

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

Blow BT 376 - no bedrock
Sep - Risk - no bedrock
SUBMIT 1 COPY TO

NATURAL RESOURCE DEPT

OIL & GAS ADMINISTRATION

RECEIVED
AUG 09 1999
OIL CON. DIV.
DIST. 3

PIT REMEDIATION AND CLOSURE REPORT

Vulnerable Area boundary, painted orange

Operator: AMOCO PRODUCTION COMPANY Telephone: (505) 326-9200
Address: 200 Amoco Court, Farmington, NM 87401
Facility or Well Name: JICARILLA APACHE 102 - 28
Location: Unit or Qtr/Qtr Sec P Sec 3 T 26N R 4W County RIO ARRIBA
Pit Type: Separator Dehydrator Other BLOW
Land Type: RANGE

Pit Location: Pit dimensions: length 50', width 75', depth 16'
(Attach diagram) Reference: wellhead X, other
Footage from reference: 225'
Direction from reference: 10 Degrees X East of North X
West South

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

RANKING SCORE (TOTAL POINTS): 0

85396

Date Remediation Started: _____ Date Completed: 8/7/96

Remediation Method: Excavation ☒ Approx. cubic yards 2000
(check all appropriate sections) Landfarmed _____ Insitu Bioremediation _____
Other COMPOSTED

Remediation Location: Onsite ☒ Offsite _____
(i.e. landfarmed onsite, name and location of offsite facility)

General Description of Remedial Action: ExcavationGroundwater Encountered: No ☒ Yes _____ Depth _____

Final Pit: Sample location see Attached Documents
Closure Sampling: _____
(if multiple samples, attach sample results and diagram of sample locations and depths)

Sample depth 20'Sample date 8/6/96 Sample time 1230

Sample Results

Soil: Benzene (ppm) ND Water: Benzene (ppb) _____Total BTEX (ppm) 104.86 Toluene (ppb) _____Field Headspace (ppm) 633 Ethylbenzene (ppb) _____TPH (ppm) 4,960 Total Xylenes (ppb) _____Groundwater 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 BELIEF

DATE 8/7/96 PRINTED NAME Buddy D. ShawSIGNATURE 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 _____ (REASON) ConditionsSIGNED: [Signature] DATE: 8/12/96

CLIENT: <u>AMOCO</u>	BLAGG ENGINEERING, INC. P.O. BOX 87, BLOOMFIELD, NM 87413 (505) 632-1199	LOCATION NO: <u>8J396</u> C.D.C. NO: <u>2386</u>
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FIELD REPORT: CLOSURE VERIFICATION	PAGE No: <u>1</u> of <u>1</u>
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LOCATION: NAME: <u>JICARILLA APACHE</u> WELL # <u>102-28</u> PIT: <u>ROW</u> QUAD/UNIT: <u>P</u> SEC: <u>3</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</u> <u>SE/4</u> CONTRACTOR: <u>P+5</u>	DATE STARTED: <u>8/6/96</u> DATE FINISHED: _____ ENVIRONMENTAL SPECIALIST: <u>NV</u>
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EXCAVATION APPROX. <u>50</u> FT. x <u>75</u> FT. x <u>16</u> FT. DEEP.	CUBIC YARDAGE: <u>2000</u>
DISPOSAL FACILITY: <u>ON-SITE</u> REMEDIATION METHOD: <u>COMPOSTED</u>	
LAND USE: <u>RANGE</u> LEASE: <u>FED. LSE. #102</u> FORMATION: _____	

FIELD NOTES & REMARKS:	PIT LOCATED APPROXIMATELY <u>225</u> FT. <u>N/E</u> FROM WELLHEAD. DEPTH TO GROUNDWATER: <u>>100'</u> NEAREST WATER SOURCE: <u>>1000'</u> NEAREST SURFACE WATER: <u>>1000'</u> NMOC D RANKING SCORE: <u>0</u> NMOC D TPH CLOSURE STD: <u>5000</u> PPM
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SOIL AND EXCAVATION DESCRIPTION:	CHECK ONE: ☒ PIT ABANDONED ☐ STEEL TANK INSTALLED
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DK. YELL. BROWN SILTY SAND TO SILTY CLAY (NORTH, EAST & SOUTH SIDEWALLS) TO OLIVE GRAY & DK. GRAY (WEST SIDEWALL & PIT BOTTOM NEAR EAST SIDEWALL), SLIGHTLY MOIST FIRM TO STIFF STRONG HC ODOOR IN WEST SIDEWALL & AT BOTTOM OVM SAMPLES, LARGE QUANTITY OF LOOSE SOIL WITHIN EXCAVATION PROBABLY DUE TO SLUFFING, RECOMMENDED TO EXCAVATE WEST SIDEWALL UNTIL DISCOLORATION & ODOOR SUBSIDES. ADDITIONAL EXCAVATION OF WEST SIDEWALL CONDUCTED ON 8/7/96 & RESAMPLED.

CONDITIONAL -
JICARILLA
EPO



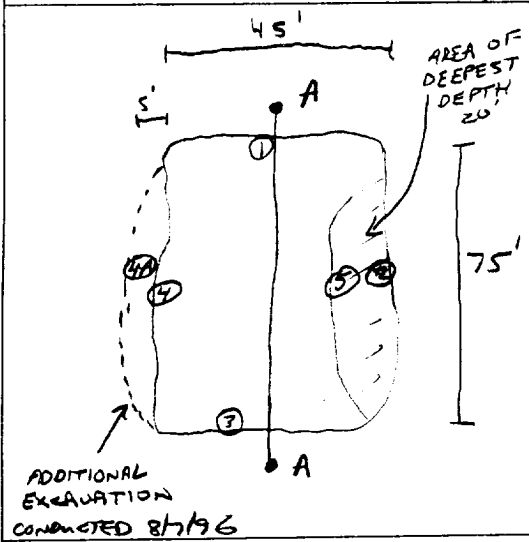
1512 ASSESSED - NMOC D FIELD 418.1 CALCULATIONS

TIME	SAMPLE I.D.	LAB No:	WEIGHT (g)	mL. FREON	DILUTION	READING	CALC. ppm
1225	④ @ 13'	TPH-1763	5	20	10:1	181	7,240
1230	⑤ @ 20'	TPH-1764	5	20	10:1	124	4,960

PIT PERIMETER

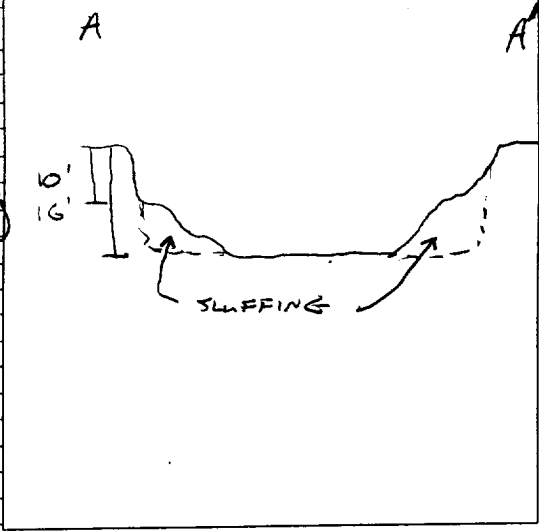
OVM RESULTS

PIT PROFILE



SAMPLE ID	FIELD HEADSPACE PID (ppm)
1 @ 10'	0.0
2 @ 16'	0.0
3 @ 12'	0.0
4 @ 13'	857
5 @ 20'	633
4 @ 13'	13.6 (DATE 8/7)

LAB SAMPLES		
SAMPLE ID	ANALYSIS	TIME
⑤ @ 20'	BTEX	1230
FAKED		



TRAVEL NOTES:	CALLOUT: <u>8/5/96 AFTER.</u>	ONSITE: <u>8/6/96 MORN.</u>
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Well Name:

Well Site location:

Pit Type:

Producing Formation:

Pit Category:

Horizontal Distance to Surface Water:

Vicinity Groundwater Depth:

Jicarilla Apache 102 #28

Unit P, Sec. 3, T26N, R4W

Blow Pit

BS Mesa Gallup

Non Vulnerable

> 1000 ft.

> 100 ft.

RISK ASSESSMENT (non-vulnerable area)

Pit remediation activities were terminated when trackhoe reached practical extent for abandoned pit (16 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 on the fringe of the Cottonwood Canyon wash vulnerable area boundary.

(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
Sample ID: 4 @ 13'
Project Location: Jicarilla 102-28
Laboratory Number: TPH-1763

Project #:
Date Analyzed: 08-06-96
Date Reported: 08-06-96
Sample Matrix: Soil

Parameter	Result, mg/kg	Detection Limit, mg/kg
-----	-----	-----
Total Recoverable Petroleum Hydrocarbons	7,200	200

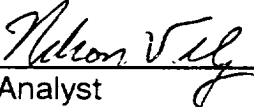
ND = Not Detectable at stated detection limits.

QA/QC:	QA/QC Sample TPH mg/kg	Duplicate TPH mg/kg	% *Diff.
	-----	-----	-----
	3292	3536	7.15

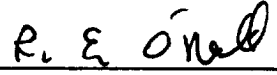
*Administrative Acceptance limits set at 30%.

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

Comments: Blow Pit - BJ396



Analyst



Review

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
Sample ID: 5 @ 20'
Project Location: Jicarilla 102-28
Laboratory Number: TPH-1764

Project #:
Date Analyzed: 08-06-96
Date Reported: 08-06-96
Sample Matrix: Soil

Parameter	Result, mg/kg	Detection Limit, mg/kg
-----	-----	-----
Total Recoverable Petroleum Hydrocarbons	5,000	200

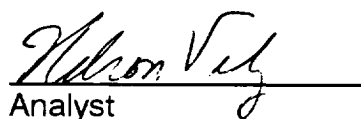
ND = Not Detectable at stated detection limits.

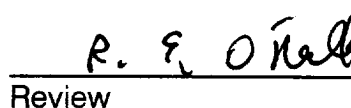
QA/QC:	QA/QC Sample TPH mg/kg	Duplicate TPH mg/kg	% *Diff.
	-----	-----	-----
	3292	3536	7.15

*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 - BJ396


Analyst


Review

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

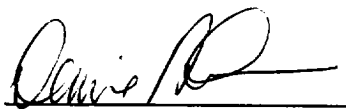
Project ID:	Jicarilla Apache 102-28	Report Date:	08/07/96
Sample ID:	5 @ 20'	Date Sampled:	08/06/96
Lab ID:	4616	Date Received:	08/07/96
Sample Matrix:	Soil	Date Extracted:	08/07/96
Preservative:	Cool	Date Analyzed:	08/07/96
Condition:	Intact		

Target Analyte	Concentration (mg/kg)	Detection Limit (mg/kg)
Benzene	ND	0.21
Toluene	11.4	0.21
Ethylbenzene	6.56	0.21
m,p-Xylenes	68.1	0.42
o-Xylene	18.8	0.21

ND - Analyte not detected at the stated detection limit.

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	Trifluorotoluene	106	81 -117%
	Bromofluorobenzen	116	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

Max Characters:

Client:

Sample ID:

Project Location:

Laboratory Number:

AMOCO

4 @ 13'

Jicarilla 102-28

TPH-1763

Project #:

Date Analyzed:

Date Reported:

Sample Matrix:

08-06-96

08-06-96

Soil

Sample Weight:

5.00 grams

Volume Freon:

20.00 mL

Dilution Factor:

10 (unitless)

TPH Reading:

181 mg/kg

TPH Result:

7240.0 mg/kg

Reported TPH Result:

7200 mg/kg

Actual Detection Limit:

200.0 mg/kg

Reported Detection Limit:

200 mg/kg

QA/QC:

Original
TPH mg/kg

Duplicate
TPH mg/kg

%
Diff.

3292

3536

7.15

Comments:

*****Max Characters*****

Comments:

Blow Pit - BJ396

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

Field TPH-Worksheet

Max Characters:

Client:

Sample ID:

Project Location:

Laboratory Number:

AMOCO

5 @ 20'

Jicarilla 102-28

TPH-1764

Project #:

Date Analyzed:

Date Reported:

Sample Matrix:

08-06-96

08-06-96

Soil

Sample Weight:

5.00 grams

Volume Freon:

20.00 mL

Dilution Factor:

10 (unitless)

TPH Reading:

124 mg/kg

TPH Result:

4960.0 mg/kg

Reported TPH Result:

5000 mg/kg

Actual Detection Limit:

200.0 mg/kg

Reported Detection Limit:

200 mg/kg

QA/QC:

Original
TPH mg/kg

Duplicate
TPH mg/kg

%
Diff.

3292

3536

7.15

Comments:

*****Max Characters*****

Comments:

Blow Pit - BJ396

807 S. CARLTON • FARMINGTON, NM 87401 • (505) 326-2395

PROJECT MANAGER:

Anaitas Lab I.D.:

Company:

Address:

Phone:

Fax:

Bill To:

Company:

Address:

L

[illegible]

CHAIN OF CUSTODY

[illegible]

**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

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 102-28

Location: Unit or Qtr/Qtr Sec P Sec 3 T 26N R 4W County RIO ARriba

Pit Type: Separator ☒ Dehydrator ☐ Other ☐

Land Type: RANGE

Pit Location: (Attach diagram) Pit dimensions: length 15', width 13', depth 17'

Reference: wellhead ☒, other ☐

Footage from reference: 147'

Direction from reference: 10 Degrees ☐ East of North ☒ ☒ West South ☐

Depth To Groundwater: (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>
Distance to an Ephemeral Stream (Downgradient dry wash greater than ten feet in width)	Less than 100 feet Greater than 100 feet	(10 points) (0 points)	<u>0</u>
Distance to Nearest Lake, Playa, or Watering Pond (Downgradient lakes, playas and livestock or wildlife watering ponds)	Less than 100 feet Greater than 100 feet	(10 points) (0 points)	<u>0</u>
Wellhead Protection Area: (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>
Distance To Surface Water: (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: 8/7/96

Remediation Method: Excavation X Approx. cubic yards 100
(check all appropriate sections) Landfarmed _____ Insitu Bioremediation _____
Other COMPOSTED

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

Sample depth 17'

Sample date 8/7/96 Sample time 1300

Sample Results

Soil: Benzene	(ppm)	<u>ND</u>	Water: Benzene	(ppb)	_____
Total BTEX	(ppm)	<u>21.35</u>	Toluene	(ppb)	_____
Field Headspace	(ppm)	<u>161.2</u>	Ethylbenzene	(ppb)	_____
TPH	(ppm)	<u>4,480</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 8/7/96 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 _____ (REASON) Conditions

SIGNED: [Signature] DATE: 8/12/96

CLIENT: <u>AMOCO</u>	BLAGG ENGINEERING, INC. P.O. BOX 87, BLOOMFIELD, NM 87413 (505) 632-1199	LOCATION NO: <u>BJ396</u> C.D.C. NO: <u>2387</u>
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FIELD REPORT: CLOSURE VERIFICATION	PAGE No: <u>1</u> of <u>1</u>
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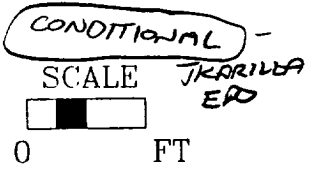
LOCATION: NAME: <u>JICARILLA APACHE</u> WELL #: <u>102-28</u> PIT: <u>SEP</u> QUAD/UNIT: <u>P</u> SEC: <u>3</u> TWP: <u>26N</u> RNG: <u>4W</u> PM: <u>NM</u> CNTY: <u>RA</u> ST: <u>NM</u> QTR/FOOTAGE: <u>SE/4</u> <u>SE/4</u> CONTRACTOR: <u>P + S</u>	DATE STARTED: <u>8/6/96</u> DATE FINISHED: _____ ENVIRONMENTAL SPECIALIST: <u>NV</u>
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EXCAVATION APPROX. <u>15</u> FT. x <u>13</u> FT. x <u>10</u> FT. DEEP.	CUBIC YARDAGE: <u>100</u>	
DISPOSAL FACILITY: <u>ON-SITE</u>	REMEDIATION METHOD: <u>COMPOSTED</u>	
LAND USE: <u>RANGE</u>	LEASE: <u>FED. USE. #102</u>	FORMATION: _____

FIELD NOTES & REMARKS:	PIT LOCATED APPROXIMATELY <u>147</u> FT. <u>N10W</u> FROM WELLHEAD. DEPTH TO GROUNDWATER: <u>2100'</u> NEAREST WATER SOURCE: <u>21000'</u> NEAREST SURFACE WATER: <u>21000'</u> NMOC D RANKING SCORE: <u>0</u> NMOC D TPH CLOSURE STD: <u>5000</u> PPM SOIL AND EXCAVATION DESCRIPTION:
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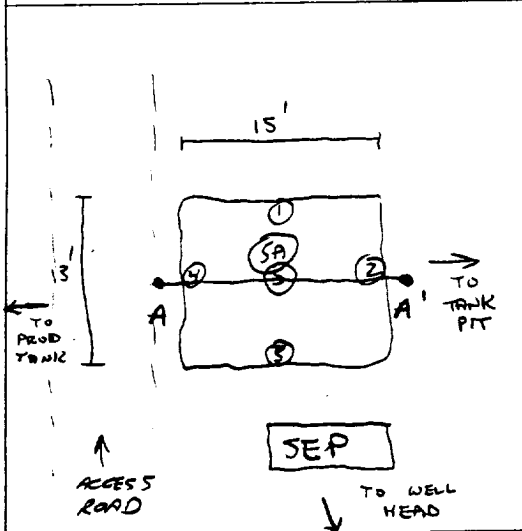
CHECK ONE
☒ PIT ABANDONED
☐ STEEL TANK INSTALLED

DK. YEL. BROWN SILTY SAND TO SILTY CLAY (NORTH, EAST & WEST SIDEWALLS) & MED. GRAY (SOUTH SIDEWALL & PIT BOTTOM), COHESIVE, SLIGHTLY MOIST, FIRM TO STIFF, STRONG HC ODOR IN SOUTH SIDEWALL & PIT BOTTOM, MOST OF SOUTH SIDEWALL CONTAINS MED. GRAY DISCOLORATION, ENTIRE EXCAVATION SURROUNDED BY BURIED PIPING AUTOMATION, & POSSIBLY CATHODE LINES. RECOMMEND EXCAVATING BOTTOM FURTHER DOWNWARD UNTIL DISCOLORATION & ODOR SUBSIDES. RESAMPLED PIT BOTTOM 8/7/96. RISK ASSESSED - NMOC D FIELD 418.1 CALCULATIONS



TIME	SAMPLE I.D.	LAB No:	WEIGHT (g)	mL. FREON	DILUTION	READING	CALC. ppm
1130	⑤ @ 11'	TPH-1762	5	20	10:1	297	11,880
1300	⑤ @ 17'	TPH-1768	5	20	10:1	112	4480

PIT PERIMETER

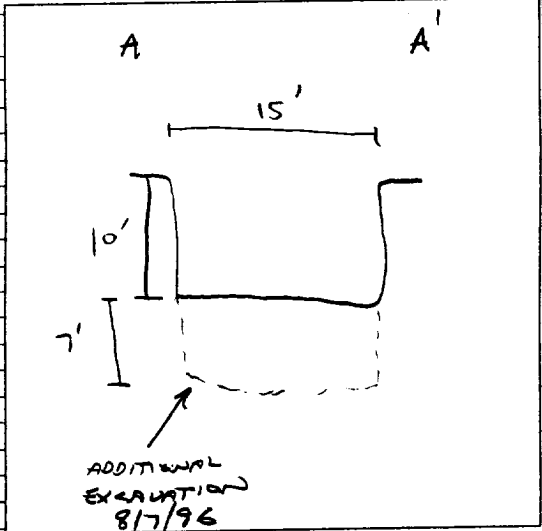


OVM RESULTS

SAMPLE ID	FIELD HEADSPACE P10 (ppm)
1 @ 6'	0.0
2 @ 6'	0.0
3 @ 7'	557
4 @ 6'	0.0
5 @ 11'	654
5 @ 17'	161.2

LAB SAMPLES		
SAMPLE ID	ANALYSIS	TIME
SAC 17'	BTEX	1300
<u>PASSED</u>		

PIT PROFILE



TRAVEL NOTES:	CALLOUT: <u>8/5/96 AFTER.</u> ONSITE: <u>8/6/96 MORN.</u>
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Well Name:

Well Site location:

Pit Type:

Producing Formation:

Pit Category:

Horizontal Distance to Surface Water:

Vicinity Groundwater Depth:

Jicarilla Apache 102 #28

Unit P, Sec. 3, T26N, R4W

Separator Pit

BS Mesa Gallup

Non Vulnerable

> 1000 ft.

> 100 ft.

RISK ASSESSMENT (non-vulnerable area)

Pit remediation activities were terminated when trackhoe reached practical extent for abandoned pit (17 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 on the fringe of the Cottonwood Canyon wash vulnerable area boundary.

(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
Sample ID: 5 @ 11'
Project Location: Jicarilla 102-28
Laboratory Number: TPH-1762

Project #:
Date Analyzed: 08-06-96
Date Reported: 08-06-96
Sample Matrix: Soil

Parameter	Result, mg/kg	Detection Limit, mg/kg
-----	-----	-----
Total Recoverable Petroleum Hydrocarbons	11,900	200

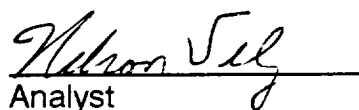
ND = Not Detectable at stated detection limits.

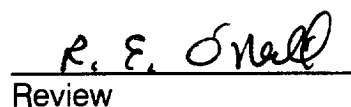
QA/QC:	QA/QC Sample TPH mg/kg	Duplicate TPH mg/kg	% * Diff.
	-----	-----	-----
	3292	3536	7.15

*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 - BJ396


Analyst


Review

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
Sample ID: 5 @ 17'
Project Location: Jicarilla 102-28
Laboratory Number: TPH-1768

Project #:
Date Analyzed: 08-07-96
Date Reported: 08-07-96
Sample Matrix: Soil

Parameter	Result, mg/kg	Detection Limit, mg/kg
Total Recoverable Petroleum Hydrocarbons	4,500	200

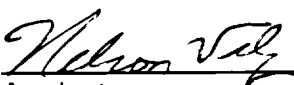
ND = Not Detectable at stated detection limits.

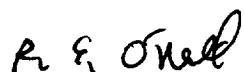
QA/QC:	QA/QC Sample TPH mg/kg	Duplicate TPH mg/kg	% *Diff.
	3292	3536	7.15

*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 - CA396


Analyst


Review

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

Project ID:	Jicarilla Apache 102-28	Report Date:	08/08/96
Sample ID:	5A @ 17'	Date Sampled:	08/07/96
Lab ID:	4620	Date Received:	08/08/96
Sample Matrix:	Soil	Date Extracted:	08/08/96
Preservative:	Cool	Date Analyzed:	08/08/96
Condition:	Intact		

Target Analyte	Concentration (mg/kg)	Detection Limit (mg/kg)
Benzene	ND	0.05
Toluene	2.08	0.05
Ethylbenzene	0.68	0.05
m,p-Xylenes	14.1	0.11
o-Xylene	4.49	0.05

ND - Analyte not detected at the stated detection limit.

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	Trifluorotoluene	99	81 -117%
	Bromofluorobenzen	120	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

Max Characters:

Client:

AMOCO

Project #:

Sample ID:

5 @ 11'

Date Analyzed:

08-06-96

Project Location:

Jicarilla 102-28

Date Reported:

08-06-96

Laboratory Number:

TPH-1762

Sample Matrix:

Soil

Sample Weight: 5.00 grams
Volume Freon: 20.00 mL
Dilution Factor: 10 (unitless)
TPH Reading: 297 mg/kg

TPH Result: 11880.0 mg/kg
Reported TPH Result: 11900 mg/kg
Actual Detection Limit: 200.0 mg/kg
Reported Detection Limit: 200 mg/kg

QA/QC:

Original
TPH mg/kg

3292

Duplicate
TPH mg/kg

3536

%
Diff.

7.15

Comments:

*****Max Characters*****

Comments:

Separator Pit - BJ396

BLAGG ENGINEERING, INC.

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

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

Field TPH-Worksheet

Max Characters:

Client:

AMOCO

Project #:

Sample ID:

5 @ 17'

Date Analyzed:

08-07-96

Project Location:

Jicarilla 102-28

Date Reported:

08-07-96

Laboratory Number:

TPH-1768

Sample Matrix:

Soil

Sample Weight: 5.00 grams
Volume Freon: 20.00 mL
Dilution Factor: 10 (unitless)
TPH Reading: 112 mg/kg

TPH Result: 4480.0 mg/kg
Reported TPH Result: 4500 mg/kg
Actual Detection Limit: 200.0 mg/kg
Reported Detection Limit: 200 mg/kg

QA/QC:

Original
TPH mg/kg

Duplicate
TPH mg/kg

%
Diff.

3292

3536

7.15

Comments:

*****Max Characters*****

Comments:

Separator Pit - CA396

8J396

**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 102-28
Location: Unit or Qtr/Qtr Sec P Sec 3 T 26N R 4W County RIO ARRIERA
Land Type: RANGE

Date Remediation Started: 8/6/96 **Date Completed:** 7/10/98
Remediation Method: Landfarmed X Approx. cubic yards 2,100
Composted X
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: 7/6/98 **Time:** -
Sample Results:
Field Headspace (ppm) -
TPH (ppm) - Method 8015
Other MULTIPLE SAMPLES - SEE ATTACHED DOCUMENT

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

DATE 7/10/98 **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 LF 1 + 3 only

SIGNED: Kenneth M. Shaw **DATE:** 7-27-98

CLIENT: <u>AMOCO</u>	BLAGG ENGINEERING, INC. P.O. BOX 87, BLOOMFIELD, NM 87413 (505) 632-1199	LOCATION NO: <u>81396</u> C.D.C. NO: <u>6087</u>
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FIELD REPORT: LANDFARM/COMPOST PILE CLOSURE VERIFICATION

LOCATION: NAME: <u>JICA, APACHE</u> 102 WELL #: <u>28</u> PITS: <u>SEP, BLOW</u> QUAD/UNIT: <u>P</u> SEC: <u>3</u> TWP: <u>26N</u> RNG: <u>4W</u> PM: <u>Nm</u> CNTY: <u>RA</u> ST: <u>Nm</u> QTP/FOOTAGE: <u>SEL4 SEL4</u> CONTRACTOR: <u>P&S</u>	DATE STARTED: <u>7/6/98</u> DATE FINISHED: _____ ENVIRONMENTAL SPECIALIST: <u>NV</u>
--	--

SOIL REMEDIATION:

REMEDICATION SYSTEM: <u>LANDFARM</u>	APPROX. CUBIC YARDAGE: <u>2,100</u>
LAND USE: <u>RANGE</u>	LIFT DEPTH (ft): <u>3'</u>

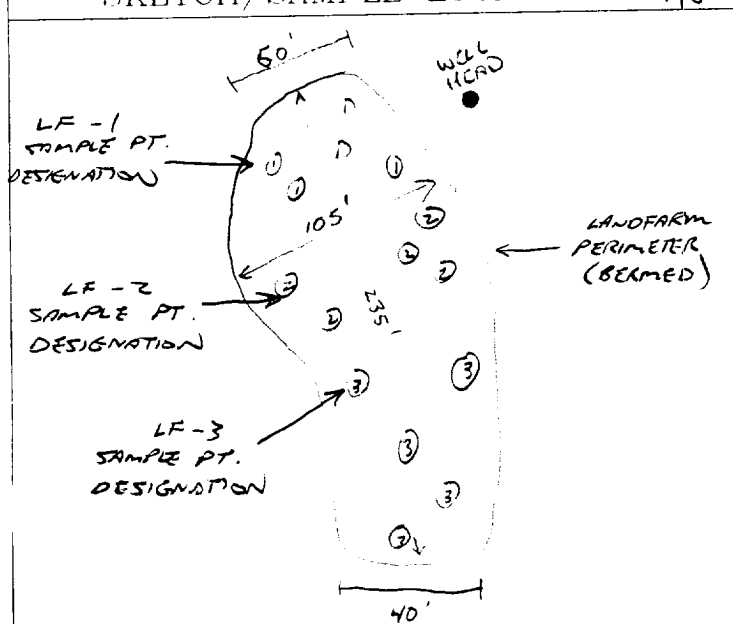
FIELD NOTES & REMARKS:

DEPTH TO GROUNDWATER: >100' NEAREST WATER SOURCE: >1000' NEAREST SURFACE WATER: >1000'
 NMOCID RANKING SCORE: 0 NMOCID TPH CLOSURE STD: 5000 PPM
 SOIL MOSTLY DK. YELL. BROWN SILTY SAND TO CLAY, NON COHESIVE TO PLASTIC, SLIGHTLY MOIST TO MOIST FIRM TO STIFF SAMPLING DEPTHS RANGE FROM 6" TO 2 1/2', COMPOSTED MATERIAL MIXED W/ SOIL AS EVIDENT W/ ODD, GRAY TO BLACK DISCOLORATION APPARENTLY ASSOCIATED W/ COMPOST MATERIAL; COLLECTED 5 PT. COMPOSITE SAMPLES FOR LAB ANALYSIS.

FIELD 418.1 CALCULATIONS

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

SKETCH/SAMPLE LOCATIONS N

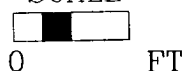


OVM RESULTS

LAB SAMPLES

SAMPLE ID	FIELD HEADSPACE PID (ppm)	SAMPLE ID	ANALYSIS	TIME	RESULTS
LF-1	40.4	LF-1	TPH (8015)	0730	14.9
LF-2	157	LF-2	TPH (8015)	0800	188
LF-3	236	LF-3	TPH (8015)	0835	71.4

SCALE



TRAVEL NOTES:

CALLOUT: NA ONSITE: 7/ / 9

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8015 Modified Nonhalogenated Volatile Organics Total Petroleum Hydrocarbons

Client: Blagg / AMOCO
Sample ID: LF - 1
Laboratory Number: D588
Chain of Custody No: 6087
Sample Matrix: Soil
Preservative: Cool
Condition: Cool and Intact

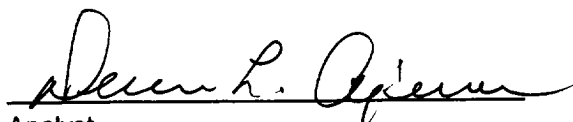
Project #: 04034-10
Date Reported: 07-08-98
Date Sampled: 07-06-98
Date Received: 07-06-98
Date Extracted: 07-07-98
Date Analyzed: 07-07-98
Analysis Requested: 8015 TPH

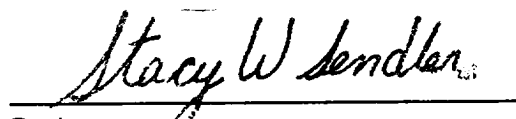
Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	1.2	0.2
Diesel Range (C10 - C28)	13.7	0.1
Total Petroleum Hydrocarbons	14.9	0.2

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 - 28 Landfarm. 5 Pt. Composite.


Analyst


Review

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

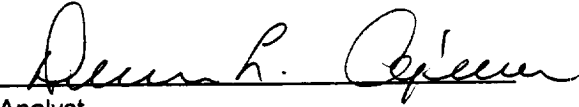
Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	LF - 2	Date Reported:	07-08-98
Laboratory Number:	D589	Date Sampled:	07-06-98
Chain of Custody No:	6087	Date Received:	07-06-98
Sample Matrix:	Soil	Date Extracted:	07-07-98
Preservative:	Cool	Date Analyzed:	07-07-98
Condition:	Cool and Intact	Analysis Requested:	8015 TPH

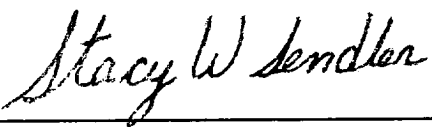
Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	25.3	0.2
Diesel Range (C10 - C28)	163	0.1
Total Petroleum Hydrocarbons	188	0.2

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 - 28 Landfarm. 5 Pt. Composite.


Analyst


Review

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

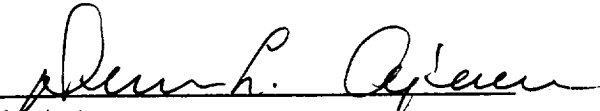
Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	LF - 3	Date Reported:	07-08-98
Laboratory Number:	D590	Date Sampled:	07-06-98
Chain of Custody No:	6087	Date Received:	07-06-98
Sample Matrix:	Soil	Date Extracted:	07-07-98
Preservative:	Cool	Date Analyzed:	07-07-98
Condition:	Cool and Intact	Analysis Requested:	8015 TPH

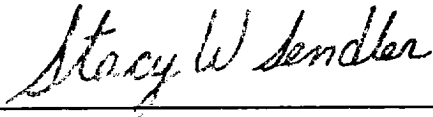
Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	18.5	0.2
Diesel Range (C10 - C28)	52.9	0.1
Total Petroleum Hydrocarbons	71.4	0.2

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 - 28 Landfarm. 5 Pt. Composite.


Analyst


Review

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	LF - 2	Date Reported:	07-08-98
Laboratory Number:	D589	Date Sampled:	07-06-98
Chain of Custody:	6087	Date Received:	07-06-98
Sample Matrix:	Soil	Date Analyzed:	07-07-98
Preservative:	Cool	Date Extracted:	07-07-98
Condition:	Cool & Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	ND	8.8
Toluene	ND	8.4
Ethylbenzene	135	7.6
p,m-Xylene	1,540	10.8
o-Xylene	803	5.2
Total BTEX	2,480	

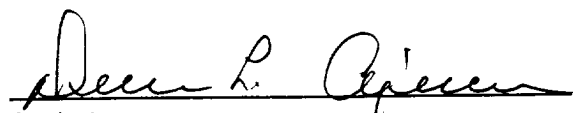
ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	100 %
	Bromofluorobenzene	100 %

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: Jicarilla Apache #102 - 28 Landfarm. 5 Pt. Composite.


Analyst


Review

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	LF - 3	Date Reported:	07-08-98
Laboratory Number:	D590	Date Sampled:	07-06-98
Chain of Custody:	6087	Date Received:	07-06-98
Sample Matrix:	Soil	Date Analyzed:	07-07-98
Preservative:	Cool	Date Extracted:	07-07-98
Condition:	Cool & Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	1,110	8.8
Toluene	ND	8.4
Ethylbenzene	112	7.6
p,m-Xylene	1,280	10.8
o-Xylene	580	5.2
Total BTEX	3,080	

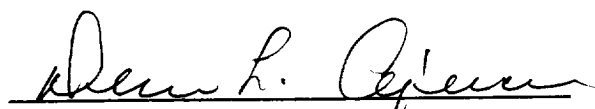
ND - Parameter not detected at the stated detection limit.

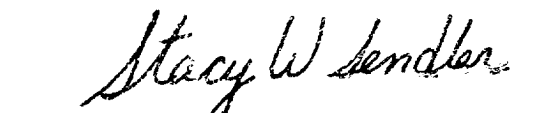
Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	96 %
	Bromofluorobenzene	96 %

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: Jicarilla Apache #102 - 28 Landfarm. 5 Pt. Composite.


Analyst


Review

CHAIN OF CUSTODY RECORD

6087

Client / Project Name BAGG / Amoco			Project Location CANDORAN			ANALYSIS / PARAMETERS					
Sampler: NTV			Client No. 04034-10			Remarks					
Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	TPH (8015)	BTX (802)	All samples Refrigerated - Cool			
LF-1	7/6/98	0730	D588	Soil	1	✓		5 PT. Composite			
LF-2	7/6/98	0800	D589	Soil	1	✓		5 PT. Composite			
LF-3	7/6/98	0835	D590	Soil	1	✓		5 PT. Composite			
Relinquished by: (Signature) <i>[Signature]</i>			Date	Time	Received by: (Signature) <i>[Signature]</i>	Date	Time	Sample Receipt			
Relinquished by: (Signature)					Received by: (Signature)			Received Intact			
Relinquished by: (Signature)					Received by: (Signature)			Cool - Ice/Blue Ice			

ENVIROTECH INC.

5796 U.S. Highway 64
Farmington, New Mexico 87401
(505) 632-0615