

87484  
Blow - OK  
Comp - Risk - below  
Sep - Risk - below

SUBMIT 1 COPY TO  
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**

**RECEIVED**  
**AUG 16 1999**

OIL CON. DIV.  
505-1328-9200

**Operator:** AMOCO PRODUCTION COMPANY **Telephone:** (505) 1328-9200

**Address:** 200 Amoco Court, Farmington, NM 87401

**Facility or Well Name:** JICARILLA CONTRACT 146 - 39

**Location:** Unit or Qtr/Qtr Sec J Sec 3 T25N R5W County RIO ARriba

**Pit Type:** Separator      Dehydrator      Other BLOW

**Land Type:** RANGE

**Pit Location:** Pit dimensions: length 60', width 55', depth 30'  
(Attach diagram)

Reference: wellhead X, other     

Footage from reference: 240'

Direction from reference: 35 Degrees      East of North X  
X West of South     

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

8J484 / BLOW PIT

Date Remediation Started: \_\_\_\_\_ Date Completed: 1/9/97

Remediation Method: Excavation ☒ Approx. cubic yards 2700  
Check all appropriate (options) 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: Sample location see Attached Documents  
Closure Sampling: \_\_\_\_\_  
(if multiple samples, attach sample results and diagram of sample locations and depths) Sample depth 18'  
Sample date 1/9/97 Sample time 1100

## Sample Results

Soil: Benzene	(ppm)	_____	Water: Benzene	(ppb)	_____
Total BTEX	(ppm)	_____	Toluene	(ppb)	_____
Field Headspace	(ppm)	<u>2.2</u>	Ethylbenzene	(ppb)	_____
TPH	(ppm)	<u>32</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 1/9/97 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) \_\_\_\_\_

SIGNED: Ken C Mammill DATE: 1-23-97

CLIENT: <u>AMOCO</u>	BLAGG ENGINEERING, INC. P.O. BOX 87, BLOOMFIELD, NM 87413 (505) 632-1199	LOCATION NO: <u>BJ484</u> C.O.C. NO: _____
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FIELD REPORT: CLOSURE VERIFICATION		PAGE No: <u>1</u> of <u>1</u>
LOCATION: NAME: <u>JCARILLA CONTRACT WELL #146-39</u> PIT: <u>BLOW</u>		DATE STARTED: <u>1/9/97</u>
QUAD/UNIT: <u>J SEC 3</u> TWP: <u>25N</u> RNG: <u>5W</u> PM: <u>NM</u> CNTY: <u>RA</u> ST: <u>NM</u>		DATE FINISHED: _____
ODP/FOOTAGE: <u>NW/4 SE/4</u> CONTRACTOR: <u>P+S</u>		ENVIRONMENTAL SPECIALIST: <u>NV</u>

EXCAVATION APPROX. <u>60</u> FT. x <u>55</u> FT. x <u>30</u> FT. DEEP.	CUBIC YARDAGE: <u>2700</u>
DISPOSAL FACILITY: <u>ON-SITE</u>	REMEDIAION METHOD: <u>LANDFARMED</u>
LAND USE: <u>RANGE</u>	LEASE: <u>JICA CONTR. #146</u> FORMATION: <u>CK/MV</u>

FIELD NOTES & REMARKS:	
PIT LOCATED APPROXIMATELY <u>240</u> FT. <u>N35W</u> FROM WELLHEAD.	
DEPTH TO GROUNDWATER: <u>&gt;100'</u>	NEAREST WATER SOURCE: <u>&gt;1000'</u> NEAREST SURFACE WATER: <u>&gt;1000'</u>
NMDD BANKING SCORE: <u>5</u>	NMDD TPH CLOSURE STD: <u>5000</u> PPM
SOIL AND EXCAVATION DESCRIPTION:	

- ① OLIVE GRAY - HARD, BEDROCK, SHALE  
 ②A) PALE YELLOWISH BROWN, BEDROCK, SHALE

CHECK ONE:	
<input checked="" type="checkbox"/>	PIT ABANDONED
<input type="checkbox"/>	STEEL TANK INSTALLED
<input type="checkbox"/>	FIBERGLASS TANK INSTALLED

BOTTOM. VERY DUSKY PURPLE, BEDROCK, SHALE, VERY HARD.

BEDROCK

#### FIELD 418.1 CALCULATIONS

TIME	SAMPLE I.D.	LAB No.	WEIGHT (g)	mL. FREON	DILUTION	READING	CALC. ppm
1100	④ @ 18'	TPH-1569	5	20	1:1	8	32

SCALE

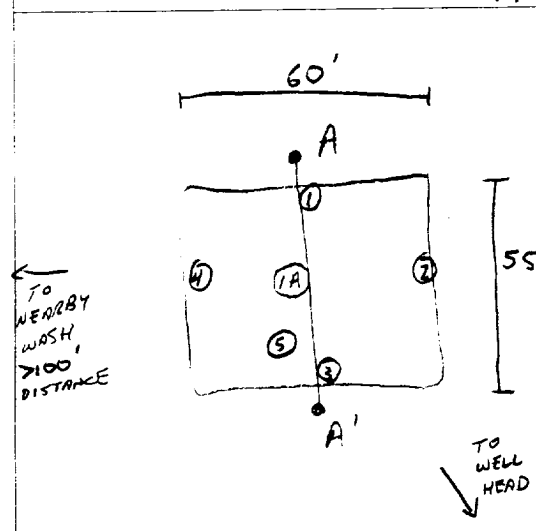


0 FT

#### PIT PERIMETER

#### OVM RESULTS

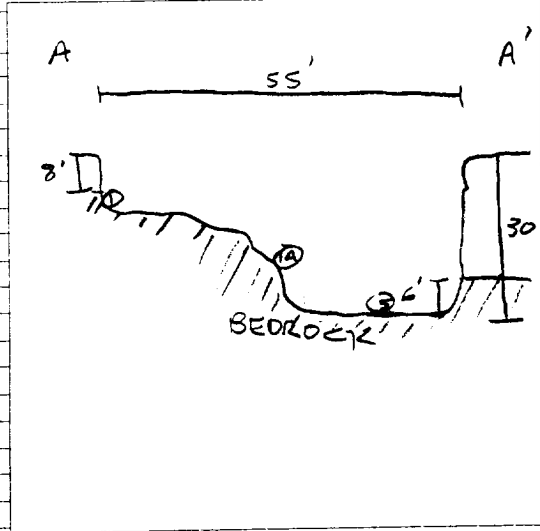
#### PIT PROFILE



SAMPLE ID	FIELD HEADSPACE PID (ppm)
1 @ 10'	8.6
2 @ 12'	0.0
3 @ 21'	0.0
4 @ 18'	2.2
5 @ 30'	14.3
1A @ 23'	85.6

SAMPLE ID	ANALYSIS	TIME



TRAVEL NOTES:	CALLOUT: <u>1/8/97 MORN</u> ONSITE: <u>1/9/97 MORN.</u>
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**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	Project #:	
Sample ID:	4 @ 18'	Date Analyzed:	01-09-97
Project Location:	Jicarilla Contract 146 - 39	Date Reported:	01-09-97
Laboratory Number:	TPH-1869	Sample Matrix:	Soil

Parameter	Result, mg/kg	Detection Limit, mg/kg
-----	-----	-----
Total Recoverable Petroleum Hydrocarbons	32	20

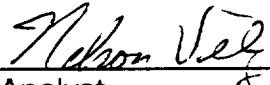
ND = Not Detectable at stated detection limits.

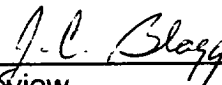
QA/QC:	QA/QC Sample TPH mg/kg	Duplicate TPH mg/kg	% *Diff.
	-----	-----	-----
	80	84	4.88

\*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 - BJ484

  
\_\_\_\_\_  
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:

4 @ 18'

Date Analyzed:

01-09-97

Project Location:

Jicarilla Contract 146 - 39

Date Reported:

01-09-97

Laboratory Number:

TPH-1869

Sample Matrix:

Soil

Sample Weight:

5.00 grams

Volume Freon:

20.00 mL

Dilution Factor:

1 (unitless)

TPH Reading:

8 mg/kg

TPH Result:

32.0 mg/kg

Reported TPH Result:

32 mg/kg

Actual Detection Limit:

20.0 mg/kg

Reported Detection Limit:

20 mg/kg

QA/QC:

Original  
TPH mg/kg

Duplicate  
TPH mg/kg

%  
Diff.

80

84

4.88

Comments:

\*\*\*\*\*Max Characters\*\*\*\*\*

Comments:

Blow Pit - BJ484

85484

**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 CONTRACT 146 - 39  
**Location:** Unit or Qtr/Qtr Sec J Sec 3 T 25N R 5W County RIO ARriba  
**Pit Type:** Separator      Dehydrator      Other COMPRESSOR  
**Land Type:** RANGE

**Pit Location:** Pit dimensions: length 10', width 8', depth 5'  
(Attach diagram) Reference: wellhead X, other       
Footage from reference: 125'  
Direction from reference: 8 Degrees      East of North       
X West of South X

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

Date Remediation Started: \_\_\_\_\_ Date Completed: 1/9/97

Remediation Method: Excavation X Approx. cubic yards 5  
 (check all appropriate actions) Landfarmed X Insitu Bioremediation \_\_\_\_\_  
 Other \_\_\_\_\_

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

General Description of Remedial Action: Excavation. BEDROCK BOTTOM - SPRAYED  
PIT BOTTOM w/ FERTILIZER.

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 3'

Sample date 1/9/97 Sample time 1250

Sample Results

Soil: Benzene	(ppm)	_____	Water: Benzene	(ppb)	_____
Total BTEX	(ppm)	_____	Toluene	(ppb)	_____
Field Headspace	(ppm)	<u>0.0</u>	Ethylbenzene	(ppb)	_____
TPH	(ppm)	<u>24</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 1/9/97 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: Kurt C. Marshall DATE: 1-23-97

CLIENT: <u>AMOCO</u>	BLAGG ENGINEERING, INC. P.O. BOX 87, BLOOMFIELD, NM 87413 (505) 632-1199	LOCATION NO: <u>BJ484</u> C.O.C. NO: _____
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FIELD REPORT: CLOSURE VERIFICATION		PAGE No: <u>1</u> of <u>1</u>
LOCATION: NAME: <u>JCARILIA CONTRACT</u> WELL #: <u>146-39</u> PIT: <u>COMPR.</u>		DATE STARTED: <u>1/9/97</u>
QUAD/UNIT: <u>J</u> SEC: <u>3</u> TWP: <u>25N</u> RNG: <u>5W</u> PM: <u>NM</u> CNTY: <u>RA</u> ST: <u>NM</u>		DATE FINISHED: _____
DTE/FOOTAGE: <u>NW 1/4 SE 1/4</u> CONTRACTOR: <u>PES</u>		ENVIRONMENTAL SPECIALIST: <u>NV</u>

EXCAVATION APPROX. <u>10</u> FT. x <u>8</u> FT. x <u>5</u> FT. DEEP. CUBIC YARDAGE: <u>5</u>
DISPOSAL FACILITY: <u>ON-SITE</u> REMEDIATION METHOD: <u>LANDFARMED</u>
LAND USE: <u>RANGE</u> LEASE: <u>JICA. CONTR. #146</u> FORMATION: <u>CK/mv</u>

FIELD NOTES & REMARKS:	PIT LOCATED APPROXIMATELY <u>125</u> FT. <u>58W</u> FROM WELLHEAD.
DEPTH TO GROUNDWATER: <u>&gt;100'</u>	NEAREST WATER SOURCE: <u>&gt;1000'</u> NEAREST SURFACE WATER: <u>&gt;1000'</u>
NMOULD BANKING CODE: <u>0</u>	NMOULD TPH CLOSURE STD: <u>5000</u> PPM
SOIL AND EXCAVATION DESCRIPTION:	

CHECK ONE:	
<input checked="" type="checkbox"/>	PIT ABANDONED
<input type="checkbox"/>	STEEL TANK INSTALLED
<input type="checkbox"/>	FIBERGLASS TANK INSTALLED

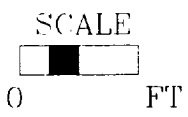
SIDEWALLS - DK. YEL. ORANGE SAND, NON-COHESIVE SLIGHTLY MOIST FIRM, NO APPARENT HC STRAINING AND/OR OGOR OBSERVED IN ANY OF THE SIDEWALLS, WILL SPRAY PIT BOTTOM W/ FERTILIZER.

BOTTOM - LT. GRAY BEDROCK SANDSTONE, HARD, HC OGOR IN OVM SAMPLE

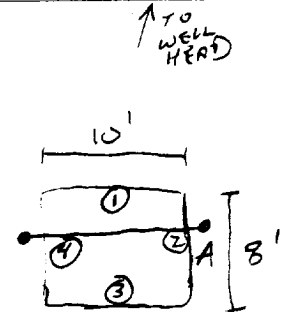
BEDROCK RISK ASSESSED

FIELD 418.1 CALCULATIONS

TIME	SAMPLE I.D.	LAB No.	WEIGHT (g)	mL. FREON	DILUTION	READING	CALC. ppm
1250	① @ 3'	TPH-1870	5	20	1:1	6	24



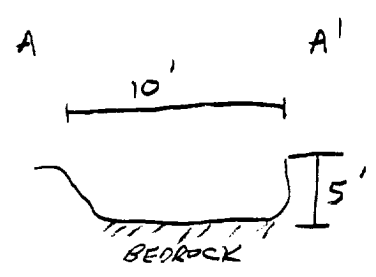
PIT PERIMETER



OVM RESULTS

SAMPLE ID	FIELD HEADSPACE PID (ppm)
1 @ 3'	0.0
2 @ 3'	0.0
3 @ 3'	0.0
4 @ 3'	0.0
5 @ 5'	117.7

PIT PROFILE



LAB SAMPLES		
SAMPLE ID	ANALYSIS	TIME

TRAVEL NOTES:	CALLOUT: <u>1/8/97 MORN.</u>	ONSITE: <u>1/9/97 AFTER.</u>
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<b>Well Name:</b>	<b>Jicarilla Contract 146 #39</b>
Well Site location:	Unit J, Sec. 3, T25N, R5W
Pit Type:	Compressor Pit
Producing Formation:	Chacra/Mesa Verde
Pit Category:	Non Vulnerable
Horizontal 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 5 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 5 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 1.32 miles northeast of the nearest vulnerable area boundary (Gonzales Canyon wash).

**(Refer to Lapis Point 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.

**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	Project #:	
Sample ID:	1 @ 3'	Date Analyzed:	01-09-97
Project Location:	Jicarilla Contract 146 - 39	Date Reported:	01-09-97
Laboratory Number:	TPH-1870	Sample Matrix:	Soil

Parameter	Result, mg/kg	Detection Limit, mg/kg
-----	-----	-----
Total Recoverable Petroleum Hydrocarbons	<b>24</b>	<b>20</b>

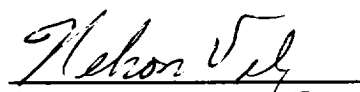
ND = Not Detectable at stated detection limits.


QA/QC:	QA/QC Sample TPH mg/kg	Duplicate TPH mg/kg	% *Diff.
	-----	-----	-----
	80	84	4.88

\*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: Compressor Pit - BJ484

  
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:

1 @ 3'

Date Analyzed:

01-09-97

Project Location:

Jicarilla Contract 146 - 39

Date Reported:

01-09-97

Laboratory Number:

TPH-1870

Sample Matrix:

Soil

Sample Weight:

5.00 grams

Volume Freon:

20.00 mL

Dilution Factor:

1 (unitless)

TPH Reading:

6 mg/kg

TPH Result:

24.0 mg/kg

Reported TPH Result:

24 mg/kg

Actual Detection Limit:

20.0 mg/kg

Reported Detection Limit:

20 mg/kg

QA/QC:

Original  
TPH mg/kg

Duplicate  
TPH mg/kg

%  
Diff.

-----  
80

-----  
84

-----  
4.88

Comments:

\*\*\*\*\*Max Characters\*\*\*\*\*

Comments:

Compressor Pit - BJ484

BJ484

**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 CONTRACT 146-39  
**Location:** Unit or Qtr/Qtr Sec J Sec 3 T2S N R5W County RIO ARriba  
**Pit Type:** Separator ☒ Dehydrator ☐ Other ☐  
**Land Type:** RANGE

**Pit Location:** (Attach diagram) Pit dimensions: length 22', width 34', depth 4'  
Reference: wellhead X, other \_\_\_\_\_  
Footage from reference: 318'  
Direction from reference: 40 Degrees ☒ East of North ☒  
\_\_\_\_\_ West South \_\_\_\_\_

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

8J484 / SEP. PTT

Date Remediation Started: \_\_\_\_\_ Date Completed: 1/9/97

Remediation Method: Excavation ☒ Approx. cubic yards 90  
 (check all appropriate sections) Landfarmed ☒ Insitu Bioremediation \_\_\_\_\_  
 Other \_\_\_\_\_

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

General Description of Remedial Action: Excavation - ENTIRE EXCAVATION CONSIST OF BEDROCK. NO TPH ANALYSIS CONDUCTED. SPRAYED ENTIRE EXCAVATION w/ FERTILIZER.

Groundwater 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 3'  
 Sample date 1/9/97 Sample time 1210

Sample Results

Soil: Benzene (ppm) _____	Water: Benzene (ppb) _____
Total BTEX (ppm) _____	Toluene (ppb) _____
Field Headspace (ppm) <u>348</u>	Ethylbenzene (ppb) _____
TPH (ppm) _____	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 1/9/97 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) \_\_\_\_\_

SIGNED: [Signature] DATE: 1-23-97

CLIENT: AMOCO

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

LOCATION NO: BJ484  
C.O.C. NO: \_\_\_\_\_

FIELD REPORT: CLOSURE VERIFICATION

PAGE No: 1 of 1

LOCATION: NAME: JICARILLA CONTRACT WELL #: 146-39 PIT: SEP  
QUAD/UNIT: J SEC: 3 TWP: 25N RNG: 5W PM: NM CNTY: RA ST: NM  
DTP/FOOTAGE: NW/4 SE/4 CONTRACTOR: P+S

DATE STARTED: 1/9/97  
DATE FINISHED: \_\_\_\_\_  
ENVIRONMENTAL SPECIALIST: NV

EXCAVATION APPROX. 22 FT. x 34 FT. x 4 FT. DEEP. CUBIC YARDAGE: 90  
DISPOSAL FACILITY: ON-SITE REMEDIATION METHOD: LANDFILLED  
LAND USE: RANGE LEASE: JICA CONTR. #146 FORMATION: CK/mv

FIELD NOTES & REMARKS: PIT LOCATED APPROXIMATELY 318 FT. N40E FROM WELLHEAD.  
DEPTH TO GROUNDWATER: 2100' NEAREST WATER SOURCE: 21000' NEAREST SURFACE WATER: 21000'  
NMDD PAKING SCORE: 0 NMDD TPH CLOSURE STD: 5000 PPM  
SOIL AND EXCAVATION DESCRIPTION:  
ALL MED. GRAY TO BLACK BEDROCK (SANDSTONE) NO TPH ANALYSIS CONDUCTED. WILL SPRAY ENTIRE PIT W/ FERTILIZER.

CHECK ONE:  
☒ PIT ABANDONED  
☐ STEEL TANK INSTALLED  
☐ FIBERGLASS TANK INSTALLED

ALL BEDROCK  
RISK ASSESSED

SCALE  
0 FT

FIELD 4181 CALCULATIONS

TIME	SAMPLE I.D.	LAB No:	WEIGHT (g)	mL FREON	DILUTION	READING	CALC ppm
1210							

PIT PERIMETER

OVM RESULTS

SAMPLE ID	FIELD HEADSPACE P.D. (ppm)
1 @ 3'	137.8
2 @ 2'	64.3
3 @ 3'	348
4 @ 2'	121.8
5 @ 5'	45.3

LAB SAMPLES

SAMPLE ID	ANALYSIS	TIME

PIT PROFILE

TRAVEL NOTES: CALLOUT: 1/8/97 MORN. ONSITE: 1/9/97 MORN.

<b>Well Name:</b>	<b>Jicarilla Contract 146 #39</b>
<b>Well Site location:</b>	<b>Unit J, Sec. 3, T25N, R5W</b>
<b>Pit Type:</b>	<b>Separator Pit</b>
<b>Producing Formation:</b>	<b>Chacra/Mesa Verde</b>
<b>Pit Category:</b>	<b>Non Vulnerable</b>
<b>Horizontal Distance to Surface Water:</b>	<b>&gt; 1000 ft.</b>
<b>Vicinity Groundwater Depth:</b>	<b>&gt; 100 ft.</b>

## **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 1.32 miles northeast of the nearest vulnerable area boundary (Gonzales Canyon wash).

**(Refer to Lapis Point 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.

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

85484

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

**ON-SITE SOIL REMEDIATION REPORT**

<b>Operator:</b> <u>AMOCO PRODUCTION COMPANY</u>		<b>Telephone:</b> <u>(505) 326-9200</u>
<b>Address:</b> <u>200 Amoco Court, Farmington, NM 87401</u>		
<b>Facility or Well Name:</b> <u>JICARILLA CONTRACT #146-39</u>		
<b>Location:</b> Unit or Qtr/Qtr Sec <u>T</u> Sec <u>3</u> T <u>25N</u> R <u>5W</u> County <u>RIO ARriba</u>		
<b>Land Type:</b> <u>RANGE</u>		
<b>Date Remediation Started:</b> <u>1/9/97</u>		<b>Date Completed:</b> <u>7/23/98</u>
<b>Remediation Method:</b> Landfarmed <input checked="" type="checkbox"/>		<b>Approx. cubic yards</b> <u>2,795</u>
Composted <input type="checkbox"/>		
Other <input type="checkbox"/>		
<b>Depth To Groundwater:</b> (pts.) <u>0</u>		<b>Final Closure Sampling:</b>
<b>Distance to an Ephemeral Stream</b> (pts.) <u>0</u>		<b>Sampling Date:</b> <u>7/21/98</u> <b>Time:</b> <u>—</u>
<b>Distance to Nearest Lake, Playa, or Watering Pond</b> (pts.) <u>0</u>		<b>Sample Results:</b>
<b>Wellhead Protection Area:</b> (pts.) <u>0</u>		<b>Field Headspace (ppm)</b> <u>67.4</u> (LF-2)
<b>Distance To Surface Water:</b> (pts.) <u>0</u>		<b>TPH (ppm)</b> <u>747</u> (LF-2) <b>Method</b> <u>8015</u>
<b>RANKING SCORE (TOTAL POINTS):</b> <u>0</u>		<b>Other</b> <u>MULTIPLE SAMPLES - SEE ATTACHED SHEET</u>
<b>I HEREBY CERTIFY THAT THE INFORMATION ABOVE IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF</b>		
<b>DATE</b> <u>7/23/98</u>		<b>PRINTED NAME</b> <u>Buddy D. Shaw</u>
<b>SIGNATURE</b> <u>Buddy D. Shaw</u>		<b>AND TITLE</b> <u>Environmental Coordinator</u>
<b>AFTER REVIEW OF THE SOIL REMEDIATION INFORMATION, ON-SITE REMEDIATION IS APPROVED IN ACCORDANCE TO THE JICARILLA APACHE TRIBE PIT CLOSURE ORDINANCE.</b>		
<b>APPROVED:</b> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> (REASON) <u>NOT for use as Backfill</u>		
<b>SIGNED:</b> <u>Ken C. M...</u>		<b>DATE:</b> <u>9-9-98</u>



CLIENT: <u>AMOCO</u>	<b>BLAGG ENGINEERING, INC.</b> P.O. BOX 87, BLOOMFIELD, NM 87413 (505) 632-1199	LOCATION NO: <u>BJ484</u>  C.O.C. NO: <u>6105</u>
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## FIELD REPORT: LANDFARM/COMPOST PILE CLOSURE VERIFICATION

LOCATION: NAME: <u>JICA. CONTR. 146</u> WELL #: <u>39</u> PITS: <u>SEP, BLOW, COMPL.</u> QUAD/UNIT: <u>J</u> SEC: <u>3</u> TWP: <u>25N</u> RNG: <u>5W</u> PM: <u>NM</u> CNTY: <u>RA</u> ST: <u>NM</u> QTR/FOOTAGE: <u>NW1/4 SE1/4</u> CONTRACTOR: <u>P&amp;S</u>	DATE STARTED: <u>7/21/98</u> DATE FINISHED: _____ ENVIRONMENTAL SPECIALIST: <u>NV</u>
--	---

SOIL REMEDIATION: REMEDIATION SYSTEM: <u>LANDFARM</u> LAND USE: <u>RANGE</u>	APPROX. CUBIC YARDAGE: <u>2795</u> LIFT DEPTH (ft): <u>2'-3'</u>
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### FIELD NOTES & REMARKS:

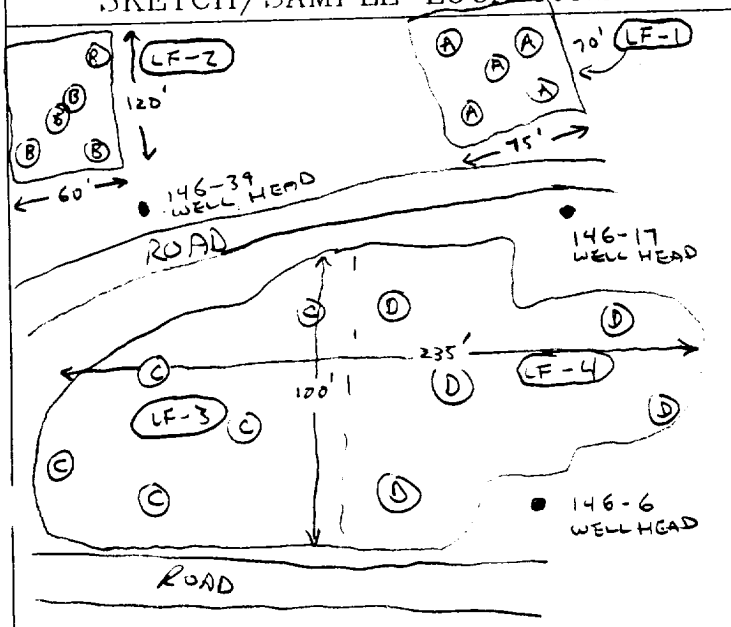
DEPTH TO GROUNDWATER: >100' NEAREST WATER SOURCE: >1000' NEAREST SURFACE WATER: >1000'  
 NMOC D RANKING SCORE: 0 NMOC D TPH CLOSURE STD: 5000 PPM 11/9/97  
 SOIL TYPE VARYING FROM DR. YELL. ORANGE TO MED. GRAY SAND TO CLAY, NON COHESIVE TO PLASTIC, SLIGHTLY MOIST TO VERY MOIST, FIRM TO SLIGHTLY STIFF, HC ODOR DETECTED IN MAJORITY OF LF-1 & LF-2 SAMPLE PTS., STAINING OF LANDFARM SURFACES EVIDENT IN ISOLATED PATCHES, SAMPLING DEPTHS RANGE FROM 1' - 2 1/2' DISCOLORED SOIL MOSTLY ENCOUNTERED IN LF-1 & LF-2 AREAS, COLLECTED 5 PT. COMPOSITE SAMPLES 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

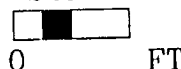


### OVM RESULTS

### LAB SAMPLES

SAMPLE ID	FIELD HEADSPACE PID (ppm)	SAMPLE ID	ANALYSIS	TIME	RESULTS
LF-1	41.0	LF-1	TPH (8015)	0810	86.7
LF-2	67.4	LF-2	TPH (8015)	0845	747
LF-3	0.0	LF-3	TPH (8015)	0915	1,030
LF-4	0.0	LF-4	TPH (8015)	1000	543

### SCALE



TRAVEL NOTES: CALLOUT: <u>NA</u>	ONSITE: <u>7/21/98</u>
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# ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

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

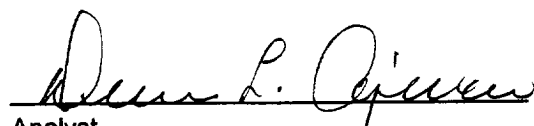
Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	LF - 1	Date Reported:	07-23-98
Laboratory Number:	D671	Date Sampled:	07-21-98
Chain of Custody No:	6105	Date Received:	07-21-98
Sample Matrix:	Soil	Date Extracted:	07-22-98
Preservative:	Cool	Date Analyzed:	07-22-98
Condition:	Cool and Intact	Analysis Requested:	8015 TPH

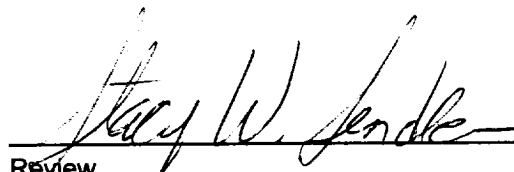
Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	0.7	0.2
Diesel Range (C10 - C28)	86.0	0.1
Total Petroleum Hydrocarbons	86.7	0.2

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 Contract #146 - 39 Landfarm. 5 Pt. Composite.

  
Analyst

  
Review

# ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

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

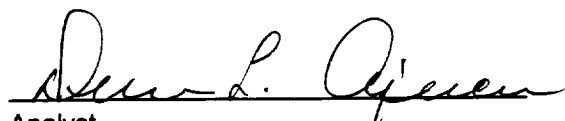
Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	LF - 2	Date Reported:	07-23-98
Laboratory Number:	D672	Date Sampled:	07-21-98
Chain of Custody No:	6105	Date Received:	07-21-98
Sample Matrix:	Soil	Date Extracted:	07-22-98
Preservative:	Cool	Date Analyzed:	07-22-98
Condition:	Cool and Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	10.7	0.2
Diesel Range (C10 - C28)	736	0.1
Total Petroleum Hydrocarbons	747	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 Contract #146 - 39 Landfarm. 5 Pt. Composite.

  
Analyst

  
Review

# ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

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

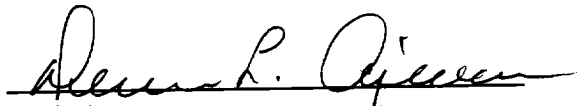
Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	LF - 3	Date Reported:	07-23-98
Laboratory Number:	D673	Date Sampled:	07-21-98
Chain of Custody No:	6105	Date Received:	07-21-98
Sample Matrix:	Soil	Date Extracted:	07-22-98
Preservative:	Cool	Date Analyzed:	07-22-98
Condition:	Cool and Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	8.4	0.2
Diesel Range (C10 - C28)	1,020	0.1
Total Petroleum Hydrocarbons	1,030	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 Contract #146 - 39 Landfarm. 5 Pt. Composite.

  
Analyst

  
Review

# ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

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

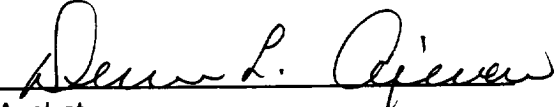
Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	LF - 4	Date Reported:	07-23-98
Laboratory Number:	D674	Date Sampled:	07-21-98
Chain of Custody No:	6105	Date Received:	07-21-98
Sample Matrix:	Soil	Date Extracted:	07-22-98
Preservative:	Cool	Date Analyzed:	07-22-98
Condition:	Cool and Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	ND	0.2
Diesel Range (C10 - C28)	543	0.1
Total Petroleum Hydrocarbons	543	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 Contract #146 - 39 Landfarm. 5 Pt. Composite.

  
Analyst

  
Review

# CHAIN OF CUSTODY RECORD

6105

Client / Project Name <b>BRGS / Amoco</b>			Project Location <b>WADSWORTH</b>			ANALYSIS / PARAMETERS													
Client No. <b>0403410</b>			TICARUA COMBUST # 146-39			Remarks													
Sampler: <b>NTV</b>			No. of Containers <b>TPH (8015)</b>																
Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers														
LF-1	7/21/98	0810	DL71	SOIL	1	✓	5 PT. COMPOSITE												
LF-2	7/21/98	0845	DL72	SOIL	1	✓	5 PT. COMPOSITE												
LF-3	7/21/98	0915	DL73	SOIL	1	✓	5 PT. COMPOSITE												
LF-4	7/21/98	1000	DL74	SOIL	1	✓	ALL SAMPLES												
						REFUSE - COOL													
Relinquished by: (Signature) <i>[Signature]</i>			Date 7/21/98	Time 1453	Received by: (Signature) <i>[Signature]</i>			Date 7.21.98	Time 1453										
Relinquished by: (Signature) <i>[Signature]</i>						Received by: (Signature) <i>[Signature]</i>													
Relinquished by: (Signature)						Received by: (Signature)													
<div style="display: flex; justify-content: space-between;"> <div> <p>20 CCL'S 6105 - 6107</p> <p><b>ENVIROTECH INC.</b></p> <p>5796 U.S. Highway 64 Farmington, New Mexico 87401 (505) 632-0615</p> </div> <div> <p><b>Sample Receipt</b></p> <table border="1"> <tr> <td>Received Intact</td> <td>Y</td> <td>N</td> <td>N/A</td> </tr> <tr> <td>Cool - Ice/Blue Ice</td> <td>✓</td> <td></td> <td></td> </tr> </table> </div> </div>												Received Intact	Y	N	N/A	Cool - Ice/Blue Ice	✓		
Received Intact	Y	N	N/A																
Cool - Ice/Blue Ice	✓																		