

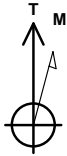


Company: Whiting Oil & Gas
Site: Horsetail 08D
Well: 1701
Project: Weld County, Colorado (NAD 83)
Rig: Pioneer 54



ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	V Sect	Departure	Annotation
3546.00	0.00	0.00	3546.00	0.00	0.00	0.00	0.00	KOP, 2.00°/100' Build
4296.00	15.00	337.00	4287.46	89.86	-38.14	-89.13	97.62	Hold 15.00° Inc, 337.00° Azm
5116.02	15.00	337.00	5079.54	285.22	-121.07	-282.93	309.85	Begin 11.00°/100' Build & Turn
6059.50	90.00	180.00	5721.00	-220.65	-188.22	224.10	861.12	Begin 90.00° Lateral
15993.82	90.00	180.00	5721.00	-10154.97	-188.18	10156.72	10795.45	PBHL

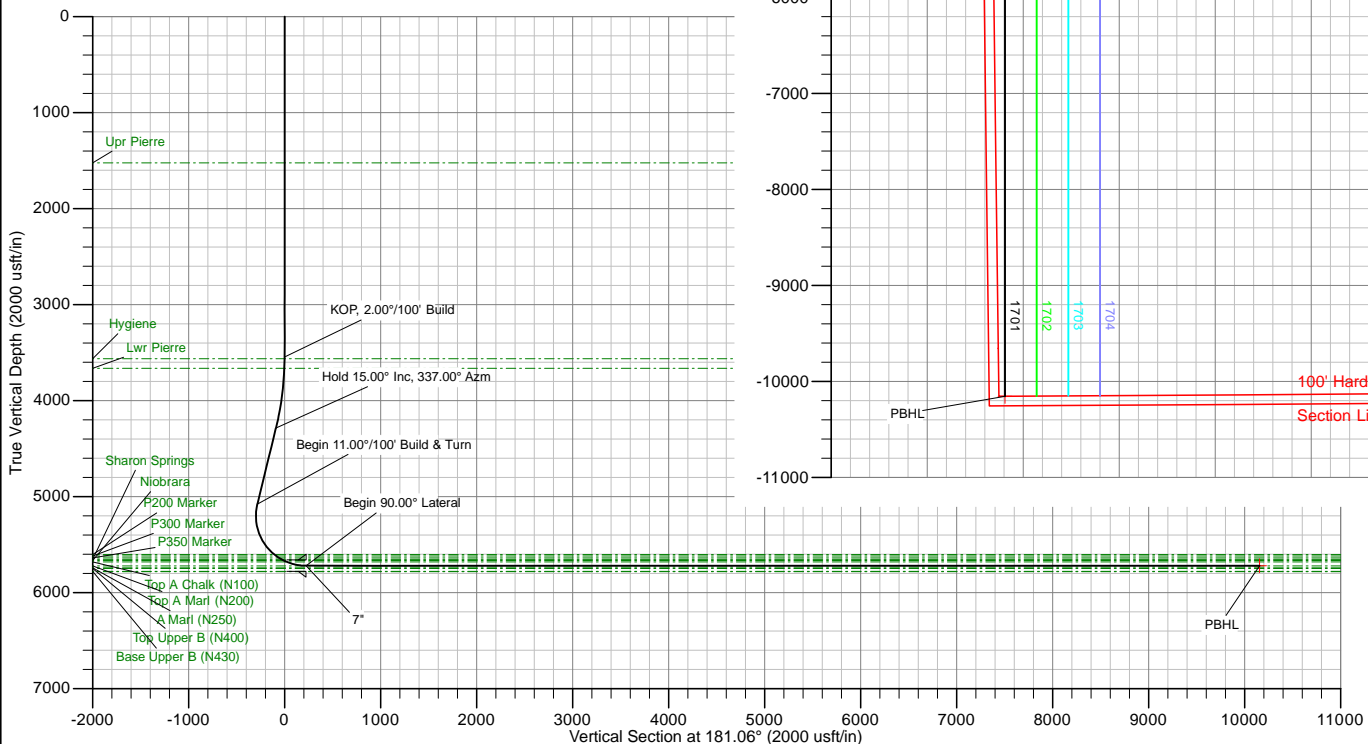
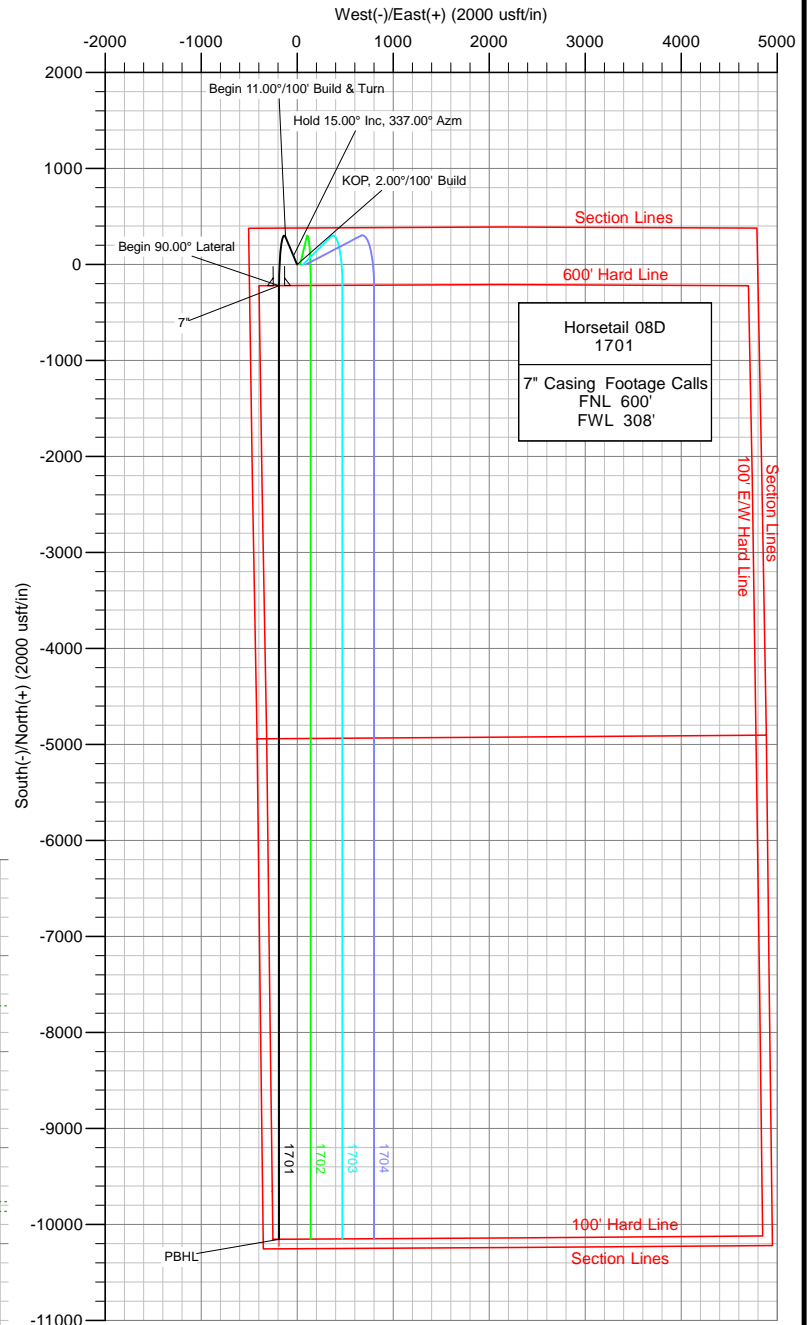


Azimuths to True North
Magnetic North: 7.91°

Magnetic Field
Strength: 53122.2snT
Dip Angle: 67.45°
Date: 10/6/2014
Model: WMM_2010

US State Plane 1983
Colorado Northern Zone

Created By: MEB
Date: 12:55, October 09 2014
Plan: Design #1



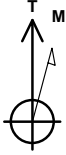


Company: Whiting Oil & Gas
Site: Horsetail 08D
Well: 1701
Project: Weld County, Colorado (NAD 83)
Rig: Pioneer 54



ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Vsect	Departure	Annotation
3546.00	0.00	0.00	3546.00	0.00	0.00	0.00	0.00	KOP, 2.00°/100' Build
4296.00	15.00	337.00	4287.46	89.86	-38.14	-89.13	97.62	Hold 15.00° Inc, 337.00° Azm
5116.02	15.00	337.00	5079.54	285.22	-121.07	-282.93	309.85	Begin 11.00°/100' Build & Turn
6059.50	90.00	180.00	5721.00	-220.65	-188.22	224.10	861.12	Begin 90.00° Lateral
15993.82	90.00	180.00	5721.00	-10154.97	-188.18	10156.72	10795.45	PBHL

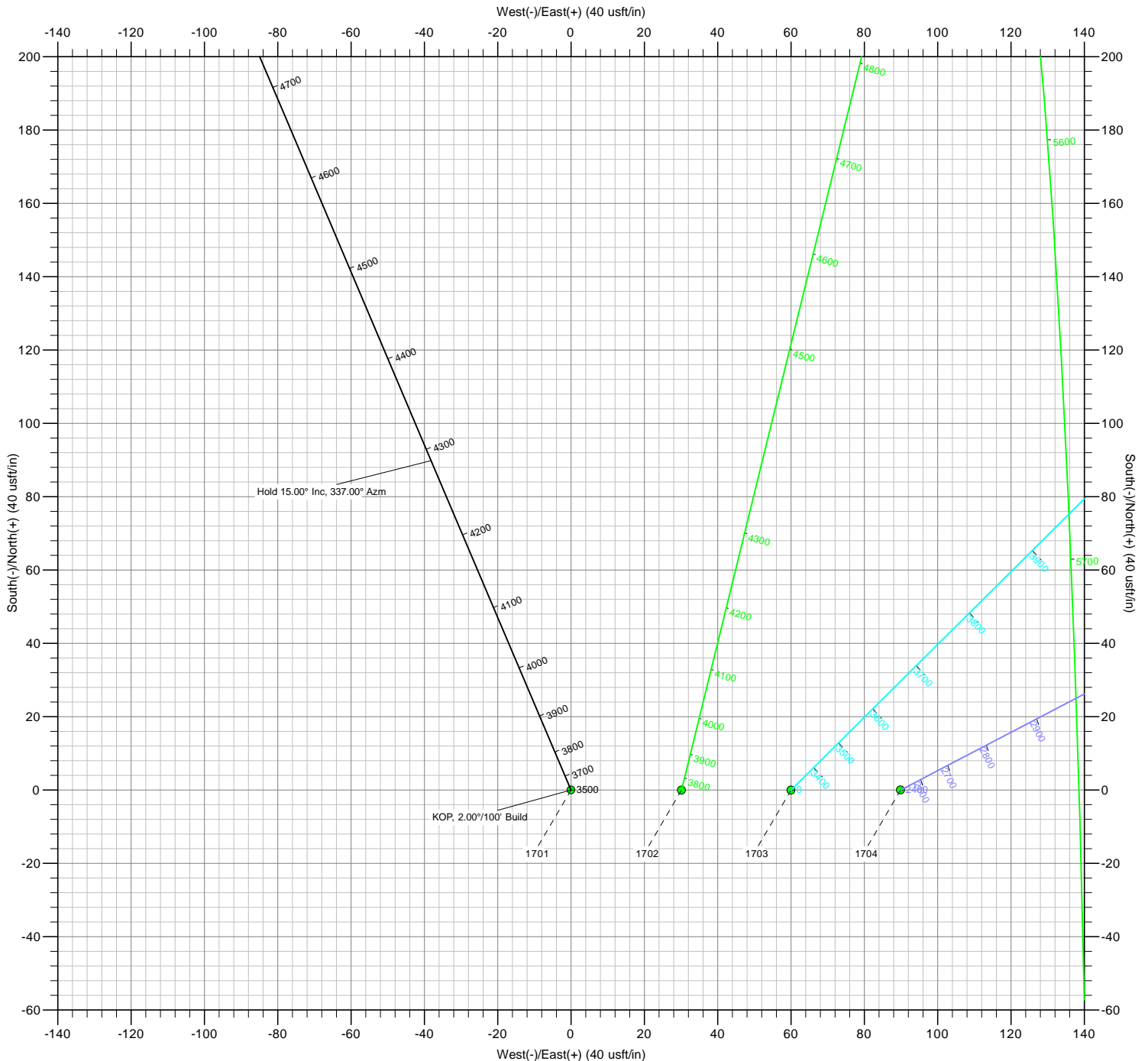


Azimuths to True North
Magnetic North: 7.91°

Magnetic Field
Strength: 53122.2snT
Dip Angle: 67.45°
Date: 10/6/2014
Model: WMM_2010

US State Plane 1983
Colorado Northern Zone

Created By: MEB
Date: 15:53, October 08 2014
Plan: Design #1





Whiting Oil & Gas

**Weld County, Colorado (NAD 83)
Horsetail 08D
1701**

Wellbore #1

Plan: Design #1

Standard Planning Report

08 October, 2014



Database:	EDM 5000.1 CONROE DB	Local Co-ordinate Reference:	Well 1701
Company:	Whiting Oil & Gas	TVD Reference:	WELL @ 4974.70usft (Pioneer 54)
Project:	Weld County, Colorado (NAD 83)	MD Reference:	WELL @ 4974.70usft (Pioneer 54)
Site:	Horsetail 08D	North Reference:	True
Well:	1701	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Project	Weld County, Colorado (NAD 83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Well	1701			
Well Position	+N/-S	1,947,439.48 usft	Northing:	1,560,655.02 usft
	+E/-W	3,273,697.09 usft	Easting:	3,474,761.72 usft
Position Uncertainty		0.00 usft	Wellhead Elevation:	
			Latitude:	40° 51' 35.139 N
			Longitude:	103° 47' 0.982 W
			Ground Level:	4,956.20 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	WMM_2010	10/6/2014	7.91	67.45	53,122

Design	Design #1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	181.06

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,546.00	0.00	0.00	3,546.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,296.00	15.00	337.00	4,287.46	89.86	-38.14	2.00	2.00	0.00	337.00	
5,116.02	15.00	337.00	5,079.54	285.22	-121.07	0.00	0.00	0.00	0.00	
6,059.50	90.00	180.00	5,721.00	-220.65	-188.22	11.00	7.95	-16.64	-156.28	
15,993.82	90.00	180.00	5,721.00	-10,154.97	-188.18	0.00	0.00	0.00	0.00	PBHL v1 - Horsetai



Database:	EDM 5000.1 CONROE DB	Local Co-ordinate Reference:	Well 1701
Company:	Whiting Oil & Gas	TVD Reference:	WELL @ 4974.70usft (Pioneer 54)
Project:	Weld County, Colorado (NAD 83)	MD Reference:	WELL @ 4974.70usft (Pioneer 54)
Site:	Horsetail 08D	North Reference:	True
Well:	1701	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	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
1,525.00	0.00	0.00	1,525.00	0.00	0.00	0.00	0.00	0.00	0.00
Upper Pierre									
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
3,546.00	0.00	0.00	3,546.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP, 2.00°/100' Build									
3,565.00	0.38	337.00	3,565.00	0.06	-0.02	-0.06	2.00	2.00	0.00
Hygiene									
3,600.00	1.08	337.00	3,600.00	0.47	-0.20	-0.46	2.00	2.00	0.00
3,665.03	2.38	337.00	3,665.00	2.28	-0.97	-2.26	2.00	2.00	0.00
Lower Pierre									
3,700.00	3.08	337.00	3,699.93	3.81	-1.62	-3.78	2.00	2.00	0.00
3,800.00	5.08	337.00	3,799.67	10.36	-4.40	-10.28	2.00	2.00	0.00
3,900.00	7.08	337.00	3,899.10	20.11	-8.54	-19.95	2.00	2.00	0.00
4,000.00	9.08	337.00	3,998.10	33.05	-14.03	-32.78	2.00	2.00	0.00
4,100.00	11.08	337.00	4,096.55	49.16	-20.87	-48.76	2.00	2.00	0.00
4,200.00	13.08	337.00	4,194.33	68.42	-29.04	-67.87	2.00	2.00	0.00
4,296.00	15.00	337.00	4,287.46	89.86	-38.14	-89.13	2.00	2.00	0.00
Hold 15.00° Inc, 337.00° Azm									
4,300.00	15.00	337.00	4,291.33	90.81	-38.55	-90.08	0.00	0.00	0.00



Database:	EDM 5000.1 CONROE DB	Local Co-ordinate Reference:	Well 1701
Company:	Whiting Oil & Gas	TVD Reference:	WELL @ 4974.70usft (Pioneer 54)
Project:	Weld County, Colorado (NAD 83)	MD Reference:	WELL @ 4974.70usft (Pioneer 54)
Site:	Horsetail 08D	North Reference:	True
Well:	1701	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	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)	
4,400.00	15.00	337.00	4,387.92	114.63	-48.66	-113.71	0.00	0.00	0.00	
4,500.00	15.00	337.00	4,484.51	138.46	-58.77	-137.34	0.00	0.00	0.00	
4,600.00	15.00	337.00	4,581.10	162.28	-68.88	-160.98	0.00	0.00	0.00	
4,700.00	15.00	337.00	4,677.70	186.11	-79.00	-184.61	0.00	0.00	0.00	
4,800.00	15.00	337.00	4,774.29	209.93	-89.11	-208.24	0.00	0.00	0.00	
4,900.00	15.00	337.00	4,870.88	233.75	-99.22	-231.88	0.00	0.00	0.00	
5,000.00	15.00	337.00	4,967.47	257.58	-109.34	-255.51	0.00	0.00	0.00	
5,100.00	15.00	337.00	5,064.07	281.40	-119.45	-279.14	0.00	0.00	0.00	
5,116.02	15.00	337.00	5,079.54	285.22	-121.07	-282.93	0.00	0.00	0.00	
Begin 11.00°/100' Build & Turn										
5,150.00	11.67	329.55	5,112.60	292.23	-124.53	-289.88	11.00	-9.79	-21.92	
5,200.00	7.50	307.36	5,161.91	298.58	-129.69	-296.13	11.00	-8.34	-44.38	
5,250.00	6.05	260.91	5,211.59	300.15	-134.89	-297.60	11.00	-2.90	-92.91	
5,300.00	8.79	222.62	5,261.20	296.92	-140.09	-294.27	11.00	5.47	-76.56	
5,350.00	13.35	206.19	5,310.27	288.92	-145.22	-286.18	11.00	9.12	-32.88	
5,400.00	18.42	198.32	5,358.35	276.23	-150.26	-273.40	11.00	10.15	-15.73	
5,450.00	23.68	193.81	5,405.00	258.97	-155.14	-256.05	11.00	10.52	-9.02	
5,500.00	29.02	190.88	5,449.79	237.29	-159.83	-234.29	11.00	10.69	-5.87	
5,550.00	34.41	188.79	5,492.31	211.40	-164.28	-208.32	11.00	10.78	-4.17	
5,600.00	39.83	187.21	5,532.16	181.53	-168.46	-178.37	11.00	10.83	-3.16	
5,650.00	45.27	185.95	5,568.98	147.95	-172.31	-144.73	11.00	10.87	-2.51	
5,700.00	50.71	184.91	5,602.43	110.98	-175.81	-107.70	11.00	10.89	-2.08	
5,702.48	50.98	184.87	5,604.00	109.06	-175.98	-105.78	11.00	10.90	-1.90	
P200 Marker										
5,727.02	53.66	184.42	5,619.00	89.70	-177.55	-86.40	11.00	10.90	-1.83	
P300 Marker										
5,750.00	56.16	184.02	5,632.21	70.96	-178.93	-67.63	11.00	10.91	-1.71	
5,762.42	57.52	183.82	5,639.00	60.58	-179.64	-57.24	11.00	10.91	-1.63	
P350 Marker										
5,791.65	60.71	183.37	5,654.00	35.55	-181.21	-32.19	11.00	10.92	-1.56	
Sharon Springs										
5,800.00	61.62	183.24	5,658.03	28.25	-181.63	-24.88	11.00	10.92	-1.49	
5,817.31	63.51	182.99	5,666.00	12.91	-182.47	-9.53	11.00	10.92	-1.45	
Niobrara										
5,850.00	67.09	182.54	5,679.66	-16.75	-183.90	20.16	11.00	10.93	-1.39	
5,853.47	67.47	182.49	5,681.00	-19.95	-184.04	23.36	11.00	10.93	-1.35	
Top A Chalk (N100)										
5,900.00	72.55	181.89	5,696.90	-63.63	-185.70	67.06	11.00	10.93	-1.30	
5,950.00	78.02	181.27	5,709.59	-111.96	-187.03	115.40	11.00	10.94	-1.23	
6,000.00	83.49	180.68	5,717.62	-161.28	-187.87	164.73	11.00	10.94	-1.18	
6,050.00	88.96	180.11	5,720.91	-211.15	-188.22	214.60	11.00	10.94	-1.15	
6,059.50	90.00	180.00	5,721.00	-220.65	-188.22	224.10	11.00	10.94	-1.15	
Begin 90.00° Lateral - 7"										
6,100.00	90.00	180.00	5,721.00	-261.15	-188.22	264.59	0.00	0.00	0.00	
6,200.00	90.00	180.00	5,721.00	-361.15	-188.22	364.58	0.00	0.00	0.00	
6,300.00	90.00	180.00	5,721.00	-461.15	-188.22	464.56	0.00	0.00	0.00	
6,400.00	90.00	180.00	5,721.00	-561.15	-188.22	564.54	0.00	0.00	0.00	
6,500.00	90.00	180.00	5,721.00	-661.15	-188.22	664.52	0.00	0.00	0.00	
6,600.00	90.00	180.00	5,721.00	-761.15	-188.22	764.51	0.00	0.00	0.00	
6,700.00	90.00	180.00	5,721.00	-861.15	-188.22	864.49	0.00	0.00	0.00	
6,800.00	90.00	180.00	5,721.00	-961.15	-188.22	964.47	0.00	0.00	0.00	
6,900.00	90.00	180.00	5,721.00	-1,061.15	-188.22	1,064.46	0.00	0.00	0.00	
7,000.00	90.00	180.00	5,721.00	-1,161.15	-188.22	1,164.44	0.00	0.00	0.00	



Database:	EDM 5000.1 CONROE DB	Local Co-ordinate Reference:	Well 1701
Company:	Whiting Oil & Gas	TVD Reference:	WELL @ 4974.70usft (Pioneer 54)
Project:	Weld County, Colorado (NAD 83)	MD Reference:	WELL @ 4974.70usft (Pioneer 54)
Site:	Horsetail 08D	North Reference:	True
Well:	1701	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	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)
7,100.00	90.00	180.00	5,721.00	-1,261.15	-188.22	1,264.42	0.00	0.00	0.00
7,200.00	90.00	180.00	5,721.00	-1,361.15	-188.22	1,364.40	0.00	0.00	0.00
7,300.00	90.00	180.00	5,721.00	-1,461.15	-188.22	1,464.39	0.00	0.00	0.00
7,400.00	90.00	180.00	5,721.00	-1,561.15	-188.22	1,564.37	0.00	0.00	0.00
7,500.00	90.00	180.00	5,721.00	-1,661.15	-188.22	1,664.35	0.00	0.00	0.00
7,600.00	90.00	180.00	5,721.00	-1,761.15	-188.22	1,764.34	0.00	0.00	0.00
7,700.00	90.00	180.00	5,721.00	-1,861.15	-188.22	1,864.32	0.00	0.00	0.00
7,800.00	90.00	180.00	5,721.00	-1,961.15	-188.22	1,964.30	0.00	0.00	0.00
7,900.00	90.00	180.00	5,721.00	-2,061.15	-188.22	2,064.28	0.00	0.00	0.00
8,000.00	90.00	180.00	5,721.00	-2,161.15	-188.22	2,164.27	0.00	0.00	0.00
8,100.00	90.00	180.00	5,721.00	-2,261.15	-188.22	2,264.25	0.00	0.00	0.00
8,200.00	90.00	180.00	5,721.00	-2,361.15	-188.21	2,364.23	0.00	0.00	0.00
8,300.00	90.00	180.00	5,721.00	-2,461.15	-188.21	2,464.22	0.00	0.00	0.00
8,400.00	90.00	180.00	5,721.00	-2,561.15	-188.21	2,564.20	0.00	0.00	0.00
8,500.00	90.00	180.00	5,721.00	-2,661.15	-188.21	2,664.18	0.00	0.00	0.00
8,600.00	90.00	180.00	5,721.00	-2,761.15	-188.21	2,764.16	0.00	0.00	0.00
8,700.00	90.00	180.00	5,721.00	-2,861.15	-188.21	2,864.15	0.00	0.00	0.00
8,800.00	90.00	180.00	5,721.00	-2,961.15	-188.21	2,964.13	0.00	0.00	0.00
8,900.00	90.00	180.00	5,721.00	-3,061.15	-188.21	3,064.11	0.00	0.00	0.00
9,000.00	90.00	180.00	5,721.00	-3,161.15	-188.21	3,164.10	0.00	0.00	0.00
9,100.00	90.00	180.00	5,721.00	-3,261.15	-188.21	3,264.08	0.00	0.00	0.00
9,200.00	90.00	180.00	5,721.00	-3,361.15	-188.21	3,364.06	0.00	0.00	0.00
9,300.00	90.00	180.00	5,721.00	-3,461.15	-188.21	3,464.04	0.00	0.00	0.00
9,400.00	90.00	180.00	5,721.00	-3,561.15	-188.21	3,564.03	0.00	0.00	0.00
9,500.00	90.00	180.00	5,721.00	-3,661.15	-188.21	3,664.01	0.00	0.00	0.00
9,600.00	90.00	180.00	5,721.00	-3,761.15	-188.21	3,763.99	0.00	0.00	0.00
9,700.00	90.00	180.00	5,721.00	-3,861.15	-188.21	3,863.97	0.00	0.00	0.00
9,800.00	90.00	180.00	5,721.00	-3,961.15	-188.21	3,963.96	0.00	0.00	0.00
9,900.00	90.00	180.00	5,721.00	-4,061.15	-188.21	4,063.94	0.00	0.00	0.00
10,000.00	90.00	180.00	5,721.00	-4,161.15	-188.21	4,163.92	0.00	0.00	0.00
10,100.00	90.00	180.00	5,721.00	-4,261.15	-188.21	4,263.91	0.00	0.00	0.00
10,200.00	90.00	180.00	5,721.00	-4,361.15	-188.21	4,363.89	0.00	0.00	0.00
10,300.00	90.00	180.00	5,721.00	-4,461.15	-188.21	4,463.87	0.00	0.00	0.00
10,400.00	90.00	180.00	5,721.00	-4,561.15	-188.21	4,563.85	0.00	0.00	0.00
10,500.00	90.00	180.00	5,721.00	-4,661.15	-188.20	4,663.84	0.00	0.00	0.00
10,600.00	90.00	180.00	5,721.00	-4,761.15	-188.20	4,763.82	0.00	0.00	0.00
10,700.00	90.00	180.00	5,721.00	-4,861.15	-188.20	4,863.80	0.00	0.00	0.00
10,800.00	90.00	180.00	5,721.00	-4,961.15	-188.20	4,963.79	0.00	0.00	0.00
10,900.00	90.00	180.00	5,721.00	-5,061.15	-188.20	5,063.77	0.00	0.00	0.00
11,000.00	90.00	180.00	5,721.00	-5,161.15	-188.20	5,163.75	0.00	0.00	0.00
11,100.00	90.00	180.00	5,721.00	-5,261.15	-188.20	5,263.73	0.00	0.00	0.00
11,200.00	90.00	180.00	5,721.00	-5,361.15	-188.20	5,363.72	0.00	0.00	0.00
11,300.00	90.00	180.00	5,721.00	-5,461.15	-188.20	5,463.70	0.00	0.00	0.00
11,400.00	90.00	180.00	5,721.00	-5,561.15	-188.20	5,563.68	0.00	0.00	0.00
11,500.00	90.00	180.00	5,721.00	-5,661.15	-188.20	5,663.67	0.00	0.00	0.00
11,600.00	90.00	180.00	5,721.00	-5,761.15	-188.20	5,763.65	0.00	0.00	0.00
11,700.00	90.00	180.00	5,721.00	-5,861.15	-188.20	5,863.63	0.00	0.00	0.00
11,800.00	90.00	180.00	5,721.00	-5,961.15	-188.20	5,963.61	0.00	0.00	0.00
11,900.00	90.00	180.00	5,721.00	-6,061.15	-188.20	6,063.60	0.00	0.00	0.00
12,000.00	90.00	180.00	5,721.00	-6,161.15	-188.20	6,163.58	0.00	0.00	0.00
12,100.00	90.00	180.00	5,721.00	-6,261.15	-188.20	6,263.56	0.00	0.00	0.00
12,200.00	90.00	180.00	5,721.00	-6,361.15	-188.20	6,363.55	0.00	0.00	0.00
12,300.00	90.00	180.00	5,721.00	-6,461.15	-188.20	6,463.53	0.00	0.00	0.00
12,400.00	90.00	180.00	5,721.00	-6,561.15	-188.20	6,563.51	0.00	0.00	0.00



Database:	EDM 5000.1 CONROE DB	Local Co-ordinate Reference:	Well 1701
Company:	Whiting Oil & Gas	TVD Reference:	WELL @ 4974.70usft (Pioneer 54)
Project:	Weld County, Colorado (NAD 83)	MD Reference:	WELL @ 4974.70usft (Pioneer 54)
Site:	Horsetail 08D	North Reference:	True
Well:	1701	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	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)	
12,500.00	90.00	180.00	5,721.00	-6,661.15	-188.20	6,663.49	0.00	0.00	0.00	
12,600.00	90.00	180.00	5,721.00	-6,761.15	-188.20	6,763.48	0.00	0.00	0.00	
12,700.00	90.00	180.00	5,721.00	-6,861.15	-188.19	6,863.46	0.00	0.00	0.00	
12,800.00	90.00	180.00	5,721.00	-6,961.15	-188.19	6,963.44	0.00	0.00	0.00	
12,900.00	90.00	180.00	5,721.00	-7,061.15	-188.19	7,063.43	0.00	0.00	0.00	
13,000.00	90.00	180.00	5,721.00	-7,161.15	-188.19	7,163.41	0.00	0.00	0.00	
13,100.00	90.00	180.00	5,721.00	-7,261.15	-188.19	7,263.39	0.00	0.00	0.00	
13,200.00	90.00	180.00	5,721.00	-7,361.15	-188.19	7,363.37	0.00	0.00	0.00	
13,300.00	90.00	180.00	5,721.00	-7,461.15	-188.19	7,463.36	0.00	0.00	0.00	
13,400.00	90.00	180.00	5,721.00	-7,561.15	-188.19	7,563.34	0.00	0.00	0.00	
13,500.00	90.00	180.00	5,721.00	-7,661.15	-188.19	7,663.32	0.00	0.00	0.00	
13,600.00	90.00	180.00	5,721.00	-7,761.15	-188.19	7,763.31	0.00	0.00	0.00	
13,700.00	90.00	180.00	5,721.00	-7,861.15	-188.19	7,863.29	0.00	0.00	0.00	
13,800.00	90.00	180.00	5,721.00	-7,961.15	-188.19	7,963.27	0.00	0.00	0.00	
13,900.00	90.00	180.00	5,721.00	-8,061.15	-188.19	8,063.25	0.00	0.00	0.00	
14,000.00	90.00	180.00	5,721.00	-8,161.15	-188.19	8,163.24	0.00	0.00	0.00	
14,100.00	90.00	180.00	5,721.00	-8,261.15	-188.19	8,263.22	0.00	0.00	0.00	
14,200.00	90.00	180.00	5,721.00	-8,361.15	-188.19	8,363.20	0.00	0.00	0.00	
14,300.00	90.00	180.00	5,721.00	-8,461.15	-188.19	8,463.19	0.00	0.00	0.00	
14,400.00	90.00	180.00	5,721.00	-8,561.15	-188.19	8,563.17	0.00	0.00	0.00	
14,500.00	90.00	180.00	5,721.00	-8,661.15	-188.19	8,663.15	0.00	0.00	0.00	
14,600.00	90.00	180.00	5,721.00	-8,761.15	-188.19	8,763.13	0.00	0.00	0.00	
14,700.00	90.00	180.00	5,721.00	-8,861.15	-188.19	8,863.12	0.00	0.00	0.00	
14,800.00	90.00	180.00	5,721.00	-8,961.15	-188.19	8,963.10	0.00	0.00	0.00	
14,900.00	90.00	180.00	5,721.00	-9,061.15	-188.19	9,063.08	0.00	0.00	0.00	
15,000.00	90.00	180.00	5,721.00	-9,161.15	-188.18	9,163.06	0.00	0.00	0.00	
15,100.00	90.00	180.00	5,721.00	-9,261.15	-188.18	9,263.05	0.00	0.00	0.00	
15,200.00	90.00	180.00	5,721.00	-9,361.15	-188.18	9,363.03	0.00	0.00	0.00	
15,300.00	90.00	180.00	5,721.00	-9,461.15	-188.18	9,463.01	0.00	0.00	0.00	
15,400.00	90.00	180.00	5,721.00	-9,561.15	-188.18	9,563.00	0.00	0.00	0.00	
15,500.00	90.00	180.00	5,721.00	-9,661.15	-188.18	9,662.98	0.00	0.00	0.00	
15,600.00	90.00	180.00	5,721.00	-9,761.15	-188.18	9,762.96	0.00	0.00	0.00	
15,700.00	90.00	180.00	5,721.00	-9,861.15	-188.18	9,862.94	0.00	0.00	0.00	
15,800.00	90.00	180.00	5,721.00	-9,961.15	-188.18	9,962.93	0.00	0.00	0.00	
15,900.00	90.00	180.00	5,721.00	-10,061.15	-188.18	10,062.91	0.00	0.00	0.00	
15,993.82	90.00	180.00	5,721.00	-10,154.97	-188.18	10,156.72	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
- hit/miss target									
- Shape									
PBHL v1 - Horsetail 0	0.00	0.00	5,721.00	-10,154.97	-188.18	1,550,498.30	3,474,770.13	40° 49' 54.800 N	103° 47' 3.430 W
- plan hits target center									
- Point									



Database:	EDM 5000.1 CONROE DB	Local Co-ordinate Reference:	Well 1701
Company:	Whiting Oil & Gas	TVD Reference:	WELL @ 4974.70usft (Pioneer 54)
Project:	Weld County, Colorado (NAD 83)	MD Reference:	WELL @ 4974.70usft (Pioneer 54)
Site:	Horsetail 08D	North Reference:	True
Well:	1701	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
6,059.50	5,721.00	7"	7	7-1/2

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,525.00	1,525.00	Upper Pierre		0.00	
3,565.00	3,565.00	Hygiene		0.00	
3,665.03	3,665.00	Lower Pierre		0.00	
5,702.48	5,604.00	P200 Marker		0.00	
5,727.02	5,619.00	P300 Marker		0.00	
5,762.42	5,639.00	P350 Marker		0.00	
5,791.65	5,654.00	Sharon Springs		0.00	
5,817.31	5,666.00	Niobrara		0.00	
5,853.47	5,681.00	Top A Chalk (N100)		0.00	

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
3,546.00	3,546.00	0.00	0.00	KOP, 2.00°/100' Build
4,296.00	4,287.46	89.86	-38.14	Hold 15.00° Inc, 337.00° Azm
5,116.02	5,079.54	285.22	-121.07	Begin 11.00°/100' Build & Turn
6,059.50	5,721.00	-220.65	-188.22	Begin 90.00° Lateral
15,993.82	5,721.00	-10,154.97	-188.18	PBHL