GW49-2

ANNUAL MONITORING REPORT

08/28/2009

GW 49-2



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August 28, 2009

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

RE: 2009 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 2009 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 28, 2009 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,

on behalf st

Ian Yanagisawa P.E., P.G. Principal Environmental Engineer

Enclosures: as stated

El Paso Corporation

1001 Louisiana Street

Houston, Texas

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EL PASO NATURAL GAS COMPANY



1001 Louisiana Street Houston, Texas 77002

2009 ANNUAL GROUNDWATER REPORT FOR THE S BLANCO PLANT SOUTH FLARE PIT AND D PLANT AREAS

San Juan County, New Mexico

August 2009

Prepared by:

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

TABLE OF CONTENTS

Ι
1
2
2 2
3
3 4
5
6
7

LIST OF TABLES

Table No. Description

an rul

1. 20

1. 12

Pis and

- 2.1 Groundwater Nitrate+Nitrite Analytical Data (1988 2009)
- 3.1 Groundwater Chlorinated Hydrocarbon Analytical Data (2002 2009)
- 4.1 Groundwater Sampling Schedule

LIST OF FIGURES

Figure No. Description

- 1 Blanco Plant Site Layout
- 2 Groundwater Potentiometric Surface Map May 2009
- 3 Groundwater Nitrate Data May 2009
- 4 Groundwater Chlorinated Hydrocarbon Data -- May 2009

LIST OF APPENDICES

- A Field Sampling Forms
- B Laboratory Analytical Report
- C Data Validation Reports
- D Nitrate+Nitrite Concentration and Groundwater Elevation Graphs
- E Chlorinated Hydrocarbon Concentration and Groundwater Elevation Graphs

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LIST OF ACRONYMS

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

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

1.0 INTRODUCTION

This 2009 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 28, 2009 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 2008 Groundwater Report for the Blanco Plant South Flare Pit and D Plant Areas (MWH, 2008). The 2008 Groundwater Report was submitted to the New Mexico Oil Conservation Division (NMOCD) on August 21, 2008.

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 2009, 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 2.1×10^{-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 2009 ANNUAL GROUNDWATER SAMPLING EVENT

Monitoring wells at the Blanco Plant were sampled on May 28, 2009 and analyzed for nitrate+nitrite concentrations and/or 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.

Figure 2 depicts the groundwater potentiometric surface contours, based on water level measurements collected during the May 28, 2009 annual groundwater sampling event. The groundwater generally flows toward the south, toward the San Juan River. The groundwater flow direction in the South Flare Pit area appears to be influenced as well by recharge from Citizens Ditch. These results are consistent with previous years' data.

3.1 GROUNDWATER NITRATE+NITRITE DATA

Groundwater samples were collected on May 28, 2009 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 nirate-nitrite data for each well. The 2009 nitrate+nitrite analytical results are also presented on Figure 3. The laboratory analytical reports are included in Appendix B; and data validation records are included in Appendix C. 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-6 (71.2 mg/L), MW-28 (22.7 mg/L), MW-29 (46.2 mg/L), and MW-30 (16.9 ug/L) and in D Plant area monitoring well MW-15 (12.0 mg/L).

Trend graphs depicting nitrate+nitrite concentrations versus groundwater elevations over time are presented in Appendix D 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 and MW-6. Nitrate+nitrite concentrations in MW-5 have increased slightly over time and have recently hovered near the NMWQCC groundwater standard of 10 mg/L. 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 E 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.

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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.
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TABLE 2.1GROUNDWATER NITRATE+NITRITE ANALYTICAL DATA (1988 - 2009)BLANCO PLANT - SAN JUAN COUNTY, NEW MEXICO

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Monitoring Well	Sample Date	Nitrate+Nitrite (mg/l)		Monitoring Well	Sample Date	Nitrate+Nitrite (mg/l)
	NMOCD Sta	ndard: 10 mg/L			NMOCD Sta	ndard: 10 mg/L
	9/21/1988	290			8/20/1994	1.7
MW-2	6/18/1991	180		MW-6	8/27/2001	NS
	2/23/1993	256		(cont'd)	12/20/1994	94
	6/8/1993	228			2/16/1995	90.6
	9/29/1993	233			11/10/2000	59
	2/10/1994	249			9/24/2002	95.1
	5/29/2002	dry			6/3/2003	74
	6/3/2003	dry	-		5/17/2004	dry
	5/17/2004	dry			5/30/2005	not sampled
	5/30/2005	dry			6/8/2006	not sampled
	6/8/2006	dry			6/20/2007	92
	6/20/2007	dry			5/22/2008	100
	5/22/2008	dry			5/28/2009	71.2
	5/28/2009	dry			9/22/1988	0.3
	9/23/1988	0.02		MW-7	6/18/1991	0.28
MW-5	6/18/1991	0.08			6/7/1993	3
	2/19/1993	<1.0			9/27/1993	<2.8
	6/7/1993	<1.0			5/29/2002	dry
	8/27/2001	NS			9/24/2002	dry
	1/27/1994	<1.0			6/3/2003	dry
	8/8/2000	4.6			5/17/2004	dry
	8/8/2000	4.6			5/30/2005	dry
	11/10/2000	4.0			6/8/2006	dry
	9/24/2002	dry			6/20/2007	dry
	6/3/2003	dry			5/22/2008	drý
	5/17/2004	dry			5/28/2009	dry
	5/30/2005	dry			9/23/1988	<0.1
	6/8/2006	dry	1 1	MW-8	6/18/1991	< 0.06
	6/20/2007	-15			2/19/1993	2.0
	5/22/2008	9.2			6/7/1993	<1.0
	5/28/2009	10.0			9/27/1993	<1.0
	9/21/1988	51.0			1/27/1994	<1.0
MW-6	6/19/1991	110			11/10/2000	<0.1
	2/19/1993	63.5			3/23/2001	0.21
	6/7/1993	76.4			8/28/2001	0.33
}	9/28/1993	85.9			5/28/2002	0.26
	10/7/1993	94.5			6/3/2003	0.13
	1/26/1994	95.8			3/23/2001	0.21

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GROUNDWATER NITRATE+NITRITE ANALYTICAL DATA (1988 - 2009) BLANCO PLANT - SAN JUAN COUNTY, NEW MEXICO

Monitoring	T	Nitrate+Nitrite	l í	Monitoring	Nitrate+Nitri				
Well	Sample Date	(mg/l)		Well	Sample Date	(mg/l)			
	NMOCD Sta	NMOCD Standard: 10 mg/I				NMOCD Standard: 10 mg/L			
	8/28/2001	0.33			9/28/1993	4.1			
MW-8	5/28/2002	0.35		MW-13	1/27/1994	54			
(cont'd)	6/3/2003	0.13		(cont'd)	8/8/2000	<12.5			
(cont d)	5/17/2004	0.43		(come a)	11/9/2000	9.8			
	5/31/2005	0.30			3/22/2001	13			
	6/8/2006	0.30			8/28/2001	7.9			
	6/20/2007	0.50			5/28/2002	6.0			
	5/22/2008	0.00			6/3/2003	5.8			
	5/28/2009	<20			5/17/2004	9.8			
· · · · · · · · · · · · · · · · · · ·	9/24/1988	1.0			5/31/2005	8.2			
MW-10	6/18/1991	0.74			6/8/2006	8.2			
	2/19/1993	1.2			6/20/2007	6.1			
	6/7/1993	2.2			5/22/2008	3.9			
	9/27/1993	2.1			5/28/2009	4.8			
	1/27/1994	2.0			1/15/1990	210			
	5/28/2002	drv		MW-14	2/25/1993	19.2			
	9/24/2002	drv			6/8/1993	17.5			
	6/3/2003	NS			9/28/1993	11.8			
	12/1/2003	abandoned			1/27/1994	15.4			
	1/15/1990	9.6			8/8/2000	19			
MW-12	6/19/1991	7.8			11/13/2000	0.24			
	2/25/1993	7.8			3/22/2001	13			
	6/7/1993	8.5			8/28/2001	20			
	9/28/1993	9.1			5/28/2002	15			
	1/27/1994	7.3			6/3/2003	15			
	8/8/2000	<10			5/17/2004				
	11/9/2000	5.7			5/31/2005	24			
	3/22/2001	8.4			6/8/2006	14			
	8/28/2001	8.0			6/20/2007	15			
	5/28/2002	2.0			5/22/2008	13.3			
	6/3/2003	6.7			5/28/2009	7.8			
	5/17/2004	. 7.6			1/15/1990	89			
	5/31/2005	8.6		MW-15	6/19/1991	50			
	6/8/2006	6.5			2/24/1993	5			
	6/20/2007	7.6			6/8/1993	48.1			
	5/22/2008	6.7			9/28/1993	43			
	5/28/2009	4.3			1/27/1994	43.7			
	1/15/1990	16.4			8/8/2000	35			
MW-13	6/19/1991	6.3			11/9/2000	38			
	2/24/1993	10.9			3/22/2001	- 25			
	6/8/1993	8.1			8/28/2001	30			

TABLE 2.1 **GROUNDWATER NITRATE+NITRITE ANALYTICAL DATA (1988 - 2009) BLANCO PLANT - SAN JUAN COUNTY, NEW MEXICO**

Monitoring	Sample Date	Nitrate+Nitrite	Monitoring	Sample Date	Nitrate+Nitrite
	NMOCD Sta	ndard: 10 mg/L		NMOCD Sta	andard: 10 mg/L
	5/28/2002	24		10/7/1993	8.3
MW-15	6/3/2003	21	MW-29	2/2/1994	19.6
(cont'd)	5/17/2004	20		8/20/1994	28.8
	5/31/2005	35		12/20/1994	41
	6/8/2006	17		2/16/1995	28.1
	6/20/2007	18		8/10/2000	50
	5/22/2008	21.6		11/10/2000	66
	5/28/2009	12.0		3/26/2001	70
	6/19/1991	0.07		8/28/2001	58
MW-16	2/25/1993	3.7		5/28/2002	70
	6/8/1993	<1.0		6/3/2003	79
	6/3/2003	NS		5/17/2004	88
	12/1/2003	abandoned		5/31/2005	97
	2/25/1993	15.3		6/8/2006	71
MW-17	9/24/2002	dry		6/20/2007	79
	6/3/2003	NS		5/22/2008	72.5
	12/1/2003	abandoned		5/28/2009	46.2
and the second	2/25/1993	8.19		10/7/1993	28.1
MW-18	6/8/1993	<1.0	MW-30	2/2/1994	57.1
	9/28/1993	<1.0		8/20/1994	67.6
	9/24/2002	3.1		2/16/1995	91.3
	6/3/2003	NS		8/10/2000	84
	12/1/2003	abandoned		11/10/2000	70
	10/7/1993	2.1		3/26/2001	72
MW-28	2/2/1994	2.8		8/28/2001	76
	8/20/1994	2.7		5/28/2002	66
	12/20/1994	0.33		6/3/2003	58
	2/16/1995	1.6		5/17/2004	52
	8/10/2000	25		5/31/2005	58
	11/10/2000	53		6/20/07	57
	3/23/2001	34		5/22/08	43.2
	8/28/2001	63		5/28/09	16.9
	5/28/2002	83			
	6/3/2003	87			
	5/17/2004	82			
	5/31/2005	85			
	6/8/2006	68			
	6/20/2007	42			
	5/22/2008	38.5			
	5/28/2009	22.7			

MW-29	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	
	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
	10/7/1993	28.1
MW-30	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

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"<" = 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 3.1GROUNDWATER CHLORINATED HYDROCARBON ANALYTICAL DATA (2002 - 2009)BLANCO PLANT - SAN JUAN COUNTY, NEW MEXICO

Monitoring	Sample	Groundwater	Depth to Water	Chlorinated Hydrocarbons by EPA Method 8260B (ug/L)							
Well	Date	(ft. amsl)	(ft. btoc)	1,1-DCA	1,2-DCB	1,1-DCE	trans-1,2-DCE	cis-1,2-DCE	TCE	РСЕ	
	NMW	QCC Groundy	vater 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	
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	
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	
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	

DCA: Dichloroethane DCB: Dichlorobenzene

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DCE: Dichloroethene NA: Not applicable PCE: Perchloroethene

TCE: Trichloroethene

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

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

Monitoring Well	Analyses	Sampling Frequency		
Blanco Plant Area				
MW-2	MW-2 Nitrate+Nitrite			
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		

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.

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

DCA: Dichloroethane

- DCB: Dichlorobenzene
- **DCE:** Dichloroethene
- **PCE:** Perchloroethene
- **TCE:** Trichloroethene
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APPENDIX A

Field Sampling Forms

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WATER LEVEL DATA

Project Name: Blanco South Flare Pit

Date:

5/28/2009

Project Manager: Ashley Ager

Client: MWH

Site Name: South Flare Pit

		Depth to Product	Denth to	Product Thickness		
Well	Time	(ft)	Water (ft)	(ft)	Comments	
Blanco Plant Area	· · · · ·					
MW-2	8:12 AM	-	dry	-	dry at 58.72'	
MW-5		-	20.46	-	sample for Nitrate/Nitrite	
MW-6		-	29.66	-	sample for Nitrate/Nitrite	
MW-7		-	dry	-	dry at 21.30'	
MW-8		-	33.96	-	sample for Nitrate/Nitrite	
MW-28		-	28.66	-	sample for Nitrate/Nitrite	
MW-29		-	31.90	-	sample for Nitrate/Nitrite	
MW-30		-	31.85	-	sample for Nitrate/Nitrite	
D Plant Area						
MW-12		-	17.20	-	sample for Nitrate/Nitrate and CHCs	
MW-13		-	14.55	-	sample for Nitrate/Nitrate and CHCs	
MW-14		-	16.30	_	sample for Nitrate/Nitrate and CHCs	
MW-15		-	18.83	-	sample for Nitrate/Nitrate and CHCs	

Comments

MW-28 has obstruction in well. Able to get water level indicator past, but not bailer. Well produces enough water to purge appropriate amount of water without reaching total depth. All other wells are in good condition.

Signature: Ashley L. Agen

Date:

5/29/2009

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Project Name: Client: Project Manager:	San Juan Ba MWH Ashley Age	asin	Samp	Location: Date: ler's Name:	Blanco Sou 5/28/2009 Ashley Age	th Flare Pit	Well No: Time:	MW-5 10:52	
Measuring Point: Well Diameter:	TOC 4" Wa	Depth 1 Tot iter Colum	to Water: al Depth: n Height:	20.46 20.74 0.28	ft ft ft	Depth Product	to Product: Thickness:	ft ft	
Sampling Method: Criteria:	□ Submersib ☑ Bottom Va ☑ 3 to 5 Casi	e Pump [ve Bailer [ng Volumes c	Centrifug Double C of Water Rer	al Pump 🗌 Pe heck Valve Bail moval 🗹 Stabili	eristaltic Pump er zation of Indic	Other	s ☑ Other	bail dry	
				Water Volui	me in Well				
Gal/ft x ft of w	later	Gall	ons	Our	ices		volume t	o be removed	
U.28 X .05		0.18				L	0.	gai	
Time (military)	pH (su)	SC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. gal	Comments/Flow Rate	
10:53	7.02	1.74	61.5				0.2	clear	
_	7.03	1.85	62.2				0.4	bailing down/dry	
	7.02	1.96 	62.4						
Final: 11:08	7.04	1.99	62.9				0.55	clear	
COMMENTS:	Well bailed sampling to	l dry after o confirm s	purging. stability.	Allowed to r	echarge, th	nen collected	d sample. N	leasured parameters after	
Instrumentation:	🗹 pH Meter	🗌 DO Mor	nitor 🗹 C	onductivity Met	er 🗹 Tem	perature Meter	Other		
Water Disposal:	Rio Vista								
Sample ID:	MW-5		- Sa	ample Time:	11:06				
Analysis Requested:	BTEX Other		Alkalini	ity 🗌 TDS	Cations [Anions 🗹	Nitrate 🖸 I	Nitrite 🗌 Metals	
Trip Blank:	Trip Blank: 28052009AA01 Duplicate Sample:								

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Project Name: Client: Project Manager:	San Juan B MWH Ashley Age	asin	Samp	Location: Date: Ier's Name:	Blanco Sou 5/28/2009 Ashley Age	th Flare Pit	Well No: Time:	MW-6 10:38			
Measuring Point: Well Diameter:	TOC 4" Wa	Depth Tot ater Colum	to Water: al Depth: n Height:	29.66 31.22 1.56	ft ft ft	Depth Product	to Product: : Thickness:	ft 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 Volur	ne in Well						
Gal/ft x ft of w	vater	Gall	ons	Our	ices		Volume t	o be removed			
1.56 x .65		1.01	. x 3				3	.03 gal			
Time (military)	pH (su)	SC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. gal	Comments/Flow Rate			
10:40	7.03	3.81	63.8				0.5	clear			
<u> 10:42</u>	6.99	3.76	63.9				0.7	bailing down/dry			
Final: 10:50 COMMENTS:	7.02 Well bailed	3.85 I dry after	63.5 purging.	Allowed to r	echarge, th	nen collected	1 d sample. N	clear. Aeasured parameters after			
Instrumentation: Water Disposal:	☑ pH Meter Rio Vista	DO Mor	iitor I C	onductivity Met	er 🛛 Tem	perature Meter	C Other				
Sample ID:	MW-6		. Sa	mple Time:	10:49						
Analysis Requested:	BTEX Other		🗌 Alkalini	ty 🗆 tos	Cations [Anions 🗹	Nitrate 🖸 I	Nitrite 🗌 Metals			
Trip Blank:	Trip Blank: 28052009AA01 Duplicate Sample:										

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Project Name: Client: Project Manager:	San Juan B MWH Ashley Age	asin r	Samp	Location: Date: ler's Name:	Blanco Sou 5/28/2009 Ashley Age	ith Flare Pit	Well No: Time:	MW-8 8:33	
Measuring Point: Well Diameter:	TOC 4" Wa	Depth 1 Tot ater Colum	to Water: al Depth: n Height:	33.96 36.5 2.54	ft ft ft	Depth Product	to Product: Thickness:	ft ft	
Sampling Method: Criteria:	□ Submersib ☑ Bottom Va ☑ 3 to 5 Casi	le Pump [lve Bailer [ng Volumes c	Centrifuga Double Cl	al Pump 🗌 Pe heck Valve Baik noval 🗹 Stabili	ristaltic Pump er zation of Indic	Other Cator Parameter	s 🗹 Other	bail dry	
				Water Volur	ne in Well	<u> </u>			
Gal/ft x ft of w	/ater	Gall	ons	Oun	ices	· · · · · · · · · · · · · · · · · · ·	Volume t	o be removed	
2.54 X .65		1.65	x 3				4	.95 gal	
Time (military)	pH (su)	SC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. gal	Comments/Flow Rate	
8:39	7.09	4.99	59.7		μ. .		0.4	clear, roots	
· · · · · · · · · · · · · · · · · · ·	7.22	4.73	59.4				0.65	brownish color, bailing down	
	7.23	4.68	59.4				1.15		
8:45	7.24	4.48	59.5				1.65	well is dry	
	_								
Final: 8:52	7.26	4:5	59.6				1.7	brownish color, roots	
COMMENTS:	Well bailed sampling to	l dry after o confirm s	purging. tability.	Allowed to r	echarge, th	nen collectec	i sample. N	leasured parameters after	
Instrumentation:	🗹 pH Meter	DO Mon	iitor 🗹 Ca	onductivity Met	er 🗹 Tem	perature Meter	Other		
Water Disposal:	Rio Vista								
Sample ID:	MW-8		Sa	mple Time:	8:50				
Analysis Requested:	BTEX Other		Alkalinit	y 🗌 tds	Cations [Anions 🗹	Nitrate 🖸 I	Nitrite 🗌 Metals	
Trip Blank: 28052009AA01 Duplicate Sample:									

WELL DEVELOPMENT AND SAMPLING LOG

Project Name: Client: Project Manager:	San Juan Ba MWH Ashley Age	asin r	Sampl	Location: Date: ler's Name:	Blanco Sou 5/28/2009 Ashley Age	th Flare Pit r	Well No: Time:	MW-12 12:02			
Measuring Point: Well Diameter:	<u>TOC</u> 2" Wa	Depth t Tot ater Colum	o Water: al Depth: n Height:	17.2 24.48 7.28	ft ft ft	Depth f Product	to Product: Thickness:	ft ft			
Sampling Method: Criteria:	□ Submersibl ☑ Bottom Val ☑ 3 to 5 Casi	le Pump [lve Bailer [ng Volumes c	Centrifuga Double Cl of Water Rer	al Pump 🗌 Pe heck Valve Bail noval 🗹 Stabili	eristaltic Pump er ization of Indic	Other	s 🗹 Other	bail dry			
				Water Volu	me in Well		<u> </u>				
Gal/ft x ft of w	vater	Gall	ons	Our	nces		Volume t	o be removed			
7.28 x .16		1.16	ХЗ	l			3	g.5 gal			
				r .							
Time (military)	pH (su)	SC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. gal	Comments/Flow Rate			
12:05	7.57	5.03	62.4				0.25	clear			
	7.52	5.19	61.2				0.5				
	7.48	5.11	61.5				0.75				
	7.61	5.15	61.5				1	sudsy			
	7.62	5.14	61.9				2				
	7.61	5.16	61.5				3				
	7.58	5.19	61.9				3.5				
								·			
Final:	7.58	5.19	61.8				3.75	clear			
COMMENTS:	COMMENTS: Well bailed dry after purging. Allowed to recharge, then collected sample. Measured parameters after sampling to confirm stability.										
Instrumentation:	☑ pH Meter	DO Mor	itor 🗹 C	onductivity Met	er 🗹 Temp	perature Meter	C Other				
Water Disposal:	Rio Vista										
Sample ID:	MW-12		Sa	mple Time:	12:16						
Analysis Requested:	BTEX Other	CHCs	Alkalini	ty □tds	Cations [Anions 🗹	Nitrate 🗹 I	Nitrite 🗌 Metals			
Trip Blank:	2805200	09AA01		Duplicate Sample:							

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Project Name: Client: Project Manager:	San Juan Ba MWH Ashley Age	asin r	Samp	Location: Date: ler's Name:	Blanco Sou 5/28/2009 Ashley Age	ith Flare Pit	Well No: Time:	MW-13 11:45				
Measuring Point: Well Diameter:	TOC 2" Wa	Depth 1 Tot iter Colum	o Water: al Depth: n Height:	14.55 23.05 8.5	ft ft ft	Depth Product	to Product: : Thickness:	ft ft				
Sampling Method: Criteria:	□ Submersibl ☑ Bottom Val ☑ 3 to 5 Casi	le Pump [lve Bailer [ng Volumes c	Centrifug Double C of Water Rer	al Pump 🗌 Pe heck Valve Bailé noval 🗹 Stabili	ristaltic Pump er zation of Indic	Other	rs 🖸 Other	bail dry				
				Water Volur	ne in Well							
Gal/ft x ft of w	vater	Gall	ons	Oun	ces	l	Volume t	to be removed				
8.5 x .16		1.36	х З				4	.UX gal				
Time (military)	рН (su)	SC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac.	Comments/Flow Rate				
11:47	4.39	6.99	64.2				0.25	clear				
	7.06	7.05	64.0				0.5					
· · · · · · · · · · · · · · · · · · ·	7.03	7.76	640				0.75	sudsy				
	7.04	7.37	63.7				1					
· · · · ·	7.00	8.23	64.4				2					
	6.98	8.30	64.4				3					
	6.98	8.31	64.4				4					
Final:	6.97	8.31	64.5				4.25	clear in the second				
COMMENTS:	Sample is u	inpreserve	d. Grour	idwater reac	ted with H	Cl preservat	ive.					
Instrumentation:	고 pH Meter	DO Mor	itor 🗹 C	onductivity Met	er 🗹 Tem	perature Meter	Other	r				
Water Disposal:	Rio Vista											
Sample ID:	MW-13		Sa	mple Time:	11:58	-						
Analysis Requested:	BTEX Other	CHCs	🗌 Alkalini	ty 🗌 TDS	Cations [Anions 🗹	Nitrate 🗹	Nitrite 🗌 Metals				
Trip Blank:	280520	09AA01		Duplicate Sample:								

WELL DEVELOPMENT AND SAMPLING LOG

Project Name: Client: Project Manager:	San Juan Ba MWH Ashley Age	asin r	Samp	Location: Date: ler's Name:	Blanco Sou 5/28/2009 Ashley Age	ith Flare Pit	Well No: Time:	MW-14 12:19		
Measuring Point: TOC Depth to Water: 16.3 ft Depth to Product: ft Well Diameter: 2" Total Depth: 27.43 ft Product Thickness: ft Water Column Height: 11.13 ft ft It It										
Sampling Method: Criteria:	Submersibi Bottom Va 3 to 5 Casi	le Pump [lve Bailer] ng Volumes c	Centrifug Double C of Water Rer	al Pump 🗌 Pe heck Valve Baile noval 🗹 Stabili:	ristaltic Pump er zation of Indic	Other	s 🗹 Other	bail dry		
			<u></u>	Water Volur	ne in Well					
Gal/ft x ft of w	ater	Gall	ons	Oun	ces	L	volume t	o be removed		
)	1.78		L.,			5.	.5 4 gal		
Time (military)	pH (su)	SC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. gal	Comments/Flow Rate		
12:22	7.06	5.89	65.3				0.25	clear		
	7.08	4.98	64.8				0.5			
	7.12	5.39	64.8				0.75			
	7.17	5.34	64.2				1			
	7.05	7.24	64.9				2	bailing down		
	7.04	7.28	65.5				2.5	well is dry		
ļ		=								
Final: 12:35	7.02	7.22	65.7				2.75	clear		
COMMENTS:	Sample is u Allowed to	unpreserve recharge,	ed. Groun then colle	dwater reac ected sample	ted with H e. Measure	Cl preservati ed paramete	ive. Well ba rs after sam	iled dry after purging. Ipling to confirm stability.		
Instrumentation:	☑ pH Meter	DO Mor	nitor 🗹 C	onductivity Met	er 🗹 Temj	perature Meter	C Other	·		
Water Disposal:	Rio Vista									
Sample ID:	MW-14		. Sa	mple Time:	12:35					
Analysis Requested:	BTEX	CHCs	🗌 Alkalini	ty 🗋 TDS	Cations [Anions 🗹	Nitrate 🗹 f	Nitrite 🗌 Metals		
Trip Blank:	280520	09AA01				Duplica	ate Sample:			

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Project Name: Client: Project Manager:	San Juan Ba MWH Ashley Age	asin r	Samp	Location: Date: ler's Name:	Blanco Sou 5/28/2009 Ashley Age	uth Flare Pit	Well No: Time:	MW-15 11:15				
Measuring Point: Well Diameter:	TOC 2" Wa	Depth : Tot iter Colum	to Water: al Depth: n Height:	18.83 36.74 17.91	ft ft ft	Depth Product	to Product: Thickness:	ft ft				
Sampling Method: Criteria:	□ Submersibl ☑ Bottom Val ☑ 3 to 5 Casi	e Pump [ve Bailer ng Volumes d	Centrifug Double C Of Water Ref	al Pump 🗌 Pe heck Valve Baili noval 🗹 Stabili	ristaltic Pump er zation of Indic	Other	rs 🗹 Other	bail dry				
				Water Volur	me in Well							
Gal/ft x ft of w	ater	Gall	ons	Oun	ices		Volume t	to be removed				
17.91 x .16)	2.87	x 3				8	.61 gal				
Time (military)	pH (su)	SC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac.	Comments/Flow Rate				
11.22	7 10	10 57	65.7	· · · · ·		́	gai	bright vellow clear				
	4.71	10.57	65.3				0.25	sudsv				
}	4.68	10.53	64.8				0.5	orange, deep vellow color				
	4.73	10.64	65.5				1					
	4.72	10.87	65.5				2	pale vellow and bailing down				
	4.30	10.71	66.0				2.5	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				
	4.34	10.77	66.2				3					
	4.31	10.70	66.2	<u> </u>			3.5					
	4.34	10.68	66.2				3.75	well is dry				
							ļ					
Final: 11:43	4.3	10.76	66.4	2 Aug			4	pale yellow and clear				
COMMENTS:	Well bailed sampling to	l dry after o confirm s	purging. stability.	Allowed to r	echarge, th	ien collecteo	d sample. N	Aeasured parameters after				
Instrumentation:	🗹 pH Meter	DO Mor	iitor 🗹 C	onductivity Met	er 🗹 Temj	perature Meter	C Other					
Water Disposal:	Rio Vista											
Sample ID:	MW-15		Sa	mple Time:	11:42	•						
Analysis Requested:	BTEX Other	CHCs	Alkalini	ty 🗌 TDS	Cations [Anions 🗹	Nitrate 🗹 I	Nitrite 🗌 Metals				
Trip Blank:	2805200	9AA01	A01 Duplicate Sample:									

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Project Name: Client: Project Manager:	San Juan Ba MWH Ashley Agei	isin	Sampl	Location: Date: ler's Name:	Blanco Sou 5/28/2009 Ashley Age	th Flare Pit r	Well No: Time:	MW-28 9:13
Measuring Point: Well Diameter:	TOC 4" Wa	Depth t Tot ater Colum	to Water: al Depth: n Height:	28.66 33.2 4.54	ft ft ft	Depth Product	to Product: t Thickness:	ft ft
Sampling Method: Criteria:	Submersib	le Pump Ive Bailer ing Volumes o	Centrifu	igal Pump Check Valve Ba noval ☑ Stat	Peristaltic Pur iler pilization of Inc	np Other	ers 🗹 Othe	bail dry
				Water Volu	me in Well			
Gal/ft x ft of w	/ater	Gall	ons	Our	nces		Volume t	o be removed
4.54 x .65		2.95	x 3				8.	.85 gal
		· · · · · · · · · · · · · · · · · · ·		1			1	
Time	рН	SC	Temp	ORP	D.O.	Turbidity	Vol Evac.	Comments/Flow Bate
(military)	(su)	(ms)	(°C)	(millivolts)	(mg/L)	(NTU)	gai	Comments/now Nate
9:15	7.37	3.17	62.4				0.5	obstruction in well, but able to purge water; brown, cloudy
	6.79	3.28	63.0				1	brown, cloudy
	6.75	3.24	62.4				1.25	
	6.77	3.23	62.2				2	
· · · · · · · · · · · · · · · · · · ·	6.74	3.30	62.1				2.5	
	6.71	3.32	62.1				3	
	6.77	3.33	61.9				3.5	
	6.79	3.34	62.4				4.5	
·····	6.77	3.32	62.2				5.5	
	6.79	3.39	62.4				6.5	
	6.78	3.32	62.2				7.5	
	6.8	3.38	62.1				8.5	10
Final:	5.78	3.36	62				9	brown, ciology
COMMENTS:	Obstruction water from	n in well pr I top of obs	events ba struction.	ailer from re	aching tota	l depth. We	ll produces (enough water to collect
Instrumentation:	🗸 pH Meter		nitor 🔽] Conductivity N	1eter 🗹 Te	mperature Mete	er 🗌 Oth	er
Water Disposal:	Rio Vista							
Sample ID:	MW-28		. Sa	imple Time:	9:55			
Analysis Requested:	BTEX	VOCs	Alkalir	nity 🗍 TDS	Cations	Anions	✓ Nitrate [✓ Nitrite 🗌 Metals
Trip Blank:	2805200	09AA01				Duplic	ate Sample:	

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WELL DEVELOPMENT AND SAMPLING LOG

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Project Name: Client: Project Manager:	San Juan Ba MWH Ashley Age	asin r	Samp	Location: Date: ier's Name:	Blanco Sou 5/28/2009 Ashley Age	th Flare Pit r	Well No: Time:	MW-29 9:58	
Measuring Point: Well Diameter:	TOC 4" Wa	Depth 1 Tot ater Colum	to Water: al Depth: n Height:	31.9 37.11 5.21	ft ft	Depth 1 Product	to Product: Thickness:	ft ft	
Sampling Method: Criteria:	Submersib Bottom Va 3 to 5 Casi	le Pump [lve Bailer [ng Volumes c	Centrifuga Double C of Water Rer	al Pump 🗌 Pe heck Valve Bailé noval 🗹 Stabili	ristaltic Pump er zation of Indic	Other	s 🗹 Other	bail dry	
				Water Volur	ne in Well				
Gal/ft x ft of w	ater	Gall	uns V 3	Uun	ces		volume t	o pe removea	
5.21 × .05		5.57	<u></u>					0.2 <u>5</u> 01	
Time (military)	pH (su)	SC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac. gal	Comments/Flow Rate	
9:58	6.96	4.00	62.1				1	clear	
	6.97	4.02	62.1				3		
	6.99	3.96	62.2				4	bailing down	
	7.01	4.02	62.2				5		
·	7.09	3.97	62.2		···· -·		5.5		
10:08	7.12	3.98	62.4				6	well is dry	
Final: 10:15	7.12	4.00	62.1				6.1	clear	
COMMENTS:	COMMENTS: Well bailed dry after purging. Allowed to recharge, then collected sample. Measured parameters after sampling to confirm stability.								
Instrumentation:	🗹 pH Meter	🗌 DO Mor	iitor 豆 C	onductivity Met	er 🗹 Tem	perature Meter	□ Other	. <u></u>	
Water Disposal:	Rio Vista								
Sample ID:	MW-29		Sa	mple Time:	10:14				
Analysis Requested:	BTEX Other		🗌 Alkalini	ty 🗆 TDS	Cations [Anions 🗹	Nitrate 🗹 I	Nitrite 🗆 Metals	
Trip Blank: 28052009AA01 Duplicate Sample:									

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WELL DEVELOPMENT AND SAMPLING LOG

Project Name: Client: Project Manager:	San Juan Ba MWH Ashley Age	r	Samp	Location: Date: ler's Name:	Blanco Sou 5/28/2009 Ashley Age	ith Flare Pit	Well No: Time:	MW-30 10:17		
Measuring Point: Well Diameter:	TOC 4" Wa	Depth Tot iter Colum	to Water: al Depth: n Height:	31.85 36.9 5.05	ft ft ft	Depth Product	to Product: Thickness:	ft ft		
Sampling Method: Criteria:	□ Submersibl ☑ Bottom Val ☑ 3 to 5 Casi	e Pump [ve Bailer ng Volumes d	Centrifug. Double C of Water Rer	al Pump 🗌 Pe heck Valve Baik noval 🗹 Stabili	ristaltic Pump er zation of Indic	Other Cator Parameter	s 🗹 Other	bail dry		
				Water Volur	me in Well					
Gal/ft x ft of w	/ater	Gall	ons	Our	ices		Volume t	o be removed		
5.05 x .65		3.28	3 x 3				9.	.85 gal		
Time (military)	рН (su)	SC (ms)	Temp (°C)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac.	Comments/Flow Rate		
10.20	6.85	3 65	63.7				gai	clear		
10.20	6.89	3.61	63.3				2			
	6.87	3.66	63.3				2 75	bailing down		
·····	6.93	3.65	63.3				3.75			
······································	6.90	3.65	63.2					<u> </u>		
10:30	6.98	3.67	63.1				5 25	well is dry		
10.50	0.50	5.07	05.1		····					
								· · · · · · · · · · · · · · · · · · ·		
Final: 10:37	6.99	3.67	63.4				5.5	clear		
COMMENTS:	Well bailed sampling to	l dry after o confirm :	purging. stability.	Allowed to r	echarge, th	nen collected	l sample. N	leasured parameters after		
Instrumentation:	🖸 pH Meter	DO Mor	nitor 🗹 C	onductivity Met	er 🗹 Tem	perature Meter	Other			
Water Disposal:	Rio Vista									
Sample ID:	MW-30	<u></u>	. Sa	mple Time:	10:35	-				
Analysis Requested:	BTEX Other	□ vocs	🗋 Alkalini	ty 🗍 TDS	Cations [Anions 🗹	Nitrate 🗹 I	Vitrite 🗌 Metals		
Trip Blank:	Trip Blank: 28052009AA01 Duplicate Sample:									

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APPENDIX B

Laboratory Analytical Report

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Technical Report for

Montgomery Watson

Blanco Plant South Flare Pit

Accutest Job Number: T30031

Sampling Date: 05/28/09

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:



Paul K Carrevaro

Paul Canevaro Laboratory Director

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.

Client Service contact: Georgia Jones 713-271-4700

Certifications: TX (T104704220-06-TX) AR (88-0756) FL (E87628) KS (E-10366) LA (85695/04004) OK (9103) UT(7132714700)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories. Test results relate only to samples analyzed.

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Laboratories								H	Det 19d	7 0 C 7		Bottle Order Control #	Page of
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	<u>. u</u>	slanco Pla	nt South F	lare Pit 2	009 GWN	-						- <u> </u>	GW - Ground Water
troject Contact	B	ill to			hrv	tice Attn.							WW - Wastewater
led Smith jed.smith@m	whglobal.com	EPNG Pipe	line		lan Ya	nagisaw	a						SO - Soil
uddress	<u>«</u>	ddress							<u> </u>				SL - Shudge
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6 MW-5	5-28-	11 20-	290	1 40		7			7				
7 MW-15	5-28	09	42 6	W H	7	7		در 	1				
8 MW-13	5-28-	11 60 -	58 6	W H		5		1	2				
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Project Conta	ict E-Mail	Bill to			Involce	Attm.								WW - Wastewater
Jed Smith	jed.smith@mwhgiobal.	com EPNG P	ipeline		lan Yana	gisawa								
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		T Collectio			Number	of preserv	ed bottles	150	ON			-		
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Subcontract Data



Formerly: SouthWest Environmental Laboratories

11302 Tanner Rd., Suite A - Houston, TX 77041 Phone: 832-209-5200 Fax: 832-209-5009

18 June 2009

11-12-14 1-1-1-14 1-1-1-14

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Accutest [1] Attn: Accutest 10165 Harwin Drive Houston, TX 77036

Project: Wet Chemistry

Enclosed are the results of analyses for samples received by the laboratory on 06/17/09 11:50. If you have any questions or concerns about your results please feel free to contact me.

Contents Include:

Cover Letter Summary of samples received Chain of Custody Analytical results Quality Control Data Notes and definitions

Kind regards,

Wendy Rambin Project Manager

approver



	ANALYTICAL REPORT FOR SAMPLES	
Houston TX, 77036	Project Manager: Accutest	06/18/09 16:27
10165 Harwin Drive	Project Number: Wet Chemistry	Reported:
Accutest [1]	Project: Wet Chemistry	

Formerly: SouthWest Environmental Laboratories

Sample ID	Laboratory ID	Matrix	Flow	Date Sampled	Date Received
T30031-1	T9F1024-01	Water		05/28/09 08:50	06/17/09 11:50
T30031-2	T9F1024-02	Water		05/28/09 09:55	06/17/09 11:50
Т30031-3	T9F1024-03	Water		05/28/09 10:14	06/17/09 11:50
T30031-4	T9F1024-04	Water		05/28/09 10:35	06/17/09 11:50
T30031-5	T9F1024-05	Water		05/28/09 10:49	06/17/09 11:50
T30031-6	T9F1024-06	Water		05/28/09 11:06	06/17/09 11:50
T30031-7	T9F1024-07	Water		05/28/09 11:42	06/17/09 11:50
T30031-8	T9F1024-08	Water		05/28/09 11:58	06/17/09 11:50
T30031-9	T9F1024-09	Water		05/28/09 12:16	06/17/09 11:50
Т30031-10	T9F1024-10	Water		05/28/09 12:35	06/17/09 11:50

The results in this report apply only to the samples analyzed in accordance with the chain of custody document.

The test results in this report meet all of the requirements of the National Environmental Laboratory Accreditation Conference except as noted. This report shall not be reproduced, except in its entirety, without the written approval of Southwest Environmental Laboratories.

Please refer to SWEL's NELAC scope of accreditation for accredited parameters.

Accutest Laboratories, Gulf Coast

Wendy Rambin, Project Manager



Accutest [1]

10165 Harwin Drive Houston TX, 77036 Project: Wet Chemistry Project Number: Wet Chemistry

Formerly: SouthWest Environmental Laboratories

Reported: 06/18/09 16:27

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SUBCONTRACT COC

Project Manager: Accutest

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Accutest Laboratories, Gulf Coast

Wendy Rambin, Project Manager



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Houston TX, 77036

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		HOUSTON			
		TEXAS 77036			
		Phone: 713-271-4700 Fax: 713-	271-4770		}
		Web : WWW.ACCUTEST.C	MOM		
Sample #	Sample ID	Poeltion	DII	WNX3	*
-1	CCB	Reck A1 - 1	1/1	×	
2	COV	Raok A1 - 2	1/3	×	
3	ICB	Reck A1 - 3	1/1	×	
4	ICV	Rack A1 - 4	1/1	×	
-5	NOZEFF	Rack A1 - 5	1/1	x	
8	NOSEFF	Rack A1 - 0	1/1	×	1.00
7	BSP	Reck A1 - 7	1/1	×	wind
8	MB	Rack A1 - 8	1/1	×	BOPAN
9	T30031-151	Rack A1 - 9	1/1	×	AST NI A A A A A A A A A A A A A A A A A A
10	T30031-1D1	Reck A1 - 10	1/1	×	4010 2
19	T30031-1	Rack A1 - 11	7/1	×	Kat a
12	T30031-2	Rack A1 - 12	1/20	×	` `
13	T30031-3	Rack A1 - 13	1/20	×	
14	CCV	Rock A1 - 14	1/1	×	
15	CCB	Reck A1 - 10	1/1	×	
16	T30031-4	Rack A1 - 16	1/20	×	
17	T30031-6	Rack B1 - 1	1/20	×	
18	T30031-6	Rack B1 - 2	1/20	× .	
19	T30031-7	Rack B1 - 3	1/20	×	
20	T30031-8	Reck B1 - 4	1/5	x	
21	T30031-9	Rack B1 - 5	1/5	×	
22	T30031-10	Rack B1 - G	1/20	x	
23	CCV	Rack B1 - 7	1/1	×	
24	ICB	Rack B1 - 8	1/1	×	
25	ICV	Rack B1 - B	1/1	x	
28	CCB	Rack B1 - 10	1/1	x	

Formerly: SouthWest Environmental Laboratories

Project Number: Wet Chemistry

Project Manager: Accutest

Project: Wet Chemistry

Report Date :06/16/2009	
Pian Description : 061609w6no32	

.....

Operator : WESTCO

Pian # ;20090616006

Accutest Laboratories, Gulf Coast

Wendy Rambin, Project Manager



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11302 Tanner Rd., Suite A Houston, TX 77041 832.209.5200 Phone 832.209-5009 Fax

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10165 Harwin Drive		Orningt N	Project:	Wet Chen Wet Chen	nistry nistry		D	enorted	
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Analyte	Result	Limit	Units	Dilution	Prepared	Analyzed	Method	Analyst	Flag
		Accutest I	Labora	tories, G	ulf Coast				
JIASSICAL Chemistry Param	eters 	2.00	ma/L	100	06/18/09 1	6/18/09 14:41	EPA 353.3	BF	
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Wendy Rambin, Project Manager



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10165 Harwin Drive Houston TX, 77036		Project Project	Project: Number: 1anager:	Wet Cher Wet Cher Accutest	nistry nistry		R 06/1	eported: .8/09 16:2	27
		T9I	T300)31~2 02 (Wate	er)				
		Reporting							
Analyte	Result	Limit	Units	Dilution_	Prepared	Analyzed	Method	Analyst	Flags
Classical Chemistry Parameters		Accutest	Labora	tories, G	ulf Coast				
Nitrate/Nitrite as N	22.7	2.00	mg/L	100	06/18/09 1·	6/18/09 14:41	EPA 353.3	BF	
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Accutest Laboratories, Gulf Coast									
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Wendy Rambin, Project Manager						T104704	117 00 TV	0 2 0	a 5 of 1

Formerly: SouthWest Environmental Laboratories



Accutest [1] 10165 Harwin Drive Houston TX, 77036		Project M Project M		Reported: 06/18/09 16:27					
		T9F	T300 1024-0)31-3 03 (Wate	er)				
Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Analyst	Flags
		Accutest	Labora	tories, G	ulf Coast				
Classical Chemistry Parameters									
Nitrate/Nitrite as N	46.2	2.00	mg/L	100	06/18/09 1.	6/18/09 14:41	EPA 353.3	BF	

Formerly: SouthWest Environmental Laboratories

Accutest Laboratories, Gulf Coast

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Wendy Rambin, Project Manager



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		т91	T300 F1024-0	31-4 04 (Wate	er)					
Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Analyst	Flag	
		Accutest	Laborat	ories, G	ulf Coast					
Vitrate/Nitrite as N	16.9	2.00	mg/L	100	06/18/09 1	6/18/09 14:12	EPA 353.3	BF		
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Formerly: SouthWest Environmental Laboratories

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Wendy Rambin, Project Manager



Page 7 of 16



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11302 Tanner Rd., Sulte A Houston, TX 77041 832.209.5200 Phone 832.209-5009 Fax

	Project M Project M	Project: Number: Ianager:	Wet Chen Wet Chen Accutest	nistry nistry		R 06/1	leported: 18/09 16:2	27
	T9F	T300)31-5 05 (Wate	er)		_		
Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Analyst	Flags
	Accutest	Labora	tories, G	ulf Coast				
71 7	2.00		100	06/18/09 1	6/18/00 14:12	EDA 353 3	RE	
	Result	Project M Project M T9F Reporting Result Limit Accutest M	Project : Project Number : Project Manager : T300 T9F1024- Reporting Result Limit Units Accutest Labora	Project: Wet Chen Project Number: Wet Chen Project Manager: Accutest T30031-5 T9F1024-05 (Wate Reporting Result Limit Units Dilution Accutest Laboratories, G	Project: Wet Chemistry Project Number: Wet Chemistry Project Manager: Accutest T30031-5 T9F1024-05 (Water) Reporting Result Limit Units Dilution Prepared Accutest Laboratories, Gulf Coast	Project: Wet Chemistry Project Number: Wet Chemistry Project Manager: Accutest T30031-5 T9F1024-05 (Water) Reporting Result Limit Units Dilution Prepared Analyzed Accutest Laboratories, Gulf Coast	Project: Wet Chemistry Project Number: Wet Chemistry Project Manager: Accutest 06/1 T30031-5 T9F1024-05 (Water) Reporting Result Limit Units Dilution Prepared Analyzed Method Accutest Laboratories, Gulf Coast	Project: Wet Chemistry Project Number: Wet Chemistry Project Number: Wet Chemistry Reported: D6/18/09 16:2 T30031-5 T9F1024-05 (Water) Reporting Result Limit Units Dilution Prepared Analyzed Method Analyst Accutest Laboratories, Gulf Coast

Formerly: SouthWest Environmental Laboratories

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Wendy Rambin, Project Manager





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Accutest [1] 10165 Harwin Drive	Project: Wet Chemistry Project Number: Wet Chemistry							Reported:				
Houston TX, 77036		Project M	lanager:	Accutest			06/18/09 16:27					
			Т300	31-6								
		T9F	1024-(06 (Wate	r)							
Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Analyst	Flags			
		Accutest I	Labora	tories, G	ulf Coast							
Classical Chemistry Parameters												
Nitrate/Nitrite as N	10.0	2.00	mg/L	100	06/18/09 1	6/18/09 14:12	EPA 353.3	BF				

Formerly: SouthWest Environmental Laboratories

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Accutest [1] 10165 Harwin Drive Houston TX, 77036	Project: Wet Chemistry Project Number: Wet Chemistry Project Manager: Accutest						R 06/1	eported: 8/09 16:2	27
		Т91	T300 F1024-I) 31- 7 07 (Wate	er)				
Appleto	Popult	Reporting	Units	Dilution	Prepared	Analyzed	Method	Analyst	Flags
	Kesuit	Accutest	Labora	tories. G	ulf Coast				
Classical Chemistry Parameters	-								
Nitrate/Nitrite as N	12.8	2.00	mg/L	100	06/18/09 1	6/18/09 14:12	EPA 353.3	BF	
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Formerly: SouthWest Environmental Laboratories

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Wendy Rambin, Project Manager





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Accutest [1] 10165 Harwin Drive		Project	nistry nistry		Reported:				
Houston TX, 77036		Project N	1anager:	Accutest			06/1	.8/09 16:2	27
		~~~	Т300	31-8					
· · · · · · · · · · · · · · · · · · ·	·····		-1024-0		er)				•••••
Analyte	Recult	Reporting	Units	Dilution	Prepared	Analyzed	Method	Analyst	Flac
lassical Chemistry Parameters	4	Accutest	Laborat	tories, G	ulf Coast				
Ultrata /Nitrita as N	4 75	1.00		50	06/19/00 1	6 (18 /00 14/12	EDA 252 2	DE	
icrate/ Nicrite as N	4.73	1.00	mg/⊾	50	06/18/09 1.	6/18/09 14:12	EPA 353.3	ВГ	

Formerly: SouthWest Environmental Laboratories

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Wendy Rambin, Project Manager





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Accutest [1] 10165 Harwin Drive Houston TX, 77036		Project I Project M		<b>Reported:</b> 06/18/09 16:27					
		T9F	T300 1024-0	)31-9 )9 (Wate	er)				
Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Analyst	Flags
Classical Chemistry Parameters		Accutest	Laborat	tories, G	ulf Coast				
Nitrate/Nitrite as N	4.25	1.00	mg/L	50	06/18/09 1:	6/18/09 14:12	EPA 353.3	BF	
Accutest Laboratories, Gulf Coast						· · · · · · · · · · · · · · · · · · ·			
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Wendy Rambin, Project Manager



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11302 Tanner Rd., Suite A Houston, TX 77041 832.209.5200 Phone 832.209-5009 Fax

Labora	tories Form	erly: SouthWe	st Environmen	tal Laboratorie	\$	83	2.209-50	09 Fa
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Houston TX, 77036		Project Nun Project Mana	ager: Accutest	inisti y		R 06/1	eported: .8/09 16:2	27
·····		T	30031-10		******			
		T9F10	24-10 (Wat	er)				
Analyte	Result	Reporting Limit U	nits Dilution	Prepared	Analyzed	Method	Analyst	Flags
		Accutest Lat	ooratories, G	iulf Coast				
Classical Chemistry Param	ieters							
litrate/Nitrite as N	7.80	2.00 m	ng/L 100	06/18/09 1:	6/18/09 14:12	EPA 353.3	BF	

Accutest Laboratories, Gulf Coast

Wendy Rambin, Project Manager



T104704237-08-TX



Accutest [1]

10165 Harwin Drive Houston TX, 77036 Project: Wet Chemistry Project Number: Wet Chemistry Project Manager: Accutest

Formerly: SouthWest Environmental Laboratories

Reported: 06/18/09 16:27

#### **Classical Chemistry Parameters - Quality Control**

#### Accutest Laboratories, Gulf Coast

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 9061815 - Default Prep GenChem										
Blank (9061815-BLK1)				Prepared	& Analyze	d: 06/18	/09			
Nitrate/Nitrite as N	ND	0.02	mg/L							
LCS (9061815-BS1)				Prepared	& Analyze	d: 06/18	/09			
Nitrate/Nitrite as N	0.48	0.02	mg/L	0.500		95.4	75-125			
Duplicate (9061815-DUP1)	Sou	rce: T9F1028-	02	Prepared	& Analyze	.d: 06/18	/09			
Nitrate/Nitrite as N	17.8	1.00	mg/L		17.2			3.72	20	
Matrix Spike (9061815-MS1)	Sou	rce: T9F1028-	02	Prepared	& Analyze	ed: 06/18	/09			
Nltrate/Nitrite as N	38.3	2.00	mg/L	25.0	17.2	84.6	85-115			
Matrix Spike Dup (9061815-MSD1)	Sou	rce: T9F1028-	02	Prepared	& Analyze	ed: 06/18	/09			
Nitrate/Nitrite as N	39.8	2.00	mg/L	25.0	17.2	90.6	85-115	3.84	20	
Batch 9061816 - Default Prep GenChem										
Blank (9061816-BLK1)				Prepared	& Analyze	ed: 06/18	/09			
Nitrate/Nitrite as N	ND	0.02	mg/L	·····			<u> </u>			
LCS (9061816-BS1)				Prepared	& Analyze	ed: 06/18	/09			
Nitrate/Nitrite as N	0.46	0.02	mg/L	0.500		91.8	75-125			
Duplicate (9061816-DUP1)	Sou	rce: T9F1024-	01	Prepared	& Analyze	ed: 06/18	/09			
Nitrate/Nitrite as N	0.40	2.00	mg/L	:	1.20			100	20	
Matrix Spike (9061816-MS1)	Sou	rce: T9F1024-	01	Prepared & Analyzed: 06/18/09						
Nitrate/Nitrite as N	24.2	4.00	mg/L	25.0	1.20	92.0	85-115			

Accutest Laboratories, Gulf Coast

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Wendy Rambin, Project Manager



T104704237-08-TX



Formerly: SouthWest Environmental Laboratories

Accutest	[1]
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i tê G 10165 Harwin Drive Houston TX, 77036 Project: Wet Chemistry Project Number: Wet Chemistry Project Manager: Accutest

Reported: 06/18/09 16:27

#### **Classical Chemistry Parameters - Quality Control**

Accutest	Laboratories,	<b>Gulf Coast</b>
----------	---------------	-------------------

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 9061816 - Default Prep GenChem										
Matrix Spike Dup (9061816-MSD1)	Soul	rce: T9F1024-	01	Prepared	& Analyze	d: 06/18	/09			
Nitrate/Nitrite as N	23.2	4.00	mg/L	25.0	1.20	88.0	85-115	4.22	20	

Accutest Laboratories, Gulf Coast

Wendy Rambin, Project Manager

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Formerly:	SouthWest	Environmental	Laboratories
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Accutest [1]	Project: Wet Chemistry	
10165 Harwin Drive	Project Number: Wet Chemistry	Reported:
Houston TX, 77036	Project Manager: Accutest	06/18/09 16:27

#### **Notes and Definitions**

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

107.1 m

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

Accutest Laboratories, Gulf Coast

Wendy Rambin, Project Manager



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06/18/09

## **Technical Report for**

**Montgomery Watson** 

**Blanco Plant South Flare Pit** 

Accutest Job Number: T30031

Sampling Date: 05/28/09

Report to:

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

Total number of pages in report: 19



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 Carrevano

Paul Canevaro Laboratory Director





Client Service contact: Georgia Jones 713-271-4700

Certifications: TX (T104704220-06-TX) AR (88-0756) FL (E87628) KS (E-10366) LA (85695/04004) OK (9103) UT(7132714700) This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories. Test results relate only to samples analyzed.

Gulf Coast • 10165 Harwin Drive • Suite 150 • Houston, TX 77036 • tel: 713-271-4700 • fax: 713-271-4770 • http://www.accutest.com



# **Table of Contents**

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### • **I** •

Section 1: Sample Summary	3
Section 2: Case Narrative/Conformance Summary	4
Section 3: Sample Results	3
3.1: T30031-7: MW-15	6
3.2; T30031-8: MW-13	7
3.3: T30031-9: MW-12	8
3.4: T30031-10: MW-14	9
3.5: T30031-11: 28052009AA01	10
Section 4: Misc. Forms	11
4.1: Chain of Custody	12
Section 5: GC/MS Volatiles - QC Data Summaries	16
5.1: Method Blank Summary	17
5.2: Blank Spike Summary	18
5.3: Matrix Spike/Matrix Spike Duplicate Summary	19



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## Sample Summary

## Montgomery Watson

**Job No:** T30031

Blanco Plant South Flare Pit

Sample Number	Collected Date	Time By	Received	Matr: Code	іх Туре	Client Sample ID
T30031-1	05/28/09	08:50 AA	05/29/09	AQ	Ground Water	MW-8
T30031-2	05/28/09	09:55 AA	05/29/09	AQ	Ground Water	MW-28
T30031-3	05/28/09	10:14 AA	05/29/09	AQ	Ground Water	MW-29
T30031-4	05/28/09	10:35 AA	05/29/09	AQ	Ground Water	MW-30
T30031-5	05/28/09	10:49 AA	05/29/09	AQ	Ground Water	MW-6
T30031-6	05/28/09	11:06 AA	05/29/09	AQ	Ground Water	M <b>₩-5</b>
T30031-7	05/28/09	11:42 AA	05/29/09	AQ	Ground Water	MW-15
T30031-8	05/28/09	11:58 AA	05/29/09	AQ	Ground Water	MW-13
T30031-9	05/28/09	12:16 AA	05/29/09	AQ	Ground Water	MW-12
T30031-10	05/28/09	12:35 AA	05/29/09	AQ	Ground Water	MW-14
T30031-11	05/28/09	07:00 AA	05/29/09	AQ	Trip Blank Water	28052009AA01





#### SAMPLE DELIVERY GROUP CASE NARRATIVE

Client:	Montgomery Watson	Job No	T30031	
Site:	Blanco Plant South Flare Pit	Report Date	6/18/2009 5:02:58 PM	

4 Sample(s), 1 Trip Blank(s) and 0 Field Blank(s) were collected on 05/28/2009 and were received at Accutest on 05/29/2009 properly preserved, at 1 Deg. C and intact. These Samples received an Accutest job number of T30031. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

#### Volatiles by GCMS By Method SW846 8260B

	Matrix	AQ	Batch ID:	VY2208					
*	All samples were analyzed within the recommended method holding time.								
320 201	All method blank	ks for thi	s batch meet method specific crite	ria.					

- Sample(s) T30031-8MS, T30031-8MSD were used as the QC samples indicated.
- T 30031-8: Sample was not preserved to a pH < 2

6.0° 20%

-18- AP

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T30031-10: Sample was not preserved to a pH < 2

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used

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Section 3

## Sample Results

Report of Analysis



95-50-1

156-60-5

127-18-4

79-01-6

CAS No.

1868-53-7

17060-07-0

2037-26-5

460-00-4

**Report of Analysis** 

Client San Lab Samp Matrix: Method: Project:	nple ID: MW-1 le ID: T3003 AQ - Q SW84 Blanco	5 1-7 Ground Wa 6 8260B 9 Plant Sou	iter th Flare Pit		Date S Date I Percer	Sampled: Received: nt Solids:	05/28/09 05/29/09 n/a		
Run #1 Run #2	<b>File ID</b> Y0033510.D	<b>DF</b> 1	<b>Analyzed</b> 06/08/09	By JL	<b>Prep D</b> n/a	ate	<b>Prep Batch</b> n/a	Analytical Batch VY2208	
Run #1 Run #2	<b>Purge Volume</b> 5.0 ml	;							
Volatile sp	ecial list.						· · · · · · · · · · · · · · · · · · ·		
CAS No.	Compound		Result	RL	MDL	Units	Q		
75-34-3 75-35-4 156-59-2	l, l-Dichloroe l, l-Dichloroe cis-1,2-Dichlo	ethane ethylene proethylene	3.3 ND ND	$2.0 \\ 2.0 \\ 2.0 \\ 2.0$	0.41 0.48 0.43	ug/l ug/l ug/l			

2.0

2.0

2.0

2.0

Run# 2

0.49

0.46

0.50

0.47

Limits

79-122%

75-121%

87-119%

80-133%

ug/l

ug/l

ug/l

ug/l

ND

ND

ND

ND

Run# 1

94%

98%

106%

104%

NID Net det to d	MDI Male I Detection Limit
ND = Not detected	MDL - Method Detection Limit
RL = Reporting Limit	
T T Product 1	and a set of the set

E = Indicates value exceeds calibration range

o-Dichlorobenzene

Tetrachloroethylene

**Surrogate Recoveries** 

Dibromofluoromethane

1,2-Dichloroethane-D4

4-Bromofluorobenzene

Toluene-D8

Trichloroethylene

trans-1,2-Dichloroethylene

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



Page 1 of 1

127-18-4

79-01-6

CAS No.

1868-53-7

2037-26-5

460-00-4

17060-07-0

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Station State

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14.95

1.25

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**Report of Analysis** 

Client Sam Lab Samp Matrix: Method: Project:	nple ID: MW-1 le ID: T3003 AQ - C SW846 Blanco	3 1-8 Ground Wa 5 8260B 9 Plant Sou	ter th Flare Pit		Date S Date I Percei			
Run #1 ^a Run #2	<b>File ID</b> Y0033511.D	<b>DF</b> 1	<b>Analyzed</b> 06/08/09	By JL	<b>Prep D</b> n/a	ate	<b>Prep Batch</b> n/a	Analytical Batch VY2208
Run #1 Run #2	<b>Purge Volume</b> 5.0 ml							
Volatile sp	ecial list.							
CAS No.	Compound		Result	RL	MDL	Units	Q	
75-34-3 75-35-4 156-59-2 95-50-1 156-60-5	l, l-Dichloroe l, l-Dichloroe cis-1,2-Dichlo o-Dichlorober trans-1,2-Dicl	thane thylene proethylene nzene nloroethyle	49.0 0.88 34.3 57:2 ne 5.9	2.0 2.0 2.0 2.0 2.0 2.0	0.41 0.48 0.43 0.49 0.46	ug/l ug/l ug/l ug/l ug/l	J	

2.0

2.0

Run# 2

1.2

18.8

Run# 1

96%

96%

104%

108%

0.50

0.47

Limits

79-122%

75-121%

87-119%

80-133%

ug/l

ug/l

J

(a) Sample was not preserved to a pH < 2

Toluene-D8

Tetrachloroethylene

**Surrogate Recoveries** 

Dibromofluoromethane

1,2-Dichloroethane-D4

4-Bromofluorobenzene

Trichloroethylene

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



Page 1 of 1

**Report of Analysis** 

Client San Lab Samj Matrix: Method: Project:	mple ID: MW-1 ple ID: T3003 AQ - Q SW840 Blance	2 1-9 Ground Wa 6 8260B 9 Plant Sou	ater 1th Flare Pit		Date Sampled: Date Received: Percent Solids:	: 05/28/09 : 05/29/09 : n/a		
Run #1 Run #2	File ID Y0033512.D	DF 1	<b>Analyzed</b> 06/08/09	By JL	<b>Prep Date</b> n/a	<b>Prep Batch</b> n/a	Analytical Batch VY2208	
Run #1 Run #2 Volatile s	Purge Volume 5.0 ml	, ,						

CAS No.	Compound	Result	RL	MDL	Units	Q
75-34-3	I, I-Dichloroethane	4.2	2.0	0.41	ug/l	
75-35-4	1.1-Dichloroethylene	ND	2.0	0.48	ug/l	
156-59-2	cis-1,2-Dichloroethylene	5.0	2.0	0.43	ug/l	
95-50-1	o-Dichlorobenzene	4.1	2.0	0.49	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	2.0	0.46	ug/l	
127-18-4	Tetrachloroethylene	2.0	2.0	0.50	ug/l	
79-01-6	Trichloroethylene	2.6	2.0	0.47	ug/1	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
1868-53-7	Dibromofluoromethane	96%	2 2	79-1	22%	
17060-07-0	1,2-Dichloroethane-D4	96%		75-1	21%	
2037-26-5	Toluene-D8	107%		87-1	19%	
460-00-4	4-Bromofluorobenzene	101%		80-1	33%	
95-50-1 156-60-5 127-18-4 79-01-6 <b>CAS No.</b> 1868-53-7 17060-07-0 2037-26-5 460-00-4	o-Dichlorobenzene trans-1,2-Dichloroethylene Tetrachloroethylene Trichloroethylene Surrogate Recoveries Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	4.1 ND 2.0 2.6 <b>Run# 1</b> 96% 96% 107% 101%	2.0 2.0 2.0 2.0 <b>Run# 2</b>	0.49 0.46 0.50 0.47 <b>Lim</b> 79-1 75-1 87-1 80-1	ug/1 ug/1 ug/1 ug/1 its 22% 21% 19% 33%	

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



Page 1 of 1

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156-60-5

127-18-4

79-01-6

CAS No.

1868-53-7

2037-26-5

460-00-4

17060-07-0

**Report of Analysis** 

Client San Lab Samp Matrix: Method: Project:	nple ID: MW-1 le ID: T3003 AQ - Q SW840 Blanco	4 1-10 Ground Wa 6 8260B 9 Plant Sout	ter h Flare Pit		Date Sampled: 05/28/09 Date Received: 05/29/09 Percent Solids: n/a			
Run #1 ª Run #2	<b>File ID</b> Y0033513.D	<b>DF</b> 1	<b>Analyzed</b> 06/08/09	By JL	Prep D n/a	ate	<b>Prep Batch</b> n/a	Analytical Batch VY2208
Run #1 Run #2	<b>Purge Volume</b> 5.0 ml	;						
Volatile sp	pecial list.							
CAS No.	Compound		Result	RL	MDL	Units	Q	
75-34-3 75-35-4 156-59-2 95-50-1	1,1-Dichloroe 1,1-Dichloroe cis-1,2-Dichlo o-Dichlorober	ethane ethylene proethylene nzene	6.4 ³ ND 1.4 2.1	2.0 2.0 2.0 2.0 2.0	0.41 0.48 0.43 0.49	ug/l ug/l ug/l ug/l	J	

2.0

2.0

Run# 2

0.46

0.50

0.47

Limits

79-122%

75-121%

87-119%

80-133%

ug/l

ug/l

ug/l

J

ND

ND

Run# 1

94%

96%

108%

102%

1.5

(a) Sample was not preserved to a pH < 2

Toluene-D8

Tetrachloroethylene

**Surrogate Recoveries** 

Dibromofluoromethane

1,2-Dichloroethane-D4

4-Bromofluorobenzene

Trichloroethylene

trans-1,2-Dichloroethylene

ND = Not detectedMDL - 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





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	<b>Report of Analysis</b>												
Client San Lab Sam Matrix: Method: Project:	mple ID: 280 ple ID: T30 AQ SW Bla	52009AA01 0031-11 - Trip Blank 846 8260B nco Plant Sou	Water 1th Flare Pit		Date Sampled: Date Received: Percent Solids:	05/28/09 05/29/09 n/a							
Run #1 Run #2	File ID Y0033509.1	DF D	<b>Analyzed</b> 06/08/09	By JL	<b>Prep Date</b> n/a	<b>Prep Batch</b> n/a	Analytical Batch VY2208						
Run #1 Run #2	Purge Volu 5.0 ml	me											
Volatile s	pecial list.												

CAS No.	Compound	Result	RL	MDL	Units	Q
75-34-3 75-35-4 156-59-2 95-50-1 156-60-5 127-18-4 70-01-6	1, 1-Dichloroethane 1, 1-Dichloroethylene cis-1, 2-Dichloroethylene o-Dichlorobenzene trans-1, 2-Dichloroethylene Tetrachloroethylene	ND ND ND ND ND ND	2.0 2.0 2.0 2.0 2.0 2.0	0.41 0.48 0.43 0.49 0.46 0.50	ug/l ug/l ug/l ug/l ug/l ug/l	
/9-01-6	Trichloroethylene	ND	2.0	0.47	ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limi	ts	
1868-53-7 17060-07-0 2037-26-5	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8	94% 94% 107%		79-12 75-12 87-11	22% 21% 9%	
460-00-4	4-Bromofluorobenzene	103%		80-13	3%	

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

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B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound



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Section 4

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## Mise: Forms

Custody Documents and Other Forms

Includes the following where applicable:

• Chain of Custody





T30031: Chain of Custody

Page 1 of 4

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T30031: Chain of Custody Page 2 of 4

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#### SAMPLE INSPECTION FORM

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cutest Job Number: <u>130031</u>	Client: <u>MwH</u>		Date/Time	Received: <u>95</u>	19/09 0915
f Coolers Received:/Therm	nometer #:   <b>F</b> - /	Te	mperature Adj	ustment Facto	or:Q
oler Temps: #1: <u>(.0</u> #2:	#3: #4:	#5:	#6:	#7:	#8:
hod of Delivery: FEDEX UPS	Accutest Courier	Greyhound	Delivery	Other	
ill Numbers:					•
COOLER INFORMATION	SAMPLE INFO	RMATION		TRIP BLA	NK INFORMATION
Custody seal missing or not intact Temperature criteria not met Wet ice received in cooler	Sample containers receiv VOC vials have headspace Sample labels missing or	ed broken e illegible	ת ה ת	ip Blank on COC ip Blank received ip Blank not inta	but not received but not on COC ct
CHAIN OF CUSTODY Chain of Custody not received	ID on COC does not mate D/T on COC does not mate Sample/Bottles revd but	ch label(s) itch label(s) no analysis on COC		eceived Water Trij eceived Soil TB	Blank
Sample D/T unclear or missing Analyses unclear or missing COC not properly executed	Sample listed on COC, by Bottles missing for reque Insufficient volume for at	it not received sted analysis nalysis	Number Number	of Encores? of 5035 kits?	
<u>I. Trip Blant was rec</u>	cived but not lab	ied I murk-ed	28052009	(AAOL AS	<u>is on 606:</u>
CHNICIAN SIGNATURE/DATE:	$\rightarrow$	- 05/29/	09	- n	
ORMATION AND SAMPLE LABELING VER	IFIED BY:	je 53	94		
• • • • • • • •	· · <u>CORREC</u>	TIVE ACTIC	ons ·	• • •	• • • •
ent Representative Notified:	- Jed	ndh.	Date:		
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T30031: Chain of Custody Page 3 of 4



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T 3003) DATE/TIME RECEIVED: 05/29/09 09/5

M//	Н						INITIALS:	FF				
SAMPLE ID	FIELD ID		DATE		MATE	ax.	VOL	BOTTLE #	LOCATION	PRESERV	p	н
	MW-8	05/2	28/09	OBTO			250 ml		16	1 2 <b>CD</b> 4 5 6 7 8	<2	>12
2	MW - 28		ļ (	0455				1		1 2 C3 4 5 6 7 8	<2	>12
63	MW-29			1014				1		1 2 <b>CD</b> 4 5 6 7 8	<2	>12
4	MW-30			1035				1		1 2 <b>3</b> 4 5 6 7 8	<2	>12
5	MW-6			1049						1 2 <b>(3</b> ) 4 5 8 7 8	<2	>12
6	MW-5			1106				1		1 2 3 4 5 6 7 8	<2	>12
7	MW-15			<u>лчх.</u>			250ml	1	16	1 2 <b>3</b> 4 5 6 7 8	<2	>12
*	4			*		_	40ml	2-4	VR	1 <b>2</b> 3 4 5 6 7 8	<2	>12
8	MW -13			1150			250-1		10	1 2 3 4 5 6 7 8	<2	>12
*	1			3			40-1	2-4	VR	2 3 4 5 6 7 8	<2	>12
9	MW-12			1216			250	1	10	1 2 <b>3</b> 4 5 6 7 8	<2	>12
*							YOM	2-4	VR	1 <b>(2)</b> 3 4 . 5 6 7 8	<2	>12
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	MXX SAMPLE ID 1 2 5 4 5 6 7 8 8 8 8 8 8 10 11 10 10 10 10 10 10 10 10	MWH SAMPLE ID FIELD ID 1 MW - 8 2 MW - 28 (J3 MW - 29 4 MW - 30 5 MW - 6 6 MW - 5 7 MW - 15 ° ° 8 MW - 13 ° ° 9 MW - 12 ° ° 10 MW - 14 ° 11 Trip Blank	MWH       SAMPLE ID     FIELD ID       1     MW - 8     osli       2     MW - 28     osli       (J3     MW - 29     osli       4     MW - 30     i       5     MW - 6     osli       6     MW - 5     osli       7     MW - 15     i       8     MW - 13     i       9     MW - 12     i       N     i     i       10     MW - 14     i       N     i     i       11     Trip Blank     -	MWH       SAMPLE ID     FIELD ID     DATE       1     MW - 8     os/zø/og       2     MW - 28     0       (J3     MW - 29     0       4     MW - 30     0       5     MW - 6     0       6     MW - 5     0       7     MW - 15     0       8     MW - 13     0       4     NW - 12     0       8     MW - 14     0       9     MW - 14     0       10     MW - 14     0       11     Trip Blank     0	MWH       SAMPLE ID     FIELD ID     DATE       1     MW - 8     o5/28/09     o857       2     MW - 28     o855       (J3     MW - 29     1014       4     MW - 30     1055       5     MW - 6     1049       6     MW - 5     1106       7     MW - 15     1142       ×     ×     ×       8     MW - 13     1157       ×     ×     ×       9     MW - 12     1216       ×     ×     ×       10     MW - 14     12357       ×     ×     ×       11     Trip Blank     ×	MWH       SAMPLE ID     FIELD ID     DATE     MATE       1     MW - 8     o5/28/09     o8370     W       2     MW - 28     o4557     1       (J3     MW - 29     1014     1014       4     MW - 30     1015     1019       5     MW - 6     1019     1014       6     MW - 5     1104     1019       6     MW - 15     1142       8     MW - 13     1157       4     N     N       9     MW - 12     1214       8     MW - 14     1237       10     MW - 14     1237       10     MW - 14     1237       11     Trip Blank     N	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	MNH       INITIALS:         SAMPLE ID       FIELD ID       DATE       MATRIX       VOL         1       MW - 8       os/28/09       osym       N       25D ml.         2       MW - 28       o955       I       I       I         4       MW - 28       o955       I       I       I         4       MW - 29       IOIY       I       I       I         4       MW - 30       I       Ioir       I       I         5       MW - 6       Ioir       I       I       I         6       MW - 5       Irice       V       V       I         7       MW - 15       IVA       ZSD ml.       I       I         8       MW - 13       Irit       ZSD ml.       V       III       I         8       MW - 12       I       I       ZSD ml.       V       III       I       III       I       III       III       III       III       III       IIII       III       IIIIIIII       IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	MWH       INITIALS: $FE$ SAMPLE ID       FIELD ID       DATE       MATRIX       VOL       BOTTLE #       LOCATION         I       MW - 8       osl28/09       osro       W       25D ml       I       I       IC         2       MW - 28       osl28/09       osro       W       25D ml       I       IC         4       MW - 29       ioiv       I       I       IC       IC       IC         4       MW - 30       /       Ioir       I       I       IC       IC <td>$\begin{array}{c c c c c c c c c c c c c c c c c c c$</td> <td>$\begin{array}{c c c c c c c c c c c c c c c c c c c$</td>	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$\begin{array}{c c c c c c c c c c c c c c c c c c c $

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

Rev 8/13/01 ewp

T30031: Chain of Custody Page 4 of 4





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Section 5

#### 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**

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Job Number:	T30031
Account:	MWHCODE Montgomery Watson
Project:	Blanco Plant South Flare Pit

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
VY2208-MB	Y0033498.D	1	06/08/09	JL	n/a	n/a	VY2208

Limits

#### The QC reported here applies to the following samples:

#### Method: SW846 8260B

T30031-7, T30031-8, T30031-9, T30031-10, T30031-11

CAS No.	Compound	Result	RL	MDL	Units Q
75-34-3	1, I-Dichloroethane	ND	2.0	0.41	ug/l
75-35-4	1.1-Dichloroethylene	ND S	8 2.0	0.48	ug/l
156-59-2	cis-1,2-Dichloroethylene	ND	2.0	0.43	ug/l
95-50-1	o-Dichlorobenzene	ND	2.0	0.49	ug/l
156-60-5	trans-1,2-Dichloroethylene	ND	2.0	0.46	ug/l
127-18-4	Tetrachloroethylene	ND	2.0	0.50	ug/l
79-01-6	Trichloroethylene	ND	2.0	0.47	ug/l

CAS No. Surrogate	Recoveries
-------------------	------------

1868-53-7	Dibromofluoromethane	93%	79-122%
17060-07-0	1,2-Dichloroethane-D4	92%	75-121%
2037-26-5	Toluene-D8	106%	87-119%
460-00-4	4-Bromofluorobenzene	103%	80-133%



Page 1 of 1

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5.1.1 S

#### **Blank Spike Summary**

Job Number:	T30031
Account:	MWHCODE Montgomery Watson
Project:	Blanco Plant South Flare Pit

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VY2208-BS	Y0033516.D	1	06/08/09	JL	n/a	n/a	VY2208

#### The QC reported here applies to the following samples:

Method: SW846 8260B

T30031-7, T30031-8, T30031-9, T30031-10, T30031-11

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
75-34-3 75-35-4 156-59-2 95-50-1 156-60-5 127-18-4 79-01-6	1, 1-Dichloroethane 1, 1-Dichloroethylene cis-1,2-Dichloroethylene o-Dichlorobenzene trans-1,2-Dichloroethylene Tetrachloroethylene Trichloroethylene	25 25 25 25 25 25 25 25 25	22.9 21.5 20.0 23.2 22.2 22.2 20.2	92 86 80 93 89 89 89 89	76-121 71-128 68-113 72-108 70-125 77-120 74-117
CAS No.	Surrogate Recoveries	BSP	Lim	iits	
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	94% 93% 105% 99%	79-1 75-1 87-1 80-1	22% 21% 19% 33%	



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#### Matrix Spike/Matrix Spike Duplicate Summary

Job Number:	T30031
Account:	MWHCODE Montgomery Watson
Project:	Blanco Plant South Flare Pit

Sample	File ID	DF	Analyzed	By	Prep Date	<b>Prep Batch</b>	Analytical Batch
T30031-8MS	Y0033514.D	1	06/08/09	JL	n/a	n/a	VY2208
T30031-8MSD	Y0033515.D	1	06/08/09	JL	n/a	n/a	VY2208
T30031-8 a	Y0033511.D	1	06/08/09	JL	n/a	n/a	VY2208

#### The QC reported here applies to the following samples:

Method: SW846 8260B

T30031-7, T30031-8, T30031-9, T30031-10, T30031-11

CAS No.	Compound	T30031-8 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
75-34-3 75-35-4 156-59-2 95-50-1 156-60-5 127-18-4 79-01-6	1, 1-Dichloroethane 1, 1-Dichloroethylene cis-1,2-Dichloroethylene o-Dichlorobenzene trans-1,2-Dichloroethylene Tetrachloroethylene Trichloroethylene	49.0 0.88 J 34.3 57.2 5.9 1.2 J 18.8	25 25 25 25 25 25 25 25 25	77.8 23.7 61.7 82.7 30.5 24.1 41.6	115 91 110 102 98 92 91	76.6 23.8 60.6 84.0 29.7 23.3 41.3	110 92 105 107 95 88 90	2 0 2 2 3 3 1	76-121/13 71-128/19 68-113/13 72-108/12 70-125/14 77-120/13 74-117/12
CAS No.	Surrogate Recoveries	MS	MSD	Т3(	)031-8	Limits			
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	94% 99% 108% 96%	96% 98% 106% 100%	969 969 108 104	6 6 70 70	79-122% 75-121% 87-119% 80-133%			

(a) Sample was not preserved to a pH < 2

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Page 1 of 1

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# **APPENDIX C**

## **Data Validation Reports**

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NITRATE DATA

	Analytica Sample	al Method/Analytes: Collection Date(s):	NO2/N03 5/25/2009				
	<b>F</b>	Client	SJRB				
		Laboratory:	Accutest				
		Matrix:	Groundwate	er			
	E	atch Identification:	T30031				
	Μ	S/MSD Parent(s) ^(a) :	None				
Verifi	cation (	Complete:	Çeza	iĘ	- Poo	7	/7/2009
( =					(	Date/Signature)	
Foot	Site						
Notes	ID	Sample ID	Lab. ID	Hits	Quals.	(	Comments
None	BPSFP	MW-8	T30331-1	N	None		
None	BPSFP	MW-28	T30331-2	Y	None		
None	BPSFP	MW-29	T30331-3	Y	None		
None	BPSFP	MW-30	T30331-4	Y	None		
None	BPSFP	MW-6	T30331-5	Y ·	None		
		IMW 5	T30331-6	Y	None		
None	BPSFP	101 00 -5		-	None		
None None	BPSFP BPSFP	MW-15	T30331-7	Y			
None None None	BPSFP BPSFP BPSFP	MW-15 MW-13	T30331-7 T30331-8	Y Y	None		
None None None None	BPSFP BPSFP BPSFP BPSFP	MW-15 MW-13 MW-12	T30331-7 T30331-8 T30331-9	Y Y Y	None None		
None None None None None	BPSFP BPSFP BPSFP BPSFP BPSFP	MW-15 MW-13 MW-12 MW-14	T30331-7 T30331-8 T30331-9 T30331-10	Y Y Y Y	None None None		
None None None None None	BPSFP BPSFP BPSFP BPSFP BPSFP	MW-15 MW-13 MW-12 MW-14	T30331-7 T30331-8 T30331-9 T30331-10	Y Y Y Y	None None None		
None None None None None	BPSFP BPSFP BPSFP BPSFP BPSFP	MW-15 MW-13 MW-12 MW-14	T30331-7 T30331-8 T30331-9 T30331-10	Y Y Y Y	None None None		
None None None None None	BPSFP BPSFP BPSFP BPSFP	MW-15 MW-13 MW-12 MW-14	T30331-7 T30331-8 T30331-9 T30331-10	Y Y Y Y	None None None		
None None None None None	BPSFP BPSFP BPSFP BPSFP	MW-15 MW-13 MW-12 MW-14	T30331-7 T30331-8 T30331-9 T30331-10	Y Y Y Y	None None None		

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Statutes

<b>Analytical Method:</b>	NO2/NO3
Laboratory:	Accutest

Client SJRB Batch Identification: T30031

Verification Criteria				-			
Sample ID	MW-8	MW-28	MW-29	MW-30	MW-6	MW-5	MW-15
Lab ID	T30031-1	T30031-2	T30031-3	T30031-4	T30031-5	T30031-6	T30031-7
Hardcopy vs. Chain of Custody	A	A	A	A	A	A	A
Holding Time	A	A	А	А	A	А	A
Analyte List	A	A	A	А	A	A	A
Reporting Limits	A	A	А	А	A	A	A
Method Blank	А	A	А	А	A	A	A
Laboratory Control Sample (all methods)	А	A	A	А	A	A	A
Laboratory Control Sample Duplicate (lab specif	А	A	A	A	A	A	A
Matrix Spike/Matrix Spike Duplicate	N/A						
Matrix Duplicate (lab specific)	N/A						

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#### Analytical Method: NO2/NO3 Laboratory: Accutest

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#### Client SJRB Batch Identification: T30031

Verification Criteria					 
Sample ID	MW-13	MW-12	MW-14		
Lab ID	T30031-8	T30031-9	T30982-		
· · · · · · · · · · · · · · · · · · ·			10		
Hardcopy vs. Chain of Custody	А	A	Α		
Holding Time	A	A	A		
Analyte List	A	A	A		
Reporting Limits	A	A	A		
Method Blank	A	A ·	A		
Laboratory Control Sample (all methods)	A	A	Α		
Laboratory Control Sample Duplicate	A	А	А		
Matrix Spike/Matrix Spike Duplicate	N/A	N/A	N/A		
Matrix Duplicate (lab specific)	N/A	N/A	N/A		

#### CHLORINATED HYDROCARBON DATA

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Verific	B M	Laboratory: Matrix: Batch Identification:	Accutest Groundwate			
Verific	B M	Matrix: Batch Identification:	Groundwate			-
Verific	B M	<b>Batch Identification:</b>		er		-
Verific	Μ		T30031	<u>.</u>		-
Verific		[S/MSD Parent(s) ^(a) :	None			_
Verific			A second s		500	-
	ation (	Complete:	Ç <u></u>	acq	200	7/7/2009
	·····	<u></u>				(Date/Signature)
Foot	Site					
Notes	ID	Sample ID	Lab. ID	Hits	Quals.	Comments
None	BPSFP	MW-15	T30031-7	Y	None	
1	BPSFP	MW-13	T30031-8	Y	נ ו ו ו ו ו ו ו ו ו ו ו ו ו ו ו ו ו ו ו	<ul> <li>I, 1-Dichloroethane @ 49.0 μg/l</li> <li>I, 1-Dichloroethylene @ 0.88 μg/l</li> <li>cis-1,2-Dichloroethylene @ 34.3 μg/l</li> <li>o-Dichlorobenzene @ 57.2 μg/l</li> <li>trans-1,2-Dichloroethylene @ 5.9 μg/l</li> <li>Tetrachloroethylene @ 1.2 μg/l</li> <li>Trichloroethylene @ 18.8 μg/l</li> </ul>
None	BPSFP	MW-12	T30031-9	Y	None	
1	BPSFP	MW-14	T30982-10	Y	נ נט נ נט נט נט	1,1-Dichloroethane @ 6.4 μg/l 1,1-Dichloroethylene @ <2.0 μg/l cis-1,2-Dichloroethylene @ 1.4 μg/l o-Dichlorobenzene @ 2.1 μg/l trans-1,2-Dichloroethylene @ <2.0 μg/l Tetrachloroethylene @ <2.0 μg/l Trichloroethylene @ 1.5 μg/l
None		28052009AA01	T30982-11	N	None	
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# Analytical Method:SW846-8021B (BTEX)Laboratory:AccutestBatch

#### Client SJRB Batch Identification: T30031

Verification Criteria						 
Sample ID	MW-15	MW-13	MW-12	MW-12	TB	
Lab ID	T30031-7	T30031-8	T30031-9	T30982-10	T30982-11	
Holding Time	A	$A^1$	A	$A^1$	A	 
Analyte List	A	A	A	A	A	 
Reporting Limits	Α	A	A	А	A	 
Method Blank	Α	A	A	A	Α	
Trip blank	A	Α	A	A	N/A	
Surrogate Spike Recovery	A	A	A	A	А	
Laboratory Control Sample (LCS)	Α	A	Α	A	A	
Matrix Spike/Matrix Spike Dup. (MS/MSD)	A	A	N/A	N/A	N/A	
Hardcopy vs. Chain-of-Custody	A	A	Α	A	А	

Notes

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¹ Sample pH at time of analysis was greater than two, thus reducing the holding time from 14 days to seven. Sample were analyzed three days outside of the holding time. Detected analytes are qualified with a "J" flag indicating the the data are estimated, potentially biased low. Non-detected analytes are qualified with a "UJ" flag indicating a possible false negative.

# **APPENDIX D**

# Nitrate+Nitrite Concentration and Groundwater Elevation Graphs

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Nitrate / Nitrite 
 Groundwater Elevation



Nitrate / Nitrite









----- Groundwater Elevation

Nitrate / Nitrite

Nitrate / Nitrite Concentration (mg/l)







Nitrate / Nitrite — Groundwater Elevation





Nitrate / Nitrite
 ____Groundwater Elevation

F



Initrate/Nitrite
 Aroundwater Elevation





→ Nitrate / Nitrite → Groundwater Elevation

### **APPENDIX E**

# Chlorinated Hydrocarbon Concentration and Groundwater Elevation Graphs

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Historic Chlorinated Hydrocarbon Concentrations and Groundwater Elevations









- PCE TCE -*-cis 1,2-DCE 

Historic Chlorinated Hydrocarbon Concentrations and Groundwater Elevations Monitoring Well MW-14



-----Groundwater Elevation ● TCE -*-cis 1,2-DCE 





----Groundwater Elevations

- PCE

TCE

-*-cis 1,2-DCE

Concentration (ug/L)