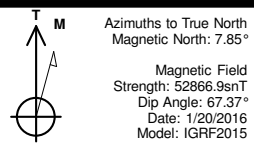




Project: Weld County, CO
Site: Sec 29-T10N-R57W
Well: Horsetail #29G-2044
Wellbore: Hz
Design: APD

PROJECT DETAILS: Weld County, CO
 Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: Colorado Northern Zone
 System Datum: Mean Sea Level



WELL DETAILS: Horsetail #29G-2044

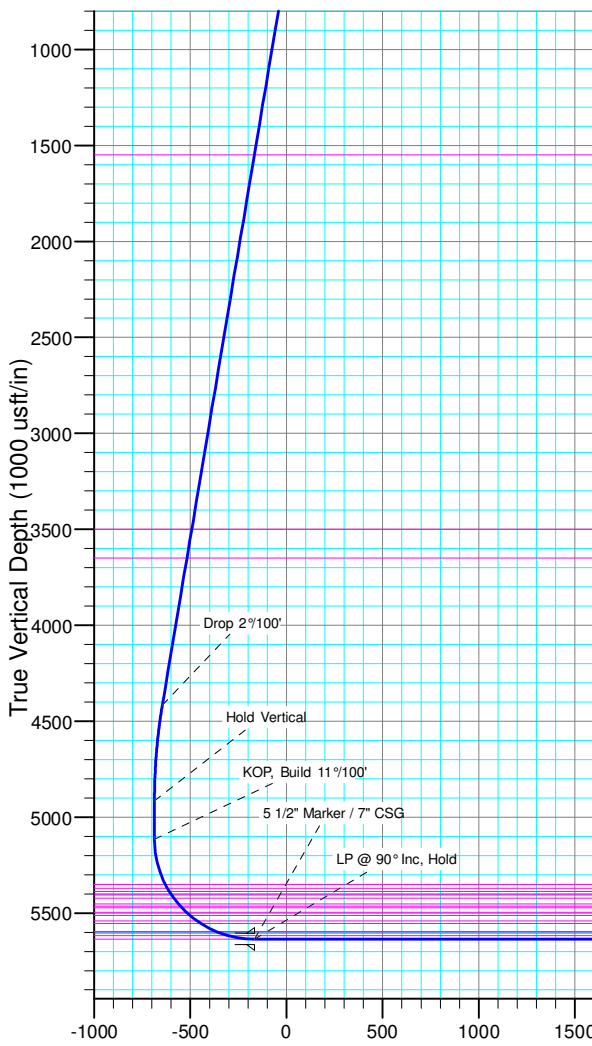
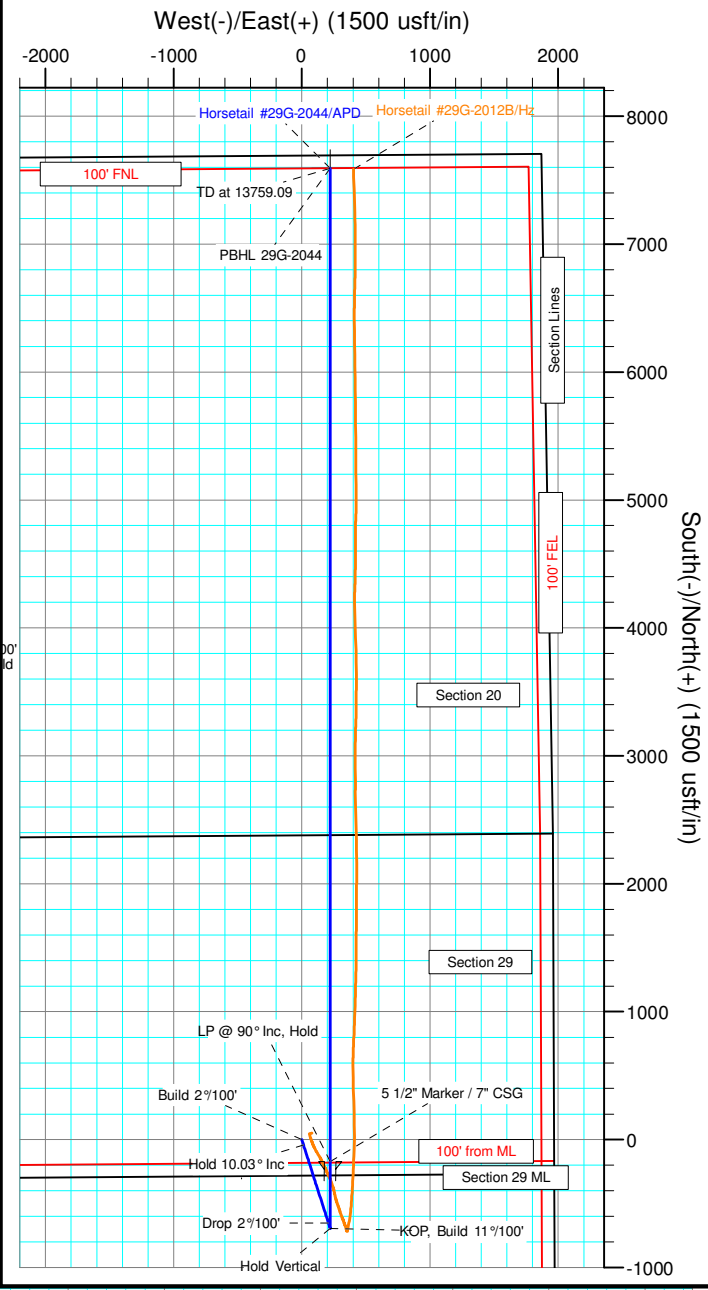
+N/-S	+E/-W	Northing	Ground Level:	4694.00	Easting	Latitude	Longitude	Slot
0.00	0.00	1542794.68			3478191.68	40° 48' 38.040 N	103° 46' 20.880 W	

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	
3	801.47	10.03	162.34	798.91	-41.71	13.28	2.00	162.34	-41.31	
4	4474.78	10.03	162.34	4416.09	-651.29	207.34	0.00	0.00	-644.99	
5	4976.25	0.00	0.00	4915.00	-693.00	220.62	2.00	180.00	-686.30	
6	5176.25	0.00	0.00	5115.00	-693.00	220.62	0.00	0.00	-686.30	
7	5994.63	90.00	0.00	5636.00	-172.00	220.62	11.00	0.00	-165.52	
8	13759.09	90.00	0.00	5636.00	7592.46	220.62	0.00	0.00	7595.66	PBHL 29G-2044

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1550.00	1564.21	Upper Pierre
3500.00	3544.47	Hygiene
3650.00	3696.80	Lower Pierre
5351.00	5421.17	P200 Marker
5371.00	5443.86	P300 Marker
5387.00	5462.42	P350 Marker
5401.00	5479.00	Sharon Springs
5405.00	5483.80	Niobrara
5422.00	5504.55	Top A Chalk
5452.00	5542.73	Top A Marl
5464.00	5558.68	A Marl
5472.00	5569.59	Top Upper B
5496.00	5603.57	Base Upper B
5512.00	5627.64	Top Lower B
5541.00	5675.02	Base Lower B
5554.00	5698.35	Top B Marl
5596.00	5789.15	Top C Chalk
5604.00	5811.08	Middle C Chalk
5618.00	5857.28	Middle C Marl
5636.00	5994.63	Lower C Chalk



ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	VSec	Departure	Annotation
300.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	Build 2°/100'
798.91	801.47	10.03	162.34	-41.71	13.28	-41.31	43.78	Hold 10.03° Inc
4416.09	4474.78	10.03	162.34	-651.29	207.34	-644.99	683.49	Drop 2°/100'
4915.00	4976.25	0.00	0.00	-693.00	220.62	-686.30	727.27	Hold Vertical
5115.00	5176.25	0.00	0.00	-693.00	220.62	-686.30	727.27	KOP, Build 11°/100'
5636.00	5994.63	90.00	0.00	-172.00	220.62	-165.52	1248.27	LP @ 90° Inc, Hold
5636.00	13759.09	90.00	0.00	7592.46	220.62	7595.66	9012.73	TD at 13759.09

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
PBHL 29G-204-6636.00	7592.46	220.62	1550389.99	3478264.36	40° 49' 53.060 N	103° 46' 18.010 W	

SHL:
 2378' FNL, 1968' FEL
 Sec29-T10N-R57W

BHL:
 100' FNL, 1650' FEL
 Sec20-T10N-R57W

5 1/2" Marker / 7" CSG:
 2550' FNL, 1747' FEL
 Sec29-T10N-R57W



Whiting Petroleum Corp.

**Weld County, CO
Sec 29-T10N-R57W
Horsetail #29G-2044**

Hz

Plan: APD

Standard Planning Report

22 January, 2016



WOG Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #29G-2044
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4715.00usft
Project:	Weld County, CO	MD Reference:	KBE @ 4715.00usft
Site:	Sec 29-T10N-R57W	North Reference:	True
Well:	Horsetail #29G-2044	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	APD		

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

Site	Sec 29-T10N-R57W				
Site Position:		Northing:	1,545,081.96 usft	Latitude:	40° 49' 1.290 N
From:	Lat/Long	Easting:	3,474,781.92 usft	Longitude:	103° 47' 4.639 W
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence:	1.11 °

Well	Horsetail #29G-2044					
Well Position	+N/-S	-2,352.80 usft	Northing:	1,542,794.68 usft	Latitude:	40° 48' 38.040 N
	+E/-W	3,364.88 usft	Easting:	3,478,191.68 usft	Longitude:	103° 46' 20.880 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	4,694.00 usft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	1/20/2016	7.85	67.37	52,867

Design	APD			
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	1.66

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	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	
801.47	10.03	162.34	798.91	-41.71	13.28	2.00	2.00	0.00	162.34	
4,474.78	10.03	162.34	4,416.09	-651.29	207.34	0.00	0.00	0.00	0.00	
4,976.25	0.00	0.00	4,915.00	-693.00	220.62	2.00	-2.00	0.00	180.00	
5,176.25	0.00	0.00	5,115.00	-693.00	220.62	0.00	0.00	0.00	0.00	
5,994.63	90.00	0.00	5,636.00	-172.00	220.62	11.00	11.00	0.00	0.00	
13,759.09	90.00	0.00	5,636.00	7,592.46	220.62	0.00	0.00	0.00	0.00	PBHL 29G-2044



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #29G-2044
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4715.00usft
Project:	Weld County, CO	MD Reference:	KBE @ 4715.00usft
Site:	Sec 29-T10N-R57W	North Reference:	True
Well:	Horsetail #29G-2044	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	APD		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	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	0.00
100.00	0.00	0.00	100.00	0.00	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	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Build 2°/100'										
400.00	2.00	162.34	399.98	-1.66	0.53	-1.65	2.00	2.00	2.00	0.00
500.00	4.00	162.34	499.84	-6.65	2.12	-6.59	2.00	2.00	2.00	0.00
600.00	6.00	162.34	599.45	-14.95	4.76	-14.81	2.00	2.00	2.00	0.00
700.00	8.00	162.34	698.70	-26.57	8.46	-26.31	2.00	2.00	2.00	0.00
800.00	10.00	162.34	797.47	-41.47	13.20	-41.07	2.00	2.00	2.00	0.00
801.47	10.03	162.34	798.91	-41.71	13.28	-41.31	2.00	2.00	2.00	0.00
Hold 10.03° Inc										
900.00	10.03	162.34	895.94	-58.07	18.49	-57.50	0.00	0.00	0.00	0.00
1,000.00	10.03	162.34	994.41	-74.66	23.77	-73.94	0.00	0.00	0.00	0.00
1,100.00	10.03	162.34	1,092.88	-91.26	29.05	-90.37	0.00	0.00	0.00	0.00
1,200.00	10.03	162.34	1,191.35	-107.85	34.33	-106.81	0.00	0.00	0.00	0.00
1,300.00	10.03	162.34	1,289.82	-124.44	39.62	-123.24	0.00	0.00	0.00	0.00
1,400.00	10.03	162.34	1,388.30	-141.04	44.90	-139.68	0.00	0.00	0.00	0.00
1,500.00	10.03	162.34	1,486.77	-157.63	50.18	-156.11	0.00	0.00	0.00	0.00
1,564.21	10.03	162.34	1,550.00	-168.29	53.58	-166.66	0.00	0.00	0.00	0.00
Upper Pierre										
1,600.00	10.03	162.34	1,585.24	-174.23	55.47	-172.54	0.00	0.00	0.00	0.00
1,700.00	10.03	162.34	1,683.71	-190.82	60.75	-188.98	0.00	0.00	0.00	0.00
1,800.00	10.03	162.34	1,782.18	-207.42	66.03	-205.41	0.00	0.00	0.00	0.00
1,900.00	10.03	162.34	1,880.66	-224.01	71.32	-221.85	0.00	0.00	0.00	0.00
2,000.00	10.03	162.34	1,979.13	-240.61	76.60	-238.28	0.00	0.00	0.00	0.00
2,100.00	10.03	162.34	2,077.60	-257.20	81.88	-254.71	0.00	0.00	0.00	0.00
2,200.00	10.03	162.34	2,176.07	-273.80	87.16	-271.15	0.00	0.00	0.00	0.00
2,300.00	10.03	162.34	2,274.54	-290.39	92.45	-287.58	0.00	0.00	0.00	0.00
2,400.00	10.03	162.34	2,373.02	-306.98	97.73	-304.02	0.00	0.00	0.00	0.00
2,500.00	10.03	162.34	2,471.49	-323.58	103.01	-320.45	0.00	0.00	0.00	0.00
2,600.00	10.03	162.34	2,569.96	-340.17	108.30	-336.88	0.00	0.00	0.00	0.00
2,700.00	10.03	162.34	2,668.43	-356.77	113.58	-353.32	0.00	0.00	0.00	0.00
2,800.00	10.03	162.34	2,766.90	-373.36	118.86	-369.75	0.00	0.00	0.00	0.00
2,900.00	10.03	162.34	2,865.37	-389.96	124.15	-386.19	0.00	0.00	0.00	0.00
3,000.00	10.03	162.34	2,963.85	-406.55	129.43	-402.62	0.00	0.00	0.00	0.00
3,100.00	10.03	162.34	3,062.32	-423.15	134.71	-419.06	0.00	0.00	0.00	0.00
3,200.00	10.03	162.34	3,160.79	-439.74	139.99	-435.49	0.00	0.00	0.00	0.00
3,300.00	10.03	162.34	3,259.26	-456.34	145.28	-451.92	0.00	0.00	0.00	0.00
3,400.00	10.03	162.34	3,357.73	-472.93	150.56	-468.36	0.00	0.00	0.00	0.00
3,500.00	10.03	162.34	3,456.21	-489.52	155.84	-484.79	0.00	0.00	0.00	0.00
3,544.47	10.03	162.34	3,500.00	-496.90	158.19	-492.10	0.00	0.00	0.00	0.00
Hygiene										
3,600.00	10.03	162.34	3,554.68	-506.12	161.13	-501.23	0.00	0.00	0.00	0.00
3,696.80	10.03	162.34	3,650.00	-522.18	166.24	-517.13	0.00	0.00	0.00	0.00
Lower Pierre										
3,700.00	10.03	162.34	3,653.15	-522.71	166.41	-517.66	0.00	0.00	0.00	0.00
3,800.00	10.03	162.34	3,751.62	-539.31	171.69	-534.09	0.00	0.00	0.00	0.00
3,900.00	10.03	162.34	3,850.09	-555.90	176.98	-550.53	0.00	0.00	0.00	0.00
4,000.00	10.03	162.34	3,948.57	-572.50	182.26	-566.96	0.00	0.00	0.00	0.00
4,100.00	10.03	162.34	4,047.04	-589.09	187.54	-583.40	0.00	0.00	0.00	0.00
4,200.00	10.03	162.34	4,145.51	-605.69	192.82	-599.83	0.00	0.00	0.00	0.00
4,300.00	10.03	162.34	4,243.98	-622.28	198.11	-616.26	0.00	0.00	0.00	0.00
4,400.00	10.03	162.34	4,342.45	-638.88	203.39	-632.70	0.00	0.00	0.00	0.00



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #29G-2044
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4715.00usft
Project:	Weld County, CO	MD Reference:	KBE @ 4715.00usft
Site:	Sec 29-T10N-R57W	North Reference:	True
Well:	Horsetail #29G-2044	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	APD		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,474.78	10.03	162.34	4,416.09	-651.29	207.34	-644.99	0.00	0.00	0.00
Drop 2°/100'									
4,500.00	9.52	162.34	4,440.94	-655.37	208.64	-649.03	2.00	-2.00	0.00
4,600.00	7.52	162.34	4,539.83	-669.49	213.14	-663.02	2.00	-2.00	0.00
4,700.00	5.52	162.34	4,639.18	-680.32	216.58	-673.74	2.00	-2.00	0.00
4,800.00	3.52	162.34	4,738.86	-687.84	218.98	-681.19	2.00	-2.00	0.00
4,900.00	1.52	162.34	4,838.76	-692.03	220.31	-685.34	2.00	-2.00	0.00
4,976.25	0.00	0.00	4,915.00	-693.00	220.62	-686.30	2.00	-2.00	0.00
Hold Vertical									
5,000.00	0.00	0.00	4,938.75	-693.00	220.62	-686.30	0.00	0.00	0.00
5,100.00	0.00	0.00	5,038.75	-693.00	220.62	-686.30	0.00	0.00	0.00
5,176.25	0.00	0.00	5,115.00	-693.00	220.62	-686.30	0.00	0.00	0.00
KOP, Build 11°/100'									
5,200.00	2.61	0.00	5,138.75	-692.46	220.62	-685.76	11.00	11.00	0.00
5,300.00	13.61	0.00	5,237.59	-678.37	220.62	-671.68	11.00	11.00	0.00
5,400.00	24.61	0.00	5,331.94	-645.69	220.62	-639.01	11.00	11.00	0.00
5,421.17	26.93	0.00	5,351.00	-636.48	220.62	-629.81	11.00	11.00	0.00
P200 Marker									
5,443.86	29.43	0.00	5,371.00	-625.77	220.62	-619.10	11.00	11.00	0.00
P300 Marker									
5,462.42	31.47	0.00	5,387.00	-616.36	220.62	-609.69	11.00	11.00	0.00
P350 Marker									
5,479.00	33.29	0.00	5,401.00	-607.48	220.62	-600.82	11.00	11.00	0.00
Sharon Springs									
5,483.80	33.82	0.00	5,405.00	-604.83	220.62	-598.17	11.00	11.00	0.00
Niobrara									
5,500.00	35.60	0.00	5,418.32	-595.60	220.62	-588.94	11.00	11.00	0.00
5,504.55	36.10	0.00	5,422.00	-592.94	220.62	-586.28	11.00	11.00	0.00
Top A Chalk									
5,542.73	40.30	0.00	5,452.00	-569.33	220.62	-562.68	11.00	11.00	0.00
Top A Marl									
5,558.68	42.06	0.00	5,464.00	-558.83	220.62	-552.19	11.00	11.00	0.00
A Marl									
5,569.55	43.25	0.00	5,472.00	-551.46	220.62	-544.82	11.00	11.00	0.00
Top Upper B									
5,600.00	46.60	0.00	5,493.55	-529.96	220.62	-523.33	11.00	11.00	0.00
5,603.57	46.99	0.00	5,496.00	-527.36	220.62	-520.73	11.00	11.00	0.00
Base Upper B									
5,627.64	49.64	0.00	5,512.00	-509.39	220.62	-502.77	11.00	11.00	0.00
Top Lower B									
5,675.02	54.85	0.00	5,541.00	-471.94	220.62	-465.33	11.00	11.00	0.00
Base Lower B									
5,698.35	57.42	0.00	5,554.00	-452.57	220.62	-445.97	11.00	11.00	0.00
Top B Marl									
5,700.00	57.60	0.00	5,554.89	-451.18	220.62	-444.58	11.00	11.00	0.00
5,789.15	67.40	0.00	5,596.00	-372.20	220.62	-365.63	11.00	11.00	0.00
Top C Chalk									
5,800.00	68.60	0.00	5,600.07	-362.14	220.62	-355.58	11.00	11.00	0.00
5,811.08	69.81	0.00	5,604.00	-351.78	220.62	-345.22	11.00	11.00	0.00
Middle C Chalk									
5,857.28	74.90	0.00	5,618.00	-307.76	220.62	-301.23	11.00	11.00	0.00



WOG
Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #29G-2044
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4715.00usft
Project:	Weld County, CO	MD Reference:	KBE @ 4715.00usft
Site:	Sec 29-T10N-R57W	North Reference:	True
Well:	Horsetail #29G-2044	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	APD		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
Middle C Marl										
5,900.00	79.59	0.00	5,627.43	-266.11	220.62	-259.59	11.00	11.00	0.00	
5,994.63	90.00	0.00	5,636.00	-172.00	220.62	-165.52	11.00	11.00	0.00	
LP @ 90° Inc, Hold - Lower C Chalk - 5 1/2" Marker / 7" CSG										
6,000.00	90.00	0.00	5,636.00	-166.63	220.62	-160.15	0.00	0.00	0.00	
6,100.00	90.00	0.00	5,636.00	-66.63	220.62	-60.20	0.00	0.00	0.00	
6,200.00	90.00	0.00	5,636.00	33.37	220.62	39.76	0.00	0.00	0.00	
6,300.00	90.00	0.00	5,636.00	133.37	220.62	139.72	0.00	0.00	0.00	
6,400.00	90.00	0.00	5,636.00	233.37	220.62	239.68	0.00	0.00	0.00	
6,500.00	90.00	0.00	5,636.00	333.37	220.62	339.64	0.00	0.00	0.00	
6,600.00	90.00	0.00	5,636.00	433.37	220.62	439.59	0.00	0.00	0.00	
6,700.00	90.00	0.00	5,636.00	533.37	220.62	539.55	0.00	0.00	0.00	
6,800.00	90.00	0.00	5,636.00	633.37	220.62	639.51	0.00	0.00	0.00	
6,900.00	90.00	0.00	5,636.00	733.37	220.62	739.47	0.00	0.00	0.00	
7,000.00	90.00	0.00	5,636.00	833.37	220.62	839.42	0.00	0.00	0.00	
7,100.00	90.00	0.00	5,636.00	933.37	220.62	939.38	0.00	0.00	0.00	
7,200.00	90.00	0.00	5,636.00	1,033.37	220.62	1,039.34	0.00	0.00	0.00	
7,300.00	90.00	0.00	5,636.00	1,133.37	220.62	1,139.30	0.00	0.00	0.00	
7,400.00	90.00	0.00	5,636.00	1,233.37	220.62	1,239.26	0.00	0.00	0.00	
7,500.00	90.00	0.00	5,636.00	1,333.37	220.62	1,339.21	0.00	0.00	0.00	
7,600.00	90.00	0.00	5,636.00	1,433.37	220.62	1,439.17	0.00	0.00	0.00	
7,700.00	90.00	0.00	5,636.00	1,533.37	220.62	1,539.13	0.00	0.00	0.00	
7,800.00	90.00	0.00	5,636.00	1,633.37	220.62	1,639.09	0.00	0.00	0.00	
7,900.00	90.00	0.00	5,636.00	1,733.37	220.62	1,739.05	0.00	0.00	0.00	
8,000.00	90.00	0.00	5,636.00	1,833.37	220.62	1,839.00	0.00	0.00	0.00	
8,100.00	90.00	0.00	5,636.00	1,933.37	220.62	1,938.96	0.00	0.00	0.00	
8,200.00	90.00	0.00	5,636.00	2,033.37	220.62	2,038.92	0.00	0.00	0.00	
8,300.00	90.00	0.00	5,636.00	2,133.37	220.62	2,138.88	0.00	0.00	0.00	
8,400.00	90.00	0.00	5,636.00	2,233.37	220.62	2,238.83	0.00	0.00	0.00	
8,500.00	90.00	0.00	5,636.00	2,333.37	220.62	2,338.79	0.00	0.00	0.00	
8,600.00	90.00	0.00	5,636.00	2,433.37	220.62	2,438.75	0.00	0.00	0.00	
8,700.00	90.00	0.00	5,636.00	2,533.37	220.62	2,538.71	0.00	0.00	0.00	
8,800.00	90.00	0.00	5,636.00	2,633.37	220.62	2,638.67	0.00	0.00	0.00	
8,900.00	90.00	0.00	5,636.00	2,733.37	220.62	2,738.62	0.00	0.00	0.00	
9,000.00	90.00	0.00	5,636.00	2,833.37	220.62	2,838.58	0.00	0.00	0.00	
9,100.00	90.00	0.00	5,636.00	2,933.37	220.62	2,938.54	0.00	0.00	0.00	
9,200.00	90.00	0.00	5,636.00	3,033.37	220.62	3,038.50	0.00	0.00	0.00	
9,300.00	90.00	0.00	5,636.00	3,133.37	220.62	3,138.45	0.00	0.00	0.00	
9,400.00	90.00	0.00	5,636.00	3,233.37	220.62	3,238.41	0.00	0.00	0.00	
9,500.00	90.00	0.00	5,636.00	3,333.37	220.62	3,338.37	0.00	0.00	0.00	
9,600.00	90.00	0.00	5,636.00	3,433.37	220.62	3,438.33	0.00	0.00	0.00	
9,700.00	90.00	0.00	5,636.00	3,533.37	220.62	3,538.29	0.00	0.00	0.00	
9,800.00	90.00	0.00	5,636.00	3,633.37	220.62	3,638.24	0.00	0.00	0.00	
9,900.00	90.00	0.00	5,636.00	3,733.37	220.62	3,738.20	0.00	0.00	0.00	
10,000.00	90.00	0.00	5,636.00	3,833.37	220.62	3,838.16	0.00	0.00	0.00	
10,100.00	90.00	0.00	5,636.00	3,933.37	220.62	3,938.12	0.00	0.00	0.00	
10,200.00	90.00	0.00	5,636.00	4,033.37	220.62	4,038.07	0.00	0.00	0.00	
10,300.00	90.00	0.00	5,636.00	4,133.37	220.62	4,138.03	0.00	0.00	0.00	
10,400.00	90.00	0.00	5,636.00	4,233.37	220.62	4,237.99	0.00	0.00	0.00	
10,500.00	90.00	0.00	5,636.00	4,333.37	220.62	4,337.95	0.00	0.00	0.00	
10,600.00	90.00	0.00	5,636.00	4,433.37	220.62	4,437.91	0.00	0.00	0.00	
10,700.00	90.00	0.00	5,636.00	4,533.37	220.62	4,537.86	0.00	0.00	0.00	
10,800.00	90.00	0.00	5,636.00	4,633.37	220.62	4,637.82	0.00	0.00	0.00	
10,900.00	90.00	0.00	5,636.00	4,733.37	220.62	4,737.78	0.00	0.00	0.00	



WOG
Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #29G-2044
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4715.00usft
Project:	Weld County, CO	MD Reference:	KBE @ 4715.00usft
Site:	Sec 29-T10N-R57W	North Reference:	True
Well:	Horsetail #29G-2044	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	APD		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
11,000.00	90.00	0.00	5,636.00	4,833.37	220.62	4,837.74	0.00	0.00	0.00
11,100.00	90.00	0.00	5,636.00	4,933.37	220.62	4,937.70	0.00	0.00	0.00
11,200.00	90.00	0.00	5,636.00	5,033.37	220.62	5,037.65	0.00	0.00	0.00
11,300.00	90.00	0.00	5,636.00	5,133.37	220.62	5,137.61	0.00	0.00	0.00
11,400.00	90.00	0.00	5,636.00	5,233.37	220.62	5,237.57	0.00	0.00	0.00
11,500.00	90.00	0.00	5,636.00	5,333.37	220.62	5,337.53	0.00	0.00	0.00
11,600.00	90.00	0.00	5,636.00	5,433.37	220.62	5,437.48	0.00	0.00	0.00
11,700.00	90.00	0.00	5,636.00	5,533.37	220.62	5,537.44	0.00	0.00	0.00
11,800.00	90.00	0.00	5,636.00	5,633.37	220.62	5,637.40	0.00	0.00	0.00
11,900.00	90.00	0.00	5,636.00	5,733.37	220.62	5,737.36	0.00	0.00	0.00
12,000.00	90.00	0.00	5,636.00	5,833.37	220.62	5,837.32	0.00	0.00	0.00
12,100.00	90.00	0.00	5,636.00	5,933.37	220.62	5,937.27	0.00	0.00	0.00
12,200.00	90.00	0.00	5,636.00	6,033.37	220.62	6,037.23	0.00	0.00	0.00
12,300.00	90.00	0.00	5,636.00	6,133.37	220.62	6,137.19	0.00	0.00	0.00
12,400.00	90.00	0.00	5,636.00	6,233.37	220.62	6,237.15	0.00	0.00	0.00
12,500.00	90.00	0.00	5,636.00	6,333.37	220.62	6,337.10	0.00	0.00	0.00
12,600.00	90.00	0.00	5,636.00	6,433.37	220.62	6,437.06	0.00	0.00	0.00
12,700.00	90.00	0.00	5,636.00	6,533.37	220.62	6,537.02	0.00	0.00	0.00
12,800.00	90.00	0.00	5,636.00	6,633.37	220.62	6,636.98	0.00	0.00	0.00
12,900.00	90.00	0.00	5,636.00	6,733.37	220.62	6,736.94	0.00	0.00	0.00
13,000.00	90.00	0.00	5,636.00	6,833.37	220.62	6,836.89	0.00	0.00	0.00
13,100.00	90.00	0.00	5,636.00	6,933.37	220.62	6,936.85	0.00	0.00	0.00
13,200.00	90.00	0.00	5,636.00	7,033.37	220.62	7,036.81	0.00	0.00	0.00
13,300.00	90.00	0.00	5,636.00	7,133.37	220.62	7,136.77	0.00	0.00	0.00
13,400.00	90.00	0.00	5,636.00	7,233.37	220.62	7,236.72	0.00	0.00	0.00
13,500.00	90.00	0.00	5,636.00	7,333.37	220.62	7,336.68	0.00	0.00	0.00
13,600.00	90.00	0.00	5,636.00	7,433.37	220.62	7,436.64	0.00	0.00	0.00
13,700.00	90.00	0.00	5,636.00	7,533.37	220.62	7,536.60	0.00	0.00	0.00
13,759.09	90.00	0.00	5,636.00	7,592.46	220.62	7,595.66	0.00	0.00	0.00
TD at 13759.09									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL 29G-2044 - hit/miss target - Shape - plan hits target center - Point	0.00	0.00	5,636.00	7,592.46	220.62	1,550,390.00	3,478,264.36	40° 49' 53.060 N	103° 46' 18.010 W

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
5,994.63	5,636.00	5 1/2" Marker / 7" CSG	5.500	8.750	



WOG
Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #29G-2044
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4715.00usft
Project:	Weld County, CO	MD Reference:	KBE @ 4715.00usft
Site:	Sec 29-T10N-R57W	North Reference:	True
Well:	Horsetail #29G-2044	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	APD		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,564.21	1,550.00	Upper Pierre				
3,544.47	3,500.00	Hygiene				
3,696.80	3,650.00	Lower Pierre				
5,421.17	5,351.00	P200 Marker				
5,443.86	5,371.00	P300 Marker				
5,462.42	5,387.00	P350 Marker				
5,479.00	5,401.00	Sharon Springs				
5,483.80	5,405.00	Niobrara				
5,504.55	5,422.00	Top A Chalk				
5,542.73	5,452.00	Top A Marl				
5,558.68	5,464.00	A Marl				
5,569.55	5,472.00	Top Upper B				
5,603.57	5,496.00	Base Upper B				
5,627.64	5,512.00	Top Lower B				
5,675.02	5,541.00	Base Lower B				
5,698.35	5,554.00	Top B Marl				
5,789.15	5,596.00	Top C Chalk				
5,811.08	5,604.00	Middle C Chalk				
5,857.28	5,618.00	Middle C Marl				
5,994.63	5,636.00	Lower C Chalk				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
300.00	300.00	0.00	0.00	Build 2°/100'	
801.47	798.91	-41.71	13.28	Hold 10.03° Inc	
4,474.78	4,416.09	-651.29	207.34	Drop 2°/100'	
4,976.25	4,915.00	-693.00	220.62	Hold Vertical	
5,176.25	5,115.00	-693.00	220.62	KOP, Build 11°/100'	
5,994.63	5,636.00	-172.00	220.62	LP @ 90° Inc, Hold	
13,759.09	5,636.00	7,592.46	220.62	TD at 13759.09	