



Project: Weld County, CO
Site: Sec 7-T10N-R57W
Well: Horsetail #07E-1803
Wellbore: Hz
Design: Plan #1

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



Azimuths to True North
Magnetic North: 7.88°

Magnetic Field
Strength: 53087.1snT
Dip Angle: 67.44°
Date: 1/5/2015
Model: IGRF2010

WELL DETAILS: Horsetail #07E-1803

+N/-S	+E/-W	Northing	Ground Level:	4925.70	Longitude	Slot
0.00	0.00	1558450.38	Easting	3469980.07	40° 51' 14.270 N	103° 48' 3.749 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	440.83	2.82	5.58	440.77	3.44	0.34	2.00	5.58	-3.44	
4	4900.67	2.82	5.58	4895.23	221.56	21.66	0.00	0.00	-221.31	
5	5041.50	0.00	0.00	5036.00	225.00	22.00	2.00	180.00	-224.75	
6	5241.50	0.00	0.00	5236.00	225.00	22.00	0.00	0.00	-224.75	
7	6059.89	90.00	179.56	5757.00	-295.98	26.03	11.00	179.56	296.25	
8	13811.05	90.00	179.56	5757.00	-8046.91	86.00	0.00	0.00	8047.37	PBHL 1803A

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1550.00	1551.40	Upper Pierre
3500.00	3503.76	Hygiene
3650.00	3653.94	Lower Pierre
5515.00	5535.92	P200 Marker
5530.00	5553.88	P300 Marker
5550.00	5578.52	P350 Marker
5702.00	5818.33	Sharon Springs
5707.00	5829.77	Niobrara
5733.00	5901.13	Top A 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'
440.77	440.83	2.82	5.58	3.44	0.34	-3.44	3.46	Hold 2.82° Inc
4895.23	4900.67	2.82	5.58	221.56	21.66	-221.31	222.61	Drop 2°/100'
5036.00	5041.50	0.00	0.00	225.00	22.00	-224.75	226.07	Hold Vertical
5236.00	5241.50	0.00	0.00	225.00	22.00	-224.75	226.07	KOP, Build 11°/100'
5757.00	6059.89	90.00	179.56	-295.98	26.03	296.25	747.07	LP @ 90° Inc, Hold
5757.00	13811.05	90.00	179.56	-8046.91	86.00	8047.37	8498.23	TD at 13811.05

DESIGN TARGET DETAILS

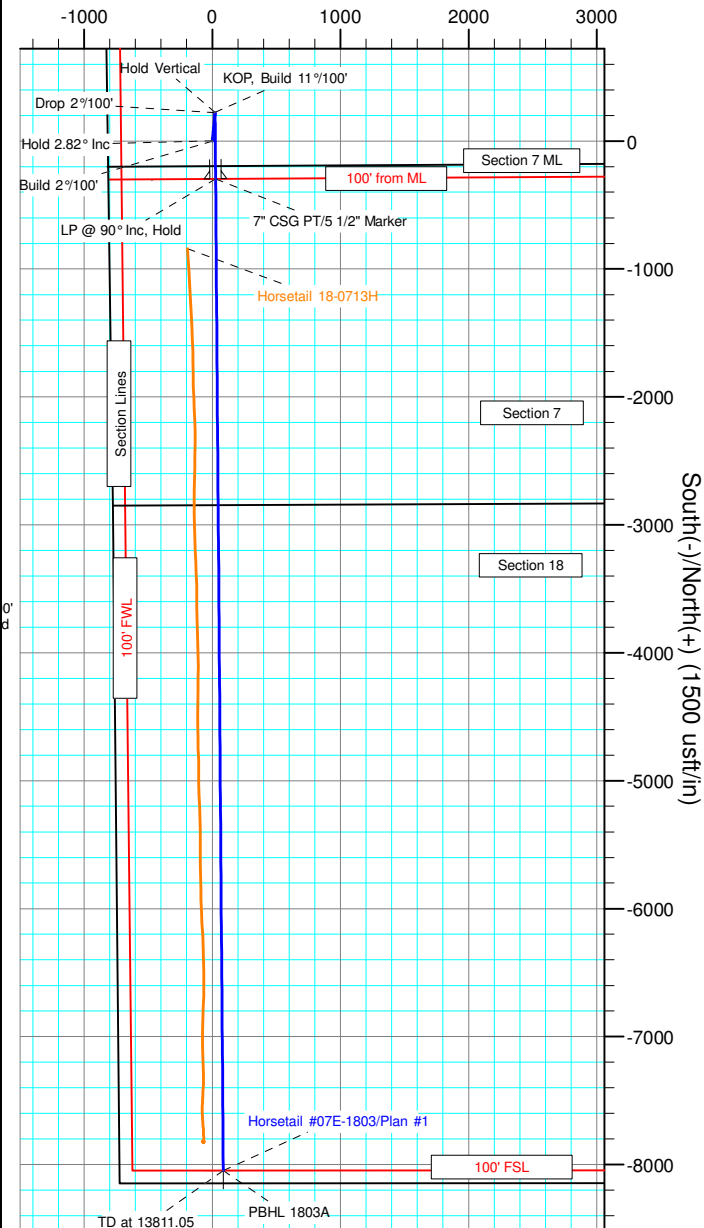
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
PBHL 1803A	5757.00	-8046.91	86.00	1550406.59	3470220.22	40° 49' 54.760 N	103° 48' 2.630 W

SHL:
2457' FNL, 830' FWL
Sec7-T10N-R57W

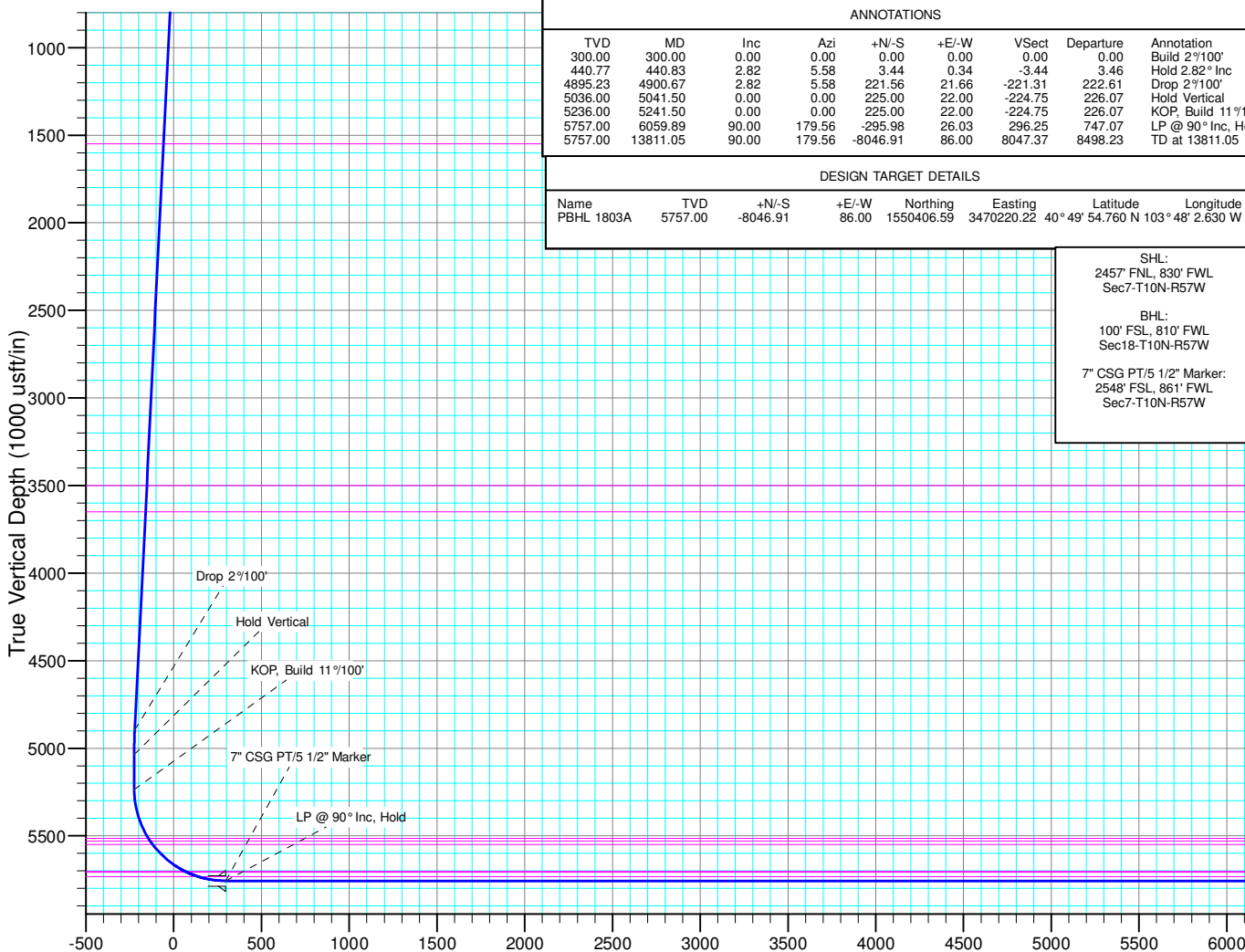
BHL:
100' FSL, 810' FWL
Sec18-T10N-R57W

7" CSG PT/5 1/2" Marker:
2548' FSL, 861' FWL
Sec7-T10N-R57W

West(-)/East(+) (1500 usft/in)



South(-)/North(+) (1500 usft/in)



Vertical Section at 179.39° (1000 usft/in)



Whiting Petroleum Corp.

Weld County, CO

Sec 7-T10N-R57W

Horsetail #07E-1803

Hz

Plan: Plan #1

Standard Planning Report

10 November, 2015



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #07E-1803
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4942.70usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4942.70usft (Original Well Elev)
Site:	Sec 7-T10N-R57W	North Reference:	True
Well:	Horsetail #07E-1803	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

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 7-T10N-R57W			
Site Position:		Northing:	1,558,450.14 usft	Latitude:	40° 51' 14.300 N
From:	Lat/Long	Easting:	3,469,810.15 usft	Longitude:	103° 48' 5.960 W
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence:	1.10 °

Well	Horsetail #07E-1803					
Well Position	+N/-S	-3.01 usft	Northing:	1,558,450.38 usft	Latitude:	40° 51' 14.270 N
	+E/-W	169.89 usft	Easting:	3,469,980.06 usft	Longitude:	103° 48' 3.749 W
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	4,925.70 usft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/5/2015	7.89	67.44	53,087

Design	Plan #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	179.39

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	
440.83	2.82	5.58	440.77	3.44	0.34	2.00	2.00	0.00	5.58	
4,900.67	2.82	5.58	4,895.23	221.56	21.66	0.00	0.00	0.00	0.00	
5,041.50	0.00	0.00	5,036.00	225.00	22.00	2.00	-2.00	0.00	180.00	
5,241.50	0.00	0.00	5,236.00	225.00	22.00	0.00	0.00	0.00	0.00	
6,059.89	90.00	179.56	5,757.00	-295.98	26.03	11.00	11.00	0.00	179.56	
13,811.05	90.00	179.56	5,757.00	-8,046.91	86.00	0.00	0.00	0.00	0.00	PBHL 1803A



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #07E-1803
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4942.70usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4942.70usft (Original Well Elev)
Site:	Sec 7-T10N-R57W	North Reference:	True
Well:	Horsetail #07E-1803	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

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
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
Build 2°/100'									
400.00	2.00	5.58	399.98	1.74	0.17	-1.73	2.00	2.00	0.00
440.83	2.82	5.58	440.77	3.44	0.34	-3.44	2.00	2.00	0.00
Hold 2.82° Inc									
500.00	2.82	5.58	499.87	6.34	0.62	-6.33	0.00	0.00	0.00
600.00	2.82	5.58	599.75	11.23	1.10	-11.22	0.00	0.00	0.00
700.00	2.82	5.58	699.63	16.12	1.58	-16.10	0.00	0.00	0.00
800.00	2.82	5.58	799.51	21.01	2.05	-20.99	0.00	0.00	0.00
900.00	2.82	5.58	899.39	25.90	2.53	-25.87	0.00	0.00	0.00
1,000.00	2.82	5.58	999.27	30.79	3.01	-30.76	0.00	0.00	0.00
1,100.00	2.82	5.58	1,099.15	35.68	3.49	-35.64	0.00	0.00	0.00
1,200.00	2.82	5.58	1,199.03	40.57	3.97	-40.53	0.00	0.00	0.00
1,300.00	2.82	5.58	1,298.91	45.46	4.45	-45.41	0.00	0.00	0.00
1,400.00	2.82	5.58	1,398.78	50.35	4.92	-50.30	0.00	0.00	0.00
1,500.00	2.82	5.58	1,498.66	55.24	5.40	-55.18	0.00	0.00	0.00
1,551.40	2.82	5.58	1,550.00	57.76	5.65	-57.69	0.00	0.00	0.00
Upper Pierre									
1,600.00	2.82	5.58	1,598.54	60.13	5.88	-60.07	0.00	0.00	0.00
1,700.00	2.82	5.58	1,698.42	65.02	6.36	-64.95	0.00	0.00	0.00
1,800.00	2.82	5.58	1,798.30	69.92	6.84	-69.84	0.00	0.00	0.00
1,900.00	2.82	5.58	1,898.18	74.81	7.31	-74.72	0.00	0.00	0.00
2,000.00	2.82	5.58	1,998.06	79.70	7.79	-79.61	0.00	0.00	0.00
2,100.00	2.82	5.58	2,097.94	84.59	8.27	-84.49	0.00	0.00	0.00
2,200.00	2.82	5.58	2,197.82	89.48	8.75	-89.38	0.00	0.00	0.00
2,300.00	2.82	5.58	2,297.70	94.37	9.23	-94.26	0.00	0.00	0.00
2,400.00	2.82	5.58	2,397.58	99.26	9.71	-99.15	0.00	0.00	0.00
2,500.00	2.82	5.58	2,497.46	104.15	10.18	-104.03	0.00	0.00	0.00
2,600.00	2.82	5.58	2,597.33	109.04	10.66	-108.92	0.00	0.00	0.00
2,700.00	2.82	5.58	2,697.21	113.93	11.14	-113.80	0.00	0.00	0.00
2,800.00	2.82	5.58	2,797.09	118.82	11.62	-118.69	0.00	0.00	0.00
2,900.00	2.82	5.58	2,896.97	123.71	12.10	-123.58	0.00	0.00	0.00
3,000.00	2.82	5.58	2,996.85	128.60	12.57	-128.46	0.00	0.00	0.00
3,100.00	2.82	5.58	3,096.73	133.49	13.05	-133.35	0.00	0.00	0.00
3,200.00	2.82	5.58	3,196.61	138.38	13.53	-138.23	0.00	0.00	0.00
3,300.00	2.82	5.58	3,296.49	143.27	14.01	-143.12	0.00	0.00	0.00
3,400.00	2.82	5.58	3,396.37	148.16	14.49	-148.00	0.00	0.00	0.00
3,500.00	2.82	5.58	3,496.25	153.05	14.97	-152.89	0.00	0.00	0.00
3,503.76	2.82	5.58	3,500.00	153.24	14.98	-153.07	0.00	0.00	0.00
Hygiene									
3,600.00	2.82	5.58	3,596.13	157.95	15.44	-157.77	0.00	0.00	0.00
3,653.94	2.82	5.58	3,650.00	160.58	15.70	-160.41	0.00	0.00	0.00
Lower Pierre									
3,700.00	2.82	5.58	3,696.01	162.84	15.92	-162.66	0.00	0.00	0.00
3,800.00	2.82	5.58	3,795.89	167.73	16.40	-167.54	0.00	0.00	0.00
3,900.00	2.82	5.58	3,895.76	172.62	16.88	-172.43	0.00	0.00	0.00
4,000.00	2.82	5.58	3,995.64	177.51	17.36	-177.31	0.00	0.00	0.00
4,100.00	2.82	5.58	4,095.52	182.40	17.83	-182.20	0.00	0.00	0.00
4,200.00	2.82	5.58	4,195.40	187.29	18.31	-187.08	0.00	0.00	0.00
4,300.00	2.82	5.58	4,295.28	192.18	18.79	-191.97	0.00	0.00	0.00
4,400.00	2.82	5.58	4,395.16	197.07	19.27	-196.85	0.00	0.00	0.00



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #07E-1803
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4942.70usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4942.70usft (Original Well Elev)
Site:	Sec 7-T10N-R57W	North Reference:	True
Well:	Horsetail #07E-1803	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

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)
4,500.00	2.82	5.58	4,495.04	201.96	19.75	-201.74	0.00	0.00	0.00
4,600.00	2.82	5.58	4,594.92	206.85	20.23	-206.62	0.00	0.00	0.00
4,700.00	2.82	5.58	4,694.80	211.74	20.70	-211.51	0.00	0.00	0.00
4,800.00	2.82	5.58	4,794.68	216.63	21.18	-216.39	0.00	0.00	0.00
4,900.67	2.82	5.58	4,895.23	221.56	21.66	-221.31	0.00	0.00	0.00
Drop 2°/100'									
5,000.00	0.83	5.58	4,994.50	224.70	21.97	-224.45	2.00	-2.00	0.00
5,041.50	0.00	0.00	5,036.00	225.00	22.00	-224.75	2.00	-2.00	-13.46
Hold Vertical									
5,100.00	0.00	0.00	5,094.50	225.00	22.00	-224.75	0.00	0.00	0.00
5,200.00	0.00	0.00	5,194.50	225.00	22.00	-224.75	0.00	0.00	0.00
5,241.50	0.00	0.00	5,236.00	225.00	22.00	-224.75	0.00	0.00	0.00
KOP, Build 11°/100'									
5,250.00	0.93	179.56	5,244.50	224.93	22.00	-224.68	11.00	11.00	0.00
5,300.00	6.43	179.56	5,294.38	221.72	22.03	-221.47	11.00	11.00	0.00
5,350.00	11.93	179.56	5,343.72	213.74	22.09	-213.50	11.00	11.00	0.00
5,400.00	17.43	179.56	5,392.07	201.08	22.19	-200.83	11.00	11.00	0.00
5,450.00	22.93	179.56	5,438.98	183.84	22.32	-183.59	11.00	11.00	0.00
5,500.00	28.43	179.56	5,484.02	162.18	22.49	-161.93	11.00	11.00	0.00
5,535.92	32.38	179.56	5,515.00	144.00	22.63	-143.75	11.00	11.00	0.00
P200 Marker									
5,550.00	33.93	179.56	5,526.78	136.30	22.69	-136.05	11.00	11.00	0.00
5,553.88	34.35	179.56	5,530.00	134.12	22.70	-133.87	11.00	11.00	0.00
P300 Marker									
5,578.52	37.06	179.56	5,550.00	119.75	22.81	-119.50	11.00	11.00	0.00
P350 Marker									
5,600.00	39.43	179.56	5,566.87	106.45	22.92	-106.20	11.00	11.00	0.00
5,650.00	44.92	179.56	5,603.91	72.90	23.18	-72.65	11.00	11.00	0.00
5,700.00	50.42	179.56	5,637.57	35.95	23.46	-35.69	11.00	11.00	0.00
5,750.00	55.92	179.56	5,667.53	-4.06	23.77	4.31	11.00	11.00	0.00
5,800.00	61.42	179.56	5,693.51	-46.75	24.10	47.01	11.00	11.00	0.00
5,818.33	63.44	179.56	5,702.00	-63.00	24.23	63.26	11.00	11.00	0.00
Sharon Springs									
5,829.77	64.69	179.56	5,707.00	-73.28	24.31	73.54	11.00	11.00	0.00
Niobrara									
5,850.00	66.92	179.56	5,715.29	-91.74	24.45	91.99	11.00	11.00	0.00
5,900.00	72.42	179.56	5,732.66	-138.60	24.81	138.86	11.00	11.00	0.00
5,901.13	72.54	179.56	5,733.00	-139.68	24.82	139.94	11.00	11.00	0.00
Top A Chalk									
5,950.00	77.92	179.56	5,745.45	-186.91	25.19	187.17	11.00	11.00	0.00
6,000.00	83.41	179.56	5,753.56	-236.23	25.57	236.49	11.00	11.00	0.00
6,050.00	88.91	179.56	5,756.91	-286.10	25.95	286.36	11.00	11.00	0.00
6,059.89	90.00	179.56	5,757.00	-295.99	26.03	296.25	10.99	10.99	0.00
LP @ 90° Inc, Hold - 7" CSG PT/5 1/2" Marker									
6,100.00	90.00	179.56	5,757.00	-336.10	26.34	336.36	0.00	0.00	0.00
6,200.00	90.00	179.56	5,757.00	-436.09	27.11	436.36	0.00	0.00	0.00
6,300.00	90.00	179.56	5,757.00	-536.09	27.89	536.36	0.00	0.00	0.00
6,400.00	90.00	179.56	5,757.00	-636.09	28.66	636.36	0.00	0.00	0.00
6,500.00	90.00	179.56	5,757.00	-736.09	29.44	736.36	0.00	0.00	0.00
6,600.00	90.00	179.56	5,757.00	-836.08	30.21	836.36	0.00	0.00	0.00
6,700.00	90.00	179.56	5,757.00	-936.08	30.98	936.36	0.00	0.00	0.00
6,800.00	90.00	179.56	5,757.00	-1,036.08	31.76	1,036.36	0.00	0.00	0.00



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Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #07E-1803
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4942.70usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4942.70usft (Original Well Elev)
Site:	Sec 7-T10N-R57W	North Reference:	True
Well:	Horsetail #07E-1803	Survey Calculation Method:	Minimum Curvature
Wellbore:	H2		
Design:	Plan #1		

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)
6,900.00	90.00	179.56	5,757.00	-1,136.07	32.53	1,136.36	0.00	0.00	0.00
7,000.00	90.00	179.56	5,757.00	-1,236.07	33.30	1,236.36	0.00	0.00	0.00
7,100.00	90.00	179.56	5,757.00	-1,336.07	34.08	1,336.36	0.00	0.00	0.00
7,200.00	90.00	179.56	5,757.00	-1,436.06	34.85	1,436.35	0.00	0.00	0.00
7,300.00	90.00	179.56	5,757.00	-1,536.06	35.63	1,536.35	0.00	0.00	0.00
7,400.00	90.00	179.56	5,757.00	-1,636.06	36.40	1,636.35	0.00	0.00	0.00
7,500.00	90.00	179.56	5,757.00	-1,736.06	37.17	1,736.35	0.00	0.00	0.00
7,600.00	90.00	179.56	5,757.00	-1,836.05	37.95	1,836.35	0.00	0.00	0.00
7,700.00	90.00	179.56	5,757.00	-1,936.05	38.72	1,936.35	0.00	0.00	0.00
7,800.00	90.00	179.56	5,757.00	-2,036.05	39.49	2,036.35	0.00	0.00	0.00
7,900.00	90.00	179.56	5,757.00	-2,136.04	40.27	2,136.35	0.00	0.00	0.00
8,000.00	90.00	179.56	5,757.00	-2,236.04	41.04	2,236.35	0.00	0.00	0.00
8,100.00	90.00	179.56	5,757.00	-2,336.04	41.81	2,336.35	0.00	0.00	0.00
8,200.00	90.00	179.56	5,757.00	-2,436.03	42.59	2,436.35	0.00	0.00	0.00
8,300.00	90.00	179.56	5,757.00	-2,536.03	43.36	2,536.35	0.00	0.00	0.00
8,400.00	90.00	179.56	5,757.00	-2,636.03	44.14	2,636.35	0.00	0.00	0.00
8,500.00	90.00	179.56	5,757.00	-2,736.03	44.91	2,736.35	0.00	0.00	0.00
8,600.00	90.00	179.56	5,757.00	-2,836.02	45.68	2,836.35	0.00	0.00	0.00
8,700.00	90.00	179.56	5,757.00	-2,936.02	46.46	2,936.35	0.00	0.00	0.00
8,800.00	90.00	179.56	5,757.00	-3,036.02	47.23	3,036.35	0.00	0.00	0.00
8,900.00	90.00	179.56	5,757.00	-3,136.01	48.00	3,136.35	0.00	0.00	0.00
9,000.00	90.00	179.56	5,757.00	-3,236.01	48.78	3,236.35	0.00	0.00	0.00
9,100.00	90.00	179.56	5,757.00	-3,336.01	49.55	3,336.35	0.00	0.00	0.00
9,200.00	90.00	179.56	5,757.00	-3,436.00	50.33	3,436.35	0.00	0.00	0.00
9,300.00	90.00	179.56	5,757.00	-3,536.00	51.10	3,536.35	0.00	0.00	0.00
9,400.00	90.00	179.56	5,757.00	-3,636.00	51.87	3,636.35	0.00	0.00	0.00
9,500.00	90.00	179.56	5,757.00	-3,736.00	52.65	3,736.34	0.00	0.00	0.00
9,600.00	90.00	179.56	5,757.00	-3,835.99	53.42	3,836.34	0.00	0.00	0.00
9,700.00	90.00	179.56	5,757.00	-3,935.99	54.19	3,936.34	0.00	0.00	0.00
9,800.00	90.00	179.56	5,757.00	-4,035.99	54.97	4,036.34	0.00	0.00	0.00
9,900.00	90.00	179.56	5,757.00	-4,135.98	55.74	4,136.34	0.00	0.00	0.00
10,000.00	90.00	179.56	5,757.00	-4,235.98	56.51	4,236.34	0.00	0.00	0.00
10,100.00	90.00	179.56	5,757.00	-4,335.98	57.29	4,336.34	0.00	0.00	0.00
10,200.00	90.00	179.56	5,757.00	-4,435.97	58.06	4,436.34	0.00	0.00	0.00
10,300.00	90.00	179.56	5,757.00	-4,535.97	58.84	4,536.34	0.00	0.00	0.00
10,400.00	90.00	179.56	5,757.00	-4,635.97	59.61	4,636.34	0.00	0.00	0.00
10,500.00	90.00	179.56	5,757.00	-4,735.97	60.38	4,736.34	0.00	0.00	0.00
10,600.00	90.00	179.56	5,757.00	-4,835.96	61.16	4,836.34	0.00	0.00	0.00
10,700.00	90.00	179.56	5,757.00	-4,935.96	61.93	4,936.34	0.00	0.00	0.00
10,800.00	90.00	179.56	5,757.00	-5,035.96	62.70	5,036.34	0.00	0.00	0.00
10,900.00	90.00	179.56	5,757.00	-5,135.95	63.48	5,136.34	0.00	0.00	0.00
11,000.00	90.00	179.56	5,757.00	-5,235.95	64.25	5,236.34	0.00	0.00	0.00
11,100.00	90.00	179.56	5,757.00	-5,335.95	65.03	5,336.34	0.00	0.00	0.00
11,200.00	90.00	179.56	5,757.00	-5,435.94	65.80	5,436.34	0.00	0.00	0.00
11,300.00	90.00	179.56	5,757.00	-5,535.94	66.57	5,536.34	0.00	0.00	0.00
11,400.00	90.00	179.56	5,757.00	-5,635.94	67.35	5,636.34	0.00	0.00	0.00
11,500.00	90.00	179.56	5,757.00	-5,735.94	68.12	5,736.34	0.00	0.00	0.00
11,600.00	90.00	179.56	5,757.00	-5,835.93	68.89	5,836.34	0.00	0.00	0.00
11,700.00	90.00	179.56	5,757.00	-5,935.93	69.67	5,936.34	0.00	0.00	0.00
11,800.00	90.00	179.56	5,757.00	-6,035.93	70.44	6,036.33	0.00	0.00	0.00
11,900.00	90.00	179.56	5,757.00	-6,135.92	71.21	6,136.33	0.00	0.00	0.00
12,000.00	90.00	179.56	5,757.00	-6,235.92	71.99	6,236.33	0.00	0.00	0.00
12,100.00	90.00	179.56	5,757.00	-6,335.92	72.76	6,336.33	0.00	0.00	0.00
12,200.00	90.00	179.56	5,757.00	-6,435.91	73.54	6,436.33	0.00	0.00	0.00



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #07E-1803
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4942.70usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4942.70usft (Original Well Elev)
Site:	Sec 7-T10N-R57W	North Reference:	True
Well:	Horsetail #07E-1803	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

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)	
12,300.00	90.00	179.56	5,757.00	-6,535.91	74.31	6,536.33	0.00	0.00	0.00	
12,400.00	90.00	179.56	5,757.00	-6,635.91	75.08	6,636.33	0.00	0.00	0.00	
12,500.00	90.00	179.56	5,757.00	-6,735.91	75.86	6,736.33	0.00	0.00	0.00	
12,600.00	90.00	179.56	5,757.00	-6,835.90	76.63	6,836.33	0.00	0.00	0.00	
12,700.00	90.00	179.56	5,757.00	-6,935.90	77.40	6,936.33	0.00	0.00	0.00	
12,800.00	90.00	179.56	5,757.00	-7,035.90	78.18	7,036.33	0.00	0.00	0.00	
12,900.00	90.00	179.56	5,757.00	-7,135.89	78.95	7,136.33	0.00	0.00	0.00	
13,000.00	90.00	179.56	5,757.00	-7,235.89	79.73	7,236.33	0.00	0.00	0.00	
13,100.00	90.00	179.56	5,757.00	-7,335.89	80.50	7,336.33	0.00	0.00	0.00	
13,200.00	90.00	179.56	5,757.00	-7,435.88	81.27	7,436.33	0.00	0.00	0.00	
13,300.00	90.00	179.56	5,757.00	-7,535.88	82.05	7,536.33	0.00	0.00	0.00	
13,400.00	90.00	179.56	5,757.00	-7,635.88	82.82	7,636.33	0.00	0.00	0.00	
13,500.00	90.00	179.56	5,757.00	-7,735.88	83.59	7,736.33	0.00	0.00	0.00	
13,600.00	90.00	179.56	5,757.00	-7,835.87	84.37	7,836.33	0.00	0.00	0.00	
13,700.00	90.00	179.56	5,757.00	-7,935.87	85.14	7,936.33	0.00	0.00	0.00	
13,800.00	90.00	179.56	5,757.00	-8,035.87	85.91	8,036.33	0.00	0.00	0.00	
13,811.05	90.00	179.56	5,757.00	-8,046.91	86.00	8,047.37	0.00	0.00	0.00	
TD at 13811.05										

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 1803A	0.00	0.00	5,757.00	-8,046.91	86.00	1,550,406.59	3,470,220.21	40° 49' 54.760 N	103° 48' 2.630 W	
- plan hits target center										
- Point										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
6,059.89	5,757.00	7" CSG PT/5 1/2" Marker	7.000	8.750	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,551.40	1,553.90	Upper Pierre				
3,503.76	3,503.90	Hygiene				
3,653.94	3,653.90	Lower Pierre				
5,535.92	5,518.90	P200 Marker				
5,553.88	5,533.90	P300 Marker				
5,578.52	5,553.90	P350 Marker				
5,818.33	5,705.90	Sharon Springs				
5,829.77	5,710.90	Niobrara				
5,901.13	5,736.90	Top A Chalk				



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #07E-1803
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4942.70usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4942.70usft (Original Well Elev)
Site:	Sec 7-T10N-R57W	North Reference:	True
Well:	Horsetail #07E-1803	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

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'
440.83	440.77	3.44	0.34	Hold 2.82° Inc
4,900.67	4,895.23	221.56	21.66	Drop 2°/100'
5,041.50	5,036.00	225.00	22.00	Hold Vertical
5,241.50	5,236.00	225.00	22.00	KOP, Build 11°/100'
6,059.89	5,757.00	-295.98	26.03	LP @ 90° Inc, Hold
13,811.05	5,757.00	-8,046.91	86.00	TD at 13811.05