

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

District II  
P.O. 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

Risk Analysis  
siltstone a-135  
SUBMIT 1 COPY TO  
APPROPRIATE  
DISTRICT OFFICE  
AND 1 COPY TO  
SANTA FE OFFICE  
still close  
standard EX

**PIT REMEDIATION AND CLOSURE REPORT**

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

Address: 603 W. Elm Street Farmington, NM 87401

Facility or Well Name: Grenier #23

Location: Unit M Sec 31 T 31 N R 11 W County San Juan

Pit Type: Separator ☐ Dehydrator ☒ Other                     

Land Type: BLM ☒ State ☐ Fee ☐ Other                     

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

(Attach diagram) Reference: wellhead ☒ other                     

Footage from reference: 150'

Direction from reference: 25 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) 10

**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) 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):** 10

RECEIVED  
JAN 31 1990  
OIL CON. DIV.  
Rm. 3

Grenier #23

Date Remediation Started: 06/09/1999

Date Completed: 06/09/1999

Remediation Method: Excavation ☒

Approx. Cubic Yard 420

(Check all appropriate sections)

Landfarmed ☒

Amount Landfarmed (cubic yds) 340

Other 80 cu yds overburden.

Remediation Location:

Onsite ☒Offsite ☐

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

Backfill Material Location:

General Description of Remedial Action:

Excavated contaminated soil to a pit size of 27' X 21' X 20' and landfarmed soil onsite within a bermed area at a depth of 6" to 12". Soil was aerated by disking/plowing until soil met regulatory levels.

\*\*\* Vertical extent drilling conducted to 35'. Siltstone encountered at 35'. See attached risk analysis and lab analysis form.

Ground Water Encountered:

No ☒Yes ☐

Depth

Final Pit Closure Sampling:

Sample Location 4 pt. composite - bottom.

(if multiple samples, attach sample result and diagram of sample locations and depths.)

Sample depth 20'

Sample date 06/09/1999

Sample time 11:52:00 AM

Sample Results

Benzene (ppm) 4.4

Total BTEX (ppm) 386.4 \*\*\*

Field headspace (ppm)

TPH (ppm) 2200.00 \*\*\*

Method 8015B

Vertical Extent (ft) 35'

Risk Analysis form attached Yes ☒ No ☐

Ground Water Sample:

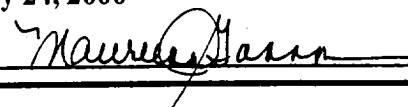
Yes ☐No ☒

(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 January 24, 2000

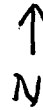
SIGNATURE



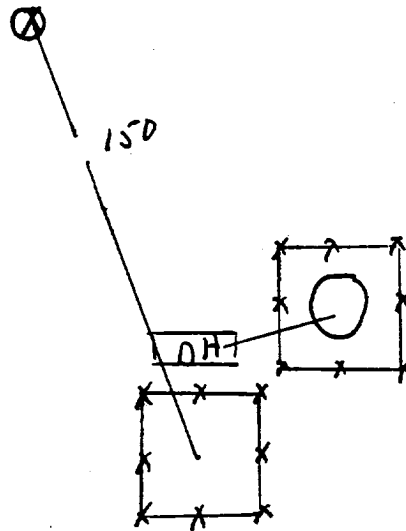
PRINTED NAME Maureen Gannon  
AND TITLE Project Manager

Grenier # ~~73~~ 73  
Burlington  
Sec. 31, 31 N, 11 W, m

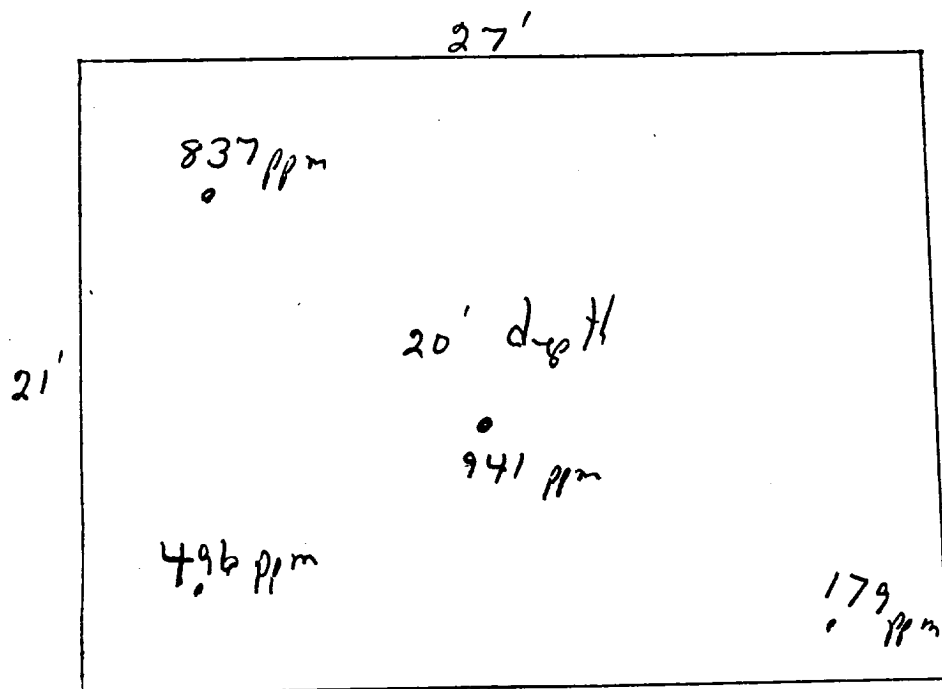
6-9-99



Site diagram:



End of excavation:



not to scale

OFF: (505) 325-5667



LAB: (505) 325-1556

**On Site Technologies, LTD.**

**Date:** 23-Jun-99

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**CLIENT:** PNM - Public Service Company of NM

**Project:** PNM Pit Remediation

**Lab Order:** 9906039

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## **CASE NARRATIVE**

Samples were analyzed using the methods outlined in the following references:

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, 3rd Edition

All method blanks, laboratory spikes, and/or matrix spikes met quality assurance objectives.

OFF: (505) 325-5667



LAB: (505) 325-1556

## ANALYTICAL REPORT

Date: 23-Jun-99

|                    |                                    |                            |                                      |
|--------------------|------------------------------------|----------------------------|--------------------------------------|
| <b>Client:</b>     | PNM - Public Service Company of NM | <b>Client Sample Info:</b> | Grenier #23                          |
| <b>Work Order:</b> | 9906039                            | <b>Client Sample ID:</b>   | 9906091152; 20ft. - 4 pt. composite. |
| <b>Lab ID:</b>     | 9906039-03A                        | <b>Matrix:</b>             | SOIL                                 |
| <b>Project:</b>    | PNM Pit Remediation                | <b>Collection Date:</b>    | 6/9/99 11:52:00 AM                   |
|                    |                                    | <b>COC Record:</b>         | 7607                                 |

| Parameter                           | Result | PQL            | Qual | Units | DF   | Date Analyzed |
|-------------------------------------|--------|----------------|------|-------|------|---------------|
| <b>DIESEL RANGE ORGANICS</b>        |        | <b>SW8015B</b> |      |       |      | Analyst: DC   |
| T/R Hydrocarbons: C10-C28           | 2200   | 25             |      | mg/Kg | 1    | 6/18/99       |
| <b>AROMATIC VOLATILES BY GC/PID</b> |        | <b>SW8021B</b> |      |       |      | Analyst: DC   |
| Benzene                             | 4400   | 2500           |      | µg/Kg | 2500 | 6/18/99       |
| Toluene                             | 120000 | 5000           |      | µg/Kg | 2500 | 6/18/99       |
| Ethylbenzene                        | 20000  | 2500           |      | µg/Kg | 2500 | 6/18/99       |
| m,p-Xylene                          | 200000 | 5000           |      | µg/Kg | 2500 | 6/18/99       |
| o-Xylene                            | 42000  | 2500           |      | µg/Kg | 2500 | 6/18/99       |

386400  
386.4 ppm

**Qualifiers:**

- PQL - Practical Quantitation Limit
- ND - Not Detected at Practical Quantitation Limit
- J - Analyte detected below Practical Quantitation Limit
- B - Analyte detected in the associated Method Blank

- S - Spike Recovery outside accepted recovery limits
- R - RPD outside accepted recovery limits
- E - Value above quantitation range
- Surr: - Surrogate

1 of 1

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OFF: (505) 325-5667



LAB: (505) 325-1556

# ANALYTICAL REPORT

Date: 23-Jun-99

|                    |                                    |                            |                    |
|--------------------|------------------------------------|----------------------------|--------------------|
| <b>Client:</b>     | PNM - Public Service Company of NM | <b>Client Sample Info:</b> | Grenier #23        |
| <b>Work Order:</b> | 9906039                            | <b>Client Sample ID:</b>   | 9906091155; 15ft.  |
| <b>Lab ID:</b>     | 9906039-04A                        | <b>Matrix:</b>             | SOIL               |
| <b>Project:</b>    | PNM Pit Remediation                | <b>Collection Date:</b>    | 6/9/99 11:55:00 AM |
|                    |                                    | <b>COC Record:</b>         | 7607               |

| Parameter                           | Result | PQL            | Qual | Units | DF  | Date Analyzed |
|-------------------------------------|--------|----------------|------|-------|-----|---------------|
| <b>DIESEL RANGE ORGANICS</b>        |        |                |      |       |     |               |
|                                     |        | <b>SW8015B</b> |      |       |     | Analyst: DC   |
| T/R Hydrocarbons: C10-C28           | 150    | 25             |      | mg/Kg | 1   | 6/18/99       |
| <b>AROMATIC VOLATILES BY GC/PID</b> |        |                |      |       |     |               |
|                                     |        | <b>SW8021B</b> |      |       |     | Analyst: DC   |
| Benzene                             | ND     | 100            |      | µg/Kg | 100 | 6/18/99       |
| Toluene                             | 2600   | 200            |      | µg/Kg | 100 | 6/18/99       |
| Ethylbenzene                        | 1200   | 100            |      | µg/Kg | 100 | 6/18/99       |
| m,p-Xylene                          | 12000  | 200            |      | µg/Kg | 100 | 6/18/99       |
| o-Xylene                            | 2100   | 100            |      | µg/Kg | 100 | 6/18/99       |

17900  
17.9 ppm

|                    |   |   |
|--------------------|---|---|
| <b>Qualifiers:</b> | 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                                   |

1 of 1

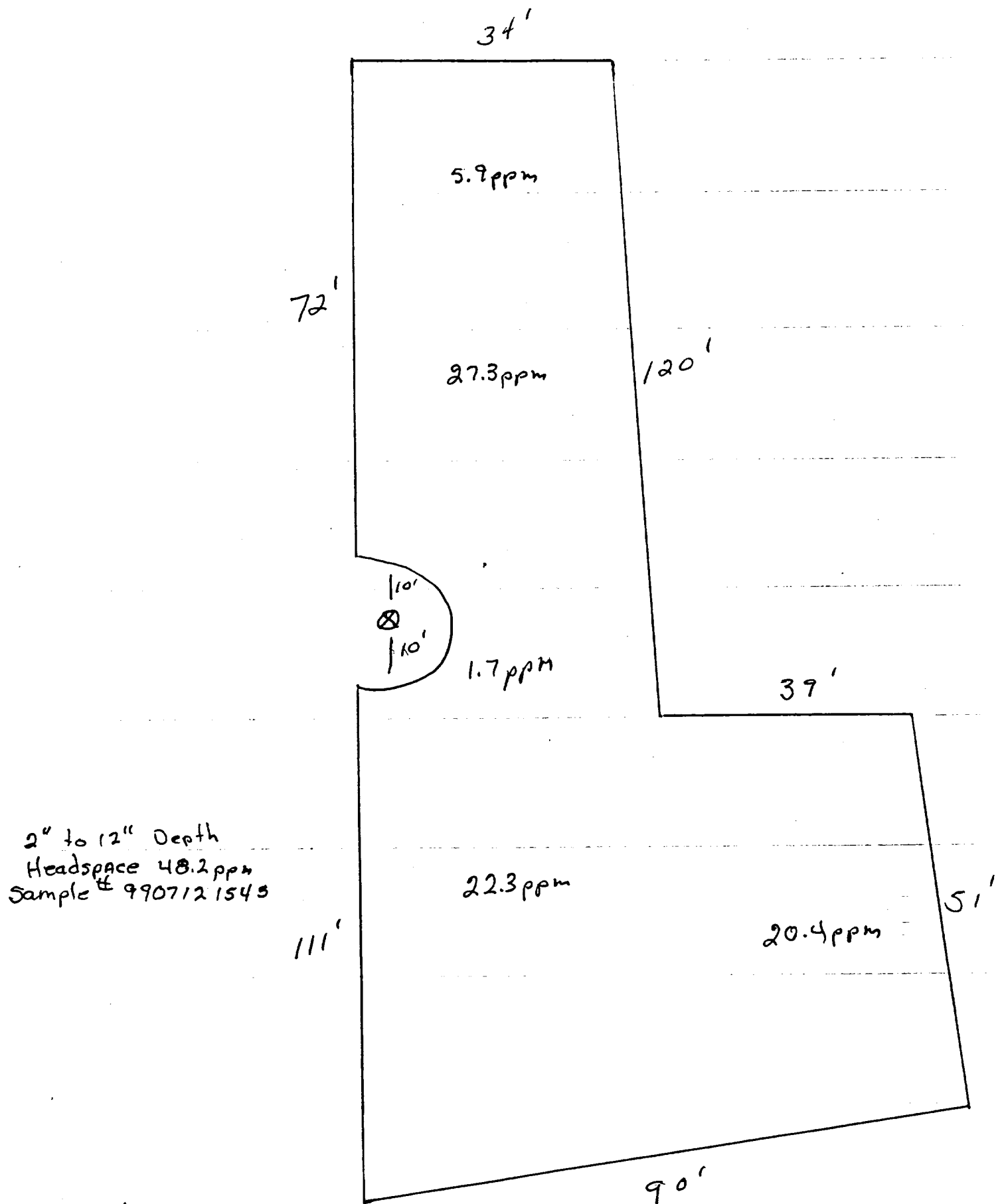
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- This report is the property of On Site Technologies, Ltd. and is loaned to you for your use only. -

Sec. 31 T31N R11W Unit M  
Burlington

Land farm Drawing

App 340 cu. yds



Not to Scale

OFF: (505) 325-5667



LAB: (505) 325-1556

**On Site Technologies, LTD.**

**Date: 28-Jul-99**

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**CLIENT:** PNM - Public Service Company of NM  
**Project:** PNM Pit Remediation Landfarms  
**Lab Order:** 9907028

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**CASE NARRATIVE**

Samples were analyzed using the methods outlined in the following references:

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, 3rd Edition

All method blanks, laboratory spikes, and/or matrix spikes met quality assurance objectives.



OFF: (505) 325-5667



LAB: (505) 325-1556

## ANALYTICAL REPORT

Date: 28-Jul-99

|                    |                                    |                            |                       |
|--------------------|------------------------------------|----------------------------|-----------------------|
| <b>Client:</b>     | PNM - Public Service Company of NM | <b>Client Sample Info:</b> | Grenier 23 LF         |
| <b>Work Order:</b> | 9907028                            | <b>Client Sample ID:</b>   | 9907121545; 5pt. Comp |
| <b>Lab ID:</b>     | 9907028-05A                        | <b>Matrix:</b>             | SOIL                  |
| <b>Project:</b>    | PNM Pit Remediation Landfarms      | <b>Collection Date:</b>    | 7/12/99 3:45:00 PM    |
|                    |                                    | <b>COC Record:</b>         | 7488                  |

| Parameter                    | Result | PQL            | Qual | Units | DF | Date Analyzed |
|------------------------------|--------|----------------|------|-------|----|---------------|
| <b>DIESEL RANGE ORGANICS</b> |        | <b>SW8015B</b> |      |       |    | Analyst: DC   |
| T/R Hydrocarbons: C10-C28    | 130    | 25             |      | mg/Kg | 1  | 7/23/99       |

**Qualifiers:**

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R - RPD outside accepted recovery limits

E - Value above quantitation range

Surr: - Surrogate

1 of 1

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LAB: (505) 325-1556

**On Site Technologies, LTD.**

**Date:** 22-Oct-99

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**CLIENT:** PNM - Public Service Company of NM

**Project:** Grenier #23

**Lab Order:** 9910014

## **CASE NARRATIVE**

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Samples were analyzed using the methods outlined in the following references:

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, 3rd Edition

All method blanks, laboratory spikes, and/or matrix spikes met quality assurance objectives.

OFF: (505) 325-5667



LAB: (505) 325-1556

**ANALYTICAL REPORT****Date:** 22-Oct-99

|                    |                                    |                            |                    |
|--------------------|------------------------------------|----------------------------|--------------------|
| <b>Client:</b>     | PNM - Public Service Company of NM | <b>Client Sample Info:</b> | Grenier #23        |
| <b>Work Order:</b> | 9910014                            | <b>Client Sample ID:</b>   | 9910070920 @ 35ft. |
| <b>Lab ID:</b>     | 9910014-01A                        | <b>Matrix:</b>             | SOIL               |
| <b>Project:</b>    | Grenier #23                        | <b>Collection Date:</b>    | 10/7/99 9:20:00 AM |
|                    |                                    | <b>COC Record:</b>         | 7766               |

| Parameter                           | Result         | PQL  | Qual | Units | DF  | Date Analyzed |
|-------------------------------------|----------------|------|------|-------|-----|---------------|
| <b>DIESEL RANGE ORGANICS</b>        | <b>SW8015B</b> |      |      |       |     | Analyst: DC   |
| T/R Hydrocarbons: C10-C28           | 580            | 25   |      | mg/Kg | 1   | 10/14/99      |
| <b>AROMATIC VOLATILES BY GC/PID</b> | <b>SW8021B</b> |      |      |       |     | Analyst: DC   |
| Benzene                             | 960            | 500  |      | µg/Kg | 500 | 10/14/99      |
| Toluene                             | 23000          | 1000 |      | µg/Kg | 500 | 10/14/99      |
| Ethylbenzene                        | 4400           | 500  |      | µg/Kg | 500 | 10/14/99      |
| m,p-Xylene                          | 43000          | 1000 |      | µg/Kg | 500 | 10/14/99      |
| o-Xylene                            | 9300           | 500  |      | µg/Kg | 500 | 10/14/99      |

80660  
80.66 ppm

**Qualifiers:**

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S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Surr: - Surrogate

1 of 1





## **Environmental Services**

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|                                       |                            |
|---------------------------------------|----------------------------|
| Well Name:                            | Grenier #23                |
| Well Legals:                          | Unit M, Sec 31, T31N, R11W |
| Pit Type:                             | Dehydrator                 |
| Horizontal Distance to Surface Water: | Greater than 1,000 feet    |
| Groundwater Depth:                    | 50 feet to 99 feet         |

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### **RISK ANALYSIS**

PNM requests closure of their former pit on the Grenier #23 well site using a limited risk analysis based on the following conditions:

1. Groundwater is estimated to be at a depth of 51 feet based upon the elevation of the site and the elevation of the nearest "listed" or "named" wash. (Reference: Flora Vista, NM series 7.5 minute topographic map.)
2. Distance from the site to surface water is greater than 1,000 ft.
3. PNM excavated 420 cu. yds. from the former pit. Vertical extent was determined using a hollow stem drilling rig. Siltstone was encountered at 35' below ground surface. Bedrock/siltstone provides a barrier between remaining contamination and groundwater. Vertical migration through bedrock or siltstone to groundwater is unlikely.
4. PNM excavated and performed remediation to the maximum depth and horizontal extent practicable.

PNM believes their former pit on the Grenier #23 well site poses minimal threat to groundwater, human health and the environment based upon our past experience in excavating over 1,000 pits.