3R - 326

GENERAL CORRESPONDENCE

YEAR(S):

2000 - 1995

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.

[redacted]

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 al 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

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

March 30, 2000

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

RE: NOTIFICATION OF GROUNDWATER CONTAMINATION AT THE KAUFMAN 1

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 Kaufman 1 dehydrator site, located in S33 T30N R13W, unit letter "H". Figure 1 includes a topographic map showing the location of the site. The operator is Greystone. This letter follows e-mail notification provided to you on Friday, March 17, 2000 (M. Gannon, PNM to B. Olson, OCD).

During a fence installation job in February 2000, Danny Randall of the BLM in Farmington notified PNM and OCD-Aztec of the presence of soil contamination at the Kaufman 1 well site. As you recall, this site was identified by PNM as a contaminated groundwater site on March 11, 1996 during routine pit excavation. Through soil remediation and subsequent groundwater monitoring, PNM remediated the area in the vicinity of our former pit and applied for closure of the site in the third quarter of 1997. OCD granted closure approval on February 19, 1998.

After notification from the BLM, PNM's field coordinator, Ron Dedrick, conducted an investigation at the site during the week of February 12. Mr. Dedrick, through placement of several soil borings, encountered soil contamination south and southeast of PNM's former remediated dehydrator pit. PNM, in consultation with Denny Foust (OCD-Aztec), commenced soil excavation and removal. Remediation work continued over the course of two weeks and approximately 2500 cubic yards of soil was removed (see figure 1 for area of remediation). The excavation was backfilled with clean native soil.

During remediation, groundwater was encountered at a depth of 7 feet below ground surface. A grab sample of water was collected from the middle of the excavation and submitted to OnSite Laboratories for BTEX 8021B. The analytical results of the grab sample are provided as an attachment and are also summarized below in table 1.

Table 1. Analytical results from water in pit excavation.

Component	Units	WQCC Stds.	Groundwater Sample
Benzene	ppb	10	**460**
Toluene	ppb	750	700
Ethylbenzene	ppb	750	730
Xylenes	ppb	620	**9600**
Total BTEX	ppb		11,490

Bold denotes WQCC standard exceedance.

PNM dispatched a pump truck to remove water from the excavation to facilitate the progress of remediation. During remedial excavation, approximately 2000 barrels of groundwater were pumped out and sent to a disposal facility (the email notification originally stated that 300 bbls of water were removed but final calculations show 2000 bbls).

During remediation efforts, PNM also collected a groundwater sample from an "old" monitor well (MW-3) located to the south of our former pit, directly in the contaminant plume. Results of the sample provided results below WQCC standards (benzene was non-detect). A hardcopy of the analytical results is attached.

After remediation, PNM installed three additional monitor wells, MW-6, -7 and –8 (see figure 1). We surveyed all wells on site, took water level measurements and a generated a groundwater contour map (as shown in figure 1). The groundwater flow direction is to the southwest. PNM conducted groundwater sampling in the three new wells, as well as in MW-3, an "old" well that was situated to the south of our former source area. Analytical results from this recent sampling event are provided below:

Table 2. Analytical results from newly installed wells and existing MW-3.

Component	Units	WQCC Stds.	MW-3	MW-6	MW-7	MW-8
Benzene	ppb	10	0.8	<0.5	2.2	**17**
Toluene	ppb	750	1.1	0.6	15	100
Ethylbenzene	ppb	750	1.4	<0.5	3.7	17
Xylenes	ppb	620	19.6	5.7	54	253
Total BTEX	ppb		22.9	6.3	74.9	387

Bold denotes WQCC exceedance.

MW-8 is the only well presently impacted by groundwater contamination and the benzene concentration in this well is only slightly above standard. PNM believes our recent source removal efforts will prove successful in accelerating groundwater clean-up. We will proceed with completing plume delineation by installing a groundwater monitoring well downgradient from MW-8 and commence quarterly monitoring at the Kaufman 1 pursuant to PNM's Groundwater Management Plan. If you have any questions, please call me at (505) 241-2974.

Sincerely,
PNM Environmental Services

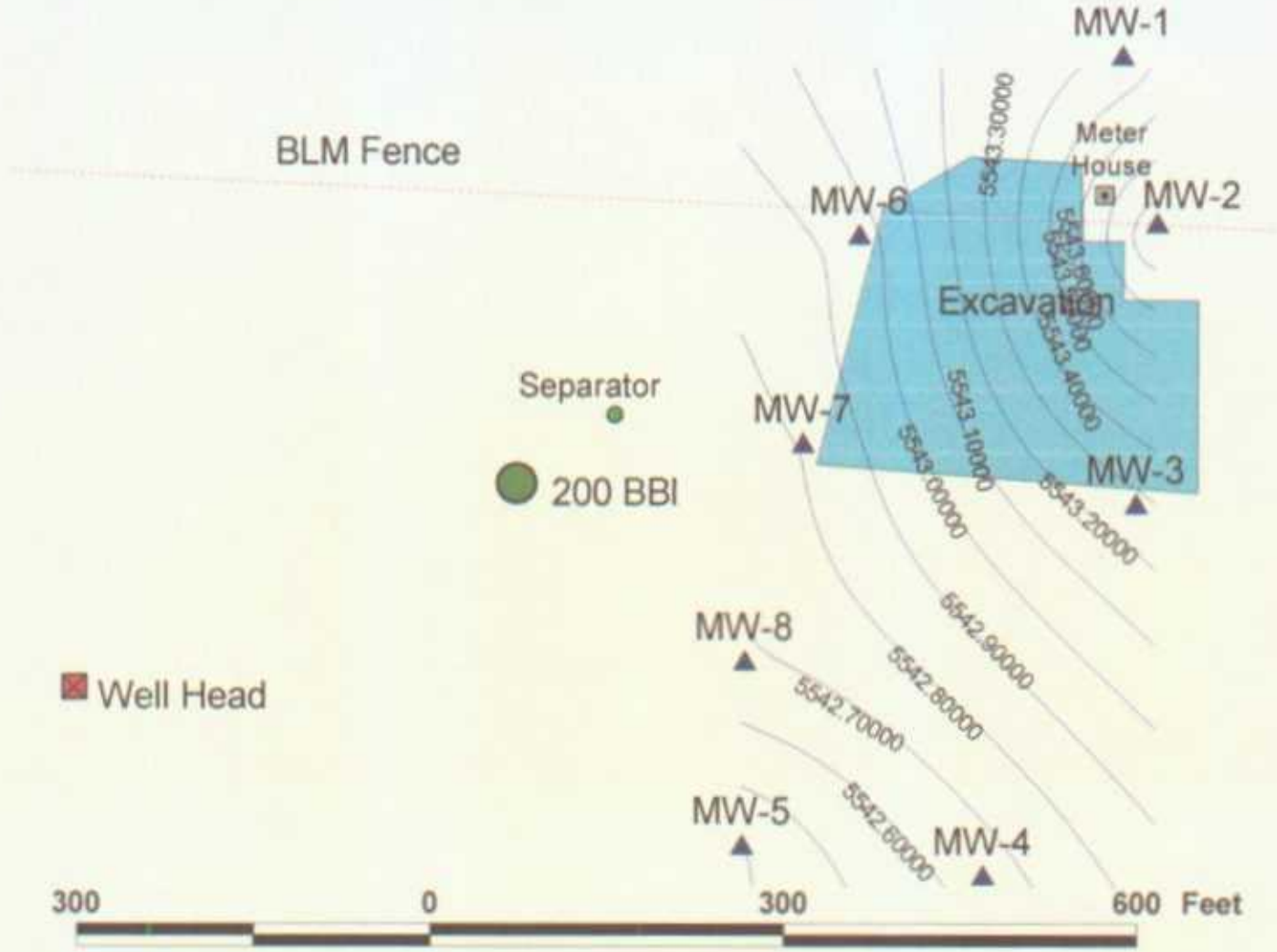
Maureen Gannon
Project Manager

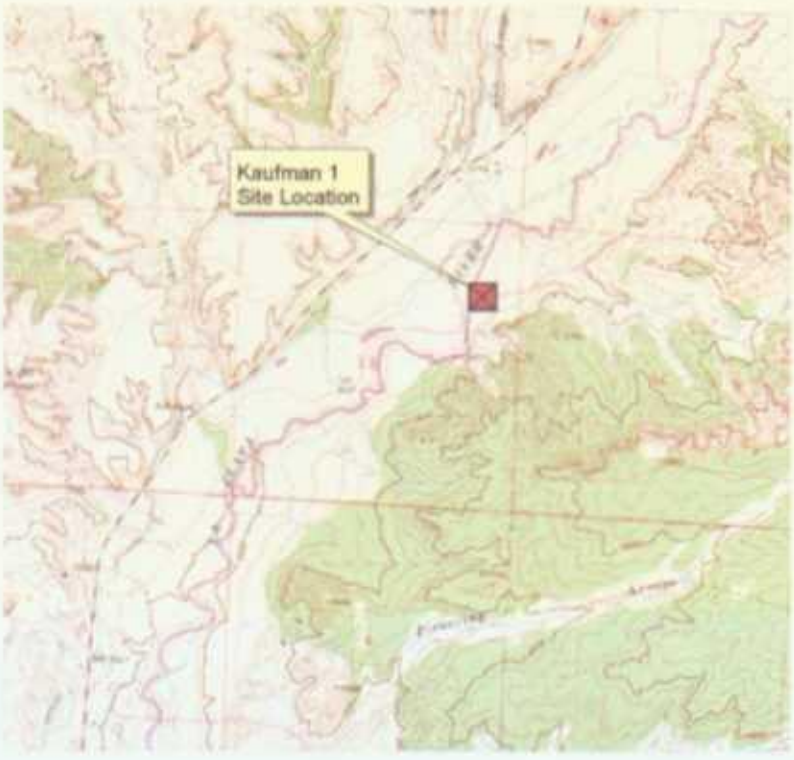
Attachments

cc: Colin Adams, PNM (w/o analytical)
Ingrid Deklau, WFS
Denny Foust, OCD-Aztec
Chester Deal, Greystone
Kathy Juckes, PNM Farmington File (w/o analytical)
Mark Sikelianos, PNM (w/o analytical)

Figure 1. Kaufman 1 Well Site

S33 T30N R13W Unit H





- Meter House
- Groundwater Contours 3/28/99
- BLM Fence line
- Excavation
- Well Head
- Separator
- 200 bbl.shp
- Monitor Wells

PNM

N

Olson, William
From: MGannon@pnm.com [SMTP:MGannon@pnm.com]
Sent: Friday, March 17, 2000 4:53 PM
To: Olson, William
Cc: Foust, Denny; 'Ingrid Deklau'; RJohnso2@pnm.com; Worthen, Clyde (Keleher); MSikeli@pnm.com
Subject: Kaufman 1 Groundwater Site

During a fence installation job in February 2000, Danny Randall of the BLM in Farmington notified PNM and OCD-Aztec of the presence of soil contamination at the Kaufman 1 well site. As you recall, this site was identified by PNM as a contaminated groundwater site on March 11, 1996 during routine pit excavation. Through soil remediation and subsequent groundwater monitoring, PNM remediated the area in the vicinity of our former pit and applied for closure of the site in the third quarter of 1997. OCD granted closure approval on February 19, 1998.

After notification from the BLM, PNM's field coordinator, Ron Dedrick, conducted an investigation at the site during the week of February 12. Mr. Dedrick, through placement of several soil borings, encountered soil contamination south and southeast of PNM's former remediated dehydrator pit. PNM, in consultation with Denny Foust (OCD-Aztec), commenced soil excavation and removal. Remediation work continued over the course of two weeks and approximately 2500 cubic yards of contaminated soil were removed.

During remediaton, groundwater was encountered at a depth of approximately 7 feet below ground surface. A grab sample of water was collected from the middle of the excavation and submitted to OnSite Laboratories for BTEX 8021B. The results of the grab sample (the final lab report was received today, 3/17/00) indicate the following: benzene: 460 ppb; toluene: 700 ppb; ethylbenzene: 730 ppb and xylenes: 9600 ppb. PNM dispatched a pump truck to remove water from the excavation to facilitate the progress of remediation. Approximately 300 barrels of groundwater were pumped out and sent to a disposal facility.

During remediation efforts, PNM also collected a groundwater sample from an "old" monitor well (MW-3) located east of our former pit, directly in the contaminant plume. Results of the sample provided results well below WQCC standards (benzene was non-detect). PNM installed two additional monitor wells, one at the southernmost extent of the recent excavation and one along the southeastern limits of the excavatation.

Source removal remediation efforts are now complete. PNM is confident that soil contamination at the site has been removed; native fill was used as backfill in the excavation. We will prepare a formal written report to you within 15 days which includes analytical results and a site map illustrating the area of remediation and placement of new monitoring wells. In the meantime, if you have any questions, please call me at 241-2974.

SPECIFIC SITE INFORMATION
Site name: Kaufman 1
Location: S33 T30N R13W Unit "H"
Operator: Greystone
Depth to GW: 7'
Contaminant Concentration: 460 ppb benzene; 11490 ppb BTEX

Groundwater in the excavation was sampled on 2/21/00. PNM received the hardcopy of final analytical results on 3/17/00.

If you have any questions, please call me at (505) 241-2974.

Maureen Gannon
Environmental Services
241-2974

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

May 17, 1996

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

RE: KAUFMANN 1 GROUNDWATER INVESTIGATION REPORT

Dear Bill:

PNM herein submits the report summarizing our findings of the recent installation and sampling of monitoring wells at the Kaufmann 1 gas wellhead site. PNM installed four monitoring wells at the site to determine the extent of groundwater contamination, verify groundwater gradient and provide a means for compliance monitoring. This report presents the results of our activities on site related to soil and groundwater remediation and proposes recommendations for future actions at the site. If you have any questions, please call me at (505) 241-2974.

Sincerely,

Maureen Gannon

Maureen Gannon
Project Manager

MDG/KAUF02.LTR

Attachments

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

1.0 Introduction

PNM has completed the installation and sampling of four groundwater monitoring wells at the Kaufmann 1 well site, located near the La Plata River in section 33, township 31 North, range 13 West, unit letter H. Synder Oil Company is the operator at the site.

On March 4, 1996, during pit excavation, field personnel collected samples from groundwater encountered in the excavation underneath the former pit location and in an excavated trench 40 feet downgradient of the pit. At the time of excavation, we encountered groundwater at approximately4 feet below ground surface. Analytical results provided by On Site Technologies, Farmington, New Mexico, revealed a benzene concentration of 363 ppb (BTEX 2260 ppb) in the pit excavation and 484 ppb benzene (BTEX 2493 ppm) in the downgradient trench.

On March 11, 1996 in a letter to OCD[1], PNM reported a groundwater impact at the Kaufmann 1 to OCD in a letter. The letter also included our proposed plan to install and sample groundwater monitoring wells at the site. We have now completed the installation and sampling of monitoring wells and provide the findings of this activity herein.

2.0 Soil Remediation

PNM completed source removal of contaminated soil at the Kaufmann 1 on March 12, 1996. The final pit excavation was approximately 40 feet by 48 feet by 7 feet deep. The total amount of contaminated soil removed from both the excavated pit and the downgradient trench was approximately 899 cubic yards. PNM field personnel transported to a nearby well pad for on site landfarming upon approval by the operator.

3.0 Monitoring Well Installation and Sampling

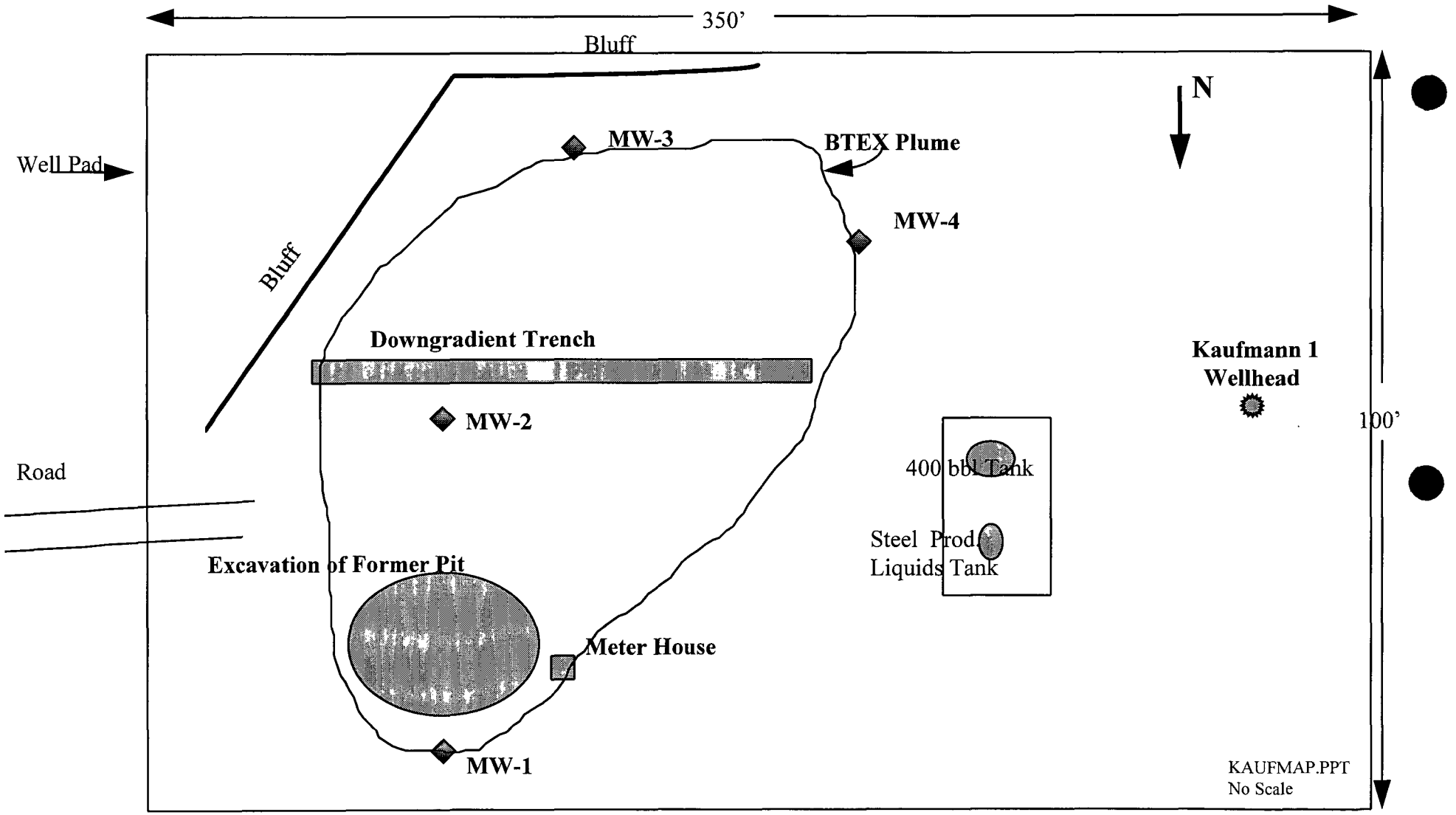
PNM completed the installation of four permanent well points at the Kaufmann 1 site on March 13, 1996. Figure 1 provides locations of the new wells and the placement of equipment and operations on site. Where possible, we installed the well points during excavation of contaminated soil to allow strategic placement of the wells along and outside the boundaries of the contaminated area. The wells were completed with 2-inch diameter, threaded joint, schedule 40 PVC pipe, precleaned and prepackaged by the manufacturer. The well screens were each 5 foot in length and consisted of 2-inch, 0.020-inch slotted PVC. PNM placed the screens such that the complete saturated zone was screened with an additional 2 to 3 feet of screen above the air/water interface.

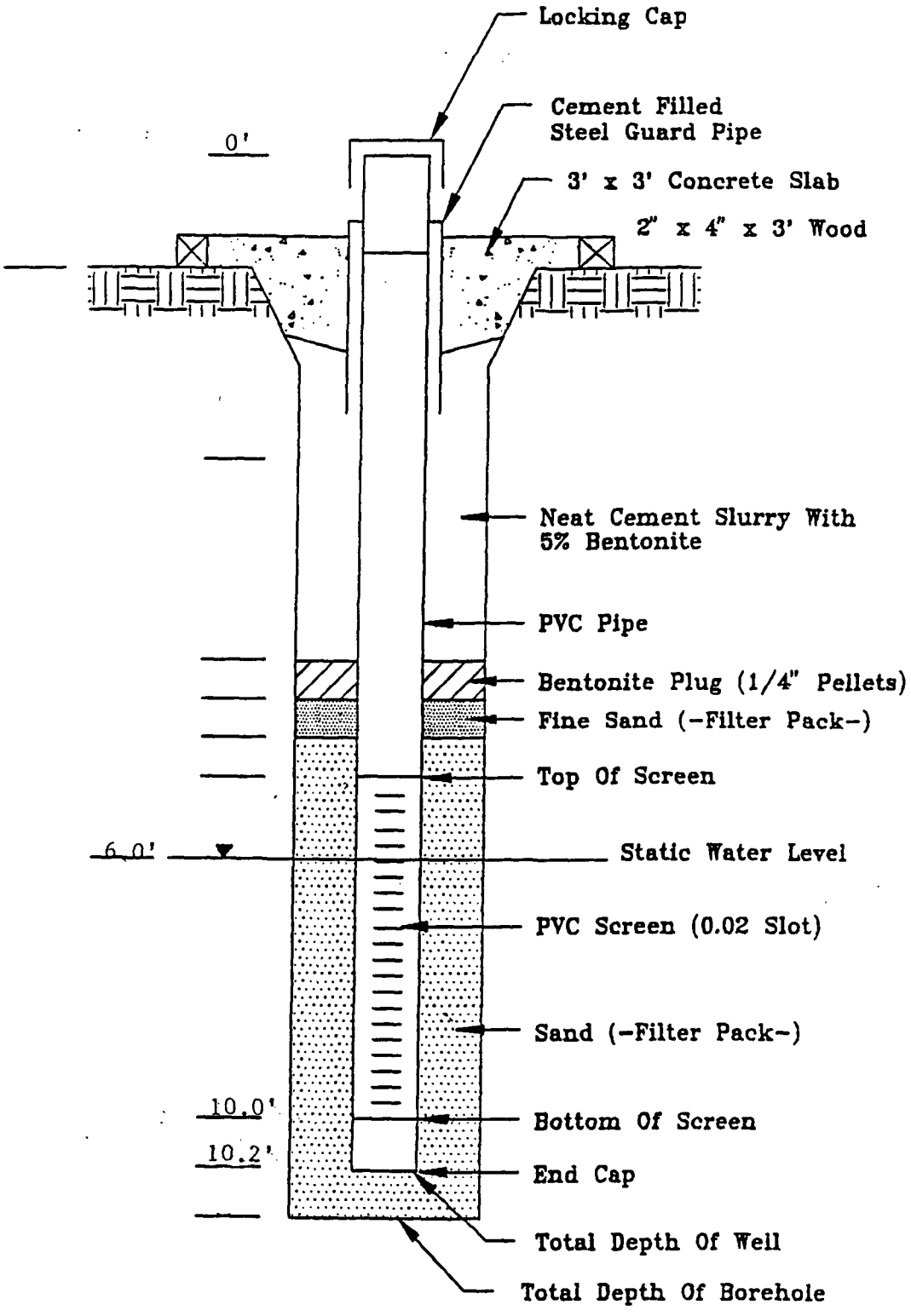
PNM poured precleaned 10/20 silica sand around the auger annulus to fill the void. We then brought the sand filter pack to a level approximately 2 feet above the top of the well screen. We placed a bentonite pellet seal on top of the filter pack all the way to the surface. Each well was fitted with locking cap above the ground surface. Figure 2 is a typical groundwater monitoring well diagram.

[1] Notification of Groundwater Contamination at the Kaufmann 1 Well Site, March 11, 1996.

Figure 1. Kaufmann 1 Well Site

Location of Groundwater Monitoring Wells





PNM Gas Services

CLIENT: PNM	
DATE: 5/16/96	REV. NO.: 0
AUTHOR: M.D.G.	DRAWN BY: M.P.
CK'D BY: M.D.G.	FILE: .DWG

FIGURE 2
MONITOR WELL DESIGN
KAUFMANN # 1

Prior to groundwater sampling, PNM purged the standard three well volumes of water from each well until indicator parameters of pH, temperature and electrical conductance stabilized over three consecutive measurements. We then sampled the wells. One well, MW-3, was duplicated on all parameters as a quality assurance measure. Samples were stored in a cooler and hand-delivered to On Site Laboratories and analyzed for the following WQCC parameters:

In the source area:

BTEX (EPA Method 8020)
Major Cations/Anions (various EPA or standard methods)
PAHs (EPA or standard method)
WQCC metals: As, Ba, Cd, Cr, Pb, Se, Ag, and Hg [inductively coupled plasma (ICP) for heavy metals, atomic absorption spectroscopy (AAS) for Hg and Se]

Outside the source area:

BTEX (EPA Method 8020)
Major Cations/Anions (various EPA or standard methods)

3.0 Groundwater Sampling Results

PNM collected water level measurements in each of the four wells. Free product was not encountered in any well. A land survey was conducted to obtain monitoring well elevations. From the water level measurements and the survey, we developed a groundwater contour map of the site that is presented in figure 3. The groundwater gradient lies in a southerly direction beneath the site.

Table 1 provides the groundwater sampling results and the Water Quality Control Commission (WQCC) standard for each measured constituent.

Figure 3. Kaufmann #1 Groundwater Contour Map (March 1996)

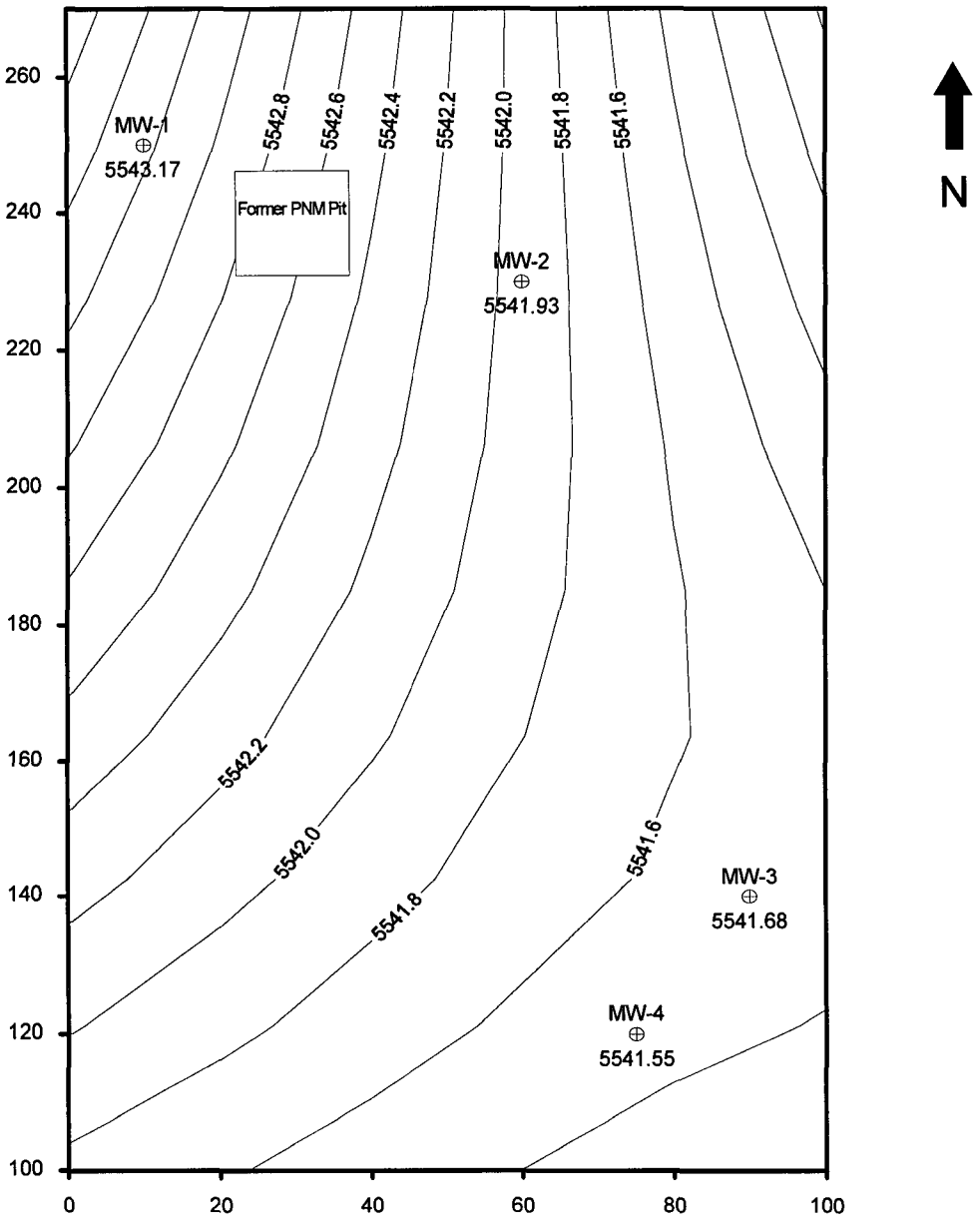


Table 1. Kaufmann 1 Groundwater Sampling Results, mg/l

	WQCC Stds.	MW-1	MW-2	MW-3	MW-3 (dup)	MW-4
B	0.01	BDL	**0.0220**	**0.0006**	**0.0006**	BDL
T	0.75	0.005	0.2535	0.0060	0.0056	BDL
E	0.75	0.005	0.0886	0.0026	0.0026	BDL
X	0.62	0.0036	**0.8091**	**0.0067**	**0.0069**	0.0002
PAHs	0.03	NS	0.010	NS	NS	NS
As	0.1	NS	0.060	NS	NS	NS
Ba	1	NS	**2.77**	**NS**	NS	NS
Cd	0.01	NS	0.003	NS	NS	NS
Cr	0.05	NS	**0.06**	NS	NS	NS
Pb	0.05	NS	**0.048**	**NS**	NS	NS
Se	0.05	NS	BDL	NS	NS	NS
Ag	0.05	NS	BDL	NS	NS	NS
Hg	0.002	NS	0.0007	NS	NS	NS
Anions						
Cl	NA	121.0	297.4	488.8	NS	284.5
F	1.6	0.44	0.37	0.42	NS	0.29
NO3 as N	10	BDL	0.11	0.10	NS	0.05
SO4	NA	1719	2224	2823	NS	2892
Cations						
Cu	NA	BDL	BDL	BDL	NS	BDL
Fe	NA	0.54	0.19	1.95	NS	0.45
Mn	NA	1.36	0.78	1.27	NS	0.59
Zn	NA	0.06	BDL	0.06	NS	BDL
CN	0.2	BDL	BDL	BDL	BDL	BDL
TDS	NA	3022	4114	5182	NS	4000

BDL: Below Detection Limit
NS: Not Sampled
Bold: Concentration Above WQCC Standard
NA: WQCC Provides Standards for Domestic Water Supply Only

6.0 Conclusions and Recommendations

Based upon the results of the pit and trench excavations, contaminated soil still exists between the former pit area and the excavated trench. The findings of the groundwater investigation indicate that BTEX-contaminated groundwater is present in the area of the former pit. The plume follows the groundwater gradient towards the southwest direction, but concentrations decrease rapidly moving away from the source area. BTEX contamination in groundwater indicates that the plume has remained localized and still within the boundaries of the well pad. Concentrations of BTEX at MW-1, the most upgradient well, are below WQCC standards. The benzene level at MW-2 (located approximately 30 feet in a downgradient direction from the source area) is 22 ppb as compared to the WQCC standard of 10 ppb.

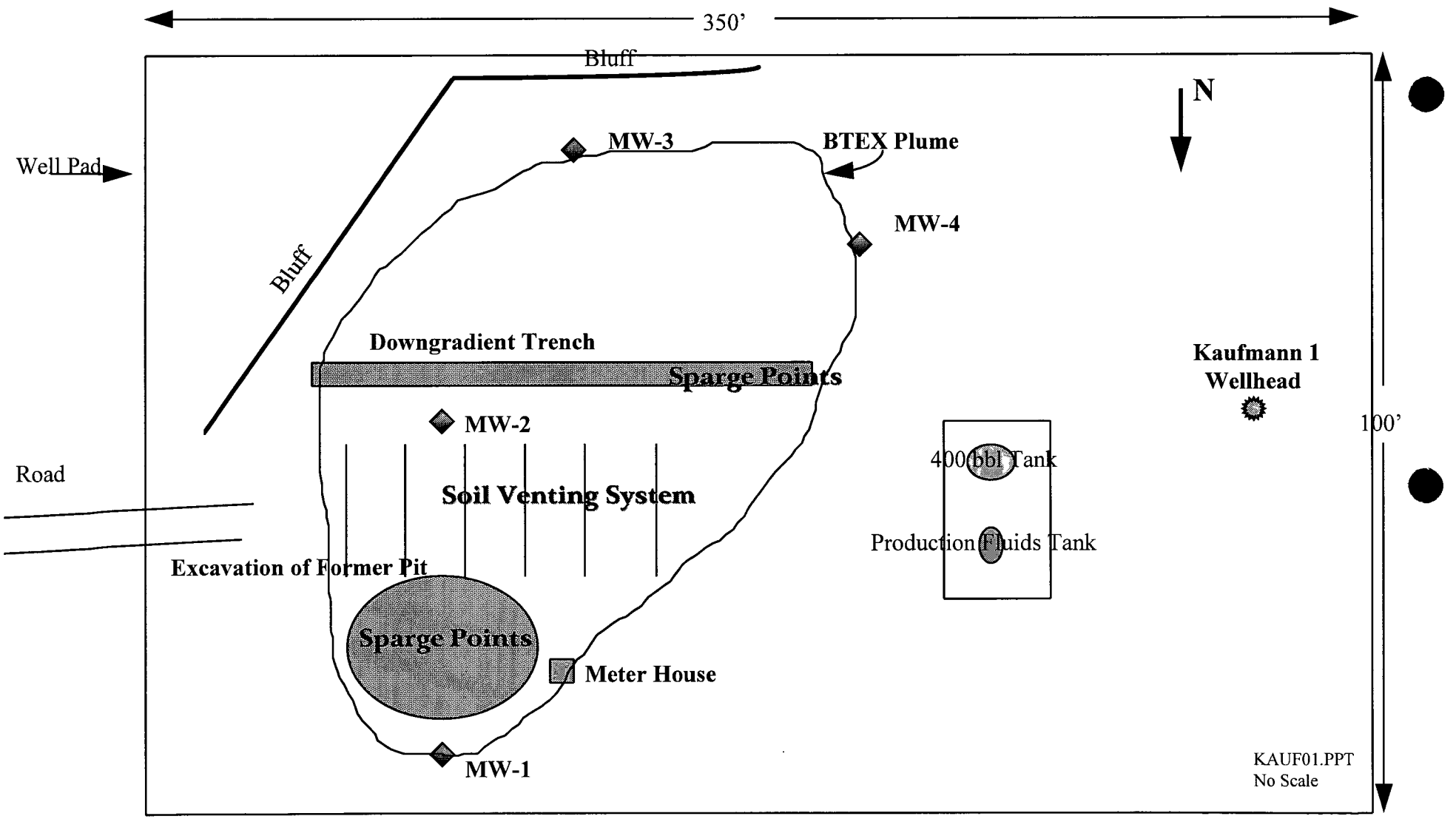
PNM concludes that additional soil remediation in the area of the former pit is necessary and proposes to install a passive soil venting system between the excavated pit and trench. A network of 4-inch schedule 80 PVC leach pipe will be placed horizontally approximately 3 feet below ground surface. We will install gravel backfill around the piping. We will also install a geotextile liner around the gravel to prevent silting in the slotted piping. Vertical standpipes connected to the horizontal piping will be completed above surface. A vault or concrete pad will be placed around each completed well. Metal turbine caps will be placed on the top of each pipe to promote soil venting. During installation, PNM will monitor BTEX concentrations using a photoionization detector (PID) or portable gas chromatograph (GC) to determine the extent of contamination remaining in the soil. Figure 4 provides the location of the soil venting system.

Based upon the results of the soil venting installation, PNM may also perform in-situ air sparging in the open excavation and downgradient trench after the installation of the soil venting system (see figure 4). We propose to install sparge points in the open pit and trench to aerate the groundwater and increase volatilization of contaminants in the immediate area of the former pit. We plan to pulse the air sparging unit using compressed air for a four-week period and monitor its progress by measuring BTEX concentrations at the monitoring wells. In addition, we will also monitor for DO and CO2 to measure the added benefits the air sparging system might have on bioremediation in groundwater in the area of the former pit. During the installation and operation of the remediation system, PNM will perform system monitoring according to the following schedule:

Table 2. Remediation System Monitoring

Phase	Monitoring Frequency	Parameter	Method	Location
Soil Venting				
Start-up	Bimonthly	BTEX	PID/Portable GC	Vent Pipes
Remedial	Monthly	BTEX	PID/Portable GC	Vent Pipes
Air Sparging				
Prior to Start-up	Baseline	BTEX	EPA Method 602	Monitoring wells
		DO	Field Kit	Monitoring wells
		CO2	Field Kit	Monitoring wells
Start-up	Daily for 3-day Period	DO	Field Kit	Monitoring wells
	Daily for 3-day Period	CO2	Field Kit	Monitoring wells
	Daily for 3-day Period	Sparging Pressure	Pressure Gage	Air Compressor
Remedial	Every 2 Weeks for 4 Weeks	BTEX	EPA Method 602	Monitoring Wells

Figure 4. Kaufmann 1 Well Site
Location of Proposed Remediation System



PNM also recommends the initiation of quarterly monitoring for BTEX in groundwater. Monitoring BTEX in groundwater will provide assurance that the plume remains on site and serves as a measure of the attenuation of BTEX at the site. PNM will conduct sampling in accordance with EPA protocol and follow strict chain-of-custody procedures. We will deliver samples to a selected analytical laboratory for analysis of BTEX using EPA method 602.

To address the elevated metals concentrations, PNM will resample groundwater in MW-2 for barium and chromium during the next sampling event. After retrieving the sample from the well, PNM will filter the sample in the field subsequent to submittal to the laboratory for analysis. We did not apply this methodology during the March event. The presence of barium and chromium appears to be the result of naturally-occurring background concentrations in groundwater within this region. We have observed similar levels of these metals at some of our other sites currently undergoing groundwater investigation/remediation in the San Juan Basin.[1] [2]

[1] Gas Company of New Mexico Gas/Com L1 Groundwater Investigation Report: Abrams Gas/Com L1, July 31, 1995.

[2] Results & Recommendations of McCoy A1A Monitoring Well Installation and Sampling, April 4, 1996.

OFF: (505) 325-8786

ON SITE TECHNOLOGIES, LTD.

LAB: (505) 325-5667

AROMATIC VOLATILE ORGANICS

Attn:	*Maureen Gannon*	Date:	15-Mar-96
Company:	*PNM Gas Services*	*COC No.:*	*4546*
Address:	*Alevardo Square, Mail Stop 0408*	*Sample No.*	*10392*
City, State:	*Albuquerque, NM 87158*	*Job No.*	*2-1000*

Project Name:	***PNM Gas Services - Kaufmann 1***				
Project Location:	***9603131330; MW-1***				
Sampled by:	MG/MS	Date:	13-Mar-96	Time:	13:30
Analyzed by:	HR	Date:	14-Mar-96		
Type of Sample:	*Liquid*				

Aromatic Volatile Organics

Component	*Result*	*Units of Measure*	*Detection Limit*	*Units of Measure*
Benzene	<0.2	ug/L	0.2	ug/L
Toluene	0.5	ug/L	0.2	ug/L
Ethylbenzene	0.5	ug/L	0.2	ug/L
m,p-Xylene	3.6	ug/L	0.2	ug/L
o-Xylene	<0.2	ug/L	0.2	ug/L
TOTAL	4.6	ug/L		

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

Approved by: JaC

Date: 3/15/96

OFF: (505) 325-8786

ON SITE
TECHNOLOGIES, LTD.

LAB: (505) 325-5667

AROMATIC VOLATILE ORGANICS

Attn:	*Maureen Gannon*	Date:	15-Mar-96
Company:	*PNM Gas Services*	*COC No.:*	*4546*
Address:	*Alevardo Square, Mail Stop 0408*	*Sample No.*	*10391*
City, State:	*Albuquerque, NM 87158*	*Job No.*	*2-1000*

Project Name:	***PNM Gas Services - Kaufmann 1***				
Project Location:	***9603131300; MW-2***				
Sampled by:	MG/MS	Date:	13-Mar-96	Time:	13:00
Analyzed by:	HR	Date:	14-Mar-96		
Type of Sample:	*Liquid*				

Aromatic Volatile Organics

Component	*Result*	*Units of Measure*	*Detection Limit*	*Units of Measure*
Benzene	22.0	ug/L	0.2	ug/L
Toluene	253.5	ug/L	0.2	ug/L
Ethylbenzene	88.6	ug/L	0.2	ug/L
m,p-Xylene	602.7	ug/L	0.2	ug/L
o-Xylene	206.4	ug/L	0.2	ug/L
TOTAL	1173.1	ug/L		

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

Approved by: DaG
Date: 3/15/96

OFF: (505) 325-8786

ON SITE
TECHNOLOGIES, LTD.

LAB: (505) 325-5667

AROMATIC VOLATILE ORGANICS

Attn:	*Maureen Gannon*	Date:	15-Mar-96
Company:	*PNM Gas Services*	*COC No.:*	*4546*
Address:	*Alevardo Square, Mail Stop 0408*	*Sample No.*	*10389*
City, State:	*Albuquerque, NM 87158*	*Job No.*	*2-1000*

Project Name:	***PNM Gas Services - Kaufmann 1***				
Project Location:	***9603131115; MW-3***				
Sampled by:	MG/MS	Date:	13-Mar-96	Time:	11:15
Analyzed by:	HR	Date:	14-Mar-96		
Type of Sample:	*Liquid*				

Aromatic Volatile Organics

Component	*Result*	*Units of Measure*	*Detection Limit*	*Units of Measure*
Benzene	0.6	ug/L	0.2	ug/L
Toluene	6.0	ug/L	0.2	ug/L
Ethylbenzene	2.6	ug/L	0.2	ug/L
m,p-Xylene	6.0	ug/L	0.2	ug/L
o-Xylene	0.7	ug/L	0.2	ug/L
TOTAL	16.0	ug/L		

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

Approved by: Jay
Date: 3/15/96

OFF: (505) 325-8786

ON SITE
TECHNOLOGIES, LTD.

LAB: (505) 325-5667

AROMATIC VOLATILE ORGANICS

Attn:	*Maureen Gannon*	Date:	15-Mar-96
Company:	*PNM Gas Services*	*COC No.:*	*4546*
Address:	*Alevardo Square, Mail Stop 0408*	*Sample No.*	*10388*
City, State:	*Albuquerque, NM 87158*	*Job No.*	*2-1000*

Project Name:	***PNM Gas Services - Kaufmann 1***				
Project Location:	***9603131230; MW-4***				
Sampled by:	MG/MS	Date:	13-Mar-96	Time:	12:30
Analyzed by:	HR	Date:	14-Mar-96		
Type of Sample:	*Liquid*				

Aromatic Volatile Organics

Component	*Result*	*Units of Measure*	*Detection Limit*	*Units of Measure*
Benzene	<0.2	ug/L	0.2	ug/L
Toluene	<0.2	ug/L	0.2	ug/L
Ethylbenzene	<0.2	ug/L	0.2	ug/L
m,p-Xylene	0.2	ug/L	0.2	ug/L
o-Xylene	<0.2	ug/L	0.2	ug/L
TOTAL	0.2	ug/L		

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

Approved by: JaG
Date: 3/15/96

OFF: (505) 325-8786

ON SITE TECHNOLOGIES, LTD.

LAB: (505) 325-5667

AROMATIC VOLATILE ORGANICS

Attn:	*Maureen Gannon*	Date:	15-Mar-96
Company:	*PNM Gas Services*	*COC No.:*	*4546*
Address:	*Alevardo Square, Mail Stop 0408*	*Sample No.*	*10390*
City, State:	*Albuquerque, NM 87158*	*Job No.*	*2-1000*

Project Name:	***PNM Gas Services - Kaufmann 1***				
Project Location:	***9603131145; MW-5***				
Sampled by:	MG/MS	Date:	13-Mar-96	Time:	11:45
Analyzed by:	HR	Date:	14-Mar-96		
Type of Sample:	*Liquid*				

Aromatic Volatile Organics

Component	*Result*	*Units of Measure*	*Detection Limit*	*Units of Measure*
Benzene	0.6	ug/L	0.2	ug/L
Toluene	5.6	ug/L	0.2	ug/L
Ethylbenzene	2.6	ug/L	0.2	ug/L
m,p-Xylene	6.2	ug/L	0.2	ug/L
o-Xylene	0.7	ug/L	0.2	ug/L
TOTAL	15.7	ug/L		

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

Approved by:
Date: 3/15/96

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QUALITY ASSURANCE REPORT

for EPA Method 8020

Date Analyzed: 14-Mar-96

Internal QC No.: 0444-STD
Surrogate QC No.: 0445-STD
Reference Standard QC No.: 0355-STD

Method Blank

Analyte	Result	Units of Measure
Average Amount of All Analytes In Blank	<0.2	ppb

Calibration Check

Analyte	Units of Measure	True Value	Analyzed Value	% Diff	Limit
Benzene	ppb	20.0	19.7	2	15%
Toluene	ppb	20.0	20.1	1	15%
Ethylbenzene	ppb	20.0	20.1	1	15%
m,p-Xylene	ppb	40.0	40.0	0	15%
o-Xylene	ppb	20.0	20.1	0	15%

Matrix Spike

Analyte	1- Percent Recovered	2 - Percent Recovered	Limit	%RSD	Limit
Benzene	103	108	(39-150)	4	20%
Toluene	110	116	(46-148)	4	20%
Ethylbenzene	105	111	(32-160)	4	20%
m,p-Xylene	105	111	(35-145)	4	20%
o-Xylene	102	108	(35-145)	4	20%

Surrogate Recoveries

Laboratory Identification	S1 Percent Recovered	S2 Percent Recovered
Limit Percent Recovered	(70-130)	
10388-4546	100	
10389-4546	96	
10390-4546	96	
10391-4546	88	
10392-4546	100	
10393-4546	98	

S1: Flourobenzene

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POLYNUCLEAR AROMATIC HYDROCARBONS

Attn:	*Maureen Gannon*	Date:	21-Mar-96
Company:	*PNM Gas Services*	*Lab ID:*	*4546*
Address:	*Alevardo Square, Mail Stop 0408*	*Sample ID:*	*10391*
City, State:	*Albuquerque, NM 87158*	*Job No.*	*2-1000*

Project Name:	***PNM Gas Services - Kaufmann 1***				
Project Location:	***9603131300; MW-2***				
Sampled by:	MG/MS	Date:	13-Mar-96	Time:	13:00
Analyzed by:	ILFC	Date:	20-Mar-96		
Sample Matrix:	*Water*				

Laboratory Analysis

Component	*Result*	*Unit of Measure*	*Detection Limit*	*Unit of Measure*
Acenaphthene	<1	ug/L	1	ug/L
Acenaphthylene	<1	ug/L	1	ug/L
Benzo (a) anthracene	<1	ug/L	1	ug/L
Benzo (a) pyrene	<1	ug/L	1	ug/L
Pyrene	<1	ug/L	1	ug/L
Benzo (b) fluoranthene	<1	ug/L	1	ug/L
Benzo (ghi) perylene	<5	ug/L	5	ug/L
Benzo (k) flouranthene	<1	ug/L	1	ug/L
Chrysene	<1	ug/L	1	ug/L
Dibenzo (a,h) anthrace	<5	ug/L	5	ug/L
Flouranthene	<1	ug/L	1	ug/L
Fluorene	<1	ug/L	1	ug/L
Indeno (1,2,3-cd) pyre	<5	ug/L	5	ug/L
Naphthalene	10	ug/L	1	ug/L
Phenanthrene	<1	ug/L	1	ug/L

Method - *SW-846 EPA Method 8100 - Polynuclear Aromatic Hydrocarbons*

Approved by: DaG
Date: 3/21/96

OFF: (505) 325-8786

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QUALITY ASSURANCE REPORT

EPA Method 8100

Date: 20-Mar-96

Method Blank ***Calibration Check***

Component	Result	Unit of Measure		% Diff	Limit
Acenaphthene	<1	ug/L		13%	25%
Acenaphthylene	<1	ug/L		20%	25%
Benzo (a) anthracene	<1	ug/L		11%	25%
Benzo (a) pyrene	<1	ug/L		6%	25%
Pyrene	<1	ug/L		2%	25%
Benzo (b) fluoranthene	<1	ug/L		9%	25%
Benzo (ghi) perylene	<5	ug/L		11%	25%
Benzo (k) flouranthene	<1	ug/L		0%	25%
Chrysene	<1	ug/L		6%	25%
Dibenzo (a,h) anthrace	<5	ug/L		5%	25%
Flouranthene	<1	ug/L		13%	25%
Fluorene	<1	ug/L		8%	25%
Indeno (1,2,3-cd) pyre	<5	ug/L		7%	25%
Naphthalene	<1	ug/L		12%	25%
Phenanthrene	<1	ug/L		12%	25%

Matrix Spike

Component	1- Percent Recovered	2 - Percent Recovered	Limit	%RSD
Acenaphthene	69%	69%	(46-118)	0%
Pyrene	66%	62%	(26-127)	6%

Surrogate Recoveries

Laboratory Identification	S1 Nitrobenzene-d5	S2 2-Fluorbiphenyl	S3 Terphenyl-d14
10391-4546	72%	90%	89%

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WATER ANALYSIS

Attn:	*Maureen Gannon*	Date:	2-Apr-96
Company:	*PNM Gas Services*	*COC No.:*	*4546*
Address:	*Alevardo Square, Mail Stop 0408*	*Sample ID:*	*10392*
City, State:	*Albuquerque, NM 87158*	*Job No.:*	*2-1000*

Project Name:	***PNM Gas Services - Kaufmann 1***				
Project Location:	***9603131330; MW-1***				
Sampled by:	MG/MS	Date:	13-Mar-96	Time:	13:30
Analyzed by:	OSL/IML/MWL	Date:	2-Apr-96		
Sample Matrix:	Water				

Laboratory Analysis

Parameter	*Result*	*Detection Limit*	*Unit of Measure*	*Method*
Copper (Cu), Total	<0.05	0.05	mg/L	EPA Method 220.1
Iron (Fe), Total	0.54	0.05	mg/L	EPA Method 236.1
Manganese (Mn), Total	1.36	0.05	mg/L	EPA Method 243.1
Zinc (Zn), Total	0.06	0.05	mg/L	EPA Method 289.1
Chloride (Cl)	121.0	0.5	mg/L	EPA Method 325.3
Fluoride (F)	0.44	0.01	mg/L	EPA Method 340.2
Nitrate (NO3 as N)	<0.05	0.05	mg/L	EPA Method 352.1
Sulfate (SO4)	1719	1	mg/L	EPA Method 375.3
Cyanide (CN), Total	<0.02	0.02	mg/L	EPA Method 335.2
Total Dissolved Solids	3022	1	mg/L	EPA Method 160.1
pH	7.53			EPA Method 150.1

Approved by: Da 4
Date: 4/2/96

OFF: (505) 325-8786

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LAB: (505) 325-5667

WATER ANALYSIS

Attn:	*Maureen Gannon*	Date:	2-Apr-96
Company:	*PNM Gas Services*	*COC No.:*	*4546*
Address:	*Alevardo Square, Mail Stop 0408*	*Sample ID:*	*10391*
City, State:	*Albuquerque, NM 87158*	*Job No.:*	*2-1000*

Project Name:	***PNM Gas Services - Kaufmann 1***				
Project Location:	***9603131300; MW-2***				
Sampled by:	MG/MS	Date:	13-Mar-96	Time:	13:00
Analyzed by:	OSL/IML/MWL	Date:	2-Apr-96		
Sample Matrix:	Water				

Laboratory Analysis

Parameter	*Result*	*Detection Limit*	*Unit of Measure*	*Method*
Copper (Cu), Total	<0.05	0.05	mg/L	EPA Method 220.1
Iron (Fe), Total	0.19	0.05	mg/L	EPA Method 236.1
Manganese (Mn), Total	0.78	0.05	mg/L	EPA Method 243.1
Zinc (Zn), Total	<0.05	0.05	mg/L	EPA Method 289.1
Chloride (Cl)	297.4	0.5	mg/L	EPA Method 325.3
Fluoride (F)	0.37	0.01	mg/L	EPA Method 340.2
Nitrate (NO3 as N)	0.11	0.05	mg/L	EPA Method 352.1
Sulfate (SO4)	2224	1	mg/L	EPA Method 375.3
Cyanide (CN), Total	<0.02	0.02	mg/L	EPA Method 335.2
Total Dissolved Solids	4114	1	mg/L	EPA Method 160.1
pH	7.42			EPA Method 150.1

Approved by: Jack
Date: 4/2/96

OFF: (505) 325-8786

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WATER ANALYSIS

Attn:	*Maureen Gannon*	Date:	2-Apr-96
Company:	*PNM Gas Services*	*COC No.:*	*4546*
Address:	*Alevardo Square, Mail Stop 0408*	*Sample ID:*	*10389*
City, State:	*Albuquerque, NM 87158*	*Job No.:*	*2-1000*

Project Name:	***PNM Gas Services - Kaufmann 1***				
Project Location:	***9603131115; MW-3***				
Sampled by:	MG/MS	Date:	13-Mar-96	Time:	11:15
Analyzed by:	OSL/IML/MWL	Date:	2-Apr-96		
Sample Matrix:	Water				

Laboratory Analysis

Parameter	*Result*	*Detection Limit*	*Unit of Measure*	*Method*
Copper (Cu), Total	<0.05	0.05	mg/L	EPA Method 220.1
Iron (Fe), Total	1.95	0.05	mg/L	EPA Method 236.1
Manganese (Mn), Total	1.27	0.05	mg/L	EPA Method 243.1
Zinc (Zn), Total	0.06	0.05	mg/L	EPA Method 289.1
Chloride (Cl)	488.8	0.5	mg/L	EPA Method 325.3
Fluoride (F)	0.42	0.01	mg/L	EPA Method 340.2
Nitrate (NO3 as N)	0.10	0.05	mg/L	EPA Method 352.1
Sulfate (SO4)	2823	1	mg/L	EPA Method 375.3
Cyanide (CN), Total	<0.02	0.02	mg/L	EPA Method 335.2
Total Dissolved Solids	5182	1	mg/L	EPA Method 160.1
pH	7.56			EPA Method 150.1

Approved by: Jack
Date: 4/2/96

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WATER ANALYSIS

Attn:	*Maureen Gannon*	Date:	2-Apr-96
Company:	*PNM Gas Services*	*COC No.:*	*4546*
Address:	*Alevardo Square, Mail Stop 0408*	*Sample ID:*	*10388*
City, State:	*Albuquerque, NM 87158*	*Job No.:*	*2-1000*

Project Name:	***PNM Gas Services - Kaufmann 1***				
Project Location:	***9603131230; MW-4***				
Sampled by:	MG/MS	Date:	13-Mar-96	Time:	12:30
Analyzed by:	OSL/IML/MWL	Date:	2-Apr-96		
Sample Matrix:	Water				

Laboratory Analysis

Parameter	*Result*	*Detection Limit*	*Unit of Measure*	*Method*
Copper (Cu), Total	<0.05	0.05	mg/L	EPA Method 220.1
Iron (Fe), Total	0.45	0.05	mg/L	EPA Method 236.1
Manganese (Mn), Total	0.59	0.05	mg/L	EPA Method 243.1
Zinc (Zn), Total	<0.05	0.05	mg/L	EPA Method 289.1
Chloride (Cl)	284.5	0.5	mg/L	EPA Method 325.3
Fluoride (F)	0.29	0.01	mg/L	EPA Method 340.2
Nitrate (NO3 as N)	0.05	0.05	mg/L	EPA Method 352.1
Sulfate (SO4)	2892	1	mg/L	EPA Method 375.3
Cyanide (CN), Total	<0.02	0.02	mg/L	EPA Method 335.2
Total Dissolved Solids	4000	1	mg/L	EPA Method 160.1
pH	7.51			EPA Method 150.1

Approved by: DaG
Date: 4/2/96

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METALS ANALYSIS

Attn:	*Maureen Gannon*	Date:	2-Apr-96
Company:	*PNM Gas Services*	*COC No.:*	*4546*
Address:	*Alevardo Square, Mail Stop 0408*	*Sample No.*	*10391*
City, State:	*Albuquerque, NM 87158*	*Job No.*	*2-1000*

Project Name:	***PNM Gas Services - Kaufmann 1***				
Project Location:	***9603131300; MW-2***				
Sampled by:	MG/MS	Date:	13-Mar-96	Time:	13:00
Analyzed by:	MWL	Date:	2-Apr-96		
Sample Matrix:	*Water*				

Laboratory Analysis

Parameter	*Result*	*Detection Limit*	*Units of Measure*	*Method*
Arsenic (As), Total	0.060	0.002	mg/L	EPA Method 206.2
Barium (Ba), Total	2.77	0.005	mg/L	EPA Method 200.7
Cadmium (Cd), Total	0.003	0.002	mg/L	EPA Method 200.7
Chromium (Cr), Total	0.06	0.01	mg/L	EPA Method 200.7
Lead (Pb), Total	0.048	0.001	mg/L	EPA Method 239.2
Selenium (Se), Total	<0.002	0.002	mg/L	EPA Method 270.2
Silver (Ag), Total	<0.01	0.01	mg/L	EPA Method 200.7
Mercury (Hg), Total	0.0007	0.0004	mg/L	EPA Method 245.1

Approved by:
Date: 4/2/96

OFF: (505) 325-8786

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LAB: (505) 325-5667

AROMATIC VOLATILE ORGANICS

Attn:	*Maureen Gannon*	Date:	15-Mar-96
Company:	*PNM Gas Services*	*COC No.:*	*4546*
Address:	*Alevardo Square, Mail Stop 0408*	*Sample No.*	*10393*
City, State:	*Albuquerque, NM 87158*	*Job No.*	*2-1000*

Project Name:	***PNM Gas Services - Kaufmann 1***				
Project Location:	***Trip Blank***				
Sampled by:	NR	Date:	NR	Time:	NR
Analyzed by:	HR	Date:	14-Mar-96		
Type of Sample:	*Liquid*				

Aromatic Volatile Organics

Component	*Result*	*Units of Measure*	*Detection Limit*	*Units of Measure*
Benzene	<0.2	ug/L	0.2	ug/L
Toluene	<0.2	ug/L	0.2	ug/L
Ethylbenzene	<0.2	ug/L	0.2	ug/L
m,p-Xylene	<0.2	ug/L	0.2	ug/L
o-Xylene	<0.2	ug/L	0.2	ug/L
TOTAL	<0.2	ug/L		

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

Approved by: DaG
Date: 3/15/96

OFF: (505) 325-8786

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QUALITY ASSURANCE REPORT

Water Analysis

Date: 2-Apr-96

Quality Control Sample

Parameter	Laboratory Identification	True Value	Analyzed Value	Units of Measure	% Diff	Limit % Diff
Copper, Cu	0422-QC	1.00	0.99	mg/L	-1	10
Iron, Fe	0422-QC	1.00	0.94	mg/L	-6	10
Manganese, Mn	0422-QC	1.00	0.95	mg/L	-5	10
Zinc, Zn	0422-QC	0.50	0.51	mg/L	2	10
Chloride, Cl	0456-QC	128.0	123.0	mg/L	-4	10
Fluoride, F	IML-328	0.40	0.36	mg/L	-10	30
Nitrate, NO3 as N	IML-328	10.30	9.58	mg/L	-7	10
Sulfate, SO4	0456-QC	105	104	mg/L	-1	10
Cyanide, CN	MWL-402	1.00	0.88	mg/L	-13	15
Total Dissolved Solids	0443-QC	1661	1718	mg/L	3	10
pH	0456-QC	9.09	9.01		-1	5

Matrix Spike

Parameter	Laboratory Identification	Analyzed Value	Matrix Spike	Spike Value	Units of Measure	Spike Recovery
Copper (Cu), Total	10392-4546	0.00	1.00	1.13	mg/L	113%
Iron (Fe), Total	10392-4546	0.54	1.00	1.57	mg/L	102%
Manganese (Mn), Total	10392-4546	1.36	1.00	2.48	mg/L	105%
Zinc (Zn), Total	10392-4546	0.06	1.00	1.02	mg/L	96%

Method Blank

Parameter	Laboratory Identification	Analyzed Value	Units of Measure
Copper (Cu), Total	LF-Blank	<0.05	mg/L
Iron (Fe), Total	LF-Blank	<0.05	mg/L
Manganese (Mn), Total	LF-Blank	<0.05	mg/L
Zinc (Zn), Total	LF-Blank	<0.05	mg/L
Chloride, Cl	LF-Blank	<2 X DL	mg/L
Fluoride, F	LF-Blank	<0.01	mg/L
Nitrate, NO3 as N	LF-Blank	<0.05	mg/L
Sulfate, SO4	LF-Blank	<1	mg/L
Cyanide (CN), Total	LF-Blank	<0.02	mg/L
Total Dissolved Solids	LF-Blank	<1	mg/L

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QUALITY ASSURANCE REPORT

Metals Analysis

Date: 2-Apr-96

Quality Control Sample

Parameter	Initial Check Sample	Final Check Sample	Percent Recovery
Arsenic, As	90	91	%
Barium, Ba	98	101	%
Cadmium, Cd	94	96	%
Chromium, Cr	94	94	%
Lead, Pb	98	101	%
Selenium, Se	95	92	%
Silver, Ag	95	96	%
Mercury, Hg	108	101	%

Matrix Spike

Parameter	Spike % Recovery	Duplication % RSD
Arsenic, As	90	<2 X D.L.
Barium, Ba	110	0.3
Cadmium, Cd	111	5.66
Chromium, Cr	100	0.2
Lead, Pb	75	<2 X D.L.
Selenium, Se	75	<2 X D.L.
Silver, Ag	104	<2 X D.L.
Mercury, Hg	97	<2 X D.L.

Method Blank

Parameter	Analyzed Value	Units of Measure
Arsenic, As	<0.002	mg/L
Barium, Ba	<0.005	mg/L
Cadmium, Cd	<0.002	mg/L
Chromium, Cr	<0.01	mg/L
Lead, Pb	<0.001	mg/L
Selenium, Se	<0.002	mg/L
Silver, Ag	<0.01	mg/L
Mercury, Hg	<0.0004	mg/L

CHAIN OF CUSTODY RECORD

4546

ON SITE TECHNOLOGIES, LTD.

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

Date: 3/13/95

Page 1 of 1

Purchase Order No.: | Job No.

SEND INVOICE TO

Name	Denver Bearden
Company	PNM Gas Services
Dept.	324-3763
Address	603 W. Elm Street
City, State, Zip	Farmington, NM 87401

REPORT RESULTS TO

Name	Maureen Gannon	Title
Company	PNM Gas Services	
Mailing Address	Alverado Square, Mail Stop 0408	
City, State, Zip	Albuquerque, NM 87158	
Telephone No.	505-848-2974	Telefax No.

Sampling Location: KAUFMANN 1

Sampler: Maureen Gannon
Mark Sikkilaros

ANALYSIS REQUESTED

SAMPLE IDENTIFICATION		SAMPLE DATE	SAMPLE TIME	MATRIX	PRES.	Number of Containers	BTEX 8020	PAH's	Metals W20C	Cation/Anion	LAB ID
9603131230	MW-4	3/13/96					X			X	10388-4546
9603131115	MW-3	↓					X			X	10389
9603131145	MW-5						X				10390
9603131300	MW-2						X	X	X	X	10391
9603131330	MW-1						X			X	10392
Tr. P Blank							X				10393

Relinquished by: Mark Sikkilaros	Date/Time 3/13/96 1630	Received by: Heidi Reese	Date/Time 3/13/96 16:30
Relinquished by:	Date/Time	Received by:	Date/Time
Relinquished by:	Date/Time	Received by:	Date/Time

Method of Shipment:

Authorized by: Mark Sikkilaros Date 3/13/96
(Client Signature Must Accompany Request)

Rush	24-48 Hours	10 Working Days	Special Instructions:
			Results to be sent to both parties.

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

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

MEMORANDUM OF MEETING OR CONVERSATION

☑ Telephone ☐ Personal	Time 1100	Date 3/25/96

Originating Party	Other Parties
Maureen Gannon - GCL	Bill Olson - Environ. Bureau

Subject

Kaufman #1 Ground Water Contamination

Discussion

PNM wants to start work ASAP

Conclusions or Agreements

Gave verbal approval to PNM's 3/11/96 work plan

Distribution file
Denny Foust - OCD Aztec

Signed Bill Olson

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

OIL CONSERVATION DIVISION
RECEIVED
'96 MAR 15 AM 8 52

Fax received
on 3/11/96
Will Olson

March 11, 1996

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

RE: NOTIFICATION OF GROUNDWATER CONTAMINATION AT THE KAUFMANN #1 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 Kaufmann #1 well site, located near the La Plata River in section 33, township 31 North, range 13 West, unit letter H. The operator at the site is Synder Oil Company. This letter follows verbal notification provided to you on Wednesday, March 6, 1996 (M. Gannon, PNM to B. Olson. OCD, 3/06/96).

On March 4, 1996, field personnel collected samples from groundwater in an excavation underneath the former pit location and in an excavated trench 40 feet downgradient of the pit. Figure 1 provides a site map of the well pad and of the two excavations. At the time of excavation, groundwater was encountered at approximately 6 feet below ground surface. Groundwater samples were delivered to OnSite Technologies, Ltd., in Farmington, New Mexico, for laboratory analysis. Analytical results are provided below:

Component	Units	WQCC Stds.	Excavation Underneath Pit	Downgradient Trench
Benzene	ppb	10	**362.8**	**484.2**
Toluene	ppb	750	665.3	723.5
Ethylbenzene	ppb	750	146.2	5.8
Xylenes	ppb	620	**1085.8**	**1279.3**

Boldtype indicates a WQCC exceedance.

A hardcopy of the analytical results are attached.

To perform an assessment of groundwater contamination and provide a means for monitoring, PNM will install four to five well points at the Kaufmann #1 site. Figure 1 shows the proposed location of each well point. The well points will be installed during further excavation of contaminated soil at the site so that wells can be strategically placed along and outside of the boundaries of the area with soil contamination. The wells will be completed with 2-inch diameter, threaded joint, schedule 40 polyvinyl chloride (PVC) pipe, precleaned and prepackaged by the manufacturer. The well screen will consist of 2-inch, 0.020-inch slotted PVC. A 15-foot well screen with end cap will be placed such that the complete saturated zone is screened with an additional 2 to 3 feet of screen above the air/water interface. Precleaned 10/20 silica sand will be poured around the auger annulus to fill the void. This sand filter

pack will be brought to a level approximately 2 feet above the top of the well screen. A bentonite pellet seal will then be placed on top of the filter pack all the way to the surface. Each well will be fitted with locking cap above ground surface.

PNM will purge the standard three well volumes from each well until indicator parameters of pH, temperature and electrical conductance of water have stabilized over three consecutive measurements. The wells will then be sampled. One well will be duplicated on all parameters as a quality assurance measure. Samples will be delivered to On Site Laboratories, Farmington, New Mexico and analyzed for the following WQCC parameters:

In the source area:

BTEX (EPA Method 8020)
Major Cations/Anions (various EPA or standard methods)
PAHs (EPA or standard method)
WQCC metals (As, Ba, Cd, Cr, Pb, Se, Ag, and Hg [inductively coupled plasma (ICP) for heavy metals, atomic absorption spectroscopy (AAS) for Hg and Se]

All other wells:

BTEX (EPA Method 8020)
Major Cations/Anions (various EPA or standard methods)

PNM will prepare a letter report to OCD regarding our findings of the monitoring well installation and sampling by May 10, 1996. At that time, we will propose our remedial strategy for groundwater clean-up at the site. If you have any questions regarding the contents of this letter, please call me at (505) 241-2974. I will be in Farmington Tuesday, 3/12 and Wednesday, 3/13 and will contact you regarding your approval on this matter. Thank you.

Sincerely,
PNM

Maureen Gannon
Contract Project Manager

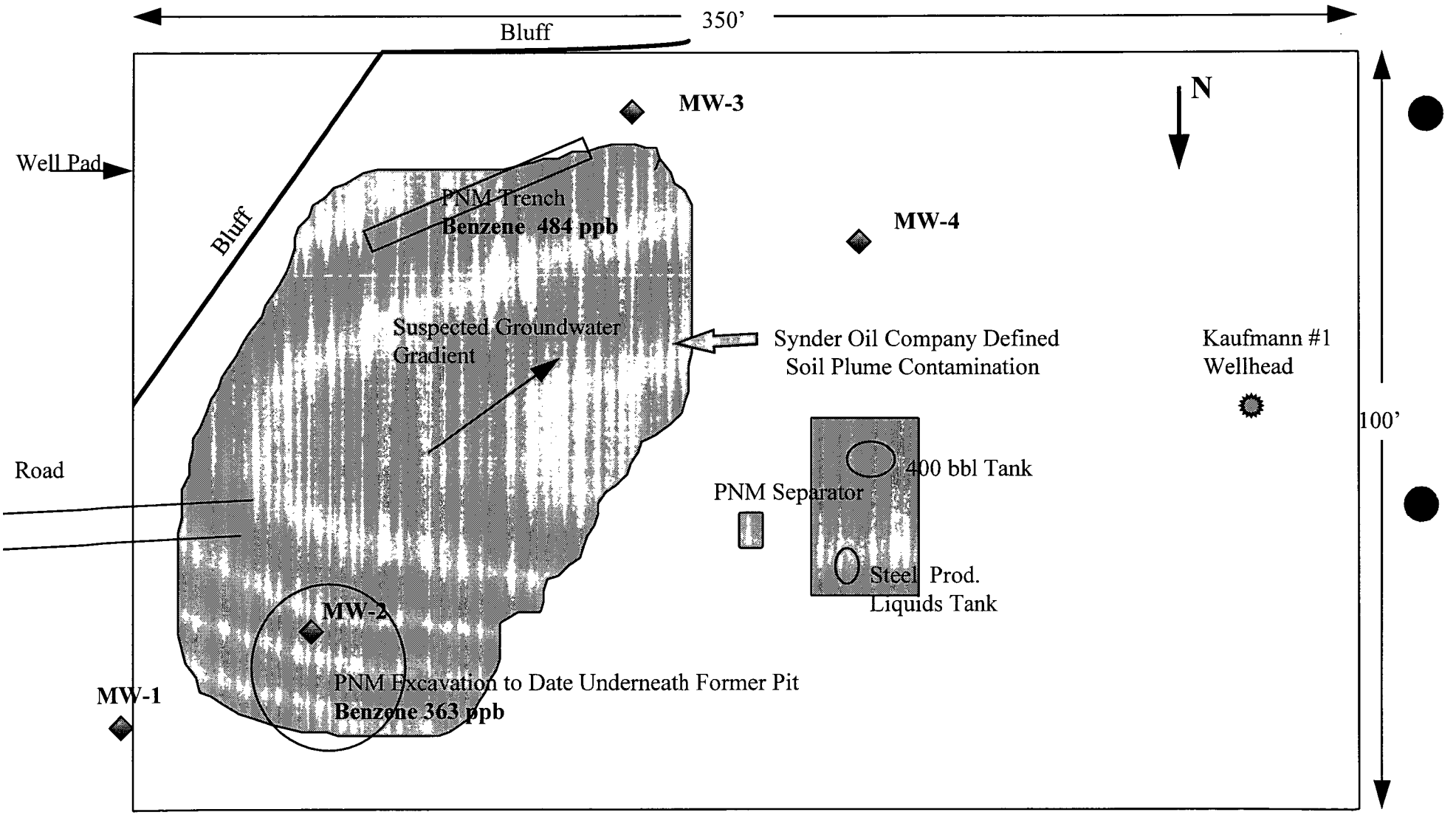
MDG/KAUF01.LTR

Attachment

cc: Colin Adams, PNM
Denver Bearden, PNMGS
Denny Foust, OCD-Aztec Office
Leigh Gooding, WFS
Valda Terauds, ES!
Toni Ristau, PNM

Figure 1. Kaufmann #1 Well Site

Proposed Location for Monitoring Well Installations



OFF: (505) 325-8786

ON SITE
TECHNOLOGIES, LTD.

LAB: (505) 325-5667

AROMATIC VOLATILE ORGANICS

Attn:	*Maureen Gannon*	Date:	5-Mar-96
Company:	*PNM Gas Services*	*COC No.:*	*4512*
Address:	*Alevardo Square, Mail Stop 0408*	*Sample No.*	*10363*
City, State:	*Albuquerque, NM 87158*	*Job No.*	*2-1000*

Project Name:	***PNM Gas Services - Kaufman #1***				
Project Location:	***9603041100; Excavation by Meter House***				
Sampled by:	GC	Date:	4-Mar-96	Time:	11:00
Analyzed by:	DC	Date:	5-Mar-96		
Type of Sample:	*Liquid*				

Aromatic Volatile Organics

Component	*Result*	*Units of Measure*	*Detection Limit*	*Units of Measure*
Benzene	362.8	*ug/L*	0.2	*ug/L*
Toluene	665.3	*ug/L*	0.2	*ug/L*
Ethylbenzene	146.2	*ug/L*	0.2	*ug/L*
m,p-Xylene	670.0	*ug/L*	0.2	*ug/L*
o-Xylene	415.8	*ug/L*	0.2	*ug/L*
TOTAL	2260.1	*ug/L*		

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

Approved by: JaL
Date: 3/5/96

OFF: (505) 325-8786

ON SITE
TECHNOLOGIES, LTD.

LAB: (505) 325-5667

AROMATIC VOLATILE ORGANICS

Attn:	*Maureen Gannon*	Date:	5-Mar-96
Company:	*PNM Gas Services*	*COC No.:*	*4512*
Address:	*Alevardo Square, Mail Stop 0408*	*Sample No.*	*10362*
City, State:	*Albuquerque, NM 87158*	*Job No.*	*2-1000*

Project Name:	***PNM Gas Services - Kaufman #1***				
Project Location:	***9603041050; E. Side of Well Pad, Ditch Trench 5' X 40'***				
Sampled by:	GC	Date:	4-Mar-96	Time:	10:50
Analyzed by:	DC	Date:	5-Mar-96		
Type of Sample:	*Liquid*				

Aromatic Volatile Organics

Component	*Result*	*Units of Measure*	*Detection Limit*	*Units of Measure*
Benzene	484.2	*ug/L*	0.2	*ug/L*
Toluene	723.5	*ug/L*	0.2	*ug/L*
Ethylbenzene	5.8	*ug/L*	0.2	*ug/L*
m,p-Xylene	759.2	*ug/L*	0.2	*ug/L*
o-Xylene	520.1	*ug/L*	0.2	*ug/L*
TOTAL	2492.9	*ug/L*		

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

Approved by: JaK
Date: 3/5/96

OFF: (505) 325-8786

ON SITE
TECHNOLOGIES, LTD.

LAB: (505) 325-5667

QUALITY ASSURANCE REPORT

for EPA Method 8020

Date Analyzed: 5-Mar-96

Internal QC No.: 0444-STD
Surrogate QC No.: 0445-STD
Reference Standard QC No.: 0355-STD

Method Blank

Analyte	Result	Units of Measure
Average Amount of All Analytes In Blank	<0.2	ppb

Calibration Check

Analyte	Units of Measure	True Value	Analyzed Value	% Diff	Limit
Benzene	ppb	20.0	19.1	4	15%
Toluene	ppb	20.0	18.9	5	15%
Ethylbenzene	ppb	20.0	19.0	5	15%
m,p-Xylene	ppb	40.0	37.7	6	15%
o-Xylene	ppb	20.0	18.8	6	15%

Matrix Spike

Analyte	1- Percent Recovered	2 - Percent Recovered	Limit	%RSD	Limit
Benzene	116	116	(39-150)	0	20%
Toluene	115	115	(46-148)	0	20%
Ethylbenzene	115	115	(32-160)	0	20%
m,p-Xylene	113	113	(35-145)	0	20%
o-Xylene	111	112	(35-145)	0	20%

Surrogate Recoveries

Laboratory Identification	S1 Percent Recovered	S2 Percent Recovered
Limit Percent Recovered	(70-130)	
10362-4512	106	
10363-4512	97	

S1: Flourobenzene

4512.

CHAIN OF CUSTODY RECORD

ON SITE TECHNOLOGIES, LTD.

Date: 3-4-96

Page 1 of 1

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

Purchase Order No.:		Job No.	
SEND INVOICE TO	Name: Denver Bearden		
	Company: PNM Gas Services	Dept. 324-3763	
	Address: 603 W. Elm Street		
	City, State, Zip: Farmington, NM 87401		
REPORT RESULTS TO	Name: Maureen Gannon	Title:	
	Company: PNM Gas Services		
	Mailing Address: Alverado Square, Mail Stop 0408		
	City, State, Zip: Albuquerque, NM 87158		
	Telephone No.: 505-848-2974	Telefax No.:	

Sampling Location: Kaufman #1

Sampler: Gary Cook

SAMPLE IDENTIFICATION	SAMPLE DATE	SAMPLE TIME	MATRIX	PRES.	Number of Containers	BTEX-8020	LAB ID
# 960304 1050	3/4/96	1050	H2O	~		X	10362-4512
ditch trench 5' wide 40' long							10363 ↓
east side of well pad							
# 960304 1100							
excavation by meter house	3-4-96	1100	H2O	~		X	

ANALYSIS REQUESTED

Relinquished by: Gary Cook	Date/Time 3/4/96 12:35	Received by: Heidi Reese	Date/Time 3/4/96 1230
Relinquished by:	Date/Time	Received by:	Date/Time
Relinquished by:	Date/Time	Received by:	Date/Time

Method of Shipment:

Authorized by: Gary Cook (Client Signature Must Accompany Request) Date 3-4-96

Rush	24-48 Hours	10 Working Days	Special Instructions:
✓			**Results to be sent to both parties.**

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

Bill Olson

GARBER AND HALLMARK, P.C.
ATTORNEYS AT LAW
200 W. MARCY, SUITE 203
POST OFFICE BOX 850
SANTA FE, NEW MEXICO 87504-0850

OIL CONSERVATION DIVISION
RECEIVED
'95 OCT 25 AM 8 52

BRUCE S. GARBER
B. CULLEN HALLMARK

TELEPHONE (505) 983-3233
FACSIMILE (505) 983-6344

October 18, 1995

RECEIVED
OCT 20 1995
OIL CON. DIV.
DIST. 3

Mr. Denny G. Foust
Environmental Geologist
State of New Mexico
Energy, Minerals and
Natural Resources Department
Oil Conservation Division
1000 Rio Brazos Road
Aztec, NM 87410

Re: Snyder Oil Corporation Kaufman #1, H-33-31N-13W,
San Juan County, New Mexico

Dear Mr. Foust:

As promised in my September 18, 1995, letter, I am writing to update the status of the PNMGS investigation of the Kaufman #1 site. PNMGS staff and consultants visited this site on October 5, 1995. Although PNMGS and its consultants have not performed any specific site investigatory work for groundwater and soil contamination, we understand from work done by other consultants at the site, that apparently contaminated groundwater was located in a six foot deep trench approximately 150 feet downgradient from the pit formerly operated by PNMGS. PNMGS has not yet verified if this contamination is the result of migration of hydrocarbon containing material from the pit.

PNM intends to consult with Snyder Oil Corporation in the near future, the holder of the right of way upon which the pit is located, to determine if an arrangement can be made to perform soil and groundwater remediation similar to that Snyder is currently performing at its Templeton #1E site.

We will provide additional details on the discussions with Snyder Oil and the proposed corrective action as soon as PNMGS and Snyder Oil reach an agreement. Thank you for your courtesy.

Sincerely,

Bruce S. Garber

BSG:aa

cc: Chuck Garcia
Toni Ristau
Maureen Gannon
Denver Bearden

Bill Olson

GARBER AND HALLMARK, P.C.
ATTORNEYS AT LAW
200 W. MARCY, SUITE 203
POST OFFICE BOX 850
SANTA FE, NEW MEXICO 87504-0850

BRUCE S. GARBER
B. CULLEN HALLMARK

TELEPHONE (505) 983-3233
FACSIMILE (505) 983-6344

September 18, 1995

Mr. Denny G. Foust
Environmental Geologist
State of New Mexico
Energy, Minerals and
Natural Resources Department
Oil Conservation Division
1000 Rio Brazos Road
Aztec, NM 87410

Re: Possible Groundwater Impacts Amoco McCoy A#1A, F-18-31N-10W, Snyder Oil Corporation Kaufman #1, H-33-31N-13W and Snyder Oil Corporation Templeton #1E, B-27-31N-13W, San Juan County, New Mexico

Dear Mr. Foust:

This letter responds to yours of June 6, 1995 to Denver Bearden regarding the facilities noted above. Please excuse the delay in this response which results from the transition the Public Service Company of New Mexico has been undergoing in relation to the gas assets sold to Williams Field Services.

The Public Service Company of New Mexico Gas Services' ("PNMGS") through its consultants, Geoscience Consultants Ltd., has conducted a preliminary groundwater investigation at the McCoy A#1A site. I understand that the preliminary results from that investigation were verbally transmitted to the Oil Conservation Division on September 8, 1995. A written report is being prepared and should be received by the Oil Conservation Division in the near future.

The Snyder Oil Corporation Templeton #1E location is being addressed at this time by the Snyder Oil Corporation, which has taken the lead in the groundwater and soil remediation at this site. We understand that Snyder obtained an approved discharge plan for the groundwater remediation at this site on February 20, 1995, and is proceeding with remediation pursuant to that plan. We have addressed a number of questions to Snyder concerning this site for the purpose of defining the necessary role of PNMGS in this remediation, if any.

The Snyder Oil Corporation Kaufman #1 site is also the subject of a current dialogue between PNMGS and Snyder. PNMGS expects to receive additional information from Snyder regarding this site and will pursue efforts to address additonal site investigation as appropriate in the near future. We will update our report on this site in 30 days.

Please feel free to contact Denver Bearden at 324-3763 or me at 983-3233 if you have any questions concerning these sites.

Sincerely,

Bruce S. Garber

BSG:aa

cc: Chuck Garcia
Toni Ristau
Maureen Gannon

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
AZTEC DISTRICT OFFICE

GARY E. JOHNSON
GOVERNOR

JENNIFER A. SALISBURY
CABINET SECRETARY

1000 RIO BRAZOS ROAD
AZTEC, NEW MEXICO 87410
(505) 334-6178 FAX: (505) 334-6170

Certified Receipt: P-987-892-147

June 6, 1995

Gas Company of New Mexico
Attn. Denver Bearden
Environmental Administrator
PO Box 1899
Bloomfield NM 87413

RE: Possible Groundwater Impacts Amoco McCoy A#1A, F-18-31N-10W, Snyder Oil Corporation Kaufman #1, H-33-31N-13W and Snyder Oil Corporation Templeton #1E, B-27-31N-13W, San Juan County New Mexico.

Dear Mr. Bearden:

Due to persistent complaints from residents near the Amoco McCoy A#1A, F-18-31N-10W, of odors and illness I am requesting an immediate assessment of the abandoned dehydrator pit on this location. Groundwater impact in this area could have serious ramifications due to the close proximity of the Animas River and several domestic water wells.

The Snyder Oil Corporation Templeton #1E, B-27-31N-13W, has experienced a significant groundwater impact from production pits on location. Gas Company of New Mexico needs to determine if dehydrator pits on this location contributed to the plume of contamination so treatment and remediation may proceed by the responsible parties. This well site needs immediate attention based on the already identified groundwater impact.

The Snyder Oil Corporation Kaufman #1, H-33-31N-13W, also has experienced a significant groundwater impact from production pits on location. Gas Company of New Mexico needs to determine if dehydrator pits on this location contributed to the plume of contamination so treatment and remediation may proceed by the responsible parties. This well site needs immediate attention based on the already identified groundwater impact.

The Oil Conservation Division is to be notified of groundwater impact within twenty-four hours under your pit closure plan. I would like to be notified of the investigative work schedule on these wells so I may witness the operation.

If you have questions please feel free to call this office.

Yours truly,
Denny G. Foust
Denny G. Foust
Environmental Geologist

XC: DGF File
Bill Olson-SF
Environmental File