3R - 364

# GENERAL CORRESPONDENCE

YEAR(S):
1999

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

August 17, 1999

**CERTIFIED MAIL**
**RETURN RECEIPT NO. Z-274-520-695**

Mr. Mark Harvey
Williams Field Services
P.O. Box 58900
Salt Lake City, Utah 84108

**RE: GROUND WATER CONTAMINATION**
**FLORANCE GAS COM #16A WELL SITE**

Dear Mr. Harvey:

The New Mexico Oil Conservation Division (OCD) reviewed Williams Field Service's (WFS) June 10, 1999 "CONTAMINATION AT THE FLORANCE #16A AND YOUR LETTER OF MAY 6, 1999". This document contains the results of WFS's investigation of contamination related to WFS disposal activities at Amoco Production Company's (Amoco) Florance Gas Com #16A well site located in Unit P, Section 6, Township 30 North, Range 9 West, NMPM, San Juan County, New Mexico. The document concludes that WFS's activities did not contribute to ground water contamination at the site.

The OCD notes that past WFS pit closure data at the site shows that elevated levels of benzene, toluene, ethylbenzene and xylene were present in soil at the base of the excavation of WFS's dehydration pit. Due to the apparent shallow ground water depth, it is possible that WFS's activities may have contributed to the ground water contamination. However, the OCD defers comment on WFS's conclusions until the OCD reviews the results of Amoco's investigations.

If you have any questions or comments, please call me at (505) 827-7154.

Sincerely,

William C. Olson
Hydrologist
Environmental Bureau

xc: Denny Foust, OCD Aztec District Office
Bill Liess, BLM Farmington District Office
B.D. Shaw, Amoco Production Company

Williams

295 Chipeta Way
P.O. Box 58900
Salt Lake City, UT 84108
801-584-6361
801-584-7760 Fax

June 10, 1999

Mr. Bill Olson
New Mexico Oil Conservation Division
2040 S. Pacheco
Sante Fe, NM 87505

RE: CONTAMINATION AT THE FLORANCE #16A AND YOUR LETTER OF MAY 6, 1999

Dear Bill:

In response to your letter of May 6, 1999, Williams Field Services (WFS) has completed an investigation at the above named site to determine if the soil and groundwater contamination is a result of WFS activities. A report on the investigation is enclosed.

Based on observations made in the field as well as the results of analyses performed on contaminated soils from the site, WFS has concluded that current dehydration and metering operations did not contribute to the contamination. Notwithstanding, impacts from the historic utilization of an unlined dehydration pit at this location have previously been addressed by Public Service of New Mexico (PNM) and approved by the Oil Conservation Division (OCD). A copy of the PNM Pit Remediation and Closure Report is enclosed for your reference. All known conditions suggest the problem is the result of Amoco operations.

WFS is ready to assist the Oil Conservation Division and Amoco Production Company to the extent appropriate. With this submittal, requirements defined in your letter of May 6, 1999 are considered satisfied. Your time to review this submittal is appreciated.

Sincerely,

Mark Harvey
Project Coordinator

Enclosure – Florence #16A Report

Cc: Ingrid Deklau – WFS
Denny Foust – OCD
Buddy Shaw – Amoco Production Company

INVESTIGATION AT THE FLORANCE #16A

1.0 Background

During June 1996, as part of the agreement between Williams Field Services (WFS) and Public Service of New Mexico (PNM), the earthen dehydration pit at the Florance #16A was removed from service and effectively closed consistent with the New Mexico Oil Conservation Division (OCD) Pit Closure Guidelines. Subsequent to this action and following approximately three years of operations by WFS, the OCD inspected the well site and discovered product (i.e.petroleum hydrocarbons) and water seeping out of the top of a bedrock contact approximately 300 feet from the well pad.

Following this discovery, the OCD issued a letter to WFS dated May 6, 1999 requiring a determination of whether or not the contamination resulted from WFS operations. This report describes the investigation and the results obtained.

2.0 Site Investigation

A WFS Environmental Services representative visited the site on June 1, 1999 to make visual observations and collect samples as appropriate to better understand site conditions. Site reconnaissance revealed only minor impacts on the well pad in the form of soil staining around the WFS dehydration tank and the Amoco product storage and produced water tanks. Interviews with field operations personnel revealed that Amoco may have replaced the product storage tanks in 1996.

To the west and southwest of the well pad, significant oil staining was observed. The nearest staining was approximately 175 feet west of the well pad at the base of a sandstone outcrop. A small amount of water was also seeping from this point (SP-01). Further north of this point was a groundwater seep at the same relative elevation with no apparent hydrocarbon impact. Vegetation in the immediate vicinity of the northern most ground water seep is indicative of perennial moisture. Both seeps were estimated to be approximately 18 feet lower than the well pad elevation.

The second hydrocarbon seep (SP-02) was observed southwest of the well pad approximately 325 feet. This seep seemed to emanate from a small outcrop near the head of a localized drainage. The drainage was observed to have significant hydrocarbon staining and free hydrocarbon liquids for approximately 100 feet. Sorbent material had been applied to the affected drainage area and was covered by chicken wire to apparently keep the sorbent in place.

Soil samples were collected from four areas. Samples were collected from each of the hydrocarbon seeps described above as well as from soils adjacent to the WFS dehydration tank (DHY-01) and the Amoco below grade crude oil tank (AMO-TK01). Aside from a casing leak, the tanks were seen as the likely sources of the contamination observed and there was limited hydrocarbon impact at each . Samples were collected using a stainless steel probe and placed into clean 4-oz glass jars. The probe was decontaminated between each sampling event to prevent cross contamination. Soil samples were immediately placed into an iced cooler and hand carried to the laboratory for "fingerprint" analyses.

## 3.0 Analytical Results

Samples were delivered to James W. Bunger and Associates, Incorporated (Bunger) in Salt Lake City, UT. Each sample was analyzed by gas chromatography – mass spectrometry in an attempt to determine the type of petroleum hydrocarbons present in the soil. The Bunger results, dated June 10, 1999 and included in this report, indicate that the hydrocarbons present at the Amoco tank are very similar to the hydrocarbons found at the two seep areas. The hydrocarbons present at the dehydration tank are dissimilar according to the Bunger results in that they lack components above $C_{11}$. The report concludes that the contamination found at each seep is not the result of hydrocarbons from the dehydrator discharge. Chromatographs from each sample analyzed are also included with the Bunger results.

Based on this investigation, as well as the apparent successful remediation of the former unlined pit, it appears further investigation and additional remediation should be the responsibility of Amoco.

**JAMES W. BUNGER**
**AND ASSOCIATES, INC.**

*Energy Technology & Engineering*

2207 W. Alexander St./P.O. Box 520037
Salt Lake City, UT 84152-0037
(801) 975-1456

June 10, 1999

Mr. Mark Harvey
Environmental Services
Williams Field Services
295 Chipeta Way
Salt Lake City, UT 84158-0900

Dear Mr. Harvey:

Four soil samples were received and analyzed by gc-ms. Results show the following:

Sample FL16A-AMO-TK01 exhibits a distribution of components typical of a crude oil.

Sample FL16A-SP02 exhibits a distribution of components characteristic of a degraded crude oil. Degradation is seen both in terms of loss of light ends, which is probably due to exposure to air at the surface, and in terms of partial loss of n-paraffins compared to iso-paraffins due to biodegradation.

Sample FL16A-SP01 exhibits a distribution of crude oil components but with relatively higher concentrations of diesel range components compared to SP02 or TK01. This enrichment in diesel range components could be due to the action of water which would preferentially mobilize lighter components while leaving larger components (boiling in the atmospheric resid range) adsorbed on the soil along the migration path.

Sample FL16A-DHY-01 exhibits components typical of a natural gas condensate and contains none of the components larger than about n-$C_{11}$ found in the other three samples. Because of the lack of heavy components, it is not possible that AMO-TK01, SP01 or SP02 derived from the same release as DHY-01. Conversely, the lack of a bimodal distribution exhibited in AMO-TK01, SP02 and SP01 argues that the source of DHY-01 is not a contributor to the other three contaminant sites.

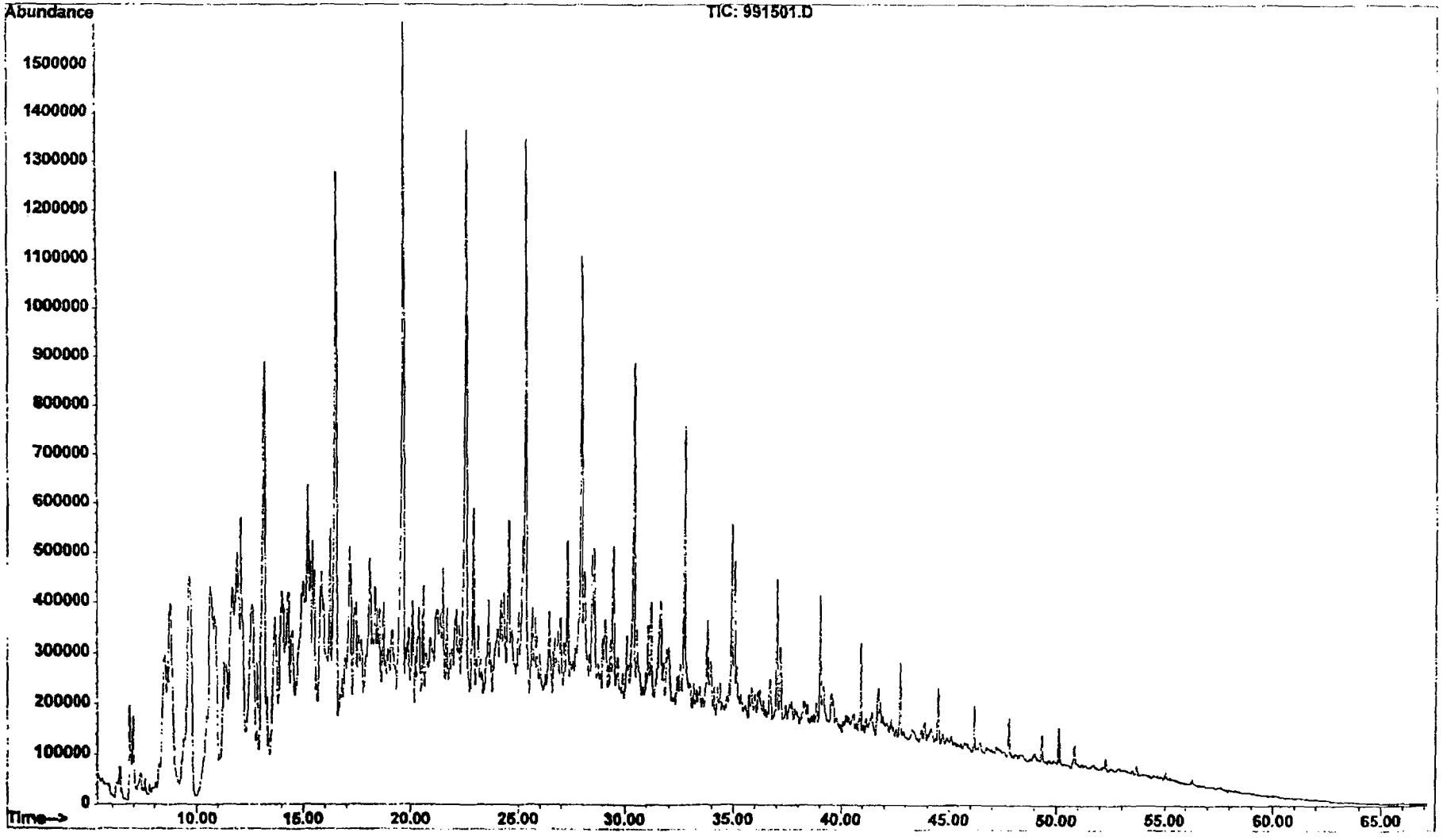
It is not possible to age date these samples without further considering other factors related to this contamination site. However, the observation of weathering and the changes in distribution resulting from water and soil interactions suggests the samples are not fresh releases and the time since release for SP01 and SP02 could be a matter of a few years rather than a few months.

Sincerely yours,

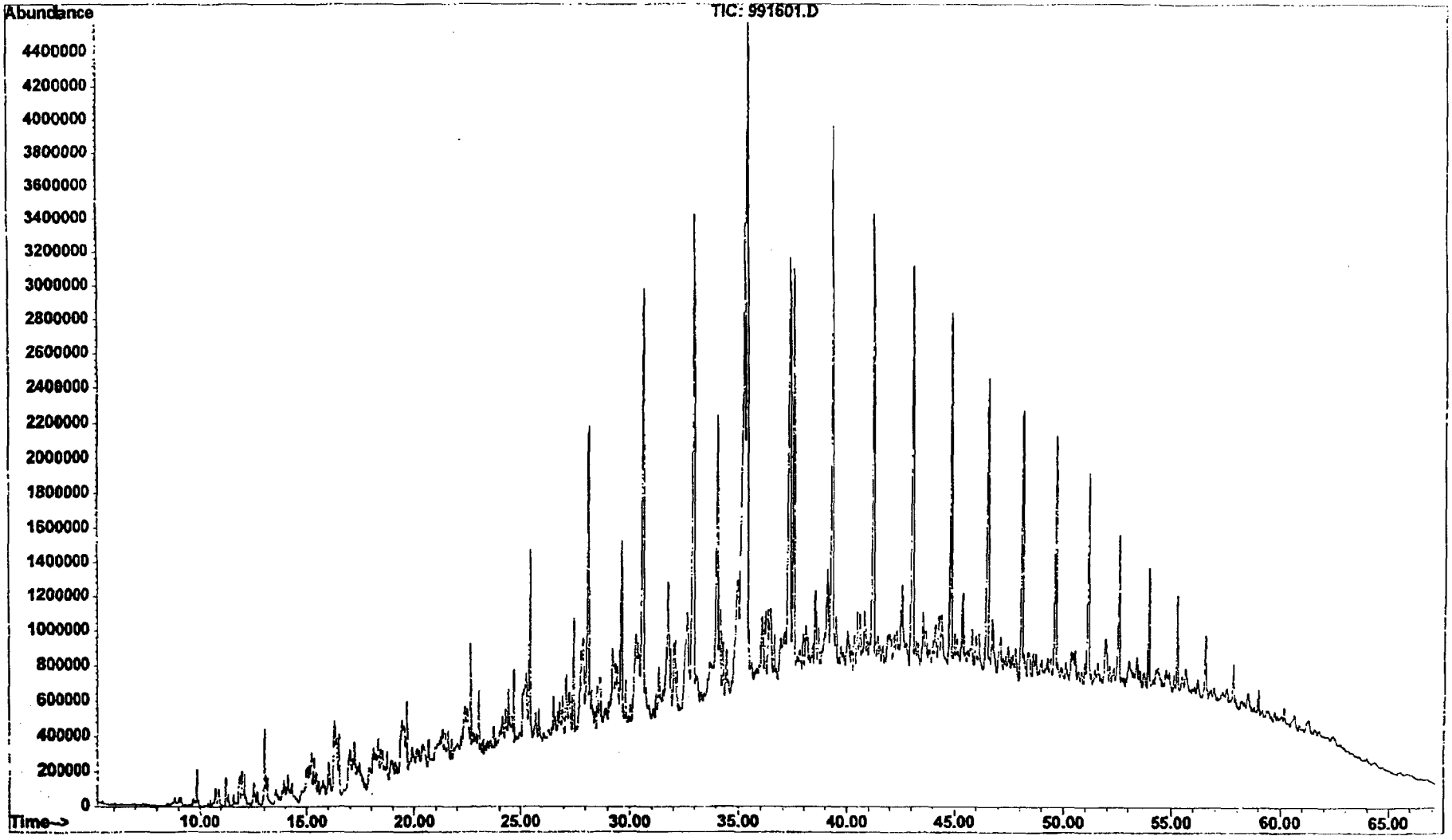
James W. Bunger

James W. Bunger, Ph. D.
President

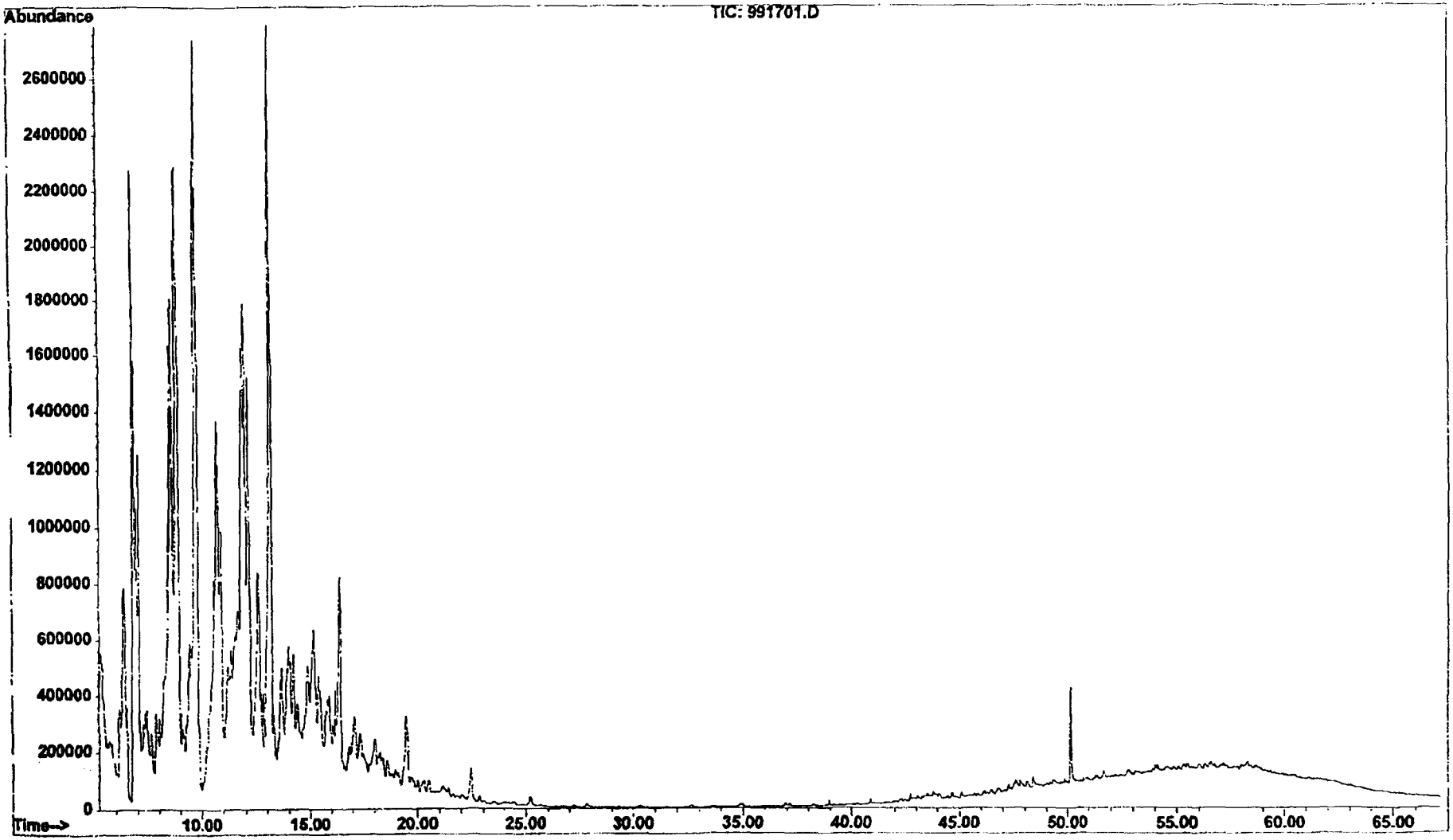
File : C:\HPCHEM\1\DATA\WFS\991501.D
Operator : Don
Acquired : 2 Jun 99 5:00 pm using AcqMethod DCRDSHRT
Instrument : GC/MS Ins
Sample Name: WFS-99-15 1ul inj. in pentane
Misc Info : soil extract FL16A-SP01
Vial Number: 2



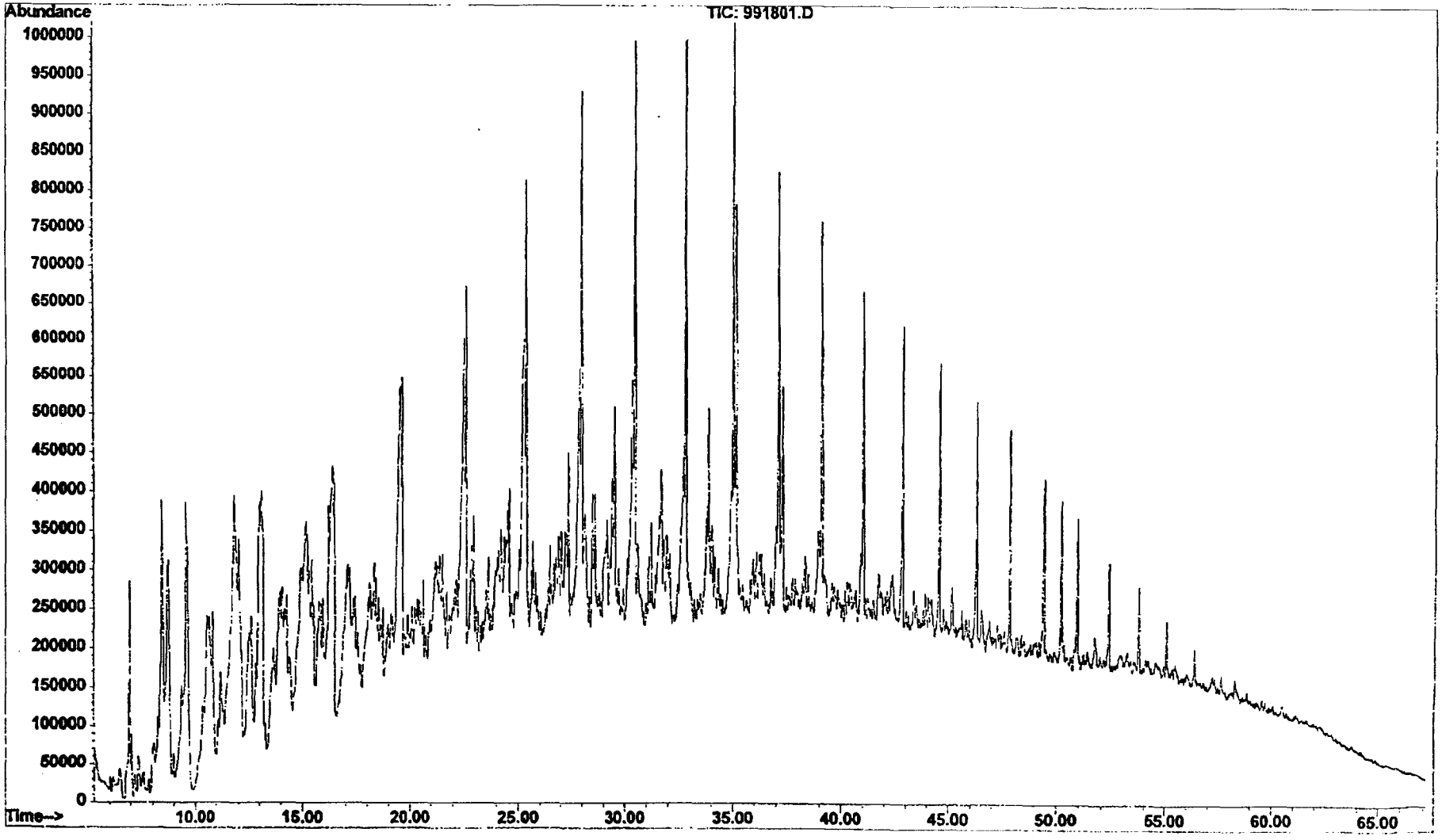
File : C:\HPCHEM\1\DATA\WFS\991601.D
Operator : Don
Acquired : 2 Jun 99 6:19 pm using AcqMethod DCRDSHRT
Instrument : GC/MS Ins
Sample Name: WFS-99-16 1ul inj. in pentane
Misc Info : soil extract FL16A-SP02
Vial Number: 3



File : C:\HPCHEM\1\DATA\WFS\991701.D
Operator : Don
Acquired : 2 Jun 99 7:37 pm using AcqMethod DCRDSHRT
Instrument : GC/MS Ins
Sample Name: WFS-99-17 1ul inj. in pentane
Misc Info : soil extract FL16A-DH7-01
Vial Number: 4



File : C:\HPCHEM\1\DATA\WFS\991801.D
Operator : Don
Acquired : 2 Jun 99 8:55 pm using AcqMethod DCRDSHRT
Instrument : GC/MS Ins
Sample Name: WFS-99-18 1ul inj. in pentane
Misc Info : soil extract FL16A-AMO-TK01
Vial Number: 5



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

District II
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 ( Amoco ) **Telephone:** 324-3764

**Address:** 603 W. Elm Street Farmington, NM 87401

**Facility or Well Name:** Florance #16A

**Location:** Unit: P Sec. 6 T. 30 N R. 9 W County San Juan

**Pit Type:** Separator ☐ Dehydrator ☑ Other

**Land Type:** BLM ☑ State ☐ Fee ☐ Other

**Pit Location:** Pit dimensions: length 20 ' width 20 ' depth 4 '

(Attach diagram) Reference: wellhead ☑ other

**Footage from reference:** 110'

Direction from reference: 20 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<br>50 feet to 99 feet<br>Greater than 100 feet | (20 points)<br>(10 points)<br>( 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<br>No | (20 points)<br>( 0 points) | 0 |
| **Distance to Surface Water:** (Horizontal distance to perennial lakes, ponds, rivers, streams, creeks, irrigation canals and ditches) | Less than 200 feet<br>200 feet to 1,000 feet<br>Greater than 1,000 feet | (20 points)<br>(10 points)<br>( 0 points) | 0 |
| | **RANKING SCORE (TOTAL POINTS):** | | 0 |

Florance #16A

**Date Remediation Started:** 6/21/96 **Date Completed:** 6/26/96

**Remediation Method:** (Check all appropriate sections)
Excavation X Approx. Cubic Yard 348
Landfarmed X Amount Landfarmed (cubic yds) 348
Other

**Remediation Location:** (i.e., landfarmed onsite, name and location of offsite facility)
Onsite 241 yds Offsite Florance #99 (P&A) 6-30N-9W - 107 yds

**Backfill Material Location:**

**General Description of Remedial Action:**

Excavated contaminated soil to pit size of 28'x42'x8' and landfarmed soil onsite/offsite within a bermed area at a depth of 6" to 12". Soil was aerated b y plowing/disking until soil met regulatory levels.

**Ground Water Encountered:** No ☑ Yes ☐ Depth

**Final Pit Closure Sampling:** (if multiple samples, attach sample result and diagram of sample locations and depths.)
Sample Location 5 pt. composite-4 side walls and center of pit bottom
Sample depth 8'
Sample date 6/24/96 Sample time 1:30:00 PM

Sample Results
Benzene (ppm) 0.1206
Total BTEX (ppm) 8.3783
Field headspace (ppm)
TPH 145.40 Method 8015A

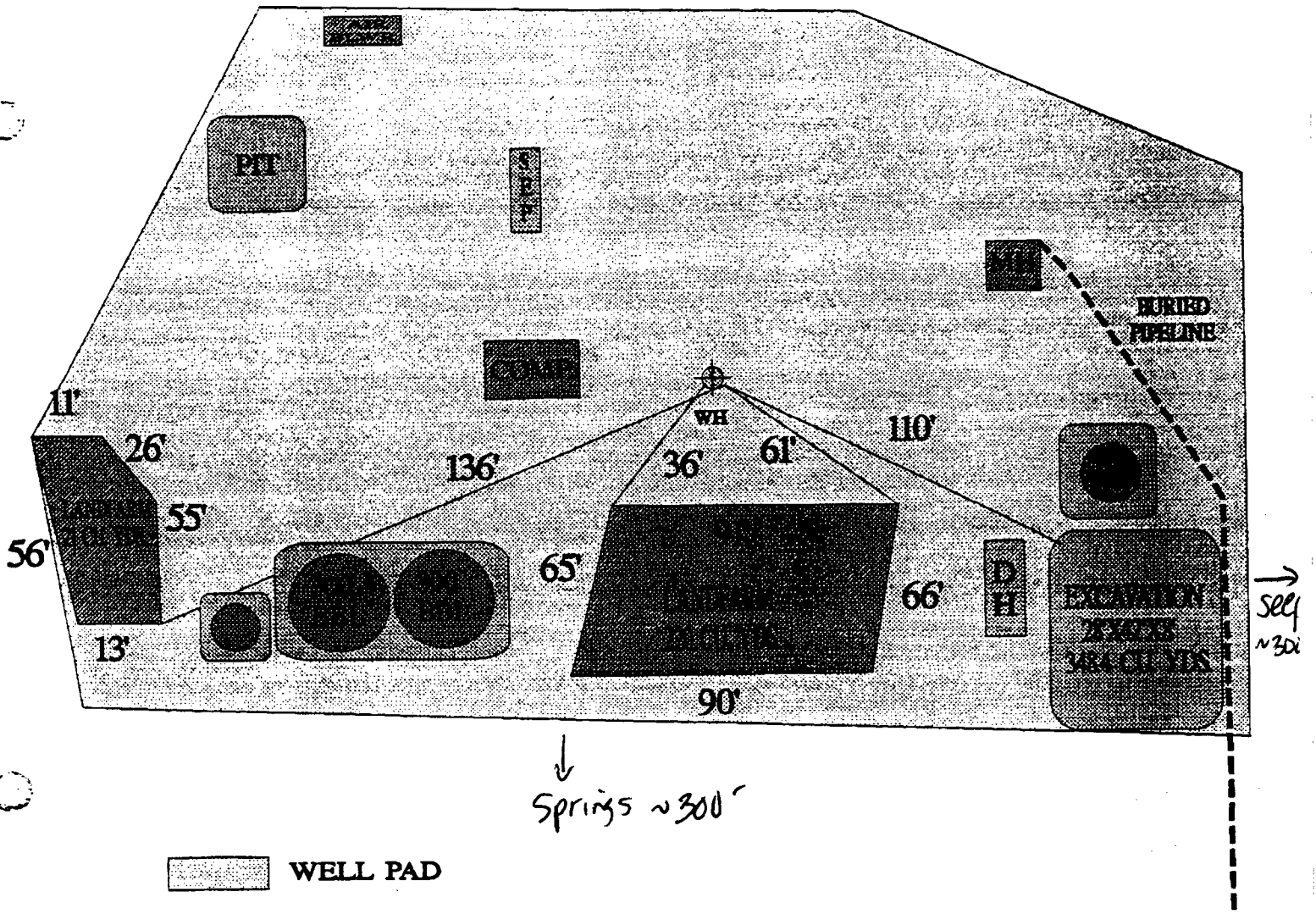
Vertical Extent (ft) Risk Assessment form attached Yes ☐ No ☑

**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 October 25, 1996
SIGNATURE Maureen Gannon
PRINTED NAME AND TITLE Maureen Gannon Environmental Engineer

# FLORANCE #16A EXCAVATION
06/26/96


WELL PAD

ON SITE TECHNOLOGIES, LTD.

OFF: (505) 325-8786 LAB: (505) 325-5667

## *Diesel Range Organics*

| | | | |
|---|---|---|---|
| Attn: | *Denver Bearden* | Date: | 26-Jun-96 |
| Company: | *PNM Gas Services* | *COC No.:* | *4718* |
| Address: | *603 W. Elm* | *Sample No.* | *11285* |
| City, State: | *Farmington, NM 87401* | *Job No.* | *2-1000* |

| | | | | | |
|---|---|---|---|---|---|
| Project Name: | ***PNM Gas Services - Florance #16A*** | | | | |
| Project Location: | ***9606241330; Pit Excavation Composite Sample*** | | | | |
| Sampled by: | RH | Date: | 24-Jun-96 | Time: | 13:30 |
| Analyzed by: | DC | Date: | 25-Jun-96 | | |
| Sample Matrix: | *Soil* | | | | |

### *Laboratory Analysis*

| *Parameter* | *Result* | *Unit of Measure* | *Detection Limit* | *Unit of Measure* |
|---|---|---|---|---|
| *Diesel Range Organics (C10 - C28)* | 145.4 | mg/kg | 5.0 | mg/kg |

### *Quality Assurance Report*

***DRO QC No.:*** ***0475-QC***

***Calibration Check***

| *Parameter* | *Method Blank* | *Unit of Measure* | *True Value* | *Analyzed Value* | *% Diff* | *Limit* |
|---|---|---|---|---|---|---|
| *Diesel Range (C10 - C28)* | <5.0 | ppm | 2,000 | 1,898 | 5.1 | 15% |

***Matrix Spike***

| *Parameter* | *1- Percent Recovered* | *2 - Percent Recovered* | *Limit* | *%RSD* | *Limit* |
|---|---|---|---|---|---|
| *Diesel Range (C10-C28)* | 103 | 94 | (70-130) | 6 | 20% |

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

Approved by:

Date: 6/26/96

ON SITE TECHNOLOGIES, LTD.

OFF: (505) 325-8786 LAB: (505) 325-5667

# AROMATIC VOLATILE ORGANICS

| | | | |
|---|---|---|---|
| Attn: | *Denver Bearden* | Date: | 26-Jun-96 |
| Company: | *PNM Gas Services* | *COC No.:* | *4718* |
| Address: | *603 W. Elm* | *Sample No.* | *11285* |
| City, State: | *Farmington, NM 87401* | *Job No.* | *2-1000* |

| | | | | | |
|---|---|---|---|---|---|
| Project Name: | ***PNM Gas Services - Florance #16A*** | | | | |
| Project Location: | ***9606241330; Pit Excavation Composite Sample*** | | | | |
| Sampled by: | RH | Date: | 24-Jun-96 | Time: | 13:30 |
| Analyzed by: | DC | Date: | 25-Jun-96 | | |
| Sample Matrix: | *Soil* | | | | |

***Aromatic Volatile Organics***

| *Component* | *Result* | *Units of Measure* | *Detection Limit* | *Units of Measure* |
|---|---|---|---|---|
| *Benzene* | 120.6 | ug/kg | 0.2 | ug/kg |
| *Toluene* | 292.0 | ug/kg | 0.2 | ug/kg |
| *Ethylbenzene* | 494.1 | ug/kg | 0.2 | ug/kg |
| *m,p-Xylene* | 7088.5 | ug/kg | 0.2 | ug/kg |
| *o-Xylene* | 383.0 | ug/kg | 0.2 | ug/kg |
| *TOTAL* | 8378.3 | ug/kg | | |

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

*Approved by:* DA4
*Date:* 6/26/96

July 30, 1996

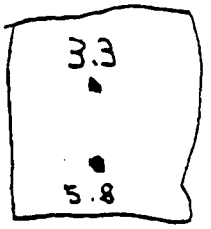
Florance 16A
Amoco
Sec. 06-30N-09W

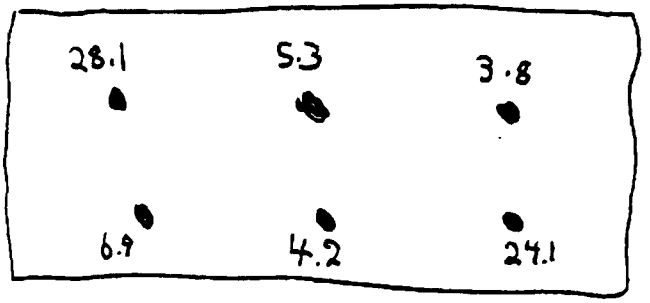
Land Farm: On Location
204 Yards

Composite Sample #: 9607311625

Soil Vapor Head-Space Reading = 49.1 ppm (PID)

Sample depths between 2" and 12"



OFF: (505) 325-5667

ON SITE TECHNOLOGIES, LTD.

LAB: (505) 325-1556

# Diesel Range Organics

| | | | |
|---|---|---|---|
| Attn: | Denver Bearden | Date: | 2-Aug-96 |
| Company: | PNM Gas Services | COC No.: | 4932 |
| Address: | 603 W. Elm | Sample No. | 11640 |
| City, State: | Farmington, NM 87401 | Job No. | 2-1000 |

| | | | | | |
|---|---|---|---|---|---|
| Project Name: | PNM Gas Services - Florance 16A Landfarm | | | | |
| Project Location: | 9607301625; 8pt. Composite, 2-12" depth | | | | |
| Sampled by: | GC | Date: | 30-Jul-96 | Time: | 16:25 |
| Analyzed by: | DC/HR | Date: | 31-Jul-96 | | |
| Sample Matrix: | Soil | | | | |

## Laboratory Analysis

| Parameter | Result | Unit of Measure | Detection Limit | Unit of Measure |
|---|---|---|---|---|
| Diesel Range Organics (C10 - C28) | 88.4 | mg/kg | 5.0 | mg/kg |

## Quality Assurance Report

DRO QC No.: 0479-QC

### Calibration Check

| Parameter | Method Blank | Unit of Measure | True Value | Analyzed Value | % Diff | Limit |
|---|---|---|---|---|---|---|
| Diesel Range (C10 - C28) | <5.0 | ppm | 2,000 | 1,883 | 5.8 | 15% |

### Matrix Spike

| Parameter | 1- Percent Recovered | 2 - Percent Recovered | Limit | %RSD | Limit |
|---|---|---|---|---|---|
| Diesel Range (C10-C28) | 109 | 99 | (70-130) | 7 | 20% |

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

Approved by: DAG

Date: 8/2/96

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

May 6, 1999

**CERTIFIED MAIL**
**RETURN RECEIPT NO. Z-274-520-652**

Ms. Ingrid A. Deklau
Williams Energy Group
P.O. Box 58900
Salt Lake City, Utah 84158-0900

**RE: GROUND WATER CONTAMINATION**
**FLORANCE GAS COM #16A WELL SITE**

Dear Ms. Deklau:

The New Mexico Oil Conservation Division (OCD) recently inspected Amoco's Florance Gas Com #16A well site located in Unit P, Section 6, Township 30 North, Range 9 West, NMPM, San Juan County, New Mexico. During the inspection it was noted that product and water was seeping out of the top of a bedrock contact approximately 300 feet from the well pad. This bedrock underlies the Florance Gas Com #16A well pad and it appears that the fluids are originating from this site.

A review of OCD files on the site shows that both Amoco and Williams Field Services (WFS) had unlined pits at this location for the disposal of oilfield wastes. The OCD requires that both Amoco and WFS address whether this soil and ground water contamination is a result of their activities. The OCD requires that WFS investigate and remediation any contamination related to their activities pursuant to WFS's previously approved soil and ground water investigation and remediation plans. The OCD requests that WFS work in conjunction with Amoco in implementing investigation and remediation activities at the site.

If you have any questions or comments, please call me at (505) 827-7154.

Sincerely,

William C. Olson
Hydrologist
Environmental Bureau

xc: OCD Aztec District Office
Bill Liess, BLM Farmington District Office
B.D. Shaw, Amoco Production Company

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

FAX TRANSMITTAL SHEET

DATE: April 30, 1999

TO: Bill Olson
NMOCD

FROM: Denny Foust

COMMENTS: Amoco Florance Gas Com 16A
P-06-30N-09W

NUMBER OF PAGES INCLUDING COVER: 2

# FLORANCE #16A EXCAVATION
06/26/96