

3R - 315

**GENERAL  
CORRESPONDENCE**

**YEAR(S):**  
2000 - 1997

**Olson, William**

**From:** m. harvey [SMTP:markh@ditell.com]  
**Sent:** Tuesday, September 05, 2000 1:46 PM  
**To:** Olson, William  
**Subject:** Annual Groundwater Report (PNM)

As a follow-up to our telephone conversation last week, this serves to acknowledge the extension of time that NMOCD has granted Williams in order to submit the annual groundwater report for former PNM sites.

It is agreed that the report will be submitted by September 15, 2000 and include data from PNM efforts during 1999 and 2000. Williams appreciates the time extension and NMOCD's understanding of the complications associated with inheriting a project of this magnitude.

After submitting the report and allowing review time, Williams intends to schedule a meeting with you to discuss its' plan to effect mitigation of groundwater impacts. Your feedback will be helpful in finalizing a program strategy.

Thank you for your consideration.

**From:** Deklau, Ingrid [SMTP:Ingrid.Deklau@Williams.com]  
**Sent:** Friday, July 07, 2000 1:35 PM  
**To:** Olson, William  
**Cc:** 'mark'; 'mgannon@pnm.com'  
**Subject:** Groundwater Report Extension

Per our discussion today, this note is to confirm extension of the Annual Groundwater Report submittal from July 15, 2000 to August 31, 2000.

On March 4, 2000, Maureen Gannon of PNM emailed you and requested the April 1, 2000 deadline for the report submittal be postponed to July 15, 2000 so that PNM could incorporate all information gathered through June 30, 2000 into the report. Since then, PNM and Williams have entered into a Settlement Agreement transferring certain responsibilities to Williams. The responsibility of the preparation of this report is currently under discussion between PNM and Williams. Regardless of the responsibility, it is clear to me that this report will not be ready by the July 15, 2000 deadline.

Thank you for your assistance in this matter.

Ingrid Deklau

307-872-2880

**Olson, William**

**From:** Olson, William  
**Sent:** Monday, March 06, 2000 8:13 AM  
**To:** 'Gannon, Maureen'  
**Subject:** RE: Request for Extension on Annual Groundwater Report

The below requested extension is approved.

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**From:** Gannon, Maureen [SMTP:MGannon@pnm.com]  
**Sent:** Saturday, March 04, 2000 3:31 PM  
**To:** Olson, William  
**Cc:** Sikelianos, Mark; 'Ingrid Deklau'; Johnson, Ronald  
**Subject:** Request for Extension on Annual Groundwater Report

As a follow-up to our phone conversation on Thursday, March 2, 2000, PNM herein requests an extension of the date for submittal of our San Juan Basin Annual Groundwater Report. The report is normally due on April 1st of each year. However, since PNM's environmental obligations associated with the purchase and sale of our former gas assets in the San Juan Basin will terminate on June 30, 2000 (with the exception of retained liabilities), we would like to file our annual report by July 15, 2000 so that the data and information contained in the annual report is current through the June 30th date.

Please let me know if this extension is acceptable to you. You may email me or call me at (505) 241-2974. Thank you for your time and consideration of this matter.

Maureen Gannon  
Environmental Services  
241-2974

April 3, 1998

Certified Mail - P 293 938 750

Bill Olson  
Hydrogeologist, Environmental Bureau  
New Mexico Oil Conservation Division  
2040 South Pacheco  
Santa Fe, NM 87505

RE: Florance Z 40 Site  
Free Product and Groundwater Contamination

 PNM

RECEIVED

APR 06 1998

ENVIRONMENTAL BUREAU  
OIL CONSERVATION DIVISION

Dear Bill:

PNM herein submits an update of ongoing activities at the Florance Z 40 well site. We have documented groundwater contamination and wish to update you on the latest results since the 1997 Annual Groundwater report of Unlined Surface Impoundments in the San Juan Basin, dated April 15, 1997, and our letter report of September 10, 1997. Since that time, we have conducted further investigation and monitoring.

#### **I. Well Locations, Groundwater Gradient and Analytical Results**

Figures 1 and 2 show the direction of groundwater flow beneath the site for the months of November 1997 and January 1998. Groundwater generally flows towards the south beneath the site. Attachment A provides a hydrograph of water levels in MW-1 through MW-4. There has been little seasonal change in groundwater elevation and flow direction at this site.

The Florance Z 40 site lies in Gobernador Canyon and is surrounded in three directions, north, east, and west, by sandstone outcrops. Figure 3 is a site map of the Florance Z 40 well site. The map includes the locations of the groundwater monitoring wells, wellheads, equipment, and pits found onsite. It also provides a summary of the groundwater analytical results collected to date from wells at the site. Analytical results are provided in Attachment B.

#### **II. Summary of Events (since our report of September 10, 1997)**

##### **November 25, 1997**

PNM performed quarterly sampling. Monitoring well MW-2 was not sampled due to well collapse first noted in August 1997; MW-3 was not sampled due to the presence of 0.65 feet of free hydrocarbons. Samples were obtained from MW-1 and MW-4 and analyzed for BTEX by EPA Method 8020. BTEX concentrations in MW-1 exceed WQCC standards, with benzene present at 3942 ppb; the presence of visible sheen was also observed in this well. BTEX concentrations in MW-4 were below analytical laboratory detection limits.

##### **January 23, 1998**

PNM performed quarterly sampling. Monitoring well MW-2 was not sampled due to well collapse first noted in August 1997; MW-3 was not sampled due to the presence of 0.65 feet of free hydrocarbons. Samples were obtained from MW-1 and MW-4 and analyzed for BTEX by EPA Method 8020.

BTEX concentrations in MW-1 exceed WQCC standards, with benzene present at 4421 ppb; a visible sheen was also observed in this well. BTEX concentrations in MW-4 were below analytical laboratory detection limits.

On January 23, 1998, Blagg Engineering was also onsite performing an investigation in the area of Amoco's former pit, upgradient from the former PNM drip pit. Blagg detected a band of hydrocarbon contamination extending from 18 to 25 feet below grade, as indicated by soil staining observed in auger cuttings. Due to the small diameter of the auger, refusal was encountered at 35 feet and no further samples were collected on behalf of Amoco.

On or about February 17, 1998, Mark Sikelianos (PNM) discussed Blagg Engineering's investigation of the former Amoco pit upgradient from the former PNM drip pit. Jeff Blagg indicated that he had recovered free product in a clear bailer upon sampling the test boring advanced in the location of the former Amoco pit.

### III. Free Product Occurrence

With regard to the presence and remediation of free product beneath the well pad, PNM, by contract with producers, is not responsible for the discharge of free product. Free product belongs to the producers, even when it is discharged under conditions of system upset. Therefore, free product contamination, regardless of where it occurs, is not the responsibility of PNM, but that of the producer.

MW-1, an upgradient well with visible sheen, is adjacent to the location of a former Amoco pit. The wells with measurable free product (MW-2 and MW-3) are downgradient of both Amoco and former PNM equipment. When first installed, MW-2 (former PNM pit source well) had only dissolved phase hydrocarbons detected, with benzene at 357 ppb and BTEX at 11,510 ppb. When first installed, and during the first two quarters of sampling (February and May 1997), MW-3 did not have measurable free product. Over 0.65 feet of free product was detected in MW-3 during the last two quarters of sampling. Free product thickness appears to be increasing over time in both MW-2 and MW-3.

PNM will be placing Amoco and Williams Field Services on notice regarding the discovery of free product and groundwater contamination at this site. PNM will be seeking cost recovery from the responsible party for actions concerning free product and groundwater investigation and remediation activities performed to date at this site.

If you have any questions related to the Florance Z 40 site or other project-related activities, please contact me at 505.241.2974.

Sincerely,



Maureen Gannon  
Project Manager

cc: Roger Anderson, NMOCD  
Ingrid Deklau, Williams Field Services  
Colin Adams, PNM  
Denny Foust, NMOCD-Aztec  
Buddy Shaw, Amoco

FIGURE 1. Florance Z 40 Groundwater Contour Map (November 25, 1997)

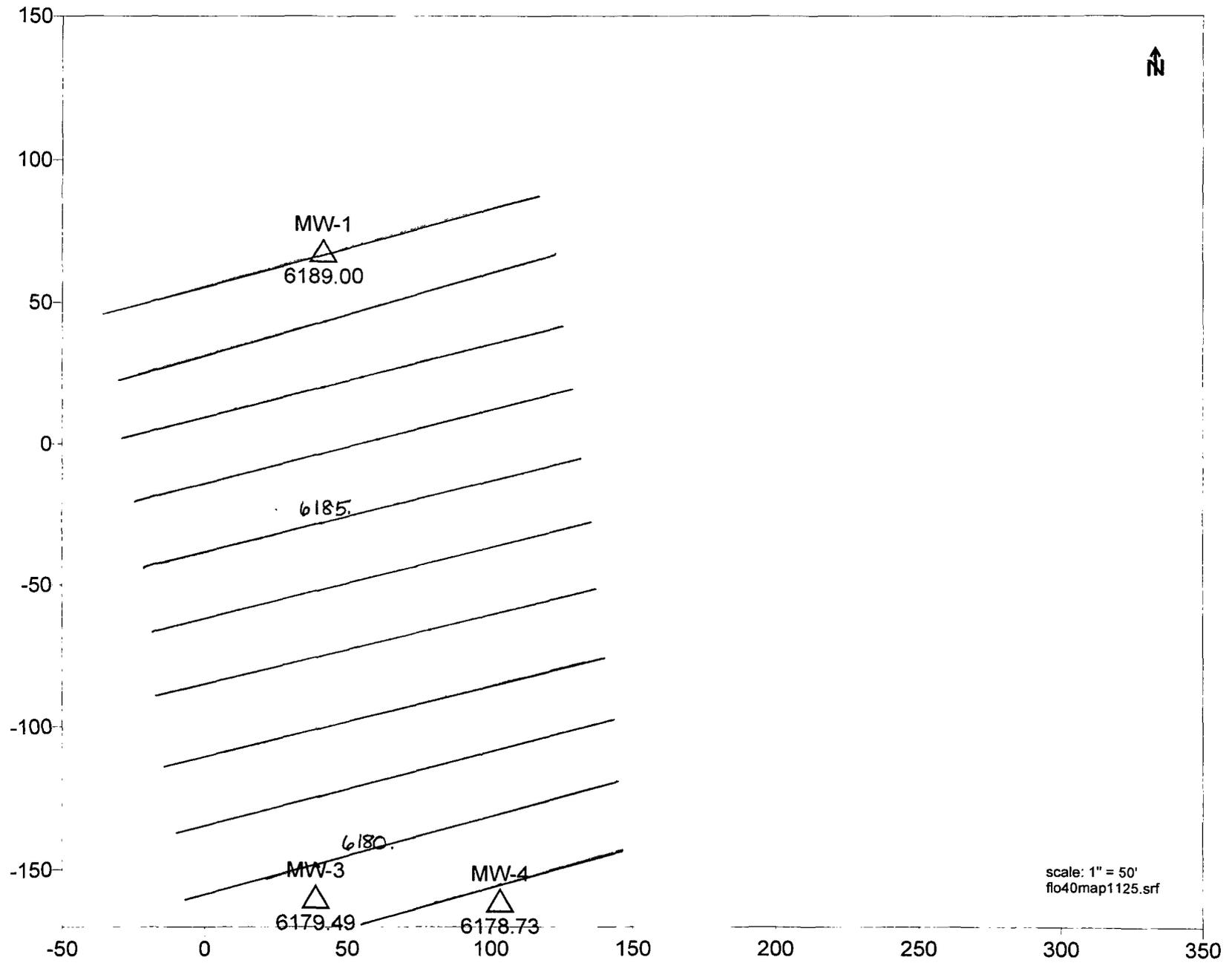


FIGURE 2. Florance Z 40 Groundwater Contour Map (January 23, 1998)

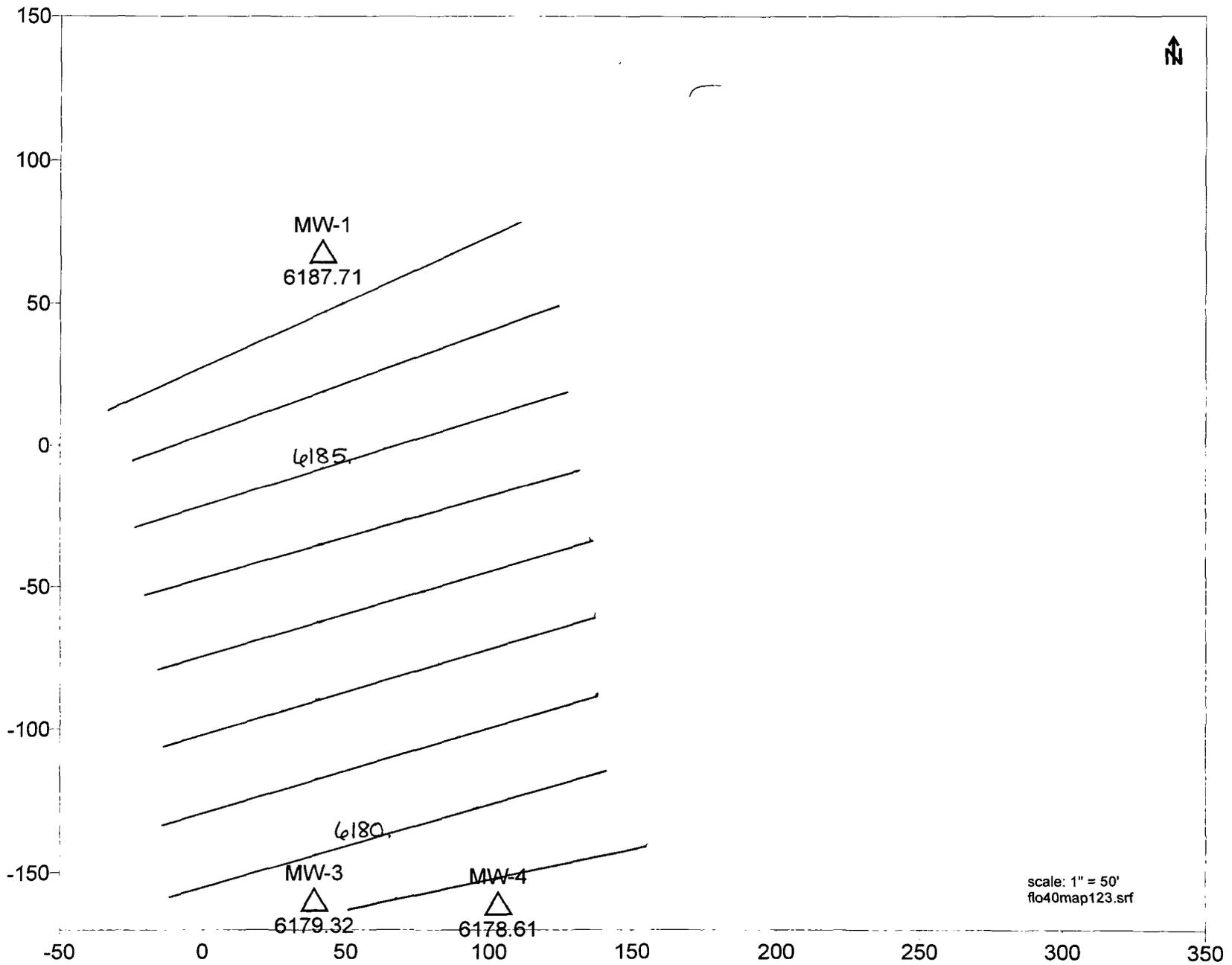
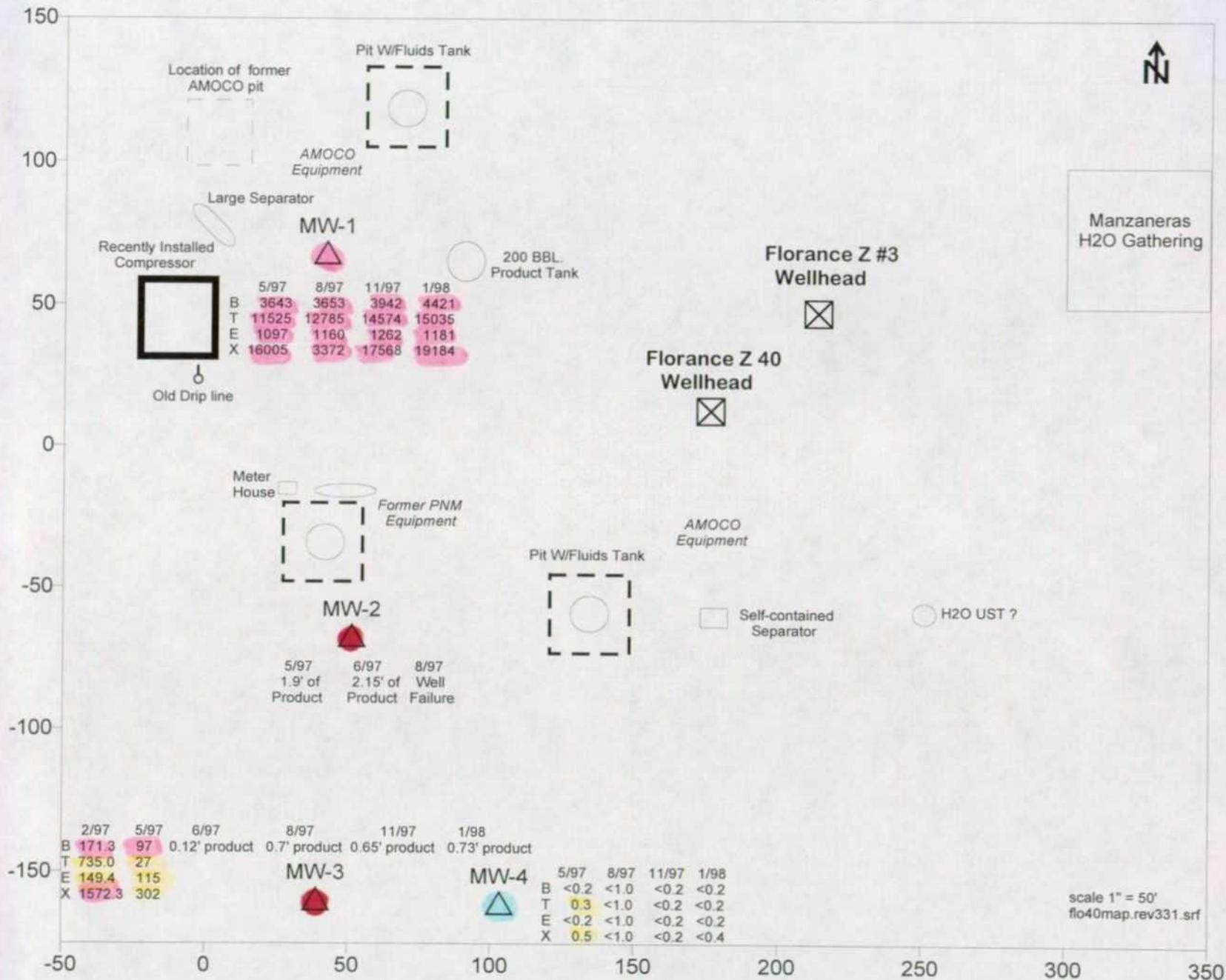


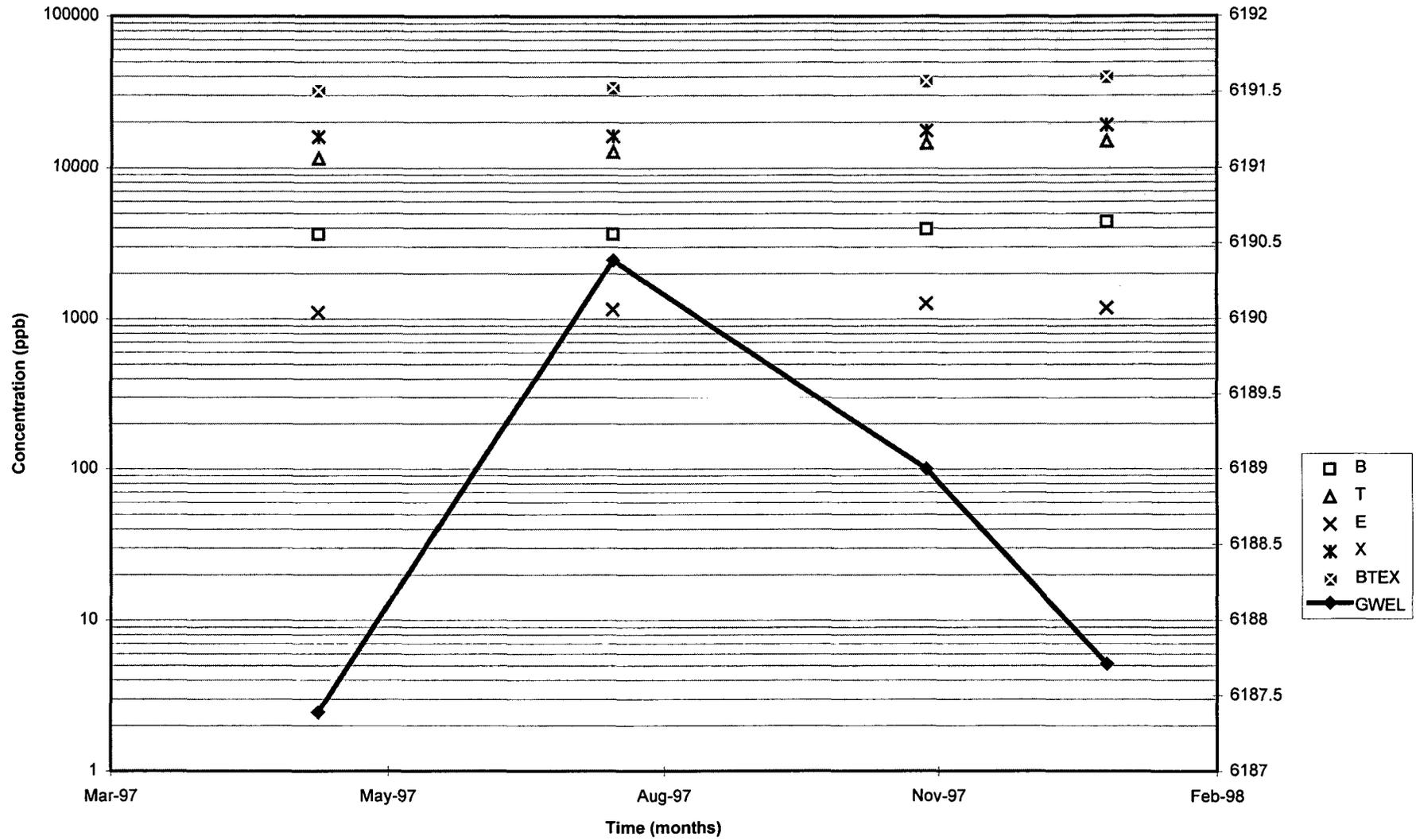
FIGURE 3. Florance Z 40 Site Map and Analytical Results  
(concentrations in ppb)



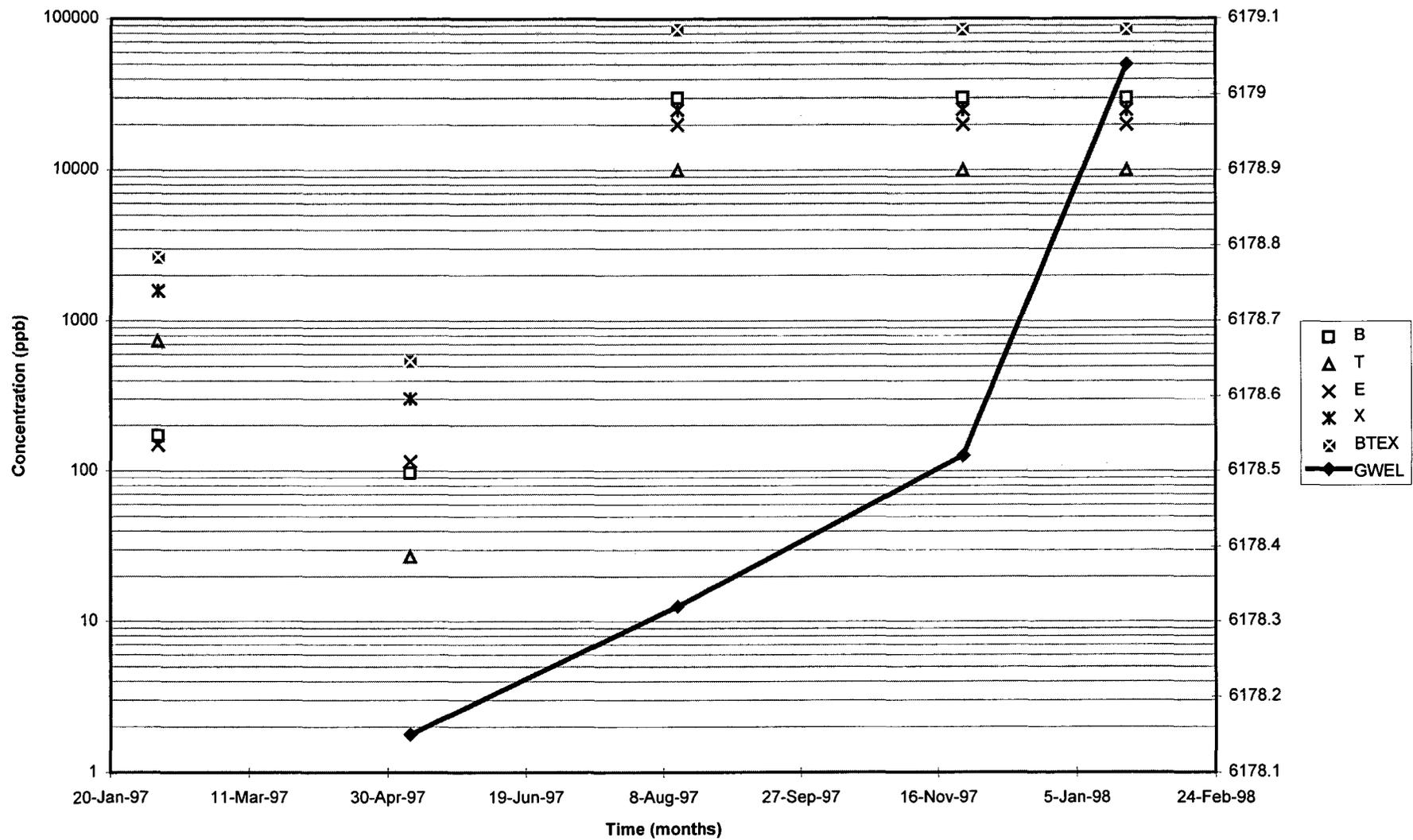
**Attachment A**

**Hydrographs and Concentrations versus Time**

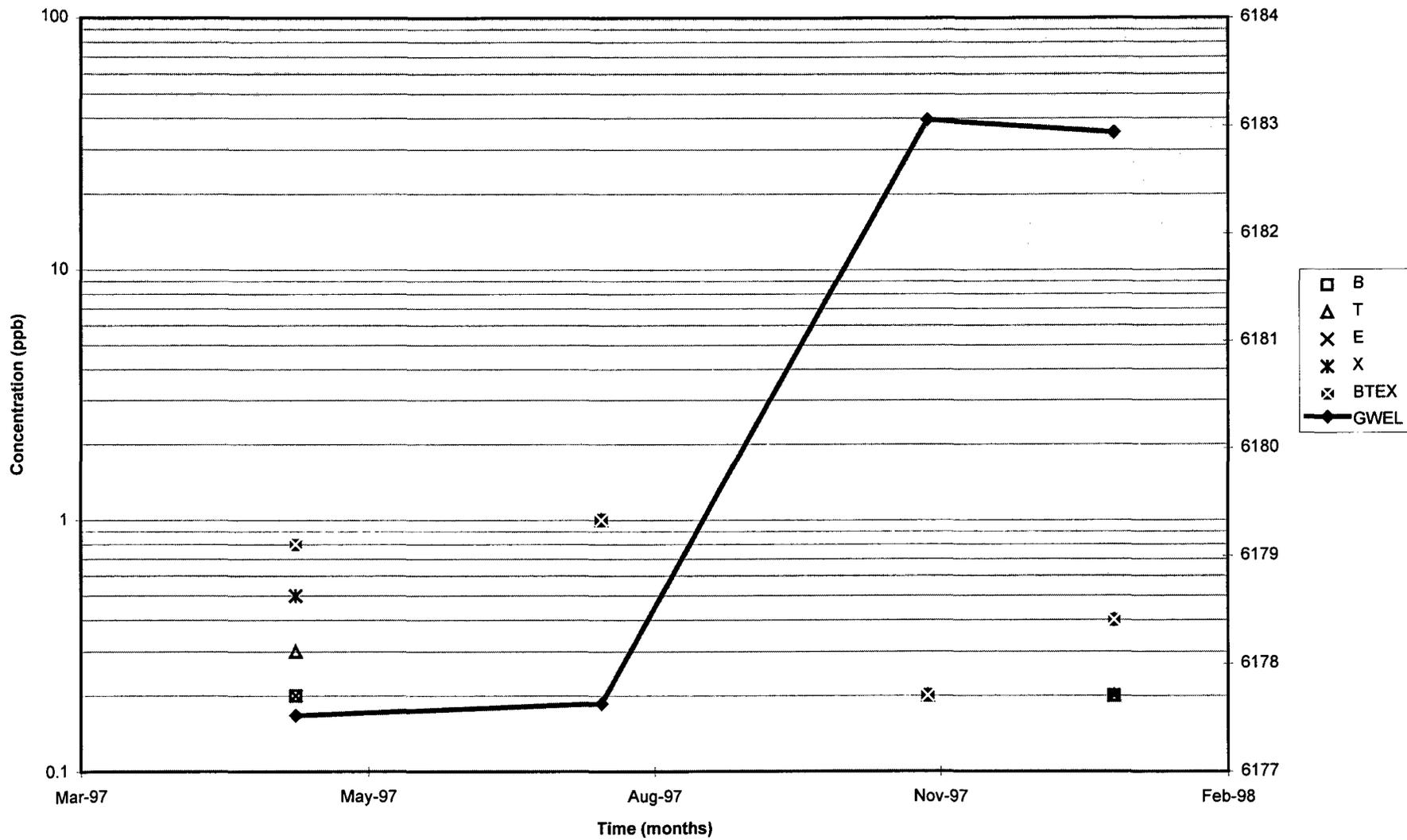
### MW-1: Trends with Time



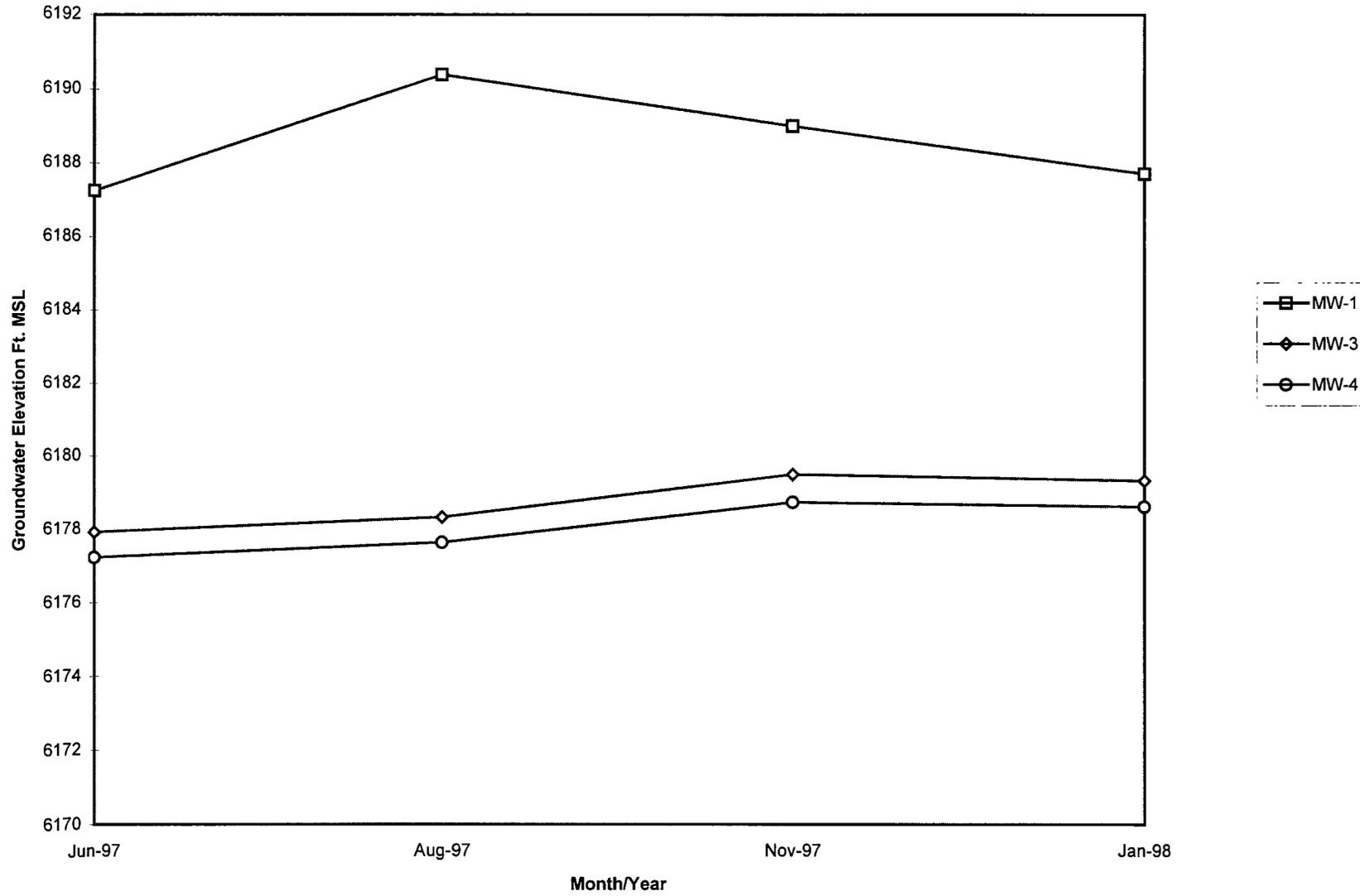
### MW-3: Trends with Time



### MW-4: Trends with Time



### Florance Z 40 Hydrograph



**Attachment B**  
**Analytical Data**

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: *5-Dec-97*  
 COC No.: *7084*  
 Sample No.: *16979*  
 Job No.: *2-1000*

Project Name: *PNM Gas Services - Florance Z 40*  
 Project Location: *9711251330; MW-1*  
 Sampled by: *MG/MS*      Date: *25-Nov-97*      Time: *13:30*  
 Analyzed by: *HR*      Date: *3-Dec-97*  
 Sample Matrix: *Liquid*

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
<i>Benzene</i>	<i>3942</i>	<i>ug/L</i>	<i>40</i>	<i>ug/L</i>
<i>Toluene</i>	<i>14574</i>	<i>ug/L</i>	<i>40</i>	<i>ug/L</i>
<i>Ethylbenzene</i>	<i>1262</i>	<i>ug/L</i>	<i>40</i>	<i>ug/L</i>
<i>m,p-Xylene</i>	<i>13903</i>	<i>ug/L</i>	<i>40</i>	<i>ug/L</i>
<i>o-Xylene</i>	<i>3665</i>	<i>ug/L</i>	<i>40</i>	<i>ug/L</i>
<i>TOTAL</i>	<i>37345</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: *12/5/97*

P.O. BOX 2606 • FARMINGTON, NM 87499

Environmental Monitoring and Remediation Services, Inc.

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: *5-Dec-97*  
 COC No.: *7084*  
 Sample No.: *16980*  
 Job No.: *2-1000*

Project Name: *PNM Gas Services - Florance Z 40*  
 Project Location: *9711251400; MW-4*  
 Sampled by: *MG/MS* Date: *25-Nov-97* Time: *14:00*  
 Analyzed by: *HR* Date: *3-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: *12/5/97*

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: *5-Dec-97*  
 COC No.: *7084*  
 Sample No.: *16981*  
 Job No.: *2-1000*

Project Name: *PNM Gas Services - Florance Z 40*  
 Project Location: *9711251430; MW-5*  
 Sampled by: *MG/MS* Date: *25-Nov-97* Time: *14:30*  
 Analyzed by: *HR* Date: *3-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: *12/5/97*

P.O. BOX 2606 • FARMINGTON, NM 87499

- TECHNICAL SERVICES FOR THE ENERGY INDUSTRY -



**QUALITY ASSURANCE REPORT**  
for EPA Method 8020

Date Analyzed: 3-Dec-97

Internal QC No.: 0559-STD

Surrogate QC No.: 0556-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	RPD	Limit
Benzene	ppb	20.0	19.3	3	15%
Toluene	ppb	20.0	20.2	1	15%
Ethylbenzene	ppb	20.0	20.4	2	15%
m,p-Xylene	ppb	40.0	39.6	1	15%
o-Xylene	ppb	20.0	20.3	1	15%

**Matrix Spike**

Parameter	1 - Percent Recovered	2 - Percent Recovered	Limit	RPD	Limit
Benzene	131	100	(39-150)	2	20%
Toluene	106	101	(46-148)	2	20%
Ethylbenzene	102	91	(32-160)	2	20%
m,p-Xylene	93	89	(35-145)	2	20%
o-Xylene	98	95	(35-145)	2	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)	
16979-7084	94				
16980-7084	94				
16981-7084	94				
				JR 12/8/97	(R) 12/5/97

S1: Fluorobenzene



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-Feb-98*  
 COC No.: *7137*  
 Sample No.: *17405*  
 Job No.: *2-1000*

Project Name: *PNM Gas Services - Florance 40*  
 Project Location: *9801231230; MW-1*  
 Sampled by: *MS/RD* Date: *23-Jan-98* Time: *12:30*  
 Analyzed by: *DC* Date: *27-Jan-98*  
 Sample Matrix: *Liquid*

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
<i>Benzene</i>	<i>4421</i>	<i>ug/L</i>	<i>20</i>	<i>ug/L</i>
<i>Toluene</i>	<i>15035</i>	<i>ug/L</i>	<i>20</i>	<i>ug/L</i>
<i>Ethylbenzene</i>	<i>1181</i>	<i>ug/L</i>	<i>20</i>	<i>ug/L</i>
<i>m,p-Xylene</i>	<i>15143</i>	<i>ug/L</i>	<i>20</i>	<i>ug/L</i>
<i>o-Xylene</i>	<i>4041</i>	<i>ug/L</i>	<i>20</i>	<i>ug/L</i>
<i>TOTAL</i>	<i>39821</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: *2/2/98*

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-Feb-98*  
 COC No.: *7137*  
 Sample No.: *17406*  
 Job No.: *2-1000*

Project Name: *PNM Gas Services - Florance 40*  
 Project Location: *9801231300; MW-4*  
 Sampled by: *MS/RD* Date: *23-Jan-98* Time: *13:00*  
 Analyzed by: *DC* Date: *27-Jan-98*  
 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: *JAG*  
 Date: *2/2/98*

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-Feb-98*  
 COC No.: *7137*  
 Sample No.: *17407*  
 Job No.: *2-1000*

Project Name: *PNM Gas Services - Florance 40*  
 Project Location: *9801231330; MW-5*  
 Sampled by: *MS/RD* Date: *23-Jan-98* Time: *13:30*  
 Analyzed by: *DC* Date: *27-Jan-98*  
 Sample Matrix: *Liquid*

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
<i>Benzene</i>	<i>4299</i>	<i>ug/L</i>	<i>20</i>	<i>ug/L</i>
<i>Toluene</i>	<i>14477</i>	<i>ug/L</i>	<i>20</i>	<i>ug/L</i>
<i>Ethylbenzene</i>	<i>1120</i>	<i>ug/L</i>	<i>20</i>	<i>ug/L</i>
<i>m,p-Xylene</i>	<i>14399</i>	<i>ug/L</i>	<i>20</i>	<i>ug/L</i>
<i>o-Xylene</i>	<i>3882</i>	<i>ug/L</i>	<i>20</i>	<i>ug/L</i>
<i>TOTAL</i>	<i>38178</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: *JAG*  
 Date: *2/2/98*

P.O. BOX 2606 • FARMINGTON, NM 87499







STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION  
2040 S. PACHECO  
SANTA FE, NEW MEXICO 87505  
(505) 827-7131

December 30, 1997

Ms. Maureen Gannon  
PNM  
Alvarado Square, MS 0408  
Albuquerque, New Mexico 87158.

**RE: GROUND WATER CONTAMINATION  
FLORANCE Z 40 WELL SITE**

Dear Ms. Gannon:

The New Mexico Oil Conservation Division (OCD) has reviewed Public Service Company of New Mexico's (PNM) September 10, 1997 "UPDATE OF THE FLORANCE Z 40 CONTAMINATED GROUNDWATER SITE". This document contains the results of PNM's recent investigation of ground water contamination related to PNM's dehydrator pit at the Florance Z 40 well site. The document also requests guidance concerning contamination upgradient of PNM's dehydration pit.

A review of the above referenced document shows that ground water contamination upgradient of PNM's former dehydration pit appears to be a result of production disposal activities related to Amoco's Florance Z 40 former separator pit. However, free phase product contamination of ground water in the vicinity of the dehy unit appears to be the result of disposal practices at PNM's former unlined dehy pit.

Therefore, the OCD requires that PNM address soil and ground water contamination at PNM's former dehy pit and downgradient of the dehy pit under PNM's "GROUNDWATER MANAGEMENT PROGRAM FOR UNLINED SURFACE IMPOUNDMENT CLOSURES". Ground water contamination upgradient of PNM's dehy pit is the responsibility of Amoco.

If you have any questions, please call me at (505) 827-7154.

Sincerely,

A handwritten signature in black ink, appearing to read "William C. Olson".

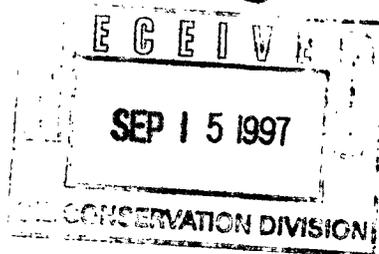
William C. Olson  
Hydrogeologist  
Environmental Bureau

xc: Denny Foust, OCD Aztec District Office  
Buddy Shaw, Amoco  
Bill Liess, BLM Farmington Office

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

September 10, 1997

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



**RE: UPDATE OF THE FLORANCE Z 40 CONTAMINATED GROUNDWATER SITE**

Dear Bill:

PNM herein submits an update of ongoing activities at the Florance Z 40 well site where groundwater contamination exists. Our most recent reporting to you on this site was in the 1997 Annual Groundwater Report of Unlined Surface Impoundments in the San Juan Basin, dated April 15, 1997. Since that time we have conducted further investigation and monitoring at these sites and wish to update you on the latest results.

**Well Locations, Groundwater Gradient and Analytical Results**

Figures 1 and 2 show the direction of groundwater flow beneath the site for the months of May and August, respectively. Groundwater generally travels in a southeasterly direction beneath the site. Figure 3 presents a hydrograph of water levels in monitoring wells versus time over the past two quarters of sampling. The water level rose 3 feet in MW-1 and saw little change in either MW-3 (-0.7') and MW-4 (0.1').

The Florance Z 40 well site lies in Gobernador Canyon and is surrounded in three directions, north, east and west, by a sandstone outcrop. Figure 4 is a site map of the Florance Z 40 well site. The map includes the locations of the four groundwater monitoring wells, and wellheads, equipment, and pits found onsite. It also provides a summary of all groundwater analytical results collected to date from wells at the site. A hardcopy of the analytical results is attached as appendix A.

**Summary of Events**

See figure 5 for a historical progression of events.

**July 28, 1996** - PNM excavated contaminated soil from the former pit area. The final depth of the excavation was 17 feet with a PID reading of 981 ppm. Excavation was halted due to cave-ins from the sidewalls of the pit. The total number of cubic yards removed was 646 yards. The excavated soil was landfarmed onsite and at two other locations within the lease. The pit was backfilled with clean native soil.

**January 2, 1997** - PNM encountered groundwater at 40' during vertical extent determination. A groundwater sample was taken from the borehole for analysis of BTEX using EPA method 8020.

**January 27, 1997** - Analytical results indicated a benzene concentration of 357 ppb and BTEX results of 11,510 ppb in groundwater at the site. PNM notified the OCD of an impact to groundwater at the Florance Z 40.

**January 29, 1997** - PNM installed four groundwater monitoring wells, MW-1, MW-2, MW-3 and MW-4 at the site.

**February 6, 1997** - PNM sampled the groundwater in MW-3 to determine if the lateral extent of the plume had been sufficiently defined. MW-3 was sampled for BTEX using EPA method 8020. Benzene contamination was found in MW-3 at 171.3 ppb. The concentration of xylenes was also above the standard of 620 ppb.

**May 8, 1997** - PNM took water level measurements and performed quarterly sampling of groundwater. We were unable to sample the groundwater in MW-2 because of the presence of 1.9 feet of free-phase floating product on the water table. All other wells were sampled for the BTEX using EPA Method 8020.

**June 30, 1997** - PNM conducted a survey of the monitoring wells. Water level measurements were taken in each well. At that time, over 2 feet of free product was detected in MW-2. For the first time, free-phase floating product was detected in MW-3 (0.12 feet of product)

**August 13, 1997** - PNM took water level measurements and conducted quarterly sampling at the site. We were unable to sample MW-2 because of what appeared to be a collapsed well casing due to the well pad washing out from recent heavy rains in the area. No groundwater sample was collected in MW-3 due to the 0.7 foot layer of free product on the water table. We did sample groundwater in MW-1 and 4 for BTEX using EPA method 8020.

### **Conclusions and Recommendations**

Based upon the results of our investigation at the site, PNM believes that, in addition to our pit area, there are other sources upgradient of our former activities which are contributing to ongoing groundwater contamination at the site. We ask for guidance concerning this site and direction for planning future activities to successfully remediate groundwater contamination beneath the location. If you have any questions, please call me at (505) 241-2974. Thank you for your attention to this matter.

Sincerely,  
PNM



Maureen D. Gannon  
Technical Project Manager

doc\flor4olson01.ltr

### **Attachments**

cc: Colin Adams, PNM  
Denny Foust, OCD-Aztec  
Ron Johnson, PNM  
Robin Prisk, WFS  
Buddy Shaw, Amoco

Figure 1. Florance Z 40 Groundwater Contour Map, May 1997

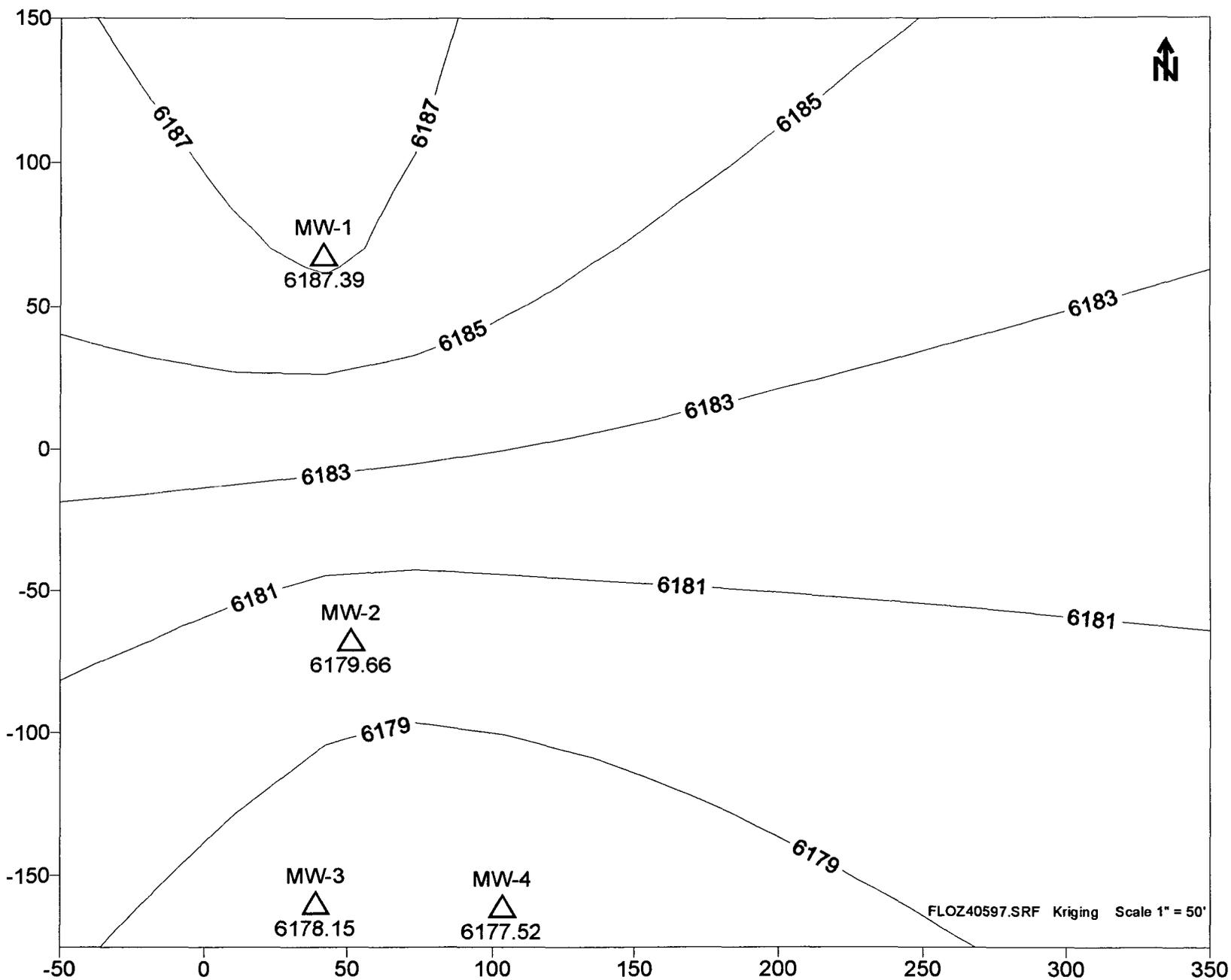


Figure 2. Florance Z 40 Groundwater Contour Map, August 1997

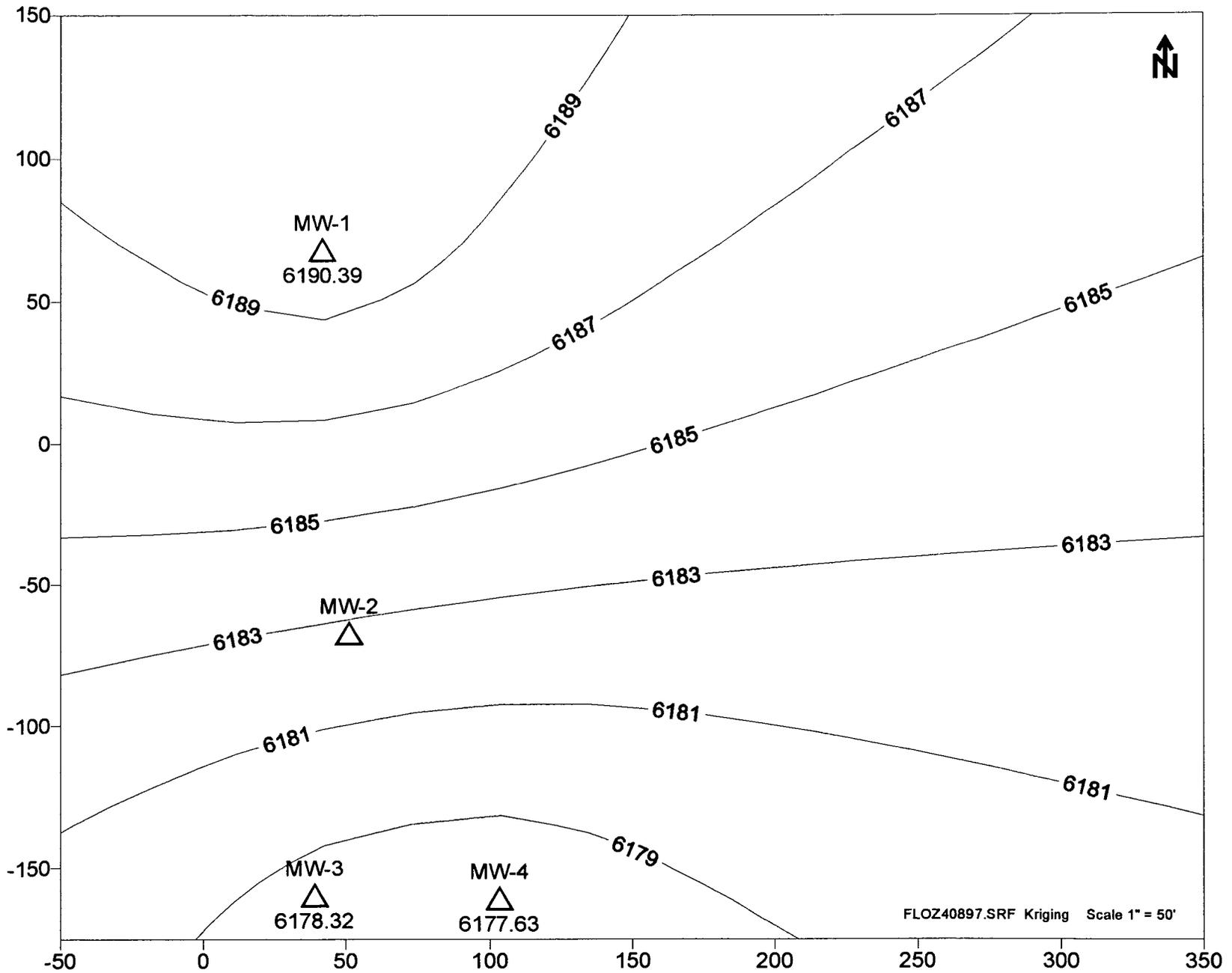


Figure 3. Florance Z 40 Hydrograph  
(month/year vs. groundwater elevation)

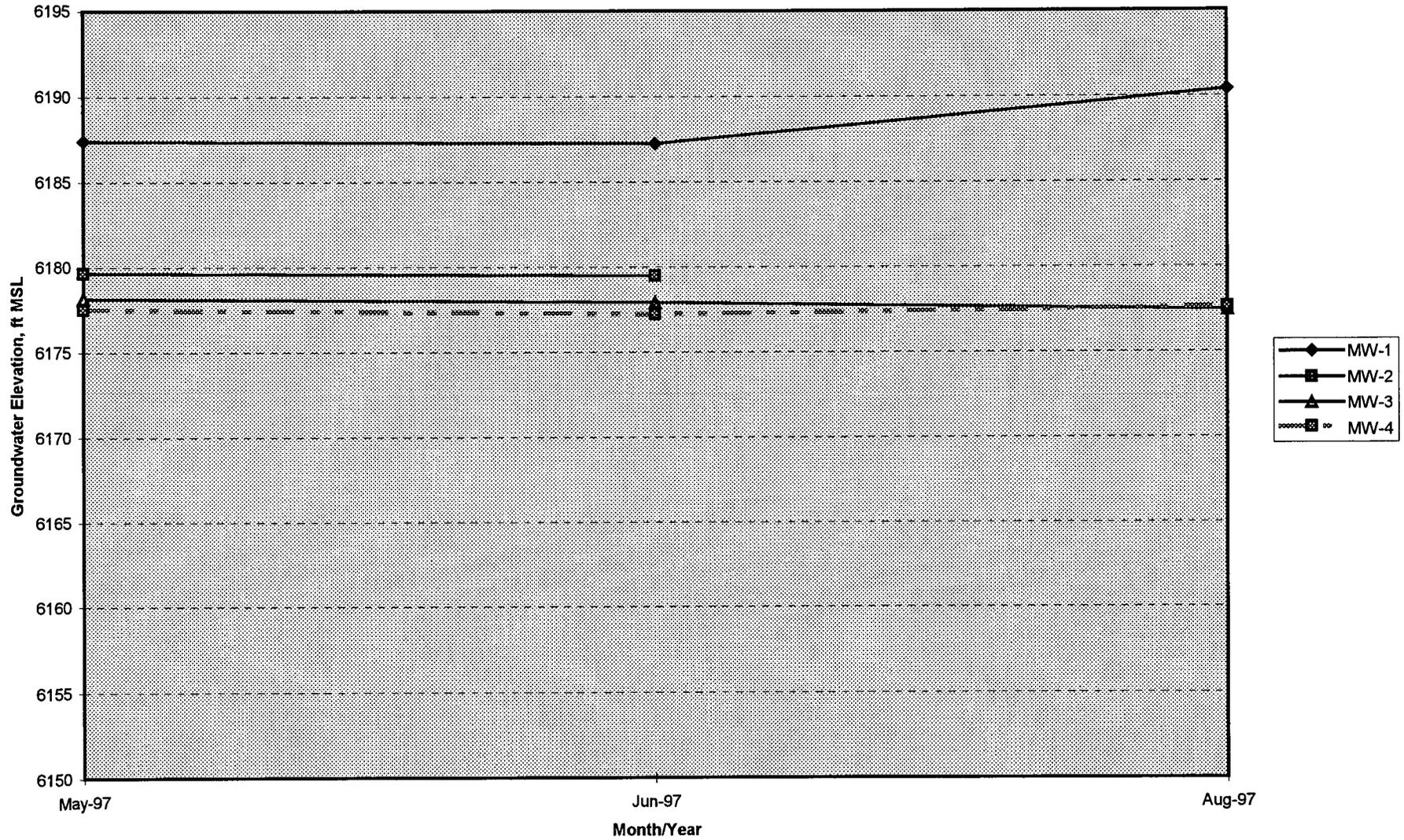
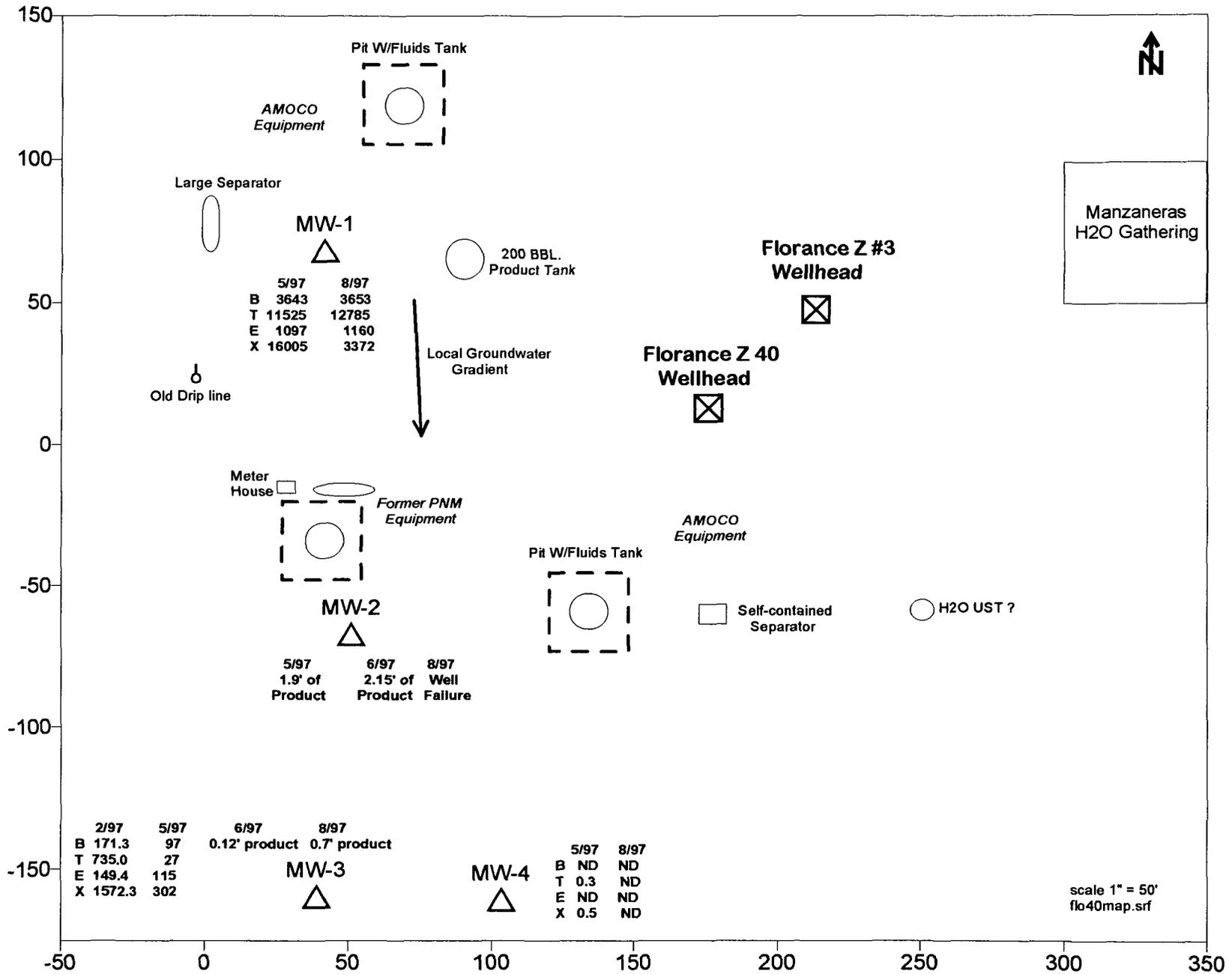


Figure 4. Florance Z 40 Site Map, August 1997  
(concentrations in ppb)





Appendix A. Florance Z 40 Groundwater Analytical Results

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: *27-Aug-97*  
 COC No.: *5648*  
 Sample No.: *15771*  
 Job No.: *2-1000*

Project Name: *PNM Gas Services - Florance Z 40*  
 Project Location: *9708131330; MW-1*  
 Sampled by: *MG/MS* Date: *13-Aug-97* Time: *13:30*  
 Analyzed by: *DC* Date: *22-Aug-97*  
 Sample Matrix: *Liquid*

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
<i>Benzene</i>	<i>3653</i>	<i>ug/L</i>	<i>100</i>	<i>ug/L</i>
<i>Toluene</i>	<i>12785</i>	<i>ug/L</i>	<i>100</i>	<i>ug/L</i>
<i>Ethylbenzene</i>	<i>1160</i>	<i>ug/L</i>	<i>100</i>	<i>ug/L</i>
<i>m,p-Xylene</i>	<i>12819</i>	<i>ug/L</i>	<i>100</i>	<i>ug/L</i>
<i>o-Xylene</i>	<i>3372</i>	<i>ug/L</i>	<i>100</i>	<i>ug/L</i>
<i>TOTAL</i>	<i>33789</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: *8/26/97*

P.O. BOX 2606 • FARMINGTON, NM 87499

- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

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: *27-Aug-97*  
 COC No.: *5648*  
 Sample No.: *15810*  
 Job No.: *2-1000*

Project Name: *PNM Gas Services - Florance Z 40*  
 Project Location: *9708131400; MW-4*  
 Sampled by: *MG/MS* Date: *13-Aug-97* Time: *14:00*  
 Analyzed by: *DC* Date: *22-Aug-97*  
 Sample Matrix: *Liquid*

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
<i>Benzene</i>	ND	ug/L	1.0	ug/L
<i>Toluene</i>	ND	ug/L	1.0	ug/L
<i>Ethylbenzene</i>	ND	ug/L	1.0	ug/L
<i>m,p-Xylene</i>	ND	ug/L	1.0	ug/L
<i>o-Xylene</i>	ND	ug/L	1.0	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: *8/28/97*

P.O. BOX 2606 • FARMINGTON, NM 87499

*Telephone: (505) 325-5667 Fax: (505) 325-1556*

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: *27-Aug-97*  
 COC No.: *5648*  
 Sample No.: *15811*  
 Job No.: *2-1000*

Project Name: *PNM Gas Services - Florance Z 40*  
 Project Location: *9708131430; MW-5*  
 Sampled by: *MG/MS* Date: *13-Aug-97* Time: *14:30*  
 Analyzed by: *DC* Date: *22-Aug-97*  
 Sample Matrix: *Liquid*

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
<i>Benzene</i>	<i>3683</i>	<i>ug/L</i>	<i>100</i>	<i>ug/L</i>
<i>Toluene</i>	<i>12739</i>	<i>ug/L</i>	<i>100</i>	<i>ug/L</i>
<i>Ethylbenzene</i>	<i>1143</i>	<i>ug/L</i>	<i>100</i>	<i>ug/L</i>
<i>m,p-Xylene</i>	<i>12695</i>	<i>ug/L</i>	<i>100</i>	<i>ug/L</i>
<i>o-Xylene</i>	<i>3391</i>	<i>ug/L</i>	<i>100</i>	<i>ug/L</i>
<i>TOTAL</i>	<i>33651</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: *JaF*  
 Date: *8/28/97*

P.O. BOX 2606 • FARMINGTON, NM 87499

- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -





# CHAIN OF CUSTODY RECORD

5648

Date: 8/13/97

Page 1 of 1

TECHNOLOGIES, LTD.

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

Purchase Order No.:		Job No.:		Name: <b>Maureen Gannon</b>		Title:							
SEND INVOICE TO	Name: <b>Denver Bearden</b>		Company: <b>PNM Gas Services</b>		Dept. <b>324-3763</b>		Mailing Address: <b>Alverado Square, Mail Stop 0408</b>						
	Address: <b>603 W. Elm Street</b>		City, State, Zip: <b>Farmington, NM 87401</b>		Telephone No. <b>505-848-2974</b>		Telefax No.:						
	City, State, Zip: <b>Farmington, NM 87401</b>												
Sampling Location: <b>Florence 240</b>				ANALYSIS REQUESTED									
Sampler: <b>MS: Kelianos M Gannon</b>								Number of Containers					
SAMPLE IDENTIFICATION		SAMPLE		MATRIX	PRES.	BTEX 8020						LAB ID	
		DATE	TIME										
9708131330		MW-1		H <sub>2</sub> O	HCL	2	X						15771-5648
9708131400		MW-4		↓	HCL	2	X						15810- ↓
9708131430		MW-5			HCL	2	X						15811 ↓
Relinquished by:				Date/Time: <b>8/13/97 1525</b>		Received by: <b>Heidi Rees</b>				Date/Time: <b>8/13/97 1525</b>			
Relinquished by:				Date/Time:		Received by:				Date/Time:			
Relinquished by:				Date/Time:		Received by:				Date/Time:			
Method of Shipment:				Rush		24-48 Hours		10 Working Days		Special Instructions: <b>Results to be sent to both parties.</b>			
Authorized by:				Date: <b>8/13/97</b>									

OFF: (505) 325-5667

**ON SITE**  
TECHNOLOGIES, LTD.

LAB: (505) 325-1556

12 June 1997

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

**Reference:**

Project Name: Florance 40  
Project Loc.: 970508: MW-1, MW-3, MW-4, MW-5  
On Site ID: COC Record No.5553

Dear Denver,

Enclosed please find the analytical results for your project referenced above. Please note that the PAH EPA 8310 analysis for MW-1 was not performed due to a shipping error. Attached you will find a Sample Protocol Nonconformance Worksheet from Southern Petroleum Laboratory (SPL) stating sample condition upon receipt. UPS did not deliver via next day service and subsequently by the time the samples arrived at SPL all ice had been spent. On Site Technologies will cover all costs incurred for the re-analysis of PAH EPA 8310 for MW-1.

We trust you will find all in order and should you have any questions regarding these results please contact me at any time. (505) 325-2432.

Thank you once again for your consideration.

Sincerely,

  
David Cox  
Laboratory Manager

cc: Maureen Gannon, PNM Gas Services

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: *20-May-97*  
COC No.: *5553*  
Sample No.: *14646*  
Job No.: *2-1000*

Project Name: *PNM Gas Services - Florance 40*  
Project Location: *Trip Blank*  
Sampled by: *MG/MS* Date: \_\_\_\_\_ NR Time: \_\_\_\_\_  
Analyzed by: *DC* Date: *16-May-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: *5/20/97*



**ANALYTICAL REPORT**

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

Date: *20-May-97*  
 COC No.: *5553*  
 Sample No.: *14501*  
 Job No.: *2-1000*

Project Name: *PNM Gas Services - Florance 40*  
 Project Location: *9705081330; MW-1*  
 Sampled by: *MG/MS* Date: *8-May-97* Time: *13:30*  
 Analyzed by: *DC* Date: *16-May-97*  
 Sample Matrix: *Liquid*

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
<i>Benzene</i>	3643	ug/L	20	ug/L
<i>Toluene</i>	11525	ug/L	20	ug/L
<i>Ethylbenzene</i>	1097	ug/L	20	ug/L
<i>m,p-Xylene</i>	12661	ug/L	20	ug/L
<i>o-Xylene</i>	3344	ug/L	20	ug/L
<i>TOTAL</i>	32270	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: *5/20/97*

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: *20-May-97*  
 COC No.: *5553*  
 Sample No.: *14502*  
 Job No.: *2-1000*

Project Name: *PNM Gas Services - Florance 40*  
 Project Location: *9705081430; MW-3*  
 Sampled by: *MG/MS* Date: *8-May-97* Time: *14:30*  
 Analyzed by: *DC* Date: *16-May-97*  
 Sample Matrix: *Liquid*

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
<i>Benzene</i>	<i>97</i>	<i>ug/L</i>	<i>2</i>	<i>ug/L</i>
<i>Toluene</i>	<i>27</i>	<i>ug/L</i>	<i>2</i>	<i>ug/L</i>
<i>Ethylbenzene</i>	<i>115</i>	<i>ug/L</i>	<i>2</i>	<i>ug/L</i>
<i>m,p-Xylene</i>	<i>266</i>	<i>ug/L</i>	<i>2</i>	<i>ug/L</i>
<i>o-Xylene</i>	<i>36</i>	<i>ug/L</i>	<i>2</i>	<i>ug/L</i>
<i>TOTAL</i>	<i>542</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: *5/20/97*

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: *20-May-97*  
 COC No.: *5553*  
 Sample No.: *14503*  
 Job No.: *2-1000*

Project Name: *PNM Gas Services - Florance 40*  
 Project Location: *9705081500; MW-4*  
 Sampled by: *MG/MS* Date: *8-May-97* Time: *15:00*  
 Analyzed by: *DC* Date: *16-May-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>	0.3	ug/L	0.2	ug/L
<i>Ethylbenzene</i>	ND	ug/L	0.2	ug/L
<i>m,p-Xylene</i>	0.5	ug/L	0.2	ug/L
<i>o-Xylene</i>	ND	ug/L	0.2	ug/L
<i>TOTAL</i>	0.8	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: *5/20/97*

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: *20-May-97*  
COC No.: *5553*  
Sample No.: *14504*  
Job No.: *2-1000*

Project Name: *PNM Gas Services - Florance 40*  
Project Location: *9705081530; MW-5*  
Sampled by: *MG/MS* Date: *8-May-97* Time: *15:30*  
Analyzed by: *DC* Date: *16-May-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>	0.3	ug/L	0.2	ug/L
<i>Ethylbenzene</i>	ND	ug/L	0.2	ug/L
<i>m,p-Xylene</i>	0.4	ug/L	0.2	ug/L
<i>o-Xylene</i>	ND	ug/L	0.2	ug/L
<i>TOTAL</i>	0.6	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: *5/20/97*



OFF: (505) 325-5667

LAB: (505) 325-1556

**QUALITY ASSURANCE REPORT**  
for EPA Method 8020

Date Analyzed: 16-May-97

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

**Method Blank**

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

**Calibration Check**

Parameter	Unit of Measure	True Value	Analyzed Value	% Diff	Limit
Benzene	ppb	20.0	18.3	9	15%
Toluene	ppb	20.0	19.0	5	15%
Ethylbenzene	ppb	20.0	19.3	4	15%
m,p-Xylene	ppb	40.0	37.1	7	15%
o-Xylene	ppb	20.0	19.3	4	15%

**Matrix Spike**

Parameter	1 - Percent Recovered	2 - Percent Recovered	Limit	%RSD	Limit
Benzene	90	87	(39-150)	2	20%
Toluene	93	90	(46-148)	2	20%
Ethylbenzene	92	89	(32-160)	2	20%
m,p-Xylene	90	87	(35-145)	2	20%
o-Xylene	93	90	(35-145)	2	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)	
14646-5553	95				
14501-5553	94				
14502-5553	94				
14503-5553	95				
14504-5553	95				<i>ms</i> 5/20/97

S1: Fluorobenzene

San Protocol Nonconformance Worksheet

Prepared by: <u>S. West</u>	Date/Time:
Client: <u>On Site Analytical</u>	SPL W/O #:
Submitted to: <u>EF</u>	Samples Logged In? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO

Matrix:  SOIL  WATER  AIR  OTHER  
 Samples Affected:  ALL  Partial (See description)

Description of non-conformance: Sample were in login at 9:00am 5/13/97 @ ambient temperature

Condition	Information	Container
<input checked="" type="checkbox"/> Temp > 6C	<input type="checkbox"/> No collected date	<input type="checkbox"/> Damaged containers
<input type="checkbox"/> Expired Hold Time	<input type="checkbox"/> No COC	<input type="checkbox"/> Improper containers
<input type="checkbox"/> Headspace	<input type="checkbox"/> Samples not labeled	<input type="checkbox"/> Non-SPL containers
<input type="checkbox"/> Unpreserved	<input type="checkbox"/> Sample v. COC ID disagreement	<input type="checkbox"/> Insufficient containers
<input type="checkbox"/> Improperly preserved	<input type="checkbox"/> Container v. COC disagreement	<input type="checkbox"/> Sample not on COC
<input type="checkbox"/> Insufficient Sample	<input type="checkbox"/> Method not specified or not listed	<input type="checkbox"/> Sample not received

Client Name Contacted:	Date / Time:
Phone:	Action: <input type="checkbox"/> Complete Login <input type="checkbox"/> HOLD

Client Instructions: Dave - Here is the COC you requested

Comments:

Project Manager Signature \_\_\_\_\_ Date / Time \_\_\_\_\_

COPIES TO:  File  Project Manager  Area Supervisor  QA rev. 3/95.jpa

# CHAIN OF CUSTODY RECORD



Date: \_\_\_\_\_

Page \_\_\_\_\_ of \_\_\_\_\_

TECHNOLOGIES, LTD.

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

Purchase Order No.:		Job No.:		REPORT RESULTS TO	Name <u>DAVE COX</u>		Title			
SEND INVOICE TO	Name				Company <u>ON SITE TECH.</u>		Mailing Address <u>612 E. MURRAY DR.</u>			
	Company		Dept.		City, State, Zip <u>FARMINGTON, NM 87401</u>		Telephone No. <u>505-325-5667</u> Telefax No. <u>505-325-6256</u>			
	Address				ANALYSIS REQUESTED					
	City, State, Zip									
Sampling Location: <u>FLORANCE 4D / JACQUES ZA</u>				Number of Containers	PAH				LAB ID	
Sampler:										
SAMPLE IDENTIFICATION		SAMPLE			MATRIX	PRES.				
		DATE	TIME							
<u>FLORANCE 4D, 14501-5553</u>		<u>5/8/97</u>	<u>13:30</u>				✓			
<u>JACQUES ZA, 14506-5554</u>		<u>"</u>	<u>11:00</u>				✓			
<p>* SAMPLES RECEIVED BY SPL, HOUSTON ON MONDAY 5/12/97 PAH-BIGAIT TEAM                  SAMPLES SHIPPED 5/8/97 VIA UPS NEXT DAY AIR F.M. 5/9/97 DELIVERY                  DID NOT MAKE IT DUE TO COOLER SITTING IN KENTUCKY WINE HOUSE                  FRIDAY. UPS RESPONSIBLE FOR ALL COSTS INCURRED. (B) 5/13/97</p>										
Relinquished by: <u>Heidi Rees</u>					Date/Time: <u>5/8/97 17:20</u>		Received by:		Date/Time:	
Relinquished by:					Date/Time:		Received by:		Date/Time:	
Relinquished by:					Date/Time:		Received by:		Date/Time:	
Method of Shipment:				Date:		Rush	24-48 Hours	10 Working Days	Special Instructions:	
Authorized by:				Date:						
(Client Signature Must Accompany Request)										

# CHAIN OF CUSTODY RECORD

0000

## ON SITE

Date: \_\_\_\_\_

Page \_\_\_\_\_ of \_\_\_\_\_

TECHNOLOGIES, LTD.

657 W. Maple • 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>DAVE COX</b>		Title							
SEND INVOICE TO		Name				Company <b>ON SITE TECH.</b>		Mailing Address <b>612 E. MURRAY DR.</b>		City, State, Zip <b>FARMINGTON, NM 87401</b>					
		Company				Address		Telephone No. <b>505-325-5667</b>		Telefax No. <b>505-325-6256</b>					
		Address				City, State, Zip		ANALYSIS REQUESTED							
		City, State, Zip				City, State, Zip									
Sampling Location: <b>FLORENCE 40 / JACQUES ZA</b>					Number of Containers										
Sampler:															
SAMPLE IDENTIFICATION			SAMPLE		MATRIX	PRES.	PAH								LAB ID
			DATE	TIME											
FLORENCE 40, 14501-5553			5/8/97	13:30											
JACQUES ZA, 14506-5554			"	11:00											
Relinquished by: <b>Heidi Rees</b>			Date/Time: <b>5/8/97 17:20</b>			Received by: <b>S. West</b>			Date/Time: <b>5/12/97 0900</b>						
Relinquished by:			Date/Time:			Received by:			Date/Time:						
Relinquished by:			Date/Time:			Received by:			Date/Time:						
Method of Shipment:						Rush		24-48 Hours		10 Working Days		Special Instructions:			
Authorized by: _____ Date: _____															
(Client Signature Must Accompany Request)															



# CHAIN OF CUSTODY RECORD

5553

Date: 5/08/97

Page 1 of 1

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

Purchase Order No.:		Job No.:		Name <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>		Telephone No. <b>505-848-2974</b>		
	Address <b>603 W. Elm Street</b>			City, State, Zip <b>Farmington, NM 87401</b>		Telefax No.			
	City, State, Zip <b>Farmington, NM 87401</b>								
Sampling Location: <b>FIORENCE 40</b>				ANALYSIS REQUESTED					
Sampler: <i>Maureen Gannon / Mark Sekelands</i>									
SAMPLE IDENTIFICATION				Number of Containers	BICYCLE PHMS FALCON (C) ML				LAB ID
		DATE	TIME						
9705081330 MW1 *				H <sub>2</sub> O	HCl	3	X	(X)	14501-5553
<del>140 MW2</del>				↓	↓	2	X		14502-5553
9705081430 MW3				↓	↓	2	X		14503
9705081500 MW4						2	X		14504
9705081530 MW5				H <sub>2</sub> O	HCl	2	X		14504 ↓
TRIP BLANK		AIR	NR	H <sub>2</sub> O	HCl	1	X		14646-5553
(X) SAMPLE INVALID DUE TO SHIPPING ERROR BY UPS. SEE COC #6356 TO SPL (P) 5/13/97									
Relinquished by: <i>M Gannon</i>		Date/Time <sup>1625</sup> <i>5/08/97</i>		Received by: <i>[Signature]</i>		Date/Time <i>5/8/97 1625</i>			
Relinquished by:		Date/Time		Received by:		Date/Time			
Relinquished by:		Date/Time		Received by:		Date/Time			
Method of Shipment:				Rush	24-48 Hours	10 Working Days	Special Instructions:		
Authorized by: _____ Date _____ (Client Signature <u>Must</u> Accompany Request)				Results to be sent to both parties.					

\* "Hot" Sample



OFF: (505) 325-5667

LAB: (505) 325-1556

### ANALYTICAL REPORT

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

Date: *12-Feb-97*  
COC No.: *5739*  
Sample No.: *13647*  
Job No.: *2-1000*

Project Name: *PNM Gas Services - Florance 40*  
Project Location: *9702061530; MW-3*  
Sampled by: *MS*  
Analyzed by: *DC*  
Sample Matrix: *Liquid*

Date: *6-Feb-97* Time: *15:30*  
Date: *12-Feb-97*

#### Laboratory Analysis

<i>Parameter</i>	<i>Result</i>	<i>Unit of Measure</i>	<i>Detection Limit</i>	<i>Unit of Measure</i>
<i>Benzene</i>	<i>171.3</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>Toluene</i>	<i>735.0</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>Ethylbenzene</i>	<i>149.4</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>m,p-Xylene</i>	<i>1245.4</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>o-Xylene</i>	<i>326.9</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
	<i>TOTAL</i>	<i>2628.0</i>		<i>ug/L</i>

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

Approved by: *[Signature]*  
Date: *2/12/97*

P.O. BOX 2606 • FARMINGTON, NM 87499

- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

**QUALITY ASSURANCE REPORT**  
for EPA Method 8020

Date Analyzed: 12-Feb-97

Internal QC No.: 0527-STD

Surrogate QC No.: 0528-STD

Reference Standard QC No.: 0417-QC

**Method Blank**

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

**Calibration Check**

Parameter	Unit of Measure	True Value	Analyzed Value	% Diff	Limit
Benzene	ppb	20.0	19.6	2	15%
Toluene	ppb	20.0	20.7	3	15%
Ethylbenzene	ppb	20.0	21.2	6	15%
m,p-Xylene	ppb	40.0	40.9	2	15%
o-Xylene	ppb	20.0	20.9	5	15%

**Matrix Spike**

Parameter	1- Percent Recovered	2- Percent Recovered	Limit	%RSD	Limit
Benzene	95	93	(39-150)	1	20%
Toluene	99	98	(46-148)	1	20%
Ethylbenzene	102	100	(32-160)	1	20%
m,p-Xylene	98	96	(35-145)	1	20%
o-Xylene	100	98	(35-145)	1	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)	
13647-5739	95				

S1: Fluorobenzene



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

April 15, 1997

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



**RE: 1997 SAN JUAN BASIN ANNUAL GROUNDWATER REPORT**

Dear Bill:

PNM is pleased to submit the 1997 Annual Groundwater Report on Unlined Surface Impoundments in the San Juan Basin. Pursuant to PNM's Groundwater Management Program for Unlined Surface Impoundment Closures, the report details the ongoing investigation/remedial activities at unlined surface impoundments having groundwater contamination as identified by PNM. A list of groundwater sites reported in this document is provided below.

Cozzens B1  
Florance 32A  
Florance 40  
Florance 44  
Florance 47X  
Florance 124  
Hampton 4M  
Honolulu Loop-Line Drip  
Jacques 2A  
Kaufmann 1  
Mangum 1E  
McClanahan A2E  
McClanahan 22  
McCoy A1A  
Reid 16 Drip  
Templeton 1E  
Zachry 18E

**RECEIVED**

**APR 16 1997**

Environmental Bureau  
Oil Conservation Division

PNM plans to request closure of two of the above sites, the Florance 124 and the Templeton 1E, in our April 30, 1997 filing of the San Juan Pit Closure Reports to the OCD Santa Fe office. We did not report on our newest groundwater site, the Sammons 2, since this was discovered in the second quarter of 1997. If you have any questions regarding the contents of the report, please contact me at (505) 241-2974.

Sincerely,

A handwritten signature in cursive script that reads "Maureen Gannon".

Maureen Gannon  
Project Manager

Attachment

cc: Denver Bearden, PNMGS  
Denny Foust, OCD-Aztec Office  
Robin Prisk, WFS

**PNM 1997 San Juan Basin Groundwater Report  
April 15, 1997**

**Prepared for:**

**New Mexico Oil Conservation Division  
2040 South Pacheco  
Santa Fe, New Mexico 87505**

**Prepared by:**

**Public Service Company of New Mexico  
Environmental Services Department  
Alvarado Square - MS 0408  
Albuquerque, New Mexico 87158**

PNMGS Well Site: **Florance 40**

## **Groundwater Site Summary Report**

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

Quarter/Year: 1/97

---

**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:** Figure 1  
**Site Map with Analytical Results:** NA  
**Groundwater Contour Map:** NA  
**Groundwater Contour Map:** NA  
**Hydrograph:** NA  
**Full-Suite Groundwater Sampling Results:** NA  
**Analytical Results:** NA

### **Activities for First Quarter 1997:**

PNM installed groundwater monitoring wells at the Florance 40 on January 29, 1997. No other activities were performed during the first quarter of 1997.

### **Results:**

NA

### **Future Actions:**

PNM will commence quarterly monitoring at the Florance 40 during the second quarter of 1997.

PNMGS Well Site: **Reid 16 Drip**

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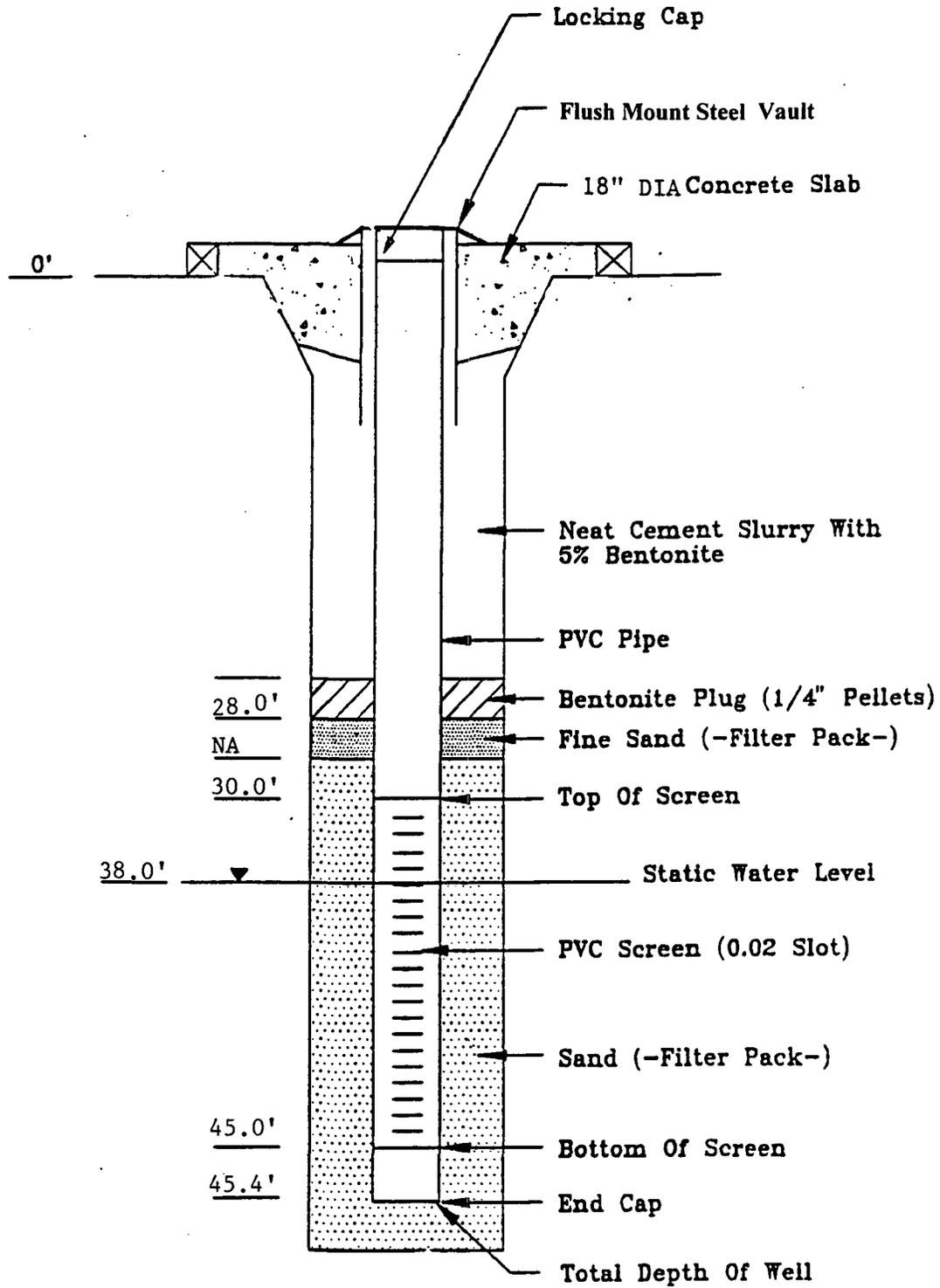
### **Public Service Company of New Mexico - Gas Services**

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

**Contact:** Maureen Gannon

**Telephone:** 505-241-2974

---



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

Figure 1  
Well Completion Diagram

ALBUQUERQUE  
30



January 27, 1997

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

**RE: NOTIFICATION OF GROUNDWATER CONTAMINATION AT THE FLORANCE 40 WELL SITE**

Dear Bill:

Pursuant to New Mexico Water Quality Control Commission (WQCC) Regulations, section 1-203, PNM hereby provides written notification of groundwater contamination at the Florance 40 well site, located in section 21, township 30 North, range 8 West, unit letter G. A topographic map showing the location of the site is provided as an attachment. The operator is Amoco. This letter follows verbal notification provided to you on Monday, January 27, 1997 (M. Gannon, PNM to B. Olson, OCD).

On January 2, 1997, PNM encountered groundwater at approximately 40 feet while conducting vertical extent soil boring. A 2-inch, schedule 40, PVC monitoring well with 15 feet of 0.01 inch screen was placed in the annulus 10 feet below and 5 feet above the soil/water interface. The annulus was backfilled with 10-12 silica sand 1 foot above the screened interval with a 1 foot bentonite seal. The annular space was then backfilled to surface using clean fill material. After purging three casing volumes, field personnel collected a groundwater sample for BTEX 8020 analysis. The groundwater sample was delivered to Envirotech Labs, in Farmington, New Mexico, for laboratory analysis. A hardcopy of the laboratory report is attached. A summary of the analytical results is provided below:

Component	Units	WQCC Stds.	Groundwater Sample
Benzene	ppb	10	357
Toluene	ppb	750	<b>1,550</b>
Ethylbenzene	ppb	750	<b>1,060</b>
Xylenes	ppb	620	<b>8,540</b>
<b>Total BTEX</b>	ppb		11,510

**Bold type indicates a WQCC exceedance.**

Florance 40  
1/27/97  
Page 2

This letter serves as written notification of groundwater impact at the Florance 40. PNM will conduct future activities at the site pursuant to PNM's Groundwater Management Plan. If you have any questions, please call me at (505) 241-2974. Thank you.

Sincerely,  
PNM



Maureen Gannon  
Project Manager

*s/gaspits/flo40.doc*

Attachment

cc: Colin Adams, PNM  
Denver Bearden, PNMGS  
Denny Foust, OCD-Aztec Office  
Leigh Gooding, WFS  
Toni Ristau, PNM  
Buddy Shaw, Amoco

ARCHULETA QUADRANGLE

NAVAJO

STATE

SAN

Mesa

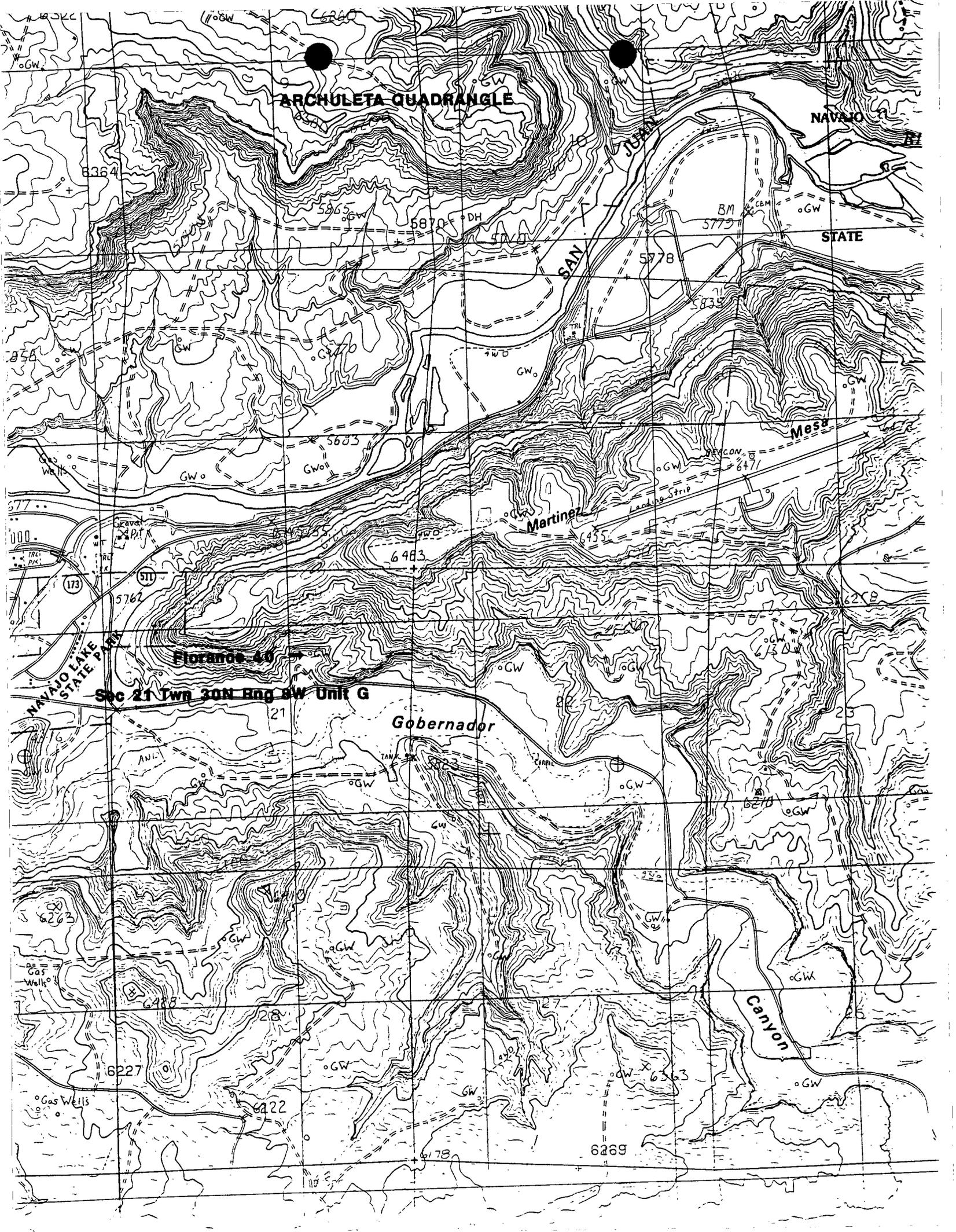
Martinez

Florencia 40

Sec 21 Twp 30N Rng 8W Unit G

Gobernador

Canyon



8364

5865

5870

5778

BM 5779

5883

6477

6483

173

5762

21

ANL

TAWA

6270

6263

6288

350

6227

6222

6363

6269

178

Gas Wells

Gravel Pit

Landing Strip

NAVAJO LAKE STATE PARK

Gas Wells

TRC. PAV.

577

858

858

858

858

# ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

## EPA METHOD 8020 AROMATIC VOLATILE ORGANICS

Client:	Public Service Co. of NM.	Project #:	93108-02
Sample ID:	MW - 1 @ 42'	Date Reported:	01-08-97
Chain of Custody:	5050	Date Sampled:	01-02-97
Laboratory Number:	A891	Date Received:	01-02-97
Sample Matrix:	Water	Date Analyzed:	01-07-97
Preservative:	HgCl <sub>2</sub> & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
<b>Benzene</b>	<b>357</b>	<b>10</b>	<b>1.8</b>
<b>Toluene</b>	<b>1,550</b>	<b>10</b>	<b>1.7</b>
<b>Ethylbenzene</b>	<b>1,060</b>	<b>10</b>	<b>1.5</b>
<b>p,m-Xylene</b>	<b>5,830</b>	<b>10</b>	<b>2.2</b>
<b>o-Xylene</b>	<b>2,710</b>	<b>10</b>	<b>1.0</b>
<b>Total BTEX</b>	<b>11,510</b>		

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	<b>Trifluorotoluene</b>	<b>101 %</b>
	<b>Bromofluorobenzene</b>	<b>96 %</b>

References: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1994.

Comments: Florance #40.

  
Analyst

  
Review



State of New Mexico  
**ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT**  
 Santa Fe, New Mexico 87505

STATE OF  
 NEW MEXICO  
 DEPARTMENT OF  
 CONSERVATION  
 DIVISION

MEMORANDUM OF MEETING OR CONVERSATION

<input checked="" type="checkbox"/> Telephone	<input type="checkbox"/> Personal	Time 1500	Date 1/27/97
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<u>Originating Party</u>	<u>Other Parties</u>
M. Susan Cannon - PNM	Bill Olson - Envir. Bureau

Subject  
 Florence #40 - Notice of GW Contamination  
 Unit G, see 21, T30N, R8W

Discussion  
 PNM dehy at Amoco Florence #40 well site  
 GW = 40'  
 benzene = 357 ppb  
 BTEX = 11,500 "

Conclusions or Agreements

Distribution  
 File  
 Danny Faust - DCO Aester

Signed *Bill Olson*