



Site: Sec 17-T9S-R94W (Hawxhurst 17-04B Pad)
Well: Hawxhurst 17-05B
Wellbore: S-Well
Design: Plan #1

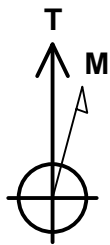
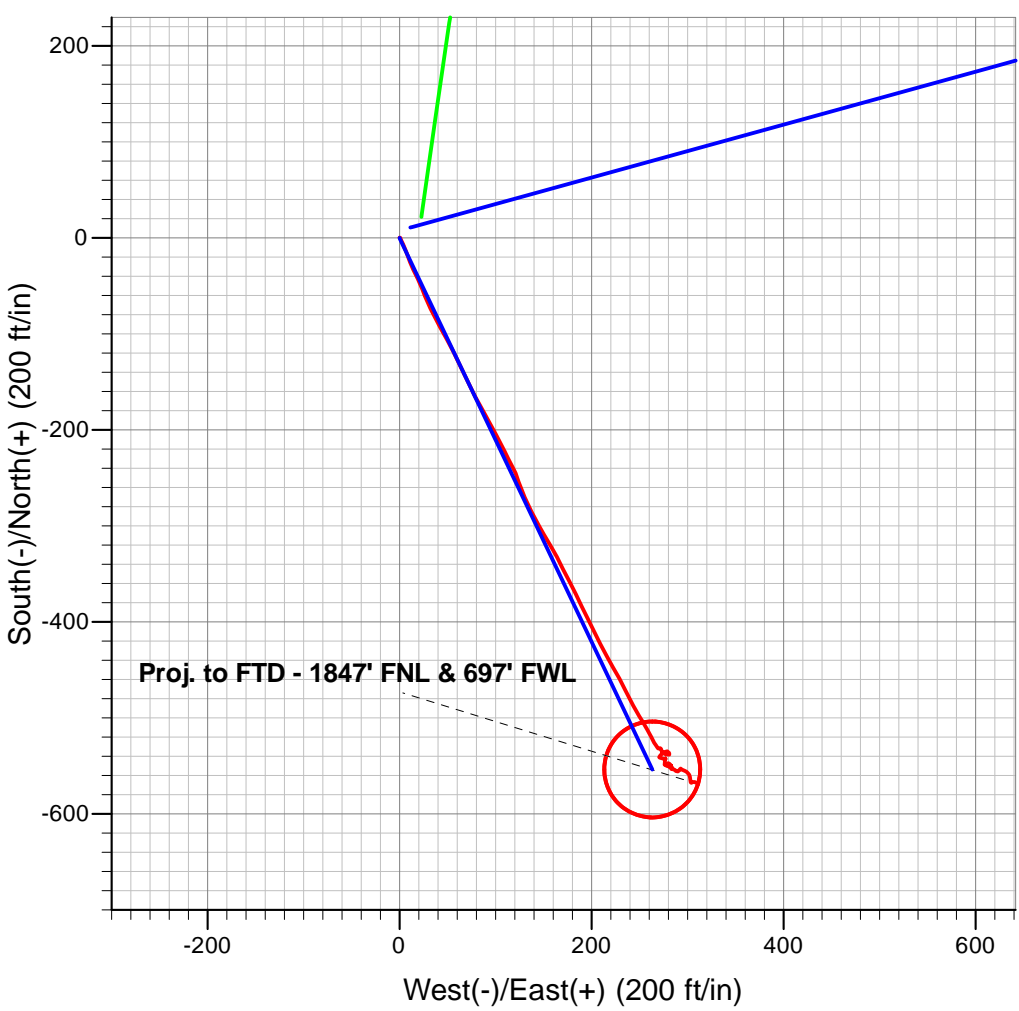
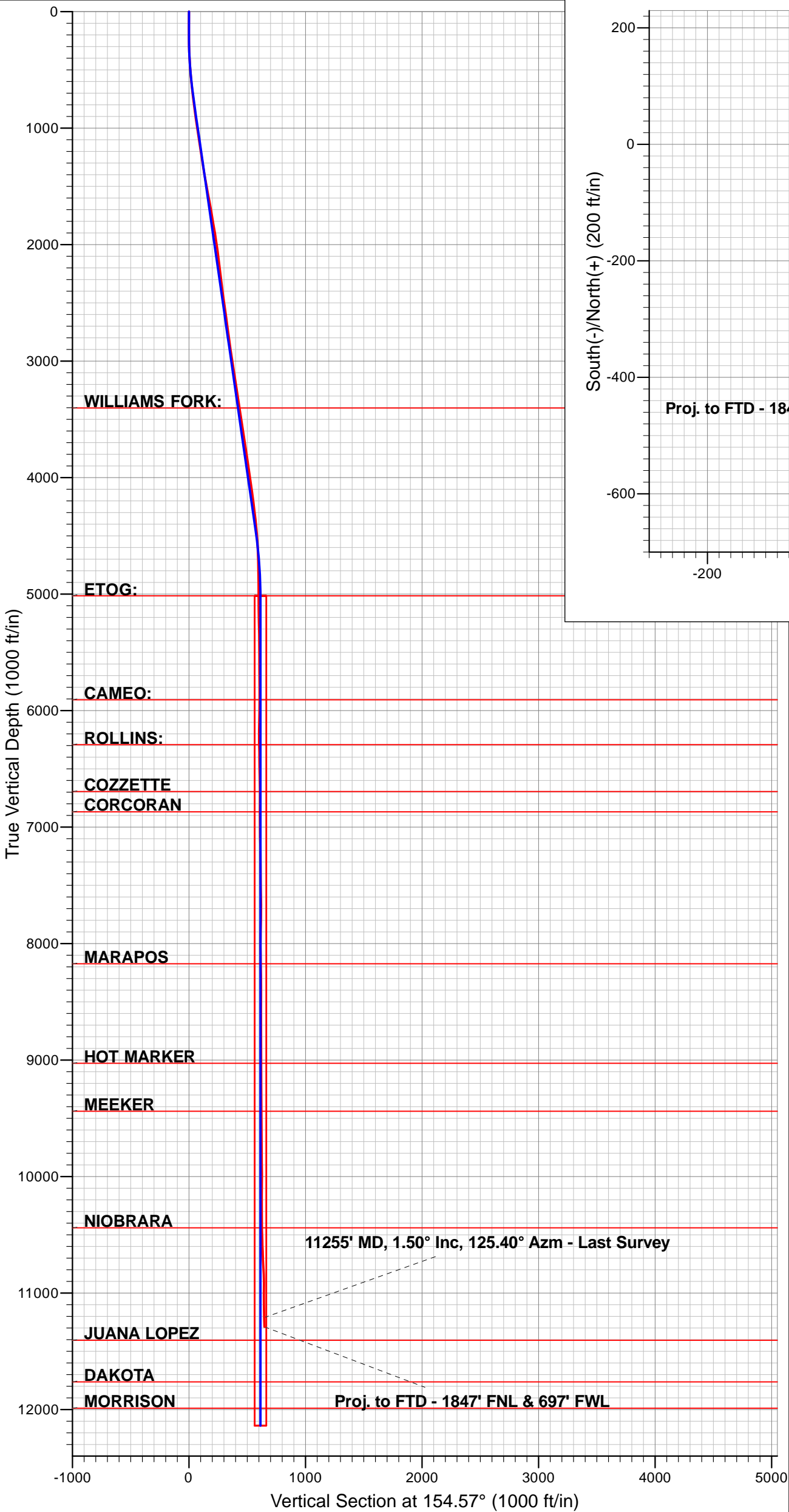
Reference Details - WELL CENTRE
Geodetic System: US State Plane 1983
Ellipsoid: GRS 1980
Zone: Colorado Central Zone
Northing: 1536162.51
Easting: 2316892.69
Latitude: 39° 16' 50.088 N
Longitude: 107° 54' 48.816 W
Grid Convergence: 1.52° East
Ground Elevation: 6786.00
KB Elevation: WELL @ 6807.00ft (Original Well Elev)



Departure
Energy Services (US) LP

Denver, Colorado
Phone: 303.542.2000

Casper, Wyoming
Phone: 307.265.2231
Fax: 307.472.5064
www.departureus.com



Azimuths to True North
Magnetic North: 10.33°

Magnetic Field
Strength: 52169.1snT
Dip Angle: 65.59°
Date: 02/18/2011
Model: IGRF2010

ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	VSect	Departure	Annotation
200.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	KOP - Build at 1.50°/100'
743.15	745.00	8.17	154.57	-35.05	16.67	38.81	38.81	EOB - Hold at 8.18° Inc.
4471.88	4511.97	8.17	154.57	-518.56	246.59	574.21	574.21	Drop at 1.50°/100'
5015.03	5056.97	0.00	0.00	-553.61	263.26	613.02	613.02	EOD - TOG
12137.99	12179.93	0.00	0.00	-553.61	263.26	613.02	613.02	TD - 1832' FNL & 653' FWL



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Laramie Energy II, LLC

Mesa County, Colorado

NWNW Sec 17-T9S-R94W

Hawxhurst 17-05B

S- Well

Final Surveys

Job Number: 311040

Final Survey Report

November 21, 2011

Company:	Laramie Energy II, LLC	Local Co-ordinate Reference:	Well Hawxhurst 17-05B
Project:	MESA, CO	TVD Reference:	WELL @ 6807.00ft (Original Well Elev)
Site:	Sec 17-T9S-R94W (Hawxhurst 17-04B Pad)	MD Reference:	WELL @ 6807.00ft (Original Well Elev)
Well:	Hawxhurst 17-05B	North Reference:	True
Wellbore:	S-Well	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM Depart

Project	MESA, CO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		

Site	Sec 17-T9S-R94W (Hawxhurst 17-04B Pad)				
Site Position:		Northing:	1,536,162.52 ft	Latitude:	39° 16' 50.088 N
From:	Lat/Long	Easting:	2,316,892.69 ft	Longitude:	107° 54' 48.816 W
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.52 °

Well	Hawxhurst 17-05B					
Well Position	+N/-S	0.00 ft	Northing:	1,536,162.52 ft	Latitude:	39° 16' 50.088 N
	+E/-W	0.00 ft	Easting:	2,316,892.69 ft	Longitude:	107° 54' 48.816 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	6,786.00 ft

Wellbore	S-Well				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	02/18/11	10.33	65.59	52,169

Design	Surveys				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00	154.57	

Survey Program	Date	11/21/11			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
125.00	11,334.00	Survey #1 (S-Well)	MWD	MWD - Standard	

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
125.00	0.30	359.80	125.00	0.33	0.00	-0.30	0.24	0.24	0.00	
156.00	0.40	28.10	156.00	0.50	0.05	-0.43	0.63	0.32	91.29	
249.00	0.90	146.30	249.00	0.18	0.61	0.10	1.23	0.54	127.10	
280.00	1.10	160.20	279.99	-0.30	0.84	0.63	1.01	0.65	44.84	
371.00	2.50	155.90	370.94	-2.93	1.95	3.49	1.54	1.54	-4.73	
463.00	4.50	155.30	462.77	-8.04	4.28	9.10	2.17	2.17	-0.65	
555.00	5.10	157.60	554.44	-15.10	7.34	16.79	0.68	0.65	2.50	
647.00	5.80	162.20	646.03	-23.31	10.32	25.49	0.90	0.76	5.00	
738.00	6.70	153.50	736.49	-32.44	14.10	35.35	1.43	0.99	-9.56	

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Well:	Hawxhurst 17-05B	North Reference:	True
Wellbore:	S-Well	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM Depart

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
830.00	7.50	154.20	827.78	-42.65	19.11	46.72	0.87	0.87	0.76
921.00	8.00	159.90	917.95	-53.94	23.87	58.96	1.01	0.55	6.26
1,016.00	9.00	155.40	1,011.91	-66.91	29.23	72.98	1.26	1.05	-4.74
1,112.00	8.60	153.20	1,106.78	-80.14	35.59	87.66	0.54	-0.42	-2.29
1,207.00	8.40	150.90	1,200.74	-92.54	42.17	101.69	0.42	-0.21	-2.42
1,302.00	9.10	151.60	1,294.63	-105.22	49.12	116.11	0.75	0.74	0.74
1,398.00	9.40	153.50	1,389.38	-118.91	56.23	131.53	0.45	0.31	1.98
1,495.00	10.30	154.00	1,484.95	-133.79	63.56	148.13	0.93	0.93	0.52
1,589.00	10.80	155.80	1,577.36	-149.38	70.86	165.33	0.64	0.53	1.91
1,684.00	10.70	151.00	1,670.70	-165.21	78.78	183.04	0.95	-0.11	-5.05
1,780.00	9.50	150.80	1,765.21	-179.92	86.97	199.84	1.25	-1.25	-0.21
1,875.00	9.80	152.30	1,858.86	-193.93	94.55	215.74	0.41	0.32	1.58
1,970.00	8.40	151.40	1,952.66	-207.18	101.63	230.74	1.48	-1.47	-0.95
2,065.00	7.80	154.10	2,046.72	-219.07	107.77	244.12	0.75	-0.63	2.84
2,161.00	7.00	152.60	2,141.92	-230.12	113.31	256.48	0.86	-0.83	-1.56
2,256.00	6.50	152.60	2,236.26	-240.03	118.45	267.64	0.53	-0.53	0.00
2,351.00	7.60	160.00	2,330.54	-250.71	123.07	279.27	1.50	1.16	7.79
2,447.00	7.50	160.50	2,425.71	-262.58	127.33	291.82	0.12	-0.10	0.52
2,542.00	7.80	155.60	2,519.86	-274.30	132.06	304.43	0.76	0.32	-5.16
2,637.00	7.80	152.30	2,613.98	-285.88	137.72	317.32	0.47	0.00	-3.47
2,732.00	7.60	150.00	2,708.13	-297.03	143.86	330.02	0.39	-0.21	-2.42
2,828.00	8.30	151.70	2,803.20	-308.62	150.32	343.27	0.77	0.73	1.77
2,923.00	8.10	147.80	2,897.23	-320.33	157.14	356.77	0.62	-0.21	-4.11
3,019.00	8.40	154.00	2,992.24	-332.35	163.82	370.49	0.98	0.31	6.46
3,114.00	9.00	151.80	3,086.15	-345.14	170.37	384.85	0.72	0.63	-2.32
3,207.00	9.10	153.40	3,177.99	-358.12	177.10	399.47	0.29	0.11	1.72
3,302.00	8.80	154.10	3,271.83	-371.38	183.64	414.25	0.34	-0.32	0.74
3,397.00	8.10	155.00	3,365.80	-383.98	189.64	428.21	0.75	-0.74	0.95
3,493.00	8.60	152.10	3,460.79	-396.45	195.86	442.14	0.68	0.52	-3.02
3,588.00	8.80	153.00	3,554.69	-409.21	202.48	456.51	0.25	0.21	0.95
3,683.00	9.50	154.50	3,648.48	-422.76	209.15	471.61	0.78	0.74	1.58
3,778.00	8.10	150.10	3,742.36	-435.64	215.87	486.12	1.63	-1.47	-4.63
3,872.00	8.30	151.80	3,835.40	-447.36	222.37	499.50	0.33	0.21	1.81
3,967.00	8.10	149.60	3,929.43	-459.17	229.00	513.02	0.39	-0.21	-2.32
4,062.00	8.60	154.90	4,023.43	-471.38	235.40	526.79	0.97	0.53	5.58
4,156.00	7.70	151.40	4,116.48	-483.27	241.40	540.11	1.09	-0.96	-3.72
4,251.00	7.40	149.30	4,210.65	-494.12	247.57	552.55	0.43	-0.32	-2.21
4,345.00	6.40	149.80	4,303.97	-503.85	253.29	563.80	1.07	-1.06	0.53
4,440.00	5.70	150.50	4,398.44	-512.53	258.28	573.78	0.74	-0.74	0.74
4,535.00	4.50	153.90	4,493.06	-519.99	262.24	582.22	1.30	-1.26	3.58
4,629.00	3.70	149.70	4,586.82	-525.92	265.39	588.93	0.91	-0.85	-4.47
4,724.00	2.60	143.60	4,681.68	-530.30	268.22	594.10	1.21	-1.16	-6.42
4,818.00	0.70	70.40	4,775.64	-531.82	270.03	596.25	2.65	-2.02	-77.87
4,913.00	0.50	72.90	4,870.63	-531.51	270.97	596.37	0.21	-0.21	2.63

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Wellbore:	S-Well	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM Depart

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
5,007.00	0.40	118.90	4,964.63	-531.54	271.65	596.69	0.39	-0.11	48.94
5,102.00	0.60	143.70	5,059.63	-532.11	272.23	597.45	0.31	0.21	26.11
5,197.00	1.00	172.30	5,154.62	-533.33	272.64	598.73	0.58	0.42	30.11
5,292.00	1.20	158.20	5,249.60	-535.07	273.12	600.51	0.35	0.21	-14.84
5,388.00	1.10	120.40	5,345.58	-536.47	274.29	602.28	0.78	-0.10	-39.38
5,483.00	0.90	89.00	5,440.57	-536.92	275.82	603.34	0.60	-0.21	-33.05
5,578.00	0.60	124.80	5,535.56	-537.19	276.97	604.08	0.57	-0.32	37.68
5,673.00	0.50	150.80	5,630.56	-537.84	277.59	604.92	0.28	-0.11	27.37
5,768.00	0.80	75.70	5,725.55	-538.04	278.43	605.47	0.87	0.32	-79.05
5,863.00	0.90	115.50	5,820.54	-538.19	279.75	606.17	0.62	0.11	41.89
5,958.00	0.70	62.80	5,915.54	-538.25	280.94	606.74	0.77	-0.21	-55.47
6,054.00	1.90	343.00	6,011.51	-536.46	280.99	605.14	1.98	1.25	-83.13
6,149.00	2.10	280.30	6,106.47	-534.64	278.82	602.57	2.20	0.21	-66.00
6,245.00	3.10	237.10	6,202.38	-535.74	274.91	601.88	2.22	1.04	-45.00
6,340.00	2.50	213.50	6,297.26	-538.86	271.61	603.28	1.35	-0.63	-24.84
6,435.00	0.50	173.40	6,392.23	-541.00	270.51	604.74	2.25	-2.11	-42.21
6,530.00	1.50	98.60	6,487.22	-541.60	271.79	605.83	1.53	1.05	-78.74
6,626.00	1.60	116.50	6,583.18	-542.38	274.23	607.59	0.51	0.10	18.65
6,720.00	0.80	104.20	6,677.16	-543.13	276.04	609.04	0.89	-0.85	-13.09
6,815.00	0.70	20.60	6,772.15	-542.75	276.89	609.06	1.06	-0.11	-88.00
6,910.00	0.20	214.80	6,867.15	-542.34	277.00	608.74	0.94	-0.53	-174.53
7,005.00	0.40	191.00	6,962.15	-542.80	276.84	609.09	0.24	0.21	-25.05
7,100.00	1.20	190.40	7,057.14	-544.11	276.60	610.16	0.84	0.84	-0.63
7,128.00	1.50	190.20	7,085.13	-544.76	276.48	610.70	1.07	1.07	-0.71
7,208.00	2.20	182.20	7,165.09	-547.32	276.24	612.91	0.93	0.88	-10.00
7,271.00	0.40	188.10	7,228.07	-548.75	276.16	614.17	2.86	-2.86	9.37
7,365.00	0.80	40.50	7,322.07	-548.57	276.54	614.17	1.23	0.43	-157.02
7,460.00	1.50	151.70	7,417.06	-549.16	277.56	615.14	2.04	0.74	117.05
7,555.00	1.20	81.10	7,512.04	-550.11	279.13	616.67	1.66	-0.32	-74.32
7,650.00	1.10	75.20	7,607.02	-549.72	280.99	617.12	0.16	-0.11	-6.21
7,745.00	1.30	124.20	7,702.00	-550.09	282.77	618.22	1.06	0.21	51.58
7,840.00	1.70	321.30	7,796.99	-549.60	282.78	617.78	3.12	0.42	-171.47
7,935.00	1.40	314.80	7,891.95	-547.68	281.07	615.31	0.37	-0.32	-6.84
8,030.00	0.70	244.70	7,986.94	-547.11	279.73	614.22	1.41	-0.74	-73.79
8,124.00	1.40	175.00	8,080.93	-548.50	279.31	615.29	1.42	0.74	-74.15
8,219.00	0.50	61.70	8,175.92	-549.46	279.77	616.36	1.75	-0.95	-119.26
8,314.00	1.40	163.40	8,270.91	-550.37	280.47	617.49	1.66	0.95	107.05
8,409.00	0.70	80.20	8,365.89	-551.39	281.37	618.79	1.57	-0.74	-87.58
8,504.00	1.10	14.00	8,460.88	-550.40	282.16	618.24	1.09	0.42	-69.68
8,599.00	0.30	170.50	8,555.88	-549.77	282.43	617.78	1.45	-0.84	164.74
8,694.00	0.40	202.70	8,650.88	-550.32	282.34	618.24	0.23	0.11	33.89
8,788.00	0.50	18.90	8,744.88	-550.23	282.35	618.16	0.96	0.11	187.45
8,883.00	0.30	74.50	8,839.88	-549.77	282.72	617.91	0.43	-0.21	58.53

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Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,979.00	1.10	171.40	8,935.87	-550.62	283.10	618.83	1.22	0.83	100.94
9,074.00	1.00	195.10	9,030.85	-552.32	283.02	620.34	0.47	-0.11	24.95
9,169.00	0.10	135.60	9,125.85	-553.18	282.86	621.04	1.00	-0.95	-62.63
9,263.00	0.70	65.50	9,219.85	-553.00	283.44	621.13	0.72	0.64	-74.57
9,358.00	0.70	1.70	9,314.84	-552.18	283.99	620.62	0.78	0.00	-67.16
9,453.00	0.60	167.30	9,409.84	-552.08	284.11	620.59	1.36	-0.11	174.32
9,548.00	0.60	139.30	9,504.83	-552.95	284.55	621.56	0.31	0.00	-29.47
9,642.00	0.40	110.70	9,598.83	-553.43	285.18	622.27	0.33	-0.21	-30.43
9,737.00	0.20	110.40	9,693.83	-553.61	285.64	622.63	0.21	-0.21	-0.32
9,832.00	0.70	117.30	9,788.83	-553.93	286.31	623.21	0.53	0.53	7.26
9,927.00	1.60	141.90	9,883.81	-555.24	287.65	624.96	1.06	0.95	25.89
10,021.00	1.80	70.90	9,977.77	-555.79	289.85	626.41	2.11	0.21	-75.53
10,116.00	1.50	23.90	10,072.74	-554.17	291.77	625.76	1.41	-0.32	-49.47
10,211.00	0.40	64.70	10,167.72	-552.89	292.57	624.95	1.29	-1.16	42.95
10,306.00	0.00	100.30	10,262.72	-552.75	292.87	624.95	0.42	-0.42	0.00
10,401.00	0.40	163.40	10,357.72	-553.07	292.96	625.28	0.42	0.42	0.00
10,496.00	2.10	115.90	10,452.70	-554.14	294.62	626.97	1.95	1.79	-50.00
10,591.00	1.70	106.40	10,547.65	-555.30	297.54	629.27	0.53	-0.42	-10.00
10,686.00	2.80	137.60	10,642.57	-557.41	300.46	632.43	1.69	1.16	32.84
10,780.00	2.70	167.70	10,736.47	-561.27	302.48	636.78	1.52	-0.11	32.02
10,875.00	2.80	175.20	10,831.36	-565.77	303.15	641.13	0.39	0.11	7.89
10,970.00	1.00	44.70	10,926.33	-567.49	303.93	643.02	3.72	-1.89	-137.37
11,065.00	1.20	78.90	11,021.31	-566.71	305.49	642.98	0.71	0.21	36.00
11,160.00	1.20	102.10	11,116.29	-566.73	307.43	643.84	0.51	0.00	24.42
11,255.00	1.50	125.40	11,211.27	-567.66	309.42	645.53	0.65	0.32	24.53
11255' MD, 1.50° Inc, 125.40° Azm - Last Survey									
11,334.00	1.50	125.40	11,290.24	-568.86	311.11	647.33	0.00	0.00	0.00
Proj. to FTD - 1847' FNL & 697' FWL									

Survey Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
11,255.00	11,211.27	-567.66	309.42	11255' MD, 1.50° Inc, 125.40° Azm - Last Survey
11,334.00	11,290.24	-568.86	311.11	Proj. to FTD - 1847' FNL & 697' FWL

Checked By: _____ Approved By: _____ Date: _____