

MAY 04 1998

**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

Approved PT

Operator: ZONOCO, INC. **Telephone:** (505) 324-5884

Address: 3315 Bloomfield Hwy., Farmington, NM 87401

Facility or Well Name: CHRIS # 2

Location: Unit or Qtr/Qtr Sec K Sec 10 T27N R3W County RIO ARriba

Pit Type: Separator____ Dehydrator____ Other BLOW

Land Type: RANGE

Pit Location: Pit dimensions: length 30', width 46', depth 11'
(Attach diagram)

Reference: wellhead X, other _____

Footage from reference: 125'

Direction from reference: 15 Degrees X East of North
West of South X

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)	0
Greater than 100 feet	(0 points)	<u> </u>

Distance to an Ephemeral Stream

(Downgradient dry wash greater than ten feet in width)

Less than 100 feet (10 points) 0
Greater than 100 feet (0 points)

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) 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 (20 points) 0
No (0 points)

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)

RANKING SCORE (TOTAL POINTS): 0

CAY37

Blow PIT

Date Remediation Started: 9-16-96 Date Completed: 9/23/96

Remediation Method: Excavation ☒ Approx. cubic yards 500
(check all appropriate methods) Landfarmed ☒ Insitu Bioremediation _____
Other _____

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

General Description of Remedial Action: Excavation, BEDROCK BOTTOM.

Groundwater Encountered: No ☒ 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 6'

Sample date 9/20/96 Sample time 0745

Sample Results

Soil: Benzene	(ppm)	<u>0.156</u>	Water: Benzene	(ppb)	_____
Total BTEX	(ppm)	<u>55.66</u>	Toluene	(ppb)	_____
Field Headspace	(ppm)	<u>519</u>	Ethylbenzene	(ppb)	_____
TPH	(ppm)	<u>4,640</u>	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 9/23/96 PRINTED NAME Jeffrey C. Blagg, P.E. #11607

SIGNATURE Jeffrey C. Blagg AND TITLE President

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) Failed Total BTEX conditional closure

SIGNED: Kevin C. Mamm DATE: 9-24-96

CLIENT: <u>CONOCO</u>	BLAGG ENGINEERING, INC. P.O. BOX 87, BLOOMFIELD, NM 87413 (505) 632-1199	LOCATION NO: <u>CA437</u> C.O.C. NO: <u>4905</u>
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FIELD REPORT: CLOSURE VERIFICATION		PAGE No: <u>1</u> of <u>1</u>
LOCATION: NAME: <u>CHRS</u>	WELL #: <u>2</u>	PIT: <u>BLOW</u>
QUAD/UNIT: <u>K</u> SEC: <u>10</u> TWP: <u>27N</u> RNG: <u>3W</u> PM: <u>Nm</u> CNTY: <u>RA</u> ST: <u>NM</u>		DATE STARTED: <u>9/20/96</u>
QTR/FOOTAGE: <u>NE 1/4 SW 1/4</u>		DATE FINISHED: _____
CONTRACTOR: <u>ACME</u>		ENVIRONMENTAL SPECIALIST: <u>NV</u>

EXCAVATION APPROX. 30 FT. x 46 FT. x 11 FT. DEEP. CUBIC YARDAGE: 500

DISPOSAL FACILITY: ON-SITE REMEDIATION METHOD: LANDFARMED

LAND USE: RANGE LEASE: CONTRACT #90 FORMATION: MV

FIELD NOTES & REMARKS: PIT LOCATED APPROXIMATELY 125' FT. SISE FROM WELLHEAD.

DEPTH TO GROUNDWATER: 2100' NEAREST WATER SOURCE: 21000' NEAREST SURFACE WATER: 21000'

NMDCD RANKING SCORE: 0 NMDCD TPH CLOSURE STD: 5006 PPM

CHECK ONE:
☒ PIT ABANDONED
☐ STEEL TANK INSTALLED

SOIL AND EXCAVATION DESCRIPTION:

SIDEWALLS: MED. DK. GRAY CLAY (NORTH), OLIVE GRAY (WEST) DK. YELL. BROWN SAND (EAST & SOUTH)

CLAY - PLASTIC, MOIST, STIFF; SILTY SAND - COHESIVE SLIGHTLY MOIST, FIRM TO STIFF;


SAND - NON-COHESIVE SLIGHTLY MOIST FIRM; STRONG HC ODOR IN NORTH & WEST SIDEWALLS OVM SAMPLES, DK. GRAY DISCOLORATION OBSERVED @ BOTTOM PORTION OF EAST & WEST SIDEWALLS (SEE PIT PROFILE).

BOTTOM - BEDROCK, SHALE, MED. BLUISH GRAY IN COLOR, NO APPARENT HC ODOR IN OVM SAMPLE.

FIELD 418.1 CALCULATIONS

TIME	SAMPLE I.D.	LAB No:	WEIGHT (g)	mL. FREON	DILUTION	READING	CALC. ppm
0745	④ @ 6'	TPH-1825	5	20	10:1	116	4,640
"	"	DUPLICATE	"	"	"	"	4,400

SCALE

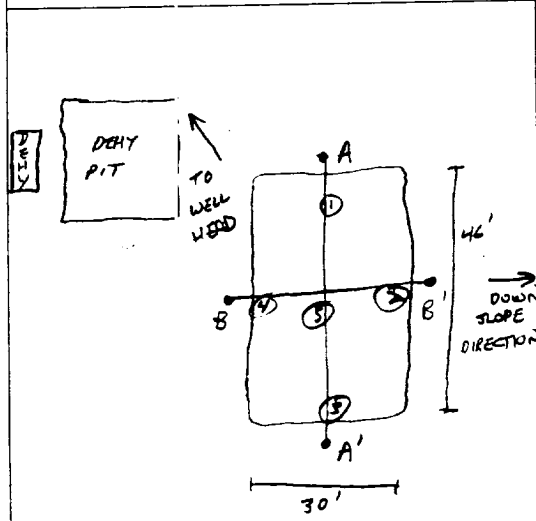


0 FT

PIT PERIMETER

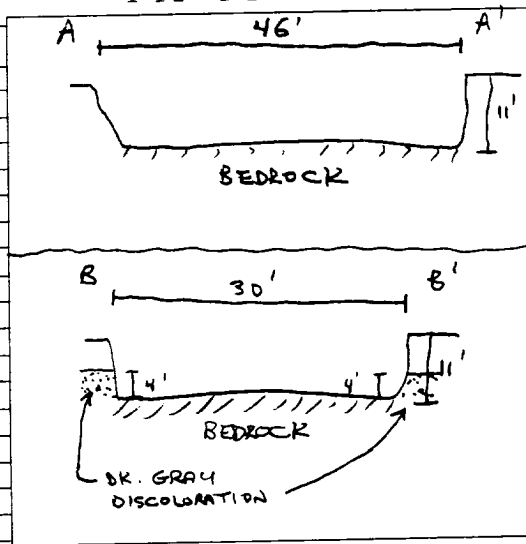
OVM RESULTS

PIT PROFILE



SAMPLE ID	FIELD HEADSPACE PID (ppm)
1 @ 6'	322
2 @ 6'	0.0
3 @ 6'	0.0
4 @ 6'	519
5 @ 11'	7.3

LAB SAMPLES		
SAMPLE ID	ANALYSIS	TIME
④ @ 6'	BTEX	0745
FAILED		



TRAVEL NOTES: CALLOUT: 9/19/96 AFTER. ONSITE: 9/20/96 MORN.

Well Name:	Chris #2
Well Site location:	Unit K, Sec. 10, T27N, R3W
Pit Type:	Blow pit
Producing Formation:	Mesaverde
Pit Category:	Non Vulnerable
Horizontal Distance to Surface Water:	> 1000 ft.
Vicinity Groundwater Depth:	> 100 ft.

RISK ASSESSMENT

Pit remediation activities were terminated when trackhoe encountered shale bedrock at 11 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 shale bedrock located 11 feet below grade. Groundwater levels located on or close to the well pad are estimated to be at a much greater depth below the shale 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 shale 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). CONOCO 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: CONOCO
Sample ID: 4 @ 6'
Project Location: Chris # 2
Laboratory Number: TPH-1825

Project #:
Date Analyzed: 09-20-96
Date Reported: 09-20-96
Sample Matrix: Soil

Parameter	Result, mg/kg	Detection Limit, mg/kg
Total Recoverable Petroleum Hydrocarbons	4,600	200

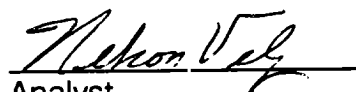
ND = Not Detectable at stated detection limits.


QA/QC:	QA/QC Sample TPH mg/kg	Duplicate TPH mg/kg	% *Diff.
	4640	4400	5.31

*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 - CA437


Analyst


Review

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020 AROMATIC VOLATILE ORGANICS

Client:	Blagg / Conoco	Project #:	04034
Sample ID:	4 @ 6'	Date Reported:	09-23-96
Laboratory Number:	A579	Date Sampled:	09-20-96
Chain of Custody:	4905	Date Received:	09-23-96
Sample Matrix:	Soil	Date Analyzed:	09-23-96
Preservative:	Cool	Date Extracted:	09-23-96
Condition:	Cool & Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	156	11.7
Toluene	118	11.1
Ethylbenzene	2,200	10.1
p,m-Xylene	36,700	14.4
o-Xylene	16,400	6.9
Total BTEX	55,600	

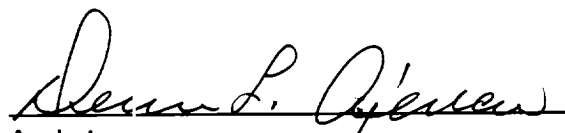
ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	99 %
	Bromofluorobenzene	97 %

References: 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. 1994.

Comments: Chris #2 Blow Pit.


Analyst


Review

[illegible]**ENVIROTECH INC.**

5796 U.S. Highway 64-3014

Farmington, New Mexico 87401

(505) 632-0615

CA 437

**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: <u>Conoco, Inc.</u>		Telephone: <u>(505) 324-5884</u>
Address: <u>3315 Bloomfield Hwy., Farmington, NM 87401</u>		
Facility or Well Name: <u>CHRIS #2</u>		
Location: Unit or Qtr/Qtr Sec <u>K</u> Sec <u>10</u> T <u>27N</u> R <u>3W</u> County <u>RIO ARIZONA</u>		
Land Type: <u>RANGE</u>		
Date Remediation Started: <u>9/20/96</u>		Date Completed: <u>8/18/97</u>
Remediation Method: Landfarmed <input checked="" type="checkbox"/> Composted <input type="checkbox"/> Other <input type="checkbox"/>		Approx. cubic yards <u>500</u>
Distance To Groundwater: (pts.) <u>0</u>	Final Closure Sampling: Sampling Date: <u>8/14/97</u> Time: <u>1515</u> Sample Results: Field Headspace (ppm) <u>0.0</u> TPH (ppm) <u>ND</u> Method <u>8015</u> Other <input type="checkbox"/>	
Distance to an Ephemeral Stream (pts.) <u>0</u>		
Distance to Nearest Lake, Playa, or Watering Pond (pts.) <u>0</u>		
Wellhead Protection Area: (pts.) <u>0</u>		
Distance To Surface Water: (pts.) <u>0</u>		
RANKING SCORE (TOTAL POINTS): <u>0</u>		
I HEREBY CERTIFY THAT THE INFORMATION ABOVE IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF		
DATE <u>8/18/97</u>	PRINTED NAME <u>Jeffrey C. Blagg, P.E. #11607</u>	
SIGNATURE <u>Jeffrey C. Blagg</u>	AND TITLE <u>President</u>	
AFTER REVIEW OF THE SOIL REMEDIATION INFORMATION, ON-SITE REMEDIATION IS APPROVED IN ACCORDANCE TO THE JICARILLA APACHE TRIBE PIT CLOSURE ORDINANCE.		
APPROVED: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> (REASON) _____		
SIGNED: <u>Ken C. Mamm</u>	DATE: <u>9-2-97</u>	

CLIENT: CONOCOBLAGG ENGINEERING, INC.
P.O. BOX 87, BLOOMFIELD, NM 87413
(505) 632-1199LOCATION NO: CA 437C.D.C. NO: 5148

FIELD REPORT: LANDFARM/COMPOST PILE CLOSURE VERIFICATION

LOCATION: NAME: CHRIS WELL #: 2 PITS: BLOWDATE STARTED: 8/14/97

DATE FINISHED: _____

QUAD/UNIT: K SEC: 10 TWP: 27N RNG: 3W PM: NM CNTY: RA ST: NMOIL/FEEDSTOCK: NE 1/4 SW 1/4 CONTRACTOR: AcmeENVIRONMENTAL
SPECIALIST: NV

SOIL REMEDIATION:

REMEDIATION SYSTEM: LANDFARMAPPROX. CUBIC YARDAGE: 500LAND USE: RANGELIFT DEPTH (ft): 12" - 24"

FIELD NOTES & REMARKS:

DEPTH TO GROUNDWATER: >100' NEAREST WATER SOURCE: >1000' NEAREST SURFACE WATER: >1000'NMOCB BANKING SCOPE: 0 NMOCB TPH CLOSURE STD: 5000 PPM

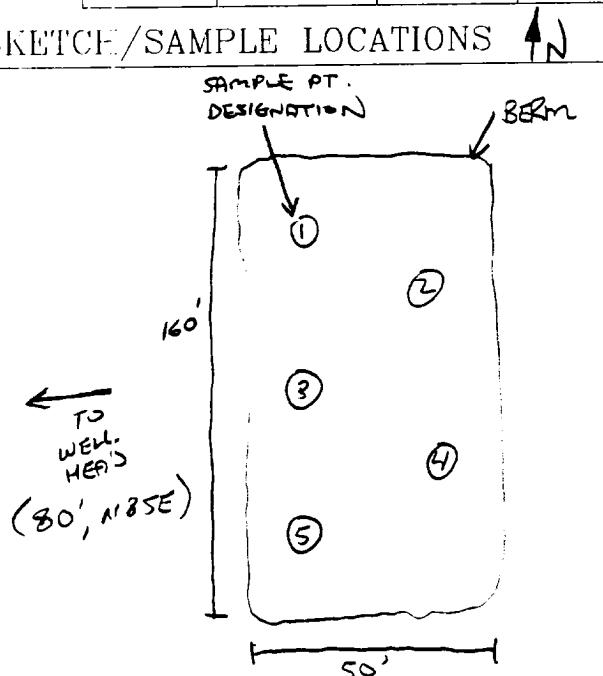
MOSTLY DR. YELL. BROWN TO LT. OLIVE GRAY SAND TO SILTY SAND,
NON COHESIVE, SLIGHTLY MOIST FIRM TO DENSE, NO APPARENT HC ODOR
OBSERVED w/IN OVM SAMPLE. 5 PT. COMPOSITE COLLECTED FOR
LAB ANALYSIS.

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

LAB SAMPLES

SAMPLE ID	FIELD HEADSPACE PID (ppm)	SAMPLE ID	ANALYSIS	TIME	RESULTS
LF-1	0.0	LF-1	TPH (8015)	1515	ND

SCALE

0 FT

TRAVEL NOTES:

CALLOUT: NAONSITE: 8/14/97

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8015 Modified Nonhalogenated Volatile Organics Total Petroleum Hydrocarbons

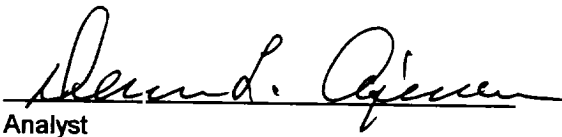
Client:	Blagg / Conoco	Project #:	04034-10
Sample ID:	LF - 1	Date Reported:	08-15-97
Laboratory Number:	B848	Date Sampled:	08-14-97
Chain of Custody No:	5148	Date Received:	08-14-97
Sample Matrix:	Soil	Date Extracted:	08-15-97
Preservative:	Cool	Date Analyzed:	08-15-97
Condition:	Cool and Intact	Analysis Requested:	8015 TPH

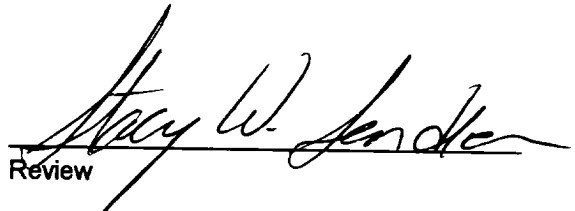
Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	ND	0.2
Diesel Range (C10 - C28)	ND	0.1
Total Petroleum Hydrocarbons	ND	0.2

ND - Parameter not detected at the stated detection limit.

References: Method 8015, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Comments: Chris #2 Landfarm. 5 Pt. Composite.


Analyst


Review

[illegible]