



SWEPI

**Winkler County, Texas (NAD 27)
University 20-3 WNK
1HN - API #42-495-33545
Wellbore #1 Job #1410080**

Survey: Phoenix MWD Surveys

Survey Report

08 May, 2014





Survey Report



Company:	SWEPI	Local Co-ordinate Reference:	Well 1HN - API #42-495-33545
Project:	Winkler County, Texas (NAD 27)	TVD Reference:	WELL @ 2826.06usft (Patterson 274)
Site:	University 20-3 WNK	MD Reference:	WELL @ 2826.06usft (Patterson 274)
Well:	1HN - API #42-495-33545	North Reference:	Grid
Wellbore:	Wellbore #1 Job #1410080	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Patterson 274)	Database:	GCR DB v5000

Project	Winkler County, Texas (NAD 27)		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	Texas Central 4203		

Site	University 20-3 WNK		
Site Position:		Northing:	765,301.84 usft
From:	Map	Easting:	1,071,162.68 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	31° 44' 11.75000 N
		Longitude:	103° 19' 16.75308 W
		Grid Convergence:	-1.54 °

Well	1HN - API #42-495-33545					
Well Position	+N-S	0.00 usft	Northing:	765,301.84 usft	Latitude:	31° 44' 11.75000 N
	+E-W	0.00 usft	Easting:	1,071,162.68 usft	Longitude:	103° 19' 16.75308 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	2,796.40 usft

Wellbore	Wellbore #1 Job #1410080				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010-14	2014/02/18	7.11	59.71	48,085

Design	Surveys (Patterson 274)				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N-S (usft)	+E-W (usft)	Direction (°)	
	0.00	0.00	0.00	343.71	

Survey Program	Date 2014/05/07			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
206.00	16,867.00	Phoenix MWD Surveys (Wellbore #1 Job #	MWD	MWD - Standard



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Survey												
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)		
0.00	0.00	0.00	-2,826.06	0.00	0.00	0.00	0.00	0.00	765,301.84	1,071,162.68		
206.00	0.41	110.11	-2,620.06	206.00	-0.25	0.69	-0.44	0.20	765,301.59	1,071,163.37		
First Phoenix MWD Survey												
223.00	0.66	117.16	-2,603.06	223.00	-0.32	0.84	-0.54	1.52	765,301.52	1,071,163.52		
285.00	1.18	103.94	-2,541.07	284.99	-0.64	1.77	-1.11	0.90	765,301.20	1,071,164.45		
410.00	4.64	87.77	-2,416.25	409.81	-0.75	8.08	-2.98	2.82	765,301.09	1,071,170.76		
504.00	6.85	81.66	-2,322.73	503.33	0.21	17.42	-4.68	2.44	765,302.05	1,071,180.10		
600.00	8.20	77.93	-2,227.55	598.51	2.47	29.78	-5.98	1.49	765,304.31	1,071,192.46		
692.00	8.00	77.56	-2,136.47	689.59	5.23	42.45	-6.89	0.22	765,307.07	1,071,205.13		
784.00	7.99	77.93	-2,045.37	780.69	7.94	54.96	-7.79	0.06	765,309.78	1,071,217.64		
876.00	8.07	78.22	-1,954.27	871.79	10.60	67.53	-8.77	0.10	765,312.44	1,071,230.21		
969.00	7.76	78.77	-1,862.16	963.90	13.15	80.08	-9.84	0.34	765,314.99	1,071,242.76		
1,063.00	7.36	81.25	-1,768.97	1,057.09	15.30	92.25	-11.19	0.55	765,317.14	1,071,254.93		
1,157.00	6.16	83.26	-1,675.63	1,150.43	16.81	103.21	-12.81	1.30	765,318.65	1,071,265.89		
1,251.00	4.80	73.22	-1,582.06	1,244.00	18.54	111.99	-13.62	1.76	765,320.38	1,071,274.67		
1,345.00	3.75	57.83	-1,488.32	1,337.74	21.31	118.36	-12.74	1.65	765,323.15	1,071,281.04		
1,439.00	2.69	51.70	-1,394.47	1,431.59	24.32	122.69	-11.08	1.18	765,326.16	1,071,285.37		
1,533.00	1.44	42.30	-1,300.53	1,525.53	26.56	125.22	-9.63	1.37	765,328.40	1,071,287.90		
1,722.00	0.53	23.16	-1,111.56	1,714.50	29.12	127.16	-7.72	0.51	765,330.96	1,071,289.84		
1,909.00	0.62	36.09	-924.57	1,901.49	30.73	128.09	-6.43	0.08	765,332.57	1,071,290.77		
2,098.00	0.81	31.89	-735.58	2,090.48	32.69	129.40	-4.92	0.10	765,334.53	1,071,292.08		
2,286.00	0.71	45.82	-547.60	2,278.46	34.63	130.94	-3.49	0.11	765,336.47	1,071,293.62		
2,475.00	0.99	53.70	-358.62	2,467.44	36.41	133.09	-2.38	0.16	765,338.25	1,071,295.77		
2,663.00	0.90	55.05	-170.65	2,655.41	38.22	135.61	-1.35	0.05	765,340.06	1,071,298.29		
2,852.00	0.42	57.31	18.34	2,844.40	39.44	137.41	-0.68	0.25	765,341.28	1,071,300.09		
3,040.00	0.48	68.77	206.34	3,032.40	40.10	138.73	-0.42	0.06	765,341.94	1,071,301.41		
3,228.00	0.80	52.00	394.32	3,220.38	41.19	140.50	0.13	0.20	765,343.03	1,071,303.18		



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Well:	1HN - API #42-495-33545	North Reference:	Grid
Wellbore:	Wellbore #1 Job #1410080	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Patterson 274)	Database:	GCR DB v5000

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
3,416.00	0.93	57.90	582.30	3,408.36	42.81	142.82	1.03	0.08	765,344.65	1,071,305.50	
3,604.00	0.72	46.26	770.28	3,596.34	44.44	144.97	1.99	0.14	765,346.28	1,071,307.65	
3,792.00	0.77	34.57	958.27	3,784.33	46.30	146.54	3.34	0.08	765,348.14	1,071,309.22	
3,980.00	1.52	63.00	1,146.23	3,972.29	48.47	149.48	4.60	0.49	765,350.31	1,071,312.16	
4,168.00	1.61	69.93	1,334.16	4,160.22	50.51	154.18	5.23	0.11	765,352.35	1,071,316.86	
4,357.00	1.61	61.47	1,523.09	4,349.15	52.69	159.01	5.97	0.13	765,354.53	1,071,321.69	
4,545.00	1.82	59.71	1,711.00	4,537.06	55.45	163.90	7.25	0.12	765,357.29	1,071,326.58	
4,733.00	2.02	64.10	1,898.90	4,724.96	58.41	169.46	8.53	0.13	765,360.25	1,071,332.14	
4,921.00	2.10	69.90	2,086.77	4,912.83	61.04	175.68	9.31	0.12	765,362.88	1,071,338.36	
5,018.00	2.10	71.12	2,183.71	5,009.77	62.22	179.03	9.51	0.05	765,364.06	1,071,341.71	
5,135.00	1.75	73.82	2,300.64	5,126.70	63.42	182.77	9.60	0.31	765,365.26	1,071,345.45	
5,325.00	1.68	70.12	2,490.56	5,316.62	65.17	188.18	9.77	0.07	765,367.01	1,071,350.86	
5,515.00	1.55	73.98	2,680.48	5,506.54	66.83	193.27	9.93	0.09	765,368.67	1,071,355.95	
5,704.00	1.63	84.19	2,869.41	5,695.47	67.81	198.40	9.43	0.16	765,369.65	1,071,361.08	
5,895.00	0.69	29.91	3,060.37	5,886.43	69.08	201.67	9.73	0.71	765,370.92	1,071,364.35	
6,086.00	0.73	17.85	3,251.36	6,077.42	71.23	202.62	11.54	0.08	765,373.07	1,071,365.30	
6,275.00	0.60	22.91	3,440.35	6,266.41	73.29	203.37	13.30	0.08	765,375.13	1,071,366.05	
6,465.00	0.30	42.46	3,630.34	6,456.40	74.57	204.10	14.33	0.18	765,376.41	1,071,366.78	
6,656.00	0.89	287.80	3,821.33	6,647.39	75.40	203.02	15.42	0.55	765,377.24	1,071,365.70	
6,846.00	0.84	284.96	4,011.31	6,837.37	76.21	200.27	16.97	0.03	765,378.05	1,071,362.95	
7,036.00	0.94	278.01	4,201.29	7,027.35	76.78	197.38	18.33	0.08	765,378.62	1,071,360.06	
7,226.00	0.66	265.78	4,391.27	7,217.33	76.92	194.75	19.20	0.17	765,378.76	1,071,357.43	
7,417.00	0.95	256.84	4,582.25	7,408.31	76.48	192.11	19.52	0.17	765,378.32	1,071,354.79	
7,607.00	1.02	237.95	4,772.22	7,598.28	75.22	189.14	19.15	0.17	765,377.06	1,071,351.82	
7,797.00	0.85	214.55	4,962.20	7,788.26	73.16	186.91	17.80	0.22	765,375.00	1,071,349.59	
7,986.00	0.86	212.66	5,151.18	7,977.24	70.82	185.35	15.98	0.02	765,372.66	1,071,348.03	
8,176.00	0.80	207.00	5,341.16	8,167.22	68.43	183.98	14.08	0.05	765,370.27	1,071,346.66	



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Site:	University 20-3 WNK	MD Reference:	WELL @ 2826.06usft (Patterson 274)
Well:	1HN - API #42-495-33545	North Reference:	Grid
Wellbore:	Wellbore #1 Job #1410080	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Patterson 274)	Database:	GCR DB v5000

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
8,366.00	0.71	205.30	5,531.14	8,357.20	66.19	182.87	12.23	0.05	765,368.03	1,071,345.55	
8,557.00	0.84	217.22	5,722.12	8,548.18	64.00	181.52	10.52	0.11	765,365.84	1,071,344.20	
8,746.00	0.96	223.61	5,911.10	8,737.16	61.75	179.59	8.90	0.08	765,363.59	1,071,342.27	
8,935.00	0.80	250.56	6,100.08	8,926.14	60.17	177.25	8.03	0.23	765,362.01	1,071,339.93	
9,125.00	1.27	258.08	6,290.05	9,116.11	59.29	173.94	8.12	0.26	765,361.13	1,071,336.62	
9,316.00	1.94	224.42	6,480.98	9,307.04	56.54	169.61	6.70	0.59	765,358.38	1,071,332.29	
9,507.00	1.68	188.76	6,671.89	9,497.95	51.47	166.92	2.58	0.59	765,353.31	1,071,329.60	
9,697.00	1.90	159.67	6,861.80	9,687.86	45.76	167.59	-3.08	0.49	765,347.60	1,071,330.27	
9,888.00	1.70	194.15	7,052.71	9,878.77	40.05	168.00	-8.69	0.57	765,341.89	1,071,330.68	
10,078.00	1.99	228.33	7,242.61	10,068.67	35.12	164.84	-12.53	0.59	765,336.96	1,071,327.52	
10,267.00	1.82	218.46	7,431.51	10,257.57	30.59	160.53	-15.67	0.20	765,332.43	1,071,323.21	
10,457.00	1.38	234.22	7,621.44	10,447.50	26.89	156.79	-18.17	0.33	765,328.73	1,071,319.47	
10,647.00	1.35	222.46	7,811.38	10,637.44	23.90	153.43	-20.10	0.15	765,325.74	1,071,316.11	
10,837.00	0.83	235.79	8,001.35	10,827.41	21.47	150.78	-21.68	0.30	765,323.31	1,071,313.46	
11,027.00	1.45	248.56	8,191.31	11,017.37	19.82	147.40	-22.32	0.35	765,321.66	1,071,310.08	
11,169.00	2.91	259.42	8,333.20	11,159.26	18.50	142.19	-22.12	1.06	765,320.34	1,071,304.87	
11,232.00	2.99	270.71	8,396.12	11,222.18	18.23	138.97	-21.48	0.93	765,320.07	1,071,301.65	
11,263.00	5.03	300.47	8,427.05	11,253.11	18.93	136.99	-20.26	9.19	765,320.77	1,071,299.67	
11,295.00	9.39	316.15	8,458.79	11,284.85	21.52	133.97	-16.92	14.83	765,323.36	1,071,296.65	
11,327.00	13.73	321.20	8,490.13	11,316.19	26.37	129.78	-11.09	13.91	765,328.21	1,071,292.46	
11,359.00	17.89	325.30	8,520.92	11,346.98	33.37	124.60	-2.92	13.45	765,335.21	1,071,287.28	
11,390.00	22.21	327.88	8,550.03	11,376.09	42.25	118.77	7.24	14.22	765,344.09	1,071,281.45	
11,422.00	26.04	329.61	8,579.23	11,405.29	53.44	112.00	19.88	12.17	765,355.28	1,071,274.68	
11,453.00	29.45	330.22	8,606.66	11,432.72	65.93	104.77	33.89	11.04	765,367.77	1,071,267.45	
11,485.00	32.82	330.16	8,634.05	11,460.11	80.28	96.55	49.98	10.53	765,382.12	1,071,259.23	
11,517.00	36.41	330.17	8,660.38	11,486.44	96.05	87.51	67.65	11.22	765,397.89	1,071,250.19	
11,548.00	40.23	331.32	8,684.70	11,510.76	112.82	78.12	86.37	12.53	765,414.66	1,071,240.80	



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Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
11,580.00	44.27	332.58	8,708.38	11,534.44	131.80	68.01	107.44	12.90	765,433.64	1,071,230.69	
11,612.00	47.93	333.39	8,730.57	11,556.63	152.34	57.55	130.09	11.58	765,454.18	1,071,220.23	
11,643.00	50.87	333.25	8,750.74	11,576.80	173.37	46.98	153.24	9.49	765,475.21	1,071,209.66	
11,675.00	53.97	333.01	8,770.25	11,596.31	195.99	35.52	178.16	9.71	765,497.83	1,071,198.20	
11,707.00	56.34	332.77	8,788.53	11,614.59	219.37	23.55	203.95	7.43	765,521.21	1,071,186.23	
11,738.00	58.93	331.68	8,805.13	11,631.19	242.53	11.35	229.61	8.87	765,544.37	1,071,174.03	
11,770.00	62.93	331.71	8,820.67	11,646.73	267.15	-1.91	256.96	12.50	765,568.99	1,071,160.77	
11,802.00	67.45	333.14	8,834.10	11,660.16	292.89	-15.35	285.44	14.70	765,594.73	1,071,147.33	
11,834.00	69.91	335.99	8,845.73	11,671.79	319.81	-28.14	314.87	11.31	765,621.65	1,071,134.54	
11,865.00	72.44	336.51	8,855.73	11,681.79	346.67	-39.96	343.96	8.31	765,648.51	1,071,122.72	
11,897.00	76.13	337.10	8,864.40	11,690.46	374.98	-52.09	374.53	11.67	765,676.82	1,071,110.59	
11,949.00	74.05	338.24	8,877.78	11,703.84	421.45	-71.18	424.50	4.53	765,723.29	1,071,091.50	
11,981.00	74.74	337.97	8,886.39	11,712.45	450.05	-82.67	455.17	2.30	765,751.89	1,071,080.01	
12,011.00	76.88	338.16	8,893.74	11,719.80	477.03	-93.54	484.11	7.16	765,778.87	1,071,069.14	
12,034.00	81.45	337.53	8,898.06	11,724.12	497.94	-102.06	506.58	20.05	765,799.78	1,071,060.62	
12,092.00	92.51	338.00	8,901.12	11,727.18	551.47	-123.94	564.10	19.09	765,853.31	1,071,038.74	
12,124.00	92.79	337.71	8,899.64	11,725.70	581.08	-135.99	595.90	1.26	765,882.92	1,071,026.69	
12,228.00	92.88	337.90	8,894.49	11,720.55	677.26	-175.23	699.22	0.20	765,979.10	1,070,987.45	
12,323.00	89.89	336.54	8,892.20	11,718.26	764.81	-211.99	793.57	3.46	766,066.65	1,070,950.69	
12,418.00	89.83	335.05	8,892.43	11,718.49	851.45	-250.94	887.66	1.57	766,153.29	1,070,911.74	
12,513.00	90.89	334.98	8,891.83	11,717.89	937.56	-291.07	981.57	1.12	766,239.40	1,070,871.61	
12,607.00	90.84	334.41	8,890.41	11,716.47	1,022.53	-331.24	1,074.39	0.61	766,324.37	1,070,831.44	
12,702.00	90.39	334.60	8,889.39	11,715.45	1,108.27	-372.13	1,168.16	0.51	766,410.11	1,070,790.55	
12,797.00	90.39	337.09	8,888.75	11,714.81	1,194.95	-411.00	1,262.26	2.62	766,496.79	1,070,751.68	
12,891.00	91.09	341.01	8,887.53	11,713.59	1,282.71	-444.60	1,355.92	4.24	766,584.55	1,070,718.08	
12,986.00	88.88	342.79	8,887.56	11,713.62	1,373.00	-474.11	1,450.87	2.99	766,674.84	1,070,688.57	
13,081.00	89.41	342.34	8,888.97	11,715.03	1,463.62	-502.57	1,545.84	0.73	766,765.46	1,070,660.11	



Survey Report



Company:	SWEPI	Local Co-ordinate Reference:	Well 1HN - API #42-495-33545
Project:	Winkler County, Texas (NAD 27)	TVD Reference:	WELL @ 2826.06usft (Patterson 274)
Site:	University 20-3 WNK	MD Reference:	WELL @ 2826.06usft (Patterson 274)
Well:	1HN - API #42-495-33545	North Reference:	Grid
Wellbore:	Wellbore #1 Job #1410080	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Patterson 274)	Database:	GCR DB v5000

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
13,176.00	88.99	342.19	8,890.30	11,716.36	1,554.10	-531.51	1,640.80	0.47	766,855.94	1,070,631.17	
13,271.00	88.80	343.18	8,892.13	11,718.19	1,644.78	-559.78	1,735.76	1.06	766,946.62	1,070,602.90	
13,365.00	89.78	345.48	8,893.30	11,719.36	1,735.27	-585.16	1,829.74	2.66	767,037.11	1,070,577.52	
13,460.00	88.69	347.38	8,894.57	11,720.63	1,827.60	-607.45	1,924.62	2.31	767,129.44	1,070,555.23	
13,555.00	88.88	349.19	8,896.58	11,722.64	1,920.60	-626.73	2,019.29	1.92	767,222.44	1,070,535.95	
13,650.00	89.14	349.90	8,898.22	11,724.28	2,014.01	-643.97	2,113.79	0.80	767,315.85	1,070,518.71	
13,744.00	89.30	350.03	8,899.50	11,725.56	2,106.56	-660.35	2,207.22	0.22	767,408.40	1,070,502.33	
13,839.00	88.88	349.25	8,901.01	11,727.07	2,200.00	-677.43	2,301.70	0.93	767,501.84	1,070,485.25	
14,029.00	89.08	347.62	8,904.39	11,730.45	2,386.11	-715.51	2,491.01	0.86	767,687.95	1,070,447.17	
14,124.00	89.36	347.55	8,905.69	11,731.75	2,478.88	-735.94	2,585.79	0.30	767,780.72	1,070,426.74	
14,219.00	89.89	346.63	8,906.31	11,732.37	2,571.47	-757.16	2,680.62	1.12	767,873.31	1,070,405.52	
14,314.00	89.75	344.74	8,906.61	11,732.67	2,663.52	-780.65	2,775.56	1.99	767,965.36	1,070,382.03	
14,409.00	89.69	343.11	8,907.07	11,733.13	2,754.80	-806.95	2,870.55	1.72	768,056.64	1,070,355.73	
14,503.00	89.69	341.47	8,907.58	11,733.64	2,844.34	-835.55	2,964.52	1.74	768,146.18	1,070,327.13	
14,597.00	89.83	339.26	8,907.97	11,734.03	2,932.87	-867.13	3,058.35	2.36	768,234.71	1,070,295.55	
14,692.00	90.03	337.74	8,908.09	11,734.15	3,021.25	-901.95	3,152.96	1.61	768,323.09	1,070,260.73	
14,787.00	90.25	337.56	8,907.86	11,733.92	3,109.12	-938.07	3,247.43	0.30	768,410.96	1,070,224.61	
14,882.00	90.09	339.35	8,907.57	11,733.63	3,197.47	-972.96	3,342.02	1.89	768,499.31	1,070,189.72	
14,977.00	89.86	342.08	8,907.62	11,733.68	3,287.14	-1,004.33	3,436.88	2.88	768,588.98	1,070,158.35	
15,072.00	89.41	344.90	8,908.22	11,734.28	3,378.21	-1,031.32	3,531.87	3.01	768,680.05	1,070,131.36	
15,167.00	89.36	347.03	8,909.24	11,735.30	3,470.36	-1,054.36	3,626.79	2.24	768,772.20	1,070,108.32	
15,262.00	89.66	348.53	8,910.05	11,736.11	3,563.20	-1,074.47	3,721.54	1.61	768,865.04	1,070,088.21	
15,358.00	89.19	348.39	8,911.02	11,737.08	3,657.26	-1,093.67	3,817.21	0.51	768,959.10	1,070,069.01	
15,453.00	89.27	349.44	8,912.29	11,738.35	3,750.47	-1,111.93	3,911.80	1.11	769,052.31	1,070,050.75	
15,549.00	89.02	348.90	8,913.73	11,739.79	3,844.75	-1,129.97	4,007.36	0.62	769,146.59	1,070,032.71	
15,644.00	88.69	348.66	8,915.62	11,741.68	3,937.92	-1,148.45	4,101.97	0.43	769,239.76	1,070,014.23	
15,738.00	88.86	348.38	8,917.63	11,743.69	4,030.02	-1,167.15	4,195.61	0.35	769,331.86	1,069,995.53	



Survey Report



Company:	SWEPI	Local Co-ordinate Reference:	Well 1HN - API #42-495-33545
Project:	Winkler County, Texas (NAD 27)	TVD Reference:	WELL @ 2826.06usft (Patterson 274)
Site:	University 20-3 WNK	MD Reference:	WELL @ 2826.06usft (Patterson 274)
Well:	1HN - API #42-495-33545	North Reference:	Grid
Wellbore:	Wellbore #1 Job #1410080	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Patterson 274)	Database:	GCR DB v5000

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
15,832.00	90.39	347.68	8,918.25	11,744.31	4,121.97	-1,186.65	4,289.34	1.79	769,423.81	1,069,976.03	
15,927.00	90.31	347.11	8,917.67	11,743.73	4,214.68	-1,207.38	4,384.14	0.61	769,516.52	1,069,955.30	
16,022.00	90.03	347.52	8,917.39	11,743.45	4,307.36	-1,228.24	4,478.96	0.52	769,609.20	1,069,934.44	
16,117.00	90.09	347.53	8,917.29	11,743.35	4,400.11	-1,248.76	4,573.74	0.06	769,701.95	1,069,913.92	
16,212.00	90.09	347.39	8,917.14	11,743.20	4,492.85	-1,269.39	4,668.54	0.15	769,794.69	1,069,893.29	
16,307.00	90.25	347.01	8,916.86	11,742.92	4,585.49	-1,290.44	4,763.36	0.43	769,887.33	1,069,872.24	
16,402.00	90.25	346.83	8,916.44	11,742.50	4,678.02	-1,311.94	4,858.21	0.19	769,979.86	1,069,850.74	
16,497.00	90.36	346.08	8,915.94	11,742.00	4,770.38	-1,334.18	4,953.10	0.80	770,072.22	1,069,828.50	
16,592.00	90.06	346.10	8,915.59	11,741.65	4,862.59	-1,357.02	5,048.02	0.32	770,164.43	1,069,805.66	
16,688.00	90.56	345.77	8,915.07	11,741.13	4,955.71	-1,380.35	5,143.95	0.62	770,257.55	1,069,782.33	
16,783.00	90.14	345.58	8,914.49	11,740.55	5,047.75	-1,403.86	5,238.89	0.49	770,349.59	1,069,758.82	
Final Phoenix MWD Survey											
16,867.00	90.14	345.58	8,914.28	11,740.34	5,129.11	-1,424.77	5,322.84	0.00	770,430.95	1,069,737.91	
Projection to TD											

Survey Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
206.00	206.00	-0.25	0.69	First Phoenix MWD Survey	
16,783.00	11,740.55	5,047.75	-1,403.86	Final Phoenix MWD Survey	
16,867.00	11,740.34	5,129.11	-1,424.77	Projection to TD	