

Pathfinder Energy

Survey Report

30-045-32961

Company: XTO Energy Field: San Juan County, NM Site: OH Randel #13 Well: OH Randel #13 Wellpath: ST #3		Date: 5/14/2007 Co-ordinate(NE) Reference: Well: OH Randel #13, Grid North Vertical (TVD) Reference: SITE 6429.0 Section (VS) Reference: Well (0.00N,0.00E,270.69Azi) Survey Calculation Method: Minimum Curvature		Time: 15:04:27 Page: 1						
Field: San Juan County, NM										
Map System: US State Plane Coordinate System 1927 Geo Datum: NAD27 (Clarke 1866) Sys Datum: Mean Sea Level		Map Zone: New Mexico, Western Zone Coordinate System: Well Centre Geomagnetic Model: igrf2005								
Site: OH Randel #13 San Jaun Co. New Mexico Section 9A; T26N; R11W										
Site Position: From: Geographic Position Uncertainty: 0.00 ft Ground Level: 6417.00 ft		Northing: 2003819.23 ft Easting: 450120.35 ft Latitude: 36 30 25.000 N Longitude: 108 0 11.000 W North Reference: Grid Grid Convergence: -0.10 deg								
Well: OH Randel #13										
Well Position: +N/-S 0.00 ft +E/-W 0.00 ft Position Uncertainty: 0.00 ft		Slot Name: Northing: 2003819.23 ft Easting: 450120.35 ft Latitude: 36 30 25.000 N Longitude: 108 0 11.000 W								
Wellpath: ST #3 Basin Fruitland Coal		Drilled From: Surface Tie-on Depth: 0.00 ft Above System Datum: Mean Sea Level Declination: 10.59 deg Mag Dip Angle: 63.34 deg								
Current Datum: SITE Magnetic Data: 3/9/2006 Field Strength: 51152 nT Vertical Section: Depth From (TVD) ft		Height: 6429.00 ft +N/-S ft +E/-W ft Direction deg								
0.00		0.00 0.00 270.69								
Survey: Pathfinder MWD Company: Pathfinder Energy Tool:		Start Date: 12/14/2006 Engineer: Tied-to: From Surface								
Survey: Pathfinder MWD										
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
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
467.00	0.44	17.44	467.00	1.71	0.54	-0.52	0.09	0.09	0.00	
498.00	0.35	27.28	497.99	1.91	0.62	-0.59	0.36	-0.29	31.74	
527.00	0.53	301.42	526.99	2.06	0.54	-0.52	2.12	0.62	-296.07	
545.00	1.03	272.58	544.99	2.11	0.31	-0.29	3.43	2.75	-160.21	KOP @ 545' MD 3" / 100' E
557.00	1.41	265.64	556.99	2.10	0.06	-0.03	3.43	3.20	-57.86	Sur: 855/N 1110/E
588.00	2.64	261.78	587.97	1.97	-1.03	1.05	3.99	3.97	-12.45	BHL 868/N 167/E
619.00	4.04	259.40	618.92	1.67	-2.81	2.83	4.54	4.52	-7.68	BHL 2818/N 1045/W
648.00	5.01	259.93	647.83	1.26	-5.06	5.08	3.35	3.34	1.83	
678.00	6.16	263.36	677.68	0.84	-7.95	7.96	3.99	3.83	11.43	
708.00	7.30	265.12	707.48	0.49	-11.45	11.45	3.86	3.80	5.87	
739.00	8.35	267.67	738.19	0.24	-15.66	15.66	3.57	3.39	8.23	MD 1960 TVD 1786
768.00	9.41	268.90	766.84	0.10	-20.13	20.13	3.71	3.66	4.24	MD 24625 TVD 21774
797.00	10.29	268.54	795.41	-0.01	-25.09	25.09	3.04	3.03	-1.24	
827.00	10.99	268.46	824.89	-0.15	-30.63	30.63	2.33	2.33	-0.27	
858.00	12.05	269.16	855.27	-0.28	-36.82	36.81	3.45	3.42	2.26	
887.00	12.93	270.21	883.58	-0.31	-43.09	43.09	3.13	3.03	3.62	
918.00	13.98	269.69	913.73	-0.32	-50.31	50.30	3.41	3.39	-1.68	
947.00	14.86	269.16	941.82	-0.39	-57.53	57.52	3.07	3.03	-1.83	
978.00	16.18	270.21	971.69	-0.44	-65.82	65.81	4.35	4.26	3.39	
1009.00	16.44	270.57	1001.44	-0.38	-74.53	74.52	0.90	0.84	1.16	
1041.00	17.24	271.71	1032.07	-0.19	-83.79	83.79	2.70	2.50	3.56	
1072.00	17.32	271.71	1061.67	0.09	-93.00	92.99	0.26	0.26	0.00	
1103.00	17.50	271.80	1091.25	0.37	-102.27	102.27	0.59	0.58	0.29	

RCVD MAY 22 '07
OIL CONS. DIV.
DIST. 3

8/22

Pathfinder Energy

Survey Report

Company: XTO Energy Field: San Juan County, NM Site: OH Randel #13 Well: OH Randel #13 Wellpath: ST #3	Date: 5/14/2007 Time: 15:04:27 Page: 2 Co-ordinate(NE) Reference: Well: OH Randel #13, Grid North Vertical (TVD) Reference: SITE 6429.0 Section (VS) Reference: Well (0.00N,0.00E,270.69Azi) Survey Calculation Method: Minimum Curvature Db: Sybase
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Survey: Pathfinder MWD

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
1134.00	17.95	272.77	1120.78	0.75	-111.70	111.70	1.74	1.45	3.13	
1165.00	18.19	272.33	1150.25	1.17	-121.31	121.31	0.89	0.77	-1.42	
1197.00	20.05	271.98	1180.48	1.57	-131.78	131.79	5.82	5.81	-1.09	
1229.00	21.19	270.83	1210.43	1.84	-143.04	143.06	3.78	3.56	-3.59	
1261.00	22.42	270.75	1240.14	2.00	-154.93	154.94	3.84	3.84	-0.25	
1292.00	22.95	269.60	1268.74	2.04	-166.88	166.90	2.23	1.71	-3.71	
1324.00	23.74	269.43	1298.12	1.93	-179.56	179.57	2.48	2.47	-0.53	
1355.00	24.71	269.52	1326.39	1.82	-192.28	192.29	3.13	3.13	0.29	
1384.00	25.59	269.16	1352.64	1.67	-204.61	204.61	3.08	3.03	-1.24	
1414.00	26.64	269.78	1379.58	1.55	-217.81	217.81	3.62	3.50	2.07	
1444.00	27.26	269.69	1406.32	1.49	-231.41	231.41	2.07	2.07	-0.30	
1476.00	27.44	272.07	1434.75	1.72	-246.10	246.11	3.46	0.56	7.44	
1507.00	29.02	270.92	1462.06	2.09	-260.76	260.77	5.39	5.10	-3.71	
1539.00	30.07	270.37	1489.90	2.27	-276.54	276.55	3.39	3.28	-1.72	
1570.00	30.69	270.04	1516.64	2.33	-292.22	292.22	2.07	2.00	-1.06	
1601.00	31.83	270.13	1543.14	2.35	-308.30	308.31	3.68	3.68	0.29	
1632.00	32.89	269.52	1569.32	2.30	-324.90	324.90	3.58	3.42	-1.97	
1664.00	34.38	269.43	1595.97	2.14	-342.62	342.62	4.66	4.66	-0.28	
1696.00	36.67	268.81	1622.01	1.85	-361.21	361.21	7.24	7.16	-1.94	
1719.40	38.92	268.42	1640.50	1.50	-375.55	375.54	9.68	9.62	-1.65	End of 3" BR, Start of 14
1728.00	39.75	268.29	1647.15	1.34	-380.99	380.98	9.68	9.63	-1.55	
1759.00	42.56	268.11	1670.49	0.70	-401.38	401.36	9.07	9.06	-0.58	
1773.00	43.97	268.20	1680.68	0.39	-410.97	410.95	10.08	10.07	0.64	
1841.00	49.77	265.91	1727.15	-2.20	-460.50	460.45	8.88	8.53	-3.37	
1870.00	53.55	264.95	1745.14	-4.02	-483.17	483.09	13.29	13.03	-3.31	
1900.00	58.74	264.07	1761.85	-6.41	-507.96	507.85	17.47	17.30	-2.93	
1930.00	65.77	263.01	1775.81	-9.40	-534.33	534.18	23.64	23.43	-3.53	
1960.00	73.25	261.87	1786.30	-13.10	-562.16	561.97	25.19	24.93	-3.80	
1990.00	80.28	260.82	1793.16	-17.50	-591.02	590.76	23.68	23.43	-3.50	
2004.00	84.77	261.08	1794.98	-19.68	-604.72	604.44	32.12	32.07	1.86	
2034.00	90.31	261.78	1796.27	-24.14	-634.35	634.01	18.61	18.47	2.33	
2064.00	92.15	261.61	1795.63	-28.48	-664.02	663.63	6.16	6.13	-0.57	
2095.00	92.07	262.04	1794.49	-32.88	-694.69	694.24	1.41	-0.26	1.39	
2126.00	92.33	262.66	1793.30	-37.01	-725.39	724.89	2.17	0.84	2.00	
2156.00	91.54	262.84	1792.28	-40.79	-755.13	754.59	2.70	-2.63	0.60	
2187.00	89.08	264.59	1792.12	-44.18	-785.94	785.36	9.74	-7.94	5.65	
2217.00	90.22	266.79	1792.30	-46.44	-815.85	815.24	8.26	3.80	7.33	
2248.00	89.78	268.02	1792.30	-47.84	-846.82	846.19	4.21	-1.42	3.97	
2279.00	89.87	268.55	1792.39	-48.77	-877.81	877.16	1.73	0.29	1.71	
2308.00	90.48	269.34	1792.30	-49.30	-906.80	906.15	3.44	2.10	2.72	
2338.00	91.89	270.22	1791.68	-49.42	-936.79	936.14	5.54	4.70	2.93	
2369.00	92.24	270.40	1790.57	-49.25	-967.77	967.11	1.27	1.13	0.58	
2399.00	92.15	270.57	1789.42	-49.00	-997.75	997.09	0.64	-0.30	0.57	
2430.00	92.33	270.48	1788.21	-48.71	-1028.72	1028.07	0.65	0.58	-0.29	
2460.00	91.54	270.75	1787.19	-48.39	-1058.71	1058.05	2.78	-2.63	0.90	
2489.00	91.10	271.19	1786.53	-47.90	-1087.69	1087.04	2.15	-1.52	1.52	
2518.00	91.36	271.63	1785.90	-47.19	-1116.68	1116.03	1.76	0.90	1.52	
2549.00	91.54	271.89	1785.12	-46.23	-1147.65	1147.02	1.02	0.58	0.84	
2580.00	91.89	272.15	1784.19	-45.14	-1178.62	1178.00	1.41	1.13	0.84	
2609.00	92.07	272.07	1783.19	-44.07	-1207.58	1206.97	0.68	0.62	-0.28	
2640.00	91.28	272.77	1782.28	-42.77	-1238.54	1237.94	3.40	-2.55	2.26	
2669.00	89.52	272.77	1782.08	-41.36	-1267.51	1266.92	6.07	-6.07	0.00	
2699.00	89.60	272.50	1782.31	-39.99	-1297.47	1296.90	0.94	0.27	-0.90	

Start

Pathfinder Energy

Survey Report

Company: XTO Energy
Field: San Juan County, NM
Site: OH Randel #13
Well: OH Randel #13
Wellpath: ST #3

Date: 5/14/2007 **Time:** 15:04:27 **Page:** 3
Co-ordinate(NE) Reference: Well: OH Randel #13, Grid North
Vertical (TVD) Reference: SITE 6429.0
Section (VS) Reference: Well (0.00N,0.00E,270.69Azi)
Survey Calculation Method: Minimum Curvature **Db:** Sybase

Survey: Pathfinder MWD

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
2730.00	91.01	272.68	1782.15	-38.59	-1328.44	1327.88	4.59	4.55	0.58	
2760.00	91.71	272.94	1781.43	-37.11	-1358.40	1357.85	2.49	2.33	0.87	
2790.00	91.63	272.33	1780.56	-35.74	-1388.35	1387.82	2.05	-0.27	-2.03	
2820.00	91.45	272.33	1779.75	-34.52	-1418.32	1417.80	0.60	-0.60	0.00	
2850.00	90.75	272.42	1779.18	-33.27	-1448.28	1447.78	2.35	-2.33	0.30	
2879.00	90.04	273.56	1778.98	-31.76	-1477.24	1476.76	4.63	-2.45	3.93	
2910.00	90.57	273.12	1778.81	-29.96	-1508.19	1507.72	2.22	1.71	-1.42	
2942.00	90.13	273.03	1778.62	-28.24	-1540.14	1539.70	1.40	-1.37	-0.28	
2973.00	90.66	272.68	1778.40	-26.69	-1571.10	1570.67	2.05	1.71	-1.13	
3005.00	91.36	272.42	1777.84	-25.27	-1603.07	1602.65	2.33	2.19	-0.81	
3037.00	91.89	272.24	1776.93	-23.97	-1635.03	1634.62	1.75	1.66	-0.56	
3068.00	91.63	271.63	1775.98	-22.92	-1666.00	1665.60	2.14	-0.84	-1.97	
3099.00	91.63	271.71	1775.10	-22.02	-1696.97	1696.58	0.26	0.00	0.26	
3131.00	92.15	271.63	1774.04	-21.09	-1728.94	1728.56	1.64	1.62	-0.25	
3163.00	90.13	270.48	1773.41	-20.50	-1760.92	1760.55	7.26	-6.31	-3.59	
3194.00	89.52	270.22	1773.50	-20.31	-1791.92	1791.55	2.14	-1.97	-0.84	
3226.00	89.25	270.31	1773.84	-20.16	-1823.92	1823.55	0.89	-0.84	0.28	
3258.00	89.52	270.48	1774.19	-19.94	-1855.92	1855.55	1.00	0.84	0.53	
3289.00	89.52	270.40	1774.45	-19.70	-1886.92	1886.55	0.26	0.00	-0.26	
3320.00	89.87	270.66	1774.61	-19.42	-1917.92	1917.55	1.41	1.13	0.84	
3351.00	90.57	271.71	1774.49	-18.78	-1948.91	1948.54	4.07	2.26	3.39	
3383.00	90.66	272.59	1774.15	-17.58	-1980.88	1980.53	2.76	0.28	2.75	
3414.00	89.16	272.68	1774.20	-16.15	-2011.85	2011.51	4.85	-4.84	0.29	
3445.00	88.11	272.59	1774.94	-14.73	-2042.81	2042.48	3.40	-3.39	-0.29	
3476.00	88.02	272.59	1775.98	-13.33	-2073.76	2073.45	0.29	-0.29	0.00	
3508.00	88.02	272.33	1777.09	-11.95	-2105.71	2105.42	0.81	0.00	-0.81	
3539.00	88.37	272.15	1778.07	-10.74	-2136.67	2136.39	1.27	1.13	-0.58	
3571.00	90.13	272.77	1778.48	-9.37	-2168.64	2168.37	5.83	5.50	1.94	
3602.00	90.04	273.03	1778.44	-7.80	-2199.60	2199.35	0.89	-0.29	0.84	
3633.00	89.87	273.38	1778.46	-6.07	-2230.55	2230.32	1.26	-0.55	1.13	
3665.00	90.04	274.09	1778.49	-3.98	-2262.48	2262.27	2.28	0.53	2.22	
3696.00	90.13	273.73	1778.44	-1.87	-2293.41	2293.22	1.20	0.29	-1.16	
3728.00	90.04	273.47	1778.39	0.14	-2325.34	2325.18	0.86	-0.28	-0.81	
3760.00	89.96	273.12	1778.39	1.98	-2357.29	2357.15	1.12	-0.25	-1.09	
3790.00	89.78	274.09	1778.46	3.87	-2387.23	2387.11	3.29	-0.60	3.23	
3822.00	89.34	274.35	1778.71	6.22	-2419.14	2419.05	1.60	-1.37	0.81	
3854.00	89.96	274.53	1778.90	8.70	-2451.05	2450.98	2.02	1.94	0.56	
3886.00	90.92	274.17	1778.66	11.12	-2482.95	2482.91	3.20	3.00	-1.12	
3918.00	91.01	273.91	1778.12	13.38	-2514.87	2514.85	0.86	0.28	-0.81	
3948.00	91.54	273.29	1777.45	15.26	-2544.80	2544.80	2.72	1.77	-2.07	
3980.00	91.36	273.56	1776.64	17.17	-2576.74	2576.76	1.01	-0.56	0.84	
4010.00	91.01	273.56	1776.02	19.04	-2606.67	2606.71	1.17	-1.17	0.00	
4042.00	90.92	273.65	1775.48	21.05	-2638.60	2638.67	0.40	-0.28	0.28	
4073.00	90.75	272.94	1775.03	22.83	-2669.55	2669.63	2.35	-0.55	-2.29	
4105.00	90.57	272.33	1774.66	24.30	-2701.51	2701.61	1.99	-0.56	-1.91	
4136.00	91.10	272.77	1774.21	25.68	-2732.48	2732.59	2.22	1.71	1.42	
4168.00	91.71	272.77	1773.43	27.22	-2764.43	2764.56	1.91	1.91	0.00	
4200.00	89.16	272.50	1773.18	28.70	-2796.39	2796.54	8.01	-7.97	-0.84	
4232.00	88.55	272.24	1773.82	30.02	-2828.36	2828.52	2.07	-1.91	-0.81	
4264.00	88.29	272.07	1774.70	31.22	-2860.32	2860.49	0.97	-0.81	-0.53	
4296.00	87.67	271.89	1775.83	32.33	-2892.29	2892.47	2.02	-1.94	-0.56	
4328.00	88.55	271.80	1776.89	33.36	-2924.25	2924.44	2.76	2.75	-0.28	
4359.00	89.52	271.54	1777.41	34.26	-2955.23	2955.43	3.24	3.13	-0.84	

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Survey: Pathfinder MWD

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
4389.00	89.43	271.54	1777.68	35.07	-2985.22	2985.43	0.30	-0.30	0.00	
4420.00	89.25	271.19	1778.04	35.80	-3016.21	3016.42	1.27	-0.58	-1.13	
4451.00	89.69	270.66	1778.33	36.30	-3047.20	3047.42	2.22	1.42	-1.71	
4465.00	89.78	270.83	1778.39	36.49	-3061.20	3061.42	1.37	0.64	1.21	Final MWD Survey @ 4465'
4525.00	89.78	270.83	1778.62	37.36	-3121.20	3121.42	0.00	0.00	0.00	Proj. to Bit

Annotation

MD ft	TVD ft	
545.00	544.99	KOP @ 545' MD 3° / 100' BR
1719.40	1640.50	End of 3° BR, Start of 14.94° BR @ 1640.5' TVD
4465.00	1778.39	Final MWD Survey @ 4465' MD
4525.00	1778.62	Proj. to Bit



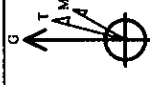
Field: San Juan County, NM
Site: OH Randel #13
Well: OH Randel #13
Wellpath: ST #3
Survey: Pathfinder MWD

COMPANY DETAILS
XTO Energy
200 N. Loveland, Suite 800
Midland, Texas

Calculation Method: Minimum Curvature
Error System: Systematic Ellipse
Scan Method: Closest Approach 3D
Error Surface: Elliptical Conic
Warning Method: Error Ratio

PATHFINDER

Azimuth to Grid North
True North: 0.10°
Magnetic North: 10.69°
Magnetic Field
Strength: 51152aT
Dip Angle: 63.34°
Date: 3/9/2006
Model: Igr2005



Survey: Pathfinder MWD (OH Randel #13/ST #3)

No	MD	Inc	Az	TVD	+N/-S	+E/-W	DLeg	TFace	VSec
125	4264.00	88.29	272.07	1774.70	31.22	-2860.32	0.97	-146.83	2860.49
126	4296.00	87.67	271.89	1775.83	32.33	-2892.29	2.02	-163.82	2892.47
127	4328.00	88.55	271.80	1776.89	33.36	-2924.25	2.76	-5.84	2924.44
128	4359.00	89.52	271.54	1777.41	34.26	-2955.23	3.24	-15.01	2955.43
129	4389.00	89.43	271.54	1777.64	35.07	-2985.22	0.30	180.00	2985.43
130	4420.00	89.25	271.19	1778.04	35.80	-3016.21	1.27	-117.22	3016.42
131	4451.00	89.69	270.66	1778.33	36.30	-3047.20	2.22	-50.30	3047.42
132	4463.00	89.78	270.83	1778.39	36.49	-3061.20	1.37	62.10	3061.42
133	4525.00	89.78	270.83	1778.62	37.36	-3121.20	0.00	180.00	3121.42

ANNOTATIONS

No.	TVD	MD	Annotation
1	544.99	545.00	KOP @ 545 MD 3" / 100' BR
2	1640.50	1719.40	End of 3" BR. Start of 14.94" BR @ 1640.5 TVD
3	1778.39	4463.00	Final MWD Survey @ 4463 MD
4	1778.62	4525.00	Proj. to Bit

WELL DETAILS

Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slat
OH Randel #13	0.00	0.00	2003819.23	450120.35	36°30'25.000"N	108°00'11.000"W	N/A

WELL PATH DETAILS

ST #3	Origin	Starting
Basin Proband Coal	+N/-S	From TVD
Rig	+E/-W	
Aztec #55	0.00	0.00
SITE	6429.00ft	
Ref. Datum:		
V. Section		
Angle	270.69°	

SITE DETAILS

OH Randel #13
San Juan Co., New Mexico
Section 9N, T26N, R11W
Site Centre Latitude: 36°30'25.000"N
Longitude: 108°00'11.000"W
Ground Level: 6417.00
Positional Uncertainty: 0.00
Convergence: -0.10

