

3R - 340

REPORTS

DATE:

1998

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

April 2, 1998

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

RECEIVED
APR 03 1998
Oil Conservation Bureau
Oil Conservation Division



RE: 1998 SAN JUAN BASIN ANNUAL GROUNDWATER REPORT

Dear Bill:

PNM is pleased to submit the 1998 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
Dogie Compressor Station East Pit
Dogie Compressor Station North Pit
Florance 32A
Florance Z 40 M
Florance 44
Florance 47X
Florance 124
Hampton 4M
Honolulu Loop Line Drip
Ice Canyon Drip
Jacques 2A
Mangum 1E
McClanahan 22
McClanahan A2E
McCoy Gas Com A1
Miles Federal 1E
Miles Federal 1E Drip
Randleman 1
Reid 16 Drip
Sammons 2
Turner 1A
Turner 3
Zachry 18E

PNM 1998 Groundwater Report

PNM plans to request closure of two of the above sites, the Cozzens B1 and the Sammons 2, in our April 30, 1998 filing of the San Juan Pit Closure Reports to the OCD Santa Fe office. 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, appearing to read "Maureen Gannon", followed by a horizontal line.

Maureen Gannon
Project Manager

Attachment

cc: Ingrid Deklau, WFS
Denny Foust, OCD-Aztec Office
Bill VonDrehle, WFS

PNM 1998 Groundwater Report

bcc: Colin Adams (w/o analytical results)
Kathy Juckes
Ron Johnson (w/o analytical results)
Mark Sikelianos

Groundwater Site Summary Report

Quarter/Year: 2nd/97, 3rd/97, 4th/97 & 1st/98

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

Operator: Burlington Resources
Sec: 13 Twn: 31N Rng: 11W Unit: K
Canyon: Animas

Vulnerable Class: Original
OCD Ranking: 40
Lead Agency: NMOCD

Topo Map: previously submitted
Well Completion Diagram: Figure 1
Site Map with Analytical Results: Figure 2
Groundwater Contour Map: Figure 3 (June 1997), Figure 4 (September 1997), Figure 5 (December 1997) & Figure 6 (March 1998)
Hydrograph: Figure 7
Full suite-Groundwater Sampling Results: Table 1
Analytical Results: attached

Activities for Previous Year:

PNM installed five groundwater monitoring wells at the Randleman 1 well site on May 14, 1997. Figure 1 provides a typical groundwater monitoring well diagram for each well installation. On June 25, September 24 and December 2, 1997 and again on March 4, 1998, PNM performed quarterly sampling of groundwater monitoring wells at the site. PNM measured water levels and conducted groundwater sampling in each well for chemical analyses of benzene, toluene, ethylbenzene, and xylenes (BTEX). In addition, on September 17, 1997, MW-1 and MW-2 were sampled for Water Quality Control Commission (WQCC) dissolved metals and major cations/anions. MW-2 also exhibited 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.

In all instances, 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
- WQCC metals- filtered (As, Ba, Cd, Cr, Pb, Se, and Ag using inductively coupled plasma (ICP) for heavy metals and atomic absorption spectroscopy (AAS) for Hg and Se).
- PAHs using EPA Method 8310

Results:

Figure 2 presents a site map showing BTEX for each monitoring well since groundwater contamination was discovered. Table 1 provides a summary of the full suite of analytical results collected during the June 25, 1997 sampling event. Since monitoring began four quarters ago, MW-1 has shown BTEX concentrations below WQCC standards. BTEX concentrations in MW-2, the source well, have decreased over time and are now below WQCC standards. MW-3 which lies cross-gradient to groundwater flow continues to exhibit concentrations of BTEX well above WQCC standards. Water quality analysis of MW-1 and -2 revealed elevated sulfate concentrations at the site. Metals in either well were below WQCC standards. The PAHs concentration in MW-2 was below WQCC standard.

Figure(s) 3, 4, 5 and 6 provide groundwater contour maps for the months of June, September and December 1997 and March 1998, respectively. Groundwater flows in an easterly to southeasterly direction beneath the site. The groundwater gradient and elevations are strongly influenced by the Animas River which runs along the

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: Randleman 1

northeastern border of the site. Figure 7, the hydrograph of the site, shows groundwater elevations to be fairly constant with a slight decrease in MW-3 over the last quarter.

Further Action:

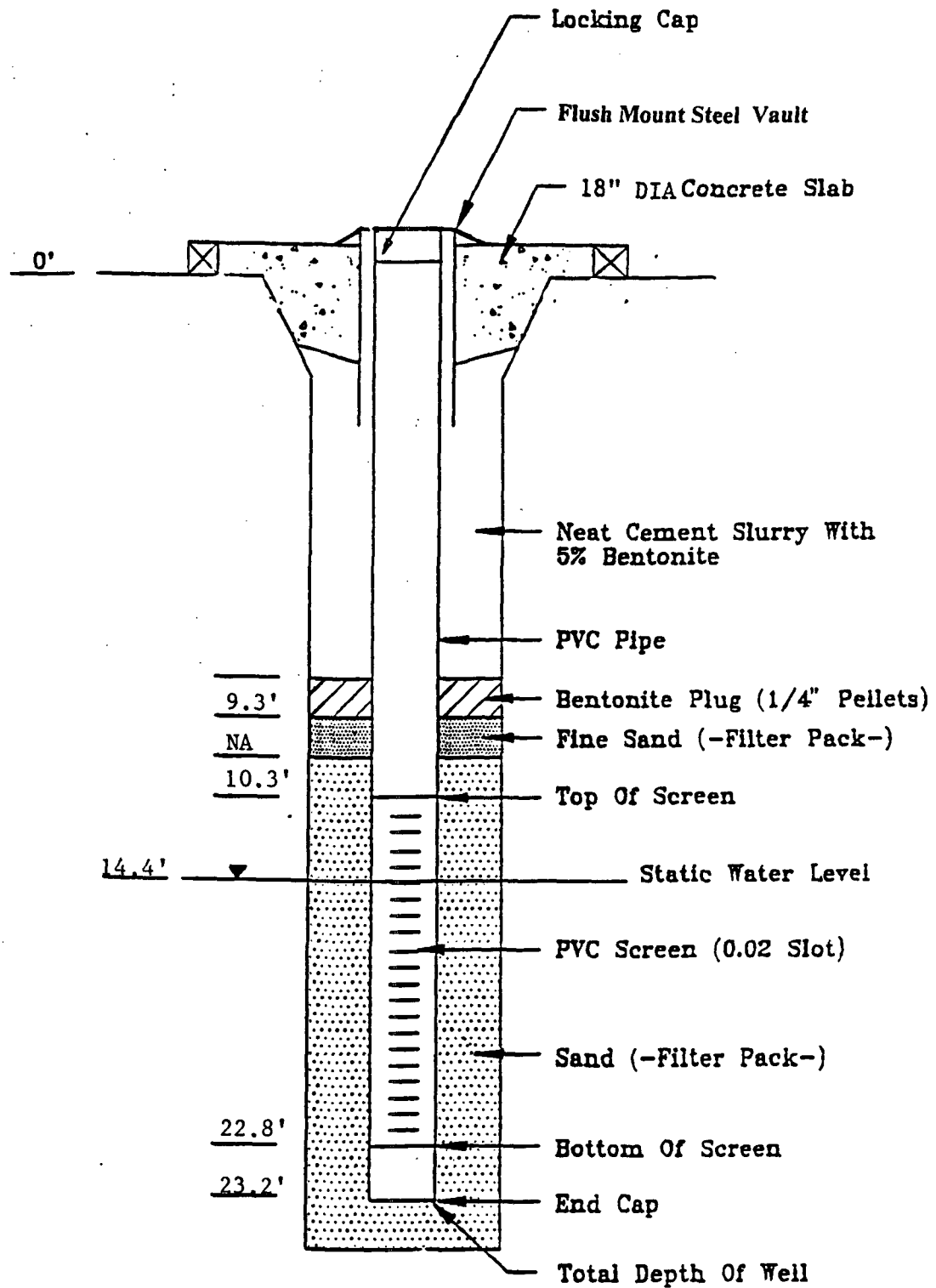
PNM plans to conduct further investigation and install a downgradient well at the Randleman 1. The site has had numerous "workovers" and equipment has been moved. In addition, the site is known to have had a fire sometime in the past but the location and nature is unknown at this time. PNM will also continue to monitor groundwater elevations and conduct quarterly groundwater sampling.

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

Randleman 1
Figure 1
 Well Completion Diagram

Figure 2. Randleman 1 Site Map and Analytical Results
(concentrations in ppm)



Figure 3. Randleman 1 Groundwater Contour Map (June 25, 1997)

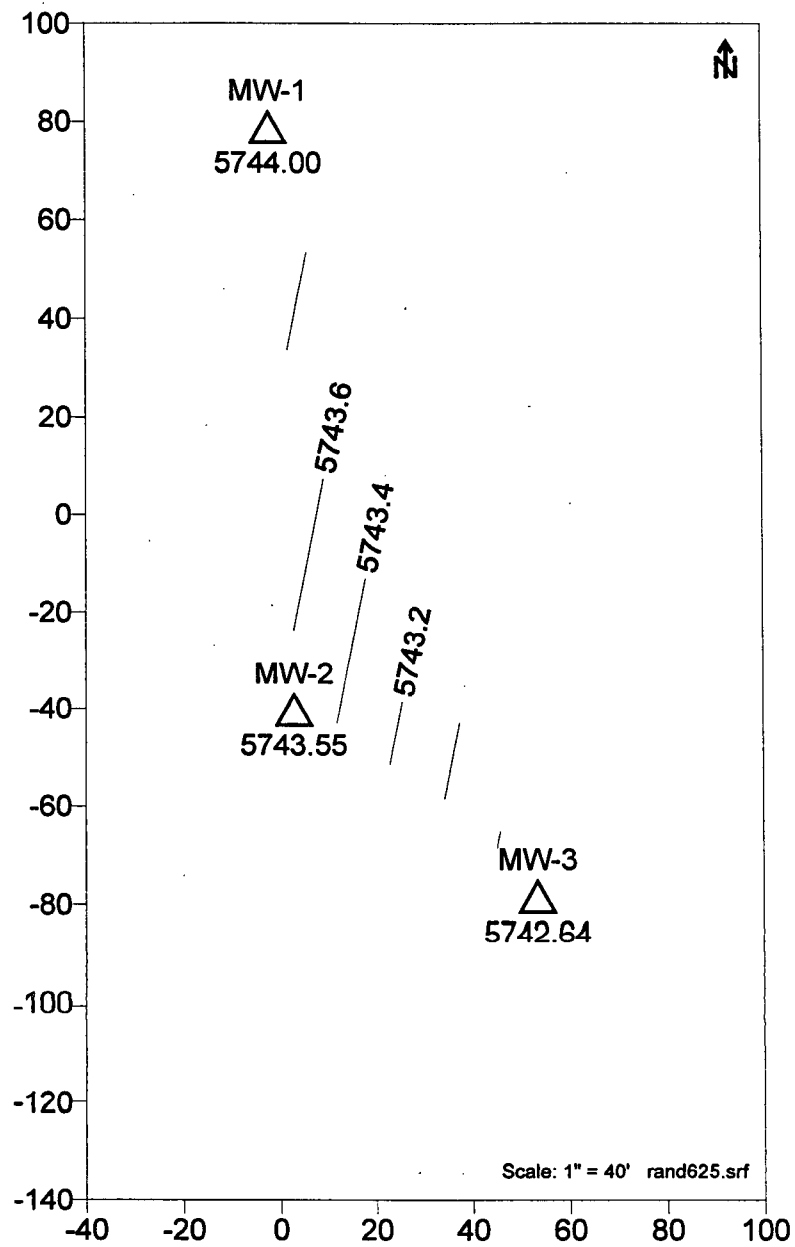


Figure 4. Randleman 1 Groundwater Contour Map (September 24, 1997)

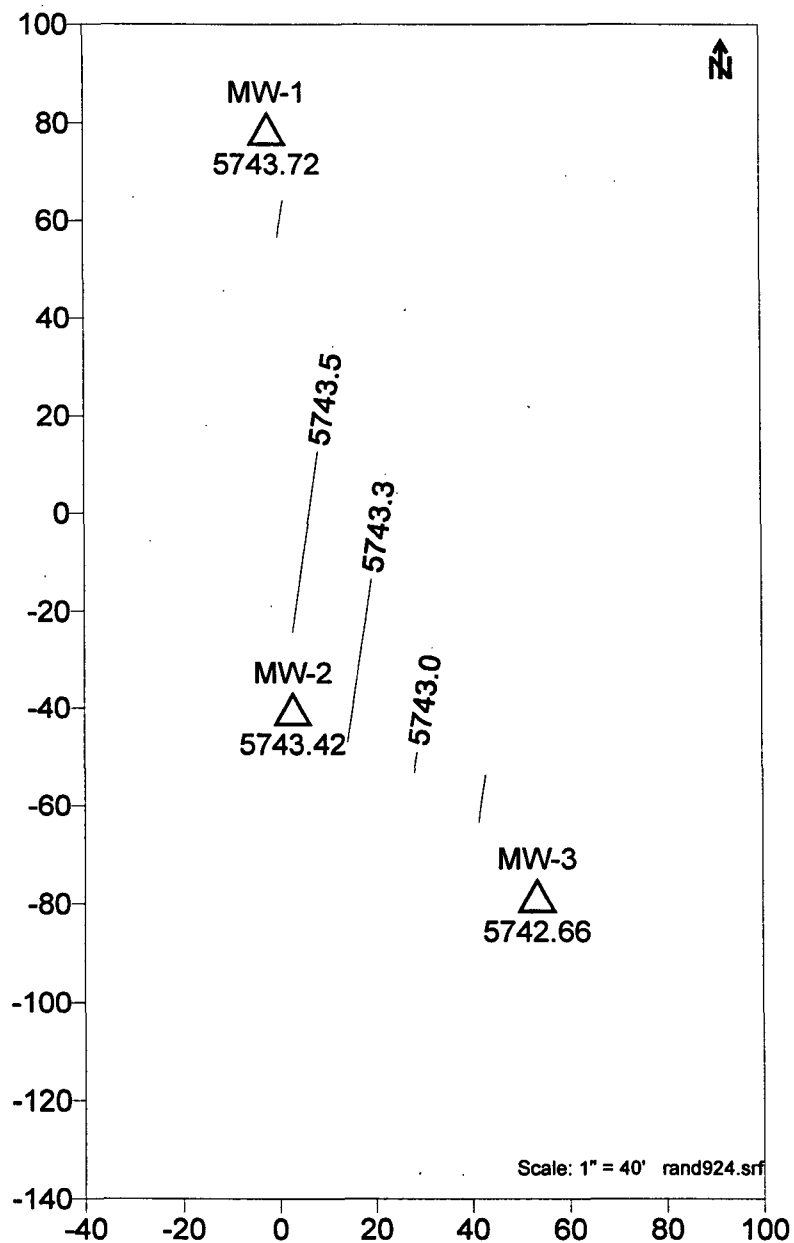


Figure 5. Randleman 1 Groundwater Contour Map (December 2, 1997)

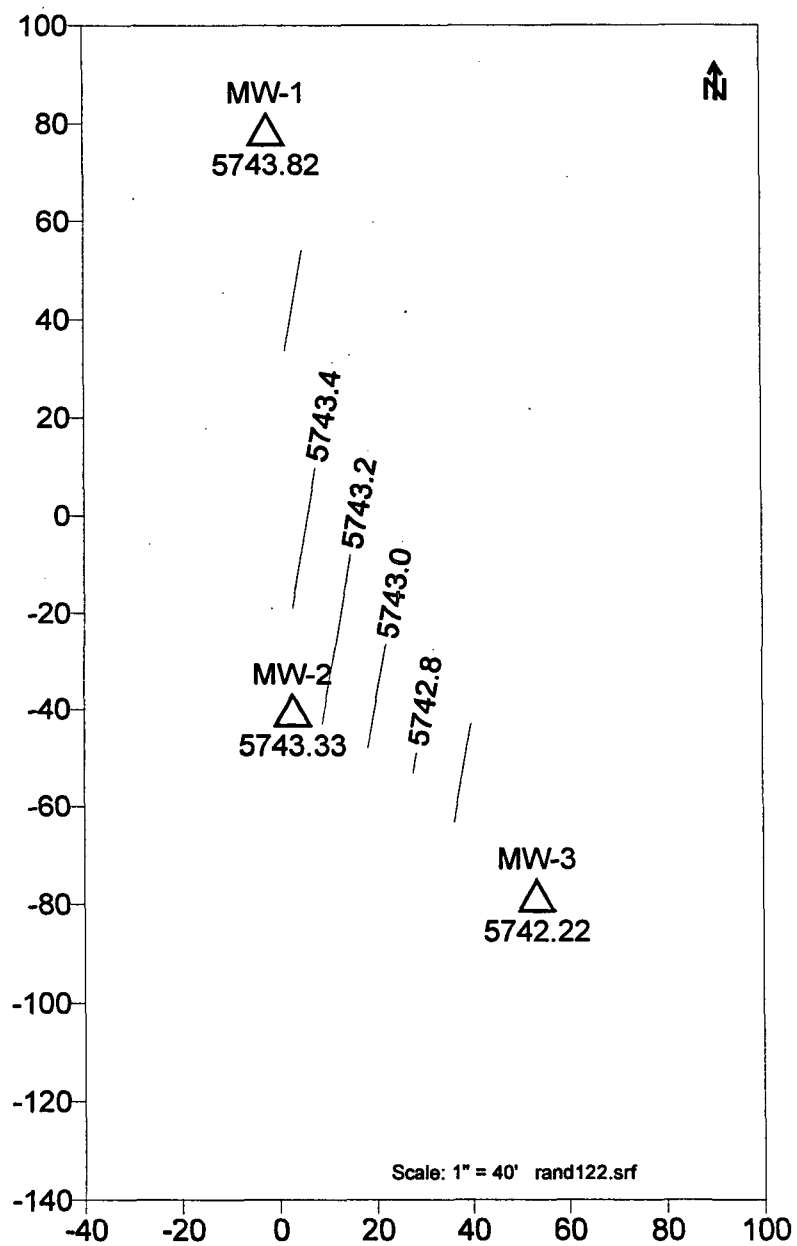


Figure 6. Randleman 1 Groundwater Contour Map (March 4, 1998)

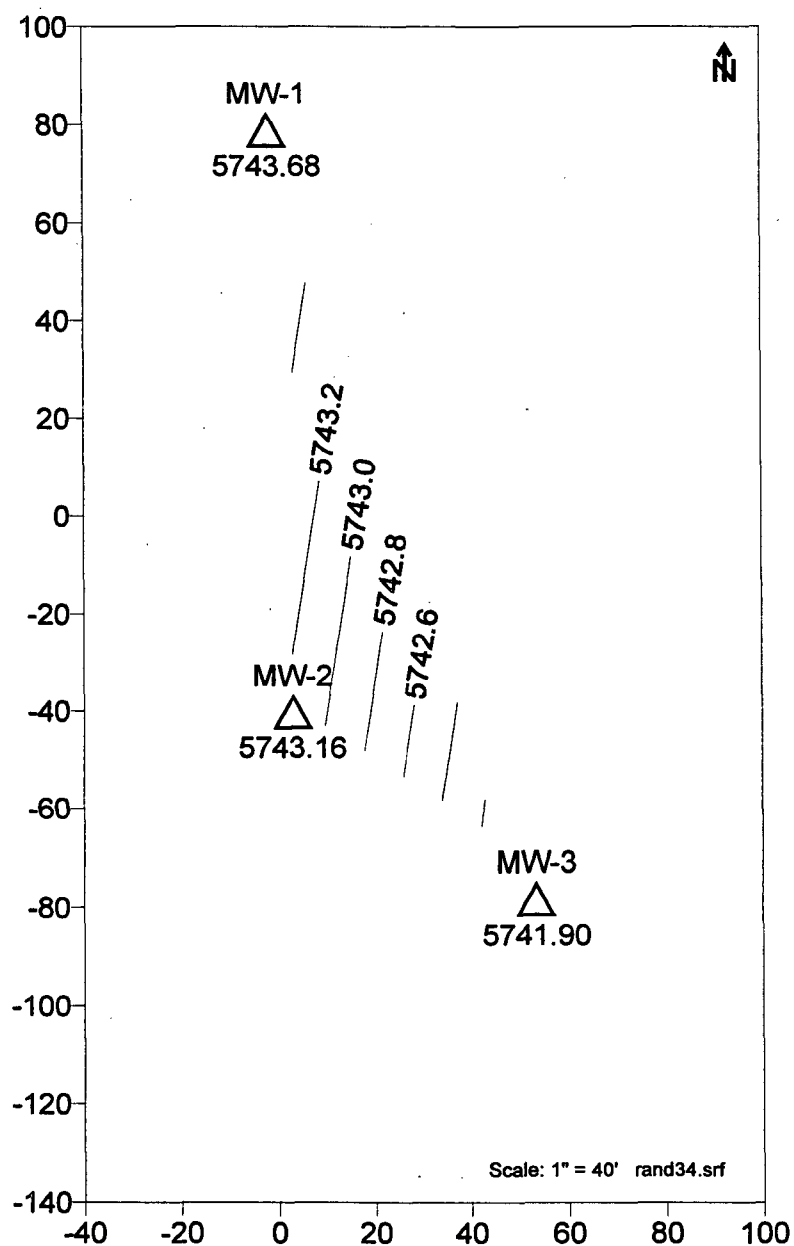


Figure 7. Randleman 1 Hydrograph
(Water Level vs. Time)

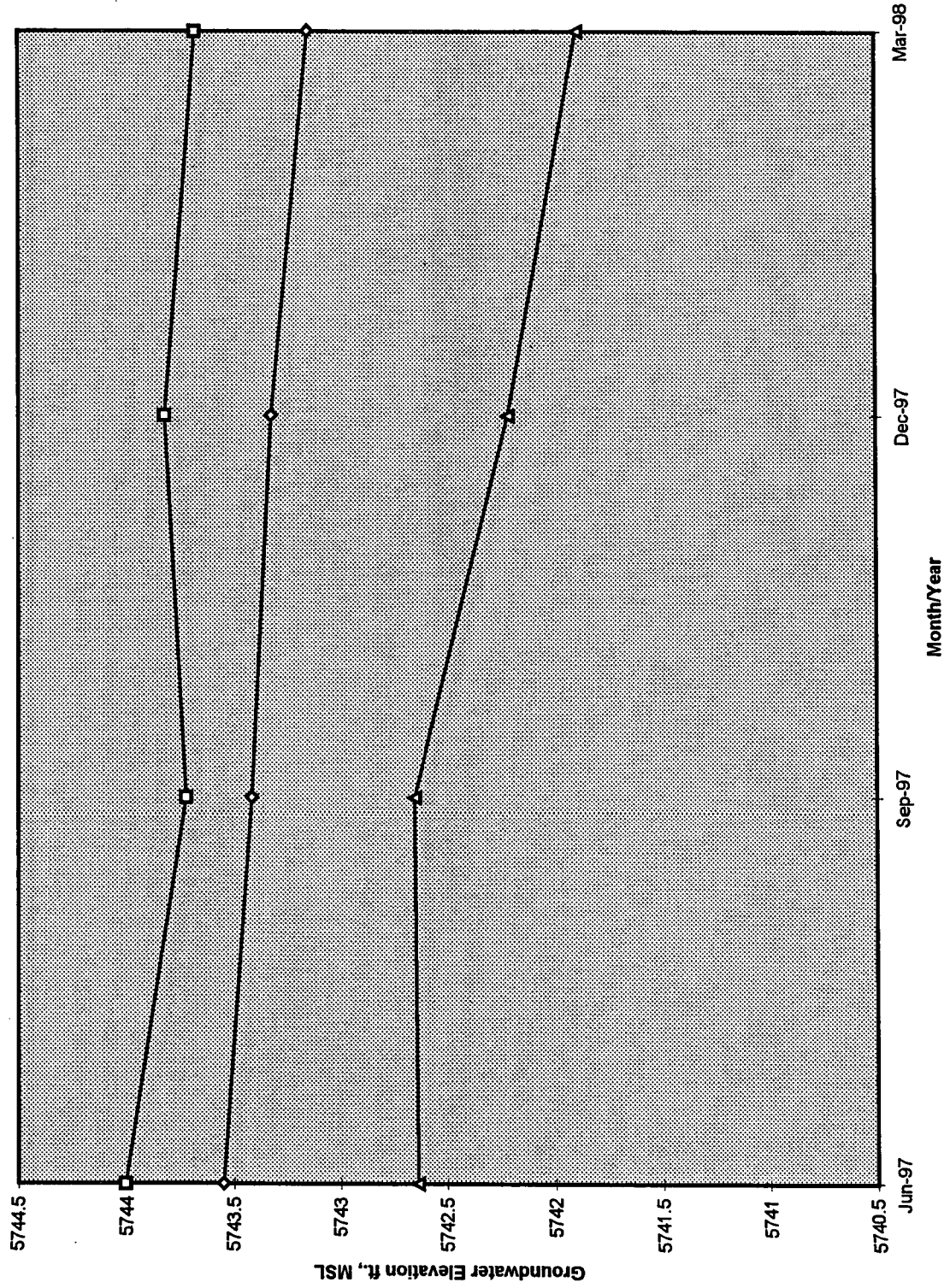


Table 1. RANDLEMAN 1 GROUNDWATER SAMPLING RESULTS, mg/l (6/25/97)

Constituent	WQCC Std.	MW-1	MW-2	MW-3	MW-4 (MW-2 duplicate)
B	0.01	<0.0002	0.0870	0.1540	0.0740
T	0.75	<0.0002	0.4340	0.0340	0.2900
E	0.75	<0.0002	0.0770	0.0420	0.0630
X	0.62	<0.0002	0.7760	0.1100	0.4370
PAHs	0.03	NA	0.016	NA	NA
Metals					
As	0.1	<0.030	<0.030	NA	NA
Ba	1	0.056	0.039	NA	NA
Cd	0.01	<0.004	<0.004	NA	NA
Cr	0.05	<0.010	<0.010	NA	NA
Pb	0.05	<0.040	<0.040	NA	NA
Se	0.05	<0.006	<0.006	NA	NA
Ag	0.05	<0.006	<0.006	NA	NA
Hg	0.002	<0.0001	<0.0001	NA	NA
Cations/Anions					
Na	NA	678	1235	NA	NA
Ca	NA	472	540	NA	NA
Mg	NA	23.6	23.3	NA	NA
K	NA	8.2	9.7	NA	NA
Cl	NA	170	645	NA	NA
SO4	NA	2348	2982	NA	NA
CO3	NA	<1	<1	NA	NA
HCO3	NA	218	355	NA	NA
OH	NA	<1	<1	NA	NA
Cation/Anion Balance					
Difference Cation- Anion	NA	2.06	1.44	NA	NA
Total Cation-Anion	NA	112.45	167.11	NA	NA
% Difference	NA	1.8	0.9	NA	NA
TDS, calc	NA	3918	5679	NA	NA
TDS, meas	NA	3937	5744	NA	NA
Hardness as CaCO3	NA	1276	1444	NA	NA

NA: Not Applicable

BDL: Below Detection Limit

NS: Not Sampled

** Out of Acceptable Range, % Diff. +/-5

P Free Product

x:\spec\rand1b.doc

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: *13-Jul-97*
COC No.: *5565*
Sample No.: *15114*
Job No.: *2-1000*

Project Name: *PNM Gas Services - Randleman 1*
Project Location: *9706251100; MW-1*
Sampled by: *MS/MG/BK* Date: *25-Jun-97* Time: *11:00*
Analyzed by: *DC* Date: *7-Jul-97*
Sample Matrix: *Liquid*

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
<i>Benzene</i>	ND	ug/L	0.2	ug/L
<i>Toluene</i>	ND	ug/L	0.2	ug/L
<i>Ethylbenzene</i>	ND	ug/L	0.2	ug/L
<i>m,p-Xylene</i>	ND	ug/L	0.2	ug/L
<i>o-Xylene</i>	ND	ug/L	0.2	ug/L
<i>TOTAL</i>	ND	ug/L		

ND - Not Detected at Limit of Quantitation

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

Approved By: *Jack*

Date: *7/14/97*

P.O. BOX 2606 • FARMINGTON, NM 87499

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: *13-Jul-97*
COC No.: *5565*
Sample No.: *15115*
Job No.: *2-1000*

Project Name: *PNM Gas Services - Randleman 1*
Project Location: *9706251130; MW-2*
Sampled by: *MS/MG/BK*
Analyzed by: *DC*
Sample Matrix: *Liquid*

Date: *25-Jun-97* Time: *11:30*
Date: *7-Jul-97*

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
<i>Benzene</i>	<i>87</i>	<i>ug/L</i>	<i>1</i>	<i>ug/L</i>
<i>Toluene</i>	<i>434</i>	<i>ug/L</i>	<i>1</i>	<i>ug/L</i>
<i>Ethylbenzene</i>	<i>77</i>	<i>ug/L</i>	<i>1</i>	<i>ug/L</i>
<i>m,p-Xylene</i>	<i>639</i>	<i>ug/L</i>	<i>1</i>	<i>ug/L</i>
<i>o-Xylene</i>	<i>137</i>	<i>ug/L</i>	<i>1</i>	<i>ug/L</i>
<i>TOTAL</i>	<i>1375</i>	<i>ug/L</i>		

ND - Not Detected at Limit of Quantitation

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

Approved By: *[Signature]*
Date: *7/14/97*

P.O. BOX 2606 • FARMINGTON, NM 87499

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: *13-Jul-97*
COC No.: *5565*
Sample No.: *15116*
Job No.: *2-1000*

Project Name: ***PNM Gas Services - Randleman 1***

Project Location: ***9706251200; MW-3***

Sampled by: *MS/MG/BK* Date: *25-Jun-97* Time: *12:00*

Analyzed by: *DC* Date: *7-Jul-97*

Sample Matrix: *Liquid*

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
<i>Benzene</i>	154	ug/L	1	ug/L
<i>Toluene</i>	34	ug/L	1	ug/L
<i>Ethylbenzene</i>	42	ug/L	1	ug/L
<i>m,p-Xylene</i>	102	ug/L	1	ug/L
<i>o-Xylene</i>	8	ug/L	1	ug/L
<i>TOTAL</i>	340	ug/L		

ND - Not Detected at Limit of Quantitation

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

Approved By: *[Signature]*
Date: *7/14/97*

P.O. BOX 2606 • FARMINGTON, NM 87499

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: *13-Jul-97*
COC No.: *5565*
Sample No.: *15117*
Job No.: *2-1000*

Project Name: *PNM Gas Services - Randleman 1*
Project Location: *9706251230; MW-4*
Sampled by: *MS/MG/BK* Date: *25-Jun-97* Time: *12:30*
Analyzed by: *HR* Date: *7-Jul-97*
Sample Matrix: *Liquid*

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
<i>Benzene</i>	<i>74</i>	<i>ug/L</i>	<i>1</i>	<i>ug/L</i>
<i>Toluene</i>	<i>290</i>	<i>ug/L</i>	<i>1</i>	<i>ug/L</i>
<i>Ethylbenzene</i>	<i>63</i>	<i>ug/L</i>	<i>1</i>	<i>ug/L</i>
<i>m,p-Xylene</i>	<i>320</i>	<i>ug/L</i>	<i>1</i>	<i>ug/L</i>
<i>o-Xylene</i>	<i>117</i>	<i>ug/L</i>	<i>1</i>	<i>ug/L</i>
<i>TOTAL</i>	<i>864</i>	<i>ug/L</i>		

ND - Not Detected at Limit of Quantitation

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

Approved By: *[Signature]*

Date: *7/14/97*

P.O. BOX 2606 • FARMINGTON, NM 87499

OFF: (505) 325-5667

ON SITE

TECHNOLOGIES, LTD.

LAB: (505) 325-1556

QUALITY ASSURANCE REPORT

for EPA Method 8020

Date Analyzed: 7-Jul-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	19.8	1	15%
Toluene	ppb	20.0	20.2	1	15%
Ethylbenzene	ppb	20.0	20.4	2	15%
m,p-Xylene	ppb	40.0	39.5	1	15%
o-Xylene	ppb	20.0	20.3	2	15%

Matrix Spike

Parameter	1 - Percent Recovered	2 - Percent Recovered	Limit	%RSD	Limit
Benzene	102	91	(39-150)	5	20%
Toluene	91	84	(46-148)	4	20%
Ethylbenzene	100	92	(32-160)	5	20%
m,p-Xylene	99	91	(35-145)	5	20%
o-Xylene	100	94	(35-145)	5	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)	
15114-5565	93				
15115-5565	93				
15116-5565	90				
15117-5565	86				

S1: Fluorobenzene

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: *21-Jul-97*
 COC No.: *5565*
 Sample ID.: *15114*
 Job No.: *2-1000*

Project Name: *PNM Gas Services - Randleman 1*

Project Location: *9706251100; MW-1*

Sampled by: *MS/MG/BK*

Date: *25-Jun-97* Time: *11:00*

Analyzed by: *HR*

Date: *7-Jul-97*

Laboratory Analysis

Parameter	Results as Received	Unit of Measure	Results as Received	Unit of Measure
<i>Cations</i>				
<i>Sodium Na</i>	678	mg/L	29.49	me/L
<i>Calcium Ca</i>	472	mg/L	23.55	me/L
<i>Magnesium Mg</i>	23.6	mg/L	1.94	me/L
<i>Potassium K</i>	8.2	mg/L	0.21	me/L
<i>Anions</i>				
<i>Chloride Cl</i>	170	mg/L	4.80	me/L
<i>Sulfate SO4</i>	2348	mg/L	48.88	me/L
<i>Carbonate CO3 as CaCO3</i>	< 1	mg/L	< 0.01	me/L
<i>Bicarbonate HCO3 as CaCO3</i>	218	mg/L	3.57	me/L
<i>Hydroxide OH as CaCO3</i>	< 1	mg/L	< 0.01	me/L
<i>Total Dissolved Solids</i>			<i>Cation-Anion Balance</i> 2.06 <i>Difference Cation-Anion, me/L</i> 112.45 <i>Total Cation-Anion, me/L</i> 1.8 % <i>Difference Cation-Anion</i> _____ <i>Comments</i>	
<i>Calculated, Sum of Cation/Anion</i>	3918	mg/L		
<i>Total Dissolved Solids</i>				
<i>Dried @ 180 C</i>	3937	mg/L		
<i>pH</i>	7.13			
<i>Conductivity @ 25 C</i>	4430	uS/cm		
<i>Total Hardness as CaCO3</i>	1276	mg/L		

Approved by: *[Signature]*

Date: *7/21/97*

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: *21-Jul-97*
 COC No.: *5565*
 Sample ID.: *15115*
 Job No.: *2-1000*

Project Name: ***PNM Gas Services - Randleman 1***

Project Location: ***9706251130; MW-2***

Sampled by: *MS/MG/BK*

Date: *25-Jun-97* Time: *11:30*

Analyzed by: *HR*

Date: *7-Jul-97*

Laboratory Analysis

Parameter	Results as Received	Unit of Measure	Results as Received	Unit of Measure
<i>Cations</i>				
<i>Sodium Na</i>	1235	mg/L	53.72	me/L
<i>Calcium Ca</i>	540	mg/L	26.95	me/L
<i>Magnesium Mg</i>	23.3	mg/L	1.92	me/L
<i>Potassium K</i>	9.7	mg/L	0.25	me/L
<i>Anions</i>				
<i>Chloride Cl</i>	645	mg/L	18.19	me/L
<i>Sulfate SO4</i>	2982	mg/L	62.08	me/L
<i>Carbonate CO3 as CaCO3</i>	< 1	mg/L	< 0.01	me/L
<i>Bicarbonate HCO3 as CaCO3</i>	244	mg/L	4.00	me/L
<i>Hydroxide OH as CaCO3</i>	< 1	mg/L	< 0.01	me/L
<i>Total Dissolved Solids Calculated, Sum of Cation/Anion</i>	5679	mg/L	<i>Cation-Anion Balance</i> 1.44 <i>Difference Cation-Anion, me L</i> 167.11 <i>Total Cation-Anion, me/L</i> 0.9 % <i>Difference Cation-Anion</i> <i>Comments</i>	
<i>Total Dissolved Solids Dried @ 180 C</i>	5744	mg/L		
<i>pH</i>	7.23			
<i>Conductivity @ 25 C</i>	6980	uS/cm		
<i>Total Hardness as CaCO3</i>	1444	mg/L		

Approved by: *[Signature]*
 Date: *7/21/97*

OFF: (505) 325-5667

ON SITE

TECHNOLOGIES, LTD.

LAB: (505) 325-1556

QUALITY ASSURANCE REPORT

Cation/Anion Balance

Date: 7-Jul-97

Quality Control Sample

Parameter	Laboratory Identification	True Value	Analyzed Value	Unit of Measure	% Diff	Limit % Diff
Sodium, Na	0451-QC	2.32	2.36	mg/L	2	10
Calcium, Ca	0465-QC	2.18	2.16	mg/L	-1	10
Magnesium, Mg	0465-QC	2.86	3.00	mg/L	5	10
Potassium, K	0451-QC	1.33	1.30	mg/L	-2	10
Chloride, Cl	0437-QC	150	147	mg/L	-2	10
Sulfate, SO ₄	0541-QC	78	79	mg/L	2	10
Alkalinity	0541-QC	159	167	mg/L	5	10
pH	0541-QC	9.13	9.13		0	10
Conductivity	0541-QC	740	733	uS/cm	-1	15
Total Dissolved Solids, 180C	0541-QC	642	620	uS/cm	-3	15

Matrix Spike

Parameter	Laboratory Identification	Analyzed Value	Matrix Spike	Spike Value	Unit of Measure	Spike Recovery
Sodium, Na	15121-5567	1.46	0.50	2.02	mg/L	103%
Calcium, Ca	15120-5567	0.88	0.50	1.48	mg/L	107%
Magnesium, Mg	15121-5567	0.92	0.50	1.50	mg/L	106%
Potassium, K	15121-5567	0.76	0.50	1.30	mg/L	103%

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

(12)
7/21/97



July 16, 1997

RECEIVED JUL 21 1997

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

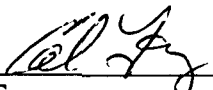
The following report contains analytical results for samples received at Southern Petroleum Laboratories (SPL) on July 1, 1997. The samples were assigned to Certificate of Analysis No(s).9707013 and analyzed for the parameters specified on the chain of custody.

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 Number(s) 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



RECEIVED JUL 21 1997

Southern Petroleum Laboratories, Inc.

Certificate of Analysis Number: 97-07-013

Approved for Release by:



Ed Fry, Project Manager

7/16/97
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.

**LABORATORIES**

Certificate of Analysis No. H9-9707013-01

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

P.O.#
5565
07/16/97

PROJECT: Water Analysis
SITE: Randleman 1
SAMPLED BY: On Site Technologies
SAMPLE ID: 9706251130 MW-2

PROJECT NO:
MATRIX: WATER
DATE SAMPLED: 06/25/97 11:30:00
DATE RECEIVED: 07/01/97

ANALYTICAL DATA

PARAMETER	RESULTS	PQL*	UNITS
Naphthalene	3	2.0	ug/L
Acenaphthylene	ND	2.0	ug/L
Acenaphthene	ND	6.0	ug/L
Fluorene	ND	6.0	ug/L
Phenanthrene	ND	2.0	ug/L
Anthracene	ND	2.0	ug/L
Fluoranthene	ND	2.0	ug/L
Pyrene	ND	2.0	ug/L
Chrysene	ND	2.0	ug/L
Benzo (a) anthracene	ND	2.0	ug/L
Benzo (b) fluoranthene	ND	2.0	ug/L
Benzo (k) fluoranthene	ND	2.0	ug/L
Benzo (a) pyrene	ND	2.0	ug/L
Dibenzo (a,h) anthracene	ND	2.0	ug/L
Benzo (g,h,i) perylene	ND	2.0	ug/L
Indeno (1,2,3-cd) pyrene	ND	2.0	ug/L
1-Methylnaphthalene	4	4.0	ug/L
2-Methylnaphthalene	9	4.0	ug/L

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
1-Fluoronaphthalene	0.20 ug/L	103	50	150
Phenanthrene d-10	0.20 ug/L	388MI	50	150

ANALYZED BY: KA DATE/TIME: 07/12/97 01:23:10
EXTRACTED BY: DL DATE/TIME: 07/01/97 15:00:00
METHOD: 8310 Polynuclear Aromatic Hydrocarbons
NOTES: * - Practical Quantitation Limit ND - Not Detected
 NA - Not Analyzed
 MI - Matrix Interference.

COMMENTS: 15115-5565

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

8880 INTERCHANGE DR.
HOUSTON, TX 77054
(713) 660-0901

500 AMBASSADOR CAPPERY PKWY.
SCOTT, LA 70583-8544
(318) 237-4SPL

459 HUGHES DRIVE
TRAVERSE CITY, MI 49684
(616) 947-5777

1511 E. ORANGETHORPE AVE.
FULLERTON, CA 92631
(714) 447-6868

QUALITY CONTROL
DOCUMENTATION



** SPL BATCH QUALITY CONTROL REPORT **
Method 8310 ***

PAGE

LABORATORIES

Matrix: Aqueous

Batch Id: 2970711110004

Units: ug/L

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 Duplicate		MS/MSD Relative % Difference	QC Limits(**) (Advisory)	
			Result	Recovery	Result	Recovery		RPD	Recovery Range
			<1>	<4>	<1>	<5>		Max.	
Naphthalene	ND	0.5	0.424	84.8	0.395	79.0	7.08	30	33 - 122
Acenaphthylene	ND	0.5	0.404	80.8	0.388	77.6	4.04	30	42 - 138
Acenaphthene	ND	0.5	0.434	86.8	0.414	82.8	4.72	30	25 - 123
Fluorene	ND	0.5	0.470	94.0	0.449	89.8	4.57	30	19 - 142
Phenanthrene	ND	0.5	0.448	89.6	0.426	85.2	5.03	30	40 - 121
Anthracene	ND	0.5	0.391	78.2	0.372	74.4	4.98	30	32 - 121
Fluoranthene	ND	0.5	0.447	89.4	0.428	85.6	4.34	30	51 - 115
Pyrene	ND	0.5	0.454	90.8	0.433	86.6	4.74	30	45 - 117
Chrysene	ND	0.5	0.608	122	0.567	113	7.66	30	44 - 122
Benzo (a) anthracene	ND	0.5	0.465	93.0	0.433	86.6	7.13	30	57 - 118
Benzo (b) fluoranthene	ND	0.5	0.488	97.6	0.457	91.4	6.56	30	62 - 121
Benzo (k) fluoranthene	ND	0.5	0.484	96.8	0.454	90.8	6.40	30	63 - 117
Benzo (a) pyrene	ND	0.5	0.465	93.0	0.429	85.8	8.05	30	42 - 120
Dibenzo (a,h) anthracene	ND	0.5	0.488	97.6	0.459	91.8	6.12	30	53 - 118
Benzo (g,h,i) perylene	ND	0.5	0.503	101	0.474	94.8	6.33	30	51 - 116
Indeno (1,2,3-cd) pyrene	ND	0.5	0.508	102	0.479	95.8	6.27	30	60 - 116

Analyst: KA

Sequence Date: 07/11/97

Method Blank File ID:

Sample File ID:

Blank Spike File ID: 970711A\016-0901

Matrix Spike File ID:

Matrix Spike Duplicate File ID:

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

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

(**) = Source: SPL Temporary Limits

SAMPLES IN BATCH(SPL ID):

9706D07-01A 9707013-01A

CHAIN OF CUSTODY
AND
SAMPLE RECEIPT CHECKLIST

ON SITE

CHAIN OF CUSTODY RECORD

9107013

6604

TECHNOLOGIES, LTD.

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

Date: 6/30/97

Page 1 of 1

Purchase Order No.: 5565		Job No.	
SEND INVOICE TO		Name: ACCORDITS PER.	
Company: ON SITE		Dept.	
Address		City, State, Zip	
Sampling Location: 2411 DUTCHMAN AVE		REPORT RESULTS TO	
Sampler: M/S/M/S		Name: DAVID COX	
SAMPLE IDENTIFICATION		Company: ON SITE TECH	
DATE TIME MATRIX PRES.		Mailing Address: 612 E. MURRAY DR	
6/30/97 1130 H2O COX		City, State, Zip: FARMINGTON NM 87401	
		Telephone No.: 505 325-2432	
		Telefax No.: 325-6252	
		ANALYSIS REQUESTED	
		Number of Containers: 1	
		PAH 8310	
		LAB ID: 15115-5565	
Relinquished by: [Signature]		Received by: [Signature]	
Date/Time: 6/30/97 1530		Date/Time: 7/1/97 0950	
Relinquished by:		Received by:	
Date/Time:		Date/Time:	
Method of Shipment:		Received by:	
Authorized by: [Signature]		Rush: 24-48 Hours	
Date: 6/30/97		10 Working Days	
Client Signature Must Accompany Request		Special Instructions: UPS 126625850110002978	

Distribution: White - On Site

Yellow -

Pink - Sampler

Goldenrod - Client

SPL Houston Environmental Laboratory

Sample Login Checklist

Date: 7/1/97	Time: 0950
--------------	------------

SPL Sample ID: 9707013

		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:	4° C	
10	Method of sample delivery to SPL:	SPL Delivery	
		Client Delivery	
		FedEx Delivery (airbill #)	
		Other: UPS 1Z66ES850110002978	
11	Method of sample disposal:	SPL Disposal	✓
		HOLD	
		Return to Client	

Name: Annie Salas	Date: 7/1/97
-------------------	--------------

RECEIVED "I" 2 1 1997



Mountain States Analytical, Inc.

July 16, 1997

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

Reference:

Project: Randleman 1
MSAI Group: 16921

Dear Mr. Cox:

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

15114-5565 Dissolved

15115-5565 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.

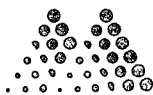
Thank you for selecting Mountain States Analytical, Inc. to serve as your analytical laboratory on this project. If you have any questions concerning these results, please feel free to contact me at any time.

We look forward to working with you on future projects.

With Regards,

Rolf E. Larsen
Project Manager

RECEIVED JUL 21 1997



Mountain States Analytical, Inc.

The Quality Solution

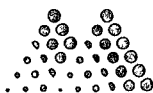
On Site Technologies, Ltd.
612 E Murray Drive
Farmington, NM 87401

Attn: Mr. David Cox
Project: Randleman 1

Sample ID: 15114-5565 Dissolved *9706251100 MW-1*
Matrix: Waste Water

MSAI Sample: 65239
MSAI Group: 16921
Date Reported: 07/16/97
Discard Date: 08/15/97
Date Submitted: 07/01/97
Date Sampled: 06/25/97
Collected by: MG
Purchase Order: 5565
Project No.:

Test Analysis	Results as Received	Units	Method Detection Limit
0259B Mercury by CVAA, w/ww, 7470 Method: SW-846 7470	ND	mg/l	0.0001
0392I Flame/ICP Prep, w/ww, 3005A Method: SW-846 3005A	Completed		
0392M Mercury Prep CVAA, w/ww, 7470 Method: SW-846 7470	Complete		
0401 Prep for HAA, w/ww, 7062/7742 Method: SW-846 7062/7742	Complete		
1451 Selenium by HAA, w/ww, 7742 Method: SW-846 7742	ND	mg/l	0.006
7245 Arsenic by ICP, w/ww, 6010A Method: SW-846 6010A	ND	mg/l	0.030
7246 Barium by ICP, w/ww, 6010A Method: SW-846 6010A	0.056	mg/l	0.003
7249 Cadmium by ICP, w/ww, 6010A Method: SW-846 6010A	ND	mg/l	0.004
7251 Chromium by ICP, w/ww, 6010A Method: SW-846 6010A	ND	mg/l	0.010
7255 Lead by ICP, w/ww, 6010A Method: SW-846 6010A	ND	mg/l	0.040
7266 Silver by ICP, w/ww, 6010A Method: SW-846 6010A	ND	mg/l	0.006



Mountain States Analytical, Inc.

Page 2

On Site Technologies, Ltd.

The Quality Solution ^(R)

MSAI Sample: 65239

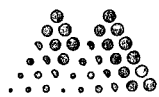
MSAI Group: 16921

Sample ID: 15114-5565 Dissolved 970625/1100 MWL-1

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

Respectfully Submitted,
Reviewed and Approved by:
Rolf E. Larsen
Project Manager

RECEIVED JUL 21 1997



Mountain States Analytical, Inc.

The Quality Solution

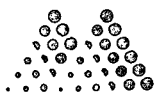
On Site Technologies, Ltd.
612 E Murray Drive
Farmington, NM 87401

Attn: Mr. David Cox
Project: Randleman 1

Sample ID: 15115-5565 Dissolved 9706251130 MW-2
Matrix: Waste Water

MSAI Sample: 65240
MSAI Group: 16921
Date Reported: 07/16/97
Discard Date: 08/15/97
Date Submitted: 07/01/97
Date Sampled: 06/25/97
Collected by: MG
Purchase Order: 5565
Project No.:

Test Analysis	Results as Received	Units	Method Detection Limit
0259B Mercury by CVAA, w/ww, 7470 Method: SW-846 7470	0.0001	mg/l	0.0001
0392I Flame/ICP Prep, w/ww, 3005A Method: SW-846 3005A	Completed		
0392M Mercury Prep CVAA, w/ww, 7470 Method: SW-846 7470	Complete		
0401 Prep for HAA, w/ww, 7062/7742 Method: SW-846 7062/7742	Complete		
1451 Selenium by HAA, w/ww, 7742 Method: SW-846 7742	ND	mg/l	0.006
7245 Arsenic by ICP, w/ww, 6010A Method: SW-846 6010A	ND	mg/l	0.030
7246 Barium by ICP, w/ww, 6010A Method: SW-846 6010A	0.039	mg/l	0.003
7249 Cadmium by ICP, w/ww, 6010A Method: SW-846 6010A	ND	mg/l	0.004
7251 Chromium by ICP, w/ww, 6010A Method: SW-846 6010A	ND	mg/l	0.010
7255 Lead by ICP, w/ww, 6010A Method: SW-846 6010A	ND	mg/l	0.040
7266 Silver by ICP, w/ww, 6010A Method: SW-846 6010A	ND	mg/l	0.006

**Mountain States Analytical, Inc.**

On Site Technologies, Ltd.

The Quality Solution

Page 2

MSAI Sample: 65240

MSAI Group: 16921

Sample ID: 15115-5565 Dissolved 9706251130 MSAI-2

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

Respectfully Submitted,
Reviewed and Approved by:Rolf E. Larsen
Project Manager

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

07/14/97
13:37:07
Group: 16921

Batch: 16921-65258
Ident: 16921-65258, u/w/w, 7470
Number of Samples: 1
Batch Date: 7/14/97

Sequence : 0259B-1

BLANK#	CONC FOUND #	CONC LIMIT
PBW1-359	0.0100	0.1000

						QC LIMITS	
SAMPLE#	CONC ADDED	CONC SAMPLE	CONC SPIKE	% REC #	LOWER	UPPER	
16955-65345	1.0000	0.0400	1.0600	102.0	80.0	120.0	

						QC LIMITS			
SAMPLE#	CONC ADDED	CONC SAMPLE	RESULT 2	%REC2 #	LOWER	UPPER	RPD #	LIMIT	
16955-65345	1.0000	0.0400	1.0500	101.0	80.0	120.0	1.0	20.0	

DUPLICATE						
SAMPLE#	RESULT 1	RESULT 2	RPD #	LIMIT	DILUTION	
16955-65345	0.0400	0.0500	22.2(11)	20.0	1.00	

						QC LIMITS	
SAMPLE#	CONC FOUND	CONC KNOWN	% REC #	LOWER	UPPER		
LCSW-359	2.3500	2.5000	94.0	80.0	120.0		

						QC LIMITS	
CCV #	TRUE VALUE	BATCH READ	% REC #	LOWER	UPPER		
CCV-1	3.0000	3.1000	103.3	90.0	110.0		
CCV-2	5.0000	4.8300	96.6	80.0	120.0		
CCV-3	5.0000	4.7600	95.2	80.0	120.0		
CCV-4	5.0000	4.7200	94.4	80.0	120.0		

CCB#	CONC FOUND #	CONC LIMIT
ICB-	-0.0500	0.1000
CCB-	-0.0100	0.1000
CCB-	0.0500	0.1000
CCB-	-0.0400	0.1000

Result Footnotes:
(11) - Both samples are below the MDL.

Group: 16921-65258
16921-65258 16921-65259 16921-65260 16921-65303 16921-65304 16921-65305

Analysis of
Number of Samples
Batch Data

Sequence : DATC191

BLANK#	CONC FOUND #	CONC LIMIT
PBW-349	0.0007	0.0060
	ND	0.0030
	ND	0.0002
	0.0297	0.4000
	ND	0.0040
	ND	0.0100
	ND	0.0100
	0.0041	0.2000
	0.0124	0.0500
	0.0127	0.0300
	ND	0.0300
	ND	0.0400
	ND	0.0700
	0.0040	0.0300

SPIKE

SAMPLE#	CONC ADDED	CONC SAMPLE	CONC SPIKE	% REC #	QC LIMITS	
					LOWER	UPPER
16939-65307	0.0500	-0.0028	0.0481	101.8	80.0	120.0
	2.0000	0.0384	1.9142	93.8	80.0	120.0
	0.0500	0.0000	0.0495	99.0	80.0	120.0
	2.0000	86.3924	86.4119	100.2	80.0	120.0
	0.0500	-0.0020	0.0448	93.6	80.0	120.0
	0.2000	-0.0027	0.1976	100.2	80.0	120.0
	0.2500	-0.0036	0.2394	97.2	80.0	120.0
	1.0000	0.0672	1.0533	98.6	80.0	120.0
	2.0000	61.7820	62.3159	26.7(2a)	80.0	120.0
	0.5000	0.0188	0.5086	98.0	80.0	120.0
	0.5000	0.0083	0.4915	96.6	80.0	120.0
	0.5000	0.0026	0.4837	96.2	80.0	120.0
	2.0000	-0.0434	1.9466	99.5	80.0	120.0
	0.5000	0.0100	0.5190	101.8	80.0	120.0

MSD

SAMPLE#	CONC ADDED	CONC SAMPLE	RESULT 2	%REC2 #	QC LIMITS		RPD #	LIMIT
					LOWER	UPPER		
16939-65307	0.0500	-0.0028	0.0503	106.2	80.0	120.0	4.2	20.0
	2.0000	0.0384	1.9193	94.0	80.0	120.0	0.2	20.0
	0.0500	0.0000	0.0498	99.6	80.0	120.0	0.6	20.0
	2.0000	86.3924	88.5230	106.5	80.0	120.0	196.3(1a)	20.0
	0.0500	-0.0020	0.0455	95.0	80.0	120.0	1.5	20.0
	0.2000	-0.0027	0.1971	99.9	80.0	120.0	0.3	20.0
	0.2500	-0.0036	0.2378	96.6	80.0	120.0	0.6	20.0
	1.0000	0.0672	1.1618	109.5	80.0	120.0	10.5	20.0
	2.0000	61.7820	63.4749	84.6	80.0	120.0	104.0(1a)	20.0
	0.5000	0.0188	0.5141	99.1	80.0	120.0	1.1	20.0
	0.5000	0.0083	0.4784	94.0	80.0	120.0	2.7	20.0
	0.5000	0.0026	0.4859	96.7	80.0	120.0	0.5	20.0
	2.0000	-0.0434	1.9902	101.7	80.0	120.0	2.2	20.0
	0.5000	0.0100	0.5143	100.9	80.0	120.0	0.9	20.0

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

07/14/97
13:37:11
Group: 16921

Analysis Sa
Identif
Number of S
Batch Data

Sequence : DATC191

DUPLICATE

SAMPLE#	RESULT 1	RESULT 2	RPD #	LIMIT	DILUTION
16939-65507	-0.0028	0.0000	200.0(11)	20.0	1.00
	0.0384	0.0372	3.2	20.0	1.00
	0.0000	0.0000	0.0	20.0	1.00
	86.3924	85.0027	1.6	20.0	1.00
	-0.0020	0.0000	200.0(11)	20.0	1.00
	-0.0027	0.0000	200.0(11)	20.0	1.00
	-0.0036	0.0000	200.0(11)	20.0	1.00
	0.0672	0.0000	200.0(11)	20.0	1.00
	61.7820	61.0093	1.3	20.0	1.00
	0.0188	0.0250	28.3(11)	20.0	1.00
	0.0083	0.0090	8.1	20.0	1.00
	0.0026	0.0041	44.8(11)	20.0	1.00
	-0.0434	0.0000	200.0(11)	20.0	1.00
	0.0100	0.0146	37.4(11)	20.0	1.00

CONTROL

SAMPLE#	CONC FOUND	CONC KNOWN	% REC #	QC LIMITS	
LCSW-348	0.0546	0.0500	109.2	80.0	120.0
	1.9191	2.0000	96.0	80.0	120.0
	0.0510	0.0500	100.0	80.0	120.0
	2.0202	2.0000	101.0	80.0	120.0
	0.0466	0.0500	93.2	80.0	120.0
	0.1980	0.2000	99.0	80.0	120.0
	0.2438	0.2500	97.5	80.0	120.0
	0.9976	1.0000	99.8	80.0	120.0
	2.0176	2.0000	100.9	80.0	120.0
	0.5003	0.5000	100.1	80.0	120.0
	0.4950	0.5000	99.0	80.0	120.0
	0.4853	0.5000	97.1	80.0	120.0
	1.9582	2.0000	97.9	80.0	120.0
	0.5049	0.5000	101.0	80.0	120.0

QC LIMITS

CCV #	TRUE VALUE	BATCH READ	% REC #	LOWER	UPPER
ICV-	0.4000	0.3802	95.0	90.0	110.0
	4.0000	3.6894	92.2	90.0	110.0
	0.4000	0.3891	97.3	90.0	110.0
	40.0000	39.2943	98.2	90.0	110.0
	4.0000	3.8005	95.0	90.0	110.0
	4.0000	3.8931	97.3	90.0	110.0
	4.0000	3.7408	93.5	90.0	110.0
	4.0000	3.9100	97.8	90.0	110.0
	20.0000	19.6684	98.3	90.0	110.0
	20.0000	19.5090	97.5	90.0	110.0
	0.0000	7.6585	95.7	90.0	110.0
	20.0000	18.8092	94.0	90.0	110.0
	1.6000	1.5154	94.7	90.0	110.0
	4.0000	3.8687	96.7	90.0	110.0
CCV1--2	0.4000	0.3767	94.2	90.0	110.0

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

07/14/97
13:37:12
Group: 16921

Analysis Batch # 7710/97-061-5

Ident # 101

Sequence : DATC191

Number of Samples 10

Batch Data File 7710/97-061-5.DAT

		QC LIMITS			
CCV #	TRUE VALUE	BATCH READ	% REC #	LOWER	UPPER
CCV1--2	1.0000	3.6922	92.3	90.0	110.0
	0.4000	0.3881	97.0	90.0	110.0
	40.0000	38.8853	97.2	90.0	110.0
	1.0000	3.7802	94.5	90.0	110.0
	0.4000	3.8600	96.5	90.0	110.0
	4.0000	3.7528	93.8	90.0	110.0
	0.0000	3.8906	97.3	90.0	110.0
	19.0000	19.6898	98.4	90.0	110.0
	1.0000	19.3015	96.5	90.0	110.0
	0.0000	7.5882	94.9	90.0	110.0
	18.0000	18.7379	93.7	90.0	110.0
	1.0000	1.5432	96.4	90.0	110.0
	4.0000	3.8584	96.5	90.0	110.0
	0.4000	0.3840	96.0	90.0	110.0
	4.0000	3.8026	95.1	90.0	110.0
CCV2--3	0.4000	0.3999	100.0	90.0	110.0
	40.0000	39.5944	99.0	90.0	110.0
	4.0000	3.8616	96.5	90.0	110.0
	4.0000	3.9356	98.4	90.0	110.0
	4.0000	3.8680	96.7	90.0	110.0
	4.0000	3.9457	98.6	90.0	110.0
	20.0000	20.1030	100.5	90.0	110.0
	19.0000	19.7958	99.0	90.0	110.0
	0.0000	7.7643	97.1	90.0	110.0
	20.0000	19.0176	95.1	90.0	110.0
	1.0000	1.5716	98.2	90.0	110.0
	4.0000	3.9206	98.0	90.0	110.0
	0.4000	0.3785	94.6	90.0	110.0
	4.0000	3.6341	90.9	90.0	110.0
	0.4000	0.3901	97.5	90.0	110.0
CCV3--4	40.0000	39.7141	99.3	90.0	110.0
	4.0000	3.8432	96.1	90.0	110.0
	4.0000	3.9153	97.9	90.0	110.0
	4.0000	3.6893	92.2	90.0	110.0
	4.0000	3.9736	99.3	90.0	110.0
	20.0000	19.6759	98.4	90.0	110.0
	20.0000	19.6636	98.3	90.0	110.0
	8.0000	7.7123	96.4	90.0	110.0
	20.0000	18.9438	94.7	90.0	110.0
	1.0000	1.4722	92.0	90.0	110.0
	4.0000	3.9217	98.0	90.0	110.0

CCB#	ANALYST	CONC FOUND #	CONC LIMIT
ICB-		ND	0.0060
		0.0003	0.0030
		ND	0.0002
		0.0062	0.4000
		ND	0.0040
		ND	0.0100

Mountain States Analytical, Inc.
Daily QC Batching Data
Data Released for Reporting07/14/97
13:37:13
Group: 1692Analysis Bar
Identifi
Number of S.
Batch Data-B

Sequence : DATC191

CCB#	CONC FOUND #	CONC LIMIT
ICB-	ND	0.0100
	0.0035	0.2000
	ND	0.0500
	0.0088	0.0300
	ND	0.0300
	0.0018	0.0400
	ND	0.0700
	0.0002	0.0300
CCB1-	ND	0.0060
	0.0001	0.0030
	ND	0.0002
	0.0098	0.4000
	ND	0.0040
	0.0020	0.0100
	ND	0.0100
	ND	0.2000
	0.0167	0.0500
	0.0132	0.0300
	0.0055	0.0300
	ND	0.0400
	ND	0.0700
CCB2	0.0019	0.0300
	0.0022	0.0060
	0.0003	0.0030
	ND	0.0002
	0.0067	0.4000
	ND	0.0040
	0.0028	0.0100
	ND	0.0100
	0.0009	0.2000
	0.0072	0.0500
	0.0064	0.0300
	0.0017	0.0300
	0.0060	0.0400
	ND	0.0700
	0.0001	0.0300
CCB3-	0.0002	0.0060
	0.0008	0.0030
	ND	0.0002
	0.0399	0.4000
	ND	0.0040
	0.0021	0.0100
	0.0003	0.0100
	ND	0.2000
	0.0306	0.0500
	ND	0.0300
	ND	0.0300
	0.0104	0.0400
	0.0009	0.0700
	0.0001	0.0300

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

07/14/97
13:37:14
Group: 16921

Analysis Batch: 07/10/97 061 -3
Identification: OC-Metals by ICP
Number of Samples: 7
Batch Date: 07/10/97 17: 3:04

Sequence : DATC191

Footnotes -----
(2a) - Record sample because sample concentration is above spike added.
(1a) - RPD is significant due to insignificant spikes.
(11) - Both sample concentrations are above the MDL.

Groups: 16921

16849-16920 16921-169258 16924-65259 16924-65260 16939-65307

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

07/14/97
13:37:16
Group: 16921

Analysis Batch Number: ICPWA-07/10/97-061 -4

Identification : ICPWA-Metals by ICP

Sequence : DATF191

Number of Samples : 3

Batch Data-Date/Time : 07/14/97 10:44:50

BLANK#	ANALYTE	CONC FOUND #	CONC LIMIT
PBW-348	Arsenic	0.0003	0.0300
	Potassium	0.0605	0.1000
	Sodium	0.0891	0.2000

						QC LIMITS	
SAMPLE#	ANALYTE	CONC ADDED	CONC SAMPLE	CONC SPIKE	% REC #	LOWER	UPPER
16939-65307	Arsenic	2.0000	-0.0040	1.9531	97.9	80.0	120.0
	Potassium	10.0000	4.6917	14.5836	98.9	80.0	120.0
	Sodium	3.0000	66.1699	66.8673	23.2(2a)	80.0	120.0

						QC LIMITS			
SAMPLE#	ANALYTE	CONC ADDED	CONC SAMPLE	RESULT 2	%REC2 #	LOWER	UPPER	RPD #	LIMIT
16939-65307	Arsenic	2.0000	-0.0040	1.9688	98.6	80.0	120.0	0.7	20.0
	Potassium	10.0000	4.6917	15.0645	103.7	80.0	120.0	4.7	20.0
	Sodium	3.0000	66.1699	69.3435	105.8	80.0	120.0	128.1(2a)	20.0

DUPLICATE						
SAMPLE#	ANALYTE	RESULT 1	RESULT 2	RPD #	LIMIT	DILUTION
16939-65307	Arsenic	-0.0040	0.0126	386.0(11)	20.0	1.00
	Potassium	4.6917	4.6337	1.2	20.0	1.00
	Sodium	66.1699	64.6447	2.3	20.0	1.00

						QC LIMITS	
SAMPLE#	ANALYTE	CONC FOUND	CONC KNOWN	% REC #		LOWER	UPPER
LCSW-348	Arsenic	1.8896	2.0000	94.5		80.0	120.0
	Potassium	9.9704	10.0000	99.7		80.0	120.0
	Sodium	3.3926	3.0000	113.1		80.0	120.0

						QC LIMITS	
CCV #	ANALYTE	TRUE VALUE	BATCH READ	% REC #		LOWER	UPPER
ICV-	Arsenic	1.6000	1.5334	95.8		90.0	110.0
	Potassium	40.0000	40.8083	102.0		90.0	110.0
	Sodium	40.0000	41.7806	104.5		90.0	110.0
CCV1--2	Arsenic	1.6000	1.5356	96.0		90.0	110.0
	Potassium	40.0000	40.2876	100.7		90.0	110.0
	Sodium	40.0000	41.0704	102.7		90.0	110.0
CCV2--3	Arsenic	1.6000	1.5225	95.2		90.0	110.0
	Potassium	40.0000	40.7369	101.8		90.0	110.0
	Sodium	40.0000	40.8427	102.1		90.0	110.0
CCV3--4	Arsenic	1.6000	1.4989	93.7		90.0	110.0
	Potassium	40.0000	39.9136	99.8		90.0	110.0
	Sodium	40.0000	40.4596	101.1		90.0	110.0
CCV4--5	Arsenic	1.6000	1.6039	100.2		90.0	110.0
	Potassium	40.0000	39.9675	99.9		90.0	110.0
	Sodium	40.0000	40.6287	101.6		90.0	110.0
CCV5--6	Arsenic	1.6000	1.5909	99.4		90.0	110.0
	Potassium	40.0000	39.9105	99.8		90.0	110.0
	Sodium	40.0000	41.5958	104.0		90.0	110.0

Analysis Batch Number: 16921-07/10/97-061-4

Sequence : DATF191

Identification : ICP/A-Metals by ICP

Number of Samples : 8

Batch Data-Date/Time : 07/11/97 / 10:44:50

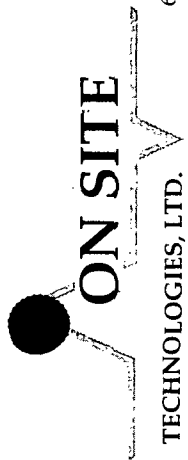
CCB#	ANALYTE	CONC FOUND #	CONC LIMIT
ICB-	Arsenic	0.0011	0.0300
	Potassium	ND	0.1000
	Sodium	0.0292	0.2000
CCB1-	Arsenic	ND	0.0300
	Potassium	ND	0.1000
	Sodium	0.0379	0.2000
CCB2-	Arsenic	ND	0.0300
	Potassium	ND	0.1000
	Sodium	0.0372	0.2000
CCB3-	Arsenic	0.0027	0.0300
	Potassium	ND	0.1000
	Sodium	0.0819	0.2000
CCB4-	Arsenic	ND	0.0300
	Potassium	0.0480	0.1000
	Sodium	ND	0.2000
CCB5-	Arsenic	ND	0.0300
	Potassium	0.0218	0.1000
	Sodium	0.0348	0.2000

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

- Recovery is insignificant because sample conc. is >4x spike added.
- Both Duplicate results are less than the MDL.

Groups & Samples

16849-64971 16921-65239 16921-65240 16923-65258 16924-65259 16924-65260 16939-65307



ON SITE

TECHNOLOGIES, LTD.

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

CHAIN OF COTODY RECORD

6602

Date: 6/30/97

Page 1 of 1

Purchase Order No.: <u>5565</u>		Job No.	
Name <u>ACCORDS REC.</u>		Title	
Company <u>ON SITE</u>		Company <u>ON SITE TECH</u>	
Address		Mailing Address <u>612 E. MONDAY</u>	
City, State, Zip		City, State, Zip <u>FAIRMINGTON, NM 87401</u>	
City, State, Zip		Telephone No. <u>505 325 2432</u> Telefax No. <u>325 - 6256</u>	
Sampling Location: <u>RANDLEMAN 1</u>		ANALYSIS REQUESTED	
Sampler: <u>MS/MS</u>		LAB ID	
SEND INVOICE TO		LAB ID	
REPORT RESULTS TO		LAB ID	
Number of Containers		LAB ID	
SAMPLE IDENTIFICATION		LAB ID	
DATE		DATE	
TIME		TIME	
MATRIX		PRES.	
9706251100 NW1-1		15114-5565	
9706251130 NW1-2		15715-5565	
Relinquished by: <u>Zef</u>		Received by: <u>Michael Maydon</u>	
Relinquished by:		Received by:	
Relinquished by:		Received by:	
Method of Shipment:		Special Instructions: <u>NOT FILTERED YET!</u>	
Authorized by: <u>[Signature]</u>		Date <u>6/30/97</u>	
Distribution: White On Site Yellow - LAB Pink - Sampler Goldemont - Client		Date <u>6/30/97</u>	

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

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

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: *1-Oct-97*
COC No.: *5843*
Sample No.: *16372*
Job No.: *2-1000*

Project Name: *PNM Gas Services - Randleman 1*
Project Location: *9709241600; MW-1*
Sampled by: *MS/MG*
Analyzed by: *DC*
Sample Matrix: *Liquid*

Date: *24-Sep-97* Time: *16:00*
Date: *30-Sep-97*

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
<i>Benzene</i>	ND	ug/L	0.2	ug/L
<i>Toluene</i>	ND	ug/L	0.2	ug/L
<i>Ethylbenzene</i>	ND	ug/L	0.2	ug/L
<i>m,p-Xylene</i>	ND	ug/L	0.2	ug/L
<i>o-Xylene</i>	ND	ug/L	0.2	ug/L
<i>TOTAL</i>	ND	ug/L		

ND - Not Detected at Limit of Quantitation

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

Approved By: *DC*

Date: *10/1/97*

P.O. BOX 2606 • FARMINGTON, NM 87499

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: *1-Oct-97*
COC No.: *5843*
Sample No.: *16373*
Job No.: *2-1000*

Project Name: *PNM Gas Services - Randleman 1*
Project Location: *9709241630; MW-2*
Sampled by: *MS/MG* Date: *24-Sep-97* Time: *16:30*
Analyzed by: *DC* Date: *30-Sep-97*
Sample Matrix: *Liquid*

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
<i>Benzene</i>	82	ug/L	1	ug/L
<i>Toluene</i>	91	ug/L	1	ug/L
<i>Ethylbenzene</i>	31	ug/L	1	ug/L
<i>m,p-Xylene</i>	186	ug/L	1	ug/L
<i>o-Xylene</i>	29	ug/L	1	ug/L
<i>TOTAL</i>	419	ug/L		

ND - Not Detected at Limit of Quantitation

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

Approved By: *[Signature]*
Date: *10/1/97*

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: *2-Oct-97*
COC No.: *5843*
Sample No.: *16374*
Job No.: *2-1000*

Project Name: *PNM Gas Services - Randleman 1*
Project Location: *9709241700; MW-3*
Sampled by: *MG/MS* Date: *24-Sep-97* Time: *17:00*
Analyzed by: *DC* Date: *1-Oct-97*
Sample Matrix: *Liquid*

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
<i>Benzene</i>	<i>378</i>	<i>ug/L</i>	<i>1</i>	<i>ug/L</i>
<i>Toluene</i>	<i>10</i>	<i>ug/L</i>	<i>1</i>	<i>ug/L</i>
<i>Ethylbenzene</i>	<i>33</i>	<i>ug/L</i>	<i>1</i>	<i>ug/L</i>
<i>m,p-Xylene</i>	<i>99</i>	<i>ug/L</i>	<i>1</i>	<i>ug/L</i>
<i>o-Xylene</i>	<i>8</i>	<i>ug/L</i>	<i>1</i>	<i>ug/L</i>
<i>TOTAL</i>	<i>528</i>	<i>ug/L</i>		

ND - Not Detected at Limit of Quantitation

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

Approved By: *[Signature]*
Date: *10/2/97*

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: *1-Oct-97*
COC No.: *5843*
Sample No.: *16375*
Job No.: *2-1000*

Project Name: *PNM Gas Services - Randleman 1*
Project Location: *9709241730; MW-4*
Sampled by: *MS/MG* Date: *24-Sep-97* Time: *17:30*
Analyzed by: *DC* Date: *30-Sep-97*
Sample Matrix: *Liquid*

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
<i>Benzene</i>	<i>405</i>	<i>ug/L</i>	<i>1</i>	<i>ug/L</i>
<i>Toluene</i>	<i>10</i>	<i>ug/L</i>	<i>1</i>	<i>ug/L</i>
<i>Ethylbenzene</i>	<i>35</i>	<i>ug/L</i>	<i>1</i>	<i>ug/L</i>
<i>m,p-Xylene</i>	<i>109</i>	<i>ug/L</i>	<i>1</i>	<i>ug/L</i>
<i>o-Xylene</i>	<i>10</i>	<i>ug/L</i>	<i>1</i>	<i>ug/L</i>
<i>TOTAL</i>	<i>569</i>	<i>ug/L</i>		

ND - Not Detected at Limit of Quantitation

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

Approved By: *[Signature]*
Date: *10/1/97*

P.O. BOX 2606 • FARMINGTON, NM 87499



ON SITE
TECHNOLOGIES, LTD.

QUALITY ASSURANCE REPORT

for EPA Method 8020

Internal QC No.: 0527-STD
Surrogate QC No.: 0528-STD
Reference Standard QC No.: 0529/30-QC

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

<i>Parameter</i>	<i>Unit of Measure</i>	<i>True Value</i>	<i>Analyzed Value</i>	<i>RPD</i>	<i>Limit</i>
<i>Benzene</i>	ppb	20.0	18.9	6	15%
<i>Toluene</i>	ppb	20.0	20.1	0	15%
<i>Ethylbenzene</i>	ppb	20.0	20.1	0	15%
<i>m,p-Xylene</i>	ppb	40.0	39.1	2	15%
<i>o-Xylene</i>	ppb	20.0	20.2	1	15%

<i>Parameter</i>	<i>1 - Percent Recovered</i>	<i>2 - Percent Recovered</i>	<i>Limit</i>	<i>RPD</i>	<i>Limit</i>
<i>Benzene</i>	97	92	(39-150)	4	20%
<i>Toluene</i>	101	97	(46-148)	3	20%
<i>Ethylbenzene</i>	99	96	(32-160)	3	20%
<i>m,p-Xylene</i>	100	95	(35-145)	3	20%
<i>o-Xylene</i>	98	95	(35-145)	3	20%

	S1 Percent Recovered	S2 Percent Recovered		S1 Percent Recovered	S2 Percent Recovered
<i>Laboratory Identification</i>			<i>Laboratory Identification</i>		
<i>Limit Percent Recovered</i>	(70-130)		<i>Limit Percent Recovered</i>	(70-130)	
16372-5843	95				
16373-5843	93				
16375-5843	92				
				JR	(nr)
				10/10/97	10/1/97

P.O. BOX 2606 • FARMINGTON, NM 87499

- **FROM A BLENDING INDUSTRY WITH THE LARGEST BLENDING**

ON SITE
TECHNOLOGIES, LTD.

QUALITY ASSURANCE REPORT

for EPA Method 8020

Internal QC No.: 0527-STD
Surrogate QC No.: 0528-STD
Reference Standard QC No.: 0529/30-QC

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

<i>Parameter</i>	<i>Unit of Measure</i>	<i>True Value</i>	<i>Analyzed Value</i>	<i>RPD</i>	<i>Limit</i>
<i>Benzene</i>	ppb	20.0	19.3	4	15%
<i>Toluene</i>	ppb	20.0	20.0	0	15%
<i>Ethylbenzene</i>	ppb	20.0	20.0	0	15%
<i>m,p-Xylene</i>	ppb	40.0	38.5	4	15%
<i>o-Xylene</i>	ppb	20.0	20.0	0	15%

<i>Parameter</i>	<i>1 - Percent Recovered</i>	<i>2 - Percent Recovered</i>	<i>Limit</i>	<i>RPD</i>	<i>Limit</i>
<i>Benzene</i>	96	93	(39-150)	1	20%
<i>Toluene</i>	101	99	(46-148)	2	20%
<i>Ethylbenzene</i>	99	96	(32-160)	2	20%
<i>m,p-Xylene</i>	101	98	(35-145)	2	20%
<i>o-Xylene</i>	98	96	(35-145)	2	20%

	S1 Percent <i>Recovered</i>	S2 Percent <i>Recovered</i>		S1 Percent <i>Recovered</i>	S2 Percent <i>Recovered</i>
Laboratory Identification			Laboratory Identification		
Limit Percent Recovered	(70-130)		Limit Percent Recovered	(70-130)	
16374-5843	92				
				JHR	(R)
				10/10/97	10/2/97

P.O. BOX 2606 • FARMINGTON, NM 87499

¹⁰ The authors are grateful to the referees for their helpful comments.

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

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: *8-Dec-97*
COC No.: *7109*
Sample No.: *17035*
Job No.: *2-1000*

Project Name: *PNM Gas Services - Randleman 1*
Project Location: *9712021600; MW-1*
Sampled by: *MG/MS* Date: *2-Dec-97* Time: *13:20*
Analyzed by: *DC* Date: *5-Dec-97*
Sample Matrix: *Liquid*

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
<i>Benzene</i>	ND	ug/L	0.2	ug/L
<i>Toluene</i>	ND	ug/L	0.2	ug/L
<i>Ethylbenzene</i>	ND	ug/L	0.2	ug/L
<i>m,p-Xylene</i>	ND	ug/L	0.2	ug/L
<i>o-Xylene</i>	ND	ug/L	0.2	ug/L
<i>TOTAL</i>	ND	ug/L		

ND - Not Detected at Limit of Quantitation

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

Approved By: *[Signature]*
Date: *12/9/97*

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: *8-Dec-97*
COC No.: *7109*
Sample No.: *17036*
Job No.: *2-1000*

Project Name: *PNM Gas Services - Randleman 1*
Project Location: *9712021630; MW-2*
Sampled by: *MG/MS*
Analyzed by: *DC*
Sample Matrix: *Liquid*

Date: *2-Dec-97* Time: *13:20*
Date: *5-Dec-97*

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
<i>Benzene</i>	<i>30.0</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>Toluene</i>	<i>33.7</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>86.2</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>o-Xylene</i>	<i>12.4</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>TOTAL</i>	<i>176.7</i>	<i>ug/L</i>		

ND - Not Detected at Limit of Quantitation

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

Approved By: *[Signature]*
Date: *12/9/97*

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: *9-Dec-97*
COC No.: *7109*
Sample No.: *17037*
Job No.: *2-1000*

Project Name: *PNM Gas Services - Randleman 1*
Project Location: *9712021700; MW-3*
Sampled by: *MS/MG* Date: *2-Dec-97* Time: *13:20*
Analyzed by: *DC* Date: *8-Dec-97*
Sample Matrix: *Liquid*

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
<i>Benzene</i>	<i>1298</i>	<i>ug/L</i>	<i>4</i>	<i>ug/L</i>
<i>Toluene</i>	<i>804</i>	<i>ug/L</i>	<i>4</i>	<i>ug/L</i>
<i>Ethylbenzene</i>	<i>88</i>	<i>ug/L</i>	<i>4</i>	<i>ug/L</i>
<i>m,p-Xylene</i>	<i>552</i>	<i>ug/L</i>	<i>4</i>	<i>ug/L</i>
<i>o-Xylene</i>	<i>75</i>	<i>ug/L</i>	<i>4</i>	<i>ug/L</i>
<i>TOTAL</i>	<i>2816</i>	<i>ug/L</i>		

ND - Not Detected at Limit of Quantitation

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

Approved By: *[Signature]*
Date: *12/9/97*

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: *8-Dec-97*
COC No.: *7109*
Sample No.: *17038*
Job No.: *2-1000*

Project Name: *PNM Gas Services - Randleman 1*

Project Location: *9712021730; MW-4*

Sampled by: *MG/MS* Date: *2-Dec-97* Time: *13:20*

Analyzed by: *DC* Date: *5-Dec-97*

Sample Matrix: *Liquid*

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
<i>Benzene</i>	<i>25.0</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>Toluene</i>	<i>28.9</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>Ethylbenzene</i>	<i>12.9</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>m,p-Xylene</i>	<i>75.7</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>o-Xylene</i>	<i>11.3</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>TOTAL</i>	<i>153.8</i>	<i>ug/L</i>		

ND - Not Detected at Limit of Quantitation

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

Approved By: *[Signature]*
Date: *12/9/97*

P.O. BOX 2606 • FARMINGTON, NM 87499



ON SITE
TECHNOLOGIES, LTD.

QUALITY ASSURANCE REPORT *for EPA Method 8020*

Internal QC No.: 0559-STD
Surrogate QC No.: 0556-STD
Reference Standard QC No.: 0529/30-QC

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

<i>Parameter</i>	<i>Unit of Measure</i>	<i>True Value</i>	<i>Analyzed Value</i>	<i>RPD</i>	<i>Limit</i>
<i>Benzene</i>	ppb	20.0	20.4	2	15%
<i>Toluene</i>	ppb	20.0	20.9	4	15%
<i>Ethylbenzene</i>	ppb	20.0	21.0	5	15%
<i>m,p-Xylene</i>	ppb	40.0	40.7	2	15%
<i>o-Xylene</i>	ppb	20.0	20.8	4	15%

<i>Parameter</i>	<i>1- Percent Recovered</i>	<i>2 - Percent Recovered</i>	<i>Limit</i>	<i>RPD</i>	<i>Limit</i>
<i>Benzene</i>	95	83	(39-150)	12	20%
<i>Toluene</i>	99	87	(46-148)	12	20%
<i>Ethylbenzene</i>	93	84	(32-160)	9	20%
<i>m,p-Xylene</i>	103	84	(35-145)	6	20%
<i>o-Xylene</i>	94	84	(35-145)	11	20%

[illegible]

P.O. BOX 2606 • FARMINGTON, NM 87499

[illegible]

CHAIN OF CUSTODY RECORD

Page: 1 of 1Date: 12/03/97

612 E. Murphy Dr. • P.O. Box 2606 • Farmington, NM 87499
LAB: (505) 325-5667 • FAX: (505) 325-6256

**Murphy Dr. • P.O. Box 2606 • Farmington, NM
LAB: (505) 325-5667 • FAX: (505) 325-6256**

Purchase Order No.:

Job No.

**SEND
INVOICE
TO**

Name	Denver Bearden

Company **PNM Gas Services**

Address 603 W. Elm Street

City, State, Zip Farmington. NM 87401

Sampling Location:

Bündelmann 1

Sampler:

Maurel Gamm / Mark Sikelianos

SAMPLE IDENTIFICATION

9712021600 MW1

97/2071630 M12

00471202176	MU3
-------------	-----

9311071330	Murphy
------------	--------

Belinquished by:

М.В. Гаман

Date/Time

472 1370

Relinquished by:

Date/Time

Received by:

Relinquished by:

Date/Time

Received by:

Method of Shipment:

24-48 Hours

10 Working Days

Special Instructions:

Authorized by:

W. Braun

Date _____

17-03-97

(Client Signature Must Accompany Request)

Results to be sent to both parties.

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

ON SITE

OFF: (505) 325-5667

LAB: (505) 325-1556

TECHNOLOGIES, LTD.

March 18, 1998

Maureen Gannon
PNM - Public Service Company of NM
Alvarado Square Mail Stop 0408
Albuquerque, NM 87401
TEL: (505) 241-2974
FAX (505) 241-2340

RE: Randleman 1

Order No.: 9803015

Dear Maureen Gannon,

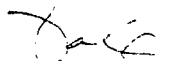
On Site Technologies, LTD. received 4 samples on 3/4/98 for the analyses presented in the following report.

The Samples were analyzed for the following tests:
Aromatic Volatiles by GC-PID (SW8021A)

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications except where noted in the Case Narrative.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,


David Cox



OFF: (505) 325-5667

LAB: (505) 325-1556

TECHNOLOGIES, LTD.

Date: 18-Mar-98

CLIENT: PNM - Public Service Company of NM
Project: Randleman 1
Lab Order: 9803015

CASE NARRATIVE

Samples were analyzed using the methods outlined in the following references:

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, 3rd Edition

All method blanks, laboratory spikes, and/or matrix spikes met quality assurance objectives.

OFF: (505) 325-5667

ON SITE

LAB: (505) 325-1556

TECHNOLOGIES, LTD.

ANALYTICAL REPORT

Date: 18-Mar-98

Client:	PNM - Public Service Company of NM	Client Sample Info:	Randleman 1
Work Order:	9803015	Client Sample ID:	9803041409; MW-1
Lab ID:	9803015-01A	Matrix:	AQUEOUS
Project:	Randleman 1	Collection Date:	3/4/98 2:09:00 PM
		COC#:	7143

Parameter	Result	Limit	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC-PID		SW8021A		Analyst: DC		
Benzene	ND	0.5		µg/L	1	3/9/98
Toluene	ND	0.5		µg/L	1	3/9/98
Ethylbenzene	ND	0.5		µg/L	1	3/9/98
m,p-Xylene	ND	1		µg/L	1	3/9/98
o-Xylene	ND	0.5		µg/L	1	3/9/98
Surr: Fluorobenzene	93.7	70-130		%REC	1	3/9/98
Surr: 1,4-Difluorobenzene	95.0	70-130		%REC	1	3/9/98
Surr: 4-Bromochlorobenzene	98.1	70-130		%REC	1	3/9/98

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range



OFF: (505) 325-5667

LAB: (505) 325-1556

TECHNOLOGIES, LTD.

ANALYTICAL REPORT

Date: 18-Mar-98

Client:	PNM - Public Service Company of NM	Client Sample Info:	Randleman 1
Work Order:	9803015	Client Sample ID:	9803041428; MW-2
Lab ID:	9803015-02A	Matrix:	AQUEOUS
Project:	Randleman 1	Collection Date:	3/4/98 2:28:00 PM
		COC#:	7143

Parameter	Result	Limit	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC-PID		SW8021A		Analyst: DC		
Benzene	3.2	0.5		µg/L	1	3/9/98
Toluene	2.4	0.5		µg/L	1	3/9/98
Ethylbenzene	1.9	0.5		µg/L	1	3/9/98
m,p-Xylene	7	1		µg/L	1	3/9/98
o-Xylene	1.2	0.5		µg/L	1	3/9/98
Surr: Fluorobenzene	93.1	70-130		%REC	1	3/9/98
Surr: 1,4-Difluorobenzene	94.7	70-130		%REC	1	3/9/98
Surr: 4-Bromochlorobenzene	90.9	70-130		%REC	1	3/9/98

Qualifiers:

ND - Not Detected at the Reporting Limit

S - Spike Recovery outside accepted recovery limits

J - Analyte detected below quantitation limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

E - Value above quantitation range

* - Value exceeds Maximum Contaminant Level

1 of 1

ON SITE

OFF: (505) 325-5667

LAB: (505) 325-1556

TECHNOLOGIES, LTD.

ANALYTICAL REPORT

Date: 18-Mar-98

Client:	PNM - Public Service Company of NM	Client Sample Info:	Randleman 1
Work Order:	9803015	Client Sample ID:	9803041450; MW-3
Lab ID:	9803015-03A	Matrix:	AQUEOUS
Project:	Randleman 1	Collection Date:	3/4/98 2:50:00 PM
		COC#:	7143

Parameter	Result	Limit	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC-PID		SW8021A		Analyst: DC		
Benzene	1400	5		µg/L	10	3/9/98
Toluene	1300	5		µg/L	10	3/9/98
Ethylbenzene	160	5		µg/L	10	3/9/98
m,p-Xylene	1200	10		µg/L	10	3/9/98
o-Xylene	170	5		µg/L	10	3/9/98
Surr: Fluorobenzene	91.6	70-130		%REC	10	3/9/98
Surr: 1,4-Difluorobenzene	91.3	70-130		%REC	10	3/9/98
Surr: 4-Bromochlorobenzene	91.2	70-130		%REC	10	3/9/98

Qualifiers:	ND - Not Detected at the Reporting Limit	S - Spike Recovery outside accepted recovery limits
	J - Analyte detected below quantitation limits	R - RPD outside accepted recovery limits
	B - Analyte detected in the associated Method Blank	E - Value above quantitation range
	* - Value exceeds Maximum Contaminant Level	



OFF: (505) 325-5667

LAB: (505) 325-1556

TECHNOLOGIES, LTD.

ANALYTICAL REPORT

Date: 18-Mar-98

Client:	PNM - Public Service Company of NM	Client Sample Info:	Randleman 1
Work Order:	9803015	Client Sample ID:	9803041510; MW-4
Lab ID:	9803015-04A	Matrix:	AQUEOUS
Project:	Randleman 1	Collection Date:	3/4/98 3:10:00 PM
		COC#:	7143

Parameter	Result	Limit	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC-PID		SW8021A		Analyst: DC		
Benzene	1300	5		µg/L	10	3/9/98
Toluene	1100	5		µg/L	10	3/9/98
Ethylbenzene	140	5		µg/L	10	3/9/98
m,p-Xylene	1000	10		µg/L	10	3/9/98
o-Xylene	150	5		µg/L	10	3/9/98
Surr: Fluorobenzene	91.7	70-130		%REC	10	3/9/98
Surr: 1,4-Difluorobenzene	91.4	70-130		%REC	10	3/9/98
Surr: 4-Bromochlorobenzene	90.3	70-130		%REC	10	3/9/98

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

On Site Technologies, LTD.

Date: 18-Mar-98

CLIENT: PNM Gas Services
 Work Order: 9803015
 Project: Randleman 1

QC SUMMARY REPORT

Method Blank

Sample ID: MB2	Batch ID: GC-1_980309	Test Code: SW8021A	Units: µg/L	Analysis Date: 3/9/98	Prep Date:
Client ID:	9803015	Run ID: GC-1_980309A		SeqNo: 838	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Benzene	.0562	0.5			
Ethylbenzene	ND	0.5			
m,p-Xylene	ND	1			
o-Xylene	ND	0.5			
Toluene	.1089	0.5			J

Sample ID: MB3	Batch ID: GC-1_980309	Test Code: SW8021A	Units: µg/L	Analysis Date: 3/9/98	Prep Date:
Client ID:	9803015	Run ID: GC-1_980309A		SeqNo: 839	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Benzene	.0606	0.5			
Ethylbenzene	ND	0.5			J
m,p-Xylene	.085	1			J
o-Xylene	ND	0.5			
Toluene	.1332	0.5			J

Qualifiers:

ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: 18-Mar-98

CLIENT: PNM Gas Services
 Work Order: 9803015
 Project: Randleman 1

QC SUMMARY REPORT

Sample Matrix Spike

Sample ID: 9803014-04AMS		Batch ID: GC-1_980309		Test Code: SW8021A		Units: µg/L		Analysis Date: 3/9/98		Prep Date:	
Client ID: 9803015		Run ID: GC-1_980309A		PQL		SPK value		SeqNo: 840			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	432.7	5	400	15.69	104.3%	57	128				
Ethylbenzene	482.7	5	400	80.82	100.5%	78	107				
m,p-Xylene	2404	10	800	1553	106.3%	67	118				
o-Xylene	411.3	5	400	8.054	100.8%	78	107				
Toluene	423.8	5	400	26.23	99.4%	74	116				

Sample ID: 9803014-04AMSD		Batch ID: GC-1_980309		Test Code: SW8021A		Units: µg/L		Analysis Date: 3/9/98		Prep Date:	
Client ID: 9803015		Run ID: GC-1_980309A		PQL		SPK value		SeqNo: 841			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	420.4	5	400	15.69	101.2%	57	128	432.7	2.9%	12	
Ethylbenzene	471.9	5	400	80.82	97.8%	78	107	482.7	2.3%	11	
m,p-Xylene	2344	10	800	1553	98.9%	67	118	2404	2.5%	10	
o-Xylene	403.7	5	400	8.054	98.9%	78	107	411.3	1.8%	14	
Toluene	414.7	5	400	26.23	97.1%	74	116	423.8	2.2%	14	

Qualifiers:

ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: 18-Mar-98

CLIENT: PNM Gas Services

Work Order: 9803015

Project: Randleman I

QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID: LCS WATER		Batch ID: GC-1_980309	Test Code: SW8021A	Units: µg/L	Analysis Date: 3/9/98		Prep Date:
Client ID: 9803015		Run ID: 980309A	PQL	SPK value	SPK Ref Val	%REC	SeqNo: 837
Analyte	Result						
Benzene	40.38		0.5	40	0.0562	100.8%	84 114
Ethylbenzene	41.14		0.5	40	0	102.9%	86 118
m,p-Xylene	78.63		1	80	0	98.3%	50 150
o-Xylene	40.18		0.5	40	0	100.4%	49 147
Toluene	40.03		0.5	40	0.1089	99.8%	87 120

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: 18-Mar-98

CLIENT: PNM Gas Services
 Work Order: 9803015
 Project: Randleman 1

QC SUMMARY REPORT

Continuing Calibration Verification Standard

Sample ID:	CCV1 QC0529/30	Batch ID:	GC-1_980309	Test Code:	SW8021A	Units:	µg/L	Analysis Date:	3/9/98	Prep Date:
Client ID:	9803015	Run ID:	GC-1_980309A	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	SeqNo: 833
Analyte	Result									
Benzene	21.07			0.5	20	0	105.4%	85	115	
Ethylbenzene	21.08			0.5	20	0	105.4%	85	115	
m,p-Xylene	40.25			1	40	0	100.6%	85	115	
o-Xylene	20.89			0.5	20	0	104.4%	85	115	
Toluene	20.92			0.5	20	0	104.6%	85	115	
1,4-Difluorobenzene	95.09			0	100	0	95.1%	70	130	
4-Bromochlorobenzene	91.46			0	100	0	91.5%	70	130	
Fluorobenzene	93.8			0	100	0	93.8%	70	130	

Sample ID:	CCV2 QC0529/30	Batch ID:	GC-1_980309	Test Code:	SW8021A	Units:	µg/L	Analysis Date:	3/9/98	Prep Date:
Client ID:	9803015	Run ID:	GC-1_980309A	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	SeqNo: 834
Analyte	Result									
Benzene	20.36			0.5	20	0	101.8%	85	115	
Ethylbenzene	20.99			0.5	20	0	105.0%	85	115	
m,p-Xylene	39.6			1	40	0	99.0%	85	115	
o-Xylene	20.27			0.5	20	0	101.4%	85	115	
Toluene	20.26			0.5	20	0	101.3%	85	115	
1,4-Difluorobenzene	94.88			0	100	0	94.9%	70	130	
4-Bromochlorobenzene	91.16			0	100	0	91.2%	70	130	
Fluorobenzene	94.06			0	100	0	94.1%	70	130	

Qualifiers:

ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

CLIENT: PNM Gas Services
Work Order: 9803015
Project: Randleman 1

QC SUMMARY REPORT

Continuing Calibration Verification Standard

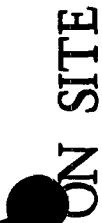
Sample ID: CCV3 QC0529/30	Batch ID: GC-1_980309	Test Code: SW8021A	Units: µg/L	Analysis Date: 3/9/98	Prep Date:
Client ID: 9803015	Run ID: GC-1_980309A	PQL	SPK value	SeqNo: 835	
Analyte	Result		SPK Ref Val	LowLimit	HighLimit
Benzene	22	0.5	20	0	110.0%
Ethylbenzene	22.52	0.5	20	0	112.6%
m,p-Xylene	42.59	1	40	0	106.5%
o-Xylene	21.97	0.5	20	0	109.8%
Toluene	21.92	0.5	20	0	109.6%
1,4-Difluorobenzene	94.09	0	100	0	94.1%
4-Bromochlorobenzene	90.22	0	100	0	90.2%
Fluorobenzene	93.51	0	100	0	93.5%
				RPDLimit	Qual

Sample ID: CCV4 QC0529/30	Batch ID: GC-1_980309	Test Code: SW8021A	Units: µg/L	Analysis Date: 3/9/98	Prep Date:
Client ID: 9803015	Run ID: GC-1_980309A	PQL	SPK value	SeqNo: 836	
Analyte	Result		SPK Ref Val	LowLimit	HighLimit
Benzene	20.83	0.5	20	0	104.2%
Ethylbenzene	21.37	0.5	20	0	106.8%
m,p-Xylene	40.52	1	40	0	101.3%
o-Xylene	20.89	0.5	20	0	104.5%
Toluene	20.71	0.5	20	0	103.6%
1,4-Difluorobenzene	94.24	0	100	0	94.2%
4-Bromochlorobenzene	91.05	0	100	0	91.1%
Fluorobenzene	93.28	0	100	0	93.3%
				RPDLimit	Qual

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank



Date: 4/18

TECHNOLOGIES, LTD.

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