BJ693

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

RECEIVED
JUL 13 1999
OIL CON. DIV.
DIST. 3

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

Risk
3 pits

PIT REMEDIATION AND CLOSURE REPORT

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

Address: 200 Amoco Court, Farmington, NM 87401

Denny E. Foust
DEPUTY OIL & GAS INSPECTOR
AUG 13 1999

Facility or Well Name: JICARILLA A #1E

Location: Unit or Qtr/Qtr Sec E Sec 20 T 26N R 5W County RIO ARRIBA

Pit Type: Separator ____ Dehydrator ____ Other BLOW

Approved

Land Type: RANGE

Pit Location: (Attach diagram)

Pit dimensions: length 22', width 22', depth 3'

Reference: wellhead X, other ____

Footage from reference: 156'

Direction from reference: 56 Degrees ____ East X North ____ of X 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)	0
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)	0
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)	0
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)	0
Distance To SurfaceWater: (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)	0

RANKING SCORE (TOTAL POINTS): 0

BJ693 BLOW PIT

Date Remediation Started: _____ **Date Completed:** 11/28/98

Remediation Method: (Check all appropriate sections) Excavation X Landfarmed X Approx. cubic yards 20 Insitu Bioremediation _____ Other _____

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

General Description of Remedial Action: Excavation. EXCAVATION MOSTLY BELOW THE PIT NO TPH ANALYSIS WAS CONDUCTED. RISK ASSESSED.

Groundwater Encountered: No X Yes ____ Depth _____

Final Pit: Closure Sampling: (if multiple samples, attach sample results and diagram of sample locations and depths)

Sample location see Attached Documents

Sample depth 3' (PIT BOTTOM)

Sample date 11/28/98 Sample time 1215

Sample Results

Soil:	Benzene	(ppm) ____	Water:	Benzene	(ppb) ____
	Total BTEX	(ppm) ____		Toluene	(ppb) ____
	Field Headspace	(ppm) 105.3		Ethylbenzene	(ppb) ____
	TPH	(ppm) NA		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 KNOWLEGE AND BELIEF

DATE 11/28/98 **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) R.A. Attached

SIGNED: Ken C Mankell **DATE:** 12-28-98

22878

CLIENT: AMOCO

BLAGG ENGINEERING, INC.
P.O. BOX 87, BLOOMFIELD, NM 87413
(505) 632-1199

LOCATION NO: 85693
C.O.C. NO: _____

FIELD REPORT: CLOSURE VERIFICATION

PAGE No: 1 of 1

LOCATION: NAME: JICARILLA A WELL #: 6E PIT: BLOW

QUAD/UNIT: E SEC: 20 TWP: 26N RNG: 5W PM: NM CNTY: RA ST: NM

QTR/FOOTAGE: 1760FNL/920FWL CONTRACTOR: P+S

DATE STARTED: 11 28 98
DATE FINISHED: _____

ENVIRONMENTAL SPECIALIST: NM

EXCAVATION APPROX. 22 FT. x 22 FT. x 3 FT. DEEP. CUBIC YARDAGE: 20

DISPOSAL FACILITY: ON SITE REMEDIATION METHOD: LANDFARM

LAND USE: RANGE LEASE: JIC. A FORMATION: DK

FIELD NOTES & REMARKS: PIT LOCATED APPROXIMATELY 156 FT. N56°W FROM WELLHEAD.

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

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

CHECK ONE:
- [V] PIT ABANDONED
- [ ] STEEL TANK INSTALLED
- [ ] FIBERGLASS TANK INSTALLED

SOIL AND EXCAVATION DESCRIPTION:

EXCAVATION CONSISTED MOSTLY OF BEDROCK (SANDSTONE) DK TO MOD YELL. ORANGE IN COLOR, VERY HARD. NO APPARENT STAINING OBSERVED NO ODOR DETECTED IN OVM SAMPLE. SAMPLE COLLECTED FROM BEDROCK, THEREFORE NO TPH ANALYSIS WAS CONDUCTED.

EXCAVATION MOSTLY BEDROCK

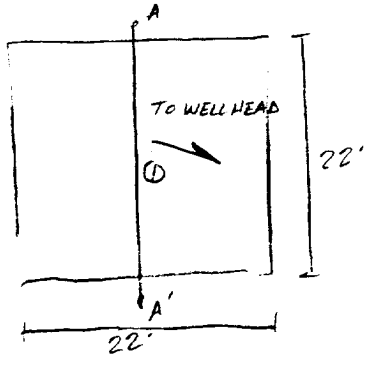
RISK ASSESSED.

SCALE
0 FT

FIELD 418.1 CALCULATIONS

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

PIT PERIMETER



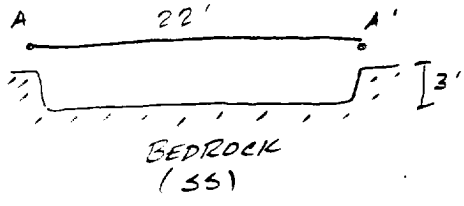
OVM RESULTS

SAMPLE ID	FIELD HEADSPACE PID (ppm)
1 @ 3'	105.3
2 @	
3 @	
4 @	
5 @	

LAB SAMPLES

SAMPLE ID	ANALYSIS	TIME
		1215

PIT PROFILE



TRAVEL NOTES: CALLOUT: _____ ONSITE: _____

Well Name:	**Jicarilla A #6E**
Well Site location:	Unit E, Sec. 20, T26N, R5W
Pit Type:	Blow Pit
Producing Formation:	Basin Dakota
Pit Category:	Non Vulnerable
Horizonal Distance to Surface Water:	> 1000 ft.
Vicinity Groundwater Depth:	> 100 ft.

RISK ASSESSMENT (non-vulnerable area)

Pit remediation activities were terminated when trackhoe encountered sandstone bedrock at 3 feet below grade.

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

1. Past production fluids were contained locally by a relatively shallow sandstone bedrock located 3 feet below grade. Groundwater levels located on or close to the well pad are estimated to be at a much greater depth below sandstone bedrock.

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 0.56 miles southeast of the nearest vulnerable area boundary (Albert Canyon wash).

   (Refer to Gonzales Mesa Quadrangle, New Mexico - Rio Arriba County, 7.5 Minute Series (Topographic), 1963, (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 lateral impact from the earthen pit is very limited and that the sandstone bottom creates enough of an impermeable barrier as to subdue impact to groundwater below it (please refer to AMOCO's report "Post Excavation Pit Closure Investigation Summary, July, 1995", with cover letter dated November 30, 1995). AMOCO requests pit closure approval on this location.

BT693

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NATURAL RESOURCE DEPT
AND OIL & GAS ADMINISTRATION

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

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 A #6E

Location: Unit or Qtr/Qtr Sec E Sec 20 T 26N R 5W County RIO ARRIBA

Pit Type: Separator ____ Dehydrator ____ Other PRODUCTION TANK

Land Type: RANGE

Pit Location: (Attach diagram)

Pit dimensions: length 26', width 16', depth 4'

Reference: wellhead X, other ____

Footage from reference: 130'

Direction from reference: 13 Degrees ____ East ____ North X of X 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)	0
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)	0
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)	0
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)	0
Distance To SurfaceWater: (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)	0

RANKING SCORE (TOTAL POINTS): 0

BJ693 PROD. FINAL PIT

Date Remediation Started: _____ Date Completed: 11/30/98

Remediation Method: (Check all appropriate sections) Excavation X Approx. cubic yards 50

Landfarmed X Insitu Bioremediation _____

Other _____

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

General Description of Remedial Action: Excavation. BEDROCK BOTTOM.

Groundwater Encountered: No X Yes ____ Depth _____

Final Pit: Closure Sampling: (if multiple samples, attach sample results and diagram of sample locations and depths)

Sample location see Attached Documents

Sample depth 2' (SOUTH SIDEWALL)

Sample date 11/25/98 Sample time 1315

Sample Results

Soil:	Benzene	(ppm)		Water: Benzene	(ppb)
	Total BTEX	(ppm)		Toluene	(ppb)
	Field Headspace	(ppm)	93.1	Ethylbenzene	(ppb)
	TPH	(ppm)	5,330	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 KNOWLEGE AND BELIEF

DATE 11/30/98 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) R.A. Attached

SIGNED: Ken C Marcell DATE: 12-28-98

CLIENT: AMOCO

BLAGG ENGINEERING, INC.
P.O. BOX 87, BLOOMFIELD, NM 87413
(505) 632-1199

LOCATION NO: 35693
C.O.C. NO: 6222

FIELD REPORT: CLOSURE VERIFICATION

PAGE No: 1 of 1

LOCATION: NAME: JICARILLA A WELL #: 6E PIT: PROD.
QUAD/UNIT: E SEC: 20 TWP: 26N RNG: 5W PM: NM CNTY: RA ST NM
QTR/FOOTAGE: 1760 FNL / 930 FWL CONTRACTOR: P+S

DATE STARTED: 11-28-98
DATE FINISHED:
ENVIRONMENTAL SPECIALIST: NV

EXCAVATION APPROX. 26 FT. x 16 FT. x 4 FT. DEEP CUBIC YARDAGE: 50
DISPOSAL FACILITY: ON SITE REMEDIATION METHOD: LANDFARM
LAND USE: RANGE LEASE: JIC. A FORMATION: DK

FIELD NOTES & REMARKS: PIT LOCATED APPROXIMATELY 130 FT. N 13°W FROM WELLHEAD.
DEPTH TO GROUNDWATER: >100' NEAREST WATER SOURCE: >1000' NEAREST SURFACE WATER: >1000'
NMOCD RANKING SCORE: 0 NMOCD TPH CLOSURE STD: 5000 PPM

CHECK ONE:
- V PIT ABANDONED
- ___ STEEL TANK INSTALLED
- ___ FIBERGLASS TANK INSTALLED

SOIL AND EXCAVATION DESCRIPTION:

SIDEWALL - MOD YELL. ORANGE - DK. YELL. BROWN SAND. NON COHESIVE, SLIGHTLY MOIST, FIRM NO APPARENT STAINING OBSERVED SLIGHT HC ODOR DETECTED ON SOUTH SIDEWALL OVM SAMPLE ONLY

BOTTOM - BEDROCK (SANDSTONE) MOD YELL. ORANGE IN COLOR. VERY HARD SLIGHT H.C. ODOR IN OVM SAMPLE

BEDROCK BOTTOM

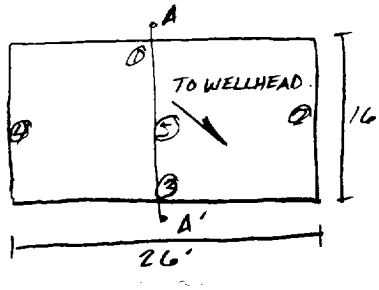
RISK ASSESSED

FIELD 418.1 CALCULATIONS

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

SCALE
0 FT

PIT PERIMETER



300 BBL PROD TANK

OVM RESULTS

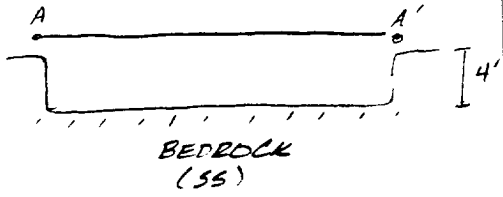
SAMPLE ID	FIELD HEADSPACE PID (ppm)
1 @ 2'	0.0
2 @ 2'	0.0
3 @ 2'	93.1
4 @ 2'	0.0
5 @ 4'	48.9

LAB SAMPLES

SAMPLE ID	ANALYSIS	TIME
5 @ 2'	TPH/8015	1315

TPH - FAILED

PIT PROFILE



TRAVEL NOTES: CALLOUT: ONSITE:

Well Name:	**Jicarilla A #6E**
Well Site location:	Unit E, Sec. 20, T26N, R5W
Pit Type:	Production Tank Pit
Producing Formation:	Basin Dakota
Pit Category:	Non Vulnerable
Horizonal Distance to Surface Water:	> 1000 ft.
Vicinity Groundwater Depth:	> 100 ft.

RISK ASSESSMENT (non-vulnerable area)

Pit remediation activities were terminated when trackhoe encountered sandstone bedrock at 4 feet below grade.

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

1. Past production fluids were contained locally by a relatively shallow sandstone bedrock located 4 feet below grade. Groundwater levels located on or close to the well pad are estimated to be at a much greater depth below sandstone bedrock.

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 0.56 miles southeast of the nearest vulnerable area boundary (Albert Canyon wash).

   (Refer to Gonzales Mesa Quadrangle, New Mexico - Rio Arriba County, 7.5 Minute Series (Topographic), 1963, (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 lateral impact from the earthen pit is very limited and that the sandstone bottom creates enough of an impermeable barrier as to subdue impact to groundwater below it (please refer to AMOCO's report "Post Excavation Pit Closure Investigation Summary, July, 1995", with cover letter dated November 30, 1995). AMOCO requests pit closure approval on this location.

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:	3 @ 2'	Date Reported:	11-30-98
Laboratory Number:	E229	Date Sampled:	11-28-98
Chain of Custody No:	6222	Date Received:	11-30-98
Sample Matrix:	Soil	Date Extracted:	11-30-98
Preservative:	Cool	Date Analyzed:	11-30-98
Condition:	Cool and Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**432**	**0.2**
Diesel Range (C10 - C28)	**4,900**	**0.1**
Total Petroleum Hydrocarbons	**5,330**	**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 A #6E Production Tank Pit.**

Analyst

Review

5796 U.S. Highway 64 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

BJ693

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

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 A #6E

Location: Unit or Qtr/Qtr Sec E Sec 20 T 26N R 5W County RIO ARRIBA

Pit Type: Separator X Dehydrator ____ Other ____

Land Type: RANGE

Pit Location: (Attach diagram)

Pit dimensions: length 25', width 20', depth 4'

Reference: wellhead X, other ____

Footage from reference: 111'

Direction from reference: 49 Degrees ____ East X North of ____ 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)	0
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)	0
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)	0
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)	0
Distance To SurfaceWater: (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)	0
		RANKING SCORE (TOTAL POINTS):	0

RTC93 SEP. PIT

Date Remediation Started: _____ **Date Completed:** 11/30/98

Remediation Method: (Check all appropriate sections) Excavation X Approx. cubic yards 80

Landfarmed X Insitu Bioremediation _____

Other _____

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

General Description of Remedial Action: Excavation. BEDROCK BOTTOM. RISK ASSESSED.

Groundwater Encountered: No X Yes ____ Depth _____

Final Pit: Closure Sampling: (if multiple samples, attach sample results and diagram of sample locations and depths)

Sample location see Attached Documents

Sample depth 2' (SOUTH SIDEWALL)

Sample date 11/28/98 Sample time 1230

Sample Results

Soil: Benzene	(ppm)	1.340	Water: Benzene	(ppb)	_____
Total BTEX	(ppm)	21.620	Toluene	(ppb)	_____
Field Headspace	(ppm)	282	Ethylbenzene	(ppb)	_____
TPH	(ppm)	5,300	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 KNOWLEGE AND BELIEF

DATE 11/30/98 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) _____

SIGNED: Lee C Man DATE: 12-28-98

CLIENT: AMOCO

BLAGG ENGINEERING, INC.
P.O. BOX 87, BLOOMFIELD, NM 87413
(505) 632-1199

LOCATION NO: BJ693
C.O.C. NO: 6222

FIELD REPORT: CLOSURE VERIFICATION

PAGE No: 1 of 1

LOCATION: NAME: JICARILLA A WELL #: 6E PIT: SEP
QUAD/UNIT: E SEC: 20 TWP: 26N RNG: 5W PM: NM CNTY: RA ST: NM
QTR/FOOTAGE: 1760FNL/930FWL CONTRACTOR: P+S

DATE STARTED: 11-28-98
DATE FINISHED:
ENVIRONMENTAL SPECIALIST: NV

EXCAVATION APPROX. 26 FT. x 20 FT. x 4 FT. DEEP. CUBIC YARDAGE: 80
DISPOSAL FACILITY: ON SITE REMEDIATION METHOD: LANDFARM
LAND USE: RANGE LEASE: JIC. A FORMATION: DK

FIELD NOTES & REMARKS: PIT LOCATED APPROXIMATELY 111' FT. N49°W FROM WELLHEAD.
DEPTH TO GROUNDWATER: >100' NEAREST WATER SOURCE: >1000' NEAREST SURFACE WATER: >1000'
NMOCD RANKING SCORE: 0 NMOCD TPH CLOSURE STD: 5000 PPM

CHECK ONE:
- [x] PIT ABANDONED
- [ ] STEEL TANK INSTALLED
- [ ] FIBERGLASS TANK INSTALLED

SOIL AND EXCAVATION DESCRIPTION:

SIDEWALL - MOD. YELL ORANGE TO DK. YELL. BROWN SAND NON COHESIVE, SLIGHTLY MOIST, FIRM. NO APPARENT STAINING OBSERVED SLIGHT H.C ODOR DETECTED ON SOUTH SIDEWALL OVM SAMPLE ONLY, WEST SIDEWALL OVM SAMPLE

BOTTOM - BEDROCK (SANDSTONE) MOD. YELL ORANGE IN COLOR. VERY HARD SLIGHT H C. ODOR IN OVM SAMPLE

BEDROCK BOTTOM

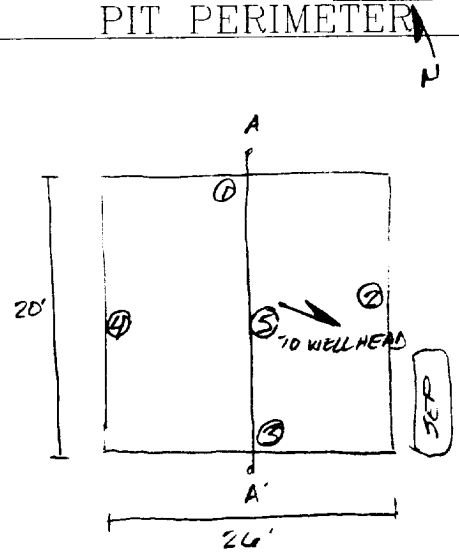
RISK ASSESSED

FIELD 418.1 CALCULATIONS

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

SCALE
0 FT

PIT PERIMETER



OVM RESULTS

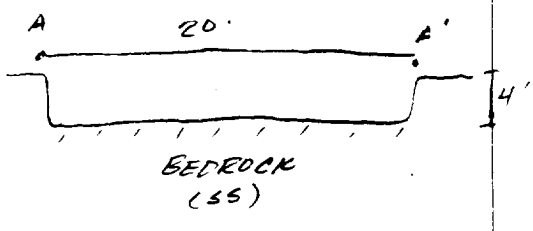
SAMPLE ID	FIELD HEADSPACE PID (ppm)
1 @ 2	192.3
2 @ 2	64.7
3 @ 2	282.0
4 @ 2	374.0 BRK
5 @ 4	0.BRK

LAB SAMPLES

SAMPLE ID	ANALYSIS	TIME
3 @ 2'	TPH BTEX	1230

TPH - FAILED
BTEX - PASSED

PIT PROFILE



TRAVEL NOTES: CALLOUT: ONSITE:

Well Name:	**Jicarilla A #6E**
Well Site location:	Unit E, Sec. 20, T26N, R5W
Pit Type:	Separator Pit
Producing Formation:	Basin Dakota
Pit Category:	Non Vulnerable
Horizonal Distance to Surface Water:	> 1000 ft.
Vicinity Groundwater Depth:	> 100 ft.

RISK ASSESSMENT (non-vulnerable area)

Pit remediation activities were terminated when trackhoe encountered sandstone bedrock at 4 feet below grade.

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

1. Past production fluids were contained locally by a relatively shallow sandstone bedrock located 4 feet below grade. Groundwater levels located on or close to the well pad are estimated to be at a much greater depth below sandstone bedrock.

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 0.56 miles southeast of the nearest vulnerable area boundary (Albert Canyon wash).

   (Refer to Gonzales Mesa Quadrangle, New Mexico - Rio Arriba County, 7.5 Minute Series (Topographic), 1963, (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 lateral impact from the earthen pit is very limited and that the sandstone bottom creates enough of an impermeable barrier as to subdue impact to groundwater below it (please refer to AMOCO's report "Post Excavation Pit Closure Investigation Summary, July, 1995", with cover letter dated November 30, 1995). AMOCO requests pit closure approval on this location.

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:	3 @ 2'	Date Reported:	11-30-98
Laboratory Number:	E230	Date Sampled:	11-28-98
Chain of Custody No:	6222	Date Received:	11-30-98
Sample Matrix:	Soil	Date Extracted:	11-30-98
Preservative:	Cool	Date Analyzed:	11-30-98
Condition:	Cool and Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**1,320**	**0.2**
Diesel Range (C10 - C28)	**3,980**	**0.1**
Total Petroleum Hydrocarbons	**5,300**	**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 A #6E Separator Pit.**

Analyst

Review

5796 U.S. Highway 64 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	3 @ 2'	Date Reported:	11-30-98
Laboratory Number:	E230	Date Sampled:	11-28-98
Chain of Custody:	6222	Date Received:	11-30-98
Sample Matrix:	Soil	Date Analyzed:	11-30-98
Preservative:	Cool	Date Extracted:	11-30-98
Condition:	Cool & Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	**1,340**	**8.8**
Toluene	**2,520**	**8.4**
Ethylbenzene	**1,040**	**7.6**
p,m-Xylene	**10,300**	**10.8**
o-Xylene	**6,420**	**5.2**
Total BTEX	**21,620**	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	**99 %**
	Bromofluorobenzene	**99 %**

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 A #6E Separator Pit.**

Analyst

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CHAIN OF CUSTODY RECORD

6222

Client / Project Name	Project Location
BLAGG / AMOCO	JICARILLA A #6E
Sampler: NJV	**Client No.** 04034-10

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	TPH (8015)	BTEX (8021)					Remarks
ANALYSIS / PARAMETERS												
③ @ 2'	11/28/98	1315	E 229	SOIL	1	✓						PRODUCTION TANK PIT
③ @ 2'	11/28/98	1230	E230	SOIL	1	✓	✓					SEPARATOR PIT
												BOTH SAMPLES
												PRESERV. - COOL

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Nelson Velez	11/30/98	0732	[signature]	11.30.98	0732
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

Ref COC's 6316, 6317, 6222, 6297

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(505) 632-0615

Sample Receipt	Y	N	N/A
Received Intact	✓		
Cool - Ice/Blue Ice	✓		

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 A - 6E

Location: Unit or Qtr/Qtr Sec E Sec 20 T 26N R 5W County RIO ARRIBA

Land Type:

Date Remediation Started: 11-28-98 Date Completed: 6/2/99

Remediation Method: Landfarmed ✓ Approx. cubic yards 150

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 SurfaceWater:	(pts.)	0
RANKING SCORE (TOTAL POINTS):		0

Final Closure Sampling:

Sampling Date: 6-1-99 Time: 1300

Sample Results:

Field Headspace (ppm) 37.4

TPH (ppm) 2,700 Method TPH (8015)

Other

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

DATE 6/2/99 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)

SIGNED: Kim C Mann DATE: 6-18-99

CLIENT: AMOCO

BLAGG ENGINEERING, INC.
P.O. BOX 87, BLOOMFIELD, NM 87413
(505) 632-1199

LOCATION NO: BJ693
C.O.C. NO: 7056

FIELD REPORT: LANDFARM/COMPOST PILE CLOSURE VERIFICATION

LOCATION: NAME: JICARILLA A WELL #: 6E PITS: SEP BLOW PROD
QUAD/UNIT: E SEC: 20 TWP: 26N RNG: 5W PM: NM CNTY: RA ST: NM
QTR/FOOTAGE: SW/4 NW/4 CONTRACTOR: P+S

DATE STARTED: 6/1/99
DATE FINISHED:
ENVIRONMENTAL SPECIALIST: REP

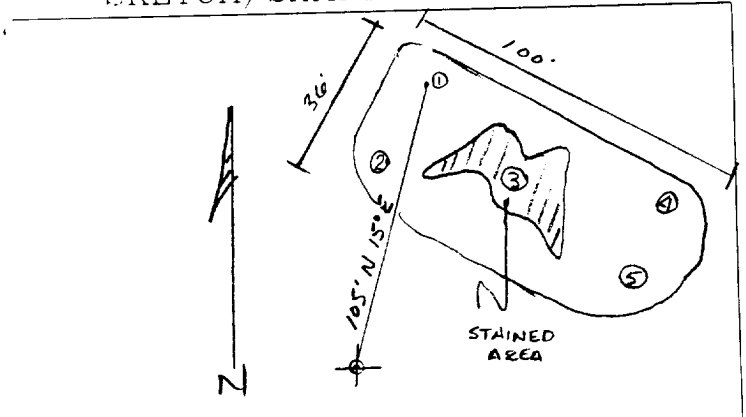
SOIL REMEDIATION:
REMEDIATION SYSTEM: LANDFARM
LAND USE: RANGE
APPROX. CUBIC YARDAGE: 150
LIFT DEPTH (ft): 1'

FIELD NOTES & REMARKS:
DEPTH TO GROUNDWATER: >100' NEAREST WATER SOURCE: >1000' NEAREST SURFACE WATER: >1000'
NMOCD RANKING SCORE: 0 NMOCD TPH CLOSURE STD: 5000 PPM
DK. YELLOWISH BROWN SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM
LARGE AREA OF STAINING OBSERVED IN LANDFARM AREA (SEE SKETCH BELOW)
H.C. ODOR DETECTED IN SAMPLING PTS. ③+④. SAMPLING DEPTHS RANGE
FROM 6"-10'. COLLECTED A 5PT. 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



OVM RESULTS

SAMPLE ID	FIELD HEADSPACE PID (ppm)
LF-1	37.4

LAB SAMPLES

SAMPLE ID	ANALYSIS	TIME	RESULTS
LF-1	TPH (8015)	1300	2,700

SCALE
0 FT

TRAVEL NOTES: CALLOUT: NA ONSITE: 6/1/99

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Blagg / AMOCO	Project #:	403410
Sample ID:	LF - 1	Date Reported:	06-02-99
Laboratory Number:	F446	Date Sampled:	06-01-99
Chain of Custody No:	7056	Date Received:	06-02-99
Sample Matrix:	Soil	Date Extracted:	06-02-99
Preservative:	Cool	Date Analyzed:	06-02-99
Condition:	Cool and Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**29.4**	**0.2**
Diesel Range (C10 - C28)	**2,670**	**0.1**
Total Petroleum Hydrocarbons	**2,700**	**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 A - 6E Landfarm. 5 Pt. Composite.**

Analyst

Review

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CHAIN OF CUSTODY RECORD

7056

Client / Project Name: BLAGG/AMOCO

Project Location: LANDFARM JICARILLA A-6E

Sampler: REP

Client No.: 403410

ANALYSIS / PARAMETERS

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	TPH (8015)						Remarks
LF-1	6.1.99	1300	F446	SOIL	1	✓						SPT. COMPOSITE
												SAMPLE PRESERVE - COOL

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[signature]	6.2.99	7:15	[signature]	6.2.99	715
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

ENVIROTECH INC.

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(505) 632-0615

Sample Receipt	Y	N	N/A
Received Intact	✓		
Cool - Ice/Blue Ice	✓		

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA Method 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	06-02-TPH QA/QC	Date Reported:	06-02-99
Laboratory Number:	F442	Date Sampled:	N/A
Sample Matrix:	Methylene Chloride	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	06-02-99
Condition:	N/A	Analysis Requested:	TPH

	I-Cal Date	I-Cal RF:	C-Cal RF:	% Difference	Accept. Range
Gasoline Range C5 - C10	03-15-99	4.4525E-002	4.4401E-002	**0.28%**	**0 - 15%**
Diesel Range C10 - C28	03-15-99	4.1817E-002	4.1709E-002	**0.26%**	**0 - 15%**

Blank Conc. (mg/L - mg/Kg)	Concentration	Detection Limit
Gasoline Range C5 - C10	**ND**	**0.2**
Diesel Range C10 - C28	**ND**	**0.1**
Total Petroleum Hydrocarbons	**ND**	**0.2**

Duplicate Conc. (mg/Kg)	Sample	Duplicate	% Difference	Accept. Range
Gasoline Range C5 - C10	**10.3**	**10.3**	**0.0%**	**0 - 30%**
Diesel Range C10 - C28	**190**	**190**	**0.0%**	**0 - 30%**

Spike Conc. (mg/Kg)	Sample	Spike Added	Spike Result	% Recovery	Accept. Range
Gasoline Range C5 - C10	**10.3**	**250**	**260**	**100%**	**75 - 125%**
Diesel Range C10 - C28	**190**	**250**	**440**	**100%**	**75 - 125%**

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: **QA/QC for samples F442 - F447.**

Analyst

Review

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