

**3R - 321**

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# **REPORTS**

**DATE:**

**2000**

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*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 1<sup>st</sup> 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.

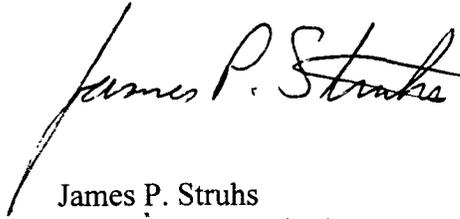
Organization of the report follows the same format used by PNM. Data for each site is contained in a separate tabbed section labeled with the site name. Each section contains a data summary table listing each monitoring well. The absence or presence of free product is indicated on the table and the concentrations 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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**Annual**  
**Groundwater**  
**Report**  
**2000**

San Juan Basin, New Mexico  
Lined Surface Impoundments

## Site Summary Report

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**Site Name:** Honolulu Line Drip

**Reporting Period:** 2<sup>nd</sup> Qtr 1999 - 2<sup>nd</sup> Qtr 2000

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**Location:** Unit B, Sec 15, Twn 26N, Rng 4W

**Canyon:** Tapicito

**Operator:** Williams

**Vulnerable Class:** sensitive

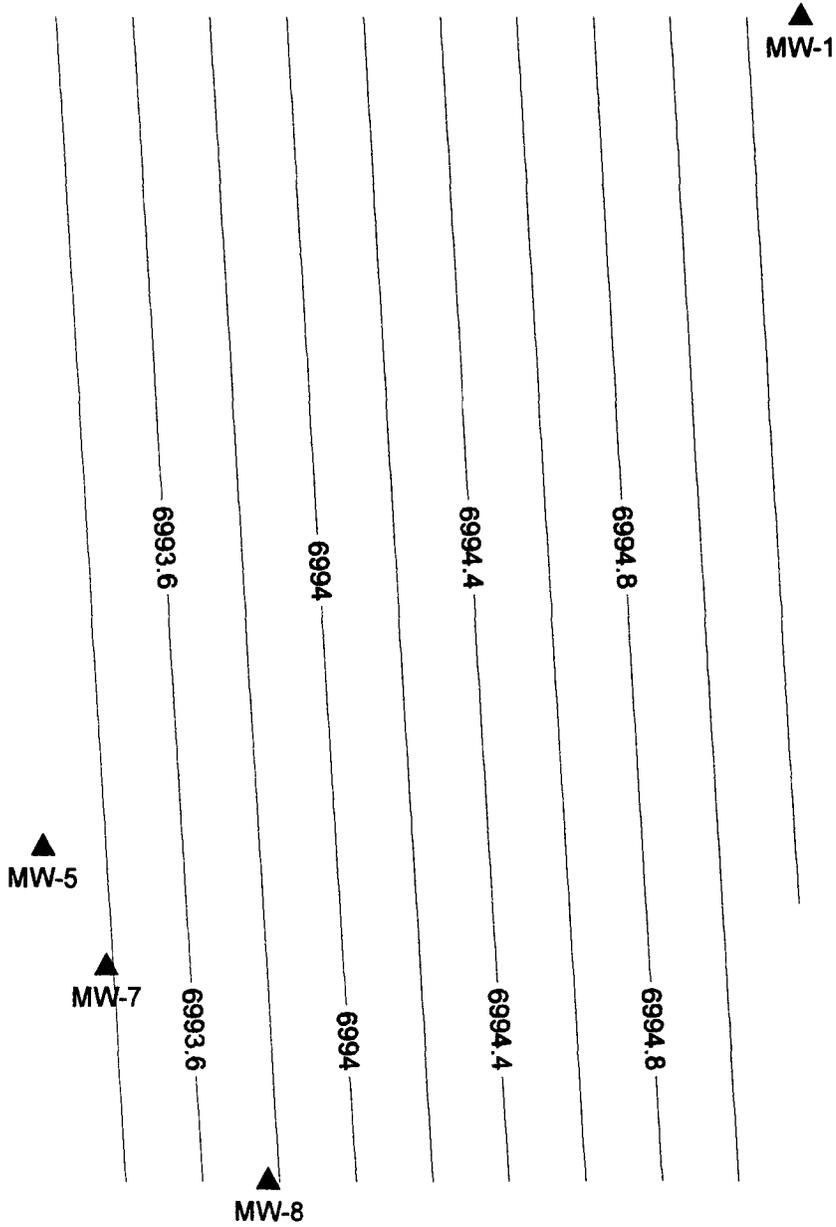
**OCD Ranking:** 40

**Lead Agency:** NMOCD / JAEPO

### Status Narrative

This site has six monitoring wells, with sixteen quarters of monitoring completed to date. Ground water contaminant levels do not appear to be attenuating very rapidly. The direction of the ground water gradient shifts seasonally and is highly influenced by surface water flows in Tapicito Wash. As a result, the contaminant plume has shifted numerous times over the course of monitoring. In January 1999, extensive secondary soil remediation was conducted in the source area. To date, this effort has not resulted in significant decreases in ground water contaminant levels.

Honolulu Line Drip  
Potentiometric Surface Map  
(May 23, 2000)



**Honolulu Loop Line 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-1	9904141140	14-Apr-99	N		<0.5	<0.5	<0.5	<1.5
	NS	21-Sep-99	N					
	NS	23-Nov-99	N					
	NS	9-Feb-00	N					
	NS	23-May-00						
MW-5	9904141159	14-Apr-99	N		1100	<0.5	5	13
	9909211654	21-Sep-99	N		20	2	3	<1.5
	9911231048	23-Nov-99	N		180	1	1	2
	0002091046	9-Feb-00	N		490	3	13	27
	No data	23-May-00	N					
MW-7	9904141219	14-Apr-99	N		25	<0.5	2	9
	9909211744	21-Sep-99	N		61	<0.5	<0.5	<1.5
	9911231104	23-Nov-99	N		10	<0.5	<0.5	<1.5
	0002091153	9-Feb-00	N		30	2	10	31
	No data	23-May-00	N					
MW-8	9904141333	14-Apr-99	N		<0.5	0.8	5.4	26
	0002091211	9-Feb-00	N		<5	570	<5	<15
	NS	23-Nov-99	N					
	NS	9-Feb-00	N					
	No data	23-May-00	N					
MW-11	9904141238	14-Apr-99	N		<0.5	<0.5	<0.5	<1.5
	NS	21-Sep-99	N					
	NS	23-Nov-99	N					
	NS	9-Feb-00	N					
	NS	23-May-00	N					
MW-12	9904141302	14-Apr-99	N		440	<2.5	40	246
	9909211723	21-Sep-99	N		94	1.8	5.5	5.3
	9911231119	23-Nov-99	N		240	2.8	15	34.8
	0002091121	9-Feb-00	N		78	<0.5	2.7	4.4
	No data	23-May-00	N					
MW-13	9904141331	14-Apr-99	N		68	<0.5	5.3	11
	9909211742	21-Sep-99	N		120	0.7	1.4	<1.5
	9911231135	23-Nov-99	N		43	0.6	<0.5	<1.5
	0002091141	9-Feb-00	N		19	0.6	<0.5	<1.5
	No data	23-May-00	N					

ND = analyte not detected above method detection limit

NS = well not sampled for specified analytes

No data = records indicate wells were sampled but analytical reports are missing from files

OFF: (505) 325-5667



LAB: (505) 325-1556

**ANALYTICAL REPORT**

Date: 28-Apr-99

<b>Client:</b>	PNM - Public Service Company of NM	<b>Client Sample Info:</b>	Honolulu Loop Drip
<b>Work Order:</b>	9904025	<b>Client Sample ID:</b>	9904141140; MW-1
<b>Lab ID:</b>	9904025-01A	<b>Matrix:</b>	AQUEOUS
<b>Project:</b>	Honolulu Loop Drip	<b>Collection Date:</b>	4/14/99 11:40:00 AM
		<b>COC Record:</b>	7048

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
<b>AROMATIC VOLATILES BY GC/PID</b>		<b>SW8021B</b>			<b>Analyst: HR</b>	
Benzene	ND	0.5		µg/L	1	4/16/99
Toluene	ND	0.5		µg/L	1	4/16/99
Ethylbenzene	ND	0.5		µg/L	1	4/16/99
m,p-Xylene	ND	1		µg/L	1	4/16/99
o-Xylene	ND	0.5		µg/L	1	4/16/99

<b>Qualifiers:</b>	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: 28-Apr-99

---

<b>Client:</b>	PNM - Public Service Company of NM	<b>Client Sample Info:</b>	Honolulu Loop Drip
<b>Work Order:</b>	9904025	<b>Client Sample ID:</b>	9904141159; MW-5
<b>Lab ID:</b>	9904025-02A	<b>Matrix:</b>	AQUEOUS
<b>Project:</b>	Honolulu Loop Drip	<b>Collection Date:</b>	4/14/99 11:59:00 AM
		<b>COC Record:</b>	7048

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Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
<b>AROMATIC VOLATILES BY GC/PID</b>		<b>SW8021B</b>				<b>Analyst: HR</b>
Benzene	1100	5		µg/L	10	4/20/99
Toluene	ND	0.5		µg/L	1	4/16/99
Ethylbenzene	5.4	0.5		µg/L	1	4/16/99
m,p-Xylene	13	1		µg/L	1	4/16/99
o-Xylene	ND	0.5		µg/L	1	4/16/99

**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: 28-Apr-99

<b>Client:</b>	PNM - Public Service Company of NM	<b>Client Sample Info:</b>	Honolulu Loop Drip
<b>Work Order:</b>	9904025	<b>Client Sample ID:</b>	9904141219; MW-7
<b>Lab ID:</b>	9904025-08A	<b>Matrix:</b>	AQUEOUS
<b>Project:</b>	Honolulu Loop Drip	<b>Collection Date:</b>	4/14/99 12:19:00 PM
		<b>COC Record:</b>	7048

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
<b>AROMATIC VOLATILES BY GC/PID</b>		<b>SW8021B</b>		<b>Analyst: HR</b>		
Benzene	25	0.5		µg/L	1	4/16/99
Toluene	ND	0.5		µg/L	1	4/16/99
Ethylbenzene	2	0.5		µg/L	1	4/16/99
m,p-Xylene	8.5	1		µg/L	1	4/16/99
o-Xylene	0.5	0.5		µg/L	1	4/16/99

<b>Qualifiers:</b>	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: 28-Apr-99

<b>Client:</b>	PNM - Public Service Company of NM	<b>Client Sample Info:</b>	Honolulu Loop Drip
<b>Work Order:</b>	9904025	<b>Client Sample ID:</b>	9904141333; MW-8
<b>Lab ID:</b>	9904025-06A	<b>Matrix:</b>	AQUEOUS
<b>Project:</b>	Honolulu Loop Drip	<b>Collection Date:</b>	4/14/99 1:33:00 PM
		<b>COC Record:</b>	7048

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
<b>AROMATIC VOLATILES BY GC/PID</b>		<b>SW8021B</b>		<b>Analyst: HR</b>		
Benzene	ND	0.5		µg/L	1	4/16/99
Toluene	0.8	0.5		µg/L	1	4/16/99
Ethylbenzene	5.4	0.5		µg/L	1	4/16/99
m,p-Xylene	22	1		µg/L	1	4/16/99
o-Xylene	4.1	0.5		µg/L	1	4/16/99

<b>Qualifiers:</b>	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: 28-Apr-99

<b>Client:</b>	PNM - Public Service Company of NM	<b>Client Sample Info:</b>	Honolulu Loop Drip
<b>Work Order:</b>	9904025	<b>Client Sample ID:</b>	9904141238; MW-11
<b>Lab ID:</b>	9904025-03A	<b>Matrix:</b>	AQUEOUS
<b>Project:</b>	Honolulu Loop Drip	<b>Collection Date:</b>	4/14/99 12:38:00 PM
		<b>COC Record:</b>	7048

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

**SW8021B**

Analyst: HR

Benzene	ND	0.5		µg/L	1	4/23/99
Toluene	ND	0.5		µg/L	1	4/23/99
Ethylbenzene	ND	0.5		µg/L	1	4/23/99
m,p-Xylene	ND	1		µg/L	1	4/23/99
o-Xylene	ND	0.5		µg/L	1	4/23/99

<b>Qualifiers:</b>	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: 28-Apr-99

<b>Client:</b>	PNM - Public Service Company of NM	<b>Client Sample Info:</b>	Honolulu Loop Drip
<b>Work Order:</b>	9904025	<b>Client Sample ID:</b>	9904141302; MW-12
<b>Lab ID:</b>	9904025-04A	<b>Matrix:</b>	AQUEOUS
<b>Project:</b>	Honolulu Loop Drip	<b>Collection Date:</b>	4/14/99 1:02:00 PM
		<b>COC Record:</b>	7048

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
<b>AROMATIC VOLATILES BY GC/PID</b>		<b>SW8021B</b>			<b>Analyst: HR</b>	
Benzene	440	2.5		µg/L	5	4/20/99
Toluene	ND	2.5		µg/L	5	4/20/99
Ethylbenzene	40	2.5		µg/L	5	4/20/99
m,p-Xylene	160	5		µg/L	5	4/20/99
o-Xylene	86	2.5		µg/L	5	4/20/99

<b>Qualifiers:</b>	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: 28-Apr-99

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<b>Client:</b>	PNM - Public Service Company of NM	<b>Client Sample Info:</b>	Honolulu Loop Drip
<b>Work Order:</b>	9904025	<b>Client Sample ID:</b>	9904141331; MW-13
<b>Lab ID:</b>	9904025-05A	<b>Matrix:</b>	AQUEOUS
<b>Project:</b>	Honolulu Loop Drip	<b>Collection Date:</b>	4/14/99 1:31:00 PM
		<b>COC Record:</b>	7048

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

**SW8021B**

**Analyst: HR**

Benzene	68	0.5		µg/L	1	4/20/99
Toluene	ND	0.5		µg/L	1	4/20/99
Ethylbenzene	5.3	0.5		µg/L	1	4/20/99
m,p-Xylene	11	1		µg/L	1	4/20/99
o-Xylene	ND	0.5		µg/L	1	4/20/99

**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

Surr: - Surrogate

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- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

OFF: (505) 325-5667



LAB: (505) 325-1556

**ANALYTICAL REPORT**

Date: 09-Dec-99

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<b>Client:</b>	PNM - Public Service Company of NM	<b>Client Sample Info:</b>	Honolulu Loop Line Drip
<b>Work Order:</b>	9911038	<b>Client Sample ID:</b>	9911231048; MW-5
<b>Lab ID:</b>	9911038-01A	<b>Matrix:</b>	AQUEOUS
<b>Project:</b>	Honolulu Loop Line Drip	<b>Collection Date:</b>	11/23/99 10:48:00 AM
		<b>COC Record:</b>	7795

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Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
<b>AROMATIC VOLATILES BY GC/PID</b>		<b>SW8021B</b>				<b>Analyst: DM</b>
Benzene	180	0.5		µg/L	1	11/24/99
Toluene	0.6	0.5		µg/L	1	11/24/99
Ethylbenzene	0.7	0.5		µg/L	1	11/24/99
m,p-Xylene	1	1		µg/L	1	11/24/99
o-Xylene	0.5	0.5		µg/L	1	11/24/99

**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: 09-Dec-99

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<b>Client:</b>	PNM - Public Service Company of NM	<b>Client Sample Info:</b>	Honolulu Loop Line Drip
<b>Work Order:</b>	9911038	<b>Client Sample ID:</b>	9911231104; MW-7
<b>Lab ID:</b>	9911038-02A	<b>Matrix:</b>	AQUEOUS
<b>Project:</b>	Honolulu Loop Line Drip	<b>Collection Date:</b>	11/23/99 11:04:00 AM
		<b>COC Record:</b>	7795

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Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
<b>AROMATIC VOLATILES BY GC/PID</b>		<b>SW8021B</b>				<b>Analyst: DM</b>
Benzene	9.6	0.5		µg/L	1	11/24/99
Toluene	ND	0.5		µg/L	1	11/24/99
Ethylbenzene	ND	0.5		µg/L	1	11/24/99
m,p-Xylene	ND	1		µg/L	1	11/24/99
o-Xylene	ND	0.5		µg/L	1	11/24/99

**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: 09-Dec-99

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<b>Client:</b>	PNM - Public Service Company of NM	<b>Client Sample Info:</b>	Honolulu Loop Line Drip
<b>Work Order:</b>	9911038	<b>Client Sample ID:</b>	9911231119; MW-12
<b>Lab ID:</b>	9911038-03A	<b>Matrix:</b>	AQUEOUS
<b>Project:</b>	Honolulu Loop Line Drip	<b>Collection Date:</b>	11/23/99 11:19:00 AM
		<b>COC Record:</b>	7795

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Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
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Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
<b>AROMATIC VOLATILES BY GC/PID</b>		<b>SW8021B</b>				<b>Analyst: DM</b>
Benzene	240	2.5		µg/L	5	12/6/99
Toluene	2.8	2.5		µg/L	5	12/6/99
Ethylbenzene	15	2.5		µg/L	5	12/6/99
m,p-Xylene	33	5		µg/L	5	12/6/99
o-Xylene	1.8	0.5		µg/L	1	11/24/99

**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: 11-Oct-99

<b>Client:</b> PNM - Public Service Company of NM	<b>Client Sample Info:</b> Honolulu Loop Line Drip
<b>Work Order:</b> 9909074	<b>Client Sample ID:</b> 9909211654; MW-5
<b>Lab ID:</b> 9909074-01A <b>Matrix:</b> AQUEOUS	<b>Collection Date:</b> 09/21/1999 4:54:00 PM
<b>Project:</b> Honolulu Loop Line Drip	<b>COC Record:</b> 7788

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
<b>AROMATIC VOLATILES BY GC/PID</b>		<b>SW8021B</b>		<b>Analyst: DM</b>		
Benzene	20	0.5		µg/L	1	09/27/1999
Toluene	1.7	0.5		µg/L	1	09/27/1999
Ethylbenzene	2.9	0.5		µg/L	1	09/27/1999
m,p-Xylene	ND	1		µg/L	1	09/27/1999
o-Xylene	ND	0.5		µg/L	1	09/27/1999

<b>Qualifiers:</b>	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: 11-Oct-99

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<b>Client:</b>	PNM - Public Service Company of NM	<b>Client Sample Info:</b>	Honolulu Loop Line Drip
<b>Work Order:</b>	9909074	<b>Client Sample ID:</b>	9909211744; MW-7
<b>Lab ID:</b>	9909074-02A	<b>Matrix:</b>	AQUEOUS
<b>Project:</b>	Honolulu Loop Line Drip	<b>Collection Date:</b>	09/21/1999 5:44:00 PM
		<b>COC Record:</b>	7788

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Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
<b>AROMATIC VOLATILES BY GC/PID</b>		<b>SW8021B</b>				<b>Analyst: DM</b>
Benzene	61	0.5		µg/L	1	09/27/1999
Toluene	ND	0.5		µg/L	1	09/27/1999
Ethylbenzene	ND	0.5		µg/L	1	09/27/1999
m,p-Xylene	ND	1		µg/L	1	09/27/1999
o-Xylene	ND	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

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**ANALYTICAL REPORT**

Date: 11-Oct-99

<b>Client:</b>	PNM - Public Service Company of NM	<b>Client Sample Info:</b>	Honolulu Loop Line Drip
<b>Work Order:</b>	9909074	<b>Client Sample ID:</b>	9909211723; MW-12
<b>Lab ID:</b>	9909074-03A	<b>Matrix:</b>	AQUEOUS
<b>Project:</b>	Honolulu Loop Line Drip	<b>Collection Date:</b>	09/21/1999 5:23:00 PM
		<b>COC Record:</b>	7788

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
<b>AROMATIC VOLATILES BY GC/PID</b>		<b>SW8021B</b>				Analyst: DM
Benzene	94	0.5		µg/L	1	09/29/1999
Toluene	1.8	0.5		µg/L	1	09/29/1999
Ethylbenzene	5.5	0.5		µg/L	1	09/29/1999
m,p-Xylene	5.3	1		µg/L	1	09/29/1999
o-Xylene	ND	0.5		µg/L	1	09/29/1999

**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	Sur: - Surrogate

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### ANALYTICAL REPORT

Date: 11-Oct-99

<b>Client:</b>	PNM - Public Service Company of NM	<b>Client Sample Info:</b>	Honolulu Loop Line Drip
<b>Work Order:</b>	9909074	<b>Client Sample ID:</b>	9909211742; MW-13
<b>Lab ID:</b>	9909074-04A	<b>Matrix:</b>	AQUEOUS
<b>Project:</b>	Honolulu Loop Line Drip	<b>Collection Date:</b>	09/21/1999 5:42:00 PM
		<b>COC Record:</b>	7788

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
<b>AROMATIC VOLATILES BY GC/PID</b>		<b>SW8021B</b>			<b>Analyst: DM</b>	
Benzene	120	0.5		µg/L	1	09/27/1999
Toluene	0.7	0.5		µg/L	1	09/27/1999
Ethylbenzene	1.4	0.5		µg/L	1	09/27/1999
m,p-Xylene	1.4	1		µg/L	1	09/27/1999
o-Xylene	ND	0.5		µg/L	1	09/27/1999

<b>Qualifiers:</b>	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: 28-Feb-00

<b>Client:</b> PNM - Public Service Company of NM	<b>Client Sample Info:</b> Honolulu Loop Drip
<b>Work Order:</b> 0002033	<b>Client Sample ID:</b> 0002091046; MW-5
<b>Lab ID:</b> 0002033-01A <b>Matrix:</b> AQUEOUS	<b>Collection Date:</b> 2/9/2000 10:46:00 AM
<b>Project:</b> Honolulu Loop Drip	<b>COC Record:</b> 7872

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
<b>AROMATIC VOLATILES BY GC/PID</b>		<b>SW8021B</b>		<b>Analyst: DC</b>		
Benzene	490	5		µg/L	10	2/22/2000
Toluene	2.8	0.5		µg/L	1	2/18/2000
Ethylbenzene	13	0.5		µg/L	1	2/18/2000
m,p-Xylene	27	1		µg/L	1	2/18/2000
o-Xylene	ND	0.5		µg/L	1	2/18/2000

**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: 28-Feb-00

<b>Client:</b>	PNM - Public Service Company of NM	<b>Client Sample Info:</b>	Honolulu Loop Drip
<b>Work Order:</b>	0002033	<b>Client Sample ID:</b>	0002091153; MW-7
<b>Lab ID:</b>	0002033-04A	<b>Matrix:</b>	AQUEOUS
<b>Project:</b>	Honolulu Loop Drip	<b>Collection Date:</b>	2/9/2000 11:53:00 AM
		<b>COC Record:</b>	7872

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
<b>AROMATIC VOLATILES BY GC/PID</b>		<b>SW8021B</b>			<b>Analyst: DC</b>	
Benzene	30	0.5		µg/L	1	2/18/2000
Toluene	2.1	0.5		µg/L	1	2/18/2000
Ethylbenzene	10	0.5		µg/L	1	2/18/2000
m,p-Xylene	25	1		µg/L	1	2/18/2000
o-Xylene	6.4	0.5		µg/L	1	2/18/2000

**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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**ANALYTICAL REPORT**

Date: 28-Feb-00

<b>Client:</b>	PNM - Public Service Company of NM	<b>Client Sample Info:</b>	Honolulu Loop Drip
<b>Work Order:</b>	0002033	<b>Client Sample ID:</b>	0002091121; MW-12
<b>Lab ID:</b>	0002033-02A	<b>Matrix:</b>	AQUEOUS
<b>Project:</b>	Honolulu Loop Drip	<b>Collection Date:</b>	2/9/2000 11:21:00 AM
		<b>COC Record:</b>	7872

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
<b>AROMATIC VOLATILES BY GC/PID</b>		<b>SW8021B</b>		Analyst: DC		
Benzene	78	0.5		µg/L	1	2/22/2000
Toluene	ND	0.5		µg/L	1	2/22/2000
Ethylbenzene	2.7	0.5		µg/L	1	2/22/2000
m,p-Xylene	4.4	1		µg/L	1	2/22/2000
o-Xylene	ND	0.5		µg/L	1	2/22/2000

**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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**ANALYTICAL REPORT**

**Date: 28-Feb-00**

<b>Client:</b>	PNM - Public Service Company of NM	<b>Client Sample Info:</b>	Honolulu Loop Drip
<b>Work Order:</b>	0002033	<b>Client Sample ID:</b>	0002091141; MW-13
<b>Lab ID:</b>	0002033-03A	<b>Matrix:</b>	AQUEOUS
<b>Project:</b>	Honolulu Loop Drip	<b>Collection Date:</b>	2/9/2000 11:41:00 AM
		<b>COC Record:</b>	7872

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
<b>AROMATIC VOLATILES BY GC/PID</b>		<b>SW8021B</b>		<b>Analyst: DC</b>		
Benzene	19	0.5		µg/L	1	2/18/2000
Toluene	0.6	0.5		µg/L	1	2/18/2000
Ethylbenzene	ND	0.5		µg/L	1	2/18/2000
m,p-Xylene	ND	1		µg/L	1	2/18/2000
o-Xylene	ND	0.5		µg/L	1	2/18/2000

<b>Qualifiers:</b>	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