

3R - 322

REPORTS

DATE:

2000



Environmental Services
187 County Road 4980
Bloomfield, New Mexico 87413
(505) 632-4409
(505) 632-4405

September 18, 2000

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SEP 28 2000

Mr. William Olson
Hydrologist
Oil Conservation Division
2040 South Pacheco
Santa Fe, New Mexico 87505

ENVIRONMENTAL BUREAU
OIL CONSERVATION DIVISION

RE: 2000 SAN JUAN BASIN ANNUAL GROUNDWATER REPORT

Dear Mr. Olson:

Enclosed for your review is the 2000 San Juan Basin Annual Groundwater Report prepared by Williams for work conducted by Public Service New Mexico (PNM). The report presents monitoring data for twenty-two sites having petroleum hydrocarbon impacted groundwater, which resulted from the past use of unlined surface impoundments. The reporting period begins in the second quarter of 1999 and ends in the second quarter of 2000. The sites included in the report are listed in Table 1, attached.

The natural gas production and gathering facilities at which the impacted groundwater sites are located were formerly owned and operated by PNM. The facilities became assets of Williams upon purchase of the Gas Company of New Mexico (GCNM) from PNM. PNM had retained certain environmental liabilities associated with the assets including obligations for unlined surface impoundment impacts to soil and groundwater. Subsequent negotiations between PNM and Williams resulted in an agreement whereby Williams would complete further investigations and remediation at sites not previously closed by PNM. The agreement also states that Williams will complete work at sites where PNM has identified soil or groundwater contamination or otherwise initiated remedial actions.

During PNM's tenure, management of sites with hydrocarbon impacted groundwater was directed by their Ground Water Management Plan. This plan specified general procedures for site investigation, remediation, and reporting. The plan called for PNM to prepare an annual report summarizing the results of groundwater monitoring at each site. The report was to be submitted each April 1st and include data collected during the second, third and fourth quarters of the previous year and data from the first quarter of the reporting year.

Anticipating termination of their environmental obligations, PNM requested on March 4, 2000 an extension for submittal of the 2000 annual report so that they could also include data collected during the second quarter of 2000. Although PNM completed collection of monitoring data for the second quarter of 2000, they did not prepare and submit an annual report. Williams has prepared the 2000 annual report in an effort to maintain project continuity and to provide closure to PNM's management of the project.

As with most projects of this magnitude, first hand knowledge is paramount to prepare a thorough summary of site activities. Given the limited firsthand knowledge of project workings, Williams is in the unenviable position of trying to glean information from only the paper record. As such, the 2000 report simply transmits the PNM-collected data to OCD in what we hope is a concise and useable format. Initially, it was Williams' goal to provide more comprehensive reporting on the status of each site, however, preliminary evaluation of the data soon revealed that accurate interpretations could not be formulated in a timely manner.

Williams is continuing to review and evaluate the data provided by PNM to determine the best course for future actions at the sites. Preliminary review has revealed several high priority needs. For the majority of sites, accurate surveys are needed along with development of site base maps and a comprehensive database to facilitate project management. Moreover, sites with free product should be evaluated to determine the efficacy of free-product recovery and whether or not all source contributions are known.

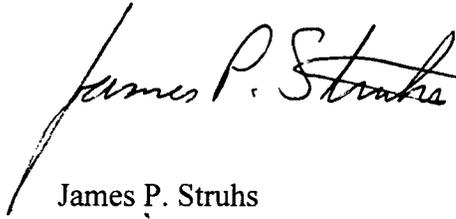
Organization of the report follows the same format used by PNM. Data for each site is contained in a separate tabbed section labeled with the site name. Each section contains a data summary table listing each monitoring well. The absence or presence of free product is indicated on the table and the concentrations of the BTEX compounds for the reporting period are noted. Following the data summary table are the actual laboratory analytical reports. In an effort to make this document more manageable, the laboratory quality control reports have not been included. These reports will of course remain a part of the project file and be made available for review upon request. In addition to the analytical data, a contour map depicting the elevation of the water table as interpolated from water-level data is also included. When possible, hydrographs illustrating the seasonal fluctuations in water-table elevations are presented.

Thank you for your understanding of the Williams position and the time to review this submittal. Mr. Jim Struhs has been assigned the role of Project Hydrogeologist and as such will be involved in many of the day to day project operations. If you have any questions regarding the report, you may call me at (505) 632-4409 or Jim at (505) 632-4457.

Best regards,



Mark B. Harvey
Project Manager
Mark.Harvey@Williams.com



James P. Struhs
Project Hydrogeologist
Jim.Struhs@Williams.com

Attachment
Enclosure

c: Denny Foust, OCD Aztec District Office
Bill Liess, BLM Farmington District Office
Allen Talley, Williams

Table 1. List of Sites for Period Q2/1999 to Q2/2000

Site Name	Section	Township	Range	Unit Letter	OCD Notified	Installed Wells	2nd QTR 1999	3rd QTR 1999	4th QTR 1999	1st QTR 2000	2nd QTR 2000
Albright #4 Drip	22	29N	10W	F	9-Jul-99	28-Jul-99		5-Aug-99	6-Dec-99	5-Mar-00	7-Jun-00
Blanco Wash Drip	31	27N	8W	J	19-Feb-99	6-Apr-99	28-Apr-99	28-Sep-99	6-Dec-99	17-Mar-00	7-Jun-00
Chamberlain 1	14	32N	12W	F	30-Sep-99	13-Sep-99			11-Nov-99	1-Feb-00	2-May-00
Davis 1	11	31N	12W	E	2-Mar-99	2-Aug-99	25-May-99	20-Sep-99	8-Dec-99	14-Mar-00	8-Jun-00
Dogie East Pit	4	25N	6W	D	7-Jul-97	20-May-98	27-Apr-99	21-Sep-99	16-Nov-99	15-Feb-00	11-May-00
Dogie North Pit	4	25N	6W	D	7-Jul-97	6-Jul-97	27-Apr-99	21-Sep-99	16-Nov-99	15-Feb-00	11-May-00
Florance 124	27	29N	9W	C	12-Aug-96	28-Aug-96	7-Apr-99	28-Jul-99	14-Oct-99	1-Feb-00	26-Apr-00
Florance 40	21	30N	8W	G	27-Jan-97	29-Jan-97	21-Apr-99	28-Jul-99	1-Nov-99	21-Mar-00	14-Jun-00
Florance M 47X	5	30N	9W	G	27-Jan-97	6-Feb-97	21-Apr-99	28-Jul-99	3-Nov-99	23-Mar-00	14-Jun-00
Grenier 4A	7	31N	11W	M	18-Oct-99	28-Sep-99			3-Nov-99	7-Mar-00	12-Jun-00
Hampton 4M	13	30N	11W	N	7-Jan-97	31-Jan-97	5-May-99	12-Jul-99	21-Oct-99	27-Jan-00	13-Jun-00
Honolulu Drip	15	26N	4W	B	18-Jun-96	13-Jun-96	14-Apr-99	21-Sep-99	23-Nov-99	9-Feb-00	23-May-00
Ice Canyon Drip	15	26N	6W	B	1-Dec-97	13-May-98	27-Apr-99	20-Sep-99	16-Nov-99	7-Feb-00	18-May-00
Jicarilla Contract 147-6	6	25N	5W	C	13-Aug-98	27-Jan-99	14-Apr-99	27-Sep-99	15-Nov-99	20-Mar-00	7-Jun-00
Kaufman 1	33	31N	13W	H	9-Mar-00					9-Mar-00	22-May-00
Miles Federal 1E Drip	5	26N	7W	N	23-Jun-97	7-Jul-97	1-Jun-99	3-Aug-99	23-Nov-99	7-Feb-00	18-May-00
O' Shea 1M	3	31N	13W	F	6-Jun-98	9-Jul-98	24-May-99	6-Aug-99	12-Nov-99	3-Feb-00	9-May-00
Patterson A Com A1	2	31N	12W	G	2-Mar-99	15-Mar-99	2-Jun-99	6-Aug-99	22-Nov-99	15-Mar-00	8-Jun-00
Pritchard 2	6	30N	8W	J	22-Feb-99	1-Apr-99	26-May-99	17-Aug-99	20-Oct-99	26-Jan-00	17-Apr-00
Randleman 1	13	31N	11W	K	9-May-97	14-May-97	19-Apr-99	17-Aug-99	27-Oct-99	25-Jan-00	10-Apr-00
Wilmerding 1M	10	31N	13W	C	5-Jun-98	1-Jul-98	1-Jun-99	10-Aug-99	12-Oct-99	1-Feb-00	1-May-00
Zachry 18E	11	28N	10W	O	6-Sep-96	19-Nov-96	20-Apr-99	2-Aug-99	1-Nov-99	31-Jan-00	26-Apr-00



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ENVIRONMENTAL BUREAU
OIL CONSERVATION DIVISION

Annual
Groundwater
Report
2000

San Juan Basin, New Mexico
Lined Surface Impoundments

Site Summary Report

Site Name: Ice Canyon Drip

Reporting Period: 2nd Qtr 1999 - 2nd Qtr 2000

Location: Unit B, Sec 15, Twn 26N, Rng 6W

Canyon: Largo

Operator: Williams

Vulnerable Class: original

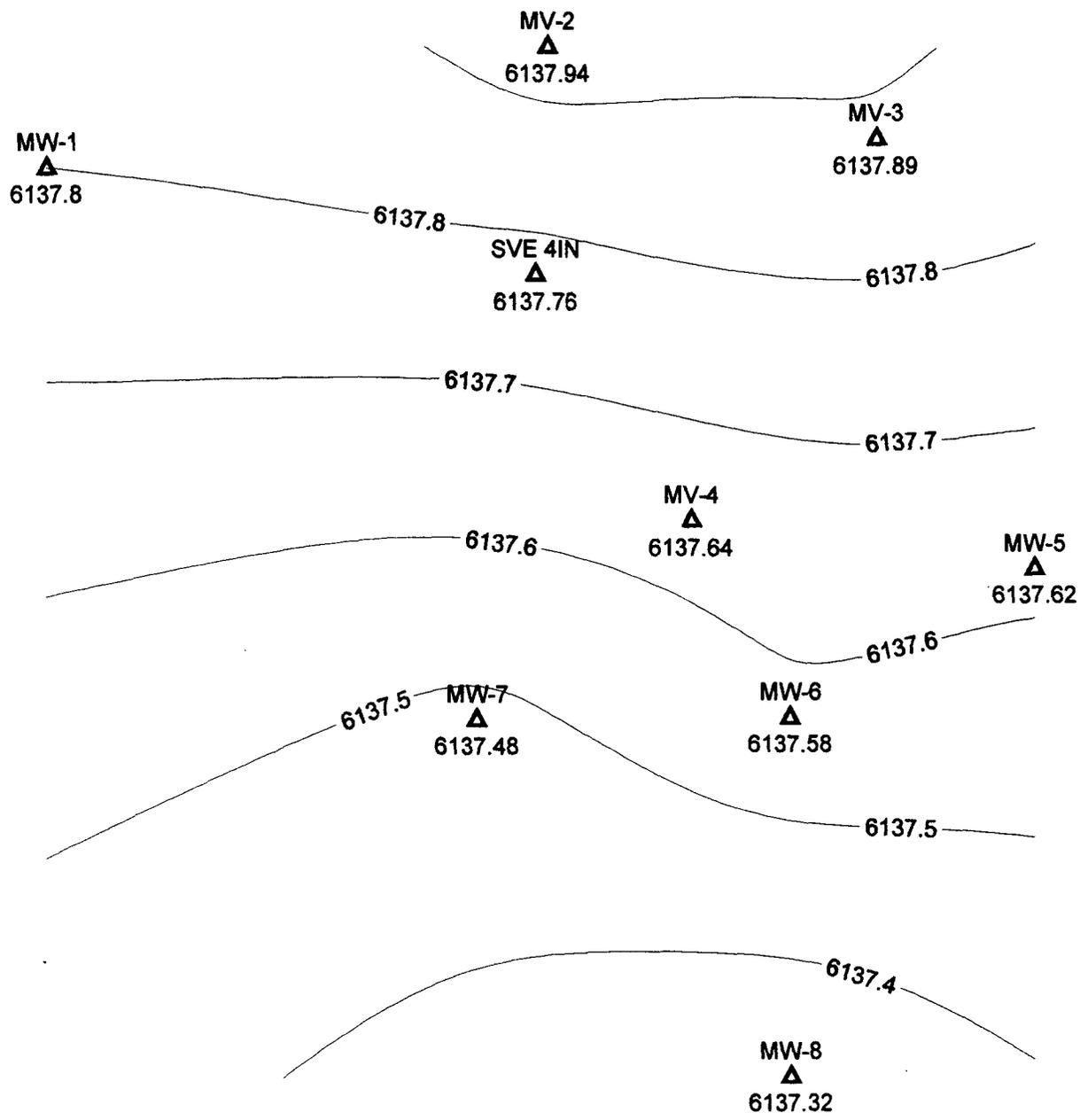
OCD Ranking: 40

Lead Agency: NMOCD

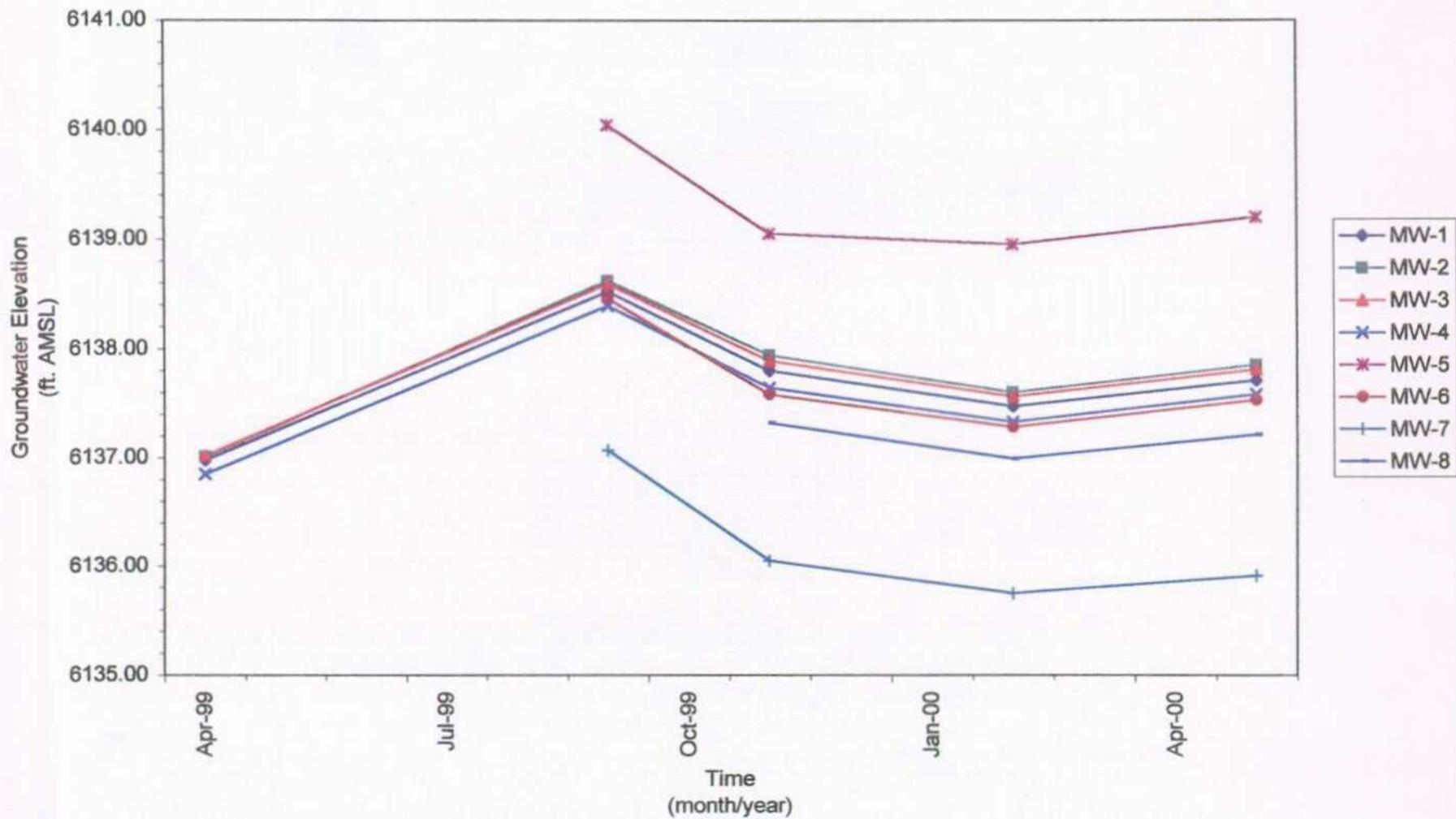
Status Narrative

This site has eight monitoring wells and one 4-inch well installed for a soil-vapor recovery pilot study. To date, nine quarters of monitoring have been completed. Ground water contamination appears to be well defined to the south and west of the source. Installation of an additional well southwest of MW-5 is being evaluated. Wells MW-2 and SVE 4" have contained free product at various times. Extensive soil remediation has been performed at this site with limited success due to depth of contamination. The remoteness of the site and the depth to ground water (approx. 40 feet) limits potential threats to receptors.

Ice Canyon Drip
Potentiometric Surface Map
(November 16, 1999)



Ice Canyon Drip
Hydrograph for Period Q2/1999 - Q2/2000
(Elevation vs. Time)



**Ice Canyon Drip
Summary of Groundwater Analytical Data
(Q2/1999 - Q2/2000)**

Well ID	Sample ID	Sample Date	Free Product		Analytes (values in ug/L)			
			Present Yes/No	Thickness (ft.)	benzene	toluene	ethylbenzene	total xylenes
MW-2	9904271445	27-Apr-99	N		4800	2000	570	7400
	9909201730	20-Sep-99	N		4900	570	520	5300
	9911161340	16-Nov-99	N		5700	650	560	7800
	0002070944	7-Feb-00	N		6000	640	610	7900
	0005181008	18-May-00	N		5900	310	570	7000
MW-4	9904271530	27-Apr-99	N		1200	2900	130	970
	9909201625	20-Sep-99	N		540	450	64	237
	9911161455	16-Nov-99	N		1000	2200	130	790
	0002071027	7-Feb-00	N		480	640	66	236
	0005181025	18-May-00	N		550	910	80	303
MW-5	NS	27-Apr-99						
	9909201550	20-Sep-99	N		510	410	50	198
	9911161515	16-Nov-99	N		170	290	26	192
	0002071052	7-Feb-00	N		290	77	24	54
	0005181041	18-May-00	N		240	83	30	54
MW-6	9904271600	27-Apr-99	N		1200	2700	120	920
	9909201600	20-Sep-99	N		1200	1100	570	5400
	9911161350	16-Nov-99	N		610	310	290	3100
	0002071120	7-Feb-00	N		580	48	260	2600
	0005181111	18-May-00	N		530	12	230	2240
MW-7	NS	27-Apr-99						
	9909201520	20-Sep-99	N		2.3	<0.5	0.5	7.5
	9911161420	16-Nov-99	N		<0.5	<0.5	0.5	<1.5
	0002071136	7-Feb-00	N		<0.5	<0.5	<0.5	<1.5
	0005181106	18-May-00	N		<0.5	<0.5	<0.5	<1.5
MW-8	NS	27-Apr-99						
	NS	20-Sep-99						
	9911161405	16-Nov-99	N		9.9	21	6.1	76
	0002071209	7-Feb-00	N		9.4	3.4	11	20.8
	0005181132	18-May-00	N		0.8	<0.5	1	<1.5

ND = analyte not detected above method detection limit

NS = well not sampled for specified analytes

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LAB: (505) 325-1556

ANALYTICAL REPORT

Date: 07-May-99

Client: PNM - Public Service Company of NM	Client Sample Info: Ice Canyon Drip
Work Order: 9904068	Client Sample ID: 9904271445; MW-2
Lab ID: 9904068-01A Matrix: AQUEOUS	Collection Date: 4/27/99 2:45:00 PM
Project: Ice Canyon Drip	COC Record: 7291

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		SW8021B		Analyst: DC		
Benzene	4800	50		µg/L	100	5/3/99
Toluene	2000	50		µg/L	100	5/3/99
Ethylbenzene	570	50		µg/L	100	5/3/99
m,p-Xylene	6300	100		µg/L	100	5/3/99
o-Xylene	1100	50		µg/L	100	5/3/99

Qualifiers:	PQL - Practical Quantitation Limit	S - Spike Recovery outside accepted recovery limits
	ND - Not Detected at Practical Quantitation Limit	R - RPD outside accepted recovery limits
	J - Analyte detected below Practical Quantitation Limit	E - Value above quantitation range
	B - Analyte detected in the associated Method Blank	Surr: - Surrogate

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ANALYTICAL REPORT

Date: 07-May-99

Client:	PNM - Public Service Company of NM	Client Sample Info:	Ice Canyon Drip
Work Order:	9904068	Client Sample ID:	9904271530; MW-4
Lab ID:	9904068-02A	Matrix:	AQUEOUS
Project:	Ice Canyon Drip	Collection Date:	4/27/99 3:30:00 PM
		COC Record:	7291

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed	
AROMATIC VOLATILES BY GC/PID		SW8021B				Analyst: DC	
Benzene	1200	10		µg/L	20	5/5/99	
Toluene	2900	10		µg/L	20	5/5/99	
Ethylbenzene	130	10		µg/L	20	5/5/99	
m,p-Xylene	800	20		µg/L	20	5/5/99	
o-Xylene	170	10		µg/L	20	5/5/99	

Qualifiers:

PQL - Practical Quantitation Limit	S - Spike Recovery outside accepted recovery limits
ND - Not Detected at Practical Quantitation Limit	R - RPD outside accepted recovery limits
J - Analyte detected below Practical Quantitation Limit	E - Value above quantitation range
B - Analyte detected in the associated Method Blank	Surr: - Surrogate

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LAB: (505) 325-1556

ANALYTICAL REPORT

Date: 07-May-99

Client:	PNM - Public Service Company of NM	Client Sample Info:	Ice Canyon Drip
Work Order:	9904068	Client Sample ID:	9904271600; MW-6
Lab ID:	9904068-03A	Matrix:	AQUEOUS
Project:	Ice Canyon Drip	Collection Date:	4/27/99 4:00:00 PM
		COC Record:	7291

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		SW8021B				Analyst: DC
Benzene	1200	10		µg/L	20	5/5/99
Toluene	2700	10		µg/L	20	5/5/99
Ethylbenzene	120	10		µg/L	20	5/5/99
m,p-Xylene	760	20		µg/L	20	5/5/99
o-Xylene	160	10		µg/L	20	5/5/99

Qualifiers:	PQL - Practical Quantitation Limit	S - Spike Recovery outside accepted recovery limits
	ND - Not Detected at Practical Quantitation Limit	R - RPD outside accepted recovery limits
	J - Analyte detected below Practical Quantitation Limit	E - Value above quantitation range
	B - Analyte detected in the associated Method Blank	Surr: - Surrogate

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ANALYTICAL REPORT

Date: 12-Oct-99

Client:	PNM - Public Service Company of NM	Client Sample Info:	Ice Canyon Drip
Work Order:	9909064	Client Sample ID:	9909201730; MW-2
Lab ID:	9909064-05A	Matrix:	AQUEOUS
Project:	Ice Canyon Drip	Collection Date:	09/20/1999 5:30:00 PM
		COC Record:	7542

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		SW8021B			Analyst: HR.	
Benzene	4900	25		µg/L	50	09/22/1999
Toluene	570	25		µg/L	50	09/22/1999
Ethylbenzene	520	25		µg/L	50	09/22/1999
m,p-Xylene	4600	50		µg/L	50	09/22/1999
o-Xylene	700	25		µg/L	50	09/22/1999

Qualifiers:	PQL - Practical Quantitation Limit	S - Spike Recovery outside accepted recovery limits
	ND - Not Detected at Practical Quantitation Limit	R - RPD outside accepted recovery limits
	J - Analyte detected below Practical Quantitation Limit	E - Value above quantitation range
	B - Analyte detected in the associated Method Blank	Surr: - Surrogate

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LAB: (505) 325-1556

ANALYTICAL REPORT

Date: 12-Oct-99

Client: PNM - Public Service Company of NM	Client Sample Info: Ice Canyon Drip
Work Order: 9909064	Client Sample ID: 9909201625; MW-4
Lab ID: 9909064-04A Matrix: AQUEOUS	Collection Date: 09/20/1999 4:25:00 PM
Project: Ice Canyon Drip	COC Record: 7542

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		SW8021B		Analyst: DM		
Benzene	540	2.5		µg/L	5	09/27/1999
Toluene	450	2.5		µg/L	5	09/27/1999
Ethylbenzene	64	2.5		µg/L	5	09/27/1999
m,p-Xylene	190	5		µg/L	5	09/27/1999
o-Xylene	47	2.5		µg/L	5	09/27/1999

Qualifiers:

PQL - Practical Quantitation Limit	S - Spike Recovery outside accepted recovery limits
ND - Not Detected at Practical Quantitation Limit	R - RPD outside accepted recovery limits
J - Analyte detected below Practical Quantitation Limit	E - Value above quantitation range
B - Analyte detected in the associated Method Blank	Surr: - Surrogate

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ANALYTICAL REPORT

Date: 12-Oct-99

Client: PNM - Public Service Company of NM	Client Sample Info: Ice Canyon Drip
Work Order: 9909064	Client Sample ID: 9909201550; MW-5
Lab ID: 9909064-02A Matrix: AQUEOUS	Collection Date: 09/20/1999 3:50:00 PM
Project: Ice Canyon Drip	COC Record: 7542

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
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AROMATIC VOLATILES BY GC/PID		SW8021B			Analyst: DM	
Benzene	510	2.5		µg/L	5	09/27/1999
Toluene	410	2.5		µg/L	5	09/27/1999
Ethylbenzene	50	2.5		µg/L	5	09/27/1999
m,p-Xylene	160	5		µg/L	5	09/27/1999
o-Xylene	38	2.5		µg/L	5	09/27/1999

Qualifiers:	PQL - Practical Quantitation Limit	S - Spike Recovery outside accepted recovery limits
	ND - Not Detected at Practical Quantitation Limit	R - RPD outside accepted recovery limits
	J - Analyte detected below Practical Quantitation Limit	E - Value above quantitation range
	B - Analyte detected in the associated Method Blank	Surr: - Surrogate

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LAB: (505) 325-1556

ANALYTICAL REPORT

Date: 12-Oct-99

Client: PNM - Public Service Company of NM	Client Sample Info: Ice Canyon Drip
Work Order: 9909064	Client Sample ID: 9909201600; MW-6
Lab ID: 9909064-03A Matrix: AQUEOUS	Collection Date: 09/20/1999 4:00:00 PM
Project: Ice Canyon Drip	COC Record: 7542

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		SW8021B		Analyst: HR		
Benzene	1200	10		µg/L	20	09/22/1999
Toluene	1100	10		µg/L	20	09/22/1999
Ethylbenzene	570	10		µg/L	20	09/22/1999
m,p-Xylene	4300	20		µg/L	20	09/22/1999
o-Xylene	1100	10		µg/L	20	09/22/1999

Qualifiers:

PQL - Practical Quantitation Limit	S - Spike Recovery outside accepted recovery limits
ND - Not Detected at Practical Quantitation Limit	R - RPD outside accepted recovery limits
J - Analyte detected below Practical Quantitation Limit	E - Value above quantitation range
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ANALYTICAL REPORT

Date: 12-Oct-99

Client:	PNM - Public Service Company of NM	Client Sample Info:	Ice Canyon Drip
Work Order:	9909064	Client Sample ID:	9909201520; MW-7
Lab ID:	9909064-01A	Matrix:	AQUEOUS
Project:	Ice Canyon Drip	Collection Date:	09/20/1999 3:20:00 PM
		COC Record:	7542

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		SW8021B		Analyst: DM		
Benzene	2.3	0.5		µg/L	1	09/27/1999
Toluene	ND	0.5		µg/L	1	09/27/1999
Ethylbenzene	0.5	0.5		µg/L	1	09/27/1999
m,p-Xylene	6.8	1		µg/L	1	09/27/1999
o-Xylene	0.7	0.5		µg/L	1	09/27/1999

Qualifiers:	PQL - Practical Quantitation Limit	S - Spike Recovery outside accepted recovery limits
	ND - Not Detected at Practical Quantitation Limit	R - RPD outside accepted recovery limits
	J - Analyte detected below Practical Quantitation Limit	E - Value above quantitation range
	B - Analyte detected in the associated Method Blank	Surr: - Surrogate

OFF: (505) 325-5667



LAB: (505) 325-1556

ANALYTICAL REPORT

Date: 30-Nov-99

Client:	PNM - Public Service Company of NM	Client Sample Info:	Ice Canyon
Work Order:	9911030	Client Sample ID:	9911161340; MW-2
Lab ID:	9911030-01A	Matrix:	AQUEOUS
Project:	Ice Canyon	Collection Date:	11/16/99 1:40:00 PM
		COC Record:	7861

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		SW8021B				Analyst: DM
Benzene	5700	25		µg/L	50	11/19/99
Toluene	650	25		µg/L	50	11/19/99
Ethylbenzene	560	25		µg/L	50	11/19/99
m,p-Xylene	6600	50		µg/L	50	11/19/99
o-Xylene	1200	25		µg/L	50	11/19/99

Qualifiers:	PQL - Practical Quantitation Limit	S - Spike Recovery outside accepted recovery limits
	ND - Not Detected at Practical Quantitation Limit	R - RPD outside accepted recovery limits
	J - Analyte detected below Practical Quantitation Limit	E - Value above quantitation range
	B - Analyte detected in the associated Method Blank	Surr: - Surrogate

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ANALYTICAL REPORT

Date: 30-Nov-99

Client:	PNM - Public Service Company of NM	Client Sample Info:	Ice Canyon
Work Order:	9911030	Client Sample ID:	9911161455; MW-4
Lab ID:	9911030-05A	Matrix:	AQUEOUS
Project:	Ice Canyon	Collection Date:	11/16/99 2:55:00 PM
		COC Record:	7861

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		SW8021B			Analyst: DM	
Benzene	1000	10		µg/L	20	11/23/99
Toluene	2200	10		µg/L	20	11/23/99
Ethylbenzene	130	2.5		µg/L	5	11/19/99
m,p-Xylene	640	5		µg/L	5	11/19/99
o-Xylene	150	2.5		µg/L	5	11/19/99

Qualifiers:	PQL - Practical Quantitation Limit	S - Spike Recovery outside accepted recovery limits
	ND - Not Detected at Practical Quantitation Limit	R - RPD outside accepted recovery limits
	J - Analyte detected below Practical Quantitation Limit	E - Value above quantitation range
	B - Analyte detected in the associated Method Blank	Sum: - Surrogate

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ANALYTICAL REPORT

Date: 30-Nov-99

Client:	PNM - Public Service Company of NM	Client Sample Info:	Ice Canyon
Work Order:	9911030	Client Sample ID:	9911161515; MW-5
Lab ID:	9911030-06A	Matrix:	AQUEOUS
Project:	Ice Canyon	Collection Date:	11/16/99 3:15:00 PM
		COC Record:	7861

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		SW8021B				Analyst: DM
Benzene	170	2.5		µg/L	5	11/19/99
Toluene	290	2.5		µg/L	5	11/19/99
Ethylbenzene	26	2.5		µg/L	5	11/19/99
m,p-Xylene	160	5		µg/L	5	11/19/99
o-Xylene	32	2.5		µg/L	5	11/19/99

Qualifiers: PQL - Practical Quantitation Limit S - Spike Recovery outside accepted recovery limits
ND - Not Detected at Practical Quantitation Limit R - RPD outside accepted recovery limits
J - Analyte detected below Practical Quantitation Limit E - Value above quantitation range
B - Analyte detected in the associated Method Blank Sur: - Surrogate

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1 of 1

OFF: (505) 325-5667



LAB: (505) 325-1556

ANALYTICAL REPORT

Date: 30-Nov-99

Client:	PNM - Public Service Company of NM	Client Sample Info:	Ice Canyon
Work Order:	9911030	Client Sample ID:	9911161350; MW-6
Lab ID:	9911030-02A	Matrix:	AQUEOUS
Project:	Ice Canyon	Collection Date:	11/16/99 1:50:00 PM
		COC Record:	7861

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		SW8021B				Analyst: DM
Benzene	610	10		µg/L	20	11/19/99
Toluene	310	10		µg/L	20	11/19/99
Ethylbenzene	290	10		µg/L	20	11/19/99
m,p-Xylene	2500	20		µg/L	20	11/19/99
o-Xylene	600	10		µg/L	20	11/19/99

Qualifiers:

PQL - Practical Quantitation Limit	S - Spike Recovery outside accepted recovery limits
ND - Not Detected at Practical Quantitation Limit	R - RPD outside accepted recovery limits
J - Analyte detected below Practical Quantitation Limit	E - Value above quantitation range
B - Analyte detected in the associated Method Blank	Surr. - Surrogate

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1 of 1

OFF: (505) 325-5667



LAB: (505) 325-1556

ANALYTICAL REPORT

Date: 30-Nov-99

Client:	PNM - Public Service Company of NM	Client Sample Info:	Ice Canyon
Work Order:	9911030	Client Sample ID:	9911161420; MW-7
Lab ID:	9911030-04A	Matrix:	AQUEOUS
Project:	Ice Canyon	Collection Date:	11/16/99 2:20:00 PM
		COC Record:	7861

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		SW8021B				Analyst: DM
Benzene	ND	0.5		µg/L	1	11/19/99
Toluene	ND	0.5		µg/L	1	11/19/99
Ethylbenzene	0.5	0.5		µg/L	1	11/19/99
m,p-Xylene	ND	1		µg/L	1	11/19/99
o-Xylene	ND	0.5		µg/L	1	11/19/99

Qualifiers: PQL - Practical Quantitation Limit
ND - Not Detected at Practical Quantitation Limit
J - Analyte detected below Practical Quantitation Limit
B - Analyte detected in the associated Method Blank
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
Sur: - Surrogate

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1 of 1

OFF: (505) 325-5667



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ANALYTICAL REPORT

Date: 30-Nov-99

Client: PNM - Public Service Company of NM	Client Sample Info: Ice Canyon
Work Order: 9911030	Client Sample ID: 9911161405; MW-8
Lab ID: 9911030-03A Matrix: AQUEOUS	Collection Date: 11/16/99 2:05:00 PM
Project: Ice Canyon	COC Record: 7861

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		SW8021B		Analyst: DM		
Benzene	9.9	0.5		µg/L	1	11/19/99
Toluene	21	0.5		µg/L	1	11/19/99
Ethylbenzene	6.1	0.5		µg/L	1	11/19/99
m,p-Xylene	66	1		µg/L	1	11/19/99
o-Xylene	10	0.5		µg/L	1	11/19/99

Qualifiers:	PQL - Practical Quantitation Limit	S - Spike Recovery outside accepted recovery limits
	ND - Not Detected at Practical Quantitation Limit	R - RPD outside accepted recovery limits
	J - Analyte detected below Practical Quantitation Limit	E - Value above quantitation range
	B - Analyte detected in the associated Method Blank	Sur: - Surrogate

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ANALYTICAL REPORT

Date: 08-Mar-00

Client:	PNM - Public Service Company of NM	Client Sample Info:	Ice Canyon Drip
Work Order:	0002028	Client Sample ID:	0002070944; MW-2
Lab ID:	0002028-01A	Matrix:	AQUEOUS
Project:	Ice Canyon Drip	Collection Date:	2/7/2000 9:44:00 AM
		COC Record:	7870

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		SW8021B			Analyst: DC	
Benzene	6000	25		µg/L	50	2/15/2000
Toluene	640	25		µg/L	50	2/15/2000
Ethylbenzene	610	25		µg/L	50	2/15/2000
m,p-Xylene	6700	50		µg/L	50	2/15/2000
o-Xylene	1200	25		µg/L	50	2/15/2000

Qualifiers:	PQL - Practical Quantitation Limit	S - Spike Recovery outside accepted recovery limits
	ND - Not Detected at Practical Quantitation Limit	R - RPD outside accepted recovery limits
	J - Analyte detected below Practical Quantitation Limit	E - Value above quantitation range
	B - Analyte detected in the associated Method Blank	Sum: - Surrogate

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OFF: (505) 325-5667



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ANALYTICAL REPORT

Date: 08-Mar-00

Client:	PNM - Public Service Company of NM	Client Sample Info:	Ice Canyon Drip
Work Order:	0002028	Client Sample ID:	0002071027; MW-4
Lab ID:	0002028-02A	Matrix:	AQUEOUS
Project:	Ice Canyon Drip	Collection Date:	2/7/2000 10:27:00 AM
		COC Record:	7870

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		SW8021B			Analyst: DC	
Benzene	480	10		µg/L	20	2/15/2000
Toluene	640	10		µg/L	20	2/15/2000
Ethylbenzene	66	10		µg/L	20	2/15/2000
m,p-Xylene	190	20		µg/L	20	2/15/2000
o-Xylene	46	10		µg/L	20	2/15/2000

Qualifiers:	PQL - Practical Quantitation Limit	S - Spike Recovery outside accepted recovery limits
	ND - Not Detected at Practical Quantitation Limit	R - RPD outside accepted recovery limits
	J - Analyte detected below Practical Quantitation Limit	E - Value above quantitation range
	B - Analyte detected in the associated Method Blank	Surr: - Surrogate

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ANALYTICAL REPORT

Date: 08-Mar-00

Client:	PNM - Public Service Company of NM	Client Sample Info:	Ice Canyon Drip
Work Order:	0002028	Client Sample ID:	0002071052; MW-5
Lab ID:	0002028-03A	Matrix:	AQUEOUS
Project:	Ice Canyon Drip	Collection Date:	2/7/2000 10:52:00 AM
		COC Record:	7870

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		SW8021B		Analyst: DC		
Benzene	290	2.5		µg/L	5	2/15/2000
Toluene	77	2.5		µg/L	5	2/15/2000
Ethylbenzene	24	2.5		µg/L	5	2/15/2000
m,p-Xylene	45	5		µg/L	5	2/15/2000
o-Xylene	8.6	2.5		µg/L	5	2/15/2000

Qualifiers:	PQL - Practical Quantitation Limit	S - Spike Recovery outside accepted recovery limits
	ND - Not Detected at Practical Quantitation Limit	R - RPD outside accepted recovery limits
	J - Analyte detected below Practical Quantitation Limit	E - Value above quantitation range
	B - Analyte detected in the associated Method Blank	Surr: - Surrogate

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ANALYTICAL REPORT

Date: 08-Mar-00

Client:	PNM - Public Service Company of NM	Client Sample Info:	Ice Canyon Drip
Work Order:	0002028	Client Sample ID:	0002071120; MW-6
Lab ID:	0002028-04A	Matrix:	AQUEOUS
Project:	Ice Canyon Drip	Collection Date:	2/7/2000 11:20:00 AM
		COC Record:	7870

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		SW8021B		Analyst: DC		
Benzene	580	5		µg/L	10	2/15/2000
Toluene	48	5		µg/L	10	2/15/2000
Ethylbenzene	260	5		µg/L	10	2/15/2000
m,p-Xylene	2100	10		µg/L	10	2/15/2000
o-Xylene	500	5		µg/L	10	2/15/2000

Qualifiers:	PQL - Practical Quantitation Limit	S - Spike Recovery outside accepted recovery limits
	ND - Not Detected at Practical Quantitation Limit	R - RPD outside accepted recovery limits
	J - Analyte detected below Practical Quantitation Limit	E - Value above quantitation range
	B - Analyte detected in the associated Method Blank	SUR: - Surrogate

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- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

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ANALYTICAL REPORT

Date: 08-Mar-00

Client: PNM - Public Service Company of NM	Client Sample Info: Ice Canyon Drip
Work Order: 0002028	Client Sample ID: 0002071136; MW-7
Lab ID: 0002028-05A Matrix: AQUEOUS	Collection Date: 2/7/2000 11:36:00 AM
Project: Ice Canyon Drip	COC Record: 7870

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
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AROMATIC VOLATILES BY GC/PID

SW8021B

Analyst: DC

Benzene	ND	0.5		µg/L	1	2/15/2000
Toluene	ND	0.5		µg/L	1	2/15/2000
Ethylbenzene	ND	0.5		µg/L	1	2/15/2000
m,p-Xylene	ND	1		µg/L	1	2/15/2000
o-Xylene	ND	0.5		µg/L	1	2/15/2000

Qualifiers:

PQL - Practical Quantitation Limit

S - Spike Recovery outside accepted recovery limits

ND - Not Detected at Practical Quantitation Limit

R - RPD outside accepted recovery limits

J - Analyte detected below Practical Quantitation Limit

E - Value above quantitation range

B - Analyte detected in the associated Method Blank

Surr: - Surrogate

1 of 1

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ANALYTICAL REPORT

Date: 08-Mar-00

Client:	PNM - Public Service Company of NM	Client Sample Info:	Ice Canyon Drip
Work Order:	0002028	Client Sample ID:	0002071209; MW-8
Lab ID:	0002028-06A	Matrix:	AQUEOUS
Project:	Ice Canyon Drip	Collection Date:	2/7/2000 12:09:00 PM
		COC Record:	7870

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		SW8021B			Analyst: DC	
Benzene	9.4	0.5		µg/L	1	2/15/2000
Toluene	3.4	0.5		µg/L	1	2/15/2000
Ethylbenzene	11	0.5		µg/L	1	2/15/2000
m,p-Xylene	20	1		µg/L	1	2/15/2000
o-Xylene	0.8	0.5		µg/L	1	2/15/2000

Qualifiers:	PQL - Practical Quantitation Limit	S - Spike Recovery outside accepted recovery limits
	ND - Not Detected at Practical Quantitation Limit	R - RPD outside accepted recovery limits
	J - Analyte detected below Practical Quantitation Limit	E - Value above quantitation range
	B - Analyte detected in the associated Method Blank	Surr: - Surrogate

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OFF: (505) 325-5667
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LAB: (505) 325-1556
FAX: (505) 327-1496

ANALYTICAL REPORT

Date: 21-Jun-00

Client:	PNM - Public Service Company of NM	Client Sample Info:	Ice Canyon Drip
Work Order:	0005048	Client Sample ID:	0005181008; MW-2
Lab ID:	0005048-01A	Matrix:	AQUEOUS
Project:	Ice Canyon Drip	Collection Date:	5/18/2000 10:08:00 AM
		COC Record:	8524

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		SW8021B				Analyst: DM
Benzene	5900	25		µg/L	50	5/25/2000
Toluene	310	25		µg/L	50	5/25/2000
Ethylbenzene	570	25		µg/L	50	5/25/2000
m,p-Xylene	6000	50		µg/L	50	5/25/2000
o-Xylene	1000	25		µg/L	50	5/25/2000

Qualifiers:

PQL - Practical Quantitation Limit	S - Spike Recovery outside accepted recovery limits
ND - Not Detected at Practical Quantitation Limit	R - RPD outside accepted recovery limits
J - Analyte detected below Practical Quantitation Limit	E - Value above quantitation range
B - Analyte detected in the associated Method Blank	Surr: - Surrogate

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LAB: (505) 325-1556
FAX: (505) 327-1496

ANALYTICAL REPORT

Date: 21-Jun-00

Client:	PNM - Public Service Company of NM	Client Sample Info:	Ice Canyon Drip
Work Order:	0005048	Client Sample ID:	0005181025; MW-4
Lab ID:	0005048-02A	Matrix:	AQUEOUS
Project:	Ice Canyon Drip	Collection Date:	5/18/2000 10:25:00 AM
		COC Record:	8524

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
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AROMATIC VOLATILES BY GC/PID

SW8021B

Analyst: DM

Benzene	550	10		µg/L	20	5/25/2000
Toluene	910	10		µg/L	20	5/25/2000
Ethylbenzene	80	10		µg/L	20	5/25/2000
m,p-Xylene	240	20		µg/L	20	5/25/2000
o-Xylene	63	10		µg/L	20	5/25/2000

Qualifiers:

PQL - Practical Quantitation Limit	S - Spike Recovery outside accepted recovery limits
ND - Not Detected at Practical Quantitation Limit	R - RPD outside accepted recovery limits
J - Analyte detected below Practical Quantitation Limit	E - Value above quantitation range
B - Analyte detected in the associated Method Blank	Surr: - Surrogate

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FAX: (505) 327-1496



LAB: (505) 325-1556
FAX: (505) 327-1496

ANALYTICAL REPORT

Date: 21-Jun-00

Client:	PNM - Public Service Company of NM	Client Sample Info:	Ice Canyon Drip
Work Order:	0005048	Client Sample ID:	0005181041; MW-5
Lab ID:	0005048-03A	Matrix:	AQUEOUS
Project:	Ice Canyon Drip	Collection Date:	5/18/2000 10:41:00 AM
		COC Record:	8524

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
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AROMATIC VOLATILES BY GC/PID

SW8021B

Analyst: DM

Benzene	240	2.5		µg/L	5	5/25/2000
Toluene	83	2.5		µg/L	5	5/25/2000
Ethylbenzene	30	2.5		µg/L	5	5/25/2000
m,p-Xylene	44	5		µg/L	5	5/25/2000
o-Xylene	10	2.5		µg/L	5	5/25/2000

Qualifiers:

PQL - Practical Quantitation Limit

S - Spike Recovery outside accepted recovery limits

ND - Not Detected at Practical Quantitation Limit

R - RPD outside accepted recovery limits

J - Analyte detected below Practical Quantitation Limit

E - Value above quantitation range

B - Analyte detected in the associated Method Blank

Surrogate - Surrogate

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OFF: (505) 325-5667
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FAX: (505) 327-1496

ANALYTICAL REPORT

Date: 21-Jun-00

Client: PNM - Public Service Company of NM	Client Sample Info: Ice Canyon Drip
Work Order: 0005048	Client Sample ID: 0005181111; MW-6
Lab ID: 0005048-04A Matrix: AQUEOUS	Collection Date: 5/18/2000 11:11:00 AM
Project: Ice Canyon Drip	COC Record: 8524

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
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Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		SW8021B			Analyst: DM	
Benzene	530	5		µg/L	10	5/26/2000
Toluene	12	5		µg/L	10	5/26/2000
Ethylbenzene	230	5		µg/L	10	5/26/2000
m,p-Xylene	1800	10		µg/L	10	5/26/2000
o-Xylene	440	5		µg/L	10	5/26/2000

Qualifiers: PQL - Practical Quantitation Limit S - Spike Recovery outside accepted recovery limits
ND - Not Detected at Practical Quantitation Limit R - RPD outside accepted recovery limits
J - Analyte detected below Practical Quantitation Limit E - Value above quantitation range
B - Analyte detected in the associated Method Blank Sur: - Surrogate

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OFF: (505) 325-5667
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LAB: (505) 325-1556
FAX: (505) 327-1496

ANALYTICAL REPORT

Date: 21-Jun-00

Client:	PNM - Public Service Company of NM	Client Sample Info:	Ice Canyon Drip
Work Order:	0005048	Client Sample ID:	0005181106; MW-7
Lab ID:	0005048-05A	Matrix:	AQUEOUS
Project:	Ice Canyon Drip	Collection Date:	5/18/2000 11:06:00 AM
		COC Record:	8524

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
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Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		SW8021B			Analyst: DM	
Benzene	ND	0.5		µg/L	1	5/25/2000
Toluene	ND	0.5		µg/L	1	5/25/2000
Ethylbenzene	ND	0.5		µg/L	1	5/25/2000
m,p-Xylene	ND	1		µg/L	1	5/25/2000
o-Xylene	ND	0.5		µg/L	1	5/25/2000

Qualifiers:

PQL - Practical Quantitation Limit	S - Spike Recovery outside accepted recovery limits
ND - Not Detected at Practical Quantitation Limit	R - RPD outside accepted recovery limits
J - Analyte detected below Practical Quantitation Limit	E - Value above quantitation range
B - Analyte detected in the associated Method Blank	Surr: - Surrogate

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OFF: (505) 325-5667
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FAX: (505) 327-1496

ANALYTICAL REPORT

Date: 21-Jun-00

Client: PNM - Public Service Company of NM	Client Sample Info: Ice Canyon Drip
Work Order: 0005048	Client Sample ID: 0005181132; MW-8
Lab ID: 0005048-06A Matrix: AQUEOUS	Collection Date: 5/18/2000 11:32:00 AM
Project: Ice Canyon Drip	COC Record: 8524

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		SW8021B		Analyst: DM		
Benzene	0.8	0.5		µg/L	1	5/25/2000
Toluene	ND	0.5		µg/L	1	5/25/2000
Ethylbenzene	1	0.5		µg/L	1	5/25/2000
m,p-Xylene	ND	1		µg/L	1	5/25/2000
o-Xylene	ND	0.5		µg/L	1	5/25/2000

Qualifiers: PQL - Practical Quantitation Limit S - Spike Recovery outside accepted recovery limits
ND - Not Detected at Practical Quantitation Limit R - RPD outside accepted recovery limits
J - Analyte detected below Practical Quantitation Limit E - Value above quantitation range
B - Analyte detected in the associated Method Blank Sur: - Surrogate

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- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -