

**3R - 315**

---

# **REPORTS**

**DATE:**

**1999**

---

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

RECEIVED

April 5, 1999

APR 07 1999

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

ENVIRONMENTAL BUREAU  
OIL CONSERVATION DIVISION



**RE: 1999 SAN JUAN BASIN ANNUAL GROUNDWATER REPORT**

Dear Bill:

PNM is pleased to submit the 1999 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.

Blanco Wash Drip	Mangum 1E
Davis 1	McClanahan 22
Dogie East Pit	McClanahan A 2E
Dogie North Pit	McCoy Gas Com A1
Florance 124	Miles Federal 1E Drip
Florance 32A	O' Shea 1M
Florance 40	Patterson A Com A1
Florance 44	Pritchard 2
Florance M 47X	Randleman 1
Hampton 4M	Reid 16 Drip
Honolulu Drip	Turner 1A
Ice Canyon Drip	Wilmerding 1M
Jacques 2A	Zachry 18E
Jicarilla Contract 147-6	
Linda 1A	

Consistent with PNM's San Juan Basin Groundwater Management Plan, PNM will request closure of four of the above sites, the Florance 32A, Jacques 2A, Mangum 1E and the McClanahan A2E, with the submittal of the 1<sup>st</sup> Quarter 1999 Pit Closures Report. This request is based upon the analytical data collected over the last two years at each of the sites. BTEX concentrations have been consistently below WQCC standards for four consecutive quarters.

Upon approval of the groundwater closure report, PNM will plug and abandon all of the groundwater monitoring wells at each of the locations. The concrete pad and metal vault surrounding each well will be removed. The well casing will be cut to ground surface and each well will be plugged to the surface

Bill Olson  
04/05/99  
Page 2

with cement containing 5% bentonite. If you have any questions regarding the contents of the report, please contact me at (505) 241-2974.

Sincerely,



Maureen Gannon  
Project Manager

Enclosure

cc: Colin Adams, Esq.  
Ingrid Deklau, WFS  
Denny Foust, OCD-Aztec Office  
Ron Johnson  
Mark Sikelianos  
Bill VonDrehle, WFS



RECEIVED

APR 07 1999

ENVIRONMENTAL BUREAU  
OIL CONSERVATION DIVISION

---

# Annual

# Groundwater Report

# 1999

---

Volume II

*Unlined Surface Impoundments  
San Juan Basin*



## Groundwater Site Summary Report

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

Quarter/Year: 2<sup>nd</sup>/98, 3<sup>rd</sup>/98, 4<sup>th</sup>/98 and 1<sup>st</sup>/99

---

**Operator:** Amoco  
**Sec:** 21 **Twn:** 30N **Rng:** 08W **Unit:** G  
**Canyon:** Gobernador

**Vulnerable Class:** Original  
**OCD Ranking:** 20  
**Lead Agency:** NMOCD

---

**Topo Map:** previously submitted  
**Well Completion Diagram:** previously submitted  
**Site Map with Groundwater Analysis:** Figure 1  
**Groundwater Contour Map:** Figures 2a (April 1998), Figure 2b (August 1998), Figure 2c (December 1998), & Figure 2d (February, 1999)  
**Bedrock Contour Map:** Figure 3  
**Hydrograph:** Figure 4  
**Full Suite- Groundwater Sampling:** previously submitted  
**Analytical Results:** attached

### Site Hydrology:

The Florance Z40 M site lies on the flank of Gobernador Canyon, a tributary of the San Juan River, about two miles east of Archuleta, New Mexico. Alluvium in Gobernador Canyon covers the valley floor, which is perhaps half a mile wide near the site. Steep sandstone cliffs enclose the canyon. The Florance Z 40M site lies on the northern edge of the canyon, abutting steep sandstone cliffs. Surface topography drops to the south towards the valley floor, which is a relatively large distance away (about one-quarter mile or more). The site lies at an elevation of about 6220 ft. amsl.

The monitor wells and excavations at the site (see Figure 1) show sands with relatively large amounts of clays and/or silts in the subsurface. A hard sandstone bedrock unit was also encountered, at depths of 35 to 52 feet below land surface. This hard sandstone bedrock was found in all borings at the site, and is quite distinct from the alluvial materials found at shallower depths.

Groundwater was encountered from 40 to 61 feet below land surface at the site. Groundwater flows southward beneath the site, as shown in Figures 2a, 2b, 2c and 2d. The flow direction is parallel to the regional topographic elevation drop, which is southward towards the valley floor of Gobernador Canyon.

Figure 3 shows available information on the depth and elevation of the bedrock-alluvium contact. Based on the available data, it would appear that a bowl or depression in the bedrock surface exists, and is centered around well MW-2 and then empties westward. The water table drops from north to south, and intersects the bedrock-alluvium contact just south of well MW-2. Bedrock is fairly shallow (36 feet) to the south (in wells MW-3 and MW-4), and the water table lies within the bedrock material, and not within alluvium. The change in hydraulic conductivity between bedrock and alluvium would tend to hinder any southward movement of contaminants. In effect, the central part of the site (near well MW-2) thus serves as a collector system for contaminants on the water table, which may help to explain the large thickness of free product observed (more than 2 feet) in well MW-2.

The hydrograph (Figure 4) shows water level shifts in tandem in all the wells, indicating no seasonal change in groundwater flow direction; this is corroborated by plots of groundwater levels during different time periods (Figures 2a through 2d).

### Activities for Previous Year:

PNM conducted quarterly groundwater sampling at the Florance Z 40M on April 28, August 7 and December 15, 1998, and again on February 9, 1999. Data on the depth to water and depth to free product were collected

---

### **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: Florance Z 40 M (continued)**

from wells MW-1, MW-3 and MW-4 during each sampling event. PNM collected groundwater samples from well, MW-1, for chemical analyses of benzene, toluene, ethylbenzene, and xylenes (BTEX). All sampling was performed in strict compliance with EPA protocol. PNM delivered the samples to OnSite Technologies, Farmington, New Mexico for chemical analyses of BTEX using EPA method 8020.

The operator (Amoco) installed a monitor well upgradient (north) of PNM's well MW-1. This monitor well was inspected during the quarterly sampling events, but was not sampled.

PNM prepared a site summary report to the OCD detailing the activities, results and further actions at the Florance Z 40 M under separate cover. The report was titled, "Florance Z 40 M Site - Free Product and Groundwater Contamination," and was submitted to the OCD on April 3, 1998. No specific actions have stemmed from the report, which stated that free product is not the property or responsibility of PNM.

**Results:**

Figure 1 is a site map of the Florance Z 40M and includes groundwater analytical results. BTEX concentrations in the well upgradient of PNM's former pit (well MW-1) have been above standards since the well was installed in mid-1997. The newly installed operator monitoring well, located north (upgradient) of well MW-1, contained free product and/or sheen on the water table. Downgradient well MW-3 exhibited free product (about 0.5 feet thick) on the water table. It would appear that free product upgradient of PNM's former pit is migrating across and accumulating in the southern part of the site (near wells MW-2 and MW-3), in and around the bedrock bowl or depression shown in Figure 3.

**Future Actions:**

PNM is considering a proposal to install several additional monitor wells at the site, with the aim of characterizing downgradient contamination beneath the site. However, evidence of upgradient contamination sources would prohibit PNM from taking any effective remedial action, so the ultimate goal of any characterization activity is somewhat unclear. In addition, there is an unresolved issue of whether PNM is the owner or responsible party for free phase product at any site (i.e., by contract requirements, dehydrator limitations, etc.) or specifically at the Florance Z40M site (i.e., due to the location of PNM's former dehydrator pit near a bedrock depression and downgradient of other sources. PNM will continue to perform quarterly monitoring, as we continue to seek resolution of these issues in conjunction with the operator and with OCD.

---

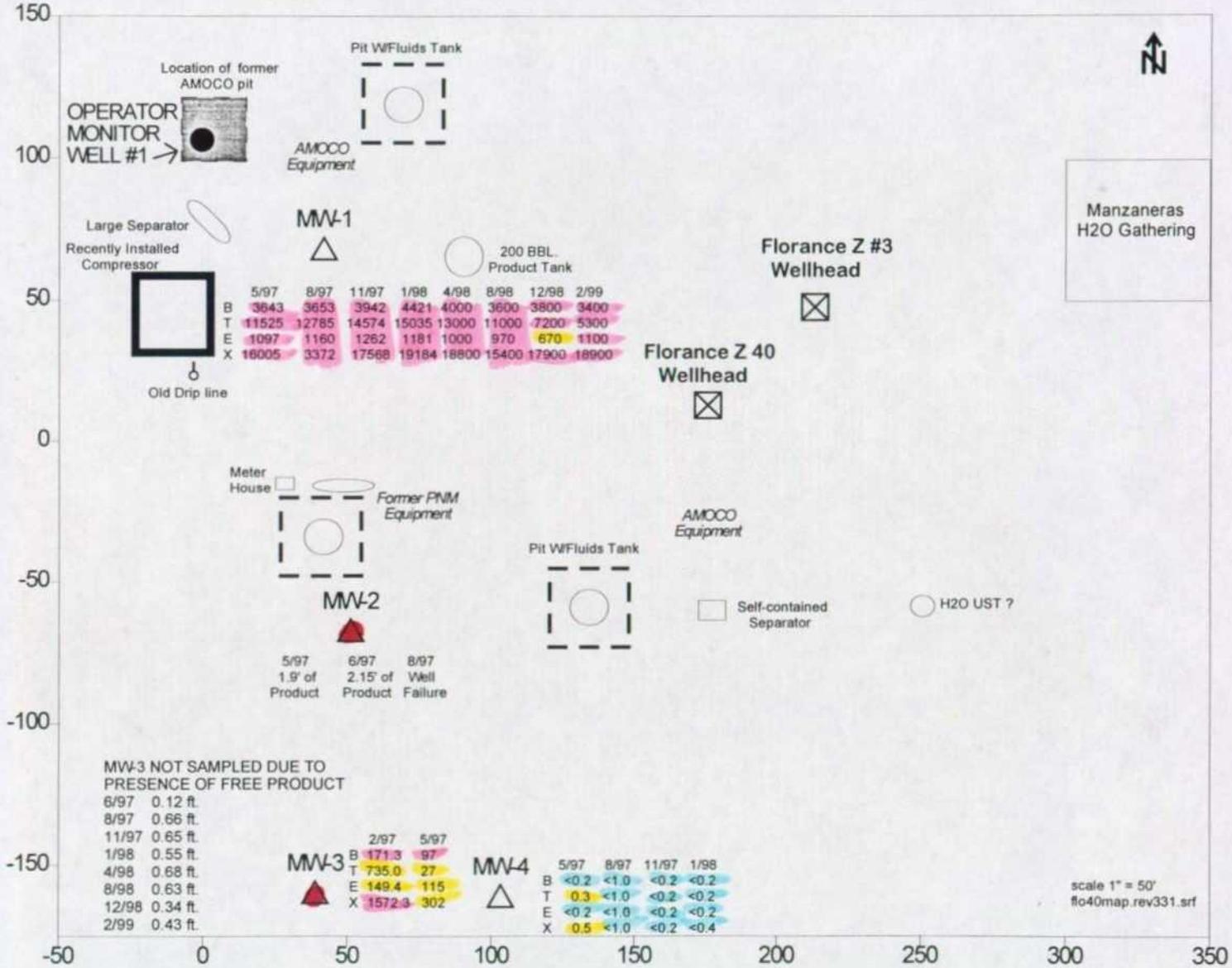
**Public Service Company of New Mexico - Gas Services**

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

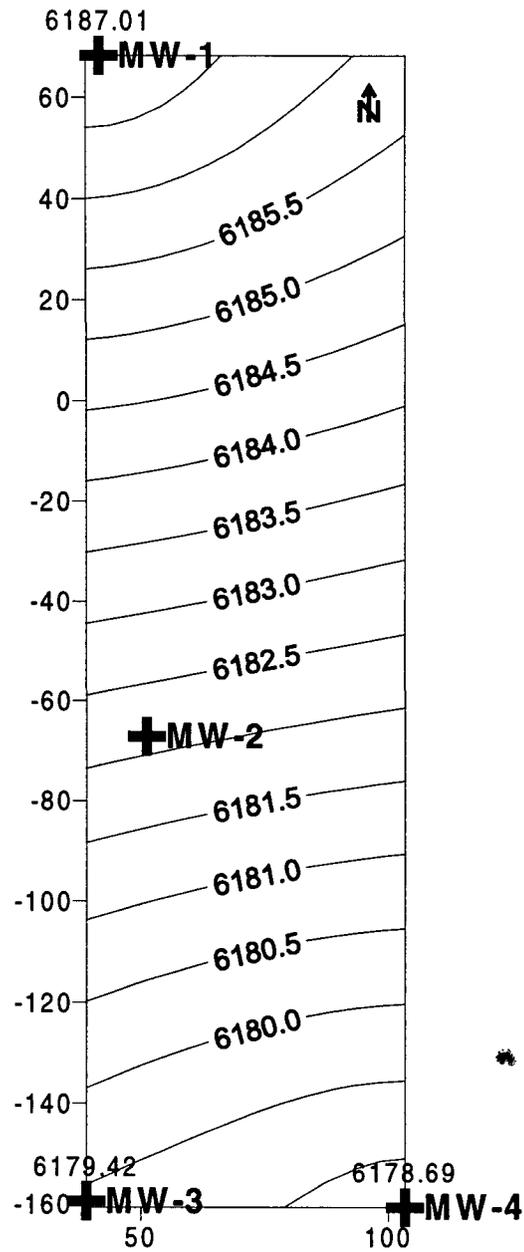
**Contact: Maureen Gannon**

**Telephone: 505-241-2974**

Figure 1. Florance Z 40 Site Map and Analytical Results  
(concentrations in ppb)

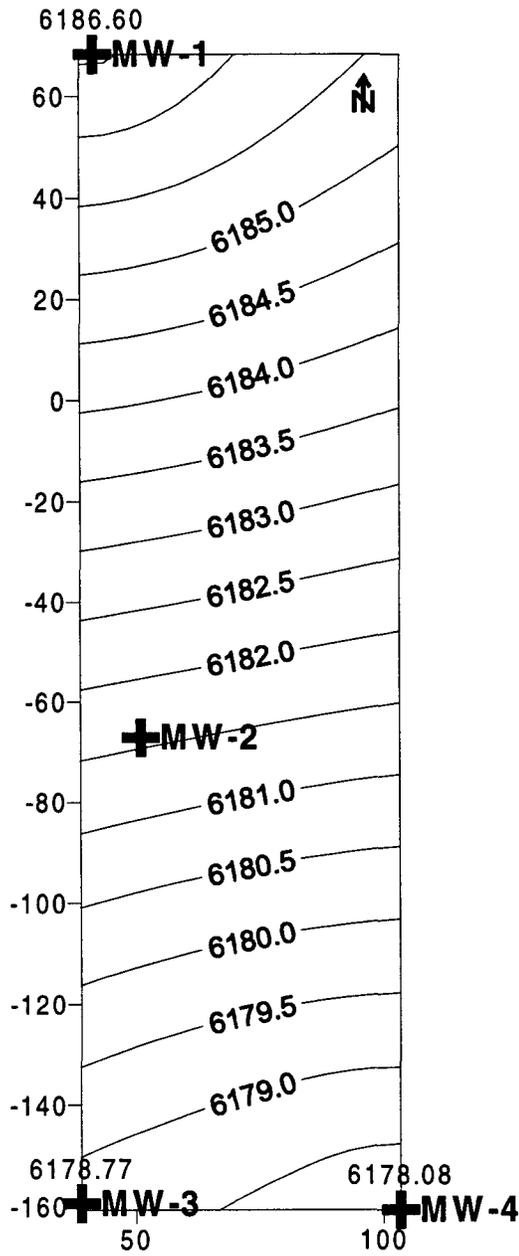


**Figure 2a.**  
**Florance Z40M Groundwater Contour Map**  
**(April 28, 1998)**



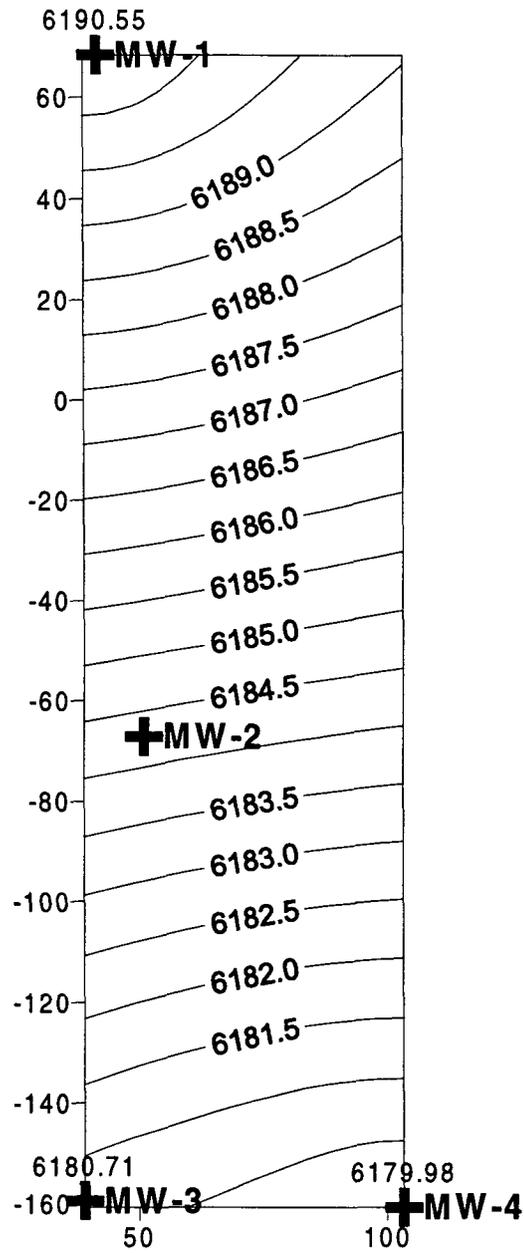
SCALE IN FEET  
(X-axis = Easting, Y-axis = Northing)

Figure 2b.  
Florance Z40M Groundwater Contour Map  
(August 7, 1998)



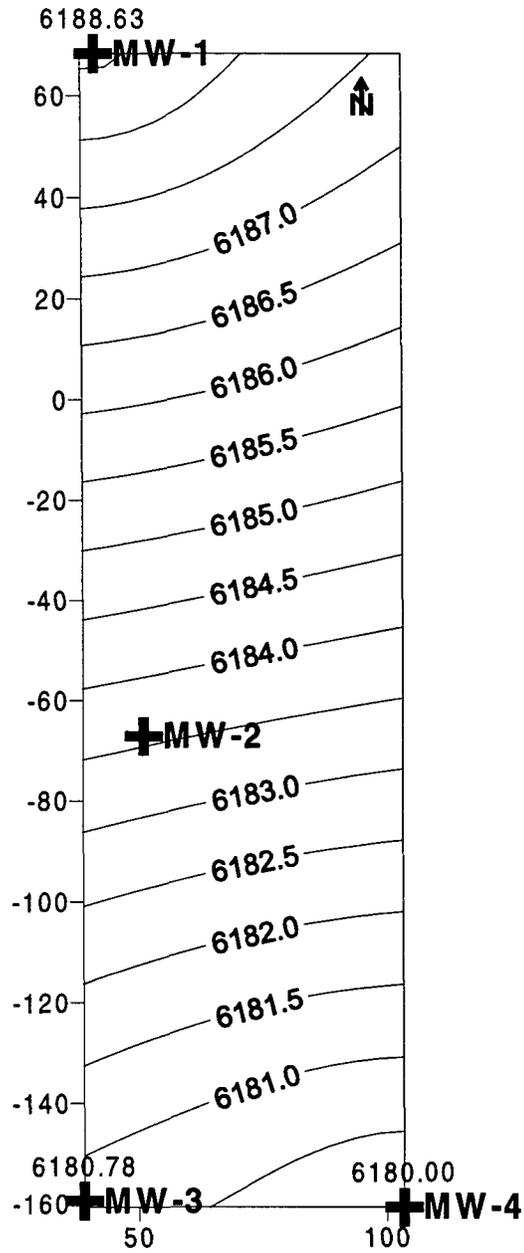
SCALE IN FEET  
(X-axis = Easting, Y-axis = Northing)

**Figure 2c.**  
**Florance Z40M Groundwater Contour Map**  
**(December 12, 1998)**



SCALE IN FEET  
(X-axis = Easting, Y-axis = Northing)

**Figure 2d.**  
**Florance Z40M Groundwater Contour Map**  
**(February 9, 1999)**



SCALE IN FEET  
(X-axis = Easting, Y-axis = Northing)

**Figure 3.  
Florance Z 40 Site Map  
showing Bedrock Contours & Contaminant History**

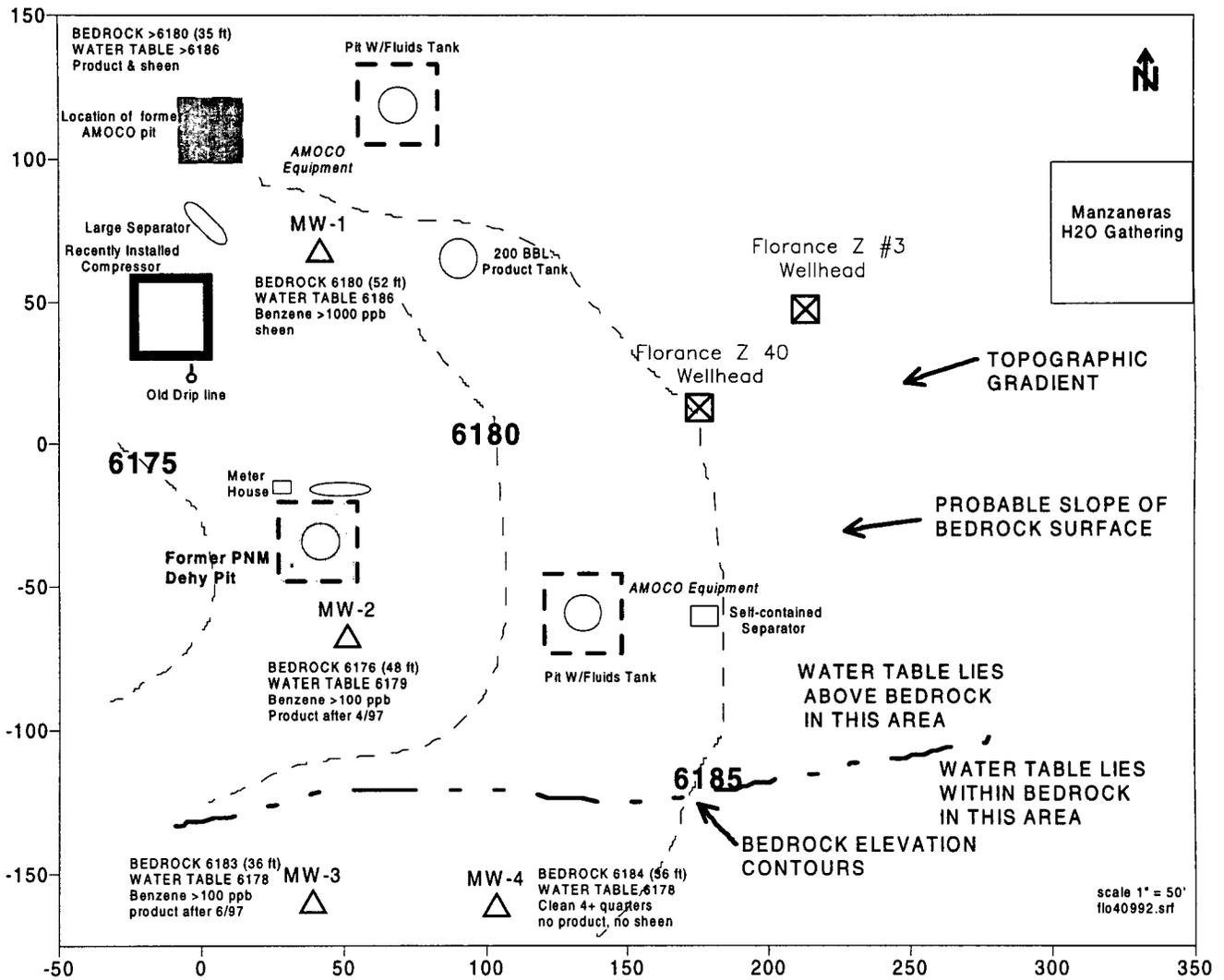
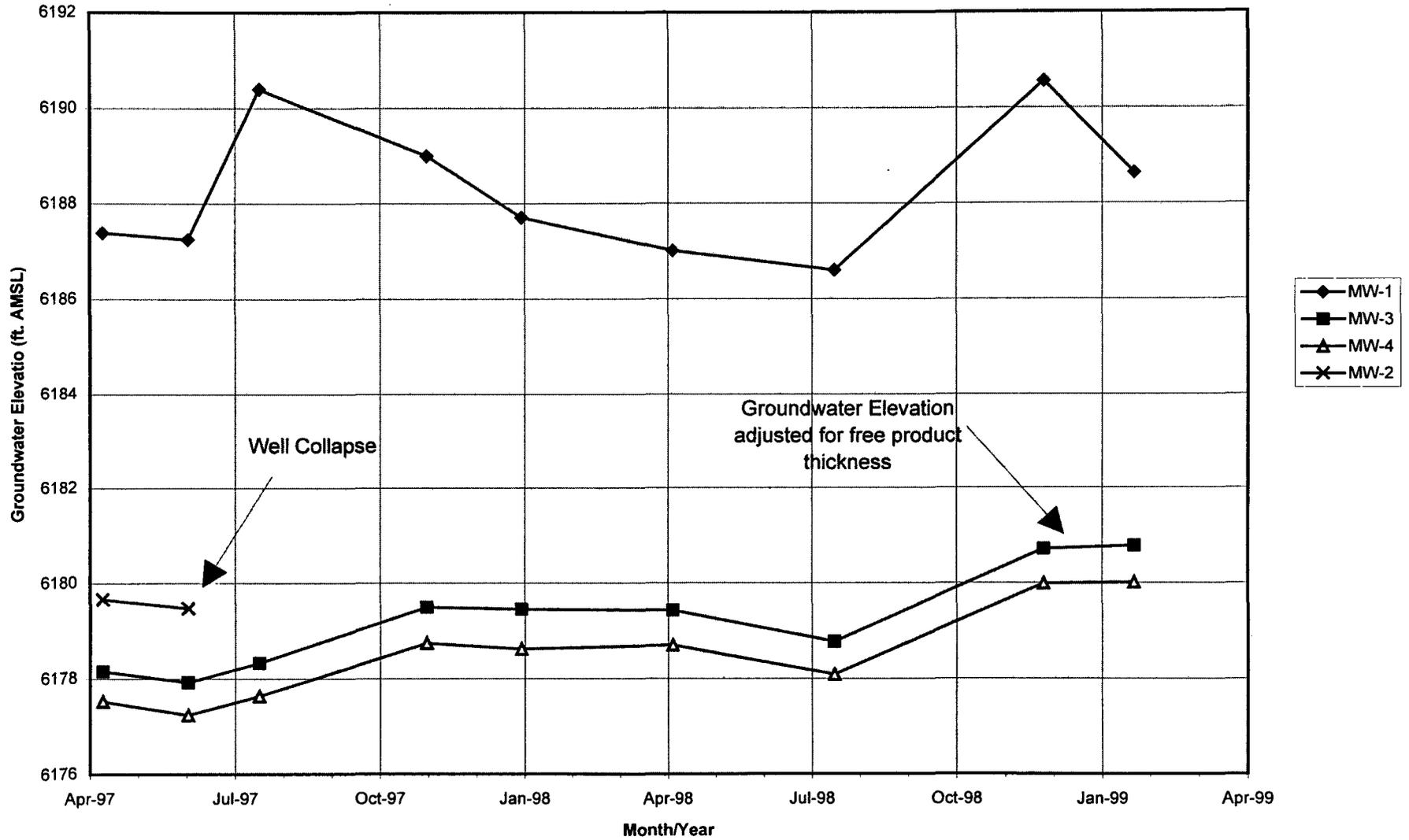


Figure 4. Florance Z40M Hydrograph  
(Water Level vs. Time)



OFF: (505) 325-5667

**ON SITE**  
TECHNOLOGIES, LTD.

LAB: (505) 325-1556

May 11, 1998

Maureen Gannon  
PNM - Public Service Company of NM  
Alvarado Square Mail Stop 0408  
Albuquerque, NM 87158  
TEL: (505) 241-2974  
FAX (505) 241-2340

2nd Quarter 98

RE: Florance 40

Order No.: 9804054

Dear Maureen Gannon,

On Site Technologies, LTD. received 1 sample on 4/29/98 for the analyses presented in the following report.

The Samples were analyzed for the following tests:  
BTEX (SW8020A)

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

**On Site Technologies, LTD.**

**Date:** 11-May-98

---

**CLIENT:** PNM - Public Service Company of NM  
**Project:** Florance 40  
**Lab Order:** 9804054

**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



LAB: (505) 325-1556

### ANALYTICAL REPORT

Date: 11-May-98

<b>Client:</b>	PNM - Public Service Company of NM	<b>Client Sample Info:</b>	Florance 40
<b>Work Order:</b>	9804054	<b>Client Sample ID:</b>	9804281400; MW-1
<b>Lab ID:</b>	9804054-01A	<b>Matrix:</b>	AQUEOUS
<b>Project:</b>	Florance 40	<b>Collection Date:</b>	4/28/98 2:00:00 PM
		<b>COC Record:</b>	7249

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
<b>BTEX</b>		<b>SW8020A</b>				Analyst: DC
Benzene	4000	50		µg/L	100	5/7/98
Toluene	13000	50		µg/L	100	5/7/98
Ethylbenzene	1000	50		µg/L	100	5/7/98
m,p-Xylene	15000	100		µg/L	100	5/7/98
o-Xylene	3800	50		µg/L	100	5/7/98

<b>Qualifiers:</b>	PQL - Practical Quantitation Limit	S - Spike Recovery outside accepted recovery limits
	ND - Not Detected at Practical Quantitation Limit	R - RPD outside accepted recovery limits
	J - Analyte detected below Practical Quantitation Limit	E - Value above quantitation range
	B - Analyte detected in the associated Method Blank	Surr: - Surrogate

On Site Technologies, LTD.

Date: 11-May-98

CLIENT: PNM - Public Service Company of NM  
Work Order: 9804054  
Project: Florance 40

**QC SUMMARY REPORT**  
Method Blank

Sample ID: MB1	Batch ID: GC-1_980507	Test Code: SW8020A	Units: µg/L	Analysis Date: 5/7/98	Prep Date:						
Client ID:	9804054	Run ID: GC-1_980507A	SeqNo: 1678								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	.0604	0.5									J
Ethylbenzene	.0824	0.5									J
m,p-Xylene	.2996	1									J
Methyl tert-Butyl Ether	.0751	1									J
o-Xylene	.1208	0.5									J
Toluene	.173	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: 11-May-98

CLIENT: PNM - Public Service Company of NM  
Work Order: 9804054  
Project: Florance 40

**QC SUMMARY REPORT**  
Laboratory Control Spike - generic

Sample ID: LCS WATER	Batch ID: GC-1_980507	Test Code: SW8020A	Units: µg/L	Analysis Date: 5/7/98	Prep Date:						
Client ID:	9804054	Run ID: GC-1_980507A	SeqNo: 1677								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	42.28	0.5	40	0.0604	105.6%	56	128				
Ethylbenzene	42.69	0.5	40	0.0824	106.5%	78	107				
m,p-Xylene	82.27	1	80	0.2996	102.5%	67	118				
Methyl tert-Butyl Ether	38.02	1	40	0.0751	94.9%	70	130				
o-Xylene	42.5	0.5	40	0.1208	105.9%	78	107				
Toluene	42.21	0.5	40	0.173	105.1%	74	116				

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: 11-May-98

CLIENT: PNM - Public Service Company of NM  
 Work Order: 9804054  
 Project: Florance 40

**QC SUMMARY REPORT**  
 Continuing Calibration Verification Standard

Sample ID: CCV1 QC0529/30		Batch ID: GC-1_980507		Test Code: SW8020A		Units: µg/L		Analysis Date 5/7/98		Prep Date:		
Client ID:		9804054		Run ID: GC-1_980507A		SeqNo: 1672						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Benzene	21.26	0.5	20	0	106.3%	85	115					
Ethylbenzene	21.65	0.5	20	0	108.3%	85	115					
m,p-Xylene	41.55	1	40	0	103.9%	85	115					
Methyl tert-Butyl Ether	19.41	1	20	0	97.0%	85	115					
o-Xylene	21.46	0.5	20	0	107.3%	85	115					
Toluene	21.37	0.5	20	0	106.8%	85	115					
1,4-Difluorobenzene	92.8	0	100	0	92.8%	70	130					
4-Bromochlorobenzene	89.27	0	100	0	89.3%	70	130					
Fluorobenzene	92.92	0	100	0	92.9%	70	130					

Sample ID: CCV2 QC0529/30		Batch ID: GC-1_980507		Test Code: SW8020A		Units: µg/L		Analysis Date 5/7/98		Prep Date:		
Client ID:		9804054		Run ID: GC-1_980507A		SeqNo: 1673						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Benzene	20.82	0.5	20	0	104.1%	85	115					
Ethylbenzene	21.2	0.5	20	0	106.0%	85	115					
m,p-Xylene	40.61	1	40	0	101.5%	85	115					
Methyl tert-Butyl Ether	18.49	1	20	0	92.4%	85	115					
o-Xylene	21.2	0.5	20	0	106.0%	85	115					
Toluene	20.97	0.5	20	0	104.9%	85	115					
1,4-Difluorobenzene	92.53	0	100	0	92.5%	70	130					
4-Bromochlorobenzene	90.18	0	100	0	90.2%	70	130					
Fluorobenzene	92.97	0	100	0	93.0%	70	130					

Qualifiers: ND - Not Detected at the Reporting Limit      S - Spike Recovery outside accepted recovery limits      B - Analyte detected in the associated Method Blank  
 J - Analyte detected below quantitation limits      R - RPD outside accepted recovery limits

**CLIENT:** PNM - Public Service Company of NM  
**Work Order:** 9804054  
**Project:** Florance 40

**QC SUMMARY REPORT**  
 Continuing Calibration Verification Standard

Sample ID: CCV3 QC0529/30		Batch ID: GC-1_980507		Test Code: SW8020A		Units: µg/L		Analysis Date 5/7/98		Prep Date:	
Client ID: 9804054		Run ID: GC-1_980507A		SeqNo: 1674							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	21.24	0.5	20	0	106.2%	85	115				
Ethylbenzene	21.5	0.5	20	0	107.5%	85	115				
m,p-Xylene	41.01	1	40	0	102.5%	85	115				
Methyl tert-Butyl Ether	17.96	1	20	0	89.8%	85	115				
o-Xylene	22.72	0.5	20	0	113.6%	85	115				
Toluene	21.47	0.5	20	0	107.3%	85	115				
1,4-Difluorobenzene	92.47	0	100	0	92.5%	70	130				
4-Bromochlorobenzene	88.18	0	100	0	88.2%	70	130				
Fluorobenzene	92.84	0	100	0	92.8%	70	130				

Sample ID: CCV4 QC0529/30		Batch ID: GC-1_980507		Test Code: SW8020A		Units: µg/L		Analysis Date 5/7/98		Prep Date:	
Client ID: 9804054		Run ID: GC-1_980507A		SeqNo: 1675							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	20.82	0.5	20	0	104.1%	85	115				
Ethylbenzene	21.86	0.5	20	0	109.3%	85	115				
m,p-Xylene	41.02	1	40	0	102.6%	85	115				
Methyl tert-Butyl Ether	18.32	1	20	0	91.6%	85	115				
o-Xylene	21.68	0.5	20	0	108.4%	85	115				
Toluene	21.03	0.5	20	0	105.1%	85	115				
1,4-Difluorobenzene	92.66	0	100	0	92.7%	70	130				
4-Bromochlorobenzene	88.98	0	100	0	89.0%	70	130				
Fluorobenzene	92.65	0	100	0	92.6%	70	130				

**Qualifiers:** ND - Not Detected at the Reporting Limit      S - Spike Recovery outside accepted recovery limits      B - Analyte detected in the associated Method Blank  
 J - Analyte detected below quantitation limits      R - RPD outside accepted recovery limits

**CLIENT:** PNM - Public Service Company of NM  
**Work Order:** 9804054  
**Project:** Florance 40

**QC SUMMARY REPORT**  
 Continuing Calibration Verification Standard

Sample ID: CCV5 QC0529/30		Batch ID: GC-1_980507		Test Code: SW8020A		Units: µg/L		Analysis Date 5/7/98		Prep Date:	
Client ID: 9804054		Run ID: GC-1_980507A		SeqNo: 1676							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	20.54	0.5	20	0	102.7%	85	115				
Ethylbenzene	20.93	0.5	20	0	104.6%	85	115				
m,p-Xylene	40.5	1	40	0	101.2%	85	115				
Methyl tert-Butyl Ether	17.55	1	20	0	87.8%	85	115				
o-Xylene	20.6	0.5	20	0	103.0%	85	115				
Toluene	21.34	0.5	20	0	106.7%	85	115				
1,4-Difluorobenzene	91.93	0	100	0	91.9%	70	130				
4-Bromochlorobenzene	88.69	0	100	0	88.7%	70	130				
Fluorobenzene	92.03	0	100	0	92.0%	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 - Public Service Company of NM  
**Work Order:** 9804054  
**Project:** Florance 40  
**Test No:** SW8020A

**QC SUMMARY REPORT  
 SURROGATE RECOVERIES**

**BTEX**

Sample ID	14FBZ	4BCBZ	FLBZ
9804051-01A	89.6	85	90.3
9804051-02A	89.5	84.7	89.6
9804052-01A	90.3	88	91.7
9804053-01A	78	80	80.4
9804054-01A	91.5	89.1	92.8
9804054-01AMS	91.5	91.3	93.3
9804054-01AMSD	90	89.2	91.1
9804055-01A	81.8	77.1	87.9
9804055-02A	85.9	83.4	88.5
9804056-01A	85.8	85.3	86.6
9804057-01A	93.4	88.7	93.7
9804057-02A	90.2	88.6	91.3
9804057-03A	91.2	88.6	91.7
9805003-01A	93.1	88.8	93.5
9805003-02A	90.7	88.8	91.6
CCV1 QC0529/30	92.8	89.3	92.9
CCV2 QC0529/30	92.5	90.2	93
CCV3 QC0529/30	92.5	88.2	92.8
CCV4 QC0529/30	92.7	89	92.6
CCV5 QC0529/30	91.9	88.7	92
LCS WATER	92.5	89.2	92.5
MB1	93.1	86.4	93.6

Acronym	Surrogate	QC Limits
14FBZ	= 1,4-Difluorobenzene	70-130
4BCBZ	= 4-Bromochlorobenzene	70-130
FLBZ	= Fluorobenzene	70-130

\* Surrogate recovery outside acceptance limits





# CHAIN OF CUSTODY RECORD

Date: 4/29/93

Page: 1 of 1

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

Purchase Order No.:		Job No.:		REPORT RESULTS TO	Name: <b>Maureen Gannon</b>		Title:			
SEND INVOICE TO	Name: <b>Denver Bearden</b>		Company: <b>PNM Gas Services</b>		Mailing Address: <b>Alverado Square, Mail Stop 0408</b>					
	Company: <b>PNM Gas Services</b>		Dept. <b>324-3763</b>		City, State, Zip: <b>Albuquerque, NM 87158</b>					
	Address: <b>603 W. Elm Street</b>				Telephone No. <b>505-848-2974</b>		Telefax No.:			
	City, State, Zip: <b>Farmington, NM 87401</b>									
Sampling Location: <b>Florance 40</b>				Number of Containers	ANALYSIS REQUESTED					
Sampler: <b>M.S.</b>					<div style="border: 1px solid black; padding: 5px; display: inline-block; transform: rotate(-45deg);">           PEX 8023         </div>					
SAMPLE IDENTIFICATION			SAMPLE		DATE	TIME	MATRIX	PRES.	LAB ID	
*	<b>9804281400 MW-1</b>						<b>A<sub>2</sub>O HCL</b>	<b>2</b>	<b>X</b>	<b>18C4054-01A</b>
*	<b>Hot</b>									
Relinquished by: <i>[Signature]</i>			Date/Time: <b>4/29/93 1345</b>		Received by: <i>[Signature]</i>			Date/Time: <b>4/29/93 1345</b>		
Relinquished by:			Date/Time:		Received by:			Date/Time:		
Relinquished by:			Date/Time:		Received by:			Date/Time:		
Method of Shipment: <b>HAND Delivered</b>					Rush	24-48 Hours	10 Working Days	Special Instructions:		
Authorized by: <i>[Signature]</i> Date: <b>4/29/93</b>								<b>Results to be sent to both parties.</b>		
(Client Signature Must Accompany Request)										

OFF: (505) 325-5667



LAB: (505) 325-1556

August 18, 1998

Maureen Gannon  
PNM - Public Service Company of NM  
Alvarado Square Mail Stop 0408  
Albuquerque, NM 87158  
TEL: (505) 241-2974  
FAX (505) 241-2340

3rd Quarter 98

RE: Florance 40

Order No.: 9808014

Dear Maureen Gannon,

On Site Technologies, LTD. received 1 sample on 8/7/98 for the analyses presented in the following report.

The Samples were analyzed for the following tests:  
BTEX (SW8020A)

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

**On Site Technologies, LTD.**

**Date:** 18-Aug-98

---

**CLIENT:** PNM - Public Service Company of NM  
**Project:** Florance 40  
**Lab Order:** 9808014

**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



LAB: (505) 325-1556

**ANALYTICAL REPORT**

Date: 18-Aug-98

<b>Client:</b>	PNM - Public Service Company of NM	<b>Client Sample Info:</b>	Florance 40
<b>Work Order:</b>	9808014	<b>Client Sample ID:</b>	9808070900; MW-1
<b>Lab ID:</b>	9808014-01A	<b>Matrix:</b>	AQUEOUS
<b>Project:</b>	Florance 40	<b>Collection Date:</b>	8/7/98 9:00:00 AM
		<b>COC Record:</b>	7284

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
<b>BTEX</b>		<b>SW8020A</b>				Analyst: DC
Benzene	3600	50		µg/L	100	8/15/98
Toluene	11000	50		µg/L	100	8/15/98
Ethylbenzene	970	50		µg/L	100	8/15/98
m,p-Xylene	12000	100		µg/L	100	8/15/98
o-Xylene	3400	50		µg/L	100	8/15/98

<b>Qualifiers:</b>	PQL - Practical Quantitation Limit	S - Spike Recovery outside accepted recovery limits
	ND - Not Detected at Practical Quantitation Limit	R - RPD outside accepted recovery limits
	J - Analyte detected below Practical Quantitation Limit	E - Value above quantitation range
	B - Analyte detected in the associated Method Blank	Surr: - Surrogate

On Site Technologies, LTD.

Date: 18-Aug-98

CLIENT: PNM - Public Service Company of NM  
Work Order: 9808014  
Project: Florance 40

**QC SUMMARY REPORT**  
Method Blank

Sample ID: MB1	Batch ID: GC-1_980815	Test Code: SW8020A	Units: µg/L	Analysis Date: 8/15/98	Prep Date:						
Client ID:	9808014	Run ID: GC-1_980815A	SeqNo: 5509								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	.0541	0.5									J
Ethylbenzene	.0909	0.5									J
m,p-Xylene	.2062	1									J
Methyl tert-Butyl Ether	ND	1									
o-Xylene	.1945	0.5									J
Toluene	.1879	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-Aug-98

CLIENT: PNM - Public Service Company of NM  
 Work Order: 9808014  
 Project: Florance 40

QC SUMMARY REPORT

Sample Matrix Spike

Sample ID: 9808014-01AMS	Batch ID: GC-1_980815	Test Code: SW8020A	Units: µg/L	Analysis Date 8/15/98	Prep Date:						
Client ID: 9808070900; MW-	9808014	Run ID: GC-1_980815A		SeqNo: 5510							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	7147	50	4000	3566	89.5%	56	128				
Ethylbenzene	4629	50	4000	970.6	91.5%	78	107				
m,p-Xylene	19620	100	8000	12540	88.5%	67	118				
Methyl tert-Butyl Ether	3512	100	4000	15.95	87.4%	70	130				
o-Xylene	6971	50	4000	3355	90.4%	78	107				
Toluene	14820	50	4000	11270	88.9%	74	116				

Sample ID: 9808014-01AMSD	Batch ID: GC-1_980815	Test Code: SW8020A	Units: µg/L	Analysis Date 8/15/98	Prep Date:						
Client ID: 9808070900; MW-	9808014	Run ID: GC-1_980815A		SeqNo: 5511							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	6980	50	4000	3566	85.4%	56	128	7147	2.4%	12	
Ethylbenzene	4502	50	4000	970.6	88.3%	78	107	4629	2.8%	11	
m,p-Xylene	19120	100	8000	12540	82.2%	67	118	19620	2.6%	10	
Methyl tert-Butyl Ether	3530	100	4000	15.95	87.8%	70	130	3512	0.5%	15	
o-Xylene	6840	50	4000	3355	87.1%	78	107	6971	1.9%	14	
Toluene	14440	50	4000	11270	79.4%	74	116	14820	2.6%	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-Aug-98

CLIENT: PNM - Public Service Company of NM  
Work Order: 9808014  
Project: Florance 40

**QC SUMMARY REPORT**  
Laboratory Control Spike - generic

Sample ID: LCS WATER	Batch ID: GC-1_980815	Test Code: SW8020A	Units: µg/L	Analysis Date: 8/15/98	Prep Date:						
Client ID:	9808014	Run ID: GC-1_980815A	SeqNo: 5508								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	38.72	0.5	40	0.0541	96.7%	56	128				
Ethylbenzene	38.44	0.5	40	0.0909	95.9%	78	107				
m,p-Xylene	73.37	1	80	0.2062	91.5%	67	118				
Methyl tert-Butyl Ether	45.59	1	40	0	114.0%	70	130				
o-Xylene	38.61	0.5	40	0.1945	96.0%	78	107				
Toluene	38.26	0.5	40	0.1879	95.2%	74	116				

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-Aug-98

CLIENT: PNM - Public Service Company of NM  
 Work Order: 9808014  
 Project: Florance 40

**QC SUMMARY REPORT**  
 Continuing Calibration Verification Standard

Sample ID: CCV1 QC0606/07		Batch ID: GC-1_980815		Test Code: SW8020A		Units: µg/L		Analysis Date 8/15/98		Prep Date:	
Client ID: 9808014		Run ID: GC-1_980815A		SeqNo: 5505							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	20.31	0.5	20	0	101.5%	85	115				
Ethylbenzene	20.3	0.5	20	0	101.5%	85	115				
m,p-Xylene	38.57	1	40	0	96.4%	85	115				
Methyl tert-Butyl Ether	23.28	1	20	0	116.4%	85	115				S
o-Xylene	20.24	0.5	20	0	101.2%	85	115				
Toluene	20.32	0.5	20	0	101.6%	85	115				
1,4-Difluorobenzene	86.44	0	100	0	86.4%	70	130				
4-Bromochlorobenzene	94.3	0	100	0	94.3%	70	130				
Fluorobenzene	82.86	0	100	0	82.9%	70	130				

Sample ID: CCV2 QC0606/07		Batch ID: GC-1_980815		Test Code: SW8020A		Units: µg/L		Analysis Date 8/15/98		Prep Date:	
Client ID: 9808014		Run ID: GC-1_980815A		SeqNo: 5506							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	19.94	0.5	20	0	99.7%	85	115				
Ethylbenzene	20.15	0.5	20	0	100.8%	85	115				
m,p-Xylene	38.21	1	40	0	95.5%	85	115				
Methyl tert-Butyl Ether	21.47	1	20	0	107.4%	85	115				
o-Xylene	20.07	0.5	20	0	100.3%	85	115				
Toluene	20.18	0.5	20	0	100.9%	85	115				
1,4-Difluorobenzene	86.16	0	100	0	86.2%	70	130				
4-Bromochlorobenzene	88.01	0	100	0	88.0%	70	130				
Fluorobenzene	82.37	0	100	0	82.4%	70	130				

Qualifiers: ND - Not Detected at the Reporting Limit      S - Spike Recovery outside accepted recovery limits      B - Analyte detected in the associated Method Blank  
 J - Analyte detected below quantitation limits      R - RPD outside accepted recovery limits

**CLIENT:** PNM - Public Service Company of NM  
**Work Order:** 9808014  
**Project:** Florance 40

**QC SUMMARY REPORT**  
 Continuing Calibration Verification Standard

Sample ID: <b>CCV3 QC0606/07</b>		Batch ID: <b>GC-1_980815</b>		Test Code: <b>SW8020A</b>		Units: <b>µg/L</b>		Analysis Date: <b>8/15/98</b>		Prep Date:	
Client ID: <b>9808014</b>		Run ID: <b>GC-1_980815A</b>		SeqNo: <b>5507</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	38.5	0.5	40	0	96.2%	85	115				
Ethylbenzene	38.74	0.5	40	0	96.9%	85	115				
m,p-Xylene	73.86	1	80	0	92.3%	85	115				
Methyl tert-Butyl Ether	36.95	1	40	0	92.4%	85	115				
o-Xylene	38.49	0.5	40	0	96.2%	85	115				
Toluene	38.67	0.5	40	0	96.7%	85	115				
1,4-Difluorobenzene	85.82	0	100	0	85.8%	70	130				
4-Bromochlorobenzene	82.98	0	100	0	83.0%	70	130				
Fluorobenzene	82.15	0	100	0	82.2%	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 - Public Service Company of NM  
**Work Order:** 9808014  
**Project:** Florance 40  
**Test No:** SW8020A

**QC SUMMARY REPORT  
 SURROGATE RECOVERIES**

**BTEX**

Sample ID	14FBZ	4BCBZ	FLBZ
9808008-02A	87.3	95.1	83.7
9808008-03A	87.9	91	84
9808008-04A	85.4	74.5	83.7
9808008-05A	85.7	88.8	83.3
9808008-06A	82.6	76	87.6
9808008-07A	89.5	85.7	83.3
9808008-08A	86.1	85.4	83.2
9808008-09A	87.1	85.6	83.3
9808008-10A	87	83.9	83
9808008-11A	87.3	85.3	83.6
9808008-12A	86.5	94	83.8
9808013-01A	83.3	77.3	79.8
9808013-02A	83.8	78.9	80.7
9808014-01A	85	77.8	82
9808014-01AMS	84.6	79.4	81.8
9808014-01AMSD	84.6	80.6	81.7
9808015-01A	87	87.1	83.3
9808015-02A	87.1	89.3	83.4
9808015-03A	87.2	87.4	83.6
9808015-04A	87.3	86.8	83.4
CCV1 QC0606/07	86.4	94.3	82.9
CCV2 QC0606/07	86.2	88	82.4
CCV3 QC0606/07	85.8	83	82.2
LCS WATER	86.1	94.3	82.7
MB1	87.1	93.2	83.6

Acronym	Surrogate	QC Limits
14FBZ	= 1,4-Difluorobenzene	70-130
4BCBZ	= 4-Bromochlorobenzene	70-130
FLBZ	= Fluorobenzene	70-130

\* Surrogate recovery outside acceptance limits



OFF: (505) 325-5667



LAB: (505) 325-1556

December 23, 1998

Maureen Gannon  
PNM - Public Service Company of NM  
Alvarado Square Mail Stop 0408  
Albuquerque, NM 87158  
TEL: (505) 241-2974  
FAX (505) 241-2340

4th Quarter 1998

RE: Florance 40

Order No.: 9812040

Dear Maureen Gannon,

On Site Technologies, LTD. received 1 sample on 12/15/98 for the analyses presented in the following report.

The Samples were analyzed for the following tests:  
BTEX (SW8021B)

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,

A handwritten signature in cursive script, appearing to read "David Cox".

David Cox

OFF: (505) 325-5667



LAB: (505) 325-1556

**On Site Technologies, LTD.**

**Date:** 23-Dec-98

---

**CLIENT:** PNM - Public Service Company of NM  
**Project:** Florance 40  
**Lab Order:** 9812040

**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



LAB: (505) 325-1556

**ANALYTICAL REPORT**

**Date:** 23-Dec-98

<b>Client:</b>	PNM - Public Service Company of NM	<b>Client Sample Info:</b>	Florance 40
<b>Work Order:</b>	9812040	<b>Client Sample ID:</b>	9812151230 MW-1
<b>Lab ID:</b>	9812040-01A	<b>Matrix:</b>	AQUEOUS
<b>Project:</b>	Florance 40	<b>Collection Date:</b>	12/15/98 12:30:00 PM
		<b>COC Record:</b>	7528

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
<b>BTEX</b>		<b>SW8021B</b>				<b>Analyst: HR</b>
Benzene	3800	100		µg/L	100	12/22/98
Toluene	7200	100		µg/L	100	12/22/98
Ethylbenzene	670	100		µg/L	100	12/22/98
m,p-Xylene	14000	200		µg/L	100	12/22/98
o-Xylene	3900	100		µg/L	100	12/22/98

<b>Qualifiers:</b>	PQL - Practical Quantitation Limit	S - Spike Recovery outside accepted recovery limits
	ND - Not Detected at Practical Quantitation Limit	R - RPD outside accepted recovery limits
	J - Analyte detected below Practical Quantitation Limit	E - Value above quantitation range
	B - Analyte detected in the associated Method Blank	Surr: - Surrogate

1 of 1

**P.O. BOX 2606 • FARMINGTON, NM 87499**

- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

On Site Technologies, LTD.

Date: 23-Dec-98

CLIENT: PNM - Public Service Company of NM  
Work Order: 9812040  
Project: Florance 40

**QC SUMMARY REPORT**  
Method Blank

Sample ID: MB1	Batch ID: GC-1_981222	Test Code: SW8021B	Units: µg/L	Analysis Date 12/22/98	Prep Date:						
Client ID:	9812040	Run ID: GC-1_981222A		SeqNo: 9740							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	.1373	1									J
Ethylbenzene	.211	1									J
m,p-Xylene	.5428	2									J
Methyl tert-Butyl Ether	ND	1									
o-Xylene	.244	1									J
Toluene	.2765	1									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: 23-Dec-98

CLIENT: PNM - Public Service Company of NM  
Work Order: 9812040  
Project: Florance 40

**QC SUMMARY REPORT**  
Sample Matrix Spike

Sample ID: 9812035-01AMS	Batch ID: GC-1_981222	Test Code: SW8021B	Units: µg/L	Analysis Date 12/22/98	Prep Date:						
Client ID: 9812040	Run ID: GC-1_981222A	SeqNo: 9741									
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	187.6	5	200	0.6055	93.5%	56	128				
Ethylbenzene	195.6	5	200	2.26	96.7%	78	107				
m,p-Xylene	389.8	10	400	4.374	96.4%	67	118				
Methyl tert-Butyl Ether	184.1	5	200	0	92.0%	70	130				
o-Xylene	209.5	5	200	1.841	103.9%	78	107				
Toluene	197.4	5	200	2.739	97.3%	74	116				

Sample ID: 9812035-01AMSD	Batch ID: GC-1_981222	Test Code: SW8021B	Units: µg/L	Analysis Date 12/22/98	Prep Date:						
Client ID: 9812040	Run ID: GC-1_981222A	SeqNo: 9742									
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	190.9	5	200	0.6055	95.1%	56	128	187.6	1.7%	12	
Ethylbenzene	198.8	5	200	2.26	98.2%	78	107	195.6	1.6%	11	
m,p-Xylene	386.4	10	400	4.374	95.5%	67	118	389.8	0.9%	10	
Methyl tert-Butyl Ether	181.1	5	200	0	90.6%	70	130	184.1	1.6%	15	
o-Xylene	195.6	5	200	1.841	96.9%	78	107	209.5	6.9%	14	
Toluene	197.2	5	200	2.739	97.2%	74	116	197.4	0.1%	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: 23-Dec-98

CLIENT: PNM - Public Service Company of NM

Work Order: 9812040

Project: Florance 40

**QC SUMMARY REPORT**  
Laboratory Control Spike - generic

Sample ID: LCS WATER	Batch ID: GC-1_981222	Test Code: SW8021B	Units: µg/L	Analysis Date: 12/22/98	Prep Date:						
Client ID: 9812040	Run ID: GC-1_981222A	SeqNo: 9739									
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	37.57	1	40	0.1373	93.6%	56	128				
Ethylbenzene	39.37	1	40	0.211	97.9%	78	107				
m,p-Xylene	76.89	2	80	0.5428	95.4%	67	118				
Methyl tert-Butyl Ether	37.32	1	40	0	93.3%	70	130				
o-Xylene	39.78	1	40	0.244	98.9%	78	107				
Toluene	38.65	1	40	0.2765	95.9%	74	116				

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: 23-Dec-98

CLIENT: PNM - Public Service Company of NM  
Work Order: 9812040  
Project: Florance 40

**QC SUMMARY REPORT**  
Continuing Calibration Verification Standard

Sample ID: CCV1 QC0606/07	Batch ID: GC-1_981222	Test Code: SW8021B	Units: µg/L	Analysis Date 12/22/98	Prep Date:						
Client ID: 9812040	Run ID: GC-1_981222A	SeqNo: 9736									
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	19.72	1	20	0	98.6%	85	115				
Ethylbenzene	20.66	1	20	0	103.3%	85	115				
m,p-Xylene	40.12	2	40	0	100.3%	85	115				
Methyl tert-Butyl Ether	19.5	1	20	0	97.5%	85	115				
o-Xylene	20.92	1	20	0	104.6%	85	115				
Toluene	20.31	1	20	0	101.5%	85	115				
1,4-Difluorobenzene	88.17	0	100	0	88.2%	70	130				
4-Bromochlorobenzene	101.7	0	100	0	101.7%	70	130				
Fluorobenzene	85.26	0	100	0	85.3%	70	130				

Sample ID: CCV2 QC0606/07	Batch ID: GC-1_981222	Test Code: SW8021B	Units: µg/L	Analysis Date 12/22/98	Prep Date:						
Client ID: 9812040	Run ID: GC-1_981222A	SeqNo: 9737									
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	20.12	1	20	0	100.6%	85	115				
Ethylbenzene	21.04	1	20	0	105.2%	85	115				
m,p-Xylene	40.62	2	40	0	101.5%	85	115				
Methyl tert-Butyl Ether	19.26	1	20	0	96.3%	85	115				
o-Xylene	21.19	1	20	0	106.0%	85	115				
Toluene	20.66	1	20	0	103.3%	85	115				
1,4-Difluorobenzene	88.39	0	100	0	88.4%	70	130				
4-Bromochlorobenzene	102.6	0	100	0	102.6%	70	130				
Fluorobenzene	84.99	0	100	0	85.0%	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 - Public Service Company of NM  
**Work Order:** 9812040  
**Project:** Florance 40

**QC SUMMARY REPORT**  
 Continuing Calibration Verification Standard

Sample ID: **CCV3 QC0606/07**    Batch ID: **GC-1\_981222**    Test Code: **SW8021B**    Units: **µg/L**    Analysis Date: **12/22/98**    Prep Date:  
 Client ID: **9812040**    Run ID: **GC-1\_981222A**    SeqNo: **9738**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	39.02	1	40	0	97.6%	85	115				
Ethylbenzene	40.7	1	40	0	101.8%	85	115				
m,p-Xylene	79.27	2	80	0	99.1%	85	115				
Methyl tert-Butyl Ether	38.29	1	40	0	95.7%	85	115				
o-Xylene	41.02	1	40	0	102.6%	85	115				
Toluene	40.08	1	40	0	100.2%	85	115				
1,4-Difluorobenzene	88.08	0	100	0	88.1%	70	130				
4-Bromochlorobenzene	100.8	0	100	0	100.9%	70	130				
Fluorobenzene	85.21	0	100	0	85.2%	70	130				

**Qualifiers:**    ND - Not Detected at the Reporting Limit    S - Spike Recovery outside accepted recovery limits    B - Analyte detected in the associated Method Blank  
                     J - Analyte detected below quantitation limits    R - RPD outside accepted recovery limits

CLIENT: PNM - Public Service Company of NM  
 Work Order: 9812040  
 Project: Florance 40  
 Test No: SW8021B

**QC SUMMARY REPORT  
 SURROGATE RECOVERIES**

**BTEX**

Sample ID	14FBZ	4BCBZ	FLBZ
9812028-01A	81.9	94	80.5
9812029-01A	88.1	101	85.6
9812031-01A	89.4	101	86.9
9812031-03A	89.4	100	88.4
9812032-01A	88.4	99.2	84.6
9812035-01AMS	88.8	102	85.7
9812035-01AMSD	87.2	100	84
9812035-02A	84.9	96.8	85.8
9812035-03A	83.5	94.1	86.6
9812036-01A	88.6	103	85.2
9812037-13A	87.8	102	85.2
9812037-18A	100	101	90.5
9812037-24A	93.3	101	87.6
9812037-26A	86.1	99.4	88.6
9812040-01A	88.7	103	85.8
9812041-01A	87.3	102	84.3
9812041-02A	87.7	102	85.2
9812041-03A	87.2	101	84.6
9812044-01A	88.4	102	85.1
CCV1 QC0606/07	88.2	102	85.3
CCV2 QC0606/07	88.4	102	85
CCV3 QC0606/07	88.1	101	85.2
LCS WATER	88.1	101	85.1
MB1	88.7	98.5	85.4

Acronym	Surrogate	QC Limits
14FBZ	= 1,4-Difluorobenzene	70-130
4BCBZ	= 4-Bromochlorobenzene	70-130
FLBZ	= Fluorobenzene	70-130

\* Surrogate recovery outside acceptance limits



OFF: (505) 325-5667



LAB: (505) 325-1556

February 23, 1999

Maureen Gannon  
PNM - Public Service Company of NM  
Alvarado Square Mail Stop 0408  
Albuquerque, NM 87158  
TEL: (505) 241-2974  
FAX (505) 241-2340

*1st Quarter 1999  
Received  
March 02 99*

RE: Florance 40

Order No.: 9902056

Dear Maureen Gannon,

On Site Technologies, LTD. received 2 samples on 2/10/99 for the analyses presented in the following report.

The Samples were analyzed for the following tests:  
BTEX (SW8021B)

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,

A handwritten signature in black ink, appearing to read "David Cox".

David Cox

OFF: (505) 325-5667



LAB: (505) 325-1556

**On Site Technologies, LTD.**

Date: 23-Feb-99

---

**CLIENT:** PNM - Public Service Company of NM  
**Project:** Florance 40  
**Lab Order:** 9902056

**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



LAB: (505) 325-1556

**ANALYTICAL REPORT**

Date: 23-Feb-99

<b>Client:</b>	PNM - Public Service Company of NM	<b>Client Sample Info:</b>	Florance 40
<b>Work Order:</b>	9902056	<b>Client Sample ID:</b>	9902091303; MW-1
<b>Lab ID:</b>	9902056-01A	<b>Matrix:</b>	AQUEOUS
<b>Project:</b>	Florance 40	<b>Collection Date:</b>	2/9/99 1:03:00 PM
		<b>COC Record:</b>	7472

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
<b>BTEX</b>		<b>SW8021B</b>				<b>Analyst: HR</b>
Benzene	3400	50		µg/L	100	2/15/99
Toluene	5300	50		µg/L	100	2/15/99
Ethylbenzene	1100	50		µg/L	100	2/15/99
m,p-Xylene	15000	100		µg/L	100	2/15/99
o-Xylene	3900	50		µg/L	100	2/15/99

**Qualifiers:**

PQL - Practical Quantitation Limit	S - Spike Recovery outside accepted recovery limits
ND - Not Detected at Practical Quantitation Limit	R - RPD outside accepted recovery limits
J - Analyte detected below Practical Quantitation Limit	E - Value above quantitation range
B - Analyte detected in the associated Method Blank	Surr: - Surrogate

1 of 1

P.O. BOX 2606 • FARMINGTON, NM 87499

- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

OFF: (505) 325-5667



LAB: (505) 325-1556

### ANALYTICAL REPORT

Date: 23-Feb-99

<b>Client:</b>	PNM - Public Service Company of NM	<b>Client Sample Info:</b>	Florance 40
<b>Work Order:</b>	9902056	<b>Client Sample ID:</b>	9902091335; MW-5
<b>Lab ID:</b>	9902056-02A	<b>Matrix:</b>	AQUEOUS
<b>Project:</b>	Florance 40	<b>Collection Date:</b>	2/9/99 1:35:00 PM
		<b>COC Record:</b>	7472

*Duplicate of MW-1*

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
<b>BTEX</b>		<b>SW8021B</b>				Analyst: HR
Benzene	3500	50		µg/L	100	2/15/99
Toluene	5100	50		µg/L	100	2/15/99
Ethylbenzene	1000	50		µg/L	100	2/15/99
m,p-Xylene	14000	100		µg/L	100	2/15/99
o-Xylene	3700	50		µg/L	100	2/15/99

<b>Qualifiers:</b>	PQL - Practical Quantitation Limit	S - Spike Recovery outside accepted recovery limits
	ND - Not Detected at Practical Quantitation Limit	R - RPD outside accepted recovery limits
	J - Analyte detected below Practical Quantitation Limit	E - Value above quantitation range
	B - Analyte detected in the associated Method Blank	Surr: - Surrogate

1 of 1

P.O. BOX 2606 • FARMINGTON, NM 87499

- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

On Site Technologies, LTD.

Date: 23-Feb-99

CLIENT: PNM - Public Service Company of NM

Work Order: 9902056

Project: Florance 40

## QC SUMMARY REPORT

Method Blank

Sample ID: MB1	Batch ID: GC-1_990215	Test Code: SW8021B	Units: µg/L	Analysis Date 2/15/99	Prep Date:						
Client ID:	9902056	Run ID: GC-1_990215A	SeqNo: 11056								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	.0508	0.5									J
Ethylbenzene	.0611	0.5									J
m,p-Xylene	.1669	1									J
Methyl tert-Butyl Ether	ND	1									J
o-Xylene	.1145	0.5									J
Toluene	.1432	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: 23-Feb-99

**CLIENT:** PNM - Public Service Company of NM  
**Work Order:** 9902056  
**Project:** Florance 40

**QC SUMMARY REPORT**  
 Sample Matrix Spike

Sample ID: 9902056-01AMS		Batch ID: GC-1_990215		Test Code: SW8021B		Units: µg/L		Analysis Date 2/15/99		Prep Date:	
Client ID: 9902091303; MW-		9902056		Run ID: GC-1_990215A		SeqNo: 11057					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	7278	50	4000	3380	97.4%	73	115				
Ethylbenzene	5030	50	4000	1074	98.9%	74	117				
m,p-Xylene	21430	100	8000	14630	84.9%	76	112				E
Methyl tert-Butyl Ether	4639	100	4000	0	116.0%	62	122				
o-Xylene	7734	50	4000	3930	95.1%	83	112				
Toluene	9077	50	4000	5290	94.7%	71	120				

Sample ID: 9902056-01AMSD		Batch ID: GC-1_990215		Test Code: SW8021B		Units: µg/L		Analysis Date 2/15/99		Prep Date:	
Client ID: 9902091303; MW-		9902056		Run ID: GC-1_990215A		SeqNo: 11058					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	7270	50	4000	3380	97.2%	73	115	7278	0.1%	8	
Ethylbenzene	5053	50	4000	1074	99.5%	74	117	5030	0.5%	9	
m,p-Xylene	21500	100	8000	14630	85.8%	76	112	21430	0.3%	9	E
Methyl tert-Butyl Ether	4699	100	4000	0	117.5%	62	122	4639	1.3%	7	
o-Xylene	7768	50	4000	3930	95.9%	83	112	7734	0.4%	9	
Toluene	9096	50	4000	5290	95.1%	71	120	9077	0.2%	9	

**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: 23-Feb-99

CLIENT: PNM - Public Service Company of NM  
Work Order: 9902056  
Project: Florance 40

**QC SUMMARY REPORT**  
Laboratory Control Spike - generic

Sample ID: LCS WATER	Batch ID: GC-1_990215	Test Code: SW8021B	Units: µg/L	Analysis Date 2/15/99	Prep Date:						
Client ID:	9902056	Run ID: GC-1_990215A		SeqNo: 11055							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	42.15	0.5	40	0.0508	105.3%	84	110				
Ethylbenzene	42.43	0.5	40	0.0611	105.9%	86	113				
m,p-Xylene	80.09	1	80	0.1669	99.9%	81	114				
Methyl tert-Butyl Ether	47.84	1	40	0	119.6%	69	129				
o-Xylene	41.43	0.5	40	0.1145	103.3%	86	112				
Toluene	41.62	0.5	40	0.1432	103.7%	85	111				

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: 23-Feb-99

CLIENT: PNM - Public Service Company of NM  
Work Order: 9902056  
Project: Florance 40

**QC SUMMARY REPORT**  
Continuing Calibration Verification Standard

Sample ID: CCV1 QC0606/07	Batch ID: GC-1_990215	Test Code: SW8021B	Units: µg/L	Analysis Date 2/15/99	Prep Date:						
Client ID: 9902056	Run ID: GC-1_990215A	SeqNo: 11052									
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	20.76	0.5	20	0	103.8%	85	115				
Ethylbenzene	21.41	0.5	20	0	107.0%	85	115				
m,p-Xylene	40.37	1	40	0	100.9%	85	115				
Methyl tert-Butyl Ether	24.16	1	20	0	120.8%	85	115				S
o-Xylene	20.94	0.5	20	0	104.7%	85	115				
Toluene	20.93	0.5	20	0	104.6%	85	115				
1,4-Difluorobenzene	95.93	0	100	0	95.9%	90	102				
4-Bromochlorobenzene	99.7	0	100	0	99.7%	93	102				
Fluorobenzene	94.14	0	100	0	94.1%	84	103				

Sample ID: CCV2 QC0606/07	Batch ID: GC-1_990215	Test Code: SW8021B	Units: µg/L	Analysis Date 2/15/99	Prep Date:						
Client ID: 9902056	Run ID: GC-1_990215A	SeqNo: 11053									
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	21.22	0.5	20	0	106.1%	85	115				
Ethylbenzene	21.3	0.5	20	0	106.5%	85	115				
m,p-Xylene	39.92	1	40	0	99.8%	85	115				
Methyl tert-Butyl Ether	23.56	1	20	0	117.8%	85	115				S
o-Xylene	20.78	0.5	20	0	103.9%	85	115				
Toluene	20.9	0.5	20	0	104.5%	85	115				
1,4-Difluorobenzene	97.32	0	100	0	97.3%	90	102				
4-Bromochlorobenzene	101.3	0	100	0	101.3%	93	102				
Fluorobenzene	94.39	0	100	0	94.4%	84	103				

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 - Public Service Company of NM  
**Work Order:** 9902056  
**Project:** Florance 40

**QC SUMMARY REPORT**  
 Continuing Calibration Verification Standard

Sample ID: <b>CCV3 QC0606/07</b>		Batch ID: <b>GC-1_990215</b>		Test Code: <b>SW8021B</b>		Units: <b>µg/L</b>		Analysis Date: <b>2/15/99</b>		Prep Date:	
Client ID: <b>9902056</b>		Run ID: <b>GC-1_990215A</b>		SeqNo: <b>11054</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	41.22	0.5	40	0	103.1%	85	115				
Ethylbenzene	42.21	0.5	40	0	105.5%	85	115				
m,p-Xylene	79.36	1	80	0	99.2%	85	115				
Methyl tert-Butyl Ether	46.41	1	40	0	116.0%	85	115				S
o-Xylene	41.5	0.5	40	0	103.7%	85	115				
Toluene	41.73	0.5	40	0	104.3%	85	115				
1,4-Difluorobenzene	96.22	0	100	0	96.2%	90	102				
4-Bromochlorobenzene	99.94	0	100	0	99.9%	93	102				
Fluorobenzene	93.9	0	100	0	93.9%	84	103				

**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 - Public Service Company of NM  
 Work Order: 9902056  
 Project: Florance 40  
 Test No: SW8021B

**QC SUMMARY REPORT  
 SURROGATE RECOVERIES**

**BTEX**

Sample ID	14FBZ	4BCBZ	FLBZ
9902048-02A	97.4	101	95
9902051-01A	94.6	99.2	92.4
9902053-01A	92.8	99.9	90.6
9902055-01A	94	101	91.9
9902055-02A	93.9	101	92.3
9902055-03A	94.6	100	92.2
9902056-01A	95.9	99.7	94.3
9902056-01AMS	95.2	100	93.3
9902056-01AMSD	95	101	93.3
9902056-02A	95.7	99.5	94.7
9902057-01A	94.5	97.8	95.6
9902057-02A	93.5	97.3	94.7
9902058-01A	92.2	98.2	90.7
9902058-02A	97	101	95.3
9902058-03A	94.6	101	93.3
9902059-01A	96.9	100	94.2
9902059-02A	96	98.6	92.7
9902059-03A	95.2	98.4	94.1
9902059-04A	90.1	97.5	88.9
9902059-06A	94.7	100	92.9
CCV1 QC0606/07	95.9	99.7	94.1
CCV2 QC0606/07	97.3	101	94.4
CCV3 QC0606/07	96.2	99.9	93.9
LCS WATER	96.8	100	94.1
MB1	97.1	97.3	94.2

Acronym	Surrogate	QC Limits
14FBZ	= 1,4-Difluorobenzene	90-102
4BCBZ	= 4-Bromochlorobenzene	93-102
FLBZ	= Fluorobenzene	84-103

\* Surrogate recovery outside acceptance limits



# CHAIN OF CUSTODY RECORD

Date: 2/9/99

Page: 1 of 1

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

Purchase Order No.:		Job No.:		REPORT RESULTS TO	Name: <b>Maureen Gannon</b>		Title:			
SEND INVOICE TO	Name: <b>Denver Bearden</b>		Company: <b>PNM Gas Services</b>		Mailing Address: <b>Alverado Square, Mail Stop 0408</b>					
	Company: <b>PNM Gas Services</b>		Dept. <b>324-3763</b>		City, State, Zip: <b>Albuquerque, NM 87158</b>					
	Address: <b>603 W. Elm Street</b>				Telephone No. <b>505-848-2974</b>		Telefax No.:			
	City, State, Zip: <b>Farmington, NM 87401</b>									
Sampling Location: <b>Florange 40</b>				Number of Containers	ANALYSIS REQUESTED					
Sampler: <b>R. Dedrick</b>					/					
SAMPLE IDENTIFICATION		SAMPLE			MATRIX		PRES.		LAB ID	
		DATE	TIME							
<b>9902091303</b>		<b>2/9/99</b>	<b>1303</b>		<b>H<sub>2</sub>O HCl</b>					
<b>9902091335</b>		<b>2/9/99</b>	<b>1335</b>		<b>H<sub>2</sub>O HCl</b>					
Relinquished by: <b>Ronald H Dedrick</b>		Date/Time: <b>2/9/99 1652</b>		Received by: <b>[Signature]</b>		Date/Time: <b>2/9/99 1652</b>				
Relinquished by:		Date/Time:		Received by:		Date/Time:				
Relinquished by:		Date/Time:		Received by:		Date/Time:				
Method of Shipment: <b>Hand Delivered</b>				Rush	24-48 Hours	10 Working Days	Special Instructions:			
Authorized by: <b>Ronald H Dedrick</b> Date: <b>2/9/99</b>							<b>Results to be sent to both parties.</b>			
(Client Signature <u>Must</u> Accompany Request)										