



Field: Rio Arriba County, NM NAD-27
Site: Basin Fruitland Coal
Well: Mestenas Canyon #1
Wellpath: OH
Survey: Pathfinder MWD Surveys #2

PATHFINDER

30-039-27677

WELLPATH DETAILS				
OH				
Rig:	SITE	Origin	Origin	Starting
Ref. Datum:	7470.00R	+N/S	+E/W	From TVD
V. Section		0.00	0.00	0.00
Angle				
156.37°				

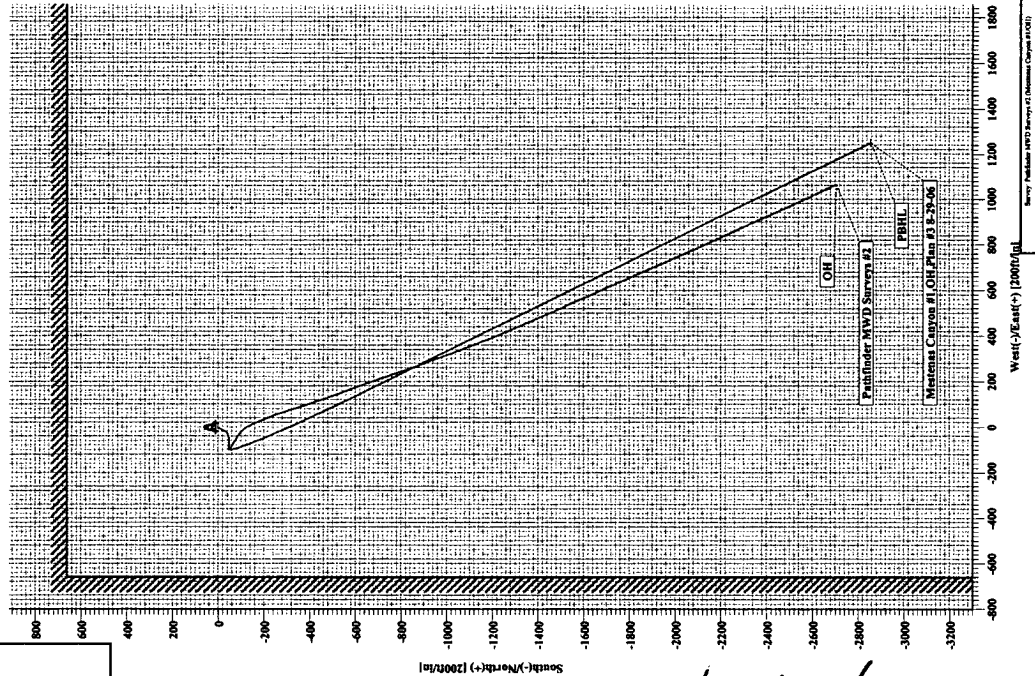
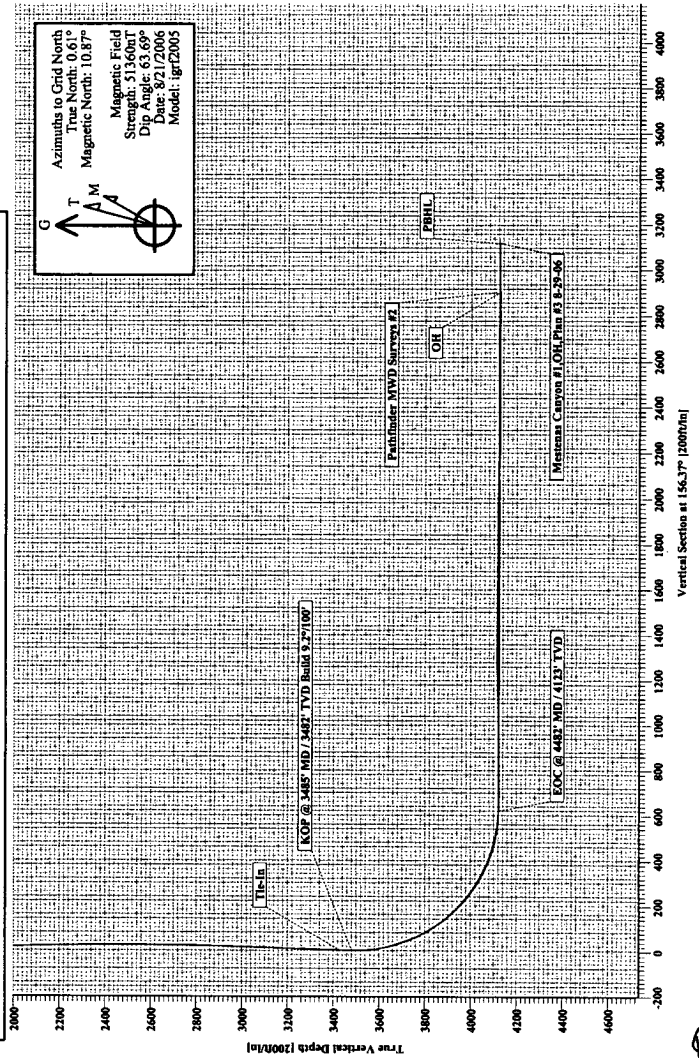
SITE DETAILS				
Basin Fruitland Coal				
Ground Level:	7458.00			
Positional Uncertainty:	0.00			
Convergence:	-0.61			

Survey: Pathfinder MWD Surveys #2 (Mestenas Canyon #1/OH)									
No	MD	Inc	Az	TVD	+N/S	+E/W	DLeg	TFace	VSec
110	6611.00	88.99	155.04	4126.95	-2564.75	999.36	1.30	-154.10	2750.27
111	6643.00	88.81	154.95	4127.56	-2593.74	1012.89	0.63	-153.44	2782.26
112	6674.00	90.31	154.69	4127.80	-2621.80	1026.08	4.91	-9.83	2813.24
113	6705.00	90.31	154.51	4127.63	-2649.80	1039.37	0.58	-90.00	2844.23
114	6736.00	89.52	154.42	4127.68	-2677.77	1052.74	2.56	-173.50	2875.21
115	6767.00	88.81	153.72	4128.13	-2705.65	1066.29	3.22	-135.41	2906.18

TARGET DETAILS				
Name	TVD	+N/S	+E/W	Shape
PBHL	4125.00	-2856.70	1250.00	Point

ANNOTATIONS				
No.	TVD	MD	Annotation	
1	3481.89	3485.00	KOP @ 3485' MD / 3482' TVD Build 9.2°/100'	
2	4124.11	4482.47	EOC @ 4482' MD / 4123' TVD	
3	3431.97	3435.00	Tie-In	

TARGET DETAILS				
Name	TVD	+N/S	+E/W	Shape
PBHL	4125.00	-2856.70	1250.00	Point



Surface 660/W 660/W
begin lateral BTL #1 1260/N 835/W 4482
end lateral BTL #2 1414/S 1726/W 4482
MD 6767
TVD 4128

Pathfinder Energy

Survey Report

Company: XTO Energy		Date: 9/11/2006		Time: 14:00:56		Page: 1	
Field: Rio Arriba County, NM NAD-27		Co-ordinate(NE) Reference: Well: Mestenas Canyon #1, Grid North					
Site: Basin Fruitland Coal		Vertical (TVD) Reference: SITE 7470.0					
Well: Mestenas Canyon #1		Section (VS) Reference: Well (0.00N,0.00E,156.37Azi)					
Wellpath: OH		Survey Calculation Method: Minimum Curvature					
		Db: Sybase					

Field: Rio Arriba County, NM NAD-27 1200' FSL 1925' FEL Sec. 34; T28N; R4W	
Map System: US State Plane Coordinate System 1927	Map Zone: New Mexico, Central Zone
Geo Datum: NAD27 (Clarke 1866)	Coordinate System: Well Centre
Sys Datum: Mean Sea Level	Geomagnetic Model: igrf2005

Site: Basin Fruitland Coal	
Site Position:	Northing: ft
From: Lease Line	Easting: ft
Position Uncertainty: 0.00 ft	Latitude:
Ground Level: 7458.00 ft	Longitude:
	North Reference: Grid
	Grid Convergence: -0.61 deg

Well: Mestenas Canyon #1		Slot Name:	
Well Position: +N/-S 0.00 ft	Northing: 2097337.98 ft	Latitude: 36 45 35.000 N	
+E/-W 0.00 ft	Easting: 202593.68 ft	Longitude: 107 15 55.000 W	
Position Uncertainty: 0.00 ft			

Wellpath: OH		Drilled From: Surface	
Current Datum: SITE	Height: 7470.00 ft	Tie-on Depth: 0.00 ft	
Magnetic Data: 8/21/2006		Above System Datum: Mean Sea Level	
Field Strength: 51360 nT		Declination: 10.26 deg	
Vertical Section: Depth From (TVD)	+N/-S	Mag Dip Angle: 63.69 deg	
ft	ft	+E/-W	Direction
		ft	deg
0.00	0.00	0.00	156.37

Survey: Pathfinder MWD Surveys #2		Start Date: 8/29/2006	
Company: Pathfinder Energy		Engineer: Midwellplan	
Tool:		Tied-to: From Surface	

Survey: Pathfinder MWD Surveys #2										
MD ft	Incl deg	Azlm deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1212.00	1.14	213.84	1211.92	-10.01	-6.71	6.48	0.09	0.09	0.00	
1651.00	1.49	204.78	1650.80	-18.82	-11.54	12.62	0.09	0.08	-2.06	
2090.00	2.11	201.79	2089.59	-31.51	-16.93	22.08	0.14	0.14	-0.68	
2530.00	4.04	247.32	2528.99	-45.01	-34.24	27.51	0.68	0.44	10.35	
2966.00	3.87	272.99	2963.98	-50.17	-63.11	20.66	0.40	-0.04	5.89	
3390.00	3.69	276.50	3387.06	-47.87	-90.95	7.40	0.07	-0.04	0.83	
3435.00	3.61	273.08	3431.97	-47.63	-93.81	6.04	0.52	-0.18	-7.60	
3466.00	3.34	268.24	3462.91	-47.61	-95.69	5.26	1.29	-0.87	-15.61	
3498.00	2.11	248.90	3494.88	-47.85	-97.17	4.89	4.75	-3.84	-60.44	
3528.00	1.67	165.06	3524.87	-48.47	-97.57	5.29	8.49	-1.47	-279.47	
3559.00	4.75	129.90	3555.82	-49.73	-96.47	6.89	11.35	9.94	-113.42	
3591.00	9.41	126.30	3587.56	-52.13	-93.34	10.34	14.62	14.56	-11.25	
3623.00	14.51	129.02	3618.86	-56.21	-88.11	16.17	16.03	15.94	8.50	
3655.00	18.20	125.07	3649.56	-61.60	-80.91	24.00	12.04	11.53	-12.34	
3687.00	21.02	123.22	3679.70	-67.62	-72.01	33.08	9.02	8.81	-5.78	
3718.00	23.04	119.71	3708.44	-73.68	-62.09	42.61	7.78	6.52	-11.32	
3748.00	25.85	117.60	3735.75	-79.62	-51.20	52.42	9.81	9.37	-7.03	
3779.00	28.14	123.31	3763.37	-86.76	-39.09	63.82	11.15	7.39	18.42	
3810.00	30.95	127.62	3790.34	-95.65	-26.67	76.94	11.36	9.06	13.90	
3840.00	32.89	135.53	3815.81	-106.17	-14.84	91.32	15.36	6.47	26.37	
3872.00	34.29	143.88	3842.48	-119.66	-3.44	108.25	15.07	4.37	26.09	
3903.00	36.58	151.87	3867.75	-134.87	6.07	126.00	16.66	7.39	25.77	
3935.00	40.10	155.83	3892.85	-152.69	14.79	145.82	13.41	11.00	12.37	

Pathfinder Energy

Survey Report

Company: XTO Energy
 Field: Rio Arriba County, NM NAD-27
 Site: Basin Fruitland Coal
 Well: Mestenas Canyon #1
 Wellpath: OH

Date: 9/11/2006 Time: 14:00:56 Page: 2
 Co-ordinate(NE) Reference: Well: Mestenas Canyon #1, Grid North
 Vertical (TVD) Reference: SITE 7470.0
 Section (VS) Reference: Well (0.00N,0.00E,156.37Azi)
 Survey Calculation Method: Minimum Curvature Db: Sybase

Survey: Pathfinder MWD Surveys #2

MD ft	Incl deg	Azim deg	TVD ft	+N-S ft	+E-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
3965.00	42.91	156.79	3915.32	-170.90	22.77	165.70	9.60	9.37	3.20	
3996.00	45.11	157.06	3937.61	-190.71	31.21	187.23	7.12	7.10	0.87	
4027.00	48.28	157.41	3958.87	-211.51	39.94	209.79	10.26	10.23	1.13	
4059.00	51.35	158.64	3979.52	-234.18	49.08	234.22	10.03	9.59	3.84	
4089.00	54.08	159.96	3997.69	-256.51	57.51	258.05	9.75	9.10	4.40	
4121.00	56.54	161.98	4015.90	-281.38	66.08	284.27	9.28	7.69	6.31	
4152.00	59.00	162.51	4032.43	-306.35	74.08	310.36	8.07	7.94	1.71	
4184.00	61.91	162.60	4048.21	-332.91	82.42	338.03	9.10	9.09	0.28	
4213.00	64.98	162.51	4061.18	-357.65	90.20	363.82	10.59	10.59	-0.31	
4245.00	68.15	162.07	4073.90	-385.62	99.13	393.02	9.99	9.91	-1.37	
4275.00	71.14	161.72	4084.33	-412.35	107.87	421.01	10.03	9.97	-1.17	
4306.00	73.34	161.54	4093.79	-440.37	117.18	450.41	7.12	7.10	-0.58	
4338.00	75.27	161.01	4102.45	-469.54	127.07	481.10	6.24	6.03	-1.66	
4370.00	78.08	160.05	4109.82	-498.89	137.45	512.15	9.25	8.78	-3.00	
4401.00	80.72	159.39	4115.52	-527.47	148.01	542.57	8.77	8.52	-2.13	
4430.00	83.27	159.19	4119.56	-554.33	158.16	571.25	8.82	8.79	-0.69	
4462.00	85.38	159.61	4122.72	-584.14	169.36	603.04	6.72	6.59	1.31	
4492.00	87.58	159.70	4124.57	-612.21	179.77	632.94	7.34	7.33	0.30	1364
4522.00	88.99	160.84	4125.46	-640.44	189.90	662.85	6.04	4.70	3.80	
4554.00	89.69	159.96	4125.83	-670.58	200.63	694.77	3.51	2.19	-2.75	
4586.00	90.13	161.01	4125.88	-700.74	211.32	726.69	3.56	1.37	3.28	
4617.00	89.96	161.19	4125.86	-730.07	221.36	757.58	0.80	-0.55	0.58	
4648.00	90.13	161.19	4125.83	-759.42	231.36	788.47	0.55	0.55	0.00	
4680.00	89.87	160.93	4125.83	-789.68	241.74	820.36	1.15	-0.81	-0.81	
4711.00	90.13	160.40	4125.83	-818.93	252.01	851.28	1.90	0.84	-1.71	
4741.00	90.40	160.57	4125.70	-847.21	262.03	881.20	1.06	0.90	0.57	
4772.00	90.57	160.66	4125.43	-876.45	272.32	912.11	0.62	0.55	0.29	
4804.00	90.66	160.13	4125.09	-906.59	283.05	944.03	1.68	0.28	-1.66	
4835.00	90.84	160.22	4124.68	-935.75	293.57	974.96	0.65	0.58	0.29	
4866.00	91.28	159.61	4124.11	-964.86	304.21	1005.89	2.43	1.42	-1.97	
4898.00	91.54	160.31	4123.32	-994.92	315.17	1037.82	2.33	0.81	2.19	
4929.00	91.63	159.17	4122.47	-1023.99	325.90	1068.76	3.69	0.29	-3.68	
4959.00	91.63	158.90	4121.61	-1051.99	336.63	1098.71	0.90	0.00	-0.90	
4991.00	91.71	159.70	4120.68	-1081.91	347.94	1130.66	2.51	0.25	2.50	
5022.00	91.71	158.99	4119.75	-1110.91	358.87	1161.60	2.29	0.00	-2.29	
5053.00	91.36	158.55	4118.92	-1139.79	370.09	1192.56	1.81	-1.13	-1.42	
5084.00	91.36	158.55	4118.19	-1168.64	381.42	1223.53	0.00	0.00	0.00	
5115.00	90.84	157.67	4117.59	-1197.40	392.98	1254.51	3.30	-1.68	-2.84	
5145.00	90.31	157.59	4117.29	-1225.14	404.40	1284.50	1.79	-1.77	-0.27	
5177.00	89.96	157.32	4117.22	-1254.69	416.66	1316.49	1.38	-1.09	-0.84	
5207.00	89.69	157.23	4117.31	-1282.36	428.25	1346.49	0.95	-0.90	-0.30	
5239.00	89.60	156.88	4117.51	-1311.83	440.73	1378.49	1.13	-0.28	-1.09	
5270.00	89.52	156.62	4117.74	-1340.31	452.97	1409.49	0.88	-0.26	-0.84	
5302.00	89.87	156.79	4117.92	-1369.70	465.62	1441.48	1.22	1.09	0.53	
5332.00	90.04	156.97	4117.94	-1397.29	477.40	1471.48	0.83	0.57	0.60	
5363.00	90.04	156.71	4117.92	-1425.79	489.59	1502.48	0.84	0.00	-0.84	
5393.00	90.13	156.44	4117.87	-1453.32	501.52	1532.48	0.95	0.30	-0.90	
5424.00	89.87	155.57	4117.87	-1481.64	514.12	1563.48	2.93	-0.84	-2.81	
5456.00	89.87	155.74	4117.95	-1510.80	527.32	1595.48	0.53	0.00	0.53	
5487.00	89.78	155.92	4118.04	-1539.08	540.01	1626.48	0.65	-0.29	0.58	
5519.00	89.69	155.92	4118.19	-1568.29	553.06	1658.48	0.28	-0.28	0.00	
5550.00	89.34	156.00	4118.45	-1596.60	565.69	1689.47	1.16	-1.13	0.26	
5582.00	89.25	155.39	4118.84	-1625.77	578.86	1721.47	1.93	-0.28	-1.91	

Pathfinder Energy

Survey Report

Company: XTO Energy Field: Rio Arriba County, NM NAD-27 Site: Basin Fruitland Coal Well: Mestenas Canyon #1 Wellpath: OH	Date: 9/11/2006 Time: 14:00:56 Page: 3 Co-ordinate(NE) Reference: Well: Mestenas Canyon #1, Grid North Vertical (TVD) Reference: SITE 7470.0 Section (VS) Reference: Well (0.00N,0.00E,156.37Azi) Survey Calculation Method: Minimum Curvature Db: Sybase
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Survey: Pathfinder MWD Surveys #2

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
5614.00	89.25	155.48	4119.26	-1654.87	592.17	1753.46	0.28	0.00	0.28	
5645.00	89.52	155.65	4119.60	-1683.09	604.99	1784.46	1.03	0.87	0.55	
5677.00	89.69	156.62	4119.82	-1712.35	617.93	1816.46	3.08	0.53	3.03	
5712.00	89.69	156.18	4120.01	-1744.42	631.95	1851.46	1.26	0.00	-1.26	
5743.00	89.78	156.36	4120.15	-1772.80	644.42	1882.46	0.65	0.29	0.58	
5774.00	89.69	156.71	4120.29	-1801.24	656.76	1913.45	1.17	-0.29	1.13	
5804.00	89.69	156.09	4120.45	-1828.73	668.78	1943.45	2.07	0.00	-2.07	
5836.00	89.60	156.79	4120.65	-1858.06	681.57	1975.45	2.21	-0.28	2.19	
5867.00	88.55	156.79	4121.15	-1886.55	693.78	2006.45	3.39	-3.39	0.00	
5898.00	88.55	156.71	4121.94	-1915.02	706.01	2037.44	0.26	0.00	-0.26	
5929.00	88.37	156.44	4122.77	-1943.46	718.33	2068.43	1.05	-0.58	-0.87	
5961.00	88.55	156.53	4123.63	-1972.79	731.10	2100.41	0.63	0.56	0.28	
5993.00	88.11	156.18	4124.56	-2002.09	743.93	2132.40	1.76	-1.37	-1.09	
6023.00	87.67	156.36	4125.67	-2029.53	755.99	2162.38	1.58	-1.47	0.60	
6054.00	88.46	156.36	4126.71	-2057.92	768.41	2193.36	2.55	2.55	0.00	
6085.00	90.31	156.27	4127.05	-2086.30	780.86	2224.36	5.97	5.97	-0.29	
6115.00	90.48	156.27	4126.84	-2113.76	792.94	2254.36	0.57	0.57	0.00	
6147.00	89.43	155.39	4126.87	-2142.96	806.04	2286.36	4.28	-3.28	-2.75	
6178.00	89.52	155.12	4127.15	-2171.11	819.01	2317.35	0.92	0.29	-0.87	
6209.00	90.31	155.30	4127.20	-2199.25	832.01	2348.34	2.61	2.55	0.58	
6240.00	90.22	155.30	4127.05	-2227.42	844.97	2379.34	0.29	-0.29	0.00	
6271.00	90.40	155.39	4126.88	-2255.59	857.90	2410.33	0.65	0.58	0.29	
6302.00	89.87	155.39	4126.81	-2283.77	870.81	2441.33	1.71	-1.71	0.00	
6334.00	89.52	155.48	4126.98	-2312.88	884.11	2473.32	1.13	-1.09	0.28	
6364.00	89.87	155.74	4127.14	-2340.20	896.50	2503.32	1.45	1.17	0.87	
6394.00	90.66	156.00	4127.00	-2367.58	908.76	2533.32	2.77	2.63	0.87	
6425.00	90.13	155.48	4126.79	-2395.84	921.50	2564.31	2.40	-1.71	-1.68	
6456.00	90.13	155.48	4126.72	-2424.04	934.37	2595.31	0.00	0.00	0.00	
6487.00	90.66	155.48	4126.51	-2452.25	947.23	2626.31	1.71	1.71	0.00	
6518.00	90.22	155.39	4126.27	-2480.44	960.12	2657.30	1.45	-1.42	-0.29	
6549.00	89.78	154.69	4126.27	-2508.55	973.20	2688.29	2.67	-1.42	-2.26	
6581.00	89.34	155.21	4126.51	-2537.53	986.75	2720.28	2.13	-1.37	1.62	
6611.00	88.99	155.04	4126.95	-2564.75	999.36	2750.27	1.30	-1.17	-0.57	
6643.00	88.81	154.95	4127.56	-2593.74	1012.89	2782.26	0.63	-0.56	-0.28	
6674.00	90.31	154.69	4127.80	-2621.80	1026.08	2813.24	4.91	4.84	-0.84	
6705.00	90.31	154.51	4127.63	-2649.80	1039.37	2844.23	0.58	0.00	-0.58	
6736.00	89.52	154.42	4127.68	-2677.77	1052.74	2875.21	2.56	-2.55	-0.29	
6767.00	88.81	153.72	4128.13	-2705.65	1066.29	2906.18	3.22	-2.29	-2.26	