

District I
P.O. Box 1990, Hobbs, NM

District II
P.O. Drawer DD, Aztec, NM 88221

District III
1000 Rio Brazos Rd. Aztec, NM 87410

State of New Mexico
Energy, Minerals and Natural Resources Department

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

Denny E. Frost
DEPUTY OIL & GAS INSPECTOR

OIL CONSERVATION DIVISION

2040 South Pacheco Street
Santa Fe, New Mexico 87505

JUL 18 1997

PIT REMEDIATION AND CLOSURE REPORT

Approved

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

Address: 603 W. Elm Street Farmington, NM 87401

Facility or Well Name: Crandell #2

Location: Unit: G M Sec. 19 T. 31 N R. 10 W County San Juan

Pit Type: Separator Dehydrator ☒ Other No

Land Type: BLM ☒ State Fee Other No

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

(Attach diagram) Reference: wellhead ☒ other

Footage from reference: 105'

Direction from reference: due Degrees ☒ East North
of
 West South

Depth to Ground Water:

(Vertical distance from contaminants to
seasonal high water elevation of ground
water)

Less than 50 feet (20 points)
50 feet to 99 feet (10 points)
Greater than 100 feet (0 points)

0

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 (20 points)
No (0 points)

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0

Distance to Surface Water:

(Horizontal distance to perennial lakes,
ponds, rivers, streams, creeks, irrigation
canals and ditches)

Less than 200 feet (20 points)
200 feet to 1,000 feet (10 points)
Greater than 1,000 feet (0 points)

0

RANKING SCORE (TOTAL POINTS):

0

Date Remediation Started:	<u>4/10/96</u>	Date Completed:	<u>4/11/96</u>
Remediation Method:	Excavation <u>X</u>	Approx. Cubic Yard	<u>264</u>
(Check all appropriate sections)	Landfarmed <u>X</u>	Amount Landfarmed (cubic yds)	<u>204</u>
	Other _____		
Remediation Location:	Onsite <u>X</u>	Offsite _____	
(i.e., landfarmed onsite, name and location of offsite facility)			
Backfill Material Location:	_____		
General Description of Remedial Action:			
Excavated contaminated soil to pit size of 22'x18'x18' and landfarmed soil onsite within a bermed area at a depth of 6" to 12". Soil will be aerated by plowing/disking until soil meets regulatory levels.			
*** Vertical extent at 45' provided BTEX at 32.2 ppm and TPH at 58 ppm. See attached risk analysis form and lab analysis.			

Ground Water Encountered:	No <u>✓</u>	Yes _____	Depth _____

Final Pit Closure Sampling:	Sample Location	<u>5 pt. composite-4 side walls and center of pit bottom</u>	
(if multiple samples, attach sample result and diagram of sample locations and depths.)	Sample depth	<u>18'</u>	
	Sample date	<u>4/11/96</u>	Sample time <u>10:15:00 AM</u>
Sample Results			
	Benzene (ppm)	<u>3.8025</u>	
	Total BTEX (ppm)	<u>*** 230.7509</u>	
	Field headspace (ppm)	_____	
	TPH	<u>3800.00</u>	Method <u>418.1</u>
Vertical Extent (ft)	<u>45'</u>	Risk Assessment form attached	Yes <u>✓</u> No _____
Ground Water Sample:	Yes _____	No <u>✓</u>	(If yes, see attached Groundwater Site Summary Report)

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

DATE April 28, 1997

SIGNATURE



PRINTED NAME
AND TITLE

Denver Bearden
Administrator III



Well Name:	Crandell #2
Well Legals:	Unit G, Sec 19, T31N, R10W
Pit Type:	Dehydrator
Horizontal Distance to Surface Water:	Greater than 1,000 ft
Groundwater Depth:	Greater than 100 ft

RISK ANALYSIS

PNM requests closure of the Crandell #2 using a limited risk analysis of the site conditions.

1. PNM estimated groundwater to be at a depth of 170 ft. based upon elevation of site to the Animas River. (Reference: topographic map.)
2. This site is not located within 200 ft. of a domestic water well and is not within 1,000 ft. of any other water source.
3. Distance from the site to surface water is greater than 1,000 ft.
4. PNM excavated 204 cu. yds. from the former pit. Vertical extent was determined using a hollow stem drilling rig. Bedrock was encountered at 45 ft. below ground surface.

Based upon the information provided above, PNM believes the Crandell #2 poses minimal risk to the environment. Subsurface lateral migration is limited based upon PNM's past experience in excavating 400 pits. Source removal minimizes the possibility of surface water contamination. Bedrock provides an impermeable layer between remaining contamination and groundwater. Vertical migration through bedrock to groundwater is highly unlikely.

Crandell # 2

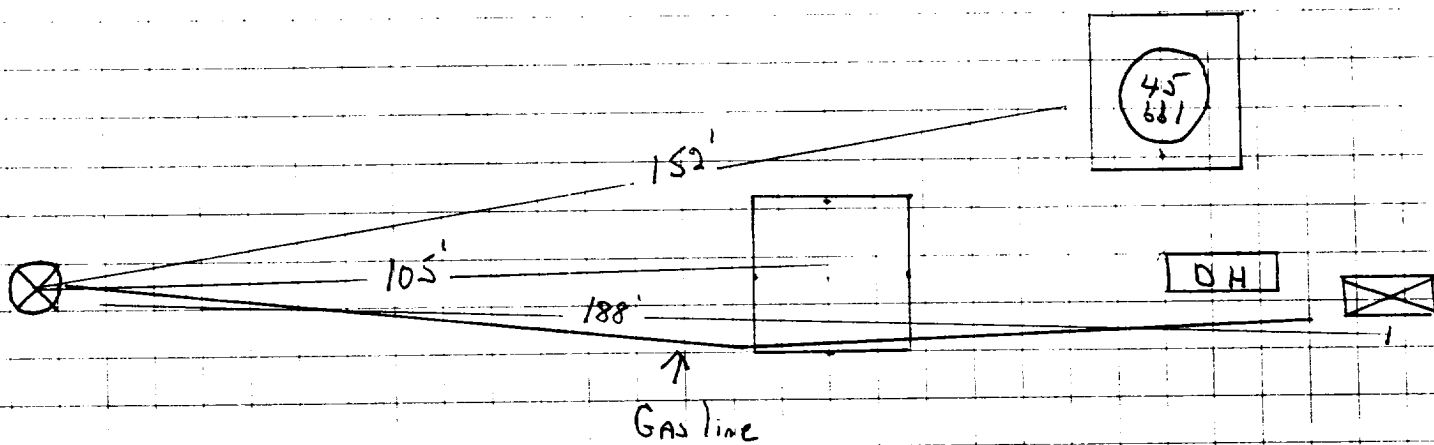
4-10-96

SRC

Sec 19, T31N, R10W

990' FSL + 990 FWL

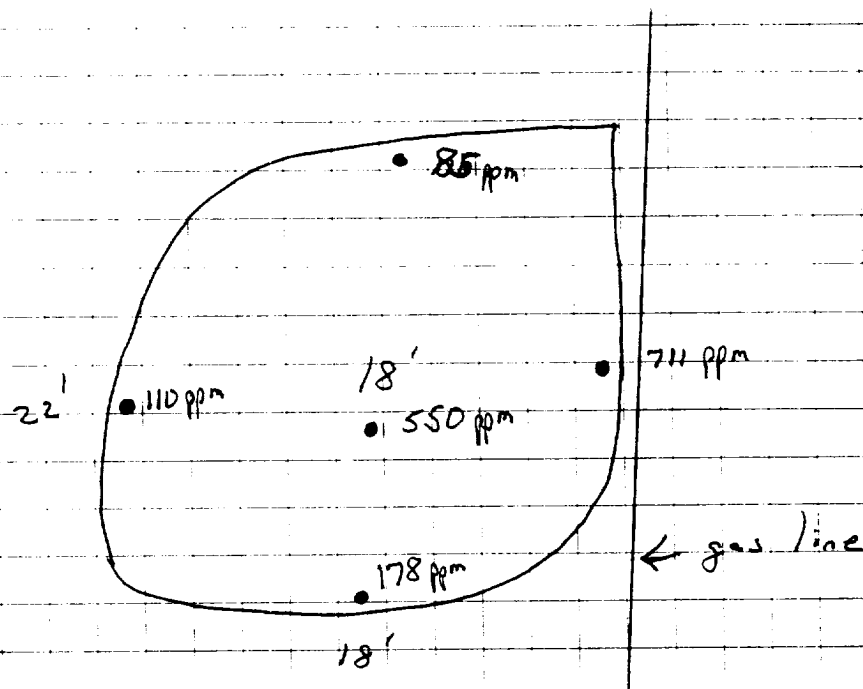
due East



Gas line south boundary of pit

Crendell #2

Pit: $18' \times 22' \times 18' = 264 \text{ yds}$
overburden = $\frac{60 \text{ yds}}{204 \text{ yds.}}$



Sandy soil

Composite sample # 9604/1/1015

4' = 80 ppm - sand
7' = 881 ppm - sand
9' = 885 ppm - sand
12' = 815 ppm - sand
16' = 790 ppm - sand
18' = 550 ppm - sand

Bottom 18' = 550 ppm
North Wall 16' = 110 ppm
South Wall 14' = 711 ppm
East Wall 16' = 85 ppm
West Wall 16' = 178 ppm

OFF: (505) 325-8786



LAB: (505) 325-5667

TOTAL PETROLEUM HYDROCARBONS

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

Date: *14-Apr-96*
COC No.: *4582*
Sample No.: *10628*
Job No.: *2-1000*

Project Name: *PNM Gas Services - Crandell #2*
Project Location: *9604111015; 5pt. Composite, 4 Walls & Bottom, 18'*
Sampled by: *GC* Date: *11-Apr-96* Time: *10:15*
Analyzed by: *DC* Date: *14-Apr-96*
Type of Sample: *Soil*

Laboratory Analysis

Laboratory Identification	Sample Identification	Total Petroleum Hydrocarbons
<i>10628-4582</i>	<i>PNM Gas Services - Crandell #2</i> <i>9604111015; 5pt. Composite, 4 Walls & Bottom, 18'</i>	<i>3,800 mg/kg</i>

Quality Assurance Report

Laboratory Identification	Analyzed Value	Acceptable Range	Units of Measure
<i>Laboratory Fortified Blank Soil - QCBS2</i>	<i><25</i>	<i><25</i>	<i>mg/kg</i>
<i>Laboratory Fortified Spike Soil - QCSS1</i>	<i>913</i>	<i>828 - 1024</i>	<i>mg/kg</i>

Method - EPA Method 418.1 Total Petroleum Hydrocarbons

Approved by: *Jaif*

Date: *4/14/96*

P. O. BOX 2606 • FARMINGTON, NM 87499

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OFF: (505) 325-8786



LAB: (505) 325-5667

AROMATIC VOLATILE ORGANICS

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

Date: *15-Apr-96*
COC No.: *4582*
Sample No. *10628*
Job No. *2-1000*

Project Name: *PNM Gas Services - Crandell #2*
Project Location: *9604111015; 5pt. Composite, 4 Walls & Bottom, 18'*
Sampled by: *GC* Date: *11-Apr-96* Time: *10:15*
Analyzed by: *DC* Date: *14-Apr-96*
Type of Sample: *Soil*

Aromatic Volatile Organics

Component	Result	Units of Measure	Detection Limit	Units of Measure
<i>Benzene</i>	<i>3802.5</i>	<i>ug/kg</i>	<i>0.2</i>	<i>ug/kg</i>
<i>Toluene</i>	<i>79812.9</i>	<i>ug/kg</i>	<i>0.2</i>	<i>ug/kg</i>
<i>Ethylbenzene</i>	<i>12163.7</i>	<i>ug/kg</i>	<i>0.2</i>	<i>ug/kg</i>
<i>m,p-Xylene</i>	<i>113710.5</i>	<i>ug/kg</i>	<i>0.2</i>	<i>ug/kg</i>
<i>o-Xylene</i>	<i>21261.2</i>	<i>ug/kg</i>	<i>0.2</i>	<i>ug/kg</i>
<i>TOTAL</i>		<i>230750.9</i>		<i>ug/kg</i>

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

Approved by: *Ja 4*

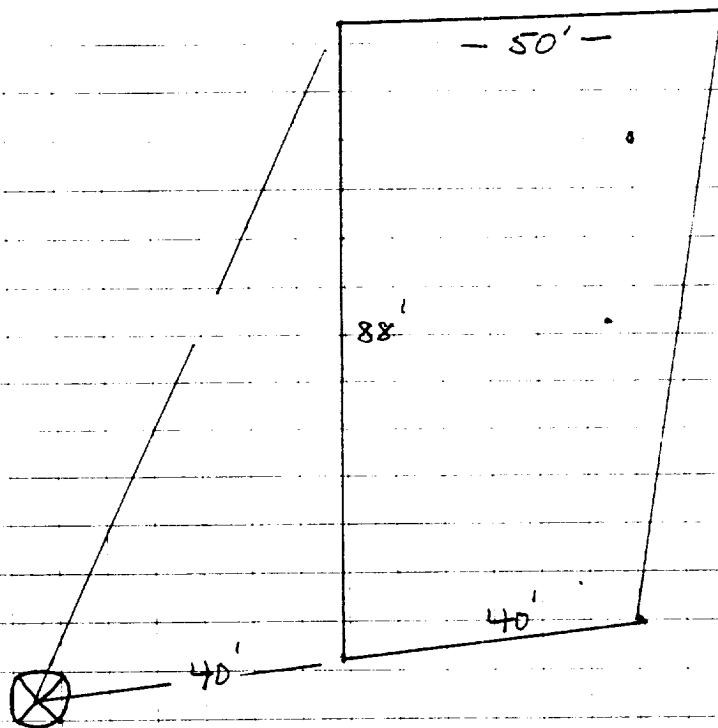
Date: *4/15/96*

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— TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT —

Crandell #2

Land Farm Location on-site



Approximately 12" deep

Crandell #2

5-14-96

Meridian O:1

Sec. 19, T31N, R10W

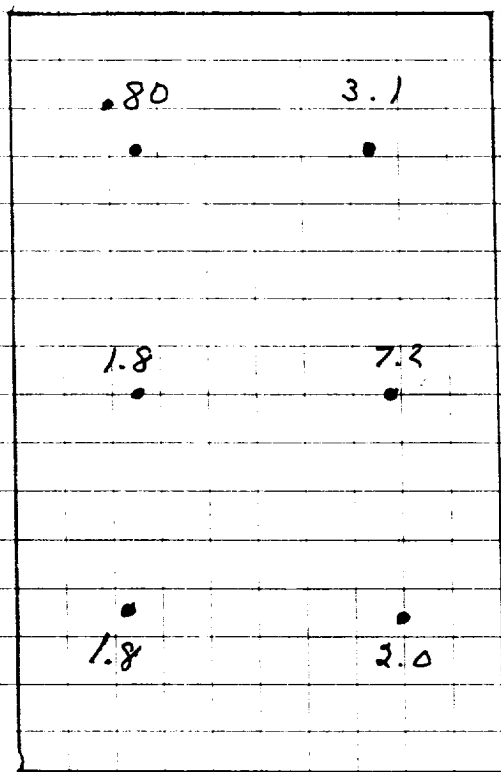
Run # 10-41

Land Farmed on location

207 yards

Composite Sample # 9605140830 (bpl.)

Soil Vapor Head-Space Reading = 62.3 ppm



Sample depth 2" - 12" deep

OFF: (505) 325-8786

ON SITE
TECHNOLOGIES, LTD.

LAB: (505) 325-5667

Diesel Range Organics

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

Date: *16-May-96*
COC No.: *4643*
Sample No. *10885*
Job No. *2-1000*

Project Name: *PNM Gas Services - Crandell #2 Land Farm*
Project Location: *9605140830; 6pt. Composite, 2"-12" deep*
Sampled by: GC Date: *14-May-96* Time: *8:30*
Analyzed by: HR Date: *15-May-96*
Sample Matrix: *Soil*

Laboratory Analysis

<i>Parameter</i>	<i>Result</i>	<i>Unit of Measure</i>	<i>Detection Limit</i>	<i>Unit of Measure</i>
<i>Diesel Range Organics (C10 - C28)</i>	<i>50.4</i>	<i>mg/kg</i>	<i>5.0</i>	<i>mg/kg</i>

Quality Assurance Report

DRO QC No.: *0475-QC*

Calibration Check

<i>Parameter</i>	<i>Method Blank</i>	<i>Unit of Measure</i>	<i>True Value</i>	<i>Analyzed Value</i>	<i>% Diff</i>	<i>Limit</i>
<i>Diesel Range (C10 - C28)</i>	<i><5.0</i>	<i>ppm</i>	<i>2,000</i>	<i>1,816</i>	<i>9.2</i>	<i>15%</i>

Matrix Spike

<i>Parameter</i>	<i>1- Percent Recovered</i>	<i>2 - Percent Recovered</i>	<i>Limit</i>	<i>%RSD</i>	<i>Limit</i>
<i>Diesel Range (C10-C28)</i>	<i>88</i>	<i>96</i>	<i>(70-130)</i>	<i>6</i>	<i>20%</i>

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

Approved by: *[Signature]*

Date: *5/16/96*

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- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8015 Modified Nonhalogenated Volatile Organics Total Petroleum Hydrocarbons

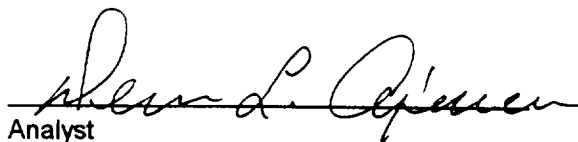
Client:	Public Service Co. of NM	Project #:	93108-02
Sample ID:	Crandel #2 TH-5 @ 45'	Date Reported:	12-05-96
Laboratory Number:	A803	Date Sampled:	12-04-96
Chain of Custody No:	5023	Date Received:	12-04-96
Sample Matrix:	Soil	Date Extracted:	12-05-96
Preservative:	Cool	Date Analyzed:	12-05-96
Condition:	Cool and Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	58.0	0.2
Diesel Range (C10 - C28)	ND	0.1
Total Petroleum Hydrocarbons	58.0	0.2

ND - Parameter not detected at the stated detection limit.

References: Method 8015, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Comments:


Analyst


Review

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020 AROMATIC VOLATILE ORGANICS

Client:	Public Service Co. of NM.	Project #:	93108-02
Sample ID:	Crandel #2 TH-5 @ 45'	Date Reported:	12-05-96
Laboratory Number:	A803	Date Sampled:	12-04-96
Chain of Custody:	5023	Date Received:	12-04-96
Sample Matrix:	Soil	Date Analyzed:	12-05-96
Preservative:	Cool	Date Extracted:	12-05-96
Condition:	Cool & Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	30.2	8.8
Toluene	3,770	8.4
Ethylbenzene	3,030	7.6
p,m-Xylene	22,700	10.8
o-Xylene	2,680	5.2
Total BTEX	32,200	

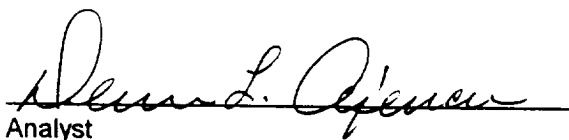
ND - Parameter not detected at the stated detection limit.

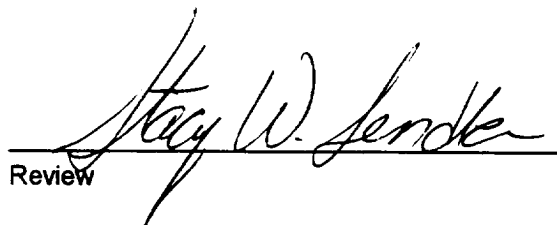
Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	101 %
	Bromofluorobenzene	101 %

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

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

Comments:


Analyst


Review