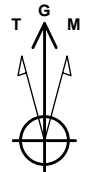




Company: Carrizo Oil & Gas  
 Site: Pergamos  
 Well: 4-44-7-60  
 Project: Weld County, Colorado (NAD83)  
 Rig Name: KB



Planning: 936.442.2510 Fax: 936.442.2515  
 Operations: 936.442.2500 Fax: 936.442.2599



Azimuths to Grid North  
 True North: -0.91°  
 Magnetic North: 7.62°  
 Magnetic Field  
 Strength: 53334.0snT  
 Dip Angle: 67.33°  
 Date: 4/11/2011  
 Model: WMM\_2010

US State Plane 1983  
 Colorado Northern Zone

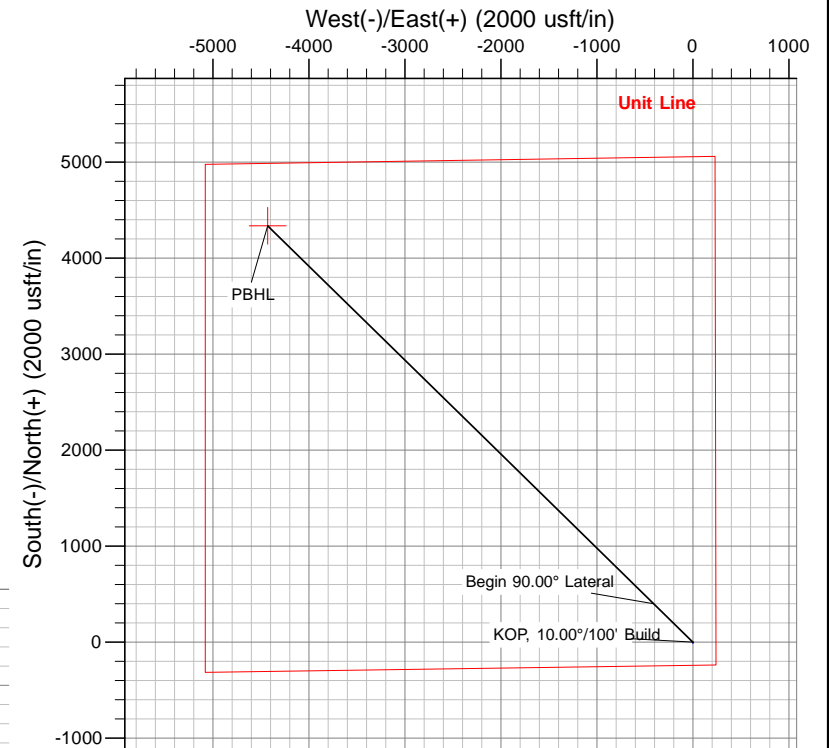
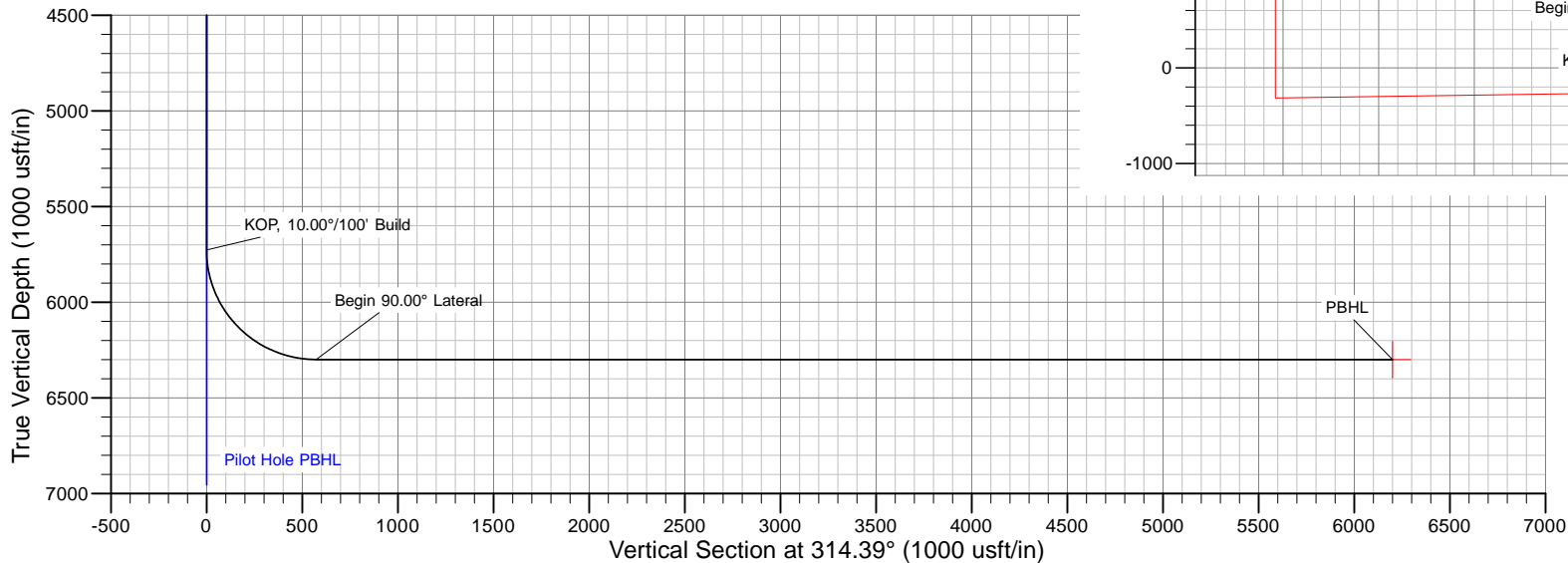
Created By: Vanessa Thom  
 Date: 17:02, April 11 2011  
 Plan: Design #1

#### PILOT HOLE ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSec	Departure	Annotation
6955.00	0.00	0.00	6955.00	0.00	0.00	0.00	0.00	Pilot Hole PBHL

#### ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSec	Departure	Annotation
5727.04	0.00	0.00	5727.04	0.00	0.00	0.00	0.00	KOP, 10.00°/100' Build
6627.04	90.00	314.39	6300.00	400.81	-409.43	572.96	572.96	Begin 90.00° Lateral
12254.40	90.00	314.39	6300.00	4337.43	-4430.64	6200.31	6200.31	PBHL



The customer should only rely on this document after independently verifying all paths, targets, coordinates, lease and hard lines represented. Any decisions made or wells drilled utilizing this or any other information supplied by MS Energy are at the sole risk and responsibility of the customer. MS Energy is not responsible for the accuracy of this schematic or the information contained herein.



## **Carrizo Oil & Gas**

**Weld County, Colorado (NAD83)**

**Pergamos**

**4-44-7-60**

**Wellbore #2**

**Plan: Design #1**

## **Standard Planning Report**

**11 April, 2011**

<b>Database:</b>	Southern Region	<b>Local Co-ordinate Reference:</b>	Well 4-44-7-60
<b>Company:</b>	Carrizo Oil & Gas	<b>TVD Reference:</b>	WELL @ 4934.90usft (KB)
<b>Project:</b>	Weld County, Colorado (NAD83)	<b>MD Reference:</b>	WELL @ 4934.90usft (KB)
<b>Site:</b>	Pergamos	<b>North Reference:</b>	Grid
<b>Well:</b>	4-44-7-60	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #2		
<b>Design:</b>	Design #1		

<b>Project</b>	Weld County, Colorado (NAD83)		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		

<b>Well</b>	4-44-7-60			
<b>Well Position</b>	<b>+N/-S</b>	1,463,667.85 usft	<b>Northing:</b>	1,463,667.85 usft
	<b>+E/-W</b>	3,391,782.07 usft	<b>Easting:</b>	3,391,782.07 usft
<b>Position Uncertainty</b>		0.00 usft	<b>Wellhead Elevation:</b>	<b>Latitude:</b> 40° 35' 51.3982 N
				<b>Longitude:</b> 104° 5' 20.841 W
				<b>Ground Level:</b> 4,919.90 usft

<b>Wellbore</b>	Wellbore #2				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	WMM_2010	4/11/2011	8.53	67.33	53,334

<b>Design</b>	Design #1			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	314.39

<b>Plan Sections</b>										
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>	<b>TFO (°)</b>	<b>Target</b>
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,727.04	0.00	0.00	5,727.04	0.00	0.00	0.00	0.00	0.00	0.00	
6,627.04	90.00	314.39	6,300.00	400.81	-409.43	10.00	10.00	0.00	314.39	
12,254.40	90.00	314.39	6,300.00	4,337.43	-4,430.64	0.00	0.00	0.00	0.00	4-44-7-60 - PBHL v1

<b>Database:</b>	Southern Region	<b>Local Co-ordinate Reference:</b>	Well 4-44-7-60
<b>Company:</b>	Carrizo Oil & Gas	<b>TVD Reference:</b>	WELL @ 4934.90usft (KB)
<b>Project:</b>	Weld County, Colorado (NAD83)	<b>MD Reference:</b>	WELL @ 4934.90usft (KB)
<b>Site:</b>	Pergamos	<b>North Reference:</b>	Grid
<b>Well:</b>	4-44-7-60	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #2		
<b>Design:</b>	Design #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00

<b>Database:</b>	Southern Region	<b>Local Co-ordinate Reference:</b>	Well 4-44-7-60
<b>Company:</b>	Carrizo Oil & Gas	<b>TVD Reference:</b>	WELL @ 4934.90usft (KB)
<b>Project:</b>	Weld County, Colorado (NAD83)	<b>MD Reference:</b>	WELL @ 4934.90usft (KB)
<b>Site:</b>	Pergamos	<b>North Reference:</b>	Grid
<b>Well:</b>	4-44-7-60	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #2		
<b>Design:</b>	Design #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,600.00	0.00	0.00	0.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.00	0.00	0.00
5,727.04	0.00	0.00	5,727.04	0.00	0.00	0.00	0.00	0.00	0.00
<b>KOP, 10.00°/100' Build</b>									
5,750.00	2.30	314.39	5,749.99	0.32	-0.33	0.46	10.00	10.00	0.00
5,800.00	7.30	314.39	5,799.80	3.25	-3.31	4.64	10.00	10.00	0.00
5,850.00	12.30	314.39	5,849.06	9.19	-9.39	13.14	10.00	10.00	0.00
5,900.00	17.30	314.39	5,897.39	18.12	-18.51	25.91	10.00	10.00	0.00
5,950.00	22.30	314.39	5,944.42	29.97	-30.61	42.84	10.00	10.00	0.00
6,000.00	27.30	314.39	5,989.79	44.63	-45.59	63.80	10.00	10.00	0.00
6,050.00	32.30	314.39	6,033.17	62.01	-63.34	88.64	10.00	10.00	0.00
6,100.00	37.30	314.39	6,074.21	81.96	-83.72	117.16	10.00	10.00	0.00
6,150.00	42.30	314.39	6,112.62	104.34	-106.58	149.15	10.00	10.00	0.00
6,200.00	47.30	314.39	6,148.09	128.98	-131.75	184.37	10.00	10.00	0.00
6,250.00	52.30	314.39	6,180.35	155.68	-159.03	222.55	10.00	10.00	0.00
6,300.00	57.30	314.39	6,209.17	184.25	-188.21	263.39	10.00	10.00	0.00
6,350.00	62.30	314.39	6,234.32	214.47	-219.08	306.59	10.00	10.00	0.00
6,400.00	67.30	314.39	6,255.60	246.11	-251.40	351.81	10.00	10.00	0.00
6,450.00	72.30	314.39	6,272.86	278.92	-284.92	398.72	10.00	10.00	0.00
6,500.00	77.30	314.39	6,285.97	312.67	-319.39	446.95	10.00	10.00	0.00
6,550.00	82.30	314.39	6,294.83	347.08	-354.54	496.15	10.00	10.00	0.00
6,600.00	87.30	314.39	6,299.36	381.90	-390.11	545.93	10.00	10.00	0.00
6,627.04	90.00	314.39	6,300.00	400.81	-409.43	572.96	10.00	10.00	0.00
<b>Begin 90.00° Lateral</b>									
6,700.00	90.00	314.39	6,300.00	451.85	-461.56	645.92	0.00	0.00	0.00
6,800.00	90.00	314.39	6,300.00	521.81	-533.02	745.92	0.00	0.00	0.00
6,900.00	90.00	314.39	6,300.00	591.76	-604.48	845.92	0.00	0.00	0.00
7,000.00	90.00	314.39	6,300.00	661.72	-675.94	945.92	0.00	0.00	0.00
7,100.00	90.00	314.39	6,300.00	731.67	-747.39	1,045.92	0.00	0.00	0.00
7,200.00	90.00	314.39	6,300.00	801.63	-818.85	1,145.92	0.00	0.00	0.00
7,300.00	90.00	314.39	6,300.00	871.58	-890.31	1,245.92	0.00	0.00	0.00
7,400.00	90.00	314.39	6,300.00	941.54	-961.77	1,345.92	0.00	0.00	0.00
7,500.00	90.00	314.39	6,300.00	1,011.49	-1,033.23	1,445.92	0.00	0.00	0.00
7,600.00	90.00	314.39	6,300.00	1,081.45	-1,104.69	1,545.92	0.00	0.00	0.00
7,700.00	90.00	314.39	6,300.00	1,151.40	-1,176.14	1,645.92	0.00	0.00	0.00
7,800.00	90.00	314.39	6,300.00	1,221.36	-1,247.60	1,745.92	0.00	0.00	0.00
7,900.00	90.00	314.39	6,300.00	1,291.31	-1,319.06	1,845.92	0.00	0.00	0.00
8,000.00	90.00	314.39	6,300.00	1,361.27	-1,390.52	1,945.92	0.00	0.00	0.00
8,100.00	90.00	314.39	6,300.00	1,431.22	-1,461.98	2,045.92	0.00	0.00	0.00
8,200.00	90.00	314.39	6,300.00	1,501.18	-1,533.44	2,145.92	0.00	0.00	0.00
8,300.00	90.00	314.39	6,300.00	1,571.13	-1,604.89	2,245.92	0.00	0.00	0.00
8,400.00	90.00	314.39	6,300.00	1,641.09	-1,676.35	2,345.92	0.00	0.00	0.00
8,500.00	90.00	314.39	6,300.00	1,711.04	-1,747.81	2,445.92	0.00	0.00	0.00
8,600.00	90.00	314.39	6,300.00	1,781.00	-1,819.27	2,545.92	0.00	0.00	0.00
8,700.00	90.00	314.39	6,300.00	1,850.95	-1,890.73	2,645.92	0.00	0.00	0.00
8,800.00	90.00	314.39	6,300.00	1,920.91	-1,962.19	2,745.92	0.00	0.00	0.00
8,900.00	90.00	314.39	6,300.00	1,990.86	-2,033.64	2,845.92	0.00	0.00	0.00
9,000.00	90.00	314.39	6,300.00	2,060.82	-2,105.10	2,945.92	0.00	0.00	0.00
9,100.00	90.00	314.39	6,300.00	2,130.77	-2,176.56	3,045.92	0.00	0.00	0.00
9,200.00	90.00	314.39	6,300.00	2,200.73	-2,248.02	3,145.92	0.00	0.00	0.00
9,300.00	90.00	314.39	6,300.00	2,270.68	-2,319.48	3,245.92	0.00	0.00	0.00

<b>Database:</b>	Southern Region	<b>Local Co-ordinate Reference:</b>	Well 4-44-7-60
<b>Company:</b>	Carrizo Oil & Gas	<b>TVD Reference:</b>	WELL @ 4934.90usft (KB)
<b>Project:</b>	Weld County, Colorado (NAD83)	<b>MD Reference:</b>	WELL @ 4934.90usft (KB)
<b>Site:</b>	Pergamos	<b>North Reference:</b>	Grid
<b>Well:</b>	4-44-7-60	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #2		
<b>Design:</b>	Design #1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
9,400.00	90.00	314.39	6,300.00	2,340.64	-2,390.94	3,345.92	0.00	0.00	0.00	
9,500.00	90.00	314.39	6,300.00	2,410.59	-2,462.39	3,445.92	0.00	0.00	0.00	
9,600.00	90.00	314.39	6,300.00	2,480.55	-2,533.85	3,545.92	0.00	0.00	0.00	
9,700.00	90.00	314.39	6,300.00	2,550.50	-2,605.31	3,645.92	0.00	0.00	0.00	
9,800.00	90.00	314.39	6,300.00	2,620.46	-2,676.77	3,745.92	0.00	0.00	0.00	
9,900.00	90.00	314.39	6,300.00	2,690.41	-2,748.23	3,845.92	0.00	0.00	0.00	
10,000.00	90.00	314.39	6,300.00	2,760.37	-2,819.69	3,945.92	0.00	0.00	0.00	
10,100.00	90.00	314.39	6,300.00	2,830.32	-2,891.14	4,045.92	0.00	0.00	0.00	
10,200.00	90.00	314.39	6,300.00	2,900.28	-2,962.60	4,145.92	0.00	0.00	0.00	
10,300.00	90.00	314.39	6,300.00	2,970.23	-3,034.06	4,245.92	0.00	0.00	0.00	
10,400.00	90.00	314.39	6,300.00	3,040.19	-3,105.52	4,345.92	0.00	0.00	0.00	
10,500.00	90.00	314.39	6,300.00	3,110.14	-3,176.98	4,445.92	0.00	0.00	0.00	
10,600.00	90.00	314.39	6,300.00	3,180.10	-3,248.44	4,545.92	0.00	0.00	0.00	
10,700.00	90.00	314.39	6,300.00	3,250.05	-3,319.89	4,645.92	0.00	0.00	0.00	
10,800.00	90.00	314.39	6,300.00	3,320.01	-3,391.35	4,745.92	0.00	0.00	0.00	
10,900.00	90.00	314.39	6,300.00	3,389.96	-3,462.81	4,845.92	0.00	0.00	0.00	
11,000.00	90.00	314.39	6,300.00	3,459.92	-3,534.27	4,945.92	0.00	0.00	0.00	
11,100.00	90.00	314.39	6,300.00	3,529.87	-3,605.73	5,045.92	0.00	0.00	0.00	
11,200.00	90.00	314.39	6,300.00	3,599.83	-3,677.19	5,145.92	0.00	0.00	0.00	
11,300.00	90.00	314.39	6,300.00	3,669.78	-3,748.64	5,245.92	0.00	0.00	0.00	
11,400.00	90.00	314.39	6,300.00	3,739.74	-3,820.10	5,345.92	0.00	0.00	0.00	
11,500.00	90.00	314.39	6,300.00	3,809.69	-3,891.56	5,445.92	0.00	0.00	0.00	
11,600.00	90.00	314.39	6,300.00	3,879.65	-3,963.02	5,545.92	0.00	0.00	0.00	
11,700.00	90.00	314.39	6,300.00	3,949.60	-4,034.48	5,645.92	0.00	0.00	0.00	
11,800.00	90.00	314.39	6,300.00	4,019.56	-4,105.94	5,745.92	0.00	0.00	0.00	
11,900.00	90.00	314.39	6,300.00	4,089.51	-4,177.39	5,845.92	0.00	0.00	0.00	
12,000.00	90.00	314.39	6,300.00	4,159.47	-4,248.85	5,945.92	0.00	0.00	0.00	
12,100.00	90.00	314.39	6,300.00	4,229.42	-4,320.31	6,045.92	0.00	0.00	0.00	
12,200.00	90.00	314.39	6,300.00	4,299.38	-4,391.77	6,145.92	0.00	0.00	0.00	
12,254.40	90.00	314.39	6,300.00	4,337.43	-4,430.64	6,200.31	0.00	0.00	0.00	
PBHL										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude		Longitude
4-44-7-60 - PBHL v1	0.00	0.00	6,300.00	4,337.43	-4,430.64	1,468,005.28	3,387,351.43	40° 36' 34.9460 N		104° 6' 17.386 W
- hit/miss target										
- Shape										
- plan hits target center										
- Point										

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
5,727.04	5,727.04	0.00	0.00	KOP, 10.00°/100' Build	
6,627.04	6,300.00	400.81	-409.43	Begin 90.00° Lateral	
12,254.40	6,300.00	4,337.43	-4,430.64	PBHL	