# GW - 49 - 2

# 2010 AGWMR

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**VIA USPS**

August 12, 2010

Mr. Glenn von Gonten
New Mexico Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87504

**RE: 2010 Annual Groundwater Report for the Blanco Plant**
**South Flare Pit and D Plant Areas**

Dear Mr. von Gonten

El Paso Natural Gas Company (EPNG) hereby submits the ***2010 Annual Groundwater Report for the Blanco Plant South Flare Pit and D Plant Areas***. The enclosed report details results of the annual groundwater sampling event, conducted on May 25, 2010 at the South Flare Pit and D Plant areas.

If you have any questions concerning the enclosed report or require additional information, please call me at (713) 420-7361.

Sincerely,

for

Ian Yanagisawa, P.E., P.G.
Environmental Representative

Enclosures: as stated

*Prepared for:*

**EL PASO NATURAL GAS COMPANY**


1001 Louisiana Street
Houston, Texas 77002

# 2010 ANNUAL GROUNDWATER REPORT FOR THE BLANCO PLANT SOUTH FLARE PIT AND D PLANT AREAS

## San Juan County, New Mexico

*August 2010*

*Prepared by:*

**MWH**
1801 California Street, Suite 2900
Denver, Colorado 80202
(303) 291-2222

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| | |
|---|---|
| CHC | Chlorinated Hydrocarbons |
| DCA | Dichloroethane |
| DCB | Dichlorobenzene |
| DCE | Dichloroethene |
| EPNG | El Paso Natural Gas Company |
| MCL | Maximum Contaminant Level |
| MWH | MWH Americas, Inc. |
| NMOCD | New Mexico Oil Conservation Division |
| NMWQCC | New Mexico Water Quality Control Commission |
| PCE | Perchloroethene |
| TCE | Trichloroethene |
| USEPA | United States Environmental Protection Agency |

# 1.0 INTRODUCTION

This *2010 Annual Groundwater Report for the Blanco Plant South Flare Pit and D Plant Areas* (Report) has been prepared on behalf of El Paso Natural Gas Company (EPNG) to report the results of the May 25, 2010 annual groundwater sampling event at the Blanco Plant site. The Blanco Plant is located northeast of Bloomfield, New Mexico. This work has been performed according to the proposed actions outlined in the *2009 Groundwater Report for the Blanco Plant South Flare Pit and D Plant Areas* (MWH, 2009). The 2009 Groundwater Report was submitted to the New Mexico Oil Conservation Division (NMOCD) on August 28, 2009.

The current sampling program was initiated pursuant to a NMOCD letter dated May 3, 2002, regarding remediation activities at EPNG's Blanco Plant. At the time, the primary regulatory driver for groundwater monitoring at this site was the New Mexico Water Quality Control Commission (NMWQCC) nitrate+nitrite standard of 10 milligrams per liter (mg/L). The *Groundwater Nitrate Work Plan for Blanco South Flare Pit and D Plant Areas* (the Work Plan) (MWH, 2002) was submitted to NMOCD in July 2002 and was conditionally approved in a NMOCD letter dated February 21, 2003. The ensuing groundwater nitrate report (MWH, 2003) concluded that two localized "hot spots" were present at the Blanco Plant, and annual monitoring was recommended.

The Blanco Plant is located in San Juan County, New Mexico, approximately 1.5 miles northeast of the town of Bloomfield, New Mexico on San Juan County Road 4900. Figure 1, *Blanco Plant Site Layout*, presents the Blanco Plant site layout and the locations of the D Plant and the former South Flare Pit.

Section 2.0 of this report summarizes historic information related to groundwater nitrate concentrations at the site, including a description of previous investigations and information regarding the geology/hydrogeology of the site. Section 3.0 presents the results of the groundwater sampling event in 2010, and Section 4.0 presents conclusions drawn from the results of the sampling event. Section 5.0 includes recommendations for ongoing site activities.

# 2.0 SITE BACKGROUND

## 2.1 PREVIOUS INVESTIGATIONS OF GROUNDWATER NITRATE

An initial assessment of site hydrogeology of the Blanco Plant area was conducted by Bechtel Environmental in 1988 (Bechtel, 1989). Six monitoring wells were installed and sampled during this investigation. Elevated nitrate concentrations were identified in wells MW-2 (290 parts per million [ppm]) and MW-6 (51 ppm) at that time. This report concluded that "the high concentration of nitrate in the upgradient well (MW-2) could not have been due to plant operations".

As part of a groundwater study by K.W. Brown & Associates, Inc (K.W. Brown, 1990) to investigate the extent of contamination resulting from a leaking underground storage tank in the D Plant Area, the source of elevated nitrate in groundwater was further investigated. Monitoring well MW-19 was installed upgradient of MW-2. Sampling results from this investigation indicated elevated nitrate concentrations in MW-2 (200 ppm), MW-19 (90 ppm), MW-14 (210 ppm) and MW-15 (89 ppm). Inspection of the plant area at that time did not find a potential nitrate source.

In 2003, MWH conducted a study of area background nitrate data and potential onsite sources of nitrate. The report found that evaporites present at the site were capable of causing elevated nitrate concentrations in leachate. In addition, a number of products used in plant operations contained nitrates or nitrites, but no significant releases were identified. The report recommended that annual monitoring be conducted.

Historic and recent groundwater nitrate+nitrite data at the site are presented in Table 2.1.

## 2.2 SITE GEOLOGY/HYDROGEOLOGY

The geologic framework of the site has been summarized by Bechtel Environmental (Bechtel, 1989) and K.W. Brown and Associates (K.W. Brown, 1990). According to these assessments, the plant area is located on Quaternary alluvium consisting of sand, silt, clay and gravel. At the plant site, the thickness of the alluvium varies from less than three feet to more than 75 feet (Bechtel, 1989). Underlying the alluvium is the Tertiary Nacimiento Formation consisting of interbedded coarse to medium-grained arkosic sandstone, siltstone and shale which were deposited as both channel fill and floodplain deposits (Bechtel, 1988). Orientation of the channel-fill sandstone deposits may locally control groundwater flow due to higher hydraulic conductivities through these features.

An assessment of site hydrogeology of the Blanco Plant area was conducted by Bechtel Environmental in 1988 (Bechtel, 1989). Based on the information collected during this study, it was concluded that the direction of groundwater flow is to the south, toward the San Juan River, which is located approximately 1.5 miles south of the site. The average hydraulic conductivity was estimated to be $2.1 \times 10^{-4}$ centimeters per second. Depth to groundwater ranged from 50 feet (at MW-2), among wells situated within a buried relict channel, to nine feet (at MW-10) below ground surface, typical of wells completed in the Nacimiento Formation itself. These results were generally consistent with the subsequent findings of K.W. Brown (1990).

# 3.0 2010 ANNUAL GROUNDWATER SAMPLING EVENT

Monitoring wells at the Blanco Plant were sampled on May 25, 2010 and analyzed for nitrate+nitrite concentrations and chlorinated hydrocarbons (CHCs), as described below. In accordance with the approval letter from NMOCD, EPNG plugged and abandoned monitoring wells MW-10, MW-16, MW-17 and MW-18 in December 2003; therefore, these wells are no longer monitored.

Figure 2 depicts the groundwater potentiometric surface contours, based on water level measurements collected during the May 25, 2010 annual groundwater sampling event. The groundwater generally flows toward the south, toward the San Juan River.

## 3.1 GROUNDWATER NITRATE+NITRITE DATA

Groundwater samples were collected on May 25, 2010 from monitoring wells MW-5, MW-6, MW-8, MW-12, MW-13, MW-14, MW-15, MW-28, MW-29 and MW-30. Sampling was attempted at monitoring wells MW-2 and MW-7; however, these wells were dry. Purging and sampling activities were conducted in accordance with the NMOCD guidance document entitled *Guidelines for Remediation of Leaks, Spills and Releases* (NMOCD, 1993). The groundwater samples were submitted to Accutest Laboratories, Houston, Texas for analysis of nitrate+nitrite concentrations. Field data and additional sampling details are presented on the field forms in Appendix A.

The nitrate+nitrite analytical results are presented in Table 2.1, along with the historical nitrate+nitrite data for each well. The 2010 nitrate+nitrite analytical results are also presented on Figure 3. The laboratory analytical reports are included in Appendix B. Nitrate+nitrite concentrations were generally consistent with those observed in recent years. Nitrate+nitrite concentrations currently exceed the NMWQCC groundwater standard of 10 mg/L in South Flare Pit area monitoring wells MW-5 (16.7 mg/L), MW-6 (103 mg/L), MW-28 (51.4 mg/L), MW-29 (79.9 mg/L), and MW-30 (34.8 mg/L) and in D Plant area monitoring well MW-15 (22.9 mg/L).

Trend graphs depicting nitrate+nitrite concentrations versus groundwater elevations over time are presented in Appendix C for monitoring wells MW-5, MW-6, MW-8, MW-12, MW-13, MW-14, MW-15, MW-28, MW-29, and MW-30. Due to insufficient data, trend graphs were not generated for dry monitoring wells MW-2 and MW-7. In most wells, the nitrate+nitrite concentrations currently exhibit a decreasing trend. The primary exceptions appear to be MW-5, MW-6, and MW-29. Nitrate+nitrite concentrations in MW-5 increased starting in 2007, following years of the well being dry. However, the water samples since 2007 have all been during periods when the water level was below the bottom-of-screen elevation. The apparent increase in nitrate is potentially due to ongoing evaporation following occasional high groundwater periods. The field logs indicate that MW-5 has settled; and the well condition needs further evaluation.

In monitoring well MW-6, nitrate+nitrite concentrations have been relatively stable, ranging from 59 to 110 mg/L since the initial sampling in 1988.

Monitoring well MW-2 has not been sampled since 1994 because the well has been dry. Historical groundwater data collected from this well indicated elevated nitrate+nitrite

concentrations (e.g., 249 mg/L in 1994). A nearby upgradient monitoring well, MW-19, was installed in 1992 and sampled for nitrate until May 2005 (MWH, 2007). Between 1992 and 2005, the nitrate concentrations in MW-19 decreased from 70 mg/L to 3.5 mg/L; therefore, if shallow groundwater is even present in the MW-2 area, the nitrate concentrations have likely attenuated significantly since 1994.

Monitoring well MW-7 has not been sampled since 1993 because this well has also been dry. The historical groundwater data collected from MW-7 indicated nitrate+nitrite concentrations well below the NMWQCC standard.

## 3.2 GROUNDWATER CHLORINATED HYDROCARBON DATA

Groundwater samples from the four wells in the D Plant area were also analyzed for a suite of selected chlorinated hydrocarbon compounds (CHCs), in accordance with the site monitoring requirements. The CHCs include perchloroethene (PCE), trichloroethene (TCE), 1,1-dichloroethane (DCA), 1,2-dichlorobenzene (DCB), 1,1-dichloroethene (DCE), trans-1,2-DCE, and cis-1,2-DCE. These compounds were targeted because they had been detected during previous site characterization work. Annual sampling data from 2002 through 2009 are presented in Table 3.1. The 2009 annual sampling data are also presented on Figure 4.

Exceedances of applicable NMWQCC groundwater standards were observed only in monitoring well MW-13. The 1,1-DCA concentration in MW-13 (49.0 ug/L) exceeded the NMWQCC groundwater standard of 25 ug/L. It is also noted that although the TCE concentration in MW-13 (18.8 ug/L) did not exceed its NMWQCC groundwater standard of 100 ug/L, it did exceed the corresponding U.S. Environmental Protection Agency (USEPA) Primary Drinking Water Standard – Maximum Contaminant Level of 5 ug/L.

Trend graphs of CHC concentrations versus groundwater elevations over time are presented in Appendix D for monitoring wells MW-12, MW-13, MW-14 and MW-15. Key observations from these graphs include the following:

- Since 2002, the 1,1-DCA concentrations in monitoring well MW-13 have decreased from 61.0 ug/L to 49.0 ug/L.

- The TCE concentrations in monitoring well MW-13 are also attenuating over time, possibly including degradation via reductive dechlorination, which is suggested by the stable concentrations of daughter products such as 1,1-DCE; cis-1,2-DCE; and trans-1,2,-DCE.

- The concentrations of PCE, TCE, cis-1,2-DCE, and 1,1-DCA in monitoring well MW-12 (which appears to be located hydraulically upgradient from the other wells in the D Plant area) have all clearly attenuated since 2002.

# 4.0 CONCLUSIONS

The following conclusions are based on current and historic sampling and analyses at the site:

## Nitrate+Nitrite Concentrations

- Nitrate+nitrite concentrations in the Blanco Plant area are generally decreasing; however, concentrations in monitoring well MW-6 appear to be stable.

- Previous investigations have determined that nitrate-containing evaporites are present within the regional hydrogeology, and these compounds are likely contributors to the observed nitrate concentrations in groundwater (Bechtel, 1988; Brown, 1990; MWH, 2003). The same three investigations also reported historical usage of various nitrate-containing products at the site; however, there have not been any documented releases.

## Chlorinated Hydrocarbons

- The groundwater sample collected from MW-13 exceeded the 1,1-DCA NMWQCC standard (25 ug/L) with a concentration of 49.0 ug/L. In addition, the groundwater sample from MW-13 exceeded the TCE USEPA MCL (5.0 ug/L), but not the NMWQCC groundwater standard (100 ug/L), with a concentration of 18.8 ug/L. The stable concentrations of cis-1,2-DCE, trans-1,2-DCE, and 1,1-DCE in MW-13 indicate that reductive dechlorination is potentially occurring. The 1,1-DCA and TCE concentrations in this well are clearly decreasing over time.

- Monitoring wells MW-12, MW-14 and MW-15 remain below the NMWQCC groundwater standards and/or USEPA MCLs for the chlorinated hydrocarbons of potential concern at the Blanco Plant.

# 5.0 RECOMMENDATIONS

As shown in Table 4.1, *Groundwater Sampling Schedule*, the following actions will be performed by EPNG to monitor groundwater nitrate+nitrite and CHC concentrations at the site:

- All groundwater monitoring wells in the South Flare Pit and D Plant areas of the Blanco Plant will be sampled annually and analyzed for nitrate+nitrite concentrations.

- Groundwater samples from monitoring wells in the D Plant Area (MW-12, MW-13, MW-14 and MW-15) will continue to be analyzed annually for CHC concentrations, as listed in Table 4.1.

- Well MW-2 has been dry since at least 2002. All current evidence suggests it is unlikely that this well will produce sufficient water for sampling going forward. Therefore, pending approval by NMOCD, this well should be plugged and abandoned.

- Well MW-7 has been dry since at least 2002. Groundwater samples obtained from MW-7 in 1991 and 1993 were below the NMWQCC groundwater standard of 10 mg/L for nitrate+nitrite. Well construction data from 1988 indicates that the bottom of the screen in MW-7 is almost four feet above the current static water table in nearby wells MW-8 and MW-29. Given this information it seems unlikely that MW-7 will produce sufficient water for sampling in the future. Therefore, pending approval by NMOCD, this well should be plugged and abandoned.

- The results of the nitrate+nitrite and CHC groundwater sampling will be reported to NMOCD in annual groundwater monitoring reports (typically submitted in August of each year).

EPNG will notify NMOCD at least 48 hours in advance of all scheduled sampling activities, such that NMOCD has the opportunity to witness the events and split samples, if desired.

# 6.0 REFERENCES

Bechtel Environmental, 1988. *Groundwater Investigation Report, El Paso Natural Gas Company's Blanco Plant, San Juan County, New Mexico.* January 1989.

K.W. Brown and Associates, Inc, 1990. *Site Investigation of the Blanco Plant, San Juan County, New Mexico.* Prepared for El Paso Natural Gas Company. February 1990.

MWH, 2002. *Groundwater Nitrate Work Plan for Blanco South Flare Pit and D Plant Areas.* July 2002.

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MWH, 2004. *2004 Groundwater Report for the Blanco Plant South Flare Pit and D Plant Areas.* August 2004.

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MWH, 2006. *2006 Groundwater Report for the Blanco Plant South Flare Pit and D Plant Areas.* September 2006.

MWH, 2007. *2007 Groundwater Report for the Blanco Plant South Flare Pit and D Plant Areas.* July 2007.

MWH, 2008. *2008 Groundwater Report for the Blanco Plant South Flare Pit and D Plant Areas.* August 2008.

NMOCD, 1993. *Guidelines for Remediation of Leaks, Spills and Releases.* August 1993.

# Tables

# TABLE 2.1
## GROUNDWATER NITRATE+NITRITE ANALYTICAL DATA (1988 - 2010)
## BLANCO PLANT - SAN JUAN COUNTY, NEW MEXICO

| Monitoring Well | Sample Date | Nitrate+Nitrite (mg/l) |
|---|---|---|
| | NMOCD Standard: 10 mg/L | |
| MW-2 | 9/21/1988 | 290 |
| | 6/18/1991 | 180 |
| | 2/23/1993 | 256 |
| | 6/8/1993 | 228 |
| | 9/29/1993 | 233 |
| | 2/10/1994 | 249 |
| | 5/29/2002 | dry |
| | 6/3/2003 | dry |
| | 5/17/2004 | dry |
| | 5/30/2005 | dry |
| | 6/8/2006 | dry |
| | 6/20/2007 | dry |
| | 5/22/2008 | dry |
| | 5/28/2009 | dry |
| | 5/25/2010 | dry |
| MW-5 | 9/23/1988 | 0.02 |
| | 6/18/1991 | 0.08 |
| | 2/19/1993 | <1.0 |
| | 6/7/1993 | <1.0 |
| | 8/27/2001 | NS |
| | 1/27/1994 | <1.0 |
| | 8/8/2000 | 4.6 |
| | 8/8/2000 | 4.6 |
| | 11/10/2000 | 4.0 |
| | 9/24/2002 | dry |
| | 6/3/2003 | dry |
| | 5/17/2004 | dry |
| | 5/30/2005 | dry |
| | 6/8/2006 | dry |
| | 6/20/2007 | 15 |
| | 5/22/2008 | 9.2 |
| | 5/28/2009 | 10.0 |
| | 5/25/2010 | 16.7 |
| MW-6 | 9/21/1988 | 51.0 |
| | 6/19/1991 | 110 |
| | 2/19/1993 | 63.5 |
| | 6/7/1993 | 76.4 |
| | 9/28/1993 | 85.9 |

| Monitoring Well | Sample Date | Nitrate+Nitrite (mg/l) |
|---|---|---|
| | NMOCD Standard: 10 mg/L | |
| MW-6 (cont'd) | 10/7/1993 | 94.5 |
| | 1/26/1994 | 95.8 |
| | 8/20/1994 | 1.7 |
| | 8/27/2001 | NS |
| | 12/20/1994 | 94 |
| | 2/16/1995 | 90.6 |
| | 11/10/2000 | 59 |
| | 9/24/2002 | 95.1 |
| | 6/3/2003 | 74 |
| | 5/17/2004 | dry |
| | 5/30/2005 | not sampled |
| | 6/8/2006 | not sampled |
| | 6/20/2007 | 92 |
| | 5/22/2008 | 100 |
| | 5/28/2009 | 71.2 |
| | 5/25/2010 | 103 |
| MW-7 | 9/22/1988 | 0.3 |
| | 6/18/1991 | 0.28 |
| | 6/7/1993 | 3 |
| | 9/27/1993 | <2.8 |
| | 5/29/2002 | dry |
| | 9/24/2002 | dry |
| | 6/3/2003 | dry |
| | 5/17/2004 | dry |
| | 5/30/2005 | dry |
| | 6/8/2006 | dry |
| | 6/20/2007 | dry |
| | 5/22/2008 | dry |
| | 5/28/2009 | dry |
| | 5/25/2010 | dry |
| MW-8 | 9/23/1988 | <0.1 |
| | 6/18/1991 | <0.06 |
| | 2/19/1993 | 2.0 |
| | 6/7/1993 | <1.0 |
| | 9/27/1993 | <1.0 |
| | 1/27/1994 | <1.0 |
| | 11/10/2000 | <0.1 |
| | 3/23/2001 | 0.21 |

# TABLE 2.1
## GROUNDWATER NITRATE+NITRITE ANALYTICAL DATA (1988 - 2010)
## BLANCO PLANT - SAN JUAN COUNTY, NEW MEXICO

| Monitoring | Sample Date | Nitrate+Nitrite |
|---|---|---|
| | NMOCD Standard: 10 mg/L | |
| MW-8 (cont'd) | 8/28/2001 | 0.33 |
| | 5/28/2002 | 0.26 |
| | 6/3/2003 | 0.13 |
| | 5/17/2004 | 0.43 |
| | 5/31/2005 | 0.30 |
| | 6/8/2006 | 0.30 |
| | 6/20/2007 | 0.50 |
| | 5/22/2008 | 0.16 |
| | 5/28/2009 | <2.0 |
| | 5/25/2010 | 0.19 |
| MW-10 | 9/24/1988 | 1.0 |
| | 6/18/1991 | 0.74 |
| | 2/19/1993 | 1.2 |
| | 6/7/1993 | 2.2 |
| | 9/27/1993 | 2.1 |
| | 1/27/1994 | 2.0 |
| | 5/28/2002 | dry |
| | 9/24/2002 | dry |
| | 6/3/2003 | NS |
| | 12/1/2003 | abandoned |
| MW-12 | 1/15/1990 | 9.6 |
| | 6/19/1991 | 7.8 |
| | 2/25/1993 | 7.8 |
| | 6/7/1993 | 8.5 |
| | 9/28/1993 | 9.1 |
| | 1/27/1994 | 7.3 |
| | 8/8/2000 | <10 |
| | 11/9/2000 | 5.7 |
| | 3/22/2001 | 8.4 |
| | 8/28/2001 | 8.0 |
| | 5/28/2002 | 2.0 |
| | 6/3/2003 | 6.7 |
| | 5/17/2004 | 7.6 |
| | 5/31/2005 | 8.6 |
| | 6/8/2006 | 6.5 |
| | 6/20/2007 | 7.6 |
| | 5/22/2008 | 6.7 |
| | 5/28/2009 | 4.3 |
| | 5/25/2010 | 7.2 |
| MW-13 | 1/15/1990 | 16.4 |
| | 6/19/1991 | 6.3 |
| | 2/24/1993 | 10.9 |
| | 6/8/1993 | 8.1 |

| Monitoring | Sample Date | Nitrate+Nitrite |
|---|---|---|
| | NMOCD Standard: 10 mg/L | |
| MW-13 (cont'd) | 9/28/1993 | 4.1 |
| | 1/27/1994 | 5.4 |
| | 8/8/2000 | <12.5 |
| | 11/9/2000 | 9.8 |
| | 3/22/2001 | 13 |
| | 8/28/2001 | 7.9 |
| | 5/28/2002 | 6.0 |
| | 6/3/2003 | 5.8 |
| | 5/17/2004 | 9.8 |
| | 5/31/2005 | 8.2 |
| | 6/8/2006 | 8.2 |
| | 6/20/2007 | 6.1 |
| | 5/22/2008 | 3.9 |
| | 5/28/2009 | 4.8 |
| | 5/25/2010 | 4.6 |
| MW-14 | 1/15/1990 | 210 |
| | 2/25/1993 | 19.2 |
| | 6/8/1993 | 17.5 |
| | 9/28/1993 | 11.8 |
| | 1/27/1994 | 15.4 |
| | 8/8/2000 | 19 |
| | 11/13/2000 | 0.24 |
| | 3/22/2001 | 13 |
| | 8/28/2001 | 20 |
| | 5/28/2002 | 15 |
| | 6/3/2003 | 15 |
| | 5/17/2004 | 16 |
| | 5/31/2005 | 24 |
| | 6/8/2006 | 14 |
| | 6/20/2007 | 15 |
| | 5/22/2008 | 13.3 |
| | 5/28/2009 | 7.8 |
| | 5/25/2010 | 15.5 |
| MW-15 | 1/15/1990 | 89 |
| | 6/19/1991 | 50 |
| | 2/24/1993 | 5 |
| | 6/8/1993 | 48.1 |
| | 9/28/1993 | 43 |
| | 1/27/1994 | 43.7 |
| | 8/8/2000 | 35 |
| | 11/9/2000 | 38 |
| | 3/22/2001 | 25 |
| | 8/28/2001 | 30 |

# TABLE 2.1
## GROUNDWATER NITRATE+NITRITE ANALYTICAL DATA (1988 - 2010)
## BLANCO PLANT - SAN JUAN COUNTY, NEW MEXICO

| Monitoring | Sample Date | Nitrate+Nitrite |
|---|---|---|
| | NMOCD Standard: 10 mg/L | |
| MW-15 (cont'd) | 5/28/2002 | 24 |
| | 6/3/2003 | 21 |
| | 5/17/2004 | 20 |
| | 5/31/2005 | 35 |
| | 6/8/2006 | 17 |
| | 6/20/2007 | 18 |
| | 5/22/2008 | 21.6 |
| | 5/28/2009 | 12.0 |
| | 5/25/2010 | 22.9 |
| MW-16 | 6/19/1991 | 0.07 |
| | 2/25/1993 | 3.7 |
| | 6/8/1993 | <1.0 |
| | 6/3/2003 | NS |
| | 12/1/2003 | abandoned |
| MW-17 | 2/25/1993 | 15.3 |
| | 9/24/2002 | dry |
| | 6/3/2003 | NS |
| | 12/1/2003 | abandoned |
| MW-18 | 2/25/1993 | 8.19 |
| | 6/8/1993 | <1.0 |
| | 9/28/1993 | <1.0 |
| | 9/24/2002 | 3.1 |
| | 6/3/2003 | NS |
| | 12/1/2003 | abandoned |
| MW-28 | 10/7/1993 | 2.1 |
| | 2/2/1994 | 2.8 |
| | 8/20/1994 | 2.7 |
| | 12/20/1994 | 0.33 |
| | 2/16/1995 | 1.6 |
| | 8/10/2000 | 25 |
| | 11/10/2000 | 53 |
| | 3/23/2001 | 34 |
| | 8/28/2001 | 63 |
| | 5/28/2002 | 83 |
| | 6/3/2003 | 87 |
| | 5/17/2004 | 82 |
| | 5/31/2005 | 85 |
| | 6/8/2006 | 68 |

| Monitoring | Sample Date | Nitrate+Nitrite |
|---|---|---|
| | NMOCD Standard: 10 mg/L | |
| MW-28 (cont'd) | 6/20/2007 | 42 |
| | 5/22/2008 | 38.5 |
| | 5/28/2009 | 22.7 |
| | 5/25/2010 | 51.4 |
| MW-29 | 10/7/1993 | 8.3 |
| | 2/2/1994 | 19.6 |
| | 8/20/1994 | 28.8 |
| | 12/20/1994 | 41 |
| | 2/16/1995 | 28.1 |
| | 8/10/2000 | 50 |
| | 11/10/2000 | 66 |
| | 3/26/2001 | 70 |
| | 8/28/2001 | 58 |
| | 5/28/2002 | 70 |
| | 6/3/2003 | 79 |
| | 5/17/2004 | 88 |
| | 5/31/2005 | 97 |
| | 6/8/2006 | 71 |
| | 6/20/2007 | 79 |
| | 5/22/2008 | 72.5 |
| | 5/28/2009 | 46.2 |
| | 5/25/2010 | 79.9 |
| MW-30 | 10/7/1993 | 28.1 |
| | 2/2/1994 | 57.1 |
| | 8/20/1994 | 67.6 |
| | 2/16/1995 | 91.3 |
| | 8/10/2000 | 84 |
| | 11/10/2000 | 70 |
| | 3/26/2001 | 72 |
| | 8/28/2001 | 76 |
| | 5/28/2002 | 66 |
| | 6/3/2003 | 58 |
| | 5/17/2004 | 52 |
| | 5/31/2005 | 58 |
| | 6/20/07 | 57 |
| | 5/22/08 | 43.2 |
| | 5/28/09 | 16.9 |
| | 5/25/10 | 34.8 |

**Notes:**

**"<" = analyte not detected at the method detection limit (MDL). Value shown is the MDL.**

**Shaded values indicate exceedances of the NMWQCC Nitrate+Nitrite (as N) standard of 10 mg/L.**

# TABLE 3.1
## GROUNDWATER CHLORINATED HYDROCARBON ANALYTICAL DATA (2002 - 2010)
## BLANCO PLANT - SAN JUAN COUNTY, NEW MEXICO

| Monitor Well | Sample Date | GW Elevation (ft. amsl) | Depth to Water (ft. btoc) | Chlorinated Hydrocarbons by EPA Method 8260B (ug/L) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 1,1-DCA | 1,2-DCB | 1,1-DCE | trans-1,2-DCE | cis-1,2-DCE | TCE | PCE |
| NMWQCC Groundwater Standard: | | | | 25 | NA | 5.0 | NA | NA | 100 | 20 |
| US EPA MCL: | | | | NA | NA | 7.0 | 100 | 70 | 5.0 | 5.0 |
| MW-12 | 5/28/2002 | 5580.73 | 20.95 | 21.0 | 5.2 | <1.0 | 1.7 | 20.0 | **8.0** | 3.0 |
| | 6/3/2003 | 5584.69 | 16.99 | 8.2 | 3.4 | <2.0 | <2.0 | 8.2 | 4.5 | 3.2 |
| | 5/17/2004 | 5585.09 | 16.59 | 4.6 | 3.4 | <2.0 | <2.0 | 5.1 | 4.0 | 2.3 |
| | 5/31/2005 | 5586.03 | 15.65 | 22.3 | <2.0 | <2.0 | <2.0 | 18.8 | **20.7** | <2.0 |
| | 6/8/2006 | 5583.06 | 18.62 | 8.7 | 4.5 | <2.0 | 0.87 | 10.7 | 4.7 | 2.5 |
| | 6/20/2007 | 5585.13 | 16.55 | 3.6 | 3.0 | <2.0 | <2.0 | 4.4 | 3.0 | 1.9 |
| | 5/22/2008 | 5585.64 | 16.04 | 6.1 | 5.3 | <2.0 | 0.69 | 8.2 | 3.1 | 2.4 |
| | 5/28/2009 | 5584.48 | 17.20 | 4.2 | 4.1 | <2.0 | <2.0 | 5.0 | 2.6 | 2.0 |
| | 5/25/2010 | 5585.78 | 15.90 | 2.9 | 3.9 | <2.0 | 0.52 | 4.9 | 2.5 | 1.9 |
| MW-13 | 5/28/2002 | 5580.79 | 16.76 | **61.0** | 79.0 | 1.3 | 8.2 | 45.0 | **39.0** | 1.6 |
| | 6/3/2003 | 5583.11 | 14.44 | **53.8** | 50.5 | 1.4 | 8.2 | 33.0 | **35.1** | 1.4 |
| | 5/17/2004 | 5583.43 | 14.12 | **41.2** | 29.2 | <2.0 | 4.0 | 21.2 | **22.5** | <2.0 |
| | 5/31/2005 | 5584.12 | 13.43 | **50.7** | <2.0 | <2.0 | 5.7 | 26.6 | **21.3** | <2.0 |
| | 6/8/2006 | 5581.95 | 15.60 | **48.8** | 53.1 | **5.2** | 5.2 | 35.8 | **26.9** | <2.0 |
| | 6/20/2007 | 5583.22 | 14.33 | **58.8** | 63.9 | 1.2 | 7.8 | 43.6 | **29.6** | 1.1 |
| | 5/22/2008 | 5583.64 | 13.91 | **44.9** | 69.9 | 0.9 | 5.0 | 32.3 | **24.5** | 1.0 |
| | 5/28/2009 | 5583.00 | 14.55 | **49.0** | 57.2 | 0.88 | 5.9 | 34.3 | **18.8** | 1.2 |
| | 5/25/2010 | 5582.95 | 14.60 | **48.7** | 48.2 | 1.1 | 6.2 | 41.5 | **18.6** | 1.2 |
| MW-14 | 5/28/2002 | 5576.62 | 21.57 | 8.7 | <1.0 | <1.0 | <1.0 | 2.9 | 1.9 | <1.0 |
| | 6/3/2003 | 5578.34 | 19.85 | 9.5 | <2.0 | <2.0 | <2.0 | 3.3 | 2.4 | <2.0 |
| | 5/17/2004 | 5578.41 | 19.78 | 5.7 | <2.0 | <2.0 | <2.0 | 2.1 | 1.6 | <2.0 |
| | 5/31/2005 | 5579.38 | 18.81 | 4.7 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | 1.2 |
| | 6/8/2006 | 5578.16 | 20.03 | 8.9 | <2.0 | <2.0 | <2.0 | 3.4 | 1.8 | <2.0 |
| | 6/20/2007 | 5579.76 | 18.43 | 24.2 | 23.8 | <2.0 | 2.7 | 14.2 | **11.0** | <2.0 |
| | 5/22/2008 | 5581.99 | 16.20 | 9.3 | 4.7 | <2.0 | <2.0 | 3.4 | 3.0 | <2.0 |
| | 5/28/2009 | 5581.89 | 16.30 | 6.4 | 2.1 | <2.0 | <2.0 | 1.4 | 1.5 | <2.0 |
| | 5/25/2010 | 5582.64 | 15.55 | 7.2 | 3.5 | <2.0 | <2.0 | 2.6 | 2.1 | <2.0 |
| MW-15 | 5/28/2002 | 5576.25 | 20.33 | 5.3 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| | 6/3/2003 | 5577.73 | 18.85 | 6.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 |
| | 5/17/2004 | 5578.11 | 18.475 | 6.3 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 |
| | 5/31/2005 | 5578.78 | 17.8 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 |
| | 6/8/2006 | 5576.90 | 19.68 | 4.3 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 |
| | 6/20/2007 | 5577.75 | 18.83 | 4.8 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 |
| | 5/22/2008 | 5578.46 | 18.12 | 3.6 | <2.0 | <2.0 | <2.0 | 0.6 | <2.0 | <2.0 |
| | 5/28/2009 | 5577.75 | 18.83 | 3.3 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 |
| | 5/25/2010 | 5578.05 | 18.53 | 2.7 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 |

DCA: Dichloroethane DCE: Dichloroethene PCE: Perchloroethene
DCB: Dichlorobenzene NA: Not applicable TCE: Trichloroethene

Values appearing in bold type exceed either the relevant MCL or New Mexico Water Quality Control Commission GW Standard

## TABLE 4.1
## GROUNDWATER SAMPLING SCHEDULE
## BLANCO PLANT - SAN JUAN COUNTY, NEW MEXICO

| Monitoring Well | Analyses | Sampling Frequency |
|---|---|---|
| Blanco Plant Area | | |
| MW-2 | Nitrate+Nitrite | Annual |
| MW-5 | Nitrate+Nitrite | Annual |
| MW-6 | Nitrate+Nitrite | Annual |
| MW-7 | Nitrate+Nitrite | Annual |
| MW-8 | Nitrate+Nitrite | Annual |
| MW-28 | Nitrate+Nitrite | Annual |
| MW-29 | Nitrate+Nitrite | Annual |
| MW-30 | Nitrate+Nitrite | Annual |
| D Plant Area | | |
| MW-12 | Nitrate+Nitrite, CHCs | Annual |
| MW-13 | Nitrate+Nitrite, CHCs | Annual |
| MW-14 | Nitrate+Nitrite, CHCs | Annual |
| MW-15 | Nitrate+Nitrite, CHCs | Annual |

Nitrate+Nitrite as N by EPA Method 353.2 or Standard Methods (SM) Method 4500.

CHCs: Chlorinated Hydrocarbons by EPA Method 8260B: 1,1-DCA, 1,1-DCE, 1,2-DCB, cis-1,2-DCE, trans-1,2-DCE, TCE, and PCE.

DCA: Dichloroethane

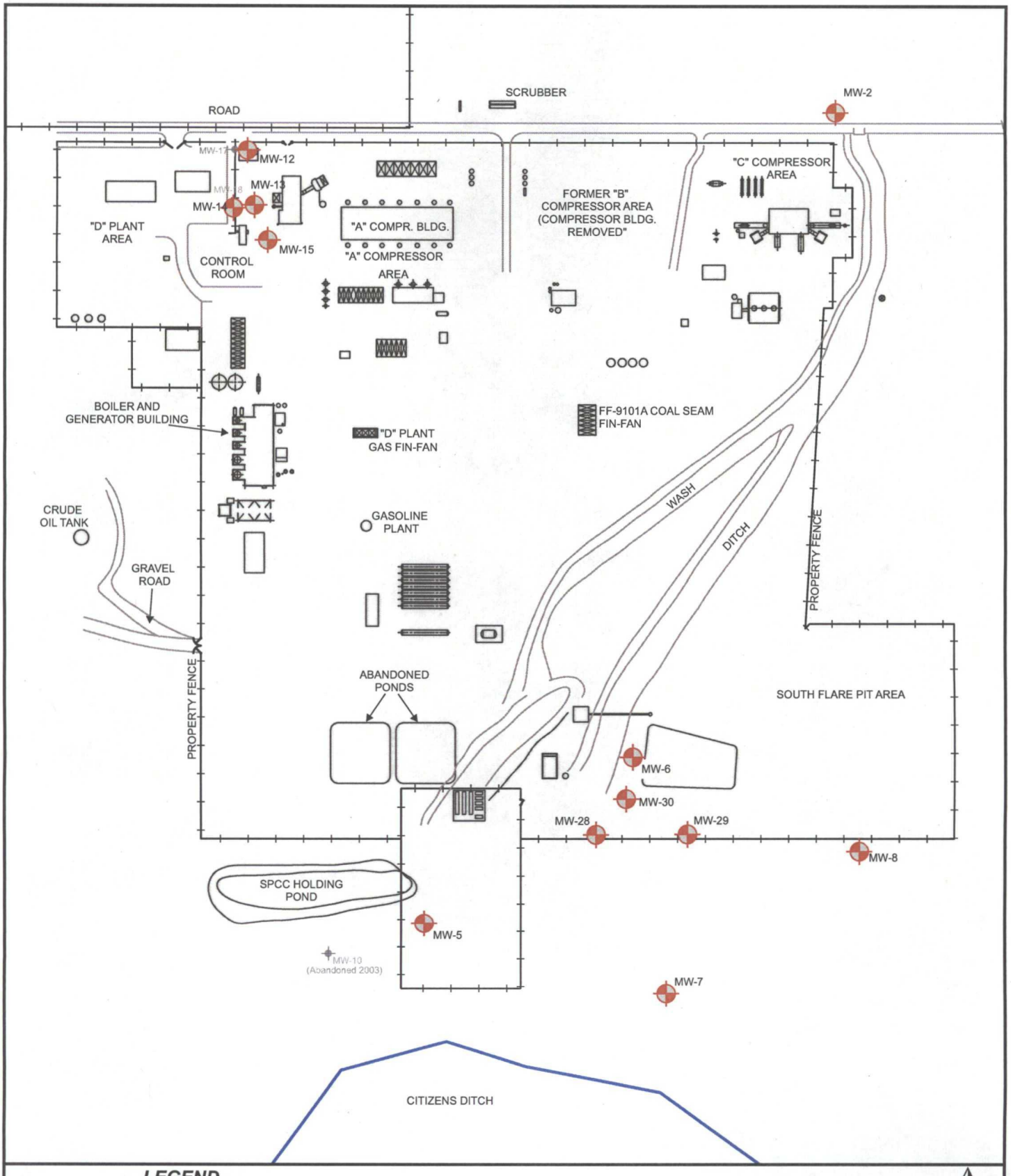
DCB: Dichlorobenzene

DCE: Dichloroethene

PCE: Perchloroethene

TCE: Trichloroethene

# Figures




## LEGEND

MW-4 — Existing Monitoring / Observation Well

Public Irrigation Ditch

Property Boundary And Fence Line

APPROXIMATE SCALE

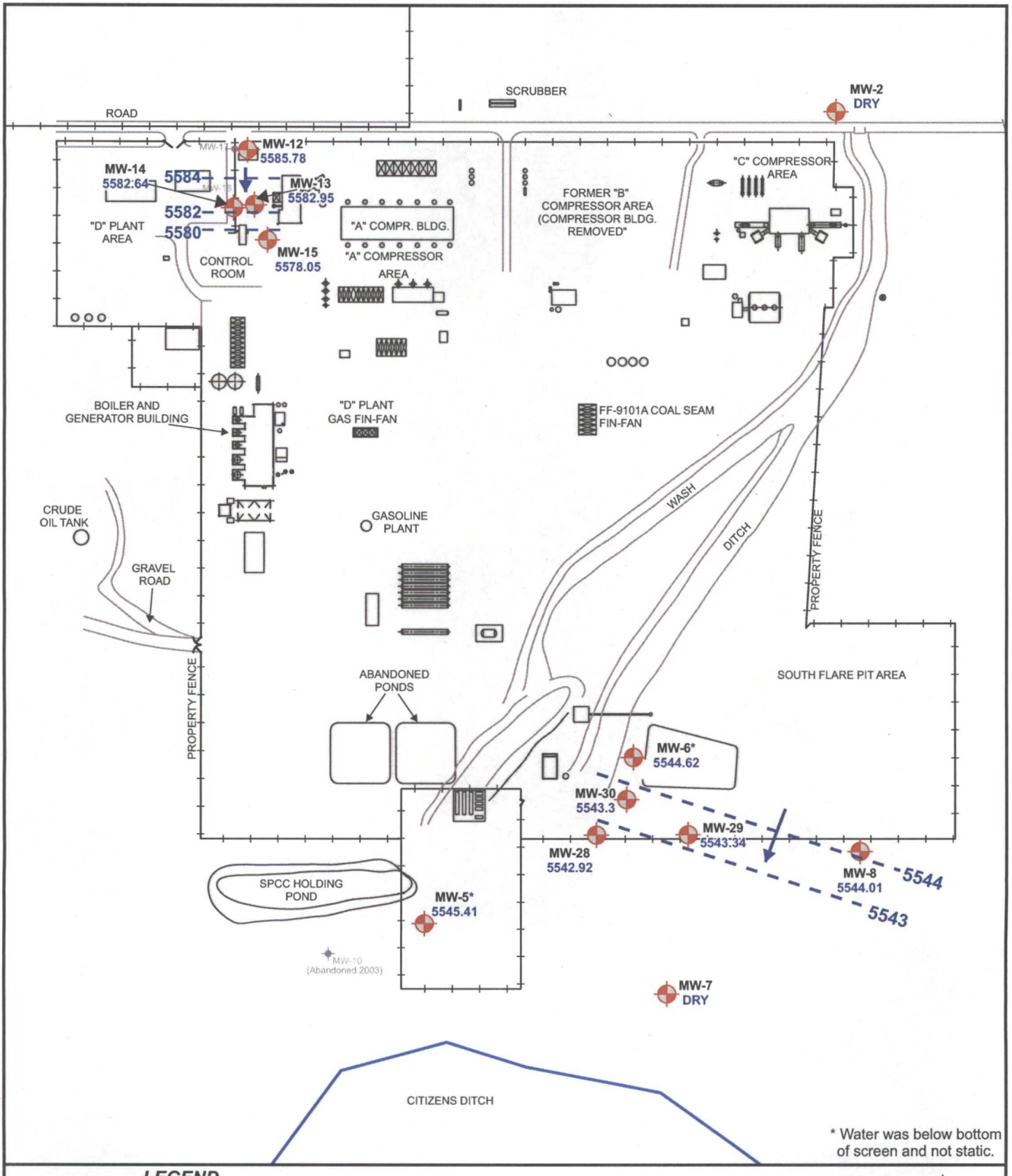
0 250 500

Feet

MWH

elpaso

| | |
|---|---|
| PROJECT: | BLANCO SOUTH FLARE PIT |
| TITLE: | Blanco Plant Site Layout |
| FIGURE: | 1 |



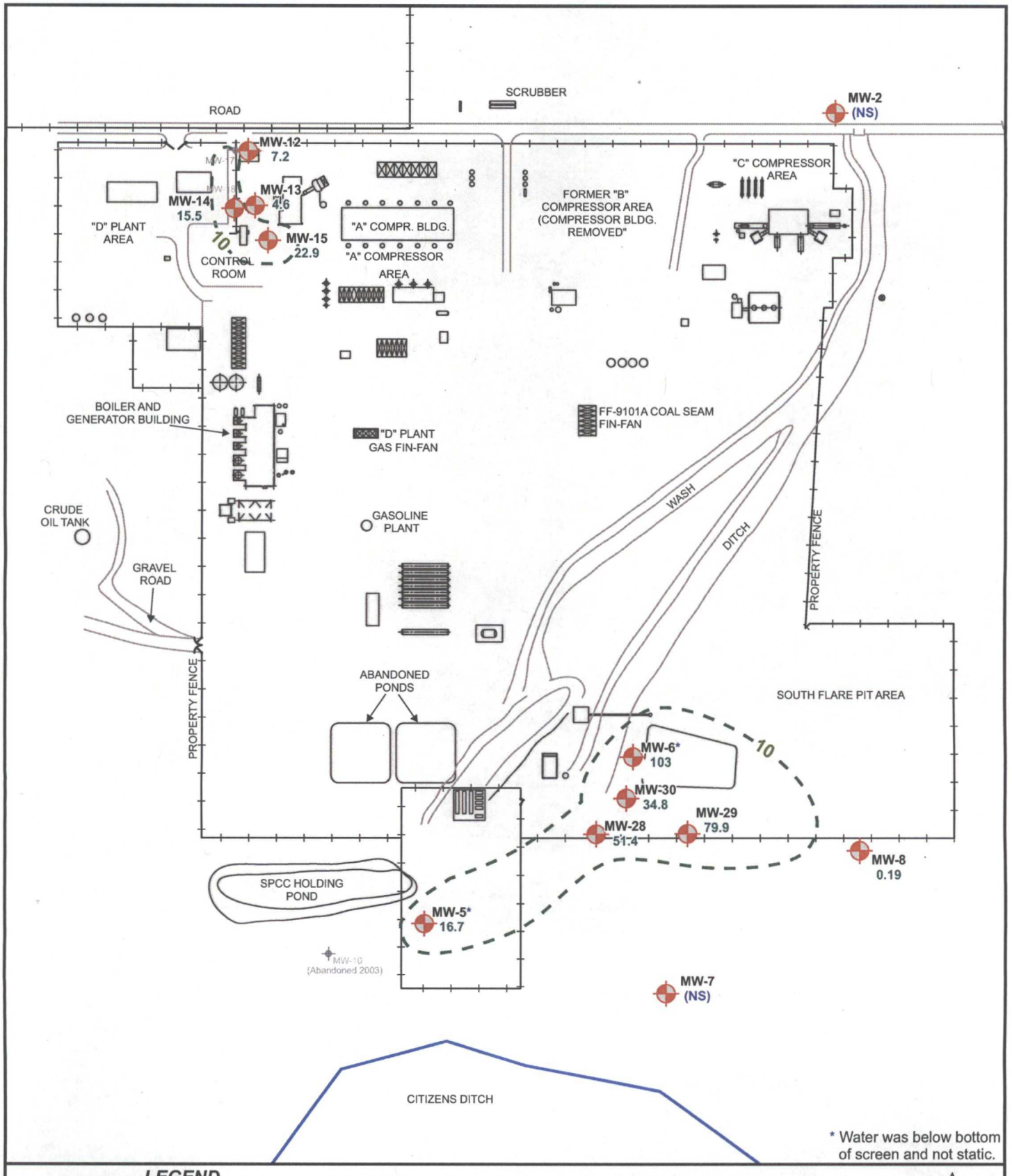

MWH

elpaso

PROJECT: BLANCO SOUTH FLARE PIT

TITLE: Groundwater Elevation Contour Map, May 2010

FIGURE: 2




* Water was below bottom of screen and not static.

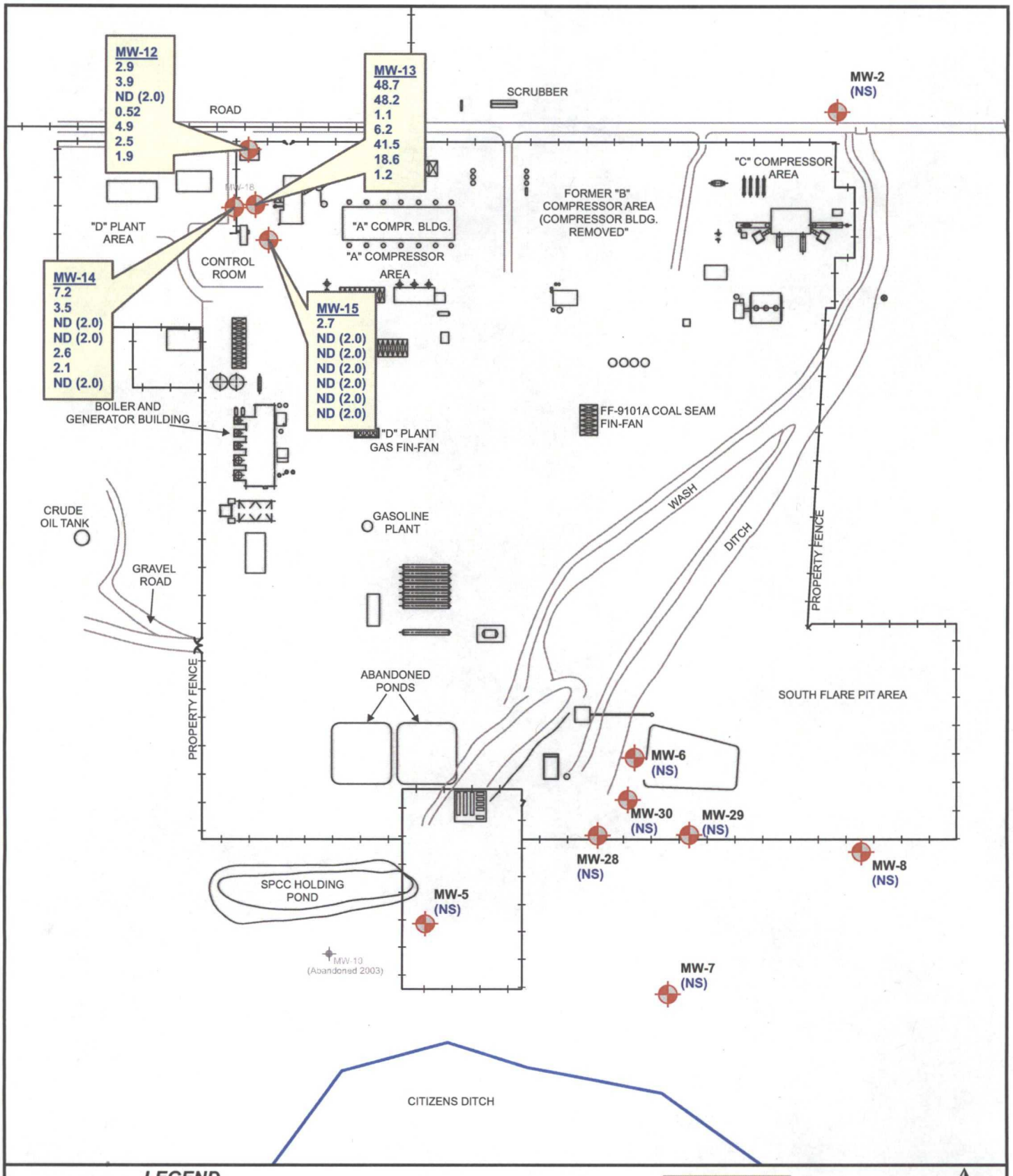
## LEGEND

| | | | |
|---|---|---|---|
| MW-4 | Existing Monitoring / Observation Well | ND | Not detected (reporting limit shown in parentheses) |
| | Public Irrigation Ditch | (NS) | Well Not Sampled |
| | Property Boundary And Fence Line | 100 | Nitrate + Nitrite Concentration (mg/L) |
| | | | Nitrate + Nitrite Isoconcentration Contour (Dashed Where Infered) |

APPROXIMATE SCALE
0 250 500
Feet

MWH elpaso

| | |
|---|---|
| PROJECT: | BLANCO SOUTH FLARE PIT |
| TITLE: | Groundwater Nitrate+Nitrite Concentrations, May 2010 |
| FIGURE: | 3 |




## LEGEND

MW-4 — Existing Monitoring / Observation Well

Public Irrigation Ditch

Property Boundary And Fence Line

(NS) — Well Not Sampled

ND (2.0) — Not detected (reporting limit shown in parentheses)

**WELL ID**
1,1-DCA (ug/L)
1,2-DCB (ug/L)
1,1-DCE (ug/L)
trans-1,2-DCE (ug/L)
cis-1,2-DCE (ug/L)
TCE (ug/L)
PCE (ug/L)

N

APPROXIMATE SCALE 0 250 Feet

MWH

elpaso

PROJECT: BLANCO SOUTH FLARE PIT

TITLE: Groundwater Chlorinated Hydrocarbon Concentrations, May 2010

FIGURE: 4

# APPENDIX A

## Field Sampling Forms

COMPLIANCE / ENGINEERING / REMEDIATION

LT Environmental Inc.
2243 Main Ave, Ste 3
Durango, Colorado 81301
T 970.385.1096

# WATER LEVEL DATA

**Project Name:** San Juan Basin Groundwater
**Project Manager:** Ashley Ager
**Client:** MWH
**Site Name:** Blanco Plant
**Date:** 5/25/2010

| Well | Time | Depth to Product (ft) | Depth to Water (ft) | Product Thickness (ft) | Volume Removed | Comments |
|---|---|---|---|---|---|---|
| MW-2 | 7:55 AM | - | - | - | - | Dry at 58.76 |
| MW-5 | | - | 20.44 | - | - | Sample Nitrates/Nitrites |
| MW-6 | | - | 29.67 | - | - | Sample Nitrates/Nitrites |
| MW-7 | | - | - | - | - | Dry at 21.30 |
| MW-8 | | - | 34.40 | - | - | Sample Nitrates/Nitrites |
| MW-12 | | - | 15.90 | - | - | Sample CHCs/Nitrates/Nitrites |
| MW-13 | | - | 14.60 | - | - | Sample CHCs/Nitrates/Nitrites |
| MW-14 | | - | 15.55 | - | - | Sample CHCs/Nitrates/Nitrites |
| MW-15 | | - | 18.53 | - | - | Sample CHCs/Nitrates/Nitrites |
| MW-28 | | - | 29.79 | - | - | Sample Nitrates/Nitrites |
| MW-29 | | - | 31.97 | - | - | Sample Nitrates/Nitrites |
| MW-30 | | - | 31.91 | - | - | Sample Nitrates/Nitrites |

Comments

Signature: Ashley L. Ager
Date: 5/31/2010

COMPLIANCE / ENGINEERING / REMEDIATION

LT Environmental Inc.
2243 Main Avenue, Suite 3
Durango, Colorado 81301
T 970.385.1096

# WELL DEVELOPMENT AND SAMPLING LOG

Project Name: San Juan Basin | Location: Blanco Plant | Well No: MW-5
Client: MWH | Date: 5/25/2010 | Time: 10:22
Project Manager: Ashley Ager | Sampler's Name: Troy Urban

Measuring Point: TOC | Depth to Water: 20.44 ft | Depth to Product: ft
Well Diameter: 4" | Total Depth: 20.74 ft | Product Thickness: ft
Water Column Height: 0.3 ft

Sampling Method: ☐ Submersible Pump ☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Other
☑ Bottom Valve Bailer ☐ Double Check Valve Bailer

Criteria: ☑ 3 to 5 Casing Volumes of Water Removal ☑ Stabilization of Indicator Parameters ☑ Other bail dry

| Water Volume in Well | | | |
|---|---|---|---|
| Gal/ft x ft of water | Gallons | Ounces | Volume to be removed |
| 0.3 x .65 | 0.195 x 3 | | 0.585 gal |

| Time (military) | pH (su) | SC (ms) | Temp (°F) | ORP (millivolts) | D.O. (mg/L) | Turbidity (NTU) | Vol Evac. gal | Comments/Flow Rate |
|---|---|---|---|---|---|---|---|---|
| 10:22 | 6.96 | 1.68 | 62.8 | | | | 0.065 | clear |
| | 7.11 | 1.71 | 59.5 | | | | 0.24 | clear |
| | 7.10 | 1.70 | 59.7 | | | | 0.2 | clear |
| | 7.19 | 1.72 | 58.3 | | | | 0.27 | clear |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| **Final:** 10:42 | 7.19 | 1.80 | 58.1 | | | | 0.3 | Bailed dry |

COMMENTS: Well bailed dry during purging.

Instrumentation: ☑ pH Meter ☐ DO Monitor ☑ Conductivity Meter ☑ Temperature Meter ☐ Other

Water Disposal: Rio Vista

Sample ID: MW-12 | Sample Time: 10:39

Analysis Requested: ☐ BTEX ☐ VOCs ☐ Alkalinity ☐ TDS ☐ Cations ☐ Anions ☑ Nitrate ☑ Nitrite ☐ Metals
☐ Other

Trip Blank: 05252010TB01 | Duplicate Sample:

COMPLIANCE / ENGINEERING / REMEDIATION

LT Environmental Inc.
2243 Main Avenue, Suite 3
Durango, Colorado 81301
T 970.385.1096

# WELL DEVELOPMENT AND SAMPLING LOG

Project Name: San Juan Basin | Location: Blanco Plant | Well No: MW-6
Client: MWH | Date: 5/25/2010 | Time: 12:28
Project Manager: Ashley Ager | Sampler's Name: Troy Urban

Measuring Point: TOC | Depth to Water: 29.67 ft | Depth to Product: ft
Well Diameter: 4" | Total Depth: 31.22 ft | Product Thickness: ft
Water Column Height: 1.55 ft

Sampling Method: ☐ Submersible Pump ☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Other
☑ Bottom Valve Bailer ☐ Double Check Valve Bailer

Criteria: ☑ 3 to 5 Casing Volumes of Water Removal ☑ Stabilization of Indicator Parameters ☑ Other bail dry

| Water Volume in Well | | | |
|---|---|---|---|
| Gal/ft x ft of water | Gallons | Ounces | Volume to be removed |
| 1.55 x .65 | 1 | | 3 gal |

| Time (military) | pH (su) | SC (ms) | Temp (°F) | ORP (millivolts) | D.O. (mg/L) | Turbidity (NTU) | Vol Evac. gal | Comments/Flow Rate |
|---|---|---|---|---|---|---|---|---|
| 12:26 | 6.88 | 3.62 | 65.3 | | | | 0.2 | clear |
| | 6.91 | 3.60 | 64.8 | | | | 5 | clear |
| | 6.94 | 3.64 | 64.2 | | | | 0.75 | clear |
| | 6.93 | 3.70 | 63.0 | | | | 1 | clear |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| Final: 12:35 | 6.97 | 3.63 | 64.0 | | | | 1.1 | bailed dry |

COMMENTS: Well bailed dry during purging.

Instrumentation: ☑ pH Meter ☐ DO Monitor ☑ Conductivity Meter ☑ Temperature Meter ☐ Other

Water Disposal: Rio Vista

Sample ID: MW-6 | Sample Time: 12:32

Analysis Requested: ☐ BTEX ☐ VOCs ☐ Alkalinity ☐ TDS ☐ Cations ☐ Anions ☑ Nitrate ☑ Nitrite ☐ Metals
☐ Other

Trip Blank: 05252010TB01 | Duplicate Sample:

COMPLIANCE / ENGINEERING / REMEDIATION

LT Environmental Inc.
2243 Main Avenue, Suite 3
Durango, Colorado 81301
T 970.385.1096

# WELL DEVELOPMENT AND SAMPLING LOG

Project Name: San Juan Basin | Location: Blanco Plant | Well No: MW-8
Client: MWH | Date: 5/25/2010 | Time: 13:24
Project Manager: Ashley Ager | Sampler's Name: Troy Urban

Measuring Point: TOC | Depth to Water: 34.4 ft | Depth to Product: ____ ft
Well Diameter: 4" | Total Depth: 36.5 ft | Product Thickness: ____ ft
Water Column Height: 2.1 ft

Sampling Method: ☐ Submersible Pump ☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Other ____
☑ Bottom Valve Bailer ☐ Double Check Valve Bailer

Criteria: ☑ 3 to 5 Casing Volumes of Water Removal ☑ Stabilization of Indicator Parameters ☑ Other bail dry

| Water Volume in Well | | | |
|---|---|---|---|
| Gal/ft x ft of water | Gallons | Ounces | Volume to be removed |
| 2.1 x .65 | 1.37 x 3 | | 4.1 gal |

| Time (military) | pH (su) | SC (ms) | Temp (°F) | ORP (millivolts) | D.O. (mg/L) | Turbidity (NTU) | Vol Evac. gal | Comments/Flow Rate |
|---|---|---|---|---|---|---|---|---|
| 13:28 | 7.26 | 4.81 | 62.6 | | | | 0.25 | clear |
| | 7.26 | 4.88 | 61.2 | | | | 0.5 | clear |
| | 7.46 | 4.97 | 62.2 | | | | 0.75 | clear |
| | 7.48 | 4.94 | 61.2 | | | | 1 | clear |
| | 7.36 | 4.96 | 60.6 | | | | 1.5 | clear |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| Final: 13:40 | 7.36 | 4.93 | 60.8 | | | | 1.75 | bailed dry |

COMMENTS: Well bailed dry during purging.

Instrumentation: ☑ pH Meter ☐ DO Monitor ☑ Conductivity Meter ☑ Temperature Meter ☐ Other ____

Water Disposal: Rio Vista

Sample ID: MW-8 | Sample Time: 13:36

Analysis Requested: ☐ BTEX ☐ VOCs ☐ Alkalinity ☐ TDS ☐ Cations ☐ Anions ☑ Nitrate ☑ Nitrite ☐ Metals
☐ Other ____

Trip Blank: 05252010TB01 | Duplicate Sample: ____

COMPLIANCE / ENGINEERING / REMEDIATION

LT Environmental Inc.
2243 Main Avenue, Suite 3
Durango, Colorado 81301
T 970.385.1096

# WELL DEVELOPMENT AND SAMPLING LOG

Project Name: San Juan Basin | Location: Blanco Plant | Well No: MW-12
Client: MWH | Date: 5/25/2010 | Time: 9:45
Project Manager: Ashley Ager | Sampler's Name: Troy Urban

Measuring Point: TOC | Depth to Water: 15.9 ft | Depth to Product: ft
Well Diameter: 2" | Total Depth: 24.48 ft | Product Thickness: ft
Water Column Height: 8.58 ft

Sampling Method: ☐ Submersible Pump ☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Other
☑ Bottom Valve Bailer ☐ Double Check Valve Bailer

Criteria: ☑ 3 to 5 Casing Volumes of Water Removal ☑ Stabilization of Indicator Parameters ☑ Other bail dry

| Water Volume in Well | | | |
|---|---|---|---|
| Gal/ft x ft of water | Gallons | Ounces | Volume to be removed |
| 8.58 x .16 | 1.37 x 3 | | 4.11 gal |

| Time (military) | pH (su) | SC (ms) | Temp (°F) | ORP (millivolts) | D.O. (mg/L) | Turbidity (NTU) | Vol Evac. gal | Comments/Flow Rate |
|---|---|---|---|---|---|---|---|---|
| 9:47 | 8.32 | 3.81 | 59.4 | | | | 0.5 | clear |
| | 8.46 | 3.94 | 58.8 | | | | 1 | clear |
| | 8.09 | 4.21 | 59.2 | | | | 1.5 | clear |
| | 7.94 | 4.80 | 58.9 | | | | 2 | clear |
| | 7.82 | 5.19 | 59.0 | | | | 3 | clear |
| | 7.80 | 5.37 | 59.4 | | | | 4 | bailing down, clear |
| | 7.78 | 5.40 | 59.1 | | | | 4.5 | bailing down, clear |
| | 7.67 | 5.40 | 59.3 | | | | 4.75 | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| **Final:** 9:12 | 7.68 | 5.42 | 59.00 | | | | 4.9 | Bailed dry |

COMMENTS: Well bailed dry during purging.

Instrumentation: ☑ pH Meter ☐ DO Monitor ☑ Conductivity Meter ☑ Temperature Meter ☐ Other

Water Disposal: Rio Vista

Sample ID: MW-12 | Sample Time: 9:45

Analysis Requested: ☐ BTEX ☐ VOCs ☐ Alkalinity ☐ TDS ☐ Cations ☐ Anions ☑ Nitrate ☑ Nitrite ☐ Metals
☐ Other CHCs

Trip Blank: 05252010TB01 | Duplicate Sample:

COMPLIANCE / ENGINEERING / REMEDIATION

LT Environmental Inc.
2243 Main Avenue, Suite 3
Durango, Colorado 81301
T 970.385.1096

# WELL DEVELOPMENT AND SAMPLING LOG

Project Name: San Juan Basin | Location: Blanco Plant | Well No: MW-13
Client: MWH | Date: 5/25/2010 | Time: 9:17
Project Manager: Ashley Ager | Sampler's Name: Troy Urban

Measuring Point: TOC | Depth to Water: 13.6 ft | Depth to Product: ft
Well Diameter: 2" | Total Depth: 23.05 ft | Product Thickness: ft
Water Column Height: 9.45 ft

Sampling Method: ☐ Submersible Pump ☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Other
☑ Bottom Valve Bailer ☐ Double Check Valve Bailer

Criteria: ☑ 3 to 5 Casing Volumes of Water Removal ☑ Stabilization of Indicator Parameters ☑ Other bail dry

| Water Volume in Well | | | |
|---|---|---|---|
| Gal/ft x ft of water | Gallons | Ounces | Volume to be removed |
| 9.45 x .16 | 1.51 x 3 | | 4.54 gal |

| Time (military) | pH (su) | SC (ms) | Temp (°F) | ORP (millivolts) | D.O. (mg/L) | Turbidity (NTU) | Vol Evac. gal | Comments/Flow Rate |
|---|---|---|---|---|---|---|---|---|
| 9:20 | 7.11 | 6.21 | 59.7 | | | | 0.5 | clear |
| | 7.00 | 7.53 | 59.7 | | | | 1 | clear |
| | 7.05 | 8.26 | 60.8 | | | | 1.5 | clear |
| | 7.14 | 7.89 | 60.4 | | | | 2 | clear |
| | 7.13 | 8.10 | 60.8 | | | | 2.5 | clear |
| | 7.06 | 8.30 | 61.2 | | | | 3 | bailing down, clear |
| | 7.11 | 8.47 | 60.4 | | | | 3.75 | bailing down, clear |
| | 7.03 | 8.52 | 60.4 | | | | 4 | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| Final: 9:12 | 7.09 | 8.48 | 60.6 | | | | 4.5 | Bailed dry |

COMMENTS: Well bailed dry during purging.

Instrumentation: ☑ pH Meter ☐ DO Monitor ☑ Conductivity Meter ☑ Temperature Meter ☐ Other

Water Disposal: Rio Vista

Sample ID: MW-13 | Sample Time: 9:35

Analysis Requested: ☐ BTEX ☐ VOCs ☐ Alkalinity ☐ TDS ☐ Cations ☐ Anions ☑ Nitrate ☑ Nitrite ☐ Metals
☐ Other CHCs

Trip Blank: 05252010TB01 | Duplicate Sample:

COMPLIANCE / ENGINEERING / REMEDIATION

LT Environmental Inc.
2243 Main Avenue, Suite 3
Durango, Colorado 81301
T 970.385.1096

# WELL DEVELOPMENT AND SAMPLING LOG

Project Name: San Juan Basin | Location: Blanco Plant | Well No: MW-14
Client: MWH | Date: 5/25/2010 | Time: 12:56
Project Manager: Ashley Ager | Sampler's Name: Troy Urban

Measuring Point: TOC | Depth to Water: 15.55 ft | Depth to Product: ft
Well Diameter: 2" | Total Depth: 27.43 ft | Product Thickness: ft
Water Column Height: 11.88 ft

Sampling Method: ☐ Submersible Pump ☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Other
☑ Bottom Valve Bailer ☐ Double Check Valve Bailer

Criteria: ☑ 3 to 5 Casing Volumes of Water Removal ☑ Stabilization of Indicator Parameters ☑ Other bail dry

| Water Volume in Well | | | |
|---|---|---|---|
| Gal/ft x ft of water | Gallons | Ounces | Volume to be removed |
| 11.88 x .16 | 1.9 x 3 | | 5.7 gal |

| Time (military) | pH (su) | SC (ms) | Temp (°F) | ORP (millivolts) | D.O. (mg/L) | Turbidity (NTU) | Vol Evac. gal | Comments/Flow Rate |
|---|---|---|---|---|---|---|---|---|
| 12:58 | 7.25 | 5.91 | 65.3 | | | | 0.25 | clear |
| | 7.30 | 5.53 | 64.0 | | | | 0.5 | clear |
| | 7.29 | 5.92 | 62.4 | | | | 0.75 | clear |
| | 7.24 | 5.92 | 63.3 | | | | 1 | slightly yellow |
| | 7.20 | 8.12 | 64.3 | | | | 2 | bailing down |
| | 7.25 | 8.28 | 64.6 | | | | 2.5 | bailing down |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| **Final:** 13:10 | 7.33 | 8.29 | 64.6 | | | | 2.75 | bailed dry |

COMMENTS: Well bailed dry during purging.

Instrumentation: ☑ pH Meter ☐ DO Monitor ☑ Conductivity Meter ☑ Temperature Meter ☐ Other

Water Disposal: Rio Vista

Sample ID: MW-14 | Sample Time: 13:05

Analysis Requested: ☐ BTEX ☐ VOCs ☐ Alkalinity ☐ TDS ☐ Cations ☐ Anions ☑ Nitrate ☑ Nitrite ☐ Metals
☐ Other CHCs

Trip Blank: 05252010TB01 | Duplicate Sample:

COMPLIANCE / ENGINEERING / REMEDIATION

LT Environmental Inc.
2243 Main Avenue, Suite 3
Durango, Colorado 81301
T 970.385.1096

# WELL DEVELOPMENT AND SAMPLING LOG

Project Name: San Juan Basin | Location: Blanco Plant | Well No: MW-15
Client: MWH | Date: 5/25/2010 | Time: 8:43
Project Manager: Ashley Ager | Sampler's Name: Troy Urban

Measuring Point: TOC | Depth to Water: 18.53 ft | Depth to Product: ft
Well Diameter: 2" | Total Depth: 36.75 ft | Product Thickness: ft
Water Column Height: 18.22 ft

Sampling Method: ☐ Submersible Pump ☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Other
☑ Bottom Valve Bailer ☐ Double Check Valve Bailer

Criteria: ☑ 3 to 5 Casing Volumes of Water Removal ☑ Stabilization of Indicator Parameters ☑ Other bail dry

| Water Volume in Well | | | |
|---|---|---|---|
| Gal/ft x ft of water | Gallons | Ounces | Volume to be removed |
| 18.22 x .16 | 2.92 x 3 | | 8.75 gal |

| Time (military) | pH (su) | SC (ms) | Temp (°F) | ORP (millivolts) | D.O. (mg/L) | Turbidity (NTU) | Vol Evac. gal | Comments/Flow Rate |
|---|---|---|---|---|---|---|---|---|
| 8:50 | 5.52 | 7.66 | 62.4 | | | | 0.5 | yellow |
| | 5.54 | 8.38 | 62.8 | | | | 1 | yellow |
| | 5.23 | 8.89 | 63.7 | | | | 1.5 | yellow |
| | 5.30 | 8.75 | 63.5 | | | | 2 | yellow |
| | 4.71 | 10.11 | 62.4 | | | | 2.5 | yellow |
| | 4.62 | 10.07 | 62.6 | | | | 3 | bailing down, yellow |
| | 4.60 | 10.13 | 62.8 | | | | 3.1 | bailing down, yellow |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| Final: 9:12 | 4.55 | 10.14 | 62.9 | | | | 3.3 | Bailed dry |

COMMENTS: Well bailed dry during purging.

Instrumentation: ☑ pH Meter ☐ DO Monitor ☑ Conductivity Meter ☑ Temperature Meter ☐ Other

Water Disposal: Rio Vista

Sample ID: MW-15 | Sample Time: 9:10

Analysis Requested: ☐ BTEX ☐ VOCs ☐ Alkalinity ☐ TDS ☐ Cations ☐ Anions ☑ Nitrate ☑ Nitrite ☐ Metals
☐ Other CHCs

Trip Blank: 05252010TB01 | Duplicate Sample:

COMPLIANCE / ENGINEERING / REMEDIATION

LT Environmental Inc.
2243 Main Avenue, Suite 3
Durango, Colorado 81301
T 970.385.1096

# WELL DEVELOPMENT AND SAMPLING LOG

Project Name: San Juan Basin | Location: Blanco Plant | Well No: MW-28
Client: MWH | Date: 5/25/2010 | Time: 10:51
Project Manager: Ashley Ager | Sampler's Name: Troy Urban

Measuring Point: TOC | Depth to Water: 29.79 ft | Depth to Product: ft
Well Diameter: 4" | Total Depth: 33.24 ft | Product Thickness: ft
Water Column Height: 3.45 ft

Sampling Method: ☐ Submersible Pump ☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Other
☑ Bottom Valve Bailer ☐ Double Check Valve Bailer

Criteria: ☑ 3 to 5 Casing Volumes of Water Removal ☑ Stabilization of Indicator Parameters ☑ Other bail dry

| Water Volume in Well | | | |
|---|---|---|---|
| Gal/ft x ft of water | Gallons | Ounces | Volume to be removed |
| 3.45 x .65 | 2.24 x 3 | | 6.72 gal |

| Time (military) | pH (su) | SC (ms) | Temp (°F) | ORP (millivolts) | D.O. (mg/L) | Turbidity (NTU) | Vol Evac. gal | Comments/Flow Rate |
|---|---|---|---|---|---|---|---|---|
| 10:55 | 6.77 | 2.91 | 64.4 | | | | 0.25 | clear |
| | 6.84 | 3.18 | 63.1 | | | | 0.5 | clear |
| | 6.94 | 3.30 | 64.0 | | | | 0.75 | clear |
| | 6.97 | 3.52 | 63.1 | | | | 1 | clear |
| | 6.86 | 3.56 | 62.6 | | | | 1.5 | cloudier |
| | 6.92 | 3.47 | 62.4 | | | | 1.75 | tan, cloudy |
| | 6.97 | 3.40 | 62.1 | | | | 2 | tan, cloudy |
| | 6.76 | 3.42 | 61.9 | | | | 2.2 | tan, cloudy |
| | 6.87 | 3.47 | 62.4 | | | | 2.3 | tan, cloudy |
| | 7.04 | 3.43 | 62.1 | | | | 2.5 | recovering very slowly |
| | 6.93 | 3.5 | 62.6 | | | | 3 | tan |
| Final: 10:42 | 6.96 | 3.52 | 63.9 | | | | 3.75 | bailed dry |

COMMENTS: Well bailed dry during purging.

Instrumentation: ☑ pH Meter ☐ DO Monitor ☑ Conductivity Meter ☑ Temperature Meter ☐ Other

Water Disposal: Rio Vista

Sample ID: MW-28 | Sample Time: 11:26

Analysis Requested: ☐ BTEX ☐ VOCs ☐ Alkalinity ☐ TDS ☐ Cations ☐ Anions ☑ Nitrate ☑ Nitrite ☐ Metals
☐ Other

Trip Blank: 05252010TB01 | Duplicate Sample:

COMPLIANCE / ENGINEERING / REMEDIATION

LT Environmental Inc.
2243 Main Avenue, Suite 3
Durango, Colorado 81301
T 970.385.1096

# WELL DEVELOPMENT AND SAMPLING LOG

Project Name: San Juan Basin | Location: Blanco Plant | Well No: MW-29
Client: MWH | Date: 5/25/2010 | Time: 11:36
Project Manager: Ashley Ager | Sampler's Name: Troy Urban

Measuring Point: TOC | Depth to Water: 31.97 ft | Depth to Product: ____ ft
Well Diameter: 4" | Total Depth: 37.11 ft | Product Thickness: ____ ft
Water Column Height: 5.14 ft

Sampling Method: ☐ Submersible Pump ☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Other ____
☑ Bottom Valve Bailer ☐ Double Check Valve Bailer

Criteria: ☑ 3 to 5 Casing Volumes of Water Removal ☑ Stabilization of Indicator Parameters ☑ Other bail dry

| Water Volume in Well | | | |
|---|---|---|---|
| Gal/ft x ft of water | Gallons | Ounces | Volume to be removed |
| 5.14 x .65 | 3.35 x 3 | | 10 gal |

| Time (military) | pH (su) | SC (ms) | Temp (°F) | ORP (millivolts) | D.O. (mg/L) | Turbidity (NTU) | Vol Evac. gal | Comments/Flow Rate |
|---|---|---|---|---|---|---|---|---|
| 11:38 | 7.05 | 4.01 | 63.5 | | | | 0.75 | clear |
| | 7.08 | 3.97 | 63.1 | | | | 1.5 | clear |
| | 7.17 | 4.08 | 61.5 | | | | 2.5 | clear |
| | 7.17 | 3.98 | 62.8 | | | | 3 | clear |
| | 7.24 | 4.07 | 61.7 | | | | 4 | cloudier |
| | 7.25 | 4.04 | 62.2 | | | | 4.25 | tan, cloudy |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| **Final:** 11:55 | 7.32 | 4.06 | 61.9 | | | | 5 | bailed dry |

COMMENTS: Well bailed dry during purging.

Instrumentation: ☑ pH Meter ☐ DO Monitor ☑ Conductivity Meter ☑ Temperature Meter ☐ Other ____

Water Disposal: Rio Vista

Sample ID: MW-29 | Sample Time: 11:26

Analysis Requested: ☐ BTEX ☐ VOCs ☐ Alkalinity ☐ TDS ☐ Cations ☐ Anions ☑ Nitrate ☑ Nitrite ☐ Metals
☐ Other ____

Trip Blank: 05252010TB01 | Duplicate Sample: ____

COMPLIANCE / ENGINEERING / REMEDIATION

LT Environmental Inc.
2243 Main Avenue, Suite 3
Durango, Colorado 81301
T 970.385.1096

# WELL DEVELOPMENT AND SAMPLING LOG

Project Name: San Juan Basin | Location: Blanco Plant | Well No: MW-30
Client: MWH | Date: 5/25/2010 | Time: 12:03
Project Manager: Ashley Ager | Sampler's Name: Troy Urban

Measuring Point: TOC | Depth to Water: 31.91 ft | Depth to Product: ft
Well Diameter: 4" | Total Depth: 36.9 ft | Product Thickness: ft
Water Column Height: 4.99 ft

Sampling Method: ☐ Submersible Pump ☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Other
☑ Bottom Valve Bailer ☐ Double Check Valve Bailer

Criteria: ☑ 3 to 5 Casing Volumes of Water Removal ☑ Stabilization of Indicator Parameters ☑ Other bail dry

| Water Volume in Well | | | |
|---|---|---|---|
| Gal/ft x ft of water | Gallons | Ounces | Volume to be removed |
| 4.99 x .65 | 3.24 x 3 | | 9.7 gal |

| Time (military) | pH (su) | SC (ms) | Temp (°F) | ORP (millivolts) | D.O. (mg/L) | Turbidity (NTU) | Vol Evac. gal | Comments/Flow Rate |
|---|---|---|---|---|---|---|---|---|
| 12:05 | 6.97 | 3.53 | 64.4 | | | | 0.5 | clear |
| | 6.73 | 3.62 | 633.0 | | | | 1 | clear |
| | 6.91 | 3.57 | 63.7 | | | | 1.5 | clear |
| | 6.80 | 3.56 | 63.5 | | | | 2 | clear |
| | 6.93 | 3.60 | 63.5 | | | | 2.5 | clear |
| | 6.84 | 3.63 | 63.0 | | | | 3 | clear |
| | 6.97 | 3.56 | 64.0 | | | | 3.5 | |
| | 7.03 | 3.62 | 63.0 | | | | 3.75 | |
| | 7.05 | 3.58 | 63.3 | | | | 4 | |
| | | | | | | | | |
| | | | | | | | | |
| Final: 12:20 | 7.03 | 3.63 | 62.8 | | | | 4.25 | bailed dry |

COMMENTS: Well bailed dry during purging.

Instrumentation: ☑ pH Meter ☐ DO Monitor ☑ Conductivity Meter ☑ Temperature Meter ☐ Other

Water Disposal: Rio Vista

Sample ID: MW-30 Sample Time: 11:26

Analysis Requested: ☐ BTEX ☐ VOCs ☐ Alkalinity ☐ TDS ☐ Cations ☐ Anions ☑ Nitrate ☑ Nitrite ☐ Metals
☐ Other

Trip Blank: 05252010TB01 Duplicate Sample:

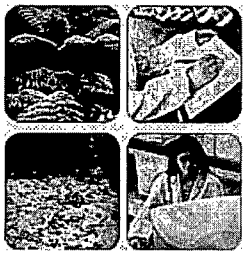
# APPENDIX B

# Laboratory Analytical Report

Gulf Coast ACCUTEST Laboratories

IT'S ALL IN THE CHEMISTRY

06/11/10



## Technical Report for

Montgomery Watson

Blanco Plant South Flare Pit

1008640.0101

Accutest Job Number: T53403

Sampling Date: 05/25/10

Report to:

1801 California St.
Suite 2900
DENVER, CO 80202
jed.smith@mwhglobal.com; daniel.a.wade@mwhglobal.com;
craig.moore@mwhglobal.com
ATTN: JED SMITH

Total number of pages in report: **35**

ACCREDITED IN ACCORDANCE WITH nelac

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Paul K Canevaro

Paul Canevaro
Laboratory Director

ACCUTEST LABORATORIES 50 YEARS 1956-2006

Client Service contact: Georgia Jones 713-271-4700

Certifications: TX (T104704220-09C-TX) AR (88-0756) FL (E87628) KS (E-10366) LA (85695/04004) OK (9103) UT(7132714700)


Test results relate only to samples analyzed.

Sections: 1 2 3 4 5

# Table of Contents

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Accutest Laboratories

# Sample Summary

Montgomery Watson

Job No: T53403

Blanco Plant South Flare Pit
Project No: 1008640.0101

| Sample Number | Collected Date | Time | By | Received | Matrix Code | Matrix Type | Client Sample ID |
|---|---|---|---|---|---|---|---|
| T53403-1 | 05/25/10 | 09:10 | | 05/27/10 | AQ | Ground Water | MW-15 |
| T53403-2 | 05/25/10 | 09:35 | | 05/27/10 | AQ | Ground Water | MW-13 |
| T53403-3 | 05/25/10 | 10:02 | | 05/27/10 | AQ | Ground Water | MW-12 |
| T53403-4 | 05/25/10 | 10:39 | | 05/27/10 | AQ | Ground Water | MW-5 |
| T53403-5 | 05/25/10 | 11:26 | | 05/27/10 | AQ | Ground Water | MW-28 |
| T53403-6 | 05/25/10 | 11:53 | | 05/27/10 | AQ | Ground Water | MW-29 |
| T53403-7 | 05/25/10 | 12:18 | | 05/27/10 | AQ | Ground Water | MW-30 |
| T53403-8 | 05/25/10 | 12:32 | | 05/27/10 | AQ | Ground Water | MW-6 |
| T53403-9 | 05/25/10 | 13:05 | | 05/27/10 | AQ | Ground Water | MW-14 |
| T53403-10 | 05/25/10 | 13:36 | | 05/27/10 | AQ | Ground Water | MW-8 |
| T53403-11 | 05/25/10 | 07:00 | | 05/27/10 | AQ | Trip Blank Water | 250510TB01 |

## Sample Results

### Report of Analysis

Accutest Laboratories

# Report of Analysis



| | | | |
|---|---|---|---|
| Client Sample ID: | MW-15 | | |
| Lab Sample ID: | T53403-1 | Date Sampled: | 05/25/10 |
| Matrix: | AQ - Ground Water | Date Received: | 05/27/10 |
| Method: | SW846 8260B | Percent Solids: | n/a |
| Project: | Blanco Plant South Flare Pit | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | C0009454.D | 1 | 05/29/10 | JL | n/a | n/a | VC427 |
| Run #2 | | | | | | | |

| | Purge Volume |
|---|---|
| Run #1 | 5.0 ml |
| Run #2 | |

Volatile special list.

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 75-34-3 | 1,1-Dichloroethane | 2.7 | 2.0 | 0.52 | ug/l | |
| 75-35-4 | 1,1-Dichloroethylene | ND | 2.0 | 0.50 | ug/l | |
| 156-59-2 | cis-1,2-Dichloroethylene | ND | 2.0 | 0.56 | ug/l | |
| 95-50-1 | o-Dichlorobenzene | ND | 2.0 | 0.69 | ug/l | |
| 156-60-5 | trans-1,2-Dichloroethylene | ND | 2.0 | 0.45 | ug/l | |
| 127-18-4 | Tetrachloroethylene | ND | 2.0 | 0.91 | ug/l | |
| 79-01-6 | Trichloroethylene | ND | 2.0 | 0.52 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 1868-53-7 | Dibromofluoromethane | 95% | | 79-122% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 88% | | 75-121% |
| 2037-26-5 | Toluene-D8 | 93% | | 87-119% |
| 460-00-4 | 4-Bromofluorobenzene | 89% | | 80-133% |

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

# Report of Analysis



| | | | |
|---|---|---|---|
| Client Sample ID: | MW-15 | | |
| Lab Sample ID: | T53403-1 | Date Sampled: | 05/25/10 |
| Matrix: | AQ - Ground Water | Date Received: | 05/27/10 |
| | | Percent Solids: | n/a |
| Project: | Blanco Plant South Flare Pit | | |

General Chemistry

| Analyte | Result | RL | Units | DF | Analyzed | By | Method |
|---|---|---|---|---|---|---|---|
| Nitrogen, Nitrate + Nitrite | 22.9 | 1.0 | mg/l | 10 | 06/08/10 12:23 | CV | EPA 353.2 |

RL = Reporting Limit

Accutest Laboratories

# Report of Analysis



| | | | |
|---|---|---|---|
| Client Sample ID: | MW-13 | | |
| Lab Sample ID: | T53403-2 | Date Sampled: | 05/25/10 |
| Matrix: | AQ - Ground Water | Date Received: | 05/27/10 |
| Method: | SW846 8260B | Percent Solids: | n/a |
| Project: | Blanco Plant South Flare Pit | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | F026181.D | 1 | 05/29/10 | JL | n/a | n/a | VF3871 |
| Run #2 | | | | | | | |

| | Purge Volume |
|---|---|
| Run #1 | 5.0 ml |
| Run #2 | |

Volatile special list.

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 75-34-3 | 1,1-Dichloroethane | 48.7 | 2.0 | 0.52 | ug/l | |
| 75-35-4 | 1,1-Dichloroethylene | 1.1 | 2.0 | 0.50 | ug/l | J |
| 156-59-2 | cis-1,2-Dichloroethylene | 41.5 | 2.0 | 0.56 | ug/l | |
| 95-50-1 | o-Dichlorobenzene | 48.2 | 2.0 | 0.69 | ug/l | |
| 156-60-5 | trans-1,2-Dichloroethylene | 6.2 | 2.0 | 0.45 | ug/l | |
| 127-18-4 | Tetrachloroethylene | 1.2 | 2.0 | 0.91 | ug/l | J |
| 79-01-6 | Trichloroethylene | 18.6 | 2.0 | 0.52 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 1868-53-7 | Dibromofluoromethane | 109% | | 79-122% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 102% | | 75-121% |
| 2037-26-5 | Toluene-D8 | 111% | | 87-119% |
| 460-00-4 | 4-Bromofluorobenzene | 100% | | 80-133% |

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

# Report of Analysis



| | | | |
|---|---|---|---|
| Client Sample ID: | MW-13 | | |
| Lab Sample ID: | T53403-2 | Date Sampled: | 05/25/10 |
| Matrix: | AQ - Ground Water | Date Received: | 05/27/10 |
| | | Percent Solids: | n/a |
| Project: | Blanco Plant South Flare Pit | | |

General Chemistry

| Analyte | Result | RL | Units | DF | Analyzed | By | Method |
|---|---|---|---|---|---|---|---|
| Nitrogen, Nitrate + Nitrite | 4.6 | 0.20 | mg/l | 2 | 06/08/10 12:21 | CV | EPA 353.2 |

RL = Reporting Limit

Accutest Laboratories

# Report of Analysis



| | | | |
|---|---|---|---|
| Client Sample ID: | MW-12 | | |
| Lab Sample ID: | T53403-3 | Date Sampled: | 05/25/10 |
| Matrix: | AQ - Ground Water | Date Received: | 05/27/10 |
| Method: | SW846 8260B | Percent Solids: | n/a |
| Project: | Blanco Plant South Flare Pit | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | F026182.D | 1 | 05/29/10 | JL | n/a | n/a | VF3871 |
| Run #2 | | | | | | | |

| | Purge Volume |
|---|---|
| Run #1 | 5.0 ml |
| Run #2 | |

Volatile special list.

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 75-34-3 | 1,1-Dichloroethane | 2.9 | 2.0 | 0.52 | ug/l | |
| 75-35-4 | 1,1-Dichloroethylene | ND | 2.0 | 0.50 | ug/l | |
| 156-59-2 | cis-1,2-Dichloroethylene | 4.9 | 2.0 | 0.56 | ug/l | |
| 95-50-1 | o-Dichlorobenzene | 3.9 | 2.0 | 0.69 | ug/l | |
| 156-60-5 | trans-1,2-Dichloroethylene | 0.52 | 2.0 | 0.45 | ug/l | J |
| 127-18-4 | Tetrachloroethylene | 1.9 | 2.0 | 0.91 | ug/l | J |
| 79-01-6 | Trichloroethylene | 2.5 | 2.0 | 0.52 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 1868-53-7 | Dibromofluoromethane | 111% | | 79-122% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 104% | | 75-121% |
| 2037-26-5 | Toluene-D8 | 115% | | 87-119% |
| 460-00-4 | 4-Bromofluorobenzene | 106% | | 80-133% |

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

# Report of Analysis



| | | | |
|---|---|---|---|
| Client Sample ID: | MW-12 | | |
| Lab Sample ID: | T53403-3 | Date Sampled: | 05/25/10 |
| Matrix: | AQ - Ground Water | Date Received: | 05/27/10 |
| | | Percent Solids: | n/a |
| Project: | Blanco Plant South Flare Pit | | |

General Chemistry

| Analyte | Result | RL | Units | DF | Analyzed | By | Method |
|---|---|---|---|---|---|---|---|
| Nitrogen, Nitrate + Nitrite | 7.2 | 0.20 | mg/l | 2 | 06/08/10 12:24 | CV | EPA 353.2 |

RL = Reporting Limit

Accutest Laboratories

# Report of Analysis



| | | | |
|---|---|---|---|
| Client Sample ID: | MW-5 | | |
| Lab Sample ID: | T53403-4 | Date Sampled: | 05/25/10 |
| Matrix: | AQ - Ground Water | Date Received: | 05/27/10 |
| | | Percent Solids: | n/a |
| Project: | Blanco Plant South Flare Pit | | |

General Chemistry

| Analyte | Result | RL | Units | DF | Analyzed | By | Method |
|---|---|---|---|---|---|---|---|
| Nitrogen, Nitrate + Nitrite | 16.7 | 1.0 | mg/l | 10 | 06/08/10 12:29 | CV | EPA 353.2 |

RL = Reporting Limit

Accutest Laboratories

# Report of Analysis



| | | | |
|---|---|---|---|
| Client Sample ID: | MW-28 | | |
| Lab Sample ID: | T53403-5 | Date Sampled: | 05/25/10 |
| Matrix: | AQ - Ground Water | Date Received: | 05/27/10 |
| | | Percent Solids: | n/a |
| Project: | Blanco Plant South Flare Pit | | |

General Chemistry

| Analyte | Result | RL | Units | DF | Analyzed | By | Method |
|---|---|---|---|---|---|---|---|
| Nitrogen, Nitrate + Nitrite | 51.4 | 2.0 | mg/l | 20 | 06/09/10 16:09 | CV | EPA 353.2 |

RL = Reporting Limit

Accutest Laboratories

# Report of Analysis



| | | | |
|---|---|---|---|
| Client Sample ID: | MW-29 | | |
| Lab Sample ID: | T53403-6 | Date Sampled: | 05/25/10 |
| Matrix: | AQ - Ground Water | Date Received: | 05/27/10 |
| | | Percent Solids: | n/a |
| Project: | Blanco Plant South Flare Pit | | |

General Chemistry

| Analyte | Result | RL | Units | DF | Analyzed | By | Method |
|---|---|---|---|---|---|---|---|
| Nitrogen, Nitrate + Nitrite | 79.9 | 2.0 | mg/l | 20 | 06/09/10 16:14 | CV | EPA 353.2 |

RL = Reporting Limit

Accutest Laboratories

# Report of Analysis



| | | | |
|---|---|---|---|
| Client Sample ID: | MW-30 | | |
| Lab Sample ID: | T53403-7 | Date Sampled: | 05/25/10 |
| Matrix: | AQ - Ground Water | Date Received: | 05/27/10 |
| | | Percent Solids: | n/a |
| Project: | Blanco Plant South Flare Pit | | |

General Chemistry

| Analyte | Result | RL | Units | DF | Analyzed | By | Method |
|---|---|---|---|---|---|---|---|
| Nitrogen, Nitrate + Nitrite | 34.8 | 1.0 | mg/l | 10 | 06/08/10 12:34 | CV | EPA 353.2 |

RL = Reporting Limit

Accutest Laboratories

# Report of Analysis



| | | | |
|---|---|---|---|
| Client Sample ID: | MW-6 | | |
| Lab Sample ID: | T53403-8 | Date Sampled: | 05/25/10 |
| Matrix: | AQ - Ground Water | Date Received: | 05/27/10 |
| | | Percent Solids: | n/a |
| Project: | Blanco Plant South Flare Pit | | |

General Chemistry

| Analyte | Result | RL | Units | DF | Analyzed | By | Method |
|---|---|---|---|---|---|---|---|
| Nitrogen, Nitrate + Nitrite | 103 | 5.0 | mg/l | 50 | 06/09/10 16:15 | CV | EPA 353.2 |

RL = Reporting Limit

Accutest Laboratories

# Report of Analysis



| | | | |
|---|---|---|---|
| Client Sample ID: | MW-14 | | |
| Lab Sample ID: | T53403-9 | Date Sampled: | 05/25/10 |
| Matrix: | AQ - Ground Water | Date Received: | 05/27/10 |
| Method: | SW846 8260B | Percent Solids: | n/a |
| Project: | Blanco Plant South Flare Pit | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | F026183.D | 1 | 05/29/10 | JL | n/a | n/a | VF3871 |
| Run #2 | | | | | | | |

| | Purge Volume |
|---|---|
| Run #1 | 5.0 ml |
| Run #2 | |

Volatile special list.

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 75-34-3 | 1,1-Dichloroethane | 7.2 | 2.0 | 0.52 | ug/l | |
| 75-35-4 | 1,1-Dichloroethylene | ND | 2.0 | 0.50 | ug/l | |
| 156-59-2 | cis-1,2-Dichloroethylene | 2.6 | 2.0 | 0.56 | ug/l | |
| 95-50-1 | o-Dichlorobenzene | 3.5 | 2.0 | 0.69 | ug/l | |
| 156-60-5 | trans-1,2-Dichloroethylene | ND | 2.0 | 0.45 | ug/l | |
| 127-18-4 | Tetrachloroethylene | ND | 2.0 | 0.91 | ug/l | |
| 79-01-6 | Trichloroethylene | 2.1 | 2.0 | 0.52 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 1868-53-7 | Dibromofluoromethane | 110% | | 79-122% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 105% | | 75-121% |
| 2037-26-5 | Toluene-D8 | 113% | | 87-119% |
| 460-00-4 | 4-Bromofluorobenzene | 105% | | 80-133% |

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

# Report of Analysis



| | | | |
|---|---|---|---|
| Client Sample ID: | MW-14 | | |
| Lab Sample ID: | T53403-9 | Date Sampled: | 05/25/10 |
| Matrix: | AQ - Ground Water | Date Received: | 05/27/10 |
| | | Percent Solids: | n/a |
| Project: | Blanco Plant South Flare Pit | | |

General Chemistry

| Analyte | Result | RL | Units | DF | Analyzed | By | Method |
|---|---|---|---|---|---|---|---|
| Nitrogen, Nitrate + Nitrite | 15.5 | 1.0 | mg/l | 10 | 06/08/10 12:38 | CV | EPA 353.2 |

RL = Reporting Limit

Accutest Laboratories

# Report of Analysis



| | | | |
|---|---|---|---|
| Client Sample ID: | MW-8 | | |
| Lab Sample ID: | T53403-10 | Date Sampled: | 05/25/10 |
| Matrix: | AQ - Ground Water | Date Received: | 05/27/10 |
| | | Percent Solids: | n/a |
| Project: | Blanco Plant South Flare Pit | | |

General Chemistry

| Analyte | Result | RL | Units | DF | Analyzed | By | Method |
|---|---|---|---|---|---|---|---|
| Nitrogen, Nitrate + Nitrite | 0.19 | 0.10 | mg/l | 1 | 06/08/10 12:39 | CV | EPA 353.2 |

RL = Reporting Limit

Accutest Laboratories

# Report of Analysis



| | | | |
|---|---|---|---|
| Client Sample ID: | 250510TB01 | | |
| Lab Sample ID: | T53403-11 | Date Sampled: | 05/25/10 |
| Matrix: | AQ - Trip Blank Water | Date Received: | 05/27/10 |
| Method: | SW846 8260B | Percent Solids: | n/a |
| Project: | Blanco Plant South Flare Pit | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | F026172.D | 1 | 05/29/10 | JL | n/a | n/a | VF3871 |
| Run #2 | | | | | | | |

| | Purge Volume |
|---|---|
| Run #1 | 5.0 ml |
| Run #2 | |

Volatile special list.

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 75-34-3 | 1,1-Dichloroethane | ND | 2.0 | 0.52 | ug/l | |
| 75-35-4 | 1,1-Dichloroethylene | ND | 2.0 | 0.50 | ug/l | |
| 156-59-2 | cis-1,2-Dichloroethylene | ND | 2.0 | 0.56 | ug/l | |
| 95-50-1 | o-Dichlorobenzene | ND | 2.0 | 0.69 | ug/l | |
| 156-60-5 | trans-1,2-Dichloroethylene | ND | 2.0 | 0.45 | ug/l | |
| 127-18-4 | Tetrachloroethylene | ND | 2.0 | 0.91 | ug/l | |
| 79-01-6 | Trichloroethylene | ND | 2.0 | 0.52 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 1868-53-7 | Dibromofluoromethane | 111% | | 79-122% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 103% | | 75-121% |
| 2037-26-5 | Toluene-D8 | 115% | | 87-119% |
| 460-00-4 | 4-Bromofluorobenzene | 105% | | 80-133% |

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

## Misc. Forms

# Custody Documents and Other Forms

---

Includes the following where applicable:

- Chain of Custody

# CHAIN OF CUSTODY

ACCUTEST Laboratories
10165 Harwin, Suite 150 - Houston, TX 77036 - 713-271-4700 fax: 713-271-4770



FED-EX Tracking # 8706 6699 9097 | Bottle Order Control #
Accutest Quote # | Accutest Job # T53403

**Client / Reporting Information**

Company Name: MWH
Project Contact: Jed Smith | E-Mail: jed.smith@mwhglobal.com
Address: 1801 California Street, Suite 2900
City: Denver | State: CO | Zip: 80202
Phone No.: 303-291-2276 | Fax No.:
Samplers's Name: Troy Urban / Julie Linn

**Project Information**

Project Name / No.: Blanco Plant South Flare Pit 2010 GWM #1008640.0101
Bill to: EPNG Pipeline | Invoice Attn.: Ian Yanagisawa
Address: P.O. Box 2511
City: Houston | State: TX | Zip: 77252
Phone No.: 713 420-736 | Fax No.:
Client Purchase Order #: W094291

**Requested Analyses**

**Matrix Codes**

DW - Drinking Water
GW - Ground Water
WW - Wastewater
SO - Soil
SL - Sludge
OI - Oil
LIQ - Liquid
SOL - Other Solid

| Accutest Sample # | Field ID / Point of Collection | Collection Date | Collection Time | Matrix | # of bottles | HCl | NaOH | H2SO4 | ENCORE | NaHSO4 | MEOH | NONE | V8260SL | NO3/NO2 (353.2) | LAB USE ONLY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | MW-15 | 5/25/10 | 0910 | AQ | 4 | 3 | | 1 | | | | | X | X | |
| 2 | MW-13 | | 0935 | GW | 4 | 3 | | 1 | | | | | X | X | |
| 3 | MW-12 | | 1002 | GW | 4 | 3 | | 1 | | | | | X | X | |
| 4 | MW-5 | | 1039 | GW | 1 | | | 1 | | | | | | X | |
| 5 | MW-28 | | 1126 | GW | 1 | | | 1 | | | | | | X | |
| 6 | MW-29 | | 1153 | GW | 1 | | | 1 | | | | | | X | |
| 7 | MW-30 | | 1218 | GW | 1 | | | 1 | | | | | | X | |
| 8 | MW-6 | | 1232 | GW | 1 | | | 1 | | | | | | X | |
| 9 | MW-14 | | 1305 | GW | 4 | 3 | | 1 | | | | | X | X | |
| 10 | MW-8 | 5/25/10 | 1330 | GW | 1 | | | 1 | | | | | | X | |

**Turnaround Time ( Business days)**

- [X] 10 Day *STANDARD*
- [ ] 7 Day
- [ ] 4 Day *RUSH*
- [ ] 3 Day *EMERGENCY*
- [ ] 2 Day *EMERGENCY*
- [ ] 1 Day *EMERGENCY*
- [ ] Other

Approved By/ Data:

*Real time analytical data available via Lablink*

**Data Deliverable Information**

- [ ] Commercial "A"
- [X] Commercial "B"
- [ ] Reduced Tier 1
- [ ] Full Data Package
- [ ] TRRP-13
- [ ] EDD Format
- [ ] Other

Commercial "A" = Results Only
Commercial "B" = Results & Standard QC

**Comments / Remarks**

**SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY**

| | Relinquished by Sampler: | Date Time: | Received By: | Relinquished By: | Date Time: | Received By: |
|---|---|---|---|---|---|---|
| 1 | 5/26/10 | 1350 | 1 FED EX | 2 FED EX | 5/27/10 0930 | 2 |
| 3 | Relinquished by: | Date Time: | Received By: | Relinquished By: | Date Time: | Received By: |
| | | | 3 | 4 | | 4 |
| 5 | Relinquished by: | Date Time: | Received By: | Custody Seal # | Preserved where applicable ☐ | On Ice: X Cooler Temp.: 1.6°C |
| | | | 5 | | | |

**T53403: Chain of Custody**
**Page 1 of 4**

# CHAIN OF CUSTODY



ACCUTEST Laboratories
10165 Harwin, Suite 150 - Houston, TX 77036 - 713-271-4700 fax: 713-271-4770

FED-EX Tracking # 8706 6699 9097 | Bottle Order Control # | Accutest Quote # | Accutest Job # T53403

**Client / Reporting Information**

Company Name: MWH
Project Contact: Jed Smith | E-Mail: jed.smith@mwhglobal.com
Address: 1801 California Street, Suite 2900
City: Denver | State: CO | Zip: 80202
Phone No.: 303-291-2276 | Fax No.:
Samplers's Name: Troy Urban

**Project Information**

Project Name / No.: Blanco Plant South Flare Pit 2010 GWM #1008640.0101
Bill to: EPNG Pipeline | Invoice Attn.: Ian Yanagisawa
Address: P.O. Box 2511
City: Houston | State: TX | Zip: 77252
Phone No.: 713 420-736 | Fax No.:
Client Purchase Order #: WO 94291

| Accutest Sample # | Field ID / Point of Collection | Collection Date | Collection Time | Matrix | # of bottles | Number of preserved bottles: DW | HCl | HNO3 | H2SO4 | NaOH | ZnOAc/NaOH | MeOH | NONE | V8260SL | NO3/NO2 (353.2) | LAB USE ONLY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ~~MW-7~~ TB | ~~5-25-10~~ | | ~~AQ~~ | | | | | | | | | | | | |
| 11 | 250510TB01 | 052510 | 0700 | GW | 2 | | X | | | | | | | X | | |

Requested Analyses

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Wastewater; SO - Soil; SL - Sludge; OI - Oil; LIQ - Liquid; SOL - Other Solid

**Turnaround Time ( Business days)**

- [X] 10 Day *STANDARD* — Approved By:/ Date:
- [ ] 7 Day
- [ ] 4 Day *RUSH*
- [ ] 3 Day *EMERGENCY*
- [ ] 2 Day *EMERGENCY*
- [ ] 1 Day *EMERGENCY*
- [ ] Other

*Real time analytical data available via Lablink*

**Data Deliverable Information**

- [ ] Commercial "A"
- [ ] TRRP-13
- [X] Commercial "B"
- [ ] EDD Format
- [ ] Reduced Tier 1
- [ ] Other
- [ ] Full Data Package

Commercial "A" = Results Only
Commercial "B" = Results & Standard QC

**Comments / Remarks**

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY

| | Relinquished by Sampler: | Date Time: | Received By: | Relinquished By: | Date Time: | Received By: |
|---|---|---|---|---|---|---|
| 1 | Troy Urban | 5/26/10 1350 | 1 FED EX | 2 FED EX | 5/27/10 0930 | 2 |
| 3 | Relinquished by: | Date Time: | Received By: | Relinquished By: | Date Time: | Received By: |
| | | | 3 | 4 | | 4 |
| 5 | Relinquished by: | Date Time: | Received By: | Custody Seal # | Preserved where applicable: ☐ | On Ice: X — Cooler Temp.: 1.6°C |
| | | | 5 | | | |

3.1 C

**T53403: Chain of Custody**
**Page 2 of 4**

# SAMPLE INSPECTION FORM

Accutest Job Number: T53403 Client: MWH Date/Time Received: 5/27/10 0930

# of Coolers Received: 1 Thermometer #: 110 Temperature Adjustment Factor: -0.5°C

Cooler Temps: #1: 1.6°C #2: _____ #3: _____ #4: _____ #5: _____ #6: _____ #7: _____ #8: _____

Method of Delivery: (FEDEX) UPS Accutest Courier Greyhound Delivery Other

Airbill Numbers: _____

**COOLER INFORMATION**

- [ ] Custody seal missing or not intact
- [ ] Temperature criteria not met
- [ ] Wet ice received in cooler

**CHAIN OF CUSTODY**

- [ ] Chain of Custody not received
- [ ] Sample D/T unclear or missing
- [ ] Analyses unclear or missing
- [ ] COC not properly executed

**SAMPLE INFORMATION**

- [ ] Sample containers received broken
- [ ] VOC vials have headspace
- [ ] Sample labels missing or illegible
- [ ] ID on COC does not match label(s)
- [ ] D/T on COC does not match label(s)
- [ ] Sample/Bottles rcvd but no analysis on COC
- [ ] Sample listed on COC, but not received
- [ ] Bottles missing for requested analysis
- [ ] Insufficient volume for analysis
- [ ] Sample received improperly preserved

**TRIP BLANK INFORMATION**

- [ ] Trip Blank on COC but not received
- [ ] Trip Blank received but not on COC
- [ ] Trip Blank not intact
- [ ] Received Water Trip Blank
- [ ] Received Soil TB

Number of Encores? _____
Number of 5035 kits? _____
Number of lab-filtered metals? _____

Summary of Discrepancies:

TECHNICIAN SIGNATURE/DATE: J. Smith 5/27/10

INFORMATION AND SAMPLE LABELING VERIFIED BY: [illegible]

## CORRECTIVE ACTIONS

**Client Representative Notified:** _____ **Date:** _____

**By Accutest Representative:** _____ **Via:** Phone Email

**Client Instructions:**

**T53403: Chain of Custody**
**Page 3 of 4**

# SAMPLE RECEIPT LOG

JOB #: T53403 DATE/TIME RECEIVED: 5/27/10 0930

CLIENT: MWH INITIALS: IS

| COOLER# | SAMPLE ID | FIELD ID | DATE | MATRIX | VOL | BOTTLE # | LOCATION | PRESERV | PH |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | MW-15 | 5/25/10 0910 | W | 250ml | 1 | 3N | 1 2 3 (4) 5 6 7 8 | <2 >12 |
| | " | " | " | | 40ml. | 2-4 | VR | 1 (2) 3 4 5 6 7 8 | <2 >12 |
| | 2 | MW-13 | 0935 | | 250ml | 1 | 3N | 1 2 3 (4) 5 6 7 8 | <2 >12 |
| | " | " | " | | 40ml | 2-4 | VR | 1 (2) 3 4 5 6 7 8 | <2 >12 |
| | 3 | MW-12 | 1002 | | 250ml | 1 | 3N | 1 2 3 (4) 5 6 7 8 | <2 >12 |
| | " | " | " | | 40ml | 2-4 | VR | 1 (2) 3 4 5 6 7 8 | <2 >12 |
| | 4 | MW-5 | 1039 | | 250ml | 1 | 3N | 1 2 3 (4) 5 6 7 8 | <2 >12 |
| | 5 | MW-28 | 1126 | | | 1 | | 1 2 3 (4) 5 6 7 8 | <2 >12 |
| | 6 | MW-29 | 1153 | | | 1 | | 1 2 3 (4) 5 6 7 8 | <2 >12 |
| | 7 | MW-30 | 1218 | | | 1 | | 1 2 3 (4) 5 6 7 8 | <2 >12 |
| | 8 | MW-6 | 1232 | | | 1 | | 1 2 3 (4) 5 6 7 8 | <2 >12 |
| | 9 | MW-14 | 1305 | | | 1 | | 1 2 3 (4) 5 6 7 8 | <2 >12 |
| | " | " | " | | 40ml | 2-4 | VR | 1 (2) 3 4 5 6 7 8 | <2 >12 |
| | 10 | MW-8 | 1336 | | 250ml | 1 | 3N | 1 2 3 (4) 5 6 7 8 | <2 >12 |
| | 11 | TRIP BLANK | | | 40ml | 1-2 | VR | 1 (2) 3 4 5 6 7 8 | <2 >12 |
| | | | | | | | | 1 2 3 4 5 6 7 8 | <2 >12 |
| | | | | | | | | 1 2 3 4 5 6 7 8 | <2 >12 |
| | | | | | | | | 1 2 3 4 5 6 7 8 | <2 >12 |
| | | | IS | 5/27/10 | | | | 1 2 3 4 5 6 7 8 | <2 >12 |
| | | | | | | | | 1 2 3 4 5 6 7 8 | <2 >12 |
| | | | | | | | | 1 2 3 4 5 6 7 8 | <2 >12 |

PRESERVATIVES: 1: None 2: HCL 3: HNO3 4: H2SO4 5: NAOH 6: DI 7: MeOH 8: Other

LOCATION: 1: Walk-In #1 (Waters) 2: Walk-In #2 (Soils) VR: Volatile Fridge M: Metals SUB: Subcontract EF: Encore Freezer

Rev 8/13/01 ewp

3.1

**T53403: Chain of Custody**
**Page 4 of 4**

## GC/MS Volatiles

# QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

# Method Blank Summary



Job Number: T53403
Account: MWHCODE Montgomery Watson
Project: Blanco Plant South Flare Pit



| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| VF3871-MB | F026171.D | 1 | 05/29/10 | JL | n/a | n/a | VF3871 |

The QC reported here applies to the following samples: Method: SW846 8260B

T53403-2, T53403-3, T53403-9, T53403-11

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 75-34-3 | 1,1-Dichloroethane | ND | 2.0 | 0.52 | ug/l | |
| 75-35-4 | 1,1-Dichloroethylene | ND | 2.0 | 0.50 | ug/l | |
| 156-59-2 | cis-1,2-Dichloroethylene | ND | 2.0 | 0.56 | ug/l | |
| 95-50-1 | o-Dichlorobenzene | ND | 2.0 | 0.69 | ug/l | |
| 156-60-5 | trans-1,2-Dichloroethylene | ND | 2.0 | 0.45 | ug/l | |
| 127-18-4 | Tetrachloroethylene | ND | 2.0 | 0.91 | ug/l | |
| 79-01-6 | Trichloroethylene | ND | 2.0 | 0.52 | ug/l | |

| CAS No. | Surrogate Recoveries | | Limits |
|---|---|---|---|
| 1868-53-7 | Dibromofluoromethane | 112% | 79-122% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 101% | 75-121% |
| 2037-26-5 | Toluene-D8 | 116% | 87-119% |
| 460-00-4 | 4-Bromofluorobenzene | 107% | 80-133% |

# Method Blank Summary



Job Number: T53403
Account: MWHCODE Montgomery Watson
Project: Blanco Plant South Flare Pit



| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| VC427-MB | C0009440.D | 1 | 05/29/10 | JL | n/a | n/a | VC427 |

The QC reported here applies to the following samples: Method: SW846 8260B

T53403-1

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 75-34-3 | 1,1-Dichloroethane | ND | 2.0 | 0.52 | ug/l | |
| 75-35-4 | 1,1-Dichloroethylene | ND | 2.0 | 0.50 | ug/l | |
| 156-59-2 | cis-1,2-Dichloroethylene | ND | 2.0 | 0.56 | ug/l | |
| 95-50-1 | o-Dichlorobenzene | ND | 2.0 | 0.69 | ug/l | |
| 156-60-5 | trans-1,2-Dichloroethylene | ND | 2.0 | 0.45 | ug/l | |
| 127-18-4 | Tetrachloroethylene | ND | 2.0 | 0.91 | ug/l | |
| 79-01-6 | Trichloroethylene | ND | 2.0 | 0.52 | ug/l | |

| CAS No. | Surrogate Recoveries | | Limits |
|---|---|---|---|
| 1868-53-7 | Dibromofluoromethane | 96% | 79-122% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 87% | 75-121% |
| 2037-26-5 | Toluene-D8 | 98% | 87-119% |
| 460-00-4 | 4-Bromofluorobenzene | 87% | 80-133% |

# Blank Spike Summary



Job Number: T53403
Account: MWHCODE Montgomery Watson
Project: Blanco Plant South Flare Pit



| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| VF3871-BS | F026169.D | 1 | 05/29/10 | JL | n/a | n/a | VF3871 |

The QC reported here applies to the following samples: Method: SW846 8260B

T53403-2, T53403-3, T53403-9, T53403-11

| CAS No. | Compound | Spike ug/l | BSP ug/l | BSP % | Limits |
|---|---|---|---|---|---|
| 75-34-3 | 1,1-Dichloroethane | 25 | 25.1 | 100 | 76-121 |
| 75-35-4 | 1,1-Dichloroethylene | 25 | 25.2 | 101 | 71-128 |
| 156-59-2 | cis-1,2-Dichloroethylene | 25 | 26.1 | 104 | 68-113 |
| 95-50-1 | o-Dichlorobenzene | 25 | 24.3 | 97 | 72-108 |
| 156-60-5 | trans-1,2-Dichloroethylene | 25 | 25.1 | 100 | 70-125 |
| 127-18-4 | Tetrachloroethylene | 25 | 25.3 | 101 | 77-120 |
| 79-01-6 | Trichloroethylene | 25 | 24.0 | 96 | 74-117 |

| CAS No. | Surrogate Recoveries | BSP | Limits |
|---|---|---|---|
| 1868-53-7 | Dibromofluoromethane | 109% | 79-122% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 99% | 75-121% |
| 2037-26-5 | Toluene-D8 | 114% | 87-119% |
| 460-00-4 | 4-Bromofluorobenzene | 102% | 80-133% |

# Blank Spike Summary



Job Number: T53403
Account: MWHCODE Montgomery Watson
Project: Blanco Plant South Flare Pit



| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| VC427-BS | C0009438.D | 1 | 05/29/10 | JL | n/a | n/a | VC427 |

The QC reported here applies to the following samples: Method: SW846 8260B

T53403-1

| CAS No. | Compound | Spike ug/l | BSP ug/l | BSP % | Limits |
|---|---|---|---|---|---|
| 75-34-3 | 1,1-Dichloroethane | 25 | 21.5 | 86 | 76-121 |
| 75-35-4 | 1,1-Dichloroethylene | 25 | 19.4 | 78 | 71-128 |
| 156-59-2 | cis-1,2-Dichloroethylene | 25 | 23.8 | 95 | 68-113 |
| 95-50-1 | o-Dichlorobenzene | 25 | 23.9 | 96 | 72-108 |
| 156-60-5 | trans-1,2-Dichloroethylene | 25 | 18.6 | 74 | 70-125 |
| 127-18-4 | Tetrachloroethylene | 25 | 21.8 | 87 | 77-120 |
| 79-01-6 | Trichloroethylene | 25 | 22.7 | 91 | 74-117 |

| CAS No. | Surrogate Recoveries | BSP | Limits |
|---|---|---|---|
| 1868-53-7 | Dibromofluoromethane | 96% | 79-122% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 85% | 75-121% |
| 2037-26-5 | Toluene-D8 | 98% | 87-119% |
| 460-00-4 | 4-Bromofluorobenzene | 86% | 80-133% |

# Matrix Spike/Matrix Spike Duplicate Summary



Job Number: T53403
Account: MWHCODE Montgomery Watson
Project: Blanco Plant South Flare Pit



| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| T53401-2MS | F026178.D | 1 | 05/29/10 | JL | n/a | n/a | VF3871 |
| T53401-2MSD | F026179.D | 1 | 05/29/10 | JL | n/a | n/a | VF3871 |
| T53401-2 | F026175.D | 1 | 05/29/10 | JL | n/a | n/a | VF3871 |

The QC reported here applies to the following samples: Method: SW846 8260B

T53403-2, T53403-3, T53403-9, T53403-11

| CAS No. | Compound | T53401-2 ug/l | Q | Spike ug/l | MS ug/l | MS % | MSD ug/l | MSD % | RPD | Limits Rec/RPD |
|---|---|---|---|---|---|---|---|---|---|---|
| 75-34-3 | 1,1-Dichloroethane | ND | | 25 | 26.3 | 105 | 26.3 | 105 | 0 | 76-121/13 |
| 75-35-4 | 1,1-Dichloroethylene | ND | | 25 | 25.0 | 100 | 26.4 | 106 | 5 | 71-128/19 |
| 156-59-2 | cis-1,2-Dichloroethylene | ND | | 25 | 26.3 | 105 | 26.4 | 106 | 0 | 68-113/13 |
| 95-50-1 | o-Dichlorobenzene | ND | | 25 | 24.2 | 97 | 24.4 | 98 | 1 | 72-108/12 |
| 156-60-5 | trans-1,2-Dichloroethylene | ND | | 25 | 25.4 | 102 | 25.7 | 103 | 1 | 70-125/14 |
| 127-18-4 | Tetrachloroethylene | ND | | 25 | 32.4 | 130* | 32.9 | 132* | 2 | 77-120/13 |
| 79-01-6 | Trichloroethylene | ND | | 25 | 24.8 | 99 | 24.9 | 100 | 0 | 74-117/12 |

| CAS No. | Surrogate Recoveries | MS | MSD | T53401-2 | Limits |
|---|---|---|---|---|---|
| 1868-53-7 | Dibromofluoromethane | 107% | 107% | 111% | 79-122% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 104% | 103% | 106% | 75-121% |
| 2037-26-5 | Toluene-D8 | 107% | 108% | 113% | 87-119% |
| 460-00-4 | 4-Bromofluorobenzene | 101% | 99% | 106% | 80-133% |

# Matrix Spike/Matrix Spike Duplicate Summary



Job Number: T53403
Account: MWHCODE Montgomery Watson
Project: Blanco Plant South Flare Pit



| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| T53523-5MS | C0009449.D | 1 | 05/29/10 | JL | n/a | n/a | VC427 |
| T53523-5MSD | C0009450.D | 1 | 05/29/10 | JL | n/a | n/a | VC427 |
| T53523-5 | C0009446.D | 1 | 05/29/10 | JL | n/a | n/a | VC427 |

The QC reported here applies to the following samples: Method: SW846 8260B

T53403-1

| CAS No. | Compound | T53523-5 ug/l | Q | Spike ug/l | MS ug/l | MS % | MSD ug/l | MSD % | RPD | Limits Rec/RPD |
|---|---|---|---|---|---|---|---|---|---|---|
| 75-34-3 | 1,1-Dichloroethane | 2.0 | U | 25 | 22.3 | 89 | 20.8 | 83 | 7 | 76-121/13 |
| 75-35-4 | 1,1-Dichloroethylene | 2.0 | U | 25 | 21.5 | 86 | 19.1 | 76 | 12 | 71-128/19 |
| 156-59-2 | cis-1,2-Dichloroethylene | 2.0 | U | 25 | 25.0 | 100 | 23.3 | 93 | 7 | 68-113/13 |
| 95-50-1 | o-Dichlorobenzene | 2.0 | U | 25 | 23.6 | 94 | 23.2 | 93 | 2 | 72-108/12 |
| 156-60-5 | trans-1,2-Dichloroethylene | 2.0 | U | 25 | 19.8 | 79 | 18.4 | 74 | 7 | 70-125/14 |
| 127-18-4 | Tetrachloroethylene | 2.0 | U | 25 | 22.9 | 92 | 20.5 | 82 | 11 | 77-120/13 |
| 79-01-6 | Trichloroethylene | 2.0 | U | 25 | 23.5 | 94 | 21.7 | 87 | 8 | 74-117/12 |

| CAS No. | Surrogate Recoveries | MS | MSD | T53523-5 | Limits |
|---|---|---|---|---|---|
| 1868-53-7 | Dibromofluoromethane | 94% | 95% | 97% | 79-122% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 87% | 88% | 90% | 75-121% |
| 2037-26-5 | Toluene-D8 | 97% | 97% | 97% | 87-119% |
| 460-00-4 | 4-Bromofluorobenzene | 87% | 86% | 88% | 80-133% |

General Chemistry

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## QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: T53403
Account: MWHCODE - Montgomery Watson
Project: Blanco Plant South Flare Pit

| Analyte | Batch ID | RL | MB Result | Units | Spike Amount | BSP Result | BSP %Recov | QC Limits |
|---|---|---|---|---|---|---|---|---|
| Nitrogen, Nitrate + Nitrite | GP9130/GN23363 | 0.10 | 0.0 U | mg/l | 1 | 0.931 | 93.1 | 90-110% |
| Nitrogen, Nitrate + Nitrite | GP9161/GN23426 | 0.10 | 0.0 U | mg/l | 1 | 1.03 | 103.0 | 90-110% |

Associated Samples:
Batch GP9130: T53403-1, T53403-10, T53403-2, T53403-3, T53403-4, T53403-7, T53403-9
Batch GP9161: T53403-5, T53403-6, T53403-8
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: T53403
Account: MWHCODE - Montgomery Watson
Project: Blanco Plant South Flare Pit

| Analyte | Batch ID | QC Sample | Units | Original Result | DUP Result | RPD | QC Limits |
|---|---|---|---|---|---|---|---|
| Nitrogen, Nitrate + Nitrite | GP9130/GN23363 | T53403-2 | mg/l | 4.6 | 4.5 | 2.2 | 0-20% |
| Nitrogen, Nitrate + Nitrite | GP9161/GN23426 | T54163-1 | mg/l | 0.59 | 0.57 | 3.4 | 0-20% |

Associated Samples:
Batch GP9130: T53403-1, T53403-10, T53403-2, T53403-3, T53403-4, T53403-7, T53403-9
Batch GP9161: T53403-5, T53403-6, T53403-8
(*) Outside of QC limits

5.2

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: T53403
Account: MWHCODE - Montgomery Watson
Project: Blanco Plant South Flare Pit

| Analyte | Batch ID | QC Sample | Units | Original Result | Spike Amount | MS Result | %Rec | QC Limits |
|---|---|---|---|---|---|---|---|---|
| Nitrogen, Nitrate + Nitrite | GP9130/GN23363 | T53403-2 | mg/l | 4.6 | 2 | 6.4 | 90.0 | 90-110% |
| Nitrogen, Nitrate + Nitrite | GP9161/GN23426 | T54163-1 | mg/l | 0.59 | 1 | 1.6 | 101.0 | 90-110% |

Associated Samples:
Batch GP9130: T53403-1, T53403-10, T53403-2, T53403-3, T53403-4, T53403-7, T53403-9
Batch GP9161: T53403-5, T53403-6, T53403-8
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

5.3

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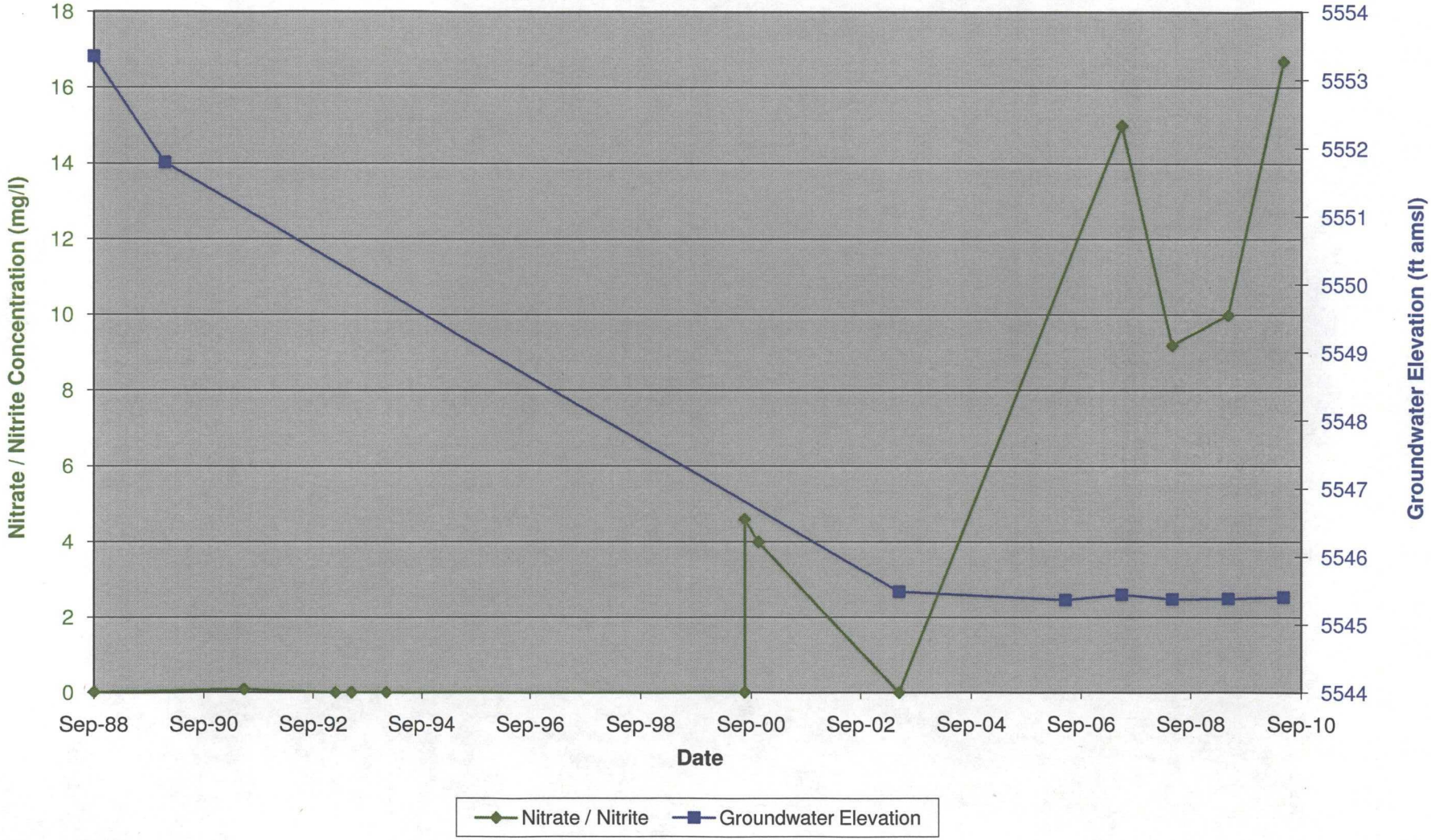
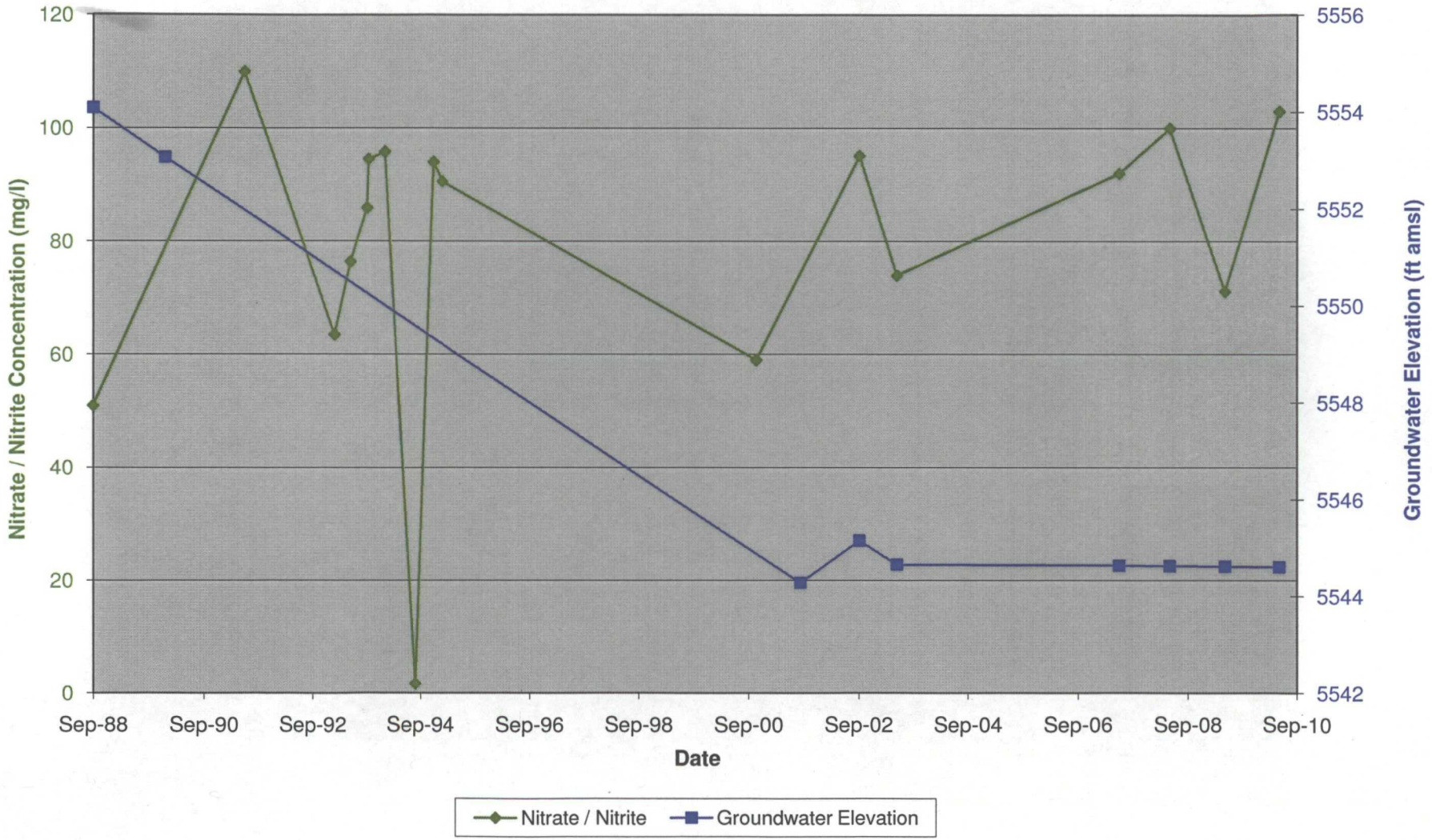
# APPENDIX C

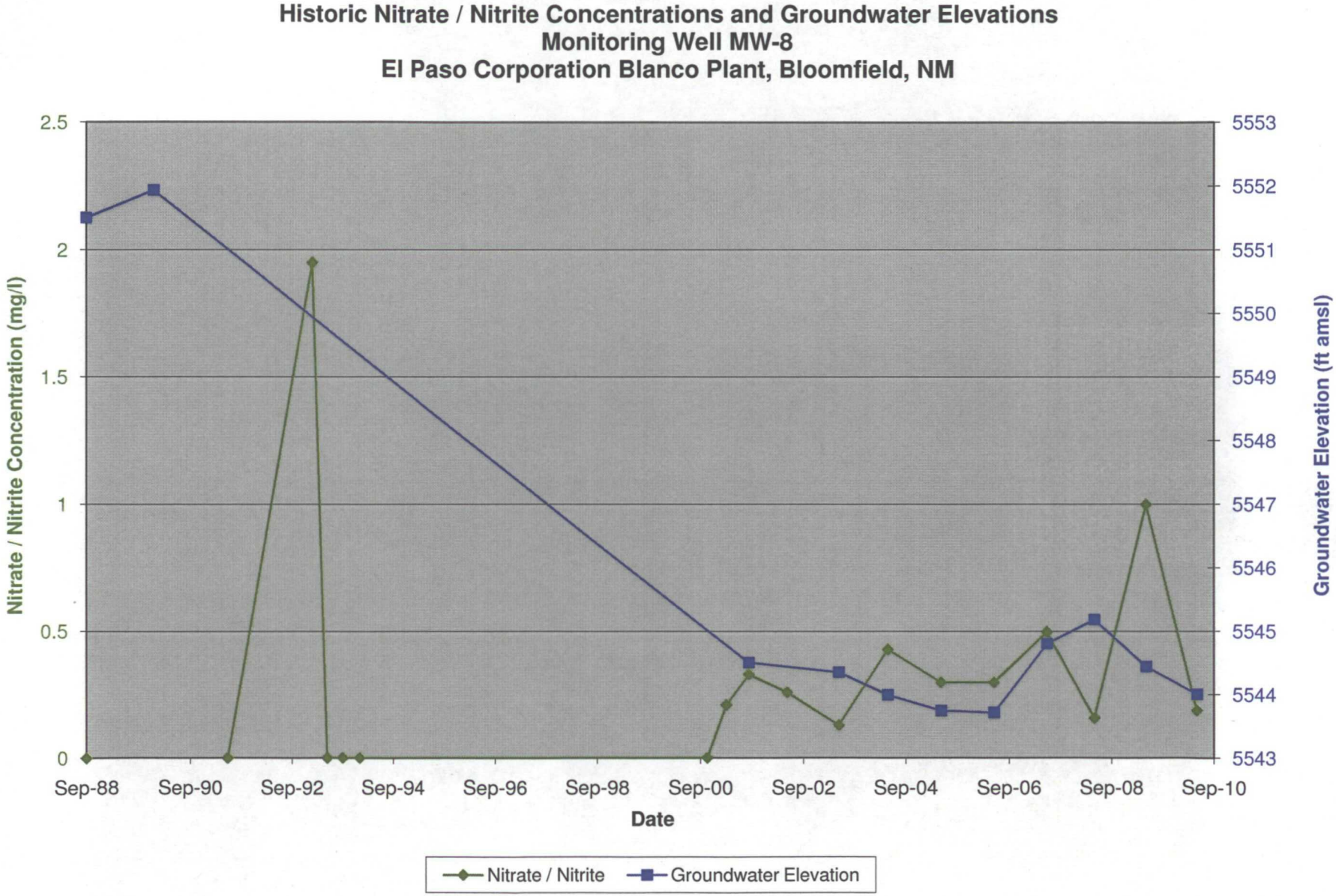
# Nitrate+Nitrite Concentration and Groundwater Elevation Graphs

**Historic Nitrate / Nitrite Concentrations and Groundwater Elevations**
**Monitoring Well MW-5**
**El Paso Corporation Blanco Plant, Bloomfield, NM**

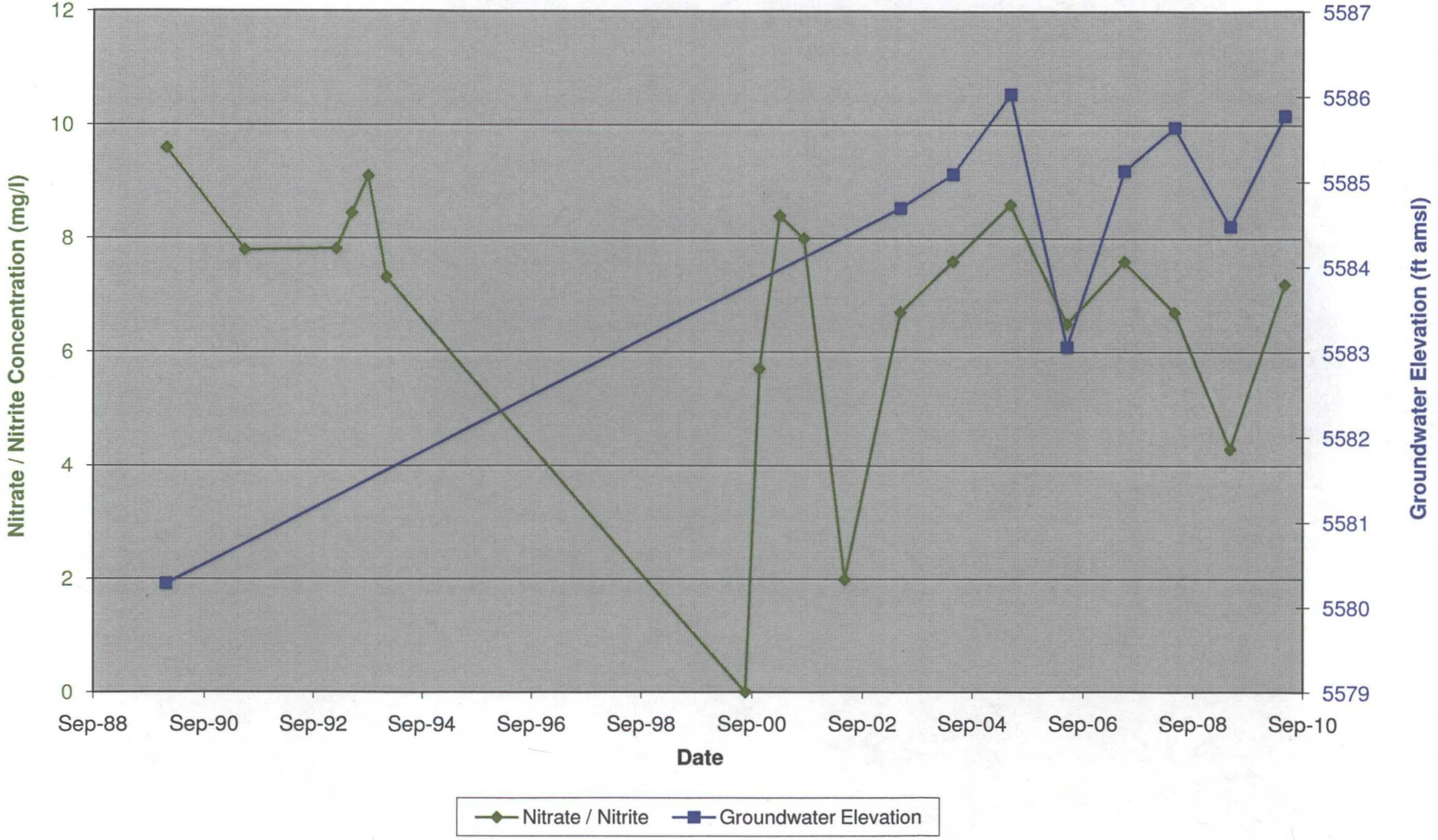


**Historic Nitrate / Nitrite Concentrations and Groundwater Elevations**
**Monitoring Well MW-6**
**El Paso Corporation Blanco Plant, Bloomfield, NM**

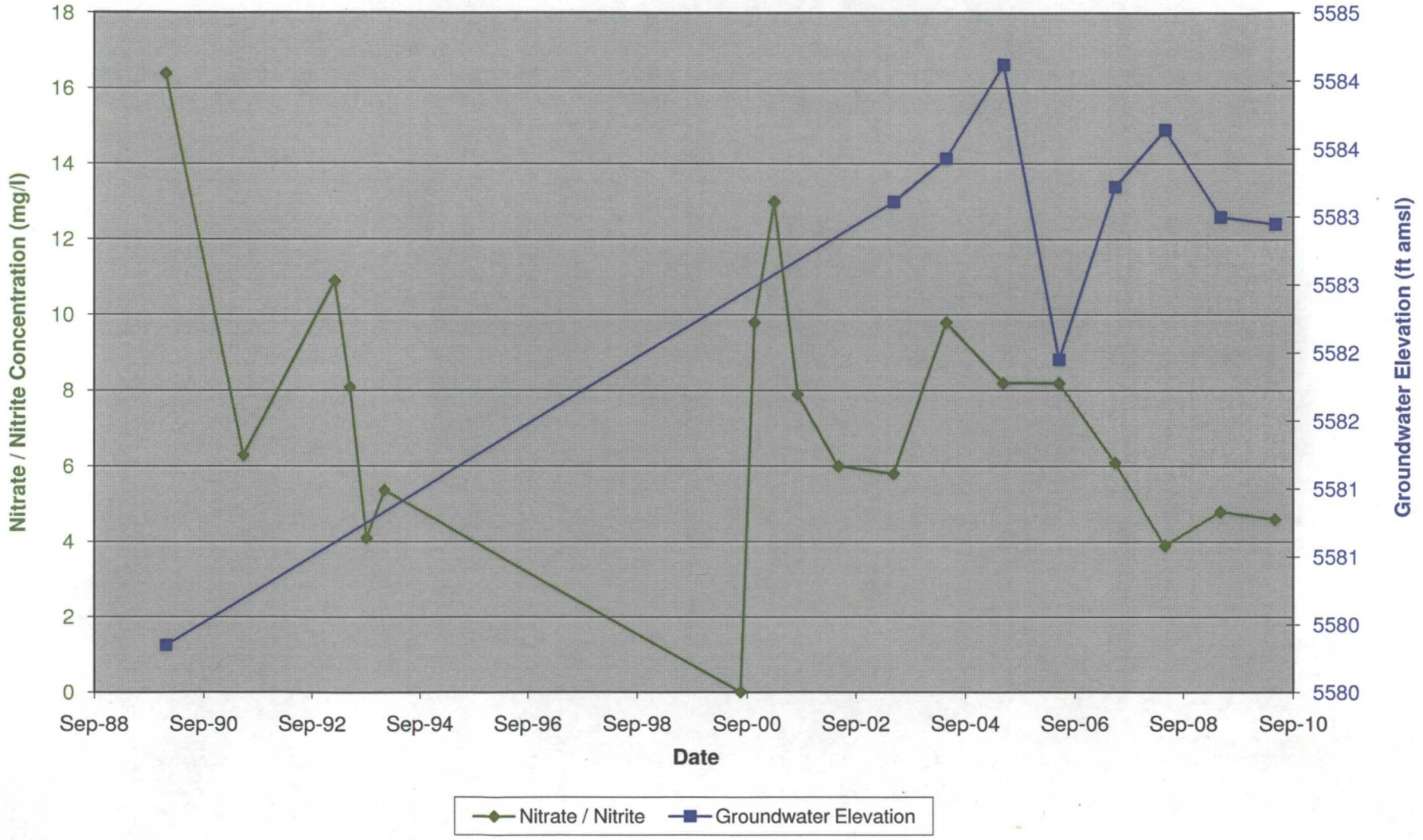



Historic Nitrate / Nitrite Concentrations and Groundwater Elevations
Monitoring Well MW-8
El Paso Corporation Blanco Plant, Bloomfield, NM
Nitrate / Nitrite Concentration (mg/l)
Groundwater Elevation (ft amsl)
2.5
2
1.5
1
0.5
0
5553
5552
5551
5550
5549
5548
5547
5546
5545
5544
5543
Sep-88
Sep-90
Sep-92
Sep-94
Sep-96
Sep-98
Sep-00
Sep-02
Sep-04
Sep-06
Sep-08
Sep-10
Date
Nitrate / Nitrite
Groundwater Elevation

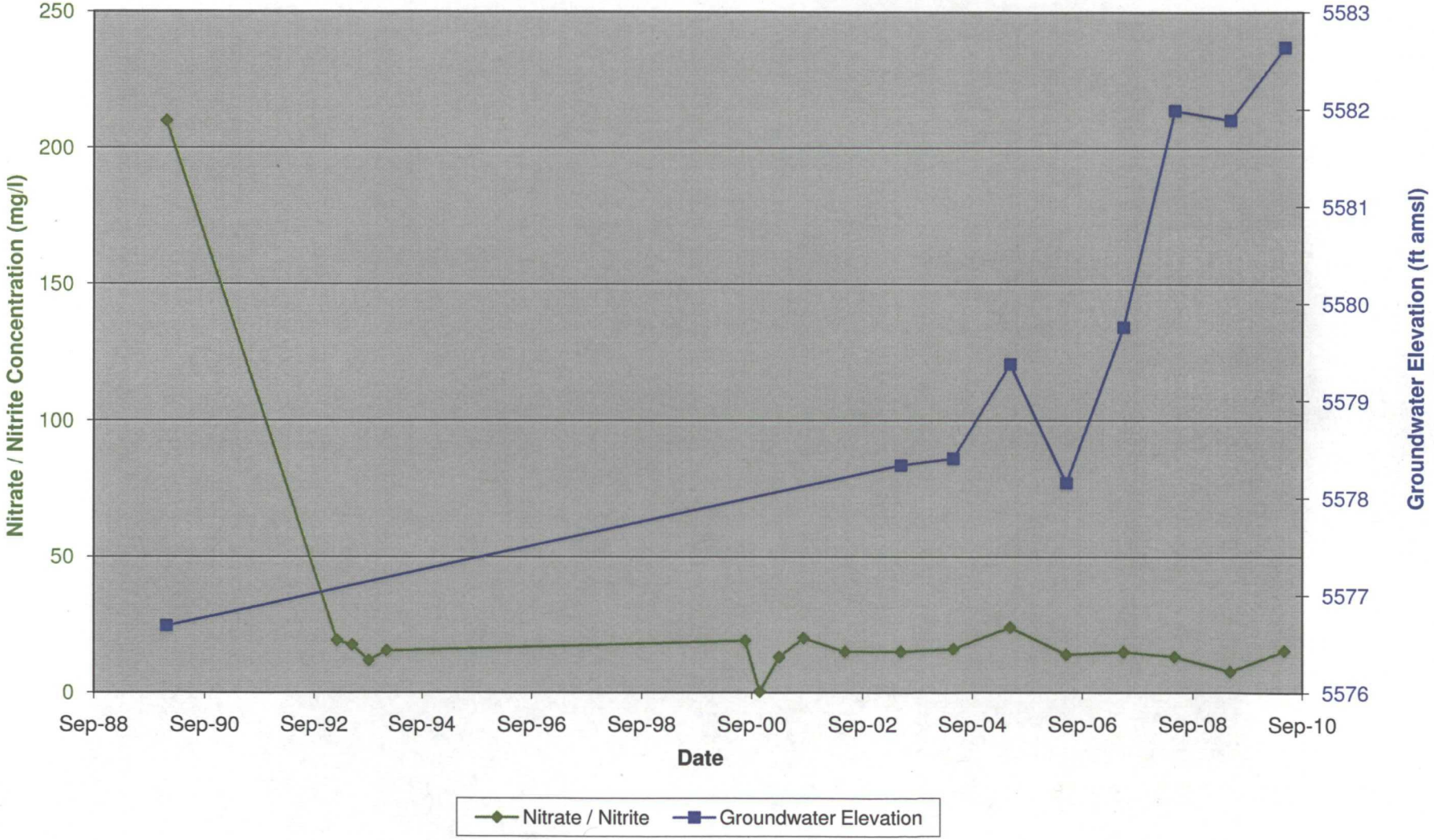
**Historic Nitrate / Nitrite Concentrations and Groundwater Elevations**
**Monitoring Well MW-12**
**El Paso Corporation Blanco Plant, Bloomfield, NM**



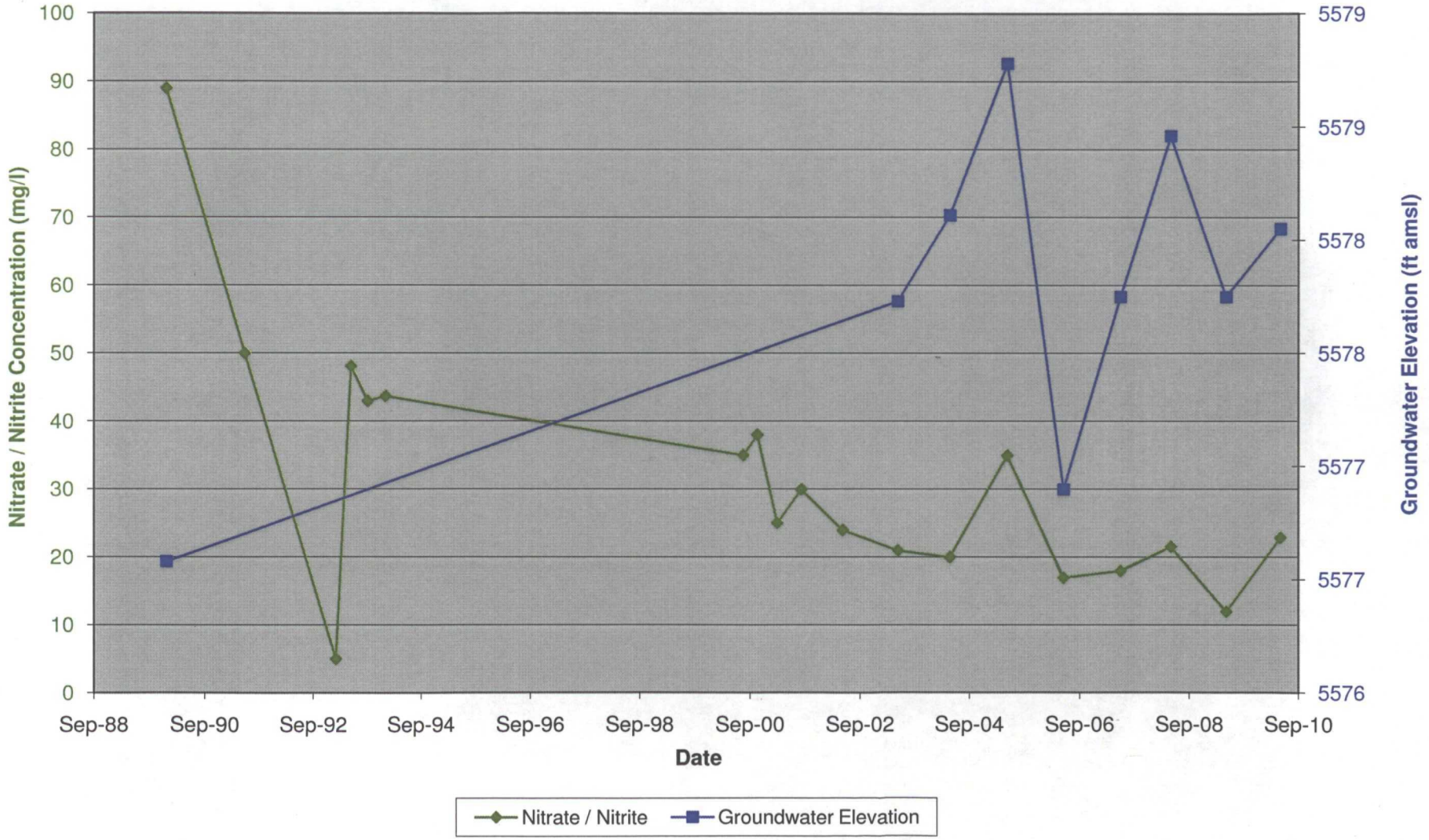
**Historic Nitrate / Nitrite Concentrations and Groundwater Elevations**
**Monitoring Well MW-13**
**El Paso Corporation Blanco Plant, Bloomfield, NM**



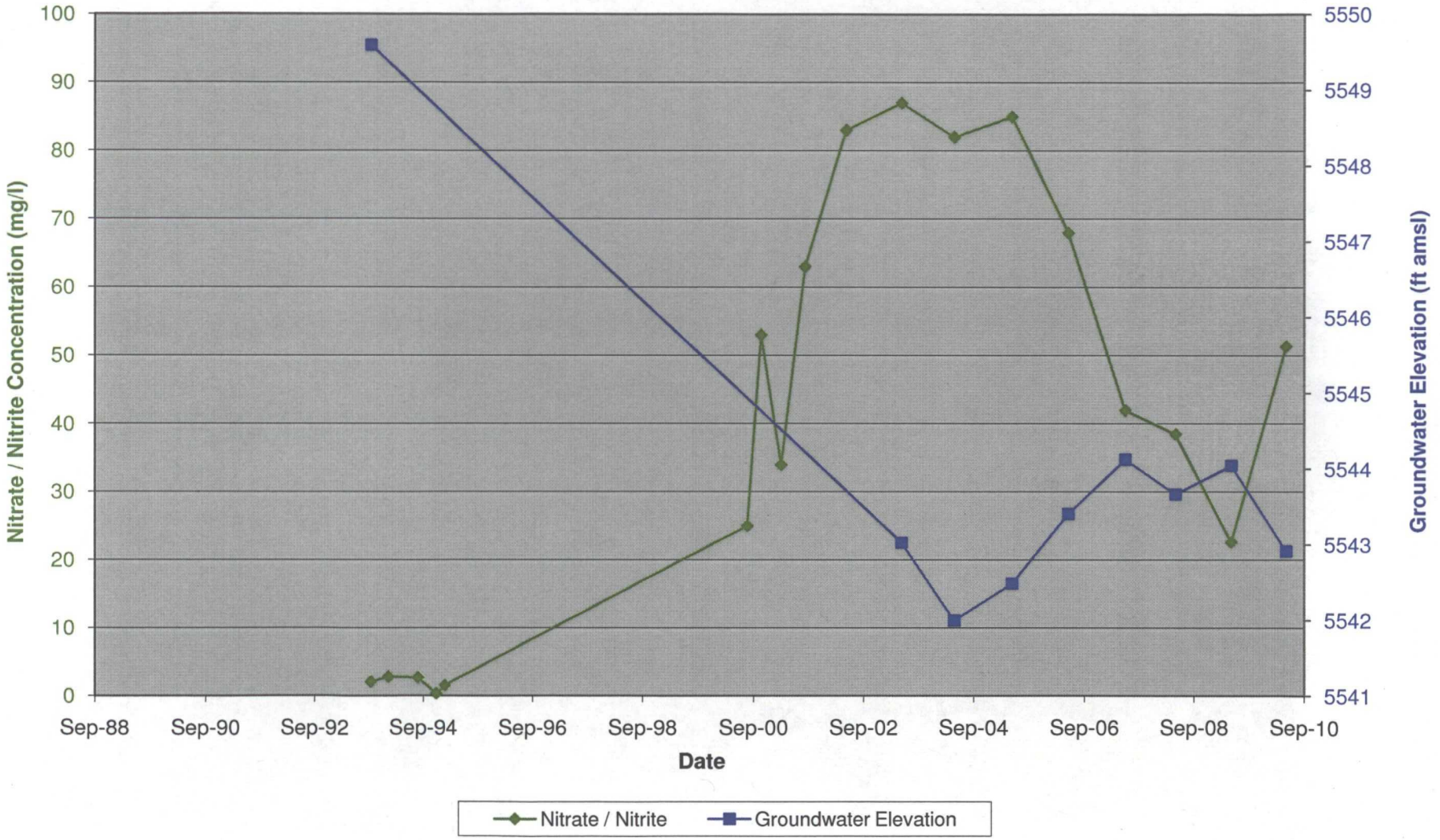
**Historic Nitrate / Nitrite Concentrations and Groundwater Elevations**
**Monitoring Well MW-14**
**El Paso Corporation Blanco Plant, Bloomfield, NM**



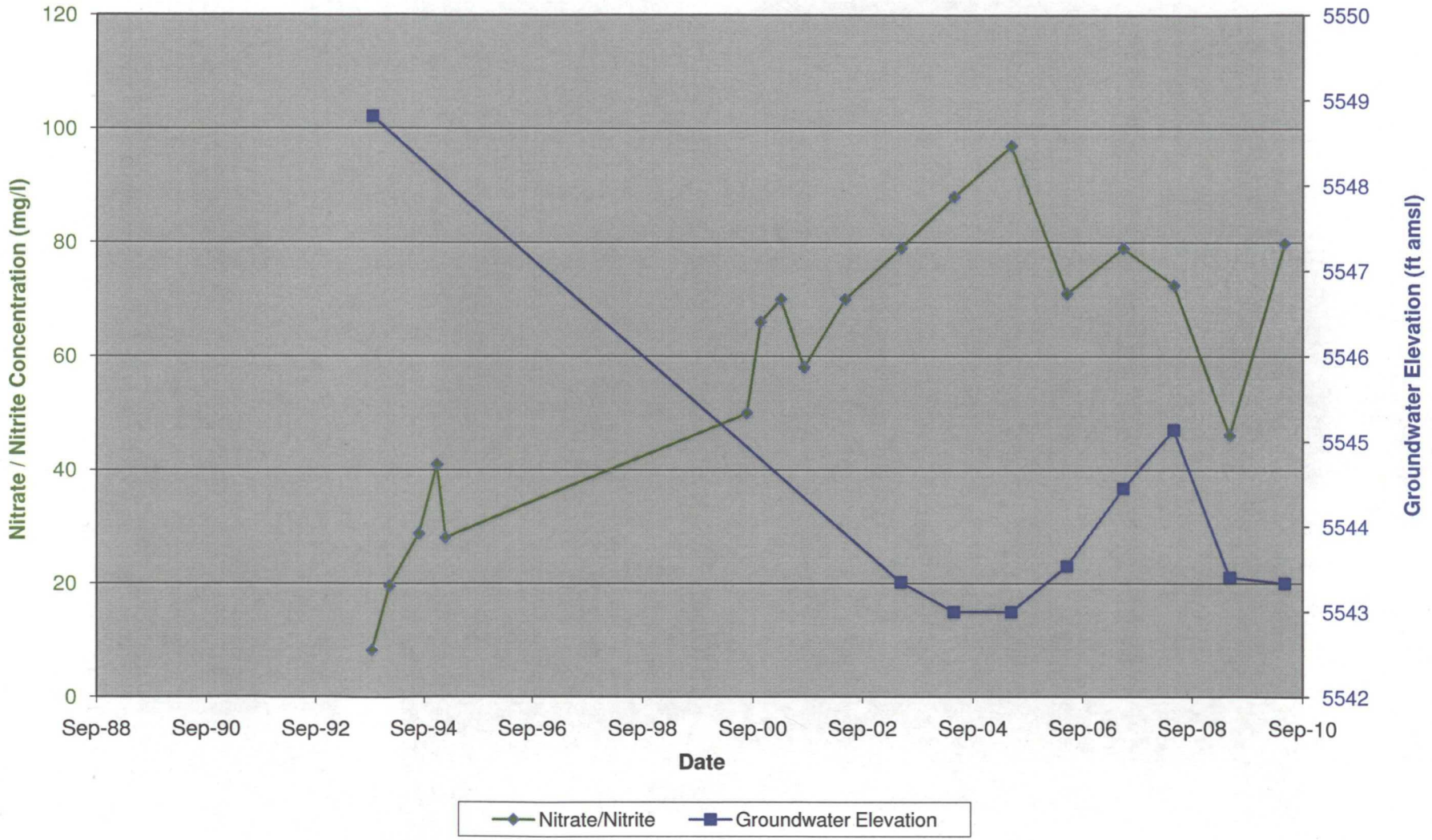
**Historic Nitrate / Nitrite Concentrations and Groundwater Elevations**
**Monitoring Well MW-15**
**El Paso Corporation Blanco Plant, Bloomfield, NM**



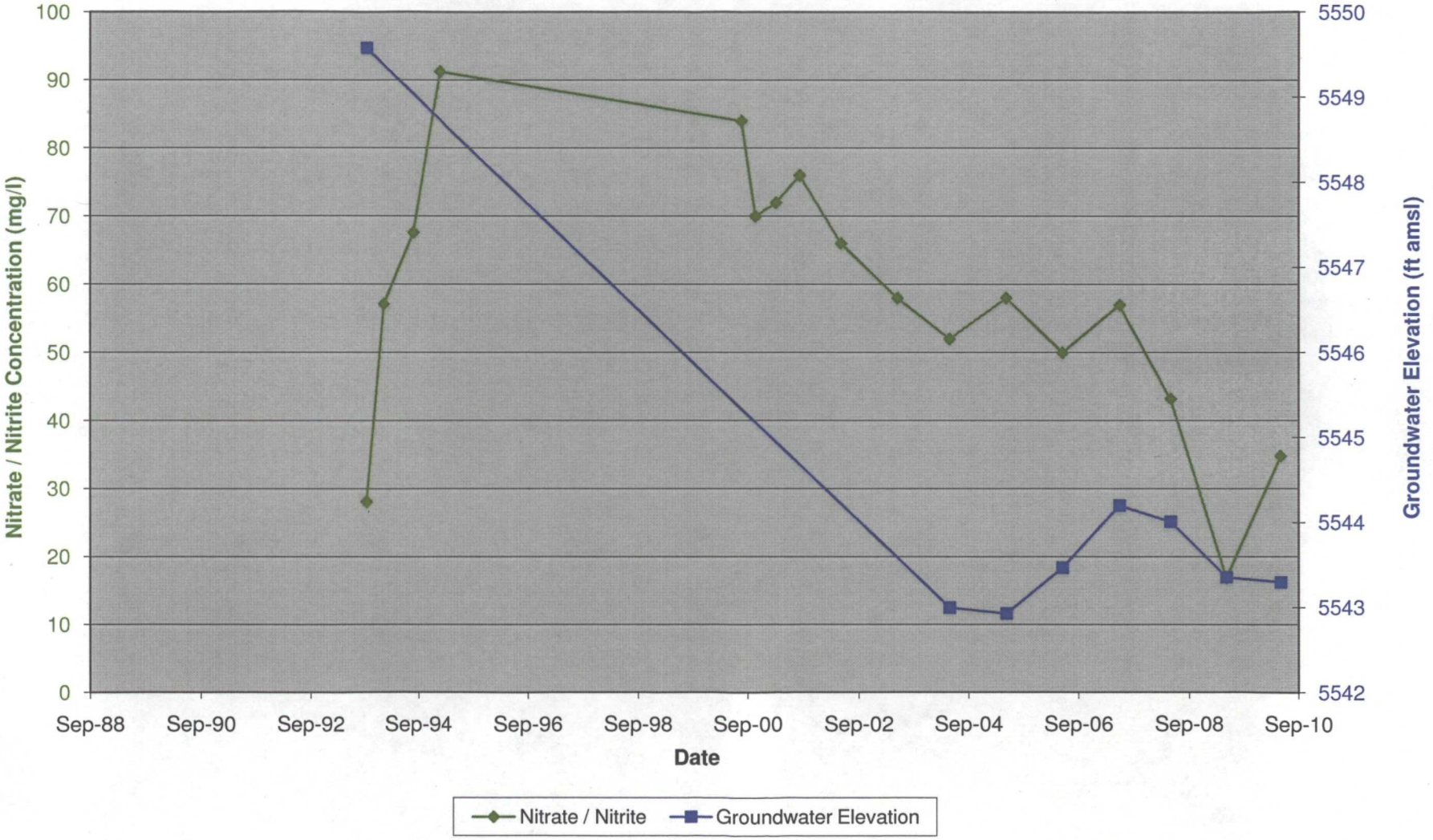
**Historic Nitrate / Nitrite Concentrations and Groundwater Elevations**
**Monitoring Well MW-28**
**El Paso Corporation Blanco Plant, Bloomfield, NM**



**Historic Nitrate / Nitrite Concentrations and Groundwater Elevations**
**Monitoring Well MW-29**
**El Paso Corporation Blanco Plant, Bloomfield, NM**



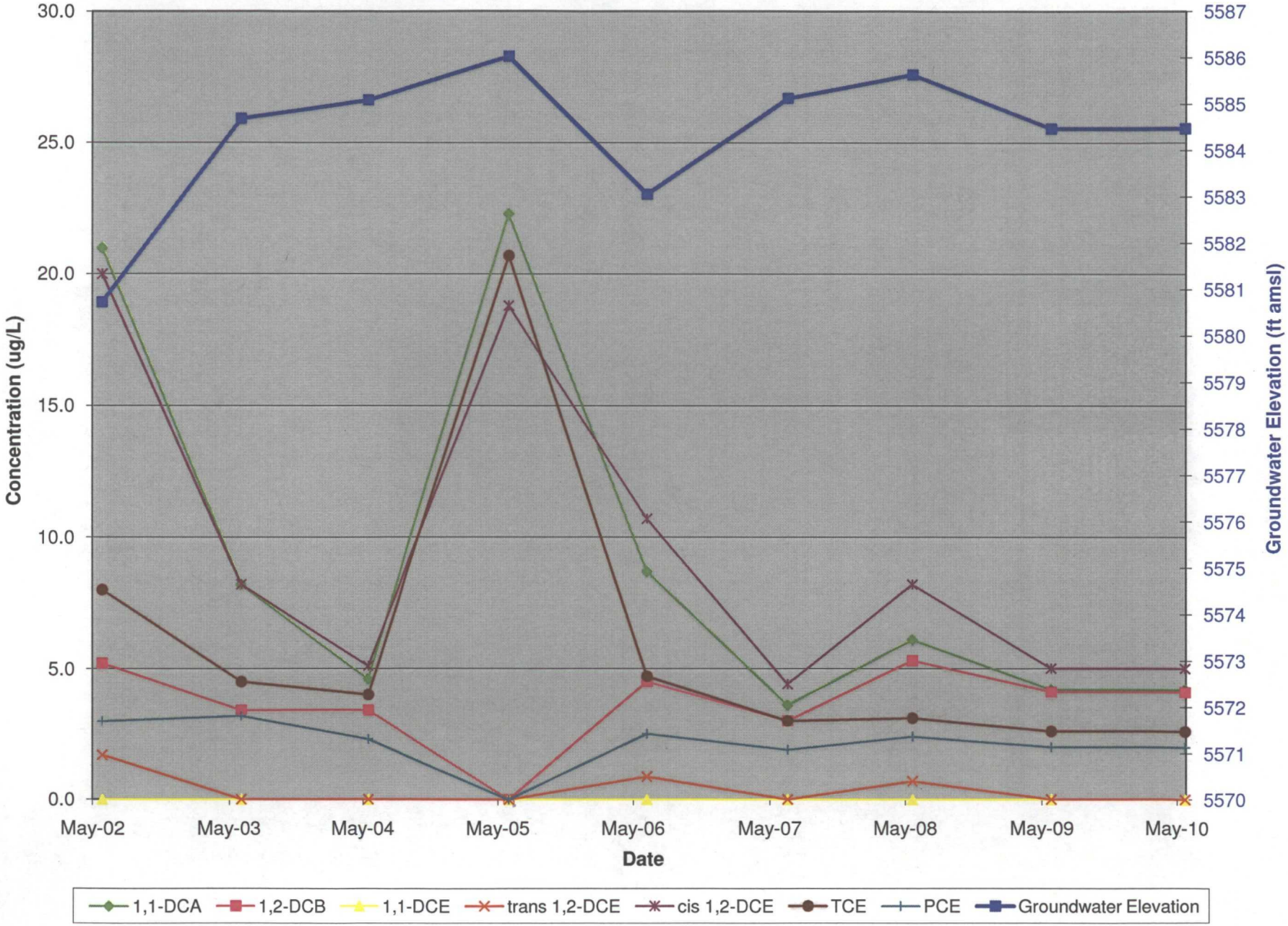
**Historic Nitrate / Nitrite Concentrations and Groundwater Elevations**
**Monitoring Well MW-30**
**El Paso Corporation Blanco Plant, Bloomfield, NM**



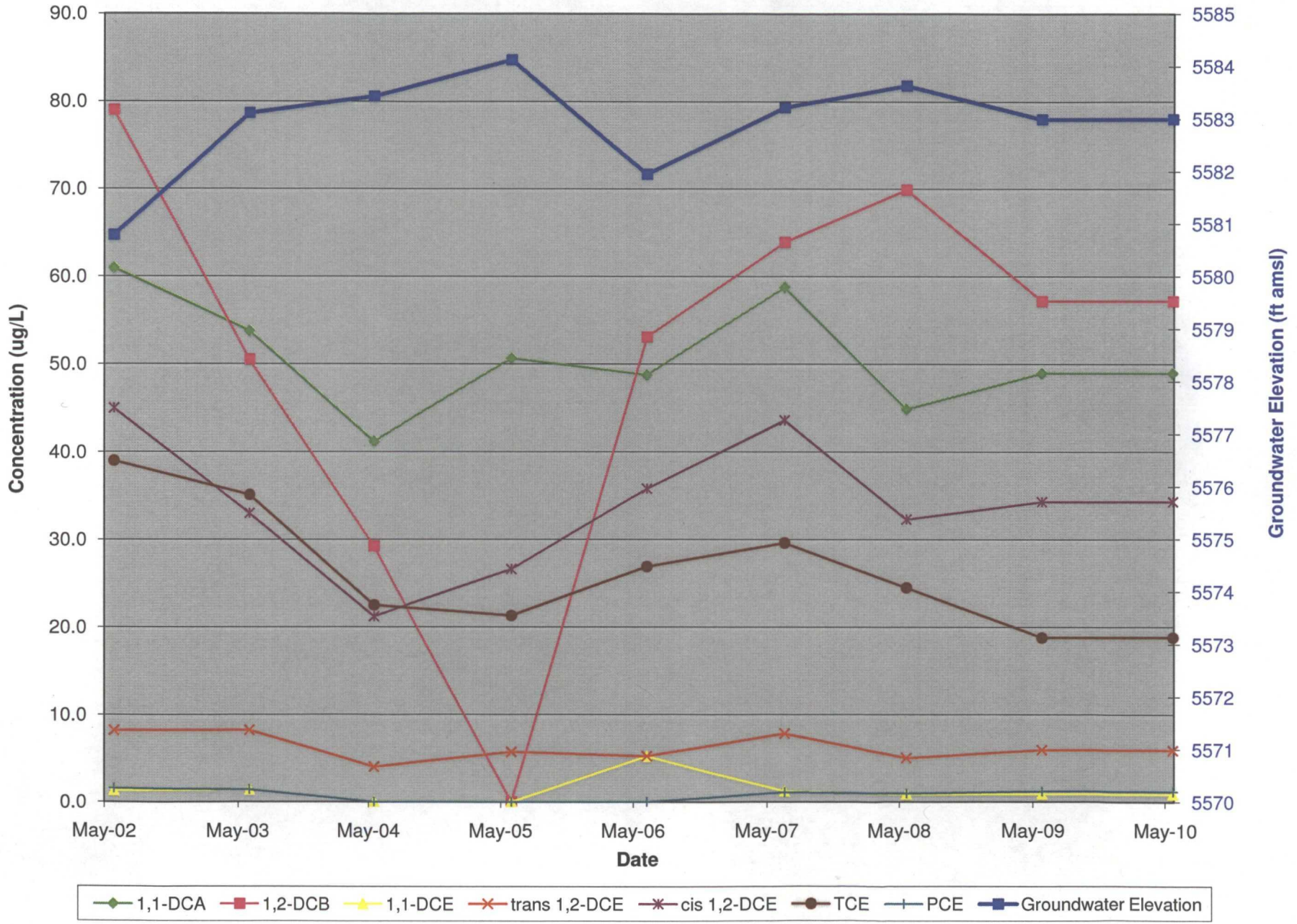
# APPENDIX D

# Chlorinated Hydrocarbon Concentration and Groundwater Elevation Graphs

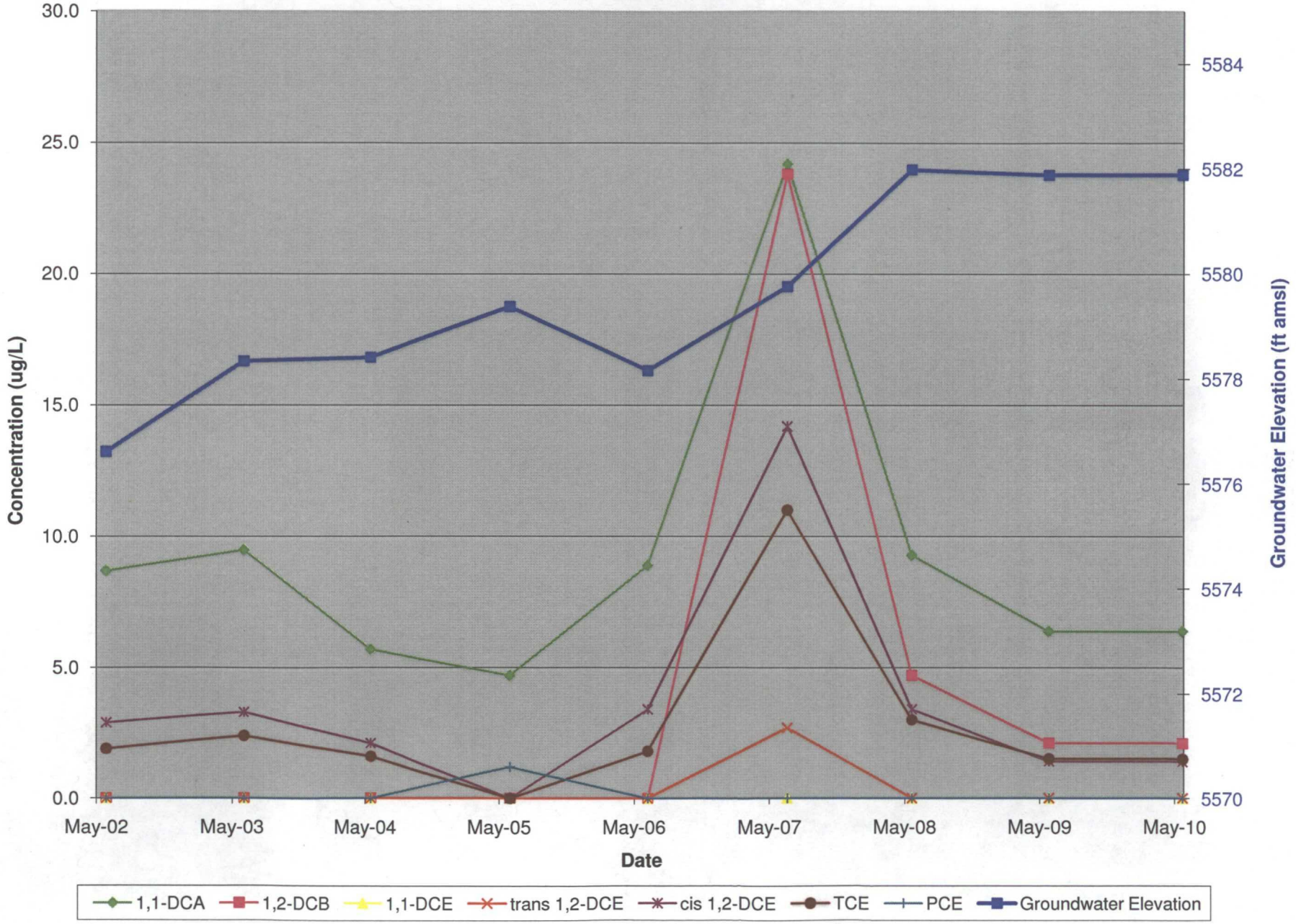
## Historic Chlorinated Hydrocarbon Concentrations and Groundwater Elevations
## Monitoring Well MW-12
## El Paso Corporation Blanco Plant, Bloomfield, NM



## Historic Chlorinated Hydrocarbon Concentrations and Groundwater Elevations
## Monitoring Well MW-13
## El Paso Corporation Blanco Plant, Bloomfield, NM



## Historic Chlorinated Hydrocarbon Concentrations and Groundwater Elevations
## Monitoring Well MW-14
## El Paso Corporation Blanco Plant, Bloomfield, NM



## Historic Chlorinated Hydrocarbon Concentrations and Groundwater Elevations
## Monitoring Well MW-15
## El Paso Corporation Blanco Plant, Bloomfield, NM