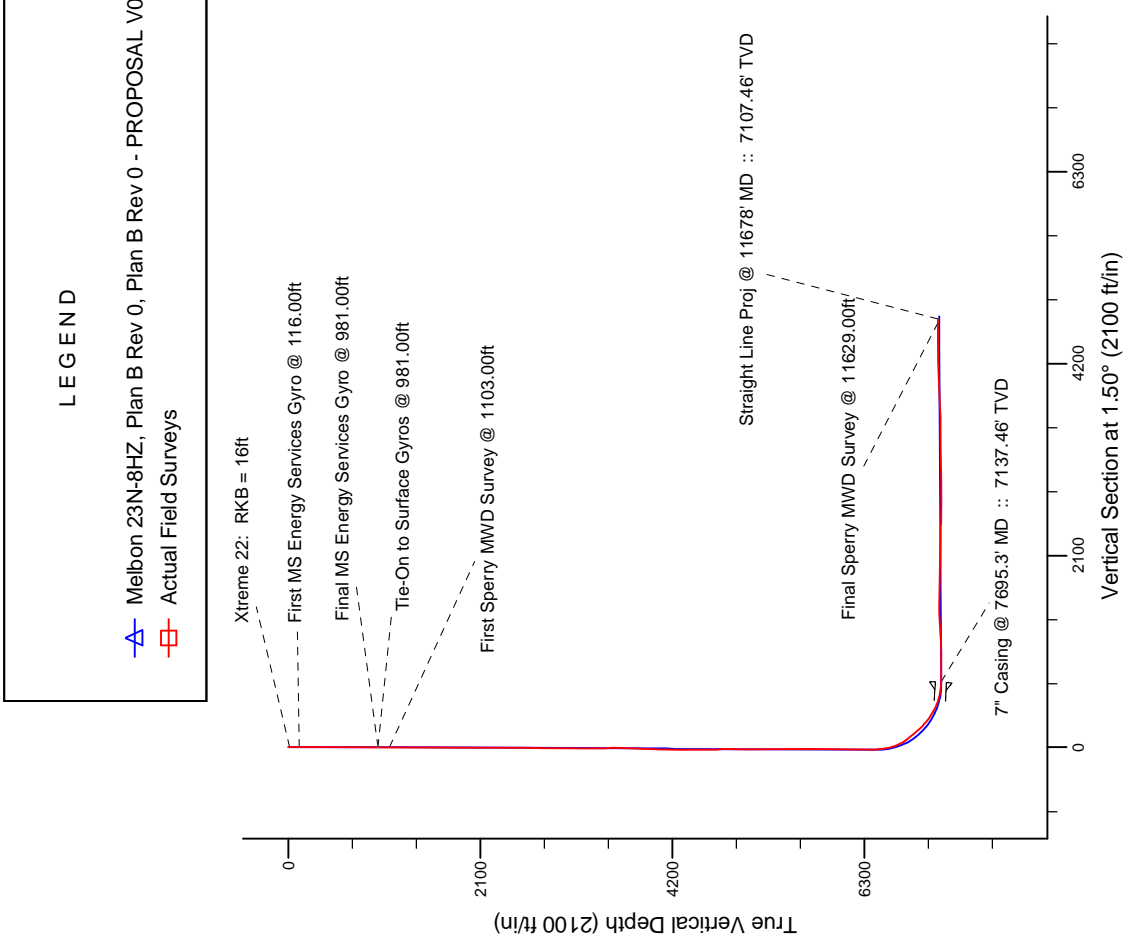
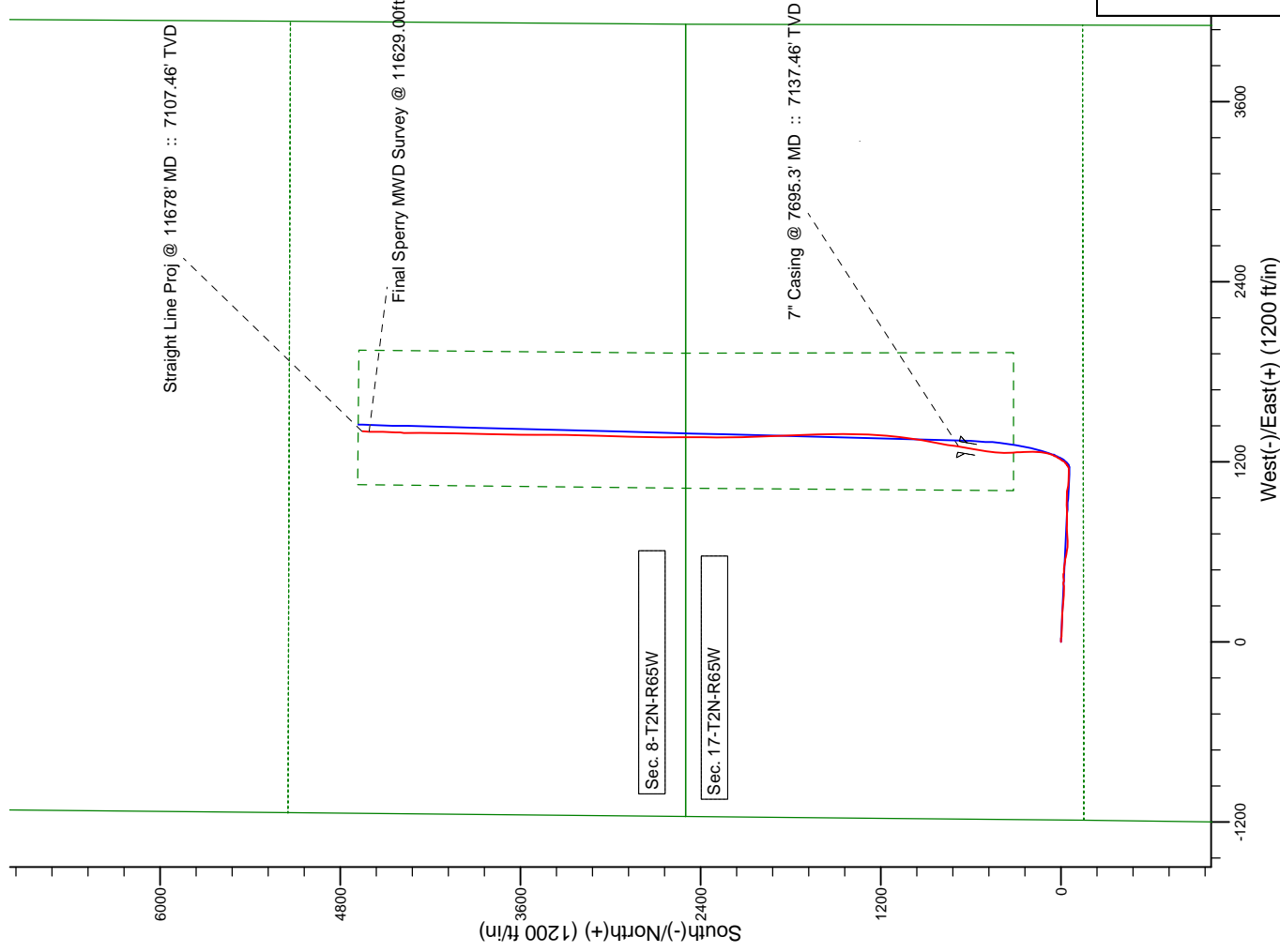


Project: Weld County, CO (NAD 83)
Site: Sec. 17-T2N-R65W
Well: Melbon 23N-8HZ
Wellbore: Plan B Rev 0
Design: Actual Field Surveys



LEGEND

- Melbon 23N-8HZ, Plan B Rev 0, Plan B Rev 0 - PROPOSAL V0
- Actual Field Surveys

7" Casing: ~1817.87' FNL, ~2479.3' FWL
Lat/Long: 40.140970 N, -104.688458 E
State Planes - CO Northern: 1,295,237.13' N, 3,226,883.39' E
Location: Sec. 17-T2N-R65W

BHL: ~2155.95' FSL, ~2545.11' FWL
Lat/Long: 40.151879 N, -104.688092 E
State Planes - CO Northern: 1,299,211.89' N, 3,226,949.09' E
Location: Sec. 8-T2N-R65W

WELL DETAILS: Melbon 23N-8HZ

Ground Level: 4948.00

RKB=16 @ 4964.00ft (Xtreme 22)

Design: Actual Field Surveys (Melbon 23N-8HZ/Plan B Rev 0)

Created By: Fred Hartmann

Reviewed: _____

Date: 05/30/2013

Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 17-T2N-R65W

Melbon 23N-8HZ

Plan B Rev 0

Design: Actual Field Surveys

Sperry Drilling Services

Standard Report

30 May, 2013

Well Coordinates: 1,294,544.09 N, 3,225,589.50 E (40° 08' 20.76" N, 104° 41' 35.19" W)

Ground Level: 4,948.00 ft

Local Coordinate Origin:

Centered on Well Melbon 23N-8HZ

Viewing Datum:

RKB=16 @ 4964.00ft (Xtreme 22)

TVDs to System:

N

North Reference:

True

Unit System:

API - US Survey Feet - Custom

Geodetic Scale Factor Applied

Version: 2003.16 Build: 43I

HALLIBURTON

Design Report for Melbon 23N-8HZ - Actual Field Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16.00	0.00	0.00	16.00	0.00	0.00	0.00	0.00
Xtreme 22: RKB = 16ft							
116.00	0.05	195.57	116.00	-0.04	-0.01	-0.04	0.05
First MS Energy Services Gyro @ 116.00ft							
216.00	0.12	335.09	216.00	0.01	-0.07	0.01	0.16
316.00	0.05	1.92	316.00	0.15	-0.11	0.15	0.08
416.00	0.25	312.86	416.00	0.34	-0.27	0.33	0.22
516.00	0.08	204.55	516.00	0.43	-0.46	0.41	0.29
616.00	0.13	118.65	616.00	0.31	-0.39	0.30	0.15
716.00	0.11	140.73	716.00	0.18	-0.23	0.17	0.05
816.00	0.14	60.71	816.00	0.17	-0.06	0.16	0.16
916.00	0.09	83.13	916.00	0.23	0.13	0.24	0.07
981.00	0.23	349.62	981.00	0.37	0.15	0.37	0.39
Final MS Energy Services Gyro @ 981.00ft - Tie-On to Surface Gyros @ 981.00ft							
1,103.00	0.22	235.28	1,103.00	0.48	-0.08	0.47	0.31
First Sperry MWD Survey @ 1103.00ft							
1,199.00	0.17	227.03	1,199.00	0.27	-0.34	0.27	0.06
1,294.00	1.65	95.39	1,293.98	0.05	0.92	0.07	1.86
1,389.00	4.18	96.53	1,388.85	-0.47	5.72	-0.32	2.66
1,484.00	5.77	92.47	1,483.49	-1.07	13.93	-0.71	1.71
1,579.00	6.92	92.24	1,577.91	-1.50	24.42	-0.86	1.21
1,674.00	7.99	91.91	1,672.11	-1.95	36.74	-0.98	1.13
1,766.00	8.14	92.46	1,763.20	-2.44	49.64	-1.14	0.18
1,858.00	9.16	93.48	1,854.15	-3.16	63.45	-1.50	1.12
1,949.00	10.83	91.17	1,943.76	-3.78	79.23	-1.70	1.89
2,041.00	13.08	95.81	2,033.77	-5.01	98.23	-2.43	2.66
2,133.00	12.45	95.76	2,123.49	-7.06	118.46	-3.95	0.68
2,225.00	13.90	92.44	2,213.07	-8.52	139.37	-4.87	1.78
2,317.00	12.95	92.76	2,302.55	-9.49	160.70	-5.28	1.04
2,408.00	12.46	88.74	2,391.33	-9.76	180.70	-5.03	1.11
2,500.00	12.83	93.39	2,481.10	-10.15	200.82	-4.89	1.18
2,591.00	13.06	94.36	2,569.78	-11.53	221.16	-5.74	0.35
2,682.00	13.44	90.59	2,658.36	-12.42	241.99	-6.08	1.04
2,773.00	13.34	93.27	2,746.89	-13.13	263.05	-6.24	0.69
2,865.00	12.57	97.10	2,836.55	-14.97	283.58	-7.54	1.25
2,957.00	13.89	97.39	2,926.11	-17.63	304.46	-9.65	1.44
3,048.00	15.20	90.22	3,014.20	-19.08	327.23	-10.51	2.44
3,139.00	14.43	89.47	3,102.17	-19.02	350.50	-9.84	0.87
3,230.00	13.40	87.34	3,190.50	-18.43	372.37	-8.67	1.26
3,322.00	13.62	91.73	3,279.95	-18.26	393.84	-7.94	1.14
3,413.00	11.93	89.79	3,368.70	-18.55	413.96	-7.70	1.92
3,503.00	12.22	88.62	3,456.71	-18.28	432.79	-6.95	0.42
3,594.00	12.27	91.64	3,545.64	-18.33	452.08	-6.49	0.71
3,685.00	13.42	96.30	3,634.36	-19.76	472.24	-7.39	1.70
3,777.00	13.80	95.15	3,723.78	-21.92	493.78	-8.99	0.51
3,868.00	14.17	98.63	3,812.08	-24.57	515.60	-11.06	1.01
3,961.00	15.00	98.43	3,902.09	-28.04	538.76	-13.93	0.89
4,054.00	13.86	97.36	3,992.15	-31.23	561.72	-16.51	1.26
4,146.00	16.12	97.99	4,081.01	-34.42	585.30	-19.08	2.46

Design Report for Melbon 23N-8HZ - Actual Field Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
4,239.00	15.73	98.50	4,170.44	-38.07	610.55	-22.08	0.45
4,331.00	13.97	98.58	4,259.37	-41.58	633.87	-24.97	1.91
4,417.00	14.43	90.04	4,342.75	-43.13	654.85	-25.97	2.49
4,503.00	14.46	88.79	4,426.03	-42.91	676.30	-25.19	0.36
4,588.00	13.61	88.06	4,508.49	-42.35	696.91	-24.09	1.02
4,674.00	13.06	86.71	4,592.17	-41.45	716.72	-22.67	0.73
4,760.00	14.78	89.54	4,675.65	-40.80	737.39	-21.49	2.15
4,846.00	14.31	90.56	4,758.89	-40.82	758.99	-20.94	0.62
4,931.00	13.14	86.81	4,841.46	-40.38	779.14	-19.98	1.73
5,017.00	13.76	87.62	4,925.10	-39.42	799.12	-18.48	0.75
5,103.00	13.69	93.67	5,008.65	-39.64	819.49	-18.18	1.67
5,188.00	13.55	91.37	5,091.26	-40.52	839.49	-18.54	0.66
5,274.00	13.95	89.24	5,174.80	-40.63	859.92	-18.10	0.75
5,360.00	15.20	89.08	5,258.03	-40.31	881.56	-17.22	1.45
5,446.00	13.81	83.76	5,341.29	-39.01	903.04	-15.36	2.24
5,531.00	13.55	88.51	5,423.88	-37.65	923.08	-13.47	1.36
5,617.00	14.57	91.63	5,507.31	-37.70	943.97	-12.97	1.48
5,702.00	13.77	96.31	5,589.72	-39.11	964.71	-13.85	1.64
5,788.00	12.27	92.31	5,673.51	-40.61	984.01	-14.83	2.03
5,874.00	12.12	96.18	5,757.57	-41.95	1,002.12	-15.70	0.97
5,959.00	11.90	96.44	5,840.71	-43.89	1,019.70	-17.18	0.27
6,045.00	13.21	96.64	5,924.65	-46.02	1,038.27	-18.83	1.52
6,130.00	11.91	96.20	6,007.62	-48.09	1,056.64	-20.41	1.53
6,216.00	11.35	93.92	6,091.85	-49.63	1,073.91	-21.50	0.84
6,302.00	11.84	96.81	6,176.10	-51.25	1,091.11	-22.67	0.88
6,387.00	14.00	89.12	6,258.94	-52.13	1,110.05	-23.05	3.24
6,473.00	12.66	90.06	6,342.63	-51.98	1,129.88	-22.38	1.58
6,520.00	12.16	89.21	6,388.53	-51.92	1,139.98	-22.06	1.13
6,559.00	12.83	89.62	6,426.60	-51.83	1,148.42	-21.75	1.73
6,601.00	14.28	77.59	6,467.44	-50.69	1,158.14	-20.35	7.53
6,644.00	16.82	63.26	6,508.88	-46.75	1,168.88	-16.13	10.67
6,686.00	19.32	53.35	6,548.81	-39.86	1,179.89	-8.96	9.41
6,730.00	21.39	43.78	6,590.08	-29.72	1,191.28	1.47	8.89
6,772.00	24.61	37.35	6,628.74	-17.23	1,201.89	14.24	9.71
6,815.00	28.37	34.44	6,667.22	-1.68	1,213.11	30.07	9.25
6,857.00	31.86	30.92	6,703.55	16.06	1,224.45	48.11	9.31
6,901.00	35.75	27.29	6,740.10	37.46	1,236.31	69.81	9.96
6,943.00	38.22	19.73	6,773.67	60.61	1,246.33	93.21	12.31
6,987.00	39.96	14.62	6,807.83	87.10	1,254.50	119.91	8.32
7,029.00	42.17	10.01	6,839.50	114.04	1,260.35	147.00	8.92
7,072.00	42.03	5.65	6,871.41	142.59	1,264.28	175.63	6.80
7,114.00	41.16	2.36	6,902.82	170.39	1,266.23	203.48	5.60
7,158.00	45.18	0.45	6,934.91	200.48	1,266.95	233.58	9.61
7,200.00	50.06	0.40	6,963.21	231.49	1,267.18	264.59	11.62
7,244.00	52.85	357.14	6,990.63	265.89	1,266.43	298.95	8.59
7,286.00	56.48	356.11	7,014.92	300.08	1,264.40	333.08	8.87
7,329.00	59.78	355.53	7,037.62	336.50	1,261.74	369.41	7.76
7,371.00	60.84	0.29	7,058.43	372.95	1,260.42	405.81	10.16
7,415.00	64.00	4.12	7,078.80	411.90	1,261.93	444.79	10.54
7,457.00	68.88	7.19	7,095.59	450.19	1,265.75	483.17	13.41
7,501.00	74.85	7.13	7,109.28	491.66	1,270.95	524.76	13.57

Design Report for Melbon 23N-8HZ - Actual Field Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
7,543.00	78.24	8.73	7,119.05	532.11	1,276.59	565.35	8.88
7,586.00	80.78	8.67	7,126.88	573.90	1,282.99	607.29	5.91
7,628.00	84.16	8.66	7,132.38	615.06	1,289.26	648.60	8.05
7,657.00	85.68	9.50	7,134.95	643.58	1,293.82	677.23	5.98
7,695.30	86.82	9.70	7,137.46	681.26	1,300.19	715.07	3.02
7" Casing @ 7695.3' MD :: 7137.46' TVD							
7,771.00	89.07	10.10	7,140.17	755.78	1,313.20	789.90	3.02
7,856.00	88.89	9.82	7,141.68	839.49	1,327.90	873.96	0.39
7,942.00	89.01	9.16	7,143.26	924.30	1,342.08	959.11	0.78
8,028.00	91.30	8.53	7,143.03	1,009.27	1,355.30	1,044.40	2.76
8,113.00	92.53	6.48	7,140.19	1,093.49	1,366.39	1,128.88	2.81
8,199.00	93.83	4.45	7,135.42	1,178.96	1,374.57	1,214.54	2.80
8,285.00	94.15	2.88	7,129.43	1,264.57	1,380.06	1,300.26	1.86
8,371.00	93.52	1.51	7,123.68	1,350.31	1,383.34	1,386.06	1.75
8,456.00	91.86	0.39	7,119.69	1,435.20	1,384.75	1,470.96	2.36
8,542.00	90.49	359.53	7,117.93	1,521.18	1,384.69	1,556.91	1.88
8,627.00	88.33	358.52	7,118.80	1,606.16	1,383.24	1,641.82	2.81
8,713.00	88.82	357.92	7,120.94	1,692.09	1,380.57	1,727.65	0.90
8,799.00	89.63	357.70	7,122.10	1,778.02	1,377.29	1,813.46	0.98
8,884.00	89.01	357.66	7,123.11	1,862.94	1,373.85	1,898.27	0.73
8,970.00	89.14	358.78	7,124.50	1,948.89	1,371.18	1,984.11	1.31
9,056.00	89.07	357.97	7,125.84	2,034.84	1,368.74	2,069.98	0.95
9,141.00	87.77	358.85	7,128.19	2,119.78	1,366.38	2,154.82	1.85
9,227.00	87.59	359.17	7,131.67	2,205.69	1,364.89	2,240.66	0.43
9,312.00	89.51	359.96	7,133.82	2,290.66	1,364.25	2,325.58	2.44
9,398.00	89.07	359.04	7,134.89	2,376.65	1,363.50	2,411.52	1.19
9,484.00	87.65	359.50	7,137.35	2,462.60	1,362.40	2,497.42	1.74
9,569.00	89.13	0.14	7,139.74	2,547.57	1,362.14	2,582.35	1.90
9,655.00	88.95	1.12	7,141.18	2,633.55	1,363.08	2,668.33	1.16
9,740.00	90.19	1.90	7,141.81	2,718.51	1,365.32	2,753.32	1.72
9,826.00	91.61	1.42	7,140.46	2,804.46	1,367.81	2,839.31	1.74
9,912.00	91.42	0.75	7,138.19	2,890.42	1,369.44	2,925.27	0.81
9,997.00	90.68	2.14	7,136.63	2,975.37	1,371.58	3,010.26	1.85
10,083.00	90.31	2.22	7,135.89	3,061.31	1,374.86	3,096.25	0.44
10,169.00	89.63	1.27	7,135.93	3,147.27	1,377.47	3,182.25	1.36
10,254.00	90.56	1.90	7,135.79	3,232.23	1,379.83	3,267.24	1.32
10,340.00	90.06	0.29	7,135.33	3,318.21	1,381.47	3,353.24	1.96
10,426.00	90.68	359.87	7,134.77	3,404.21	1,381.59	3,439.21	0.87
10,511.00	91.73	0.23	7,132.98	3,489.19	1,381.66	3,524.16	1.31
10,597.00	91.05	0.43	7,130.90	3,575.16	1,382.16	3,610.12	0.82
10,683.00	92.47	1.48	7,128.26	3,661.11	1,383.59	3,696.07	2.05
10,768.00	92.35	1.06	7,124.68	3,746.01	1,385.47	3,780.99	0.51
10,854.00	93.47	1.03	7,120.32	3,831.88	1,387.04	3,866.88	1.30
10,940.00	93.46	1.25	7,115.12	3,917.71	1,388.75	3,952.72	0.26
11,026.00	90.87	1.06	7,111.87	4,003.62	1,390.48	4,038.65	3.02
11,111.00	90.25	0.48	7,111.04	4,088.61	1,391.62	4,123.64	1.00
11,197.00	90.62	0.90	7,110.39	4,174.60	1,392.66	4,209.63	0.65
11,283.00	90.93	0.38	7,109.22	4,260.59	1,393.62	4,295.61	0.70
11,369.00	91.30	0.09	7,107.55	4,346.57	1,393.97	4,381.57	0.55
11,454.00	90.06	2.29	7,106.54	4,431.54	1,395.73	4,466.56	2.97
11,540.00	90.49	1.89	7,106.13	4,517.48	1,398.87	4,552.55	0.68

Design Report for Melbon 23N-8HZ - Actual Field Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
11,629.00	88.95	1.06	7,106.56	4,606.45	1,401.16	4,641.55	1.97
Final Sperry MWD Survey @ 11629.00ft							
11,678.00	88.95	1.06	7,107.46	4,655.43	1,402.07	4,690.54	0.00
Straight Line Proj @ 11678' MD :: 7107.46' TVD							

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
16.00	16.00	0.00	0.00	Xtreme 22: RKB = 16ft
116.00	116.00	-0.04	-0.01	First MS Energy Services Gyro @ 116.00ft
981.00	981.00	0.37	0.15	Final MS Energy Services Gyro @ 981.00ft
981.00	981.00	0.37	0.15	Tie-On to Surface Gyros @ 981.00ft
1,103.00	1,103.00	0.48	-0.08	First Sperry MWD Survey @ 1103.00ft
11,629.00	7,106.56	4,606.45	1,401.16	Final Sperry MWD Survey @ 11629.00ft
11,678.00	7,107.46	4,655.43	1,402.07	Straight Line Proj @ 11678' MD :: 7107.46' TVD

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (ft)
				+N/-S (ft)	+E/-W (ft)	
User	No Target (Freehand)	1.50	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
16.00	981.00	MS Energy Services - Surface Gyros	NS-GYRO-MS
1,103.00	7,657.00	Sperry MWD Surveys - Vert/Build	MWD+SC
7,771.00	11,629.00	Sperry MWD Surveys - Lateral	MWD+SC

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,695.30		7" Casing @ 7695.3' MD :: 7137.46' TVD	7	8-3/4