

3R - 85

REPORTS

DATE:

1/6/2000



January 6, 2000

Conoco, Inc., Mid-Continent Region
Attn.: Ms. Shirley Ebert, Field SHEAR Specialist
3314 Bloomfield Hwy.
Farmington, NM 87401

RE: 1999 Annual Ground Water Report
Conoco Location: Farmington C Com 1
Unit L, Sec. 15, T29N, R13W, NMPM, San Juan Co., NM

Project No.: 4-1373

Dear Ms. Ebert:

The following report summarizes the ground water remediation and monitoring activities conducted by On Site Technologies Limited Partnership and/or others on behalf of Conoco, Inc. at the referenced oil and gas location. This report covered the prior calendar year of 1999, and follows the format outlined in the *Comprehensive Ground Water Remediation and Long-Term Monitoring Plan for Conoco Locations in the San Juan Basin, New Mexico*, submitted to the New Mexico Oil Conservation Division on October 15, 1997.

SUMMARY OF 1999 ACTIVITIES:

Ground water sampling was conducted during March, June, September and December of 1999. Water levels were measured in each ground water monitoring well and the piezometer. Groundwater samples were taken from MW#1.

Laboratory analysis indicates that the BTEX levels are consistent with previously reported laboratory results.

SAMPLING:

Following the approved Conoco plan, during each sampling event, water levels were measured on all monitoring wells prior to purging and sampling. Samples were collected in laboratory supplied containers, preserved as needed, and proper chain-of-custody protocol followed. Laboratory analyses ordered followed the Conoco Ground Water Plan.

Table 1 summarizes the monitoring well data and water levels measured during each sampling event. Table 2 summarizes the laboratory results for BTEX compounds from all water sampling completed at the referenced site, including assessment data.

Copies of all laboratory reports for the calendar year 1999, along with all laboratory QA/QC documentation and chain-of-custody, are attached with this report.

SUMMARY AND CONCLUSIONS:

The following conclusions are based on the 1999 ground water monitoring results and trends associated with a former production pit at the Farmington C Com #1 well location:

1. MW-1 continues to have contamination from BTEX constituents above New Mexico Water Quality Control Commission (NMWQCC) standards.
2. BTEX contamination of ground water appears to fluctuate with the level of ground water.

RECOMMENDATIONS:

1. Ground water monitoring to continue for MW#1, in accordance with Conoco's Comprehensive Ground Water Remediation and Long-Term Monitoring Plan.

LIMITATIONS AND CLOSURE:

This annual ground water report documents the results of ground water monitoring for the referenced Conoco well location during the calendar year 1999. This report follows the Conoco Ground Water Plan, dated October 15, 1997.

The scope of On Site Technologies' services consisted of project management, periodic water sampling and measurement of water levels, laboratory testing for ground water quality, and preparation of the annual report. All work has been performed in accordance with generally accepted professional practices in geotechnical, petroleum and environmental engineering, and hydrogeology.

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

If there are any questions regarding this status report, please contact either Myke Lane or Larry Trujillo at On Site Technologies, (505) 325-5667. Thank you for your consideration.

Respectfully submitted,

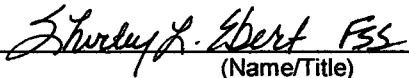

Larry Trujillo, C.H.M.M./
Project Manager

On Site Technologies, Limited Partnership


Michael K. Lane, P.E.
Senior Engineer

Attachments: Table 1: Monitoring Well Details and Ground Water Levels Summary
Table 2: Ground Water BTEX Analytical Summary
Figure 1: Site Sketch
Figure 2,3,4, and 5: Ground Water Potentiometric Map
Laboratory results, QA/QC, Chain of Custody

Acknowledgment:
CONOCO, Inc.


(Name/Title)


(Date)

REFERENCES:

On Site Technologies, Ltd., April 16, 1997: Letter to Mr. W. L. Brignon, Senior Council Conoco, Inc. Midland Division, regarding: Site Assessment, Conoco Location, Farmington C Com #1, Unit L, Sec. 15, T29N, R13W, NMPM, San Juan Co., NM.

On Site Technologies, Ltd., November 26, 1997: Letter to Mr. Neal Goates, Senior Environmental Specialist, Conoco, Inc. Midland Division, regarding: Remediation Summary, Conoco Location, Farmington C Com #1, Unit L, Sec. 15, T29N, R13W, NMPM, San Juan Co., NM.

On Site Technologies, Ltd., February 1, 1997: Letter to Ms. Shirley Ebert, Field SHEAR Specialist Conoco, Inc. Midland Division, regarding: 1997 Annual Ground Water Report, Conoco Location, Farmington C Com #1, Unit L, Sec. 15, T29N, R13W, NMPM, San Juan Co., NM.

On Site Technologies, Ltd., January 5, 1999: Letter to Ms. Shirley Ebert, Field SHEAR Specialist Conoco, Inc. Midland Division, regarding: 1997 Annual Ground Water Report, Conoco Location, Farmington C Com #1, Unit L, Sec. 15, T29N, R13W, NMPM, San Juan Co., NM

Table 1
Groundwater Elevation Summary
Farmington C-Com 1
Unit L, Sec. 15, T29N, R13W

Well Number	Top of Casing Elevation* (ft)	Total Depth of Well (ft)*	Well Type	Screen Interval (ft) (BGS)*	Sample Date	Depth to Groundwater (ft) (BTOC)*	Relative Groundwater Elevation (ft)
MW#1	99.87	8.87	2" PVC	3.87 to 8.87	12/14/97	6.63	93.24
					3/12/98	6.51	93.36
					6/11/98	7.18	92.69
					9/17/98	7.99	91.88
					12/21/98	6.17	93.70
					3/2/99	6.52	93.35
					6/16/99	7.27	92.60
					9/14/99	7.29	92.58
MW#2	100.25	7.70	2" PVC	2.7 to 7.7	12/14/99	6.51	93.36
					12/5/97	6.48	93.77
					3/12/98	6.63	93.62
					6/11/98	7.07	93.18
					9/17/98	No Measurable Water	
					12/21/98	6.21	94.01
					3/2/99	6.92	93.35
					6/16/99	7.31	92.94
MW#3	101.11	8.90	2" PVC	3.9 to 8.9	9/14/99	7.42	92.83
					12/14/99	6.61	93.64
					12/5/97	6.58	94.53
					3/12/98	6.86	94.25
					6/11/98	7.03	94.08
					9/17/98	7.99	93.22
					12/21/98	6.37	94.74
					3/2/99	6.67	94.44
					6/16/99	7.36	93.75
					9/14/99	7.47	93.64
					12/14/99	6.71	94.40

* BGS - approximate measurements taken as Below Ground Surface
BTOC - Below Top of Casing
NIM - Not Measured

Table 1
Groundwater Elevation Summary
Farmington C-Com 1
Unit L, Sec. 15, T29N, R13W

Well Number	Top of Casing Elevation* (ft)	Total Depth of Well (ft)*	Well Type	Screen Interval (ft) (BGS) *	Sample Date	Depth to Groundwater (ft) (BTOC)*	Relative Groundwater Elevation (ft)
MW#4	99.69	8.51	2" PVC	3.51 to 8.51	12/5/97	6.43	93.26
					3/12/98	6.59	93.10
					6/11/98	7.32	92.37
					9/17/98	8.11	91.58
					12/21/98	6.32	93.37
					3/2/99	6.61	93.35
					6/16/99	7.59	92.37
					9/14/99	7.69	92.27
Piezometer		9.35	2" PVC	9.35 to 3.35	12/14/99	6.60	93.36
					12/21/98	5.96	91.82
					3/2/99	6.39	91.40
					6/16/99	7.31	90.48
					9/14/99	7.34	90.45
					12/14/99	6.32	91.47

*
BGS - approximate measurements taken as Below Ground Surface
BTOC - Below Top of Casing
NM - Not Measured

Table 2

BTEX Analytical Summary

Farmington C-COM 1

Unit L, Sec. 15, T29N, R13W

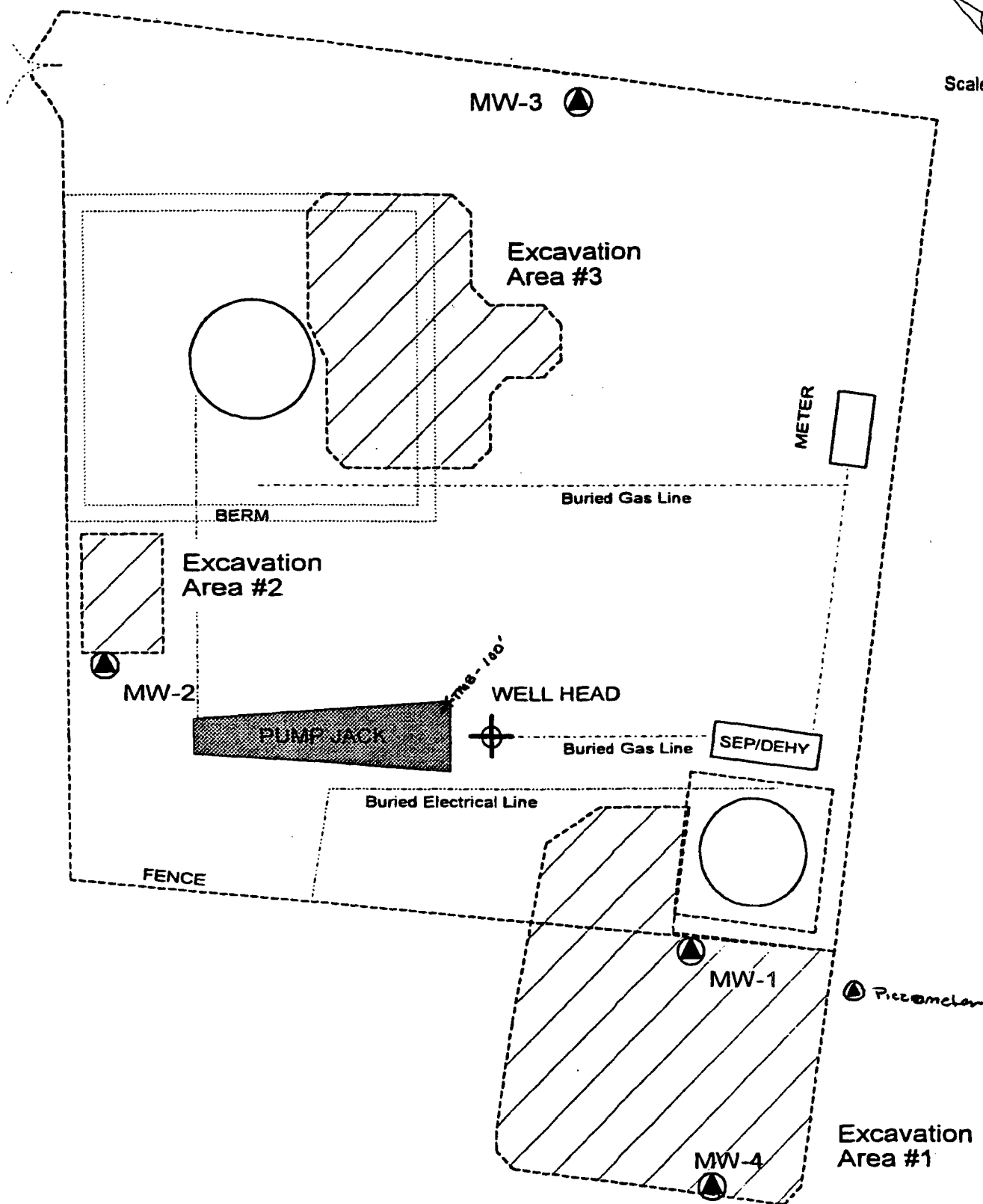
Sample Date	Sample ID#	Monitor Well	Remarks	BTEX per EPA 8020 (ppb)				
				Benzene	Toluene	Ethylbenzene	Total Xylene	
12/4/97	17043	#1	On Site Lab.	109.1	1.0	91.0	77.7	
3/12/98	9803039-01A			67.0	1.2	150.0	25.0	
6/11/98	9806041-01A			51.0	0.7	25.0	1.4	
9/18/98	9809051-02A			74.0	BDL	13.0	86	
12/21/98	9812047-01A			76.0	BDL	78.0	120.0	
3/2/99	990310-01A			92.0	1.2	82.0	30.0	
6/16/99	9906060-01A			110.0	1.6	110.0	2.7	
9/14/99	9909046-01A			41.0	1.1	BDL	20.4	
12/14/99	9912017-01A			46.0	1.3	70.0	51.5	
12/4/97	17044	#2	On Site Lab.	0.4	BDL	BDL	BDL	
3/12/98	9803039-02A			BDL	BDL	BDL	BDL	
6/11/98			insufficient	water	to	sample		
12/5/97	17046	#3	On Site Lab.	BDL	0.3	BDL	0.2	
3/12/98	9803039-03A			BDL	BDL	BDL	BDL	
6/11/98	9806040-01A			BDL	BDL	BDL	BDL	
9/18/98	9809051-03A			BDL	BDL	BDL	BDL	
WQCC	ACTION	LEVELS		10.0	750.0	750.0	620.0	

Table 2
 BTEX Analytical Summary
 Farmington C-COM 1
 Unit L, Sec. 15, T29N, R13W

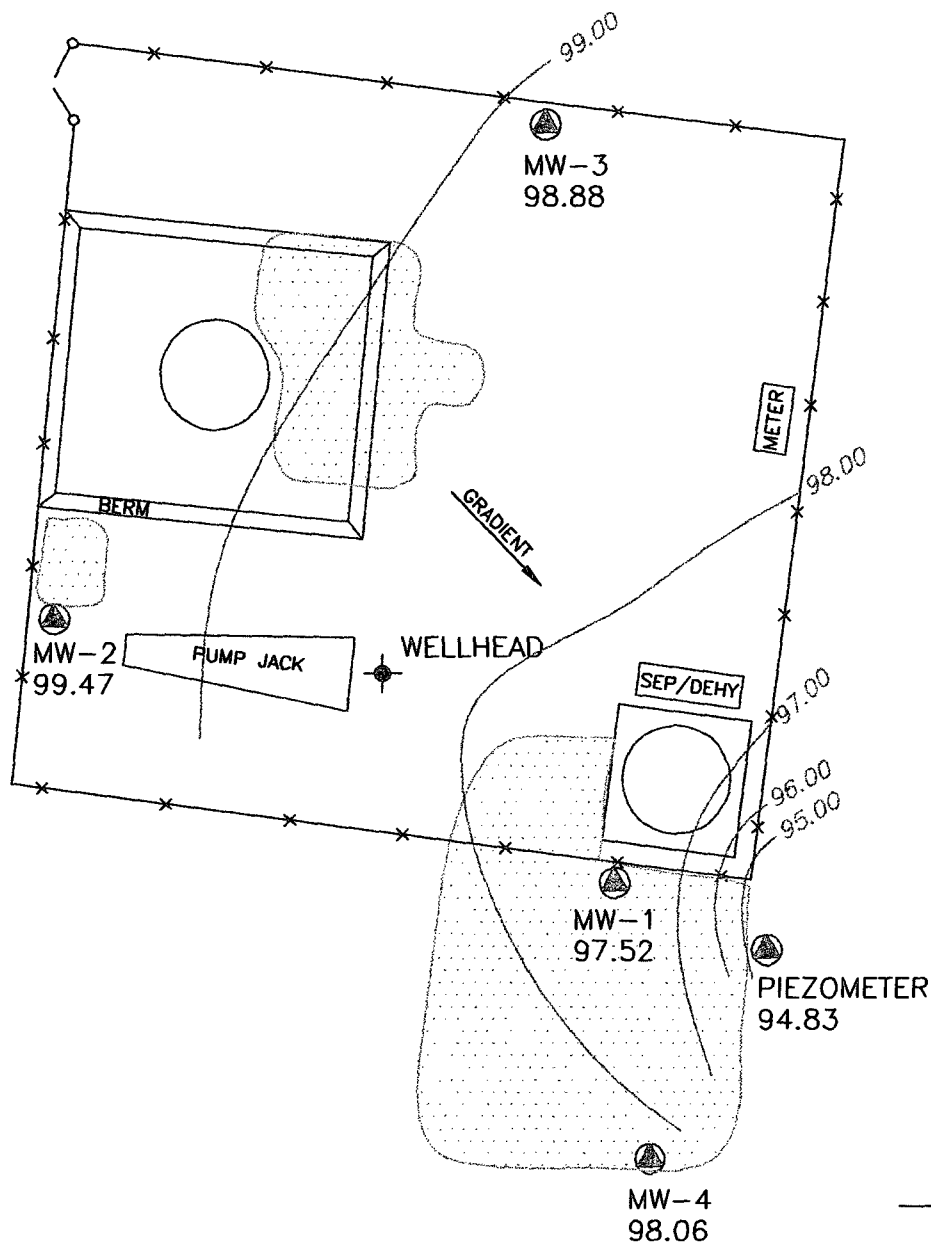
Sample Date	Sample ID#	Monitor Well	Remarks	BTEX per EPA 8020 (ppb)				
12/5/97	17047	#4	On Site Lab.	0.7	1.5	2.2	3.7	
03/12/98	9803039-04A			BDL	BDL	1.8	8.1	
6/11/98	9806041-03A			BDL	0.8	1.2	BDL	
9/18/98	9809051-01A			BDL	BDL	BDL	BDL	
12/21/98		Piezometer	On Site Lab.	BDL	BDL	BDL	BDL	
WQCC	ACTION	LEVELS		10.0	750.0	750.0	620.0	

BDL Below Detection Levels

Scale: 1" = 20'



FARMINGTON "C" COM #1 Unit L, S15, T29W, R13W SAN JUAN BASIN, NM		SITE SKETCH		 ON SITE TECHNOLOGIES, LTD. P.O. BOX 2606, FARMINGTON, NM 87499 (505) 325-5667
		DRWN: 11-03-97		
PROJECT NO: 4-1373		DRWN BY: MKL		
FIGURE: 1	FILE: 41303S4.CAD	PROJECT: 1997 Ground Water Report		



LEGEND

— x — FENCE

 SPILL EXTENTS (APPROXIMATE)



612 E. MURRAY DR. PH. (505) 327-1072
FARMINGTON, NM 87401 FAX (505) 327-1498

APPROVED:

DRWN BY: MED

CHK'D BY:

PROJECT NO: 4-1373

DATE:

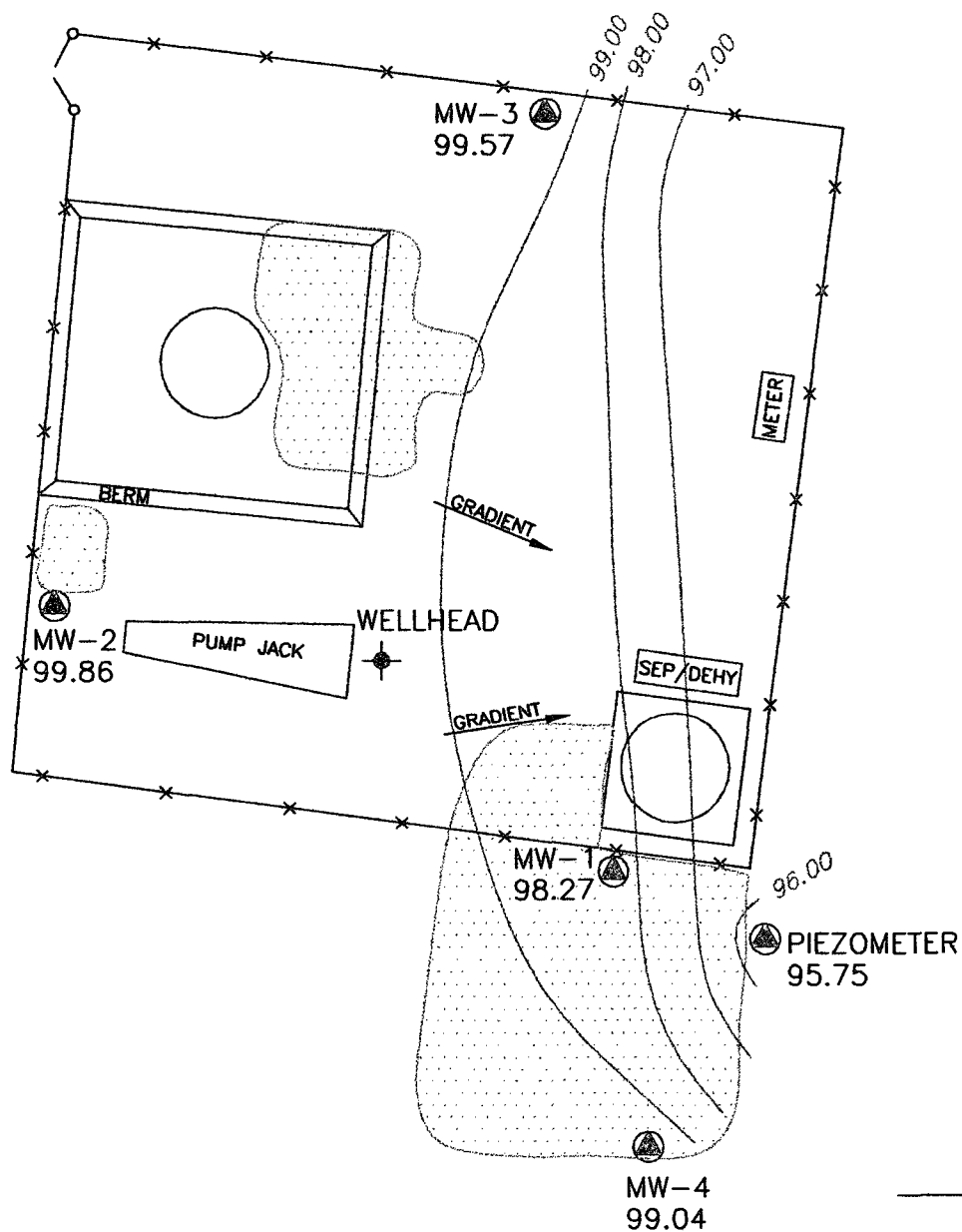
DATE: 1/18/00

DATE:

SHEET: 1 OF 4

GROUND WATER POTENTIOMETRIC MAP
MARCH, 1999

FARMINGTON "C" COM #1
UNIT 1, SEC. 15, T29N, R13W, NMPW
SAN JUAN BASIN, NEW MEXICO



LEGEND

— x — FENCE

SPILL EXTENTS
(APPROXIMATE)



612 E. MURRAY DR. PH. (505) 327-1072
FARMINGTON, NM 87401 FAX (505) 327-1496

APPROVED:

DRWN BY: MED

CHK'D BY:

PROJECT NO: 4-1373

DATE:

DATE: 1/18/00

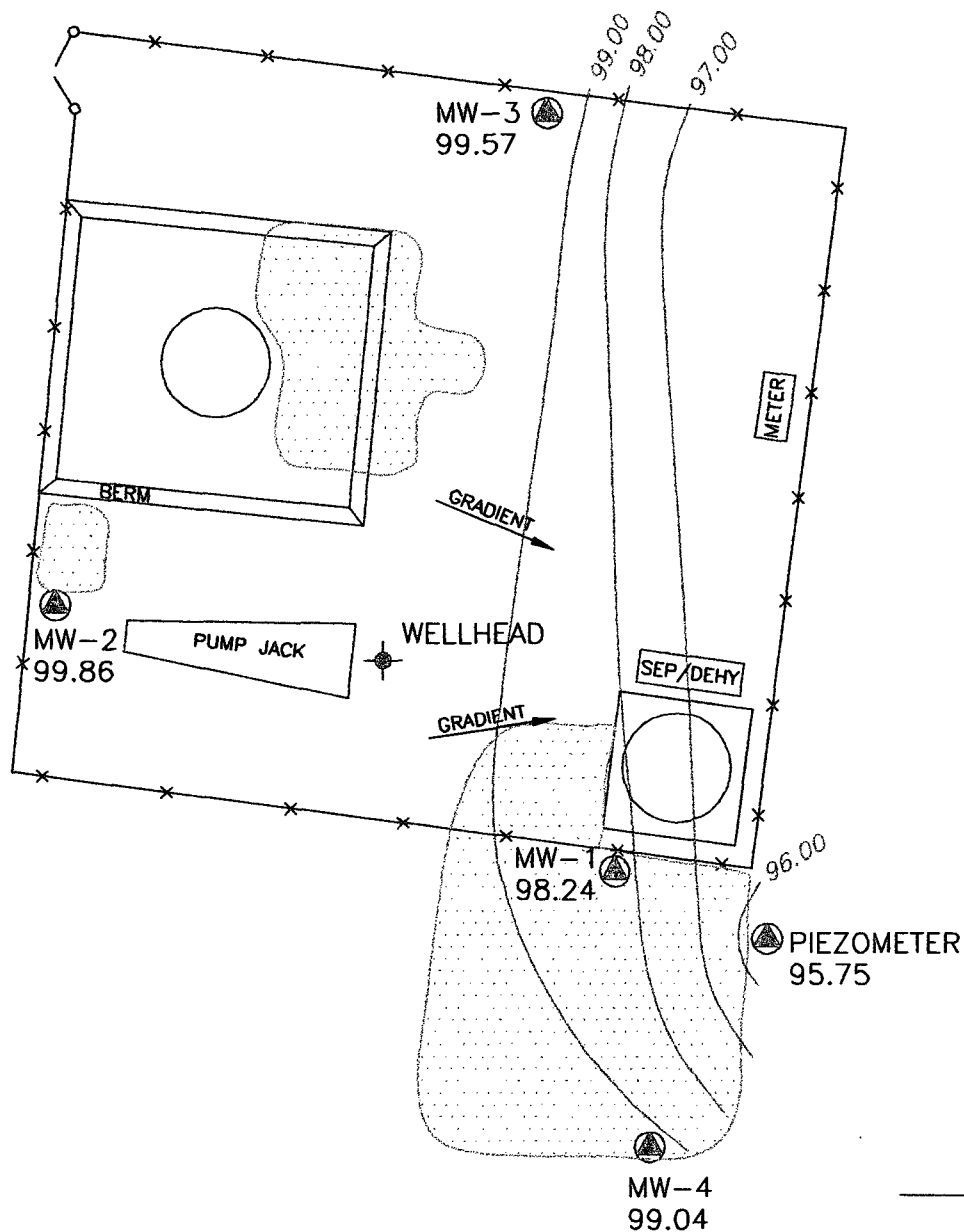
DATE:

SHEET: 2 OF 4

GROUND WATER POTENTIOMETRIC MAP
JUNE, 1999

FARMINGTON "C" COM #1
UNIT 1, SEC. 15, T29N, R13W, NMPM
SAN JUAN BASIN, NEW MEXICO

41373/cc02.dwg



LEGEND

— x — FENCE

SPILL EXTENTS
(APPROXIMATE)



612 E. MURRAY DR. PH. (505) 327-1072
FARMINGTON, NM 87401 FAX (505) 327-1498

APPROVED:

DATE:

DRWN BY: MED

DATE: 1/18/00

CHK'D BY:

DATE:

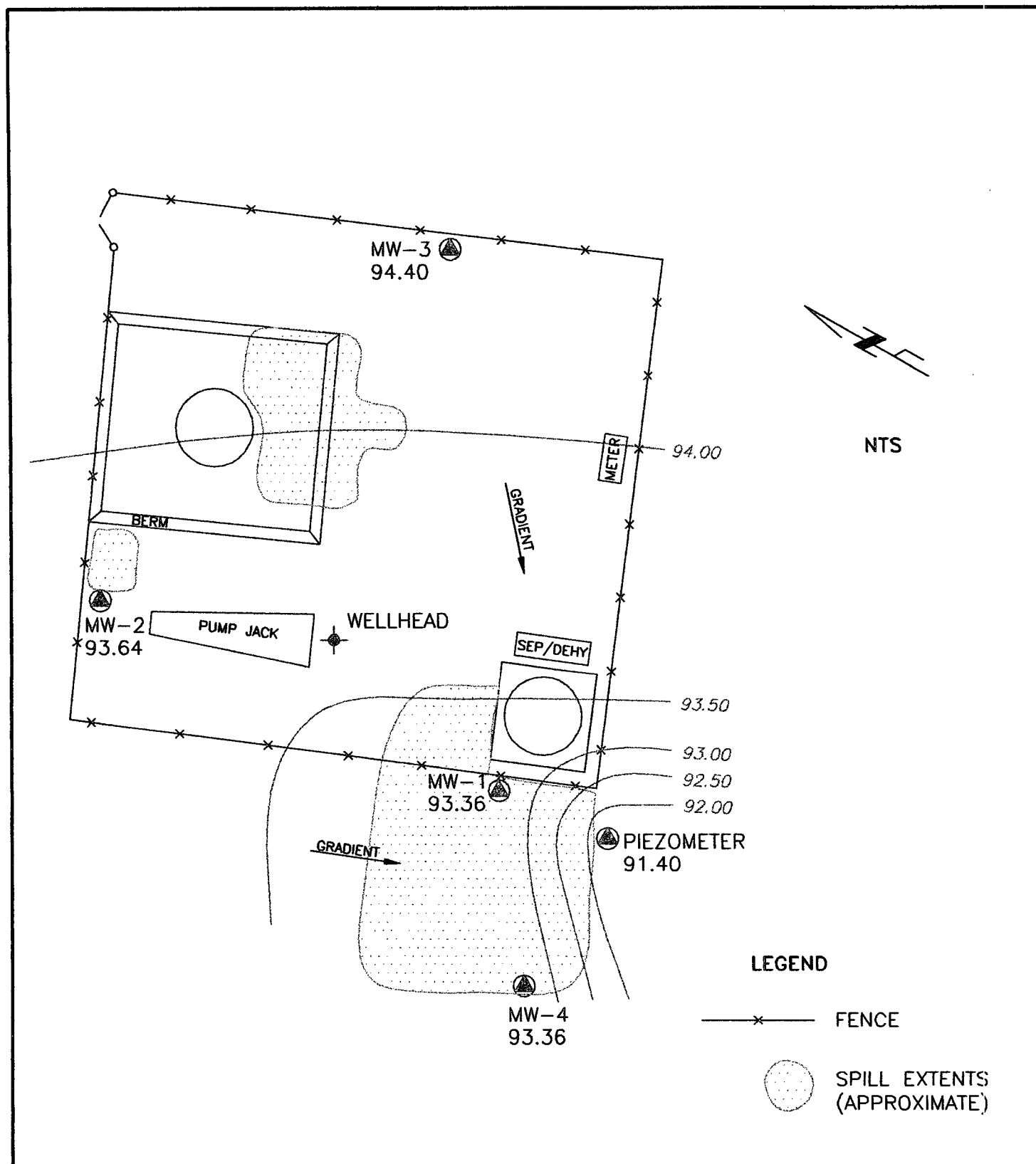
PROJECT NO: 4-1373

SHEET: 3 OF 4

GROUND WATER POTENTIOMETRIC MAP
SEPTEMBER, 1999

FARMINGTON "C" COM #1
UNIT 1, SEC. 15, T28N, R13W, NMPM
SAN JUAN BASIN, NEW MEXICO

41373/cc03.dwg



ON SITE
 TECHNOLOGIES, LTD.
 Limited Partnership
 612 E. MURRAY DR. PH. (505) 327-1072
 FARMINGTON, NM 87401 FAX (505) 327-1496

APPROVED:	DATE:
DRWN BY: MED	DATE: 1/18/00
CHK'D BY:	DATE:
PROJECT NO: 4-1373	SHEET: 4 OF 4

GROUND WATER POTENTIOMETRIC MAP
 DECEMBER, 1999
FARMINGTON "C" COM #1
 UNIT 1, SEC. 15, T29N, R13W, NMPN
 SAN JUAN BASIN, NEW MEXICO

OFF: (505) 325-5667



LAB: (505) 325-1556

December 30, 1999

Larry Trujillo
On Site Technologies Limited
612 E. Murray Drive
P.O. Box 2606
Farmington, NM 87499
TEL: (505) 325-5667
FAX (505) 327-1496

RE: 4-1373; Farmington C-Com 1

Order No.: 9912017

Dear Larry Trujillo,

On Site Technologies, LTD. received 1 sample on 12/14/1999 for the analyses presented in the following report.

The Samples were analyzed for the following tests:
Aromatic Volatiles by GC/PID (SW8021B)

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications except where noted in the Case Narrative.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

A handwritten signature in dark ink, appearing to read "D Cox", with a stylized flourish at the end.

David Cox

OFF: (505) 325-5667



LAB: (505) 325-1556

On Site Technologies, LTD.

Date: 30-Dec-99

CLIENT: On Site Technologies Limited

Project: 4-1373; Farmington C-Com 1

Lab Order: 9912017

CASE NARRATIVE

Samples were analyzed using the methods outlined in the following references:

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, 3rd Edition

All method blanks, laboratory spikes, and/or matrix spikes met quality assurance objectives.

OFF: (505) 325-5667



LAB: (505) 325-1556

ANALYTICAL REPORT

Date: 30-Dec-99

Client:	On Site Technologies Limited	Client Sample Info:	Farmington C-Com-1
Work Order:	9912017	Client Sample ID:	MW-1
Lab ID:	9912017-01A	Matrix:	AQUEOUS
Project:	4-1373; Farmington C-Com 1	Collection Date:	12/14/1999 8:25:00 AM
		COC Record:	10442

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		SW8021B		Analyst: DM		
Benzene	46	0.5		µg/L	1	12/17/1999
Toluene	1.3	0.5		µg/L	1	12/17/1999
Ethylbenzene	70	0.5		µg/L	1	12/17/1999
m,p-Xylene	43	1		µg/L	1	12/17/1999
o-Xylene	8.5	0.5		µg/L	1	12/17/1999

Qualifiers:

PQL - Practical Quantitation Limit

ND - Not Detected at Practical Quantitation Limit

J - Analyte detected below Practical Quantitation Limit

B - Analyte detected in the associated Method Blank

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Surr: - Surrogate

P.O. BOX 2606 • FARMINGTON, NM 87499

- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

1 of 1

On Site Technologies, LTD.

Date: 30-Dec-99

CLIENT: On Site Technologies Limited
 Work Order: 9912017
 Project: 4-1373; Farmington C-Com 1

QC SUMMARY REPORT

Method Blank

Sample ID: MB1	Batch ID: GC-1_991217		Test Code: SW8021B		Units: µg/L		Analysis Date 12/17/1999		Prep Date:		
Client ID:	9912017		Run ID: GC-1_991217A				SeqNo: 22149				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	.2023	0.5									J
Ethylbenzene	.2647	0.5									J
m,p-Xylene	.3793	1									J
Methyl tert-Butyl Ether	.2003	1									J
o-Xylene	.1475	0.5									J
Toluene	.2826	0.5									J

Qualifiers:

ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: 30-Dec-99

CLIENT: On Site Technologies Limited
Work Order: 9912017
Project: 4-1373; Farmington C-Com 1

QC SUMMARY REPORT

Sample Matrix Spike

Sample ID: 9912011-04AMS		Batch ID: GC-1_991217	Test Code: SW8021B	Units: µg/L	Analysis Date 12/17/1999		Prep Date:	
Client ID: 9912017		Run ID: GC-1_991217A	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit
Analyte	Result							
Benzene	2856		25	2000	902.8	97.7%	80	116
Ethylbenzene	2379		25	2000	378.2	100.1%	80	118
m,p-Xylene	6200		50	4000	2548	91.3%	77	116
Methyl tert-Butyl Ether	2152		50	2000	25	106.4%	62	122
o-Xylene	2604		25	2000	589.5	100.7%	83	117
Toluene	5240		25	2000	3637	80.2%	80	116

Sample ID: 9912011-04AMSD		Batch ID: GC-1_991217	Test Code: SW8021B	Units: µg/L	Analysis Date 12/17/1999		Prep Date:	
Client ID: 9912017		Run ID: GC-1_991217A	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit
Analyte	Result							
Benzene	2824		25	2000	902.8	96.1%	80	116
Ethylbenzene	2358		25	2000	378.2	99.0%	80	118
m,p-Xylene	6145		50	4000	2548	89.9%	77	116
Methyl tert-Butyl Ether	2153		50	2000	25	106.4%	62	122
o-Xylene	2573		25	2000	589.5	99.2%	83	117
Toluene	5183		25	2000	3637	77.3%	80	116

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: 30-Dec-99

CLIENT: On Site Technologies Limited
Work Order: 9912017
Project: 4-1373; Farmington C-Com 1

QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID: LCS WATER		Batch ID: GC-1_991217		Test Code: SW8021B		Units: µg/L		Analysis Date 12/17/1999		Prep Date:	
Client ID:		9912017		Run ID: GC-1_991217A				SeqNo: 22148			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	41.13	0.5	40	0.2023	102.3%	87	119				
Ethylbenzene	41.36	0.5	40	0.2647	102.7%	89	117				
m,p-Xylene	79.38	1	80	0.3793	98.7%	88	114				
Methyl tert-Butyl Ether	42.08	1	40	0.2003	104.7%	69	129				
o-Xylene	41.54	0.5	40	0.1475	103.5%	90	116				
Toluene	41.38	0.5	40	0.2826	102.7%	90	115				

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: 30-Dec-99

CLIENT: On Site Technologies Limited
Work Order: 9912017
Project: 4-1373; Farmington C-Com 1

QC SUMMARY REPORT

Continuing Calibration Verification Standard

Sample ID: CCV1 BTEX_9910		Batch ID: GC-1_991217	Test Code: SW8021B	Units: µg/L	Analysis Date 12/17/1999				Prep Date:	
Client ID: 9912017		Run ID: GC-1_991217A	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	SeqNo: 22145	
Analyte	Result									
Benzene	21.98		0.5	20	0	109.9%	85	115		
Ethylbenzene	22.56		0.5	20	0	112.8%	85	115		
m,p-Xylene	42.98		1	40	0	107.5%	85	115		
Methyl tert-Butyl Ether	22.2		1	20	0	111.0%	85	115		
o-Xylene	22.53		0.5	20	0	112.7%	85	115		
Toluene	22.32		0.5	20	0	111.6%	85	115		
1,4-Difluorobenzene	89.59		0	100	0	89.6%	80	120		
4-Bromochlorobenzene	89.23		0	100	0	89.2%	80	120		
Fluorobenzene	87.38		0	100	0	87.4%	80	120		

Sample ID: CCV2 BTEX_9910		Batch ID: GC-1_991217	Test Code: SW8021B	Units: µg/L	Analysis Date 12/17/1999				Prep Date:	
Client ID: 9912017		Run ID: GC-1_991217A	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	SeqNo: 22146	
Analyte	Result									
Benzene	20.24		0.5	20	0	101.2%	85	115		
Ethylbenzene	20.89		0.5	20	0	104.4%	85	115		
m,p-Xylene	39.68		1	40	0	99.2%	85	115		
Methyl tert-Butyl Ether	21.5		1	20	0	107.5%	85	115		
o-Xylene	21.16		0.5	20	0	105.8%	85	115		
Toluene	20.7		0.5	20	0	103.5%	85	115		
1,4-Difluorobenzene	89.13		0	100	0	89.1%	80	120		
4-Bromochlorobenzene	90.68		0	100	0	90.7%	80	120		
Fluorobenzene	87.23		0	100	0	87.2%	80	120		

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

CLIENT: On Site Technologies Limited
Work Order: 9912017
Project: 4-1373; Farmington C-Com 1

QC SUMMARY REPORT

Continuing Calibration Verification Standard

Sample ID: CCV3 BTEX_9910		Batch ID: GC-1_991217	Test Code: SW8021B	Units: µg/L	Analysis Date 12/17/1999		Prep Date:				
Client ID:		9912017	Run ID: GC-1_991217A		SeqNo: 22147						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	20.86	0.5	20	0	104.3%	85	115				
Ethylbenzene	21.4	0.5	20	0	107.0%	85	115				
m,p-Xylene	40.88	1	40	0	102.2%	85	115				
Methyl tert-Butyl Ether	22.24	1	20	0	111.2%	85	115				
o-Xylene	21.99	0.5	20	0	109.9%	85	115				
Toluene	21.48	0.5	20	0	107.4%	85	115				
1,4-Difluorobenzene	88.81	0	100	0	88.8%	80	120				
4-Bromochlorobenzene	90.88	0	100	0	90.9%	80	120				
Fluorobenzene	87.2	0	100	0	87.2%	80	120				

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: 30-Dec-99

CLIENT: On Site Technologies Limited
Work Order: 9912017
Project: 4-1373; Farmington C-Com 1
Test No: SW8021B

QC SUMMARY REPORT SURROGATE RECOVERIES

Aromatic Volatiles by GC/PID

Sample ID	14FBZ	4BCBZ	FLBZ				
9912011-04A	88.1	89.7	86.5				
9912011-04AMS	87.4	89.8	85.9				
9912011-04AMSD	87.6	89.7	85.6				
9912012-10A	91.4	91.4	92.7				
9912012-13A	86.4	87.8	87				
9912012-15A	89.8	88.5	87.7				
9912012-17A	89.9	90	87.9				
9912012-18A	89.4	89.7	88				
9912013-01A	88.5	89.3	86.8				
9912014-01A	89.8	89.9	87.8				
9912016-01A	86.2	88.4	86.6				
9912017-01A	83.2	84.3	82.4				
9912018-01A	89.6	90	88.1				
9912018-02A	90	90	88				
9912018-03A	89.8	90.2	87.9				
9912018-04A	89.9	90.1	88				
9912018-05A	90.3	89.5	88				
9912019-01A	89.1	89.9	87.6				
9912022-01A	89.5	90.2	88				
9912023-01A	90.2	90.5	87.9				
CCV1 BTEX_99100	89.6	89.2	87.4				
CCV2 BTEX_99100	89.1	90.7	87.2				
CCV3 BTEX_99100	88.8	90.9	87.2				
LCS WATER	89.1	90.5	86.7				
MB1	89.8	90.2	88.1				

Acronym	Surrogate	QC Limits
14FBZ	= 1,4-Difluorobenzene	80-120
4BCBZ	= 4-Bromochlorobenzene	80-120
FLBZ	= Fluorobenzene	80-120

* Surrogate recovery outside acceptance limits



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LAB: (505) 325-5667 • FAX: (505) 327-1496

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Page: _____ of _____

[illegible]

OFF: (505) 325-5667



LAB: (505) 325-1556

September 21, 1999

Larry Trujillo
Conoco, Inc.
3315 Bloomfield Hwy
Farmington, NM 87401
TEL: (505) 327-9557
FAX (505) 324-5825

RE: Farmington C-Com-1; 4-1373

Order No.: 9909046

Dear Larry Trujillo,

On Site Technologies, LTD. received 1 sample on 9/14/99 for the analyses presented in the following report.

The Samples were analyzed for the following tests:
Aromatic Volatiles by GC/PID (SW8021B)

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications except where noted in the Case Narrative.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

A handwritten signature in black ink, appearing to read 'David Cox', is written over a horizontal line.

David Cox

OFF: (505) 325-5667



LAB: (505) 325-1556

On Site Technologies, LTD.

Date: 21-Sep-99

CLIENT: Conoco, Inc.
Project: Farmington C-Com-1; 4-1373
Lab Order: 9909046

CASE NARRATIVE

Samples were analyzed using the methods outlined in the following references:

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, 3rd Edition

All method blanks, laboratory spikes, and/or matrix spikes met quality assurance objectives.

OFF: (505) 325-5667



LAB: (505) 325-1556

ANALYTICAL REPORT

Date: 21-Sep-99

Client:	Conoco, Inc.	Client Sample Info:	Farmington C-Com-1
Work Order:	9909046	Client Sample ID:	MW-1
Lab ID:	9909046-01A	Matrix:	AQUEOUS
Project:	Farmington C-Com-1; 4-1373	Collection Date:	9/14/99 8:45:00 AM
		COC Record:	10315

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		SW8021B		Analyst: DM		
Benzene	41	0.5		µg/L	1	9/20/99
Toluene	1.1	0.5		µg/L	1	9/20/99
Ethylbenzene	ND	0.5		µg/L	1	9/20/99
m,p-Xylene	19	1		µg/L	1	9/20/99
o-Xylene	1.4	0.5		µg/L	1	9/20/99

Qualifiers:

PQL - Practical Quantitation Limit

ND - Not Detected at Practical Quantitation Limit

J - Analyte detected below Practical Quantitation Limit

B - Analyte detected in the associated Method Blank

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Surr: - Surrogate

1 of 1

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- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

On Site Technologies, LTD.

Date: 21-Sep-99

CLIENT: Conoco, Inc.
Work Order: 9909046
Project: Farmington C-Com-1; 4-1373

QC SUMMARY REPORT

Method Blank

Sample ID: MB1	Batch ID: GC-1_990920	Test Code: SW8021B	Units: µg/L	Analysis Date: 9/20/99	Prep Date:						
Client ID:	9909046	Run ID: GC-1_990920A		SeqNo: 19776							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	.1348	0.5									J
Ethylbenzene	.1017	0.5									J
m,p-Xylene	.1836	1									J
Methyl tert-Butyl Ether	ND	1									J
o-Xylene	.0895	0.5									J
Toluene	.1756	0.5									J

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: 21-Sep-99

CLIENT: Conoco, Inc.
Work Order: 9909046
Project: Farmington C-Com-1; 4-1373

QC SUMMARY REPORT

Sample Matrix Spike

Sample ID: 9909035-22AMS		Batch ID: GC-1_990920	Test Code: SW8021B	Units: µg/L	Analysis Date: 9/20/99		Prep Date:	
Client ID: 9909046		Run ID: GC-1_990920A	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit
Analyte	Result							
Benzene	945.4	5	5	400	600.5	86.2%	80	116
Ethylbenzene	415.9	5	5	400	20.78	98.8%	80	118
m,p-Xylene	749	10	10	800	5.711	92.9%	77	116
Methyl tert-Butyl Ether	494.3	10	10	400	73.44	105.2%	62	122
o-Xylene	397.6	5	5	400	1.036	99.1%	83	117
Toluene	400	5	5	400	1.024	99.8%	80	116

Sample ID: 9909035-22AMSD		Batch ID: GC-1_990920	Test Code: SW8021B	Units: µg/L	Analysis Date: 9/20/99		Prep Date:	
Client ID: 9909046		Run ID: GC-1_990920A	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit
Analyte	Result							
Benzene	928.3	5	5	400	600.5	81.9%	80	116
Ethylbenzene	408.6	5	5	400	20.78	97.0%	80	118
m,p-Xylene	736.8	10	10	800	5.711	91.4%	77	116
Methyl tert-Butyl Ether	498.1	10	10	400	73.44	106.2%	62	122
o-Xylene	393.2	5	5	400	1.036	98.1%	83	117
Toluene	393.8	5	5	400	1.024	98.2%	80	116

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: 21-Sep-99

CLIENT: Conoco, Inc.
Work Order: 9909046
Project: Farmington C-Com-1; 4-1373

QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID: LCS WATER		Batch ID: GC-1_990920	Test Code: SW8021B	Units: µg/L		Analysis Date: 9/20/99		Prep Date:			
Client ID:		9909046	Run ID:	GC-1_990920A			SeqNo: 19775				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	40.58	0.5	40	0.1348	101.1%	87	119				
Ethylbenzene	40.67	0.5	40	0.1017	101.4%	89	117				
m,p-Xylene	75.85	1	80	0.1836	94.6%	88	114				
Methyl tert-Butyl Ether	40.49	1	40	0	101.2%	69	129				
o-Xylene	40.31	0.5	40	0.0895	100.5%	90	116				
Toluene	40.45	0.5	40	0.1756	100.7%	90	115				

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: 21-Sep-99

CLIENT: Conoco, Inc.

Work Order: 9909046

Project: Farmington C-Com-1; 4-1373

QC SUMMARY REPORT

Continuing Calibration Verification Standard

Sample ID: CCV1 BTEX_9906		Batch ID: GC-1_990920	Test Code: SW8021B	Units: µg/L	Analysis Date: 9/20/99		Prep Date:					
Client ID: 9909046		Run ID: GC-1_990920A	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Analyte	Result											
Benzene	21.41		0.5	20	0	107.1%	85	115				
Ethylbenzene	21.58		0.5	20	0	107.9%	85	115				
m,p-Xylene	40.41		1	40	0	101.0%	85	115				
Methyl tert-Butyl Ether	21.27		1	20	0	106.4%	85	115				
o-Xylene	21.38		0.5	20	0	106.9%	85	115				
Toluene	21.23		0.5	20	0	106.1%	85	115				
1,4-Difluorobenzene	93.75		0	100	0	93.8%	80	120				
4-Bromochlorobenzene	93.41		0	100	0	93.4%	80	120				
Fluorobenzene	92		0	100	0	92.0%	80	120				

Sample ID: CCV2 BTEX_9906		Batch ID: GC-1_990920	Test Code: SW8021B	Units: µg/L	Analysis Date: 9/20/99		Prep Date:					
Client ID: 9909046		Run ID: GC-1_990920A	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Analyte	Result											
Benzene	20.2		0.5	20	0	101.0%	85	115				
Ethylbenzene	20.39		0.5	20	0	101.9%	85	115				
m,p-Xylene	38.38		1	40	0	95.9%	85	115				
Methyl tert-Butyl Ether	21.36		1	20	0	106.8%	85	115				
o-Xylene	20.42		0.5	20	0	102.1%	85	115				
Toluene	20.2		0.5	20	0	101.0%	85	115				
1,4-Difluorobenzene	93.99		0	100	0	94.0%	80	120				
4-Bromochlorobenzene	88.76		0	100	0	88.8%	80	120				
Fluorobenzene	92.64		0	100	0	92.6%	80	120				

Qualifiers: ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

CLIENT: Conoco, Inc.
Work Order: 9909046
Project: Farmington C-Com-1; 4-1373

QC SUMMARY REPORT
 Continuing Calibration Verification Standard

Sample ID: CCV3 BTEX_9906		Batch ID: GC-1_990920	Test Code: SW8021B	Units: µg/L	Analysis Date: 9/20/99		Prep Date:	
Client ID: 9909046		Run ID: GC-1_990920A	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit
Analyte		Result					RPD Limit	RPD Limit
Benzene		20.04	0.5	20	0	100.2%	85	115
Ethylbenzene		20.37	0.5	20	0	101.9%	85	115
m,p-Xylene		38.48	1	40	0	96.2%	85	115
Methyl tert-Butyl Ether		20.26	1	20	0	101.3%	85	115
o-Xylene		21.01	0.5	20	0	105.0%	85	115
Toluene		20.24	0.5	20	0	101.2%	85	115
1,4-Difluorobenzene		94.52	0	100	0	94.5%	80	120
4-Bromochlorobenzene		86.54	0	100	0	86.5%	80	120
Fluorobenzene		92.63	0	100	0	92.6%	80	120

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 B - Analyte detected in the associated Method Blank

2 of 2

On Site Technologies, LTD.

Date: 21-Sep-99

CLIENT: Conoco, Inc.
Work Order: 9909046
Project: Farmington C-Com-1; 4-1373
Test No: SW8021B

QC SUMMARY REPORT SURROGATE RECOVERIES

Aromatic Volatiles by GC/PID

Sample ID	14FBZ	4BCBZ	FLBZ					
9909035-22A	91.9	91.7	90.4					
9909035-22AMS	92.4	90.6	90.8					
9909035-22AMSD	92.6	90.6	91.1					
9909035-24A	93.4	85.9	92.2					
9909041-02A	90.8	84.8	89.9					
9909042-01B	94.5	93.8	93.1					
9909042-02B	94	92.5	92.8					
9909042-03B	93.5	91.3	93.7					
9909042-04B	94.1	92.2	93.5					
9909042-05B	94.2	91.4	93.4					
9909046-01A	94.1	89.5	92.3					
9909047-01A	91.7	81.8	92.6					
9909048-01A	94.7	91.2	93.5					
9909048-02A	95.2	91.3	93.7					
9909048-03A	94.2	92.2	93.5					
9909049-01B	96.1	86.8	94.4					
9909054-01A	94.3	87.9	93					
9909054-02A	94.7	88.7	93.8					
9909054-03A	95.1	89.6	94					
9909054-04A	95.3	88.5	94.4					
9909054-05A	94.8	85.8	93.2					
CCV1 BTEX_99061	93.8	93.4	92					
CCV2 BTEX_99061	94	88.8	92.6					
CCV3 BTEX_99061	94.5	86.5	92.6					
LCS WATER	93	93.5	91.4					
MB1	94.2	93.1	93					

Acronym

Surrogate

QC Limits

14FBZ

= 1,4-Difluorobenzene

80-120

4BCBZ

= 4-Bromochlorobenzene

80-120

FLBZ

= Fluorobenzene

80-120

* Surrogate recovery outside acceptance limits



Date: _____

Page: 11 of 11

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Date: _____

Page: _____ of _____

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LAB: (505) 325-5667 • FAX: (505) 327-1496

[illegible]

OFF: (505) 325-5667



LAB: (505) 325-1556

June 30, 1999

Larry Trujillo
Conoco, Inc.
3315 Bloomfield Hwy
Farmington, NM 87401
TEL: (505) 327-9557
FAX (505) 324-5825

RE: 4-1373; Farmington C-Com 1

Order No.: 9906060

Dear Larry Trujillo,

On Site Technologies, LTD. received 1 sample on 6/16/99 for the analyses presented in the following report.

The Samples were analyzed for the following tests:

Aromatic Volatiles by GC/PID (SW8021B)

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications except where noted in the Case Narrative.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

A handwritten signature in dark ink, appearing to read "David Cox", written in a cursive style.

David Cox

OFF: (505) 325-5667



LAB: (505) 325-1556

On Site Technologies, LTD.

Date: 30-Jun-99

CLIENT: Conoco, Inc.
Project: 4-1373; Farmington C-Com 1
Lab Order: 9906060

CASE NARRATIVE

Samples were analyzed using the methods outlined in the following references:

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, 3rd Edition

All method blanks, laboratory spikes, and/or matrix spikes met quality assurance objectives.

OFF: (505) 325-5667



LAB: (505) 325-1556

ANALYTICAL REPORT

Date: 30-Jun-99

Client:	Conoco, Inc.	Client Sample Info:	Farmington C-Com 1
Work Order:	9906060	Client Sample ID:	MW-1
Lab ID:	9906060-01A	Matrix:	AQUEOUS
Project:	4-1373; Farmington C-Com 1	Collection Date:	6/16/99 7:50:00 AM
		COC Record:	10204

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		SW8021B		Analyst: DC		
Benzene	110	0.5		µg/L	1	6/28/99
Toluene	1.6	0.5		µg/L	1	6/28/99
Ethylbenzene	110	0.5		µg/L	1	6/28/99
m,p-Xylene	1.4	1		µg/L	1	6/28/99
o-Xylene	1.3	0.5		µg/L	1	6/28/99

Qualifiers:	PQL - Practical Quantitation Limit	S - Spike Recovery outside accepted recovery limits
	ND - Not Detected at Practical Quantitation Limit	R - RPD outside accepted recovery limits
	J - Analyte detected below Practical Quantitation Limit	E - Value above quantitation range
	B - Analyte detected in the associated Method Blank	Surr: - Surrogate

P.O. BOX 2606 • FARMINGTON, NM 87499

1 of 1

On Site Technologies, LTD.

Date: 30-Jun-99

CLIENT: Conoco, Inc.
Work Order: 9906060
Project: 4-1373; Farmington C-Com 1

QC SUMMARY REPORT

Method Blank

Sample ID: MB1	Batch ID: GC-1_990628	Test Code: SW8021B	Units: µg/L	Analysis Date 6/28/99	Prep Date:						
Client ID:	9906060	Run ID: GC-1_990628A		SeqNo: 16541							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.5									
Ethylbenzene	ND	0.5									
m,p-Xylene	ND	1									
Methyl tert-Butyl Ether	ND	1									
o-Xylene	ND	0.5									
Toluene	.1616	0.5									J

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: 30-Jun-99

CLIENT: Conoco, Inc.

Work Order: 9906060

Project: 4-1373; Farmington C-Com 1

QC SUMMARY REPORT

Sample Matrix Spike

Sample ID: 9906061-04AMS		Batch ID: GC-1_990628		Test Code: SW8021B		Units: µg/L		Analysis Date 6/28/99		Prep Date:	
Client ID: 9906060		Run ID: GC-1_990628A		PQL		SPK value		SeqNo: 16542			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	441.7	5	400	76.3	91.4%	73	115				
Ethylbenzene	602.5	5	400	234.1	92.1%	74	117				
m,p-Xylene	2708	10	800	2012	87.1%	76	112				
Methyl tert-Butyl Ether	405.2	10	400	0	101.3%	62	122				
o-Xylene	364.2	5	400	6.435	89.5%	83	112				
Toluene	388.6	5	400	16.16	93.1%	71	120				

Sample ID: 9906061-04AMSD		Batch ID: GC-1_990628		Test Code: SW8021B		Units: µg/L		Analysis Date 6/28/99		Prep Date:	
Client ID: 9906060		Run ID: GC-1_990628A		PQL		SPK value		SeqNo: 16543			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	427.6	5	400	76.3	87.8%	73	115	441.7	3.2%	8	
Ethylbenzene	585.4	5	400	234.1	87.8%	74	117	602.5	2.9%	9	
m,p-Xylene	2635	10	800	2012	78.0%	76	112	2708	2.7%	9	
Methyl tert-Butyl Ether	405.1	10	400	0	101.3%	62	122	405.2	0.0%	7	
o-Xylene	355.1	5	400	6.435	87.2%	83	112	364.2	2.6%	9	
Toluene	376.2	5	400	16.16	90.0%	71	120	388.6	3.3%	9	

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: 30-Jun-99

CLIENT: Conoco, Inc.

Work Order: 9906060

Project: 4-1373; Farmington C-Com 1

QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID: LCS WATER		Batch ID: GC-1_990628	Test Code: SW8021B	Units: µg/L	Analysis Date 6/28/99		Prep Date:				
Client ID:		9906060	Run ID: GC-1_990628A		SeqNo: 16540						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	42.13	0.5	40	0	105.3%	84	110				
Ethylbenzene	41.58	0.5	40	0	103.9%	86	113				
m,p-Xylene	79.82	1	80	0	99.8%	81	114				
Methyl tert-Butyl Ether	45.7	1	40	0	114.3%	69	129				
o-Xylene	41.59	0.5	40	0	104.0%	86	112				
Toluene	41.17	0.5	40	0.1616	102.5%	85	111				

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: 30-Jun-99

CLIENT: Conoco, Inc.

Work Order: 9906060

Project: 4-1373; Farmington C-Com 1

QC SUMMARY REPORT

Continuing Calibration Verification Standard

Sample ID: CCV1 BTEX_9906		Batch ID: GC-1_990628	Test Code: SW8021B	Units: µg/L		Analysis Date 6/28/99		Prep Date:	
Client ID: 9906060		Run ID: GC-1_990628A	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	SeqNo: 16537
Analyte	Result								
Benzene	21.8		0.5	20	0	109.0%	85	115	
Ethylbenzene	21.56		0.5	20	0	107.8%	85	115	
m,p-Xylene	41.46		1	40	0	103.6%	85	115	
Methyl tert-Butyl Ether	22.97		1	20	0	114.8%	85	115	
o-Xylene	21.56		0.5	20	0	107.8%	85	115	
Toluene	21.38		0.5	20	0	106.9%	85	115	
1,4-Difluorobenzene	94.82		0	100	0	94.8%	86	100	
4-Bromochlorobenzene	93.8		0	100	0	93.8%	90	104	
Fluorobenzene	97.56		0	100	0	97.6%	89	101	

Sample ID: CCV2 BTEX_9906		Batch ID: GC-1_990628	Test Code: SW8021B	Units: µg/L		Analysis Date 6/28/99		Prep Date:	
Client ID: 9906060		Run ID: GC-1_990628A	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	SeqNo: 16538
Analyte	Result								
Benzene	19.62		0.5	20	0	98.1%	85	115	
Ethylbenzene	19.21		0.5	20	0	96.1%	85	115	
m,p-Xylene	36.85		1	40	0	92.1%	85	115	
Methyl tert-Butyl Ether	20.92		1	20	0	104.6%	85	115	
o-Xylene	19.08		0.5	20	0	95.4%	85	115	
Toluene	19.01		0.5	20	0	95.1%	85	115	
1,4-Difluorobenzene	94.88		0	100	0	94.9%	86	100	
4-Bromochlorobenzene	92.7		0	100	0	92.7%	90	104	
Fluorobenzene	97.33		0	100	0	97.3%	89	101	

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

CLIENT: Conoco, Inc.

Work Order: 9906060

Project: 4-1373; Farmington C-Com 1

QC SUMMARY REPORT

Continuing Calibration Verification Standard

Sample ID: CCV3 BTEX_9906 Batch ID: GC-1_990628 Test Code: SW8021B Units: µg/L Analysis Date 6/28/99 Prep Date:

Client ID: 9906060 Run ID: GC-1_990628A SeqNo: 16539

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	42.8	0.5	40	0	107.0%	85	115				
Ethylbenzene	36.82	0.5	40	0	92.1%	85	115				
m,p-Xylene	71.88	1	80	0	89.8%	85	115				
Methyl tert-Butyl Ether	49.4	1	40	0	123.5%	85	115				
o-Xylene	39.19	0.5	40	0	98.0%	85	115				
Toluene	35.86	0.5	40	0	89.6%	85	115				
1,4-Difluorobenzene	98.12	0	100	0	98.1%	86	100				
4-Bromochlorobenzene	102.5	0	100	0	102.5%	90	104				
Fluorobenzene	103.8	0	100	0	103.8%	89	101				

S ✓ 6/30/99
7/1/99
211090
S ✓ 6/30/99
7/1/99

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: 30-Jun-99

CLIENT: Conoco, Inc.
Work Order: 9906060
Project: 4-1373; Farmington C-Com 1
Test No: SW8021B

QC SUMMARY REPORT SURROGATE RECOVERIES

Aromatic Volatiles by GC/PID

Sample ID	14FBZ	4BCBZ	FLBZ					
9906060-01A	93.1	92.7	95.9					
9906061-03A	90.4	89.2 *	94					
9906061-04A	93.4	90.6	97.2					
9906061-04AMS	92.6	91.7	96.3					
9906061-04AMSD	91.8	91	95.6					
9906062-10A	94.4	91.6	97.4					
9906062-11A	94.3	93.1	97.9					
9906062-13A	94.3	93.3	99.9					
9906062-19A	95	92.6	98.1					
9906064-01A	94.8	92.4	98					
9906064-02A	95.5	92.8	98.1					
9906064-03A	95.1	93.1	98.1					
9906064-04A	79.7 *	77 *	82.6 *					
9906064-05A	92.6	91.2	95.4					
9906065-01A	93.6	92	96.8					
9906076-01A	95.1	93	98					
9906076-02A	95	92.1	97.4					
9906076-03A	96.1	93.6	98.2					
CCV1 BTEX_99061	94.8	93.8	97.6					
CCV2 BTEX_99061	94.9	92.7	97.3					
CCV3 BTEX_99061	98.1	102	104 *					
LCS WATER	94.4	93.1	97.1					
MBI	94.7	93.5	97.4					

Acronym	Surrogate	QC Limits
14FBZ	= 1,4-Difluorobenzene	86-100
4BCBZ	= 4-Bromochlorobenzene	90-104
FLBZ	= Fluorobenzene	89-101

* Surrogate recovery outside acceptance limits



CHAIN OF CUSTODY RECORD

612 E. Murray Dr. • P.O. Box 2606 • Farmington, NM 87499
LAB: (505) 325-5667 • FAX: (505) 327-1496

Date: 6/11/99

Page: 1 of 1

Purchase Order No.:		Project No. <u>10-412-13</u>		REPORT TO RESULTS TO		Name <u>James Wright</u>		Title	
SEND INVOICE TO		Name <u>James Wright</u>		Company <u>Goldenrod</u>		Mailing Address		Company	
Address		Dept.		City, State, Zip		Telephone No.		Telefax No.	
City, State, Zip		PROJECT LOCATION: <u>Farmington, G. Conn.</u>		Number of Containers		ANALYSIS REQUESTED		LAB ID	
SAMPLER'S SIGNATURE: <u>[Signature]</u>		SAMPLE IDENTIFICATION		DATE		TIME		PRES.	
Date		Time		Matrix		Pres.		LAB ID	
Relinquished by: <u>[Signature]</u>		Date/Time <u>6/11/99</u>		Received by: <u>[Signature]</u>		Date/Time <u>6/11/99</u>		Date/Time	
Relinquished by:		Date/Time		Received by:		Date/Time		Date/Time	
Relinquished by:		Date/Time		Received by:		Date/Time		Date/Time	
Method of Shipment:		Rush		24-48 Hours		10 Working Days		By Date	
Authorized by: <u>[Signature]</u>		Date		Special Instructions / Remarks:					
(Client Signature Must Accompany Request)									



Page: _____ of _____

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OFF: (505) 325-5667



LAB: (505) 325-1556

March 10, 1999

Larry Trujillo
Conoco, Inc.
3315 Bloomfield Hwy
Farmington, NM 87401
TEL: (505) 327-9557
FAX (505) 324-5825

RE: 4-1373; Farmington C-Com-1

Order No.: 9903010

Dear Larry Trujillo,

On Site Technologies, LTD. received 1 sample on 3/2/99 for the analyses presented in the following report.

The Samples were analyzed for the following tests:
BTEX (SW8021B)

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications except where noted in the Case Narrative.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

A handwritten signature in black ink, appearing to read "D. Cox", written in a cursive style.

David Cox

OFF: (505) 325-5667



LAB: (505) 325-1556

On Site Technologies, LTD.

Date: 10-Mar-99

CLIENT: Conoco, Inc.
Project: 4-1373; Farmington C-Com-1
Lab Order: 9903010

CASE NARRATIVE

Samples were analyzed using the methods outlined in the following references:

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, 3rd Edition

All method blanks, laboratory spikes, and/or matrix spikes met quality assurance objectives.

OFF: (505) 325-5667



LAB: (505) 325-1556

ANALYTICAL REPORT

Date: 10-Mar-99

Client:	Conoco, Inc.	Client Sample Info:	Farmington C-Com-1
Work Order:	9903010	Client Sample ID:	MW-1
Lab ID:	9903010-01A	Matrix:	AQUEOUS
Project:	4-1373; Farmington C-Com-1	Collection Date:	3/2/99 1:30:00 PM
		COC Record:	10017

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
BTEX		SW8021B		Analyst: HR		
Benzene	92	0.5		µg/L	1	3/8/99
Toluene	1.2	0.5		µg/L	1	3/8/99
Ethylbenzene	82	0.5		µg/L	1	3/8/99
m,p-Xylene	30	1		µg/L	1	3/8/99
o-Xylene	ND	0.5		µg/L	1	3/8/99

Qualifiers:

PQL - Practical Quantitation Limit

ND - Not Detected at Practical Quantitation Limit

J - Analyte detected below Practical Quantitation Limit

B - Analyte detected in the associated Method Blank

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Surr: - Surrogate

1 of 1

P.O. BOX 2606 • FARMINGTON, NM 87499

- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

On Site Technologies, LTD.

Date: 10-Mar-99

CLIENT: Conoco, Inc.
Work Order: 9903010
Project: 4-1373; Farmington C-Com-1

QC SUMMARY REPORT

Method Blank

Sample ID: MB1	Batch ID: GC-1_990308	Test Code: SW8021B	Units: µg/L	Analysis Date 3/8/99	Prep Date:						
Client ID:	9903010	Run ID: GC-1_990308A		SeqNo: 11839							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.5									
Ethylbenzene	ND	0.5									
m,p-Xylene	ND	1									
Methyl tert-Butyl Ether	ND	1									
o-Xylene	.0298	0.5									J
Toluene	.0703	0.5									J

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: 10-Mar-99

QC SUMMARY REPORT

Sample Matrix Spike

CLIENT: Conoco, Inc.
Work Order: 9903010
Project: 4-1373; Farmington C-Com-1

Sample ID:	9902089-02AMS	Batch ID:	GC-1_990308	Test Code:	SW8021B	Units:	µg/L	Analysis Date	3/8/99	Prep Date:
Client ID:	9903010	Run ID:	GC-1_990308A	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	SeqNo: 11840
Analyte	Result									
Benzene	201.2			2.5	200	0.399	100.4%	73	115	
Ethylbenzene	205.8			2.5	200	7.29	99.3%	74	117	
m,p-Xylene	422			5	400	37.21	96.2%	76	112	
Methyl tert-Butyl Ether	201.9			5	200	0	101.0%	62	122	
o-Xylene	206.4			2.5	200	6.91	99.7%	83	112	
Toluene	361.2			2.5	200	168.1	96.5%	71	120	

Sample ID:	9902089-02AMS	Batch ID:	GC-1_990308	Test Code:	SW8021B	Units:	µg/L	Analysis Date	3/8/99	Prep Date:
Client ID:	9903010	Run ID:	GC-1_990308A	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	SeqNo: 11841
Analyte	Result									
Benzene	206.4			2.5	200	0.399	103.0%	73	115	
Ethylbenzene	211.1			2.5	200	7.29	101.9%	74	117	
m,p-Xylene	432			5	400	37.21	98.7%	76	112	
Methyl tert-Butyl Ether	203.1			5	200	0	101.5%	62	122	
o-Xylene	210.8			2.5	200	6.91	101.9%	83	112	
Toluene	370			2.5	200	168.1	100.9%	71	120	

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: 10-Mar-99

CLIENT: Conoco, Inc.
Work Order: 9903010
Project: 4-1373; Farmington C-Com-1

QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID: LCS WATER		Batch ID: GC-1_990308	Test Code: SW8021B	Units: µg/L	Analysis Date 3/8/99		Prep Date:	
Client ID: 9903010		Run ID: 9903010	PQL	SPK value	GC-1_990308A	SeqNo: 11838		
Analyte	Result					LowLimit	HighLimit	RPD Ref Val
Benzene	42.31		0.5	40		84	110	
Ethylbenzene	42.1		0.5	40		86	113	
m,p-Xylene	82.11		1	80		81	114	
Methyl tert-Butyl Ether	40.3		1	40		69	129	
o-Xylene	42.03		0.5	40	0.0298	86	112	
Toluene	41.6		0.5	40	0.0703	85	111	
						%REC		
						105.8%		
						105.3%		
						102.6%		
						100.7%		
						105.0%		
						103.8%		
						%RPD		

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: 10-Mar-99

QC SUMMARY REPORT

Continuing Calibration Verification Standard

CLIENT: Conoco, Inc.
 Work Order: 9903010
 Project: 4-1373; Farmington C-Com-1

Sample ID:	CCV1 QC0606/07	Batch ID:	GC-1_990308	Test Code:	SW8021B	Units:	µg/L	Analysis Date	3/8/99	Prep Date:
Client ID:	9903010	Run ID:	GC-1_990308A	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	SeqNo: 11835
Analyte	Result									
Benzene	20.99			0.5	20	0	105.0%	85	115	
Ethylbenzene	20.95			0.5	20	0	104.8%	85	115	
m,p-Xylene	40.81			1	40	0	102.0%	85	115	
Methyl tert-Butyl Ether	20.4			1	20	0	102.0%	85	115	
o-Xylene	20.95			0.5	20	0	104.8%	85	115	
Toluene	20.6			0.5	20	0	103.0%	85	115	
1,4-Difluorobenzene	93.85			0	100	0	93.8%	84	100	
4-Bromochlorobenzene	96.37			0	100	0	96.4%	87	105	
Fluorobenzene	96.13			0	100	0	96.1%	87	99	

Sample ID:	CCV2 QC0606/07	Batch ID:	GC-1_990308	Test Code:	SW8021B	Units:	µg/L	Analysis Date	3/8/99	Prep Date:
Client ID:	9903010	Run ID:	GC-1_990308A	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	SeqNo: 11836
Analyte	Result									
Benzene	21.28			0.5	20	0	106.4%	85	115	
Ethylbenzene	21.1			0.5	20	0	105.5%	85	115	
m,p-Xylene	40.9			1	40	0	102.3%	85	115	
Methyl tert-Butyl Ether	20.43			1	20	0	102.2%	85	115	
o-Xylene	21.06			0.5	20	0	105.3%	85	115	
Toluene	20.86			0.5	20	0	104.3%	85	115	
1,4-Difluorobenzene	93.79			0	100	0	93.8%	84	100	
4-Bromochlorobenzene	96.38			0	100	0	96.4%	87	105	
Fluorobenzene	95.75			0	100	0	95.8%	87	99	

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

CLIENT: Conoco, Inc.
Work Order: 9903010
Project: 4-1373; Farmington C-Com-1

QC SUMMARY REPORT
 Continuing Calibration Verification Standard

Sample ID: CCV3 QC0606/07		Batch ID: GC-1_990308		Test Code: SW8021B		Units: µg/L		Analysis Date 3/8/99		Prep Date:	
Client ID:		9903010		Run ID: GC-1_990308A				SeqNo: 11837			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	40.6	0.5	40	0	101.5%	85	115				
Ethylbenzene	40.11	0.5	40	0	100.3%	85	115				
m,p-Xylene	78.34	1	80	0	97.9%	85	115				
Methyl tert-Butyl Ether	40.67	1	40	0	101.7%	85	115				
o-Xylene	40.58	0.5	40	0	101.4%	85	115				
Toluene	39.95	0.5	40	0	99.9%	85	115				
1,4-Difluorobenzene	93.52	0	100	0	93.5%	84	100				
4-Bromochlorobenzene	94.65	0	100	0	94.7%	87	105				
Fluorobenzene	95.46	0	100	0	95.5%	87	99				

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: 10-Mar-99

CLIENT: Conoco, Inc.
 Work Order: 9903010
 Project: 4-1373; Farmington C-Com-1
 Test No: SW8021B

QC SUMMARY REPORT SURROGATE RECOVERIES

BTEX

Sample ID	14FBZ	4BCBZ	FLBZ					
9902089-01A	94.3	96.5	96.4					
9902089-02AMS	93.2	96.5	95.2					
9902089-02AMSD	92.7	96.4	95.4					
9902096-01A	94.4	96	96.4					
9902096-02A	94.2	96.4	96.5					
9902096-03A	94	96.4	96.6					
9902096-05A	94.5	95.8	96.3					
9903001-02A	94	95.5	96.7					
9903002-01A	89.9	93.1	93.5					
9903003-01A	93.7	96.1	96					
9903004-01A	89.8	94.5	92.1					
9903006-01A	92.5	95.9	94					
9903006-02A	92.6	93.9	95.1					
9903006-03A	94.4	95.7	96.4					
9903008-01A	89.3	90.7	96.6					
9903009-01A	94.4	95.9	96.9					
9903009-02A	94.2	96.3	96.4					
9903010-01A	92.5	97.3	94.5					
9903013-01A	93.6	94.8	95.6					
CCV1 QC0606/07	93.8	96.4	96.1					
CCV2 QC0606/07	93.8	96.4	95.8					
CCV3 QC0606/07	93.5	94.6	95.4					
LCS WATER	93.4	96.4	95.4					
MB1	94.2	96.3	96.6					

Acronym	Surrogate	QC Limits
14FBZ	= 1,4-Difluorobenzene	84-100
4BCBZ	= 4-Bromochlorobenzene	87-105
FLBZ	= Fluorobenzene	87-99

* Surrogate recovery outside acceptance limits



Page:

Purchase Order No.:

**SEND
INVOICE
TO**

Name _____

Name _____

Company

Dept.

Address

City, State, Zip

PROJECT LOCATION:

SAMPLER'S SIGNATURE:

SAMPLE IDENTIFICATION

DATE	TIME	MATRIX	PRES.
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Distribution: White On Site Yellow

100

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Page: _____ of _____

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LAB: (505) 325-5667 • FAX: (505) 327-1496

Purchase Order No.:						Project No.					
SEND INVOICE TO		Name									
		Company									
		Address									
		City, State, Zip									
PROJECT LOCATION:						REPORT RESULTS TO					
SAMPLER'S SIGNATURE:						Number of Containers					
SAMPLE IDENTIFICATION						LAB ID					
						ANALYSIS REQUESTED					
Date/Time						Date/Time					
Relinquished by:						Received by:					
Date/Time						Date/Time					
Relinquished by:						Received by:					
Date/Time						Date/Time					
Method of Shipment:						Rush 24-48 Hours 10 Working Days By Date					
Special Instructions / Remarks:											
Authorized by: _____ Date _____ (Client Signature <u>Must</u> Accompany Request)											