

Chesapeake Operating Inc.



Project: Weld County, Colorado NAD27
Site: Sec 36-T7N-R62W
Well: State 7-62-36-1H
Wellbore: Original Hole
Final Surveys
Rig: Cyclone 26

SECTION DETAILS Plan 0

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5756.58	0.00	0.00	5756.58	0.00	0.00	0.00	0.00	0.00	
6817.76	90.20	180.00	6430.64	-676.42	0.01	8.50	180.00	676.42	
10133.10	90.20	180.00	6419.07	-3991.75	0.06	0.00	0.00	3991.75	PBHL

Surface Location:
SHL 659' FNL & 659' FWL Sec 36-T7N-R62W

US State Plane 1927 (Exact solution)
 Colorado North 501

Elevation: 4776' GL + 22' KB @ 4798.00ft (Cyclone 26)

Northing	Easting	Latitude	Longitude
440568.75	2339987.94	40° 32' 10.837 N	104° 16' 36.528 W

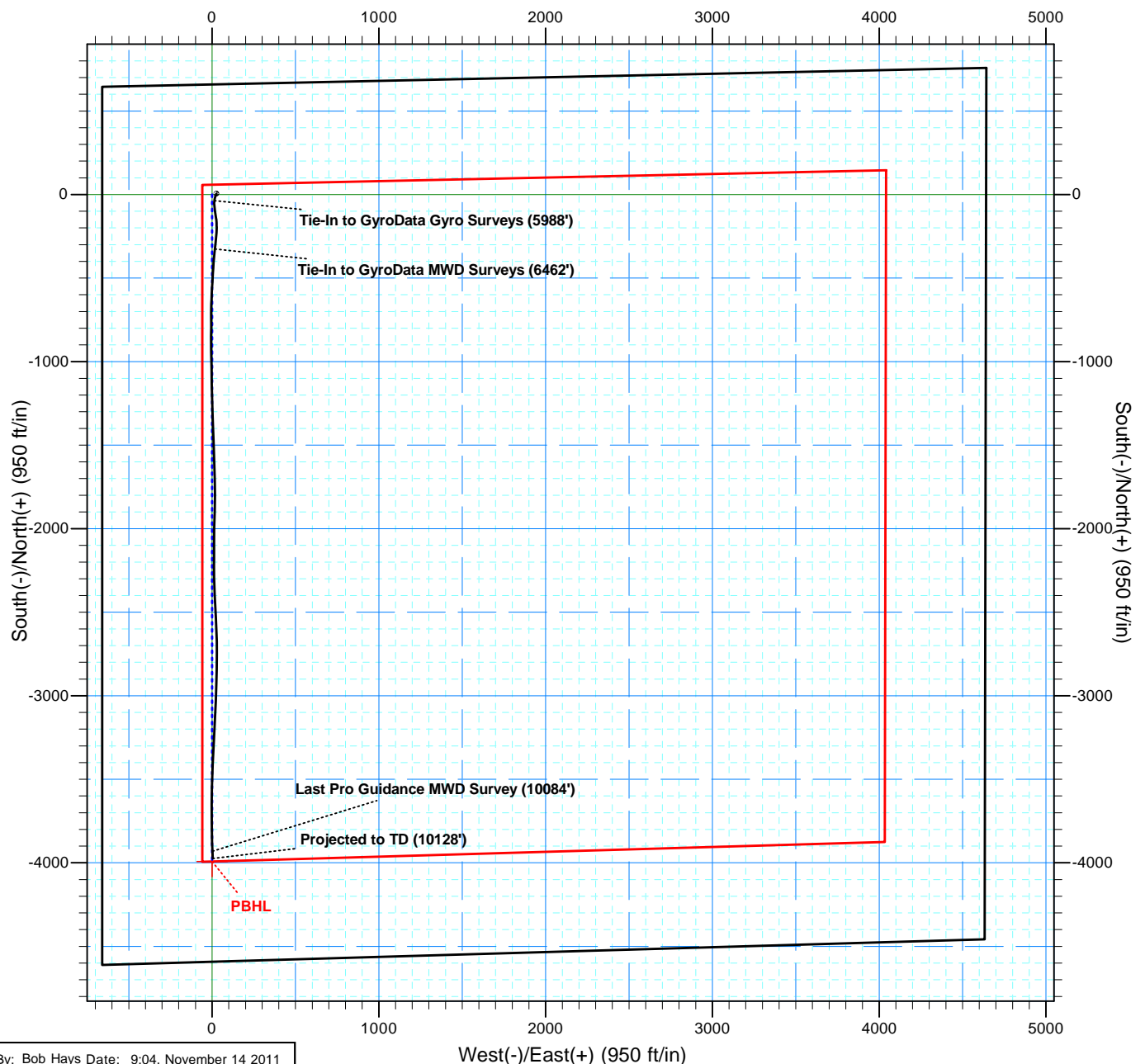
WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
PBHL	6419.07	-3991.75	0.06	40° 31' 31.395 N	104° 16' 37.240 W



To convert a Magnetic Direction to a Grid Direction, Add 7.72°

Magnetic Model: IGRF200510 Date: 03-Nov-11
Azimuths & Coordinates to NAD27 Grid



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MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5756.58	0.00	0.00	5756.58	0.00	0.00	0.00	0.00	0.00	
6817.76	90.20	180.00	6430.64	-676.42	0.01	8.50	180.00	676.42	
10133.10	90.20	180.00	6419.07	-3991.75	0.06	0.00	0.00	3991.75	PBHL

Surface Location:
 SHL 659' FNL & 659' FWL Sec 36-T7N-R62W

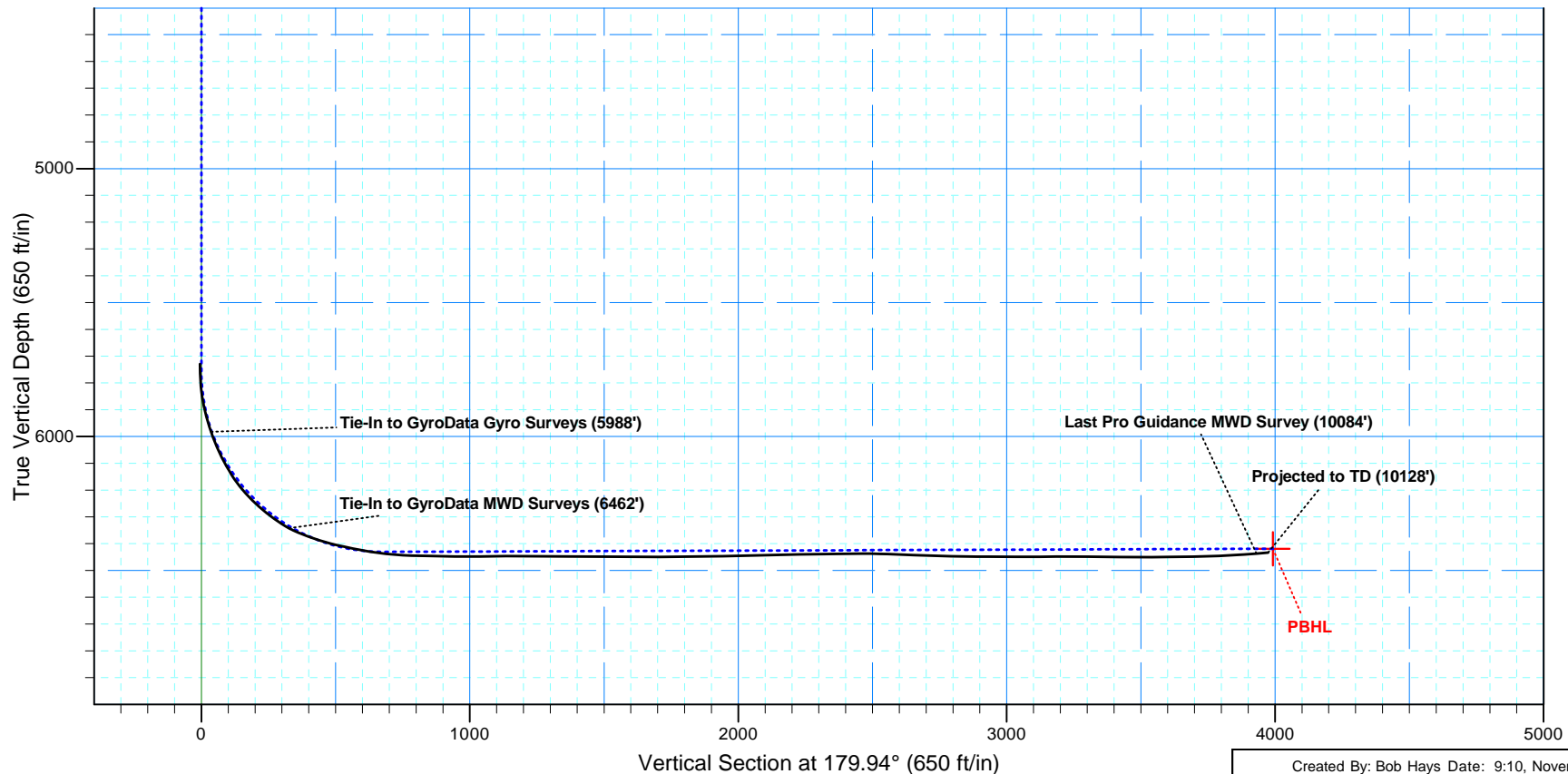
US State Plane 1927 (Exact solution)
 Colorado North 501

Elevation: 4776' GL + 22' KB @ 4798.00ft (Cyclone 26)

Northing	Easting	Latitude	Longitude
440568.75	2339987.94	40° 32' 10.837 N	104° 16' 36.528 W

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
PBHL	6419.07	-3991.75	0.06	40° 31' 31.395 N	104° 16' 37.240 W



Created By: Bob Hays Date: 9:10, November 14 2011



Chesapeake Operating Inc.

Weld County, Colorado NAD27

Sec 36-T7N-R62W

State 7-62-36-1H

Original Hole

Design: Final Surveys

Standard Survey Report

14 November, 2011



Company:	Chesapeake Operating Inc.	Local Co-ordinate Reference:	Well State 7-62-36-1H
Project:	Weld County, Colorado NAD27	TVD Reference:	4776' GL + 22' KB @ 4798.00ft (Cyclone 26)
Site:	Sec 36-T7N-R62W	MD Reference:	4776' GL + 22' KB @ 4798.00ft (Cyclone 26)
Well:	State 7-62-36-1H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Final Surveys	Database:	EDM 5000.1 Single User Db

Project	Weld County, Colorado NAD27		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	Colorado North 501		

Site	Sec 36-T7N-R62W		
Site Position:		Northing:	440,568.75 ft
From:	Map	Easting:	2,339,987.94 ft
Position Uncertainty:	0.00 ft	Slot Radius:	1.10000 ft
		Latitude:	40° 32' 10.837 N
		Longitude:	104° 16' 36.528 W
		Grid Convergence:	0.79 °

Well	State 7-62-36-1H		
Well Position	+N/-S	0.00 ft	Northing:
	+E/-W	0.00 ft	Easting:
Position Uncertainty	0.00 ft		Wellhead Elevation:
			Latitude:
			Longitude:
			Ground Level:

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	11/03/11	8.51	67.24	53,235

Survey Program	Date	11/14/11			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
5,764.00	5,988.00	GyroData Gyro Surveys (Original Hole)	CB-GYRO-MS	Gyro Multishot	
6,022.00	6,462.00	GyroData MWD Surveys (Original Hole)	MWD	MWD	
6,490.00	10,084.00	Pro Guidance MWD Surveys (Original Hol	MWD	MWD	
10,128.00	10,128.00	Projected to TD (Original Hole)	Projection	Projection	

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)	
5,730.00	0.41	302.80	5,729.69	5.15	25.50	-5.12	0.00	0.00	0.00	
5,764.00	2.20	195.60	5,763.68	4.59	25.22	-4.56	6.92	5.26	-315.29	
5,813.00	4.60	209.20	5,812.59	1.97	24.01	-1.94	5.13	4.90	27.76	
5,832.00	6.80	195.50	5,831.50	0.22	23.34	-0.19	13.54	11.58	-72.11	
5,858.00	9.90	195.30	5,857.22	-3.42	22.34	3.45	11.92	11.92	-0.77	
5,893.00	13.80	202.80	5,891.47	-10.18	19.92	10.20	11.96	11.14	21.43	
5,925.00	16.00	198.50	5,922.39	-17.88	17.05	17.90	7.69	6.88	-13.44	
5,953.00	16.90	193.50	5,949.25	-25.50	14.87	25.51	5.99	3.21	-17.86	
5,988.00	18.80	186.00	5,982.57	-36.05	13.09	36.07	8.51	5.43	-21.43	
Tie-In to GyroData Gyro Surveys (5988')										
6,022.00	21.50	181.90	6,014.48	-47.73	12.31	47.74	8.96	7.94	-12.06	
6,053.00	23.30	177.40	6,043.15	-59.54	12.40	59.55	8.02	5.81	-14.52	
6,084.00	26.10	173.90	6,071.31	-72.44	13.41	72.46	10.19	9.03	-11.29	
6,116.00	29.00	172.30	6,099.68	-87.13	15.19	87.15	9.35	9.06	-5.00	
6,147.00	31.20	171.10	6,126.49	-102.52	17.44	102.53	7.36	7.10	-3.87	

Company:	Chesapeake Operating Inc.	Local Co-ordinate Reference:	Well State 7-62-36-1H
Project:	Weld County, Colorado NAD27	TVD Reference:	4776' GL + 22' KB @ 4798.00ft (Cyclone 26)
Site:	Sec 36-T7N-R62W	MD Reference:	4776' GL + 22' KB @ 4798.00ft (Cyclone 26)
Well:	State 7-62-36-1H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Final Surveys	Database:	EDM 5000.1 Single User Db

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)
6,178.00	33.90	170.20	6,152.62	-118.97	20.16	118.99	8.85	8.71	-2.90
6,210.00	36.70	171.10	6,178.74	-137.21	23.16	137.24	8.90	8.75	2.81
6,240.00	40.40	175.20	6,202.20	-155.77	25.36	155.79	14.98	12.33	13.67
6,274.00	44.30	177.80	6,227.32	-178.62	26.74	178.65	12.57	11.47	7.65
6,304.00	47.40	180.00	6,248.22	-200.14	27.14	200.17	11.59	10.33	7.33
6,337.00	49.20	182.80	6,270.17	-224.77	26.53	224.79	8.36	5.45	8.48
6,369.00	51.40	184.90	6,290.61	-249.33	24.87	249.35	8.53	6.88	6.56
6,398.00	53.80	186.10	6,308.23	-272.26	22.66	272.28	8.90	8.28	4.14
6,432.00	58.10	187.30	6,327.26	-300.23	19.36	300.24	12.98	12.65	3.53
6,462.00	61.90	186.50	6,342.26	-326.01	16.25	326.03	12.88	12.67	-2.67
Tie-In to GyroData MWD Surveys (6462')									
6,490.00	66.20	184.70	6,354.51	-351.06	13.80	351.08	16.41	15.36	-6.43
6,522.00	69.20	184.60	6,366.65	-380.57	11.40	380.58	9.38	9.38	-0.31
6,554.00	70.50	184.10	6,377.67	-410.52	9.12	410.53	4.32	4.06	-1.56
6,585.00	71.90	184.30	6,387.66	-439.79	6.97	439.80	4.56	4.52	0.65
6,617.00	74.70	183.50	6,396.86	-470.37	4.89	470.37	9.07	8.75	-2.50
6,649.00	76.50	183.90	6,404.81	-501.29	2.89	501.30	5.75	5.63	1.25
6,680.00	78.20	183.70	6,411.60	-531.47	0.88	531.48	5.52	5.48	-0.65
6,712.00	79.40	183.10	6,417.82	-562.81	-0.98	562.81	4.18	3.75	-1.88
6,745.00	79.70	182.90	6,423.80	-595.22	-2.68	595.21	1.09	0.91	-0.61
6,777.00	79.50	182.40	6,429.58	-626.66	-4.13	626.65	1.66	-0.63	-1.56
6,809.00	82.10	181.00	6,434.70	-658.23	-5.07	658.22	9.20	8.13	-4.38
6,840.00	84.50	180.80	6,438.31	-689.01	-5.55	689.01	7.77	7.74	-0.65
6,872.00	85.90	180.20	6,440.99	-720.90	-5.83	720.89	4.76	4.38	-1.88
6,903.00	87.30	180.10	6,442.83	-751.84	-5.91	751.84	4.53	4.52	-0.32
6,935.00	87.50	180.20	6,444.28	-783.81	-5.99	783.80	0.70	0.63	0.31
6,967.00	88.30	180.20	6,445.45	-815.79	-6.11	815.78	2.50	2.50	0.00
6,999.00	89.20	180.30	6,446.15	-847.78	-6.25	847.77	2.83	2.81	0.31
7,095.00	89.00	178.80	6,447.66	-943.76	-5.49	943.75	1.58	-0.21	-1.56
7,190.00	90.60	178.80	6,447.99	-1,038.74	-3.50	1,038.73	1.68	1.68	0.00
7,286.00	90.90	178.80	6,446.73	-1,134.71	-1.49	1,134.70	0.31	0.31	0.00
7,381.00	89.00	179.00	6,446.82	-1,229.68	0.33	1,229.68	2.01	-2.00	0.21
7,476.00	89.10	178.10	6,448.39	-1,324.64	2.74	1,324.64	0.95	0.11	-0.95
7,571.00	91.20	177.60	6,448.14	-1,419.57	6.30	1,419.57	2.27	2.21	-0.53
7,667.00	89.10	178.40	6,447.89	-1,515.50	9.65	1,515.51	2.34	-2.19	0.83
7,762.00	89.10	178.10	6,449.38	-1,610.45	12.55	1,610.46	0.32	0.00	-0.32
7,857.00	90.50	177.90	6,449.72	-1,705.39	15.87	1,705.40	1.49	1.47	-0.21
7,952.00	90.80	180.70	6,448.64	-1,800.36	17.03	1,800.38	2.96	0.32	2.95
8,048.00	90.60	181.70	6,447.46	-1,896.33	15.02	1,896.35	1.06	-0.21	1.04
8,143.00	91.40	181.40	6,445.81	-1,991.28	12.45	1,991.29	0.90	0.84	-0.32
8,236.00	91.00	180.20	6,443.86	-2,084.25	11.15	2,084.26	1.36	-0.43	-1.29
8,336.00	92.10	179.60	6,441.15	-2,184.21	11.32	2,184.22	1.25	1.10	-0.60
8,424.00	90.80	179.00	6,438.93	-2,272.18	12.40	2,272.19	1.63	-1.48	-0.68

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Well:	State 7-62-36-1H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Final Surveys	Database:	EDM 5000.1 Single User Db

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)
8,519.00	90.30	178.30	6,438.02	-2,367.14	14.64	2,367.16	0.91	-0.53	-0.74
8,615.00	90.20	177.20	6,437.60	-2,463.07	18.40	2,463.09	1.15	-0.10	-1.15
8,710.00	88.10	176.60	6,439.01	-2,557.91	23.54	2,557.94	2.30	-2.21	-0.63
8,805.00	87.60	179.00	6,442.57	-2,652.77	27.19	2,652.79	2.58	-0.53	2.53
8,899.00	88.40	179.70	6,445.85	-2,746.70	28.25	2,746.73	1.13	0.85	0.74
8,993.00	89.50	180.90	6,447.57	-2,840.68	27.76	2,840.71	1.73	1.17	1.28
9,087.00	89.30	182.30	6,448.56	-2,934.64	25.13	2,934.66	1.50	-0.21	1.49
9,182.00	90.20	181.90	6,448.97	-3,029.57	21.65	3,029.59	1.04	0.95	-0.42
9,277.00	89.70	182.70	6,449.06	-3,124.50	17.84	3,124.51	0.99	-0.53	0.84
9,372.00	90.60	183.00	6,448.81	-3,219.38	13.12	3,219.39	1.00	0.95	0.32
9,467.00	89.90	183.10	6,448.39	-3,314.24	8.06	3,314.25	0.74	-0.74	0.11
9,562.00	88.80	182.20	6,449.47	-3,409.13	3.67	3,409.13	1.50	-1.16	-0.95
9,657.00	89.60	181.70	6,450.80	-3,504.07	0.44	3,504.06	0.99	0.84	-0.53
9,753.00	91.30	181.30	6,450.04	-3,600.03	-2.07	3,600.02	1.82	1.77	-0.42
9,848.00	90.90	179.80	6,448.22	-3,695.00	-2.99	3,695.00	1.63	-0.42	-1.58
9,944.00	92.20	179.30	6,445.62	-3,790.96	-2.23	3,790.96	1.45	1.35	-0.52
10,039.00	93.80	178.20	6,440.65	-3,885.80	-0.16	3,885.80	2.04	1.68	-1.16
10,084.00	94.60	177.30	6,437.35	-3,930.65	1.60	3,930.65	2.67	1.78	-2.00
Last Pro Guidance MWD Survey (10084')									
10,128.00	95.30	176.40	6,433.56	-3,974.42	4.01	3,974.42	2.59	1.59	-2.05
Projected to TD (10128')									

Design Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
5,988.00	5,982.57	-36.05	13.09	Tie-In to GyroData Gyro Surveys (5988')
6,462.00	6,342.26	-326.01	16.25	Tie-In to GyroData MWD Surveys (6462')
10,084.00	6,437.35	-3,930.65	1.60	Last Pro Guidance MWD Survey (10084')
10,128.00	6,433.56	-3,974.42	4.01	Projected to TD (10128')