

3R - 303

# REPORTS

DATE:

April 30 - Jan. 31, 1996

MAY 1 1996

April 30, 1996

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



**RE: ABRAMS GAS/COM L1 SECOND QUARTER 1996 GROUNDWATER MONITORING REPORT**

Dear Bill:

PNM herein submits the Second Quarter Report for 1996 on the Abrams Gas/Com L1 groundwater monitoring program. Groundwater sampling was conducted on April 12, 1996. PNM conducted all sampling in accordance with Environmental Protection Agency (EPA) protocol and followed strict chain-of-custody procedures. Samples were delivered to OnSite Technologies, Ltd., Farmington, New Mexico where they were analyzed for benzene, toluene, ethylbenzene and xylenes (BTEX) using EPA Method 8020.

PNM found no evidence of floating product in any of the five monitoring wells. Water level measurements were taken at each monitoring well. Figure 1 provides a groundwater contour map of the site.

Table 1 is a summary of the analytical results of the sampling event. BTEX concentrations were below detection ( $>0.2 \mu\text{g/l}$ ) in all five monitoring wells. Appendix A includes a hardcopy of the laboratory analytical results.

PNM will monitor groundwater at the Abrams Gas/Com L1 well site for one additional calendar quarter. At that time, if BTEX concentrations remain below WQCC standards, we will petition OCD for closure of the site. Please call me at (505) 241-2974 if you have any questions. Thank you.

Sincerely,

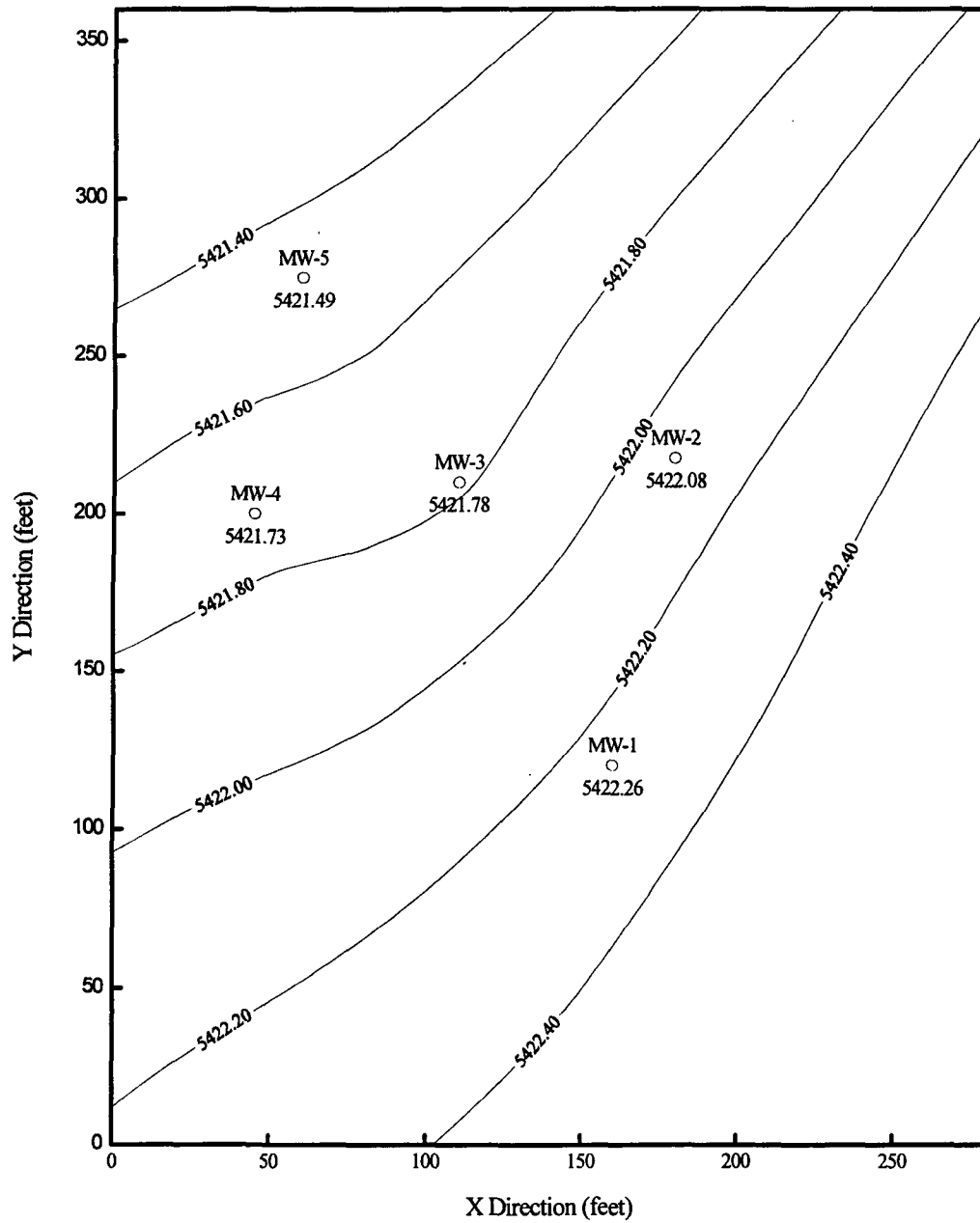
Maureen D. Gannon  
PNM Project Manager

abrams\2qtr96.rpt

Cc: Colin Adams, PNM (w/o appendix)  
Denver Bearden, PNMGS (w/o appendix)  
Denny Foust, OCD-Aztec  
Leigh Gooding, WFS (w/o appendix)  
Toni Ristau, PNM (w/o appendix)

Attachments

Figure 1  
Abrams Gas/Com L1 - Groundwater Contour Map (April '96)



**TABLE 1. Abrams Gas/Com L1 Second Quarter 1996**  
**Summary of Analytical Results**  
**(Results in µg/l)**

	<b>WQCC STDS.</b>	<b>MW-1</b>	<b>MW-2</b>	<b>MW-3</b>	<b>MW-4</b>	<b>MW-5</b>	<b>MW-6*</b>	<b>Trip Blank</b>
<b>B</b>	10	>0.2	>0.2	0.2	>0.2	>0.2	>0.2	>0.2
<b>T</b>	750	>0.2	>0.2	>0.2	>0.2	>0.2	>0.2	>0.2
<b>E</b>	750	>0.2	>0.2	>0.2	>0.2	>0.2	>0.2	>0.2
<b>X</b>	620	>0.2	>0.2	>0.2	>0.2	>0.2	>0.2	>0.2

\* = MW-6 is a duplicate of MW-3.

**Appendix A. Abrams Gas/Com L1 Laboratory Analytical Results**

OFF: (505) 325-8786



LAB: (505) 325-5667

**AROMATIC VOLATILE ORGANICS**

Attn: *Maureen Gannon*  
Company: *PNM Gas Services*  
Address: *Alevardo Square, Mail Stop 0408*  
City, State: *Albuquerque, NM 87158*

Date: *12-Apr-96*  
COC No.: *4645*  
Sample No. *10608*  
Job No. *2-1000*

Project Name: *PNM Gas Services - Abrams Gas COM L1*  
Project Location: *9604111100; MW1*  
Sampled by: *MG/MS* Date: *11-Apr-96* Time: *11:00*  
Analyzed by: *DC* Date: *11-Apr-96*  
Type of Sample: *Liquid*

**Aromatic Volatile Organics**

<i>Component</i>	<i>Result</i>	<i>Units of Measure</i>	<i>Detection Limit</i>	<i>Units 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: *[Signature]*  
Date: *4/12/96*

P. O. BOX 2606 • FARMINGTON, NM 87499

— TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT —

OFF: (505) 325-8786



LAB: (505) 325-5667

**AROMATIC VOLATILE ORGANICS**

Attn: *Maureen Gannon*  
Company: *PNM Gas Services*  
Address: *Alevarado Square, Mail Stop 0408*  
City, State: *Albuquerque, NM 87158*

Date: *12-Apr-96*  
COC No.: *4645*  
Sample No. *10609*  
Job No. *2-1000*

Project Name: *PNM Gas Services - Abrams Gas COM L1*  
Project Location: *9604111130; MW2*  
Sampled by: *MG/MS* Date: *11-Apr-96* Time: *11:30*  
Analyzed by: *DC* Date: *11-Apr-96*  
Type of Sample: *Liquid*

**Aromatic Volatile Organics**

Component	Result	Units of Measure	Detection Limit	Units 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: *4/12/96*

P. O. BOX 2606 • FARMINGTON, NM 87499

— TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT —



OFF: (505) 325-8786

LAB: (505) 325-5667

**AROMATIC VOLATILE ORGANICS**

Attn: *Maureen Gannon*  
Company: *PNM Gas Services*  
Address: *Alevardo Square, Mail Stop 0408*  
City, State: *Albuquerque, NM 87158*

Date: *12-Apr-96*  
COC No.: *4645*  
Sample No. *10610*  
Job No. *2-1000*

Project Name: *PNM Gas Services - Abrams Gas COM L1*

Project Location: *9604111200; MW3*

Sampled by: *MG/MS*

Date: *11-Apr-96* Time: *12:00*

Analyzed by: *DC*

Date: *11-Apr-96*

Type of Sample: *Liquid*

**Aromatic Volatile Organics**

Component	Result	Units of Measure	Detection Limit	Units 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: *DC*  
Date: *4/12/96*

P. O. BOX 2606 • FARMINGTON, NM 87499

— TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT —

OFF: (505) 325-8786



LAB: (505) 325-5667

**AROMATIC VOLATILE ORGANICS**

Attn: *Maureen Gannon*  
Company: *PNM Gas Services*  
Address: *Alevarado Square, Mail Stop 0408*  
City, State: *Albuquerque, NM 87158*

Date: *12-Apr-96*  
COC No.: *4645*  
Sample No. *10611*  
Job No. *2-1000*

Project Name: *PNM Gas Services - Abrams Gas COM L1*  
Project Location: *9604111330; MW4*  
Sampled by: *MG/MS* Date: *11-Apr-96* Time: *13:30*  
Analyzed by: *DC* Date: *11-Apr-96*  
Type of Sample: *Liquid*

**Aromatic Volatile Organics**

<i>Component</i>	<i>Result</i>	<i>Units of Measure</i>	<i>Detection Limit</i>	<i>Units 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: *Da4*  
Date: *4/12/96*

P. O. BOX 2606 • FARMINGTON, NM 87499

— TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT —



OFF: (505) 325-8786

LAB: (505) 325-5667

**AROMATIC VOLATILE ORGANICS**

Attn: *Maureen Gannon*  
Company: *PNM Gas Services*  
Address: *Alevarado Square, Mail Stop 0408*  
City, State: *Albuquerque, NM 87158*

Date: *12-Apr-96*  
COC No.: *4645*  
Sample No. *10612*  
Job No. *2-1000*

Project Name: *PNM Gas Services - Abrams Gas COM L1*

Project Location: *9604111300; MW5*

Sampled by: *MG/MS*

Date: *11-Apr-96* Time: *13:00*

Analyzed by: *DC*

Date: *11-Apr-96*

Type of Sample: *Liquid*

**Aromatic Volatile Organics**

Component	Result	Units of Measure	Detection Limit	Units 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: *Ja4*  
Date: *4/12/96*

P. O. BOX 2606 • FARMINGTON, NM 87499

— TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT —

OFF: (505) 325-8786



LAB: (505) 325-5667

**AROMATIC VOLATILE ORGANICS**

Attn: *Maureen Gannon*  
Company: *PNM Gas Services*  
Address: *Alevarado Square, Mail Stop 0408*  
City, State: *Albuquerque, NM 87158*

Date: *12-Apr-96*  
COC No.: *4645*  
Sample No. *10613*  
Job No. *2-1000*

Project Name: *PNM Gas Services - Abrams Gas COM L1*

Project Location: *9604111230; MW6*

Sampled by: *MG/MS*

Date: *11-Apr-96* Time: *12:30*

Analyzed by: *DC*

Date: *11-Apr-96*

Type of Sample: *Liquid*

**Aromatic Volatile Organics**

Component	Result	Units of Measure	Detection Limit	Units 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: *Ja K*

Date: *4/12/96*

P. O. BOX 2606 • FARMINGTON, NM 87499

— TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT —

OFF: (505) 325-8786



LAB: (505) 325-5667

**AROMATIC VOLATILE ORGANICS**

Attn: *Maureen Gannon*  
Company: *PNM Gas Services*  
Address: *Alevarado Square, Mail Stop 0408*  
City, State: *Albuquerque, NM 87158*

Date: *12-Apr-96*  
COC No.: *4645*  
Sample No. *10614*  
Job No. *2-1000*

Project Name: *PNM Gas Services - Abrams Gas COM L1*

Project Location: *Trip Blank*

Sampled by: *DC* Date: *10-Apr-96* Time: *17:00*

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

Type of Sample: *Liquid*

**Aromatic Volatile Organics**

<i>Component</i>	<i>Result</i>	<i>Units of Measure</i>	<i>Detection Limit</i>	<i>Units 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: *[Signature]*  
Date: *4/12/96*

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— TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT —

OFF: (505) 325-8786



LAB: (505) 325-5667

**QUALITY ASSURANCE REPORT**  
for EPA Method 8020

Date Analyzed: 11-Apr-96

Internal QC No.: 0444-STD

Surrogate QC No.: 0445-STD

Reference Standard QC No.: 0355-STD

**Method Blank**

Analyte	Result	Units of Measure
Average Amount of All Analytes In Blank	<0.2	ppb

**Calibration Check**

Analyte	Units of Measure	True Value	Analyzed Value	% Diff	Limit
Benzene	ppb	20.0	20.0	0	15%
Toluene	ppb	20.0	19.8	1	15%
Ethylbenzene	ppb	20.0	20.0	0	15%
m,p-Xylene	ppb	40.0	39.4	1	15%
o-Xylene	ppb	20.0	19.9	1	15%

**Matrix Spike**

Analyte	1 - Percent Recovered	2 - Percent Recovered	Limit	%RSD	Limit
Benzene	111	113	(39-150)	2	20%
Toluene	111	114	(46-148)	2	20%
Ethylbenzene	111	114	(32-160)	2	20%
m,p-Xylene	107	112	(35-145)	3	20%
o-Xylene	105	107	(35-145)	1	20%

**Surrogate Recoveries**

Laboratory Identification	S1 Percent Recovered	S2 Percent Recovered
Limit Percent Recovered	(70-130)	
10608-4645	95	
10609-4645	95	
10610-4645	95	
10611-4645	95	
10612-4645	95	
10613-4645	95	
10614-4645	95	

S1: Fluorobenzene

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- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

Distribution:	White	On Site	Yellow	LAB	Pink	Sampler	Goldtoured	Client
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January 31, 1996

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

**PNM**

**RE: ABRAMS GAS/COM L1 FIRST QUARTER 1996 GROUNDWATER MONITORING REPORT**

Dear Bill:

PNM herein submits the First Quarter Report for 1996 on the Abrams Gas/Com L1 groundwater monitoring program. Groundwater sampling was conducted on January 4, 1996. PNM conducted all sampling in accordance with Environmental Protection Agency (EPA) protocol and followed strict chain-of-custody procedures. Samples were delivered to OnSite Technologies, Ltd., Farmington, New Mexico where they were analyzed for benzene, toluene, ethylbenzene and xylenes (BTEX) using EPA Method 8020.

PNM found no evidence of floating product in any of the five monitoring wells. Water level measurements were taken at each monitoring well. Figure 1 provides a groundwater contour map of the site.

Table 1 is a summary of the analytical results of the sampling event. BTEX concentrations were below detection ( $>0.2 \mu\text{g/l}$ ) in MW-1, MW-2, MW-4, and MW-5. Benzene was detected at  $0.2 \mu\text{g/l}$  in MW-3 which is below the Water Quality Control Commission (WQCC) standard for benzene ( $10 \mu\text{g/l}$ ). All other constituents in this well were below laboratory detection limits. Appendix A includes a hardcopy of the laboratory analytical results.

PNM will continue to monitor at the Abrams Gas/Com L1 well site for two additional calendar quarters. At that time, if BTEX concentrations remain below WQCC standards, we will petition OCD for closure of the site. BTEX in groundwater has been below WQCC standards since installation and initial sampling of the monitoring wells in June of 1995. Please call me at (505) 241-2974 if you have any questions. As always, thank you for your attention regarding this matter.

Sincerely,



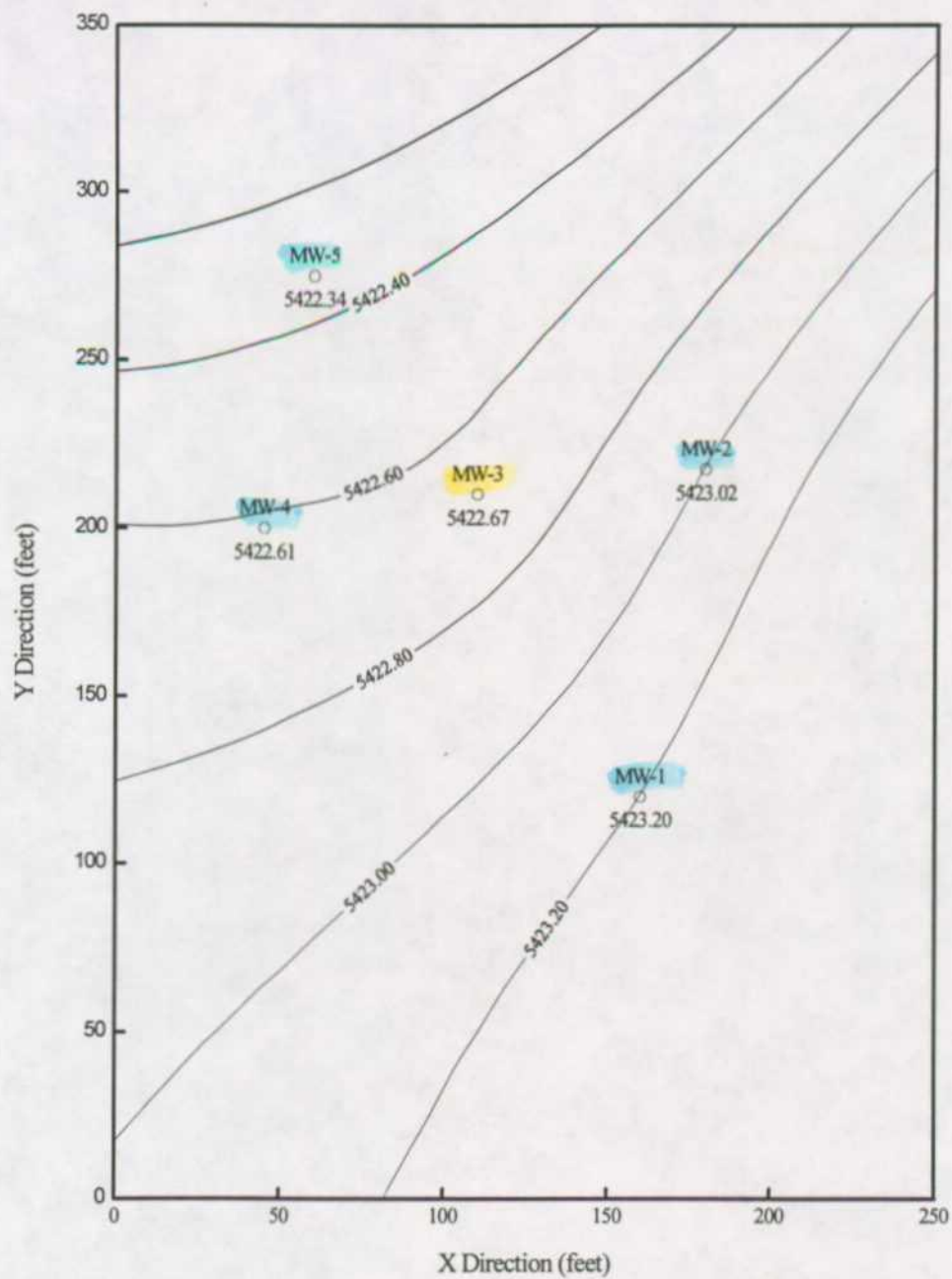
Maureen D. Gannon  
PNM Contract Project Manager

Cc: Colin Adams, PNM (w/o appendix)  
Denver Bearden, PNMGS (w/o appendix)  
Denny Foust, OCD-Aztec  
Leigh Gooding, WFS (w/o appendix)  
Toni Ristau, PNM (w/o appendix)

Attachments

Figure 1.

Abrams Gas/Com L1 - Groundwater Contour Map (January '96)



**TABLE 1. Abrams Gas/Com L1 First Quarter 1996  
Summary of Analytical Results  
(Results in µg/l)**

	WQCC STDS.	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6*
<b>B</b>	10	>0.2	>0.2	0.2	>0.2	>0.2	>0.2
<b>T</b>	750	>0.2	>0.2	>0.2	>0.2	>0.2	>0.2
<b>E</b>	750	>0.2	>0.2	>0.2	>0.2	>0.2	>0.2
<b>X</b>	620	>0.2	>0.2	>0.2	>0.2	>0.2	>0.2

\* = MW-6 is a duplicate of MW-5.

1QTR96.RPT

**Appendix A. Abrams Gas/Com L1 Laboratory Analytical Results**

OFF: (505) 325-8786



LAB: (505) 325-5667

**AROMATIC VOLATILE ORGANICS**

Attn: *Maureen Gannon*  
Company: *PNM Gas Services*  
Address: *Alevardo Square, Mail Stop 0408*  
City, State: *Albuquerque, NM 87158*

Date: *6-Jan-96*  
COC No.: *3710*  
Sample No. *9940*  
Job No. *4-1250*

Project Name: *PNM Gas Services - Abrams L1*  
Project Location: *Abrams L1 - 9601041330 MW-1*  
Sampled by: *MS* Date: *4-Jan-96* Time: *13:30*  
Analyzed by: *DC* Date: *5-Jan-96*  
Type of Sample: *Liquid*

**Aromatic Volatile Organics**

Component	Result	Units of Measure	Detection Limit	Units 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: *1/6/96*

P. O. BOX 2606 • FARMINGTON, NM 87499

— TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT —

OFF: (505) 325-8786



LAB: (505) 325-5667

**AROMATIC VOLATILE ORGANICS**

Attn: *Maureen Gannon*  
Company: *PNM Gas Services*  
Address: *Alevarado Square, Mail Stop 0408*  
City, State: *Albuquerque, NM 87158*

Date: *6-Jan-96*  
COC No.: *3710*  
Sample No. *9941*  
Job No. *4-1250*

Project Name: *PNM Gas Services - Abrams L1*  
Project Location: *Abrams L1 - 9601041410 MW-2*  
Sampled by: *MS* Date: *4-Jan-96* Time: *14:10*  
Analyzed by: *DC* Date: *5-Jan-96*  
Type of Sample: *Liquid*

**Aromatic Volatile Organics**

Component	Result	Units of Measure	Detection Limit	Units 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: *1/6/96*

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- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

OFF: (505) 325-8786

**ON SITE**  
**TECHNOLOGIES, LTD.**

LAB: (505) 325-5667

**AROMATIC VOLATILE ORGANICS**

Attn: *Maureen Gannon*  
Company: *PNM Gas Services*  
Address: *Alevardo Square, Mail Stop 0408*  
City, State: *Albuquerque, NM 87158*

Date: *6-Jan-96*  
COC No.: *3710*  
Sample No. *9942*  
Job No. *4-1250*

Project Name: *PNM Gas Services - Abrams L1*  
Project Location: *Abrams L1 - 9601041445 MW-3*  
Sampled by: *MS* Date: *4-Jan-96* Time: *14:45*  
Analyzed by: *DC* Date: *5-Jan-96*  
Type of Sample: *Liquid*

**Aromatic Volatile Organics**

Component	Result	Units of Measure	Detection Limit	Units of Measure
<i>Benzene</i>	<i>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>0.2</i>		<i>ug/L</i>

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

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Date: *1/6/96*

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LAB: (505) 325-5667

**AROMATIC VOLATILE ORGANICS**

Attn: *Maureen Gannon*  
Company: *PNM Gas Services*  
Address: *Alevarado Square, Mail Stop 0408*  
City, State: *Albuquerque, NM 87158*

Date: *6-Jan-96*  
COC No.: *3710*  
Sample No. *9943*  
Job No. *4-1250*

Project Name: *PNM Gas Services - Abrams L1*  
Project Location: *Abrams L1 - 9601041500 MW-4*  
Sampled by: *MS* Date: *4-Jan-96* Time: *15:00*  
Analyzed by: *DC* Date: *5-Jan-96*  
Type of Sample: *Liquid*

**Aromatic Volatile Organics**

<i>Component</i>	<i>Result</i>	<i>Units of Measure</i>	<i>Detection Limit</i>	<i>Units 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: *[Signature]*

Date: *1/6/96*

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**AROMATIC VOLATILE ORGANICS**

Attn: *Maureen Gannon*  
Company: *PNM Gas Services*  
Address: *Alevarado Square, Mail Stop 0408*  
City, State: *Albuquerque, NM 87158*

Date: *6-Jan-96*  
COC No.: *3710*  
Sample No. *9944*  
Job No. *4-1250*

Project Name: *PNM Gas Services - Abrams L1*  
Project Location: *Abrams L1 - 9601041515 MW-5*  
Sampled by: *MS* Date: *4-Jan-96* Time: *15:15*  
Analyzed by: *DC* Date: *5-Jan-96*  
Type of Sample: *Liquid*

**Aromatic Volatile Organics**

Component	Result	Units of Measure	Detection Limit	Units 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>

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Date: *1/6/96*

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**AROMATIC VOLATILE ORGANICS**

Attn: *Maureen Gannon*  
Company: *PNM Gas Services*  
Address: *Alevarado Square, Mail Stop 0408*  
City, State: *Albuquerque, NM 87158*

Date: *6-Jan-96*  
COC No.: *3710*  
Sample No. *9945*  
Job No. *4-1250*

Project Name: *PNM Gas Services - Abrams L1*  
Project Location: *Abrams L1 - 9601041530 MW-6*  
Sampled by: *MS* Date: *4-Jan-96* Time: *15:30*  
Analyzed by: *DC* Date: *5-Jan-96*  
Type of Sample: *Liquid*

**Aromatic Volatile Organics**

Component	Result	Units of Measure	Detection Limit	Units 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: *1/6/96*

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**AROMATIC VOLATILE ORGANICS**

Attn: *Maureen Gannon*  
Company: *PNM Gas Services*  
Address: *Alevardo Square, Mail Stop 0408*  
City, State: *Albuquerque, NM 87158*

Date: *6-Jan-96*  
COC No.: *3710*  
Sample No. *9946*  
Job No. *4-1250*

Project Name: *PNM Gas Services - Abrams L1*  
Project Location: *Abrams L1 - Trip Blank*  
Sampled by: *DC*  
Analyzed by: *DC*  
Type of Sample: *Liquid*

Date: *4-Jan-96* Time: *8:30*  
Date: *5-Jan-96*

**Aromatic Volatile Organics**

<i>Component</i>	<i>Result</i>	<i>Units of Measure</i>	<i>Detection Limit</i>	<i>Units 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>		

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Approved by: *[Signature]*  
Date: *1/6/96*

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### QUALITY ASSURANCE REPORT for EPA Method 8020

Date Analyzed: 5-Jan-96

Internal QC No.: 0444-STD

Surrogate QC No.: 0445-STD

Reference Standard QC No.: 0355-STD

#### Method Blank

Analyte	Result	Units of Measure
Average Amount of All Analytes In Blank	<0.2	ppb

#### Calibration Check

Analyte	Units of Measure	True Value	Analyzed Value	% Diff	Limit
Benzene	ppb	20.0	19.6	2	15%
Toluene	ppb	20.0	21.1	5	15%
Ethylbenzene	ppb	20.0	18.3	9	15%
m,p-Xylene	ppb	40.0	38.8	3	15%
o-Xylene	ppb	20.0	19.5	3	15%

#### Matrix Spike

Analyte	1 - Percent Recovered	2 - Percent Recovered	Limit	%RSD	Limit
Benzene	114	111	(39-150)	2	20%
Toluene	103	94	(46-148)	5	20%
Ethylbenzene	109	105	(32-160)	3	20%
m,p-Xylene	110	105	(35-145)	3	20%
o-Xylene	104	100	(35-145)	3	20%

#### Surrogate Recoveries

Laboratory Identification	S1 Percent Recovered	S2 Percent Recovered
Limit Percent Recovered	(70-130)	
9945-3710	101	

S1: Fluorobenzene

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