

**RANKING SCORE (TOTAL POINTS):** 0

85407

Date Remediation Started: \_\_\_\_\_ Date Completed: 8-14-96

mediation Method: Excavation X Approx. cubic yards 100  
(check all appropriate sections) Landfarmed X Insitu Bioremediation \_\_\_\_\_  
Other \_\_\_\_\_

Remediation Location: Onsite X Offsite \_\_\_\_\_  
(i.e. landfarmed onsite, name and location of offsite facility)

General Description of Remedial Action: Excavation

Groundwater Encountered: No X Yes \_\_\_\_\_ Depth \_\_\_\_\_

Final Pit: Sample location see Attached Documents  
Closure Sampling: MULTIPLE SAMPLES  
(if multiple samples, attach sample results and diagram of sample locations and depths)  
Sample depth SS @ 8'  
Sample date 8-14-96 Sample time \_\_\_\_\_

## Sample Results

Soil: Benzene	(ppm)	<u>ND</u>	Water: Benzene	(ppb)	_____
Total BTEX	(ppm)	<u>7.46</u>	Toluene	(ppb)	_____
Field Headspace	(ppm)	<u>268</u>	Ethylbenzene	(ppb)	_____
TPH	(ppm)	<u>770</u>	Total Xylenes	(ppb)	_____

Groundwater Sample: Yes \_\_\_\_\_ No X (If yes, attach sample results)

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

DATE 8-20-96 PRINTED NAME Buddy D. Shaw  
SIGNATURE Buddy D. Shaw AND TITLE Environmental Coordinator

AFTER REVIEW OF THE PIT CLOSURE INFORMATION, PIT CLOSURE IS APPROVED IN ACCORDANCE TO THE JICARILLA APACHE TRIBE PIT CLOSURE ORDINANCE.

APPROVED: YES X NO \_\_\_\_\_ (REASON) SPRA y/Fertilizer + close

SIGNED: K. C. Mammall DATE: 8-21-96

CLIENT: <u>Amoco</u>	BLAGG ENGINEERING, INC. P.O. BOX 87, BLOOMFIELD, NM 87413 (505) 632-1199	LOCATION NO: <u>85407</u> C.D.C. NO: <u>2261</u>
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## FIELD REPORT: PIT CLOSURE VERIFICATION

LOCATION: <u>JICARILLA APACHE 102 # 5A</u>	PIT TYPE: <u>BLOW</u>	DATE STARTED: <u>8-14-96</u>
QUAD/UNIT: <u>P</u> SEC: <u>4</u> TWP: <u>26 N</u> RNG: <u>4 W</u> BM: <u>NM</u> CNTY: <u>RA</u> ST: <u>NM</u>		DATE FINISHED: _____
QTR/FOOTAGE: <u>SE/SE</u>	CONTRACTOR: <u>PAUL</u>	ENVIRONMENTAL SPECIALIST: <u>REG</u>

EXCAVATION APPROX. 15 FT. x 15 FT. x 13 FT. DEEP. CUBIC YARDS: ~100  
DISPOSAL FACILITY: ON-SITE REMEDIATION METHOD: LANDFARM  
LAND USE: RANGE LEASE: # 09000102 FORMATION: MU

FIELD NOTES & REMARKS:	PIT LOCATED APPROXIMATELY 115 FEET NIS'E FROM WELLHEAD
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DEPTH TO GROUNDWATER: 7100' NEAREST WATER SOURCE: 71000' NEAREST SURFACE WATER: 71000'

NMCD RANKING SCORE: 0 NMCD TPH CLOSURE STD: 5000 PPM

SOIL AND EXCAVATION DESCRIPTION: PIT DISPOSITION: ABANDONED

SOIL CONSISTS OF MOIST, BROWN SILTY SAND  $\rightarrow$  SANDY SILT - NO STAIN, LIGHT ODOR.

## FIELD 418.1 CALCULATIONS

FIELD 4151 CALCULATIONS						
SAMPLE I.D.	LAB No:	WEIGHT (g)	mL. FREON	DILUTION	READING	CALC. ppm
5508'	1785	10.0	20.0	1	384	768

SCALE

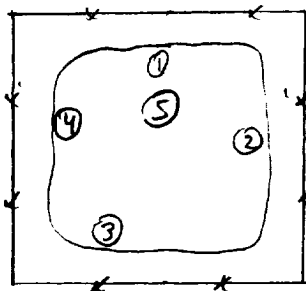


0 5 10 FT

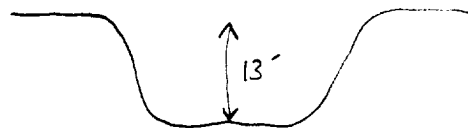
## PIT PERIMETER

## OVM RESULTS

## PIT PROFILE



SAMPLE ID	FIELD HEADSPACE PID (ppm)
1 NS-9'	5
2 ES-8'	237
3 SS-8'	268
4 WS-8'	12
5 NB-14'	109
LAB SAMPLES	
SS@8'	BTEX -



↓ SURFACE GRADIENT

✓ TO WELL

TRAVEL NOTES: CALLOUT: 8-14-96 ONSITE: 8-14-96 1150

**BLAGG ENGINEERING, INC.**

P.O. Box 87, Bloomfield, New Mexico 87413  
Phone: (505)632-1199 Fax: (505)632-3903

**FIELD MODIFIED EPA METHOD 418.1  
TOTAL PETROLEUM HYDROCARBONS**

Client:	Amoco	Project #:	
Sample ID:	South Side @ 8'	Date Analyzed:	8-14-96
Project Location:	Jicarilla Apache 102 # 5A	Date Reported:	8-15-96
Laboratory Number:	TPH #1785	Sample Matrix:	Soil

Parameter -----	Result, mg/kg -----	Detection Limit, mg/kg -----
Total Recoverable Petroleum Hydrocarbons	<b>770</b>	<b>10</b>

ND = Not Detectable at stated detection limits.

QA/QC:	QA/QC Sample TPH mg/kg -----	Duplicate TPH mg/kg -----	% *Diff. -----
	1,420	1,344	5

\*Administrative Acceptance limits set at 30%.

Method: Modified Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No.4551, 1978

Comments: Blow Pit - BJ407

R. E. O'Neill  
Analyst

Helen V. 11/4/96  
Review

**VOLATILE AROMATIC HYDROCARBONS****Blagg Engineering, Inc.**

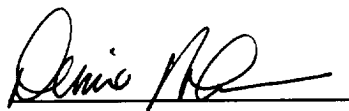

Project ID:	Jicarilla Apache 102-5A	Report Date:	08/19/96
Sample ID:	SS @ 8'	Date Sampled:	08/14/96
Lab ID:	4732	Date Received:	08/15/96
Sample Matrix:	Soil	Date Extracted:	08/16/96
Preservative:	Cool	Date Analyzed:	08/16/96
Condition:	Intact		

Target Analyte	Concentration (mg/kg)	Detection Limit (mg/kg)
Benzene	ND	0.18
Toluene	0.48	0.18
Ethylbenzene	ND	0.18
m,p-Xylenes	2.79	0.35
o-Xylene	4.19	0.18

ND - Analyte not detected at the stated detection limit.

<b>Quality Control:</b>	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	Trifluorotoluene	103	81 -117%
	Bromofluorobenzen	111	74 -121%

**Reference:** Method 5030, Purge and Trap; Method 8020, Aromatic Volatile Organics;  
Test Methods for Evaluating Solid Wastes, SW-846, United States |  
Environmental Protection Agency, Final Update I, July, 1992.

**Comments:**  
Analyst  
Review

**BLAGG ENGINEERING, INC.**

P.O. Box 87, Bloomfield, New Mexico 87413

Phone: (505)632-1199 Fax: (505)632-3903

Field TPH-Worksheet

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Max Characters:

Client:

Amoco

Project #:

Sample ID:

South Side @ 8'

Date Analyzed:

8-14-96

Project Location:

Jicarilla Apache 102 # 5A

Date Reported:

8-15-96

Laboratory Number:

TPH #1785

Sample Matrix:

Soil

Sample Weight: 10.00 grams  
Volume Freon: 20.00 mL  
Dilution Factor: 1 (unitless)  
TPH Reading: 384 mg/kg

TPH Result: 768.0 mg/kg  
Reported TPH Result: 770.0 mg/kg  
Actual Detection Limit: 10.0 mg/kg  
Reported Detection Limit: 10 mg/kg

QA/QC:

Original  
TPH mg/kg

Duplicate  
TPH mg/kg

%  
Diff.

-----  
1420

-----  
1344

-----  
5

Comments:

\*\*\*\*\*Max Characters\*\*\*\*\*

Comments:

Blow Pit - BJ407

JICARILLA APACHE TRIBE  
ENVIRONMENTAL PROTECTION OFFICE  
P.O. BOX 507  
DULCE, NEW MEXICO 87528

83407  
SUBMIT 1 COPY TO  
NATURAL RESOURCE DEPT  
AND OIL & GAS ADMINISTRATION

PIT REMEDIATION AND CLOSURE REPORT

Operator: AMOCO PRODUCTION COMPANY Telephone: (505) 326-9200  
Address: 200 Amoco Court, Farmington, NM 87401  
Facility or Well Name: JICARILLA APACHE 102 # 5A  
Location: Unit or Qtr/Qtr Sec P Sec 4 T 26 N R 4 W County RIO ARriba  
Pit Type: Separator X Dehydrator      Other       
Land Type: RANGE

Pit Location: Pit dimensions: length 25', width 25', depth 20'  
(Attach diagram) Reference: wellhead X, other       
Footage from reference: 110  
Direction from reference: 45 Degrees      East of North X  
X West of South     

<b>Depth To Groundwater:</b> (Vertical distance from contaminants to seasonal high water elevation of groundwater)	Less than 50 feet 50 feet to 99 feet Greater than 100 feet	(20 points) (10 points) ( 0 points)	<u>0</u>
<b>Distance to an Ephemeral Stream</b> (Downgradient dry wash greater than ten feet in width)	Less than 100 feet Greater than 100 feet	(10 points) ( 0 points)	<u>0</u>
<b>Distance to Nearest Lake, Playa, or Watering Pond</b> (Downgradient lakes, playas and livestock or wildlife watering ponds)	Less than 100 feet Greater than 100 feet	(10 points) ( 0 points)	<u>0</u>
<b>Wellhead Protection Area:</b> (Less than 200 feet from a private domestic water source, or: less than 1000 feet from all other water sources)	Yes No	(20 points) ( 0 points)	<u>0</u>
<b>Distance To Surface Water:</b> (Horizontal distance to perennial lakes, ponds, rivers, streams, creeks, irrigation canals and ditches)	Less than 100 feet 100 feet to 1000 feet Greater than 1000 feet	(20 points) (10 points) ( 0 points)	<u>0</u>

RANKING SCORE (TOTAL POINTS): 0

Date Remediation Started: \_\_\_\_\_ Date Completed: 8-14-96

Remediation Method: Excavation X Approx. cubic yards 465

(check all appropriate sections) Landfarmed X Insitu Bioremediation \_\_\_\_\_

Other \_\_\_\_\_

Remediation Location: Onsite X Offsite \_\_\_\_\_

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

General Description of Remedial Action: Excavation

Groundwater Encountered: No X Yes \_\_\_\_\_ Depth \_\_\_\_\_

Final Pit: Sample location see Attached Documents

Closure Sampling: MULTIPLE SAMPLES

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

Sample depth \_\_\_\_\_

Sample date 8-14-96 Sample time \_\_\_\_\_

Sample Results

Soil: Benzene	(ppm)	<u>1.76</u>	Water: Benzene	(ppb)	_____
Total BTEX	(ppm)	<u>544.1</u>	Toluene	(ppb)	_____
Field Headspace	(ppm)	<u>304</u>	Ethylbenzene	(ppb)	_____
TPH	(ppm)	<u>2500 CB @ 22'</u>	Total Xylenes	(ppb)	_____

Groundwater Sample: Yes \_\_\_\_\_ No X (If yes, attach sample results)

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

DATE 8-20-96 PRINTED NAME Buddy D. Shaw

SIGNATURE Buddy D. Shaw AND TITLE Environmental Coordinator

AFTER REVIEW OF THE PIT CLOSURE INFORMATION, PIT CLOSURE IS APPROVED IN ACCORDANCE TO THE JICARILLA APACHE TRIBE PIT CLOSURE ORDINANCE.

APPROVED: YES \_\_\_\_\_ NO X (REASON) Conditional Closure till R+D

SIGNED: [Signature] DATE: 8-21-96





**Well Name:**

Well Site location:

Pit Type:

Producing Formation:

Pit Category:

Horizontal Distance to Surface Water:

Vicinity Groundwater Depth:

**Jicarilla Contract 102 #5A**

Unit P, Sec. 4, T26N, R4W

Separator Pit

Mesa Verde

Non Vulnerable

&gt; 1000 ft.

&gt; 100 ft.

**RISK ASSESSMENT (non-vulnerable area)**

Pit remediation activities were terminated when trackhoe reached practical extent for abandoned pit (20 ft. below grade) and for safety concerns (underground piping and surface equipment).

No past or future threat to surface water or groundwater is likely based on the following considerations:

1. Groundwater levels located on or close to the well pad are estimated to be at a much greater depth below presumed shallow sandstone bedrock (based on informal site observation of adjacent sandstone outcrop).
2. Topographic information does not indicate off site lateral fluid migration near the earthen pit.
3. Daily discharge into the earthen pit has been terminated (pit abandoned). Prior discharge into the pit is believed to be under 5 barrels per day.
4. Well site located within the **non-vulnerable area** and is approximately 0.50 miles northwest of the nearest vulnerable area boundary (Cottonwood Canyon wash).

**(Refer to Pine Lake Quadrangle, New Mexico - Rio Arriba County, 7.5 Minute Series (Topographic), Photorevised 1982, (vulnerable area boundary developed by Mr. William C. Olson, Hydrogeologist, Environmental Bureau, New Mexico Oil Conservation Division).**

Based upon the information given, we conclude that the subsurface vertical impact to groundwater is very unlikely. AMOCO requests pit closure approval on this location.

**BLAGG ENGINEERING, INC.**

P.O. Box 87, Bloomfield, New Mexico 87413

Phone: (505)632-1199 Fax: (505)632-3903

**FIELD MODIFIED EPA METHOD 418.1  
TOTAL PETROLEUM HYDROCARBONS**

Client:	Amoco	Project #:	
Sample ID:	Center Bottom @ 22'	Date Analyzed:	8-14-96
Project Location:	Jicarilla Apache 102 # 5A	Date Reported:	8-15-96
Laboratory Number:	TPH #1786	Sample Matrix:	Soil

Parameter -----	Result, mg/kg -----	Detection Limit, mg/kg -----
Total Recoverable Petroleum Hydrocarbons	<b>2,500</b>	<b>100</b>

ND = Not Detectable at stated detection limits.

QA/QC:	QA/QC Sample TPH mg/kg -----	Duplicate TPH mg/kg -----	% *Diff. -----
	1,420	1,344	5

\*Administrative Acceptance limits set at 30%.

Method: Modified Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No.4551, 1978

Comments: Separator Pit - BJ407

R. E. O'Neill  
Analyst

Adrian Velazquez 11/14/96  
Review

**VOLATILE AROMATIC HYDROCARBONS****Blagg Engineering, Inc.**


Project ID:	Jicarilla Apache 102-5A	Report Date:	08/19/96
Sample ID:	ES @ 15'	Date Sampled:	08/14/96
Lab ID:	4733	Date Received:	08/15/96
Sample Matrix:	Soil	Date Extracted:	08/16/96
Preservative:	Cool	Date Analyzed:	08/16/96
Condition:	Intact		

Target Analyte	Concentration (mg/kg)	Detection Limit (mg/kg)
Benzene	1.76	0.19
Toluene	86.4	1.92
Ethylbenzene	37.1	1.92
m,p-Xylenes	330	3.83
o-Xylene	88.8	1.92

ND - Analyte not detected at the stated detection limit.

<b>Quality Control:</b>	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	Trifluorotoluene	103	81 -117%
	Bromofluorobenzen	112	74 -121%

**Reference:** Method 5030, Purge and Trap; Method 8020, Aromatic Volatile Organics;  
Test Methods for Evaluating Solid Wastes, SW-846, United States  
Environmental Protection Agency, Final Update I, July, 1992.

**Comments:**  
Analyst  
Review

**BLAGG ENGINEERING, INC.**

P.O. Box 87, Bloomfield, New Mexico 87413

Phone: (505)632-1199 Fax: (505)632-3903

**Field TPH-Worksheet**

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Max Characters:

Client:

Sample ID:

Project Location:

Laboratory Number:

Amoco

Center Bottom @ 22'

Jicarilla Apache 102 # 5A

TPH #1786

Project #:

Date Analyzed:

Date Reported:

Sample Matrix:

8-14-96

8-15-96

Soil

Sample Weight: 10.00 grams  
Volume Freon: 20.00 mL  
Dilution Factor: 10 (unitless)  
TPH Reading: 126 mg/kg

TPH Result: 2520.0 mg/kg  
Reported TPH Result: 2500.0 mg/kg  
Actual Detection Limit: 100.0 mg/kg  
Reported Detection Limit 100 mg/kg

QA/QC:

Original  
TPH mg/kg

-----  
1420

Duplicate  
TPH mg/kg

-----  
1344

%  
Diff.

-----  
5

Comments:

\*\*\*\*\*Max Characters\*\*\*\*\*

Comments:

Separator Pit - BJ407



BJ 407

JICARILLA APACHE TRIBE  
ENVIRONMENTAL PROTECTION OFFICE  
P.O. BOX 507  
DULCE, NEW MEXICO 87528

SUBMIT 1 COPY TO  
NATURAL RESOURCE DEPT  
AND OIL & GAS ADMINISTRATION

ON-SITE SOIL REMEDIATION REPORT

Operator: AMOCO PRODUCTION COMPANY Telephone: (505) 326-9200

Address: 200 Amoco Court, Farmington, NM 87401

Facility or Well Name: JICARILLA APACHE #102 - 5A

Location: Unit or Qtr/Qtr Sec P Sec 4 T 26N R 4W County RIO ARRIBA

Land Type: RANGE

Date Remediation Started: 8/14/96 Date Completed: 7/15/98

Remediation Method: Landfarmed X Approx. cubic yards 775  
Composted         
Other       

Depth To Groundwater: (pts.) 0  
Distance to an Ephemeral Stream (pts.) 0  
Distance to Nearest Lake, Playa,  
or Watering Pond (pts.) 0  
Wellhead Protection Area: (pts.) 0  
Distance To Surface Water: (pts.) 0

RANKING SCORE (TOTAL POINTS): 0

**Final Closure Sampling:**

Sampling Date: 7/14/98 Time: 0745

Sample Results:

Field Headspace (ppm) 0.0  
TPH (ppm) 33.4 Method 8015  
Other       

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

DATE 7/15/98 PRINTED NAME Buddy D. Shaw  
SIGNATURE Buddy D. Shaw AND TITLE Environmental Coordinator

AFTER REVIEW OF THE SOIL REMEDIATION INFORMATION, ON-SITE REMEDIATION IS APPROVED IN ACCORDANCE TO THE JICARILLA APACHE TRIBE PIT CLOSURE ORDINANCE.

APPROVED: YES X NO        (REASON) use as Backfill

SIGNED: Kenneth M. [Signature] DATE: 7-27-98

CLIENT: <u>AMOCO</u>	<b>BLAGG ENGINEERING, INC.</b> P.O. BOX 87, BLOOMFIELD, NM 87413 (505) 632-1199	LOCATION NO: <u>87407</u>  C.D.C. NO: <u>6096</u>
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## FIELD REPORT: LANDFARM/COMPOST PILE CLOSURE VERIFICATION

LOCATION: NAME: <u>JICA APACHE 102</u> WELL #: <u>SA</u> PITS: <u>SEP., Blow</u> QUAD/UNIT: <u>P</u> SEC: <u>4</u> TWP: <u>26N</u> RNG: <u>4W</u> PM: <u>NM</u> CNTY: <u>RA</u> ST: <u>NM</u> QTR/FOOTAGE: <u>SE/4 SE/4</u> CONTRACTOR: <u>P+S</u>	DATE STARTED: <u>7/14/98</u> DATE FINISHED: _____ ENVIRONMENTAL SPECIALIST: <u>NU</u>
--	---

### SOIL REMEDIATION:

REMEDICATION SYSTEM: <u>LANDFARM</u>	APPROX. CUBIC YARDAGE: <u>775</u>
LAND USE: <u>RANGE</u>	LIFT DEPTH (ft): <u>2 1/2</u>

### FIELD NOTES & REMARKS:

DEPTH TO GROUNDWATER: >100' NEAREST WATER SOURCE: >1000' NEAREST SURFACE WATER: >1000'

NMOCB RANKING SCORE: 0 NMOCB TPH CLOSURE STD: 5000 PPM 8/14/98

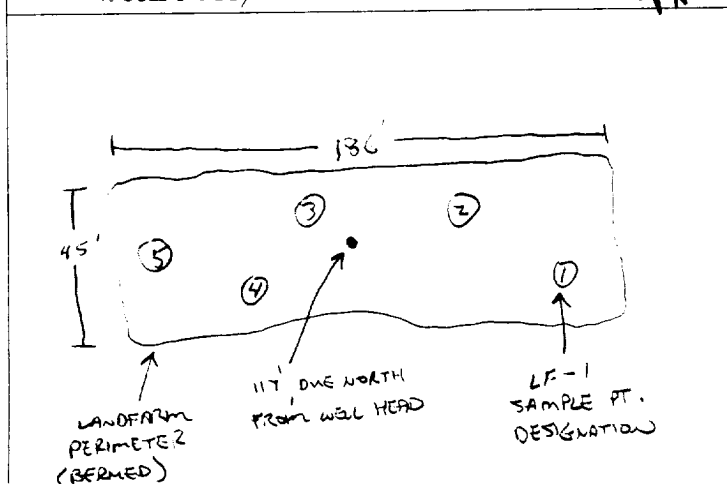
SOIL CONSISTED OF MOSTLY DK. YELL. BROWN SAND TO SILTY SAND W/ SOME CLAY, NON COHESIVE SLIGHTLY MOIST, FIRM, SAMPLING DEPTHS RANGE FROM 1' TO 2', NO DISCOLORATION OR HC ODOR OBSERVED @ ANY OF THE SAMPLE PTS. OR LANDFARM AREA, COLLECTED 5 PT. COMPOSITE SAMPLE FOR LAB ANALYSIS.

**CLOSED**

### FIELD 418.1 CALCULATIONS

SAMP. TIME	SAMPLE I.D.	LAB No:	WEIGHT (g)	mL. FREON	DILUTION	READING	CALC. ppm

### SKETCH/SAMPLE LOCATIONS ↗ N



### OVM RESULTS

### LAB SAMPLES

SAMPLE ID	FIELD HEADSPACE PID (ppm)	SAMPLE ID	ANALYSIS	TIME	RESULTS
LF-1	0.0	LF-1	TPH (80:15)	0745	33.4

### SCALE

0 FT

### TRAVEL NOTES:

CALLOUT: NA

ONSITE: 7/14/98



# ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

## EPA METHOD 8015 Modified Nonhalogenated Volatile Organics Total Petroleum Hydrocarbons

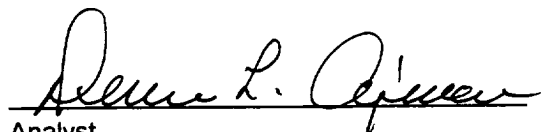
Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	LF - 1	Date Reported:	07-15-98
Laboratory Number:	D613	Date Sampled:	07-14-98
Chain of Custody No:	6096	Date Received:	07-14-98
Sample Matrix:	Soil	Date Extracted:	07-14-98
Preservative:	Cool	Date Analyzed:	07-14-98
Condition:	Cool and Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	0.7	0.2
Diesel Range (C10 - C28)	32.7	0.1
Total Petroleum Hydrocarbons	33.4	0.2

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: Jicarilla Apache #102 - 5A Landfarm. 5 Pt. Composite.

  
Analyst

  
Review

6096

[illegible]