

3R - 336

REPORTS

DATE:

Aug. 16, 2001



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

August 16, 2001

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

OIL CONSERVATION DIV.
01 AUG 21 PM 12:55

RE: MILES FEDERAL #1E DRIP 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 Miles Federal #1E Drip site. Public Service Company of New Mexico (PNM) previously owned the site and initiated closure activities on June 5, 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 was conducted in two phases. Phase I began on June 5, 1997 with the excavation and landfarming of approximately 360 cubic yards of contaminated soil. The excavation was terminated at a depth of 12-feet, where ground water was encountered. A sample of ground water collected from the excavation contained benzene (297 $\mu\text{g/l}$) at a concentration 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 June 24, 1997.

To evaluate the magnitude and extent of ground water contamination, four monitoring wells were installed on August 7, 1997. An additional well was added to the network on July 31, 1998. Quarterly ground water samples were collected from the wells through May of 2000.

Phase II began on March 17, 1999 with the excavation and on-site landfarming of an additional 360 cubic yards of contaminated soil from an area located west of the initial excavation. This secondary source removal was triggered by elevated concentrations of benzene in downgradient monitoring well MW-5. Attached are descriptions of the excavation activities along with the associated soil sample results.

Site Hydrogeology

The Miles Federal #1E Drip is located in Unit N, Section 5, Township 26N, Range 7W of Rio Arriba County, New Mexico (Figure 1). The site lies within the alluvial deposits of Largo Canyon, which contains a perennial stream flowing in a northwesterly direction across the site. The alluvium consists primarily of medium to coarse sand with varying amounts of silt and clay extending to an unknown depth. Ground water in the unconsolidated sediments is unconfined and the depth to ground water is typically around 12-feet below ground level. Hydrographs for the wells were included in the Annual Ground Water

Reports previously submitted to you. Ground water flows to the northwest consistent with the local flow direction in Largo Canyon. A potentiometric surface map is included as Figure 2. The average hydraulic gradient across the site is 0.003 to 0.004. 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 September 1997 through May 2000. Three of the five wells in the monitoring network had BTEX concentrations in excess of WQCC standards. Well MW-2, located in the former source area, contained the highest BTEX levels. Downgradient wells MW-3 and MW-5, located approximately 75-foot northwest of the source area, also contained measurable concentrations of the BTEX compounds. Table 1 summarizes the ground water analytical results. Copies of the laboratory analytical reports were included in the 1998, 1999 and 2000 Annual Ground Water Reports previously submitted to you.

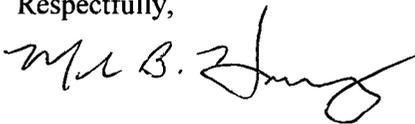
Natural attenuation processes active at the site resulted in a steady decrease in BTEX over the three-year monitoring period. The initial concentration of total BTEX in well MW-2 was 626 $\mu\text{g/L}$. Two years later, in August 1999, the total BTEX concentration was reduced to 15 $\mu\text{g/L}$. Total BTEX levels in downgradient well MW-3 increased over the first three quarters of monitoring to a maximum of 123 $\mu\text{g/L}$. Two quarters later, the BTEX levels dropped to below WQCC standards. Total BTEX levels in well MW-5 remained static over the first six quarters of monitoring. Following the additional source removal in March 1999, BTEX concentrations decreased to non-detectable levels. For the last four consecutive quarters of monitoring the concentrations of the BTEX compounds have remained below the WQCC standards in all monitoring wells.

Summary

The unlined surface impoundment at the Miles Federal #1E Drip 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 soil 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 standards.

Based on current site conditions, Williams requests approval for closure of the Miles Federal #1E Drip 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.

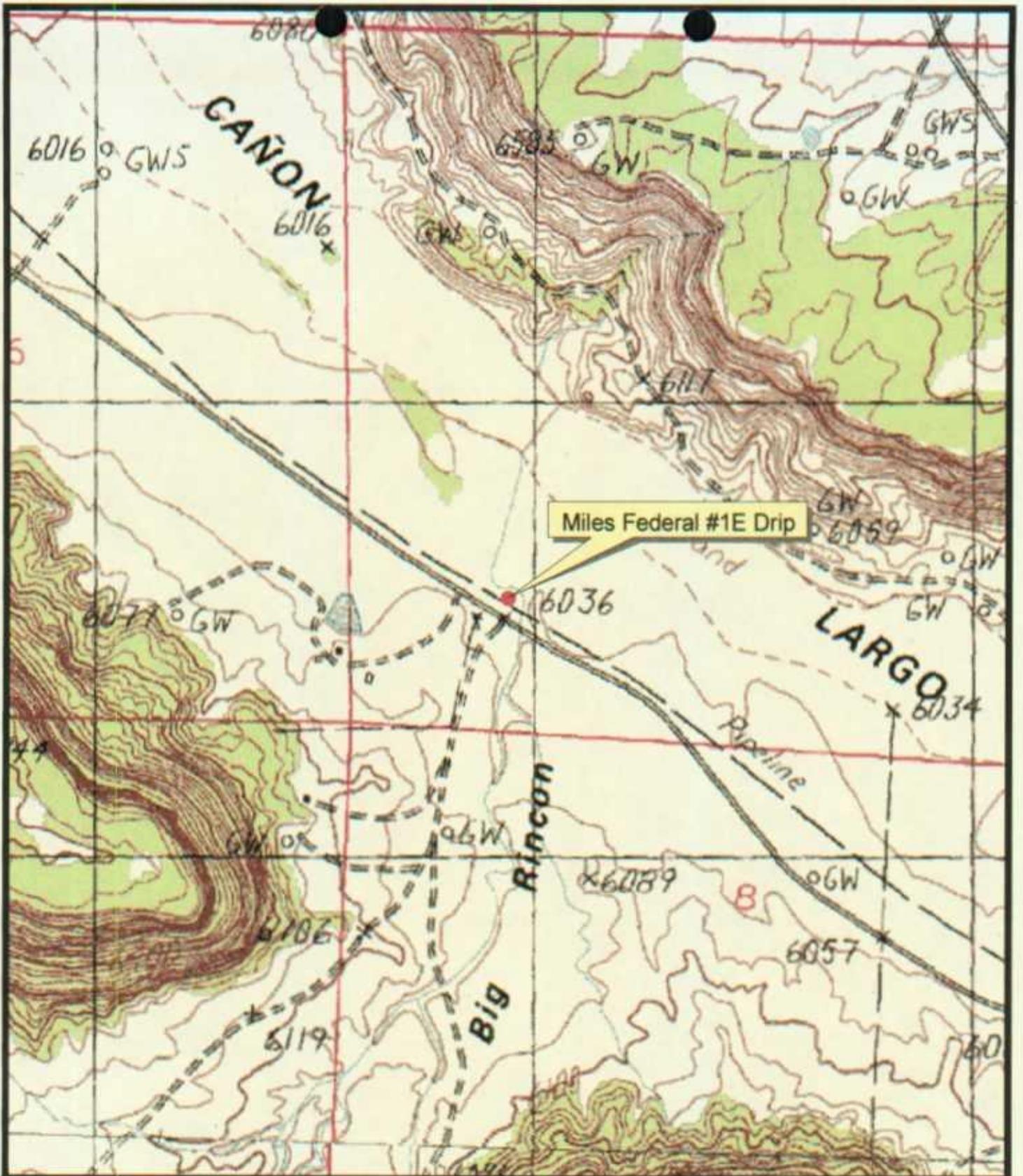
Respectfully,



Mark B. Harvey
Project Coordinator

Attachments

c: Mr. Denny Foust, OCD District III
Mr. Bill Liess, BLM Farmington District Office



Miles Federal #1E Drip

Figure 1

Site Location Map

Miles Federal #1E Drip

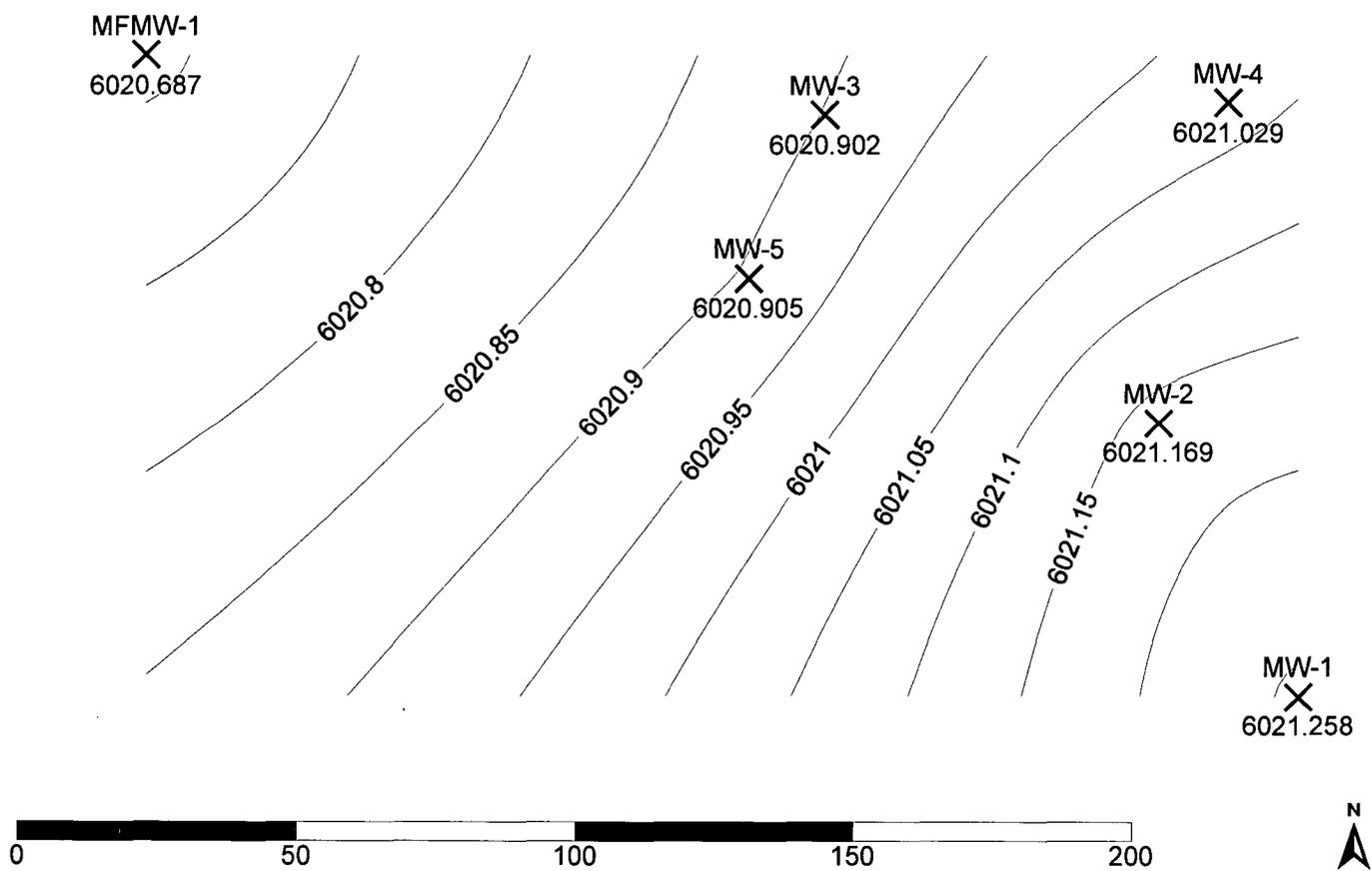
Unit N, Sec. 5, T26N, R7W



1000 0 1000 2000 Feet



Figure 2. Miles Federal 1E Drip
Potentiometric Surface Map
(November 23, 1999)



**Table 1. Miles Federal 1E Drip
Summary of Ground Water Analytical Data
(Q3/1997 - Q2/2000)**

Well ID	Sample ID	Sample Date	Free Product		Analytes (values in ug/L)			
			Present Yes/No	Thickness (ft.)	benzene	toluene	ethylbenzene	total xylenes
MW-1	9709291300	29-Sep-97	N		<0.2	<0.2	<0.2	<0.2
	9712161432	16-Dec-97	N		<0.2	<0.2	<0.2	<0.2
	9803021245	2-Mar-98	N		<0.5	<0.5	<0.5	<1.5
	9805201039	20-May-98	N		<0.5	<0.5	<0.5	<1.5
	NS	1-Jun-99	N					
	NS	3-Aug-99	N					
	NS	23-Nov-99	N					
	NS	7-Feb-00	N					
	0005180810	18-May-00	N		<0.5	<0.5	<0.5	<1.5
MW-2	9709291330	29-Sep-97	N		242.0	30	81.0	273.0
	9712161455	16-Dec-97	N		328.0	6	97.0	117.0
	9803021300	2-Mar-98	N		89.0	15	18.0	41.0
	9805201109	20-May-98	N		58.0	20	9.9	36.0
	9809241430	24-Aug-98	N		19.0	<1	6.0	19.0
	9812091200	9-Dec-98	N		16.0	<1	4.1	16.0
	9902111140	11-Feb-99	N		8.6	<0.5	2.0	4.7
	9906010925	1-Jun-99	N		11.0	<0.5	2.1	7.5
	9908030751	3-Aug-99	N		6.5	<0.5	2.9	5.6
	9911231428	23-Nov-99	N		3.3	<0.5	1.9	4.2
	0002071357	7-Feb-00	N		5.8	9.0	2.5	4.7
	0005180818	18-May-00	N		3.0	12.0	2.3	4.7
MW-3	9709291400	29-Sep-97	N		36	<0.2	<0.2	<0.2
	9712161517	16-Dec-97	N		99	<0.2	1	1
	9803021315	2-Mar-98	N		120	<0.5	3	<1.5
	9805201133	20-May-98	N		23	<0.5	<0.5	<1.5
	9809241500	24-Aug-98	N		<1	<1	<1	<3
	9812091300	9-Dec-98	N		2	<1	<1	<3
	9902111200	11-Feb-99	N		1	<0.5	<0.5	<1.5
	NS	1-Jun-99	N					
	NS	3-Aug-99	N					
	NS	23-Nov-99	N					
	NS	7-Feb-00	N					
		0005180830	18-May-00	N		5.8	<0.5	0.6

NS=Not Sampled

**Table 1. Miles Federal 1E Drip
Summary of Ground Water Analytical Data
(Q3/1997 - Q2/2000)**

Well ID	Sample ID	Sample Date	Free Product		Analytes (values in ug/L)			
			Present Yes/No	Thickness (ft.)	benzene	toluene	ethylbenzene	total xylenes
MW-4	9709291430	29-Sep-97	N		<0.2	<0.2	<0.2	<0.2
	9712161533	16-Dec-97	N		<0.2	<0.2	<0.2	<0.2
	9803021330	2-Mar-98	N		<0.5	<0.5	<0.5	<1.5
	9805201153	20-May-98	N		<0.5	<0.5	<0.5	<1.5
	NS	1-Jun-99	N					
	NS	3-Aug-99	N					
	NS	23-Nov-99	N					
	NS	7-Feb-00	N					
	0005180845	18-May-00	N		<0.5	<0.5	<0.5	<1.5
MW-5	9712161553	16-Dec-97	N		91	<0.2	0.9	0.6
	9803021345	2-Mar-98	N		96	<0.5	2	<1.5
	9805201215	20-May-98	N		67	14	9.4	35
	9809241530	24-Aug-98	N		62	<1	12	2.8
	9812091220	9-Dec-98	N		43	1.7	10	25
	9902111220	11-Feb-99	N		93	3.1	29	47
	9906011105	1-Jun-99	N		<0.5	<0.5	<0.5	<1.5
	9908030814	3-Aug-99	N		<0.5	<0.5	<0.5	<1.5
	9911231448	23-Nov-99	N		1.2	<0.5	<0.5	<1.5
	0002071424	7-Feb-00	N		<0.5	<0.5	<0.5	<1.5
	0005180900	18-May-00	N		<0.5	<0.5	<0.5	<1.5

NS=Not Sampled

District I
P. O. Box 1980, Hobbs, NM

State of New Mexico
Energy, Minerals and Natural Resources Department

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

District II
Lawer DD, Artesia, NM 88221

OIL CONSERVATION DIVISION

District III
1000 Rio Brazos Rd, Aztec, NM 87410

2040 South Pacheco Street
Santa Fe, New Mexico 87505

PIT REMEDIATION AND CLOSURE REPORT

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

Address: 603 W. Elm Street Farmington, NM 87401

Facility or Well Name: Miles Federal #1E Drip (WFS)

Location: Unit: N Sec. 5 T. 26 N R. 7 W County Rio Arriba

Pit Type: Separator Dehydrator Other drip

Land Type: BLM State Fee Other

Pit Location: Pit dimensions: length 20 width 20 depth 3

(Attach diagram) Reference: wellhead other

Footage from reference: 405

Direction from reference: 85 Degrees East North
of
 West South

Depth to Ground Water: <small>(Vertical distance from contaminants to seasonal high water elevation of ground water)</small>	Less than 50 feet	(20 points)	
	50 feet to 99 feet	(10 points)	
	Greater than 100 feet	(0 points)	<u>30</u>

Wellhead Protection Area: <small>(Less than 200 feet from a private domestic water source, or, less than 1,000 feet from all other water sources)</small>	Yes	(20 points)	
	No	(0 points)	<u>0</u>

Distance to Surface Water: <small>(Horizontal distance to perennial lakes, ponds, rivers, streams, creeks, irrigation canals and ditches)</small>	Less than 200 feet	(20 points)	
	200 feet to 1,000 feet	(10 points)	
	Greater than 1,000 feet	(0 points)	<u>10</u>

RANKING SCORE (TOTAL POINTS): 30

Date Remediation Started: 6-5-97

Date Completed: 6-9-97

Remediation Method: Excavation

Approx. Cubic Yard 360

(Check all appropriate sections)

Landfarmed

Amount Landfarmed (cubic yds) 360

Other _____

Remediation Location: Onsite

Offsite _____

(i.e., landfarmed onsite, name and location of offsite facility)

Backfill Material Location: Blm wash 1.4 miles SW of location

General Description of Remedial Action:
Excavated pit 27' x 30' x 12'
Water at 12' depth

Ground Water Encountered: No Yes Depth 12'

Final Pit Closure Sampling: Sample Location middle of pit

(if multiple samples, attach sample result and diagram of sample locations and depths.) Sample depth 12'

Sample date 6/6/97 Sample time 0800

Sample Results
Benzene (ppm) _____
Total BTEX (ppm) _____
Field headspace (ppm) _____
TPH _____ Method _____

Vertical Extent (ft) _____ Risk Assessment form attached Yes No

Ground Water Sample: Yes 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 6/6/97 PRINTED NAME AND TITLE Denver Bearden Administrator III
SIGNATURE Ray Cook

6/5/97

Excavation Work Sheet

Well Name	Operator	S	T	R	UI
Miles Federal #1 E Drive	WFS	5	26N	7W	N

Pit Dimensions at Start	Excavation Dimensions at End
30x20x3	27x30x12

Excavated Cu. Yds.	Overburden Cu. Yds.	Spoil Cu. Yds.
360	0	360

PIT PID READINGS

Feet	Center	N. Wall	S. Wall	E. Wall	W. Wall	Soil Type
3'	352	0	φ	φ	φ	sand
6'	800	0	6.1	φ	φ	sand
9'	702	0	18	3.2	126	sand
→ 12'		49	111	16	211	sand
15'						
18'						
21'						

B14/GRY
B14/GRY
B14/GRY
B14GRY

H2O

Composite Sample # 9706060800 H2O

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

Land Farm Location: On location

Back Fill Location: BLM wash 1.4 miles SW of location

Comments: pit was hot & very strong odor from first bucket. At 12' hit water. At 14' depth removed

spoils. Just below water level soil was sandy & BPA. Water sample 6/6/97 0800 hrs. Installed monitoring well with 10' slotted screen.

Excavation Work Sheet

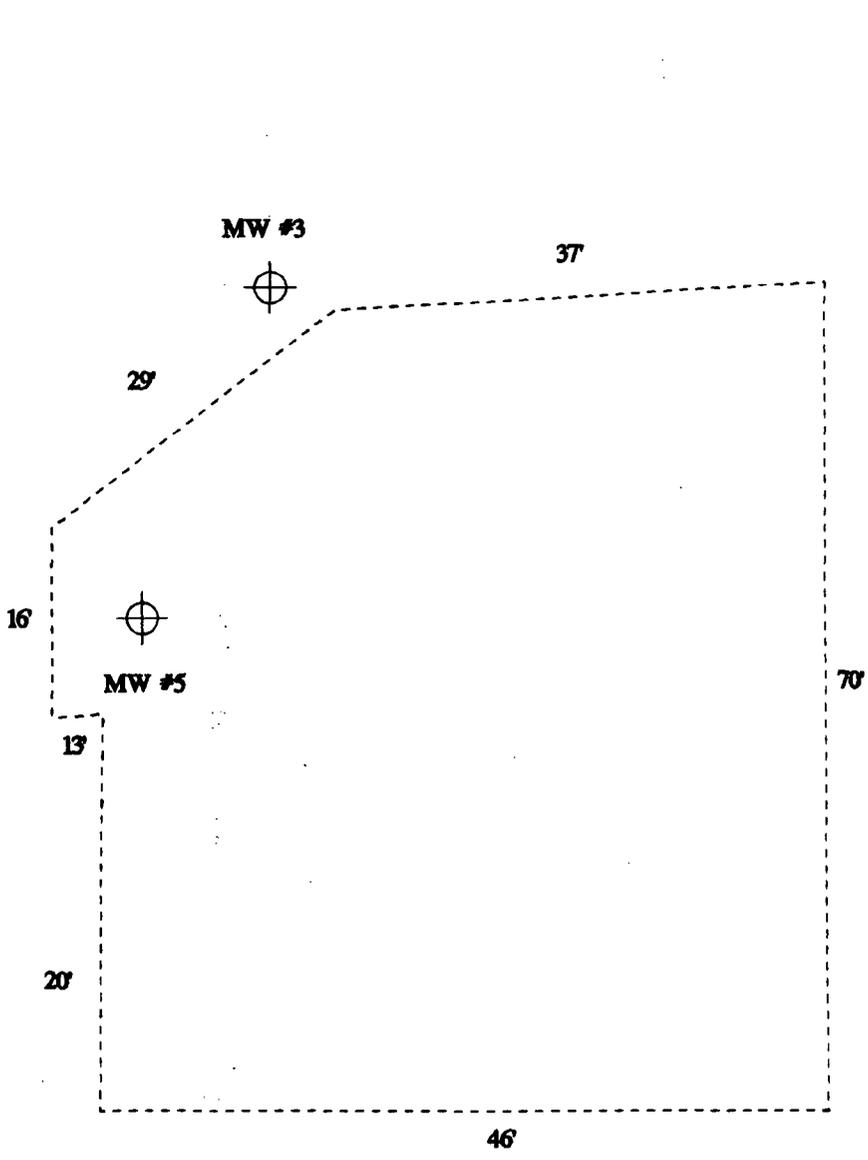
Date		Name				
3-17-99		Ray Houston				
Well Name	Operator	S	T	R	UI	
Miles Federal IE Driv	WFS					
Pit Dimensions at Start			Excavation Dimensions at End			
N/A			67.5'(N+S) X 48'(E+W) X 11.5'(D)			
Excavated Cu. Yds.	Overburden Cu. Yds.		Spoil Cu. Yds.			
1380 yds.	1020 yds.		360 yds			

PIT PID READINGS		
Feet	Center	Soil Type
5'	8	sand
10'	940	clay/sand.
11' 15'	1234	sand
20'		
25'		

Composite Sample # (Walls):		
Composite Sample # (Bottom):		
Location	Depth	PID Reading
North Wall	11.5' 11.5'	HS. 0 ppm ppm
South Wall	11.5'	HS 0 ppm
East Wall	11.5'	HS 680 ppm
West Wall	11.5'	HS 0 ppm
Pit Bottom	11.5'	HS 0 ppm

Land Farm Location: on site

Field Notes: NW^{#5} site 50' almost due north of E/W pipeline, were going to trench parallel of the pipe line to try and identify the southern edge of the contamination. At 10' there was a heavy band of contamination which extended to a 11' where the water table held it. At the extreme southeast corner of the excavation the contamination bed was about 2' thick (this area is 4' away from the intersection of the two pipelines). There is a 2' band that



MW #4

1K tk.

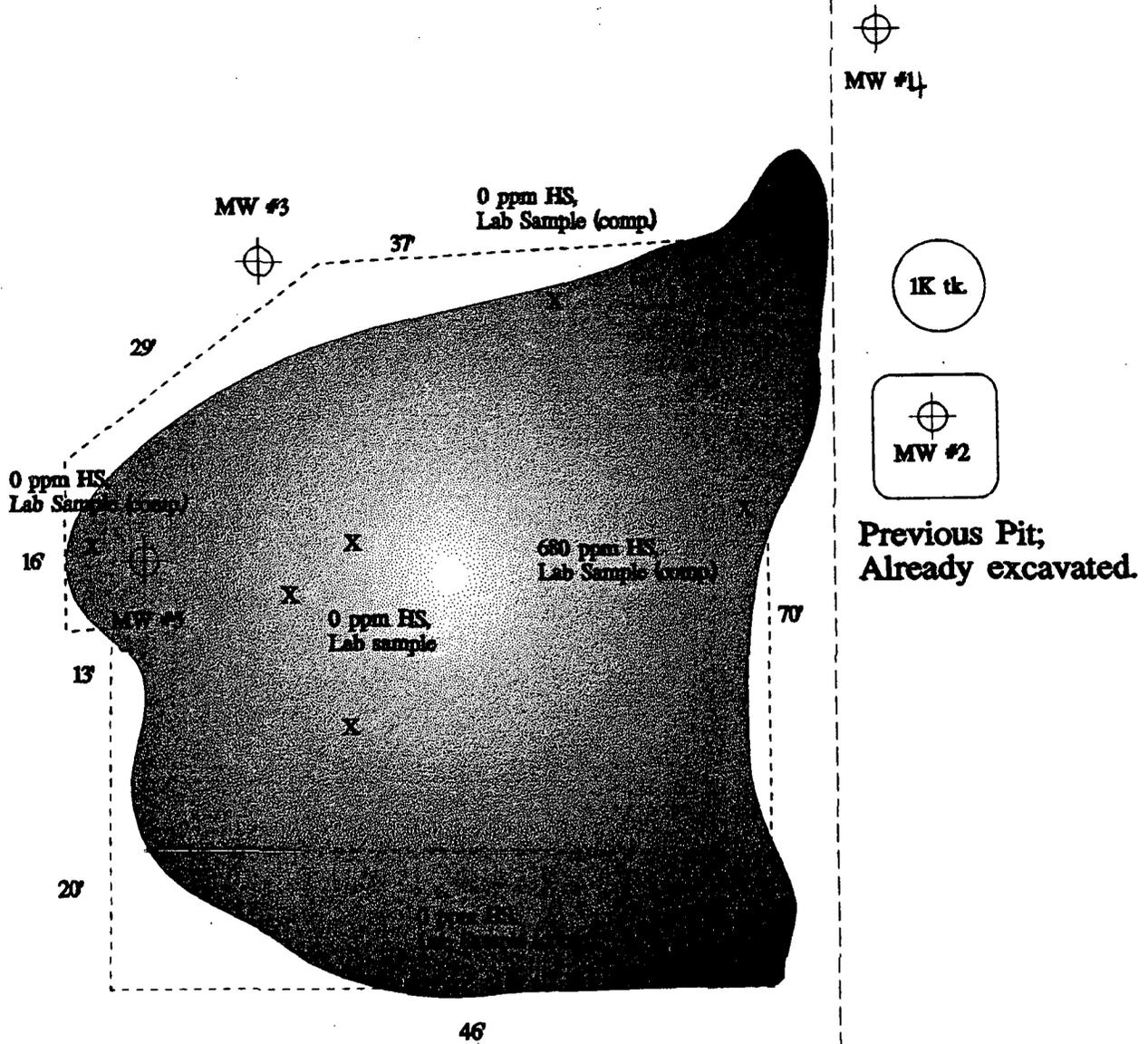
MW #2

Previous Pit;
Already excavated.

MW #1

50' from EW pipeline to MW #5

Miles Federal #1E Drip;
Further investigation.



Miles Federal #1E Drip; Further investigation.
Shaded area indicates apparent extent of
contamination.

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: *3-Jul-97*
 COC No.: *5179*
 Sample No.: *15145*
 Job No.: *2-1000*

Project Name: ***PNM Gas Services - Miles Federal 1E Drip Landfarm***
 Project Location: ***9706281137; 10pt. Composite***
 Sampled by: *RH* Date: *28-Jun-97* Time: *11:37*
 Analyzed by: *DC/HR* Date: *3-Jul-97*
 Sample Matrix: *Soil*

Laboratory Analysis

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
<i>Diesel Range Organics (C10 - C28)</i>	<i>29</i>	<i>mg/kg</i>	<i>5</i>	<i>mg/kg</i>

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
<i>Diesel Range (C10 - C28)</i>	<i>ND</i>	<i>ppm</i>	<i>200</i>	<i>189</i>	<i>5.6</i>	<i>15%</i>

Matrix Spike

Parameter	1 - Percent Recovered	2 - Percent Recovered	Limit	RPD	RPD Limit
<i>Diesel Range (C10-C28)</i>	<i>96</i>	<i>98</i>	<i>(70-130)</i>	<i>2</i>	<i>20%</i>

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

Approved by: *[Signature]*
 Date: *7/13/97*

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: *3-Jul-97*
 COC No.: *5179*
 Sample No.: *15145*
 Job No.: *2-1000*

Project Name: *PNM Gas Services - Miles Federal 1E Drip Landfarm*
 Project Location: *9706281137; 10pt. Composite*
 Sampled by: *RH* Date: *28-Jun-97* Time: *11:37*
 Analyzed by: *DC* Date: *30-Jun-97*
 Sample Matrix: *Soil*

Laboratory Analysis

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
<i>Benzene</i>	ND	ug/kg	1	ug/kg
<i>Toluene</i>	5	ug/kg	1	ug/kg
<i>Ethylbenzene</i>	6	ug/kg	1	ug/kg
<i>m,p-Xylene</i>	15	ug/kg	1	ug/kg
<i>o-Xylene</i>	59	ug/kg	1	ug/kg
	<i>TOTAL</i>	85		ug/kg

ND - Not Detected at Limit of Quantitation

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

Approved by: *[Signature]*
 Date: *7/3/97*

P.O. BOX 2606 • FARMINGTON, NM 87499

- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

OFF: (505) 325-5667



LAB: (505) 325-1556

ANALYTICAL REPORT

Date: 29-Mar-99

Client:	PNM - Public Service Company of NM	Client Sample Info:	Miles Federal 1E Drip
Work Order:	9903044	Client Sample ID:	9903180845; 3pt. Bottom
Lab ID:	9903044-01A	Matrix:	SOIL
Project:	Miles Federal 1E Drip	Collection Date:	3/18/99 8:45:00 AM
		COC Record:	5785

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL RANGE ORGANICS		SW8015				Analyst: DC
T/R Hydrocarbons: C10-C28	ND	50		mg/Kg	2	3/23/99
AROMATIC VOLATILES BY GC/PID		SW8021B				Analyst: HR
Benzene	ND	1		µg/Kg	1	3/22/99
Toluene	ND	2		µg/Kg	1	3/22/99
Ethylbenzene	ND	1		µg/Kg	1	3/22/99
m,p-Xylene	ND	2		µg/Kg	1	3/22/99
o-Xylene	ND	1		µg/Kg	1	3/22/99

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

P.O. BOX 2606 • FARMINGTON, NM 87499

- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

OFF: (505) 325-5667



LAB: (505) 325-1556

ANALYTICAL REPORT

Date: 29-Mar-99

Client:	PNM - Public Service Company of NM	Client Sample Info:	Miles Federal 1E Drip
Work Order:	9903044	Client Sample ID:	9903180855; 4 Wall Composite
Lab ID:	9903044-02A	Matrix:	SOIL
Project:	Miles Federal 1E Drip	Collection Date:	3/18/99 8:55:00 AM
		COC Record:	5785

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL RANGE ORGANICS						
T/R Hydrocarbons: C10-C28	ND	50		mg/Kg	2	3/24/99
AROMATIC VOLATILES BY GC/PID						
						Analyst: DC
						Analyst: HR
Benzene	12	1		µg/Kg	1	3/22/99
Toluene	14	2		µg/Kg	1	3/22/99
Ethylbenzene	2.8	1		µg/Kg	1	3/22/99
m,p-Xylene	20	2		µg/Kg	1	3/22/99
o-Xylene	4.3	1		µg/Kg	1	3/22/99

Qualifiers:

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

P.O. BOX 2606 • FARMINGTON, NM 87499

- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

RD

OFF: (505) 325-5667



LAB: (505) 325-1556

ANALYTICAL REPORT

Date: 07-May-99

Client:	PNM - Public Service Company of NM	Client Sample Info:	Miles Federal 1E Drip LF
Work Order:	9905012	Client Sample ID:	9905031531; 6pt. Comp
Lab ID:	9905012-01A	Matrix:	SOIL
Project:	Miles Federal 1E Drip LF	Collection Date:	5/3/99 3:31:00 PM
		COC Record:	7479

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL RANGE ORGANICS		SW8015B				Analyst: DC
T/R Hydrocarbons: C10-C28	ND	25		mg/Kg	1	5/5/99

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