

**3R - 314**

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# **REPORTS**

**DATE:**

**1997**

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Public Service Company  
of New Mexico  
Alvarado Square MS. 0408  
Albuquerque, NM 87158

April 15, 1997

Mr. William Olson  
Hydrogeologist  
Oil Conservation Division  
2040 So. Pacheco  
Santa Fe, New Mexico 87505



**RE: 1997 SAN JUAN BASIN ANNUAL GROUNDWATER REPORT**

Dear Bill:

PNM is pleased to submit the 1997 Annual Groundwater Report on Unlined Surface Impoundments in the San Juan Basin. Pursuant to PNM's Groundwater Management Program for Unlined Surface Impoundment Closures, the report details the ongoing investigation/remedial activities at unlined surface impoundments having groundwater contamination as identified by PNM. A list of groundwater sites reported in this document is provided below.

Cozzens B1  
Florance 32A  
Florance 40  
Florance 44  
Florance 47X  
Florance 124  
Hampton 4M  
Honolulu Loop-Line Drip  
Jacques 2A  
Kaufmann 1  
Mangum 1E  
McClanahan A2E  
McClanahan 22  
McCoy A1A  
Reid 16 Drip  
Templeton 1E  
Zachry 18E

**RECEIVED**

**APR 16 1997**

Environmental Bureau  
Oil Conservation Division

PNM plans to request closure of two of the above sites, the Florance 124 and the Templeton 1E, in our April 30, 1997 filing of the San Juan Pit Closure Reports to the OCD Santa Fe office. We did not report on our newest groundwater site, the Sammons 2, since this was discovered in the second quarter of 1997. If you have any questions regarding the contents of the report, please contact me at (505) 241-2974.

Sincerely,

A handwritten signature in cursive script that reads "Maureen Gannon".

Maureen Gannon  
Project Manager

Attachment

cc: Denver Bearden, PNMGS  
Denny Foust, OCD-Aztec Office  
Robin Prisk, WFS

97rptltr.doc

**PNM 1997 San Juan Basin Groundwater Report  
April 15, 1997**

**Prepared for:**

**New Mexico Oil Conservation Division  
2040 South Pacheco  
Santa Fe, New Mexico 87505**

**Prepared by:**

**Public Service Company of New Mexico  
Environmental Services Department  
Alvarado Square - MS 0408  
Albuquerque, New Mexico 87158**

PNMGS Well Site: Florance 32A

## **Groundwater Site Summary Report**

Quarter/Year: 4/96 & 1/97

Copies: WFS (1)  
Operator (1)  
NMOCD District Office (1)  
NMOCD Santa Fe (1)

Operator: Amoco

Sec: 15 Twn: 30 Rng: 8 Unit: F

Canyon: San Juan River

Vulnerable Class: Original

OCD Ranking: 30

Lead Agency: NMOCD

Topo Map: previously submitted

Well Completion Diagram: previously submitted

Full Suite-Groundwater Results: previously submitted

Site Map with Analysis: Figure 1

Groundwater Contour Map: Figure 2 (December 1996)

Groundwater Contour Map: Figure 3 (February 1997)

Groundwater Hydrograph: Figure 4

Analytical Results: attached

### **Activities for Two Previous Quarters (Oct. - Dec. 1996 & Jan. - Mar. 1997):**

PNM conducted groundwater sampling at the Florance 32A on December 6, 1997 and again on February 7, 1997. Prior to sampling, water level measurements were taken in each of the five monitoring wells. PNM collected groundwater samples in all wells except MW-4 for chemical analyses of benzene, toluene, ethylbenzene, and xylenes (BTEX). MW-4 was not sampled during the February 1997 sampling event since MW-3 is an established clean well located up- and cross-gradient from the source area. PNM also resampled MW-2 on February 7 for Water Quality Control Commission (WQCC) metals: cadmium (Cd), lead (Pb), and selenium (Se) (dissolved) due to a laboratory error during the initial round of sampling conducted on December 6. All sampling was performed in strict compliance with EPA protocol. PNM delivered the samples to OnSite Technologies, Farmington, New Mexico. The samples were analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX) using EPA Method 8020, and WQCC metals- filtered: Cd, Pb and Se using inductively coupled plasma (ICP).

### **Results:**

Figure 1 is a site map of the Florance 32A and includes groundwater analytical results. BTEX concentrations in the area of the former pit remain above standards but show a downward trend. BTEX in groundwater in all other wells continue to be below standards. Cd, Pb and Se were not detected in MW-2.

Figure(s) 2 and 3 are groundwater contour maps of the site for December 1996 and March 1997, respectively. Groundwater currently flows in a southwesterly direction beneath the site. Figure 4 is the hydrograph of the site; groundwater elevations have risen over the last two quarters in all wells due to increase precipitation in the region.

### **Further Action:**

PNM will continue to monitor the groundwater gradient and perform quarterly sampling at the site. After the next quarterly sampling event, PNM will evaluate the need for additional source removal if BTEX concentrations do not continue to show a measurable decrease.

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### **Public Service Company of New Mexico - Gas Services**

Environmental Services Division - Alvarado Square, MS-0408  
Albuquerque, NM 87158

Contact: Maureen Gannon

Telephone: 505-241-2974

Figure 1. Florance 32A: Site Map With Analytical Results  
(Concentrations in ppb)

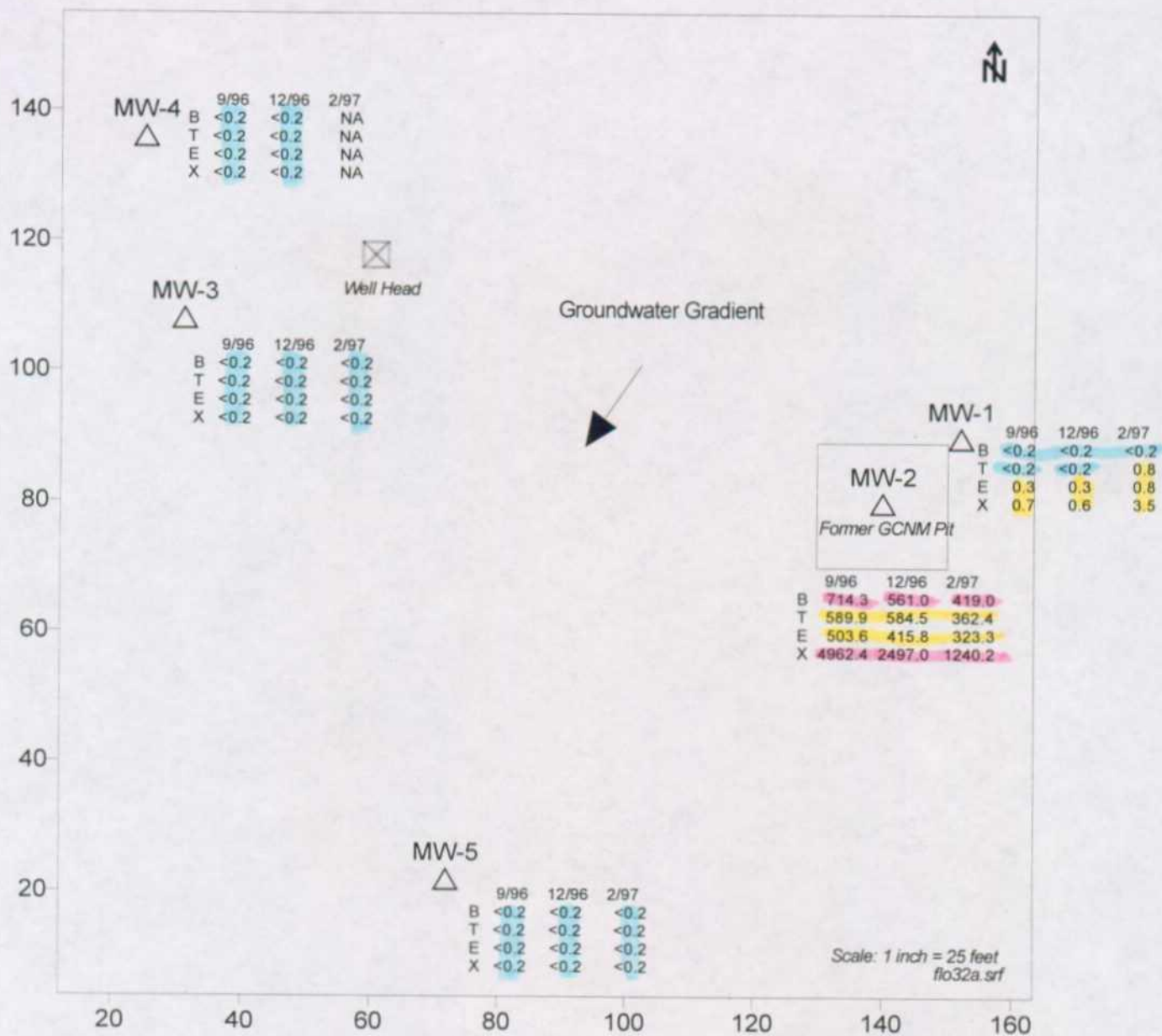


Figure 2. Florance 32A Groundwater Contour Map (December 1996)

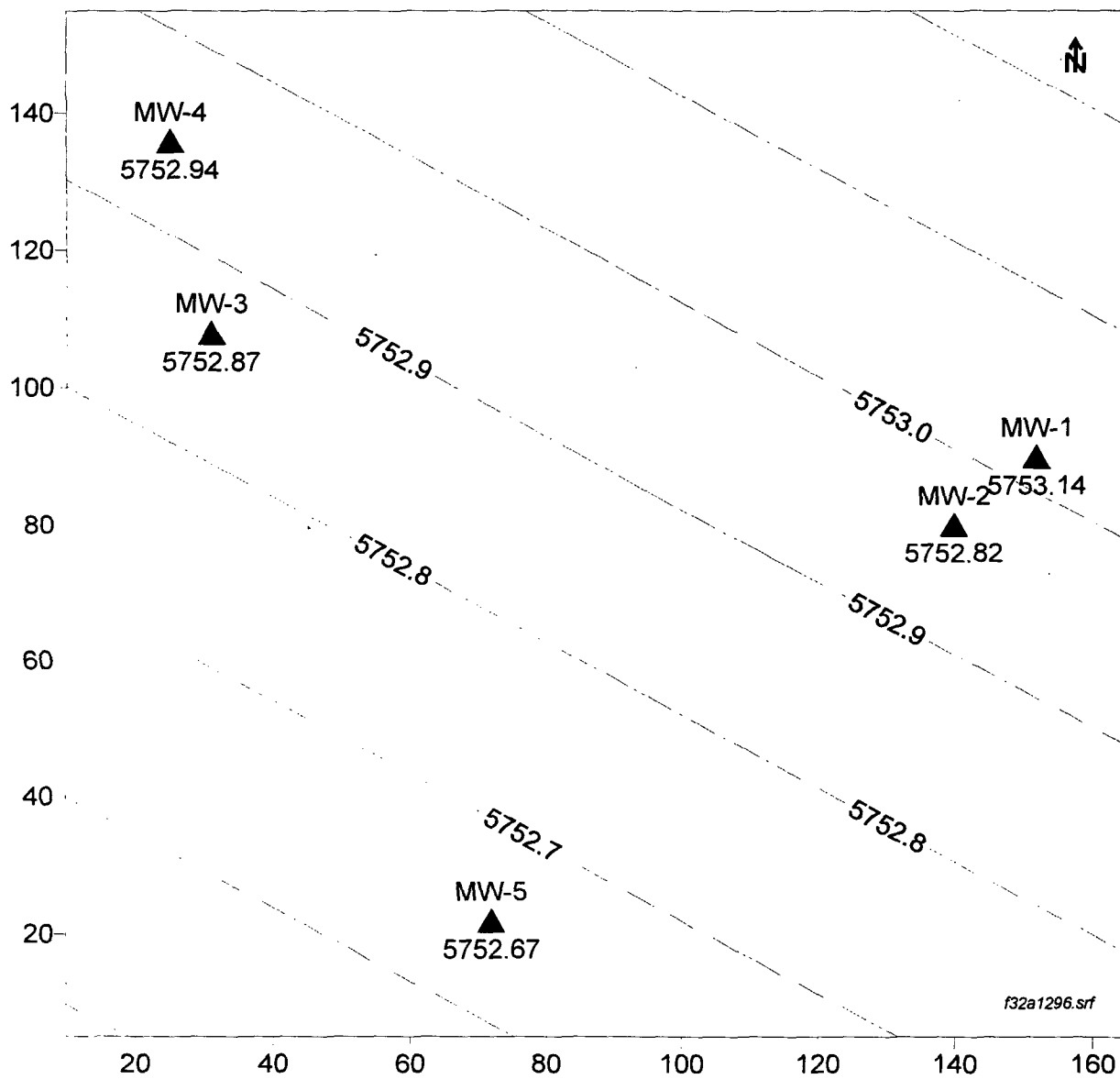


Figure 3. Florance 32A Groundwater Contour Map (February 1997)

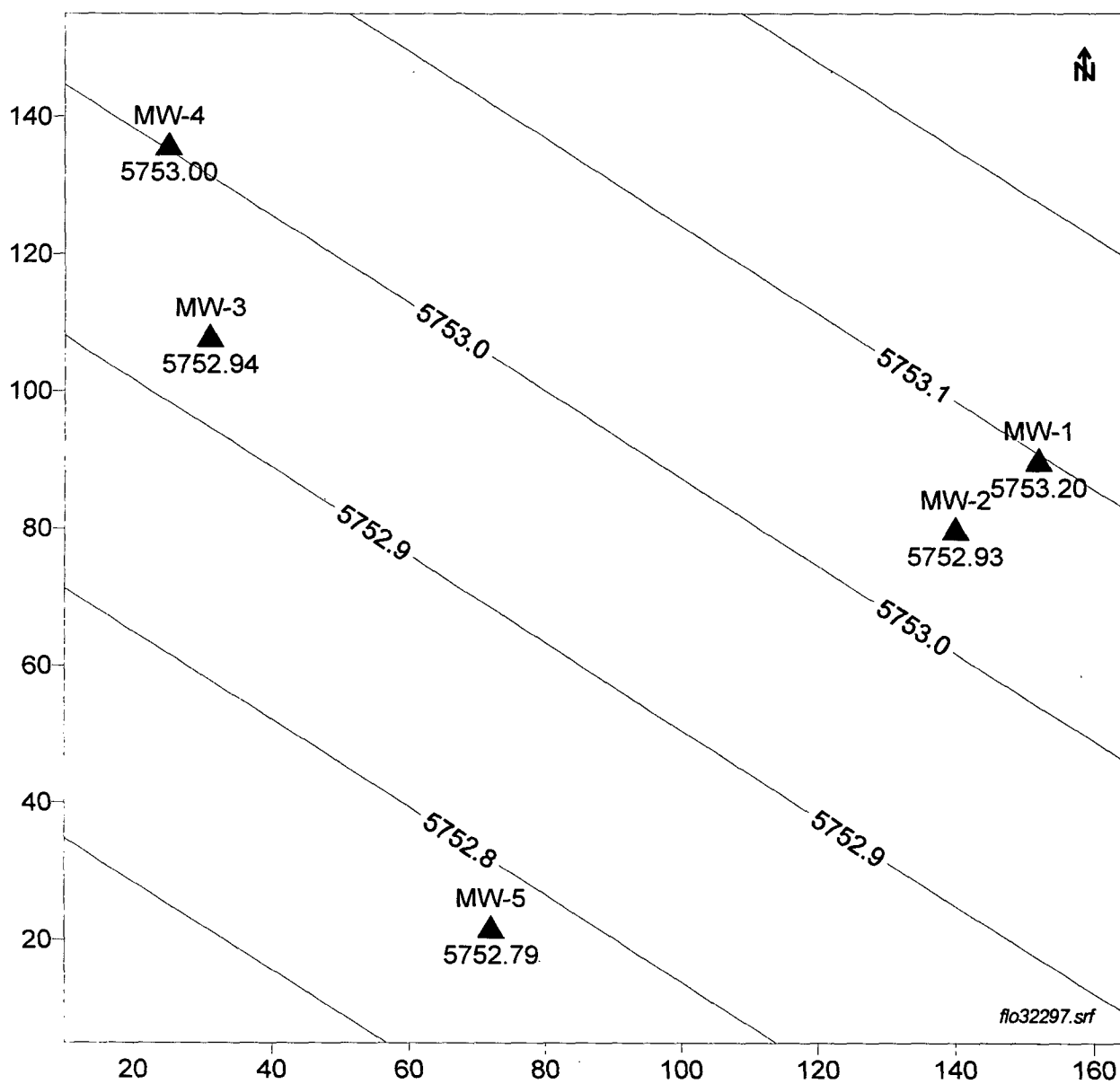
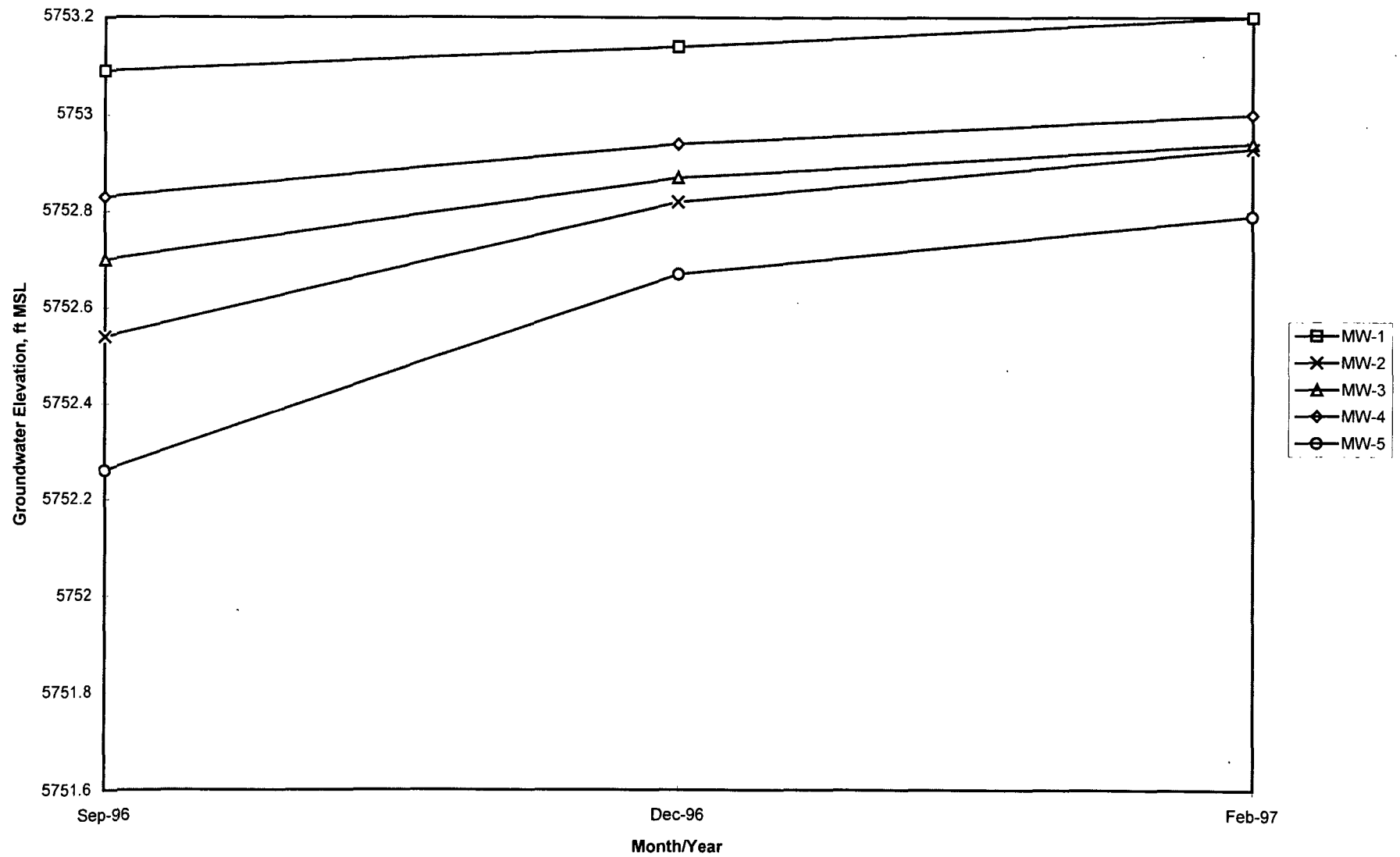


Figure 4. Florance 32A Hydrograph  
(Time vs. Water Level)





OFF: (505) 325-5667



LAB: (505) 325-1556

### AROMATIC VOLATILE ORGANICS

Attn: *Denver Bearden*  
Company: *PNM Gas Services*  
Address: *603 W. Elm*  
City, State: *Farmington, NM 87401*

Date: *12-Dec-96*  
COC No.: *5705*  
Sample No.: *13116*  
Job No.: *2-1000*

Project Name: *PNM Gas Services - Florance 32A*

Project Location: *9612060930; MW-1*

Sampled by: *MS* Date: *6-Dec-96* Time: *9:30*

Analyzed by: *DC* Date: *10-Dec-96*

Sample Matrix: *Water*

### Laboratory Analysis

Parameter	Result	Unit of Measure	Detection Limit	Unit of Measure
<i>Benzene</i>	<i>&lt;0.2</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>Toluene</i>	<i>&lt;0.2</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>Ethylbenzene</i>	<i>0.3</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>m,p-Xylene</i>	<i>0.4</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>o-Xylene</i>	<i>0.2</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
	<i>TOTAL</i>	<i>0.9</i>		<i>ug/L</i>

**Method** - *SW-846 EPA Method 8020 Aromatic Volatile Organics by Gas Chromatography*

Approved by: *[Signature]*  
Date: *12/12/96*

OFF: (505) 325-5667



LAB: (505) 325-1556

**AROMATIC VOLATILE ORGANICS**

Attn: *Denver Bearden*  
Company: *PNM Gas Services*  
Address: *603 W. Elm*  
City, State: *Farmington, NM 87401*

Date: *12-Dec-96*  
COC No.: *5705*  
Sample No.: *13117*  
Job No.: *2-1000*

Project Name: *PNM Gas Services - Florance 32A*  
Project Location: *9612061000; MW-2*  
Sampled by: *MS*  
Analyzed by: *DC*  
Sample Matrix: *Water*

Date: *6-Dec-96* Time: *10:00*  
Date: *11-Dec-96*

**Laboratory Analysis**

Parameter	Result	Unit of Measure	Detection Limit	Unit of Measure
<i>Benzene</i>	<i>561.0</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>Toluene</i>	<i>584.5</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>Ethylbenzene</i>	<i>415.8</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>m,p-Xylene</i>	<i>2010.3</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>o-Xylene</i>	<i>486.7</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>TOTAL</i>		<i>4058.3</i>		<i>ug/L</i>

**Method - SW-846 EPA Method 8020 Aromatic Volatile Organics by Gas Chromatography**

Approved by: *[Signature]*  
Date: *12/12/96*

OFF: (505) 325-5667



LAB: (505) 325-1556

### AROMATIC VOLATILE ORGANICS

Attn: *Denver Bearden*  
Company: *PNM Gas Services*  
Address: *603 W. Elm*  
City, State: *Farmington, NM 87401*

Date: *12-Dec-96*  
COC No.: *5705*  
Sample No.: *13118*  
Job No.: *2-1000*

Project Name: *PNM Gas Services - Florance 32A*  
Project Location: *9612061030; MW-3*  
Sampled by: *MS*  
Analyzed by: *DC*  
Sample Matrix: *Water*

Date: *6-Dec-96* Time: *10:30*  
Date: *11-Dec-96*

#### Laboratory Analysis

Parameter	Result	Unit of Measure	Detection Limit	Unit of Measure
<i>Benzene</i>	<i>&lt;0.2</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>Toluene</i>	<i>&lt;0.2</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>Ethylbenzene</i>	<i>&lt;0.2</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>m,p-Xylene</i>	<i>&lt;0.2</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>o-Xylene</i>	<i>&lt;0.2</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>TOTAL</i>		<i>&lt;0.2</i>		<i>ug/L</i>

**Method** - *SW-846 EPA Method 8020 Aromatic Volatile Organics by Gas Chromatography*

Approved by: *[Signature]*  
Date: *12/12/96*

OFF: (505) 325-5667



LAB: (505) 325-1556

**AROMATIC VOLATILE ORGANICS**

Attn: *Denver Bearden*  
Company: *PNM Gas Services*  
Address: *603 W. Elm*  
City, State: *Farmington, NM 87401*

Date: *12-Dec-96*  
COC No.: *5705*  
Sample No.: *13119*  
Job No.: *2-1000*

Project Name: *PNM Gas Services - Florance 32A*

Project Location: *9612061100; MW-4*

Sampled by: *MS* Date: *6-Dec-96* Time: *11:00*

Analyzed by: *DC* Date: *11-Dec-96*

Sample Matrix: *Water*

**Laboratory Analysis**

<i>Parameter</i>	<i>Result</i>	<i>Unit of Measure</i>	<i>Detection Limit</i>	<i>Unit of Measure</i>
<i>Benzene</i>	<i>&lt;0.2</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>Toluene</i>	<i>&lt;0.2</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>Ethylbenzene</i>	<i>&lt;0.2</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>m,p-Xylene</i>	<i>&lt;0.2</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>o-Xylene</i>	<i>&lt;0.2</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>TOTAL</i>	<i>&lt;0.2</i>	<i>ug/L</i>		

**Method** - *SW-846 EPA Method 8020 Aromatic Volatile Organics by Gas Chromatography*

Approved by: 

Date: *12/12/96*

OFF: (505) 325-5667



LAB: (505) 325-1556

### AROMATIC VOLATILE ORGANICS

Attn: *Denver Bearden*  
Company: *PNM Gas Services*  
Address: *603 W. Elm*  
City, State: *Farmington, NM 87401*

Date: *12-Dec-96*  
COC No.: *5705*  
Sample No.: *13120*  
Job No.: *2-1000*

Project Name: *PNM Gas Services - Florance 32A*  
Project Location: *9612061130; MW-5*  
Sampled by: *MS*  
Analyzed by: *DC*  
Sample Matrix: *Water*

Date: *6-Dec-96* Time: *11:30*  
Date: *11-Dec-96*

#### Laboratory Analysis

Parameter	Result	Unit of Measure	Detection Limit	Unit of Measure
<i>Benzene</i>	<i>&lt;0.2</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>Toluene</i>	<i>&lt;0.2</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>Ethylbenzene</i>	<i>&lt;0.2</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>m,p-Xylene</i>	<i>&lt;0.2</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>o-Xylene</i>	<i>&lt;0.2</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
	<i>TOTAL</i>	<i>&lt;0.2</i>		<i>ug/L</i>

**Method** - SW-846 EPA Method 8020 Aromatic Volatile Organics by Gas Chromatography

Approved by: *[Signature]*  
Date: *12/12/96*

OFF: (505) 325-5667



LAB: (505) 325-1556

### AROMATIC VOLATILE ORGANICS

Attn: *Denver Bearden*  
Company: *PNM Gas Services*  
Address: *603 W. Elm*  
City, State: *Farmington, NM 87401*

Date: *12-Dec-96*  
COC No.: *5705*  
Sample No.: *13121*  
Job No.: *2-1000*

Project Name: *PNM Gas Services - Florance 32A*  
Project Location: *9612061200; MW-6*  
Sampled by: *MS*  
Analyzed by: *DC*  
Sample Matrix: *Water*

Date: *6-Dec-96* Time: *12:00*  
Date: *11-Dec-96*

#### Laboratory Analysis

Parameter	Result	Unit of Measure	Detection Limit	Unit of Measure
<i>Benzene</i>	<i>578.9</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>Toluene</i>	<i>608.8</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>Ethylbenzene</i>	<i>429.5</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>m,p-Xylene</i>	<i>2085.0</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>o-Xylene</i>	<i>506.5</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>TOTAL</i>		<i>4208.6</i>		<i>ug/L</i>

**Method** - SW-846 EPA Method 8020 Aromatic Volatile Organics by Gas Chromatography

Approved by: *[Signature]*  
Date: *12/12/96*

OFF: (505) 325-5667



LAB: (505) 325-1556

**QUALITY ASSURANCE REPORT**  
for EPA Method 8020

Date Analyzed: 10-Dec-96

Internal QC No.: 0515-QC  
Surrogate QC No.: 0516-QC  
Reference Standard QC No.: 0417-QC

**Method Blank**

Parameter	Result	Unit of Measure
Average Amount of All Analytes In Blank	<0.2	ppb

**Calibration Check**

Parameter	Unit of Measure	True Value	Analyzed Value	% Diff	Limit
Benzene	ppb	20.0	20.0	0	15%
Toluene	ppb	20.0	22.9	15	15%
Ethylbenzene	ppb	20.0	22.2	11	15%
m,p-Xylene	ppb	40.0	43.2	8	15%
o-Xylene	ppb	20.0	22.8	14	15%

**Matrix Spike**

Parameter	1- Percent Recovered	2 - Percent Recovered	Limit	%RSD	Limit
Benzene	93	89	(39-150)	3	20%
Toluene	98	94	(46-148)	3	20%
Ethylbenzene	100	96	(32-160)	3	20%
m,p-Xylene	97	93	(35-145)	3	20%
o-Xylene	99	96	(35-145)	3	20%

**Surrogate Recoveries**

Laboratory Identification	S1 Percent Recovered	S2 Percent Recovered
Limit Percent Recovered	(70-130)	
13116-5705	94	

S1: Fluorobenzene

A handwritten signature, possibly "PC", enclosed in a small circle.

OFF: (505) 325-5667



LAB: (505) 325-1556

**QUALITY ASSURANCE REPORT**  
for EPA Method 8020

Date Analyzed: 11-Dec-96

Internal QC No.: 0515-QC

Surrogate QC No.: 0516-QC

Reference Standard QC No.: 0417-QC

**Method Blank**

Parameter	Result	Unit of Measure
Average Amount of All Analytes In Blank	<0.2	ppb

**Calibration Check**

Parameter	Unit of Measure	True Value	Analyzed Value	% Diff	Limit
Benzene	ppb	20.0	18.8	6	15%
Toluene	ppb	20.0	19.7	2	15%
Ethylbenzene	ppb	20.0	20.4	2	15%
m,p-Xylene	ppb	40.0	40.3	1	15%
o-Xylene	ppb	20.0	20.3	2	15%

**Matrix Spike**

Parameter	1 - Percent Recovered	2 - Percent Recovered	Limit	%RSD	Limit
Benzene	93	89	(39-150)	3	20%
Toluene	98	94	(46-148)	3	20%
Ethylbenzene	100	96	(32-160)	3	20%
m,p-Xylene	97	93	(35-145)	3	20%
o-Xylene	99	96	(35-145)	3	20%

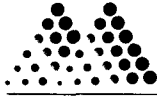
**Surrogate Recoveries**

Laboratory Identification	S1 Percent Recovered	S2 Percent Recovered
Limit Percent Recovered	(70-130)	
13117-5705	95	
13118-5705	95	
13119-5705	95	
13120-5705	94	
13121-5705	95	

S1: Fluorobenzene







## Mountain States Analytical

The Quality Solution

On Site Technologies, Ltd.  
612 E Murray Drive  
Farmington, NM 87401

Attn: Mr. David Cox  
Project: Florance 32

Sample ID: 13190-5423 (Dissolved) 9612191240; MW-2  
Matrix: Waste Water

MSAI Sample: 57189  
MSAI Group: 14759  
Date Reported: 01/03/97  
Discard Date: 02/02/97  
Date Submitted: 12/24/96  
Date Sampled: 12/19/96  
Collected by: RD  
Purchase Order: 5432  
Project No.: PNM 1002

Test	Analysis	Results as Received	Units	Method Detection Limit
0249F	Cadmium by ICP, Dissolved Method: SW-846 6010A	ND	mg/l	0.004
0255F	Lead by ICP, Dissolved Method: SW-846 6010A	ND	mg/l	0.040
0392I	Flame/ICP Prep for Metals, Waters Method: SW-846 3005A	Complete		
0401	Prep for HAA, ww Method: SW-846 7061A	Complete		
1450	Selenium by HAA, ww Diss, 7741 Method: SW-846 7741	ND	mg/l	0.003
0939	Sample Filtering Method: MSAI IN-HOUSE	Complete		

Respectfully Submitted,  
Reviewed and Approved by:

  
Rolf E. Larsen  
Project Manager

OFF: (505) 325-5667



LAB: (505) 325-1556

### ANALYTICAL REPORT

*for W-4 Not Sampled*

Attn: **Denver Bearden**  
Company: **PNM Gas Services**  
Address: **603 W. Elm**  
City, State: **Farmington, NM 87401**

Date: **12-Feb-97**  
COC No.: **5736**  
Sample No.: **13648**  
Job No.: **2-1000**

Project Name: **PNM Gas Services - Florance 32A**  
Project Location: **9702071030; MW-1**  
Sampled by: **MS/MG**  
Analyzed by: **DC**  
Sample Matrix: **Liquid**

Date: **7-Feb-97** Time: **10:30**  
Date: **12-Feb-97**

### Laboratory Analysis

Parameter	Result	Unit of Measure	Detection Limit	Unit of Measure
Benzene	<0.2	ug/L	0.2	ug/L
Toluene	<0.2	ug/L	0.2	ug/L
Ethylbenzene	0.8	ug/L	0.2	ug/L
m,p-Xylene	3.1	ug/L	0.2	ug/L
o-Xylene	0.4	ug/L	0.2	ug/L
TOTAL		4.3		ug/L

**Method** - SW-846 EPA Method 8020 Aromatic Volatile Organics by Gas Chromatography

Approved by: *[Signature]*  
Date: *2/12/97*

P.O. BOX 2606 • FARMINGTON, NM 87499

- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

OFF: (505) 325-5667



LAB: (505) 325-1556

### ANALYTICAL REPORT

Attn: *Denver Bearden*  
Company: *PNM Gas Services*  
Address: *603 W. Elm*  
City, State: *Farmington, NM 87401*

Date: *12-Feb-97*  
COC No.: *5736*  
Sample No.: *13649*  
Job No.: *2-1000*

Project Name: *PNM Gas Services - Florance 32A*  
Project Location: *9702071100; MW-2*  
Sampled by: *MS/MG*  
Analyzed by: *DC*  
Sample Matrix: *Liquid*

Date: *7-Feb-97* Time: *11:00*  
Date: *12-Feb-97*

#### Laboratory Analysis

Parameter	Result	Unit of Measure	Detection Limit	Unit of Measure
<i>Benzene</i>	<i>419.0</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>Toluene</i>	<i>362.4</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>Ethylbenzene</i>	<i>332.3</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>m,p-Xylene</i>	<i>912.2</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>o-Xylene</i>	<i>328.0</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>TOTAL</i>		<i>2353.9</i>		<i>ug/L</i>

**Method** - *SW-846 EPA Method 8020 Aromatic Volatile Organics by Gas Chromatography*

Approved by: *[Signature]*  
Date: *2/12/97*

P.O. BOX 2606 • FARMINGTON, NM 87499

- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

OFF: (505) 325-5667



LAB: (505) 325-1556

### ANALYTICAL REPORT

Attn: *Denver Bearden*  
Company: *PNM Gas Services*  
Address: *603 W. Elm*  
City, State: *Farmington, NM 87401*

Date: *12-Feb-97*  
COC No.: *5736*  
Sample No.: *13650*  
Job No.: *2-1000*

Project Name: *PNM Gas Services - Florance 32A*  
Project Location: *9702071130; MW-3*  
Sampled by: *MS/MG*  
Analyzed by: *DC*  
Sample Matrix: *Liquid*

Date: *7-Feb-97* Time: *11:30*  
Date: *12-Feb-97*

#### Laboratory Analysis

Parameter	Result	Unit of Measure	Detection Limit	Unit of Measure
<i>Benzene</i>	<i>&lt;0.2</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>Toluene</i>	<i>&lt;0.2</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>Ethylbenzene</i>	<i>&lt;0.2</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>m,p-Xylene</i>	<i>&lt;0.2</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>o-Xylene</i>	<i>&lt;0.2</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>TOTAL</i>		<i>&lt;0.2</i>		<i>ug/L</i>

**Method** - *SW-846 EPA Method 8020 Aromatic Volatile Organics by Gas Chromatography*

Approved by: *[Signature]*  
Date: *2/12/97*

OFF: (505) 325-5667



LAB: (505) 325-1556

### ANALYTICAL REPORT

Attn: *Denver Bearden*  
Company: *PNM Gas Services*  
Address: *603 W. Elm*  
City, State: *Farmington, NM 87401*

Date: *12-Feb-97*  
COC No.: *5736*  
Sample No.: *13651*  
Job No.: *2-1000*

Project Name: *PNM Gas Services - Florance 32A*  
Project Location: *9702071200; MW-5*  
Sampled by: *MS/MG* Date: *7-Feb-97* Time: *12:00*  
Analyzed by: *DC* Date: *11-Feb-97*  
Sample Matrix: *Liquid*

#### Laboratory Analysis

Parameter	Result	Unit of Measure	Detection Limit	Unit of Measure
<i>Benzene</i>	<i>&lt;0.2</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>Toluene</i>	<i>&lt;0.2</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>Ethylbenzene</i>	<i>&lt;0.2</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>m,p-Xylene</i>	<i>&lt;0.2</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>o-Xylene</i>	<i>&lt;0.2</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>TOTAL</i>	<i>&lt;0.2</i>	<i>ug/L</i>		

**Method** - SW-846 EPA Method 8020 Aromatic Volatile Organics by Gas Chromatography

Approved by: *[Signature]*  
Date: *2/12/97*

P.O. BOX 2606 • FARMINGTON, NM 87499

- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

OFF: (505) 325-5667



LAB: (505) 325-1556

### ANALYTICAL REPORT

Attn: *Denver Bearden*  
Company: *PNM Gas Services*  
Address: *603 W. Elm*  
City, State: *Farmington, NM 87401*

Date: *12-Feb-97*  
COC No.: *5736*  
Sample No.: *13652*  
Job No.: *2-1000*

Project Name: *PNM Gas Services - Florance 32A*  
Project Location: *9702071215; MW-6 MW-5 DUP*  
Sampled by: *MS/MG*  
Analyzed by: *DC*  
Sample Matrix: *Liquid*

Date: *7-Feb-97* Time: *12:15*  
Date: *11-Feb-97*

#### Laboratory Analysis

Parameter	Result	Unit of Measure	Detection Limit	Unit of Measure
<i>Benzene</i>	<i>&lt;0.2</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>Toluene</i>	<i>&lt;0.2</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>Ethylbenzene</i>	<i>&lt;0.2</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>m,p-Xylene</i>	<i>&lt;0.2</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>o-Xylene</i>	<i>&lt;0.2</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>TOTAL</i>		<i>&lt;0.2</i>		<i>ug/L</i>

**Method** - SW-846 EPA Method 8020 Aromatic Volatile Organics by Gas Chromatography

Approved by: *[Signature]*

Date: *2/12/97*

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- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

OFF: (505) 325-5667



LAB: (505) 325-1556

### QUALITY ASSURANCE REPORT for EPA Method 8020

Date Analyzed: 11-Feb-97

Internal QC No.: 0527-STD

Surrogate QC No.: 0528-STD

Reference Standard QC No.: 0417-QC

#### Method Blank

Parameter	Result	Unit of Measure
Average Amount of All Analytes In Blank	<0.2	ppb

#### Calibration Check

Parameter	Unit of Measure	True Value	Analyzed Value	% Diff	Limit
Benzene	ppb	20.0	18.8	6	15%
Toluene	ppb	20.0	19.6	2	15%
Ethylbenzene	ppb	20.0	20.2	1	15%
m,p-Xylene	ppb	40.0	39.2	2	15%
o-Xylene	ppb	20.0	19.7	2	15%

#### Matrix Spike

Parameter	1 - Percent Recovered	2 - Percent Recovered	Limit	%RSD	Limit
Benzene	95	93	(39-150)	1	20%
Toluene	99	98	(46-148)	1	20%
Ethylbenzene	102	100	(32-160)	1	20%
m,p-Xylene	98	96	(35-145)	1	20%
o-Xylene	100	98	(35-145)	1	20%

#### Surrogate Recoveries

Laboratory Identification	S1 Percent Recovered	S2 Percent Recovered	Laboratory Identification	S1 Percent Recovered	S2 Percent Recovered
Limit Percent Recovered	(70-130)		Limit Percent Recovered	(70-130)	
13651-5736	97				
13652-5736	97				

S1: Fluorobenzene

(12)



OFF: (505) 325-5667



LAB: (505) 325-1556

**QUALITY ASSURANCE REPORT**  
for EPA Method 8020

Date Analyzed: 12-Feb-97

Internal QC No.: 0527-STD

Surrogate QC No.: 0528-STD

Reference Standard QC No.: 0417-QC

**Method Blank**

Parameter	Result	Unit of Measure
Average Amount of All Analytes In Blank	<0.2	ppb

**Calibration Check**

Parameter	Unit of Measure	True Value	Analyzed Value	% Diff	Limit
Benzene	ppb	20.0	19.6	2	15%
Toluene	ppb	20.0	20.7	3	15%
Ethylbenzene	ppb	20.0	21.2	6	15%
m,p-Xylene	ppb	40.0	40.9	2	15%
o-Xylene	ppb	20.0	20.9	5	15%

**Matrix Spike**

Parameter	1 - Percent Recovered	2 - Percent Recovered	Limit	%RSD	Limit
Benzene	95	93	(39-150)	1	20%
Toluene	99	98	(46-148)	1	20%
Ethylbenzene	102	100	(32-160)	1	20%
m,p-Xylene	98	96	(35-145)	1	20%
o-Xylene	100	98	(35-145)	1	20%

**Surrogate Recoveries**

Laboratory Identification	S1 Percent Recovered	S2 Percent Recovered	Laboratory Identification	S1 Percent Recovered	S2 Percent Recovered
Limit Percent Recovered	(70-130)		Limit Percent Recovered	(70-130)	
13648-5736	96				
13649-5736	94				
13650-5736	95				

S1: Fluorobenzene

(02)

P.O. BOX 2606 • FARMINGTON, NM 87499

- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -



# CHAIN OF CUSTODY RECORD

5736

Date: 2/7/97Page 1 of 1657 W. Maple • P. O. Box 2606 • Farmington NM 87499  
LAB: (505) 325-5667 • FAX: (505) 325-6256

Purchase Order No.:		Job No.		REPORT RESULTS TO	Name <b>Maureen Gannon</b>		Title											
SEND INVOICE TO	Name <b>Denver Bearden</b>				Company <b>PNM Gas Services</b>													
	Company <b>PNM Gas Services</b>		Dept. <b>324-3763</b>		Mailing Address <b>Alverado Square, Mail Stop 0408</b>													
	Address <b>603 W. Elm Street</b>				City, State, Zip <b>Albuquerque, NM 87158</b>													
	City, State, Zip <b>Farmington, NM 87401</b>				Telephone No. <b>505-848-2974</b>		Telefax No.											
Sampling Location: <b>Florance 32A</b>				Number of Containers	ANALYSIS REQUESTED													
Sampler: <b>Mark Sikilianos</b> <b>Maureen Gannon</b>					<div style="text-align: center;">BTEx 8020</div>													
SAMPLE IDENTIFICATION		SAMPLE											MATRIX		PRES.		LAB ID	
		DATE	TIME															
MW-1		9702071030			Ice	2	X										13648-5736	
MW-2		9702071100			↓	2	X										13649	
MW-3		9702071130			↓	2	X										13650	
MW-5		9702071200			↓	2	X										13651	
MW-6		9702071215			↓	2	X										13652	
Relinquished by:		Date/Time <b>2/7/97 1515</b>		Received by:		Date/Time <b>2/7/97 1515</b>												
Relinquished by:		Date/Time		Received by:		Date/Time												
Relinquished by:		Date/Time		Received by:		Date/Time												
Method of Shipment:		Date <b>2/7/97</b>		Rush		24-48 Hours		10 Working Days		Special Instructions:								
Authorized by:		(Client Signature <u>Must</u> Accompany Request)														Results to be sent to both parties.		