

3R - 318

REPORTS

DATE:

1997

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

**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**

Groundwater Site Summary Report

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

Quarter/Year: 4/96 & 1/97

Operator: Amoco
Sec: 27 Twn: 29N Rng: 9 W Unit: M
Canyon: Largo

Vulnerable Class: Original
OCD Ranking: 30
Lead Agency: NMOCD

Topo Map: previously submitted
Well Completion Diagram: previously submitted
Full Suite- Groundwater Sampling: previously submitted
Site Map with Groundwater Analysis: Figure 1
Groundwater Contour Map: Figure 2
Groundwater Elevation Graph: Figure 3
Analytical Results: attached

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

On December 6, 1996, PNM performed quarterly sampling of groundwater monitoring wells at the site. No additional sampling was conducted at the site in the first quarter of 1997 due to the ongoing elevated levels of total dissolved solids (TDS). Water levels were measured at each well. PNM conducted groundwater sampling in each well for chemical analyses of benzene, toluene, ethylbenzene, and xylenes (BTEX). In addition, monitoring wells, MW-1 and MW-2, were sampled for dissolved mercury (Hg) due to a previous laboratory error. Sampling was performed in strict compliance with EPA protocol.

PNM delivered the samples to OnSite Technologies, Farmington, New Mexico. The samples were analyzed using the following methods: BTEX using EPA Method 8020, major cations/anions using various EPA methods, and atomic absorption spectroscopy (AAS) for Hg.

Results:

Figure 1 provides a site map showing benzene, toluene, ethylbenzene and xylenes (BTEX) and total dissolved solids (TDS) analytical data for each monitoring well since groundwater contamination was discovered. All wells at the site continue to show extremely high concentrations of total dissolved solids (TDS), between 18938 mg/l and 28856 mg/l. BTEX concentrations are decreasing in MW-2, the only contaminated well on location. Mercury (Hg) was non-detect in MW-1 and MW-2 (see attached analytical results).

Figure 2 provides a groundwater contour map of the site for the fourth quarter of 1996. The groundwater flow direction is southwesterly beneath the site as was previously determined in September of 1996. Figure 3 presents a groundwater hydrograph of the site since monitoring began. In each well, the groundwater level decreased between September and December of 1996.

Further Action:

PNM will request closure of the Florance 124 in our April 30, 1997 filing of the San Juan Pit Closure Reports to the OCD Santa Fe office. This request is based upon the high concentrations of TDS in the groundwater at the Florance 124. We believe the elevated TDS levels are indicative of the groundwater in this local area and have chosen not to drill a new up-gradient well. MW-1 lies 75 feet up-gradient of the former pit area and serves as a good background well for the site. After two quarters of monitoring, TDS levels remain above 10,000 mg/l; therefore, PNM believes the groundwater has no beneficial use in the future.

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 124: Site Map with Analytical Results (concentrations in ppb)

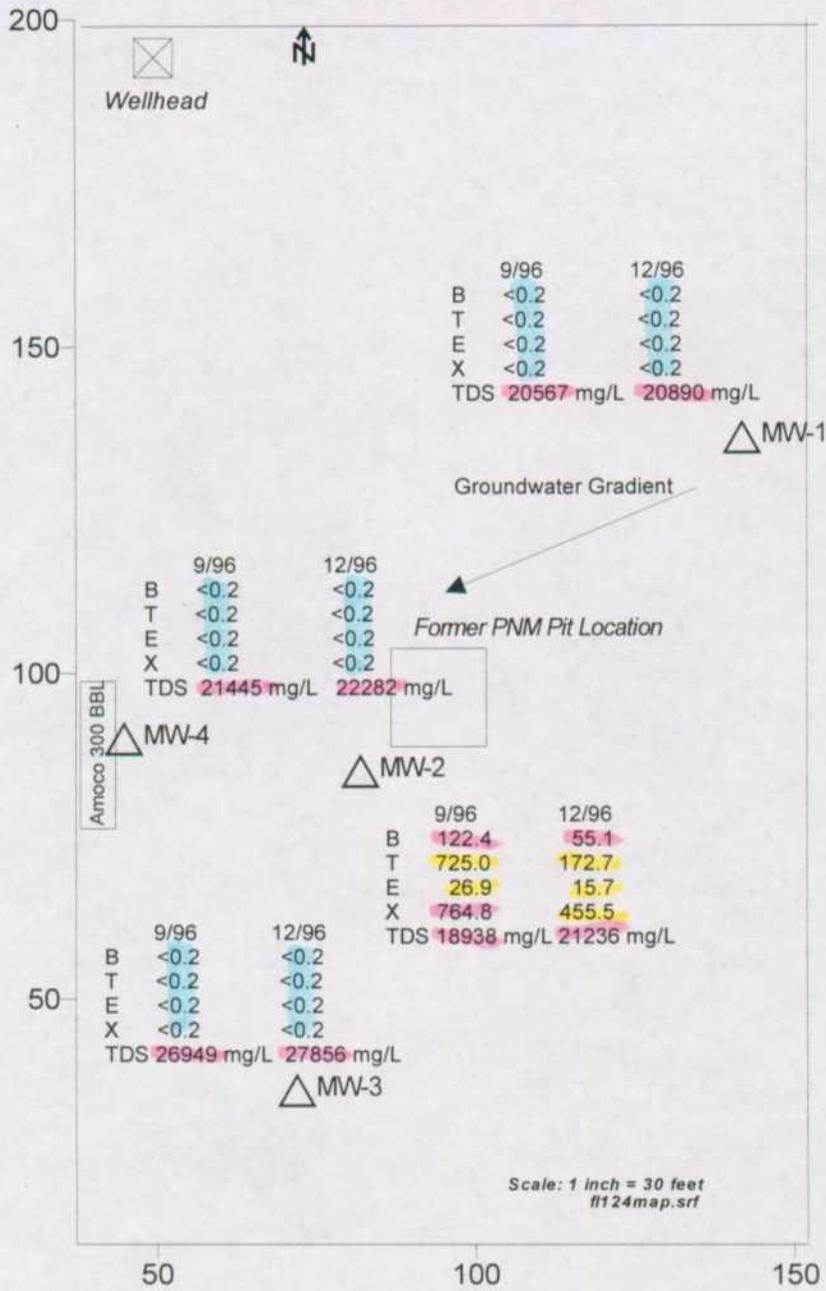


Figure 2. Florance 124 Groundwater Contour Map (December 1996)

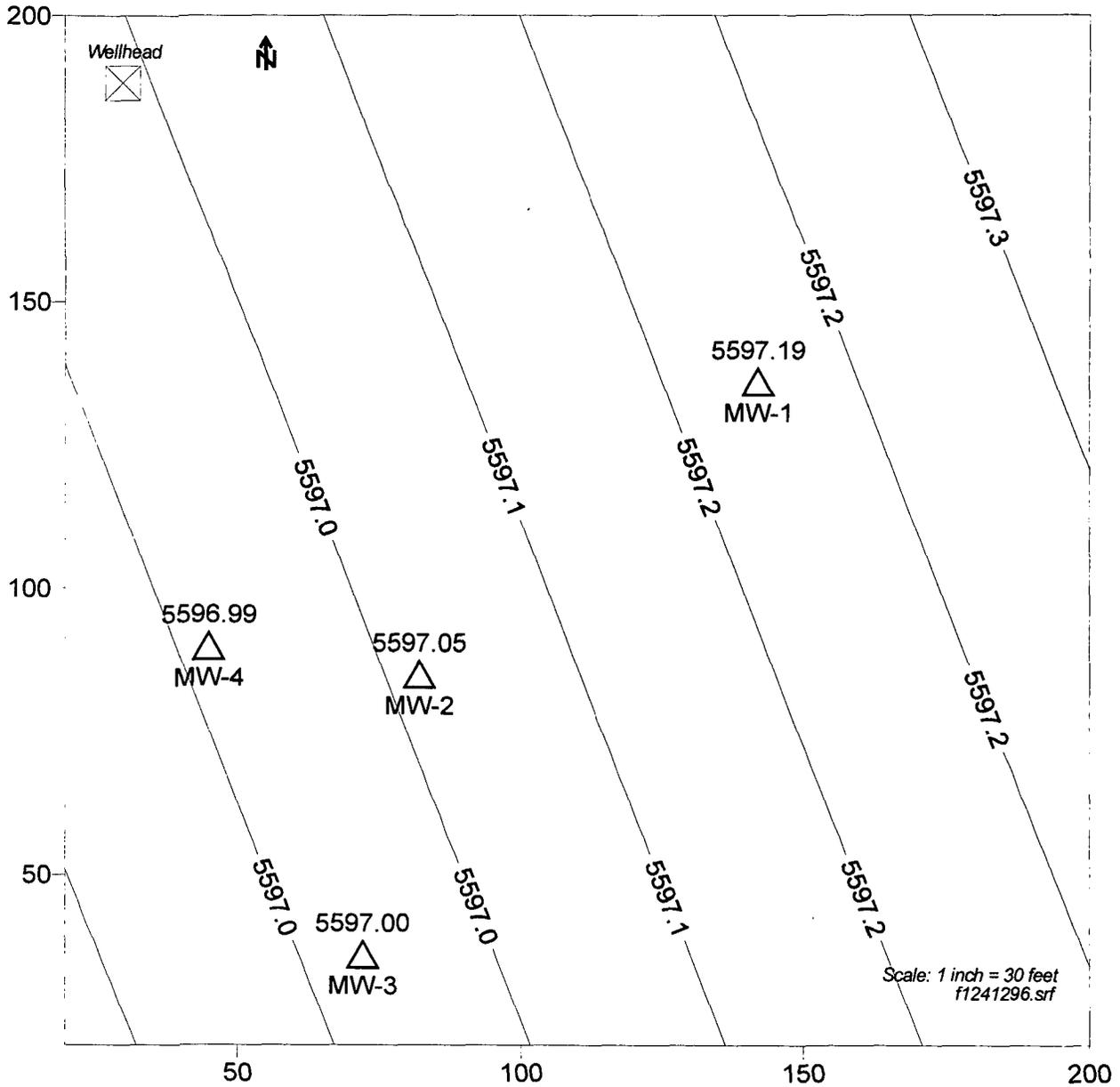
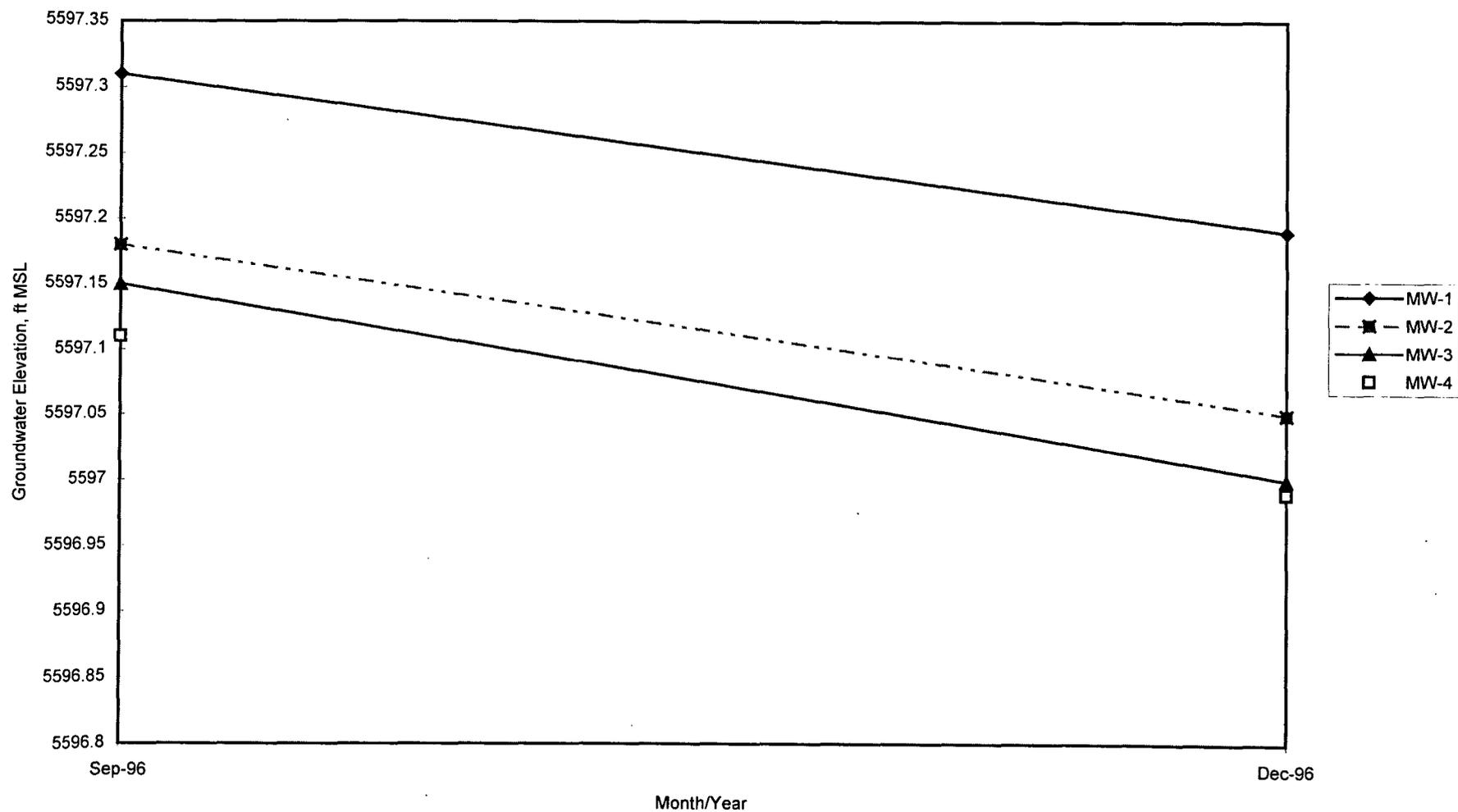


Figure 3. Florance 124 Hydrograph
(Time vs. Water Level)



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.: *5706*
 Sample No.: *13122*
 Job No.: *2-1000*

Project Name: *PNM Gas Services - Florance 124*
 Project Location: *9612061300; MW-1*
 Sampled by: *MS* Date: *6-Dec-96* Time: *13:00*
 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><0.2</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>Toluene</i>	<i><0.2</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>Ethylbenzene</i>	<i><0.2</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>m,p-Xylene</i>	<i><0.2</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><0.2</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

ANALYTICAL REPORT

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

Date: *12-Dec-96*
 COC No.: *5706*
 Sample ID: *13122*
 Job No.: *2-1000*

Project Name: *PNM Gas Services - Florance 124*
 Project Location: *9612061300; MW1*
 Sampled by: *MS* Date: *6-Dec-96* Time: *13:00*
 Analyzed by: *HR* Date: *12-Dec-96*

Laboratory Analysis

Parameter	Result	Unit of Measure	Result	Unit of Measure
Cations				
Sodium <i>Na</i>	5860	mg/L	254.90	me/L
Calcium <i>Ca</i>	366	mg/L	18.26	me/L
Magnesium <i>Mg</i>	123.0	mg/L	10.12	me/L
Potassium <i>K</i>	20.8	mg/L	0.53	me/L
Anions				
Chloride <i>Cl</i>	138	mg/L	3.89	me/L
Sulfate <i>SO4</i>	13423	mg/L	279.46	me/L
Carbonate <i>CO3 as CaCO3</i>	<1	mg/L	<0.01	me/L
Bicarbonate <i>HCO3 as CaCO3</i>	435	mg/L	7.13	me/L
Hydroxide <i>OH as CaCO3</i>	<1	mg/L	<0.01	me/L
Total Dissolved Solids				
Calculated, Sum of Cation/Anion	20366	mg/L	Cation-Anion Balance <hr/> 6.67 Difference Cation-Anion, me/L <hr/> 574.30 Total Cation-Anion, me/L <hr/> 1.2 % Difference Cation-Anion <hr/> Comments	
Total Dissolved Solids				
Dried @ 180 C	20890	mg/L		
pH	7.51			
Conductivity @ 25 C	22100	uS/cm		
Total Hardness as CaCO3	1420	mg/L		

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.: *5706*
 Sample No.: *13123*
 Job No.: *2-1000*

Project Name: *PNM Gas Services - Florance 124*
 Project Location: *9612061330; MW-2*
 Sampled by: *MS* Date: *6-Dec-96* Time: *13:30*
 Analyzed by: *DC* Date: *10-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>55.1</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>Toluene</i>	<i>172.7</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>Ethylbenzene</i>	<i>15.7</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>m,p-Xylene</i>	<i>360.4</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>o-Xylene</i>	<i>95.1</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>TOTAL</i>	<i>698.9</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

ANALYTICAL REPORT

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

Date: *12-Dec-96*
 COC No.: *5706*
 Sample ID: *13123*
 Job No.: *2-1000*

Project Name: *PNM Gas Services - Florance 124*
 Project Location: *9612061330; MW2*
 Sampled by: *MS* Date: *6-Dec-96* Time: *13:30*
 Analyzed by: *HR* Date: *12-Dec-96*

Laboratory Analysis

Parameter	Result	Unit of Measure		Result	Unit of Measure	
Cations						
Sodium <i>Na</i>	5840	mg/L		254.03	me/L	
Calcium <i>Ca</i>	397	mg/L		19.81	me/L	
Magnesium <i>Mg</i>	119.0	mg/L		9.79	me/L	
Potassium <i>K</i>	23.6	mg/L		0.60	me/L	
Anions						
Chloride <i>Cl</i>	123	mg/L		3.47	me/L	
Sulfate <i>SO4</i>	13357	mg/L		278.09	me/L	
Carbonate <i>CO3 as CaCO3</i>	<1	mg/L		<0.01	me/L	
Bicarbonate <i>HCO3 as CaCO3</i>	559	mg/L		9.16	me/L	
Hydroxide <i>OH as CaCO3</i>	<1	mg/L		<0.01	me/L	
Total Dissolved Solids						
Calculated, Sum of Cation/Anion	20419	mg/L		Cation-Anion Balance <hr/> 6.48 <i>Difference Cation-Anion, me/L</i> <hr/> 574.95 <i>Total Cation-Anion, me/L</i> <hr/> 1.1 % <i>Difference Cation-Anion</i> <hr/> Comments		
Total Dissolved Solids Dried @ 180 C	21236	mg/L				
pH	7.56					
Conductivity @ 25 C	22000	uS/cm				
Total Hardness as CaCO3	1481	mg/L				

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

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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.: *5706*
 Sample No.: *13124*
 Job No.: *2-1000*

Project Name: *PNM Gas Services - Florance 124*
 Project Location: *9612061400; MW-3*
 Sampled by: *MS* Date: *6-Dec-96* Time: *14:00*
 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><0.2</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>Toluene</i>	<i><0.2</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>Ethylbenzene</i>	<i><0.2</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>m,p-Xylene</i>	<i><0.2</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><0.2</i>		<i>ug/L</i>

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

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

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LAB: (505) 325-1556

ANALYTICAL REPORT

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

Date: *12-Dec-96*
 COC No.: *5706*
 Sample ID: *13124*
 Job No.: *2-1000*

Project Name: *PNM Gas Services - Florance 124*
 Project Location: *9612061400; MW3*
 Sampled by: *MS* Date: *6-Dec-96* Time: *14:00*
 Analyzed by: *HR* Date: *12-Dec-96*

Laboratory Analysis

Parameter	Result	Unit of Measure	Result	Unit of Measure
Cations				
Sodium <i>Na</i>	7480	mg/L	325.36	me/L
Calcium <i>Ca</i>	379	mg/L	18.91	me/L
Magnesium <i>Mg</i>	183.0	mg/L	15.06	me/L
Potassium <i>K</i>	26.9	mg/L	0.69	me/L
Anions				
Chloride <i>Cl</i>	134	mg/L	3.78	me/L
Sulfate <i>SO4</i>	17625	mg/L	366.94	me/L
Carbonate <i>CO3 as CaCO3</i>	< 1	mg/L	< 0.01	me/L
Bicarbonate <i>HCO3 as CaCO3</i>	486	mg/L	7.96	me/L
Hydroxide <i>OH as CaCO3</i>	< 1	mg/L	< 0.01	me/L
Total Dissolved Solids				
Calculated, Sum of Cation/Anion	26314	mg/L	Cation-Anion Balance <hr/> 18.67 Difference Cation-Anion, me/L <hr/> 738.71 Total Cation-Anion, me/L <hr/> 2.5 % Difference Cation-Anion <hr/> Comments	
Total Dissolved Solids				
Dried @ 180 C	27856	mg/L		
pH	7.44			
Conductivity @ 25 C	27200	uS/cm		
Total Hardness as CaCO3	1700	mg/L		

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.: 5706
 Sample No.: 13125
 Job No.: 2-1000

Project Name: *PNM Gas Services - Florance 124*
 Project Location: *9612061430; MW-4*
 Sampled by: MS Date: 6-Dec-96 Time: 14:30
 Analyzed by: DC Date: 10-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>	<0.2	ug/L	0.2	ug/L
<i>Toluene</i>	<0.2	ug/L	0.2	ug/L
<i>Ethylbenzene</i>	<0.2	ug/L	0.2	ug/L
<i>m,p-Xylene</i>	<0.2	ug/L	0.2	ug/L
<i>o-Xylene</i>	<0.2	ug/L	0.2	ug/L
TOTAL	<0.2	ug/L		

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

ANALYTICAL REPORT

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

Date: *12-Dec-96*
 COC No.: *5706*
 Sample ID: *13125*
 Job No.: *2-1000*

Project Name: *PNM Gas Services - Florance 124*
 Project Location: *9612061430; MW4*
 Sampled by: *MS* Date: *6-Dec-96* Time: *14:30*
 Analyzed by: *HR* Date: *12-Dec-96*

Laboratory Analysis

Parameter	Result	Unit of Measure	Result	Unit of Measure
Cations				
Sodium Na	6120	mg/L	266.21	me/L
Calcium Ca	395	mg/L	19.71	me/L
Magnesium Mg	126.0	mg/L	10.37	me/L
Potassium K	22.2	mg/L	0.57	me/L
Anions				
Chloride Cl	127	mg/L	3.58	me/L
Sulfate SO4	14180	mg/L	295.22	me/L
Carbonate CO3 as CaCO3	<1	mg/L	<0.01	me/L
Bicarbonate HCO3 as CaCO3	490	mg/L	8.03	me/L
Hydroxide OH as CaCO3	<1	mg/L	<0.01	me/L
Total Dissolved Solids				
Calculated, Sum of Cation/Anion	21460	mg/L	Cation-Anion Balance <hr/> 9.98 Difference Cation-Anion, me/L 603.69 Total Cation-Anion, me/L <hr/> 1.7 % Difference Cation-Anion <hr/> Comments	
Total Dissolved Solids Dried @ 180 C	22282	mg/L		
pH	7.66			
Conductivity @ 25 C	22900	uS/cm		
Total Hardness as CaCO3	1505	mg/L		

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.: *5706*
 Sample No.: *13126*
 Job No.: *2-1000*

Project Name: *PNM Gas Services - Florance 124*

Project Location: *9612061500; MW-5*

Sampled by: *MS* Date: *6-Dec-96* Time: *15:00*

Analyzed by: *DC* Date: *10-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>49.7</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>Toluene</i>	<i>152.8</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>Ethylbenzene</i>	<i>14.2</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>m,p-Xylene</i>	<i>246.3</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>o-Xylene</i>	<i>88.8</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>TOTAL</i>	<i>551.8</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

ANALYTICAL REPORT

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

Date: *12-Dec-96*
 COC No.: *5706*
 Sample ID: *13126*
 Job No.: *2-1000*

Project Name: *PNM Gas Services - Florance 124*
 Project Location: *9612061500; MW5*
 Sampled by: *MS* Date: *6-Dec-96* Time: *15:00*
 Analyzed by: *HR* Date: *12-Dec-96*

Laboratory Analysis

Parameter	Result	Unit of Measure	Result	Unit of Measure
Cations				
Sodium <i>Na</i>	5740	mg/L	249.68	me/L
Calcium <i>Ca</i>	400	mg/L	19.96	me/L
Magnesium <i>Mg</i>	117.0	mg/L	9.63	me/L
Potassium <i>K</i>	23.4	mg/L	0.60	me/L
Anions				
Chloride <i>Cl</i>	118	mg/L	3.33	me/L
Sulfate <i>SO4</i>	13440	mg/L	279.81	me/L
Carbonate <i>CO3 as CaCO3</i>	<1	mg/L	<0.01	me/L
Bicarbonate <i>HCO3 as CaCO3</i>	550	mg/L	9.01	me/L
Hydroxide <i>OH as CaCO3</i>	<1	mg/L	<0.01	me/L
Total Dissolved Solids				
Calculated, Sum of Cation/Anion	20388	mg/L	Cation-Anion Balance <hr/> 12.29 Difference Cation-Anion, me/L <hr/> 572.02 Total Cation-Anion, me/L <hr/> 2.1 % Difference Cation-Anion <hr/> Comments	
Total Dissolved Solids Dried @ 180 C	21618	mg/L		
pH	7.62			
Conductivity @ 25 C	22000	uS/cm		
Total Hardness as CaCO3	1481	mg/L		

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



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)	
13122-5706	95	
13124-5706	95	

S1: Fluorobenzene

(2)

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)	
13123-5706	104	
13125-5706	94	
13126-5706	103	

S1: Fluorobenzene

(rc)

**QUALITY ASSURANCE REPORT***Cation/Anion Balance*

Date: 12-Dec-96

Quality Control Sample

Parameter	Laboratory Identification	True Value	Analyzed Value	Unit of Measure	% Diff	Limit % Diff
Sodium, Na	0509-QC	3.60	3.80	mg/L	6	10
Calcium, Ca	0462-QC	2.18	2.17	mg/L	0	10
Magnesium, Mg	0462-QC	1.14	1.20	mg/L	5	10*
Potassium, K	0509-QC	2.24	2.16	mg/L	-4	10
Chloride, Cl	0509-QC	155	164	mg/L	6	10
Sulfate, SO ₄	0509-QC	116	110	mg/L	-5	10
Alkalinity	0509-QC	174	186	mg/L	7	10
pH	0509-QC	9.05	9.23		2	10
Conductivity	0509-QC	1210	1194	uS/cm	-1	15
Total Dissolved Solids, 180C	0509-QC	905	886	uS/cm	-2	15

Matrix Spike

Parameter	Laboratory Identification	Analyzed Value	Matrix Spike	Spike Value	Unit of Measure	Spike Recovery
Sodium, Na	13126-5706	1.56	0.50	2.06	mg/L	100%
Calcium, Ca	13126-5706	2.00	0.50	2.62	mg/L	105%
Magnesium, Mg	13126-5706	0.58	0.50	1.02	mg/L	94%
Potassium, K	13126-5706	1.17	0.50	1.78	mg/L	107%

Method Blank

Parameter	Laboratory Identification	Analyzed Value	Unit of Measure
Sodium, Na	LF-Blank	<0.2	mg/L
Calcium, Ca	LF-Blank	<0.05	mg/L
Magnesium, Mg	LF-Blank	<0.05	mg/L
Potassium, K	LF-Blank	<0.05	mg/L
Chloride, Cl	LF-Blank	<3 X DL	mg/L
Sulfate, SO ₄	LF-Blank	<1	mg/L
Conductivity	LF-Blank	<2	uS/cm

10c



CHAIN OF CUSTODY RECORD

5706

Date: 12/16/96

Page 1 of 1

657 W. Maple • P. O. Box 2606 • Farmington NM 87499
 LAB: (505) 325-5667 • FAX: (505) 325-6256

Purchase Order No.:		Job No.:		Name Maureen Gannon		Title	
SEND INVOICE TO	Name Denver Bearden			Company PNM Gas Services		Mailing Address Alverado Square, Mail Stop 0408	
	Company PNM Gas Services		Dept. 324-3763		City, State, Zip Albuquerque, NM 87158		Telephone No. 505-848-2974
	Address 603 W. Elm Street			City, State, Zip Albuquerque, NM 87158		Telefax No.	
	City, State, Zip Farmington, NM 87401						
Sampling Location: Florange 124				ANALYSIS REQUESTED			
Sampler: Mark Sikelianos				Number of Containers			
SAMPLE IDENTIFICATION		SAMPLE DATE		TIME	MATRIX	PRES.	LAB ID
9612061300 MW-1		12/16/96			H ₂ O	Ice	3
9612061330 MW-2		↓			↓	↓	3
9612061400 MW-3		↓			↓	↓	3
9612061430 MW-4		↓			↓	↓	3
9612061500 MW-5		↓			↓	↓	3
Relinquished by: <i>[Signature]</i>		Date/Time <u>12/16/96 1525</u>		Received by: <i>[Signature]</i>		Date/Time <u>12/16/96 1525</u>	
Relinquished by:		Date/Time		Received by:		Date/Time	
Relinquished by:		Date/Time		Received by:		Date/Time	
Method of Shipment:		Rush		24-48 Hours		10 Working Days	
Authorized by: <i>[Signature]</i>		Date <u>12/16/96</u>		Special Instructions:		Results to be sent to both parties.	
		(Client Signature <u>Must</u> Accompany Request)					

ON SITE

OFF: (505) 325-5667

LAB: (505) 325-1556

TECHNOLOGIES, LTD.

2 January 1997

*Maureen Gannon
PNM Gas Services
Alverado Square, Mail Stop 0408
Albuquerque, NM 87158*

re: Florance 124 MW-1 and MW-2 (9612061300 and 9612061330).

Dear Maureen,

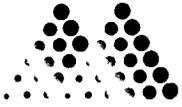
Enclosed please find the analytical results for dissolved mercury (Hg) on the Florance 124 MW-1 and MW-2. As previously discussed On Site Technologies has paid for these analyses. Any questions please feel free to call me at your convenience.

Thank you once again.

Sincerely,



*David Cox
Laboratory Manager*



Mountain States Analytical

December 30, 1996

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

Reference:
Project: Florance 124 Samples
Project No.: PNM 1002
MSAI Group: 14736

Dear Mr. Cox:

Enclosed are the analytical results for your project referenced above. The following samples are included in the report.

13122-5706 (Dissolved)	13123-5706 (Dissolved)
<i>mw-1 (m)</i>	<i>mw-2 (m)</i>

All holding times were met for the tests performed on these samples.

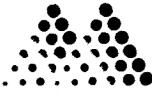
If the report is acceptable, please approve the enclosed invoice and forward it for payment.

Thank you for selecting Mountain States Analytical, Inc. to serve as your analytical laboratory on this project. If you have any questions concerning these results, please feel free to contact me at any time.

We look forward to working with you on future projects.

With Regards,

Rolf E. Larsen
Project Manager



Mountain States Analytical

The Quality Solution

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

MSAI Group: 14736
Date Reported: 12/30/96
Date Received: 12/20/96

Attn: Mr. David Cox
Project: Florance 124 Samples

Purchase Order: 5706
Project No.: PNM 1002

Test Analysis	Results as Received	Units	Limit of Quantitation
Sample: 57031 - 13122-5706 (Dissolved) MW-1 (M)			
0259F Mercury by CVAA, w/ww Diss, 245.1	ND	mg/l	0.0005
0392M Mercury Prep CVAA, Waters	Complete		
Sample: 57032 - 13123-5706 (Dissolved) MW-2 (M)			
0259F Mercury by CVAA, w/ww Diss, 245.1	ND	mg/l	0.0005
0392M Mercury Prep CVAA, Waters	Complete		

Test Method Summary:

0259F- SW-846 245.1 0392M- SW-846 7470

ND - Not detected at the limit of quantitation

Respectfully Submitted,
Reviewed and Approved by:

Rolf E. Larsen
Project Manager



CHAIN OF CUSTODY RECORD

6237

Date: 12/18/96

Page 1 of 1

TECHNOLOGIES, LTD.

657 W. Maple • P. O. Box 2606 • Farmington NM 87499
 LAB: (505) 325-5667 • FAX: (505) 325-6256

Purchase Order No.: <u>5706</u>		Job No. <u>PNM1002</u>		Name <u>DAVID COX</u>		Title	
SEND INVOICE TO	Name <u>ACCOUNTS PAYABLE</u>			Company <u>ON SITE TECH</u>			
	Company <u>ON SITE</u>		Dept.		Mailing Address <u>612 E. MURRAY</u>		
	Address <u>P.O. BOX 2606</u>			City, State, Zip <u>FARMINGTON, NM 87401</u>			
	City, State, Zip <u>FARMINGTON, NM 87499</u>			Telephone No. <u>505 325 2432</u>		Telefax No. <u>505-325-6256</u>	
Sampling Location:				ANALYSIS REQUESTED			
Sampler:							
SAMPLE IDENTIFICATION		SAMPLE		MATRIX	PRES.	Number of Containers	LAB ID
		DATE	TIME				
<u>FLORANCE 124 9612061300 MWI-1</u>		<u>12/6/96</u>	<u>1300</u>	<u>H₂O</u>	<u>COOL</u>	<u>1</u>	<u>13122-5706</u>
<u>FLORANCE 124 9612061330 MWI-2</u>		<u>12/6/96</u>	<u>1330</u>	<u>✓</u>	<u>✓</u>	<u>1</u>	<u>13123-5706</u>
Relinquished by: <u>[Signature]</u>		Date/Time <u>12/18/96 1500</u>		Received by: <u>Nichole Marston</u>		Date/Time <u>12/20/96 09149</u>	
Relinquished by:		Date/Time		Received by:		Date/Time	
Relinquished by:		Date/Time		Received by:		Date/Time	
Method of Shipment:				Rush	24-48 Hours	10 Working Days	Special Instructions:
Authorized by: <u>[Signature]</u>		Date <u>12/18/96</u>					
(Client Signature Must Accompany Request)							

