

**3R -** 86

# **REPORTS**

**DATE:**

1996



ANNUAL SUMMARY  
PIT CLOSURES  
AND  
GROUND WATER IMPACT UPDATES  
STATE OF NEW MEXICO  
1996

**RECEIVED**

MAY 20 1997

Environmental Bureau  
Oil Conservation Division

*Each site  
filed under  
case files separate*



Midland Division  
Exploration Production

Conoco Inc.  
10 Desta Drive, Suite 100W  
Midland, TX 79705-4500  
(915) 686-5400

Certified Mail  
P 895 104 872

April 25, 1997

Mr. Denny Fouts  
New Mexico Oil Conservation Commission  
1000 Rio Brazos Rd.  
Aztec, NM 87410

Dear Mr. Fouts:

Re: NMOCD letters P-471-215-177, P-471-215-178  
and P-471-215-179

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Reference NMOCD letters of February 18, 1997 (P-471-215-177 and P-471-215-178) directed to Conoco Inc. and NMOCD letter of February 18, 1997 (P-471-215-179) directed to Merrion Oil and Gas Corporation.

This letter is intended to update NMOCD on the progress made to date to evaluate the alleged environmental contamination identified in the subject NMOCD letters. Evaluation work was timely commenced at all sites under Conoco's supervision. Initial results are being documented and evaluated. Where appropriate, possible remediation plans are being considered. As you are aware, ownership of the sites have changed hands several times, and we are in the process of developing proposed plans consistent with the contractual obligations of the successive owners. As soon as reasonably possible, NMOCD will be advised of proposed remediation plans where appropriate, to resolve the environmental matters addressed in the subject NMOCD letters.

Regards,

Carl J. Coy  
Field SHEAR Specialist

cc: Merrion  
Mesa  
Bill Olson - NMOCD Santa Fe



Revised: May 15, 1997

Conoco, Inc., Midland Division  
Exploration and Production, North America  
10 Desta Drive, Suite 100W  
Midland, Texas 79705-4500

Attn.: Mr. Neal Goates, Senior Environmental Specialist

RE: Transmittal of Information for 1996 Annual NMOCD Reporting

Per your request and at Mr. C. John Coy's (Farmington Office) direction, we have compiled the attached information to assist you with the annual reporting to NMOCD. The information listed in Table 1 is included.

If there are any questions regarding this status report, please contact either Cindy Gray or Myke Lane at On Site Technologies, (505) 325-5667. Thank you for considering On Site to assist you with this matter.

Respectfully submitted,  
*On Site Technologies Limited Partnership*

A handwritten signature in black ink, appearing to read "Michael K. Lane", is written over a horizontal line.

Michael K. Lane, P.E.  
Senior Engineer

Enclosures: Table 1 & Listed Attachments

CC: C. John Coy (w/o attachments)  
MKL/mkl

file: 41303.doc

TYPES OF PITS	
SEP: Separator Pit	BDP: Blowdown Pit
DHP: Dehydrator Pit	FGP: Fiberglass Tank Pit
CSP: CompressorScrubberPit	LDHP: Lined Dethy Pit
TDP: Tank Drip Pit	DRP: Drilling Reserve Pit
LDP: Line Drip Pit	NONE: No Pits

#	WELL NAME AND NUMBER	FEDERAL, STATE INDIAN CONTRACT NO OR FEE	LOCATION	TYPES OF PITS	PIT SIZE	VULN AREA	EXPANDED VULN AREA	NON-VULN AREA	OTHER PARTY PIT	DATE STOPPED FLOW TO PIT	DATE PIT REMEDIATION STARTED	DATE PIT CLOSED
SENSITIVE AREA PITS - JICARILLA												
1	Apache No. 1	Contract #98	Unit D, Sec. 18-26N-3W	SEP	30' x 24' x 4'		X			Unknown		05/06/96
2	Apache No. 3E	Contract #98	Unit H, Sec. 19-26N-3W	TDP	18' x 17' x 3'		X			Unknown		04/25/96
3	Apache No. 7	Contract #98	Unit D, Sec. 20-26N-3W	SEP	44' x 30' x 6'		X			Unknown		04/25/96
4	AXI Apache J No. 22	Contract #147	Unit L, Sec. 6-25N-5W	SEP	37' x 36' x 3'		X			09/10/96		09/30/96
5	AXI Apache N No. 14	Contract #121	Unit C, Sec. 1-25N-4W	SEP	19' x 19' x 4'		X			03/27/96		04/15/96
6	AXI Apache N No. 16A	Contract #121	Unit C, Sec. 12-25N-4W	DHP	18X18X3'		X			03/18/96		03/26/96
7	Jicarilla No. 3	Contract #12	Unit D, Sec. 31-26N-4W	SEP	28' x 22' x 4'		X			Unknown		08/05/96
8	Jicarilla No. 4	Contract #12	Unit L, Sec. 31-26N-4W	TDP	10' x 8' x 3'		X			Unknown		08/05/96
9	Jicarilla No. 6	Contract #12	Unit L, Sec. 31-26N-4W	SEP	35' x 27' x 4'		X			Unknown		08/15/96
10	Jicarilla No. 11	Contract #12	Unit G, Sec. 30-26N-4W	SEP	21' x 20' x 4'		X			Unknown		08/15/96
11	Jicarilla No. 11	Contract #12	Unit G, Sec. 30-26N-4W	TDP	22' x 22' x 4'		X			Unknown		08/15/96
12	Jicarilla No. 13	Contract #12	Unit G, Sec. 31-26N-4W	TDP	18' x 16' x 4'		X			Unknown		08/05/96
13	Jicarilla No. 14	Contract #12	Unit P, Sec. 31-26N-4W	TDP	18' x 17' x 4'		X			Unknown		08/07/96
14	Jicarilla No. 14	Contract #12	Unit P, Sec. 31-26N-4W	SEP	19' x 18' x 3'		X			Unknown		08/15/96
15	Jicarilla No. 17	Contract #12	Unit B, Sec. 32-26N-4W	SEP	17' x 16' x 4'		X			Unknown		08/15/96
16	Jicarilla No. 17	Contract #12	Unit B, Sec. 32-26N-4W	TDP	19' x 17' x 4'		X			Unknown		08/15/96
17	Jicarilla No. 18	Contract #12	Unit I, Sec. 32-26N-4W	SEP	28' x 22' x 4'		X			Unknown		08/15/96
18	Jicarilla No. 18	Contract #12	Unit I, Sec. 32-26N-4W	TDP	25' x 25' x 4'		X			Unknown		08/15/96
19	Jicarilla A No. 8	Contract # 105	Unit E, Sec. 23-26N-4W	SEP	20'x20'x3'		X			09/26/96		07/25/96
20	Jicarilla A No. 9	Contract # 105	Unit C, Sec. 14-26N-4W	TDP	10'x10'x5'		X			05/15/96		05/22/96
21	Jicarilla A No. 10	Contract # 105	Unit D, Sec. 23-26N-4W	SEP	16'x16'x4'		X			06/11/96		06/26/96
22	Jicarilla A No. 13	Contract # 105	Unit E, Sec. 13-26N-4W	TDP	16'x16'x4'		X			05/08/96		05/15/96
23	Jicarilla B No. 2	Contract # 106	Unit K, Sec. 25-26N-4W	BDP	15'x25'x3'		X			Unknown		07/25/96
24	Jicarilla B No. 8	Contract # 106	Unit K, Sec. 25-26N-4W	SEP	10'x15'x3'		X			06/06/96		06/26/96
25	Jicarilla B No. 9	Contract # 106	Unit K, Sec. 26-26N-4W	SEP	15'x15'x2'		X			05/22/96		05/31/96
26	Jicarilla B No. 9A	Contract # 106	Unit D, Sec. 26-26N-4W	SEP	18'x18'x3'		X			06/10/96		08/15/96
27	Jicarilla B No. 13	Contract # 106	Unit M, Sec. 36-26N-4W	SEP	16'x18'x4'		X			03/27/96		03/29/96
28	Jicarilla B No. 15	Contract # 106	Unit J, Sec. 36-26N-4W	SEP	12'x12'x2'		X			03/29/96		03/29/96
29	Jicarilla D No. 11	Contract # 100	Unit A, Sec. 29-26N-3W	TDP	12'x14'x4'		X			04/04/96		04/15/96
30	Jicarilla D No. 17	Contract # 100	Unit D, Sec. 29-26N-3W	TDP	16'x18'x3'		X			04/09/96		04/15/96
31	Jicarilla D No. 18	Contract # 104	Unit A, Sec. 30-26N-3W	SEP	15'x15'x2'		X			04/12/96		04/15/96
32	Jicarilla E No. 6	Contract # 104	Unit B, Sec. 21-26N-4W	TDP	18'x18'x3'		X			07/29/96		08/15/96
33	Jicarilla E No. 8	Contract # 104	Unit C, Sec. 15-26N-4W	TDP	10'x10'x3'		X			06/05/96		06/21/96
34	Jicarilla E No. 14	Contract No. 145	Unit D, Sec. 15-26N-4W	CSP	10'x12'x3'		X			03/25/96		06/05/96
35	Jicarilla K No. 12E	Contract No. 145	Unit M, Sec. 02-25N-5W	SEP	12'x14'x3'		X			Unknown		09/24/96
36	Jicarilla K No. 15	Contract No. 145	Unit I, Sec. 01-25N-5W	SEP	14'x16'x2'		X			08/26/96		08/03/96
37	Jicarilla K No. 22	Contract No. 145	Unit M, Sec. 02-25N-5W	SEP	12'x14'x4'		X			Unknown		10/02/96
38	Jicarilla K No. 22A	Contract No. 145	Unit C, Sec. 02-25N-5W	SEP	10'x10'x0.1'		X			Unknown		08/24/96

39 Tribal No. 2	Fed. 6090001150	Unit L, Sec. 9-26N-3W	SEP	30' x 24' x 6'					Unknown	05/06/96
40 Tribal No. 2	Fed. 6090001150	Unit L, Sec. 9-26N-3W	TDP	24' x 17' x 4'					Unknown	05/06/96

NON - SENSITIVE AREA PITTS - JICARILLA

1 AXI Apache N No. 11A	Contract #121	Unit B, Sec. 12-25N-4W	SEP	22' x 19' x 3'					Unknown	03/22/96
2 AXI Apache N No. 12A	Contract #121	Unit L, Sec. 11-25N-4W	SEP	21' x 21' x 4'					Unknown	03/22/96
3 AXI Apache N No. 14A	Contract #121	Unit K, Sec. 1-25N-4W	SEP	19' x 19' x 3'					Unknown	03/22/96
4 AXI Apache N No. 12	Contract #121	Unit C, Sec. 11-25N-4W	SEP	20' x 18' x 3'					03/25/96	03/26/96
5 AXI Apache N No. 13	Contract #121	Unit G, Sec. 2-25N-4W	SEP	22' x 21' x 3'					03/25/96	03/29/96
6 AXI Apache O No. 10	Contract #122	Unit J, Sec. 3-25N-4W	SEP	23' x 21' x 3'					03/20/96	04/19/96
7 Jicarilla D No. 11A	Contract # 100	Unit P, Sec 29-26N-3W	TDP	16' x 16' x 3'					04/16/96	04/22/96
8 Jicarilla D No. 13	Contract # 100	Unit A, Sec 32-26N-3W	TDP	15' x 15' x 2'					04/15/96	04/22/96
9 Jicarilla D No. 13A	Contract # 100	Unit P, Sec 32-26N-3W	SEP	20' x 20' x 2'					04/15/96	04/25/96
10 Jicarilla D No. 19	Contract # 100	Unit I, Sec 31-26N-3W	TDP	25' x 28' x 2'					04/25/96	05/03/96
11 Jicarilla D No. 20	Contract # 100	Unit N, Sec 31-26N-3W	TDP	20' x 30' x 4'					04/25/96	05/03/96

OFFICE: (505) 327-8786  
FAX: (505) 327-1496



LAB: (505) 325-5667  
FAX: (505) 325-6256

April 18, 1997

Conoco, Inc., Midland Division  
Exploration and Production, North America  
10 Desta Drive, Suite 100W  
Midland, Texas 79705-4500

Attn.: Mr. Neal Goates, Senior Environmental Specialist

RE: Brief of Site Assessment  
Farmington COM #1  
Unit P, Sec. 11, T29N, R13W, NMPM  
San Juan County, NM

Project No: 4-1372

The following brief has been prepared by On Site Technologies Limited Partnership for Conoco. The brief describes the findings of Phase II Assessment of soil and ground water at the referenced oil/gas well location for hydrocarbon contamination identified during the transfer of operating interest.

#### **ASSESSMENT SUMMARY:**

On March 10, 1997, 19 test holes were drilled using a pick-up mounted hydraulic punch and auger unit equipped with 2 and 3 inch flight augers. Test holes ranged in depth from 4.5 to 6 feet in depth. Refer to Sheet 1 for approximate test hole locations.

One to two grab soil samples were collected from each test hole of the augered cuttings and field tested for volatile hydrocarbons per the NMOCD Field Heated Headspace Method. Selected split samples were also collected in 4 oz. glass containers with Teflon® closures, labeled, and placed on ice for delivery to the laboratory. Lab samples were tested for Total Petroleum Hydrocarbons (TPH) per EPA Method 8015M and select samples were tested for BTEX per EPA Method 8020 to verify the Headspace results. Table 1 summarizes the soil test results.

Ground water impact from hydrocarbons was suspected. Three monitor wells were installed in selected test holes. One monitor well was located in the area of suspected contamination, based on the soil screening, and two wells were located in estimated down-gradient locations (Refer to Sheet 1). Monitor wells were constructed of 2 inch Sch. 40 PVC with 5 feet of 0.010 inch slotted pipe. The annular space was sand packed with 10-20 mesh clean sand. Due to the shallow depth to ground water and anticipated rise in the water table, the top of the screen was located within 12 inches of the surface, and only a thin bentonite seal was placed around each well at the surface. Each well was developed by removing approximately ten well volumes or until dry.

On March 17, 1997, a level survey was completed to establish relative elevations for the monitor well tops of casing. Water levels were then measured from the top of casing for each well, and the water table elevations were calculated. Refer to Sheet 1 for the ground water surface contour. Following the water level measurements, water samples were collected from each well. Prior to sampling each well was purged by bailing approximately three well volumes. Water samples were placed in 40 ml VOA glass vials, labeled and placed on ice for delivery to the lab. Samples were analyzed for BTEX per EPA Method 8020. Table 2 summarizes the monitor well data, and Table 3 summarizes the water lab results.

**RESULTS:**

Subsurface soils were typical alluvium consisting of silty clayey sands in the top 2 to 3 feet overlying coarse sand and gravel grading to cobbles at six feet. Ground water was measured at 2.5 to 4 feet below the ground surface.

TPH and BTEX soil contamination was found from approximately 3 to 6 feet below the surface east of the separator equipment. Contamination appears to extent north and outside of the fenced location toward the Animas River. Based on the reported findings of the Merrion Oil assessment (January, 1997) and this additional investigation, an area of approximately 4,720 square feet with 500 to 1,000 cubic yards of soil is involved (refer to Sheet 2).

Ground water, at the time of this assessment and seasonal period, has a gradient of 0.025 feet/foot to the west-northwest. Only MW-1 located near the center of the soil contamination has indication that levels of benzene are above the New Mexico Water Quality Control Commission (WQCC) standards for ground water.

No other areas of soil or ground water contamination were found during this assessment effort or earlier efforts by Merrion Oil, the current operator.

**CLOSURE:**

Due to ongoing negotiations with former and current lease operators no recommendations or corrective measures are proposed with this document.

This document has been prepared by On Site Technologies Limited Partnership for the exclusive use of Conoco Inc. as it pertains to the referenced well location formerly operated by Conoco.

If there are any questions regarding this status report, please contact either Cindy Gray or Myke Lane at On Site Technologies, (505) 325-5667. Thank you for considering On Site to assist you with this matter.

Respectfully submitted,  
On Site Technologies Limited Partnership



Michael K. Lane, P.E.  
Senior Engineer

Attachments: Table 1: Soil Test Results  
Table 2: Monitor Well Data  
Table 3: Water Lab Results  
Sheet 1: Site Sketch and Ground Water Surface Contour  
Sheet 2: Site Sketch and Estimated Soil Contamination

CC: C. John Coy, Farmington Office (w/o Attachments)

MKL/mkl: 41372brf

TABLE 1: SUMMARY OF SOIL SAMPLES  
 FARMINGTON COM #1  
 Unit P, Sec. 11, T29N, R13W, NMPM  
 SAN JUAN COUNTY, NM

SAMPLE LOCATION	DATE	DEPTH <sup>(1)</sup> (ft)	PID <sup>(2)</sup> (units)	Benzene (ppm)	Total BTEX <sup>(3)</sup> (ppm)	TPH <sup>(4)</sup> (ppm)
TH-1	3/10/97	2.5-3	1.7			<6.0
TH-1	3/10/97	5-6	1.6			
TH-2	3/10/97	2-3	1.2			
TH-2	3/10/97	4.5-5	1.3			
TH-3	3/10/97			<i>No</i>	<i>Recovery</i>	
TH-4	3/10/97	2.5-3	562			
TH-4	3/10/97	4.5	725			
TH-5	3/10/97	2.5-3	15			
TH-5	3/10/97	4.5-5	322			
TH-6	3/10/97	2.5-3	ND			
TH-6	3/10/97	4.5-5	0.2			
TH-7	3/10/97	2.5-3	>2500			
TH-7	3/10/97	4.5-5	>2500			
TH-8	3/10/97	2.5-3	>2500			
TH-8	3/10/97	4.5-5	>2500			4014
TH-9	3/10/97	2.5-3.5	12.8			< 6
TH-9	3/10/97	4.5-5	11.8			
TH-10	3/10/97	3.5-4.5	>2500			
TH-11	3/10/97	3.5-4.5	21.0			< 6
TH-12	3/10/97	4-5	ND			
TH-13	3/10/97	2.5-3	ND			
TH-13	3/10/97	4.5-5	ND			< 6
TH-14	3/10/97	3.5-5	0.7			
TH-14	3/10/97	5.5-6	3.2			
TH-15	3/10/97	5-5.5	ND			< 6
TH-16	3/10/97			<i>No</i>	<i>Recovery</i>	
TH-17	3/10/97	4.5-5	ND			
TH-18	3/10/97	2.5-3	ND			
TH-18	3/10/97	4.5-5	ND			< 6
TH-19	3/10/97	3-4	560			
NMOCD Action Levels	Feb. 1993		100	10	50	100

- Notes: (1) Depth below ground surface.  
 (2) PID: Results of field headspace samples measured with an organic vapor meter equipped with a photoionization detector, and Benzene Response Factor of 0.56.  
 (3) BTEX: Benzene, Toluene, Ethyl-benzene, and total Xylenes measured by EPA Method 8020.  
 (4) TPH: Total Petroleum Hydrocarbons as measured by EPA Method 8015 (mod.).  
 (5) ND: Not detected.

TABLE 2: MONITOR WELL DATA & WATER ELEVATION DATA  
 FARMINGTON COM #1  
 Unit P, Sec. 11, T29N, R13W, NMPM  
 San Juan County, NM

On Site Technologies, Ltd.  
 Project No: 4-1372

March, 1997

MONITOR WELL	Date	Top of Casing Elevation	Total Well Depth (ft)	Top of Screen (bgs)	Depth to Ground Water (ft)	Ground Water Elevation	Change in Water Elevation
MW-1	03/17/97	100.15	5.21	0.2	4.17	95.98	--
MW-2	03/17/97	100.32	8.13	2.5	5.81	94.51	--
MW-3	03/17/97	100.35	6.54	1.5	5.71	94.64	--

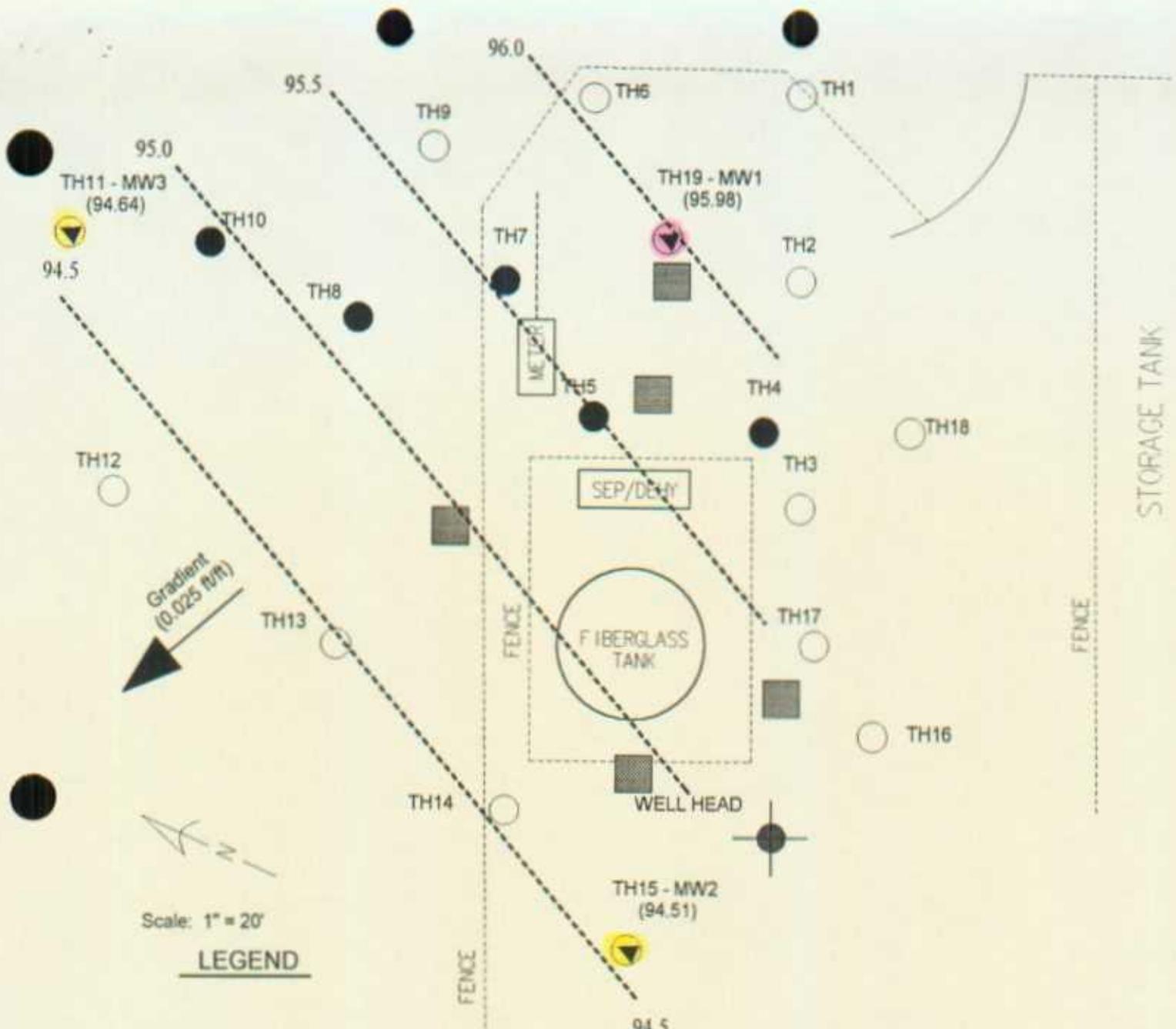
Notes: 1) All elevations relative to arbitrary benchmark at well head flange with an elevation of 100.00.

TABLE 3: SUMMARY OF WATER SAMPLE RESULTS  
 FARMINGTON COM #1  
 P, Sec.11, T29N, R13W, NMPM  
 San Juan County, NM

(ppb or ug/L)

Sample Location	Date	Water Elevation	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Total BTEX
MW-1	03/17/97	95.98	393.7	68.9	167.8	694.2	1279.6
MW-2	03/17/97	94.51	<0.2	0.8	<0.2	1.1	1.9
MW-3	03/17/97	94.64	0.9	126.3	0.2	1.4	128.8
Action Levels	11/18/93		10	750	750	620	

- Notes: (1) Water elevations based on site bench mark of 100.00.  
 (2) ND: Not detected at or above NMWQCC specified detection limits.

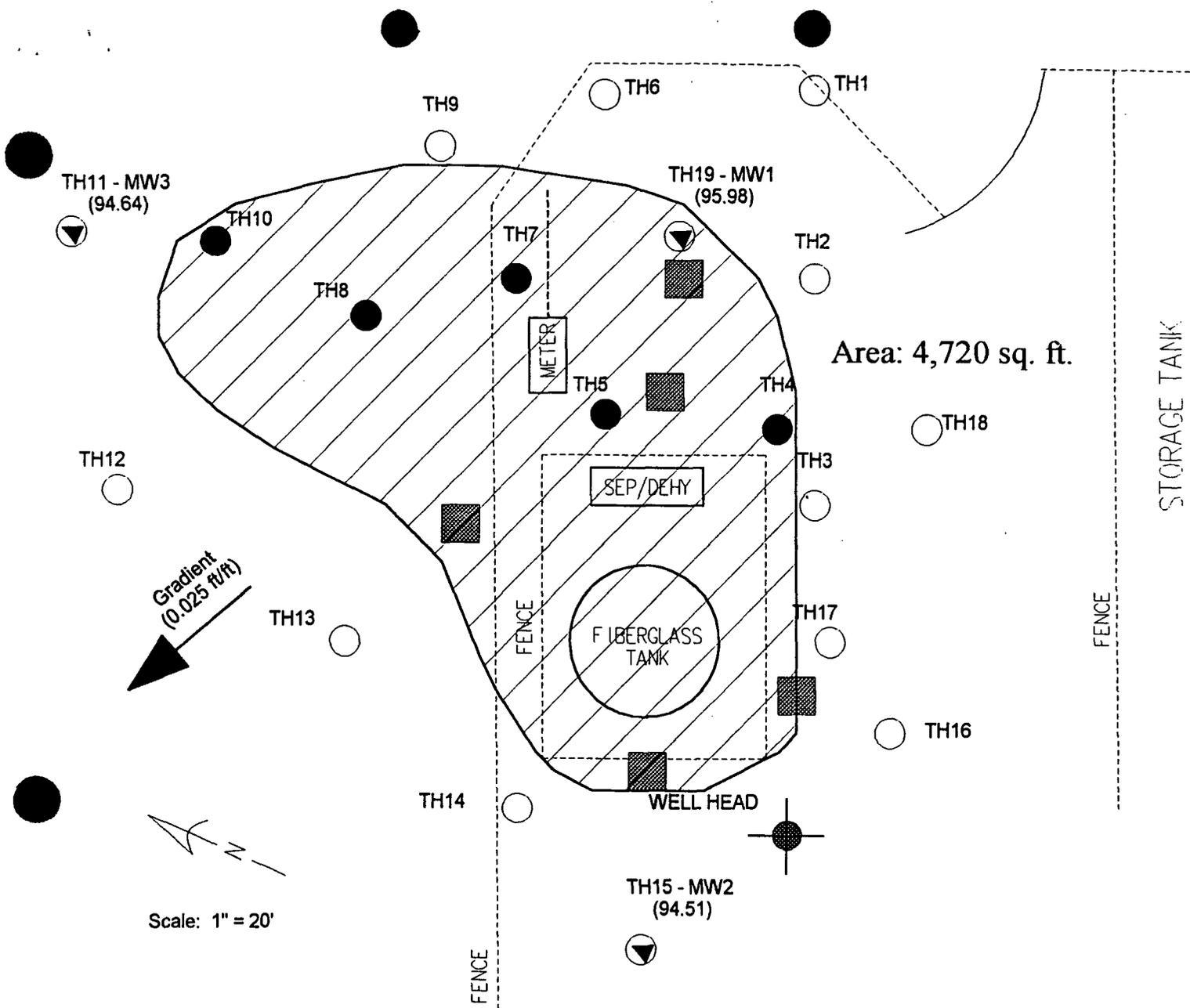


Scale: 1" = 20'

**LEGEND**

- TH# Approximate location of test holes drilled 3/10/97.
- Test holes with no TPH or BTEX soil contamination.
- Test holes with TPH &/or BTEX soil contamination.
- ▼ Monitor wells (water elevation: 3/17/97).
- - - Estimate Ground Water Surface.
- Test Hole dug by Merrion Oil January 1997.

FARMINGTON COM #1 SAN JUAN BASIN, NM		<b>SITE SKETCH</b>	 <b>ON SITE TECHNOLOGIES, LTD.</b> <small>P.O. BOX 286, FARMINGTON, NM 87401 (505) 325-9000</small>
PROJECT: SITE ASSESSMENT	DRWN: 03-18-97		
PROJECT NO: 4-1372	DRWN BY: MKL		
SHEET: 1	FILE: 437201.CAD	REVISED: 04-04-97	



**LEGEND**

- TH# Approximate location of test holes drilled 3/10/97.
- Test holes with no TPH or BTEX soil contamination.
- Test holes with TPH &/or BTEX soil contamination.
- ◓ Monitor wells (water elevation: 3/17/97).
- ◐ Estimate Extent of Soil Contamination.
- Test Hole dug by Merrion Oil, January 1997.

FARMINGTON COM #1 SAN JUAN BASIN, NM		<b>SITE SKETCH</b>		<p><b>ON SITE TECHNOLOGIES, LTD.</b> P.O. BOX 2696, FARMINGTON, NM 87409 (505) 325-5667</p>
PROJECT: SITE ASSESSMENT.		DRWN: 03-18-97		
PROJECT NO: 4-1372		DRWN BY: MKL		
SHEET: 2	FILE: 41372S2.CAD	REVISED: 04-04-97		

OFF: (505) 325-5667



LAB: (505) 325-1556

**ANALYTICAL REPORT**

Attn: *Michael Lane*  
 Company: *On Site Technologies, Ltd. c/o Conoco*  
 Address: *612 E. Murray Drive*  
 City, State: *Farmington, NM 87401*

Date: *18-Mar-97*  
 COC No.: *5036*  
 Sample No.: *13851*  
 Job No.: *4-1372*

Project Name: *Conoco - Farmington Com #1*  
 Project Location: *T1 @ 3ft.*  
 Sampled by: *MKL* Date: *10-Mar-97* Time: *8:50*  
 Analyzed by: *DC/HR* Date: *14-Mar-97*  
 Sample Matrix: *Soil*

**Laboratory Analysis**

Parameter	Result	Unit of Measure	Method Detection Limit	Unit of Measure
<i>Gasoline Range Organics (C5 - C9)</i>	<i>&lt;1.0</i>	<i>mg/kg</i>	<i>1.0</i>	<i>mg/kg</i>
<i>Diesel Range Organics (C10 - C28)</i>	<i>&lt;5.0</i>	<i>mg/kg</i>	<i>5.0</i>	<i>mg/kg</i>

**Quality Assurance Report**

GRO QC No.: *0535-STD*  
 DRO QC No.: *0512-STD*

**Continuing Calibration Verification**

Parameter	Method Blank	Unit of Measure	True Value	Analyzed Value	RPD	RPD Limit
<i>Gasoline Range (C5 - C9)</i>	<i>&lt;50</i>	<i>ppb</i>	<i>1,351</i>	<i>1,379</i>	<i>2.0</i>	<i>15%</i>
<i>Diesel Range (C10 - C28)</i>	<i>&lt;5.0</i>	<i>ppm</i>	<i>100</i>	<i>107</i>	<i>6.9</i>	<i>15%</i>

**Matrix Spike**

Parameter	1 - Percent Recovered	2 - Percent Recovered	Limit	RPD	RPD Limit
<i>Gasoline Range (C5-C9)</i>	<i>116</i>	<i>126</i>	<i>(70-130)</i>	<i>8</i>	<i>20%</i>
<i>Diesel Range (C10-C28)</i>	<i>101</i>	<i>101</i>	<i>(70-130)</i>	<i>0</i>	<i>20%</i>

**Method** - SW-846 EPA Method 8015A mod. - Nonhalogenated Volatile Hydrocarbons by Gas Chromatography

Approved by: *[Signature]*  
 Date: *3/18/97*

OFF: (505) 325-5667



LAB: (505) 325-1556

**ANALYTICAL REPORT**

Attn: *Michael Lane*  
 Company: *On Site Technologies, Ltd. c/o Conoco*  
 Address: *612 E. Murray Drive*  
 City, State: *Farmington, NM 87401*

Date: *18-Mar-97*  
 COC No.: *5036*  
 Sample No.: *13852*  
 Job No.: *4-1372*

Project Name: *Conoco - Farmington Com #1*  
 Project Location: *T9 @ 3.5 +/-ft.*  
 Sampled by: *MKL* Date: *10-Mar-97* Time: *10:30*  
 Analyzed by: *DC/HR* Date: *14-Mar-97*  
 Sample Matrix: *Soil*

**Laboratory Analysis**

Parameter	Result	Unit of Measure	Method Detection Limit	Unit of Measure
<i>Gasoline Range Organics (C5 - C9)</i>	<i>&lt; 1.0</i>	<i>mg/kg</i>	<i>1.0</i>	<i>mg/kg</i>
<i>Diesel Range Organics (C10 - C28)</i>	<i>&lt; 5.0</i>	<i>mg/kg</i>	<i>5.0</i>	<i>mg/kg</i>

**Quality Assurance Report**

GRO QC No.: *0535-STD*  
 DRO QC No.: *0512-STD*

**Continuing Calibration Verification**

Parameter	Method Blank	Unit of Measure	True Value	Analyzed Value	RPD	RPD Limit
<i>Gasoline Range (C5 - C9)</i>	<i>&lt; 50</i>	<i>ppb</i>	<i>1,351</i>	<i>1,379</i>	<i>2.0</i>	<i>15%</i>
<i>Diesel Range (C10 - C28)</i>	<i>&lt; 5.0</i>	<i>ppm</i>	<i>100</i>	<i>107</i>	<i>6.9</i>	<i>15%</i>

**Matrix Spike**

Parameter	1- Percent Recovered	2- Percent Recovered	Limit	RPD	RPD Limit
<i>Gasoline Range (C5-C9)</i>	<i>116</i>	<i>126</i>	<i>(70-130)</i>	<i>8</i>	<i>20%</i>
<i>Diesel Range (C10-C28)</i>	<i>101</i>	<i>101</i>	<i>(70-130)</i>	<i>0</i>	<i>20%</i>

**Method** - SW-846 EPA Method 8015A mod. - Nonhalogenated Volatile Hydrocarbons by Gas Chromatography

Approved by: *DAG*  
 Date: *3/18/97*

OFF: (505) 325-5667



LAB: (505) 325-1556

**ANALYTICAL REPORT**

Attn: *Michael Lane*  
 Company: *On Site Technologies, Ltd. c/o Conoco*  
 Address: *612 E. Murray Drive*  
 City, State: *Farmington, NM 87401*

Date: *18-Mar-97*  
 COC No.: *5036*  
 Sample No.: *13853*  
 Job No.: *4-1372*

Project Name: *Conoco - Farmington Com #1*  
 Project Location: *T11 @ 4.5ft.*  
 Sampled by: *MKL* Date: *10-Mar-97* Time: *10:55*  
 Analyzed by: *DC/HR* Date: *14-Mar-97*  
 Sample Matrix: *Soil*

**Laboratory Analysis**

Parameter	Result	Unit of Measure	Method Detection Limit	Unit of Measure
<i>Gasoline Range Organics (C5 - C9)</i>	<i>&lt;1.0</i>	<i>mg/kg</i>	<i>1.0</i>	<i>mg/kg</i>
<i>Diesel Range Organics (C10 - C28)</i>	<i>&lt;5.0</i>	<i>mg/kg</i>	<i>5.0</i>	<i>mg/kg</i>

**Quality Assurance Report**

GRO QC No.: *0535-STD*  
 DRO QC No.: *0512-STD*

**Continuing Calibration Verification**

Parameter	Method Blank	Unit of Measure	True Value	Analyzed Value	RPD	RPD Limit
<i>Gasoline Range (C5 - C9)</i>	<i>&lt;50</i>	<i>ppb</i>	<i>1,351</i>	<i>1,379</i>	<i>2.0</i>	<i>15%</i>
<i>Diesel Range (C10 - C28)</i>	<i>&lt;5.0</i>	<i>ppm</i>	<i>100</i>	<i>107</i>	<i>6.9</i>	<i>15%</i>

**Matrix Spike**

Parameter	1 - Percent Recovered	2 - Percent Recovered	Limit	RPD	RPD Limit
<i>Gasoline Range (C5-C9)</i>	<i>116</i>	<i>126</i>	<i>(70-130)</i>	<i>8</i>	<i>20%</i>
<i>Diesel Range (C10-C28)</i>	<i>101</i>	<i>101</i>	<i>(70-130)</i>	<i>0</i>	<i>20%</i>

**Method** - SW-846 EPA Method 8015A mod. - Nonhalogenated Volatile Hydrocarbons by Gas Chromatography

Approved by: *[Signature]*  
 Date: *3/18/97*

OFF: (505) 325-5667



LAB: (505) 325-1556

**ANALYTICAL REPORT**

Attn: *Michael Lane*  
 Company: *On Site Technologies, Ltd. c/o Conoco*  
 Address: *612 E. Murray Drive*  
 City, State: *Farmington, NM 87401*

Date: *18-Mar-97*  
 COC No.: *5036*  
 Sample No.: *13854*  
 Job No.: *4-1372*

Project Name: *Conoco - Farmington Com #1*  
 Project Location: *T13 @ 4 +/-ft.*  
 Sampled by: *MKL* Date: *10-Mar-97* Time: *11:20*  
 Analyzed by: *DC/HR* Date: *14-Mar-97*  
 Sample Matrix: *Soil*

**Laboratory Analysis**

Parameter	Result	Unit of Measure	Method Detection Limit	Unit of Measure
<i>Gasoline Range Organics (C5 - C9)</i>	<i>&lt; 1.0</i>	<i>mg/kg</i>	<i>1.0</i>	<i>mg/kg</i>
<i>Diesel Range Organics (C10 - C28)</i>	<i>&lt; 5.0</i>	<i>mg/kg</i>	<i>5.0</i>	<i>mg/kg</i>

**Quality Assurance Report**

GRO QC No.: *0535-STD*  
 DRO QC No.: *0512-STD*

**Continuing Calibration Verification**

Parameter	Method Blank	Unit of Measure	True Value	Analyzed Value	RPD	RPD Limit
<i>Gasoline Range (C5 - C9)</i>	<i>&lt; 50</i>	<i>ppb</i>	<i>1,351</i>	<i>1,379</i>	<i>2.0</i>	<i>15%</i>
<i>Diesel Range (C10 - C28)</i>	<i>&lt; 5.0</i>	<i>ppm</i>	<i>100</i>	<i>107</i>	<i>6.9</i>	<i>15%</i>

**Matrix Spike**

Parameter	1- Percent Recovered	2 - Percent Recovered	Limit	RPD	RPD Limit
<i>Gasoline Range (C5-C9)</i>	<i>116</i>	<i>126</i>	<i>(70-130)</i>	<i>8</i>	<i>20%</i>
<i>Diesel Range (C10-C28)</i>	<i>101</i>	<i>101</i>	<i>(70-130)</i>	<i>0</i>	<i>20%</i>

**Method** - SW-846 EPA Method 8015A mod. - Nonhalogenated Volatile Hydrocarbons by Gas Chromatography

Approved by: *[Signature]*  
 Date: *3/18/97*

OFF: (505) 325-5667



LAB: (505) 325-1556

**ANALYTICAL REPORT**

Attn: *Michael Lane*  
Company: *On Site Technologies, Ltd. c/o Conoco*  
Address: *612 E. Murray Drive*  
City, State: *Farmington, NM 87401*

Date: *18-Mar-97*  
COC No.: *5036*  
Sample No.: *13855*  
Job No.: *4-1372*

Project Name: *Conoco - Farmington Com #1*  
Project Location: *T15 @ 5 +/-ft.*  
Sampled by: *MKL* Date: *10-Mar-97* Time: *12:35*  
Analyzed by: *DC/HR* Date: *14-Mar-97*  
Sample Matrix: *Soil*

**Laboratory Analysis**

Parameter	Result	Unit of Measure	Method Detection Limit	Unit of Measure
<i>Gasoline Range Organics (C5 - C9)</i>	<i>&lt; 1.0</i>	<i>mg/kg</i>	<i>1.0</i>	<i>mg/kg</i>
<i>Diesel Range Organics (C10 - C28)</i>	<i>&lt; 5.0</i>	<i>mg/kg</i>	<i>5.0</i>	<i>mg/kg</i>

**Quality Assurance Report**

GRO QC No.: *0535-STD*  
DRO QC No.: *0512-STD*

**Continuing Calibration Verification**

Parameter	Method Blank	Unit of Measure	True Value	Analyzed Value	RPD	RPD Limit
<i>Gasoline Range (C5 - C9)</i>	<i>&lt; 50</i>	<i>ppb</i>	<i>1,351</i>	<i>1,379</i>	<i>2.0</i>	<i>15%</i>
<i>Diesel Range (C10 - C28)</i>	<i>&lt; 5.0</i>	<i>ppm</i>	<i>100</i>	<i>107</i>	<i>6.9</i>	<i>15%</i>

**Matrix Spike**

Parameter	1- Percent Recovered	2- Percent Recovered	Limit	RPD	RPD Limit
<i>Gasoline Range (C5-C9)</i>	<i>116</i>	<i>126</i>	<i>(70-130)</i>	<i>8</i>	<i>20%</i>
<i>Diesel Range (C10-C28)</i>	<i>101</i>	<i>101</i>	<i>(70-130)</i>	<i>0</i>	<i>20%</i>

**Method** - SW-846 EPA Method 8015A mod. - Nonhalogenated Volatile Hydrocarbons by Gas Chromatography

Approved by: *[Signature]*  
Date: *3/18/97*

P.O. BOX 2606 • FARMINGTON, NM 87499

TECHNICAL SERVICES DIVISION • FARMINGTON, NM 87499

OFF: (505) 325-5667



LAB: (505) 325-1556

**ANALYTICAL REPORT**

Attn: *Michael Lane*  
 Company: *On Site Technologies, Ltd. c/o Conoco*  
 Address: *612 E. Murray Drive*  
 City, State: *Farmington, NM 87401*

Date: 18-Mar-97  
 COC No.: 5036  
 Sample No.: 13856  
 Job No.: 4-1372

Project Name: *Conoco - Farmington Com #1*  
 Project Location: *T18 @ 4.5 +/-ft.*  
 Sampled by: *MKL* Date: 10-Mar-97 Time: 13:20  
 Analyzed by: *DC/HR* Date: 18-Mar-97  
 Sample Matrix: *Soil*

*Laboratory Analysis*

Parameter	Result	Unit of Measure	Method Detection Limit	Unit of Measure
<i>Gasoline Range Organics (C5 - C9)</i>	<i>&lt; 1.0</i>	<i>mg/kg</i>	<i>1.0</i>	<i>mg/kg</i>
<i>Diesel Range Organics (C10 - C28)</i>	<i>&lt; 5.0</i>	<i>mg/kg</i>	<i>5.0</i>	<i>mg/kg</i>

*Quality Assurance Report*

GRO QC No.: 0535-STD  
 DRO QC No.: 0512-STD

*Continuing Calibration Verification*

Parameter	Method Blank	Unit of Measure	True Value	Analyzed Value	RPD	RPD Limit
<i>Gasoline Range (C5 - C9)</i>	<i>&lt; 50</i>	<i>ppb</i>	<i>1,351</i>	<i>1,379</i>	<i>2.0</i>	<i>15%</i>
<i>Diesel Range (C10 - C28)</i>	<i>&lt; 5.0</i>	<i>ppm</i>	<i>100</i>	<i>113</i>	<i>12.3</i>	<i>15%</i>

*Matrix Spike*

Parameter	1- Percent Recovered	2- Percent Recovered	Limit	RPD	RPD Limit
<i>Gasoline Range (C5-C9)</i>	<i>116</i>	<i>126</i>	<i>(70-130)</i>	<i>8</i>	<i>20%</i>
<i>Diesel Range (C10-C28)</i>	<i>101</i>	<i>101</i>	<i>(70-130)</i>	<i>0</i>	<i>20%</i>

**Method** - SW-846 EPA Method 8015A mod. - Nonhalogenated Volatile Hydrocarbons by Gas Chromatography

Approved by: *D.C.*  
 Date: *3/18/97*

P.O. BOX 2606 • FARMINGTON, NM 87499

- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

OFF: (505) 325-5667



LAB: (505) 325-1556

**ANALYTICAL REPORT**

Attn: *Michael Lane*  
 Company: *On Site Technologies, Ltd. c/o Conoco*  
 Address: *612 E. Murray Drive*  
 City, State: *Farmington, NM 87401*

Date: *18-Mar-97*  
 COC No.: *5036*  
 Sample No.: *13857*  
 Job No.: *4-1372*

Project Name: *Conoco - Farmington Com #1*  
 Project Location: *T8 @ 5ft.*  
 Sampled by: *MKL*  
 Analyzed by: *DC/HR*  
 Sample Matrix: *Soil*

Date: *10-Mar-97* Time: *10:20*  
 Date: *18-Mar-97*

**Laboratory Analysis**

Parameter	Result	Unit of Measure	Method Detection Limit	Unit of Measure
<i>Gasoline Range Organics (C5 - C9)</i>	<i>2048</i>	<i>mg/kg</i>	<i>1.0</i>	<i>mg/kg</i>
<i>Diesel Range Organics (C10 - C28)</i>	<i>1966</i>	<i>mg/kg</i>	<i>5.0</i>	<i>mg/kg</i>

**Quality Assurance Report**

GRO QC No.: *0535-STD*  
 DRO QC No.: *0512-STD*

**Continuing Calibration Verification**

Parameter	Method Blank	Unit of Measure	True Value	Analyzed Value	RPD	RPD Limit
<i>Gasoline Range (C5 - C9)</i>	<i>&lt; 50</i>	<i>ppb</i>	<i>1,351</i>	<i>1,379</i>	<i>2.0</i>	<i>15%</i>
<i>Diesel Range (C10 - C28)</i>	<i>&lt; 5.0</i>	<i>ppm</i>	<i>100</i>	<i>113</i>	<i>12.3</i>	<i>15%</i>

**Matrix Spike**

Parameter	1- Percent Recovered	2 - Percent Recovered	Limit	RPD	RPD Limit
<i>Gasoline Range (C5-C9)</i>	<i>116</i>	<i>126</i>	<i>(70-130)</i>	<i>8</i>	<i>20%</i>
<i>Diesel Range (C10-C28)</i>	<i>101</i>	<i>101</i>	<i>(70-130)</i>	<i>0</i>	<i>20%</i>

**Method** - SW-846 EPA Method 8015A mod. - Nonhalogenated Volatile Hydrocarbons by Gas Chromatography

Approved by: *[Signature]*  
 Date: *3/18/97*

P.O. BOX 2606 • FARMINGTON, NM 87499

- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -



657 W. Maple • P. O. Box 2606 • Farmington NM 87499  
 LAB: (505) 325-5667 • FAX: (505) 325-6256

Date: 3/11/97

Page 1 of 1

# CHAIN OF CUSTODY RECORD

5036

Purchase Order No.: Job No. 4-1372

Name: ~~John Coy - Concrete~~  
 Company: ~~John Coy - Concrete~~ Dept.:  
 Address: ~~Michael Lane~~  
 City, State, Zip: ~~On Site~~

REPORT RESULTS TO

Name: ~~John Coy~~  
 Company: ~~John Coy - Concrete~~  
 Mailing Address: ~~Michael Lane~~  
 City, State, Zip: ~~On Site~~  
 Telephone No.:  
 Telefax No.:

SEND INVOICE TO

Sampling Location: Farmington Con #1  
 P. Box 11, T 29th, E 13th, Albany  
 SAN JUAN Co, NM  
 Concrete Test. PT

ANALYSIS REQUESTED

Sampler: Michael K. Lane

Number of Containers

SAMPLE IDENTIFICATION	SAMPLE		MATRIX	PRES.	LAB ID
	DATE	TIME			
T @ 3'-	3/10	8:50	Soil	N	
T @ 3.5'	3/10	8:30	Soil	N	
T @ 4.5'	3/10	8:55	Soil	N	
T @ 4.5'	3/10	11:20	Soil	N	
T @ 5'	3/10	12:35	Soil	N	
T @ 4.5'	3/10	1:20	Soil	N	
T @ 5'	3/10	1:20	Soil	N	

Relinquished by: [Signature] Date/Time: 3/11/97

Relinquished by: [Signature] Date/Time: 3/11/97

Relinquished by: [Signature] Date/Time: 3/11/97

Method of Shipment: Rush

Authorized by: [Signature] Date: \_\_\_\_\_

(Client Signature Must Accompany Request)

Distribution: White - On Site LAB Pink - Sampler Goldenrod - Client

OFF: (505) 325-5667



LAB: (505) 325-1556

**ANALYTICAL REPORT**

Attn: *Michael Lane*  
 Company: *On Site Technologies, Ltd. c/o Conoco*  
 Address: *612 E. Murray Drive*  
 City, State: *Farmington, NM 87401*

Date: *22-Mar-97*  
 COC No.: *5056*  
 Sample No.: *13912*  
 Job No.: *4-1372*

Project Name: *Conoco - Farmington Com #1*  
 Project Location: *MW #1*  
 Sampled by: *ML/BC*                      Date: *17-Mar-97*  
 Analyzed by: *DC*                              Date: *19-Mar-97*  
 Sample Matrix: *Liquid*

Time: *16:05*

<i>Parameter</i>	<i>Result</i>	<i>Unit of Measure</i>	<i>Detection Limit</i>	<i>Unit of Measure</i>
<i>Benzene</i>	<i>393.7</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>Toluene</i>	<i>68.9</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>Ethylbenzene</i>	<i>167.8</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>m,p-Xylene</i>	<i>480.4</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>o-Xylene</i>	<i>168.8</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>TOTAL</i>	<i>1279.6</i>	<i>ug/L</i>		

**Method** - *SW-846 EPA Method 8020 Aromatic Volatile Organics by Gas Chromatography*

Approved By: *[Signature]*  
 Date: *3/21/97*

OFF: (505) 325-5667



LAB: (505) 325-1556

### ANALYTICAL REPORT

Attn: *Michael Lane*  
 Company: *On Site Technologies, Ltd. c/o Conoco*  
 Address: *612 E. Murray Drive*  
 City, State: *Farmington, NM 87401*

Date: *22-Mar-97*  
 COC No.: *5056*  
 Sample No.: *13913*  
 Job No.: *4-1372*

Project Name: *Conoco - Farmington Com #1*  
 Project Location: *MW #2*  
 Sampled by: *ML/BC*                      Date: *17-Mar-97*  
 Analyzed by: *DC*                              Date: *19-Mar-97*  
 Sample Matrix: *Liquid*

Time: *16:10*

<i>Parameter</i>	<i>Result</i>	<i>Unit of Measure</i>	<i>Detection Limit</i>	<i>Unit of Measure</i>
<i>Benzene</i>	<i>&lt;0.2</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>Toluene</i>	<i>0.8</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>Ethylbenzene</i>	<i>&lt;0.2</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>m,p-Xylene</i>	<i>0.9</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>o-Xylene</i>	<i>0.2</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>TOTAL</i>	<i>1.9</i>	<i>ug/L</i>		

**Method** - *SW-846 EPA Method 8020 Aromatic Volatile Organics by Gas Chromatography*

Approved By: *[Signature]*  
 Date: *3/24/97*

P.O. BOX 2606 • FARMINGTON, NM 87499

OFF: (505) 325-5667



LAB: (505) 325-1556

**ANALYTICAL REPORT**

Attn: *Michael Lane*  
 Company: *On Site Technologies, Ltd. c/o Conoco*  
 Address: *612 E. Murray Drive*  
 City, State: *Farmington, NM 87401*

Date: *22-Mar-97*  
 COC No.: *5056*  
 Sample No.: *13914*  
 Job No.: *4-1372*

Project Name: *Conoco - Farmington Com #1*  
 Project Location: *MW #3*  
 Sampled by: *ML/BC*                      Date: *17-Mar-97*  
 Analyzed by: *DC*                              Date: *19-Mar-97*  
 Sample Matrix: *Liquid*

Time: *16:15*

<i>Parameter</i>	<i>Result</i>	<i>Unit of Measure</i>	<i>Detection Limit</i>	<i>Unit of Measure</i>
<i>Benzene</i>	<i>0.9</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>Toluene</i>	<i>126.3</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>Ethylbenzene</i>	<i>0.2</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>m,p-Xylene</i>	<i>1.1</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>o-Xylene</i>	<i>0.3</i>	<i>ug/L</i>	<i>0.2</i>	<i>ug/L</i>
<i>TOTAL</i>	<i>128.8</i>	<i>ug/L</i>		

**Method** - *SW-846 EPA Method 8020 Aromatic Volatile Organics by Gas Chromatography*

Approved By: *[Signature]*  
 Date: *3/24/97*

OFF: (505) 325-5667



LAB: (505) 325-1556

**QUALITY ASSURANCE REPORT**  
for EPA Method 8020

Date Analyzed: 19-Mar-97

Internal QC No.: 0527-STD

Surrogate QC No.: 0528-STD

Reference Standard QC No.: 0529/30-QC

**Method Blank**

Parameter	Result	Unit of Measure
Average Amount of All Analytes In Blank	<0.2	ppb

**Calibration Check**

Parameter	Unit of Measure	True Value	Analyzed Value	% Diff	Limit
Benzene	ppb	20.0	20.0	0	15%
Toluene	ppb	20.0	20.7	3	15%
Ethylbenzene	ppb	20.0	21.2	6	15%
m,p-Xylene	ppb	40.0	40.6	1	15%
o-Xylene	ppb	20.0	20.7	4	15%

**Matrix Spike**

Parameter	1 - Percent Recovered	2 - Percent Recovered	Limit	%RSD	Limit
Benzene	93	78	(39-150)	6	20%
Toluene	97	86	(46-148)	7	20%
Ethylbenzene	94	80	(32-160)	6	20%
m,p-Xylene	82	62	(35-145)	6	20%
o-Xylene	87	73	(35-145)	6	20%

**Surrogate Recoveries**

Laboratory Identification	S1 Percent Recovered	S2 Percent Recovered	Laboratory Identification	S1 Percent Recovered	S2 Percent Recovered
Limit Percent Recovered	(70-130)		Limit Percent Recovered	(70-130)	
13912-5056	97				
13913-5056	96				
13914-5056	96				

S1: Fluorobenzene

(92)

