

District I  
P.O. Box 1980, Hobbs, NM  
District II  
P.O. Drawer DD, Artesia, NM 88211  
District III  
10 Brazos Rd, Aztec, NM 87410

State of New Mexico  
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION  
P.O. Box 2088  
Santa Fe, New Mexico 87504-2088

blow  
sep - risk bedrock  
SUBMIT 1 COPY TO  
APPROPRIATE  
DISTRICT OFFICE  
AND 1 COPY TO  
SANTA FE OFFICE  
C4973

PIT REMEDIATION AND CLOSURE REPORT

Denial due to LF  
11/15/77

Operator: Amoco Production Company Telephone: (505) - 326-9200  
Address: 200 Amoco Court, Farmington, New Mexico 87401  
Facility Or: 6EEK 6C #1  
Well Name  
Location: Unit or Qtr/Qtr Sec B sec 30 T29N R 9W County SAN JUAN  
Pit Type: Separator Dehydrator Other Blow  
Land Type: BLM X, State, Fee, Other com. A6MT

Pit Location: Pit dimensions: length 50', width 80', depth 4'  
(Attach diagram)  
Reference: wellhead X, other  
Footage from reference: 200'  
Direction from reference: 90 Degrees X East North X  
of  
West South

Depth To Ground Water: Less than 50 feet (20 points)  
(Vertical distance from 50 feet to 99 feet (10 points)  
contaminants to seasonal Greater than 100 feet (0 Points) 10  
high water elevation of  
ground water)

Wellhead Protection Area: Yes (20 points)  
(Less than 200 feet from a private No (0 points) 0  
domestic water source, or; less than  
1000 feet from all other water sources)

Distance To Surface Water: Less than 200 feet (20 points)  
(Horizontal distance to perennial 200 feet to 1000 feet (10 points)  
lakes, ponds, rivers, streams, creeks, Greater than 1000 feet (0 points) 0  
irrigation canals and ditches)

RANKING SCORE (TOTAL POINTS): 10

Date Remediation Started: \_\_\_\_\_ Date Completed: 4/27/94

Remediation Method: Excavation ☒ Approx. cubic yards 513  
(Check all appropriate sections) Landfarmed ☒ Insitu Bioremediation \_\_\_\_\_  
Other \_\_\_\_\_

Remediation Location: Onsite ☒ Offsite \_\_\_\_\_  
(ie. landfarmed onsite, name and location of offsite facility)

General Description Of Remedial Action: \_\_\_\_\_  
Excavation Risk Assessed - Bedrock Bottom

Ground Water 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 2'  
Sample date 4-27-94 Sample time \_\_\_\_\_  
Sample Results  
Benzene(ppm) \_\_\_\_\_  
Total BTEX(ppm) \_\_\_\_\_  
Field headspace(ppm) 7  
TPH 44.5 ppm

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 BELIEF  
DATE 4/29/94 5/23/98  
SIGNATURE Buddy Shaw PRINTED NAME AND TITLE Buddy D. Shaw  
Environmental Coordinator

RESULTS TO Bob McCoy 5-2-94

CLIENT: AMOCO

ENVIROTECH Inc.

PIT NO: C4973

5796 US HWY. 64, FARMINGTON, NM 87401  
(505) 632-0615

C.O.C. NO: 3596

# FIELD REPORT: CLOSURE VERIFICATION

JOB No: 92140

PAGE No: 1 of 1

LOCATION: LEASE: GERK 6C WELL #: 1 PIT: BLow  
UNIT: B SEC: 30 TWP: 29N RNG: 9W BM: NM CNTY: SJ ST: NM  
CONTRACTOR: PAUL VELASQUEZ

DATE STARTED: 4-27-94  
DATE FINISHED: 4-27-94

ENVIRONMENTAL SPECIALIST: REO

SOIL REMEDIATION: EXCAVATION APPROX. 50 FT. x 80 FT. x 4 FT. DEEP.

DISPOSAL FACILITY: ON SITE LANDFARM

LAND USE: RANGE

FIELD NOTES & REMARKS: PIT LOCATED APPROXIMATELY 200 FEET EAST FROM WELLHEAD.

DEPTH TO GROUNDWATER: >50' NEAREST SURFACE WATER: >100' NEAREST WATER SOURCE: >1000'

NMCD RANKING SCORE: 10 NMCD TPH CLOSURE STD: 1000 PPM

SOIL AND EXCAVATION DESCRIPTION: EXCAVATED TO BEDROCK - GRAY STAINING VISIBLE ON TOP OF BEDROCK.  
MOIST, GRAY. SILTY, SANDY SOILS. - WALLS

⑤ BEDROCK SCRAPINGS - GRAY STAINING.  
SOILS EXCAVATED TO BEDROCK.

BEDROCK  
BOTTOM

RISK ASSESSED

95

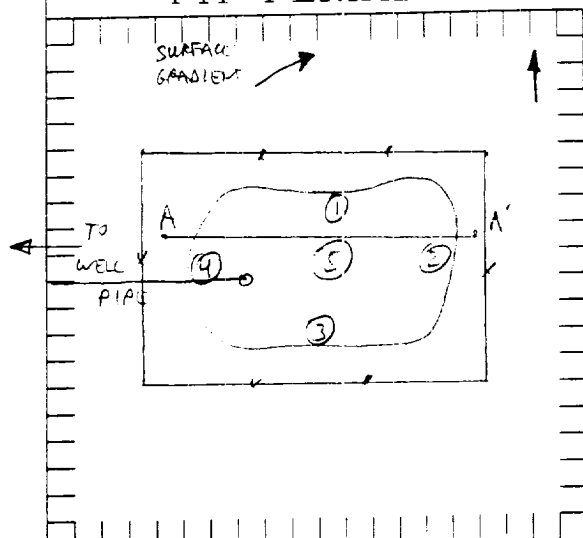
## FIELD 418.1 CALCULATIONS

SAMPLE ID	LAB No.	WEIGHT (g)	mL. FREON	DILUTION	READING	CALC. ppm

SCALE

0 15 30 FEET

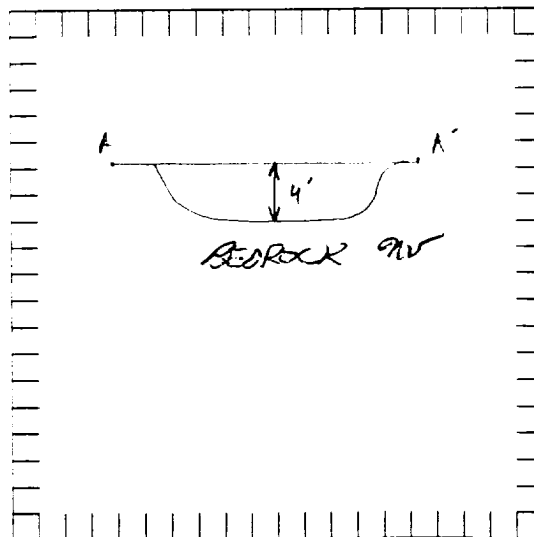
## PIT PERIMETER



## OVM RESULTS

SAMPLE ID	FIELD HEADSPACE PID (ppm)
①	1502
②	1502
③	1502
④	1502
⑤	1502
	884
	LAB
②	418.1

## PIT PROFILE



TRAVEL NOTES:

CALL-OUT: 4-26-94

ONSITE: 4-27-94

1130

**Well Name:**

Well Site location:

Pit Type:

Producing Formation:

Pit Category:

Horizontal Distance to Surface Water:

Vicinity Groundwater Depth:

**Gerk GC #1**  
Unit B, Sec. 30, T29N, R9W  
Blow Pit  
Mesaverde  
Vulnerable  
> 1000 ft.  
< 100 ft.

**RISK ASSESSMENT**

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

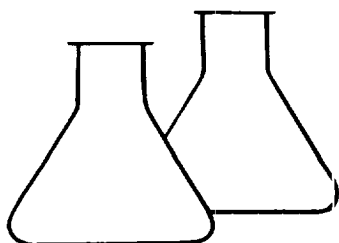
No past or future threat to surface water or groundwater is likely based on the following considerations:

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. Field headspace readings (OVM/PID) on Mesaverde type locations do not reflect direct correlation to total BTEX per USEPA Method 8020 concentrations. Listed below are a few typical AMOCO Mesaverde pit soil analyses comparing headspace to Benzene and total BTEX results.

LOCATION	HEADSPACE (ppm)	BENZENE (ppm)	TOTAL BTEX (ppm)
L.C. Kelly #6A	833	0.033	2.857
Johnston LS 7	998	0.017	24.985
Neil LS 7A	819	0.282	0.440

The comparisons listed above demonstrates that headspace testing is not an accurate measurement to Benzene or total BTEX concentrations when above standards for Mesaverde type pits.

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 a 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 therefore request pit closure approval on this location.



# ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401  
PHONE: (505) 632-0615 • FAX: (505) 632-1865

## EPA METHOD 418.1 TOTAL PETROLEUM HYDROCARBONS

Client:	Amoco	Project #:	92140
Sample ID:	ES @ 2'	Date Sampled:	04-27-94
Laboratory Number:	7296	Date Received:	04-27-94
Sample Matrix:	Soil	Date Analyzed:	05-02-94
Preservative:	Cool	Date Reported:	05-02-94
Condition:	Cool & Intact	Analysis Needed:	TPH

Parameter -----	Concentration (mg/kg) -----	Det. Limit (mg/kg) -----
Total Petroleum Hydrocarbons	44.5	15.0

ND = Parameter not detected at the stated detection limit.  
N/A = Not applicable

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

Comments: Gerk GC #1 Blow Pit C4973

Tony Tristano  
Analyst

Mavis D. Young  
Review



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P.O. Box 1980, Hobbs, NM  
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AND 1 COPY TO  
SANTA FE OFFICE  
C4972

**PIT REMEDIATION AND CLOSURE REPORT**

Operator: Amoco Production Company Telephone: (505) - 326-9200  
Address: 200 Amoco Court, Farmington, New Mexico 87401  
Facility Or: 6Etk 6C \*1  
Well Name \_\_\_\_\_  
Location: Unit or Qtr/Qtr Sec B sec 30 T29N R 9W County SAN JUAN  
Pit Type: Separator X Dehydrator \_\_\_ Other \_\_\_\_\_  
Land Type: BLM X, State \_\_\_, Fee \_\_\_, Other Com. AGMT

Pit Location: Pit dimensions: length 15', width 15', depth 6'  
(Attach diagram) Reference: wellhead X, other \_\_\_\_\_  
Footage from reference: 110'  
Direction from reference: 20 Degrees X East North \_\_\_  
of  
\_\_\_ West South X

Depth To Ground Water: Less than 50 feet (20 points)  
(Vertical distance from 50 feet to 99 feet (10 points)  
contaminants to seasonal Greater than 100 feet (0 Points) 10  
high water elevation of  
ground water)

Wellhead Protection Area: Yes (20 points)  
(Less than 200 feet from a private No (0 points) 0  
domestic water source, or; less than  
1000 feet from all other water sources)

Distance To Surface Water: Less than 200 feet (20 points)  
(Horizontal distance to perennial 200 feet to 1000 feet (10 points)  
lakes, ponds, rivers, streams, creeks, Greater than 1000 feet (0 points) 0  
irrigation canals and ditches)

RANKING SCORE (TOTAL POINTS): 10

Date Remediation Started: \_\_\_\_\_

Date Completed: 4/27/94

Remediation Method: Excavation ☒  
(Check all appropriate sections)

Approx. cubic yards 50

Landfarmed ☒

Insitu Bioremediation \_\_\_\_\_

Other \_\_\_\_\_

Remediation Location: Onsite ☒ Offsite \_\_\_\_\_

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

General Description Of Remedial Action: \_\_\_\_\_

Excavation, BEDROCK BOTTOM. RISK ASSESSED. NO

Ground Water 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 5'

Sample date 4-27-94

Sample time \_\_\_\_\_

Sample Results

Benzene(ppm) ND

Total BTEX(ppm) 2.6

Field headspace(ppm) 842

TPH 820 ppm

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 BELIEF

DATE 4/29/94 5/23/98 mv

SIGNATURE B. Shaw

PRINTED NAME  
AND TITLE

Buddy D. Shaw  
Environmental Coordinator

Results to Bob McLoe 5-2-94

CLIENT: <u>AMOCO</u>	<b>ENVIROTECH Inc.</b> 5796 US HWY. 64, FARMINGTON, NM 87401 (505) 632-0615	PIT NO: <u>C4972</u> C.O.C. NO: <u>3545</u>
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FIELD REPORT: CLOSURE VERIFICATION		JOB No: <u>92140</u> PAGE No: <u>1</u> of <u>1</u>
LOCATION: <u>LEASE: GERM 6C</u>	WELL #: <u>1</u>	PIT: <u>SEP.</u>
UNIT: <u>B</u>	SEC: <u>30</u> TWP: <u>29N</u> RNG: <u>9W</u> BM: <u>NM</u> CNTY: <u>S.J.</u> ST: <u>NM</u>	DATE STARTED: <u>4-27-94</u> DATE FINISHED: <u>4-27-94</u>
CONTRACTOR: <u>PAUL VELASQUEZ</u>		ENVIRONMENTAL SPECIALIST: <u>REO</u>

SOIL REMEDIATION: EXCAVATION APPROX. 15 FT. x 15 FT. x 6 FT. DEEP.  
 DISPOSAL FACILITY: ON SITE LANDFARM 50 cu. yds.  
 LAND USE: RANGE

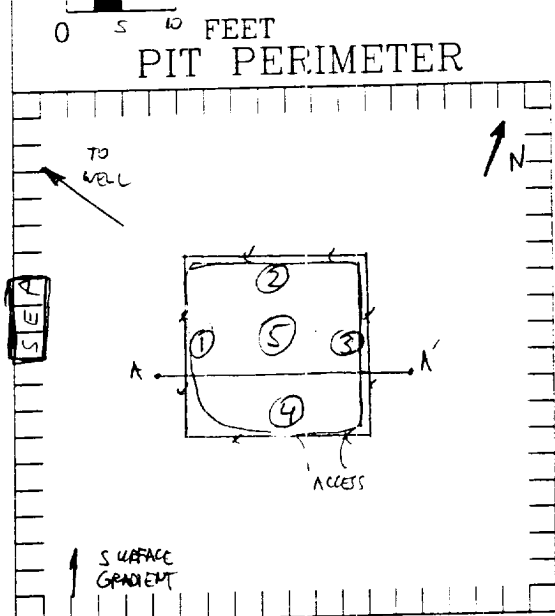
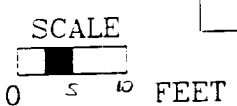
FIELD NOTES & REMARKS: PIT LOCATED APPROXIMATELY 110 FEET S20°E FROM WELLHEAD.  
 DEPTH TO GROUNDWATER: 750' NEAREST SURFACE WATER: 7100' NEAREST WATER SOURCE: >1000'  
 NMDCD RANKING SCORE: 10 NMDCD TPH CLOSURE STD: 1000 PPM

SOIL AND EXCAVATION DESCRIPTION: NO VISIBLE STAINING ON SIDE WALLS,  
 BOTTOM EXHAUSTING TO BEDROCK. - STAIN ON BEDROCK.  
 MOIST, BROWN, SILTY SAND TO ~ 6', THEN BEDROCK @ 7'.

RISK ASSESSED LOW

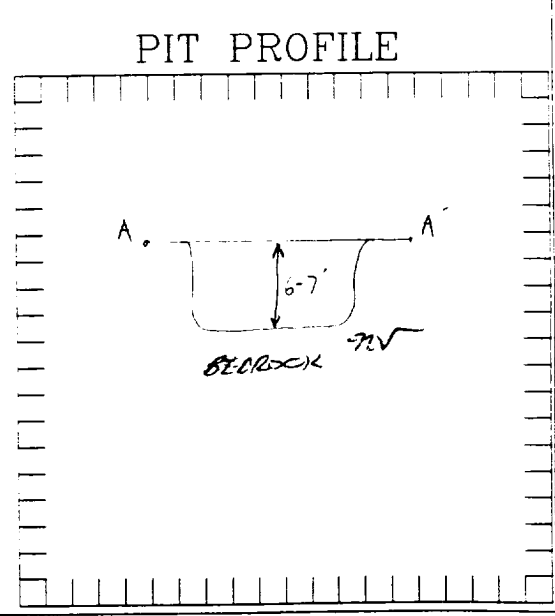
FIELD 4181 CALCULATIONS

SAMPLE I.D.	LAB No:	WEIGHT (g)	ML. FREON	DILUTION	READING	CALC. ppm
① WS@ 5'	GAC 431	10.00	20	-	375	750
1	DUPLICATE	10.00	20	-	410	820



**OVM RESULTS**

SAMPLE ID	FIELD HEADSPACE PID (ppm)
① WS@ 5'	842
② NS@ 4'	512
③ E@ 4'	135
④ SS@ 4'	5
⑤ CG@ 7'	630
LAB	
①	BTEX



TRAVEL NOTES: CALLOUT: 4-26-94 ONSITE: 4-27-94 1000

**Well Name:**

Well Site location:

Pit Type:

Producing Formation:

Pit Category:

Horizontal Distance to Surface Water:

Vicinity Groundwater Depth:

**Gerk GC #1**

Unit B, Sec. 30, T29N, R9W

Separator Pit

Mesaverde

Vulnerable

&gt; 1000 ft.

&lt; 100 ft.

**RISK ASSESSMENT**

Pit remediation activities were terminated when trackhoe encountered sandstone bedrock at 6 feet below grade.

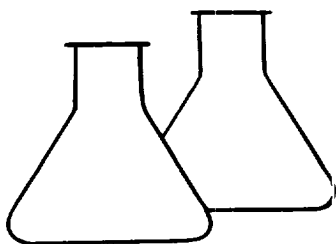
No past or future threat to surface water or groundwater is likely based on the following considerations:

1. Past production fluids were contained locally by a relatively shallow sandstone bedrock located 6 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. Field headspace readings (OVM/PID) on Mesaverde type locations do not reflect direct correlation to total BTEX per USEPA Method 8020 concentrations. Listed below are a few typical AMOCO Mesaverde pit soil analyses comparing headspace to Benzene and total BTEX results.

LOCATION	HEADSPACE (ppm)	BENZENE (ppm)	TOTAL BTEX (ppm)
L.C. Kelly #6A	833	0.033	2.857
Johnston LS 7	998	0.017	24.985
Neil LS 7A	819	0.282	0.440

The comparisons listed above demonstrates that headspace testing is not an accurate measurement to Benzene or total BTEX concentrations when above standards for Mesaverde type pits.

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 a 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 therefore request pit closure approval on this location.



# ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401  
PHONE: (505) 632-0615 • FAX: (505) 632-1865

## FIELD MODIFIED EPA METHOD 418.1 TOTAL PETROLEUM HYDROCARBONS

Client:	Amoco	Project #:	92140
Sample ID:	WS @ 5'	Date Analyzed:	4-27-94
Project Location:	Gerk GC 1	Date Reported:	4-27-94
Laboratory Number:	GAC0431	Sample Matrix:	Soil

Parameter	Result, mg/kg	Detection Limit, mg/kg
-----	-----	-----
Total Recoverable Petroleum Hydrocarbons	750	10

ND = Not Detectable at stated detection limits.

QA/QC:	QA/QC Sample TPH mg/kg	Duplicate TPH mg/kg	% *Diff.
	-----	-----	-----
	750	820	9

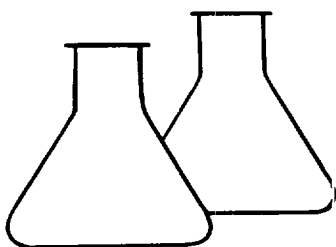
\*Administrative Acceptance limits set at 30%.

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

Comments: Separator Pit C4972

R. E. O'Neil  
Analyst

Morris D. Young  
Review



# ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401  
PHONE: (505) 632-0615 • FAX: (505) 632-1865

## FIELD MODIFIED EPA METHOD 418.1 TOTAL PETROLEUM HYDROCARBONS

Client: Amoco  
Sample ID: WS @ 5'  
Project Location: Gerk GC 1  
Laboratory Number: GAC0431 Duplicate

Project #: 92140  
Date Analyzed: 4-27-94  
Date Reported: 4-27-94  
Sample Matrix: Soil

Parameter	Result, mg/kg	Detection Limit, mg/kg
-----	-----	-----
Total Recoverable Petroleum Hydrocarbons	820	10

ND = Not Detectable at stated detection limits.

QA/QC:	QA/QC Sample TPH mg/kg	Duplicate TPH mg/kg	% *Diff.
	-----	-----	-----
	750	820	9

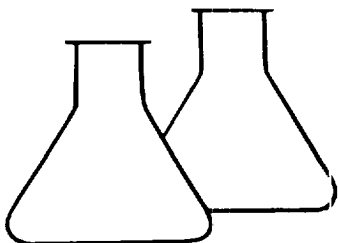
\*Administrative Acceptance limits set at 30%.

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

Comments: Separator Pit C4972

R. E. O'Neil  
Analyst

Mavis D. Young  
Review



# ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401  
PHONE: (505) 632-0615 • FAX: (505) 632-1865

## EPA METHOD 8020 AROMATIC VOLATILE ORGANICS

Client:	Amoco	Project #:	92140
Sample ID:	WS @ 5'	Date Reported:	04-28-94
Laboratory Number:	7295	Date Sampled:	04-27-94
Sample Matrix:	Soil	Date Received:	04-27-94
Preservative:	Cool	Date Extracted:	04-28-94
Condition:	Cool & Intact	Date Analyzed:	04-28-94
		Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	ND	13.1
Toluene	63	26.3
Ethylbenzene	176	13.1
p,m-Xylene	1,040	19.7
o-Xylene	1,450	13.1

SURROGATE RECOVERIES:	Parameter	Percent Recovery
	Trifluorotoluene	99 %
	Bromofluorobenzene	99 %

Method: Method 5030, Purge-and-Trap, Test Methods for  
Evaluating Solid Waste, SW-846, USEPA, July 1992

Method 8020, Aromatic Volatile Organics, Test Methods  
for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986.

ND - Parameter not detected at the stated detection limit.

Comments: Gerk GC #1 Separator Pit C4972

Steven L. Gierke  
Analyst

Tony Tustano  
Review



CLIENT: <u>AMOCO</u>	<b>BLAGG ENGINEERING, INC.</b> P.O. BOX 87, BLOOMFIELD, NM 87413 (505) 632-1199	LOCATION NO: <u>C4972</u> C.O.C. NO: <u>5571</u>
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## FIELD REPORT: LANDFARM/COMPOST PILE CLOSURE VERIFICATION

LOCATION: NAME: <u>GERK</u> GC WELL #: <u>1</u> PITS: <u>BLOW, SEP</u> QUAD/UNIT: <u>(B)</u> SEC: <u>30</u> TWP: <u>29N</u> RNG: <u>9W</u> PM: <u>NM</u> CNTY: <u>SS</u> ST: <u>NM</u> QTR/FOOTAGE: <u>NW/4 NE/4</u> CONTRACTOR: <u>P &amp; S</u>	DATE STARTED: <u>11-20-97</u> DATE FINISHED: _____ ENVIRONMENTAL SPECIALIST: <u>NV/EP</u>
---	---

### SOIL REMEDIATION:

 REMEDIATION SYSTEM: LANDFARM

 APPROX. CUBIC YARDAGE: 643

 LAND USE: RANGE

 LIFT DEPTH (ft): NA

### FIELD NOTES & REMARKS:

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

 NMOCED RANKING SCORE: 10 NMOCED TPH CLOSURE STD: 1000 PPM

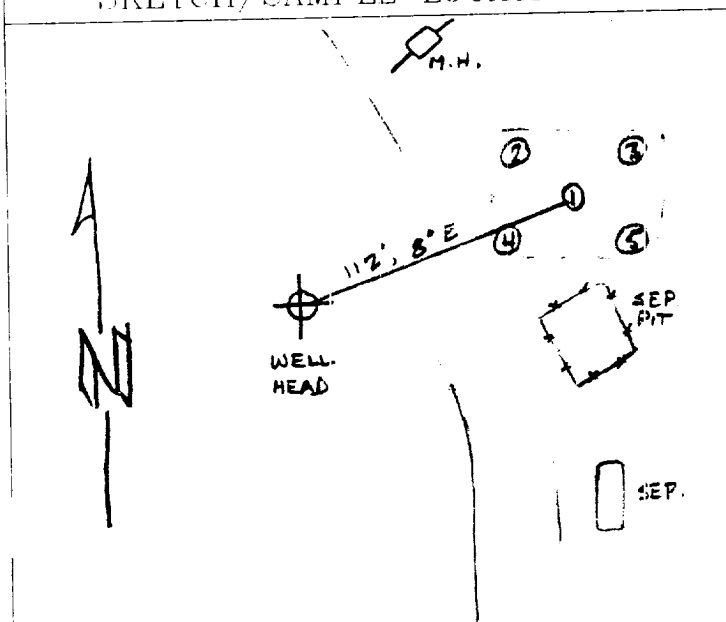
SOIL IS LT GRAY CLAY W/ LT BROWN SILTY SAND

SOME STAIN W/ SOME HC ODOR. 5' FT COMPOSITE SAMPLE WAS TAKEN

### FIELD 418.1 CALCULATIONS

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

### SKETCH/SAMPLE LOCATIONS



### OVM RESULTS

### LAB SAMPLES

SAMPLE ID	FIELD HEADSPACE PID (ppm)	SAMPLE ID	ANALYSIS	TIME	RESULTS
LF-1	0.0	LF-1	8015	1145	253

### SCALE



0 FT

### TRAVEL NOTES:

 CALLOUT: N/A

 ONSITE: 11-20-97 1145

EPA METHOD 8015 Modified  
Nonhalogenated Volatile Organics  
Total Petroleum Hydrocarbons

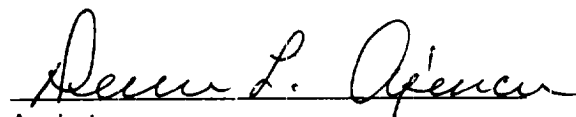
Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	LF - 1	Date Reported:	11-25-97
Laboratory Number:	C546	Date Sampled:	11-20-97
Chain of Custody No:	5571	Date Received:	11-21-97
Sample Matrix:	Soil	Date Extracted:	11-21-97
Preservative:	Cool	Date Analyzed:	11-24-97
Condition:	Cool and Intact	Analysis Requested:	8015 TPH

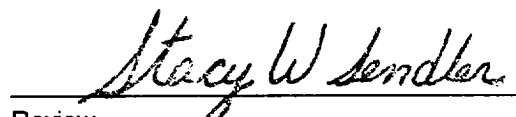
Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	ND	0.2
Diesel Range (C10 - C28)	253	0.1
Total Petroleum Hydrocarbons	253	0.2

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: Gerk GC #1 Landfarm. 5 Pt. Composite.

  
Analyst

  
Review

(505) 632-0615