# **AP-069**

# **AGWMR**

04/01/2011



April 1, 2011

Mr. Glenn von Gonten New Mexico Oil Conservation Division (NMOCD) 1220 South St., Francis Drive Santa Fe, New Mexico 87505

RE: 2010 Annual Report for the EPNG San Juan River Plant Project

**NMOCD Reference Number: AP-69-0** 

Dear Mr. Von Gonten:

MWH Americas, Inc., on behalf of El Paso Natural Gas Company (EPNG) is submitting the enclosed 2010 Annual Report for the San Juan River Plant project. The report presents the 2010 monitoring data and includes recommendations for 2011 activities at the Site.

If you have any questions or comments concerning the enclosed report, please contact lan Yanagisawa (713-420-7361) or myself (303-291-2276).

Sincerely,

Jed Smith

Project Manager

cc:

Brandon Powell - NMOCD, Aztec, NM

lan Yanagisawa - EPNG

MWH Project File

### **EL PASO NATURAL GAS COMPANY**

2 North Nevada Colorado Springs, Colorado 80903

#### 2010 ANNUAL REPORT SAN JUAN RIVER PLANT

**MARCH 2011** 



1801 California Street Suite 2900 Denver, Colorado 80202 303 291 2222 RECEIVED OCD

**Section** 

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#### **LIST OF ACRONYMS**

<u>Acronym</u>	Explanation
BTEX	Benzene, toluene, ethylbenzene, and total xylenes
EPNG	El Paso Natural Gas Company
mg/L	Milligrams per liter
μg/L	Micrograms per liter
NMOCD	New Mexico Oil Conservation Division
NMWQCC	New Mexico Water Quality Control Commission
ORC	Oxygen-releasing compound
SJRP	San Juan River Plant
TDS	Total dissolved solids
WGR	Western Gas Resources, Inc

#### **EXECUTIVE SUMMARY**

The San Juan River Plant (SJRP) is located in San Juan County, near Kirtland, New Mexico. The SJRP processes natural gas collected from production wells located in the San Juan Basin of New Mexico and southern Utah. In June 1992, the SJRP was sold to Western Gas Resources, Inc. (WGR), which is now a wholly owned subsidiary of Anadarko Petroleum Corporation. Closure of evaporation ponds, pits, and other potential source areas within the SJRP occurred from 1992 through 1995. Based on past groundwater, soil, and soil gas investigations, the residual groundwater plume of dissolved phase hydrocarbon impacts is associated with relatively limited soil contamination. Groundwater monitoring has been performed at the SJRP since 1995.

Hydrocarbon impacts to groundwater have been observed primarily in the vicinity of monitoring wells MW-8 and MW-9. Samples from these two wells have consistently indicated that benzene is the only hydrocarbon constituent exceeding the New Mexico Water Quality Control Commission (NMWQCC) groundwater standards. El Paso Natural Gas (EPNG) has accordingly pursued active groundwater remediation, consisting of chemical oxygen enhancement and air sparging, to reduce the dissolved-phase benzene concentrations in this area.

Groundwater monitoring suggests that concentrations in monitoring well MW-8 have generally declined through the use of in-well oxygen-releasing compound socks. MW-8 benzene concentrations during 2010 ranged from non-detect to 0.81  $\mu$ g/L (estimated result below the reporting limit). The air sparging system at MW-9 was shut down in February 2004 and remained off throughout 2010 in order to assess groundwater conditions. During this shut-down period, benzene concentrations in MW-9 essentially rebounded to pre-air sparging levels. In 2010, concentrations of benzene ranged from 70.7  $\mu$ g/L to 91.8  $\mu$ g/L. The rebound indicates that the residual saturated zone BTEX impacts are possibly outside the air sparging zone of influence. Further site characterization work has been proposed by EPNG, as discussed below. Further evaluation of the air sparging system has been suspended until completion of the site characterization work.

The New Mexico Oil Conservation Division (NMOCD) has requested annual monitoring of metals and inorganic parameters in all site monitoring wells as part of the current groundwater monitoring program. Elevated concentrations of some inorganic constituents, including total dissolved solids and sulfate, have historically been detected in various wells. It is possible that these elevated concentrations may be associated with past practices (particularly near the closed ponds); however, past closure activities have addressed any site-related sources and this region is also known to contain elevated total dissolved solids and sulfate concentrations. There are no known affected downgradient users of the groundwater.

EPNG has initiated a Stage I Abatement Plan to investigate hydrocarbon impacts encountered in groundwater near the Praxair lined pond. The results of the initial investigation were discussed in the Stage I Interim Report, submitted to the NMOCD on March 28, 2006. This report included a work plan for additional investigation activities. In September 2006, EPNG made slight revisions to the work plan and re-submitted it. EPNG is currently awaiting work plan approval from the NMOCD.

#### 1.0 INTRODUCTION

This annual report has been prepared on behalf of El Paso Natural Gas Company (EPNG) to present a summary of the 2010 San Juan River Plant site activities and monitoring data. This site is located in San Juan County, Township 29N, Range 15W, Section 1, near Kirtland, New Mexico, as shown on **Figure 1**.

Current remedial action at the SJRP is limited to in-situ oxygen enhancement of groundwater through use of oxygen-releasing compound (ORC) in monitoring well MW-8. Dissolved phase groundwater impacts are monitored annually for the entire site and quarterly in the area of MW-8 and MW-9.

Site Description. EPNG owned the SJRP until June 1992. Since that time, the facility has been owned and operated by Western Gas Resources, Inc. (WGR), which is now a wholly owned subsidiary of Anadarko Petroleum Corporation. The plant processes natural gas collected from production wells located in the San Juan Basin of New Mexico and southern Utah. The SJRP is a 630-acre facility that has contained gas processing facilities, two raw water ponds (now closed), three wastewater evaporation ponds (now closed), a sulfur recovery plant, water and hydrocarbon tanks, a pigging station, flare pits, and several 16- to 24-inch-diameter natural gas pipelines that cross the facility. In 2002-2003, the Praxair Nitrogen Plant was built in the area north of the SJRP and south of monitoring wells MW-8 and MW-9. Figure 2 presents a detailed site map of the SJRP. Closure of the evaporation ponds, flare pits, and other potential contaminant source areas was completed from 1992 through 1995. Groundwater has been monitored at this site since 1995.

**Report Organization.** This report is organized into six sections with supporting appendices. Section 2.0 provides a discussion of the SJRP project history. Section 3.0 includes a summary of field activities conducted at the SJRP during 2010, and Section 4.0 provides a discussion of results. Conclusions and recommendations are provided in Section 5.0, and references are listed in Section 6.0.

#### 2.0 PROJECT HISTORY

The SJRP was previously owned by EPNG, but was sold to WGR on June 19, 1992. Investigation and remediation activities conducted at the SJRP have included the following components:

- Several investigations were conducted at the SJRP between 1985 and 1995. As a result, 24 monitoring wells have been installed at various locations at the plant.
- The north and south flare pits were closed in 1992 after removing 18,200 cubic yards (cy) and 3,520 cy of contaminated material from these pits, respectively.
- The former wastewater evaporation ponds were closed during 1995 and early 1996.
   The pit and pond closure activities included capping the ponds with compacted, low-permeability soils.
- EPNG abandoned 17 monitoring wells, upgraded two wells, installed five new monitoring wells, and conducted a soil gas investigation during the summer of 1995.
   Results of the soil gas investigation indicated shallow hydrocarbon contamination near monitoring wells MW-8 and MW-9.
- EPNG submitted a groundwater remediation work plan to the NMOCD in January 2001 to address elevated benzene in monitoring wells MW-8 and MW-9, and received approval to begin remedial actions on June 4, 2001. The work plan included provisions to install an air sparging system with two air sparging wells; one injection point located within 10 feet of each monitoring well.
- The air sparging system air injection wells (SW-8 and SW-9) were installed on October 30, 2001. Both wells were developed on November 12, 2001.
- A pre-pilot air sparging test was conducted at both wells on November 13, 2001. Results from this test indicated good communication between SW-9 and MW-9 but poor communication between SW-8 and MW-8.
- Because of poor communication between SW-8 and MW-8, an ORC sock consisting
  of magnesium peroxide and manufactured by Regenesis, Inc., was recommended for
  remediation in this area. The ORC sock was installed in MW-8 on November 14,
  2001.
- The air sparging pilot test was initiated on November 14, 2001. With the exception of a 48-hour shutdown prior to the four-week sampling event on December 26, 2001, the air sparging system operated continuously from November 14, 2001 to January 18, 2002. The air sparging pilot test culminated with a sampling event on January 25, 2002. An additional sampling event was performed on February 21, 2002, to evaluate the potential for contaminant concentration rebound following a four-week shutdown.
- From February 2002 through December 2002, site activities included continued operation and maintenance (O&M) of the air sparging system, which was placed into continuous operation following the pilot test, and site-wide annual groundwater monitoring.

- During 2003, site activities included periodic O&M of the air sparging system, replacement of ORC socks into MW-8, quarterly sampling of MW-8 and MW-9, and site-wide annual groundwater monitoring.
- Based on benzene, toluene, ethylbenzene and total xylenes (BTEX) concentrations below New Mexico Water Quality Control Commission (NMWQCC) standards, the air sparging system was shut down in February 2004 to assess static groundwater conditions at the site.
- During 2004 through 2006, site activities included replacement of ORC socks into MW-8, quarterly sampling of MW-8 and MW-9, and site-wide annual groundwater monitoring.
- EPNG submitted a Stage I Abatement Plan to NMOCD in November 2005 to investigate hydrocarbon impacts encountered in groundwater near the Praxair evaporation pond at the SJRP. Approval was received on January 23, 2006 to begin investigative actions. Results of this investigation are detailed in the Stage I Interim Report, submitted March 28, 2006, which recommended that further investigation be conducted via hollow-stem auger, as the effectiveness of direct push technology at the site was found to be limited.
- The air sparge system has remained off since system shut down in 2004. Site
  activities have primarily consisted of quarterly sampling of MW-8 and MW-9, annual
  site-wide annual groundwater monitoring, and annual replacement of the ORC socks
  in MW-8.
- In May 2007, monitoring well MW-7, which was located immediately adjacent to the Praxair facility, was plugged and abandoned at Praxair's request, in order to facilitate new process construction.
- During the May 2008 sampling event, field personnel noted that monitoring well MW-5 had been destroyed in conjunction with subsurface coal mining activities.
   Destruction of the well is believed to have occurred between February and May 2008.

#### 3.0 SUMMARY OF 2010 ACTIVITIES

The current environmental program at the SJRP consists of dissolved-phase hydrocarbon remediation (oxygen enhancement) and site-wide groundwater monitoring. The following section details site activities conducted at the SJRP during 2010.

#### 3.1 GROUNDWATER MONITORING PROGRAM

The groundwater monitoring program included the following components during 2010:

- Groundwater monitoring wells MW-8 and MW-9 were sampled quarterly in February, May, August, and November 2010 and analyzed for BTEX compounds to evaluate the effectiveness of both previous and ongoing hydrocarbon remediation activities in this area.
- On August 26, 2010, Site monitoring wells MW-4, MW-6, MW-8, MW-9, and MW-2 were sampled for BTEX compounds, NMWQCC metals, total dissolved solids (TDS), alkalinity, nitrate/nitrite, chloride, and sulfate.
- Site-wide groundwater elevation measurements were collected quarterly at each well.

All groundwater monitoring activities during 2010 were conducted by LT Environmental, Inc. of Durango, Colorado. Laboratory analyses were performed by Accutest Laboratories in Houston, Texas.

#### 3.2 HYDROCARBON REMEDIATION

Since 2002, dissolved phase hydrocarbon remediation activities at the SJRP have included oxygen enhancement using ORC socks in MW-8 (2002-Present) and air sparging in the vicinity of MW-9 (until 2004). The following paragraphs describe remediation activities performed in 2010.

**ORC Enhancement.** Dissolved oxygen was measured in MW-8 on a quarterly basis. The February dissolved oxygen measurement of 4.6 mg/L was conducted on purge water immediately prior to collecting the February groundwater sample. The ORC socks had been removed from MW-8 seven days prior to this sampling event. The May, August, and November 2010 dissolved oxygen measurements were conducted in-situ immediately after pulling the ORC socks for inspection. The dissolved oxygen concentrations measured on these three occasions were, predictably, elevated, ranging from approximately 12.9 to 19.7 mg/L). The 2010 dissolved oxygen data indicate that sufficient oxygen is available near MW-8 for biodegradation.

The ORC socks in MW-8 were replaced on November 3, 2010. ORC socks will generally be replaced annually, or as-needed, based on periodic monitoring of dissolved oxygen and BTEX concentrations in this well.

<u>Air Sparging System.</u> As described in **Section 2.0**, air sparging has not been conducted at the site since January 2004. Pending additional source material investigation in the vicinity of MW-8 and MW-9, the system will remain off.

#### 4.0 DISCUSSION OF 2010 RESULTS

This section presents and discusses the results of monitoring activities conducted at the SJRP during 2010. The section is divided into two discussions, the first covering the site-wide groundwater monitoring activities; and the second covering the additional quarterly sampling for BTEX that was conducted only at monitoring wells MW-8 and MW-9.

Field documentation from the 2010 groundwater monitoring activities is included in **Appendix A**; and the analytical laboratory reports are included in **Appendix B**.

#### 4.1 SITE-WIDE GROUNDWATER MONITORING RESULTS

<u>Groundwater Elevation Monitoring.</u> Site-wide groundwater elevation maps for each quarter are presented in **Figures 3** through **6**. Groundwater flows radially outward from the topographic rise on which the SJRP is located. In the north plant area, groundwater flows towards the northwest. Groundwater beneath the southern portion of the plant generally flows to the southwest.

**BTEX Sampling Results.** BTEX results from the annual samples collected during August 2010 are presented in **Table 1** and on **Figure 5**. Historic BTEX data are also summarized on **Table 2**. During the annual sampling event, BTEX compounds were detected in monitoring wells MW-8 and MW-9 and were not detected in monitoring wells W-2, MW-4, and MW-6. These results are consistent with previous site-wide monitoring data from 2002 through 2009. The BTEX detections in MW-8 and MW-9 are discussed in **Section 4.2** along with the quarterly BTEX results for these two wells.

<u>Inorganic Sampling Results.</u> The inorganic results from the annual site-wide groundwater sampling are presented in **Table 2.** Historic data are summarized in **Table 3.** Elevated concentrations of general chemistry inorganics were detected in all five wells. TDS and sufate were elevated above their NMWQCC standards (1,000 mg/L and 600 mg/L, respectively) in all five wells. Isoconcentration maps for TDS and sulfate concentrations in groundwater are presented as **Figures 7** and **8**, respectively. Chloride was elevated above its standard of 250 mg/L in every well except MW-8. Regionally, TDS, sulfate, and chloride in groundwater are known to be elevated.

Nitrate/nitrite was elevated above its NMWQCC standard of 10 mg/L in two wells, MW-6 (57.0 mg/L) and W-2 (19.5 mg/L). Alkalinity varied widely among the 5 wells; however, there is no standard established for alkalinity.

With respect to total metals concentrations in the five wells sampled, the NMWQCC groundwater standards were exceeded for: aluminum (4 wells); cadmium (1 well); cobalt (three wells); iron (5 wells); manganese (4 wells); nickel (3 wells); and selenium (2 wells). The samples were not field filtered, and fines were likely a major contributor to the total metals concentrations. Monitor wells MW-6 and MW-9 had the highest number of metals analytes exceeding standards, with 7 and 5 exceedances, respectively. These two wells also contained the highest concentrations of sulfate, TDS, and chloride. It is possible that some of these groundwater metals constituents are related to the industrial activity; however, the contributions from fines in the samples have not yet been isolated.

Overall, concentrations of the various general chemistry inorganics and metals were similar to previous years' results.

#### 4.2 QUARTERLY SAMPLING RESULTS

Quarterly groundwater sampling BTEX results are shown on **Table 1** and on **Figures 3** through **6**. During 2010, the groundwater quality in MW-8 continued to achieve the NMWQCC BTEX standards. The only BTEX detection in MW-8 was an estimated benzene concentration of 0.81  $\mu$ g/L in May 2010. Static water levels in this well stabilized in 2010 after a rapid decline during 2009, likely associated with the subsurface coal mining activities.

Benzene concentrations in MW-9 remained elevated above the NMWQCC standard of 10  $\mu$ g/L throughout 2010. The quarterly benzene levels were 70.7  $\mu$ g/L, 91.8  $\mu$ g/L, 72.3  $\mu$ g/L, and 86.6  $\mu$ g/L, respectively. Toluene was barely detectable (in one sample); and concentrations of ethylbenzene and xylenes ranged from 4.5  $\mu$ g/L to 18.8  $\mu$ g/L during 2010, far below their respective standards of 750  $\mu$ g/L and 620  $\mu$ g/L, respectively.

**Figures 9, 10,** and **11** depict long-term trends in the three wells subject to quarterly monitoring (i.e., MW-5, which was destroyed in 2008, MW-8, and MW-9). **Table 2** summarizes these data as well. The trends indicate that: 1) BTEX concentrations in MW-5 appeared to fluctuate with water level, rising slightly during elevated water table periods; 2) BTEX concentrations in MW-8 have attenuated gradually over the period of monitoring; and 3) air sparging near MW-9 was effective when operational, though it is unclear whether or not sparging would be able to sufficiently remediate the area so as to prevent rebound.

#### 5.0 CONCLUSIONS AND RECOMMENDATIONS

The following conclusions and recommendations are provided based on the information presented in this report.

#### 5.1 SITE-WIDE GROUNDWATER MONITORING PROGRAM

Groundwater sampling performed as part of the site-wide groundwater monitoring at SJRP resulted in the following conclusions and recommendations:

- Groundwater flows radially away from the topographic rise on which SJRP is located.
   In the north plant area, groundwater flow is towards the northwest; in the south plant area, groundwater flow is primarily towards the southwest.
- The remaining groundwater impacts in excess of BTEX standards appear to be in the area near MW-9.
- Consistent with historic monitoring, inorganic constituents were measured above NMWQCC standards during the August 2010 sampling event. The elevated concentrations of inorganics, particularly near the closed ponds may result from past site practices; however, regional levels of chloride, sulfate, and TDS are also elevated, and the metals contributions due to sample fines have not yet been isolated. It is recommended that dissolved phase metals be analyzed during the 2011 annual sampling event.
- Monitoring well MW-5 was destroyed during the spring of 2008. Due to its location down gradient of MW-8 and MW-9, replacement of this well is recommended, once ground shifting due to underground mining activity has ceased and a clear trend in static groundwater level elevations has been established. Based on the 2009 and 2010 water level data, it appears that stability may have been attained. El Paso will check with the mining company regarding future activities and confirm this recommended well replacement with the OCD.

#### 5.2 HYDROCARBON REMEDIATION PROGRAM

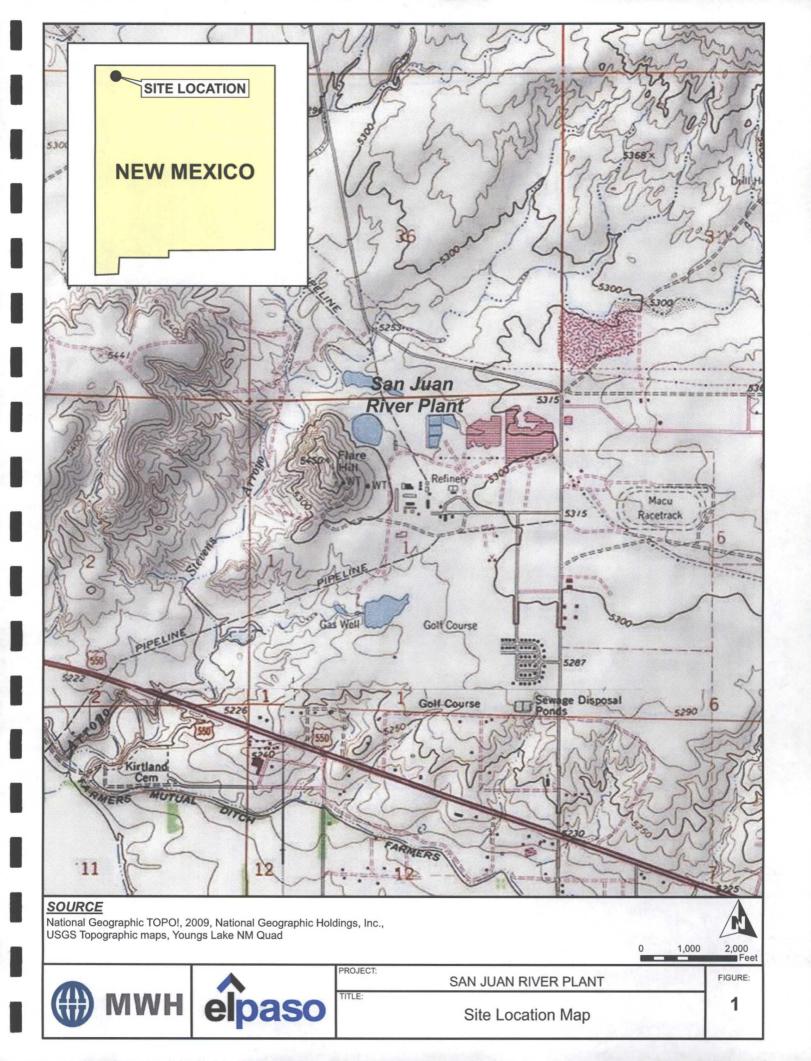
The following conclusions and recommendations are provided regarding the hydrocarbon remediation performed near wells MW-8 and MW-9:

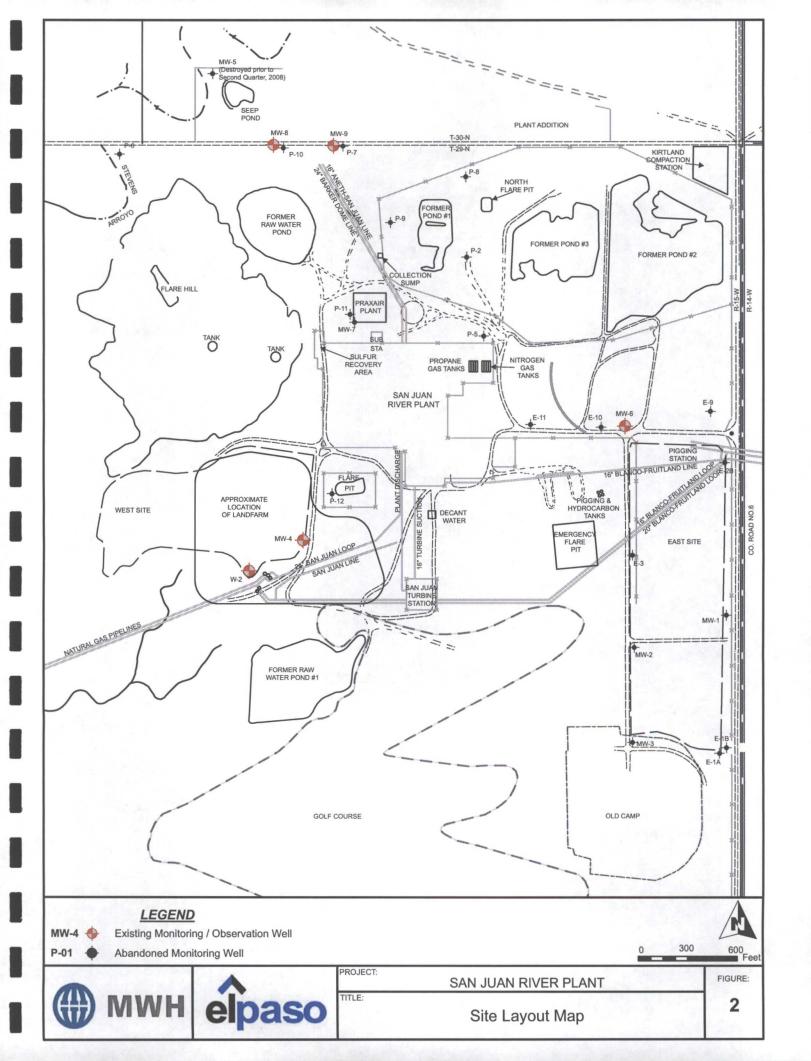
- Benzene concentrations in MW-9 have remained above standards. The benzene concentrations in MW-8 were non-detect during 2010, except for an estimated concentration of 0.81 µg/L in May 2010.
- EPNG recommends continuation of quarterly BTEX monitoring at MW-8 and MW-9.
- ORC socks will be replaced in MW-8, as needed, based on periodic monitoring of dissolved oxygen, water levels, and BTEX concentrations.
- In November 2005, EPNG submitted a Stage I Abatement Plan to NMOCD to investigate hydrocarbon impacts encountered in groundwater near the Praxair evaporation pond at the SJRP. Approval of this abatement plan was received from NMOCD on January 23, 2006, and the investigation was performed in February 2006. Results of the initial investigation were detailed in the Stage I Interim Report submitted by March 28, 2006. Revisions to the work plan for additional investigation included in the Stage I Interim Report were submitted on September 28, 2006. The MW-9 area will be evaluated following OCD's approval of the work plan.

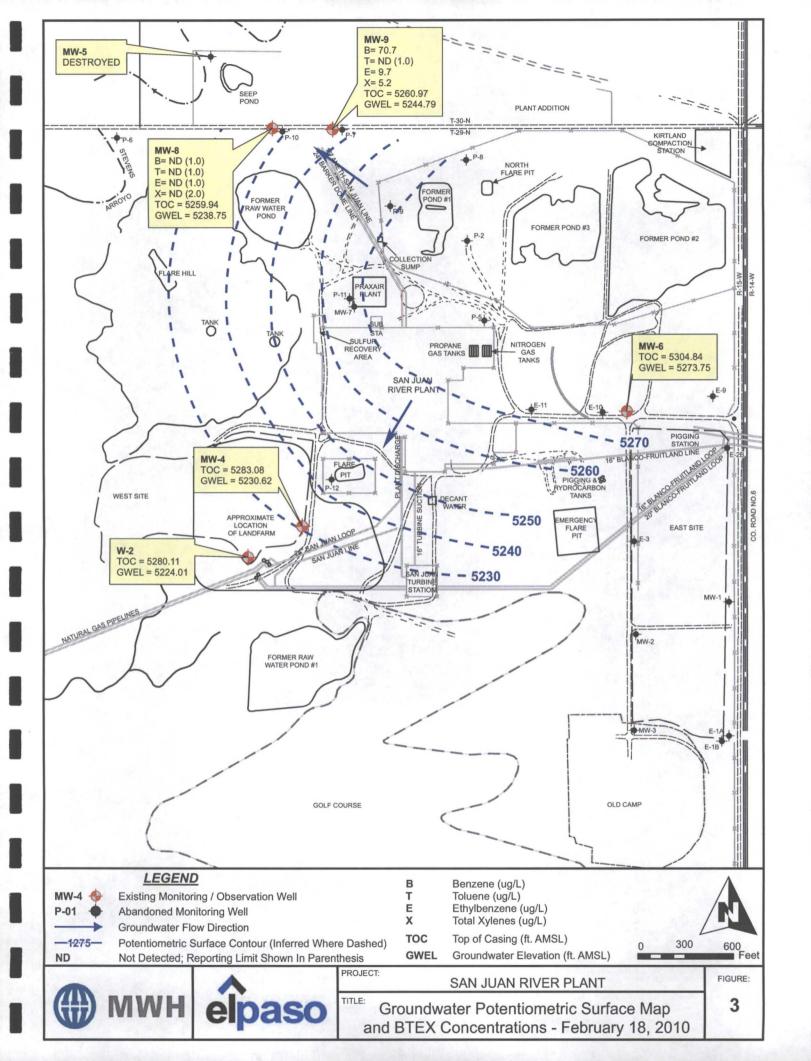
#### **6.0 REFERENCES**

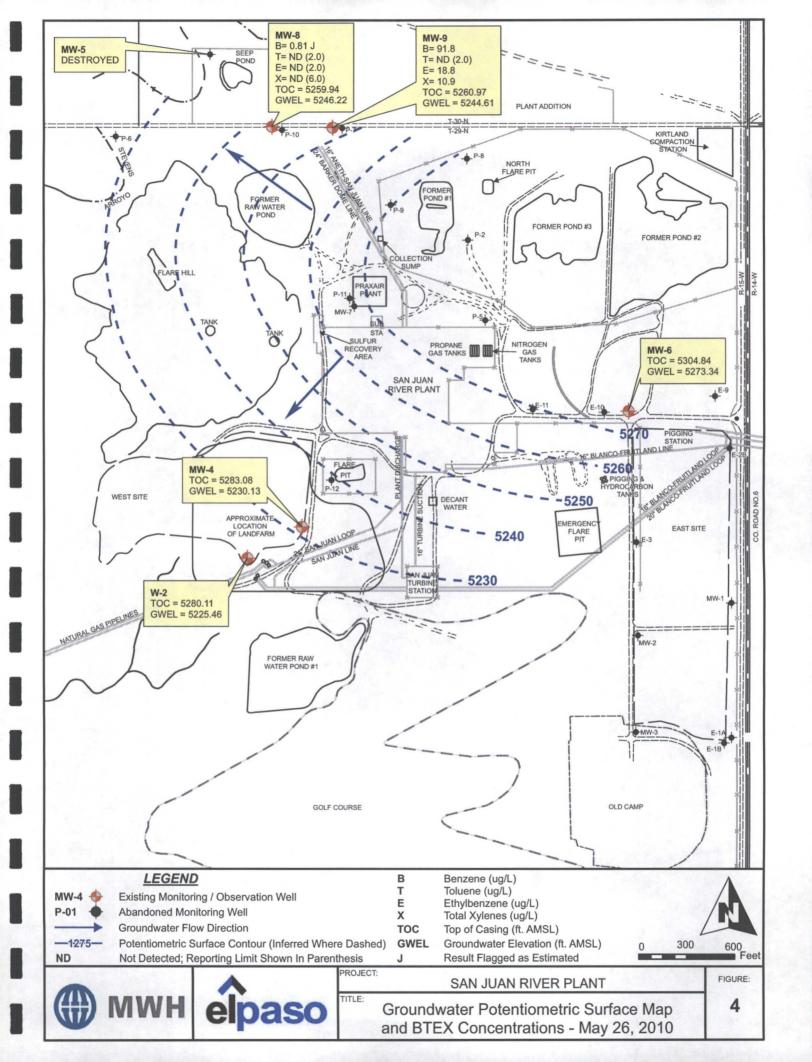
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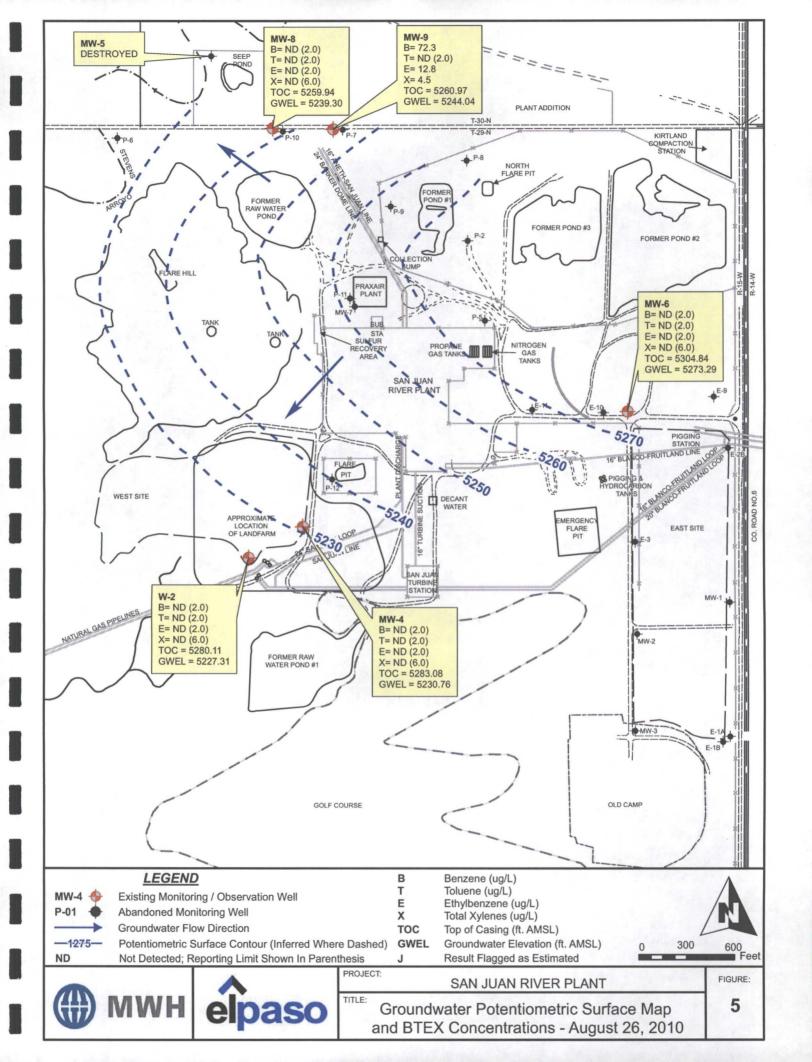
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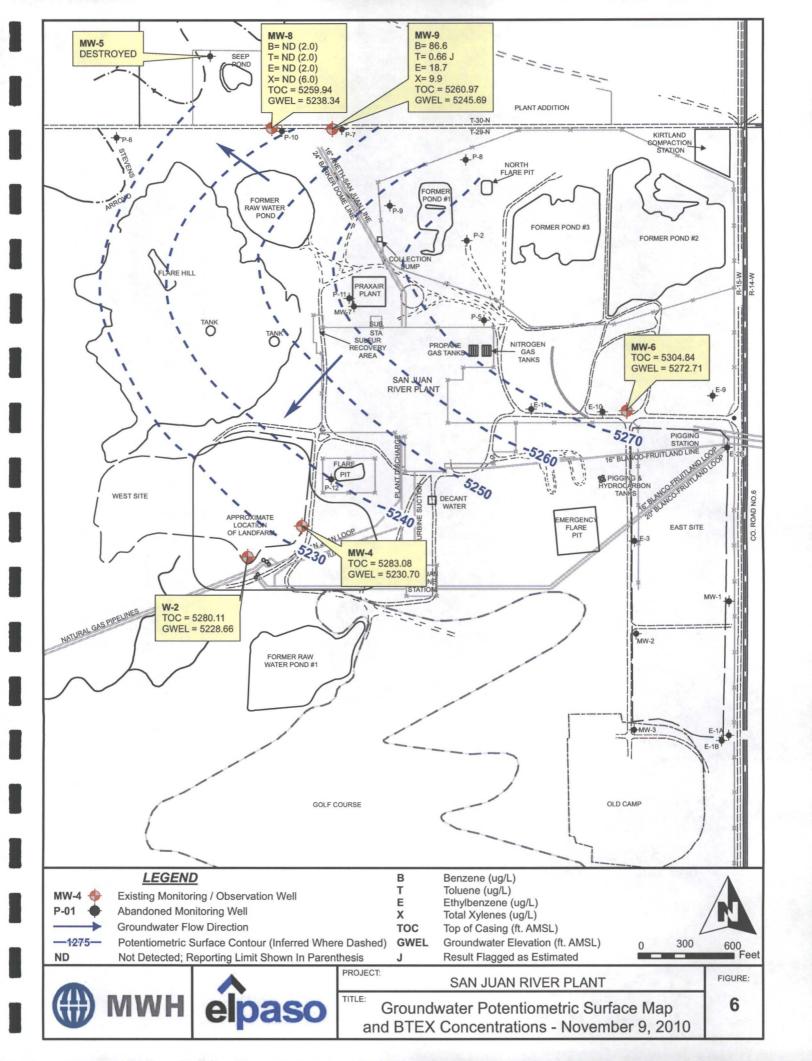


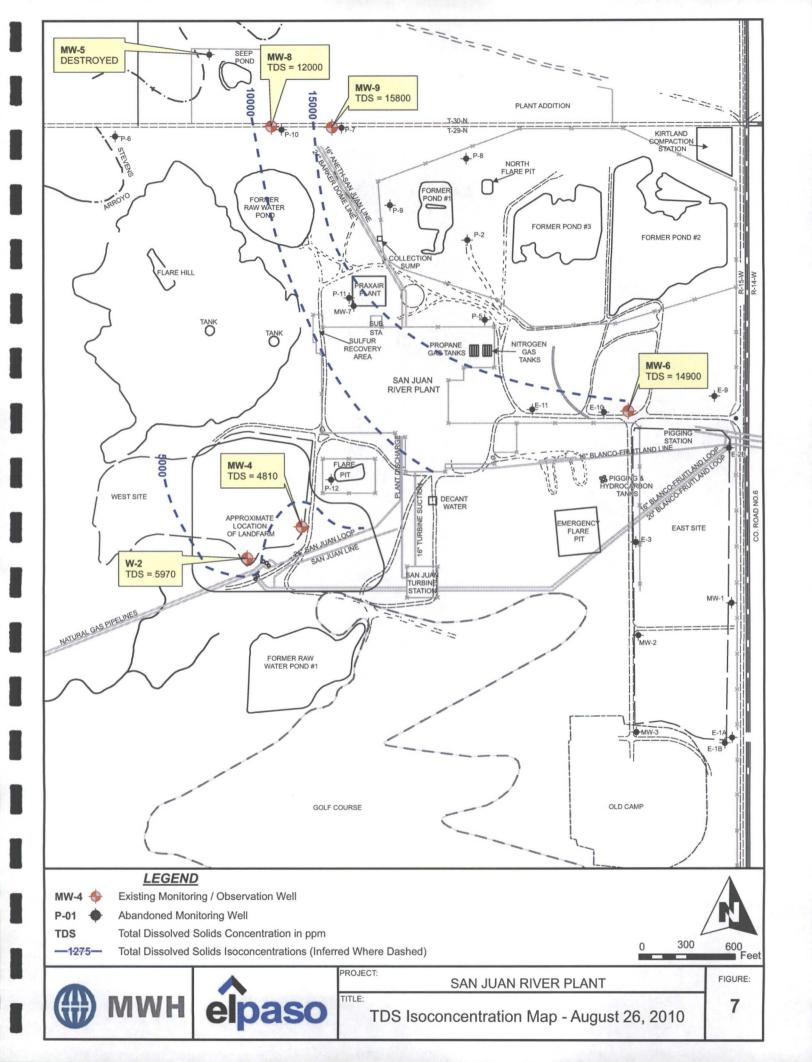












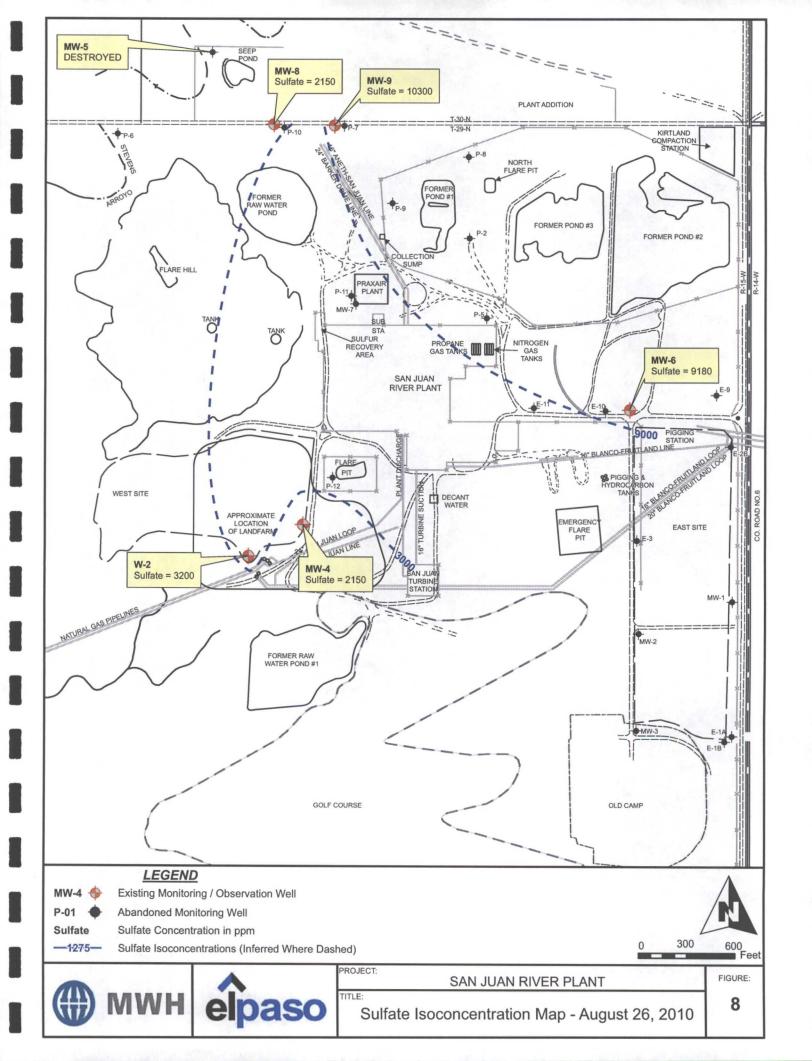


FIGURE 9
SUMMARY OF GROUNDWATER BTEX CONCENTRATIONS AND FLUID LEVELS
EL PASO CORPORATION - SAN JUAN RIVER PLANT (METER #SJRP)
MW05

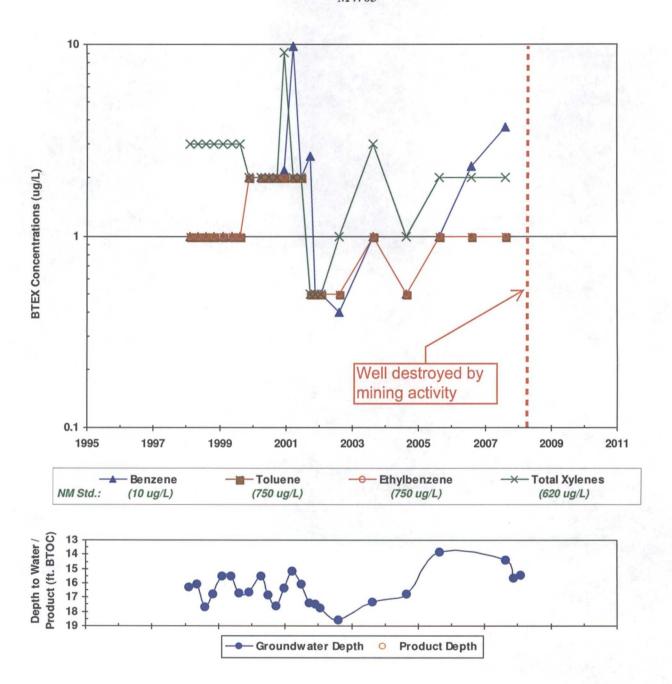


FIGURE 10
SUMMARY OF GROUNDWATER BTEX CONCENTRATIONS AND FLUID LEVELS
EL PASO CORPORATION - SAN JUAN RIVER PLANT (METER #SJRP)
MW08

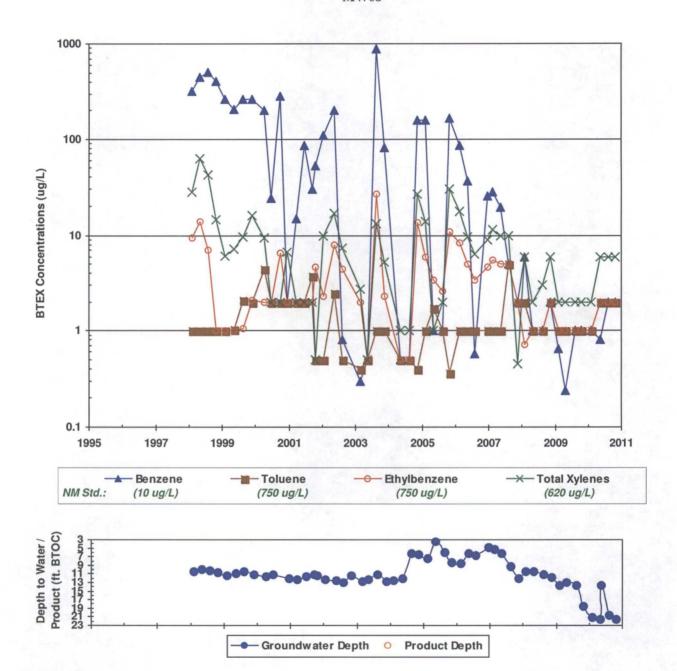
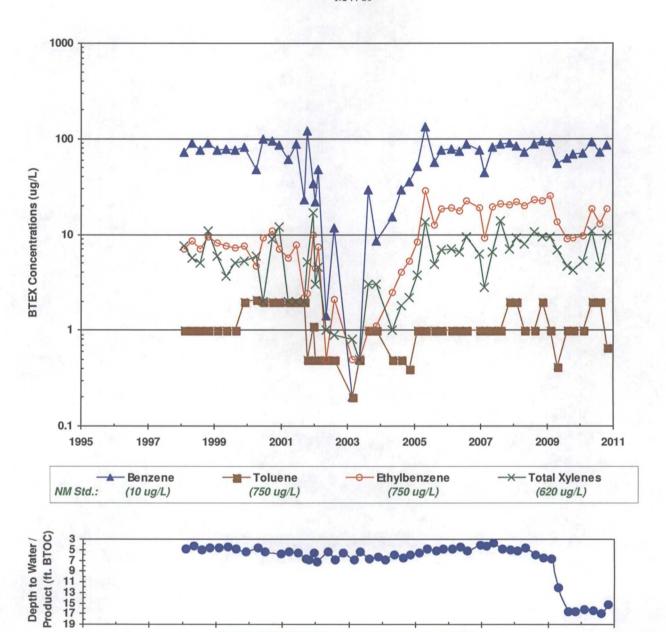


FIGURE 11
SUMMARY OF GROUNDWATER BTEX CONCENTRATIONS AND FLUID LEVELS
EL PASO CORPORATION - SAN JUAN RIVER PLANT (METER #SJRP)
MW09



- Groundwater Depth

**Product Depth** 

TABLE 1

# SUMMARY OF 2010 GROUNDWATER ANALYTICAL DATA EL PASO CORPORATION - SAN JUAN RIVER PLANT SITE

ď	NMWQCC	W-2	MW-4	9-MW	8-WM	WW-8	8-WM	8-WM	6-WW	6-WW	6-WW	6-WW
rarameter	Standard	8/26/2010	8/26/2010	8/26/2010	2/18/2010	5/26/2010	8/26/2010	11/9/2010	2/18/2010	5/26/2010	8/26/2010	11/9/2010
Volatile Organics (µg/L)	g/L)											
Benzene	22.0		<2.0	<2.0	<1.0	0.811	<2.0	<2.0	70.7	70.7 - 18 91.8	72.3	86.6
Ethylbenzene	750	0.7>	<2.0	<2.0	<1.0	<2.0	<2.0	<2.0	2.6	18.8	12.8	18.7
Toluene	750 : 33	750 :	<2.0	<2.0	<1.0	A2:0	<2.0	<2.0	<1.0	×<2.0	<2.0	0.663
m,p-Xylene	NE	<4.0	<4.0	<4.0	<1.0	<4.0	<4.0	<4.0	4.9	10.9	4.5	9.6
o-Xylene	NE	<2.0	<2.0	<2.0	<1.0	<2.0	<2.0	<2.0	<1.0	<2.0	<2.0	<2.0
Total Xylenes	620	<6.0	<6.0	0:9>	<2.0	<6.0	<6.0	<6.0	5.2	10.9	4.5J	6.6
Metals (μg/L)												
Aluminum	5,000	5,180	3,310	19,200		1	5,210	ı		1	11,100	1
Arsenic	100	o.\$>	17.5	<b>~5</b> .0	1	1	30	-	1		<5.0	1
Barium	1,000	007>	<200	<200	-	-	<200		_	-	007>	1
Cadmium	10	<4.0	<4.0	11.4	1	1	<4.0	:	;	:	6.1	ŀ
Calcium	NE.	319,000	228,000	331,000		-	36,200	. 1			300,000	4
Chromium	50	01>	<10	<10	:	1	18	;	***		01>	ŀ
Cobalt	9.05		27.6	199			<50	***			235	
Copper	1,000		58.9	42		:	<25	-		1	33.5	
Iron	1,000	4,	9,930	4,600			3,830		-		7,400	
Lead	50	5.1	19.5	15.1	-	1	8.7			ł	14	-
Magnesium	NE	103,000	100,000	326,000	- 30		1,010,000	1	74		244,000	
Manganese	200	87.1	5,970	7,200	1	1	367	-	-	ł	7,900	
Mercury	2	<0.20	89:0	<0.20		1	<0.20	1		1	<0.20	1
Molybdenum	1,000	01>	<10	<10	-		33.3	:		:	<10	
Nickel	200	0†> <40	203	305	- Anna Sanada	200 (190 (190 (190 (190 (190 (190 (190 (1	<200	1		4	391	
Potassium	NE .	5,290	7,860	27,600			226,000			1	19,100	
Selenium	50	111	7.6	335	1	-	7.5	ı	-	1	2.6	1
Silver	50	<10	<10	<10		;	<10	:	;	;	<10	
Sodium	NE	. 1,160,000	1,050,000	3,620,000	4.0	15.	2,800,000	1,	100	1	4,080,000	
Zinc	10,000	34.4	28.7	692	-	1	<100	-	1	:	909	;
Inorganics (mg/L)												
Alkalinity	NE	861 188	856	<5:0			9,250			- 4	34	
Chloride	250	790	345	1,180	-	1	<1.0			ŀ	085	1
Nitrate+Nitrite	10	19.5	0.54	57		1	(3				<0.10	
Sulfate	600	3,200	2,150	9,180	-	:	2,150	ı	:	:	10,300	
TDS	1,000	5,970	4,810	14,900		-	12,000				15,800	

NE = Not established

Bold = Parameter concentration exceeds the applicable New Mexico Water Quality Control Commission Groundwater Standard

TABLE 2
SUMMARY OF BTEX COMPOUNDS IN GROUNDWATER EL PASO CORPORATION - SAN JUAN RIVER PLANT

Monitor Well	Sample Date	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	Depth to Water (ft	Corrected GW Elevation
NMWQCC	GW Std.:	10	750	750	620	BTOC)	(ft AMSL)
MW04	9/25/2001	<2.0	8.2	4.3	17	NA	NA
MW04	8/15/2002	0.8	0.5	1.1	0.9	52.93	5230.15
MW04	8/26/2003	<1	<1	<1	<3	53.53	5229.55
MW04	8/27/2004	<1.0	<1.0	<1.0	<3.0	54.44	5228.64
MW04	8/24/2005	<1.0	<1.0	<1.0	<2.0	55.29	5227.79
. MW04	8/10/2006	<1.0	<1.0	<1.0	<2.0	\$55.57	5227.51
MW04	8/23/2007	0.37J	<1.0	<1.0	<2.0	51.87	5231.21
MW04	8/27/2008	<1.0	<1.0	<1.0	<3.0	52.24	5230.84
MW04	8/28/2009	<1.0	<1.0	<1.0	<2.0	58.70	5224.38
MW04	8/26/2010	<2.0	<2.0	<2.0	<6.0	52.32	5230.76
MW05	2/10/1998	<1.0	<1.0	<1.0	<3.0	16.29	5241.15
MW05	5/12/1998	<1.0	<1.0.	<1.0	<3.0	16.09	5241.35
MW05	8/7/1998	<1.0	<1.0	<1.0	<3.0	17.69	5239.75
MW05	11/4/1998	<1.	<1	<1	-3	16.76	5240.68
MW05	2/10/1999	<1	<1	<1	<3	15.51	5241.93
MW05	5/17/1999	<b>&lt;</b> 1	<1,,,,,	<1	<3	15.49	5241.95
MW05	8/18/1999	<1	<1	<1	<3	16.67	5240.77
MW05	11/30/1999	<2.0	<2.0	<2.0	<2.0	2 16.60	5240.84
MW05	4/10/2000	<2.0	<2.0	<2.0	<2.0	15.52	5241.92
MW05	6/29/2000	<2.0	<2.0	<2.0	<2.0	16.83	5240.61
MW05	9/29/2000	<2.0	<2.0	<2.0	<2.0	17.58	5239.86
MW05	12/21/2000	2.2	<2	<2	9.1	16.38	5241.06
MW05	3/27/2001	9.8	<2	<2	<2	15.13	5242.31
MW05	6/27/2001	<2.0	<2.0	<2.0	<2.0	16.04	5241.40
MW05	9/25/2001	2.6	<0.5	<0.5	<0.5	17.39	5240.05
MW05	11/29/2001	<0.5	<0.5	<0.5	<0.5	17.45	5239.99
MW05	1/25/2002	<0.5	<0.5	<0.5	<0.5	17.73	5239.71
MW05	8/15/2002	0.4	<0.5	<0.5	1.0	18.61	5238.83
MW05	8/26/2003	<1	<1	<1	<3	17.33	5240.11
MW05	8/27/2004	<1.0	<1.0	<1.0	<3.0	16.80	5240.64
MW05	8/24/2005	<1.0	<1.0	<1.0	<2.0	13.83	5243.61
MW05	8/10/2006	2.3	<1:0	<1.0	<2.0	NA NA	NA
MW05	8/23/2007	3.7	<1.0	<1.0	<2.0	14.42	5243.02
MW06	9/25/2001	2.1	5.3	<2.0	<2.0	NA NA	NA 🚉

TABLE 2
SUMMARY OF BTEX COMPOUNDS IN GROUNDWATER EL PASO CORPORATION - SAN JUAN RIVER PLANT

Monitor Well	Sample Date	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	Depth to Water (ft	Corrected GW Elevation
NMWQC	C GW Std.:	10	750	750	620	BTOC)	(ft AMSL)
MW06	8/15/2002	0.3	<0.5	<0.5	0.9	\$€31.50	5273:34
MW06	8/26/2003	<1	<1	<1	<3	31.76	5273.08
MW06	8/27/2004	<1.0	<1.0	<1.0	<3.0	31.85	5272.99
MW06	8/24/2005	<1.0	<1.0	<1.0	<2.0	29.93	5274.91
MW06	8/10/2006	<1.0	. <1.0	<1.0	<2.0	30.37	5274.47
MW06	8/23/2007	<1.0	<1.0	<1.0	<2.0	30.70	5274.14
MW06	8/27/2008	,,· · <1.0	<1.0	<1.0	<3.0	31.27	5273.57
MW06	8/28/2009	<1.0	<1.0	<1.0	<2.0	31.44	5273.40
MW06	8/26/2010	<2.0	<2.0	<2.0	<6.0	31.55	5273.29
MW07	9/25/2001	<2.0	<2.0	<2.0	<2.0	NA	NA
MW07	8/15/2002	0.4	0.4	0.9	1.0	27.07	5266.06
MW07	8/26/2003	<1	<1	<1	<3	27.00	5266.13
MW07	8/27/2004	<1.0	<1.0	<1.0	<3.0	23.55	5269.58
MW07	8/24/2005	<1.0	<1.0	<1.0	<2.0	19.48	5273.65
MW07	8/10/2006	<1.0	<1.0	<1.0	<2.0	20.33	5272.80
MW08	2/10/1998	316	<1.0	9.4	28.4	10.39	5249.55
MW08	5/12/1998	449	<1.0	13.9	62.9	10.02	5249.92
MW08	8/7/1998	509	<1.0	7.05	42.9	10.13	5249.81
MW08	11/4/1998	408	<1	<1, -(	14.5	10.75	5249.19
MW08	2/10/1999	261	<1	<1	6.1	11.31	5248.63
MW08	5/17/1999	205	1.02	<1	્રે <b>ૄ 7.2</b> 5	10.93	5249.01
MW08	8/18/1999	265	2.09	1.06	9.60	10.44	5249.50
MW08	11/30/1999	260.0	<2	2.1/	16	11.10	5248.84
MW08	4/10/2000	200	4.4	<2	9.5	11.70	5248.24
MW08	6/29/2000	24.0	<2.0 < ₹	<2:0	<2.0	11.16	5248.78
MW08	9/29/2000	284	<2.0	6.6	<2.0	NA	NA
MW08	12/21/2000	<2.0	<2	<2.0	6.7	- 11.96	5247.98
MW08	3/27/2001	15.0	<2	<2	<2	12.32	5247.62
MW08	6/27/2001	85.0	<2.0	<2.0	<2.0	11.49	5248.45
MW08	9/25/2001	30	3.7	<2	<2	11.06	5248.88
MW08	10/29/2001	53	<0.5	4.7	<0.5	11.31	5248.63
MW08	1/25/2002	110	<0.5	2.3	9.8	12.35	5247.59
MW08	5/23/2002	200	<2.5	7.9	17	1.2.60	5247.34
MW08	8/15/2002	0.8	<0.5	4.4	7.3	12.90	5247.04

TABLE 2
SUMMARY OF BTEX COMPOUNDS IN GROUNDWATER EL PASO CORPORATION - SAN JUAN RIVER PLANT

Monitor Well	Sample Date	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	Depth to Water (ft	Corrected GW Elevation
NMWQCC	GW Std.:	10	750	750	620	BTOC)	(ft AMSL)
MW08	3/6/2003	0.3	0.4	2.0	2.7	12.79	5247.15
MW08	.5/15/2003	<1.0	<1.0	<1.0	<3.0	12.25	5247.69
MW08	8/26/2003	891	<1	26.6	13.1	11.16	5248.78
MW08	11/25/2003	. ×. 81.9 · · ·	<li><li>I</li></li>	2.3	5.2	12.79	5247.15
MW08	5/18/2004	<1.0	<1.0	<1.0	<3.0	12.02	5247.92
MW08	8/27/2004	<1.0	<1.0	<1.0	<3.0	6.26	5253.68
MW08	11/17/2004	157	<1.0	13.6	27.0	6.46	5253.48
MW08	2/17/2005	159	<1.0	5.9	13.8	7.43	5252.51
MW08	5/19/2005	<1.0	1.7	3.4	1.0J	3.56	5256.38
MW08	8/24/2005	<1.0	<1.0	2.6	<2.0	6.02	5253.92
MW08	11/9/2005	164	0.36Ј	11.0	30.0	8.38	5251.56
MW08	2/20/2006	85.2	<1.0	8.3	17.6	8.55	5251.39
MW08	5/24/2006	36.3	<1.0	5.0	9.7	6.31	5253.63
MW08	8/10/2006	0.57J	<1.0	\$4,3.4 ···	6.4	6.80	5253.14
MW08	12/27/2006	25.6	<1.0	4.6	9.0	4.94	5255.00
MW08	2/27/2007	28.1	<1.0.*	5.5	11.4	5.40	5254.54
MW08	5/25/2007	19.6	<1.0	5.0	9.8	6.28	5253.66
MW08	8/23/2007	<5.0	<5.0 <sup>/</sup>	<5.0	<10	9.25	5250.69
MW08	11/28/2007	<2.0	<2.0	<2.0	0.45J	12.16	5247.78
MW08	2/13/2008	6.0	<2.0	0.71J	<6.0	70.41	5249.53
MW08	5/8/2008	<1.0	<1.0	<1.0	<2.0	10.40	5249.54
MW08	8/27/2008	<1.0. %	<1.0	; <1.0	<3:0	11.15	5248.79
MW08	11/18/2008	<2	<2	<2	<6	11.90	5248.04
MW08	2/18/2009	0.65J	<1.0	<1.0	<2.0	13.60	5246.34
MW08	5/5/2009	0.24J	<1.0	<1.0	<2.0	13.07	5246.87
MW08	*8/28/2009	<1.0	<1.0	<1.0	<2.0	13.75	5246.19
MW08	11/4/2009	<1.0	<1.0	<1.0	<2.0	18.58	5241.36
MW08	2/18/2010	<1.0	<1.0	<1.0	<2.0	21.19	5238.75
MW08	5/26/2010	0.81J	<2.0	<2.0	<6.0	13.72	5246.22
MW08	8/26/2010	<2.0	<2:0	<2.0	<6.0	20.64	5239.30
MW08	11/9/2010	<2.0	<2.0	<2.0	<6.0	21.60	5238.34
MW09	2/10/1998	73.1	<1.0	7:1	7.5	4.90	5256.07
MW09	5/12/1998	89.5	<1.0	8.51	5.61	4.22	5256.75
I warmen and the same of the s	8/7/1998	77.0	<1.0	7.08	5.0	5.12	5255.85

TABLE 2

SUMMARY OF BTEX COMPOUNDS IN GROUNDWATER EL PASO CORPORATION - SAN JUAN RIVER PLANT

Monitor Well	Sample Date	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	Depth to Water (ft	Corrected GW Elevation
NMWQCC	GW Std.:	10	750	750	620	BTOC)	(ft AMSL)
MW09	11/4/1998	89.8	<1	9.42	10.9	4.60	5256.37
MW09	2/10/1999	77.0	<1	8.1	6	4.67	5256.30
MW09	5/17/1999	78.3	<1	7.54	3.63	4.48	5256.49
MW09	8/18/1999	76.4	<1	7.21	4.97	4.85	5256.12
MW09	11/30/1999	82.0	<2	7.5	5.3	5.38	5255.59
MW09	4/10/2000	48.0	2.1	4.7	5.9	4.74	5256.23
MW09	6/29/2000	100.0	<2	9.2	<2	5.47	5255.50
MW09	9/29/2000	95	<2.0	11	9.0	NA	NA
MW09	12/21/2000	86.0	<2	7.1	12	5.82	5255.15
MW09	3/27/2001	61.0	<2	5.7	<2	5.34	5255.63
MW09	6/27/2001	87.0	≪2	7.7.	<2	5.68	5255.29
MW09	9/25/2001	23	2.0	2.2	<2.0	6.77	5254.20
MW09	10/29/2001	120	;∙°:<0.5	2.4	5.1	6.91	5254.06
MW09	12/26/2001	34	1.1	9.9	17	5.68	5255.29
MW09	1/25/2002	22	<0.5	4.4	3.0	7.27	5253.70
MW09	2/21/2002	48	<0.5	7.4	4.5	NA	NA
MW09	5/23/2002	1.4	₹7, ,<0.5	<0.5	;;; <1.0	5.45	5255.52
MW09	8/15/2002	11.7	<0.5	2.1	0.9	6.93	5254.05
. MW09	3/6/2003	0.2	0.2	<1.0	0.8	6.82	5254.15
MW09	5/15/2003	<1.0	<1.0	<1.0	<3.0	5.45	5255.52
MW09	8/26/2003	29.3	<1	<1	<3	6.69	5254.28
MW09	11/25/2003	8.6	<1	1.1	<3	6.42	5254.55
MW09	5/18/2004	15.2	<1.0	2.5	<3.0	5.97	5255.00
MW09	8/27/2004	29.5	<1.0	4.0	1.8	6.49	5254.48
MW09	11/17/2004	35.9	<1.0	5.2	§2 × 2.2	6.02	5254.95
MW09	2/17/2005	51.7	<1.0	8.3	3.7	5.69	5255.28
MW09	5/19/2005	133	<1.0	28.9	13.5	4.78	5256.19
MW09	8/24/2005	56.5	<1.0	12.6	4.9	5.19	5255.78
MW09	11/9/2005	76.0	<1.0	18.8	6.9	4.93	5256.04
MW09	2/20/2006	77.9	<1.0	19.1	7.1	4.83	5256.14
MW09	5/24/2006	73.4	<1.0	17.7	6.6	4.47	5256.50
MW09	8/10/2006	88.7	<1.0	22.5	9.3	5.19	5255.78
MW09	12/27/2006	. 76.9	<1.0	19.0	6.3	4.13	5256.84
MW09	2/27/2007	44.8	<1.0	9.2	2.8	4.24	5256.73

TABLE 2
SUMMARY OF BTEX COMPOUNDS IN GROUNDWATER EL PASO CORPORATION - SAN JUAN RIVER PLANT

Monitor Well	Sample Date	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	Depth to Water (ft	Corrected GW Elevation
NMWQCC	GW Std.:	10	750	750	620	BTOC)	(ft AMSL)
MW09	5/25/2007	82.0	<1.0	19.6	6.5	3.81	5257.16
MW09	8/23/2007	88.1	<1.0	21.2	13.8	4.85	5256.12
MW09	11/28/2007	90.9	<2.0	20.4	7.0	5.13	5255.84
MW09	2/13/2008	84.4	<2.0	22.1	9.2	5:28 🖔	5255.69
MW09	5/8/2008	71.8	<1.0	20.2	8.0	4.71	5256.26
MW09	8/27/2008	87.9	<1.0	23.4	10.7	6.06	5254:91
MW09	11/18/2008	95.3	<2	22.8	9.5	6.53	5254.44
MW09	2/18/2009	91.3	<1.0	25.7	9.5	6.69	5254.28
MW09	5/5/2009	55.4	0.42J	13.7	6.8	12.18	5248.79
MW09	8/28/2009	63.1	√	9.0	4.6	16.54	5244.43
MW09	11/4/2009	69.4	<1.0	9.2	4.2	16.63	5244.34
MW09*	2/18/2010	70.7	<1.0	9.7	5.2	16.18	5244.79
MW09	5/26/2010	91.8	<2.0	18.8	10.9	16.36	5244.61
- MW09	8/26/2010	72.3	<2.0	12.8	4.5J	16.93	5244.04
MW09	11/9/2010	86.6	0.66J	18.7	9.9	15.28	5245.69
W02	9/25/2001	<2.0	<2.0	<2.0	<2:0	NÄ	NA
W02	8/15/2002	1.4	0.4	0.8	1.0	57.55	5222.56
W02	8/26/2003	; `` <1	<1i	<1	<3	57.53	5222.58
W02	8/27/2004	<1.0	<1.0	<1.0	<3.0	57.76	5222.35
W02	8/24/2005	÷ i<1.0	<1.0	<1.0	<2.0	58.50	5221.61
W02	8/10/2006	<1.0	<1.0	<1.0	<2.0	58.72	5221.39
W02	8/23/2007	<1.0**	<1.0	<1.0	<2.0	52.73	5227.38
W02	8/27/2008	<1.0	<1.0	<1.0	<3.0	55.53	5224.58
W02	8/28/2009	<1.0	;;<1:0·	<1.0	<2.0	55.24	5224:87
W02	8/26/2010	<2.0	<2.0	<2.0	<6.0	52.80	5227.31

#### Notes:

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

<sup>&</sup>quot;J" = result is qualified as estimated. See laboratory report and/or supplemental data validation report for further detail. "<" = analyte was not detected at the indicated reporting limit (some historic data were reported at the detection limit).. Static groundwater elevations have been corrected for product thickness where applicable. Specific gravity of 0.8 used.

### TABLE 3

# SUMMARY OF HISTORICAL GROUNDWATER METALS AND INORGANICS EL PASO CORPORATION - SAN JUAN RIVER PLANT SITE

Page 1 of 8

Parameter	NMWQCC	W-2	W-2	W-2	MW-4								
, at allicter	Standard	9/25/2001	8/15/2002	8/21/2002	8/26/2003	8/27/2004	8/24/2005	8/10/2006	8/23/2007	8/27/2008	8/28/2009	8/26/2010	9/25/2001
Metals (µg/L)									į				
Aluminum	5,000	4,200	1,130		2,070		1,240	1,540	12,800	1	21,000	5,180	9,300
Arsenic	100	QN	4.9	ŀ	5.5	5	€5.0	<5.0	<5.0	1	<5.0	<5.0	220
Barium	1,000	67	32.7		500	200	<200	<200	<200		<200	<200	110
Cadmium	10	QN	0.79	1	4	4	<4.0	<4.0	<4.0	-	<4.0	<4.0	17
Galcium* / / *	NE	400,000	402,000		. 000'678		454,000	399,000	404,000		356,000	319,000	210,000
Chromium	20	ΠN	5.6	-	10	10	<10	<10	<10		12.7	<10	ND
Coball' 🛴 🛴	50	αN	3.5	-2.5	- 20	100	0\$>	<50	∵ 0\$>		. <50	> >0	280
Copper	1,000	15	116	1	42.8	1	\$25	<25	32.9	1	27.2	<25	820
Iron	1,000	4,600	1,760		1,480		1,580	1,020	10,300		16,500	4,300	31,000
Lead	50	98	3.1	-	3	3	6	10.2	14	1	8.9	5.1	170
Magnesium	巴	120,000	108,000	-	106,000		126,000	1,11,000	133,000	-	110,000	103,000	81,000
Manganese	200	230	216	1	43.9		163	256	223	-	268	87.1	6,100
Mercury	2	***	0.12			. 0.2	<0.20	<0.20	<0.20	1	-	< 0.20	
Molybdenum	1,000	QN	2.8	1	10	1	<10	<10	<10	1	<10	<10	ΩN
Nickel	200	QN	7.5	-	. 40		<40	<40	<40		× <40	<40:	330
Potassium	NE	4,700	13,400	1	5,000	1	5,840	5,630	088'8		10,200	5,290	7,300
Selenium	50	120	801	-	9:68	115	124	136	143		132	101	ND
Silver	50	QN	2.8	-	10	01	<10	<10	<10		<10	<10	ND
Sodium	NE	1,200,000	1,350,000		1,030,000		1,400,000	1,150,000	1,120,000	1. K	1,130,000	1,160,000	920,000
Zinc	10,000	ΩN	73.3		58.1	`	45.9	148	691		98.1	34.4	4,200
Inorganics (mall)													
morganics (mg/L)				2.00						In the second second	M. (34. 35.		
Alkalinity	NE	1	1	170	196	180	138	163	165	178	174	198	1
Chloride	250	300	-	296	309	431	265	162	338	308	795	290	330
Nitrate+Nitrite	10	25	*	7.5	21.8	25.2	17	18	- 81	17.2	L'11	19.5	1
Sulfate	009	3,600		3,380	3,630	3,160	3,170	3,420	3,410		3,000	3,200	2,000
TDS	1,000	5,800		5,690	2,880	6,170	5,730	4,920	5,710	4,920	5,870	5,970	3,920

NE = Not established

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### TABLE 3

# SUMMARY OF HISTORICAL GROUNDWATER METALS AND INORGANICS EL PASO CORPORATION - SAN JUAN RIVER PLANT SITE

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Poromotor	NMWQCC	MW-4	MW-4	MW-4	MW-4	MW-4	MW-4	MW-4	MW-4	MW-4	MW-4	MW-5	MW-5
r al alliete	Standard	8/15/2002	8/21/2002	8/26/2003	8/26/2004	8/24/2005	8/10/2006	8/23/2007	8/27/2008	8/28/2009	8/26/2010	11/30/1999	4/10/2000
Metals (µg/L)													
Aluminum 319 5	5,000	1,370	1	5,290		<200	416	9,290	9,810	1,000	3,310	1	1
Arsenic	100	20.7		81.8	18	26.2	63.6	21.1	34.2	12.5	17.5	-	1
Barium	1,000	27.1		200	. 200	:: <200	<200	<200	<200	<200	<200.	-	` <b>!</b> `
Cadmium	10	1.2		10	4	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	-	1
Calcium	I NE	210,000		212,000		. 286,000	245,000	249,000	267,000.	., 234,000			,
Chromium		10.2		10	10	<10	<10	<10	<10	<10	<10		
Cobalt	50	161	****	. ₹ 9SI	-	7-144	. 103	88.3	94 🔭	75.2	57.6		-
Copper	1,000	158		682	1	62.9	56.7	68.3	150	33.4	58.9	-	ł
Lron	1,000	005'9	***	12,400	7	10,200	31,800	21,700	17,700	8,160	0666	. 160	120
Lead	50	11.3	-	40.1	3	16.5	51	14	51.2	14	19.5	-	1
Magnesium	NE	80,100	***	88,100		111,000	95,300	108,000	113,000	101,000	.100,000		にの会するで
Manganese	200	080'9	:	6,880	1	8,780	5,800	6,590	7,190	6,400	5,970	2,500	3,300
Mercury 💝 🔭	2	0.61	***	3.5	0.3	.0.26	0.21	0.42	<0.20		89.0	Section of the second section of the section o	
Molybdenum	1,000	2.7		10	-	<10	<10	<10	<10	<10	<10		ì
Nickel****	200	261		251		260	182	268	229	* 66 l	203	100	
Potassium	NE	066'8		9,390		9,620	8,770	10,100	13,100	8,130	7,860		-
Selenium	50	3.4		5		5.8		<5.0	<5.0	<50	7.6		
Silver	50	<i>L</i> °1		01	10	<10	<10	<10	<10	<10	<10		-
Sodium	NE	1,040,000		802,000		1,190,000	1,050,000	910.000	1,020,000	1,020,000	1,050,000		1
Zinc	10,000	241	1	1,550	1	159	200	110	50	<20	28.7	1	1
Inorganics (mo/L)													
And Sames (mg/L)	MI		110	* 446	000	033	020	000	210		, 750		
AMAGINITY :	N.	:	4/0	440	500 COO	Oco	9/0	070	210	470	000	1	
Chloride	250	ł	234	303	453	321	385	303	16.9	373	345	280	1
Nitrate+Nitrite	10	1	4	. 4	· 10	0.5	0.2	2.1	0.39	0.64	0.54	0	5
Sulfate	_	-	1,790	2,090	2,000	2,010	2,250	2,000	2,150	2,230	2,150	17,000	16,000
TIDS STATES	1,000	**	4,060	4,540	4,410	4,330	3,840	4,460	4,120	4,820	4,810	1	

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## TABLE 3

# SUMMARY OF HISTORICAL GROUNDWATER METALS AND INORGANICS EL PASO CORPORATION - SAN JUAN RIVER PLANT SITE

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Doromotor	NMWQCC	MW-5	MW-5	MW-5	MW-5	MW-5	MW-5	MW-5	MW-5	MW-5	MW-5	MW-5	MW-5
I al all cite	Standard	6/29/2000	9/29/2000	12/21/2000	3/27/2001	6/27/2001	9/25/2001	8/15/2002	8/21/2002	8/26/2003	8/27/2004	8/24/2005	8/10/2006
Metals (μg/L)													
Aluminum	5,000			a a a a a a a a a a a a a a a a a a a			458,000	2,700	1	12,500	-	1,190	3,340
Arsenic	100		-		1	-	ND	9.01		8.9	5	<5.0	<5.0
Barium	1,000	-	10 mm			1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	160	5.71		200	200	007>	<200
Cadmium	10	1		-	1	1	ND	0.46		4	7	64.0	4
Calcium	NE	ı			22.5		400,000	361,000	ŀ	348,000	-	418.000	338,000
Chromium	50	-	ŀ		1	1	22	5	:	10	10	<10	<10
Cobalt	50		À				. 35	12.7	****	20		05>	
Copper	1,000	1	1	1	:	:	59	14	1	50.2	1	<25	<25
Iron	1,000	380	240 🛸	590	3300		63,000	3,380		11,800		3,180	1,990
Lead	50	-	1	1	:	1	150	4.8	1	6.1	3	13.4	9.6
Magnesium	NE	ŀ	ı				,220,000	000;891		200,000	17 15 HOME 17 M	245,000	203,000
Manganese	200	3,300	1,800	26	4,200	3,800	3,900	3,260	-	5,870	-	8,650	7,640
Mercury	2	-						LL0:0	to the second of the second of	0.2	0.2	<0.20	<0.20
Molybdenum	1,000	-	1	:	1	1	ND	5	:	10	;	<10	<10
Nickel	200	***			1,	Į.	. 59	49.3		75.5	1	153	. 180
Potassium	NE	1			1	ŀ	24,000	30,900	1	32,000	ŀ	42,800	44,400
Selenium	20		***		1000		ND	3.2	**	\$	7.5	£ L	0.5>
Silver	90	1	1		:	-	ND	5.6	-	10	01	<10	<10
Sodium	NE						6,300,000	2,980,000		4,390,000	1	6,050,000	4,640,000
Zinc	10,000	-		1	1	-	190	49	1	109	1	168	259
Inorganics (ma(I.)													
Alkalinity	MR					346	2 (188.37)		450	358	303	561	100
Caleman	361	1		2 6 . 36 . 10	and discontinuous and an article	2000	000			900			A Company
Chloride	250	1	1	╗	1	380	290	:	331	488	77.3	1,150	1,140
Nitrate+Nitrite	10	10	2	73	2 3		1	***		20	20	0.2	0.1
Sulfate	600	16,000	:	14,000	16,000	18,000	14,000	:	14,400	14,200	14,500	11,700	10,500
TDS	1,000	. <b>1</b>				19,500	20,300	1	20,300	19,900	21,400	21,700	11,700

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# SUMMARY OF HISTORICAL GROUNDWATER METALS AND INORGANICS EL PASO CORPORATION - SAN JUAN RIVER PLANT SITE

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Porameter	NMWQCC	MW-5	9-MM	MW-6	9-MM	9-MM	9-MM	9-MM	MW-6	MW-6	9-MM	9-MM	9-MM
	Standard	8/23/2007	9/25/2001	8/15/2002	8/21/2002	8/26/2003	8/27/2004	8/24/2005	8/10/2006	8/23/2007	8/27/2008	8/28/2009	8/26/2010
  Metals (μg/L)													
Aluminum	5,000	16,900	22,000	13,600	77.	24,500	ı	14,500	6,450	12,600	•	7. 16.800	19,200
Arsenic	100	<5.0	ND	7.8		5	5	<5.0		<5.0		<5.0	<5.0
Barium ***	1,000	<200	15 🔹	3. 13.9		. 200	200	<200	<200 🌾	<200		<200	<200
Cadmium	10	4.8	12	10.9	;	13.3	10.2	11.4		8.1		5.6	11.4
Calcium	NE	342,000	400,000	388,000		343,000	8 m	. 447,000	389,000	7.325,000		359,000	331,000
Chromium	50	<10	QN	30.3	:	10	01	<10	01>	<10		<10	<10
Cobalt	50	63.7	260	202	1	236	-	219	123	191		9/1	199
Copper	1,000	30	46	43.4	1	80.7		37.8	<25	38.7		38.3	42
Iron	1,000	12,100	2,900 🐑	986		5,510	~ -	427	296	3,780		3,440	4,600
Lead	20	20.5	250	5	. :	3.9	ε	10.3	7.6	11		4.4	15.1
Magnesium	NE	232,000	420,000	× 316,000		360,000	-		273,000	. 356,000		315,000	326,000
Manganese	200	8,040	009'6	6,550		8,630		8,250	4,820	5,880		6,830	7,200
Mercury	2	<0.20	<b>3</b> -	0.095	- X-	.0.2	7. 7.0	. <0.20	<0.20	<0.20	<b>3</b> 7 -		<0.20
Molybdenum	000,1	<10	QN	5		10		<10	<10	<10	-	<10	<10
Nickel	200	183	320	272		310	-	275	155	. 187		228	305
Potassium	NE	46,400	22,000	29,100	;	29,400		37,600	34,200	39,400		34,800	27,600
Selenium	. 20	0.5>	00€	304	3677	247	168	819	995	893		381	335
Silver	. 50	<10	QN	4		10	10	<10	<10	<10	1	<10	<10
Sodium	NE	4,410,000	4,000;000	4,080,000		3,830,000		4,370,000	3,400,000	3,370,000		3,470,000	3,620,000
Zinc	10,000	304	790	612	1	729	1	764	527	594	;	592	692
Inorganics (mo/L)													
A Hollester	Nim See	35			1145	. 61	14	36	V.5	30	A LI	7.00	15.0
Chlodide	200	1 730	1 300		1 040	1 410	1 340	1 150	~1	1 830	1 150	1 200	1 180
Cilionae	0007	1,730	1,300	-	1,040	014.1	1,040	1,130	0.2041	0.001	VCI.1	1,470	1,100
Nitrate+Nitrite	10	2.6	ND			70.3	88.3	176	314	258	140	8.78	57
Sulfate	009	11,400	10,000	-	8,300	10,300	9,320	8,490	8,400	8,930	3,780	4,140	9,180
TDS	1,000	18,600	16,500	ı	14,900	17,100	16,600	17,700	11,600	15,500	16,300	16,000	14,900

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# SUMMARY OF HISTORICAL GROUNDWATER METALS AND INORGANICS EL PASO CORPORATION - SAN JUAN RIVER PLANT SITE

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Parameter	NMWQCC	MW-7	MW-8	WW-8	MW-8	MW-8	MW-8						
I al allete	Standard	9/25/2001	8/15/2002	8/21/2002	8/26/2003	8/27/2004	8/24/2005	8/10/2006	11/30/1999	4/10/2000	6/29/2000	9/29/2000	12/21/2000
Metals (µg/L)													
Aluminum	5,000	14,000	3,210	1	35,600	1	009	108		+	1	1	
Arsenic	100	ND	7.2	1	14.4	6.8	€5.0	<5.0	-	1	-	-	-
Barium,	1,000	85	44.1	-	302	265	<200	<200		-			-
Cadmium	10	ND	1.3		4	4	<4.0	<4.0	-	+	;		1
Calcium	· · · · NE	450,000	416,000	1	397,000	1	462,000	421,000		***************************************	-	1	,
Chromium	90	ND	8.1	1	21.3	18.7	<10	<10	-	1	ŀ	-	1
Cobalt		. 29	11.6	1	20		<50	<50	10.00	-		•	1
Copper	1,000	39	23.7	1	92.1	1	25.6	<25	ı	1	ŀ	;	:
Iron 'g * 'g & a	1,000	14,000	4,240	1	32,700	1	226	295	160	1,800	320	320	160
Lead	50	150	5	-	16.8	15.5	6	6.8	1	1	1	1	1
Magnesium	EN	230,000	173,000		229,000		238,000	231,000					
Manganese		8,900	4,570	-	4,850	1	5,340	4,580	4,300	2,400	3,600	1,600	1
Mercury		K.	0.092		0.2	0.2	<0.20	< 0.20	1				
Molybdenum	1,000	ΩN	2.1	1	10	ı	<10	<10	1	1	1	1	-
Nickel	200	. 43	26.7	1	48.3	F. 7.	<40	* <40 ×					
Potassium	NE	15,000	26,800	1	25,100	ŀ	27,700	31,000	1	1	1	:	ŀ
Selenium 🔥 👫		ΝĎ	11.4	1	14.1	8.6	18.1	47.7			1		
Silver	920	ND	3.4	-	10	01	<10	<10	1	1	ı		1
Sodium	NE	4,800,000	4,810,000	-	4,490,000	-	5,540,000	4,970,000					1
Zinc	10,000	140	89	-	199	-	79.1	6.88	1	1	-	1	1
Transfer of the state of the st													
morganics (mg/L)													
Alkalinity (*	NE NE			900	995	1040	925 -	S 1140			-	1	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1
Chloride	250	460	1	367	369	694	307	344	-	1	-	1	
Nitrate+Nitrite 🐌 🛴	10	ND	1	4	20	24	22	33	10	5	\$	2	Ţ
	009	11,000	1	11,000	11,900	10,800		14,200	5,200	5,000	7,500	8,500	12,000
TDS	1,000	16,500	-	17,500	17,600	16,000	19,900	16,500				-	

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# SUMMARY OF HISTORICAL GROUNDWATER METALS AND INORGANICS EL PASO CORPORATION - SAN JUAN RIVER PLANT SITE

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Domonoton	NMWQCC	MW-8	MW-8	MW-8	MW-8	MW-8	MW-8	8-WW	WW-8	WW-8	MW-8	MW-8	WW-8
r al allietei	Standard	3/27/2001	6/27/2001	9/25/2001	10/29/2001	8/15/2002	8/21/2002	8/26/2003	8/27/2004	8/24/2005	8/10/2006	8/23/2007	8/27/2008
Metals (μg/L)													
Aluminum	5,000			240		508	-	1,620	1	634	219	1,300	3,260
Arsenic	100	-	1	QN	;	23.8	:	8	20.7	6.2	7.4	<5.0	5.5
Barium	1,000	L.	1	19	1	29	1		200	<200	<200	<200	<200
Cadmium	10		1	ND	1	2		4	4	<4.0	<4.0	<4.0	<4.0
Calcium	NE 3		1.84.	370,000	310,000	67,200		.354,000		155,000	91,600	69,500	101,000
Chromium	50	-	1	QN	1	1080	1	10	01	<10	<10	<10	<10
Cobalt	20 📜	-		ΩN	1	7.		. 20		<50	<50	>0€	~20 ~30
Copper	1,000	1	1	ND	-	14	1	41.4	ı	<25	<25	<25	<25
Iron	1,000	1,100 ×	1,100 %   % 1,1100	2,500	870	068'9		2,390		831	<100	855	1,970
Lead	50	1	1	250	1	5	1	3	7.4	6.9	5.1	4.8	4.3
Magnesium	Ä			370,000	280,000	465,000		370,000	E Z	274,000	216,000	288,000	264,000
Manganese	200	1,000	2,900	520	7,500	162	-	1,460	1	1,230	1,040	590	557
Mercury	2					0.07	41	0.2	7.0	<0.20	<0.20	<0.20	<0.20
Molybdenum	1,000	1	1	ND		56.8	1	10	-	29.3	91	16.5	<10
Nickel	200			ΩN		251	7	.07	2/2/2	O <b>†&gt;</b>	<40	<40	<40 <u>*</u> ,
Potassium	E	1	1	20,000	36,000	62,900	-	45,400		009'51	73,000	87,400	89,000
Selenium	50		1.	QN	1	2.2		2	6.2	<5.0	<5.0	<5.0	<5.0.
Silver	50	-	;	QN	-	10	-	01	10	<10	<10	<10	<10
Sodium	NE	***	-	6,200,000	4,500,000	4,720,000	-	4,390,000	**************************************	2,610,000	2,210,000	2,220,000	2,790,000
Zinc	10,000	-	-	ND	-	14.5	1	74.8	1	42.1	52.6	132	20.7
Inorganics (molf.)													
morganics (mg/L)		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	000		į		2011	2000	000	0000	0.00	0000	0000
Alkalinity	NE	1、1、1、1、1、1、1、1、1、1、1、1、1、1、1、1、1、1、1、	4200	1	24	1	4420	.5030	4920	1880	2150	2580	3380
Chloride	250	-	440	610	780	:	318	726	908	261	147	165	4
Nitrate+Nitrite	10	5,	10	ΝΩ	0.2	I	4		20	0.7	0.7	9:0	0.36
Sulfate	909	6,300	6,200	9,600	01	!	5,450	8,260	7,760	4,920	4,160	3,980	3,590
TDS	1,000 😁 💉	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	13,800	18,000	17,000		13,200	17,900	17,000	11,000	7,820	8,200	9,420

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# SUMMARY OF HISTORICAL GROUNDWATER METALS AND INORGANICS EL PASO CORPORATION - SAN JUAN RIVER PLANT SITE

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	NMWQCC	MW-8	MW-8	6-WW	6-WM	MW-9	6-WW	6-WW	6-WW	6-WM	6-WW	6-WM
rarameter	Standard	8/28/2009	8/26/2010	11/30/1999	4/10/2000	6/29/2000	9/29/2000	12/21/2000	3/27/2001	6/27/2001	9/25/2001	10/29/2001
Metals (µg/L)		vi										
Aluminum	5,000	5,340	5,210	1	1.	1	1	1.	-	***	7,000	3
Arsenic	100	12.2	30	-	ı	-	1	1	ł		ND	!
Barium	1,000	<200	<200	;			1	- 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	t	-	8.8	1
Cadmium	10	<4.0	<4.0	-	:	-	ı		-		ND	-
Calcium: 💮 🖈 🔭	NE	34,300 💒	36,200		7.8%						340,000	310,000
Chromium	50	13	18	:	;	t	ı		-		ND	1
Cobalt	50	< 20 *	<b>**</b> (<50	1					-			-
Copper	1,000	<25>	<25	1	!	1	;	1	;		31	1
Iron	1,000	3,070	3,830	2,200	2,700	850	1,200		1,400	3,700	3,300	130
Lead	50	3.9	8.7	1	!	1	ł	ı	;	1	200	1
Magnesium	NE	373,000	000,010,1	ł						-	310,000	270,000
Manganese	200	698	367	8,800	9,200	8,500	8,400	110	9,000	6,300	8,300	540
Mercury	2		<0.20	***	200	1	· •	L	***	•	The state of the s	1
Molybdenum	1,000	32.1	33.3	-	1	1	1	ŀ	1		ND	ı
Nickel:	200	<40	<200	1	ì	+	1		-		300	
Potassium	NE	85,600	226,000	;	1	-	1	:	-		12,000	43,000
Selenium*****	- 50	<u>~</u> ₹.0.\$>	7.5	ł	S. I.	- ' '	1				ND .	1
Silver	20	<10	<10	+	1	+	ł	-	1	-	ND	1
Sodium (	NE	2,850,000	2,800,000			-			***		4.3,900,000	4,800,000
Zinc	10,000	23.4	<100	1	1	-	-		1		530	
(Lone) or control	٠		5									
Albelinity	NE	3860	0500				7			ND		4000
Citient	INC	2000	007				***************************************	6 600 C C C C C C C C C C C C C C C C C		022	) ) (4)	230
Chloride	067	0.1>	0.15	1	1	1	1	1		0//	2,200	000
Nitrate+Nitrite	10	1.2	3	10	.5	5	2		S	<b>01</b>	QN	0.23
Sulfate	909	4,050	2,150	14,000	12,000	11,000	11,000	3,800	11,000	13,000	1	2,200
LDS	1,000	10,700	12,000	1	2.5		-	1	-	16,600	17,000	16,000

NE = Not established Bold = Parameter concentration exceeds the applicable New Mexico Water Quality Control Commission Groundwater Standard

# SUMMARY OF HISTORICAL GROUNDWATER METALS AND INORGANICS EL PASO CORPORATION - SAN JUAN RIVER PLANT SITE

Page 8 of 8

Domonoton	NMWQCC	6-WW	6-WW	6-WW	MW-9	6-WW	6-WW	6-WW	MW-9	6-WW	6-WM	6-MM
rarameter	Standard	8/15/2002	8/21/2009	8/26/2003	8/27/2004	8/24/2005	8/10/2006	8/23/2007	8/27/2008	8/28/2009	8/26/2010	11/9/2010
Metals (μg/L)				i								
Aluminum Segan	5,000	8,900	1	43,900		13,600	9,770	16,300	14,500	14,700	11,100	
Arsenic	001	8.8	1	6.1	5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	1
Barium	1,000	11.9	- 3	200	· 200	~500	<200	<200	<200	<200	<200	
Cadmium	10	8.4	:	9.4	8.1	6.8	8.2	<4.0	8.5	6.3	6.1	ı
Calcium, 👉 🚐	»»»	358,000		3.19,000		385,000	346,000:	108,000	.361,000	314,000	300,000	
Chromium	50	7.8	1	16.9	10.4	<10	<10	<10	<10	<10	<10	1
Cobalt	50	. 183	-	200		212	*193.	205	₹ 261	228	235	- 4
Copper	1,000	51.2	-	162	1	65	45.8	121	62.9	43	33.5	1
Iron	1,000	849 🐇	-	29,000	J'	4,390	1,480	6,330	3,660	8,930	7,400	-
Lead	50	5	1	13.5	7	11.1	8.7	8.4	5.1	6.5	14	1
Magnesium	R	258,000	1	270,000		282,000	244,000	289,000	276,000	245,000	244,000	-
Manganese	200	6,470	1	7,330	1	7,870	7,360	6,420	7,770	8,300	7,900	1
Mercury	2	0.13		0.2	0.2	<0.20	<0.20	<0.20	<0.20		<0.20	
Molybdenum	1,000	5	1	10	-	<10	<10	<10	<10	<10	<b>01&gt;</b>	1
Nickel	·ş> 200	295	*	335	(F/	see	> 307	318	~ 916 ×	336	391	
Potassium	NE	25,600	ı	23,000	-	25,900	23,800	23,700	28,000	24,600	19,100	1
Selenium	. 50	6.7	1	5	. 6.5	8'9	-:0.5>	<5.0	ા (0:\$>	<5.0	₹ £6	
Silver	50	2.9		10	10	<10	<10	<10	<10	<10	<10	1
Sodium	NE	4,490,000	1	3,980,000		4,650,000	3,720,000	3,590,000	3,760,000	3,930,000	4,080,000	-
Zinc	10,000	14.5	1	597	I	693	624	732	650	604	809	1
Inorganics (mall.)												•
Albeliaity (mg/L)	NE		1/2	* E*	> 10 * *	01	60,	36	1.9%	30	37	1
Curi Cu	200	E. L.E. Takes Anderson	(3)	~ ti		707	747	324	202	27		
Chloride	,		6/3	76/	909	79/	4/0	6//	000	1,440	000	1
+Nitrite	10	7.7	13	20	. 20	<0:050	<0.050	0.4	101	<0.10	<0.10	ا. د.
Sulfate	009	1	11,600	11,800	12,000	10,200	10,700	10,900	4,630	- 1	10,300	1
TDS	1,000		17,200	16,800	16,800 ×   17,400	18,400	11,000	16,500	16,200* >	ر 17,700	15,800	

NE = Not established

Bold = Parameter concentration exceeds the applicable New Mexico Water Quality Control Commission Groundwater Standard



2243 Main Avenue, Suite 3 Durango, Colorado 81301 T 970-385-1096 F 970.385.1873

# **Site Visit Memo**

To: Jed Smith

From: Ashley Ager

CC: File

Date: February 11, 2010

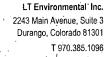
Re: San Juan River Plant

14:01: arrived at San Juan River Plant to pull ORC sock from MW-8. Slightly black in color, hard.





Project Name: Client: Project Manager:	MWH		- Samp	,	2/18/2010		Well No: Time:	MW-8 14:20	٠.
Measuring Point: Well Diameter:	4"	•	to Water: tal Depth: nn Height:	22.2	ft ·		to Product: Thickness:		ft
	☑ Bottom Va	lve Bailer	□ Double C	heck Valve Baile moval ☑ Stabili	er zation of Indi	. •		•	
				Water Volun		,			
Gal/ft x ft of w			lons	Oun	ices	i		to be removed	
1.01 x .65		0.65	5 x 3			<u> </u>	1	94	gal
Time (military)	pH (su)	SC (ms)	Temp (°F)	ORP (millivolts)	D.O. (%)	Turbidity (NTU)	Vol Evac.	Comments/Flow Rate	<u> </u>
14:25	8.07	10.95	58.6			<del> </del>	0.4	yellow tint	_
\$		10.00						,	
								,	
						<u> </u>			
·			<u> </u>	İ	<del></del>	<u> </u>			
								)	
				-					
Final: 14:45	810	11.67	57.90		.55%		0.9	brown, silty bailed dry:	
COMMENTS:	Sample is u	unpreserve	ed due to	reaction of v	vater with	HCl preserv	rative. Re-in	stall ORC socks	
Instrumentation:	☑ pH Meter	☐ DO Mor	nitor ☑ C	onductivity Met	er 🗹 Tem	perature Mete	r 🔲 Other		
Water Disposal:	Rio Vista								
Sample ID:	MW-8		Sa	mple Time:	14:47	-			
Analysis Requested:	☑ BTEX ☐ Other	□ VOCs	Alkalini	ty 🗆 TDS	☐ Cations [	Anions [	Nitrate 🗆 N	Nitrite	
Trip Blank:	021820	10TB02				Duplica	ate Sample:		





Project Name: Client: Project Manager:	MWH	٠.	Samp		San Juan R 2/18/2010 Troy Urban	)	Well No: Time:	MW-9 15:07
Measuring Point: Well Diameter:	4"	Depth to Tot ater Colum	al Depth:	25.12	ft		to Product: Thickness:	
	☑ Bottom Va	ive Bailer [	Double C	heck Valve Bail moval 🗹 Stabil	er ization of Indic			bail dry
			'	Water Volur	ne in Well			
Gal/ft x ft of w	ater	Gall	ons	Our	nces	١	Volume 1	to be removed
8.94 x .65		5.81	. x 3				1	7.43 gal
Time (military)	pH (su)	SC (ms)	Temp (°F)	ORP (millivolts)	D.O. (%)	Turbidity (NTU)	Vol Evac. gal	Comments/Flow Rate
15:10	4.30	9.61	58.5				1.25	yellow tint
1	4.28	10.06	58.5				2.5	yellow tint
	4.23	10.35	58.3				4	yellow tint
	4.40	10.55	58.6				5	yellow tint
15:20	4.70	10.18	58.6				6.9	yellow tint, bailed dry
Final: 15.32	4.72	10.00	58.60	A CONTROL OF THE CONT			7	yellow tint, bailed dry
COMMENTS:	Well bailed	d dry durin	g samplin	g.				
Instrumentation:	☑ pH Meter	DO Mon	nitor 🗹 C	onductivity Met	ter 🖸 Tem	perature Mete	r 🗆 Other	<u> </u>
Water Disposal:	Rio Vista		·			<i>~</i> .		
Sample ID:	MW-9	•	. Sa	imple Time:	15:25	- ·		
Analysis Requested:	☑ BTEX ☐ Other	□ vocs	☐ Alkalini	ty 🗆 TDS	☐ Cations [	Anions C	Nitrate ' 🔲 I	Nitrite
Trip Blank:	021820	10TB02		•		Duplica	ite Sample:	



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

### WATER LEVEL DATA

Project Name: San Juan Basin Groundwater	Date:		2/18/2010
	-	 	

Project Manager: Ashley Ager

Client: MWH

Site Name: San Juan River Plant

Well	Time	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Volume Removed	Comments
MW-4	1:57 PM		52.46	-	-	
MW-6		-	31.09	-	- ,	
MW-8		-	21.19	-	· <b>-</b>	
MW-9		-	16.18	<u>-</u>	-	,
W-2		-	56.1	-		

Comments		
Re-installed ORC socks in MW-8	· · · · · · · · · · · · · · · · · · ·	_
large poly pipe is blocking truck access to MW-	9 - can this be removed?	
Signature: Achley / Ager	Date: 2/19/2010	





Project Name:		asin				River Plant	-		_
Client:			. ,		5/26/2010		Time:	9:22	
Project Manager:	Ashley Age	r	Samp	ler's Name:	Troy Urbar	n		. ,	<u></u> .
							σ,		
								<u> </u>	
Measuring Point:	тос	Depth 1	to Water:	13.72	ft	Depth	to Product:		ft
Well Diameter:	4"	Tot	al Depth:	22.2	ft	Product	Thickness:		ft
	Wa	ater Colum	n Height:	. 8.48	ft				
	•				•	_			
Sampling Method:	Cuban amili	I- D	7		wishelbis Dosses	o 🗌 Other			
	_					) Li Ottlei			_
	☑ Bottom Va	lve Bailer L	☐ Double C	heck Valve Bail	er	:			
Criteria:	☑ 3 to 5 Casi	na Volumes a	of Water Rei	moval ☑ Stabili	zation of India	cator Paramete	ers 🗸 Other	bail dry	
	_ 5 to 5 casi	ng volunies (	or trucer iter	movai 🗀 Stabili		cator raramete	.15 L3 Other,		
		,		Water Volun				` .	
Gal/ft x ft of w		Gall		Our	ices	<u> </u>		to be removed	
8.48 x .65		5.51	. x 3				16	5.53	ga
Time	рН	SC	Temp	ORP	D.O.	Turbidity	Vol Evac.	Comments/Flow R	
(military)	(su)	(ms)	(°F).	(millivolts)	(%)	(NTU)	gal	Comments/Flow K	ate
9:30	6.73	2.96	58.5				1	light gray	
0.00	7.28	2.62	57.3			<del> </del>	2	brown, silty	
	7.29	2.25	57.4				3	brown, silty	
	7.33	2.04	57.7				5	brown, silty	
·	7.45	4.52	58.5			-	10	bailing down	
(									
)			·						
			•						
> NAMES OF THE PARK AND A CONTRACT CONT	SANGAAAAAIIAHHHAAAAAAA 20 oo	rhiterhanelyl akoasca mwynaeth	TOTAL SHAREST HARRIST	L constitutional research von constitution and	o" nuite week." never because of the	ZEO MESEN III III II	condition balance in the state of the state	ATTN SHIPAT, APPRA HISISHIN A REQUIR HEQUIL PLAN Y, AL AND RECORDERATE COS.	AND ORDER OF A PART OF THE
Final:									
9:52	7.59	3.99	<b>58.50</b>	30 30 4 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5			10.6	brown, silty, bailed d	ry
COMMENTS:			g samplin	g. Sample is	unpreserv	ed due to re	eaction of H	Cl preservative with	
	groundwat	er.							
Instrumentation:	☑ pH Meter	☐ DO Mon	itor 🗹 C	onductivity Met	er 🗹 Tem	perature Mete	r 🗌 Other		
							,	·	-
Water Disposal:	Rio Vista							•	
Sample ID:	M/M/_Q		′ <b>C</b> a	mple Time:	9.45				
Janiple ID.	14144-Q		, Ja	mpic mile.	J.7J	- '	•		
Analysis Requested:	☑ RTEV	□ vocs	☐ ∆lkalini	ty □ TDS	☐ Cations [	Π <sub>Anione</sub> Γ	Nitrate □ N	Nitrite	
, o.oequebted.		□ vocs	المالم المالم	4 L. 103	L. Cations [	LI AUTOUIS L	Jimuate LJ P	violite La Fietais	
•	Other .		<del>-</del>						
Trip Blank:	052620	10TB01				Duplica	ite Sample:		





Project Name: Client: Project Manager:	MWH		- - Samp		5/26/2010	)	Well No:	
Measuring Point: Well Diameter:	4"		to Water: tal Depth: nn Height:	22.1	ft		to Product: : Thickness:	
	☑ Bottom Va	lve Bailer	☐ Double C	Check Valve Baild	er zation of Indi			bail dry
				Water Volun		1		·
Gal/ft x ft of w			lons	Our	ices			to be removed
5.74 x .65		3.73	3 x 3			<u> </u>	13	1.19、 ga
Time (military)	pH (su)	SC (ms)	Temp (°F)	ORP (millivolts)	D.O. (%)	Turbidity (NTU)	Vol Evac.	Comments/Flow Rate
8:43	4.24	8.90	56.3		•		1.25	yellow tint
	4.41	8.90	56.3	,			2.5	yellow tint
	4.58	8.96	56.7				3.75	yellow tint
	4.71	9.19	56.8				5	yellow tint
, ,	1.7.	3.23	30.0	1				,
			-					
				<u> </u>			1	
						<u> </u>		
						<u>.</u>		
	'							
Final:			118048414468		HT LANGER	difficulting		
	5.15	8.32	57:20				7.5	yellow tint, bailed dry
AND THE RESERVE OF THE PROPERTY OF THE PERSON NAMED OF THE PERSON	INSTRUCTION TO THE PARTY	- vide la vide a common de de la	AND IN THE PART OF THE PARTY.	S STEELS (*1914 ; randomination of the	PORRESPONDANTANTA MAGAINETTS	I STITUTE AND STATE OF STREET OF	S CHARREST AND A CONTRACTOR	Anna for the Political Control Control of the Providence of the Anna Anna (R. Political Science)
COMMENTS:	Well bailed	l dry durin	g samplin	g.			,	
Instrumentation:	☑ pH Meter	☐ DO Mor	nitor 🗹 C	onductivity Met	er 🗹 Tem	perature Mete	r 🖸 Other	
Water Disposal:	Rio Vista		_					·
Sample ID:	MW-9		_ Sa	ample Time:	8:58	_		
Analysis Requested:	BTEX Other	· 🗆 vocs	☐ Alkalini	ity 🗆 TDS	☐ Cations [	☐ Anions ☐	Nitrate 1	Nitrite
Trip Blank:	052620:	10TB01				Duplica	ate Sample:	



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### WATER LEVEL DATA

Project Name: San Juan Basir	n Groundwater	Date:	5/26/2010
Project Manager: Ashley Ager		• •	· · · · · · · · · · · · · · · · · · ·
Client: MWH		·.	
Site Name: San Juan River	r Plant	•	

Well	Time	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Volume Removed	Comments
MW-4	8:23 AM	-	52.95	-	-	· · · · · · · · · · · · · · · · · · ·
MW-6,	,	_	21.5	-	-	
MW-8		-	13.72	-	-	
MW-9	Ŋ.	- '	16.36		-	
W-2		-	54.65	-	<del>-</del> .	
						,

Comments	5
----------	---

Re-installed ORC socks in MW-8 large poly pipe is blocking truck access to MW-9 - can this be removed?

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



2243 Main Avenue, Suite 3 Durango, Colorado 81301 T 970-385-1096 F 970.385.1873

# **Site Visit Memo**

To: Jed Smith

From: Ashley Ager

CC: File

**Date:** August 19, 2010

Re: San Juan River Plant

13:24 arrived at San Juan River Plant to pull ORC sock from MW-8. Slightly black in color, hard.

Unable to measure DO (meter is out on another project). Will measure before sampling.



Project Name: Client: Project Manager:	MWH		- - Sam		San Juan R 8/26/2010 Troy Urba	)	Well No:	MW-4 14:25		
Measuring Point: Well Diameter:	2"	•	to Water: tal Depth: nn Height:	56.91	ft .		to Product: : Thickness:	ft ft		
	☑ Bottom Va	llve Bailer	☐ Double C	heck Valve Bailer	ation of Indica	☐ Other		bail dry		
				Water Volum						
	Gal/ft x ft of water Ga			Oun	ces			o be removed		
4.59 x .16		0.73	3 x 3				2	2.2 ga		
Time (military)	pH (su)	SC (ms)	Temp (°F)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac.	Comments/Flow Rate		
14:32	6.48	3.17	65.3				0.25	yellow tint		
	6.55	3.25	64.2				0.5	dark gray, silty		
	6.53	3.21	66.9				0.75	dark gray, silty		
	6.63	3.19	65.7				0.9	bailing down, gray, black ppt		
					. ,					
Final: 14:48	6.65	65.10	3:10				1.2	dark gray, dry, black pot		
COMMENTS:	Well bailed		•	PRESENCE OF THE PRESENCE OF TH	1994	1	SERVICE CONTROL OF A STATE OF	Tan Walkamandan Satur Land L. Za maken Land		
Instrumentation: Water Disposal:		☐ DO Mor	nitor ☑ C	onductivity Mete	r 🗹 Tem	perature Mete	r 🗌 Other			
Sample ID:	MW-4		S	sample Time:	14:44		J			
Analysis Requested:	☑ BTEX ☑ Other	□ VOCs	☑ Alkalinii	ty ☑ TDS	☑ Cations [	☑ Anions ☑	Nitrate ☑ N	Nitrite		
Trip Blank:	082620	10TB01	TB01 Duplicate Sample:							



### T 970.385.1096



Project Name: Client: Project Manager:	MWH		Samp	• ,	San Juan R 8/26/2010 Troy Urbar		Well No: Time:	MW-6 10:50	-
Measuring Point: Well Diameter:	4"		to Water: al Depth: n Height:	42.13	ft		to Product: Thickness:		_ft _ft
	☑ Bottom Va	lve Bailer [	☐ Double C	neck Valve Bail	er ization of Indic		ers 🗹 Other		- -
,			1	Nater Volur	ne in Well				
Gal/ft x ft of w	ater	Gall	ons Ounces				Volume 1	to be removed	•
10.58 x .65		6.88	3 x 3				2	0.6	ga
	٠.			<u></u>			1		<u> </u>
Time (military)	pH (su)	SC (ms)	Temp (°F)	ORP (millivolts)	D.O. (%)	Turbidity (NTU)	Vol Evac.	Comments/Flow Rat	:e
11:07	6.55	8.31	64.2				1	light gray	
	6.40	8.39	63.0				2	light gray	
	5.97	8.48	63.1				3	light gray	
<u>.</u>	5.01	8.70	62.8				5	yellow tint	
	4.56	8.92	63.0				10	yellow tint	
	4.29	8.97	63.7				15	bailing down, yellow tin	
	4.30	8.94	63.7				19	bailing down, yellow tin	
	4.31	8.92	63.7				20	bailing down, yellow tin	
	4.31	0.32	03.7				20		
Final: 11:42	4:36	8.80	63.50	And the second of the second o	Control of the contro		21	bailing down, yellot tini	
COMMENTS:						,		·	
Instrumentation: Water Disposal:	·	□ DO Mor	nitor ☑ C	onductivity Met	ter 🖸 Temp	perature Mete	r 🗌 Other		_
Sample ID:	MW-6		: . Sa	mple Time:	11:46	-		· ·	
Analysis Requested:	☑ BTEX ☐ Other	□ VOCs	☑ Alkalini	ty ☑ TDS	☑ Cations [	☑ Anions 🖸	Nitrate 🗹 I	Nitrite 🗹 Metals	<b>-</b>
Trip Blank:	082620	10TB01	Duplicate Sample:						





Project Name: Client: Project Manager:	MWH		Location: San Juan River Plant  Date: 8/26/2010  Sampler's Name: Troy Urban				Well No: Time:	MW-8 12:01
Measuring Point: Well Diameter:	4" .	Depth Totater Colum	tal Depth:	22.2	ft		to Product: t Thickness:	<del></del>
	☑ Bottom Va	ive Bailer	□ Double C of Water Rer	heck Valve Bailer moval ☑ Stabiliz	r . ation of Indica		. ,	bail dry
		1		Water Volum	ne in Well			<u> </u>
Gal/ft x ft of w		Gall		Oun	ces	<u> </u>		to be removed
1.56 x 0.65	5	1.01	L x 3			<u> </u>	. 3	s.04 ga
Time (military)	pH (su)	SC (ms)	Temp	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac.	Comments/Flow Rate
12:04	7.72	7.44	62.8	·			1.7	light gray
	7.77	7.26	61.3			· · · · · · · · · · · · · · · · · · ·	1.25	bailing down, light gray
		,	)					
Final: 12:42	7.75	7.26	61.20	The day supposed the second of	19.65		19.	bailed,dry, light gray,
COMMENTS:		-		Sample is unp ited at . Re-in			ion of groui	ndwater with HCl
Instrumentation:	☑ pH Meter	DO Mor	nitor 🗹 C	onductivity Mete	r 🗹 Tem	perature Mete	r 🗌 Other	·
Water Disposal:	Rio Vista							
Sample ID:	MW-8		S	ample Time:	12:38	_		_
Analysis Requested:	☑ BTEX ☐ Other	□ vocs	.☑ Alkalinit	ty ☑ TDS	☑ Cations		Nitrate 🖸 I	Nitrite
Trip Blank:	082620	10TB01				Duplica	ate Sample:	· · · · · · · · · · · · · · · · · · ·





Project Name:	San Juan B	asin		Location:	San Juan R	iver Plant	Well No:	MW-9		
Client:				Date:	8/26/2010		Time:	12:56		
Project Manager:	Ashley Age	r	Sam	pler's Name:	Troy Urbar	)	•			
					i					
<ul><li>Measuring Point:</li></ul>	TOC	Denth :	to Water:	16.93	ft	Denth :	to Product:	· ft		
Well Diameter:			al Depth:				Thickness:			
wen blameter.		ter Colum				,	THICKITC33.			
٧	***	ater colum	iii iicigiic.	3.17		•		,		
Sampling Method:	☐ Submersib	le Pump [	☐ Centrifuga	al Pump 🔲 Peri	istaltic Pump	☐ Other				
)	☑ Bottom Va	lve Bailer (	Double C	heck Valve Bailer	-					
	ŧ			_			· <u>- ·</u>			
Criteria:	3 to 5 Casi	ing Volumes o	of Water Rer	moval 🗹 Stabiliza	ation of Indica	tor Parameter	s 🗹 Other	bail dry		
				Water Volum	o in Woll			·····		
Gal/ft x ft of w	ator	Gall		Oun			Volume	to be removed		
5.17 x 0.65			5 x 3	, Oun				0.08 gal		
3.17 X 0.00		3.50	, , , ,	l				, Bar		
T:	-11	CC	T	ODD	D.O.	T la ! al ! a				
Time	pΗ	SC ,	Temp	ORP	D.O.	Turbidity	Vol Evac.	Comments/Flow Rate		
(military)	(su)	(ms)	(°F)	(millivolts)	(mg/L)	(NTU)	gal			
13:10	3.76	9.01	61.0				1.25	yellow tint		
	3.74	8.99	60.8				2.5	yellow tint		
	3.76	9.19	59.6				3.75	yellow tint		
	3.77	9.04	60.6			,	5	yellow tint		
-										
				`						
				<u> </u>						
Final:	at bi vacautinen hithrandault	andacharachdeaghulfahtan		and decrees the same of the sa						
13.28	3.75	9.15	60.20		A wind the state of		8.25	bailed dry, yellow tint		
	J.7.J.	Ja 2322	.00.20.2	e per arreco.	製造機の排除機体できた。	APPER COLUMN	0.23	Contract of the Contract of th		
COMMENTS:	well bailed	drv while	purging.			<del></del>				
		,	F 0 0							
Instrumentation:	☑ pH Meter	☐ DO Mor	nitor 🗹 C	onductivity Mete	r 🗹 Tem	perature Mete	r 🗌 Other	-		
Water Disposal:	Rio Vista									
Canada ID.	N 414 / O			anda Tima.	12.20					
Sample ID:	IVIVV-9			ample Time:	15:26					
Analysis Requested:	□ percy			b. [7] 700	Cations 1	71 Amin	Alianna - T	Nikeika Motalo		
Analysis requested:	_	☐ VOCs	⊥ Alkaiini	ty 🖸 TDS	⊥ Cations [	≝ Anions . Ŀ	U Nitrate L⊴	Nitrite		
	☐ Other									
Trip Blank:	082620	10TB01		Duplicate Sample:						

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Project Name: Client: Project Manager:	MWH		Sam		8/26/2010		-	W-2 13:44	_ _ _
Measuring Point: Well Diameter:	2"		to Water: tal Depth: nn Height:	64.42	ft		to Product: t Thickness:		— ft — ft
Sampling Method: Criteria:	☑ Bottom Va	lve Bailer	☐ Double C	heck Valve Bailer , moval ☑ Stabiliz	r ation of Indica	Other  otor Parameter		bail dry	
				Water Volum	ne in Well				
Gal/ft x ft of w	/ater	Gal	lons	Oun	ces		Volume t	to be removed	
11.62 x .10	5	1.85	5 x 3				5	.57	ga
<u> </u>						•			
Time (military)	pH (su)	SC (ms)	Temp (°F)	ORP (millivolts)	D.O. (mg/L)	Turbidity (NTU)	Vol Evac.	Comments/Flow Ra	ite
13:51	6.93	3.59	65.5				0.25	clear	
	6.96	3.58	65.8				0.5	clear	
	6.70	3.46	64.9				0.75	clear	
	7.00	3.57	64.0				1	clear	
Final: 7	7.04	3.56	64:00				1.75	bailed dry, tan, silty	
COMMENTS:	Well bailed	d dry while	purging.				`		
Instrumentation:	☑ pH Meter	☐ DO Moi	nitor 🗹 C	onductivity Mete	r 🗹 Tem	perature Mete	r 🗆 Other		_
Water Disposal:	Rio Vista		-			-			
Sample ID:	W-2	-		Sample Time:	14:12	• •			
Analysis Requested:	☑ BTEX ☐ Other	□ VOCs	☑ Alkalini	ty 🖸 TDS	☑ Cations [	Anions 🖸	☑ Nitrate ☑ N	Nitrite  Metals (	_
Trip Blank:	082620	10TB01			•	Duplica	ate Sample:	•	



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

T 970.385.1096

### WATER LEVEL DATA

Project Name: San Juan Basin Groundwater

Date:

Project Manager: Ashley Ager

Client: MWH

Site Name: San Juan River Plant

Well	Time	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Volume Removed
MW-4	10:50 AM	-	52.32	-	-
MW-6		-	31.55	-	-
MW-8		-	20.64	_	-
MW-9		-	16.93	_	~
W-2		-	52.8	- '	-
	·				

Comments

Re-installed ORC socks in MW-8

large poly pipe is blocking truck access to MW-9 - can this be removed?

Signature: Ashley L. Ager 8/31/2010 Date:



LT Environmental Inc.

2243 Main Ave, Ste 3
Durango, Colorado 81301

7 970.385.1096

### WATER LEVEL DATA

8/26/2010

Com	iments
sample BTEX	
sample BTEX	
sample BTEX	,
sample BTEX	: .
sample BTEX	
,	



2243 Main Avenue, Suite 3 Durango, Colorado 81301 T 970-385-1096 F 970.385.1873

## **Site Visit Memo**

Jed Smith To:

Ashley Ager From: File

CC:

Date: November 3, 2010

Re: San Juan River Plant

15:52: pull seven (7) ORC socks from MW-8.

DO = 12.89 mg/LT = 59.9 degrees F





Project Name:	San Juan B	asin		Location:	San Juan R	liver Plant	Well No:	MW-8	
Client:	MWH		•	Date:	11/9/2010	)	Time:		
Project Manager:	Ashley Age	er	Samp	ler's Name:	Troy Urbai	n		ı	
۸									
<del>,</del>			_						
Measuring Point:	TOC	Denth	to Water:	21.6	ft	Denth	to Product:		ft
Well Diameter:			tal Depth:				Thickness:		—;; ·
		ater Colum				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
	n.		Ü	· <del></del>	i		1		
Campulina Markhadi									
Sampling Method:						Other			—
	☑ Bottom Va	lve Bailer	∟ Double C	theck Valve Bail	er				
Criteria:	☑ 3 to 5 Casi	ina Volumes (	of Water Re	moval 🗹 Stabil	zation of Indi	cator Paramete	ers 🗹 Other	bail dry	
			•				•	·	
•				Water Volur	ne in Well	ı			
Gal/ft x ft of w		Gall		Our	ices .			o be removed	
0.59 x .65		0.38	3 x 3				1.	15	gal
		Γ	I			<del>,                                      </del>	<del>,</del>		
Time	pН	SC .	Temp	ORP	D.O.	Turbidity	Vol Evac.	Comments/Flow F	Rate
(military)	(su)	(ms)	(°F)	(millivolts)	(%)	(NTU)	gal		
15:40	7.66	10.20	56.8				0.25	light tan, silty	
	7.70	10.19	56.5				0.4	light tan, silty	•
			,				,		
	<u> </u>	;							
	,		<u> </u>						
				, ·					
Final:	MINERANGERS OF PERSONS	urphisionical							E.J.C.
inal. 15:59	7 71	56.20	10.00				0.5	. light tank, bailed d	THE WALL
10.10.000	202200000000000000000000000000000000000	Man A. WANT	With The State of	- Propositional and the second	ALCOLO DE CALIBRATAMINADES	11111111111111111111111111111111111111	ile disemble	では、計算を企業事務できる。 から wa Sardaniko in ch	is Make an in
COMMENTS:	Well bailed	dry durin	g samplin	g. Sample is	unpreserve	ed.			
				1	·				
,			•						
Instrumentation:	☑ pH Meter	DO Mor	nitor 🗹 C	onductivity Met	er 🗹 Tem	perature Mete	r 🗌 Other	<u>.</u>	
Water Disposal:	Rio Vieta		•						
water Disposal.	NIO VISLA				e			•	• •
Sample ID:	MW-8	,	Sa	mple Time:	15:55			•	
·			•	-		•			
Analysis Requested:	☑ BTEX	□ vocs	☐ Alkalini	ty 🗆 .TDS	☐ Cations [	☐ Anions ☐	] Nitrate □ N	itrite 🗌 Metals	
	Other								_
Tuto Blo 1	110020					D			
Trip Blank:	110920	TOIROI				puplica	ate Sample:		





Project Name: Client: Project Manager:	MWH		Samp		San Juan R 11/9/2010 Troy Urbar	)	Well No: Time:	MW-9 15:02		
Measuring Point: Well Diameter:	TOC 4"		al Depth:		ft		to Product: Thickness:			
	☑ Bottom Va	lve Bailer [	☐ Double C	al Pump □ Pe heck Valve Baild noval ☑ Stabili	er			bail dry :		
			١	Nater Volun	ne in Well	•				
Gal/ft x ft of w	ater	Gall		Our			Volume to be removed			
6.92 x .65		4.49						3.49 ga		
Time	рН	sc	Temp	ORP	D.O.	Turbidity	Vol Evac.	(2)		
(military)	(su)	(ms)	(°F)	(millivolts)	(%)	(NTU)	gal	Comments/Flow Rate		
15:05	4.43	8.86	59.9				1.25	yellow tint		
	4.35	8.09	59.5				2.5	yellow tint		
	4.35	8.76	59.2				3.75	yellow tint		
	4.35	8.86	58.8			,	5	yellow tint, bailing down		
_										
								·		
Final: 15:25	4.90	9.30	57.70				8.4	yellow tint; bailed dry		
COMMENTS:	Well bailed	d dry durin	g samplin	g.						
Instrumentation: Water Disposal:		□ DO Mor	nitor 🗹 C	onductivity Met	er ☑ Tem	perature Mete	r 🗌 Other			
Sample ID:	MW-9		. Sa	mple Time:	15:20	_				
Analysis Requested:	☑ BTEX ☐ Other	□ VOCs	☐ Alkalini	ty 🗆 TDS	☐ Cations [	☐ Anions ☐	] Nitrate □ I	Nitrite		
Trin Rlank	110920	10TR01				Dunlica	ate Samnle:			



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

## WATER LEVEL DATA

Project Name: San Juan Basin Groundwater	Date:	11/9/2010
roject Manager: Ashley Ager		
Client: MWH	-	
Site Name: San Juan River Plant	<b>-</b>	

Well	Time	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Volume Removed	Comments
MW-4	2:50 PM	-	52.38	-		
MW-6		· -	32.13	-	· <b>-</b>	
MW-8		_	1.6	-	· <u>-</u>	Static. Sample BTEX, Replace ORC socks
MW-9		-	15.28	<del>-</del>	-	Sample BTEX
W-2		-	51.45	-	<u>}_</u>	
√.					•	

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	1	ш					1

Re-installed ORC socks in MW-8	
large poly pipe is blocking truck access to MW-9 -	can this be removed?
Signature: Ashley L. Ager	Date: 11/12/2010





02/22/10







**Montgomery Watson** 

San Juan Basin River Plant Sites Project (SJRP) Project

WO 94292

Accutest Job Number: T47887

Sampling Date: 02/18/10

### Report to:

**MWH Americas** 1801 California St. Suite 2900 Denver, CO 80202 jed.smith@mwhglobal.com

ATTN: Jed Smith

Total number of pages in report: 16





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 Carrevaro 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.



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2







### Sample Summary

**Montgomery Watson** 

Job No:

San Juan Basin River Plant Sites Project (SJRP) Project Project No: WO 94292

Sample Number	Collected Date		Received	Matri Code		Client Sample ID
T47887.1	02/18/10	07:00 TU	02/1,9/10	AQ	Trip Blank Water	180210/TB02
T47887-2	02/18/10	14:47 TU	02/19/10	AQ	Ground Water	SJRP/MW-8
T47887-3	02/18/10	15:25 TU	02/19/10	AQ	Ground Water	SJRP MW-9





### SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: Montgomery Watson

Job No

T47887

Site:

San Juan Basin River Plant Sites Project (SJRP) Project

Report Date

2/22/2010 3:45:49 PM

2 Sample(s), 1 Trip Blank(s) and 0 Field Blank(s) were collected on 02/18/2010 and were received at Accutest on 02/19/2010 properly preserved, at 0.8 Deg. C and intact. These Samples received an Accutest job number of T47887. 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 GC By Method SW846 8021B

Matrix AQ

Batch ID: GKK1653

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T47887-2MS, T47887-2MSD were used as the QC samples indicated.
- Matrix Spike Recovery(s) for o-Xylene are outside control limits. Probable cause due to matrix interference.

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











## Sample Results

Report of Analysis

Client Sample ID: 180210 TB02

Lab Sample ID:

T47887-1

Date Sampled:

02/18/10

Matrix:

AQ - Trip Blank Water. SW846 8021B

DF

1

Date Received:

02/19/10

Method: Project:

San Juan Basin River Plant Sites Project (SJRP) Project

Percent Solids: n/a

Run #1

File ID KK034706.D Analyzed 02/20/10

Prep Date n/a

Report of Analysis

By

FΪ

Prep Batch

**Analytical Batch** 

**GKK1653** n/a

Run #2

Purge Volume

Run #1

5.0 ml

Run #2

### Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7 95-47-6	Benzene Toluene Ethylbenzene Xylenes (total) o-Xylene m,p-Xylene	ND ND ND ND ND	1.0 1.0 1.0 2.0 1.0	0.36 0.28 0.25 0.93 0.36 0.57	ug/l ug/l ug/l ug/l ug/l ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limi	its	
460-00-4 98-08-8	4-Bromofluorobenzene aaa-Trifluorotoluene	93% 114%		58-13 73-13		



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





### Report of Analysis

By

FI

Page 1 of 1

Client Sample ID: SJRP MW-8

Lab Sample ID:

T47887-2

AQ - Ground Water

Date Sampled: 02/18/10 Date Received:

Matrix: Method:

SW846 8021B

DF

1

Prep Date

n/a

02/19/10

Project:

San Juan Basin River Plant Sites Project (SJRP) Project

Analyzed

02/20/10

Percent Solids: n/a

n/a

Prep Batch

Analytical Batch GKK1653

Run #1 Run #2

KK034709.D

Purge Volume

Run #1

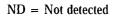
5.0 ml

File ID

Run #2

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL `	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7 95-47-6	Benzene Toluene Ethylbenzene Xylenes (total) o-Xylene m,p-Xylene	ND ND ND ND ND ND	1.0 1.0 1.0 2.0 1.0	0.36 0.28 0.25 0.93 0.36 0.57	ug/l ug/l ug/l ug/l ug/l ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
460-00-4 98-08-8	4-Bromofluorobenzene aaa-Trifluorotoluene	94% 111%		58-1 73-1		



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



### Report of Analysis

By ,

FΙ

Page 1 of 1

Client Sample ID: SJRP MW-9

T47887-3

Date Sampled:

02/18/10

Lab Sample ID: Matrix:

AQ - Ground Water

Date Received: 02/19/10

Method:

SW846 8021B

DF

1

Percent Solids: n/a

Prep Date

n/a

Project:

San Juan Basin River Plant Sites Project (SJRP) Project

Analyzed

02/20/10

Prep Batch n/a 🔪

Analytical Batch GKK1653

Run #1 Run #2

Purge Volume

KK034716.D

File ID

Run #1

Run #2

Purgeable Aromatics

5.0 ml

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7 95-47-6	Benzene Toluene Ethylbenzene Xylenes (total) o-Xylene m,p-Xylene	70.7 ND 9.7 5.2 ND 4.9	1.0 1.0 1.0 2.0 1.0	0.36 0.28 0.25 0.93 0.36 0.57	ug/l ug/l ug/l ug/l ug/l ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limi	its	
460-00-4 98-08-8	4-Bromofluorobenzene aaa-Trifluorotoluene	96% 118%		58-1 73-1		

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**

Laborate											FEE P	Trackin 09	8/	19 5	20	7	Bottle C	rder Co	ntrol #			
10165 Harwin, Suite	150 - Houston, TX	77036 -	- 713-27	1-470	00 fa	x: 7	13-2	271-	477	0	Accute	rt Quete	1	/	0,0	-	Accutes	t Job 8	4	75	·X	7
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Client / Reporting Inform	ation Economics	<b>计划的图像</b>	≱it≎ Pro	ject Inf	ormatic	n E		riens		<b>美国的</b>						loque	sted A	alyse	S	333	55.55	Matrix Codes
Company Name		Project N	ame / No.									Γ			- 1		1				1	DW - Drinking Water
MWH		EPTPC	San Juan	River F	Plant 2	009-20	110				o-xylene	1			Į.		١.			1		GW - Ground Water
Project Contact	E-Mail '	Bill to				Inv	olce A	Attn.			בּֿ ו	l		!	- 1					1		WW - Wastowator
Jed Smith jed	.smith@mwhglobal.com	El Paso	Corp			Norm	a Ra	mos			3	1							l	1		80 - Solf
Address		Address									ক	1										SL - Sludge
1801 California Street, Suite 2900			ouisiana St	reet, R	m S19	04B.					ثة ا	1	1					i	ļ	l l		01-CH
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Turnaround Time ( Business	days)		温度を対応する	Date De	idenevile	informa	tion	等的数	<b>创作</b>	September 1	<b>新越越</b>	英规型	形型的	被警路		Con	rments	Remar	rks	$\Box$	大学等	Marie Company
X 10 Day STANDARD	Approved By: Date:		Comme	rcial "A"	•	п	CRCP-1	3				ì					if samp	los aro	receiv	ed unr	reserv	ed, please notify
7 Day			X Comme	rcial "B"	•	El El	OD Fo	mat_				<u> </u>					MWH	egardin	g hold	ing tim	netti	
4 Day RUSH			Reduce	d Tier 1		o	har_			<u> </u>												
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2 Day EMERGENCY												l										
1 Day EMERGENCY			Commer	clal "A" :	= Result	a Only			•			ŀ										
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5	Date IIIn	•	c Sy.				- 1		,			. (4241)	0							-		65

T47887: Chain of Custody Page 1 of 3



# <u>:</u>

## 4

SAMPLE INSPECTION FOR	KIVI
Accutest Job Number: 747887 Client: MWH  # of Coolers Received: 1 Thermometer #: 1R Temp	Date/Time Received: 2/19/10 9:/5
Cooler Temps: #1: 0.8 #2: #3: #4: #5:	· · · · · · · · · · · · · · · · · · ·
Method of Delivery: FEDEX UPS Accutest Courier Greyhound  Airbill Numbers: 8709 8619 5207	Delivery Other
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 Analyses unclear or missing COC not properly executed  Sample Jackies missing or illegible ID on COC does not match label(s) D/T on COC does not match label(s) Sample Bottles revd but no analysis on COC Sample D/T unclear or missing Bottles missing for requested analysis Insufficient volume for analysis Sample received improperly preserved  Summary of Discrepancies:	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 ktts? Number of lab-filtered metals?
TECHNICIAN SIGNATURE/DATE: COULD 2 1910 INFORMATION AND SAMPLE LABELING VERIFIED BY: CORRECTIVE ACTION Client Representative Notified: By Accutest Representative: Client Instructions:	Date:
	•

T47887: Chain of Custody Page 2 of 3

#### SAMPLE RECEIPT LOG

747881

DATE/TIME RECEIVED:

2.19.10 9.15 AM

CLIENT: MWH

INITIALS: 9

COOLER#	SAMPLE ID	FIELD ID	DATE	MATRIX	VOL	BOTTLE#	LOCATION	PRESERV	۰P	Н
	1	Trip Blank	2-3-10	aw	40m1	1-2	VRIE	1 2 3 4	<2	>12
	2	STRP MW-8	2.18-10 14:47		40m1	1-3	WEF		<2	>12
	3	STRP MW.9	2-18-10 15:25		40m1	1-3	URZF	1 (2) 3 4	<2	>12
-								1 2 3 4	<2	>12
								1 2 3 4	<2	>12
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	· · · · · · · · · · · · · · · · · · ·							1 2 3 4 5 6 7 8	<2	>12
								1 2 3 4 5 6 7 8	<2	>12
		<u> </u>						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

T47887: Chain of Custody Page 3 of 3









GC Volatiles

ঞ

QC Data Summaries

Includes the following where applicable:

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

Account:

MWHCODE Montgomery Watson

Project:

San Juan Basin River Plant Sites Project (SJRP) Project

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GKK1653-MB	KK034704.D	1	02/20/10	FI	n/a	n/a	GKK1653
					·		

The QC reported here applies to the following samples:

Method: SW846 8021B

T47887-1, T47887-2, T47887-3

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2 100-41-4 108-88-3 1330-20-7 95-47-6	Benzene Ethylbenzene Toluene Xylenes (total) o-Xylene m,p-Xylene	ND ND ND ND ND	1.0 1.0 1.0 2.0 1.0	0.36 0.25 0.28 0.93 0.36 0.57	ug/l ug/l ug/l ug/l ug/l ug/l
CAS No.	Surrogate Recoveries		Limi	ts	
460-00-4 98-08-8	4-Bromofluorobenzene aaa-Trifluorotoluene	95% 115%	58-12 73-13		



**MWHCODE Montgomery Watson** 

Project:

San Juan Basin River Plant Sites Project (SJRP) Project

Sample GKK1653-BS File ID DF KK034701.D1

Analyzed 02/20/10

Ву FΪ

Prep Date n/a

Prep Batch n/a

Analytical Batch

GKK1653

The QC reported here applies to the following samples:

Method: SW846 8021B

T47887-1, T47887-2, T47887-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2 100-41-4 108-88-3 1330-20-7 95-47-6	Benzene Ethylbenzene Toluene Xylenes (total) o-Xylene m,p-Xylene	20 20 20 60 20 40	20.1 19.8 20.0 59.0 19.7 39.2	101 99 100 98 99 98	86-121 81-116 87-117 85-115 87-116 84-116
CAS No. 460-00-4 98-08-8	Surrogate Recoveries  4-Bromofluorobenzene aaa-Trifluorotoluene	BSP 98% 115%	58	mits -125% -139%	





# Matrix Spike/Matrix Spike Duplicate Summary Job Number: T47887

Page 1 of 1

Account:

**MWHCODE Montgomery Watson** 

Project:

San Juan Basin River Plant Sites Project (SJRP) Project

Sample	File ID DF	Analyzed 02/20/10 02/20/10 02/20/10	By	Prep Date	Prep Batch	Analytical Batch
T47887-2MS	KK034711.D1		FI	n/a	n/a	GKK1653
T47887-2MSD	KK034712.D1		FI	n/a	n/a	GKK1653
T47887-2	KK034709.D1		FI	n/a	n/a	GKK1653
		r				

The QC reported here applies to the following samples:

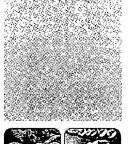
Method: SW846 8021B

T47887-1, T47887-2, T47887-3

CAS No.	Compound	T47887-2 ug/l Q	Spike ug/l	MS MS ug/l %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2 100-41-4 108-88-3 1330-20-7 95-47-6	Benzene Ethylbenzene Toluene Xylenes (total) o-Xylene m,p-Xylene	ND ND ND ND ND ND	20 20 20 60 20 40	23.7 119 21.9 110 23.2 116 68.4 114 23.3 117* 45.1 113	23.3 21.5 22.8 67.3 23.0 44.3	117 108 114 112 115	2 2 2 2 1	86-121/19 81-116/14 87-117/16 85-115/12 87-116/16 84-116/13
CAS No. 460-00-4 98-08-8	Surrogate Recoveries 4-Bromofluorobenzene aaa-Trifluorotoluene	MS  96%  112%*	MSD 96% 111%	T47887-2 94% 111%	Limits 58-125 73-139			



06/08/10







## Technical Report for

## **Montgomery Watson**

San Juan Basin River Plant Sites Project (SJRP)

WO94292

Accutest Job Number: T53401

Sampling Date: 05/26/10

### Report to:

MWH Americas 1801 California St. Suite 2900 Denver, CO 80202 jed.smith@mwhglobal.com

ATTN: Jed Smith

Total number of pages in report: 16





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 Canevaro **Laboratory Director** 

Paul K Carreva

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)

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

# **Sections:**



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<b>3.2:</b> T53401-2: SJRP MW-8	7
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5 3. Matrix Snike/Matrix Snike Dunlicate Summary	



2







## Accutest Laboratories

# Sample Summary

**Montgomery Watson** 

Job No:

T53401

San Juan Basin River Plant Sites Project (SJRP) Project No: WO94292

Sample Number	Collected Date	Time By	Received	Matri Code		Client Sample ID
T53401-1	§ 05/26/10	08:58 TU	05/27/10	AQ	Ground Water	SJRP:MW:93
T53401-2	05/26/10	09:45 TU	05/27/10	AQ	Ground Water	SJRP MW-8
T53401-3	05/26/10	07:00 TU	05/27/10	AQ	Trip Blank Water	260510 TB03





## SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: Montgomery Watson

Job No

T53401

Site:

San Juan Basin River Plant Sites Project (SJRP)

Report Date

6/7/2010 6:56:28 PM

2 Sample(s), 1 Trip Blank(s), were collected on 05/26/2010 and were received at Accutest on 05/27/2010 properly preserved, at 3 Deg. C and intact. These Samples received an Accutest job number of T53401. 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 AO

Batch ID: VF3871

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T53401-2MS, T53401-2MSD were used as the QC samples indicated.

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









# Sample Results

Report of Analysis



Page 1 of 1

Client Sample ID:

SJRP MW-9

Lab Sample ID:

T53401-1

AQ - Ground Water

Date Sampled: Date Received:

05/26/10 05/27/10

Matrix: Method:

SW846 8260B

Percent Solids:

Project:

San Juan Basin River Plant Sites Project (SJRP)

'n/a

Run #1

File ID F026174.D DF 1

Analyzed Ву 05/29/10 JĹ

Prep Date n/a

Prep Batch n/a

Analytical Batch VF3871

Run #2

Purge Volume

Run #1 Run #2 5.0 ml

#### Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7 95-47-6	Benzene Toluene Ethylbenzene Xylene (total) o-Xylene m,p-Xylene	91.8 ND 18.8 10.9 ND 10.9	2.0 2.0 2.0 6.0 2.0 4.0	0.50 0.43 0.55 1.7 0.53	ug/l ug/l ug/l ug/l ug/l ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	113% 106% 114% 106%	To a company of the c	75-1 87-1	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



Ву

JĹ

Page 1 of 1

Client Sample ID:

SJRP MW-8

Lab Sample ID:

T53401-2

AQ - Ground Water

DF

Date Sampled:

05/26/10

Date Received:

Prep Date

n/a

05/27/10

Matrix: Method:

SW846 8260B

Percent Solids:

n/a

Project:

San Juan Basin River Plant Sites Project (SJRP)

Analyzed

05/29/10

n/a

Prep Batch Analytical Batch VF3871

Run #1 Run #2

Purge Volume

Run #1

5.0 ml

File ID

F026175.D

Run #2

#### Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7 95-47-6	Benzene Toluene Ethylbenzene Xylene (total) o-Xylene m,p-Xylene	0.81 ND ND ND ND ND	2.0 2.0 2.0 6.0 2.0 4.0	0.50 0.43 0.55 1.7 0.53 1.1	ug/l ug/l ug/l ug/l ug/l ug/l	J
CAS No.	Surrogate Recoveries	Run# 1	Run# 2.	Lim	its	
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	111% 106% 113% 106%		75-1 87-1	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



Page 1 of 1

Client Sample ID:

260510 TB03

Lab Sample ID:

T53401-3

Matrix:

AQ - Trip Blank Water SW846 8260B

Date Sampled: Date Received:

05/26/10 05/27/10

Method: Project:

San Juan Basin River Plant Sites Project (SJRP)

05/29/10

Prep Date

n/a

Percent Solids: n/a

File ID DF Analyzed Ву JĽ 1

n/a

Prep Batch **Analytical Batch** 

VF3871

Run #1 Run #2

Purge Volume

F026173.D

Run #1

5.0 ml

Run #2

#### Purgeable Aromatics

CAS No.	Compound	Result	RL.	MDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7 95-47-6	Benzene Toluene Ethylbenzene Xylene (total) o-Xylene m,p-Xylene	ND 0.56 ND ND ND ND ND	2.0 2.0 2.0 6.0 2.0 4.0	0.50 0.43 0.55 1.7 0.53	ug/l ug/l ug/l ug/l ug/l ug/l	J
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	112% 103% 117% 107%		79-1 75-1 87-1 80-1	21% 19%	

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





Misc. Forms

**Custody Documents and Other Forms** 

Includes the following where applicable:

• Chain of Custody





## **CHAIN OF CUSTODY**

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T53401: Chain of Custody
Page 1 of 3



## 4.1

# 4

Accutest Job Number: T5340	Client: Midif	Date/Time Received: 5/27/10 0930
# of Coolers Received: The	rmometer #: 110 Tem	perature Adjustment Factor: -0.5°C
Cooler Temps: #1: 3.0°C #2:	#3:#5:	#6: #7: #8:
Method of Delivery: FEDEX UPS	Accutest Courier Greyhound	Delivery Other
Airbill Numbers:		
COOLER INFORMATION	SAMPLE INFORMATION	TRIP BLANK 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  Summary of Discrepancies:	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 revd 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 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?
TECHNICIAN SIGNATURE/DATE: INFORMATION AND SAMPLE LABELING VE	Sill 5/27/10 RIFIED BY: 4CL	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
	· · · CODDECTOR ACTION	TG

Client Representative Notified:
By Accutest Representative:

Client Instructions:

SAMPLE INSPECTION FORM

T53401: Chain of Custody

Page 2 of 3

Phone

11 of 16
ACCUTEST.

153401 Faboratories

## SAMPLE RECEIPT LOG

JOB#:	753401	DATE/TIME RECEIVED: 5/27/10 0930
CLIENT:	MWH	INITIALS: \( \( \)

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- 1	COOLER#	SAMPLE ID		DATE	MATRIX	VOL	BOTTLE#	LOCATION	PRESERV	· PH
		·	SJRP MW-9	5/26/10 0858	W	40ml	1-3	VR	1. 2 3 4	<2 >12
			STRP MW-8	11 0945	1,		1-3		1 2 3 4 5 6 7 8	<2 >12
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-	_						<del> </del>		5 6 7 8 1 1 2 3 4	
-						·			5 6 7 B	<2 >12
L							t		5 6 7 8	- 215

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

T53401: Chain of Custody Page 3 of 3









# GC/MS Volatiles

# QC Data Summaries

## Includes the following where applicable:

- Method Blank Summaries
- Blank Spike SummariesMatrix Spike and Duplicate Summaries



## Method Blank Summary

Job Number: T53401

Account:

MWHCODE Montgomery Watson

Project:

San Juan Basin River Plant Sites Project (SJRP)

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

T53401-1, T53401-2, T53401-3

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND -	2.0	0.50	ug/l	
100-41-4	Ethylbenzene	ND.	2.0	0.55	ug/l	
108-88-3	Toluene	ND	2.0	0.43	ug/l	•
1330-20-7	Xylene (total)	ND	6.0	1.7 .	ug/l	
	m,p-Xylene	ND 🐷 🚈	4.0	1.1	ug/l	
95-47-6	o-Xylene	ND .	2.0	0.53	ug/l	
CAS No.	Surrogate Recoveries		Limits			
1868-53-7	Dibromofluoromethane	112%	<b>79-122</b> 9	%		
17060-07-0	1.2-Dichloroethane-D4	101%	75-1219			
2037-26-5	Toluene-D8	116%	87-119			
460-00-4	4-Bromofluorobenzene	107%	80-1339	%		

5

Page 1 of 1

Account:

MWHCODE Montgomery Watson

Project:

San Juan Basin River Plant Sites Project (SJRP)

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

The QC reported here applies to the following samples:

Method: SW846 8260B

T53401-1, T53401-2, T53401-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	27.4	110	76-118
100-41-4	Ethylbenzene	25	25.4	102	75-112
108-88-3	Toluene	25	25.7	103	77-114
1330-20-7	Xylene (total)	75	74.5	99	75-111
, .	m,p-Xylene	50	49.8	100	75-112
95-47-6	o-Xylene	25	24.7	99	74-110
CAS No.	Surrogate Recoveries	BSP	Lir	nits	
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	109% 99% 114% 102%	75- 1. 87-	122% 121% 119% 133%	



# Matrix Spike/Matrix Spike Duplicate Summary Job Number: T53401

Account:

Project:

MWHCODE Montgomery Watson
San Juan Basin River Plant Sites Project (SJRP)

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

T53401-1, T53401-2, T53401-3

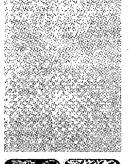
CAS No.	Compound	T53401- ug/l	2 Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	0.81	J	25 ·	28.3	110	28.2	\$5.000 per 35.000	0.4	76-118/16
100-41-4	Ethylbenzene	ND		25	22.4	90	22.2	89.	1	75-112/12
108-88-3	Toluene	ND		25	24.4	98 97	24.3	97	0 75	77-114/12
1330-20-7	Xylene (total)	ND		<b>75</b>	72.6	97	71.3	95	2	75-111/12
	m,p-Xylene	ND		50	47.9	96	47.1	94	2	75-112/12
95-47-6	o-Xylene	ND		25	24.6	98	24.2	97	2	74-110/11
CAS No.	Surrogate Recoveries	MS	•	MSD	T53	3401-2	Limits			
1868-53-7	Dibromofluoromethane	107%		107%	111	%	79-1229	6		
	1,2-Dichloroethane-D4	104%		103%*	106		75-1219			
2037-26-5	Toluene-D8	107%		108%	St. March 1971 Commencer	. 47.2	87-1199			
		SERVING THE PROPERTY OF THE PR		CONSTRUCTION OF THE PARTY OF TH	ASSETS AND A COLUMN TO A COLUM					
460-00-4	4-Bromofluorobenzene	101%		99%	106	% ***	80-1339	6		







09/13/10





Technical Report for

**EL PASO CORPORATION** 

MWHCODE:San Juan Basin River Plant Sites Project (SJRP)

Accutest Job Number: T58820

Sampling Date: 08/26/10

Report to:

MWH 1801 California Street Suite 2900 Denver, CO 80202 jed.smith@mwhglobal.com

ATTN: Jed Smith

Total number of pages in report: 48



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 Canevaro Laboratory Director

Paul K Carrevard

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)

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# Sample Summary

## **EL PASO CORPORATION**

MWHCODE:San Juan Basin River Plant Sites Project (SJRP)

Job No:

T58820

Sample Number	Collected Date	Time By	Received	Matri Code		٦ ·	Client Sample ID
T58820-1	08/26/10	07:00 TU	08/27/10	AQ	Trip Bla	ank Water	260810TB01
T58820-2	08/26/10	11:46 TU	08/27/10	AQ	Ground	Water	SJRP:MW-6
T58820-3	08/26/10	12:38 TU	08/27/10	AQ	Ground	Water	SJRP MW-8
T58820-4	08/26/10	13:26 TU	08/27/10	AQ	Ground	Water	SJRP:MW:9
T58820-5	08/26/10	14:12 TU	08/27/10	AQ	Ground	Water	SJRP\W-2
T58820-6	8 08/26/10	14:44 TU	08/27/10	AQ	Ground	Water	SJRP <sub>2</sub> MW-4





#### SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: EL PASO

**EL PASO CORPORATION** 

Job No

i, ;...

T58820

Site:

MWHCODE:San Juan Basin River Plant Sites Project (SJRP)

Report Date

9/13/2010 9:37:22 AM

5 Sample(s), 1 Trip Blank(s) were collected on 08/26/2010 and were received at Accutest on 08/27/2010 properly preserved, at 3.2 Deg. C and intact. These Samples received an Accutest job number of T58820. 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 AO

Batch ID: VC519

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T58696-1MS, T58696-1MSD were used as the QC samples indicated.

Matrix AQ

Batch ID: VE95

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T58851-4MS, T58851-4MSD were used as the QC samples indicated.

#### Metals By Method SW846 6010B

Matrix AQ

Batch ID: MP12721

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T58905-1DUP, T58905-1MS, T58905-1MSD, T58905-1SDL, T58905-1DUP were used as the QC samples for metals.
- RPD(s) for Duplicate for Arsenic, Cadmium, Chromium are outside control limits for sample MP12721-D1. RPD acceptable due to low duplicate and sample concentrations.
- RPD(s) for Serial Dilution for Aluminum, Arsenic, Cadmium, Chromium, Copper, Lead, Selenium, are outside control limits for sample MP12721-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
- MP12721-SD1 for Zinc: Serial dilution indicates possible matrix interference.
- T58820-3 for Nickel: Elevated reporting limit due to matrix interference.

#### Metals By Method SW846 7470A

Matrix AO

Batch ID: MP12702

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T58851-4DUP, T58851-4MS, T58851-4MSD were used as the QC samples for metals.

#### Wet Chemistry By Method EPA 353.2

Matrix AO

Batch ID:

GP10069

- All samples were distilled within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T59183-1BDUP, T59183-1BMS were used as the QC samples for Nitrogen, Nitrate + Nitrite.

#### Wet Chemistry By Method SM 2320B

Matrix AQ

Batch ID: GN25050

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T58820-2DUP, T58820-2MS were used as the QC samples for Alkalinity, Total as CaCO3.

#### Wet Chemistry By Method SM 2540C

Matrix AQ

Batch ID: GN25092

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T58929-5DUP were used as the QC samples for Solids, Total Dissolved.
- RPD(s) for Duplicate for Solids, Total Dissolved are outside control limits for sample GN25092-D1. RPD acceptable due to low duplicate and sample concentrations.

#### Wet Chemistry By Method SM 4500 CL C

Matrix AO

Batch ID: GP10079

- All samples were distilled within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T58820-3DUP, T58820-3MS were used as the QC samples for Chloride.

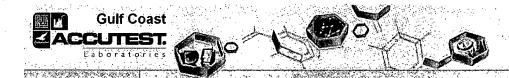
#### Wet Chemistry By Method SM 4500 SO4

Matrix AQ

Batch ID: GP10032

- All samples were distilled within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T58600-1DUP, T58600-1MS were used as the QC samples for Sulfate.

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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Page 1 of 1

Client Sample ID:

260810TB01

Lab Sample ID:

T58820-1

AQ - Trip Blank Water

DF

1

Date Sampled: Date Received:

Prep Date

n/a

08/26/10

SW846 8260B

08/27/10

Percent Solids: n/a

Method: Project:

Matrix:

MWHCODE:San Juan Basin River Plant Sites Project (SJRP)

By

MН

Analyzed

08/30/10

Prep Batch n/a

Analytical Batch VE95

Run #1 Run #2

E0001523.D

Run #1

Purge Volume 5.0 ml

File ID

Run #2

#### Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7 95-47-6	Benzene Toluene Ethylbenzene Xylene (total) o-Xylene m,p-Xylene	ACTION PROPERTY NAMED AND ADDRESS OF THE PARTY NAMED AND ADDRE	2.0 2.0 2.0 6.0 2.0 4.0	0.50 0.43 0.55 1.7 0.53	ug/l ug/l ug/l ug/l ug/l ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	89% 85% 97% 105%		79-1 75-1 87-1 80-1	21% 19%	

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



Client Sample ID:

SJRP MW-6

T58820-2

Date Sampled:

Prep Date

n/a

08/26/10

Lab Sample ID: Matrix:

AQ - Ground Water

Date Received:

08/27/10

Method:

SW846 8260B

DF

1

Percent Solids: n/a

Project:

MWHCODE:San Juan Basin River Plant Sites Project (SJRP)

Ву

MH

Analyzed

08/30/10

Prep Batch

n/a

**Analytical Batch** VE95

Run #1 Run #2

Purge Volume

E0001527.D

File ID

5.0 ml

Run #1

Run #2

#### Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7 95-47-6	Benzene Toluene Ethylbenzene Xylene (total) o-Xylene m,p-Xylene	ND ND ND ND ND ND	2.0 2.0 2.0 6.0 2.0 4.0	0.50 0.43 0.55 1.7 0.53	ug/l ug/l ug/l ug/l ug/l ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limi	its	
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluené-D8 4-Bromofluorobenzene	89% 85% 98% 106%		79-12 75-12 87-1 80-12	21% 19%	

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



Page 1 of 1

Client Sample ID: SJRP MW-6

Lab Sample ID:

T58820-2

Date Sampled:

08/26/10

Matrix:

AQ - Ground Water

Date Received: Percent Solids: n/a

08/27/10

Project:

MWHCODE:San Juan Basin River Plant Sites Project (SJRP)

### Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	19200	200	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Arsenic	< 5.0	5.0	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Barium	< 200	200	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Cadmium	11.4	4.0	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Calcium	331000	5000	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Chromium	< 10	🧗 10	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Cobalt	199	50	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Copper	42.0	25	ug/l	1 -	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Iron	4600	100	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Lead	15.1	3.0	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Magnesium	326000	<b>5000</b>	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Manganese	7200	15	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Mercury	< 0.20	0.20	ug/l	1	08/30/10	08/30/10 CN	SW846 7470A <sup>1</sup>	SW846 7470A <sup>4</sup>
Molybdenum	< 10	10	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Nickel	305	40	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A.5
Potassium	27600	5000	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Selenium	335	5.0	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Silver	< 10	10	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Sodium	3620000	50000	ug/l	10	09/01/10	09/07/10 TW	SW846 6010B <sup>3</sup>	SW846 3010A <sup>5</sup>
Zinc	692	20	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>

(1) Instrument QC Batch: MA5062 (2) Instrument QC Batch: MA5074 (3) Instrument QC Batch: MA5078 (4) Prep QC Batch: MP12702 (5) Prep QC Batch: MP12721



Client Sample ID: Lab Sample ID: SJRP MW-6

T58820-2

Date Sampled:

AQ - Ground Water

Date Received: 08/27/10 Percent Solids: n/a

MWHCODE:San Juan Basin River Plant Sites Project (SJRP)

#### General Chemistry

Matrix:

Project:

Analyte	Result	RL :	Units	DF	Analyzed	Ву	Method
Alkalinity, Total as CaCO3 Chloride Nitrogen, Nitrate + Nitrite Solids, Total Dissolved Sulfate	STREET COLOR	50 , 2.0 100	mg/l mg/l mg/l mg/l mg/l	1 50 20 1 20	08/31/10 15:00 09/10/10 11:00 09/07/10 17:04 08/31/10 09/03/10 08:15	SS CV BG	SM 2320B SM 4500 CL C EPA 353.2 SM 2540C SM 4500 SO4

Page 1 of 1

Client Sample ID:

SJRP MW-8

T58820-3

Lab Sample ID: Matrix:

AQ - Ground Water

Date Sampled: Date Received: 08/26/10

File ID

SW846 8260B

DF

**1** 

Prep Date

n/a

08/27/10

Percent Solids:

n/a

Method: Project:

MWHCODE:San Juan Basin River Plant Sites Project (SJRP)

Ву

MH

Analyzed

08/30/10

n/a

Prep Batch Analytical Batch VE95

Run #1

Run #2

Purge Volume

E0001528.D

Run #1 Run #2  $5.0 \, ml$ 

#### **Purgeable Aromatics**

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7 95-47-6	Benzene Toluene Ethylbenzene Xylene (total) o-Xylene m,p-Xylene	ND ND ND ND ND ND	2.0 2.0 2.0 6.0 2.0 4.0	0.50 0.43 0.55 1.7 0.53 1.1	ug/l ug/l ug/l ug/l ug/l ug/l	·
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	90% 86% 98% 107%	75-1 87-1	22% 21% 19% 33%		



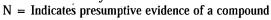
MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank





Page 1 of 1

## Report of Analysis

Client Sample ID: SJRP MW-8

Lab Sample ID: T58820-3

AQ - Ground Water

Date Sampled: 08/26/10 Date Received: 08/27/10

Percent Solids: n/a

Project:

Matrix:

MWHCODE:San Juan Basin River Plant Sites Project (SJRP)

#### Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	5210	∄ 200	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Arsenic	30.0	5.0	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Barium	< 200	200	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Cadmium	< 4.0	4.0	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Calcium	36200	ී 5000 ·	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Chromium	18.0	¥ 10	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Cobalt	< 50 *	<b>50</b>	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Copper	< 25	25	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Iron	3830	100	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Lead	8.7	3.0	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Magnesium	1010000	25000	ug/l	5	09/01/10	09/07/10 TW	SW846 6010B <sup>3</sup>	SW846 3010A <sup>5</sup>
Manganese	367	\$ 15	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Mercury	< 0.20	0.20	ug/l	1	08/30/10	. 08/30/10 CN	SW846 7470A <sup>1</sup>	SW846 7470A <sup>4</sup>
Molybdenum	33.3	10	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Nickel <sup>a</sup>	< 200	200	ug/l	5	09/01/10	09/07/10 TW	SW846 6010B <sup>3</sup>	SW846 3010A <sup>5</sup>
Potassium	226000	5000	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Selenium	7.5	5.0	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Silver	< 10	10	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>-2</sup>	SW846 3010A <sup>5</sup>
Sodium	2800000	50000	ug/l	10	09/01/10	09/07/10 TW	SW846 6010B <sup>3</sup>	SW846 3010A <sup>5</sup>
Zinc a	<100	100	ug/l	5	09/01/10	09/07/10 TW	SW846 6010B <sup>3</sup>	SW846 3010A <sup>5</sup>

(1) Instrument QC Batch: MA5062
(2) Instrument QC Batch: MA5074
(3) Instrument QC Batch: MA5078
(4) Prep QC Batch: MP12702
(5) Prep QC Batch: MP12721

(a) Elevated reporting limit due to matrix interference.

Page 1 of 1

Client Sample ID: SJRP MW-8

Lab Sample ID:

T58820-3

Date Sampled: 08/26/10

AQ - Ground Water

Date Received:

08/27/10

Percent Solids:

Project:

Matrix:

MWHCODE:San Juan Basin River Plant Sites Project (SJRP)

## General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	Ву	Method
Alkalinity, Total as CaCO3 Chloride Nitrogen, Nitrate + Nitrite Solids, Total Dissolved Sulfate	2004-00-00-00-00-00-00-00-00-00-00-00-00-	5.0 1.0 0.10 67 40	mg/l mg/l mg/l mg/l mg/l	1 1 1 1 4	08/31/10 15:00 09/10/10 11:00 09/07/10 15:40 08/31/10 09/03/10 08:15	SS CV BG	SM 2320B SM 4500 CL C EPA 353.2 SM 2540C SM 4500 SO4

Client Sample ID:

SJRP MW-9

Date Sampled:

08/26/10

Lab Sample ID: Matrix:

T58820-4 AQ - Ground Water

Date Received:

12

87-119%

80-133%

Prep Date

n/a

08/27/10

Method:

SW846 8260B

DF

1

Percent Solids: n/a

n/a

Project:

MWHCODE:San Juan Basin River Plant Sites Project (SJRP)

Ву

MН

Analyzed

08/30/10

Prep Batch Analytical Batch

VE95

Run #1 Run #2

Purge Volume

Toluene-D8

4-Bromofluorobenzene

Run #1

2037-26-5

460-00-4

5.0 ml

File ID

E0001529.D

Run #2

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7 95-47-6	Benzene Toluene Ethylbenzene Xylene (total) o-Xylene m,p-Xylene	72.3 ND 12.8 4.5 ND 4.5	2.0 2.0 2.0 6.0 2.0 4.0	0.50 0.43 0.55 1.7 0.53 1.1	ug/l ug/l ug/l ug/l ug/l ug/l	J
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
1868-53-7 17060-07-0	Dibromofluoromethane 1,2-Dichloroethane-D4	'87% 85%			22% ·	

106%

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





Client Sample ID: SJRP MW-9

Lab Sample ID: / T58820-4

AQ - Ground Water

Date Sampled: 08/26/10

Date Received: 08/27/10

Percent Solids: n/a

Project:

Matrix:

MWHCODE:San Juan Basin River Plant Sites Project (SJRP)

#### **Total Metals Analysis**

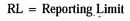
Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	11100	200	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Arsenic	< 5.0	5.0	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Barium	< 200	200	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Cadmium	6.1	4.0	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Calcium	300000	<b>5000</b>	ug/l	1	09/01/10		SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Chromium	<10	10	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Cobalt	235	50	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Copper	33.5	25	ug/l	1.	09/01/10		SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Iron	7400	100	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Lead	14.0	3.0	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Magnesium	244000	<b>5000</b>	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Manganese	7900	15	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Mercury	< 0.20	0.20	ug/l	1	08/30/10	08/30/10 CN	SW846 7470A <sup>1</sup>	SW846 7470A <sup>4</sup>
Molybdenum	: < 10 *	10	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Nickel	391	40	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	/SW846 3010A <sup>5</sup>
Potassium	19100	5000	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Selenium	9.7	5.0	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Silver	< 10	10	ug/l	1	09/01/10		SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Sodium	4080000	50000	ug/l	10	09/01/10		SW846 6010B <sup>3</sup>	SW846 3010A <sup>5</sup>
Zinc	608	20	ug/l	1	09/01/10		SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>

(1) Instrument QC Batch: MA5062

(2) Instrument QC Batch: MA5074

(3) Instrument QC Batch: MA5078 (4) Prep QC Batch: MP12702

(5) Prep QC Batch: MP12721



Client Sample ID: SJRP MW-9 Lab Sample ID:

T58820-4

Date Sampled: 08/26/10

Matrix:

AQ - Ground Water

Date Received: 08/27/10

Percent Solids: n/a

Project:

MWHCODE:San Juan Basin River Plant Sites Project (SJRP)

### General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	Ву	Method
Alkalinity, Total as CaCO3 Chloride	34:0	5.0 20	mg/l	1	08/31/10 15:00 09/10/10 11:00		SM 2320B
Nitrogen, Nitrate + Nitrite	380 < 0.10		mg/l mg/l	20 1	09/10/10 11:00 09/07/10 15:45		SM 4500 CL C EPA 353.2
Solids, Total Dissolved	15800 នេះ ២៤៤	91	mg/l	1	08/31/10	BG	SM 2540C
Sulfate	10300	200	mg/l	20	09/03/10 08:15	SS	SM 4500 SO4

By

AK

Page 1 of 1

Client Sample ID: SJRP W-2

Lab Sample ID:

T58820-5 AQ - Ground Water Date Sampled: Date Received:

08/26/10

Matrix: Method:

SW846 8260B

08/27/10

Project:

Analyzed

09/01/10

Percent Solids:

Prep Date

n/a

n/a

MWHCODE:San Juan Basin River Plant Sites Project (SJRP)

DF

1

Prep Batch

n/a

**Analytical Batch** VC519

Run #1 Run #2

Purge Volume

C0011731.D

Run #1 Run #2

5.0 ml

File ID

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7 95-47-6	Benzene Toluene Ethylbenzene Xylene (total) o-Xylene m,p-Xylene	ND ND ND ND ND ND	2.0 2.0 2.0 6.0 2.0 4.0	0.50 0.43 0.55 1.7 0.53 1.1	ug/l ug/l ug/l ug/l ug/l ug/l	`
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	86% 88% 95% 93%	to the state of th	75-1 87-1	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



Client Sample ID: SJRP W-2

Lab Sample ID:

T58820-5

AQ - Ground Water

Date Sampled: 08/26/10

Date Received: 08/27/10

Percent Solids: n/a

Project:

Matrix:

MWHCODE:San Juan Basin River Plant Sites Project (SJRP)

### Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	5180	§ 200	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Arsenic	< 5.0 × √	5.0	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Barium	< 200	<b>200</b>	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Cadmium	< 4.0	<b>4.0</b>	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Calcium	319000	<b>5000</b>	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Chromium	< 10	10	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Cobalt	< 50	<b>5</b> 0	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Copper	< 25	្ចិ 25	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Iron	4300	<sup>3</sup> 100	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Lead	5.1	<b>3.0</b>	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Magnesium	103000	5000	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Manganese	87:1	15	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Mercury	< 0.20	ੂੰ 0.20	ug/l	1	08/30/10	08/30/10 CN	SW846 7470A <sup>1</sup>	SW846 7470A <sup>4</sup>
Molybdenum	< 10	10	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Nickel	< 40	્રે 40	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Potassium	5290	<b>3</b> 5000	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Selenium	111	5.0	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Silver	< 10	10	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Sodium	1160000	<b>50000</b>	ug/l	10	09/01/10	09/07/10 TW	SW846 6010B <sup>3</sup>	SW846 3010A <sup>5</sup>
Zinc	34.4	§ 20	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>

(1) Instrument QC Batch: MA5062
(2) Instrument QC Batch: MA5074
(3) Instrument QC Batch: MA5078
(4) Prep QC Batch: MP12702
(5) Prep QC Batch: MP12721



Page 1 of 1

Client Sample ID: SJRP W-2

Lab Sample ID:

T58820-5

AQ - Ground Water

Date Sampled:

Date Received:

08/26/10

Percent Solids: n/a

08/27/10

Project:

Matrix:

MWHCODE:San Juan Basin River Plant Sites Project (SJRP)

General Chemistry

Analyte	Result	RL	Units	DF	Anályzed	Ву	Method
Alkalinity, Total as CaCO3 Chloride Nitrogen, Nitrate + Nitrite Solids, Total Dissolved Sulfate	290 19:5 5970	5.0 10 1.0 67 50	mg/l mg/l mg/l mg/l mg/l	1 10 10 1 5	08/31/10 15:00 09/10/10 11:00 09/07/10 16:47 08/31/10 09/03/10 08:15	SS CV BG	SM 2320B SM 4500 CL C EPA 353.2 SM 2540C SM 4500 SO4



Page 1 of 1

Client Sample ID: Lab Sample ID:

SJRP MW-4

T58820-6

Date Sampled:

08/26/10

Matrix:

AQ - Ground Water

DF

1

Date Received:

08/27/10

Method:

SW846 8260B

Percent Solids:

Prep Date

n/a

n/a

Project:

MWHCODE:San Juan Basin River Plant Sites Project (SJRP)

Ву

MH

Analyzed

08/30/10

Prep Batch Analytical Batch

VE95

Run #1 Run #2

Purge Volume

E0001530.D

Run #1

5.0 ml

File ID

Run #2

### Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7 95-47-6	Benzene Toluene Ethylbenzene Xylene (total) o-Xylene m,p-Xylene	ND ND ND ND ND ND	2.0 2.0 2.0 6.0 2.0 4.0	0.50 0.43 0.55 1.7 0.53 1.1	ug/l ug/l ug/l ug/l ug/l ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	91% 85% 97% 107%		75-1 87-1	22% 21% 19% 33%	

ND = Not detected

MDL - Method Detection Limit

RL = Reporting Limit

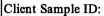
E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound





Matrix:

Project:

SJRP MW-4

Lab Sample ID:

T58820-6

Date Sampled:

08/26/10

AQ - Ground Water

Date Received: 08/27/10.

Percent Solids: n/a

MWHCODE:San Juan Basin River Plant Sites Project (SJRP)



Page 1 of 1

### **Total Metals Analysis**

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	3310	<b>200</b>	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Arsenic	17.5	5.0	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Barium	< 200	200	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Cadmium	< 4.0	4.0	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Calcium	228000	5000	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Chromium	< 10	10	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Cobalt	57.6	50	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Copper	58.9	25	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Iron	9930	100	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Lead	19.5	3.0	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Magnesium	100000	5000	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Manganese	5970	15	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Mercury	0.68	0.20	ug/l	1	08/30/10	08/30/10 CN	SW846 7470A <sup>1</sup>	SW846 7470A <sup>4</sup>
Molybdenum	< 10	10	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Nickel	203	40	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Potassium	7860	5000	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Selenium	7.6	5.0	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Silver	<10	10	uġ/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>
Sodium	1050000	50000	ug/l	10	09/01/10	09/07/10 TW	SW846 6010B <sup>3</sup>	SW846 3010A <sup>5</sup>
Zinc	28.7	20	ug/l	1	09/01/10	09/03/10 TW	SW846 6010B <sup>2</sup>	SW846 3010A <sup>5</sup>

(1) Instrument QC Batch: MA5062 (2) Instrument QC Batch: MA5074 (3) Instrument QC Batch: MA5078 (4) Prep QC Batch: MP12702 (5) Prep QC Batch: MP12721



Client Sample ID: SJRP MW-4

Lab Sample ID:

T58820-6

Date Sampled: 08/26/10

Matrix:

AQ - Ground Water

Date Received: 08/27/10

Percent Solids: n/a

Project:

MWHCODE:San Juan Basin River Plant Sites Project (SJRP)

### General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	Ву	Method
Alkalinity, Total as CaCO3 Chloride Nitrogen, Nitrate + Nitrite Solids, Total Dissolved Sulfate		5.0 10 0.10 29 40	mg/l mg/l mg/l mg/l mg/l	1 10 1 1 4	08/31/10 15:00 09/10/10 11:00 09/07/10 15:48 08/31/10 09/03/10 08:15	SS CV BG	SM 2320B SM 4500 CL C EPA 353.2 SM 2540C SM 4500 SO4



Misc. Forms

**Custody Documents and Other Forms** 

Includes the following where applicable:

• Chain of Custody





## **CHAIN OF CUSTODY**

Laboratories 10165 Housin Cuito 150 Houston TV	77026 712	271 4700	for.	717	271	4770		FED EX	Tracking	7	520	93	238	Battle On		ol Ø	:	
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Client / Reporting Information		Project Infor	nation	語が表現	<b>特性的</b>	253	i State	S SERVICE	的形式包			F	dues	sted Ana	alysos	925	negysy	Matrix Codes
Company Name	Project Name / No							۰ ا			2 4	1		- 1				DW - Drinking Water
MWH Project Contact E-Mail	EPTPC San J	Juan River Pla		-2010 Invoke				o-xylene	1 1	l le	3 B	- 1			l			GW - Ground Water WW - Wastewater
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T58820: Chain of Custody

Page 1 of 4





## **CHAIN OF CUSTODY**

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T58820: Chain of Custody

Page 2 of 4



## <u>:</u>

## 4

Accutest Job	Number: 758820	c	lient: <u>M</u>	WH			Date/Tin	ne Received:_	8/27/10	0930	,
# of Coolers	Received:	Therm	ometer #:_	JR04		Te	mperature	Adjustment F	actor:	3.0	
Cooler Temp	eratures (initial/adjusted	i): #1:	0.9	#2:	3.2.	#3:		#4:	#5:	:	
#6:	#7:	#8: _		#9:		#10		_#11	#12	2	
Method of De	livery: FEDEX	UPS	Accute	st Courier	Greyl	nound	Ďelivery	Other			
Cut	OLER INFORMATION tody seal missing or not intac operature criteria not met	. —	Sample VOC via	AMPLE INF containers reco is have headsp	eived broken pace		. E	Trip Blank on Trip Blank rec	COC but not reserved but not o	eceived	ON
CE	ice received in cooler  AIN OF CUSTODY  in of Custody not received		ID on Co	labels missing OC does not m COC does not i 'Bottles revd b	atch label(s) match label(	s)		Trip Blank not Received Wate Received Soil	r Trip Blank		
Ana	ple D/T unclear or missing lyses unclear or missing C not properly executed		Bottles r	listed on COC, missing for req ent volume for received impro	uested analy analysis	rsis	Num	iber of Encores? iber of 5035 kits iber of lab-filtere	?	· · · · · · · · · · · · · · · · · · ·	
- Trin Blank	Discrepancies: labeleck "Trip Blanh" but	lubaled a	60810 TB	al on ca	c .						
- Viule for 82	TRP MW-8 are not present of & STRP MW-8 500.00	nd	· · · · · · · · · · · · · · · · · · ·	50 A K)							·
- Added 13h	on & STRP MW. 8 500.	hoffle,	TAIS, MIS	086 - CAD- CBG	- <i>Addal 14</i>	NO3 to ST	RP AW4 50	und huttle be	1's, (Dil nut	bring PH	1 dololy d)
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- Tro Blank	elate and fine is 8/201	10 110 0	n vals b	1 8/26/10	0700 0	n COC.					
	SIGNATURE/DATE:	111	h	<b>-&gt;</b> /	27/18						
INFORMATIO	N AND SAMPLE LABEL	ING VERI	FIED BY:_		ZR 9	1271	<u> </u>				
• • •		• •	• <u>co</u>	RRECTI	VE AC	TIONS	, • •	• •	• • •	• .	• •
Client Repre	sentative Notified:						Date	<b>:</b>	·		
By Accutest	Representative:		•				Via	: Phone	Em	ail	
Client Instru	ictions:				•						
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SAMPLE INSPECTION FORM

T58820: Chain of Custody Page 3 of 4



# 4.1

4

### SAMPLE RECEIPT LOG

JOB#:		8820			DATE/TIM	E RECEIVED	: 8/27/	10 0	930		
CLIENT:	MWH	!				_ INITIALS	<u>M6</u>				
COOLER#	SAMPLE ID	FIELD ID	DATE		MATRIX	VOL	BOTTLE #	LOCATION	PRESERV	PF	 H
1	1			1130	WTB	40ml	1-2	UR	1 0 3 4	<del></del>	>
	2	Trip Blank STRP MW-6		1146	W	100041	1	3-F	Ø 2 3 4 5 6 7 8	<2 .	>
			1,513.		7	500ml	2	1-44	1 2 4 4	60	>
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	V	V	1			40ml	4-6	ur	5 6 7 8 1 Ø 3 4 5 6 7 8	<2	>
	3.	SJRP ML-8	8126/10	1238		lovent	1	3-F	6 2 3 4 5 8 7 8	<2	>
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	V	V				4001	4-6	UR	5 6 7 8 1 (2) 3 4 5 6 7 8	<2	,
$\top$	5	STRP W-2	8/26/10	1412		1 avom	1	3F	2 3 4 5 6 7 8	<2	>
						Soun/	2	1-MM	1 2 G 4 5 8 7 8	Q	>
	1,		1.			250ml	3	3-F	1 2 3 4	62	>
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71						asoul	3	3-F	1 2 3 B 5 6 7 8	6	>
V	V	V		<u> </u>	4	40,11	4-6	VR	1 Ø 3 4		>

PRESERVATIVES: 1: None 2: HCL 3: HNO3 4: H2SO4 5: NAOH 6: DI 7: MeOH 8: Other 8: 27-10

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

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GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike SummariesMatrix Spike and Duplicate Summaries



# Method Blank Summary Job Number: T58820

**ELPASOX EL PASO CORPORATION** 

Account: Project:

MWHCODE:San Juan Basin River Plant Sites Project (SJRP)

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VE95-MB	E0001508.D	1	08/30/10	MH	n/a	n/a	VE95
(							

The QC reported here applies to the following samples:

Method: SW846 8260B

T58820-1, T58820-2, T58820-3, T58820-4, T58820-6

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	2.0	0.50	ug/l	
100-41-4	Ethylbenzene	ND	2.0	0.55	ug/l	
108-88-3	Toluene	ND	2.0	0.43	ug/l	
1330-20-7	Xylene (total)	ND:	6.0	1.7	ug/l	
	m,p-Xylene	ND	4.0	1.1	ug/l	
95-47-6	o-Xylene	ND	2.0	0.53	ug/l	
CAS No.	Surrogate Recoveries		Limits			
1868-53-7	Dibromofluoromethane	90%	79-1229	%		
17060-07-0	1,2-Dichloroethane-D4	85%	75-121	%		
2037-26-5	Toluene-D8	97%	87-119	%		1
460-00-4	4-Bromofluorobenzene	104%	80-133	%		

Account:

Project:

ELPASOX EL PASO CORPORATION MWHCODE:San Juan Basin River Plant Sites Project (SJRP)

Sample VC519-MB	File ID C0011724.D	DF 1	Analyzed 09/01/10	By AK	Prep Date n/a	Prep Batch n/a	Analytical Batch VC519
			•				2
				•			

The QC reported here applies to the following samples:

Method: SW846 8260B

T58820-5

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	2.0	0.50	ug/l
100-41-4	Ethylbenzene	ND ·	2.0	0.55	ug/l
108-88-3	Toluene	ND ***	2.0	0.43	ug/l
1330-20-7	Xylene (total)	ND	6.0	1.7	ug/l
	m,p-Xylene	ND	<b>4.0</b>	1.1	ug/l
95-47-6	o-Xylene	ND	2.0	0.53	ug/l
CAS No.	Surrogate Recoveries		Limi	ts	
1868-53-7	Dibromofluoromethane	88%	79-12	20/	٠
17060-07-0		86%	75-12		
	,		87-11		
2037-26-5	Toluene-D8	97%	K895		
460-00-4	4-Bromofluorobenzene	93%	80-13	33%	



# Blank Spike Summary Job Number: T58820

Account:

Project:

ELPASOX EL PASO CORPORATION MWHCODE:San Juan Basin River Plant Sites Project (SJRP)

Sample	File ID	DF .	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VE95-BS	E0001507.D		08/30/10	MH	n/a	n/a	VE95
			•		:		

The QC reported here applies to the following samples:

Method: SW846 8260B

T58820-1, T58820-2, T58820-3, T58820-4, T58820-6

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	25.4	102	76-118
100-41-4	Ethylbenzene	25	25.8	103	75-112
108-88-3	Toluene	25	25.8	103	77-114
1330-20-7	Xylene (total)	75	78.8	105	75-111
	m,p-Xylene	50	52.7	105	75-112
95-47-6	o-Xylene	25	26.0	104	74-110
CAS No.	Surrogate Recoveries	BSP	Lir	nits	
1868-53-7	Dibromofluoromethane	94%		122%	
17060-07-0	1,2-Dichloroethane-D4	86%		121%	
2037-26-5	Toluene-D8	97%		119%	
460-00-4	4-Bromofluorobenzene	107%		133%	•



Account:

ELPASOX EL PASO CORPORATION

Project:

MWHCODE:San Juan Basin River Plant Sites Project (SJRP)

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VC519-BS	C0011722.D	1	08/31/10	AK	n/a	n/a	VC519

The QC reported here applies to the following samples:

Method: SW846 8260B

T58820-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	25.2	101	76-118
100-41-4	Ethylbenzene	25	24.2	97 * 🗺	75-112
108-88-3	Toluene	25	24.6	98	77-114
1330-20-7	Xylene (total)	<b>7</b> 5	70.7	94	75-111
	m,p-Xylene	50	47.7	95	75-112
95-47-6	o-Xylene	25	22.9	92	74-110
CAS No.	Surrogate Recoveries	BSP	Lir	nits	
1868-53-7	Dibromofluoromethane	88%	79-	122%	
17060-07-0	1,2-Dichloroethane-D4	86%	S	121%	
2037-26-5	Toluene-D8	98%	87-	119%	
460-00-4	4-Bromofluorobenzene	91%	<b>30</b> -	133%	

Page 1 of 1

Method: SW846 8260B

# Matrix Spike/Matrix Spike Duplicate Summary Job Number: T58820

Account:

**ELPASOX EL PASO CORPORATION** 

Project:

MWHCODE:San Juan Basin River Plant Sites Project (SJRP)

Sample T58851-4MS T58851-4MSD T58851-4	File ID E0001516.D E0001517.D E0001515.D	1	Analyzed 08/30/10 08/30/10 08/30/10	By MH MH MH	Prep Date n/a n/a n/a	Prep Batch n/a n/a n/a	Analytical Batch VE95 VE95 VE95
					*		

The QC reported here applies to the following samples:

T58820-1, T58820-2, T58820-3, T58820-4, T58820-6

CAS No.	Compound	T5885 ug/l	l-4 Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD	
71-43-2 100-41-4 108-88-3 1330-20-7 95-47-6	Benzene Ethylbenzene Toluene Xylene (total) m,p-Xylene o-Xylene	2.0 U 2.0 U 0.78 6.0 U 4.0 U 2.0 U	J	25 25 25 75 50 25	25.8 26.5 26.9 79.7 53.4 26.3	103 106 104 106 107 105	24.5 24.8 25.5 74.2 49.1 25.1	98 99 99 99 98 100	5 7 5 7 8 5	76-118/16 75-112/12 77-114/12 75-111/12 75-112/12 74-110/11	
CAS No.	Surrogate Recoveries	MS		MSD	T.S	58851-4	Limits		ů,		
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	91% 83% 97% 103%		90% 85% 96% 104%	91 86 97 10	%:2	79-122 75-121 87-119 80-133	% %		Λ.	

# Matrix Spike/Matrix Spike Duplicate Summary Job Number: T58820

Account:

Project:

ELPASOX EL PASO CORPORATION MWHCODE:San Juan Basin River Plant Sites Project (SJRP)

T58696-1MS C	Tile ID C0011728.D C0011729.D	_	Analyzed 09/01/10 09/01/10	By AK AK	Prep Date n/a n/a	Prep Batch n/a n/a	Analytical Batch VC519 VC519
	0011723.D	_	09/01/10	AK	n/a	n/a	VC519

The QC reported here applies to the following samples:

Method: SW846 8260B

T58820-5

CAS No.	Compound	T58696-1 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	2.0 U	25	20.9	84	20.1	80	4	76-118/16
100-41-4	Ethylbenzene	2.0 U	25	20.1	80	19.6	<b>78</b> ·	. 3 🗥	75-112/12
108-88-3	Toluene	2.0 U	25	20.9	84	19.7	79	6	77-114/12
1330-20-7	Xylene (total)	6.0 U	75	60.0	80	57.7	77	4	75-111/12
	m,p-Xylene	4.0 U	50	40.4	81	38.4	77	. 5	75-112/12
95-47-6	o-Xylene	2.0 U	25	19.5	78	19.3	77	11.44	74-110/11
CAS No.	Surrogate Recoveries	MS	MSD	Т5	8696-1	Limits	,		
1868-53-7	Dibromofluoromethane	87%	88%	89	<b>%</b> ****	79-1229	6		
17060-07-0		85%	85%	879	%	75-1219	-		
2037-26-5	Toluene-D8	97%	100%	TOUR SECTIONS ENGINEERING	% >	87-1199			4
460-00-4	4-Bromofluorobenzene	94%	93%	2016-2-27		80-133%	6		







ALL IN THE CHEMISTRY

## Metals Analysis

## **QC Data Summaries**

### Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
  Blank Spike and Lab Control Sample Summaries
  Serial Dilution Summaries



### BLANK RESULTS SUMMARY Part 2 - Method Blanks

Login Number: T58820
Account: ELPASOX - EL PASO CORPORATION

Project: MWHCODE:San Juan Basin River Plant Sites Project (SJRP)

QC Batch ID: MP12702 Matrix Type: AQUEOUS Methods: SW846 7470A

Units: ug/l

Prep Date:

508/30/10

Metal	RL	IDL	MDL	MB raw	final	
Mercury	0.20	.049	.05	-0.009	0 > <0.20 \	

Associated samples MP12702: T58820-2, T58820-3, T58820-4, T58820-5, T58820-6

Results < IDL are shown as zero for calculation purposes (\*) Outside of QC limits (anr) Analyte not requested

### MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T58820
Account: ELPASOX - EL PASO CORPORATION

Project: MWHCODE:San Juan Basin River Plant Sites Project (SJRP)

QC Batch ID: MP12702 Matrix Type: AQUEOUS' Methods: SW846 7470A

Units: ug/l

Prep Date:

08/30/10

Metal	T58851-4 Original		RPD	QC Limits	T58851-4 Original		Spike HGTXA	lot Q40 % Rec	QC Limits	
Mercurv	0.0	0.0	NC N	0-6.6	0.0	3.2	3	\$10637£	78-118	

Associated samples MP12702: T58820-2, T58820-3, T58820-4, T58820-5, T58820-6

Results < IDL are shown as zero for calculation purposes (\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits (anr) Analyte not requested



### MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T58820 Account: ELPASOX - EL PASO CORPORATION

Project: MWHCODE:San Juan Basin River Plant Sites Project (SJRP)

QC Batch ID: MP12702 Matrix Type: AQUEOUS Methods: SW846 7470A

Units: ug/l

Prep Date:

Metal	T58851-4 Original		Spikelot HGTXAQ40		MSD RPD	QC Limit	
Mercury	0.0	3.1	3	103.3	3.2	Ø.	ţ

Associated samples MP12702: T58820-2, T58820-3, T58820-4, T58820-5, T58820-6

Results < IDL are shown as zero for calculation purposes (\*) Outside of QC limits (N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

### · SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

U Login Number: T58820 Account: ELPASOX - EL PASO CORPORATION

Project: MWHCODE:San Juan Basin River Plant Sites Project (SJRP)

-QC Batch ID: MP12702 Matrix Type: AQUEOUS

Methods: SW846 7470A

Units: ug/l

Prep Date:

	BSP	Spikelot	QC		
Metal	Result	HGTXAQ40 % Rec	Limits		

Mercury

3.0

100:07 80-120

Associated samples MP12702: T58820-2, T58820-3, T58820-4, T58820-5, T58820-6

Results < IDL are shown as zero for calculation purposes (\*) Outside of QC limits (anr) Analyte not requested



## BLANK RESULTS SUMMARY Part 2 - Method Blanks

Login Number: T58820
Account: ELPASOX - EL PASO CORPORATION
Project: MWHCODE:San Juan Basin River Plant Sites Project (SJRP)

09/01/10

QC Batch ID: MP12721 Matrix Type: AQUEOUS Methods: SW846 6010B Units: ug/l

Prep Date:

					90 <b>30 access</b> (10 access (10 acc
Metal	RL	JDL	MDL	MB raw	final .
Aluminum	200	8.3	12	12.0	<<200°
Antimony	5.0	1	·′1		
Arsenic	5.0	1.7	1	1.2	<5:0 <sub>6</sub> t
Barium	200	. 97	3.4	0.0	<200
Beryllium	5.0	.056	.16		
Boron	100	1.4	7.8		
Cadmium	4.0	.11	.09	0.16	<4.00
Calcium	5000	7.4	25	25.7	<5000.
Chromium	10	.23	.27	-0.080	<10
Cobalt	50	.15	.22	-0.18	<50
Copper	25	1.1	5.9	-1.0	<25.
Iron	100	1.1	23	6.1	<1003
Lead	3.0	ì	1.8	-0.17	x<3:0
Lithium	300	2	2		
Magnesium ·	5000	7.7	7.9	-4.8	<5000 Ø
Manganese	15	.054	1.9	0.43	<.15
Molybdenum	10	.39	.2	0.11	<10
Nickel	40	.69	1.4	0.010	<40
Potassium	5000	.39	45	44.9	<b>2</b> <5000; <b>3</b>
Selenium	5.0	1.5	. 98	1.6	<5.104
Silver	10	1.2	.24	-0.70	<1:0
Sodium	5000	9.2	100		
Strontium	10	.061	. 4		
Thallium	10	.67	1.2		
Tin	20	.69	2.8		
Titanium	20	.29	.3		
Vanadium	50	3	.3		
Zinc	20	.51	3.5	0.68	<20.

Associated samples MP12721: T58820-2, T58820-3, T58820-4, T58820-5, T58820-6

Results < IDL are shown as zero for calculation purposes (\*) Outside of QC limits

(anr) Analyte not requested

Login Number: T58820 Account: ELPASOX - EL PASO CORPORATION

Project: MWHCODE:San Juan Basin River Plant Sites Project (SJRP)

QC Batch ID: MP12721 Matrix Type: AQUEOUS Methods: SW846 6010B Units: ug/l

Prep Date:

### 09/01/10

	710	

Prep Date:			#03\01\\\10	•			. `	室037017410	
Metal	T58905-1 Original		RPD	QC Limits	T58905-1 Original		Spikelo MPTW4	t % Rec	QC Limits
Aluminum	210	196	6.9	0-20	210	51900	50000	103.4	80-120
Antimony	anr					•			
Arsenic	4.7	3.8	212 (a)	0-20	4.7	428	400	105.8	80-120
Barium	79.9	76.1	.4.9	0-20	79.9	516	400	109.0	80-120
Beryllium									
Boron	*								
Cadmium	0.19	0.14	30:3 (a)	0-20 .	0.19	416	400	104.0	80-120
Calcium	41100	39000	5.2	0-20	41100	91100	50000	0100.0	80-120
Chromium	0.90	0.64	33.8%(a)	0-20	0.90	409	400	102.0	80-120
Cobalt	0.0	0.0	NC	0-20	0.0	386	400	96.5	80-120
Copper	6.9	6.3	9:1	0-20	6.9	409	400	100.5	80-120
Iron .	98.6	88.5	10:8.2	0-20	98.6	50900	50000	101:6	80-120
Lead	2.5	2.3	8.3	0-20	2.5	404	400	. 100:4	80-120
Lithium									
Magnesium	29400	28000	4.9	0-20	29400	80000	50000	(101:29)	80-120
Manganese	15.5	13.1	16.8	0-20	15.5	419	400	100.93.	80-120
Molybdenum	13.6	13.1	3.7	0-20	13.6	426	400	(103.1)	80-120
Nickel	6.9	5.9	15.6	0-20	6.9	422	400	103.8	80-120
Potassium ,	16100	15500	3.8	0-20	16100	69100	50000	106.0	80-120
Selenium	2.7	2.8	¥3:67	0-20	2.7	419	400	\$104.1ag	80-120
Silver	0.0	0.0	NC	0-20	0.0	412	400	2103:0	80-120
Sodium	552000	529000	4.3	0-20	552000	599000	50000	94.0	80-120
Strontium					4				
Thallium									
Tin	anr								
Titanium	anr								
Vanadium	anr								
Zinc	45.4	39.7	13.4	0-20	45.4	467	400	105.4	80-120

Associated samples MP12721: T58820-2, T58820-3, T58820-4, T58820-5; T58820-6

Results < IDL are shown as zero for calculation purposes
(\*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) RPD acceptable due to low duplicate and sample concentrations.



### MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

## Login Number: T58820 Account: ELPASOX - EL PASO CORPORATION

Project: MWHCODE: San Juan Basin River Plant Sites Project (SJRP)

09/01/10

QC Batch ID: MP12721 Matrix Type: AQUEOUS Methods: SW846 6010B Units: ug/l

Prep Date:

						allinations.	
	Metal	T58905-1 Original	MSD	Spikelot MPTW4	% Rec	MSD RPD	QC Limit
	Aluminum	210	50800	50000	101.2	2:1:	20
	Antimony	anr					
	Arsenic	4.7	420	400	103.8	1.9	20
	Barium	79.9	506	400	106.5	2:0	20
	Beryllium						
	Boron						
`	Cadmium	`0.19	409	400	102.2	1:7	20
	Calcium	41100	88600	50000	95.0	2:8	20 .
	Chromium	0.90	402	400	100.3	1.7	20
	Cobalt	0.0	378	400	94.5	2.1%	20
	Copper	6.9	402	400	98.8	11:7	20
	Iron	98.6	50100	50000	100.0	1.6	20
	Lead	2.5	399	400	99.1	1.2	20
_	Lithium						
	Magnesium	29400	78000	50000	97.2	2.5	20
	Manganese	15.5	409	400	98.4	2.4	20
	Molybdenum	13.6	419	400	101.4	1.7	20 .
	Nickel	6.9	415	400	102.0	11.7.	20
	Potassium	16100	67600	50000	103.0	21.2	20
	Selenium	2.7	409	400	101.6	2.4	20
	Silver	0.0	405	400	101.3	11.7	20
	Sodium	552000	575000	50000	46.0 (a)	4.1	20
	Strontium			•	•		
	Thallium						
	Tin	anr					
	Titanium	anr					
	Vanadium	anr					•
	Zinc	45.4	455	400	102.4	2.6	20 .

Associated samples MP12721: T58820-2, T58820-3, T58820-4, T58820-5, T58820-6

Results < IDL are shown as zero for calculation purposes (\*) Outside of QC limits  $\,$ 

<sup>(</sup>N) Matrix Spike Rec. outside of QC limits

<sup>(</sup>anr) Analyte not requested

<sup>(</sup>a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

# 6.2.3

### SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

## Login Number: T58820 Account: ELPASOX - EL PASO CORPORATION

Project: MWHCODE:San Juan Basin River Plant Sites Project (SJRP)

QC Batch ID: MP12721 Matrix Type: AQUEOUS Methods: SW846 6010B Units: ug/l

Pren Date:

209/01/10

Prep Date:			209701710		
Metal	BSP Result	Spikelo MPTW4	% Rec	QC Limits	
Aluminum	, 50900	50000	.101.8	80-120	•
Antimony	anr				
Arsenic	403	400	100:8	80-120	
Barium	428	400	107:0	80-120	
Beryllium					·
Boron					
Cadmium	404	400	101.0	80-120	
Calcium	50600	50000	101.2	80-120	
Chromium'	411	400	102.8	80-120	
Cobalt	385	400	96.3.	80-120	
Copper	397	400	99.3	80-120	
Iron	50500	50000	101.0	80-120	
Lead	392 .	400	98:0	80-120	
Lithium					
Magnesium	51000	50000	102.0	80-120	
Manganese	399	400	99.8	80-120	
Molybdenum	408	400	102.0	80-120	
Nickel	397	400	99.34	80-120	•
Potassium	50400	50000	-100.8	80-120	
Selenium	397	400	99.3	80-120	
Silver	393	400	98.3	80-120	
Sodium		•			
Strontium					•
Thallium	•		er verber. De CRO de verb		
Tin	anr				
Titanium	anr		100 mg		
Vanadium	anr				
Zinc	409	400	102.3	80-120	
					•

Associated samples MP12721: T58820-2, T58820-3, T58820-4, T58820-5, T58820-6

Results < IDL are shown as zero for calculation purposes  $(\star)$  Outside of QC limits

(anr) Analyte not requested

### SERIAL DILUTION RESULTS SUMMARY

## . Login Number: T58820 Account: ELPASOX - EL PASO CORPORATION

Project: MWHCODE:San Juan Basin River Plant Sites Project (SJRP)

QC Batch ID: MP12721 Matrix Type: AQUEOUS

Methods: SW846 6010B

Units: ug/l

Prep Date:

109/01/10

Metal	T58905-1 Original	SDL 1:5	%DIF	QC Limits	
Aluminum	210	249	18:7 (a)	0-10	
Antimony	anr				
Arsenic	4.72	0.00	100.0 (a)	0-10	
Barium	79.9	77.2	3.4	0-10	
Beryllium					
Boron			4123		
Cadmium .	0.190	0.00	100.0(a)	0-10	
Calcium	41100	40300	1.9	0-10	
Chromium	0.900	0.00	100 0 (a)	0-10	
Cobalt	0.00	0.00	NC ,	0-10	
Copper	6.93	0.00	100.0 (a)	0-10	
Iron	98.6	107	8.1	0-10	
Lead	2.49	0.00	100.0(a)	0-10	
Lithium					
Magnesium	29400	29000	1.1	0-10	
Manganese	15.5	15.4	0.7	0-10	
Molybdenum	13.6	13.1	3.5	0-10	
Nickel	6.85	7.34	7.2	0-10	
Potassium	16100	15200	5.5	0-10	
Selenium ·	_2.66	8.92	235:3 (a)	0-10	
Silver	0.00	0.00	NC	0-10	
Sodium \	552000	581000	5.3	0-10	
Strontium					
Thallium					
Tin	anr				
Titanium .	anr				
Vanadium	anr				
Zinc	45.4	51.1	12.75 (b)	0-10	

Associated samples MP12721: T58820-2, T58820-3, T58820-4, T58820-5, T58820-6

Results < IDL are shown as zero for calculation purposes (\*) Outside of QC limits

(anr) Analyte not requested

(a) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

(b) Serial dilution indicates possible matrix interference.





**General Chemistry** 

QC Data Summaries

## Includes the following where applicable:

- Method Blank and Blank Spike SummariesDuplicate Summaries
- Matrix Spike Summaries



### METHOD BLANK AND SPIKE RESULTS SUMMARY GENERAL CHEMISTRY

Login Number: T58820 Account: ELPASOX - EL PASO CORPORATION

Project: MWHCODE:San Juan Basin River Plant Sites Project (SJRP)

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Alkalinity, Total as CaCO3 Chloride Nitrogen, Nitrate + Nitrite Solids, Total Dissolved Sulfate	GN25050 GP10079/GN25251 GP10069/GN25216 GN25092 GP10032/GN25126	5.0 1.0 0.10 10	2 . 0 . 0 . 0 0 . 0	mg/l mg/l mg/l	2500 1000 1 500 100	2500 988 0.958 474 95.5	102*0 98*8 95*8 94*8	92-107%

Associated Samples:

Batch GN25050: T58820-2, T58820-3, T58820-4, T58820-5, T58820-6
Batch GN25092: T58820-2, T58820-3, T58820-4, T58820-5, T58820-6
Batch GP10032: T58820-2, T58820-3, T58820-4, T58820-5, T58820-6
Batch GP10069: T58820-2, T58820-3, T58820-4, T58820-5, T58820-6
Batch GP10079: T58820-2, T58820-3, T58820-4, T58820-5, T58820-6 (\*) Outside of QC limits



### DUPLICATE RESULTS SUMMARY GENERAL CHEMISTRY

Login Number: T58820 \
Account: ELPASOX - EL PASO CORPORATION

Project: MWHCODE: San Juan Basin River Plant Sites Project (SJRP)

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Alkalinity, Total as CaCO3	GN25050	T58820-2	mg/l	3.0	3.0	xö.:öx://	∄ 0-10%
Chloride	GP10079/GN25251	T58820-3	mg/l	0.50	0.50	*0.0	<sup>™</sup> 0-5%
Nitrogen, Nitrate + Nitrite	GP10069/GN25216	T59183-1B	mg/l	12.1	12.1	0.02	0-20%
Solids, Total Dissolved	GN25092	T58929-5	mg/l	51.0	47.0	(8.2(a)	0−5%
Sulfate	GP10032/GN25126	T58600-1	mg/l	736	730	.09 * .*.	0-20%

Associated Samples:

Associated Samples:
Batch GN25050: T58820-2, T58820-3, T58820-4, T58820-5, T58820-6
Batch GN25092: T58820-2, T58820-3, T58820-4, T58820-5, T58820-6
Batch GP10032: T58820-2, T58820-3, T58820-4, T58820-5, T58820-6
Batch GP10069: T58820-2, T58820-3, T58820-4, T58820-5, T58820-6
Batch GP10079: T58820-2, T58820-3, T58820-4, T58820-5, T58820-6

(\*) Outside of QC limits

<sup>(</sup>a) RPD acceptable due to low duplicate and sample concentrations.

## MATRIX SPIKE RESULTS SUMMARY GENERAL CHEMISTRY

### Login Number: T58820

Account: ELPASOX - EL PASO CORPORATION

Project: MWHCODE:San Juan Basin River Plant Sites Project (SJRP)

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Alkalinity, Total as CaCO3	GN25050	T58820-2	mg/l	3.0	25	29.0	92:0	79-122%
Chloride	GP10079/GN25251	T58820-3	mg/l	0.50	10	10.5	100.0	81-119%
Nitrogen, Nitrate + Nitrite	GP10069/GN25216	T59183-1B	mg/l	12.1	10	21.9	98.0	90-110%
Sulfate	GP10032/GN25126	T58600-1	mg/l	736	25	761	98.8	75-125%

### Associated Samples:

Batch GP10032: T58820-2, T58820-3, T58820-4, T58820-5, T58820-6 Batch GP10032: T58820-2, T58820-3, T58820-4, T58820-5, T58820-6 Batch GP10069: T58820-2, T58820-3, T58820-4, T58820-5, T58820-6 Batch GP10079: T58820-2, T58820-3, T58820-4, T58820-5, T58820-6

(\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits



11/23/10





## Technical Report for

MWH Americas, Inc.

Juan Basin Pit Groundwater Remediation

WO94293

Accutest Job Number: T63369

Sampling Dates: 11/08/10 - 11/09/10

### Report to:

MWH Americas 1801 California St. Suite 2900 Denver, CO 80202 jed.smith@mwhglobal.com

ATTN: Jed Smith

Total number of pages in report: 46



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

Client Service contact: Georgia Jones 713-271-4700

Certifications: TX (T104704220-10-3) AR (88-0756) FL (E87628) KS (E-10366) LA (85695/04004) OK (9103)

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

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## Sample Summary

MWH Americas, Inc.

Juan Basin Pit Groundwater Remediation Project No: WO94293

Job No:

T63369

	1					
-	Collected Date	school denerging appropriate person hose to a	Received	Matr Code		Client . Sample ID
T63369-1	11/08/10	07:00 TU	11/10/10	AQ	Trip Blank Water	08112010TB01
T63369-2	11/08/10	10:37 TU	11/10/10	AQ`	Ground Water	CANADA MESA MW-1
T63369-3	11/08/10	10:05 TU	11/10/10	AQ	Ground Water	GANADA MESA MW-2
T63369-4	11/08/10	09:24 TU	11/10/10	AQ	Ground Water	CANADA MESA MW-3
T63369-5	11/08/10	11:42 TU	11/10/10	AQ	Ground Water	K31 MW-2
T63369-6	11/08/10	12:15 TU	11/10/10	AQ	Ground Water	K31*MW-4
T63369-7	11/08/10	12:59 TU	11/10/10	AQ	Ground Water	<sup>®</sup> K31®MW-5
T63369-8	11/08/10	12:04 TU	11/10/10	AQ	Ground Water	K31 MW-8
T63369-9	11/09/10	08:48 TU	11/10/10	AQ	Ground Water	SANDOVAL MW-1
T63369-10	11/08/10	14:09 TU	11/10/10	AQ	Ground Water	K-27 MW-1
T63369-11	11/08/10	15:00 TU	11/10/10	AQ	Ground Water	K-27.MW-3
T63369-12	11/08/10	15:37 TU	11/10/10	AQ	Ground_Water	K=27)MW-5
T63369-13	11/08/10	16:16 TU	11/10/10	AQ	Ground Water	K-27 MW-2

# Sample Summary (continued)

MWH Americas, Inc.

Juan Basin Pit Groundwater Remediation Project No: WO94293

Job	No:	T63369

Sample Number	Collected Date		Received	Matri Code		Client Sample ID
T63369-14	11/09/10	10:35 TU	11/10/10	AQ	Ground Water	FOGELSON MW-3
T63369-15	11/09/10	11:18 TU	11/10/10	AQ	Ground Water	FOGELSON MW-2
T63369-16	§ 11/09/10	11:53 TU	11/10/10	AQ	Ground Water	FOGELSON MW-1
T63369-17	11/09/10	15:55 TU	11/10/10	AQ	Ground Water	SJRP MW 8
T63369-18	11/09/10	15:20 TU	11/10/10	AQ	Ground Water	SJRP MW-9
T63369-19	11/09/10	13:00 TU	11/10/10	AQ	Ground Water	GCU.142E MW-1
T63369-20	11/09/10	13:23 TU	11/10/10	AQ	Ground Water	GCU 142E MW-Z
T63369-21	11/09/10	13:57 TU	11/10/10	AQ	Ground Water	GCU 142E TMW 1



#### SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: MWH Americas, Inc.

Job No

T63369

Site:

Juan Basin Pit Groundwater Remediation

Report Date

11/22/2010 4:02:48 PM

20 Samples, 1 Trip Blanks were collected on between 11/08/2010 and 11/09/2010 and were received at Accutest on 11/10/2010 properly preserved, at 3.7 Deg. C and intact. These Samples received an Accutest job number of T63369. 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: VF4065

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T63550-1MS, T63550-1MSD were used as the QC samples indicated.
- T63369-5: Sample was not preserved to a pH < 2
- T63369-13: Sample was not preserved to a pH  $\leq$  2

Matrix AO

Batch ID: VF4067

- All samples were analyzed within the recommended method holding time.
- Sample(s) T63734-6MS, T63734-6MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- T63369-17: Sample was not preserved to a pH  $\leq 2$

Matrix AQ

Batch ID: VF4070

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T63734-9MS, T63734-9MSD were used as the QC samples indicated.
- T63369-5: Sample was not preserved to a pH < 2

Matrix AQ

Batch ID: VF4

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T63820-4MS, T63820-4MSD were used as the QC samples indicated.

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





Sample Results

Report of Analysis

### Report of Analysis

Ву

AK

Page 1 of 1

Client Sample ID:

SJRP MW-8

Lab Sample ID:

T63369-17

Matrix:

Project:

AQ - Ground Water

Method:

SW846 8260B

DF

1

Juan Basin Pit Groundwater Remediation

Analyzed

11/17/10

Date Sampled: Date Received: 11/10/10

Prep Date

n/a

11/09/10

Prep Batch

Percent Solids: n/a

n/a

Analytical Batch VF4067

Run #1 a Run #2

Purge Volume

File ID

F030328.D

Run #1 5.0 ml

Run #2

#### Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	2.0	0.50	ug/l	
108-88-3	Toluene	ND:	2.0	0.43	ug/l	
100-41-4	Ethylbenzene	ND	2.0	0.55	ug/l	
1330-20-7	Xylene (total)	ND.	6.0	1.7	ug/l	
95-47-6	o-Xylene	ND 📜	2.0	0.53	ug/l	
	m,p-Xylene	ND:	4.0	1.1	ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
1868-53-7	Dibromofluoromethane	92%		79-1	22%	
17060-07-0	1,2-Dichloroethane-D4	91%		75-1	21%	
2037-26-5	Toluene-D8	92%		87-1	19%	٠
460-00-4	4-Bromofluorobenzene	90%		80-1	33%	
	<i>t</i>	•				

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

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





### Report of Analysis

Page 1 of 1

Client Sample ID:

SJRP MW-9

Lab Sample ID:

T63369-18

AQ - Ground Water

Date Sampled:

11/09/10

Matrix: Method:

SW846 8260B

Date Received: 11/10/10

Project:

Juan Basin Pit Groundwater Remediation

Percent Solids: n/a

Run #1

File ID DF F030329.D 1

Analyzed 11/17/10

Ву ΑK Prep Date n/a

Prep Batch n/a

**Analytical Batch** 

VF4067

Run #2

Purge Volume

Run #1

5.0 ml

Run #2

#### Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7 95-47-6	Benzene Toluene Ethylbenzene Xylene (total) o-Xylene m,p-Xylene	0.66	2.0 2.0 2.0 6.0 2.0 4.0	0.50 0.43 0.55 1.7 0.53	ug/l ug/l ug/l ug/l ug/l ug/l	J
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	98% 96% 100% 93%		79-1 75-1 871 80-1	21% 19%	

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



MACCL	JTEST.

## **CHAIN OF CUSTODY**

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T63369: Chain of Custody

Page 1 of 5





## **CHAIN OF CUSTODY**

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T63369: Chain of Custody

Page 2 of 5





## **CHAIN OF CUSTODY**

Page 3 of 3

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Jed Smith	jed.smith@	mwhglobal.com		Paso Corp			Norr	na Ra	amos			o-xyfene						ı					SO - Soil
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	me analytical data available via L	ADIINK APLE CUSTODY MUS	T BE DOCU	MENTED BEIG	W EACH YIN	E SAMP	LES CH	ANGF	POSSE	SSIO	N. INCLU	DING CO	) DURIER	DELIVER	Υ	_	T:		1623.16	ni 2 FS12	est ga		
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Relinquiste	ed by:	Dat	to Time:	Racelve	Ву:				Custody	/ Seal	*		Preser	ved when	applica	bie				On ice		Cooler	Temp.
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T63369: Chain of Custody

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## 4

#### SAMPLE INSPECTION FORM

Accutest Job Number: 163369 Client: MWH Date/Time Received: 110-10 910	-
# of Coolers Received: Thermometer #: //o Temperature Adjustment Factor: ~5	_
Cooler Temperatures (initial/adjusted): #1: 4.2 43.7 °C #2: #3: #4: #5:	
#6:#7:#8:#9:#10#11#12	
Method of Delivery: PEDEX UPS Accutest Courter Greyhound Delivery Other	
COOLER INFORMATION SAMPLE INFORMATION TRIP BLANK INFORMATION	
Custody seal missing or not intact  Sample containers received broken  Trip Blank on COC but not received	
Temperature criteria not met VOC vials have headspace Trip Blank received but not on COC	
Wet ice received in cooler Sample labels missing or illegible Trip Blank not intact	
D on COC does not match label(s)  CHAIN OF CUSTODY  D/T on COC does not match label(s)  Received Water Trip Blank Received Soil TB	
CHAIN OF CUSTODY  D/T on COC does not match label(s)  Chain of Custody not received  X Sample/Bottles revd but no analysis on COC	
Sample D/T unclear or missing Sample listed on COC, but not received	
Analyses unclear or missing Bottles missing for requested analysis Number of Encores?	
COC not properly executed Insufficient volume for analysis Number of 5035 kits?	
Sample received improperly preserved Number of lab-filtered metals?	
Summary of Discrepancies: Received Oxtra Suples 6 (GCW 1424 mwl, mwz, mu	, Y
Allel to end of jub	
	•
	•
TECHNICIAN SIGNATURE/DATE: 11-1@45	•
INFORMATION AND SAMPLE LABELING VERIFIED BY:	_
· · · · · · · · · CORRECTIVE ACTIONS · · · · · · · · · · · ·	
Client Representative Notified: Jed Anuf Date: 11-15-10	
By Accutest Representative: Olonger Hone Via: Phone Email	
Citent Instructions:	
Analyse sankles not on the coc.	
	•
Purpus liker/formisamplerranagement SM023 Revised B/11/10	

**T63369: Chain of Custody** 

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### SAMPLE RECEIPT LOG

JOB#:	T63369	DATE/TIME RECEIVED:	1-10-12 913
CLIENT:	MWH	INITIALS:	Éc

OOLER#	SAMPLE ID	FIELD ID	DATE	MATRIX	VOL	BOTTLE#	LOCATION	PRESERV	PH
		Trip Rlank	111410 -	W	Yan	1-3	<b>`</b> \\\\	5 6 7 8	<2 >12"
	Ś	Coneda Mosa MW-1	11-87= 1037	\	\	ĺ .		1 2 3 4 5 6 7 8	<2 >12
	3	mw-2	130					1 G 3 4 5 6 7 8	<2 >12
	Ч	mw-3	1					1 E2 3 4 5 6 7 8	<2 >12
	5	K-31 mw-2	1142					1 (2) 3 4	<2 >12
	6	mw-4	his				<u> </u>	1 2 3 4 5 6 7 8	<2 >12
	7	mw-5	1254					1 2 3 4	<2 >12
	3	NW-8	1201					1 2 3 4	<2 >12
	8	Sandoral mw-1	11-9-10 843					1 8 3 4	<2 >12
	15	K-27 mn1	14812 1419					5 6 7 8	<2 >12
	1)	mw3	1502					1 (2) 3 4	<2 >12
	12	1mw-5	137					1 2 3 4 5 5 7 8	<2 >12
	13	Nw-2	1 1					1 7 3 4 5 6 7 8	<2 >12
	, y	Fogelson mn.3						1 8 3 4 5 6 7; 8	<2 >12
	17	mw-2	1 .					1 8 3 4 5 6 7 8	<2 >12
	ط	mw.l	1155					7 (2) 3 4 5 46 7 8	<2 >12
	11	SJRP mw-8	1555					1 (2) 3 4 5 6 7 8	<2 >12
	1-3	m~-9	1/20					1 0 3 4 5 6 7 8	<2 >12
	19	GCV 1422 mm-1	140					1 5 3 4	<2 >12
	20	mw.2	Bry					1 (2) 3 4 5 6 7 8	<2 >12
V	21	1 mm	157		1	1	7	1 (2) 3 4	<2 >12
			0,11	1010		_		1 2 3 4	<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 (Solls) VR: Volatile Fridge M: Metals SUB: Subcontract EF: Encore Freezer

T63369: Chain of Custody

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GC/MS Volatiles

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**QC Data Summaries** 

#### Includes the following where applicable:

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

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Method: SW846 8260B

#### Job Number: T63369

Method Blank Summary

MWHCODE MWH Americas, Inc. Account: Juan Basin Pit Groundwater Remediation Project:

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VF4065-MB	F030265.D	1	11/16/10	AK	n/a	n/a	VF4065

The QC reported here applies to the following samples:

T63369-1, T63369-2, T63369-3, T63369-4, T63369-5, T63369-6, T63369-7, T63369-8, T63369-9, T63369-10, T63369-11, T63369-12, T63369-13

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2 100-41-4 108-88-3 1330-20-7 95-47-6	Benzene Ethylbenzene Toluene Xylene (total) m,p-Xylene o-Xylene	ND ND ND ND ND ND	2.0 2.0 2.0 6.0 4.0 2.0	0.50 0.55 0.43 1.7 1.1 0.53	ug/l ug/l ug/l ug/l ug/l ug/l
CAS No.	Surrogate Recoveries		Limits	}	
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	89% 91% 92% 85%	79-122 75-121 87-119 80-133	%  %	



#### Method Blank Summary T63369

Job Number:

Account:

MWHCODE MWH Americas, Inc.

Project:

Juan Basin Pit Groundwater Remediation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VF4067-MB	F030311.D	1	11/17/10	AK	n/a	n/a	VF4067

The QC reported here applies to the following samples:

Method: SW846 8260B

T63369-15, T63369-16, T63369-17, T63369-18, T63369-19

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND :	2.0	0.50	ug/l	
100-41-4	Ethylbenzene	ND:	2.0	0.55	ug/l	
108-88-3	Toluene	ND.	2.0	0.43	ug/l	
1330-20-7	Xylene (total)	ND	6.0	1.7	ug/l	
	m,p-Xylene	ND	4.0	1.1	ug/l	
95-47-6	o-Xylene	ND 🚋 🦙	2.0	0.53	ug/l	
CAS No.	Surrogate Recoveries		Limits			
1868-53-7	Dibromofluoromethane	92%	79-122	%		
17060-07-0	1,2-Dichloroethane-D4	92%	75-121			
2037-26-5	Toluene-D8	95%	87-119	%		
460-00-4	4-Bromofluorobenzene	91%.	80-133	%		
1868-53-7 17060-07-0 2037-26-5	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8	95%	79-122 75-121 87-119	% %		



Job Number: T63369

Account: Project:

MWHCODE MWH Americas, Inc. Juan Basin Pit Groundwater Remediation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VF4070-MB	F030361.D	1	11/18/10	AK	n/a	n/a	VF4070

The QC reported here applies to the following samples:

Method: SW846 8260B

T63369-5, T63369-14, T63369-20, T63369-21

CAS No.	Compound	Result	RL	MDL	Units C	)
71-43-2	Benzene	ND	₹ 2.0	0.50	ug/l	
100-41-4	Ethylbenzene	ND	2.0	0.55	ug/l	
108-88-3	Toluene	ND	2.0	0.43	ug/l	
1330-20-7	Xylene (total)	ND	6.0	1.7	ug/l	
	m,p-Xylene	ND	4.0	1.1	ug/l	
95-47-6	o-Xylene	ND	2.0	0.53	ug/l	
CAS No.	Surrogate Recoveries		Limits			
1868-53-7	Dibromofluoromethane	-92%	<b>79-122</b>	%		
	1,2-Dichloroethane-D4	86%	75-121			
2037-26-5	Toluene-D8	101%	87-119			
460-00-4	4-Bromofluorobenzene	96%	80-133			

### Method Blank Summary

Job Number:

T63369

Account:

MWHCODE MWH Americas, Inc.

Project:

Juan Basin Pit Groundwater Remediation

Sample VF4071-MB
VF4071-MB

DF File ID F030386.D 1

Analyzed 11/19/10

By ΑK Prep Date n/a

Prep Batch n/a

Analytical Batch

Page 1 of 1

VF4071

The QC reported here applies to the following samples:

Method: SW846 8260B

T63369-21

CAS No. Compound Result

RL

MDL

Units Q

71-43-2 108-88-3

Benzene Toluene ND.

0.50 2.0 2.0 0.43

ug/l ug/l

CAS No.

Surrogate Recoveries

Dibromofluoromethane 1868-53-7 17060-07-0 1.2-Dichloroethane-D4

2037-26-5 Toluene-D8

460-00-4

4-Bromofluorobenzene

Limits

91% 88% 103% ...

79-122% 75-121% 87-119%

80-133%



Method: SW846 8260B

# Blank Spike Summary Job Number: T63369

Account: Project:

MWHCODE MWH Americas, Inc. Juan Basin Pit Groundwater Remediation

Sample File ID DF Analyzed By Prep Date Prep Batch Analytica VF4065-BS F030263.D 1 11/16/10 AK n/a n/a VF4065	l Batch
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The QC reported here applies to the following samples:

T63369-1, T63369-2, T63369-3, T63369-4, T63369-5, T63369-6, T63369-7, T63369-8, T63369-9, T63369-10, T63369-11, T63369-12, T63369-13

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	24.4	98	76-118
100-41-4	Ethylbenzene	25	25.0	100	75-112
108-88-3	Toluene	25	24.7	99	77-114
1330-20-7	Xylene (total)	75	74.4	99	75-111
	m,p-Xylene	50	49.5	99	75-112
95-47-6	o-Xylene	25	24.9	100	74-110
CAS No.	Surrogate Recoveries	BSP	Liı	mits	
1868-53-7	Dibromofluoromethane	90%	79	-122%	
17060-07-0	1,2-Dichloroethane-D4	<b>87</b> %	. 75	-121%	
2037-26-5	Toluene-D8	90%	87	-119%	
460-00-4	4-Bromofluorobenzene	85%	80	-133%	

# Blank Spike Summary Job Number: T63369

Account: MWHCODE MWH Americas, Inc. Project: Juan Basin Pit Groundwater Remediation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VF4067-BS	F030309.D	1	11/17/10	AK	n/a	n/a	VF4067
				•			

The QC reported here applies to the following samples:

Method: SW846 8260B

T63369-15, T63369-16, T63369-17, T63369-18, T63369-19

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	24.8	99	76-118
100-41-4	Ethylbenzene	25	25.3	101	75-112
108-88-3	Toluene	25	25.3	101	77-114
1330-20-7	Xylene (total)	75	75.4	101	75-111
	m,p-Xylene	50	50.5	101.	75-112
95-47-6	o-Xylene	25	25.0	100	74-110
CAS No.	Surrogate Recoveries	BSP	Li	mits	
1868-53-7	Dibromofluoromethane	97%	79	-122%	
17060-07-0	1,2-Dichloroethane-D4	93%	75	-121%	
2037-26-5	Toluene-D8	101%	<b>87</b>	-119%	
460-00-4	4-Bromofluorobenzene	93%	80	-133%	



Account: Project:

MWHCODE MWH Americas, Inc. Juan Basin Pit Groundwater Remediation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VF4070-BS	F030358.D	1	11/18/10	AK	n/a	n/a	VF4070

The QC reported here applies to the following samples:

Method: SW846 8260B

T63369-5, T63369-14, T63369-20, T63369-21

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2 100-41-4 108-88-3 1330-20-7	Benzene Ethylbenzene Toluene Xylene (total)	25 25 25 75	23.9 25.4 25.4 76.1	96 102 102 101	75-112 77-114
95-47-6	m,p-Xylene o-Xylene	50 25	50.7 25.5	101 102	75-112 74-110
CAS No.	Surrogate Recoveries	BSP	Lir	nits	
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	91% 83% 101% 94%	75- 87-	122% 121% 119% 133%	

# Blank Spike Summary Job Number: T63369

Account: MWHCODE MWH Americas, Inc. Project: Juan Basin Pit Groundwater Remediation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VF4071-BS	F030384.D		11/19/10	AK	n/a	n/a	VF4071

The QC reported here applies to the following samples:

Method: SW846 8260B

T63369-21

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2 108-88-3	Benzene Toluene	25 25	20.7 21.9	83 88	76-118 77-114
CAS No.	Surrogate Recoveries	BSP	Lim	nits	
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	90% 84% 100% 94%	75- 87-	122% 121% 119% 133%	



Method: SW846 8260B

Matrix Spike/Matrix Spike Duplicate Summary Job Number: T63369

Account: Project:

MWHCODE MWH Americas, Inc. Juan Basin Pit Groundwater Remediation

163550-1 F030267.D 2 11/16/10 AK 11/4 11/4 VF4005	Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
	T63550-1MS	F030268.D	2	11/16/10	AK	n/a	n/a	VF4065
	T63550-1MSD	F030269.D	2	11/16/10	AK	n/a	n/a	VF4065
	T63550-1	F030267.D	2	11/16/10	AK	n/a	n/a	VF4065

The QC reported here applies to the following samples:

T63369-1, T63369-2, T63369-3, T63369-4, T63369-5, T63369-6, T63369-7, T63369-8, T63369-9, T63369-10, T63369-11, T63369-12, T63369-13

CAS No.	Compound	T63550-1 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2 100-41-4 108-88-3	Benzene Ethylbenzene Toluene	4.0 U 4.0 U 4.0 U	50 50 50	48.9 50.3 50.0	98 101 100	49.5 50.4 49.9	99 101 100	0	76-118/16 75-112/12 77-114/12
1330-20-7	Xylene (total) m,p-Xylene	12 U 8.0 U	150 100	153 102	102 •102	151 101	101 101 101	1	75-111/12 75-112/12
95-47-6	o-Xylene	4.0 U	50	51.0	102		\$100 %		74-110/11
CAS No.	Surrogate Recoveries  Dibromofluoromethane	MS 98%	MSD		3550-1 0%	Limits 79-122	%		
	1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	98% 100% 93%	The state of the s	100	0% 2%	75-121 87-119 80-133	% %		

Method: SW846 8260B

# Matrix Spike/Matrix Spike Duplicate Summary Job Number: T63369

Account: MWHCODE MWH Americas, Inc. Project: Juan Basin Pit Groundwater Remediation

	Sample T63734-6MS T63734-6MSD T63734-6	File ID F030313.D F030314.D F030312.D	DF 1 1	Analyzed 11/17/10 11/17/10 11/17/10	By AK AK AK	Prep Date n/a n/a n/a	Prep Batch n/a n/a n/a	Analytical Batch VF4067 VF4067 VF4067
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The QC reported here applies to the following samples:

T63369-15, T63369-16, T63369-17, T63369-18, T63369-19

CAS No.	Compound	T63734-0 ug/l	6 Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	58.6		25	81.6	92	81.8	93	0	76-118/16
100-41-4	Ethylbenzene	8.5		25	33.3	99	33.2	99	0	75-112/12
108-88-3	Toluene	4.1		25	29.7	102	29.6	102	0	77-114/12
1330-20-7	Xylene (total)	11.7		75	86.0	99	86.3	99	0	75-111/12
	m,p-Xylene	10.1		50	59.3	98	59.8	99	1	75-112/12
95-47-6	o-Xylene	1.7	J	25	26.6	100	26.5	99.	0	74-110/11
CAS No.	Surrogate Recoveries	MS		MSD	Т63	734-6	Limits			
1868-53-7	Dibromofluoromethane	92%		92%	95%	6	79-122%	6		
17060-07-0	1,2-Dichloroethane-D4	86%	20000000000	85%	96%		75-121%	6		
2037-26-5	Toluene-D8	99%	SEE SEE SEE SEE	100%	99%	6	87-119%	6		
460-00-4	4-Bromofluorobenzene	93%		93%	92%	3334366334967886	80-133%	6		



### Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T63369

Account: Project:

MWHCODE MWH Americas, Inc. Juan Basin Pit Groundwater Remediation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T63734-9MS	F030364.D	20	11/18/10	AK	n/a	n/a ¯	VF4070
T63734-9MSD	F030365.D	20	11/18/10	AK	n/a	n/a	VF4070
T63734-9	F030363.D	20	11/18/10	AK	n/a	n/a	VF4070

The QC reported here applies to the following samples:

T63369-5, T63369-14, T63369-20, T63369-21

CAS No.	Compound	T63734-9 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD % RPD	Limits Rec/RPD
71-43-2	Benzene	2560	500	3000	88	2920	72* a 3 3 5	§ 76-118/16
100-41-4	Ethylbenzene	399	500	898	100	863	93 4 4	<b>75-112/12</b>
108-88-3	Toluene	731	500	1260	≥106	1210	96 4	77-114/12
1330-20-7	Xylene (total)	826	1500	2290	98	2220	93	75-111/12
	m,p-Xylene	668	1000	1650	98	1580	91 4	<b>75-112/12</b>
95-47-6	o-Xylene	158	500	641	97	632	95	74-110/11

CAS No.	Surrogate Recoveries	MS	MSD	T63734-9	Limits
17060-07-0	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	91% 82% 102%	81% 99%	\$550 CON 97 1.5	79-122% 75-121% 87-119% 80-133%

(a) Outside control limits due to high level in sample relative to spike amount.



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Method: SW846 8260B

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Account: MWHCODE MWH Americas, Inc. Project: Juan Basin Pit Groundwater Remediation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T63820-4MS	F030388.D	10	11/19/10	AK	n/a	n/a	VF4071
T63820-4MSD	F030389.D	10	11/19/10	AK	n/a	n/a	VF4071
T63820-4	F030387.D	10	11/19/10	AK	n/a	n/a	VF4071

The QC reported here applies to the following samples:

Method: SW846 8260B

T63369-21

CAS No.	Compound	T63820-4 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2 108-88-3	Benzene Toluene	226 6.9	250 250	449 256	89 100	427 244	80 95		76-118/16 77-114/12
CAS No.	Surrogate Recoveries	MS	MSD	Т63	3820-4	Limits			
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	91% 86% 102% 95%	87% 80% 100% 93%	STATISTICS OF PROPERTY.	4.5	79-1229 75-1219 87-1199 80-1339	6 6		

