

3R - 331

REPORTS

DATE:

1997

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

Quarter/Year: 4/96 & 1/97

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

Operator: Burlington Resources
Sec: 14 **Twn:** 28N **Rng:** 10W **Unit:** G
Canyon: Armenta

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

Topo Map: previously submitted
Well Completion Diagram: Figure 1
Site Map with Analytical Results: Figure 2
Groundwater Contour Map: Figure 3 (December 1996)
Groundwater Contour Map: Figure 4 (March 1997)
Hydrograph: Figure 5
Full-Suite Groundwater Sampling Results: Table 1
Analytical Results: attached

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

PNM installed four wells at the McClanahan 22 on November 19, 1996. All well installations were conducted pursuant to the PNM San Juan Basin Groundwater Management Plan. Figure 1 presents a typical well completion diagram for the site.

PNM performed initial groundwater monitoring at the McClanahan 22 well site on December 17, 1996. Water level measurements were taken in each of the four monitoring wells. PNM conducted groundwater sampling in each well for chemical analyses of benzene, toluene, ethylbenzene, and xylenes (BTEX) and major cations/anions. In addition, MW-1 and MW-2 were sampled for WQCC metals. MW-3, located approximately 60 feet northwest of the former pit area, had a strong hydrocarbon odor and contained groundwater with a visible sheen; therefore, this well was sampled for polyaromatic hydrocarbons (PAHs). All sampling was performed in strict compliance with EPA protocol.

PNM conducted groundwater sampling again on March 12, 1997. Water level measurements were taken and wells were sampled for BTEX. MW-3 again exhibited a strong hydrocarbon odor and a visible sheen was observed on purge water obtained from the well. PAH sampling was conducted in the following wells: MW-2, MW-3 and MW-4. All sampling was performed in strict compliance with EPA protocol.

In all instances, PNM delivered the samples to OnSite Technologies, Farmington, New Mexico. The samples were analyzed using the following methods:

- benzene, toluene, ethylbenzene, and xylenes (BTEX) using EPA Method 8020.
- major cations/anions using various EPA methods
- PAHs using EPA Method 8310
- WQCC metals- filtered (As, Ba, Cd, Cr, Pb, Se, Ag, and Hg using inductively coupled plasma (ICP) for heavy metals and atomic absorption spectroscopy (AAS) for Hg and Se).

Results:

Figure 1 presents a typical monitoring well diagram for well installation at the McClanahan 22. Table 1 provides a summary of the full suite of analytical results collected at the McClanahan 22 on December 17, 1997. Figure 2 provides a site map with BTEX results collected to date at the site. For the past two quarters, all wells contain groundwater with BTEX concentrations below WQCC standards with the exception of MW-3. Although

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

PNMGS Well Site: McClanahan 22 (continued)

concentrations are decreasing, MW-3 shows benzene and xylene levels above the 10 ppb and 620 ppb standard, respectively. Napthalene was detected in this well during the December sampling event at 240 ppb. In March 1997, there was no evidence of napthalene (or other PAHs) in MW-2, MW-3 or MW-4. Metals were non-detect or below WQCC standards in MW-1 and MW-2 during the December event.

Figures 3 and 4 provide groundwater contour maps for December 1996 and March 1997, respectively. Groundwater beneath the site travels in a southwesterly direction.

Figure 5 is a hydrograph of groundwater at the site. Water levels in MW-1, MW-2 and MW-3 have risen slightly over the past two quarters.

Further Action:

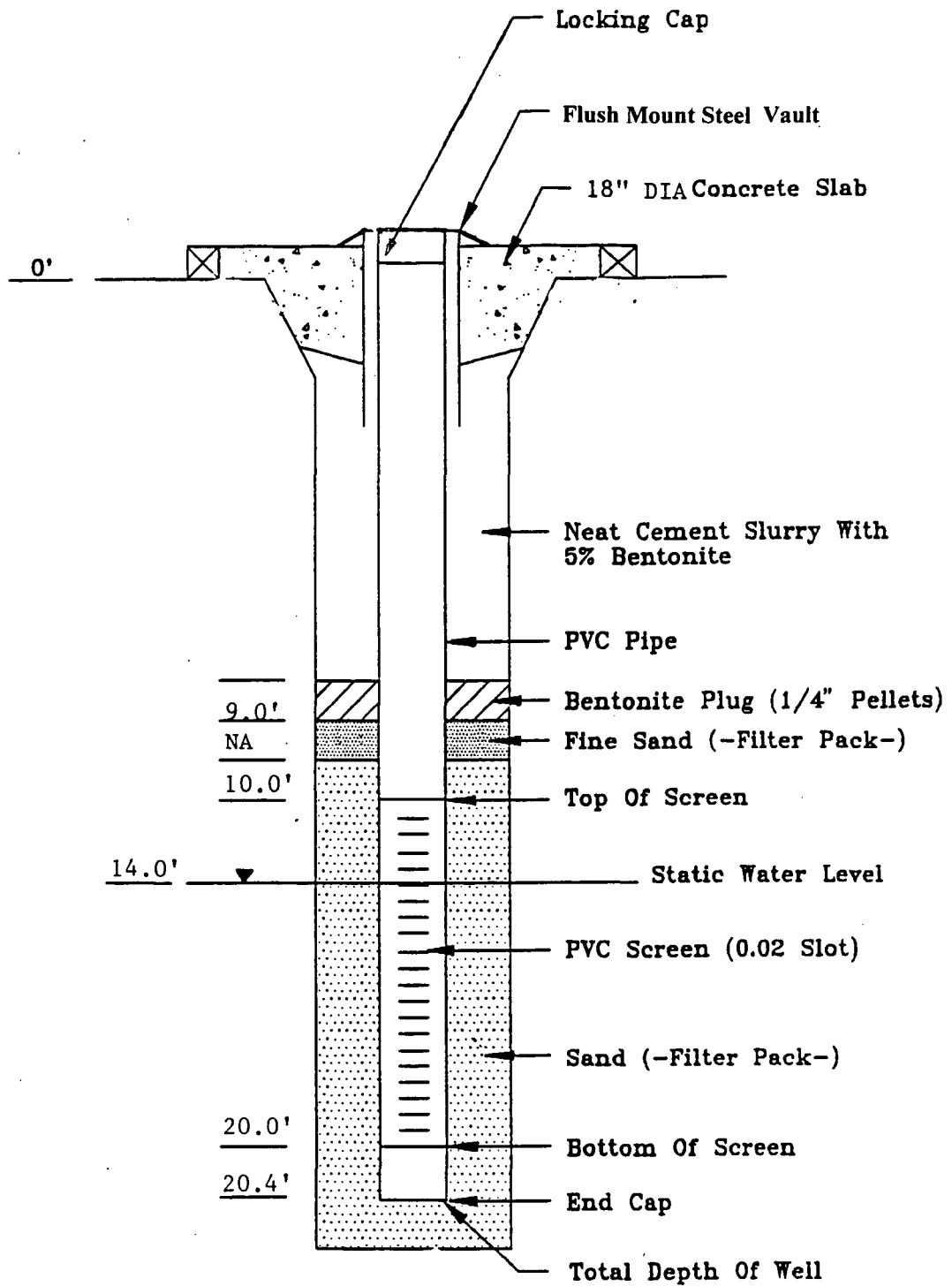
PNM will continue to monitor groundwater gradient and perform quarterly sampling at the McClanahan 22 well site. We will again sample for PAHs at MW-3 to ensure attenuation of napthalene in this well.

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



CLIENT: PNM	
DATE:	REV. NO.: 0
AUTHOR: M.D.G.	DRAWN BY: M.P.
CK'D BY: M.D.G.	FILE: .DWG

Figure 1
Well Completion Diagram

Figure 2. McClanahan 22 Site Map With Analytical Results
(Concentrations in ppb)

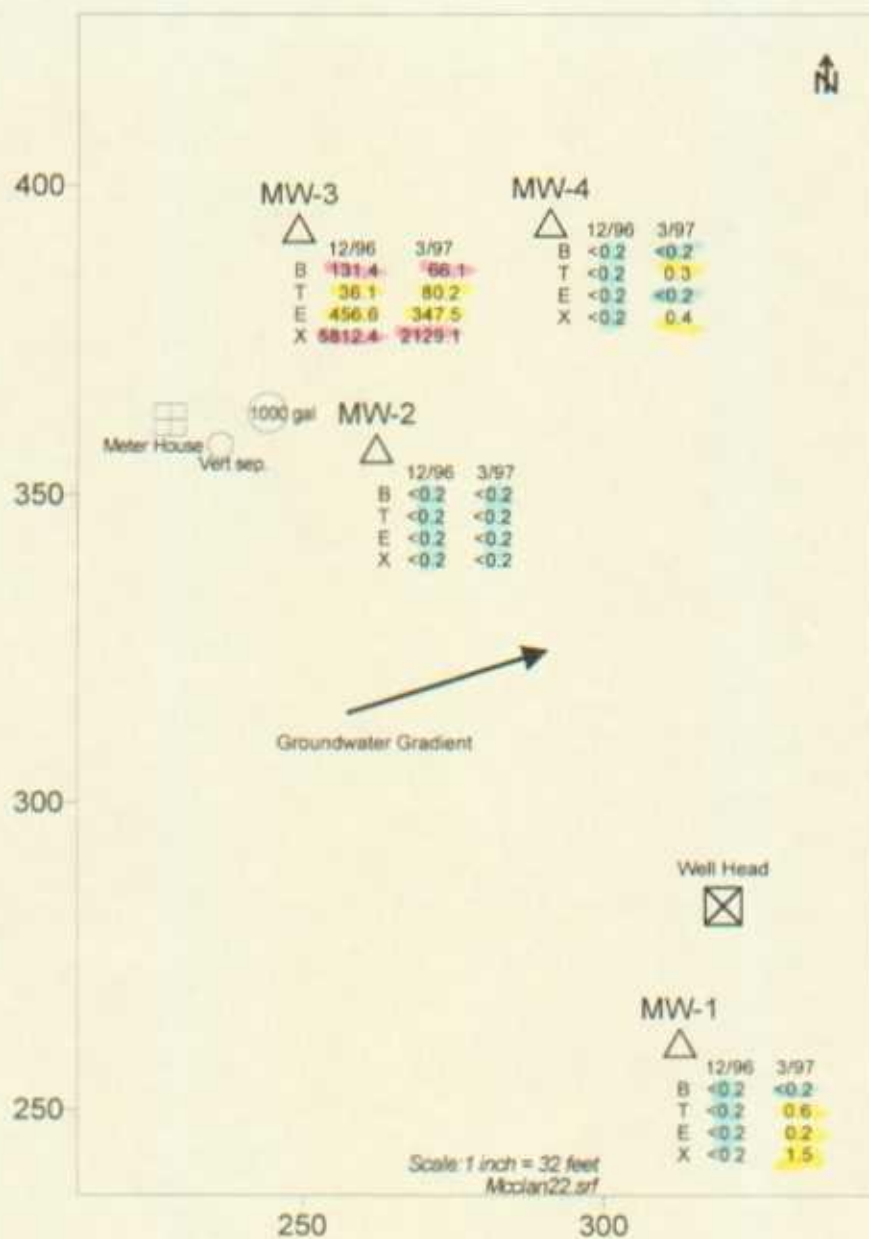


Figure 3. McClanahan 22 Groundwater Map (December 1996)

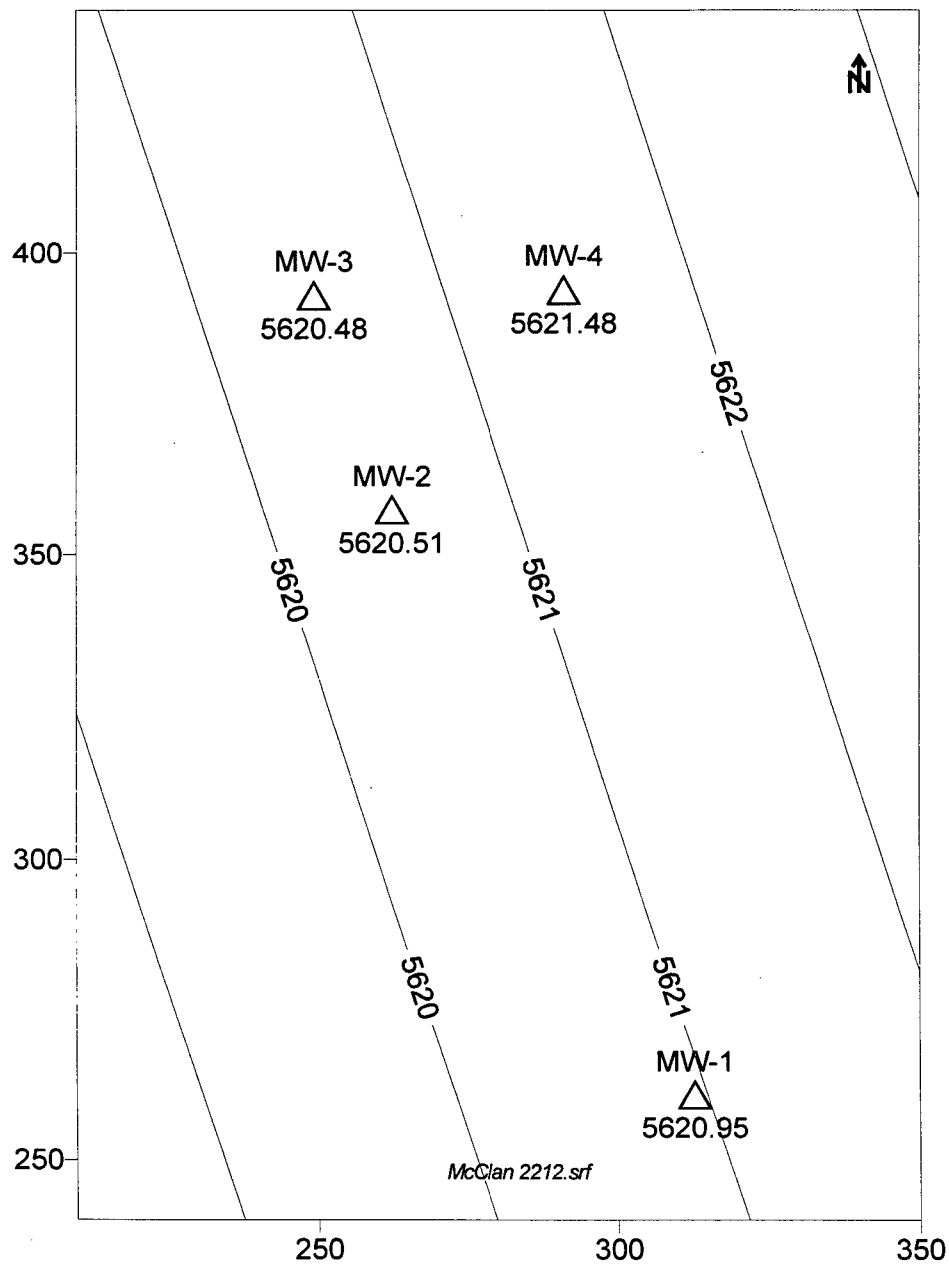


Figure 4. McClanahan 22 Groundwater Contour map (March 1997)

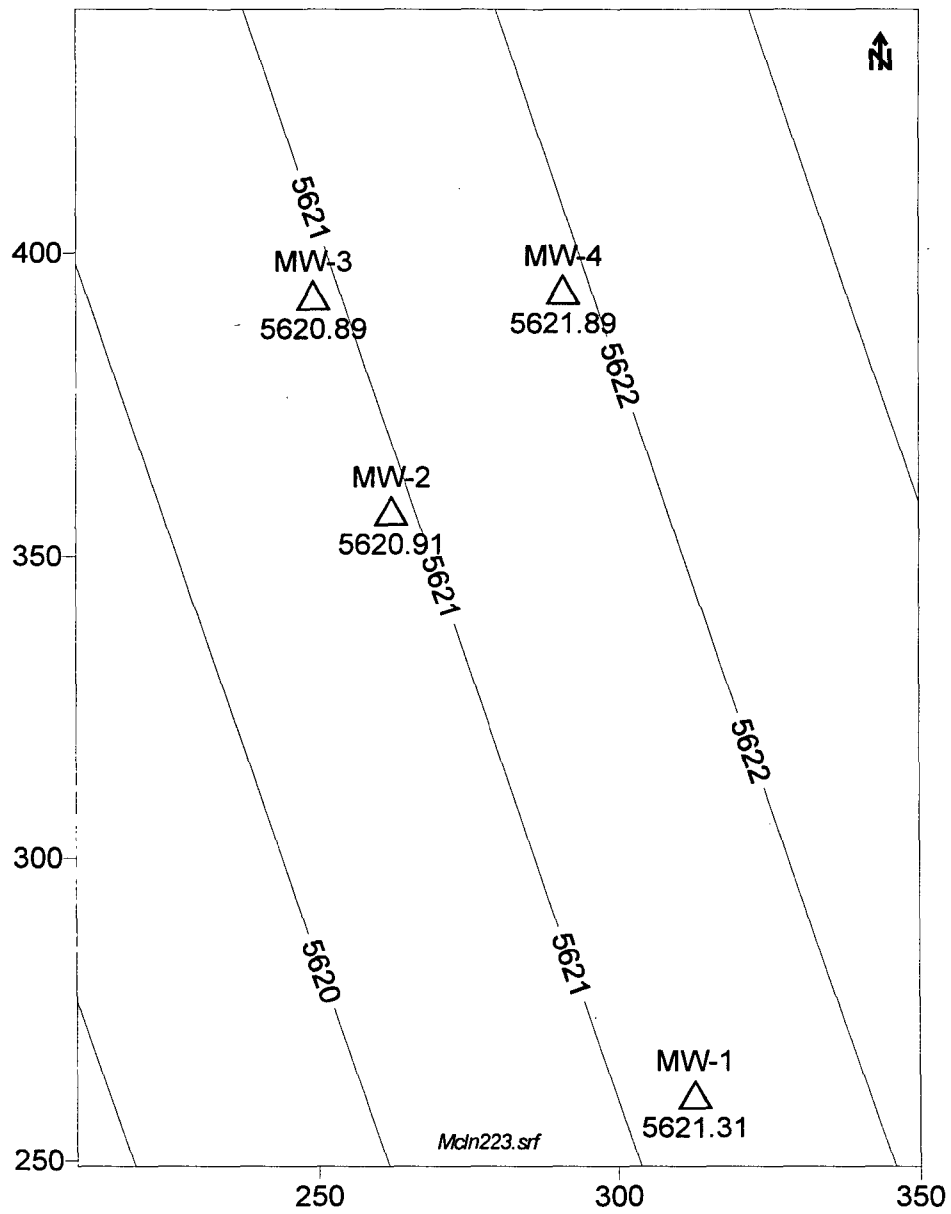


Figure 5. McClanahan 22 Hydrograph
(Time vs. Water Level)

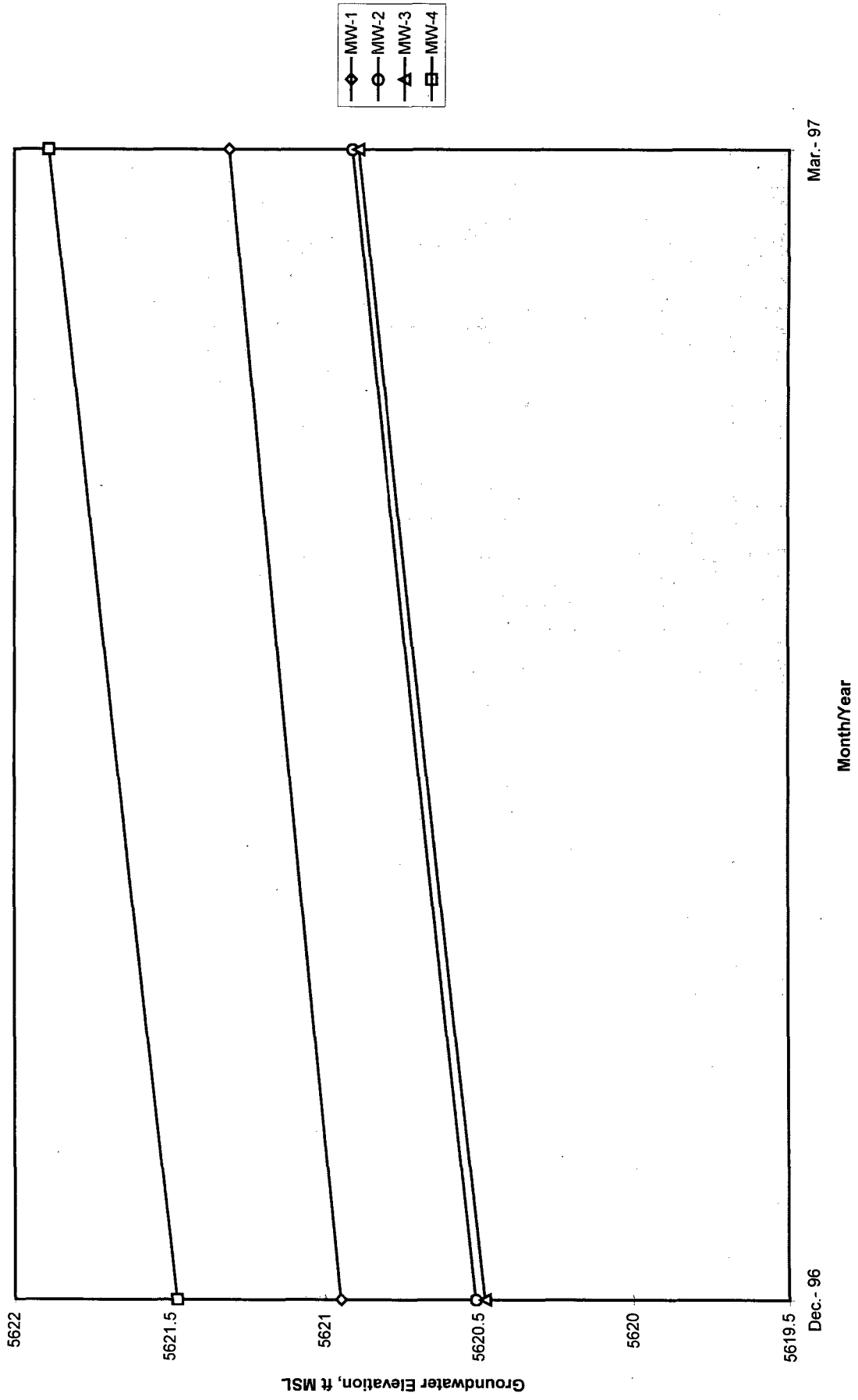


Table 1. McClanahan 22 GROUNDWATER SAMPLING RESULTS, mg/l (12/17/96)

Constituent	WQCC Stds.	MW-1	MW-2	MW-3	MW-4	MW-5 (MW-4 duplicate)
<i>B</i>	0.01	<0.0002	<0.0002	0.1314	<0.0002	<0.0002
<i>T</i>	0.75	<0.0002	<0.0002	0.0361	<0.0002	<0.0002
<i>E</i>	0.75	<0.0002	<0.0002	0.4566	<0.0002	<0.0002
<i>X</i>	0.62	<0.0002	<0.0002	5.8124	<0.0002	<0.0002
<i>PAHs</i>	0.03	NA	NA	0.240	NA	NA
<i>Metals</i>						
As	0.1	<0.030	<0.030	NA	NA	NA
Ba	1	0.065	0.076	NA	NA	NA
Cd	0.01	<0.004	<0.004	NA	NA	NA
Cr	0.05	<0.010	<0.010	NA	NA	NA
Pb	0.05	<0.040	<0.040	NA	NA	NA
Se	0.05	<0.003	<0.003	NA	NA	NA
Ag	0.05	<0.006	<0.006	NA	NA	NA
Hg	0.002	0.0001	<0.0001	NA	NA	NA
<i>Cations/Anions</i>						
Na	NA	1130	1390	1400	1380	NA
Ca	NA	440	394	342	409	NA
Mg	NA	56.0	58.0	58.0	57.0	NA
K	NA	12.0	11.4	11.9	13.3	NA
Cl	NA	52	35	46	38	NA
SO ₄	NA	3480	3799	3456	3972	NA
CO ₃	NA	<1	<1	<1	<1	NA
HCO ₃	NA	265	320	718	330	NA
OH	NA	<1	<1	<1	<1	NA
<i>Cation/Anion Balance</i>						
Difference Cation- Anion	NA	2.24	0.14	1.98	3.71	NA
Total Cation-Anion	NA	154.29	170.51	168.06	174.64	NA
% Difference	NA	1.5	0.1	1.2	2.1	NA
TDS, calc	NA	5435	6007	6032	6199	NA
TDS, meas	NA	5468	5994	5932	6326	NA
Hardness as CaCO ₃	NA	1329	1223	1093	1256	NA

NA: Not Applicable
 BDL: Below Detection Limit
 NS: Not Sampled
 Bold: Concentration Above WQCC Standard
 **: Out of Acceptable Range % Diff. +/- 5

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: *19-Dec-96*
COC No.: *5710*
Sample No.: *13169*
Job No.: *2-1000*

Project Name: *PNM Gas Services - McClanahan 22*

Project Location: *9612171130; MW-1*

Sampled by: *MG*

Date: *17-Dec-96* Time: *11:30*

Analyzed by: *DC*

Date: *19-Dec-96*

Sample Matrix: *Water*

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	<0.2	ug/L	0.2	ug/L
m,p-Xylene	<0.2	ug/L	0.2	ug/L
o-Xylene	<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: *12/19/96*

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: *19-Dec-96*
COC No.: *5710*
Sample No.: *13170*
Job No.: *2-1000*

Project Name: *PNM Gas Services - McClanahan 22*

Project Location: *9612171200; MW-2*

Sampled by: *MG* Date: *17-Dec-96* Time: *12:00*

Analyzed by: *DC* Date: *19-Dec-96*

Sample Matrix: *Water*

Laboratory Analysis

Parameter	Result	Unit of Measure	Detection Limit	Unit 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><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: *12/19/96*

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: *19-Dec-96*
COC No.: *5710*
Sample No.: *13171*
Job No.: *2-1000*

Project Name: *PNM Gas Services - McClanahan 22*
Project Location: *9612171230; MW-3*
Sampled by: *MG*
Analyzed by: *DC*
Sample Matrix: *Water*

Date: *17-Dec-96* Time: *12:30*
Date: *19-Dec-96*

Laboratory Analysis

Parameter	Result	Unit of Measure	Detection Limit	Unit of Measure
<i>Benzene</i>	<i>131.4</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>Toluene</i>	<i>36.1</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>Ethylbenzene</i>	<i>456.6</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>m,p-Xylene</i>	<i>5122.0</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>o-Xylene</i>	<i>690.4</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>TOTAL</i>	<i>6436.5</i>	<i>ug/L</i>		

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

Approved by: *[Signature]*
Date: *12/17/96*

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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: *19-Dec-96*
COC No.: *5710*
Sample No.: *13172*
Job No.: *2-1000*

Project Name: *PNM Gas Services - McClanahan 22*

Project Location: *9612171300; MW-4*

Sampled by: *MG*

Date: *17-Dec-96* Time: *13:00*

Analyzed by: *DC*

Date: *19-Dec-96*

Sample Matrix: *Water*

Laboratory Analysis

Parameter	Result	Unit of Measure	Detection Limit	Unit 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><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: *12/19/96*

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: **19-Dec-96**
COC No.: **5710**
Sample No.: **13173**
Job No.: **2-1000**

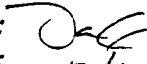
Project Name: **PNM Gas Services - McClanahan 22**
Project Location: **9612171330; MW-5**
Sampled by: **MG**
Analyzed by: **DC**
Sample Matrix: **Water**

Date: **17-Dec-96** Time: **13:30**
Date: **19-Dec-96**

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	<0.2	ug/L	0.2	ug/L
m,p-Xylene	<0.2	ug/L	0.2	ug/L
o-Xylene	<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: 
Date: **12/19/96**

OFF: (505) 325-5667



LAB: (505) 325-1556

QUALITY ASSURANCE REPORT
for EPA Method 8020

Date Analyzed: 19-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	19.5	3	15%
Toluene	ppb	20.0	20.5	3	15%
Ethylbenzene	ppb	20.0	20.7	4	15%
m,p-Xylene	ppb	40.0	40.5	1	15%
o-Xylene	ppb	20.0	20.5	2	15%

Matrix Spike

Parameter	1 - Percent Recovered	2 - Percent Recovered	Limit	%RSD	Limit
Benzene	93	93	(39-150)	0	20%
Toluene	97	97	(46-148)	0	20%
Ethylbenzene	98	98	(32-160)	0	20%
m,p-Xylene	96	96	(35-145)	0	20%
o-Xylene	97	98	(35-145)	0	20%

Surrogate Recoveries

Laboratory Identification	S1 Percent Recovered	S2 Percent Recovered
Limit Percent Recovered	(70-130)	
13169-5710	93	
13170-5710	93	
13171-5710	92	
13172-5710	94	
13173-5710	93	

S1: Fluorobenzene

(YH)

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: **30-Dec-96**
 COC No.: **5710**
 Sample ID: **13169**
 Job No.: **2-1000**

Project Name: **PNM Gas Services - McClanahan 22**Project Location: **9612171130; MW-1**Sampled by: **MG**Date: **17-Dec-96** Time: **11:30**Analyzed by: **HR**Date: **24-Dec-96****Laboratory Analysis**

Parameter	Result	Unit of Measure	Result	Unit of Measure
Cations				
Sodium <i>Na</i>	1130	mg/L	49.15	me/L
Calcium <i>Ca</i>	440	mg/L	21.96	me/L
Magnesium <i>Mg</i>	56.0	mg/L	4.61	me/L
Potassium <i>K</i>	12.0	mg/L	0.31	me/L
Anions				
Chloride <i>Cl</i>	52	mg/L	1.47	me/L
Sulfate <i>SO4</i>	3480	mg/L	72.45	me/L
Carbonate <i>CO3 as CaCO3</i>	< 1	mg/L	< 0.01	me/L
Bicarbonate <i>HCO3 as CaCO3</i>	265	mg/L	4.34	me/L
Hydroxide <i>OH as CaCO3</i>	< 1	mg/L	< 0.01	me/L
Total Dissolved Solids				
Calculated, Sum of Cation/Anion	5435	mg/L	Cation-Anion Balance 2.24 Difference Cation-Anion, me/L 154.29 Total Cation-Anion, me/L 1.5 % Difference Cation-Anion Comments	
Total Dissolved Solids				
Dried @ 180 C	5468	mg/L		
pH	7.44			
Conductivity @ 25 C	6020	uS/cm		
Total Hardness as CaCO3	1329	mg/L		

Approved by: 
 Date: **12/30/96**

OFF: (505) 325-5667

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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: *30-Dec-96*
 COC No.: *5710*
 Sample ID: *13170*
 Job No.: *2-1000*

Project Name: *PNM Gas Services - McClanahan 22*
 Project Location: *9612171200; MW-2*
 Sampled by: *MS* Date: *17-Dec-96* Time: *12:00*
 Analyzed by: *HR* Date: *24-Dec-96*

Laboratory Analysis

Parameter	Result	Unit of Measure	Result	Unit of Measure
Cations				
Sodium <i>Na</i>	1390	mg/L	60.46	me/L
Calcium <i>Ca</i>	394	mg/L	19.66	me/L
Magnesium <i>Mg</i>	58.0	mg/L	4.77	me/L
Potassium <i>K</i>	11.4	mg/L	0.29	me/L
Anions				
Chloride <i>Cl</i>	35	mg/L	0.99	me/L
Sulfate <i>SO4</i>	3799	mg/L	79.09	me/L
Carbonate <i>CO3 as CaCO3</i>	<1	mg/L	<0.01	me/L
Bicarbonate <i>HCO3 as CaCO3</i>	320	mg/L	5.24	me/L
Hydroxide <i>OH as CaCO3</i>	<1	mg/L	<0.01	me/L
Total Dissolved Solids				
Calculated, Sum of Cation/Anion	6007	mg/L	Cation-Anion Balance 0.14 Difference Cation-Anion, me/L 170.51 Total Cation-Anion, me/L 0.1 % Difference Cation-Anion Comments	
Total Dissolved Solids	5994	mg/L		
Dried @ 180 C				
pH	7.22			
Conductivity @ 25 C	6630	uS/cm		
Total Hardness as CaCO3	1223	mg/L		

Approved by: *[Signature]*
 Date: *12/30/96*

OFF: (505) 325-5667

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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: **30-Dec-96**
 COC No.: **5710**
 Sample ID: **13171**
 Job No.: **2-1000**

Project Name: **PNM Gas Services - McClanahan 22**

Project Location: **9612171230; MW-3**

Sampled by: **MG**

Date: **17-Dec-96** Time: **12:30**

Analyzed by: **HR**

Date: **24-Dec-96**

Laboratory Analysis

Parameter	Result	Unit of Measure		Result	Unit of Measure	
Cations						
Sodium <i>Na</i>	1400	mg/L		60.90	me/L	
Calcium <i>Ca</i>	342	mg/L		17.07	me/L	
Magnesium <i>Mg</i>	58.0	mg/L		4.77	me/L	
Potassium <i>K</i>	11.9	mg/L		0.30	me/L	
Anions						
Chloride <i>Cl</i>	46	mg/L		1.30	me/L	
Sulfate <i>SO4</i>	3456	mg/L		71.95	me/L	
Carbonate <i>CO3 as CaCO3</i>	< 1	mg/L		< 0.01	me/L	
Bicarbonate <i>HCO3 as CaCO3</i>	718	mg/L		11.77	me/L	
Hydroxide <i>OH as CaCO3</i>	< 1	mg/L		< 0.01	me/L	
Total Dissolved Solids						
Calculated, Sum of Cation/Anion	6032	mg/L	Cation-Anion Balance 1.98 Difference Cation-Anion, me/L 168.06 Total Cation-Anion, me/L 1.2 % Difference Cation-Anion Comments			
Total Dissolved Solids						
Dried @ 180 C	5932	mg/L				
pH	7.54					
Conductivity @ 25 C	6540	uS/cm				
Total Hardness as CaCO3	1093	mg/L				

Approved by: *[Signature]*
 Date: **12/30/96**

OFF: (505) 325-5667

ON SITE

TECHNOLOGIES, LTD.

LAB: (505) 325-1556

ANALYTICAL REPORT

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

Date: **30-Dec-96**
 COC No.: **5710**
 Sample ID: **13172**
 Job No.: **2-1000**

Project Name: **PNM Gas Services - McClanahan 22**

Project Location: **9612171300; MW-4**

Sampled by: **MG**

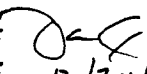
Date: **17-Dec-96** Time: **13:00**

Analyzed by: **HR**

Date: **24-Dec-96**

Laboratory Analysis

Parameter	Result	Unit of Measure	Result	Unit of Measure
Cations				
Sodium Na	1380	mg/L	60.03	me/L
Calcium Ca	409	mg/L	20.41	me/L
Magnesium Mg	57.0	mg/L	4.69	me/L
Potassium K	13.3	mg/L	0.34	me/L
Anions				
Chloride Cl	38	mg/L	1.07	me/L
Sulfate SO ₄	3972	mg/L	82.70	me/L
Carbonate CO ₃ as CaCO ₃	<1	mg/L	<0.01	me/L
Bicarbonate HCO ₃ as CaCO ₃	330	mg/L	5.41	me/L
Hydroxide OH as CaCO ₃	<1	mg/L	<0.01	me/L
Total Dissolved Solids				
Calculated, Sum of Cation/Anion	6199	mg/L	Cation-Anion Balance 3.71 Difference Cation-Anion, me/L 174.64 Total Cation-Anion, me/L 2.1 % Difference Cation-Anion Comments	
Total Dissolved Solids				
Dried @ 180 C	6326	mg/L		
pH	7.33			
Conductivity @ 25 C	6890	uS/cm		
Total Hardness as CaCO ₃	1256	mg/L		

Approved by: 
 Date: **12/30/96**

OFF: (505) 325-5667



LAB: (505) 325-1556

QUALITY ASSURANCE REPORT*Cation/Anion Balance***Date: 24-Dec-96****Quality Control Sample**

<i>Parameter</i>	<i>Laboratory Identification</i>	<i>True Value</i>	<i>Analyzed Value</i>	<i>Unit of Measure</i>	<i>% Diff</i>	<i>Limit % Diff</i>
Sodium, Na	0522-QC	3.16	3.28	mg/L	4	10
Calcium, Ca	0462-QC	2.18	2.12	mg/L	-3	10
Magnesium, Mg	0462-QC	2.29	2.29	mg/L	0	10
Potassium, K	0509-QC	2.92	2.94	mg/L	1	10
Chloride, Cl	0437-QC	50	52	mg/L	4	10
Sulfate, SO ₄	0509-QC	116	119	mg/L	3	10
Alkalinity	0509-QC	174	188	mg/L	8	10
pH	0509-QC	9.05	9.16		1	10
Conductivity	0509-QC	1210	1188	uS/cm	-2	15
Total Dissolved Solids, 180C	0509-QC	905	858	uS/cm	-5	15

Matrix Spike

<i>Parameter</i>	<i>Laboratory Identification</i>	<i>Analyzed Value</i>	<i>Matrix Spike</i>	<i>Spike Value</i>	<i>Unit of Measure</i>	<i>Spike Recovery</i>
Sodium, Na	13178-5711	1.42	0.50	1.98	mg/L	103%
Calcium, Ca	13178-5711	1.92	0.50	2.44	mg/L	101%
Magnesium, Mg	13178-5711	0.52	1.00	1.53	mg/L	101%
Potassium, K	13169-5710	0.60	1.00	1.32	mg/L	83%

Method Blank

<i>Parameter</i>	<i>Laboratory Identification</i>	<i>Analyzed Value</i>	<i>Unit of Measure</i>
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

(12)

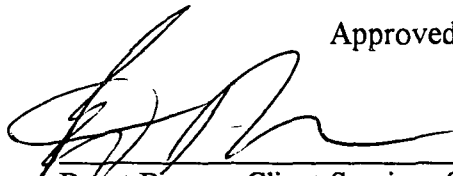


HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Southern Petroleum Laboratories, Inc.

Certificate of Analysis Number: 96-12-B35

Approved for Release by:


Brent Barron, Client Services Supervisor

12/20/96
Date

Greg Grandits
Laboratory Director

Idelis Williams
Quality Assurance Officer

The attached analytical data package may not be reproduced except in full without the express written approval of this laboratory.



HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9612B35-01

On Site Technologies
612 East Murray
Farmington, NM 87401
ATTN: David Cox

P.O.#
5710
12/26/96

PROJECT: ON Site Tech
SITE: McClannahan 22
SAMPLED BY: ~~On Site Technologies~~ *mg*
SAMPLE ID: 9612171230 MW-3

PROJECT NO: PNM1002
MATRIX: WATER
DATE SAMPLED: 12/17/96 12:30:00
DATE RECEIVED: 12/20/96

ANALYTICAL DATA

PARAMETER	RESULTS	PQL*	UNITS
Naphthalene	240	90.00	ug/L
Acenaphthylene	ND	50.00	ug/L
Acenaphthene	ND	100.0	ug/L
Fluorene	ND	200.0	ug/L
Phenanthrene	ND	200.0	ug/L
Anthracene	ND	100.0	ug/L
Fluoranthene	ND	100.0	ug/L
Pyrene	ND	100.0	ug/L
Chrysene	ND	80.00	ug/L
Benzo (a) anthracene	ND	80.00	ug/L
Benzo (b) fluoranthene	ND	60.00	ug/L
Benzo (k) fluoranthene	ND	70.00	ug/L
Benzo (a) pyrene	ND	30.00	ug/L
Dibenzo (a,h) anthracene	ND	70.00	ug/L
Benzo (g,h,i) perylene	ND	100.0	ug/L
Indeno (1,2,3-cd) pyrene	ND	80.00	ug/L

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
Biphenyl	2 ug/L	D	50	150
Coronene	0.25 ug/L	D	50	150

ANALYZED BY: KA DATE/TIME: 12/24/96 23:41:16
EXTRACTED BY: AM DATE/TIME: 12/20/96 14:00:00
METHOD: 8310 Polynuclear Aromatic Hydrocarbons
NOTES: * - Practical Quantitation Limit ND - Not Detected
NA - Not Analyzed
D - Diluted, control limits not applicable.

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance
with EPA guidelines for quality assurance.

QUALITY CONTROL

DOCUMENTATION



* SPL BATCH QUALITY CONTROL REPORT **
METHOD EPA 8310

PAGE

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Matrix: Aqueous
Units: ug/L

Batch Id: 1961219224100

B L A N K S P I K E S

S P I K E C O M P O U N D S	Sample Results <2>	Spike Added <3>	Matrix Spike		Matrix Spike		MS/MSD Relative % Difference	QC Limits(**) (Advisory)	
			Result <1>	Recovery <4>	Duplicate			RPD Max.	Recovery Range
					Result <1>	Recovery <5>			
NAPHTHALENE	ND	0.50	0.45	90.0	0.39	78.0	14.3	30	1 - 122
ACENAPHTHYLENE	ND	0.50	0.44	88.0	0.44	88.0	0	30	1 - 124
ACENAPHTHENE	ND	0.5	0.47	94.0	0.42	84.0	11.2	30	1 - 124
FLUORENE	ND	0.5	0.56	112	0.51	102	9.35	30	1 - 142
PHENANTHRENE	ND	0.5	0.48	96.0	0.46	92.0	4.26	30	1 - 155
ANTHRACENE	ND	0.5	0.51	102	0.45	90.0	12.5	30	1 - 126
FLUORANTHENE	ND	0.5	0.51	102	0.47	94.0	8.16	30	14 - 123
PYRENE	ND	0.5	0.53	106	0.44	88.0	18.6	30	1 - 140
CHRYSENE	ND	0.50	0.53	106	0.52	104	1.90	30	1 - 199
BENZO (A) ANTHRACENE	ND	0.50	0.54	108	0.52	104	3.77	30	12 - 135
BENZO (B) FLUORANTHENE	ND	0.50	0.54	108	0.53	106	1.87	30	6 - 150
BENZO (K) FLUORANTHENE	ND	0.50	0.54	108	0.53	106	1.87	30	1 - 159
BENZO (A) PYRENE	ND	0.50	0.64	128	0.64	128	0	30	1 - 128
DIBENZO (A,H) ANTHRACENE	ND	0.50	0.54	108	0.53	106	1.87	30	1 - 110
BENZO (G,H,I) PERYLENE	ND	0.5	0.55	110	0.53	106	3.70	30	1 - 116
INDENO (1,2,3-CD) PYRENE	ND	0.50	0.53	106	0.52	104	1.90	30	1 - 116

Analyst: KA

Sequence Date: 12/20/96

Method Blank File ID:

Sample File ID:

Blank Spike File ID: 961220B\003-0101

Matrix Spike File ID:

Matrix Spike Duplicate File ID:

* = Values Outside QC Range

NC = Not Calculated (Sample exceeds spike by factor of 4 or more)

ND = Not Detected/Below Detection Limit

% Recovery = $\left(\frac{<1> - <2>}{<3>} \right) \times 100$

Relative Percent Difference = $\left| \frac{<4> - <5>}{\left(\frac{<4> + <5>}{2} \right)} \right| \times 100$

(**) = Source: SPL Temporary Limits

SAMPLES IN BATCH(SPL ID):

9612B11-11A 9612B35-01A 9612A52-17C 9612B11-07A
9612B11-10A 9612B11-12A 9612B11-08A 9612B11-09A

CHAIN OF CUSTODY
AND
SAMPLE RECEIPT CHECKLIST

13241

~~EEZW~~ Maple • P. O. Box 2606 • Farmington NM 87499

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

Page 1 of 1

Distribution:	White - On Site	Yellow - LAB	Pink - Sampler	Goldenrod - Client
---------------	-----------------	--------------	----------------	--------------------

SPL Houston Environmental Laboratory

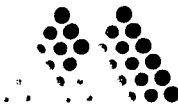
Sample Login Checklist

Date: 12/20/96	Time: 1330
----------------	------------

SPL Sample ID: 9612B36

		Yes	No
1	Chain-of-Custody (COC) form is present.	✓	
2	COC is properly completed.	✓	
3	If no, Non-Conformance Worksheet has been completed.		
4	Custody seals are present on the shipping container.	✓	
5	If yes, custody seals are intact.	✓	
6	All samples are tagged or labeled.	✓	
7	If no, Non-Conformance Worksheet has been completed.		
8	Sample containers arrived intact	✓	
9	Temperature of samples upon arrival:	20 C	
10	Method of sample delivery to SPL:	SPL Delivery	
		Client Delivery	
		FedEx Delivery (airbill #)	
		Other: UPS	1Z66ES8301999ES
11	Method of sample disposal:	SPL Disposal	✓
		HOLD	
		Return to Client	

Name: <i>Alene Selas</i>	Date: 12/20/96
--------------------------	----------------



Mountain States Analytical

RECEIVED JAN 8 1997

(u)

January 3, 1997

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

Reference:

Project: McClanahan 22
Project No.: PNM 1002
MSAI Group: 14757

Dear Mr. Cox:

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

13169-5710 (Dissolved)

13170-5710 (Dissolved)

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

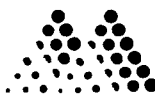
If the report is acceptable, please approve the enclosed invoice and forward it for payment.

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

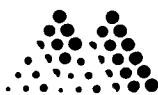
On Site Technologies, Ltd.
612 E Murray Drive
Farmington, NM 87401

Attn: Mr. David Cox
Project: McClanahan 22

Sample ID: 13169-5710 (Dissolved) ^{ICP} 9612171130; MW-1
Matrix: Waste Water

MSAI Sample: 57185
MSAI Group: 14757
Date Reported: 01/03/97
Discard Date: 02/02/97
Date Submitted: 12/24/96
Date Sampled: 12/17/96
Collected by: RD
Purchase Order: 5710
Project No.: PNM 1002

Test	Analysis	Results as Received	Units	Method Detection Limit
0249D	Cadmium by ICP, Dissolved w/ww Method: SW-846 6010A	ND	mg/l	0.004
0251F	Chromium by ICP, Dissolved Method: SW-846 6010A	ND	mg/l	0.010
0255F	Lead by ICP, Dissolved Method: SW-846 6010A	ND	mg/l	0.040
0259F	Mercury by CVAA, w/ww Diss, 245.1 Method: SW-846 245.1	0.0001	mg/l	0.0001
0266D	Silver by ICP, Dissolved Method: SW-846 6010A	ND	mg/l	0.006
0392I	Flame/ICP Prep for Metals, Waters Method: SW-846 3005A	Complete		
0392M	Mercury Prep CVAA, Waters Method: SW-846 7470	Complete		
0401	Prep for HAA, ww Method: SW-846 7061A	Complete	mg/l	
1045I	Arsenic by ICP, Dissolved Method: SW-846 6010A	ND	mg/l	0.030
1450	Selenium by HAA, ww Diss, 7741 Method: SW-846 7741	ND	mg/l	0.003
2541B	Barium by ICP, Dissolved Method: SW-846 6010A	0.065	mg/l	0.003



Mountain States Analytical

The Quality Solution

On Site Technologies, Ltd.

Sample ID: 13169-5710 (Dissolved)

Page 2

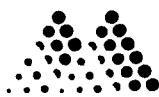
MSAI Sample: 57185

MSAI Group: 14757

Test	Analysis	Results as Received	Units	Method Detection Limit
----	-----	-----	-----	-----
0939	Sample Filtering Method: MSAI IN-HOUSE	Complete		

Respectfully Submitted,
Reviewed and Approved by:

Rolf E. Larsen
Project Manager



Mountain States Analytical

The Quality Solution

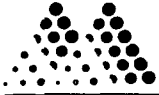
On Site Technologies, Ltd.
612 E Murray Drive
Farmington, NM 87401

Attn: Mr. David Cox
Project: McClanahan 22

Sample ID: 13170-5710 (Dissolved) 9612171200; MW-2
Matrix: Waste Water

MSAI Sample: 57186
MSAI Group: 14757
Date Reported: 01/03/97
Discard Date: 02/02/97
Date Submitted: 12/24/96
Date Sampled: 12/17/96
Collected by: RD
Purchase Order: 5710
Project No.: PNM 1002

Test	Analysis	Results as Received	Units	Method Detection Limit
0249D	Cadmium by ICP, Dissolved w/ww Method: SW-846 6010A	ND	mg/l	0.004
0251F	Chromium by ICP, Dissolved Method: SW-846 6010A	ND	mg/l	0.010
0255F	Lead by ICP, Dissolved Method: SW-846 6010A	ND	mg/l	0.040
0259F	Mercury by CVAA, w/ww Diss, 245.1 Method: SW-846 245.1	ND	mg/l	0.0001
0266D	Silver by ICP, Dissolved Method: SW-846 6010A	ND	mg/l	0.006
0392I	Flame/ICP Prep for Metals, Waters Method: SW-846 3005A	Complete		
0392M	Mercury Prep CVAA, Waters Method: SW-846 7470	Complete		
0401	Prep for HAA, ww Method: SW-846 7061A	Complete	mg/l	
1045I	Arsenic by ICP, Dissolved Method: SW-846 6010A	ND	mg/l	0.030
1450	Selenium by HAA, ww Diss, 7741 Method: SW-846 7741	ND	mg/l	0.003
1541B	Barium by ICP, Dissolved Method: SW-846 6010A	0.076	mg/l	0.003



Mountain States Analytical

The Quality Solution

Page 2

On Site Technologies, Ltd.

MSAI Sample: 57186

MSAI Group: 14757

Sample ID: 13170-5710 (Dissolved)

Test	Analysis	Results as Received	Units	Method Detection Limit
----	-----	-----	-----	-----
0939	Sample Filtering Method: MSAI IN-HOUSE	Complete		

Respectfully Submitted,
Reviewed and Approved by:

Rolf E. Larsen
Project Manager

Mountain States Analytical, Inc.
Daily QC Batching Data
Data Released for Reporting

01/03/97
10:08:28
Group: 14757

Analysis Batch Number: 0259T-01/01/97-107 -1

Test Identification : 0259T-Mercury by CVAA, TCLP

Sequence : DAAA001

Number of Samples : 18

Batch Data-Date/Time : 01/02/97 / 07:38:44

BLANK#	ANALYTE	CONC FOUND #	CONC LIMIT
PBW1-830	Mercury	0.0765	0.5000
PBW2-830-2	Mercury	0.0365	0.5000

SPIKE		QC LIMITS				
SAMPLE#	ANALYTE	CONC ADDED	CONC SAMPLE	CONC SPIKE	% REC #	LOWER UPPER
14762-57193	Mercury	1.0000	0.1376	1.1593	102.2	80.0 120.0

MSD		QC LIMITS						
SAMPLE#	ANALYTE	CONC ADDED	CONC SAMPLE	RESULT 2	%REC2 #	LOWER UPPER	RPD #	LIMIT
14762-57193	Mercury	1.0000	0.1376	1.1860	104.8	80.0 120.0	2.5	20.0

DUPLICATE		RESULT 1	RESULT 2	RPD #	LIMIT	DILUTION
14762-57193	Mercury	0.1376	0.1298	5.8	20.0	1.00

CONTROL		QC LIMITS			
SAMPLE#	ANALYTE	CONC FOUND	CONC KNOWN	% REC #	LOWER UPPER
LCSW-830	Mercury	2.4219	2.5000	96.9	80.0 120.0

CCV #		QC LIMITS			
ANALYTE	TRUE VALUE	BATCH READ	% REC #	LOWER	UPPER
ICV-	Mercury	3.0000	2.8401	94.7	90.0 110.0
CCV1--2	Mercury	5.0000	5.0539	101.1	80.0 120.0
CCV2--3	Mercury	5.0000	5.0179	100.4	80.0 120.0
CCV3--4	Mercury	5.0000	5.2537	105.1	80.0 120.0
CCV4--5	Mercury	5.0000	5.2691	105.4	80.0 120.0

CCB#	ANALYTE	CONC FOUND #	CONC LIMIT
ICB-	Mercury	-0.0478	0.5000
CCB1-	Mercury	-0.0839	0.5000
CCB2-	Mercury	0.0712	0.5000
CCB3-	Mercury	0.0839	0.5000
CCB4-	Mercury	-0.0439	0.5000

Groups & Samples

14757-57185	14757-57186	14758-57187	14758-57188	14760-57190	14761-57192	14762-57193	14762-57194
14762-57195	14762-57196	14762-57197	14762-57198	14762-57199	14762-57200	14762-57201	14772-57235
14780-57258							

Mountain States Analytical, Inc.
Daily QC Batching Data
Data Released for Reporting

01/03/97
10:08:33
Group: 14757

Analysis Batch Number: 1450 -12/30/96-001 -1

Test Identification : 1450 -Selenium by HAA, ww Diss, 7741

Sequence : DAAA365

Number of Samples : 6

Batch Data-Date/Time : 12/30/96 / 10:39:22

BLANK#	ANALYTE	CONC FOUND #	CONC LIMIT
PBW1-823	Selenium	ND	0.0030

SPIKE						QC LIMITS	
SAMPLE#	ANALYTE	CONC ADDED	CONC SAMPLE	CONC SPIKE	% REC #	LOWER	UPPER
14757-57185	Selenium	0.0400	0.0000	0.0409	102.3	80.0	120.0

MSD						QC LIMITS			
SAMPLE#	ANALYTE	CONC ADDED	CONC SAMPLE	RESULT 2	%REC2 #	LOWER	UPPER	RPD #	LIMIT
14757-57185	Selenium	0.0400	0.0000	0.0335	83.8	80.0	120.0	19.9	20.0

DUPLICATE						
SAMPLE#	ANALYTE	RESULT 1	RESULT 2	RPD #	LIMIT	DILUTION
14757-57185	Selenium	-0.0088	0.0000	200.0(11)	20.0	1.00

CONTROL						QC LIMITS	
SAMPLE#	ANALYTE	CONC FOUND	CONC KNOWN	% REC #	LOWER	UPPER	
LCSW-823	Selenium	0.0438	0.0400	109.5	80.0	120.0	

		QC LIMITS				
CCV #	ANALYTE	TRUE VALUE	BATCH READ	% REC #	LOWER	UPPER
ICV-	Selenium	0.0500	0.0538	107.6	90.0	110.0
CCV--2	Selenium	0.0500	0.0521	104.2	80.0	120.0
CCV--3	Selenium	0.0500	0.0585	117.0	80.0	120.0

CCB#	ANALYTE	CONC FOUND #	CONC LIMIT
ICB-	Selenium	0.0035	0.0050
CCB-	Selenium	ND	0.0050
CCB-	Selenium	0.0013	0.0050

----- Result Footnotes -----
(11) - Both Duplicate results are less than the LOQ.

Groups & Samples

14757-57185 14757-57186 14758-57187 14758-57188 14759-57189 14760-57190

Mountain States Analytical, Inc.
Daily QC Batching Data
Data Released for Reporting

01/03/97
10:08:39
Group: 14757

Analysis Batch Number: ICPWA-01/03/97-001 -1
Test Identification : ICPWA-Metals by ICP
Number of Samples : 6
Batch Data-Date/Time : 01/03/97 / 10:00:48

Sequence : DATA003

BLANK#	ANALYTE	CONC FOUND #	CONC LIMIT
PBW-829	Silver	ND	0.0060
	Arsenic	ND	0.0300
	Barium	0.0007	0.0030
	Cadmium	ND	0.0040
	Chromium	ND	0.0100
	Lead	ND	0.0400

						QC LIMITS	
SAMPLE#	ANALYTE	CONC ADDED	CONC SAMPLE	CONC SPIKE	% REC #	LOWER	UPPER
14757-57186	Silver	0.0500	-0.0034	0.0423	91.4	80.0	120.0
	Arsenic	2.0000	-0.0082	1.9994	100.4	80.0	120.0
	Barium	2.0000	0.0760	1.6771	80.1	80.0	120.0
	Cadmium	0.0500	0.0001	0.0457	91.2	80.0	120.0
	Chromium	0.2000	0.0028	0.1827	90.0	80.0	120.0
	Lead	0.5000	0.0012	0.4557	90.9	80.0	120.0

						QC LIMITS			
SAMPLE#	ANALYTE	CONC ADDED	CONC SAMPLE	RESULT 2	%REC2 #	LOWER	UPPER	RPD #	LIMIT
14757-57186	Silver	0.0500	-0.0034	0.0422	91.2	80.0	120.0	0.2	20.0
	Arsenic	2.0000	-0.0082	2.0351	102.2	80.0	120.0	1.8	20.0
	Barium	2.0000	0.0760	1.7705	84.7	80.0	120.0	5.6	20.0
	Cadmium	0.0500	0.0001	0.0480	95.8	80.0	120.0	4.9	20.0
	Chromium	0.2000	0.0028	0.1803	88.8	80.0	120.0	1.3	20.0
	Lead	0.5000	0.0012	0.4579	91.3	80.0	120.0	0.4	20.0

DUPLICATE						
SAMPLE#	ANALYTE	RESULT 1	RESULT 2	RPD #	LIMIT	DILUTION
14757-57186	Silver	-0.0034	0.0000	200.0(11)	20.0	1.00
	Arsenic	-0.0082	0.0000	200.0(11)	20.0	1.00
	Barium	0.0760	0.0769	1.2	20.0	1.00
	Cadmium	0.0001	0.0035	188.9(11)	20.0	1.00
	Chromium	0.0028	0.0030	6.9	20.0	1.00
	Lead	0.0012	0.0061	134.2(11)	20.0	1.00

CONTROL					QC LIMITS	
SAMPLE#	ANALYTE	CONC FOUND	CONC KNOWN	% REC #	LOWER	UPPER
CSW-829	Silver	0.0466	0.0500	93.2	80.0	120.0
	Arsenic	2.0163	2.0000	100.8	80.0	120.0
	Barium	1.9226	2.0000	96.1	80.0	120.0
	Cadmium	0.0471	0.0500	94.2	80.0	120.0
	Chromium	0.1983	0.2000	99.1	80.0	120.0
	Lead	0.4922	0.5000	98.4	80.0	120.0

QC LIMITS					
CV #	ANALYTE	TRUE VALUE	BATCH READ	% REC #	LOWER UPPER
CV-	Silver	0.4000	0.3931	98.3	90.0 110.0
	Arsenic	1.6000	1.6331	102.1	90.0 110.0
	Barium	4.0000	3.8393	96.0	90.0 110.0
	Cadmium	4.0000	3.9732	99.3	90.0 110.0
	Chromium	4.0000	3.9833	99.6	90.0 110.0

Mountain States Analytical, Inc.
Daily QC Batching Data
Data Released for Reporting

01/03/97
10:08:43
Group: 14757

Analysis Batch Number: ICPWA-01/03/97-001 -1

Test Identification : ICPWA-Metals by ICP

Sequence : DATA003

Number of Samples : 6

Batch Data-Date/Time : 01/03/97 / 10:00:48

		QC LIMITS				
CCV #	ANALYTE	TRUE VALUE	BATCH READ	% REC #	LOWER	UPPER
ICV-	Lead	20.0000	19.6061	98.0	90.0	110.0
CCV1--2	Silver	0.4000	0.3907	97.7	90.0	110.0
	Arsenic	1.6000	1.6278	101.7	90.0	110.0
	Barium	4.0000	3.8829	97.1	90.0	110.0
	Cadmium	4.0000	3.9701	99.3	90.0	110.0
	Chromium	4.0000	3.9682	99.2	90.0	110.0
	Lead	20.0000	19.4771	97.4	90.0	110.0
CCV2--3	Silver	0.4000	0.3867	96.7	90.0	110.0
	Arsenic	1.6000	1.6076	100.5	90.0	110.0
	Barium	4.0000	3.8010	95.0	90.0	110.0
	Cadmium	4.0000	3.9598	99.0	90.0	110.0
	Chromium	4.0000	3.9479	98.7	90.0	110.0
	Lead	20.0000	19.4210	97.1	90.0	110.0
CCV3--4	Silver	0.4000	0.3909	97.7	90.0	110.0
	Arsenic	1.6000	1.6262	101.6	90.0	110.0
	Barium	4.0000	3.7730	94.3	90.0	110.0
	Cadmium	4.0000	4.0133	100.3	90.0	110.0
	Chromium	4.0000	3.9857	99.6	90.0	110.0
	Lead	20.0000	19.6642	98.3	90.0	110.0

CCB#	ANALYTE	CONC FOUND #	CONC LIMIT
ICB-	Silver	ND	0.0060
	Arsenic	ND	0.0300
	Barium	ND	0.0030
	Cadmium	0.0016	0.0040
	Chromium	ND	0.0100
	Lead	ND	0.0400
CCB1-	Silver	ND	0.0060
	Arsenic	ND	0.0300
	Barium	ND	0.0030
	Cadmium	0.0003	0.0040
	Chromium	ND	0.0100
	Lead	0.0003	0.0400
CCB2-	Silver	ND	0.0060
	Arsenic	0.0001	0.0300
	Barium	ND	0.0030
	Cadmium	ND	0.0040
	Chromium	ND	0.0100
	Lead	ND	0.0400
CCB3-	Silver	ND	0.0060
	Arsenic	ND	0.0300
	Barium	ND	0.0030
	Cadmium	0.0014	0.0040
	Chromium	ND	0.0100
	Lead	0.0032	0.0400

----- Result Footnotes -----

11) - Both Duplicate results are less than the LOQ.

Mountain States Analytical, Inc.
Daily QC Batching Data
Data Released for Reporting

01/03/97
10:08:46
Group: 14757

Analysis Batch Number: ICPWA-01/03/97-001 -1
Test Identification : ICPWA-Metals by ICP
Number of Samples : 6
Batch Data-Date/Time : 01/03/97 / 10:00:48

Sequence : DATA003

Groups & Samples

14757-57185 14757-57186 14758-57187 14758-57188 14759-57189 14760-57190

[illegible]

[illegible]

Distribution:	White - On Site	Yellow - LAB	Pink - Sampler	Goldenrod - Client
---------------	-----------------	--------------	----------------	--------------------

OFF: (505) 325-5667

ON SITE
TECHNOLOGIES, LTD.

LAB: (505) 325-1556

3 April 1997

Denver Bearden
PNM Gas Services
603 W. Elm Street
Farmington, NM 87401

Reference:

Project Name: McClanahan 22
Project Loc.: MW1, MW2, MW3, MW4, MW5, MW6; 970312
On Site ID: COC No.5748

Dear Denver,

Enclosed please find the analytical results for your project referenced above. Should you have any questions please feel free to call me at your convenience, (505) 325-2432.

Thank you once again for your consideration.

Sincerely,



David Cox
Laboratory Manager

Attachments (2)

cc: Maureen Gannon, PNM Gas Services

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: *18-Mar-97*
COC No.: *5748*
Sample No.: *13865*
Job No.: *2-1000*

Project Name: *PNM Gas Services - McClanahan 22*
Project Location: *9703121000; MW-1*
Sampled by: *MS/MG* Date: *12-Mar-97* Time: *10:00*
Analyzed by: *DC* Date: *17-Mar-97*
Sample Matrix: *Liquid*

<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>0.6</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>1.1</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>o-Xylene</i>	<i>0.4</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>TOTAL</i>	<i>2.3</i>	<i>ug/L</i>		

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

Approved By: *[Signature]*

Date: *3/18/97*

P.O. BOX 2606 • FARMINGTON, NM 87499

TECHNOLOGY SERVING INDUSTRY WITH THE ENVIRONMENT

OFF: (505) 325-5667

ON SITE
TECHNOLOGIES, LTD.

LAB: (505) 325-1556

ANALYTICAL REPORT

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

Date: *18-Mar-97*
COC No.: *5748*
Sample No.: *13866*
Job No.: *2-1000*

Project Name: *PNM Gas Services - McClanahan 22*
Project Location: *9703121030; MW-2*
Sampled by: *MS/MG* Date: *12-Mar-97* Time: *10:30*
Analyzed by: *DC* Date: *17-Mar-97*
Sample Matrix: *Liquid*

Parameter	Result	Unit of Measure	Detection Limit	Unit 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><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: *3/18/97*

P.O. BOX 2606 • FARMINGTON, NM 87499

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: *18-Mar-97*
COC No.: *5748*
Sample No.: *13867*
Job No.: *2-1000*

Project Name: *PNM Gas Services - McClanahan 22*
Project Location: *9703121100; MW-3*
Sampled by: *MS/MG*
Analyzed by: *DC*
Sample Matrix: *Liquid*

Date: *12-Mar-97* Time: *11:00*
Date: *17-Mar-97*

<i>Parameter</i>	<i>Result</i>	<i>Unit of Measure</i>	<i>Detection Limit</i>	<i>Unit of Measure</i>
<i>Benzene</i>	<i>66.1</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>Toluene</i>	<i>80.2</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>Ethylbenzene</i>	<i>347.5</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>m,p-Xylene</i>	<i>1892.4</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>o-Xylene</i>	<i>236.7</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>TOTAL</i>	<i>2622.9</i>	<i>ug/L</i>		

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

Approved By: *[Signature]*
Date: *3/18/97*

P.O. BOX 2606 • FARMINGTON, NM 87499

- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

OFF: (505) 325-5667

ON SITE
TECHNOLOGIES, LTD.

LAB: (505) 325-1556

ANALYTICAL REPORT

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

Date: *18-Mar-97*
COC No.: *5748*
Sample No.: *13868*
Job No.: *2-1000*

Project Name: *PNM Gas Services - McClanahan 22*
Project Location: *9703121130; MW-4*
Sampled by: *MS/MG* Date: *12-Mar-97* Time: *11:30*
Analyzed by: *DC* Date: *17-Mar-97*
Sample Matrix: *Liquid*

<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>0.3</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>0.4</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>0.8</i>	<i>ug/L</i>		

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

Approved By: *[Signature]*

Date: *3/18/97*

P.O. BOX 2606 • FARMINGTON, NM 87499

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: **18-Mar-97**
COC No.: **5748**
Sample No.: **13869**
Job No.: **2-1000**

Project Name: **PNM Gas Services - McClanahan 22**
Project Location: **9703121200; MW-5 (Duplicate of MW-2)**
Sampled by: **MS/MG** Date: **12-Mar-97** Time: **12:00**
Analyzed by: **DC** Date: **17-Mar-97**
Sample Matrix: **Liquid**

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	<0.2	ug/L	0.2	ug/L
m,p-Xylene	<0.2	ug/L	0.2	ug/L
o-Xylene	<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: 
Date: **3/16/97**

P.O. BOX 2606 • FARMINGTON, NM 87499

• FARMINGTON BLENDING INDUSTRIES WITH THE ELVIS CANTO •

OFF: (505) 325-5667

ON SITE
TECHNOLOGIES, LTD.

LAB: (505) 325-1556

ANALYTICAL REPORT

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

Date: *19-Mar-97*
COC No.: *5748*
Sample No.: *13870*
Job No.: *2-1000*

Project Name: *PNM Gas Services - McClanahan 22*
Project Location: *9703121230; MW-6 (Certified Spike)*
Sampled by: *MS/MG* Date: *12-Mar-97* Time: *12:30*
Analyzed by: *DC* Date: *18-Mar-97*
Sample Matrix: *Liquid*

<i>Parameter</i>	<i>Result</i>	<i>Unit of Measure</i>	<i>Detection Limit</i>	<i>Unit of Measure</i>
<i>Benzene</i>	<i>355.6</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>Toluene</i>	<i>128.8</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>Ethylbenzene</i>	<i>170.5</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>m,p-Xylene</i>	<i>177.9</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>o-Xylene</i>	<i>89.4</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>TOTAL</i>	<i>922.1</i>	<i>ug/L</i>		

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

Approved By: *[Signature]*
Date: *3/19/97*

P.O. BOX 2606 • FARMINGTON, NM 87499

OFF: (505) 325-5667



LAB: (505) 325-1556

QUALITY ASSURANCE REPORT for EPA Method 8020

Date Analyzed: 18-Mar-97

Internal QC No.: 0527-STD

Surrogate QC No.: 0528-STD

Reference Standard QC No.: 0529/30-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	18.4	8	15%
Toluene	ppb	20.0	18.9	6	15%
Ethylbenzene	ppb	20.0	19.2	4	15%
m,p-Xylene	ppb	40.0	37.0	8	15%
o-Xylene	ppb	20.0	18.9	6	15%

Matrix Spike

Parameter	1 - Percent Recovered	2 - Percent Recovered	Limit	%RSD	Limit
Benzene	95	89	(39-150)	4	20%
Toluene	98	92	(46-148)	4	20%
Ethylbenzene	100	94	(32-160)	4	20%
m,p-Xylene	98	90	(35-145)	6	20%
o-Xylene	98	92	(35-145)	4	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)	
13865-5748	97				
13866-5748	96				
13867-5748	98				
13868-5748	97				
13869-5748	97				

S1: Fluorobenzene

OFF: (505) 325-5667



LAB: (505) 325-1556

QUALITY ASSURANCE REPORT for EPA Method 8020

Date Analyzed: 18-Mar-97

Internal QC No.: 0527-STD

Surrogate QC No.: 0528-STD

Reference Standard QC No.: 0529/30-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	20.2	1	15%
Ethylbenzene	ppb	20.0	20.6	3	15%
m,p-Xylene	ppb	40.0	39.4	1	15%
o-Xylene	ppb	20.0	20.3	1	15%

Matrix Spike

Parameter	1 - Percent Recovered	2 - Percent Recovered	Limit	%RSD	Limit
Benzene	77	91	(39-150)	4	20%
Toluene	94	100	(46-148)	4	20%
Ethylbenzene	94	86	(32-160)	5	20%
m,p-Xylene	82	94	(35-145)	4	20%
o-Xylene	96	101	(35-145)	4	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)	
13870-5748	96				

S1: Fluorobenzene



RECEIVED APR 2 1997

(pc)

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

March 24, 1997

Mr. David Cox
ON SITE TECHNOLOGIES
612 East Murray
Farmington, NM 87401

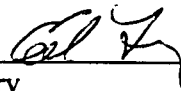
The following report contains analytical results for samples received at Southern Petroleum Laboratories (SPL) on March 14, 1997. The samples were assigned to Certificate of Analysis No. 9703726 and analyzed for all parameters as listed on the chain of custody.

There were no analytical problems encountered with this group of samples and all quality control data was within acceptance limits.

If you have any questions or comments pertaining to this data report, please do not hesitate to contact me. Please reference the above Certificate of Analysis No. during any inquiries.

Again, SPL is pleased to be of service to you. We anticipate working with you in fulfilling all your current and future analytical needs.

Southern Petroleum Laboratories



Ed Fry
Project Manager



HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Southern Petroleum Laboratories, Inc.

Certificate of Analysis Number: 97-03-726

Approved for Release by:



Ed Fry, Project Manager

3/22/97
Date:

Greg Grandits
Laboratory Director

Idelis Williams
Quality Assurance Officer

The attached analytical data package may not be reproduced except in full without the express written approval of this laboratory.



HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9703726-01

On Site Technologies
612 East Murray
Farmington, NM 87401
ATTN: David Cox

P.O.#
5748
03/24/97

PROJECT: McClanahan 22
SITE: Farmington, NM
SAMPLED BY: On Site Technologies, LTD.
SAMPLE ID: 9703121030 MW2 13866-5748

PROJECT NO: PNM1002
MATRIX: WATER
DATE SAMPLED: 03/12/97 10:30:00
DATE RECEIVED: 03/14/97

ANALYTICAL DATA

PARAMETER	RESULTS	PQL*	UNITS
Naphthalene	ND	0.09	ug/L
Acenaphthylene	ND	0.05	ug/L
Acenaphthene	ND	0.1	ug/L
Fluorene	ND	0.2	ug/L
Phenanthrene	ND	0.2	ug/L
Anthracene	ND	0.1	ug/L
Fluoranthene	ND	0.1	ug/L
Pyrene	ND	0.1	ug/L
Chrysene	ND	0.08	ug/L
Benzo (a) anthracene	ND	0.08	ug/L
Benzo (b) fluoranthene	ND	0.06	ug/L
Benzo (k) fluoranthene	ND	0.07	ug/L
Benzo (a) pyrene	ND	0.03	ug/L
Dibenzo (a,h) anthracene	ND	0.07	ug/L
Benzo (g,h,i) perylene	ND	0.1	ug/L
Indeno (1,2,3-cd) pyrene	ND	0.08	ug/L

SURROGATES

	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
Biphenyl	200 ug/L	81	50	150
Coronene	200 ug/L	94	50	150

ANALYZED BY: KA DATE/TIME: 03/21/97 08:53:12
EXTRACTED BY: AM DATE/TIME: 03/17/97 10:00:00
METHOD: 8310 Polynuclear Aromatic Hydrocarbons
NOTES: * - Practical Quantitation Limit ND - Not Detected
NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance
with EPA guidelines for quality assurance.

**HOUSTON LABORATORY**8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9703726-02

On Site Technologies
612 East Murray
Farmington, NM 87401
ATTN: David CoxP.O.#
5748
03/24/97PROJECT: McClanahan 22
SITE: Farmington, NM
SAMPLED BY: On Site Technologies, LTD.
SAMPLE ID: 9703121100 MW-3 13867-5748PROJECT NO: PNM1002
MATRIX: WATER
DATE SAMPLED: 03/12/97 11:00:00
DATE RECEIVED: 03/14/97**ANALYTICAL DATA**

PARAMETER	RESULTS	PQL*	UNITS
Naphthalene	ND	9.00	ug/L
Acenaphthylene	ND	5.00	ug/L
Acenaphthene	ND	10.0	ug/L
Fluorene	ND	20.0	ug/L
Phenanthrene	ND	20.0	ug/L
Anthracene	ND	10.0	ug/L
Fluoranthene	ND	10.0	ug/L
Pyrene	ND	10.0	ug/L
Chrysene	ND	8.00	ug/L
Benzo (a) anthracene	ND	8.00	ug/L
Benzo (b) fluoranthene	ND	6.00	ug/L
Benzo (k) fluoranthene	ND	7.00	ug/L
Benzo (a) pyrene	ND	3.00	ug/L
Dibenzo (a,h) anthracene	ND	7.00	ug/L
Benzo (g,h,i) perylene	ND	10.0	ug/L
Indeno (1,2,3-cd) pyrene	ND	8.00	ug/L

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
Biphenyl	200 ug/L	D	50	150
Coronene	200 ug/L	D	50	150

ANALYZED BY: KA
EXTRACTED BY: AM
METHOD: 8310 Polynuclear Aromatic Hydrocarbons
NOTES: * - Practical Quantitation Limit ND - Not Detected
NA - Not Analyzed
D - Diluted, control limits not applicable.**COMMENTS:**QUALITY ASSURANCE: These analyses are performed in accordance
with EPA guidelines for quality assurance.



HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9703726-03

On Site Technologies
612 East Murray
Farmington, NM 87401
ATTN: David Cox

P.O.#
5748
03/24/97

PROJECT: McClanahan 22
SITE: Farmington, NM
SAMPLED BY: On Site Technologies, LTD.
SAMPLE ID: 9703121130 MW-4 13868-5748

PROJECT NO: PNM1002
MATRIX: WATER
DATE SAMPLED: 03/12/97 11:30:00
DATE RECEIVED: 03/14/97

ANALYTICAL DATA

PARAMETER	RESULTS	PQL*	UNITS	
Naphthalene	ND	0.09	ug/L	
Acenaphthylene	ND	0.05	ug/L	
Acenaphthene	ND	0.1	ug/L	
Fluorene	ND	0.2	ug/L	
Phenanthrene	ND	0.2	ug/L	
Anthracene	ND	0.1	ug/L	
Fluoranthene	ND	0.1	ug/L	
Pyrene	ND	0.1	ug/L	
Chrysene	ND	0.08	ug/L	
Benzo (a) anthracene	ND	0.08	ug/L	
Benzo (b) fluoranthene	ND	0.06	ug/L	
Benzo (k) fluoranthene	ND	0.07	ug/L	
Benzo (a) pyrene	ND	0.03	ug/L	
Dibenzo (a,h) anthracene	ND	0.07	ug/L	
Benzo (g,h,i) perylene	ND	0.1	ug/L	
Indeno (1,2,3-cd) pyrene	ND	0.08	ug/L	

SURROGATES

	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
Biphenyl	200 ug/L	60	50	150
Coronene	200 ug/L	71	50	150

ANALYZED BY: KA DATE/TIME: 03/21/97 10:55:48
EXTRACTED BY: AM DATE/TIME: 03/17/97 10:00:00
METHOD: 8310 Polynuclear Aromatic Hydrocarbons
NOTES: * - Practical Quantitation Limit ND - Not Detected
NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance
with EPA guidelines for quality assurance.

QUALITY CONTROL
DOCUMENTATION



SPL BATCH QUALITY CONTROL REPORT **
METHOD EPA 8310

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Matrix: Aqueous
Units: ug/L

Batch Id: 1970320060000

LABORATORY CONTROL SAMPLE

S P I K E C O M P O U N D S	Method Blank Result <2>	Spike Added <3>	Blank Spike		QC Limits(**) (Mandatory) % Recovery Range
			Result <1>	Recovery %	
Naphthalene	ND	0.10	0.082	82.0	33 - 122
Acenaphthylene	ND	0.10	0.079	79.0	42 - 138
Acenaphthene	ND	0.10	0.082	82.0	25 - 123
Fluorene	ND	0.10	0.079	79.0	19 - 142
Phenanthrene	ND	0.10	0.088	88.0	40 - 121
Anthracene	ND	0.10	0.077	77.0	32 - 121
Fluoranthene	ND	0.10	0.088	88.0	51 - 115
Pyrene	ND	0.10	0.086	86.0	45 - 117
Chrysene	ND	0.10	0.091	91.0	44 - 122
Benzo (a) anthracene	ND	0.10	0.087	87.0	57 - 118
Benzo (b) fluoranthene	ND	0.10	0.093	93.0	62 - 121
Benzo (k) fluoranthene	ND	0.10	0.093	93.0	63 - 117
Benzo (a) pyrene	ND	0.10	0.093	93.0	42 - 120
Dibenzo (a,h) anthracene	ND	0.10	0.091	91.0	53 - 118
Benzo (g,h,i) perylene	ND	0.10	0.084	84.0	51 - 116
Indeno (1,2,3-cd) pyrene	ND	0.10	0.11	110	60 - 116

MATRIX SPIKES

S P I K E C O M P O U N D S	Sample Results <2>	Spike Added <3>	Matrix Spike		Matrix Spike Duplicate		MS/MSD Relative % Difference	QC Limits(***) (Advisory)	
			Result <1>	Recovery <4>	Result <1>	Recovery <5>		RPD Max.	Recovery Range
NAPHTHALENE	ND	0.50	0.39	78.0	0.30	60.0	26.1	30	1 - 122
ACENAPHTHYLENE	ND	0.50	0.38	76.0	0.31	62.0	20.3	30	1 - 124
ACENAPHTHENE	ND	0.5	0.39	78.0	0.33	66.0	16.7	30	1 - 124
FLUORENE	ND	0.5	0.38	76.0	0.33	66.0	14.1	30	1 - 142
PHENANTHRENE	ND	0.5	0.41	82.0	0.34	68.0	18.7	30	1 - 155
ANTHRACENE	ND	0.5	0.36	72.0	0.30	60.0	18.2	30	1 - 126
FLUORANTHENE	ND	0.5	0.42	84.0	0.40	80.0	4.88	30	14 - 123
PYRENE	ND	0.5	0.40	80.0	0.38	76.0	5.13	30	1 - 140
CHRYSENE	ND	0.50	0.43	86.0	0.45	90.0	4.55	30	1 - 199
BENZO (A) ANTHRACENE	ND	0.50	0.41	82.0	0.43	86.0	4.76	30	12 - 135
BENZO (B) FLUORANTHENE	ND	0.50	0.44	88.0	0.47	94.0	6.59	30	6 - 150
BENZO (K) FLUORANTHENE	ND	0.50	0.43	86.0	0.46	92.0	6.74	30	1 - 159
BENZO (A) PYRENE	ND	0.50	0.43	86.0	0.46	92.0	6.74	30	1 - 128
DIBENZO (A,H) ANTHRACENE	ND	0.50	0.41	82.0	0.44	88.0	7.06	30	1 - 110
BENZO (G,H,I) PERYLENE	ND	0.5	0.50	100	0.60	120 *	18.2	30	1 - 116
INDENO (1,2,3-CD) PYRENE	ND	0.50	0.41	82.0	0.48	96.0	15.7	30	1 - 116



* SPL BATCH QUALITY CONTROL REPORT **
METHOD EPA 8310

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Matrix: Aqueous
Units: ug/L

Batch Id: 1970320060000

Analyst: KA

Sequence Date: 03/20/97

SPL ID of sample spiked: 970317SFB1

Sample File ID: 970320A\010-0101

Method Blank File ID:

Blank Spike File ID: 970320A\011-0101

Matrix Spike File ID: 970320A\029-0101

Matrix Spike Duplicate File ID: 970320A\030-0101 (***) = Source: Temporary Limits

* = Values Outside QC Range. * = Data outside Method Specification limits.

NC = Not Calculated (Sample exceeds spike by factor of 4 or more)

ND = Not Detected/Below Detection Limit

% Recovery = $[(<1> - <2>) / <3>] \times 100$

LCS % Recovery = $(<1> / <3>) \times 100$

Relative Percent Difference = $| <4> - <5> | / [(<4> + <5>) \times 0.5] \times 100$

(**) = Source: SPL-Houston Historical Data (3rd Q '96)

SAMPLES IN BATCH(SPL ID):

9703728-01A 9703726-01A 9703726-03A 9703726-02A

CHAIN OF CUSTODY
AND
SAMPLE RECEIPT CHECKLIST



CHAIN OF CUSTODY RECORD

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

Date: 3/13/97

Page 1 of 1

9703726 5044

Purchase Order No.: 5748		Job No. PM1002							
SEND INVOICE TO		REPORT RESULTS TO							
Name	Accounts PAYABLE	Name	DAVID COX						
Company		Company	ON SITE						
Address		Mailing Address	612 E. PARKWAY DRIVE						
City, State, Zip		City, State, Zip	FARMINGTON, NM 87401						
Sampling Location: McCLANAHAN 22		Telephone No.	505-325-2432						
Sampler: MS/MG		Telefax No.	505-325-6256						
SAMPLE IDENTIFICATION		ANALYSIS REQUESTED							
SAMPLE	DATE	TIME	MATRIX	PRES.	Number of Containers	LAB ID			
	DATE						TIME		
970312-1030	MM-2	3/12	1030	H2O	4 th	1	✓	13866-5748	
970312-1100	MM-3	✓	1100	✓	1	✓	✓	13867-5748	
970312-1130	MM-4	✓	1130	✓	1	✓	✓	13868-5748	
Relinquished by: [Signature]		Date/Time		3/13/97		Received by: [Signature]		Date/Time	
Relinquished by: [Signature]		Date/Time		3/13/97		Received by: [Signature]		Date/Time	
Relinquished by: [Signature]		Date/Time		3/13/97		Received by: [Signature]		Date/Time	
Method of Shipment:		24-48 Hours		10 Working Days		Special Instructions:		NOTE RUSH	
Authorized by: [Signature]		Date 3/13/97		5 DAY		Rush		NOTE RUSH	

SPL Houston Environmental Laboratory

Sample Login Checklist

Date: 3/14/97	Time: 1000
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SPL Sample ID: 9703726

		Yes	No
1	Chain-of-Custody (COC) form is present.	✓	
2	COC is properly completed.	✓	
3	If no, Non-Conformance Worksheet has been completed.		
4	Custody seals are present on the shipping container.	✓	
5	If yes, custody seals are intact.	✓	
6	All samples are tagged or labeled.	✓	
7	If no, Non-Conformance Worksheet has been completed.		
8	Sample containers arrived intact	✓	
9	Temperature of samples upon arrival:		C
10	Method of sample delivery to SPL:	SPL Delivery	
		Client Delivery	
		FedEx Delivery (airbill #)	
		Other:	UPS
11	Method of sample disposal:	SPL Disposal	✓
		HOLD	
		Return to Client	

Name: S. West	Date: 3/14/97
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[illegible]

Distribution:	White - On Site	Yellow - LAB	Pink - Sampler	Goldenrod - Client
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