

30-045-31155

Scientific Drilling

Surface 580/N 970/W

BAL 1317/N 1380/W

DIRECTIONAL SURVEY REPORT

Prepared For

**XTO ENERGY INC.
Kutz Federal #13E
San Juan County, NM**

***Prepared By:
Judi Moore - Well Planner
Scientific Drilling International
Rocky Mountain District***

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Scientific Drilling Survey Completion Report

Company: XTO Energy Inc.	Date: 3/18/2003	Time: 14:07:25	Page: 1
Field: San Juan County, NM	Co-ordinate(NE) Reference:	Site: Kutz Federal #13E, True North	
Site: Kutz Federal #13E	Vertical (TVD) Reference:	SITE 0.0	
Well: #13E	Section (VS) Reference:	Well (0.00N,0.00E,150.47Azi)	
Wellpath: OH	Survey Calculation Method:	Minimum Curvature	Db: Sybase

Survey: Survey #1	Start Date: 3/16/2003
Company: Scientific Drilling	Engineer: D.Bayer/Brewer
Tool: MWD,	Tied-to: From Surface

Field: San Juan County, NM

Map System: US State Plane Coordinate System 1927	Map Zone: New Mexico, Western Zone
Geo Datum: NAD27 (Clarke 1866)	Coordinate System: Site Centre
Sys Datum: Mean Sea Level	Geomagnetic Model: igrf2000

Site: Kutz Federal #13E	
PBHL 1250'FNL x 1350'FWL	
SHL SEC.33,T28N,R10W 580'FNL x 970'FWL	
Site Position:	Northing: m
From: Lease Line	Easting: m
Position Uncertainty: 0.00 ft	Latitude: 36 40 59.999 N
Ground Level: 0.00 ft	Longitude: 107 55 0.000 W
	North Reference: True
	Grid Convergence: -0.05 deg

Well: #13E	Slot Name:
Well Position: +N/-S 0.00 ft	Latitude: 36 40 59.999 N
+E/-W 0.00 ft	Longitude: 107 55 0.000 W
Position Uncertainty: 0.00 ft	

Wellpath: OH	Drilled From: Surface
Current Datum: SITE	Tie-on Depth: 0.00 ft
Magnetic Data: 2/26/2003	Above System Datum: Mean Sea Level
Field Strength: 51663 nT	Declination: 11.11 deg
Vertical Section: Depth From (TVD)	Mag Dip Angle: 63.62 deg
ft	+E/-W Direction
	deg
6970.00	0.00
0.00	150.47

Survey

Meas Depth ft	Inclination deg	Azimuth deg	TVD ft	Vert Sect ft	N/S ft	E/W ft	DLS deg/100ft	CLen ft	ClsD ft	ClsA deg
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
577.00	1.00	257.70	576.97	-1.49	-1.07	-4.92	0.17	577.00	5.04	257.70
795.00	1.40	248.10	794.92	-2.41	-2.47	-9.25	0.20	218.00	9.57	255.04
978.00	1.90	238.10	977.85	-2.58	-4.91	-13.90	0.31	183.00	14.74	250.55
1163.00	2.80	244.20	1162.69	-2.75	-8.50	-20.57	0.50	185.00	22.26	247.56
1351.00	2.20	247.20	1350.51	-3.47	-11.89	-28.03	0.33	188.00	30.45	247.01
1536.00	1.90	242.20	1535.39	-3.98	-14.70	-34.02	0.19	185.00	37.06	246.63
1721.00	1.10	244.50	1720.33	-4.19	-16.89	-38.33	0.43	185.00	41.89	246.22
1909.00	1.20	205.70	1908.29	-3.20	-19.44	-40.82	0.41	188.00	45.21	244.53
2094.00	1.80	203.50	2093.23	-0.34	-23.85	-42.81	0.33	185.00	49.01	240.88
2289.00	1.20	193.30	2288.16	3.00	-28.65	-44.51	0.34	195.00	52.93	237.23
2350.00	1.10	166.80	2349.15	4.03	-29.84	-44.52	0.88	61.00	53.60	236.17
2413.00	2.00	150.80	2412.12	5.71	-31.39	-43.84	1.57	63.00	53.92	234.40
2476.00	2.50	140.40	2475.08	8.16	-33.41	-42.43	1.02	63.00	54.01	231.79
2538.00	3.20	138.80	2537.00	11.18	-35.75	-40.43	1.14	62.00	53.97	228.51
2600.00	3.90	136.90	2598.88	14.93	-38.59	-37.85	1.14	62.00	54.06	224.44
2662.00	4.30	137.80	2660.72	19.25	-41.86	-34.85	0.65	62.00	54.46	219.78
2724.00	4.90	136.40	2722.52	24.08	-45.50	-31.46	0.98	62.00	55.31	214.66
2786.00	5.50	135.60	2784.27	29.52	-49.54	-27.56	0.97	62.00	56.68	209.09
2847.00	6.10	139.00	2844.95	35.52	-54.07	-23.38	1.13	61.00	58.91	203.39
2908.00	6.40	144.30	2905.59	42.08	-59.28	-19.27	1.07	61.00	62.33	198.01
2971.00	7.10	143.00	2968.15	49.43	-65.24	-14.88	1.14	63.00	66.91	192.85
3034.00	7.70	142.30	3030.63	57.47	-71.69	-9.96	0.96	63.00	72.38	187.91
3098.00	8.10	142.20	3094.02	66.18	-78.64	-4.57	0.63	64.00	78.78	183.33



Scientific
Drilling

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Company: XTO Energy Inc.
Field: San Juan County, NM
Site: Kutz Federal #13E
Well: #13E
Wellpath: OH

Date: 3/18/2003 Time: 14:07:25 Page: 2
Co-ordinate(NE) Reference: Site: Kutz Federal #13E, True North
Vertical (TVD) Reference: SITE 0.0
Section (VS) Reference: Well (0.00N,0.00E,150.47Azi)
Survey Calculation Method: Minimum Curvature Db: Sybase

Survey

Meas Depth ft	Inclination deg	Azimuth deg	TVD ft	Vert Sect ft	N/S ft	E/W ft	DLS deg/100ft	CLen ft	CLSD ft	CLSA deg
3160.00	9.00	142.70	3155.33	75.30	-85.95	1.04	1.46	62.00	85.96	179.30
3224.00	10.00	143.10	3218.45	85.77	-94.38	7.41	1.57	64.00	94.67	175.51
3287.00	10.90	143.40	3280.41	97.11	-103.53	14.25	1.43	63.00	104.51	172.16
3351.00	11.70	144.40	3343.17	109.57	-113.67	21.64	1.29	64.00	115.71	169.22
3444.00	12.00	147.30	3434.19	128.60	-129.47	32.35	0.72	93.00	133.45	165.97
3538.00	11.20	148.50	3526.26	147.48	-145.48	42.40	0.89	94.00	151.53	163.75
3632.00	10.30	143.30	3618.62	164.94	-160.00	52.19	1.41	94.00	168.30	161.93
3694.00	10.90	143.30	3679.56	176.26	-169.14	59.01	0.97	62.00	179.14	160.77
3755.00	10.50	142.90	3739.50	187.49	-178.20	65.80	0.67	61.00	189.96	159.73
3817.00	10.60	142.60	3800.45	198.74	-187.24	72.68	0.18	62.00	200.85	158.79
3879.00	11.80	145.70	3861.27	210.70	-197.01	79.71	2.16	62.00	212.52	157.97
3941.00	13.20	149.90	3921.80	224.10	-208.37	86.84	2.69	62.00	225.74	157.38
4004.00	13.20	150.30	3983.13	238.49	-220.84	94.01	0.14	63.00	240.01	156.94
4066.00	13.10	150.70	4043.51	252.59	-233.12	100.95	0.22	62.00	254.04	156.58
4126.00	12.60	147.80	4102.01	265.93	-244.58	107.77	1.36	60.00	267.27	156.22
4189.00	12.30	146.20	4163.52	279.48	-255.97	115.16	0.73	63.00	280.69	155.78
4252.00	12.70	147.60	4225.03	293.09	-267.40	122.61	0.80	63.00	294.17	155.37
4316.00	12.80	148.00	4287.45	307.20	-279.35	130.13	0.21	64.00	308.17	155.02
4378.00	11.60	145.50	4348.05	320.27	-290.31	137.30	2.11	62.00	321.14	154.69
4439.00	11.50	146.50	4407.82	332.45	-300.44	144.13	0.37	61.00	333.22	154.37
4501.00	12.60	145.90	4468.45	345.36	-311.19	151.34	1.79	62.00	346.04	154.07
4565.00	12.30	148.30	4530.94	359.13	-322.77	158.83	0.93	64.00	359.73	153.80
4628.00	10.10	153.80	4592.74	371.35	-333.44	164.80	3.88	63.00	371.94	153.70
4689.00	10.30	153.40	4652.78	382.14	-343.11	169.60	0.35	61.00	382.74	153.70
4751.00	11.40	148.70	4713.67	393.80	-353.31	175.27	2.28	62.00	394.39	153.62
4782.00	11.20	147.40	4744.07	399.87	-358.46	178.48	1.04	31.00	400.44	153.53
4877.00	11.30	147.10	4837.24	418.37	-374.05	188.51	0.12	95.00	418.86	153.25
4939.00	11.20	145.10	4898.05	430.43	-384.09	195.25	0.65	62.00	430.86	153.05
5002.00	10.90	148.20	4959.89	442.47	-394.17	201.89	1.06	63.00	442.86	152.88
5065.00	10.90	152.10	5021.75	454.38	-404.49	207.82	1.17	63.00	454.75	152.81
5128.00	11.30	149.40	5083.57	466.50	-415.07	213.75	1.04	63.00	466.87	152.75
5191.00	11.30	142.90	5145.35	478.79	-425.31	220.61	2.02	63.00	479.12	152.58
5253.00	10.80	144.00	5206.20	490.59	-434.85	227.69	0.88	62.00	490.85	152.36
5316.00	13.20	143.40	5267.82	503.59	-445.40	235.45	3.81	63.00	503.80	152.14
5374.00	12.10	143.70	5324.41	516.20	-455.62	243.00	1.90	58.00	516.37	151.93
5437.00	12.00	149.60	5386.03	529.31	-466.59	250.22	1.96	63.00	529.45	151.80
5500.00	11.90	153.90	5447.66	542.34	-478.07	256.39	1.42	63.00	542.48	151.80
5564.00	11.10	154.20	5510.38	555.07	-489.54	261.98	1.25	64.00	555.23	151.85
5595.00	10.80	152.10	5540.81	560.95	-494.80	264.63	1.61	31.00	561.12	151.86
5657.00	11.50	141.70	5601.65	572.87	-504.78	271.18	3.43	62.00	573.01	151.75
5686.00	12.10	142.30	5630.04	578.74	-509.46	274.83	2.11	29.00	578.86	151.65
5750.00	12.00	141.30	5692.63	591.94	-519.95	283.09	0.36	64.00	592.03	151.43
5811.00	12.00	146.50	5752.30	604.53	-530.19	290.56	1.77	61.00	604.59	151.28
5873.00	11.50	150.40	5813.00	617.14	-540.94	297.17	1.51	62.00	617.19	151.22
5936.00	11.40	148.90	5874.74	629.64	-551.73	303.49	0.50	63.00	629.69	151.19
5999.00	11.90	149.70	5936.45	642.36	-562.67	309.98	0.83	63.00	642.41	151.15
6061.00	12.20	147.80	5997.08	655.30	-573.73	316.70	0.80	62.00	655.34	151.10
6123.00	13.50	145.60	6057.53	669.05	-585.25	324.28	2.24	62.00	669.08	151.01
6184.00	14.10	141.50	6116.77	683.49	-596.94	332.93	1.88	61.00	683.50	150.85
6279.00	12.20	145.80	6209.27	704.93	-614.30	345.77	2.25	95.00	704.93	150.63
6371.00	10.60	144.40	6299.46	723.03	-629.22	356.16	1.76	92.00	723.03	150.49
6465.00	10.60	152.80	6391.86	740.27	-643.94	365.15	1.64	94.00	740.27	150.44



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Company: XTO Energy Inc.
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Site: Kutz Federal #13E
Well: #13E
Wellpath: OH

Date: 3/18/2003 Time: 14:07:25 Page: 3
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Vertical (TVD) Reference: SITE 0.0
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Survey Calculation Method: Minimum Curvature Db: Sybase

Survey

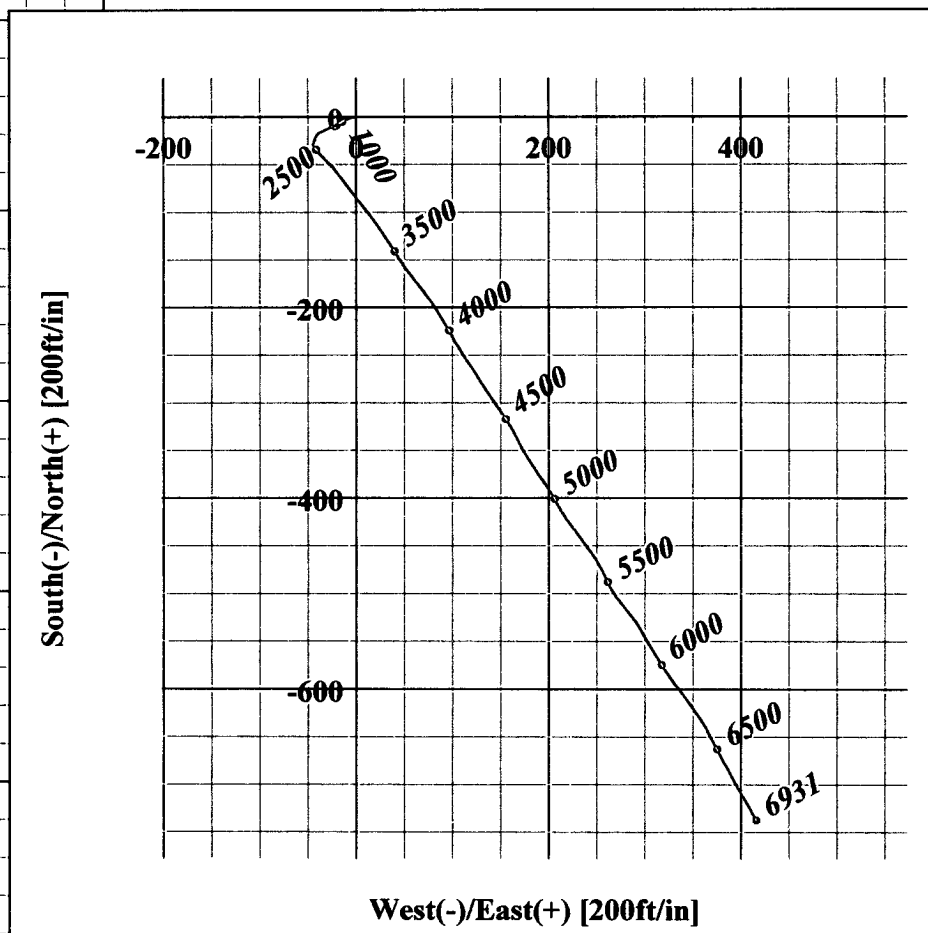
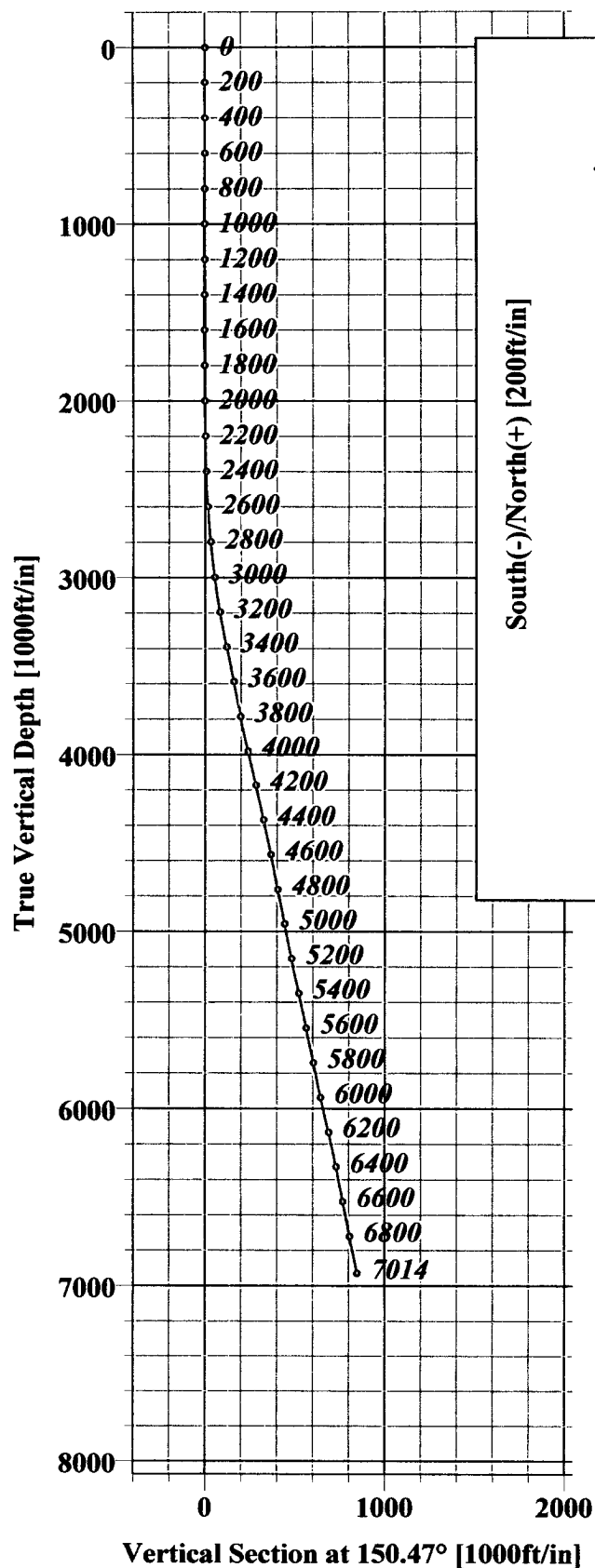
Meas Depth ft	Inclination deg	Azimuth deg	TVD ft	Vert Sect ft	N/S ft	E/W ft	DLS deg/100ft	CLen ft	ClsD ft	ClsA deg
6559.00	11.60	152.40	6484.10	758.35	-660.01	373.48	1.07	94.00	758.35	150.50
6651.00	11.00	152.20	6574.31	776.37	-675.97	381.86	0.65	92.00	776.37	150.54
6743.00	10.40	151.00	6664.71	793.45	-691.00	389.98	0.70	92.00	793.45	150.56
6775.00	10.70	151.30	6696.17	799.30	-696.13	392.80	0.95	32.00	799.31	150.57
6838.00	11.30	150.60	6758.01	811.32	-706.63	398.64	0.98	63.00	811.33	150.57
6933.00	11.60	150.70	6851.12	830.18	-723.07	407.89	0.32	95.00	830.18	150.57
7014.00	11.30	152.00	6930.51	846.26	-737.18	415.60	0.49	81.00	846.26	150.59



Scientific
Drilling

XTO Energy Inc.

Field: San Juan County, NM
Site: Kutz Federal #13E
Well: #13E
Wellpath: OH
Survey: Survey #1



BOTTOM HOLE CLOSURE

846.26 ft. 150.59° Azimuth

FINAL STATION

7014.0' MD 6930.51' TVD
11.30° Angle 152.0° Azimuth
South 737.18 ft. East 415.6 ft.
846.26' Vert. Sec.

Survey: Survey #1 (#13E/OH)

Created By: Judi Moore

Date: 3/18/2003