

RANKING SCORE (TOTAL POINTS): 0

Date Remediation Started: _____ Date Completed: 6-13-95

Remediation Method: Excavation X Approx. cubic yards 1567
(Check all appropriate sections) Landfarmed X Insitu Bioremediation _____
Other _____

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

General Description Of Remedial Action: _____

Excavation

Ground Water 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 40'

Sample date 6-13-95 Sample time _____

Sample Results

Benzene(ppm) _____

Total BTEX(ppm) _____

Field headspace(ppm) 713

TPH 20,000 ppm

Ground Water 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 8-8-95

SIGNATURE

B. Shaw

PRINTED NAME
AND TITLE

Buddy D. Shaw
Environmental Coordinator

CLIENT: AMOCO

ENVIROTECH INC.
ENVIRONMENTAL SCIENTISTS & ENGINEERS
5798 U.S. HIGHWAY 84-3014
FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615

LOCATION NO: A0119
C.D.C. NO: HMB
4227

FIELD REPORT: CLOSURE VERIFICATION

PAGE No: 7 of 2

LOCATION: NAME: LC Rally # WELL #: #6 PIT: Drip / sep
QUAD/UNIT: N64 N64 SEC: 11 TWP: 30N RNG: 12W PM: NM CNTY: SJ ST: NM
QTR/FOOTAGE: CONTRACTOR: ENVIROTECH

DATE STARTED: 5-19-95
DATE FINISHED: 6-13-95
ENVIRONMENTAL SPECIALIST: HMB/CJC

EXCAVATION APPROX. 30 FT. x 30 FT. x 47 FT. DEEP. CUBIC YARDAGE: 1567
DISPOSAL FACILITY: on site Land farm REMEDIATION METHOD: Surface
LAND USE: Range LEASE: Federal FORMATION: TERRACE Deposits

FIELD NOTES & REMARKS: PIT LOCATED APPROXIMATELY 150 FT. ESE FROM WELLHEAD.
DEPTH TO GROUNDWATER: 7100 NEAREST WATER SOURCE: 71000 NEAREST SURFACE WATER: 71000
NMOCB RANKING SCORE: 0 NMOCB TPH CLOSURE STD: 5000 PPM

SOIL AND EXCAVATION DESCRIPTION: Active Drip / Blowdown pit.
SANDY Cobble
Heavy c.l. visible
① @ 10' - 166ppm
② @ 11' - 40ppm
③ @ 10' - 50ppm
④ @ 7' - 88ppm (uphill)
⑤ @ 14' - 761ppm
⑤ @ 22' - 308ppm 5-24-95
② @ 8' - 71ppm 5-24-95

CHECK ONE:
☒ PIT ABANDONED
☒ STEEL TANK INSTALLED

SCALE
0 FT

PIT PERIMETER

FIELD 418.1 CALCULATIONS

TIME	SAMPLE I.D.	LAB No:	WEIGHT (g)	mL. FREON	DILUTION	READING	CALC. ppm
1030	⑤ @ 40'	1073	10.80	20.0	100	107	20,000
1130	① @ 36'	1074	10.58	20.0	1	70	76
1200	③ @ 40'	1075	10.34	20.0	10	106	2050
1200	③ @ 40'	1009M	10.09	20.0	1	35	50

RESULTS

SAMPLE ID	FIELD HEADSPACE PID (ppm)
① @ 36'	8.0
② @ 40'	2.0
③ @ 40'	98.0
④ @ 40'	713

LAB SAMPLES

SAMPLE ID	ANALYSIS	TIME
NONE		

PIT PROFILE

60'

2" pipe

16'

23'

10'

10'

18'

crossed sand & pebbles, tan, dry
sandy / loose, 1"-2" stained sands
sandy fine-med.

TRAVEL NOTES:

CALLOUT: _____

ONSITE: _____

COND.

AMOCO

ENVIROTECH Inc.

BIT NO: AC2119

C.J.C. NO: _____

JOB No: _____

PAGE No: 2 of 2

LOCATION: NAME: L.C. Keph WELL #: 6 PIT: 50p / DRIP

DATE STARTED: 5/25/90

QUAD/UNIT: SEC: TWP: RNG: BM: CNTY: ST:

DATE FINISHED: 11/1/72

QTR/FOOTAGE:

CONTRACTOR:

ENVIRONMENTAL
SPECIALIST: HAB/CJL

SOIL REMEDIATION: EXCAVATION APPROX. _____ FT. x _____ FT. x _____ FT. DEEP.

DISPOSAL FACILITY: _____ CUBIC YARDAGE: _____

LAND USE: _____ LEASE: _____

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

DEPTH TO GROUNDWATER: _____ NEAREST WATER SOURCE: _____ NEAREST SURFACE WATER _____

NMOC Ranking Score: _____ NMOC TPH Closure Std: _____ PPM

SOIL AND EXCAVATION DESCRIPTION:

FIELD 418.1 CALCULATIONS

SAMPLE I.D.	LAB No:	WEIGHT (g)	mL. FREON	DILUTION	READING	CALC. ppm
BTME30'	1070	10.24	20	100	195	38,000
SWR25'	1071	9.98	20	1	80	160

SCALE

[illegible]

0

FEET

PIT PERIMETER

OVM RESULTS

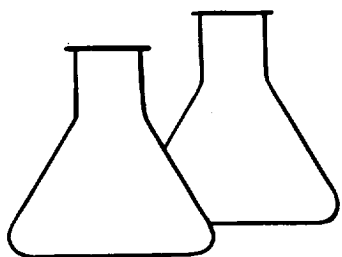
PIT PROFILE

[illegible]

TRAVEL NOTES:

CALL OUT: _____ ONSITE: _____

ONSITE: _____



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: E. Wall @ 40'
Project Location: L. C. KELLY # 6
Laboratory Number: GAC1079

Project #: 91412
Date Analyzed: 05/30/95
Date Reported: 05/31/95
Sample Matrix: Soil

Parameter	Result, mg/kg	Detection Limit, mg/kg
Total Recoverable Petroleum Hydrocarbons	50	10

ND = Not Detectable at stated detection limits.

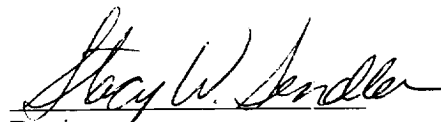
QA/QC:	Original TPH mg/kg	Duplicate TPH mg/kg	% Diff.*
	76	57	29

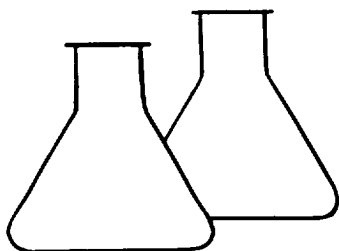
*Administrative Acceptance limits set at 30%.

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

Comments: Separator Pit # A0119


Analyst


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: S. Wall @ 27'
Project Location: L. C. KELLY # 6
Laboratory Number: GAC1071

Project #: 91412
Date Analyzed: 05/25/95
Date Reported: 05/31/95
Sample Matrix: Soil

Parameter	Result, mg/kg	Detection Limit, mg/kg
Total Recoverable Petroleum Hydrocarbons	160	10

ND = Not Detectable at stated detection limits.

QA/QC:	Original TPH mg/kg	Duplicate TPH mg/kg	% Diff. *
	76	57	29

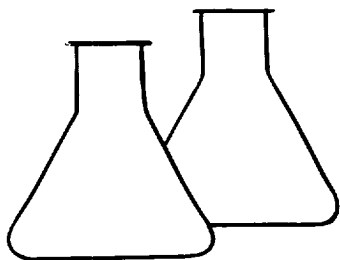
*Administrative Acceptance limits set at 30%.

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

Comments: Separator Pit # A0119


Analyst


Review



ENVIROTECH LABS

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PHONE: (505) 632-0615 • FAX: (505) 632-1865

FIELD MODIFIED EPA METHOD 418.1 TOTAL PETROLEUM HYDROCARBONS

Client:	AMOCO	Project #:	91412
Sample ID:	S. Wall @ 40'	Date Analyzed:	05/30/95
Project Location:	L. C. KELLY # 6	Date Reported:	05/31/95
Laboratory Number:	GAC1075	Sample Matrix:	Soil

Parameter	Result, mg/kg	Detection Limit, mg/kg
Total Recoverable Petroleum Hydrocarbons	2,100	100


ND = Not Detectable at stated detection limits.

QA/QC:	Original TPH mg/kg	Duplicate TPH mg/kg	% Diff.*
	76	57	29

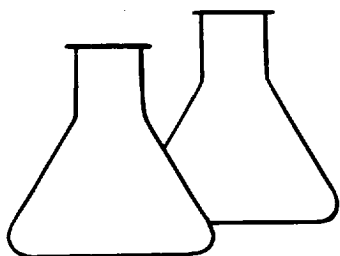
*Administrative Acceptance limits set at 30%.

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

Comments: Separator Pit # A0119


Analyst


Review



ENVIROTECH LABS

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PHONE: (505) 632-0615 • FAX: (505) 632-1865

FIELD MODIFIED EPA METHOD 418.1 TOTAL PETROLEUM HYDROCARBONS

Client: AMOCO
Sample ID: W. Wall @ 36'
Project Location: L. C. KELLY # 6
Laboratory Number: GAC1074

Project #: 91412
Date Analyzed: 05/30/95
Date Reported: 05/31/95
Sample Matrix: Soil

Parameter	Result, mg/kg	Detection Limit, mg/kg
Total Recoverable Petroleum Hydrocarbons	76	10


ND = Not Detectable at stated detection limits.

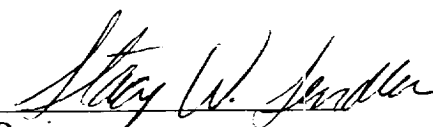
QA/QC:	Original TPH mg/kg	Duplicate TPH mg/kg	% Diff.*
	76	57	29

*Administrative Acceptance limits set at 30%.

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

Comments: Separator Pit # A0119


Analyst


Review

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 418.1 TOTAL PETROLEUM HYDROCARBONS

Client:	Amoco	Project #:	92140
Sample ID:	5 @ 22'	Date Reported:	05-24-95
Laboratory Number:	8537	Date Sampled:	05-24-95
Chain of Custody No:	4227	Date Received:	05-24-95
Sample Matrix:	Soil	Date Extracted:	05-24-95
Preservative:	Cool	Date Analyzed:	05-24-95
Condition:	Cool and Intact	Analysis Needed:	TPH

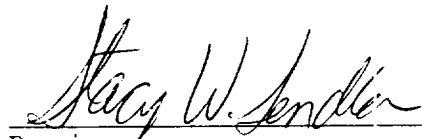
Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
-----	-----	-----
Total Petroleum Hydrocarbons	13900	10.0

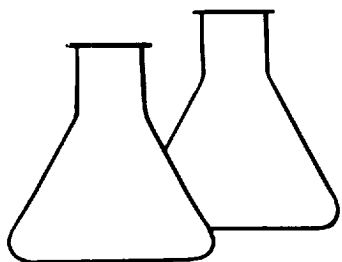
ND = Parameter not detected at the stated detection limit.

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

Comments: ^{HMB} A-0119 - L.C. Kelly #6A. ^{HMB}


Analyst


Review



ENVIROTECH LABS

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PHONE: (505) 632-0615 • FAX: (505) 632-1865

FIELD MODIFIED EPA METHOD 418.1 TOTAL PETROLEUM HYDROCARBONS

Client:	AMOCO	Project #:	91412
Sample ID:	Bottom @ 28'	Date Analyzed:	05/25/95
Project Location:	L. C. KELLY # 6	Date Reported:	05/31/95
Laboratory Number:	GAC1070	Sample Matrix:	Soil

Parameter	Result, mg/kg	Detection Limit, mg/kg
Total Recoverable Petroleum Hydrocarbons	38,000	1,000

ND = Not Detectable at stated detection limits.

QA/QC:	Original TPH mg/kg	Duplicate TPH mg/kg	% Diff.*
	76	57	29

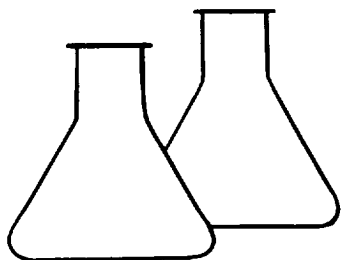
*Administrative Acceptance limits set at 30%.

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

Comments: Separator Pit # A0119


Analyst


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: Bottom @ 35'
Project Location: L. C. KELLY # 6
Laboratory Number: GAC1072

Project #: 91412
Date Analyzed: 05/30/95
Date Reported: 05/31/95
Sample Matrix: Soil

Parameter	Result, mg/kg	Detection Limit, mg/kg
Total Recoverable Petroleum Hydrocarbons	23,000	1,000

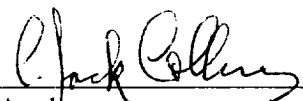
ND = Not Detectable at stated detection limits.

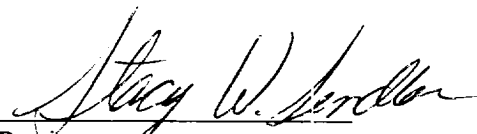
QA/QC:	Original TPH mg/kg	Duplicate TPH mg/kg	% Diff.*
	76	57	29

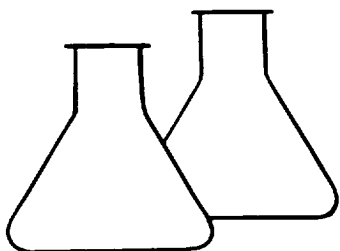
*Administrative Acceptance limits set at 30%.

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

Comments: Separator Pit # A0119


Analyst


Review



ENVIROTECH LABS

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PHONE: (505) 632-0615 • FAX: (505) 632-1865

FIELD MODIFIED EPA METHOD 418.1 TOTAL PETROLEUM HYDROCARBONS

Client: AMOCO
Sample ID: Bottom @ 40'
Project Location: L. C. KELLY # 6
Laboratory Number: GAC1073

Project #: 91412
Date Analyzed: 05/30/95
Date Reported: 05/31/95
Sample Matrix: Soil

Parameter	Result, mg/kg	Detection Limit, mg/kg
Total Recoverable Petroleum Hydrocarbons	20,000	1,000

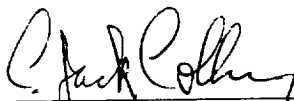
ND = Not Detectable at stated detection limits.

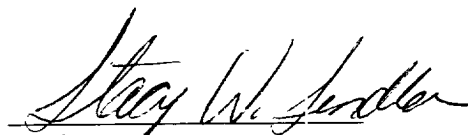
QA/QC:	Original TPH mg/kg	Duplicate TPH mg/kg	% Diff.*
	76	57	29

*Administrative Acceptance limits set at 30%.

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

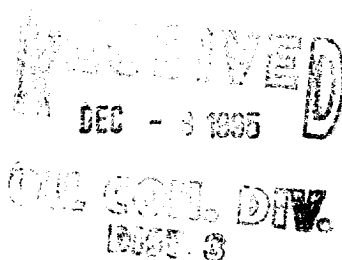
Comments: Separator Pit # A0119


Analyst


Review

Well Name:
Well Site location:
Pit Type:
Producing Formation:
Pit Category:
Horizontal Distance to Surface Water:
Vicinity Groundwater Depth:

L.C. Kelly #6
Unit B, Sec. 11, T30N, R12W
Drip Pit
Mesaverde
Area III
> 1000 ft.
> 100 ft.



RISK ASSESSMENT

Pit remediation activities were terminated when practical vertical extent was reached with a trackhoe. It is conceived that sandstone bedrock underlies the bottom of the excavated area at a close proximity.

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 least 60 feet below the vertical extent of the excavation. Topographical information suggest that sandstone bedrock (Nacimiento Formation) below the terrace gravels (pit location) is highly likely, therefore further reducing the risk of groundwater impact.
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 (double sidewall steel tank installed). 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. Vertical impact poses no threat to present or foreseeable beneficial use of fresh water based upon the extensive vertical depth to groundwater from the total depth reached within the pit. AMOCO requests pit closure approval on this location.

Well Name:
Well Site location:
Pit Type:
Producing Formation:
Pit Category:
Horizontal Distance to Surface Water:
Vicinity Groundwater Depth:

L.C. Kelly #6
Unit B, Sec. 11, T30N, R12W
Drip Pit
Mesaverde
Area III
> 1000 ft.
> 100 ft.

RISK ASSESSMENT

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Johnston LS 7	998	0.017	24.985
Neil LS 7A	819	0.282	0.440

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CLIENT: <u>AMOCO</u>	ENVIROTECH INC. ENVIRONMENTAL SCIENTISTS & ENGINEERS 5706 U.S. HIGHWAY 64-3014 FARMINGTON, NEW MEXICO 87401 PHONE: (505) 632-0815	LOCATION NO: <u>A0119</u> C.O.C. NO: <u>HMB</u> <u>4227</u>
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FIELD REPORT: CLOSURE VERIFICATION	PAGE No: <u>7</u> of <u>2</u>
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LOCATION: NAME: <u>L.C. Rally#</u> WELL #: <u>#6</u> PIT: <u>Drip / sep</u> QUAD/UNIT: <u>N44°N41 SEC: 11</u> TWP: <u>30N</u> RNG: <u>12W</u> PM: <u>NM</u> CNTY: <u>SJ</u> ST: <u>NM</u> QTR/FOOTAGE: _____ CONTRACTOR: <u>ENVIROTECH</u>	DATE STARTED: <u>5-19-95</u> DATE FINISHED: <u>6-13-95</u> ENVIRONMENTAL SPECIALIST: <u>HMB/CJC</u>
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EXCAVATION APPROX. <u>30</u> FT. x <u>30</u> FT. x <u>47</u> FT. DEEP. CUBIC YARDAGE: <u>1567</u>
DISPOSAL FACILITY: <u>on site Land farm</u> REMEDIATION METHOD: _____
LAND USE: <u>Range</u> LEASE: <u>Federal</u> FORMATION: <u>Surface</u> <u>TERRACE Deposit</u>

FIELD NOTES & REMARKS:	PIT LOCATED APPROXIMATELY <u>150</u> FT. <u>ESE</u> FROM WELLHEAD.
DEPTH TO GROUNDWATER: <u>7100</u> NEAREST WATER SOURCE: <u>71000</u> NEAREST SURFACE WATER: <u>71000</u>	
NMOC D RANKING SCORE: <u>0</u> NMOC D TPH CLOSURE STD: <u>5000</u> PPM	
SOIL AND EXCAVATION DESCRIPTION: <u>Active</u> <u>Drip / Blowdown pit.</u>	CHECK ONE <input checked="" type="checkbox"/> PIT ABANDONED <input checked="" type="checkbox"/> STEEL TANK INSTALLED

SANDY Cobble

① @ 10' - 166 ppm
 ② @ 11' - 40 ppm
 ③ @ 10' - 50 ppm
 ④ @ 7' - 88 ppm (uphill)
 ⑤ @ 14' - 76 ppm

⑤ @ 35' - 23,000 ppm 485 ppm OVM
 ⑤ @ 40' - 20,000 ppm 713 ppm OVM

Heavy oil visible.

TIME	SAMPLE I.D.	LAB No:	WEIGHT (g)	mL. FREON	DILUTION	READING	CALC. ppm
1030	⑤ @ 40'	1073	10.80	20.0	100	107	20,000
1030	① @ 36'	1074	10.58	20.0	1	76	76
1200	③ @ 40'	1075	10.34	20.0	10	106	2050
1400	③ @ 40'	1009M	10.09	20.0	25	50	

SCALE: 0 FT

FIELD 418.1 CALCULATIONS

SAMPLE ID	FIELD HEADSPACE PID (ppm)
① @ 36'	8.0
② @ 40'	2.0
③ @ 40'	98.0
④ @ 40'	713

LAB SAMPLES

SAMPLE ID	ANALYSIS	TIME
NONE		

PIT PERIMETER

PIT PROFILE

60' 1" pipe

5' 2" pipe

23' 4" crossbedded pebbles & sand, loose, tan, dry 1"-2" stained sands sand is fine-med.

18'

TRAVEL NOTES:	CALLOUT: _____	ONSITE: _____	COND. _____
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CLIENT: AMOCO

ENVIROTECH Inc.

FIT NO: A0119

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

C.C.C. NO: _____

FIELD REPORT: CLOSURE VERIFICATION

JOB No: _____

PAGE No: 2 of 2

LOCATION: NAME: L.C. Kelly WELL #: 6 PIT: 500 / DRIP

DATE STARTED: 5/25/90

DATE FINISHED: 11/1/77

QUAD/UNIT: SEC: TWP: RNG: BM: CNTY: ST:

ENVIRONMENTAL
SPECIALIST: HMB/CJC.

QTR/FOOTAGE: _____ CONTRACTOR: _____

SOIL REMEDIATION: EXCAVATION APPROX. _____ FT. x _____ FT. x _____ FT. DEEP.

DISPOSAL FACILITY: _____ CUBIC YARDAGE: _____

LAND USE: _____ LEASE: _____

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

DEPTH TO GROUNDWATER: _____ NEAREST WATER SOURCE: _____ NEAREST SURFACE WATER: _____

NMOC Ranking Score: _____ NMOC TPH Closure Std: _____ PPM

SOIL AND EXCAVATION DESCRIPTION:

FIELD 418.1 CALCULATIONS

SAMPLE I.D.	LAB No:	WEIGHT (g)	mL. FREON	DILUTION	READING	CALC. ppm
BTM@30'	1070	10.24	20	100	195	38,000
SW@25'	1071	9.98	20	1	80	160

SCALE

0

FEET

PIT PERIMETER

OVM RESULTS

PIT PROFILE

[illegible]

TRAVEL NOTES: _____ CALL OUT: _____ ONSITE: _____