzene		mg/L	0.10	0.0949	95	85 - 115	9/30/02
Toluene		mg/L	0.10	0.0951	95	85 - 115	9/30/02
Ethylbenzene		mg/L	0.10	0.0942	94	85 - 115	9/30/02
M,P,O-Xylene		mg/L	0.30	0.277	92	85 - 115	9/30/02

CCV (2)

QCBatch: QC23858

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
MTBE		mg/L	0.10	0.0938	93	85 - 115	9/30/02
Benzene		mg/L	0.10	0.0957	95	85 - 115	9/30/02
Toluene		mg/L	0.10	0.0957	95	85 - 115	9/30/02
Ethylbenzene		mg/L	0.10	0.0953	95	85 - 115	9/30/02
M,P,O-Xylene		mg/L	0.30	0.279	93	85 - 115	9/30/02

ICV (1)

QCBatch: QC23858

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
MTBE		mg/L	0.10	0.0904	90	85 - 115	9/30/02
Benzene		mg/L	0.10	0.0942	94	85 - 115	9/30/02
Toluene		mg/L	0.10	0.0948	95	85 - 115	9/30/02
Ethylbenzene		mg/L	0.10	0.095	95	85 - 115	9/30/02
M,P,O-Xylene		mg/L	0.30	0.278	93	85 - 115	9/30/02

CCV (1)

QCBatch: QC23882

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
MTBE		mg/L	0.10	0.092	92	85 - 115	10/1/02
Benzene		mg/L	0.10	0.0914	91	85 - 115	10/1/02
Toluene		mg/L	0.10	0.0918	92	85 - 115	10/1/02
Ethylbenzene		mg/L	0.10	0.0911	91	85 - 115	10/1/02
M,P,O-Xylene		mg/L	0.30	0.272	91	85 - 115	10/1/02

CCV (2)

QCBatch: QC23882

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
MTBE		mg/L	0.10	0.0911	91	85 - 115	10/1/02
Benzene		mg/L	0.10	.0904	90	85 - 115	10/1/02
Toluene		mg/L	0.10	0.0899	89	85 - 115	10/1/02
Ethylbenzene		mg/L	0.10	0.091	91	85 - 115	10/1/02
M,P,O-Xylene		mg/L	0.30	0.2725	90	85 - 115	10/1/02

ICV (1) QCBatch: QC23882

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
MTBE		mg/L	0.10	0.0937	94	85 - 115	10/1/02
Benzene		mg/L	0.10	0.0928	93	85 - 115	10/1/02
Toluene		mg/L	0.10	0.0917	92	85 - 115	10/1/02
Ethylbenzene		mg/L	0.10	0.092	92	85 - 115	10/1/02
M,P,O-Xylene		mg/L	0.30	0.275	92	85 - 115	10/1/02

CCV (1) QCBatch: QC23889

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1006	100	90 - 110	10/1/02

ICV (1) QCBatch: QC23889

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	975	97	90 - 110	10/1/02

CCV (1) QCBatch: QC23892

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	11.88	95	90 - 110	10/1/02
Fluoride		mg/L	2.50	2.38	95	90 - 110	10/1/02
Sulfate		mg/L	12.50	12.03	96	90 - 110	10/1/02

ICV (1) QCBatch: QC23892

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	11.84	94	90 - 110	10/1/02
Fluoride		mg/L	2.50	2.39	95	90 - 110	10/1/02
Sulfate		mg/L	12.50	11.95	95	90 - 110	10/1/02

CCV (1) QCBatch: QC23893

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.41	96	90 - 110	10/1/02

ICV (1) QCBatch: QC23893

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.38	95	90 - 110	10/1/02

CCV (1) QCBatch: QC23932

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1020	102	90 - 110	10/3/02

ICV (1) QCBatch: QC23932

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	997	99	90 - 110	10/3/02

CCV (1) QCBatch: QC23933

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	997	99	90 - 110	10/3/02

ICV (1) QCBatch: QC23933

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	989	98	90 - 110	10/3/02

CCV (1) QCBatch: QC23935

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	2	1.82	91	90 - 110	10/3/02
Total Arsenic		mg/L	1	0.969	97	90 - 110	10/3/02
Total Boron		mg/L	0.10	0.109	109	90 - 110	10/3/02
Total Chromium		mg/L	0.20	0.190	95	90 - 110	10/3/02
Total Iron		mg/L	1	0.939	94	90 - 110	10/3/02
Total Manganese		mg/L	0.50	0.472	94	90 - 110	10/3/02

ICV (1) QCBatch: QC23935

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	2	1.84	92	95 - 105	10/3/02
Total Arsenic		mg/L	1	0.943	94	95 - 105	10/3/02
Total Boron		mg/L	0.10	0.106	106	95 - 105	10/3/02
Total Chromium		mg/L	0.20	0.190	95	95 - 105	10/3/02
Total Iron		mg/L	1	0.930	93	95 - 105	10/3/02
Total Manganese		mg/L	0.50	0.470	94	95 - 105	10/3/02

A0093019

TRIDENT ENVIRONMENTAL

Trident Environmental
P.O. Box 7624
Midland, Texas 79708
(915) 682-0808
(915) 682-0727 (Fax)

V-102-0902-1

Chain of Custody

Date 9-27-02 Page 1 of 1

Lab Name: TraceAnalysis Inc.
Address: 6701 Aberdeen, Ste. 9
Lubbock, Texas 79424
Telephone: 806-794-1296

Samplers (SIGNATURES) Dale Littlejohn, Gilbert Van Deventer

Sample Identification	Matrix	Date	Time	Sample Type: G - Grab, C- Composite	BTEX (EPA 8021B)	MTBE (EPA 8021B)	SVOC (EPA 8270)	PAH (EPA 8270)	VOC (EPA 8260)	TPH (EPA 418.1)	TPH (TX-1005)	TPH (TX-1006)	GRO (EPA 8015G)	DRO (EPA 8015D)	TDS (EPA 160.1)	Anions/Cations	TCLP Metals	Total Metals: Al, As, B, Cr, Fe, & Mn	Ions: SO_4, Cl, F, & TDS						Number of Containers
MW-4 ~~2098~~ 89280	Water	9/27/02	0800	G	✓													✓	✓						~~5~~ 4
MW-1d 81	"	"	0820	G	✓													✓	✓						~~5~~ 4
MW-3 82	"	"	0925	G	✓													✓	✓						4
MW-~~5~~ 83	"	"	1120	G	✓													✓	✓						4
MW-6 84	"	"	1040	G	✓													✓	✓						4
MW-2 85	"	"	1210	G	✓													✓	✓						5
MW-7 86	"	"	1300	G	✓													✓	✓						5
Duplicate 87	"	"	0000	G	✓																				2
Rinsate 88	"	"	1310	G	✓																				2
Trip Blank (3776A) 89					✓																				1

Project Information		Sample Receipt	
Project Name:	Duke Energy Field Services	Total Containers:	
Project Location:	~~Linam Ranch Plant~~	COC Seals:	
Project Manager:	Gil Van Deventer	Rec'd Good Cond/Cold:	
Cost Center No.:	V-102 Monument Booster Station	Conforms to Records:	
Shipping ID No.:		Lab No.: 10/8	
Bill to (see below):			

Special Instructions/Comments: Please send invoice direct to client:
Duke Energy Field Svcs, Attn: Steve Weathers, PO Box 5493, Denver, CO 80217

Relinquished By: (1) (Company)	Relinquished By: (2) (Company)	Relinquished By: (3) (Company)
Trident Environmental	TRACE ANALYSIS	(Printed Name)
(Printed Name) Dale T Littlejohn	(Printed Name) HELEN SHELTON	(Signature)
(Signature) Dale T Littlejohn	(Signature) Helen Shelton	(Date) (Time)
(Date) 9/27/02 (Time) 1710	(Date) 9/27/02 (Time) 1830	
Received By: (1) (Company)	**Received By: (2) (Company)**	**Received By: (3) (Company)**
TRACE ANALYSIS	Barry Chaffin	RF
(Printed Name) HELEN SHELTON	(Printed Name)	(Printed Name)
(Signature) Helen Shelton	(Signature) 9:45	(Signature) 10/8/02
(Date) 9/27/02 (Time) 1910	(Date) (Time)	(Date) (Time)

35 samples - HS

Copy signed original form for Trident Environmental records

ANALYTICAL REPORT

Prepared for:

GILBERT VAN DEVENTER
TRIDENT ENVIRONMENTAL
P.O. BOX 7624
MIDLAND, TX 79708

Project:	Duke Energy Field Services
PO#:	
Order#:	G0204664
Report Date:	10/01/2002

Certificates
US EPA Laboratory Code TX00158

ENVIRONMENTAL LAB OF TEXAS

SAMPLE WORK LIST

TRIDENT ENVIRONMENTAL
P.O. BOX 7624
MIDLAND, TX 79708
682-0727

Order#: G0204664
Project: V-102
Project Name: Duke Energy Field Services
Location: Monument Booster

The samples listed below were submitted to Environmental Lab of Texas and were received under chain of custody. Environmental Lab of Texas makes no representation or certification as to the method of sample collection, sample identification, or transportation/handling procedures used prior to the receipt of samples by Environmental Lab of Texas, unless otherwise noted.

Lab ID:	Sample :	Matrix:	Date / Time Collected	Date / Time Received	Container	Preservative
0204664-01	MW-4	WATER	9/27/02 8:00	9/27/02 16:45	4 oz Glass	Ice
	Lab Testing: Nitrogen, Nitrate	**Rejected:** No		**Temp:** 3.5C		
0204664-02	MW-2d	WATER	9/27/02 8:20	9/27/02 16:45	4 oz Glass	Ice
	Lab Testing: Nitrogen, Nitrate	**Rejected:** No		**Temp:** 3.5C		
0204664-03	MW-3	WATER	9/27/02 9:25	9/27/02 16:45	4 oz Glass	Ice
	Lab Testing: Nitrogen, Nitrate	**Rejected:** No		**Temp:** 3.5C		
0204664-04	MW-6	WATER	9/27/02 10:40	9/27/02 16:45	4 oz Glass	Ice
	Lab Testing: Nitrogen, Nitrate	**Rejected:** No		**Temp:** 3.5C		
0204664-05	MW-5	WATER	9/27/02 11:20	9/27/02 16:45	4 oz Glass	Ice
	Lab Testing: Nitrogen, Nitrate	**Rejected:** No		**Temp:** 3.5C		
0204664-06	MW-2	WATER	9/27/02 12:10	9/27/02 16:45	4 oz Glass	Ice
	Lab Testing: Nitrogen, Nitrate	**Rejected:** No		**Temp:** 3.5C		
0204664-07	MW-7	WATER	9/27/02 13:00	9/27/02 16:45	4 oz Glass	Ice
	Lab Testing: Nitrogen, Nitrate	**Rejected:** No		**Temp:** 3.5C		

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

GILBERT VAN DEVENTER
TRIDENT ENVIRONMENTAL
P.O. BOX 7624
MIDLAND, TX 79708

Order#: G0204664
Project: V-102
Project Name: Duke Energy Field Services
Location: Monument Booster

Lab ID: 0204664-01
Sample ID: MW-4

Test Parameters

Parameter	Result	Units	Dilution Factor	RL	Method	Date Analyzed	Analyst
Nitrogen, Nitrate	0.1	mg/L	1	0.10	353.3	9/28/02	SB

Lab ID: 0204664-02
Sample ID: MW-2d

Test Parameters

Parameter	Result	Units	Dilution Factor	RL	Method	Date Analyzed	Analyst
Nitrogen, Nitrate	0.5	mg/L	1	0.10	353.3	9/28/02	SB

Lab ID: 0204664-03
Sample ID: MW-3

Test Parameters

Parameter	Result	Units	Dilution Factor	RL	Method	Date Analyzed	Analyst
Nitrogen, Nitrate	0.1	mg/L	1	0.10	353.3	9/28/02	SB

Lab ID: 0204664-04
Sample ID: MW-6

Test Parameters

Parameter	Result	Units	Dilution Factor	RL	Method	Date Analyzed	Analyst
Nitrogen, Nitrate	0.2	mg/L	1	0.10	353.3	9/28/02	SB

Lab ID: 0204664-05
Sample ID: MW-5

Test Parameters

Parameter	Result	Units	Dilution Factor	RL	Method	Date Analyzed	Analyst
Nitrogen, Nitrate	0.6	mg/L	1	0.10	353.3	9/28/02	SB

Lab ID: 0204664-06
Sample ID: MW-2

Test Parameters

Parameter	Result	Units	Dilution Factor	RL	Method	Date Analyzed	Analyst
Nitrogen, Nitrate	1.3	mg/L	1	0.10	353.3	9/28/02	SB

RL = Reporting Limit N/A = Not Applicable

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

GILBERT VAN DEVENTER
TRIDENT ENVIRONMENTAL
P.O. BOX 7624
MIDLAND, TX 79708

Order#: G0204664
Project: V-102
Project Name: Duke Energy Field Services
Location: Monument Booster

Lab ID: 0204664-07
Sample ID: MW-7

Test Parameters

Parameter	Result	Units	Dilution Factor	RL	Method	Date Analyzed	Analyst
Nitrogen, Nitrate	0.3	mg/L	1	0.10	353.3	9/28/02	SB

Approval: Raland K Tuttle 10-01-02
Raland K. Tuttle, Lab Director, QA Officer — Date
Celey D. Keene, Org. Tech. Director
Jeanne McMurrey, Inorg. Tech. Director
Sandra Biezugbe, Lab Tech.
Sara Molina, Lab Tech.

RL = Reporting Limit N/A = Not Applicable

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

Test Parameters

Order#: G0204664

BLANK WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Nitrogen, Nitrate-mg/L	0003262-01			<0.10		
DUPLICATE WATER	**LAB-ID #**	**Sample Concentr.**	**Spike Concentr.**	**QC Test Result**	**Pct (%) Recovery**	**RPD**
Nitrogen, Nitrate-mg/L	0204664-01	0.1		0.10		0.%
SRM WATER	**LAB-ID #**	**Sample Concentr.**	**Spike Concentr.**	**QC Test Result**	**Pct (%) Recovery**	**RPD**
Nitrogen, Nitrate-mg/L	0003262-04		2	2.1	105.%	

Environmental Lab of Texas I, Ltd.

12600 West I-20 East
Odessa, Texas 79763
Phone: 915-563-1800
Fax: 915-563-1713

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Gilbert Van Deventer
Company Name: Trident Environmental
Company Address: PO Box 7624
City/State/Zip: Midland TX 79706
Telephone No: 915-682-0808 Fax No: 915-682-0727
Sampler Signature: Gilbert Van Deventer

Project Name: Duke Energy Field Services
Project #: V-102
Project Loc: Monument Booster
PO #:

LAB # (lab use only)	FIELD CODE	Date Sampled	Time Sampled	No. of Containers	Preservative: Ice	HNO_3	HCl	NaOH	H_2SO_4	None	Other (Specify)	Matrix: Water	Sludge	Soil	Other (specify):	Analyze For: TCLP: TPH: 418.1 8015M 1005 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, CO3, HCO3)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030	RCI	N.O.R.M.	Total Gamma	TOTAL: Nitrate (N-NO_3)			RUSH TAT (Pre-Schedule)	Standard TAT
020466401	MW-4	9-27-02	0800	1	✓							✓															✓				
-02	MW-1d	9-27-02	0820	1	✓							✓															✓				
-03	MW-3	9-27-02	0925	1	✓							✓															✓				
-04	MW-6	9-27-02	1040	1	✓							✓															✓				
-05	MW-5	9-27-02	1120	1	✓							✓															✓				
-06	MW-2	9-27-02	1210	1	✓							✓															✓				
-07	MW-7	9-27-02	1300	1	✓							✓															✓				
-08																															
-09																															

Special Instructions RLC @ 1 if possible

Relinquished by:	Date	Time	Received by:	Date	Time
Gilbert Van Deventer	9-27-02	4:45 pm			
Relinquished by:	Date	Time	Received by ELOT:	Date	Time
			Richard Dow	9-27-02	1645

Sample Containers Intact? Y N
Temperature Upon Receipt: rec 3.5°C
Laboratory Comments:

Appendix B

Well Sampling Data Forms

WELL SAMPLING DATA FORM

CLIENT: DUKE ENERGY FIELD SERVICES
WELL ID: **MW-1D**
SITE NAME: MONUMENT BOOSTER STATION
DATE: 2/13/02
PROJECT NO. V-104
SAMPLER: Fergerson / Van Deventer

PURGING METHOD: ☐ Hand Bailed ☑ Pump If Pump, Type: 3" Grundfos Pump

SAMPLING METHOD: ☑ Disposable Bailer ☐ Direct from Discharge Hose ☐ Other:

DESCRIBE EQUIPMENT DECONTAMINATION METHOD BEFORE SAMPLING THE WELL:

☑ Gloves ☑ Alconox ☑ Distilled Water Rinse ☐ Other:

DISPOSAL METHOD OF PURGE WATER: ☐ Surface Discharge ☐ Drums ☑ Disposal Facility

TOTAL DEPTH OF WELL: 36.12 Feet
DEPTH TO WATER: 25.85 Feet
HEIGHT OF WATER COLUMN: 10.27 Feet
WELL DIAMETER: 2.0 Inch

5.0 Minimum Gallons to purge 3 well volumes (Water Column Height x 0.49)

TIME	VOLUME PURGED	TEMP. °C / °F	COND. *m*S/cm	pH	DO mg/L	Turb	PHYSICAL APPEARANCE AND REMARKS
1418	0	-	-	-	-	-	Pump Turned on.
1421	3	19.2	850	7.95	2.78	1	
1425	6	19.5	829	7.87	2.24	0	
1428	9	19.6	829	7.85	2.37	0	
1432	12	19.7	826	7.86	2.61	0	
1435	15	19.7	831	7.85	2.64	0	Pump turned off..
						0.88	= approximate flow rate (gal/min)
						1440	= Time of sample collection

COMMENTS: Transferred unfiltered sample into 2 - 40 ml VOAs preserved with HCL for BTEX analysis, and into 1 - 1,000 ml plastic unpreserved container for SO_4 & NO_3 analysis. Also transferred filtered sample into 1 - 500 ml plastic container for Fe & Mn analysis.

WELL SAMPLING DATA FORM

CLIENT: DUKE ENERGY FIELD SERVICES
WELL ID: **MW-2**
SITE NAME: MONUMENT BOOSTER STATION
DATE: 2/13/02
PROJECT NO. V-104
SAMPLER: Fergerson / Van Deventer

PURGING METHOD: ☐ Hand Bailed ☑ Pump If Pump, Type: 3" Grundfos Pump
SAMPLING METHOD: ☑ Disposable Bailer ☐ Direct from Discharge Hose ☐ Other:

DESCRIBE EQUIPMENT DECONTAMINATION METHOD BEFORE SAMPLING THE WELL:

☑ Gloves ☑ Alconox ☑ Distilled Water Rinse ☐ Other:

DISPOSAL METHOD OF PURGE WATER: ☐ Surface Discharge ☐ Drums ☑ Disposal Facility

TOTAL DEPTH OF WELL: 43.06 Feet
DEPTH TO WATER: 29.01 Feet
HEIGHT OF WATER COLUMN: 14.05 Feet
WELL DIAMETER: 4.0 Inch

27.5 Minimum Gallons to purge 3 well volumes (Water Column Height x 1.96)

TIME	VOLUME PURGED	TEMP. °C / °F	COND. *m*S/cm	pH	DO mg/L	Turb	PHYSICAL APPEARANCE AND REMARKS
1300	0	-	-	-	-	-	Pump Turned on.
1302	5	18.5	757	7.6	8.68	14	
1305	10	19.5	704	7.54	8.32	35	
1307	15	20.1	696	7.54	8.22	44	
1310	20	20.3	717	7.56	8.22	25	
1314	25	20.5	683	7.58	9.39	8	Pump turned off..
						1.79	= approximate flow rate (gal/min)
						1320	= Time of sample collection

COMMENTS: Transferred unfiltered sample into 2 - 40 ml VOAs preserved with HCL for BTEX analysis, and into 1 - 1,000 ml plastic unpreserved container for SO_4 & NO_3 analysis. Also transferred filtered sample into 1 - 500 ml plastic container for Fe & Mn analysis.

WELL SAMPLING DATA FORM

CLIENT: DUKE ENERGY FIELD SERVICES
WELL ID: **MW-3**
SITE NAME: MONUMENT BOOSTER STATION
DATE: 2/13/02
PROJECT NO. V-104
SAMPLER: Fergerson / Van Deventer

PURGING METHOD: ☐ Hand Bailed ☑ Pump If Pump, Type: 3" Grundfos Pump
SAMPLING METHOD: ☑ Disposable Bailer ☐ Direct from Discharge Hose ☐ Other:

DESCRIBE EQUIPMENT DECONTAMINATION METHOD BEFORE SAMPLING THE WELL:

☑ Gloves ☑ Alconox ☑ Distilled Water Rinse ☐ Other:

DISPOSAL METHOD OF PURGE WATER: ☐ Surface Discharge ☐ Drums ☑ Disposal Facility

TOTAL DEPTH OF WELL: 35.47 Feet
DEPTH TO WATER: 23.64 Feet
HEIGHT OF WATER COLUMN: 11.83 Feet
WELL DIAMETER: 4.0 Inch

23.2 Minimum Gallons to purge 3 well volumes
(Water Column Height x 1.96)

TIME	VOLUME PURGED	TEMP. °C / °F	COND. mS/cm	pH	DO mg/L	Turb	PHYSICAL APPEARANCE AND REMARKS
1055	0	-	-	-	-	-	Pump Turned on.
1100	5	20.0	1300	7.74	3.68	42	
1107	10	22.3	1340	7.66	2.62	5	
1114	15	22.7	1300	7.65	2.95	12	
1121	20	23.1	1250	7.84	5.87	49	
1130	25	22.9	1240	7.98	9.32	51	Pump turned off..
						0.71	= approximate flow rate (gal/min)
						1120	= Time of sample collection

COMMENTS: Transferred unfiltered sample into 2 - 40 ml VOAs preserved with HCL for BTEX analysis, and into 1 - 1,000 ml plastic unpreserved container for SO_4 & NO_3 analysis. Also transferred filtered sample into 1 - 500 ml plastic container for Fe & Mn analysis.

WELL SAMPLING DATA FORM

CLIENT: DUKE ENERGY FIELD SERVICES
WELL ID: **MW-4**
SITE NAME: MONUMENT BOOSTER STATION
DATE: 2/13/02
PROJECT NO. V-104
SAMPLER: Fergerson / Van Deventer

PURGING METHOD: ☐ Hand Bailed ☑ Pump If Pump, Type: 3" Grundfos Pump
SAMPLING METHOD: ☑ Disposable Bailer ☐ Direct from Discharge Hose ☐ Other:
DESCRIBE EQUIPMENT DECONTAMINATION METHOD BEFORE SAMPLING THE WELL:
☑ Gloves ☑ Alconox ☑ Distilled Water Rinse ☐ Other:

DISPOSAL METHOD OF PURGE WATER: ☐ Surface Discharge ☐ Drums ☑ Disposal Facility

TOTAL DEPTH OF WELL: 38.71 Feet
DEPTH TO WATER: 26.76 Feet
HEIGHT OF WATER COLUMN: 11.95 Feet
WELL DIAMETER: 4.0 Inch

23.4 *Minimum Gallons to purge 3 well volumes*
(Water Column Height x 1.96)

TIME	VOLUME PURGED	TEMP. °C / °F	COND. *m*S/cm	pH	DO mg/L	Turb	PHYSICAL APPEARANCE AND REMARKS
0834	0	-	-	-	-	-	Pump Turned on.
0838	5	18.5	1360	7.28	3.06	42	
0841	10	20.1	1330	7.26	2.52	45	
0851	15	20.2	1310	7.52	7.25	195	
0903	20	20.3	1290	7.63	9.69	7	
0922	25	20.3	1270	7.66	9.02	5	Pump turned off..
						0.52	= approximate flow rate (gal/min)
						0930	= Time of sample collection

COMMENTS: Transferred unfiltered sample into 2 - 40 ml VOAs preserved with HCL for BTEX analysis, and into 1 - 1,000 ml plastic unpreserved container for SO_4 & NO_3 analysis. Also transferred filtered sample into 1 - 500 ml plastic container for Fe & Mn analysis.

WELL SAMPLING DATA FORM

CLIENT: DUKE ENERGY FIELD SERVICES
WELL ID: **MW-6**
SITE NAME: MONUMENT BOOSTER STATION
DATE: 2/13/02
PROJECT NO. V-104
SAMPLER: Fergerson / Van Deventer

PURGING METHOD: ☐ Hand Bailed ☑ Pump If Pump, Type: 3" Grundfos Pump
SAMPLING METHOD: ☑ Disposable Bailer ☐ Direct from Discharge Hose ☐ Other:

DESCRIBE EQUIPMENT DECONTAMINATION METHOD BEFORE SAMPLING THE WELL:

☑ Gloves ☑ Alconox ☑ Distilled Water Rinse ☐ Other:

DISPOSAL METHOD OF PURGE WATER: ☐ Surface Discharge ☐ Drums ☑ Disposal Facility

TOTAL DEPTH OF WELL: 39.30 Feet
DEPTH TO WATER: 25.48 Feet
HEIGHT OF WATER COLUMN: 13.82 Feet
WELL DIAMETER: 4.0 Inch

27.1 Minimum Gallons to purge 3 well volumes (Water Column Height x 1.96)

TIME	VOLUME PURGED	TEMP. °C / °F	COND. mS/cm	pH	DO mg/L	Turb	PHYSICAL APPEARANCE AND REMARKS
0959	0	-	-	-	-	-	Pump Turned on.
1002	5	18.7	1380	7.38	4.17	11	
1005	10	20.1	1400	7.38	3.09	12	
1008	15	20.9	1410	7.37	2.97	1	
1011	20	21.1	1440	7.38	3.13	1	
1015	25	21.2	1440	7.37	2.94	0	Pump turned off..
						1.56	= approximate flow rate (gal/min)
						1020	= Time of sample collection

COMMENTS: Transferred unfiltered sample into 2 - 40 ml VOAs preserved with HCL for BTEX analysis, and into 1 - 1,000 ml plastic unpreserved container for SO_4 & NO_3 analysis. Also transferred filtered sample into 1 - 500 ml plastic container for Fe & Mn analysis.

WELL SAMPLING DATA FORM

CLIENT: DUKE ENERGY FIELD SERVICES
WELL ID: **MW-7**
SITE NAME: MONUMENT BOOSTER STATION
DATE: 2/13/02
PROJECT NO. V-104
SAMPLER: Fergerson / Van Deventer

PURGING METHOD: ☐ Hand Bailed ☑ Pump If Pump, Type: 3" Grundfos Pump
SAMPLING METHOD: ☑ Disposable Bailer ☐ Direct from Discharge Hose ☐ Other:
DESCRIBE EQUIPMENT DECONTAMINATION METHOD BEFORE SAMPLING THE WELL:
☑ Gloves ☑ Alconox ☑ Distilled Water Rinse ☐ Other:

DISPOSAL METHOD OF PURGE WATER: ☐ Surface Discharge ☐ Drums ☑ Disposal Facility

TOTAL DEPTH OF WELL: 36.22 Feet
DEPTH TO WATER: 25.58 Feet
HEIGHT OF WATER COLUMN: 10.64 Feet
WELL DIAMETER: 4.0 Inch

20.8 Minimum Gallons to purge 3 well volumes (Water Column Height x 1.96)

TIME	VOLUME PURGED	TEMP. °C / °F	COND. *m*S/cm	pH	DO mg/L	Turb	PHYSICAL APPEARANCE AND REMARKS
1332	0	-	-	-	-	-	Pump Turned on.
1334	5	19.2	850	7.95	2.78	1	
1337	10	19.5	829	7.87	2.24	0	
1340	15	19.6	829	7.85	2.37	0	
1344	20	19.7	826	7.86	2.61	0	
1347	25	19.7	831	7.85	2.64	0	Pump turned off..
						1.67	= approximate flow rate (gal/min)
						1400	= Time of sample collection
							Collected duplicate sample (BTEX)

COMMENTS: Transferred unfiltered sample into 2 - 40 ml VOAs preserved with HCL for BTEX analysis, and into 1 - 1,000 ml plastic unpreserved container for SO_4 & NO_3 analysis. Also transferred filtered sample into *1 - 500 ml plastic container for Fe & Mn analysis.*

WELL SAMPLING DATA FORM

CLIENT: DUKE ENERGY FIELD SERVICES
WELL ID: **MW-1D**
SITE NAME: MONUMENT BOOSTER STATION
DATE: 9/27/02
PROJECT NO. V-104
SAMPLER: Littlejohn / Van Deventer

PURGING METHOD: ☑ Hand Bailed ☐ Pump If Pump, Type: _____

SAMPLING METHOD: ☑ *Disposable Bailer* ☐ *Direct from Discharge Hose* ☐ *Other:* _____

DESCRIBE EQUIPMENT DECONTAMINATION METHOD BEFORE SAMPLING THE WELL:

☑ Gloves ☑ Alconox ☑ Distilled Water Rinse ☐ Other: _____

DISPOSAL METHOD OF PURGE WATER: ☐ Surface Discharge ☐ Drums ☑ Disposal Facility

TOTAL DEPTH OF WELL: 36.12 Feet
DEPTH TO WATER: 26.32 Feet
HEIGHT OF WATER COLUMN: 9.80 Feet
WELL DIAMETER: 2.0 Inch

4.8 Minimum Gallons to purge 3 well volumes (Water Column Height x 0.49)

TIME	VOLUME PURGED	TEMP. °C / °F	COND. *m*S/cm	pH	DO mg/L	Turb	PHYSICAL APPEARANCE AND REMARKS
0820	5	19.3	695	4.89	2.73	-	Hand bailed
							pH readings too low (bad meter?)
						0.05	= Ferrous Iron concentration (mg/L)*
						0820	= Time of sample collection

COMMENTS: Transferred unfiltered sample into 2 - 40 ml VOAs preserved with HCL for BTEX analysis, and into 2 - 500 ml plastic unpreserved containers for NO_3, SO_4, Cl, F & TDS analysis. Also transferred filtered sample into 1 - 500 ml plastic container for Al, As, B, Cr, Fe & Mn analysis.

* Used a Hach Model 2010 Spectrophotometer to measure ferrous iron in the field (Method 8146).

WELL SAMPLING DATA FORM

CLIENT: DUKE ENERGY FIELD SERVICES
WELL ID: **MW-2**
SITE NAME: MONUMENT BOOSTER STATION
DATE: 9/27/02
PROJECT NO. V-104
SAMPLER: Littlejohn / Van Deventer

PURGING METHOD: ☐ Hand Bailed ☑ Pump If Pump, Type: 3" Grundfos Pump
SAMPLING METHOD: ☑ Disposable Bailer ☐ Direct from Discharge Hose ☐ Other:
DESCRIBE EQUIPMENT DECONTAMINATION METHOD BEFORE SAMPLING THE WELL:
☑ Gloves ☑ Alconox ☑ Distilled Water Rinse ☐ Other:
DISPOSAL METHOD OF PURGE WATER: ☐ Surface Discharge ☐ Drums ☑ Disposal Facility

TOTAL DEPTH OF WELL: 43.06 Feet
DEPTH TO WATER: 29.49 Feet
HEIGHT OF WATER COLUMN: 13.57 Feet
WELL DIAMETER: 4.0 Inch

26.6 Minimum Gallons to purge 3 well volumes (Water Column Height x 1.96)

TIME	VOLUME PURGED	TEMP. °C / °F	COND. *m*S/cm	pH	DO mg/L	Turb	PHYSICAL APPEARANCE AND REMARKS
1140	0	-	-	-	-	-	Pump Turned on.
1143	5	22.5	7030	3.27	6.37	-	pH readings too low (bad meter?)
1146	10	22.0	6840	3.61	5.96	-	
1150	15	22.9	6670	4.16	6.83	-	
1156	20	23.3	6470	4.57	7.27	-	
1201	25	23.3	6450	4.61	8.65	-	
1205	30	23.5	6460	4.73	7.84	-	Pump turned off..
						1.20	= approximate flow rate (gal/min)
						0.11	= Ferrous Iron concentration (mg/L)*
						1310	= Time of sample collection

COMMENTS: Transferred unfiltered sample into 2 - 40 ml VOAs preserved with HCL for BTEX analysis, and into 2 - 500 ml plastic unpreserved containers for NO_3, SO_4, Cl, F & TDS analysis. Also transferred filtered sample into 1 - 500 ml plastic container for Al, As, B, Cr, Fe & Mn analysis.

* Used a Hach Model 2010 Spectrophotometer to measure ferrous iron in the field (Method 8146).

WELL SAMPLING DATA FORM

CLIENT: DUKE ENERGY FIELD SERVICES
WELL ID: **MW-3**
SITE NAME: MONUMENT BOOSTER STATION
DATE: 9/27/02
PROJECT NO. V-104
SAMPLER: Littlejohn / Van Deventer

PURGING METHOD: ☐ Hand Bailed ☑ Pump If Pump, Type: 3" Grundfos Pump
SAMPLING METHOD: ☑ Disposable Bailer ☐ Direct from Discharge Hose ☐ Other:

DESCRIBE EQUIPMENT DECONTAMINATION METHOD BEFORE SAMPLING THE WELL:

☑ Gloves ☑ Alconox ☑ Distilled Water Rinse ☐ Other:

DISPOSAL METHOD OF PURGE WATER: ☐ Surface Discharge ☐ Drums ☑ Disposal Facility

TOTAL DEPTH OF WELL: 35.47 Feet
DEPTH TO WATER: 23.77 Feet
HEIGHT OF WATER COLUMN: 11.70 Feet
WELL DIAMETER: 4.0 Inch

22.9 *Minimum Gallons to purge 3 well volumes*
(Water Column Height x 1.96)

TIME	VOLUME PURGED	TEMP. °C / °F	COND. *m*S/cm	pH	DO mg/L	Turb	PHYSICAL APPEARANCE AND REMARKS
0906	0	-	-	-	-	-	Pump Turned on.
0910	3	21.1	1310	4.70	0.46	-10	pH readings too low (bad meter?)
0912	6	21.6	1330	4.65	0.70	-10	
0914	9	22.1	1320	4.66	1.20	4	
0919	12	23.0	1260	4.48	5.84	101	Pumped off at 12 gallons
0930	14	24.0	1230	3.82	6.36	36	Pump back on at 0925 and off at 0930.
						0.92	= approximate flow rate (gal/min)
						0.14	= Ferrous Iron concentration (mg/L)*
						0925	= Time of sample collection

COMMENTS: Transferred unfiltered sample into 2 - 40 ml VOAs preserved with HCL for BTEX analysis, and into 2 - 500 ml plastic unpreserved containers for NO_3, SO_4, Cl, F & TDS analysis. Also transferred filtered sample into 1 - 500 ml plastic container for Al, As, B, Cr, Fe & Mn analysis.

* Used a Hach Model 2010 Spectrophotometer to measure ferrous iron in the field (Method 8146).

WELL SAMPLING DATA FORM

CLIENT: DUKE ENERGY FIELD SERVICES
WELL ID: **MW-4**
SITE NAME: MONUMENT BOOSTER STATION
DATE: 9/27/02
PROJECT NO. V-104
SAMPLER: Littlejohn / Van Deventer

PURGING METHOD: ☐ Hand Bailed ☑ Pump If Pump, Type: 3" Grundfos Pump
SAMPLING METHOD: ☑ Disposable Bailer ☐ Direct from Discharge Hose ☐ Other:
DESCRIBE EQUIPMENT DECONTAMINATION METHOD BEFORE SAMPLING THE WELL:
☑ Gloves ☑ Alconox ☑ Distilled Water Rinse ☐ Other:

DISPOSAL METHOD OF PURGE WATER: ☐ Surface Discharge ☐ Drums ☑ Disposal Facility

TOTAL DEPTH OF WELL: 38.71 Feet
DEPTH TO WATER: 26.90 Feet
HEIGHT OF WATER COLUMN: 11.81 Feet
WELL DIAMETER: 4.0 Inch

23.1 Minimum Gallons to purge 3 well volumes (Water Column Height x 1.96)

TIME	VOLUME PURGED	TEMP. °C / °F	COND. *m*S/cm	pH	DO mg/L	Turb	PHYSICAL APPEARANCE AND REMARKS
0725	0	-	-	-	-	-	Pump Turned on.
0728	4	19.2	1340	5.90	0.39	2	pH readings too low (bad meter?)
0730	8	20.3	1320	5.62	0.54	-10	
0735	10	20.3	1320	5.39	0.54	319	
0739	12	20.3	1320	4.73	5.79	197	
0743	14	20.5	1270	4.62	6.48	55	
0747	16	21.7	1270	4.31	7.52	-10	Pump turned off.
						0.73	= approximate flow rate (gal/min)
						0.04	= Ferrous Iron concentration (mg/L)*
						0800	= Time of sample collection

COMMENTS: Transferred unfiltered sample into 2 - 40 ml VOAs preserved with HCL for BTEX analysis, and into 2 - 500 ml plastic unpreserved containers for NO_3, SO_4, Cl, F & TDS analysis. Also transferred filtered sample into *1 - 500 ml plastic container for Al, As, B, Cr, Fe & Mn analysis.*

* Used a Hach Model 2010 Spectrophotometer to measure ferrous iron in the field (Method 8146).

WELL SAMPLING DATA FORM

CLIENT: DUKE ENERGY FIELD SERVICES
WELL ID: **MW-5**
SITE NAME: MONUMENT BOOSTER STATION
DATE: 9/27/02
PROJECT NO. V-104
SAMPLER: Littlejohn / Van Deventer

PURGING METHOD: ☑ Hand Bailed ☐ Pump If Pump, Type: _____

SAMPLING METHOD: ☑ Disposable Bailer ☐ Direct from Discharge Hose ☐ Other: _____

DESCRIBE EQUIPMENT DECONTAMINATION METHOD BEFORE SAMPLING THE WELL:

☑ Gloves ☑ Alconox ☑ Distilled Water Rinse ☐ Other: _____

DISPOSAL METHOD OF PURGE WATER: ☐ Surface Discharge ☐ Drums ☑ Disposal Facility

TOTAL DEPTH OF WELL: 37.00 Feet
DEPTH TO WATER: 28.28 Feet
HEIGHT OF WATER COLUMN: 8.72 Feet
WELL DIAMETER: 4.0 Inch

17.1 Minimum Gallons to purge 3 well volumes (Water Column Height x 1.96)

TIME	VOLUME PURGED	TEMP. °C / °F	COND. mS/cm	pH	DO mg/L	Turb	PHYSICAL APPEARANCE AND REMARKS
1120	20	-	-	-	1.19	-	Hand bailed
							Did not take parameters so as not to
							damage meter from impacted well.
						1.84	= Ferrous Iron concentration (mg/L)*
						1120	= Time of sample collection

COMMENTS: Transferred unfiltered sample into 2 - 40 ml VOAs preserved with HCL for BTEX analysis, and into 2 - 500 ml plastic unpreserved containers for NO_3, SO_4, Cl, F & TDS analysis. Also transferred filtered sample into 1 - 500 ml plastic container for Al, As, B, Cr, Fe & Mn analysis.

* Used a Hach Model 2010 Spectrophotometer to measure ferrous iron in the field (Method 8146).

WELL SAMPLING DATA FORM

CLIENT: DUKE ENERGY FIELD SERVICES
WELL ID: **MW-6**
SITE NAME: MONUMENT BOOSTER STATION
DATE: 9/27/02
PROJECT NO. V-104
SAMPLER: Littlejohn / Van Deventer

PURGING METHOD: ☐ Hand Bailed ☑ Pump If Pump, Type: 3" Grundfos Pump
SAMPLING METHOD: ☑ Disposable Bailer ☐ Direct from Discharge Hose ☐ Other:

DESCRIBE EQUIPMENT DECONTAMINATION METHOD BEFORE SAMPLING THE WELL:

☑ Gloves ☑ Alconox ☑ Distilled Water Rinse ☐ Other:

DISPOSAL METHOD OF PURGE WATER: ☐ Surface Discharge ☐ Drums ☑ Disposal Facility

TOTAL DEPTH OF WELL: 39.30 Feet
DEPTH TO WATER: 25.74 Feet
HEIGHT OF WATER COLUMN: 13.56 Feet
WELL DIAMETER: 4.0 Inch

26.6 Minimum Gallons to purge 3 well volumes (Water Column Height x 1.96)

TIME	VOLUME PURGED	TEMP. °C / °F	COND. mS/cm	pH	DO mg/L	Turb	PHYSICAL APPEARANCE AND REMARKS
1014	5	22.4	1460	3.92	1.10	-	
1018	10	22.7	1450	4.16	0.75	-	pH readings too low (bad meter?)
1022	15	22.7	1490	4.57	0.26	-	
1025	20	22.8	1500	4.53	0.34	-	
1029	25	22.8	1500	4.54	0.35	-	
1034	30	22.9	1490	4.62	0.28	-	Pump turned off.
						1.25	= approximate flow rate (gal/min)
						0.46	= Ferrous Iron concentration (mg/L)*
						1040	= Time of sample collection

COMMENTS: Transferred unfiltered sample into 2 - 40 ml VOAs preserved with HCL for BTEX analysis, and into 2 - 500 ml plastic unpreserved containers for NO_3, SO_4, Cl, F & TDS analysis. Also transferred filtered sample into 1 - 500 ml plastic container for Al, As, B, Cr, Fe & Mn analysis.

* Used a Hach Model 2010 Spectrophotometer to measure ferrous iron in the field (Method 8146).

WELL SAMPLING DATA FORM

CLIENT: DUKE ENERGY FIELD SERVICES
WELL ID: **MW-7**
SITE NAME: MONUMENT BOOSTER STATION
DATE: 9/27/02
PROJECT NO. V-104
SAMPLER: Littlejohn / Van Deventer

PURGING METHOD: ☐ Hand Bailed ☑ Pump If Pump, Type: 3" Grundfos Pump
SAMPLING METHOD: ☑ Disposable Bailer ☐ Direct from Discharge Hose ☐ Other:

DESCRIBE EQUIPMENT DECONTAMINATION METHOD BEFORE SAMPLING THE WELL:

☑ Gloves ☑ Alconox ☑ Distilled Water Rinse ☐ Other:

DISPOSAL METHOD OF PURGE WATER: ☐ Surface Discharge ☐ Drums ☑ Disposal Facility

TOTAL DEPTH OF WELL: 36.22 Feet
DEPTH TO WATER: 25.95 Feet
HEIGHT OF WATER COLUMN: 10.27 Feet
WELL DIAMETER: 4.0 Inch

20.1 Minimum Gallons to purge 3 well volumes (Water Column Height x 1.96)

TIME	VOLUME PURGED	TEMP. °C / °F	COND. mS/cm	pH	DO mg/L	Turb	PHYSICAL APPEARANCE AND REMARKS
1235	0	-	-	-	-	-	Pump Turned on.
1239	5	22.0	960	4.85	0.73	330	pH readings too low (bad meter?)
1243	10	23.0	980	5.18	0.35	58	
1247	15	23.1	1020	5.43	0.17	-	
1251	20	23.1	1000	5.45	0.17	-	
1255	25	23.4	843	5.30	0.23	13	Pump turned off..
						1.25	= approximate flow rate (gal/min)
						2.67	= Ferrous Iron concentration (mg/L)*
						1300	= Time of sample collection

COMMENTS: Transferred unfiltered sample into 2 - 40 ml VOAs preserved with HCL for BTEX analysis, and into 2 - 500 ml plastic unpreserved containers for NO_3, SO_4, Cl, F & TDS analysis. Also transferred filtered sample into 1 - 500 ml plastic container for Al, As, B, Cr, Fe & Mn analysis.

* Used a Hach Model 2010 Spectrophotometer to measure ferrous iron in the field (Method 8146).