3R - 340

REPORTS

DATE:

Feb. 11, 2002

Williams

Environmental Services
187 County Road 4980
Bloomfield, NM 87413
505-632-4409 Phone
505-632-4405 Fax

February 11, 2002

Mr. Bill Olson
Hydrogeologist
Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

RE: RANDLEMAN #1 PIT REMEDIATION AND CLOSURE REPORT

Dear Mr. Olson:

Enclosed please find information on remediation and closure activities associated with the unlined surface impoundment located at the Randleman #1 site. Public Service Company of New Mexico (PNM) formerly owned the site and initiated closure activities on April 29, 1997. The site later became an asset of Williams upon purchase of Gas Company of New Mexico (GCNM) from PNM. Upon expiration of PNM's retained environmental liabilities associated with the site, Williams agreed to complete necessary closure work. As such, the enclosed documentation reflects activities of both PNM and Williams.

Site History

Excavation of petroleum hydrocarbon impacted soil beneath the unlined surface impoundment began on April 29, 1997. A total of 613 cubic yards of contaminated soil were excavated and landfarmed on site and at the nearby Randleman #3 location. The excavation was reportedly terminated at a maximum depth of 22-feet, where ground water was encountered. A sample of the ground water collected from the excavation contained benzene and total xylene at concentrations in excess of Water Quality Control Commission (WQCC) standards. A letter notifying the Oil Conservation Division (OCD) of ground water contamination at the site was submitted on May 9, 1997.

To evaluate the magnitude and extent of ground water contamination, three monitoring wells were installed on May 14, 1997. Quarterly ground water samples were collected from the wells through March of 1998. In April of 1998 secondary source removal was conducted to address residual soil contamination extending to the south of the original excavated area. A total of 2220 cubic yards of impacted soil was removed and disposed at an OCD approved waste management facility. The secondary source removal activities resulted in the removal of "downgradient" monitoring well MW-3, hereafter referred to as "MW-3 Old". A replacement of this well, referred to as "MW-3 New", was installed on May 12, 1998. Quarterly monitoring was reinitiated and continued through September of 2000.

Site Hydrogeology

The Randleman #1 is located in Unit K, Section 13, Township 31N, Range 11W of San Juan County, New Mexico (Figure 1). Approximately 100 feet east of the site is Kiffen Canyon Arroyo, which flows southeast approximately 0.3 miles to the Animas River. Immediately west of the site the Animas Formation outcrops forming steep cliffs. The site is underlain by a variable thickness of reworked, unconsolidated material consisting primarily of light brown, fine to coarse sand. One soil boring located on the eastern edge of the site, nearest the arroyo bank, encountered sandstone at 15-feet. All other borings were terminated at 25-feet in unconsolidated material.

Groundwater in the unconsolidated sediments is unconfined and water level elevations vary seasonally. Depths to ground water range from approximately 13 to 15-feet below ground level. A hydrograph illustrating water-table fluctuations is included as Figure 2. Ground water flows to the south, southeast consistent with the regional hydraulic gradient toward the Animas River. A potentiometric surface map is included as Figure 3. Hydraulic conductivities of the sediments are likely on the order of 10^{-3} to 10^{-1} cm/sec.

Monitoring Results

Concentrations of benzene, toluene, ethylbenzene and xylene (BTEX) were analyzed in water samples collected quarterly from July 1997 through September 2000. As expected, upgradient monitoring well MW-1 never contained measurable concentrations of BTEX. The source area wells, MW-2 and MW-3 Old, both contained BTEX levels in excess of WQCC standards. The exceedance in "MW-3 Old" prompted the secondary source removal action in March of 1998. Concentrations of BTEX in "MW-3 New" remained below WQCC standards with the exception of an unexplained spike in August of 1999. Because BTEX levels in this well were below laboratory method detection limits both prior to and after this date, it is suspected that cross contamination of the August 1999 sample may have occurred. Table 1 summarizes the analytical results for the Q2/1999 to Q3/2000 period. The Q3/2000 analytical report is enclosed. All earlier analytical data was provided to you in previous submittals.

Natural attenuation processes combined with aggressive source removal resulted in steady decreases in BTEX over the three-year monitoring period. The initial concentration of total BTEX in source-area well MW-2 was 1374 ug/L. Less than one-year later, in June 1998, the total BTEX concentration was reduced to 16.7 ug/L. For the last four consecutive quarters of monitoring the concentrations of the BTEX compounds have remained below the WQCC standards.

Summary

The unlined surface impoundment at the Randleman #1 was addressed consistent with OCD Order 7940-C and with the guidelines pertaining to the remediation of unlined surface impoundments. The work included the removal of hydrocarbon-impacted soils and an evaluation of ground water impacted by the historical operation of the impoundment. A network of ground water monitoring wells was installed and ground water analyses showed that a small BTEX plume existed in the vicinity of the former pit location. Natural attenuation of the BTEX compounds resulted in contaminant degradation to concentrations less than WQCC MCLs. The monitoring results show that WQCC standards for BTEX in ground water have been met for four consecutive quarterly monitoring periods.

Based on current site conditions, Williams requests approval for closure of the Randleman #1 site. Following receipt of your closure approval we will plug and abandon the monitoring wells in accordance with applicable regulations. Williams appreciates your time in reviewing this site closure request. If you have any questions or require any additional information, please contact me at 505-632-4409 or Jim Struhs, Project Hydrogeologist at 505-632-4457.

Respectfully,

Mark B. Harvey
Project Coordinator

Enclosures

c: Mr. Denny Foust, OCD District III, Aztec

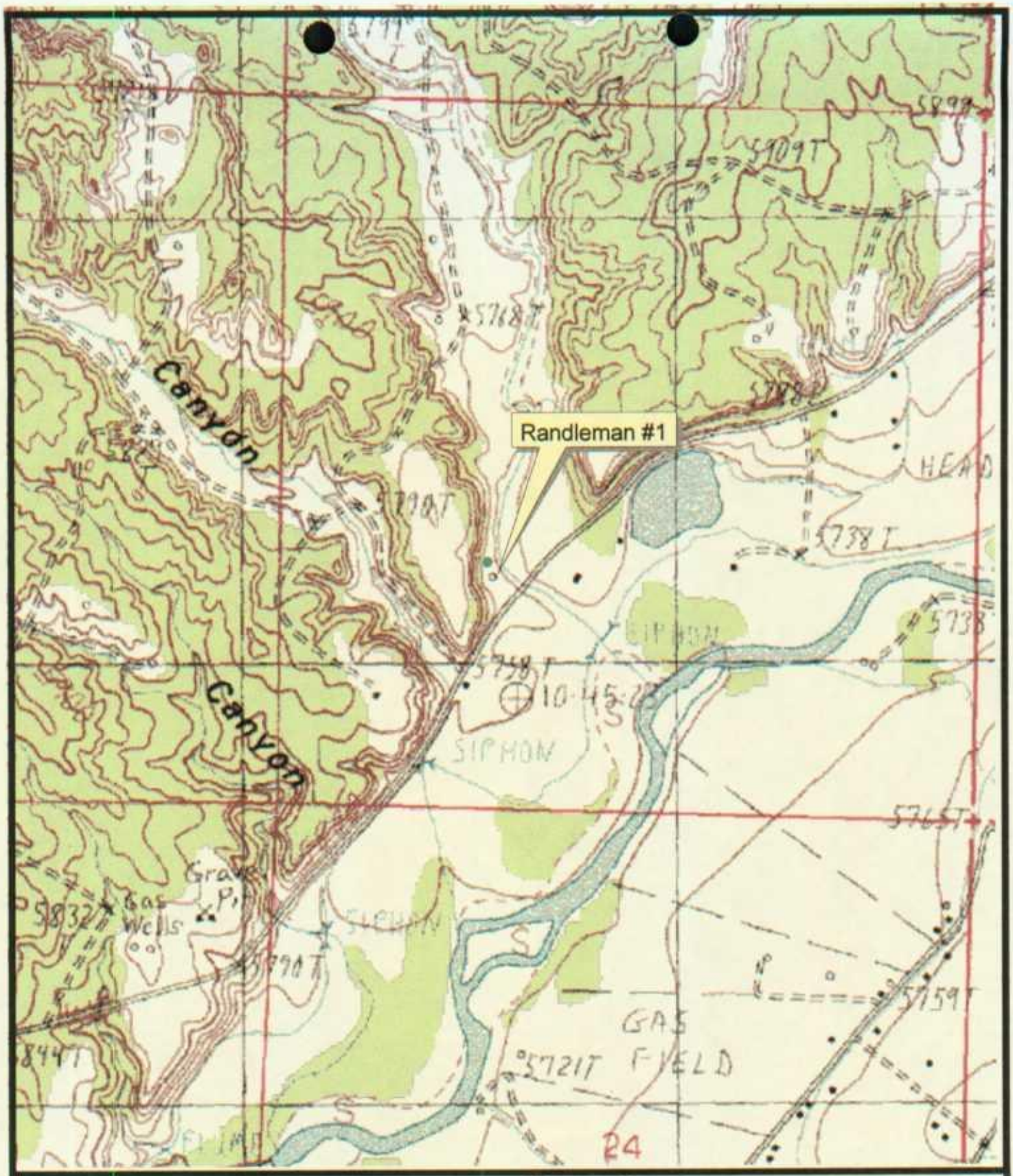


Figure 1
Site Location Map
Randleman #1
Unit K, Sec. 13, T31N, R11W

1000 0 1000 2000 Feet

N

Figure 2
Randleman #1
Hydrograph for Period Q2/1999 - Q3/2000
(Elevation vs. Time)

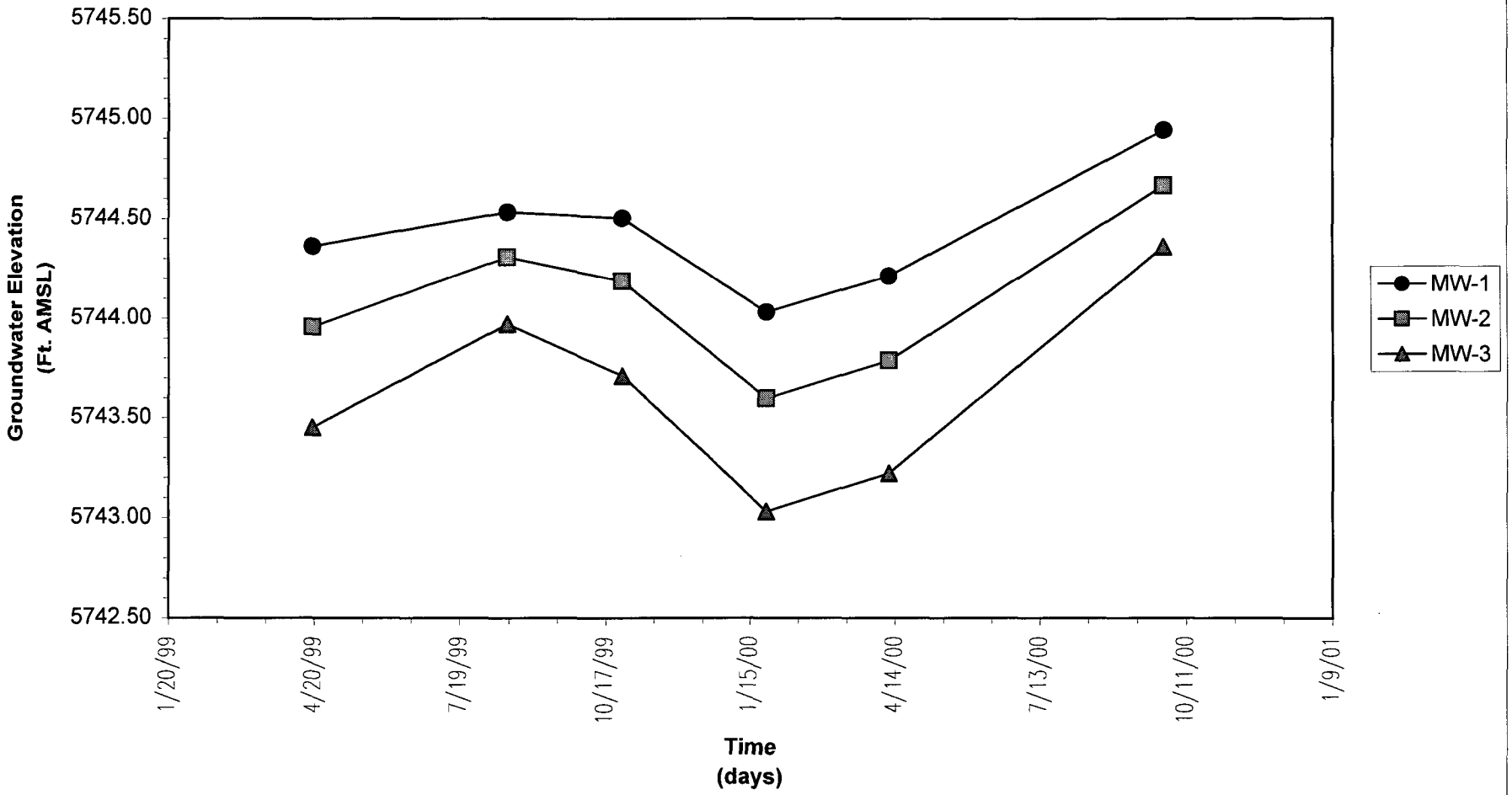


Figure 3. Randleman #1 Potentiometric Surface Map
(April 19, 1999)

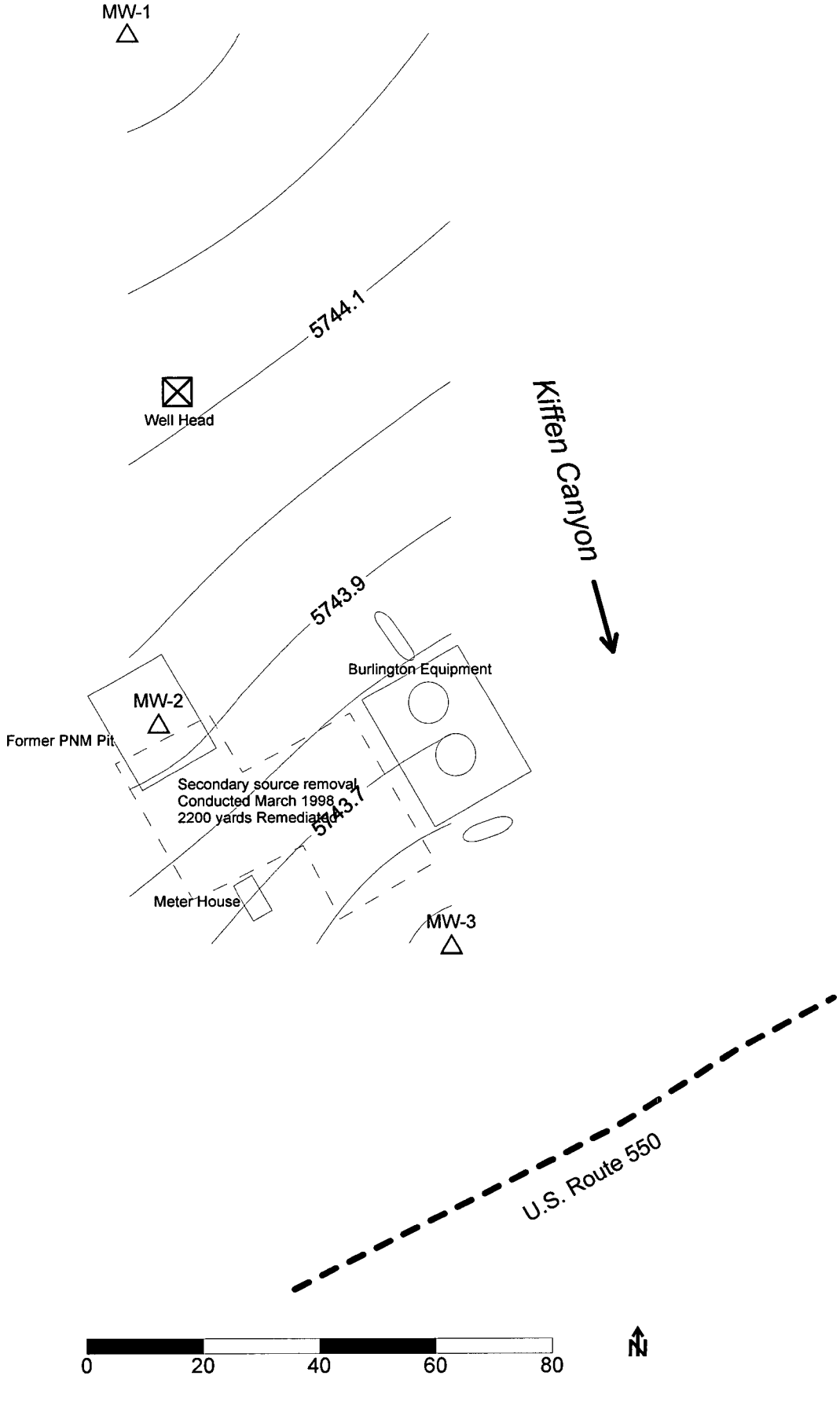


Table 1
Summary of Groundwater Analytical Data
Randleman #1
(Q2/1999 - Q3/2000)

			Analytes (values in ug/L)			
Well ID	Sample ID	Sample Date	benzene	toluene	ethylbenzene	total xylenes
MW-1	NS	19-Apr-99				
	9908171500	17-Aug-99	ND	ND	ND	ND
	NS	27-Oct-99				
	NS	25-Jan-00				
	NS	10-Apr-00				
	RAN-UG-MW1	27-Sep-00	ND	ND	ND	ND
MW-2	9904191340	19-Apr-99	2.3	ND	ND	ND
	9908171544	17-Aug-99	17.0	ND	5.7	15.6
	9910271235	27-Oct-99	5.0	0.6	0.9	1.5
	0001251400	25-Jan-00	4.1	8.0	1.9	15.8
	Duplicate	25-Jan-00	2.2	4.9	1.1	10.4
	0004101333	10-Apr-00	5.0	ND	3.1	10.3
	RAN-SA-MW2	27-Sep-00	ND	ND	ND	ND
MW-3 (new)	9904191406	19-Apr-99	ND	ND	ND	ND
	Duplicate	19-Apr-99	ND	ND	ND	ND
	9908171600	17-Aug-99	260.0	ND	26.0	65.0
	9910271305	27-Oct-99	0.5	ND	ND	ND
	0001251425	25-Jan-00	ND	ND	ND	ND
	0004101353	10-Apr-00	ND	ND	ND	ND
	RAN-DG-MW3	27-Sep-00	ND	ND	ND	ND

ND = analyte not detected above method detection limit
NS = well not sampled

C[redacted]AL LABORATORIES, [redacted] N C.

2911 ROTARY TERRACE, P.O. BOX 562/ PITTSBURG, KS 66762/(316)232-1970

LABORATORY REPORT: REFERENCE #: 0010036

SENT WILLIAMS FIELD SERVICES
TO: 187 CNTY RD #4980
BLOOMFIELD, NM 87413
JIM STRUHS
PROJECT:SJA-GW-SITE

DATE REPORTED: 10/06/00
DATE COLLECTED: 09/27/00
DATE RECEIVED: 10/03/00
P.O. #:

Sample ID: RAN-UG-MW-1 Sample Matrix: WATER
Collection Date: 09/27/00 15:21:00

TEST	METHOD-CAS #	RESULT	UNITS	PQL	ANALYZED	EXTRACTED
BTEX	OA1/8021B			3.0		
BENZENE	71-43-2	ND	UG/L	1.0	10/05/00MB	
TOLUENE	108-88-3	ND	UG/L	1.0	10/05/00MB	
ETHYLBENZENE	100-41-4	ND	UG/L	1.0	10/05/00MB	
TOTAL XYLENES	1330-20-7	ND	UG/L	1.0	10/05/00MB	
BFB (SURROGATE)	-	97	125	75		

Sample ID: RAN-SA-MW-2 Sample Matrix: WATER
Collection Date: 09/27/00 16:33:00

TEST	METHOD-CAS #	RESULT	UNITS	PQL	ANALYZED	EXTRACTED
BTEX	OA1/8021B			3.0		
BENZENE	71-43-2	ND	UG/L	1.0	10/05/00MB	
TOLUENE	108-88-3	ND	UG/L	1.0	10/05/00MB	
ETHYLBENZENE	100-41-4	ND	UG/L	1.0	10/05/00MB	
TOTAL XYLENES	1330-20-7	1.13	UG/L	1.0	10/05/00MB	
BFB (SURROGATE)	-	92	125	75		

Sample ID: RAN-DG-MW-3 Sample Matrix: WATER
Collection Date: 09/27/00 17:50:00

TEST	METHOD-CAS #	RESULT	UNITS	PQL	ANALYZED	EXTRACTED
BTEX	OA1/8021B			3.0		
BENZENE	71-43-2	ND	UG/L	1.0	10/05/00MB	
TOLUENE	108-88-3	ND	UG/L	1.0	10/05/00MB	
ETHYLBENZENE	100-41-4	ND	UG/L	1.0	10/05/00MB	
TOTAL XYLENES	1330-20-7	ND	UG/L	1.0	10/05/00MB	
BFB (SURROGATE)	-	81.5	125	75		

District I
P O Box 1980, Hobbs, NM

District II
P. Drawer DD, Artesia, NM 88221

District III
1000 Rio Brazos Rd, Aztec, NM 87410

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION

2040 South Pacheco Street
Santa Fe, New Mexico 87505

SUBMIT 1 COPY TO APPROPRIATE DISTRICT OFFICE AND 1 COPY TO SANTA FE OFFICE

PIT REMEDIATION AND CLOSURE REPORT

Operator: PNM Gas Services ( ) **Telephone:** 324-3764

Address: 603 W. Elm Street Farmington, NM 87401

Facility or Well Name: Randleman #1 (Burlington Resources)

Location: Unit: K Sec. 13 T. 31 N R. 11 W County San Juan

Pit Type: Separator ___ Dehydrator X Other ___

Land Type: BLM ___ State ___ Fee X Other ___

Pit Location: Pit dimensions: length 15' width 15' depth 3'

(Attach diagram) Reference: wellhead X other ___

Footage from reference: 95'

Direction from reference: 5° Degrees X East North ___ of ___ West South X

Depth to Ground Water: (Vertical distance from contaminants to seasonal high water elevation of ground water)	Less than 50 feet 50 feet to 99 feet Greater than 100 feet	(20 points) (10 points) (0 points)	20
Wellhead Protection Area: (Less than 200 feet from a private domestic water source, or; less than 1,000 feet from all other water sources)	Yes No	(20 points) (0 points)	20
Distance to Surface Water: (Horizontal distance to perennial lakes, ponds, rivers, streams, creeks, irrigation canals and ditches)	Less than 200 feet 200 feet to 1,000 feet Greater than 1,000 feet	(20 points) (10 points) (0 points)	20
	RANKING SCORE (TOTAL POINTS):		60

Date Remediation Started: 4-29-97 **Date Completed:** 5-6-97

Remediation Method: (Check all appropriate sections)
Excavation ✓ Approx. Cubic Yard 1227
Landfarmed ✓ Amount Landfarmed (cubic yds) 613
Other

Remediation Location: (i.e., landfarmed onsite, name and location of offsite facility)
Onsite ✓ Offsite Randleman #3 Sec. 13, 31N, 11W

Backfill Material Location: Blm wash

General Description of Remedial Action:
Excaved pit 40'x46'x18'. Removed production equipment & excavated to remove all contamination. Landfarm on site appox. 200 yds & Randleman #3 - 413 yds

Ground Water Encountered: No ☐ Yes X Depth 22'

Final Pit Closure Sampling: (if multiple samples, attach sample result and diagram of sample locations and depths.)
Sample Location middle of pit 22'
Sample depth 22'
Sample date 4-30-97 Sample time 0730
Sample Results
Benzene (ppm)
Total BTEX (ppm)
Field headspace (ppm)
TPH Method
Vertical Extent (ft) Risk Assessment form attached Yes ☐ No X

Ground Water Sample: Yes X No ☐ (If yes, attach sample results)

I HEREBY CERTIFY THAT THE INFORMATION ABOVE IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND MY BELIEF

DATE 5-6-97
SIGNATURE Mary Cook
PRINTED NAME AND TITLE Denver Bearden, Administrator III

elev. 5758

4/29/97

Excavation Work Sheet

Well Name	Operator	S	T	R	Ul
Randleman #1	Burlington	13	31N	11W	K

Pit Dimensions at Start	Excavation Dimensions at End
15 X 15 X 3	40 X 46 X 18

Excavated Cu. Yds.	Overburden Cu. Yds.	Spoil Cu. Yds.
1227	614	613

PIT PID READINGS

Feet	Center	N. Wall	S. Wall	E. Wall	W. Wall	Soil Type	
3'	300	ϕ	ϕ	ϕ	ϕ	Blk/Gry	
6'	1316	ϕ	ϕ	19	ϕ	clay	Blk/Gry
9'	1210	ϕ	ϕ		ϕ	clay	Blk/Gry
12'	756	140		39		clay	Gry
15'	898	211	112			clay	Gry
18'	1100	61	91	42	92	clay	Gry
~~21'~~ 22	Water 1059					clay	Gry

Composite Sample #	water sample 22' 9704300730

Location	Depth	PID Reading
North Wall		
South Wall		
East Wall		
West Wall		
Pit Bottom		

Land Farm Location:	On site 200 yds
Randleman #3	Sec. 13, 31N, 11W

Back Fill Location:	BLM was			

Comments:	

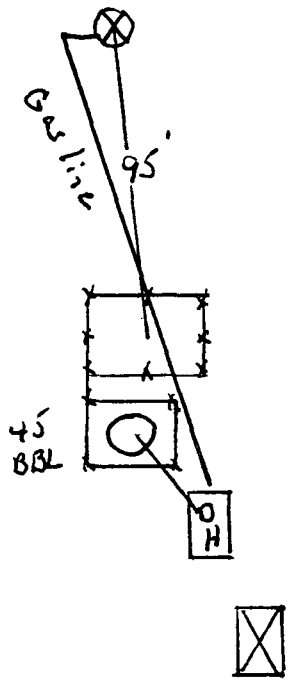
1400 hrs. H2O at 22'

Randleman #1
Burlington Resources
Sec. 13, 31N, 11W, K

4-29-97

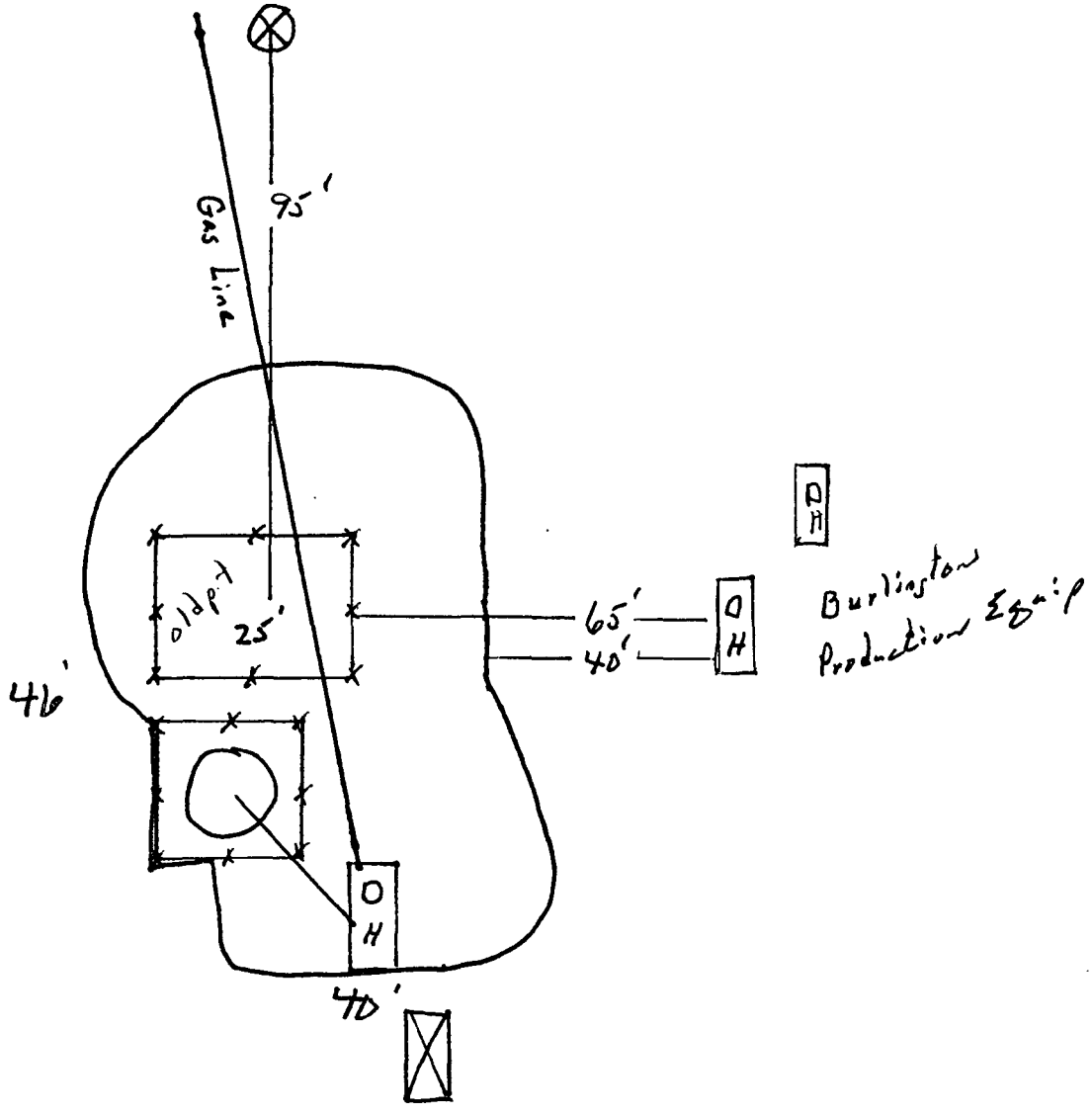
5° E of South

Start of Excavation:



Randeman #1
Burlington Resources
Sec. 13, 31N, 11W, K

End of Excavation:



Average depth 18'

40'x46'x 18' = 1227 yds
614 overburden
613 spoil

OFF: (505) 325-5667

ON SITE TECHNOLOGIES, LTD.

LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:	*Denver Bearden*	Date:	20-Jun-97
Company:	*PNM Gas Services*	COC No.:	*5155*
Address:	*603 W. Elm*	Sample No.:	*14955*
City, State:	*Farmington, NM 87401*	Job No.:	*2-1000*

Project Name:	***PNM Gas Services - Randleman #1 Landfarm***				
Project Location:	***9706160900; 10pt. Composite***				
Sampled by:	RH	Date:	16-Jun-97	Time:	9:00
Analyzed by:	DC/HR	Date:	19-Jun-97		
Sample Matrix:	*Soil*				

Laboratory Analysis

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
Diesel Range Organics (C10 - C28)	6	mg/kg	5	mg/kg

ND - Not Detected at Limit of Quantitation

Quality Assurance Report

DRO QC No.: 0548-STD

Continuing Calibration Verification

Parameter	Method Blank	Unit of Measure	True Value	Analyzed Value	RPD	RPD Limit
Diesel Range (C10 - C28)	ND	ppm	200	195	2.5	15%

Matrix Spike

Parameter	1- Percent Recovered	2 - Percent Recovered	Limit	RPD	RPD Limit
Diesel Range (C10-C28)	88	95	(70-130)	9	20%

Method - *SW-846 EPA Method 8015A mod. - Nonhalogenated Volatile Hydrocarbons by Gas Chromatography*

Approved by:
Date: 6/20/97

OFF: (505) 325-5667

ON SITE TECHNOLOGIES, LTD.

LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:	*Denver Bearden*	Date:	19-Jun-97
Company:	*PNM Gas Services*	COC No.:	*5155*
Address:	*603 W. Elm*	Sample No.:	*14955*
City, State:	*Farmington, NM 87401*	Job No.:	*2-1000*

Project Name:	***PNM Gas Services - Randleman #1 Landfarm***				
Project Location:	***9706160900; 10pt. Composite***				
Sampled by:	RH	Date:	16-Jun-97	Time:	9:00
Analyzed by:	HR	Date:	18-Jun-97		
Sample Matrix:	*Soil*				

Laboratory Analysis

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
Benzene	ND	ug/kg	1	ug/kg
Toluene	2	ug/kg	1	ug/kg
Ethylbenzene	ND	ug/kg	1	ug/kg
m,p-Xylene	1	ug/kg	1	ug/kg
o-Xylene	4	ug/kg	1	ug/kg
TOTAL	8	ug/kg		

ND - Not Detected at Limit of Quantitation

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

Approved by:
Date: 6/19/97

OFF: (505) 325-5667

ON SITE TECHNOLOGIES, LTD.

LAB: (505) 325-1556

QUALITY ASSURANCE REPORT

for EPA Method 8020

Date Analyzed: 18-Jun-97

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

Method Blank

Analyte	*Result*	*Units of Measure*
Average Amount of All Analytes In Blank	<1.0	ppb

Calibration Check

Analyte	*Units of Measure*	*True Value*	*Analyzed Value*	*% Diff*	*Limit*
Benzene	ppb	20.0	21.0	5	15%
Toluene	ppb	20.0	22.2	11	15%
Ethylbenzene	ppb	20.0	21.7	9	15%
m,p-Xylene	ppb	40.0	41.6	4	15%
o-Xylene	ppb	20.0	21.7	8	15%

Matrix Spike

Analyte	*1- Percent Recovered*	*2 - Percent Recovered*	*Limit*	*%RSD*	*Limit*
Benzene	96	92	(39-150)	3	20%
Toluene	90	85	(46-148)	4	20%
Ethylbenzene	76	71	(32-160)	5	20%
m,p-Xylene	72	65	(35-145)	6	20%
o-Xylene	78	75	(35-145)	3	20%

Surrogate Recoveries

Laboratory Identification	*S1 Percent Recovered*	*S2 Percent Recovered*	*Laboratory Identification*	*S1 Percent Recovered*	*S2 Percent Recovered*
Limit Percent Recovery	(70-130)		*Limit Percent Recovery*	(70-130)	
S1: Flourobenzene			*S1: Flourobenzene*		
14955-5155	94				
				WM	(DE)
				6/23/97	6/19/97

OFF: (505) 325-5667

ON SITE TECHNOLOGIES, LTD.

LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:	*Denver Bearden*	Date:	20-Jun-97
Company:	*PNM Gas Services*	COC No.:	*5157*
Address:	*603 W. Elm*	Sample No.:	*14957*
City, State:	*Farmington, NM 87401*	Job No.:	*2-1000*

Project Name:	***PNM Gas Services - Randleman #~~3~~ 1 Landfarm*** (NFS) (LANDFARM WAS LOCATED AT RANDLEMAN #3 SITE)				
Project Location:	***9706160930; 10pt. Composite***				
Sampled by:	RH	Date:	16-Jun-97	Time:	9:30
Analyzed by:	DC/HR	Date:	19-Jun-97		
Sample Matrix:	*Soil*				

Laboratory Analysis

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
Diesel Range Organics (C10 - C28)	8	mg/kg	5	mg/kg

ND - Not Detected at Limit of Quantitation

Quality Assurance Report

DRO QC No.: 0548-STD

Continuing Calibration Verification

Parameter	Method Blank	Unit of Measure	True Value	Analyzed Value	RPD	RPD Limit
Diesel Range (C10 - C28)	ND	ppm	200	195	2.5	15%

Matrix Spike

Parameter	1- Percent Recovered	2 - Percent Recovered	Limit	RPD	RPD Limit
Diesel Range (C10-C28)	88	95	(70-130)	9	20%

Method - *SW-846 EPA Method 8015A mod. - Nonhalogenated Volatile Hydrocarbons by Gas Chromatography*

Approved by:

Date: 6/20/97

OFF: (505) 325-5667

ON SITE TECHNOLOGIES, LTD.

LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:	*Denver Bearden*	Date:	19-Jun-97
Company:	*PNM Gas Services*	COC No.:	*5157*
Address:	*603 W. Elm*	Sample No.:	*14957*
City, State:	*Farmington, NM 87401*	Job No.:	*2-1000*

Project Name:	***PNM Gas Services - Randleman #1 Landfarm***				
Project Location:	***9706160930; 10pt. Composite***				
Sampled by:	RH	Date:	16-Jun-97	Time:	9:30
Analyzed by:	HR	Date:	18-Jun-97		
Sample Matrix:	*Soil*				

Laboratory Analysis

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
Benzene	ND	ug/kg	1	ug/kg
Toluene	1	ug/kg	1	ug/kg
Ethylbenzene	ND	ug/kg	1	ug/kg
m,p-Xylene	1	ug/kg	1	ug/kg
o-Xylene	1	ug/kg	1	ug/kg
TOTAL	4	ug/kg		

ND - Not Detected at Limit of Quantitation

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

Approved by:
Date: 6/19/97

OFF: (505) 325-5667

ON SITE TECHNOLOGIES, LTD.

LAB: (505) 325-1556

QUALITY ASSURANCE REPORT

for EPA Method 8020

Date Analyzed: 18-Jun-97

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

Method Blank

Analyte	*Result*	*Units of Measure*
Average Amount of All Analytes In Blank	<1.0	ppb

Calibration Check

Analyte	*Units of Measure*	*True Value*	*Analyzed Value*	*% Diff*	*Limit*
Benzene	ppb	20.0	21.0	5	15%
Toluene	ppb	20.0	22.2	11	15%
Ethylbenzene	ppb	20.0	21.7	9	15%
m,p-Xylene	ppb	40.0	41.6	4	15%
o-Xylene	ppb	20.0	21.7	8	15%

Matrix Spike

Analyte	*1- Percent Recovered*	*2 - Percent Recovered*	*Limit*	*%RSD*	*Limit*
Benzene	96	92	(39-150)	3	20%
Toluene	90	85	(46-148)	4	20%
Ethylbenzene	76	71	(32-160)	5	20%
m,p-Xylene	72	65	(35-145)	6	20%
o-Xylene	78	75	(35-145)	3	20%

Surrogate Recoveries

Laboratory Identification	*S1 Percent Recovered*	*S2 Percent Recovered*	*Laboratory Identification*	*S1 Percent Recovered*	*S2 Percent Recovered*
Limit Percent Recovery	(70-130)		*Limit Percent Recovery*	(70-130)	
S1: Flourobenzene			*S1: Flourobenzene*		
14957-5157	97				
				JM 6/23/97	(DC) 6/19/97