

PathFinder Energy Services

Survey Report

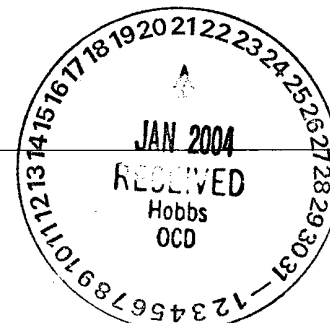
Page 1
Job No: J-WT-0307-0031
Date: 10/6/2003
Time: 10:29 am
Wellpath ID: Field_Rep
Date Created: 8/12/2003
Last Revision: 10/6/2003

Calculated using the Minimum Curvature Method
Computed using PDS VER2.2.6
Vertical Section Plane: 0.00 deg.

Survey Reference: WELLHEAD
Vertical Section Reference: WELLHEAD
Closure Reference: WELLHEAD
TVD Reference: WELLHEAD

Vintage Petroleum Inc
Hannah 17 State #2-H
Patterson Rig # 480
Lea County New Mexico
Sidetrack #2

SUR: P-17-14s-36e, 660/S & 1310/E
BHL: B-17-14s-36e, 4213/S & 1363/E
API # 30-025-36284



Measured Depth (ft)	Incl (deg.)	Drift Dir. (deg.)	TVD (ft)	Vertical Section (ft)	T O T A L Rectangular Offsets (ft)		Closure Dist. Dir. (ft) (deg.)	DLS (dg/100ft)	Build Rate (dg/100ft)
Gyro Tie-In									
9600.00	0.92	230.16	9599.57	-18.04	18.04 S	58.95W	61.65@252.98	0.00	0.00
Start of MWD Survey's									
9620.00	0.90	222.00	9619.57	-18.26	18.26 S	59.18W	61.93@252.85	0.66	-0.10
9647.00	0.62	254.77	9646.57	-18.46	18.46 S	59.46W	62.26@252.76	1.87	-1.04
9710.00	1.20	354.30	9709.56	-17.89	17.89 S	59.86W	62.47@253.36	2.28	0.92
9741.00	1.67	355.75	9740.55	-17.12	17.12 S	59.92W	62.32@254.06	1.52	1.52
9773.00	2.11	356.19	9772.53	-16.06	16.06 S	60.00W	62.11@255.01	1.38	1.37
9836.00	2.60	358.20	9835.48	-13.48	13.48 S	60.12W	61.61@257.36	0.79	0.78
9898.00	2.55	1.12	9897.42	-10.69	10.69 S	60.13W	61.08@259.92	0.23	-0.08
9961.00	2.50	2.20	9960.35	-7.92	7.92 S	60.05W	60.57@262.49	0.11	-0.08
10023.00	2.60	1.38	10022.29	-5.16	5.16 S	59.97W	60.19@265.08	0.17	0.16
10087.00	2.60	2.30	10086.23	-2.26	2.26 S	59.88W	59.92@267.84	0.07	0.00
10149.00	2.80	0.20	10148.16	0.66	0.66 N	59.81W	59.82@270.63	0.36	0.32
10213.00	2.55	357.60	10212.09	3.65	3.65 N	59.87W	59.98@273.48	0.43	-0.39
10275.00	2.60	358.60	10274.03	6.43	6.43 N	59.96W	60.30@276.12	0.11	0.08
10337.00	2.73	355.67	10335.96	9.31	9.31 N	60.11W	60.82@278.80	0.30	0.21
10400.00	2.73	354.44	10398.89	12.30	12.30 N	60.36W	61.60@281.51	0.09	0.00
10463.00	2.60	352.20	10461.82	15.21	15.21 N	60.70W	62.58@284.06	0.26	-0.21
10526.00	2.55	350.13	10524.76	18.00	18.00 N	61.14W	63.73@286.41	0.17	-0.08
10590.00	2.55	352.24	10588.69	20.82	20.82 N	61.57W	65.00@288.68	0.15	0.00
10651.00	2.40	1.00	10649.64	23.44	23.44 N	61.73W	66.03@290.79	0.67	-0.25
10714.00	2.50	359.10	10712.58	26.13	26.13 N	61.73W	67.04@292.94	0.20	0.16
10778.00	2.20	359.40	10776.52	28.75	28.75 N	61.77W	68.13@294.96	0.47	-0.47
10841.00	2.20	358.20	10839.48	31.17	31.17 N	61.82W	69.23@296.76	0.07	0.00
10904.00	2.40	358.20	10902.43	33.70	33.70 N	61.90W	70.48@298.56	0.32	0.32
10967.00	2.37	0.85	10965.37	36.32	36.32 N	61.92W	71.79@300.39	0.18	-0.05
11031.00	2.00	359.00	11029.33	38.76	38.76 N	61.92W	73.05@302.04	0.59	-0.58
11062.00	1.90	357.60	11060.31	39.81	39.81 N	61.95W	73.64@302.73	0.36	-0.32

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Date: 10/6/2003
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Measured Depth (ft)	Incl (deg.)	Drift Dir. (deg.)	TVD (ft)	Vertical Section (ft)	T O T A L Rectangular Offsets (ft) (ft)		Closure Dist. Dir. (ft) (deg.)	DLS (dg/100ft)	Build Rate (dg/100ft)
11125.00	2.30	0.70	11123.27	42.12	42.12 N	61.98W	74.94@304.20	0.66	0.63
11188.00	2.29	358.74	11186.21	44.64	44.64 N	61.99W	76.39@305.76	0.13	-0.02
11250.00	2.20	358.50	11248.17	47.07	47.07 N	62.05W	77.88@307.18	0.15	-0.15
11313.00	2.02	358.10	11311.12	49.39	49.39 N	62.12W	79.36@308.49	0.29	-0.29
11375.00	2.46	1.03	11373.08	51.81	51.81 N	62.13W	80.90@309.83	0.73	0.71
11438.00	2.55	1.38	11436.02	54.57	54.57 N	62.07W	82.65@311.32	0.14	0.14
11500.00	2.40	2.00	11497.96	57.24	57.24 N	61.99W	84.38@312.72	0.25	-0.24
11561.00	2.50	2.26	11558.90	59.85	59.85 N	61.90W	86.10@314.04	0.16	0.16
11624.00	2.55	4.02	11621.84	62.62	62.62 N	61.74W	87.94@315.40	0.15	0.08
11686.00	2.55	3.93	11683.78	65.37	65.37 N	61.55W	89.79@316.72	0.01	0.00
11749.00	2.20	1.12	11746.73	67.98	67.98 N	61.43W	91.62@317.89	0.59	-0.56
11810.00	2.29	3.49	11807.68	70.36	70.36 N	61.34W	93.35@318.92	0.21	0.15
11872.00	2.02	6.92	11869.63	72.69	72.69 N	61.13W	94.97@319.94	0.48	-0.44
11934.00	2.37	358.39	11931.59	75.05	75.05 N	61.03W	96.74@320.88	0.77	0.56
11997.00	2.29	356.11	11994.54	77.61	77.61 N	61.16W	98.81@321.76	0.19	-0.13
12059.00	2.37	352.24	12056.49	80.12	80.12 N	61.41W	100.95@322.53	0.28	0.13
12123.00	2.64	357.34	12120.42	82.90	82.90 N	61.66W	103.32@323.36	0.55	0.42
12186.00	3.43	359.45	12183.33	86.23	86.23 N	61.75W	106.06@324.40	1.27	1.25
12236.00	4.84	1.82	12233.20	89.84	89.84 N	61.69W	108.98@325.52	2.84	2.82
12275.00	6.42	3.22	12272.01	93.66	93.66 N	61.52W	112.06@326.70	4.07	4.05
12337.00	8.09	6.57	12333.52	101.45	101.45 N	60.82W	118.29@329.06	2.78	2.69
12399.00	9.32	7.27	12394.80	110.77	110.77 N	59.69W	125.83@331.68	1.99	1.98
12462.00	11.34	4.45	12456.78	122.01	122.01 N	58.56W	135.33@334.36	3.30	3.21
12524.00	12.75	1.64	12517.41	134.92	134.92 N	57.89W	146.82@336.78	2.46	2.27
12587.00	14.07	0.41	12578.69	149.53	149.53 N	57.64W	160.25@338.92	2.14	2.10
12638.00	15.48	2.26	12628.00	162.53	162.53 N	57.33W	172.34@340.57	2.92	2.76
12700.00	17.41	1.73	12687.46	180.07	180.07 N	56.72W	188.79@342.52	3.12	3.11
12763.00	18.99	2.26	12747.31	199.73	199.73 N	56.03W	207.45@344.33	2.52	2.51
12826.00	21.63	2.87	12806.39	221.58	221.58 N	55.05W	228.31@346.05	4.20	4.19
12888.00	23.39	3.49	12863.66	245.28	245.28 N	53.73W	251.09@347.64	2.86	2.84
12951.00	26.20	2.61	12920.85	271.66	271.66 N	52.33W	276.65@349.10	4.50	4.46
13013.00	29.28	3.31	12975.72	300.47	300.47 N	50.83W	304.74@350.40	5.00	4.97
13075.00	31.48	2.08	13029.20	331.79	331.79 N	49.37W	335.44@351.54	3.69	3.55
13137.00	32.01	1.55	13081.93	364.39	364.39 N	48.34W	367.59@352.44	0.97	0.85
13168.00	32.71	1.55	13108.11	380.98	380.98 N	47.89W	383.98@352.84	2.26	2.26
13199.00	33.68	1.20	13134.05	397.95	397.95 N	47.48W	400.77@353.20	3.19	3.13
13230.00	34.47	1.03	13159.73	415.31	415.31 N	47.14W	417.98@353.52	2.57	2.55
13282.00	37.20	1.50	13201.88	445.74	445.74 N	46.47W	448.16@354.05	5.28	5.25
13311.00	46.60	358.30	13223.45	465.08	465.08 N	46.55W	467.41@354.28	33.23	32.41
13342.00	55.05	356.72	13243.01	489.07	489.07 N	47.61W	491.38@354.44	27.54	27.26
13374.00	62.87	357.07	13259.50	516.43	516.43 N	49.09W	518.75@354.57	24.46	24.44
13407.00	71.23	355.93	13272.36	546.73	546.73 N	50.96W	549.10@354.68	25.53	25.33

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Date: 10/6/2003
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13438.00	80.20	355.49	13280.00	576.66	576.66 N 53.20W	579.11@354.73	28.97	28.94
13472.00	87.23	355.14	13283.72	610.32	610.32 N 55.96W	612.88@354.76	20.70	20.68
13504.00	90.48	355.67	13284.36	642.20	642.20 N 58.53W	644.87@354.79	10.29	10.16
13535.00	93.65	356.19	13283.24	673.10	673.10 N 60.73W	675.84@354.84	10.36	10.23
13567.00	96.38	358.04	13280.44	704.93	704.93 N 62.33W	707.68@354.95	10.29	8.53
13631.00	95.85	359.89	13273.62	768.56	768.56 N 63.48W	771.17@355.28	2.99	-0.83
13694.00	96.20	1.12	13267.01	831.21	831.21 N 62.93W	833.58@355.67	2.02	0.56
13758.00	95.85	2.61	13260.29	894.82	894.82 N 60.86W	896.88@356.11	2.38	-0.55
13821.00	94.00	2.96	13254.88	957.51	957.51 N 57.81W	959.25@356.55	2.99	-2.94
13883.00	94.09	2.43	13250.51	1019.28	1019.28 N 54.90W	1020.76@356.92	0.86	0.15
13947.00	94.53	2.35	13245.70	1083.05	1083.05 N 52.24W	1084.31@357.24	0.70	0.69
14010.00	94.62	2.17	13240.68	1145.80	1145.80 N 49.76W	1146.88@357.51	0.32	0.14
14074.00	93.74	1.80	13236.01	1209.59	1209.59 N 47.55W	1210.52@357.75	1.49	-1.38
14137.00	91.28	0.41	13233.25	1272.51	1272.51 N 46.34W	1273.35@357.91	4.48	-3.90
14200.00	90.40	0.24	13232.33	1335.50	1335.50 N 45.98W	1336.29@358.03	1.42	-1.40
14263.00	90.13	0.06	13232.04	1398.50	1398.50 N 45.81W	1399.25@358.12	0.52	-0.43
14326.00	90.40	0.50	13231.75	1461.50	1461.50 N 45.51W	1462.21@358.22	0.82	0.43
14389.00	89.08	359.97	13232.03	1524.50	1524.50 N 45.25W	1525.17@358.30	2.26	-2.10
14452.00	89.43	0.15	13232.85	1587.49	1587.49 N 45.18W	1588.13@358.37	0.62	0.56
14516.00	88.99	359.45	13233.74	1651.48	1651.48 N 45.41W	1652.11@358.43	1.29	-0.69
14579.00	89.78	359.27	13234.41	1714.47	1714.47 N 46.11W	1715.09@358.46	1.29	1.25
14642.00	88.64	358.48	13235.28	1777.46	1777.46 N 47.35W	1778.09@358.47	2.20	-1.81
14705.00	88.46	358.39	13236.87	1840.41	1840.41 N 49.07W	1841.07@358.47	0.32	-0.29
14769.00	87.67	358.74	13239.03	1904.35	1904.35 N 50.67W	1905.03@358.48	1.35	-1.23
14833.00	86.79	358.65	13242.13	1968.26	1968.26 N 52.12W	1968.95@358.48	1.38	-1.37
14896.00	87.41	357.78	13245.31	2031.15	2031.15 N 54.08W	2031.87@358.47	1.69	0.98
14959.00	86.44	358.65	13248.69	2094.03	2094.03 N 56.04W	2094.78@358.47	2.07	-1.54
15023.00	87.85	359.45	13251.88	2157.94	2157.94 N 57.10W	2158.69@358.48	2.53	2.20
15086.00	89.08	359.27	13253.57	2220.91	2220.91 N 57.81W	2221.66@358.51	1.97	1.95
15149.00	88.11	0.15	13255.11	2283.89	2283.89 N 58.12W	2284.63@358.54	2.08	-1.54
15211.00	88.37	1.55	13257.02	2345.85	2345.85 N 57.21W	2346.55@358.60	2.30	0.42
15275.00	87.32	2.79	13259.42	2409.76	2409.76 N 54.78W	2410.38@358.70	2.54	-1.64
15338.00	86.70	2.00	13262.71	2472.62	2472.62 N 52.16W	2473.17@358.79	1.59	-0.98
15402.00	90.13	1.47	13264.48	2536.55	2536.55 N 50.22W	2537.05@358.87	5.42	5.36
15465.00	91.54	1.12	13263.56	2599.53	2599.53 N 48.80W	2599.99@358.92	2.31	2.24
15528.00	93.39	0.85	13260.85	2662.46	2662.46 N 47.71W	2662.88@358.97	2.97	2.94
15591.00	92.51	0.50	13257.61	2725.37	2725.37 N 46.97W	2725.77@359.01	1.50	-1.40
15655.00	93.03	1.03	13254.52	2789.29	2789.29 N 46.12W	2789.67@359.05	1.16	0.81
15719.00	91.71	0.24	13251.87	2853.23	2853.23 N 45.41W	2853.59@359.09	2.40	-2.06
15782.00	92.33	0.24	13249.65	2916.19	2916.19 N 45.15W	2916.54@359.11	0.98	0.98
15845.00	92.42	359.62	13247.04	2979.13	2979.13 N 45.22W	2979.48@359.13	0.99	0.14
15881.00	92.86	358.65	13245.38	3015.09	3015.09 N 45.77W	3015.44@359.13	2.96	1.22

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Wellpath ID: Field_Rep

Measured Depth (ft)	Incl (deg.)	Drift Dir. (deg.)	TVD (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft)	Closure Dist. Dir. (ft) (deg.)	DLS (dg/100ft)	Build Rate (dg/100ft)
15910.00	93.12	358.65	13243.87	3044.04	3044.04 N	46.45W	3044.40@359.13	0.90
15942.00	91.28	358.83	13242.64	3076.01	3076.01 N	47.15W	3076.37@359.12	5.78
15973.00	89.43	358.48	13242.45	3107.00	3107.00 N	47.88W	3107.37@359.12	6.07
16001.00	87.49	358.39	13243.20	3134.98	3134.98 N	48.64W	3135.35@359.11	6.94
16033.00	85.91	358.57	13245.04	3166.91	3166.91 N	49.49W	3167.30@359.10	4.97
16064.00	84.59	358.39	13247.61	3197.79	3197.79 N	50.31W	3198.19@359.10	4.30
16096.00	83.36	358.21	13250.97	3229.60	3229.60 N	51.25W	3230.01@359.09	3.88
16128.00	82.48	358.65	13254.91	3261.35	3261.35 N	52.12W	3261.76@359.08	3.07
16159.00	80.81	358.92	13259.42	3292.01	3292.01 N	52.77W	3292.43@359.08	5.46
16190.00	79.67	359.18	13264.67	3322.56	3322.56 N	53.28W	3322.98@359.08	3.77
16222.00	78.44	359.45	13270.75	3353.97	3353.97 N	53.66W	3354.40@359.08	3.93
16253.00	77.12	359.62	13277.31	3384.27	3384.27 N	53.90W	3384.70@359.09	4.29
16284.00	75.71	359.97	13284.59	3414.40	3414.40 N	54.01W	3414.83@359.09	4.68
16316.00	74.39	359.80	13292.85	3445.31	3445.31 N	54.07W	3445.74@359.10	4.16
16348.00	73.25	0.50	13301.76	3476.05	3476.05 N	53.99W	3476.47@359.11	4.14
16379.00	72.11	0.76	13310.99	3505.64	3505.64 N	53.67W	3506.05@359.12	3.76
Projected to bit @ TD								
16429.00	70.33	0.10	13327.09	3552.97	3552.97 N	53.31W	3553.37@359.14	3.77

PathFinder Energy Services

Survey Report - Geographic

Company: Vintage Petroleum Field: Austin (Lea County, N.M.) Site: Hannah "17" State #2 Well: Hannah "17" State #2 Wellpath: Original Hole	Date: 10/6/2003 Time: 11:29:11 Page: 1 Co-ordinate(NE) Reference: Well: Hannah "17" State #2, Grid North Vertical (TVD) Reference: RKB 3979.0 Section (VS) Reference: Well (0.00N,0.00E,0.00Azi) Survey Calculation Method: Minimum Curvature Db: Sybase
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Field: Austin (Lea County, N.M.) Lea County, New Mexico US Map System: US State Plane Coordinate System 1927 Geo Datum: NAD27 (Clarke 1866) Sys Datum: Mean Sea Level	Map Zone: New Mexico, Eastern Zone Coordinate System: Well Centre Geomagnetic Model: igrf2000
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Site: Hannah "17" State #2

Section 17 T-14-S & R-36-E

Site Position:	Northing: 765039.00 ft	Latitude: 33 5 56.533 N	
From: Map	Easting: 809927.00 ft	Longitude: 103 19 16.738 W	
Position Uncertainty: 0.00 ft		North Reference: Grid	
Ground Level: 3953.00 ft		Grid Convergence: 0.55 deg	

Well: Hannah "17" State #2	Slot Name:
Well Position: +N/-S 0.00 ft Northing: 765039.00 ft Latitude: 33 5 56.533 N	
+E/-W 0.00 ft Easting: 809927.00 ft Longitude: 103 19 16.738 W	
Position Uncertainty: 0.00 ft	

Wellpath: Original Hole	Drilled From:
Current Datum: RKB	Tie-on Depth: 9620.00 ft
Magnetic Data: 7/24/2003	Above System Datum: Mean Sea Level
Field Strength: 50126 nT	Declination: 8.61 deg
Vertical Section: Depth From (TVD)	Mag Dip Angle: 61.31 deg
ft	ft
0.00	0.00
0.00	0.00
0.00	0.00

Survey: Gyro Data Survey	Start Date: 7/24/2003
Company: PathFinder Energy Services	Engineer: Robert Savage
Tool:	Tied-to: User Defined

Survey: Gyro Data Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	← Latitude →			← Longitude →		
								Deg	Min	Sec	Deg	Min	Sec
0.00	0.00	0.00	0.00	0.00	0.00	765039.00	809927.00	33	5	56.533 N	103	19	16.738 W
200.00	0.59	237.56	200.00	-0.55	-0.86	765038.45	809926.14	33	5	56.528 N	103	19	16.748 W
400.00	0.47	280.95	399.99	-0.94	-2.54	765038.06	809924.46	33	5	56.524 N	103	19	16.768 W
600.00	0.39	280.53	599.98	-0.66	-4.02	765038.34	809922.98	33	5	56.527 N	103	19	16.786 W
800.00	0.27	288.48	799.98	-0.39	-5.14	765038.61	809921.86	33	5	56.530 N	103	19	16.799 W
1000.00	0.29	278.66	999.98	-0.16	-6.09	765038.84	809920.91	33	5	56.532 N	103	19	16.810 W
1200.00	0.28	251.31	1199.97	-0.24	-7.04	765038.76	809919.96	33	5	56.531 N	103	19	16.821 W
1400.00	0.23	210.07	1399.97	-0.73	-7.70	765038.27	809919.30	33	5	56.527 N	103	19	16.829 W
1600.00	0.23	192.66	1599.97	-1.46	-7.98	765037.54	809919.02	33	5	56.519 N	103	19	16.832 W
1800.00	0.45	222.24	1799.97	-2.42	-8.59	765036.58	809918.41	33	5	56.510 N	103	19	16.840 W
2000.00	0.52	227.77	1999.96	-3.61	-9.79	765035.39	809917.21	33	5	56.498 N	103	19	16.854 W
2200.00	0.72	198.09	2199.95	-5.41	-10.85	765033.59	809916.15	33	5	56.481 N	103	19	16.866 W
2400.00	0.43	216.59	2399.94	-7.21	-11.69	765031.79	809915.31	33	5	56.463 N	103	19	16.876 W
2600.00	0.13	179.79	2599.94	-8.05	-12.14	765030.95	809914.86	33	5	56.455 N	103	19	16.882 W
2800.00	0.04	244.38	2799.94	-8.31	-12.19	765030.69	809914.81	33	5	56.452 N	103	19	16.883 W
3000.00	0.40	10.84	2999.94	-7.66	-12.13	765031.34	809914.87	33	5	56.459 N	103	19	16.882 W
3200.00	0.56	28.93	3199.93	-6.12	-11.52	765032.88	809915.48	33	5	56.474 N	103	19	16.874 W
3400.00	0.30	8.46	3399.92	-4.74	-10.97	765034.26	809916.03	33	5	56.487 N	103	19	16.868 W
3600.00	0.33	24.57	3599.92	-3.70	-10.65	765035.30	809916.35	33	5	56.498 N	103	19	16.864 W
3800.00	0.45	49.44	3799.92	-2.66	-9.81	765036.34	809917.19	33	5	56.508 N	103	19	16.854 W
4000.00	0.27	5.40	3999.91	-1.69	-9.17	765037.31	809917.83	33	5	56.517 N	103	19	16.846 W
4200.00	0.08	340.82	4199.91	-1.08	-9.18	765037.92	809917.82	33	5	56.523 N	103	19	16.846 W
4400.00	0.04	217.49	4399.91	-1.00	-9.27	765038.00	809917.73	33	5	56.524 N	103	19	16.847 W

PathFinder Energy Services

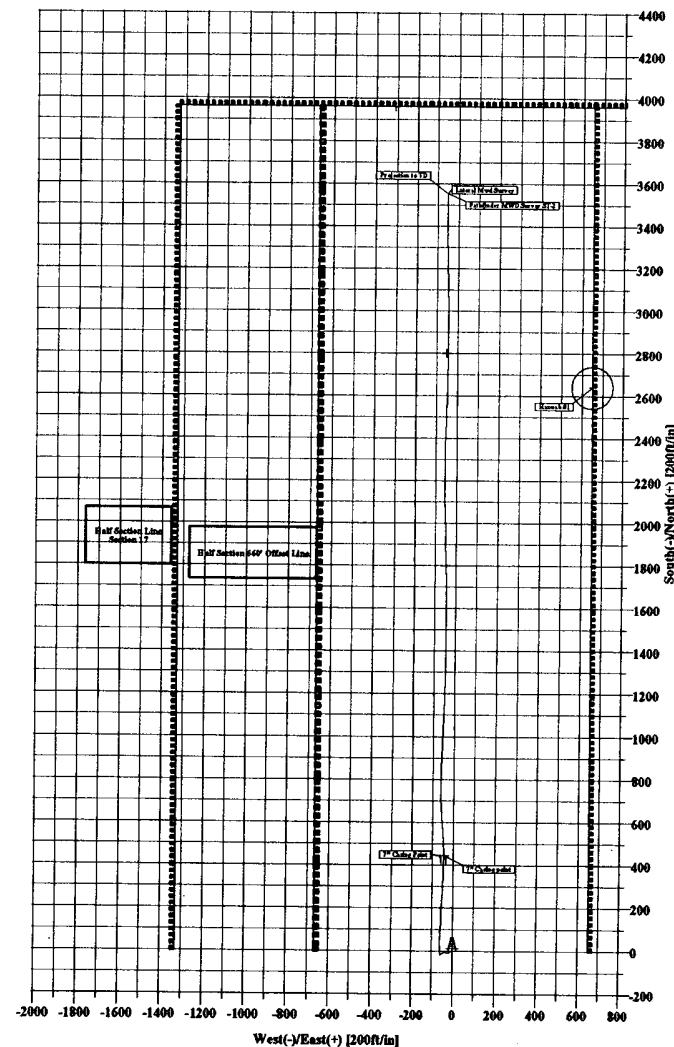
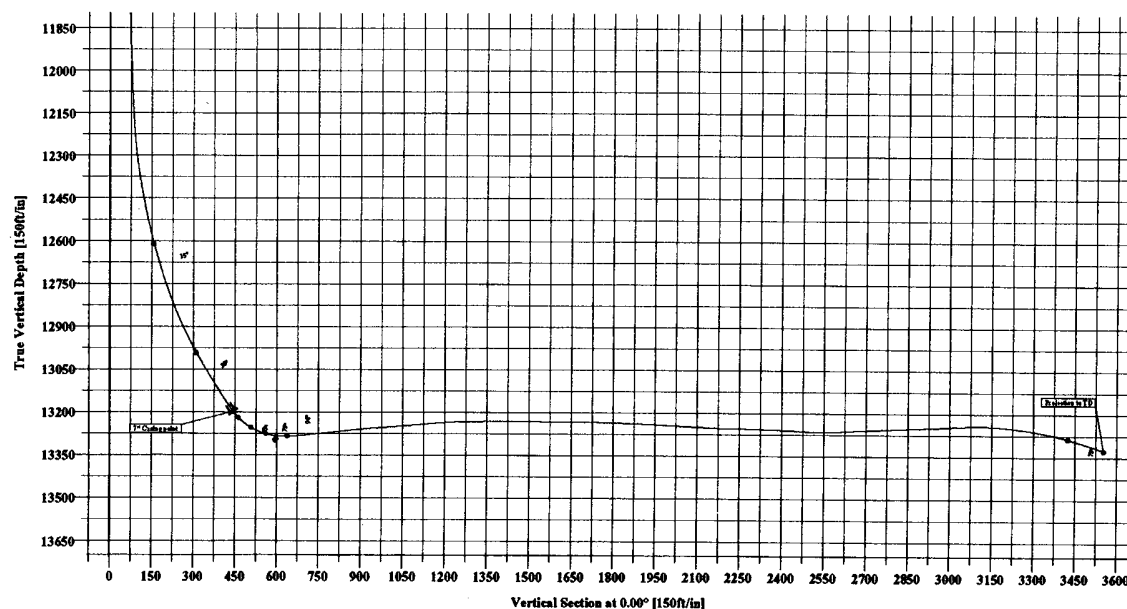
Survey Report - Geographic

Company: Vintage Petroleum Field: Austin (Lea County, N.M.) Site: Hannah "17" State #2 Well: Hannah "17" State #2 Wellpath: Original Hole	Date: 10/6/2003 Co-ordinate(NE) Reference: Vertical (TVD) Reference: Section (VS) Reference: Survey Calculation Method:	Time: 11:29:11 Well: Hannah "17" State #2, Grid North RKB 3979.0 Well (0.00N,0.00E,0.00Azi) Minimum Curvature	Page: 2 Db: Sybase
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Survey: Gyro Data Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	← Latitude → Deg Min Sec			← Longitude → Deg Min Sec		
4600.00	0.16	174.52	4599.91	-1.33	-9.28	765037.67	809917.72	33	5	56.521 N	103	19	16.848 W
4800.00	0.31	208.63	4799.91	-2.08	-9.51	765036.92	809917.49	33	5	56.513 N	103	19	16.850 W
5000.00	0.34	229.20	4999.91	-2.95	-10.23	765036.05	809916.77	33	5	56.505 N	103	19	16.859 W
5200.00	0.56	233.29	5199.90	-3.92	-11.46	765035.08	809915.54	33	5	56.495 N	103	19	16.873 W
5400.00	0.59	230.56	5399.89	-5.16	-13.04	765033.84	809913.96	33	5	56.483 N	103	19	16.892 W
5600.00	0.75	237.51	5599.88	-6.52	-14.95	765032.48	809912.05	33	5	56.470 N	103	19	16.915 W
5800.00	0.89	256.08	5799.85	-7.60	-17.57	765031.40	809909.43	33	5	56.460 N	103	19	16.946 W
6000.00	0.83	265.11	5999.83	-8.10	-20.53	765030.90	809906.47	33	5	56.455 N	103	19	16.981 W
6200.00	0.82	265.57	6199.81	-8.34	-23.41	765030.66	809903.59	33	5	56.453 N	103	19	17.014 W
6400.00	0.63	280.46	6399.80	-8.25	-25.93	765030.75	809901.07	33	5	56.454 N	103	19	17.044 W
6600.00	0.32	284.21	6599.79	-7.91	-27.56	765031.09	809899.44	33	5	56.458 N	103	19	17.063 W
6800.00	0.47	279.27	6799.78	-7.64	-28.90	765031.36	809898.10	33	5	56.460 N	103	19	17.079 W
7000.00	0.48	281.15	6999.78	-7.35	-30.52	765031.65	809896.48	33	5	56.463 N	103	19	17.098 W
7200.00	0.52	281.03	7199.77	-7.01	-32.24	765031.99	809894.76	33	5	56.467 N	103	19	17.118 W
7400.00	0.57	283.95	7399.76	-6.60	-34.10	765032.40	809892.90	33	5	56.471 N	103	19	17.140 W
7600.00	0.50	272.55	7599.75	-6.32	-35.93	765032.68	809891.07	33	5	56.474 N	103	19	17.161 W
7800.00	0.57	263.56	7799.74	-6.39	-37.79	765032.61	809889.21	33	5	56.474 N	103	19	17.183 W
8000.00	0.49	257.84	7999.73	-6.69	-39.62	765032.31	809887.38	33	5	56.471 N	103	19	17.205 W
8200.00	0.65	258.13	8199.72	-7.10	-41.56	765031.90	809885.44	33	5	56.467 N	103	19	17.228 W
8400.00	0.63	251.35	8399.71	-7.69	-43.72	765031.31	809883.28	33	5	56.461 N	103	19	17.253 W
8600.00	0.68	246.95	8599.70	-8.50	-45.85	765030.50	809881.15	33	5	56.453 N	103	19	17.278 W
8800.00	0.91	236.86	8799.68	-9.84	-48.28	765029.16	809878.72	33	5	56.440 N	103	19	17.307 W
9000.00	0.96	227.84	8999.65	-11.84	-50.86	765027.16	809876.14	33	5	56.421 N	103	19	17.337 W
9200.00	0.88	237.27	9199.63	-13.80	-53.40	765025.20	809873.60	33	5	56.402 N	103	19	17.367 W
9400.00	1.10	231.72	9399.60	-15.82	-56.20	765023.18	809870.80	33	5	56.382 N	103	19	17.401 W
9600.00	0.92	230.16	9599.57	-18.04	-58.95	765020.96	809868.05	33	5	56.360 N	103	19	17.433 W
9800.00	0.90	226.20	9799.54	-20.16	-61.31	765018.84	809865.69	33	5	56.340 N	103	19	17.461 W
10000.00	0.92	227.91	9999.51	-22.32	-63.64	765016.68	809863.36	33	5	56.318 N	103	19	17.489 W
10200.00	0.75	245.00	10199.49	-23.96	-66.02	765015.04	809860.98	33	5	56.302 N	103	19	17.517 W
10400.00	0.62	267.75	10399.48	-24.55	-68.29	765014.45	809858.71	33	5	56.297 N	103	19	17.544 W
10600.00	0.69	263.72	10599.47	-24.73	-70.58	765014.27	809856.42	33	5	56.295 N	103	19	17.571 W
10800.00	0.87	281.02	10799.45	-24.57	-73.27	765014.43	809853.73	33	5	56.297 N	103	19	17.602 W
11000.00	1.30	333.90	10999.42	-22.24	-75.75	765016.76	809851.25	33	5	56.320 N	103	19	17.631 W
11200.00	1.55	338.95	11199.35	-17.68	-77.72	765021.32	809849.28	33	5	56.366 N	103	19	17.654 W
11400.00	2.02	319.09	11399.26	-12.50	-81.00	765026.50	809846.00	33	5	56.417 N	103	19	17.692 W
11600.00	1.75	307.30	11599.15	-7.99	-85.73	765031.01	809841.27	33	5	56.462 N	103	19	17.747 W
11800.00	1.55	318.65	11799.07	-4.10	-89.95	765034.90	809837.05	33	5	56.501 N	103	19	17.796 W
12000.00	1.23	321.18	11999.01	-0.39	-93.09	765038.61	809833.91	33	5	56.538 N	103	19	17.832 W
12200.00	0.77	293.64	12198.98	1.82	-95.67	765040.82	809831.33	33	5	56.560 N	103	19	17.862 W
12392.00	0.80	280.47	12390.96	2.58	-98.16	765041.58	809828.84	33	5	56.568 N	103	19	17.892 W

PATHFINDER ENERGY SERVICES

[illegible]

PathFinder Energy Services

Survey Report - Geographic

Company: Vintage Petroleum Field: Austin (Lea County, N.M.) Site: Hannah "17" State #2 Well: Hannah "17" State #2 Wellpath: Lateral Mwd Survey	Date: 10/6/2003 Co-ordinate(NE) Reference: Well: Hannah "17" State #2, Grid North Vertical (TVD) Reference: RKB 3979.0 Section (VS) Reference: Well (0.00N,0.00E,0.00Azi) Survey Calculation Method: Minimum Curvature Db: Sybase
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Field: Austin (Lea County, N.M.) Lea County, New Mexico US Map System: US State Plane Coordinate System 1927 Geo Datum: NAD27 (Clarke 1866) Sys Datum: Mean Sea Level	Map Zone: New Mexico, Eastern Zone Coordinate System: Well Centre Geomagnetic Model: igrf2000
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Site: Hannah "17" State #2			
Section 17 T-14-S & R-36-E			
Site Position:	Northing: 765039.00 ft	Latitude: 33 5 56.533 N	
From: Map	Easting: 809927.00 ft	Longitude: 103 19 16.738 W	
Position Uncertainty: 0.00 ft		North Reference: Grid	
Ground Level: 3953.00 ft		Grid Convergence: 0.55 deg	

Well: Hannah "17" State #2	Slot Name:
Well Position: +N/-S 0.00 ft	Northing: 765039.00 ft
+E/-W 0.00 ft	Easting: 809927.00 ft
Position Uncertainty: 0.00 ft	

Wellpath: Lateral Mwd Survey	Drilled From: Original Hole
Current Datum: RKB	Tie-on Depth: 15275.00 ft
Magnetic Data: 9/16/2003	Above System Datum: Mean Sea Level
Field Strength: 50115 nT	Declination: 8.60 deg
Vertical Section: Depth From (TVD)	Mag Dip Angle: 61.31 deg
ft	+N/-S ft
0.00	0.00

Survey: Pathfinder MWD Survey ST-2	Start Date: 8/18/2003
Company: PathFinder Energy Services	Engineer: Robert Savage
Tool: MWD,PathFinder MWD	Tied-to: From:

Survey: Pathfinder MWD Survey ST-2														
MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	← Latitude →			← Longitude →			
								Deg	Min	Sec	Deg	Min	Sec	
9600.00	0.92	230.16	9599.57	-18.04	-58.95	765020.96	809868.05	33	5	56.360	N	103	19	17.433 W
9620.00	0.90	222.00	9619.56	-18.26	-59.17	765020.74	809867.83	33	5	56.358	N	103	19	17.436 W
9647.00	0.62	254.77	9646.56	-18.46	-59.46	765020.54	809867.54	33	5	56.356	N	103	19	17.439 W
9710.00	1.20	354.30	9709.55	-17.89	-59.85	765021.11	809867.15	33	5	56.362	N	103	19	17.444 W
9741.00	1.67	355.75	9740.55	-17.12	-59.92	765021.88	809867.08	33	5	56.370	N	103	19	17.444 W
9773.00	2.11	356.19	9772.53	-16.06	-59.99	765022.94	809867.01	33	5	56.380	N	103	19	17.445 W
9836.00	2.60	358.20	9835.47	-13.48	-60.11	765025.52	809866.89	33	5	56.406	N	103	19	17.446 W
9898.00	2.55	1.12	9897.41	-10.69	-60.13	765028.31	809866.87	33	5	56.433	N	103	19	17.446 W
9961.00	2.50	2.20	9960.35	-7.92	-60.05	765031.08	809866.95	33	5	56.461	N	103	19	17.445 W
10023.00	2.60	1.38	10022.29	-5.16	-59.96	765033.84	809867.04	33	5	56.488	N	103	19	17.444 W
10087.00	2.60	2.30	10086.22	-2.26	-59.87	765036.74	809867.13	33	5	56.517	N	103	19	17.442 W
10149.00	2.80	0.20	10148.15	0.66	-59.81	765039.66	809867.19	33	5	56.545	N	103	19	17.441 W
10213.00	2.55	357.60	10212.08	3.64	-59.86	765042.64	809867.14	33	5	56.575	N	103	19	17.441 W
10275.00	2.60	358.60	10274.02	6.43	-59.96	765045.43	809867.04	33	5	56.602	N	103	19	17.442 W
10337.00	2.73	355.67	10335.95	9.31	-60.10	765048.31	809866.90	33	5	56.631	N	103	19	17.444 W
10400.00	2.73	354.44	10398.88	12.29	-60.36	765051.29	809866.64	33	5	56.661	N	103	19	17.446 W
10463.00	2.60	352.20	10461.82	15.20	-60.70	765054.20	809866.30	33	5	56.689	N	103	19	17.450 W
10526.00	2.55	350.13	10524.75	18.00	-61.13	765057.00	809865.87	33	5	56.717	N	103	19	17.455 W
10590.00	2.55	352.24	10588.69	20.81	-61.57	765059.81	809865.43	33	5	56.745	N	103	19	17.460 W
10651.00	2.40	1.00	10649.63	23.43	-61.73	765062.43	809865.27	33	5	56.771	N	103	19	17.461 W
10714.00	2.50	359.10	10712.57	26.13	-61.73	765065.13	809865.27	33	5	56.798	N	103	19	17.461 W
10778.00	2.20	359.40	10776.52	28.75	-61.76	765067.75	809865.24	33	5	56.824	N	103	19	17.461 W
10841.00	2.20	358.20	10839.47	31.17	-61.81	765070.17	809865.19	33	5	56.847	N	103	19	17.461 W

PathFinder Energy Services

Survey Report - Geographic

Company: Vintage Petroleum Field: Austin (Lea County, N.M.) Site: Hannah "17" State #2 Well: Hannah "17" State #2 Wellpath: Lateral Mwd Survey	Date: 10/6/2003 Time: 11:26:28 Page: 2 Co-ordinate(NE) Reference: Well: Hannah "17" State #2, Grid North Vertical (TVD) Reference: RKB 3979.0 Section (VS) Reference: Well (0.00N,0.00E,0.00Azi) Survey Calculation Method: Minimum Curvature Db: Sybase
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Survey: Pathfinder MWD Survey ST-2

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	← Latitude →			← Longitude →		
								Deg	Min	Sec	Deg	Min	Sec
10904.00	2.40	358.20	10902.42	33.70	-61.89	765072.70	809865.11	33	5	56.872 N	103	19	17.462 W
10967.00	2.37	0.85	10965.37	36.32	-61.92	765075.32	809865.08	33	5	56.898 N	103	19	17.462 W
11031.00	2.00	359.00	11029.32	38.76	-61.92	765077.76	809865.08	33	5	56.923 N	103	19	17.462 W
11062.00	1.90	357.60	11060.30	39.81	-61.95	765078.81	809865.05	33	5	56.933 N	103	19	17.462 W
11125.00	2.30	0.70	11123.26	42.12	-61.98	765081.12	809865.02	33	5	56.956 N	103	19	17.462 W
11188.00	2.29	358.74	11186.21	44.64	-61.99	765083.64	809865.01	33	5	56.981 N	103	19	17.462 W
11250.00	2.20	358.50	11248.16	47.07	-62.05	765086.07	809864.95	33	5	57.005 N	103	19	17.462 W
11313.00	2.02	358.10	11311.12	49.39	-62.11	765088.39	809864.89	33	5	57.028 N	103	19	17.463 W
11375.00	2.46	1.03	11373.07	51.81	-62.13	765090.81	809864.87	33	5	57.052 N	103	19	17.463 W
11438.00	2.55	1.38	11436.01	54.56	-62.07	765093.56	809864.93	33	5	57.079 N	103	19	17.462 W
11500.00	2.40	2.00	11497.95	57.24	-61.99	765096.24	809865.01	33	5	57.105 N	103	19	17.460 W
11561.00	2.50	2.26	11558.90	59.85	-61.89	765098.85	809865.11	33	5	57.131 N	103	19	17.459 W
11624.00	2.55	4.02	11621.84	62.62	-61.74	765101.62	809865.26	33	5	57.159 N	103	19	17.457 W
11686.00	2.55	3.93	11683.78	65.37	-61.55	765104.37	809865.45	33	5	57.186 N	103	19	17.454 W
11749.00	2.20	1.12	11746.72	67.98	-61.43	765106.98	809865.57	33	5	57.212 N	103	19	17.453 W
11810.00	2.29	3.49	11807.68	70.36	-61.33	765109.36	809865.67	33	5	57.235 N	103	19	17.451 W
11872.00	2.02	6.92	11869.63	72.68	-61.13	765111.68	809865.87	33	5	57.258 N	103	19	17.448 W
11934.00	2.37	358.39	11931.59	75.05	-61.03	765114.05	809865.97	33	5	57.281 N	103	19	17.447 W
11997.00	2.29	356.11	11994.53	77.61	-61.15	765116.61	809865.85	33	5	57.307 N	103	19	17.448 W
12059.00	2.37	352.24	12056.48	80.11	-61.41	765119.11	809865.59	33	5	57.332 N	103	19	17.451 W
12123.00	2.64	357.34	12120.42	82.90	-61.66	765121.90	809865.34	33	5	57.359 N	103	19	17.454 W
12186.00	3.43	359.45	12183.33	86.23	-61.74	765125.23	809865.26	33	5	57.392 N	103	19	17.454 W
12236.00	4.84	1.82	12233.20	89.83	-61.69	765128.83	809865.31	33	5	57.428 N	103	19	17.453 W
12275.00	6.42	3.22	12272.01	93.66	-61.51	765132.66	809865.49	33	5	57.466 N	103	19	17.451 W
12337.00	8.09	6.57	12333.51	101.45	-60.82	765140.45	809866.18	33	5	57.543 N	103	19	17.442 W
12399.00	9.32	7.27	12394.80	110.77	-59.69	765149.77	809867.31	33	5	57.635 N	103	19	17.427 W
12462.00	11.34	4.45	12456.77	122.00	-58.56	765161.00	809868.44	33	5	57.746 N	103	19	17.413 W
12524.00	12.75	1.64	12517.41	134.92	-57.89	765173.92	809869.11	33	5	57.874 N	103	19	17.403 W
12587.00	14.07	0.41	12578.69	149.53	-57.64	765188.53	809869.36	33	5	58.018 N	103	19	17.399 W
12638.00	15.48	2.26	12628.00	162.53	-57.32	765201.53	809869.68	33	5	58.147 N	103	19	17.394 W
12700.00	17.41	1.73	12687.46	180.07	-56.72	765219.07	809870.28	33	5	58.320 N	103	19	17.385 W
12763.00	18.99	2.26	12747.31	199.73	-56.03	765238.73	809870.97	33	5	58.515 N	103	19	17.374 W
12826.00	21.63	2.87	12806.39	221.58	-55.04	765260.58	809871.96	33	5	58.731 N	103	19	17.360 W
12888.00	23.39	3.49	12863.66	245.27	-53.72	765284.27	809873.28	33	5	58.965 N	103	19	17.342 W
12951.00	26.20	2.61	12920.85	271.65	-52.33	765310.65	809874.67	33	5	59.226 N	103	19	17.323 W
13013.00	29.28	3.31	12975.72	300.47	-50.83	765339.47	809876.17	33	5	59.511 N	103	19	17.302 W
13075.00	31.48	2.08	13029.20	331.79	-49.36	765370.79	809877.64	33	5	59.820 N	103	19	17.281 W
13137.00	32.01	1.55	13081.93	364.39	-48.33	765403.39	809878.67	33	6	0.143 N	103	19	17.265 W
13168.00	32.71	1.55	13108.11	380.98	-47.88	765419.98	809879.12	33	6	0.307 N	103	19	17.258 W
13199.00	33.68	1.20	13134.05	397.94	-47.48	765436.94	809879.52	33	6	0.475 N	103	19	17.251 W
13230.00	34.47	1.03	13159.73	415.31	-47.14	765454.31	809879.86	33	6	0.647 N	103	19	17.245 W
13282.00	37.20	1.50	13201.88	445.74	-46.46	765484.74	809880.54	33	6	0.948 N	103	19	17.234 W
13311.00	46.60	358.30	13223.45	465.08	-46.55	765504.08	809880.45	33	6	1.139 N	103	19	17.233 W
13342.00	55.05	356.72	13243.01	489.07	-47.61	765528.07	809879.39	33	6	1.376 N	103	19	17.242 W
13374.00	62.87	357.07	13259.50	516.42	-49.09	765555.42	809877.91	33	6	1.647 N	103	19	17.257 W
13407.00	71.23	355.93	13272.35	546.73	-50.95	765585.73	809876.05	33	6	1.947 N	103	19	17.275 W
13438.00	80.20	355.49	13280.00	576.65	-53.20	765615.65	809873.80	33	6	2.243 N	103	19	17.298 W
13472.00	87.23	355.14	13283.72	610.32	-55.96	765649.32	809871.04	33	6	2.577 N	103	19	17.327 W
13504.00	90.48	355.67	13284.36	642.20	-58.52	765681.20	809868.48	33	6	2.892 N	103	19	17.353 W
13535.00	93.65	356.19	13283.24	673.10	-60.72	765712.10	809866.28	33	6	3.198 N	103	19	17.376 W
13567.00	96.38	358.04	13280.44	704.93	-62.33	765743.93	809864.67	33	6	3.513 N	103	19	17.391 W
13631.00	95.85	359.89	13273.62	768.55	-63.48	765807.55	809863.52	33	6	4.143 N	103	19	17.397 W

PathFinder Energy Services

Survey Report - Geographic

Company: Vintage Petroleum	Date: 10/6/2003	Time: 11:26:28	Page: 3
Field: Austin (Lea County, N.M.)	Co-ordinate(NE) Reference: Well: Hannah "17" State #2, Grid North		
Site: Hannah "17" State #2	Vertical (TVD) Reference: RKB 3979.0		
Well: Hannah "17" State #2	Section (VS) Reference: Well (0.00N,0.00E,0.00Azi)		
Wellpath: Lateral Mwd Survey	Survey Calculation Method: Minimum Curvature		Db: Sybase

Survey: Pathfinder MWD Survey ST-2

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	← Latitude →		← Longitude →	
								Deg	Min	Sec	Deg
13694.00	96.20	1.12	13267.01	831.20	-62.92	765870.20	809864.08	33	6	4.763 N	103 19 17.384 W
13758.00	95.85	2.61	13260.29	894.81	-60.85	765933.81	809866.15	33	6	5.392 N	103 19 17.352 W
13821.00	94.00	2.96	13254.88	957.50	-57.80	765996.50	809869.20	33	6	6.012 N	103 19 17.309 W
13883.00	94.09	2.43	13250.51	1019.28	-54.89	766058.28	809872.11	33	6	6.623 N	103 19 17.268 W
13947.00	94.53	2.35	13245.70	1083.04	-52.23	766122.04	809874.77	33	6	7.253 N	103 19 17.229 W
14010.00	94.62	2.17	13240.68	1145.79	-49.76	766184.79	809877.24	33	6	7.874 N	103 19 17.193 W
14074.00	93.74	1.80	13236.01	1209.59	-47.55	766248.59	809879.45	33	6	8.505 N	103 19 17.160 W
14137.00	91.28	0.41	13233.25	1272.51	-46.33	766311.51	809880.67	33	6	9.127 N	103 19 17.139 W
14200.00	90.40	0.24	13232.33	1335.50	-45.98	766374.50	809881.02	33	6	9.750 N	103 19 17.127 W
14263.00	90.13	0.06	13232.04	1398.50	-45.81	766437.50	809881.19	33	6	10.373 N	103 19 17.118 W
14326.00	90.40	0.50	13231.75	1461.50	-45.50	766500.50	809881.50	33	6	10.997 N	103 19 17.107 W
14389.00	89.08	359.97	13232.03	1524.49	-45.24	766563.49	809881.76	33	6	11.620 N	103 19 17.097 W
14452.00	89.43	0.15	13232.85	1587.49	-45.18	766626.49	809881.82	33	6	12.243 N	103 19 17.089 W
14516.00	88.99	359.45	13233.73	1651.48	-45.40	766690.48	809881.60	33	6	12.876 N	103 19 17.085 W
14579.00	89.78	359.27	13234.41	1714.47	-46.10	766753.47	809880.90	33	6	13.500 N	103 19 17.086 W
14642.00	88.64	358.48	13235.28	1777.45	-47.34	766816.45	809879.66	33	6	14.123 N	103 19 17.093 W
14705.00	88.46	358.39	13236.87	1840.41	-49.06	766879.41	809877.94	33	6	14.746 N	103 19 17.106 W
14769.00	87.67	358.74	13239.03	1904.35	-50.66	766943.35	809876.34	33	6	15.379 N	103 19 17.118 W
14833.00	86.79	358.65	13242.13	1968.26	-52.12	767007.26	809874.88	33	6	16.011 N	103 19 17.128 W
14896.00	87.41	357.78	13245.31	2031.15	-54.08	767070.15	809872.92	33	6	16.633 N	103 19 17.144 W
14959.00	86.44	358.65	13248.69	2094.03	-56.04	767133.03	809870.96	33	6	17.256 N	103 19 17.160 W
15023.00	87.85	359.45	13251.88	2157.93	-57.10	767196.93	809869.90	33	6	17.888 N	103 19 17.165 W
15086.00	89.08	359.27	13253.57	2220.91	-57.80	767259.91	809869.20	33	6	18.511 N	103 19 17.166 W
15149.00	88.11	0.15	13255.11	2283.89	-58.12	767322.89	809868.88	33	6	19.134 N	103 19 17.162 W
15211.00	88.37	1.55	13257.02	2345.85	-57.20	767384.85	809869.80	33	6	19.747 N	103 19 17.145 W
15275.00	87.32	2.79	13259.42	2409.75	-54.78	767448.75	809872.22	33	6	20.379 N	103 19 17.109 W
15338.00	86.70	2.00	13262.71	2472.61	-52.15	767511.61	809874.85	33	6	21.001 N	103 19 17.071 W
15402.00	90.13	1.47	13264.48	2536.55	-50.21	767575.55	809876.79	33	6	21.633 N	103 19 17.041 W
15465.00	91.54	1.12	13263.56	2599.53	-48.79	767638.53	809878.21	33	6	22.256 N	103 19 17.017 W
15528.00	93.39	0.85	13260.85	2662.45	-47.71	767701.45	809879.29	33	6	22.879 N	103 19 16.997 W
15591.00	92.51	0.50	13257.61	2725.37	-46.97	767764.37	809880.03	33	6	23.501 N	103 19 16.981 W
15655.00	93.03	1.03	13254.52	2789.29	-46.11	767828.29	809880.89	33	6	24.133 N	103 19 16.964 W
15719.00	91.71	0.24	13251.87	2853.22	-45.41	767892.22	809881.59	33	6	24.766 N	103 19 16.948 W
15782.00	92.33	0.24	13249.65	2916.18	-45.14	767955.18	809881.86	33	6	25.389 N	103 19 16.938 W
15845.00	92.42	359.62	13247.04	2979.13	-45.22	768018.13	809881.78	33	6	26.011 N	103 19 16.932 W
15881.00	92.86	358.65	13245.38	3015.09	-45.76	768054.09	809881.24	33	6	26.367 N	103 19 16.934 W
15910.00	93.12	358.65	13243.87	3044.04	-46.44	768083.04	809880.56	33	6	26.654 N	103 19 16.939 W
15942.00	91.28	358.83	13242.64	3076.01	-47.15	768115.01	809879.85	33	6	26.970 N	103 19 16.944 W
15973.00	89.43	358.48	13242.45	3107.00	-47.87	768146.00	809879.13	33	6	27.277 N	103 19 16.949 W
16001.00	87.49	358.39	13243.20	3134.97	-48.64	768173.97	809878.36	33	6	27.553 N	103 19 16.954 W
16033.00	85.91	358.57	13245.04	3166.91	-49.49	768205.91	809877.51	33	6	27.869 N	103 19 16.961 W
16064.00	84.59	358.39	13247.61	3197.79	-50.31	768236.79	809876.69	33	6	28.175 N	103 19 16.967 W
16096.00	83.36	358.21	13250.97	3229.60	-51.25	768268.60	809875.75	33	6	28.490 N	103 19 16.974 W
16128.00	82.48	358.65	13254.91	3261.34	-52.12	768300.34	809874.88	33	6	28.804 N	103 19 16.981 W
16159.00	80.81	358.92	13259.42	3292.01	-52.77	768331.01	809874.23	33	6	29.107 N	103 19 16.985 W
16190.00	79.67	359.18	13264.67	3322.55	-53.28	768361.55	809873.72	33	6	29.410 N	103 19 16.988 W
16222.00	78.44	359.45	13270.75	3353.97	-53.65	768392.97	809873.35	33	6	29.721 N	103 19 16.989 W
16253.00	77.12	359.62	13277.31	3384.26	-53.90	768423.26	809873.10	33	6	30.020 N	103 19 16.988 W
16284.00	75.71	359.97	13284.59	3414.40	-54.01	768453.40	809872.99	33	6	30.318 N	103 19 16.986 W
16316.00	74.39	359.80	13292.84	3445.31	-54.07	768484.31	809872.93	33	6	30.624 N	103 19 16.983 W
16348.00	73.25	0.50	13301.76	3476.04	-53.99	768515.04	809873.01	33	6	30.928 N	103 19 16.979 W
16379.00	72.11	0.76	13310.99	3505.64	-53.66	768544.64	809873.34	33	6	31.221 N	103 19 16.972 W
16429.00	70.33	0.10	13327.09	3552.97	-53.31	768591.97	809873.69	33	6	31.689 N	103 19 16.962 W