



Project: Weld County, CO
Site: Sec 29-T10N-R58W
Well: Razor #29H-2013
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



Azimuths to True North
Magnetic North: 7.93°
Magnetic Field
Strength: 52879.8nT
Dip Angle: 67.36°
Date: 11/3/2015
Model: IGRF2015

TVDPath	MDPath	Formation
1550.00	1570.56	Upper Pierre
3500.00	3568.91	Hygiene
3650.00	3722.63	Lower Pierre
5794.00	5979.73	P200 Marker
5829.00	6045.17	P300 Marker
5853.00	6098.00	P350 Marker
5865.00	6128.36	Sharon Springs
5868.00	6136.53	Niobrara
5888.00	6200.20	Top A Chalk

WELL DETAILS: Razor #29H-2013

+N/-S	+E/-W	Northing	Ground Level:	4766.80	Easting	3447479.61	Latitude	40° 48' 37.270 N	Longitude	103° 53' 0.370 W	Slot
0.00	0.00	1542137.56									

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	931.46	12.63	196.61	926.35	-66.42	-19.81	2.00	196.61	-65.67	
4	4540.57	12.63	196.61	4448.15	-822.58	-245.40	0.00	0.00	-813.27	
5	5172.02	0.00	0.00	5074.50	-889.00	-265.21	2.00	180.00	-878.94	
6	5372.02	0.00	0.00	5274.50	-889.00	-265.21	0.00	0.00	-878.94	
7	6371.83	90.00	360.00	5911.00	-252.50	-265.21	9.00	360.00	-242.85	
8	14030.57	90.00	360.00	5911.00	7406.24	-265.21	0.00	0.00	7410.99	Razor 29H-2013

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'
926.35	931.46	12.63	196.61	-66.42	-19.81	-65.67	69.31	Hold 12.63° Inc
4448.15	4540.57	12.63	196.61	-822.58	-245.40	-813.27	858.40	Drop 2°/100'
5074.50	5172.02	0.00	0.00	-889.00	-265.21	-878.94	927.72	Hold Vertical
5274.50	5372.02	0.00	0.00	-889.00	-265.21	-878.94	927.72	KOP, Build 9°/100'
5911.00	6371.83	90.00	360.00	-252.50	-265.21	-242.85	1564.22	LP @ 90° Inc, Hold
5911.00	14030.57	90.00	360.00	7406.24	-265.21	7410.99	9222.96	TD at 14030.57

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Razor 29H-2013	5911.00	7406.24	-265.21	1549537.73	3447079.43	40° 49' 50.450 N 103° 53' 3.820 W	
Nelson Ranches A-7	6615.80	4537.61	-1334.02	1546650.09	3446063.10	40° 49' 22.105 N 103° 53' 17.722 W	
Nelson #1	6700.80	2789.83	297.86	1544932.36	3447726.56	40° 49' 4.836 N 103° 52' 56.496 W	

SHL:
2286' FNL, 978' FEL
Sec29-T10N-R58W

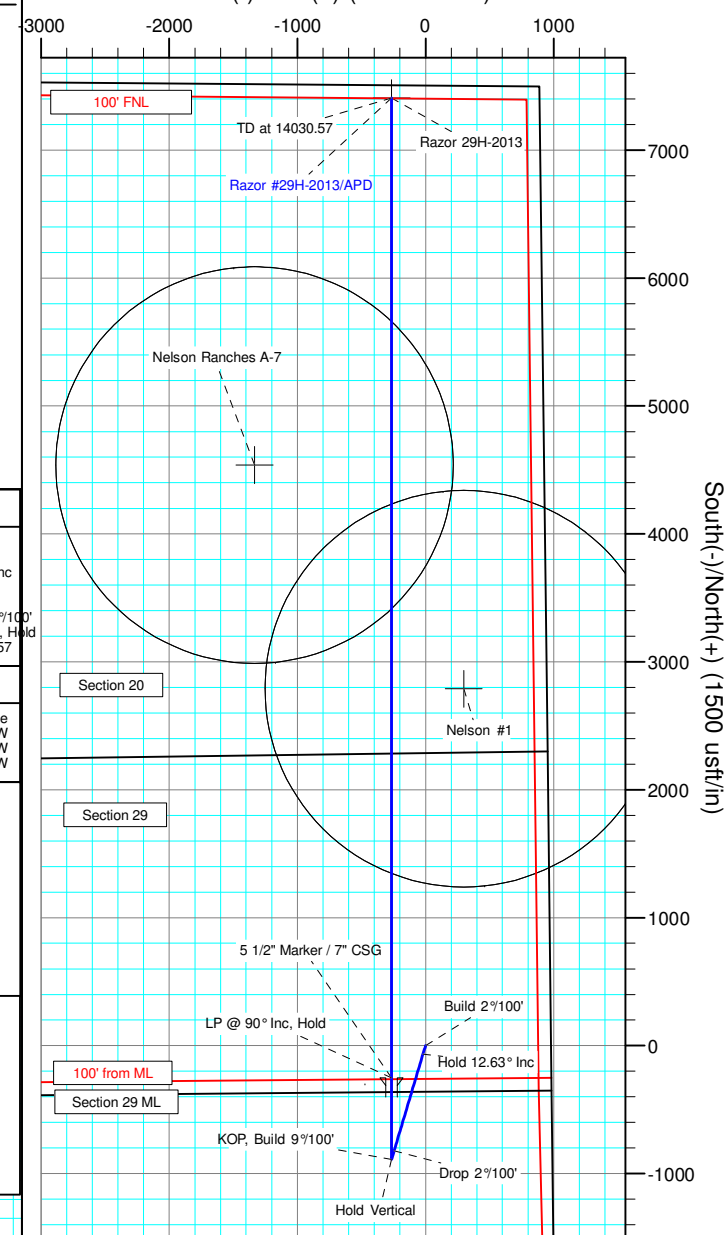
BHL:
100' FNL, 1155' FEL
Sec20-T10N-R58W

5 1/2" Marker / 7" CSG:
2538' FNL, 1243' FEL
Sec29-T10N-R58W

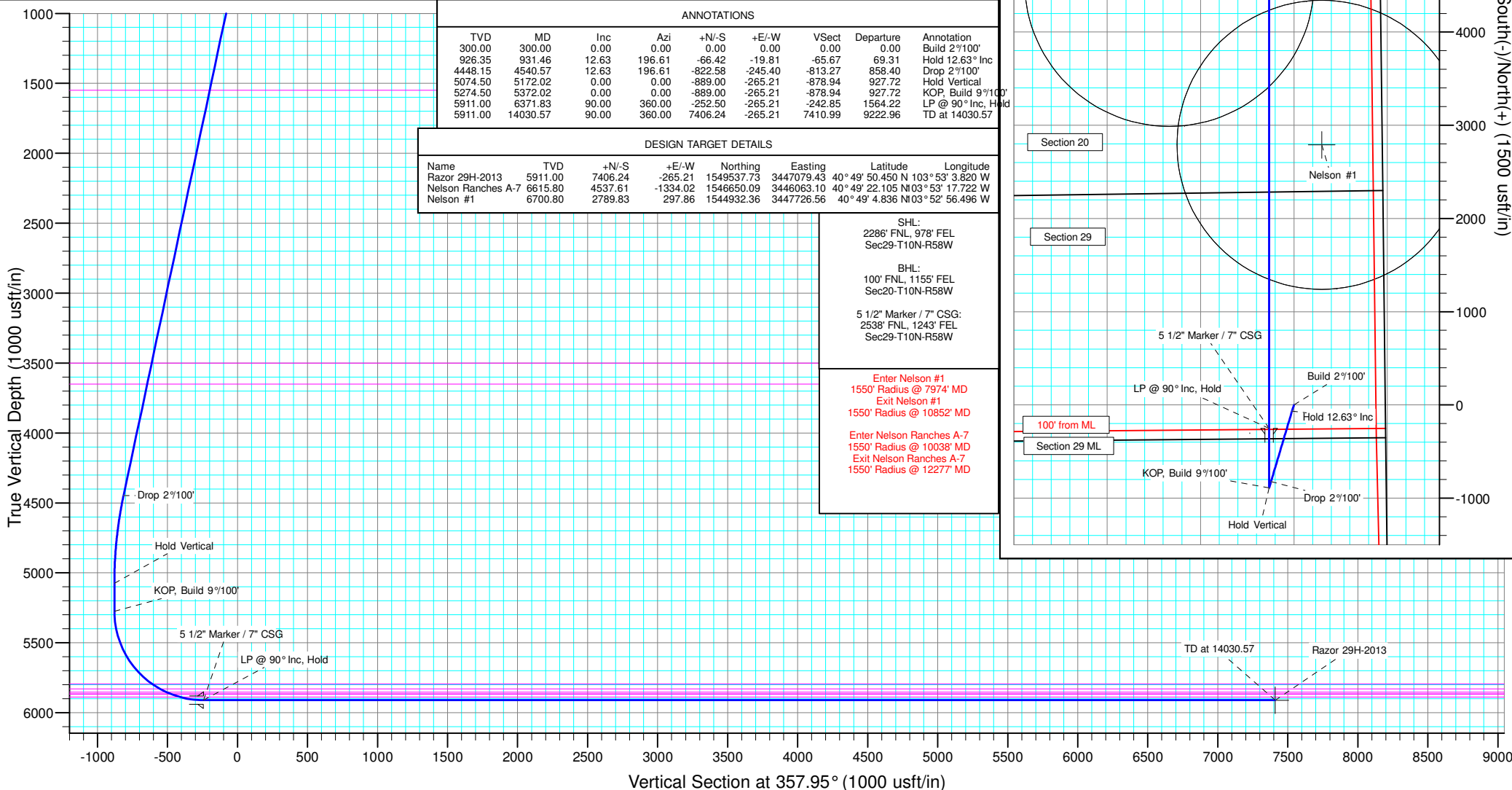
Enter Nelson #1
1550' Radius @ 7974' MD
Exit Nelson #1
1550' Radius @ 10852' MD

Enter Nelson Ranches A-7
1550' Radius @ 10038' MD
Exit Nelson Ranches A-7
1550' Radius @ 12277' MD

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



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





Whiting Petroleum Corp.

**Weld County, CO
Sec 29-T10N-R58W
Razor #29H-2013**

Hz

Plan: APD

Standard Planning Report

09 May, 2016



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Razor #29H-2013
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4787.80usft
Project:	Weld County, CO	MD Reference:	KBE @ 4787.80usft
Site:	Sec 29-T10N-R58W	North Reference:	True
Well:	Razor #29H-2013	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-R58W			
Site Position:		Northing:	1,544,286.15 usft	Latitude: 40° 48' 59.281 N
From:	Lat/Long	Easting:	3,443,100.91 usft	Longitude: 103° 53' 56.800 W
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence: 1.03 °

Well	Razor #29H-2013			
Well Position	+N/-S	-2,227.28 usft	Northing:	1,542,137.56 usft
	+E/-W	4,339.19 usft	Easting:	3,447,479.61 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level: 4,766.80 usft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	11/3/2015	7.93	67.36	52,880

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	357.95

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	
931.46	12.63	196.61	926.35	-66.42	-19.81	2.00	2.00	0.00	196.61	
4,540.57	12.63	196.61	4,448.15	-822.58	-245.40	0.00	0.00	0.00	0.00	
5,172.02	0.00	0.00	5,074.50	-889.00	-265.21	2.00	-2.00	0.00	180.00	
5,372.02	0.00	0.00	5,274.50	-889.00	-265.21	0.00	0.00	0.00	0.00	
6,371.83	90.00	360.00	5,911.00	-252.50	-265.21	9.00	9.00	0.00	360.00	
14,030.57	90.00	360.00	5,911.00	7,406.24	-265.21	0.00	0.00	0.00	0.00	Razor 29H-2013



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Razor #29H-2013
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4787.80usft
Project:	Weld County, CO	MD Reference:	KBE @ 4787.80usft
Site:	Sec 29-T10N-R58W	North Reference:	True
Well:	Razor #29H-2013	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
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	196.61	399.98	-1.67	-0.50	-1.65	2.00	2.00	0.00
500.00	4.00	196.61	499.84	-6.69	-1.99	-6.61	2.00	2.00	0.00
600.00	6.00	196.61	599.45	-15.04	-4.49	-14.87	2.00	2.00	0.00
700.00	8.00	196.61	698.70	-26.72	-7.97	-26.41	2.00	2.00	0.00
800.00	10.00	196.61	797.47	-41.71	-12.44	-41.23	2.00	2.00	0.00
900.00	12.00	196.61	895.62	-59.99	-17.90	-59.31	2.00	2.00	0.00
931.46	12.63	196.61	926.35	-66.42	-19.81	-65.67	2.00	2.00	0.00
Hold 12.63° Inc									
1,000.00	12.63	196.61	993.24	-80.78	-24.10	-79.87	0.00	0.00	0.00
1,100.00	12.63	196.61	1,090.82	-101.73	-30.35	-100.58	0.00	0.00	0.00
1,200.00	12.63	196.61	1,188.40	-122.68	-36.60	-121.29	0.00	0.00	0.00
1,300.00	12.63	196.61	1,285.98	-143.63	-42.85	-142.01	0.00	0.00	0.00
1,400.00	12.63	196.61	1,383.56	-164.59	-49.10	-162.72	0.00	0.00	0.00
1,500.00	12.63	196.61	1,481.14	-185.54	-55.35	-183.44	0.00	0.00	0.00
1,570.56	12.63	196.61	1,550.00	-200.32	-59.76	-198.05	0.00	0.00	0.00
Upper Pierre									
1,600.00	12.63	196.61	1,578.72	-206.49	-61.60	-204.15	0.00	0.00	0.00
1,700.00	12.63	196.61	1,676.30	-227.44	-67.85	-224.87	0.00	0.00	0.00
1,800.00	12.63	196.61	1,773.89	-248.39	-74.10	-245.58	0.00	0.00	0.00
1,900.00	12.63	196.61	1,871.47	-269.34	-80.35	-266.30	0.00	0.00	0.00
2,000.00	12.63	196.61	1,969.05	-290.29	-86.60	-287.01	0.00	0.00	0.00
2,100.00	12.63	196.61	2,066.63	-311.25	-92.85	-307.72	0.00	0.00	0.00
2,200.00	12.63	196.61	2,164.21	-332.20	-99.10	-328.44	0.00	0.00	0.00
2,300.00	12.63	196.61	2,261.79	-353.15	-105.35	-349.15	0.00	0.00	0.00
2,400.00	12.63	196.61	2,359.37	-374.10	-111.60	-369.87	0.00	0.00	0.00
2,500.00	12.63	196.61	2,456.95	-395.05	-117.85	-390.58	0.00	0.00	0.00
2,600.00	12.63	196.61	2,554.53	-416.00	-124.10	-411.30	0.00	0.00	0.00
2,700.00	12.63	196.61	2,652.11	-436.96	-130.35	-432.01	0.00	0.00	0.00
2,800.00	12.63	196.61	2,749.69	-457.91	-136.60	-452.72	0.00	0.00	0.00
2,900.00	12.63	196.61	2,847.27	-478.86	-142.85	-473.44	0.00	0.00	0.00
3,000.00	12.63	196.61	2,944.85	-499.81	-149.11	-494.15	0.00	0.00	0.00
3,100.00	12.63	196.61	3,042.43	-520.76	-155.36	-514.87	0.00	0.00	0.00
3,200.00	12.63	196.61	3,140.01	-541.71	-161.61	-535.58	0.00	0.00	0.00
3,300.00	12.63	196.61	3,237.59	-562.66	-167.86	-556.30	0.00	0.00	0.00
3,400.00	12.63	196.61	3,335.17	-583.62	-174.11	-577.01	0.00	0.00	0.00
3,500.00	12.63	196.61	3,432.76	-604.57	-180.36	-597.73	0.00	0.00	0.00
3,568.91	12.63	196.61	3,500.00	-619.01	-184.66	-612.00	0.00	0.00	0.00
Hygiene									
3,600.00	12.63	196.61	3,530.34	-625.52	-186.61	-618.44	0.00	0.00	0.00
3,700.00	12.63	196.61	3,627.92	-646.47	-192.86	-639.15	0.00	0.00	0.00
3,722.63	12.63	196.61	3,650.00	-651.21	-194.27	-643.84	0.00	0.00	0.00
Lower Pierre									
3,800.00	12.63	196.61	3,725.50	-667.42	-199.11	-659.87	0.00	0.00	0.00
3,900.00	12.63	196.61	3,823.08	-688.37	-205.36	-680.58	0.00	0.00	0.00
4,000.00	12.63	196.61	3,920.66	-709.32	-211.61	-701.30	0.00	0.00	0.00
4,100.00	12.63	196.61	4,018.24	-730.28	-217.86	-722.01	0.00	0.00	0.00
4,200.00	12.63	196.61	4,115.82	-751.23	-224.11	-742.73	0.00	0.00	0.00
4,300.00	12.63	196.61	4,213.40	-772.18	-230.36	-763.44	0.00	0.00	0.00
4,400.00	12.63	196.61	4,310.98	-793.13	-236.61	-784.16	0.00	0.00	0.00



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Razor #29H-2013
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4787.80usft
Project:	Weld County, CO	MD Reference:	KBE @ 4787.80usft
Site:	Sec 29-T10N-R58W	North Reference:	True
Well:	Razor #29H-2013	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)
4,500.00	12.63	196.61	4,408.56	-814.08	-242.86	-804.87	0.00	0.00	0.00
4,540.57	12.63	196.61	4,448.15	-822.58	-245.40	-813.27	0.00	0.00	0.00
Drop 2°/100'									
4,600.00	11.44	196.61	4,506.27	-834.46	-248.94	-825.01	2.00	-2.00	0.00
4,700.00	9.44	196.61	4,604.61	-851.82	-254.12	-842.18	2.00	-2.00	0.00
4,800.00	7.44	196.61	4,703.52	-865.89	-258.31	-856.09	2.00	-2.00	0.00
4,900.00	5.44	196.61	4,802.89	-876.63	-261.52	-866.71	2.00	-2.00	0.00
5,000.00	3.44	196.61	4,902.58	-884.05	-263.73	-874.05	2.00	-2.00	0.00
5,100.00	1.44	196.61	5,002.49	-888.13	-264.95	-878.08	2.00	-2.00	0.00
5,172.02	0.00	0.00	5,074.50	-889.00	-265.21	-878.94	2.00	-2.00	0.00
Hold Vertical									
5,200.00	0.00	0.00	5,102.48	-889.00	-265.21	-878.94	0.00	0.00	0.00
5,300.00	0.00	0.00	5,202.48	-889.00	-265.21	-878.94	0.00	0.00	0.00
5,372.02	0.00	0.00	5,274.50	-889.00	-265.21	-878.94	0.00	0.00	0.00
KOP, Build 9°/100'									
5,400.00	2.52	360.00	5,302.47	-888.39	-265.21	-878.33	9.00	9.00	0.00
5,500.00	11.52	360.00	5,401.62	-876.18	-265.21	-866.13	9.00	9.00	0.00
5,600.00	20.52	360.00	5,497.64	-848.61	-265.21	-838.57	9.00	9.00	0.00
5,700.00	29.52	360.00	5,588.16	-806.35	-265.21	-796.34	9.00	9.00	0.00
5,800.00	38.53	360.00	5,670.95	-750.45	-265.21	-740.48	9.00	9.00	0.00
5,900.00	47.53	360.00	5,743.98	-682.29	-265.21	-672.36	9.00	9.00	0.00
5,979.73	54.70	360.00	5,794.00	-620.27	-265.21	-610.38	9.00	9.00	0.00
P200 Marker									
6,000.00	56.53	360.00	5,805.44	-603.54	-265.21	-593.66	9.00	9.00	0.00
6,045.17	60.59	360.00	5,829.00	-565.01	-265.21	-555.16	9.00	9.00	0.00
P300 Marker									
6,098.00	65.35	360.00	5,853.00	-517.96	-265.21	-508.14	9.00	9.00	0.00
P350 Marker									
6,100.00	65.53	360.00	5,853.83	-516.14	-265.21	-506.32	9.00	9.00	0.00
6,128.36	68.08	360.00	5,865.00	-490.08	-265.21	-480.27	9.00	9.00	0.00
Sharon Springs									
6,136.53	68.82	360.00	5,868.00	-482.48	-265.21	-472.68	9.00	9.00	0.00
Niobrara									
6,200.00	74.53	360.00	5,887.95	-422.25	-265.21	-412.49	9.00	9.00	0.00
6,200.20	74.53	360.00	5,888.00	-422.06	-265.21	-412.30	0.00	0.00	0.00
Top A Chalk									
6,300.00	83.53	360.00	5,906.95	-324.18	-265.21	-314.48	9.02	9.02	0.00
6,371.83	90.00	360.00	5,911.00	-252.50	-265.21	-242.85	9.00	9.00	0.00
LP @ 90° Inc, Hold - 5 1/2" Marker / 7" CSG									
6,400.00	90.00	360.00	5,911.00	-224.33	-265.21	-214.70	0.00	0.00	0.00
6,500.00	90.00	360.00	5,911.00	-124.33	-265.21	-114.76	0.00	0.00	0.00
6,600.00	90.00	360.00	5,911.00	-24.33	-265.21	-14.83	0.00	0.00	0.00
6,700.00	90.00	360.00	5,911.00	75.67	-265.21	85.11	0.00	0.00	0.00
6,800.00	90.00	360.00	5,911.00	175.67	-265.21	185.05	0.00	0.00	0.00
6,900.00	90.00	360.00	5,911.00	275.67	-265.21	284.98	0.00	0.00	0.00
7,000.00	90.00	360.00	5,911.00	375.67	-265.21	384.92	0.00	0.00	0.00
7,100.00	90.00	360.00	5,911.00	475.67	-265.21	484.85	0.00	0.00	0.00
7,200.00	90.00	360.00	5,911.00	575.67	-265.21	584.79	0.00	0.00	0.00
7,300.00	90.00	360.00	5,911.00	675.67	-265.21	684.72	0.00	0.00	0.00
7,400.00	90.00	360.00	5,911.00	775.67	-265.21	784.66	0.00	0.00	0.00
7,500.00	90.00	360.00	5,911.00	875.67	-265.21	884.60	0.00	0.00	0.00
7,600.00	90.00	360.00	5,911.00	975.67	-265.21	984.53	0.00	0.00	0.00



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Razor #29H-2013
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4787.80usft
Project:	Weld County, CO	MD Reference:	KBE @ 4787.80usft
Site:	Sec 29-T10N-R58W	North Reference:	True
Well:	Razor #29H-2013	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)	
7,700.00	90.00	360.00	5,911.00	1,075.67	-265.21	1,084.47	0.00	0.00	0.00	
7,800.00	90.00	360.00	5,911.00	1,175.67	-265.21	1,184.40	0.00	0.00	0.00	
7,900.00	90.00	360.00	5,911.00	1,275.67	-265.21	1,284.34	0.00	0.00	0.00	
8,000.00	90.00	360.00	5,911.00	1,375.67	-265.21	1,384.28	0.00	0.00	0.00	
8,100.00	90.00	360.00	5,911.00	1,475.67	-265.21	1,484.21	0.00	0.00	0.00	
8,200.00	90.00	360.00	5,911.00	1,575.67	-265.21	1,584.15	0.00	0.00	0.00	
8,300.00	90.00	360.00	5,911.00	1,675.67	-265.21	1,684.08	0.00	0.00	0.00	
8,400.00	90.00	360.00	5,911.00	1,775.67	-265.21	1,784.02	0.00	0.00	0.00	
8,500.00	90.00	360.00	5,911.00	1,875.67	-265.21	1,883.96	0.00	0.00	0.00	
8,600.00	90.00	360.00	5,911.00	1,975.67	-265.21	1,983.89	0.00	0.00	0.00	
8,700.00	90.00	360.00	5,911.00	2,075.67	-265.21	2,083.83	0.00	0.00	0.00	
8,800.00	90.00	360.00	5,911.00	2,175.67	-265.21	2,183.76	0.00	0.00	0.00	
8,900.00	90.00	360.00	5,911.00	2,275.67	-265.21	2,283.70	0.00	0.00	0.00	
9,000.00	90.00	360.00	5,911.00	2,375.67	-265.21	2,383.64	0.00	0.00	0.00	
9,100.00	90.00	360.00	5,911.00	2,475.67	-265.21	2,483.57	0.00	0.00	0.00	
9,200.00	90.00	360.00	5,911.00	2,575.67	-265.21	2,583.51	0.00	0.00	0.00	
9,300.00	90.00	360.00	5,911.00	2,675.67	-265.21	2,683.44	0.00	0.00	0.00	
9,400.00	90.00	360.00	5,911.00	2,775.67	-265.21	2,783.38	0.00	0.00	0.00	
9,500.00	90.00	360.00	5,911.00	2,875.67	-265.21	2,883.32	0.00	0.00	0.00	
9,600.00	90.00	360.00	5,911.00	2,975.67	-265.21	2,983.25	0.00	0.00	0.00	
9,700.00	90.00	360.00	5,911.00	3,075.67	-265.21	3,083.19	0.00	0.00	0.00	
9,800.00	90.00	360.00	5,911.00	3,175.67	-265.21	3,183.12	0.00	0.00	0.00	
9,900.00	90.00	360.00	5,911.00	3,275.67	-265.21	3,283.06	0.00	0.00	0.00	
10,000.00	90.00	360.00	5,911.00	3,375.67	-265.21	3,383.00	0.00	0.00	0.00	
10,100.00	90.00	360.00	5,911.00	3,475.67	-265.21	3,482.93	0.00	0.00	0.00	
10,200.00	90.00	360.00	5,911.00	3,575.67	-265.21	3,582.87	0.00	0.00	0.00	
10,300.00	90.00	360.00	5,911.00	3,675.67	-265.21	3,682.80	0.00	0.00	0.00	
10,400.00	90.00	360.00	5,911.00	3,775.67	-265.21	3,782.74	0.00	0.00	0.00	
10,500.00	90.00	360.00	5,911.00	3,875.67	-265.21	3,882.68	0.00	0.00	0.00	
10,600.00	90.00	360.00	5,911.00	3,975.67	-265.21	3,982.61	0.00	0.00	0.00	
10,700.00	90.00	360.00	5,911.00	4,075.67	-265.21	4,082.55	0.00	0.00	0.00	
10,800.00	90.00	360.00	5,911.00	4,175.67	-265.21	4,182.48	0.00	0.00	0.00	
10,900.00	90.00	360.00	5,911.00	4,275.67	-265.21	4,282.42	0.00	0.00	0.00	
11,000.00	90.00	360.00	5,911.00	4,375.67	-265.21	4,382.35	0.00	0.00	0.00	
11,100.00	90.00	360.00	5,911.00	4,475.67	-265.21	4,482.29	0.00	0.00	0.00	
11,200.00	90.00	360.00	5,911.00	4,575.67	-265.21	4,582.23	0.00	0.00	0.00	
11,300.00	90.00	360.00	5,911.00	4,675.67	-265.21	4,682.16	0.00	0.00	0.00	
11,400.00	90.00	360.00	5,911.00	4,775.67	-265.21	4,782.10	0.00	0.00	0.00	
11,500.00	90.00	360.00	5,911.00	4,875.67	-265.21	4,882.03	0.00	0.00	0.00	
11,600.00	90.00	360.00	5,911.00	4,975.67	-265.21	4,981.97	0.00	0.00	0.00	
11,700.00	90.00	360.00	5,911.00	5,075.67	-265.21	5,081.91	0.00	0.00	0.00	
11,800.00	90.00	360.00	5,911.00	5,175.67	-265.21	5,181.84	0.00	0.00	0.00	
11,900.00	90.00	360.00	5,911.00	5,275.67	-265.21	5,281.78	0.00	0.00	0.00	
12,000.00	90.00	360.00	5,911.00	5,375.67	-265.21	5,381.71	0.00	0.00	0.00	
12,100.00	90.00	360.00	5,911.00	5,475.67	-265.21	5,481.65	0.00	0.00	0.00	
12,200.00	90.00	360.00	5,911.00	5,575.67	-265.21	5,581.59	0.00	0.00	0.00	
12,300.00	90.00	360.00	5,911.00	5,675.67	-265.21	5,681.52	0.00	0.00	0.00	
12,400.00	90.00	360.00	5,911.00	5,775.67	-265.21	5,781.46	0.00	0.00	0.00	
12,500.00	90.00	360.00	5,911.00	5,875.67	-265.21	5,881.39	0.00	0.00	0.00	
12,600.00	90.00	360.00	5,911.00	5,975.67	-265.21	5,981.33	0.00	0.00	0.00	
12,700.00	90.00	360.00	5,911.00	6,075.67	-265.21	6,081.27	0.00	0.00	0.00	
12,800.00	90.00	360.00	5,911.00	6,175.67	-265.21	6,181.20	0.00	0.00	0.00	
12,900.00	90.00	360.00	5,911.00	6,275.67	-265.21	6,281.14	0.00	0.00	0.00	
13,000.00	90.00	360.00	5,911.00	6,375.67	-265.21	6,381.07	0.00	0.00	0.00	



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Razor #29H-2013
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4787.80usft
Project:	Weld County, CO	MD Reference:	KBE @ 4787.80usft
Site:	Sec 29-T10N-R58W	North Reference:	True
Well:	Razor #29H-2013	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)	
13,100.00	90.00	360.00	5,911.00	6,475.67	-265.21	6,481.01	0.00	0.00	0.00	
13,200.00	90.00	360.00	5,911.00	6,575.67	-265.21	6,580.95	0.00	0.00	0.00	
13,300.00	90.00	360.00	5,911.00	6,675.67	-265.21	6,680.88	0.00	0.00	0.00	
13,400.00	90.00	360.00	5,911.00	6,775.67	-265.21	6,780.82	0.00	0.00	0.00	
13,500.00	90.00	360.00	5,911.00	6,875.67	-265.21	6,880.75	0.00	0.00	0.00	
13,600.00	90.00	360.00	5,911.00	6,975.67	-265.21	6,980.69	0.00	0.00	0.00	
13,700.00	90.00	360.00	5,911.00	7,075.67	-265.21	7,080.63	0.00	0.00	0.00	
13,800.00	90.00	360.00	5,911.00	7,175.67	-265.21	7,180.56	0.00	0.00	0.00	
13,900.00	90.00	360.00	5,911.00	7,275.67	-265.21	7,280.50	0.00	0.00	0.00	
14,000.00	90.00	360.00	5,911.00	7,375.67	-265.21	7,380.43	0.00	0.00	0.00	
14,030.57	90.00	360.00	5,911.00	7,406.24	-265.21	7,410.99	0.00	0.00	0.00	
TD at 14030.57										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
Razor 29H-2013	0.00	0.00	5,911.00	7,406.24	-265.21	1,549,537.74	3,447,079.43	40° 49' 50.450 N	103° 53' 3.820 W	
- hit/miss target										
- Shape										
- plan hits target center										
- Point										
Nelson Ranches A-7	0.00	0.00	6,615.80	4,537.61	-1,334.02	1,546,650.10	3,446,063.09	40° 49' 22.105 N	103° 53' 17.722 W	
- plan misses target center by 1280.27usft at 11161.94usft MD (5911.00 TVD, 4537.61 N, -265.21 E)										
- Circle (radius 1,550.00)										
Nelson #1	0.00	0.00	6,700.80	2,789.83	297.86	1,544,932.36	3,447,726.56	40° 49' 4.836 N	103° 52' 56.496 W	
- plan misses target center by 969.96usft at 9414.17usft MD (5911.00 TVD, 2789.83 N, -265.21 E)										
- Circle (radius 1,550.00)										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
6,371.83	5,911.00	5 1/2" Marker / 7" CSG	7.000	8.750	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,570.56	1,550.00	Upper Pierre				
3,568.91	3,500.00	Hygiene				
3,722.63	3,650.00	Lower Pierre				
5,979.73	5,794.00	P200 Marker				
6,045.17	5,829.00	P300 Marker				
6,098.00	5,853.00	P350 Marker				
6,128.36	5,865.00	Sharon Springs				
6,136.53	5,868.00	Niobrara				
6,200.20	5,888.00	Top A Chalk				



WOG
Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Razor #29H-2013
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4787.80usft
Project:	Weld County, CO	MD Reference:	KBE @ 4787.80usft
Site:	Sec 29-T10N-R58W	North Reference:	True
Well:	Razor #29H-2013	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	APD		

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'
931.46	926.35	-66.42	-19.81	Hold 12.63° Inc
4,540.57	4,448.15	-822.58	-245.40	Drop 2°/100'
5,172.02	5,074.50	-889.00	-265.21	Hold Vertical
5,372.02	5,274.50	-889.00	-265.21	KOP, Build 9°/100'
6,371.83	5,911.00	-252.50	-265.21	LP @ 90° Inc, Hold
14,030.57	5,911.00	7,406.24	-265.21	TD at 14030.57