

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

1N-66W-09 Highlands 27-9HZ Pad

HIGHLANDS 26N-33HZ

Plan A

Plan: Permit Rev-3

Standard Planning Report

16 June, 2016



Azimuths to True North
Magnetic North: 8.32°

Magnetic Field
Strength: 52545.1snT
Dip Angle: 66.65°
Date: 5/12/2015
Model: IGRF2010

SITE: 1N-66W-09 Highlands 27-9HZ Pad

Well: HIGHLANDS 26N-33HZ
Wellbore: Plan A
Design: Permit Rev-3

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1468.00	1479.10	Fox Hills
4203.00	4466.11	Parkman
4599.00	4879.85	Sussex
7146.00	7524.71	Sharon Springs
7187.00	7603.13	Niobrara
7250.00	7792.74	Nio B

WELL DETAILS: HIGHLANDS 26N-33HZ

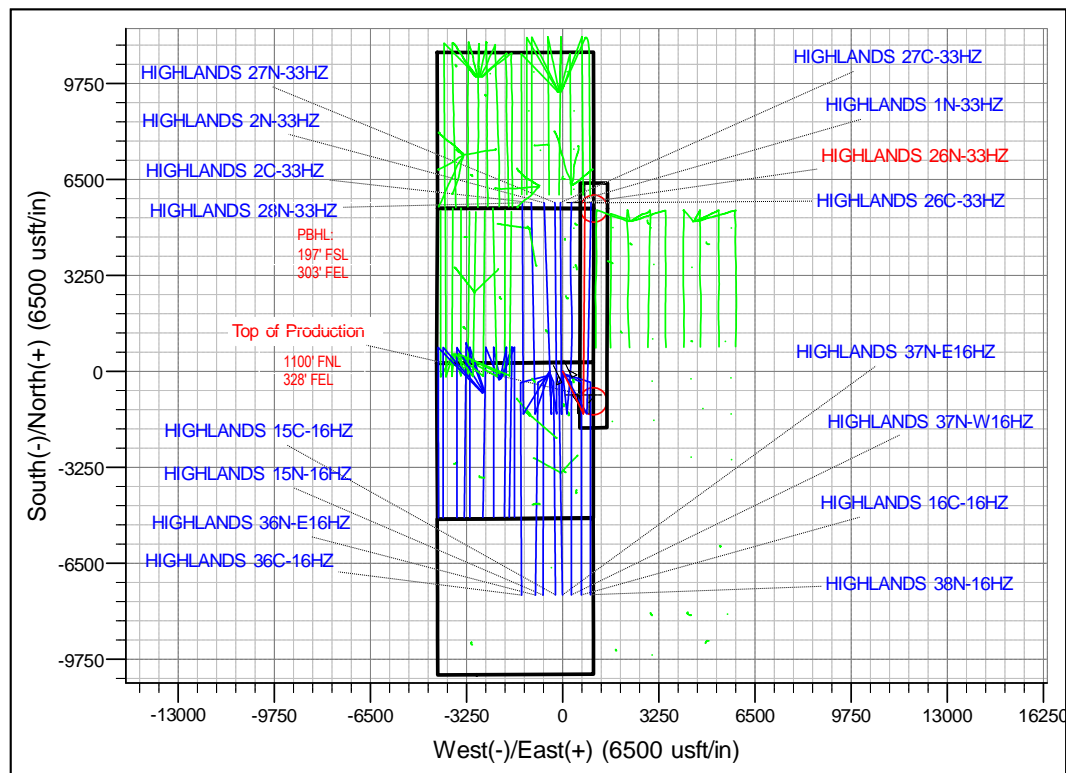
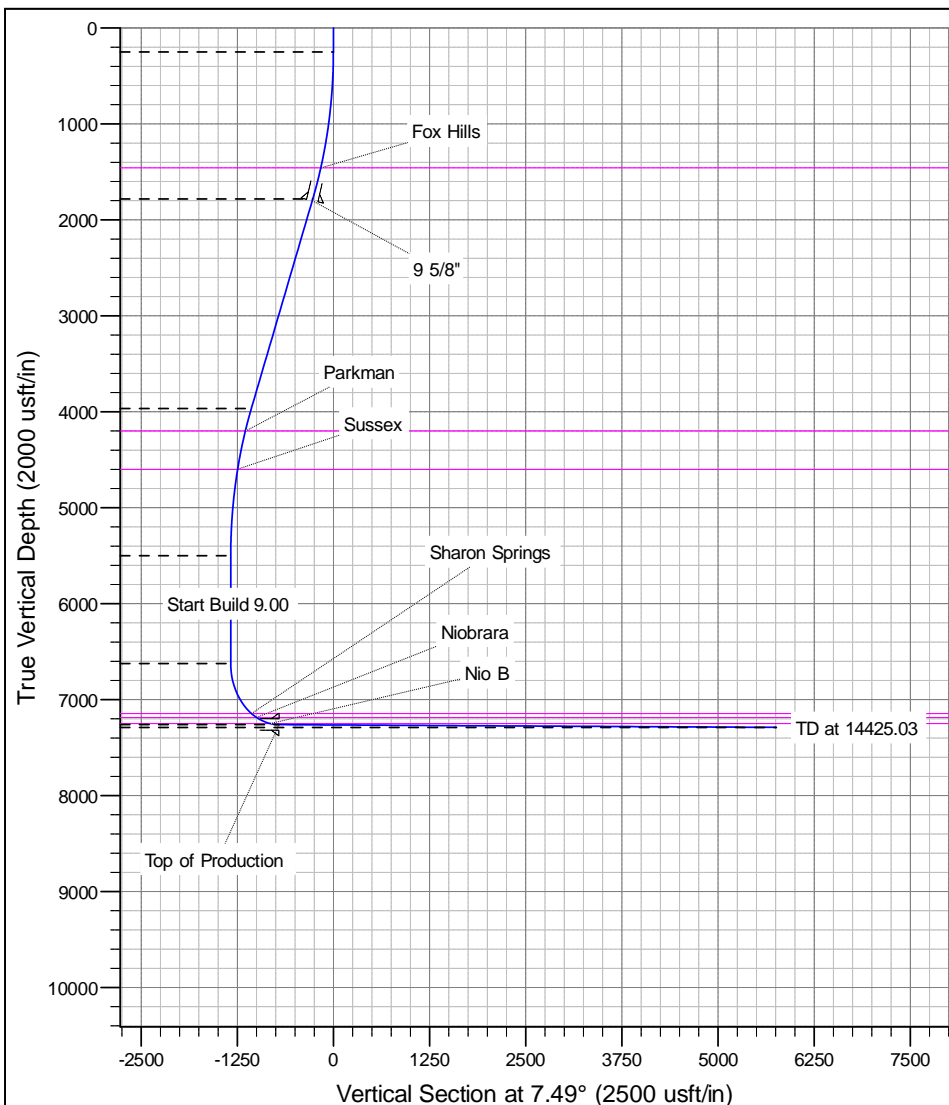
+N/-S	+E/-W	GL: 5001.00 Northing	RKB @ 5018.00usft (D Rig) Easting	Latitude	Longitude	Slot
0.00	0.00	14553103.11	1702954.14	40.072200	-104.776457	

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	Vsect
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00
1827.61	23.66	154.04	1783.14	-288.79	140.58	1.50	-268.01
4211.81	23.66	154.04	3966.86	-1149.21	559.42	0.00	-1066.53
5789.42	0.00	0.00	5500.00	-1438.00	700.00	1.50	-1334.54
6914.39	0.00	0.00	6624.97	-1438.00	700.00	0.00	-1334.54
7911.61	89.75	0.40	7261.58	-804.17	704.45	9.00	-705.54
14425.03	89.75	0.40	7290.00	5709.02	750.20	0.00	5758.10

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
HIGHLANDS 26N-33HZ_PHL	7261.58	-804.17	704.45	14552300.71	1703660.61	40.069992	-104.773639
HIGHLANDS 26N-33HZ_PBHL	7290.00	5709.02	750.20	14558814.00	1703690.00	40.087878	-104.773775



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Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HIGHLANDS 26N-33HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 5018.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 5018.00usft (D Rig)
Site:	1N-66W-09 Highlands 27-9HZ Pad	North Reference:	True
Well:	HIGHLANDS 26N-33HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-3		

Project	WELD-NAD83-UTMFT13N		
Map System:	Universal Transverse Mercator (US Survey Feet)	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Zone 13N (108 W to 102 W)		

Site		1N-66W-09 Highlands 27-9HZ Pad			
Site Position:		Northing:	14,553,120.23 usft	Latitude:	40.072250
From:	Lat/Long	Easting:	1,702,521.87 usft	Longitude:	-104.778002
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.14

Well	HIGHLANDS 26N-33HZ					
Well Position	+N/-S	-18.20 usft	Northing:	14,553,103.11 usft	Latitude:	40.072200
	+E/-W	432.22 usft	Easting:	1,702,954.14 usft	Longitude:	-104.776457
Position Uncertainty		3.28 usft	Wellhead Elevation:	0.00 usft	Ground Level:	5,001.00 usft

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/12/2015	8.32	66.65	52,545

Design	Permit Rev-3			
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	7.49

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	
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,827.61	23.66	154.04	1,783.14	-288.79	140.58	1.50	1.50	0.00	154.04	
4,211.81	23.66	154.04	3,966.86	-1,149.21	559.42	0.00	0.00	0.00	0.00	
5,789.42	0.00	0.00	5,500.00	-1,438.00	700.00	1.50	-1.50	0.00	180.00	
6,914.39	0.00	0.00	6,624.97	-1,438.00	700.00	0.00	0.00	0.00	0.00	
7,911.61	89.75	0.40	7,261.58	-804.17	704.45	9.00	9.00	0.00	0.40	
14,425.03	89.75	0.40	7,290.00	5,709.02	750.20	0.00	0.00	0.00	0.00	HIGHLANDS 26N-3

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Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HIGHLANDS 26N-33HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 5018.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 5018.00usft (D Rig)
Site:	1N-66W-09 Highlands 27-9HZ Pad	North Reference:	True
Well:	HIGHLANDS 26N-33HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-3		

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
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.75	154.04	300.00	-0.29	0.14	-0.27	1.50	1.50	0.00
400.00	2.25	154.04	399.96	-2.65	1.29	-2.46	1.50	1.50	0.00
500.00	3.75	154.04	499.82	-7.35	3.58	-6.82	1.50	1.50	0.00
600.00	5.25	154.04	599.51	-14.41	7.01	-13.37	1.50	1.50	0.00
700.00	6.75	154.04	698.96	-23.81	11.59	-22.09	1.50	1.50	0.00
800.00	8.25	154.04	798.10	-35.54	17.30	-32.98	1.50	1.50	0.00
900.00	9.75	154.04	896.87	-49.61	24.15	-46.04	1.50	1.50	0.00
1,000.00	11.25	154.04	995.19	-65.99	32.12	-61.24	1.50	1.50	0.00
1,100.00	12.75	154.04	1,093.00	-84.68	41.22	-78.59	1.50	1.50	0.00
1,200.00	14.25	154.04	1,190.24	-105.67	51.44	-98.07	1.50	1.50	0.00
1,300.00	15.75	154.04	1,286.83	-128.94	62.77	-119.67	1.50	1.50	0.00
1,400.00	17.25	154.04	1,382.71	-154.48	75.20	-143.37	1.50	1.50	0.00
1,479.10	18.44	154.04	1,458.00	-176.27	85.81	-163.59	1.50	1.50	0.00
Fox Hills									
1,500.00	18.75	154.04	1,477.81	-182.26	88.72	-169.15	1.50	1.50	0.00
1,600.00	20.25	154.04	1,572.07	-212.28	103.33	-197.00	1.50	1.50	0.00
1,700.00	21.75	154.04	1,665.43	-244.50	119.02	-226.91	1.50	1.50	0.00
1,800.00	23.25	154.04	1,757.81	-278.90	135.77	-258.84	1.50	1.50	0.00
1,827.61	23.66	154.04	1,783.14	-288.79	140.58	-268.01	1.50	1.50	0.00
1,846.02	23.66	154.04	1,800.00	-295.43	143.81	-274.18	0.00	0.00	0.00
9 5/8"									
1,900.00	23.66	154.04	1,849.44	-314.91	153.29	-292.25	0.00	0.00	0.00
2,000.00	23.66	154.04	1,941.03	-351.00	170.86	-325.75	0.00	0.00	0.00
2,100.00	23.66	154.04	2,032.62	-387.09	188.43	-359.24	0.00	0.00	0.00
2,200.00	23.66	154.04	2,124.22	-423.18	206.00	-392.73	0.00	0.00	0.00
2,300.00	23.66	154.04	2,215.81	-459.27	223.56	-426.22	0.00	0.00	0.00
2,400.00	23.66	154.04	2,307.40	-495.35	241.13	-459.72	0.00	0.00	0.00
2,500.00	23.66	154.04	2,398.99	-531.44	258.70	-493.21	0.00	0.00	0.00
2,600.00	23.66	154.04	2,490.58	-567.53	276.27	-526.70	0.00	0.00	0.00
2,700.00	23.66	154.04	2,582.17	-603.62	293.83	-560.19	0.00	0.00	0.00
2,800.00	23.66	154.04	2,673.76	-639.71	311.40	-593.69	0.00	0.00	0.00
2,900.00	23.66	154.04	2,765.36	-675.80	328.97	-627.18	0.00	0.00	0.00
3,000.00	23.66	154.04	2,856.95	-711.89	346.54	-660.67	0.00	0.00	0.00
3,100.00	23.66	154.04	2,948.54	-747.98	364.10	-694.16	0.00	0.00	0.00
3,200.00	23.66	154.04	3,040.13	-784.06	381.67	-727.65	0.00	0.00	0.00
3,300.00	23.66	154.04	3,131.72	-820.15	399.24	-761.15	0.00	0.00	0.00
3,400.00	23.66	154.04	3,223.31	-856.24	416.81	-794.64	0.00	0.00	0.00
3,500.00	23.66	154.04	3,314.90	-892.33	434.38	-828.13	0.00	0.00	0.00
3,600.00	23.66	154.04	3,406.50	-928.42	451.94	-861.62	0.00	0.00	0.00
3,700.00	23.66	154.04	3,498.09	-964.51	469.51	-895.12	0.00	0.00	0.00
3,800.00	23.66	154.04	3,589.68	-1,000.60	487.08	-928.61	0.00	0.00	0.00
3,900.00	23.66	154.04	3,681.27	-1,036.69	504.65	-962.10	0.00	0.00	0.00
4,000.00	23.66	154.04	3,772.86	-1,072.77	522.21	-995.59	0.00	0.00	0.00
4,100.00	23.66	154.04	3,864.45	-1,108.86	539.78	-1,029.08	0.00	0.00	0.00
4,200.00	23.66	154.04	3,956.04	-1,144.95	557.35	-1,062.58	0.00	0.00	0.00
4,211.81	23.66	154.04	3,966.86	-1,149.21	559.42	-1,066.53	0.00	0.00	0.00
4,300.00	22.34	154.04	4,048.04	-1,180.20	574.51	-1,095.29	1.50	-1.50	0.00
4,400.00	20.84	154.04	4,141.02	-1,213.28	590.61	-1,125.99	1.50	-1.50	0.00
4,466.11	19.85	154.04	4,203.00	-1,233.95	600.67	-1,145.17	1.50	-1.50	0.00

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Planning Report

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Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 5018.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 5018.00usft (D Rig)
Site:	1N-66W-09 Highlands 27-9HZ Pad	North Reference:	True
Well:	HIGHLANDS 26N-33HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-3		

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)
Parkman									
4,500.00	19.34	154.04	4,234.93	-1,244.17	605.65	-1,154.66	1.50	-1.50	0.00
4,600.00	17.84	154.04	4,329.71	-1,272.83	619.60	-1,181.26	1.50	-1.50	0.00
4,700.00	16.34	154.04	4,425.29	-1,299.26	632.46	-1,205.78	1.50	-1.50	0.00
4,800.00	14.84	154.04	4,521.61	-1,323.42	644.23	-1,228.21	1.50	-1.50	0.00
4,879.85	13.64	154.04	4,599.00	-1,341.09	652.82	-1,244.60	1.50	-1.50	0.00
Sussex									
4,900.00	13.34	154.04	4,618.60	-1,345.31	654.88	-1,248.53	1.50	-1.50	0.00
5,000.00	11.84	154.04	4,716.19	-1,364.91	664.42	-1,266.72	1.50	-1.50	0.00
5,100.00	10.34	154.04	4,814.32	-1,382.21	672.84	-1,282.77	1.50	-1.50	0.00
5,200.00	8.84	154.04	4,912.92	-1,397.19	680.14	-1,296.67	1.50	-1.50	0.00
5,300.00	7.34	154.04	5,011.92	-1,409.85	686.30	-1,308.41	1.50	-1.50	0.00
5,400.00	5.84	154.04	5,111.25	-1,420.17	691.32	-1,317.99	1.50	-1.50	0.00
5,500.00	4.34	154.04	5,210.86	-1,428.15	695.20	-1,325.40	1.50	-1.50	0.00
5,600.00	2.84	154.04	5,310.66	-1,433.78	697.94	-1,330.62	1.50	-1.50	0.00
5,700.00	1.34	154.04	5,410.59	-1,437.06	699.54	-1,333.67	1.50	-1.50	0.00
5,789.42	0.00	0.00	5,500.00	-1,438.00	700.00	-1,334.54	1.50	-1.50	0.00
5,800.00	0.00	0.00	5,510.58	-1,438.00	700.00	-1,334.54	0.00	0.00	0.00
5,900.00	0.00	0.00	5,610.58	-1,438.00	700.00	-1,334.54	0.00	0.00	0.00
6,000.00	0.00	0.00	5,710.58	-1,438.00	700.00	-1,334.54	0.00	0.00	0.00
6,100.00	0.00	0.00	5,810.58	-1,438.00	700.00	-1,334.54	0.00	0.00	0.00
6,200.00	0.00	0.00	5,910.58	-1,438.00	700.00	-1,334.54	0.00	0.00	0.00
6,300.00	0.00	0.00	6,010.58	-1,438.00	700.00	-1,334.54	0.00	0.00	0.00
6,400.00	0.00	0.00	6,110.58	-1,438.00	700.00	-1,334.54	0.00	0.00	0.00
6,500.00	0.00	0.00	6,210.58	-1,438.00	700.00	-1,334.54	0.00	0.00	0.00
6,600.00	0.00	0.00	6,310.58	-1,438.00	700.00	-1,334.54	0.00	0.00	0.00
6,700.00	0.00	0.00	6,410.58	-1,438.00	700.00	-1,334.54	0.00	0.00	0.00
6,800.00	0.00	0.00	6,510.58	-1,438.00	700.00	-1,334.54	0.00	0.00	0.00
6,900.00	0.00	0.00	6,610.58	-1,438.00	700.00	-1,334.54	0.00	0.00	0.00
6,914.39	0.00	0.00	6,624.97	-1,438.00	700.00	-1,334.54	0.00	0.00	0.00
7,000.00	7.71	0.40	6,710.32	-1,432.25	700.04	-1,328.84	9.00	9.00	0.00
7,100.00	16.71	0.40	6,807.96	-1,411.13	700.19	-1,307.88	9.00	9.00	0.00
7,200.00	25.71	0.40	6,901.09	-1,375.00	700.44	-1,272.02	9.00	9.00	0.00
7,300.00	34.71	0.40	6,987.43	-1,324.74	700.80	-1,222.15	9.00	9.00	0.00
7,400.00	43.71	0.40	7,064.84	-1,261.60	701.24	-1,159.48	9.00	9.00	0.00
7,500.00	52.71	0.40	7,131.42	-1,187.12	701.76	-1,085.58	9.00	9.00	0.00
7,524.71	54.93	0.40	7,146.00	-1,167.19	701.90	-1,065.79	9.00	9.00	0.00
Sharon Springs									
7,600.00	61.71	0.40	7,185.52	-1,103.15	702.35	-1,002.24	9.00	9.00	0.00
7,603.13	61.99	0.40	7,187.00	-1,100.39	702.37	-999.50	9.00	9.00	0.00
Niobrara									
7,700.00	70.71	0.40	7,225.83	-1,011.75	702.99	-911.53	9.00	9.00	0.00
7,792.74	79.05	0.40	7,250.00	-922.30	703.62	-822.76	9.00	9.00	0.00
Nio B									
7,800.00	79.71	0.40	7,251.34	-915.16	703.67	-815.69	9.00	9.00	0.00
7,900.00	88.71	0.40	7,261.42	-815.78	704.37	-717.06	9.00	9.00	0.00
7,911.61	89.75	0.40	7,261.58	-804.17	704.45	-705.54	9.00	9.00	0.00
Top of Production - HIGHLANDS 26N-33HZ_PHL									
8,000.00	89.75	0.40	7,261.97	-715.78	705.07	-617.82	0.00	0.00	0.00
8,100.00	89.75	0.40	7,262.40	-615.79	705.78	-518.59	0.00	0.00	0.00
8,200.00	89.75	0.40	7,262.84	-515.79	706.48	-419.35	0.00	0.00	0.00
8,300.00	89.75	0.40	7,263.27	-415.80	707.18	-320.11	0.00	0.00	0.00
8,400.00	89.75	0.40	7,263.71	-315.80	707.88	-220.88	0.00	0.00	0.00

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Planning Report

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Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 5018.00usft (D Rig)
Site:	1N-66W-09 Highlands 27-9HZ Pad	North Reference:	True
Well:	HIGHLANDS 26N-33HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-3		

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)
8,500.00	89.75	0.40	7,264.15	-215.80	708.59	-121.64	0.00	0.00	0.00
8,600.00	89.75	0.40	7,264.58	-115.81	709.29	-22.41	0.00	0.00	0.00
8,700.00	89.75	0.40	7,265.02	-15.81	709.99	76.83	0.00	0.00	0.00
8,800.00	89.75	0.40	7,265.46	84.19	710.69	176.06	0.00	0.00	0.00
8,900.00	89.75	0.40	7,265.89	184.18	711.39	275.30	0.00	0.00	0.00
9,000.00	89.75	0.40	7,266.33	284.18	712.10	374.54	0.00	0.00	0.00
9,100.00	89.75	0.40	7,266.77	384.18	712.80	473.77	0.00	0.00	0.00
9,200.00	89.75	0.40	7,267.20	484.17	713.50	573.01	0.00	0.00	0.00
9,300.00	89.75	0.40	7,267.64	584.17	714.20	672.24	0.00	0.00	0.00
9,400.00	89.75	0.40	7,268.07	684.17	714.91	771.48	0.00	0.00	0.00
9,500.00	89.75	0.40	7,268.51	784.16	715.61	870.71	0.00	0.00	0.00
9,600.00	89.75	0.40	7,268.95	884.16	716.31	969.95	0.00	0.00	0.00
9,700.00	89.75	0.40	7,269.38	984.16	717.01	1,069.19	0.00	0.00	0.00
9,800.00	89.75	0.40	7,269.82	1,084.15	717.72	1,168.42	0.00	0.00	0.00
9,900.00	89.75	0.40	7,270.26	1,184.15	718.42	1,267.66	0.00	0.00	0.00
10,000.00	89.75	0.40	7,270.69	1,284.15	719.12	1,366.89	0.00	0.00	0.00
10,100.00	89.75	0.40	7,271.13	1,384.14	719.82	1,466.13	0.00	0.00	0.00
10,200.00	89.75	0.40	7,271.57	1,484.14	720.53	1,565.36	0.00	0.00	0.00
10,300.00	89.75	0.40	7,272.00	1,584.14	721.23	1,664.60	0.00	0.00	0.00
10,400.00	89.75	0.40	7,272.44	1,684.13	721.93	1,763.84	0.00	0.00	0.00
10,500.00	89.75	0.40	7,272.87	1,784.13	722.63	1,863.07	0.00	0.00	0.00
10,600.00	89.75	0.40	7,273.31	1,884.13	723.34	1,962.31	0.00	0.00	0.00
10,700.00	89.75	0.40	7,273.75	1,984.12	724.04	2,061.54	0.00	0.00	0.00
10,800.00	89.75	0.40	7,274.18	2,084.12	724.74	2,160.78	0.00	0.00	0.00
10,900.00	89.75	0.40	7,274.62	2,184.12	725.44	2,260.01	0.00	0.00	0.00
11,000.00	89.75	0.40	7,275.06	2,284.11	726.15	2,359.25	0.00	0.00	0.00
11,100.00	89.75	0.40	7,275.49	2,384.11	726.85	2,458.49	0.00	0.00	0.00
11,200.00	89.75	0.40	7,275.93	2,484.11	727.55	2,557.72	0.00	0.00	0.00
11,300.00	89.75	0.40	7,276.36	2,584.10	728.25	2,656.96	0.00	0.00	0.00
11,400.00	89.75	0.40	7,276.80	2,684.10	728.96	2,756.19	0.00	0.00	0.00
11,500.00	89.75	0.40	7,277.24	2,784.10	729.66	2,855.43	0.00	0.00	0.00
11,600.00	89.75	0.40	7,277.67	2,884.09	730.36	2,954.67	0.00	0.00	0.00
11,700.00	89.75	0.40	7,278.11	2,984.09	731.06	3,053.90	0.00	0.00	0.00
11,800.00	89.75	0.40	7,278.55	3,084.09	731.76	3,153.14	0.00	0.00	0.00
11,900.00	89.75	0.40	7,278.98	3,184.08	732.47	3,252.37	0.00	0.00	0.00
12,000.00	89.75	0.40	7,279.42	3,284.08	733.17	3,351.61	0.00	0.00	0.00
12,100.00	89.75	0.40	7,279.86	3,384.07	733.87	3,450.84	0.00	0.00	0.00
12,200.00	89.75	0.40	7,280.29	3,484.07	734.57	3,550.08	0.00	0.00	0.00
12,300.00	89.75	0.40	7,280.73	3,584.07	735.28	3,649.32	0.00	0.00	0.00
12,400.00	89.75	0.40	7,281.16	3,684.06	735.98	3,748.55	0.00	0.00	0.00
12,500.00	89.75	0.40	7,281.60	3,784.06	736.68	3,847.79	0.00	0.00	0.00
12,600.00	89.75	0.40	7,282.04	3,884.06	737.38	3,947.02	0.00	0.00	0.00
12,700.00	89.75	0.40	7,282.47	3,984.05	738.09	4,046.26	0.00	0.00	0.00
12,800.00	89.75	0.40	7,282.91	4,084.05	738.79	4,145.49	0.00	0.00	0.00
12,900.00	89.75	0.40	7,283.35	4,184.05	739.49	4,244.73	0.00	0.00	0.00
13,000.00	89.75	0.40	7,283.78	4,284.04	740.19	4,343.97	0.00	0.00	0.00
13,100.00	89.75	0.40	7,284.22	4,384.04	740.90	4,443.20	0.00	0.00	0.00
13,200.00	89.75	0.40	7,284.65	4,484.04	741.60	4,542.44	0.00	0.00	0.00
13,300.00	89.75	0.40	7,285.09	4,584.03	742.30	4,641.67	0.00	0.00	0.00
13,400.00	89.75	0.40	7,285.53	4,684.03	743.00	4,740.91	0.00	0.00	0.00
13,500.00	89.75	0.40	7,285.96	4,784.03	743.71	4,840.14	0.00	0.00	0.00
13,600.00	89.75	0.40	7,286.40	4,884.02	744.41	4,939.38	0.00	0.00	0.00
13,700.00	89.75	0.40	7,286.84	4,984.02	745.11	5,038.62	0.00	0.00	0.00
13,800.00	89.75	0.40	7,287.27	5,084.02	745.81	5,137.85	0.00	0.00	0.00

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HIGHLANDS 26N-33HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 5018.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 5018.00usft (D Rig)
Site:	1N-66W-09 Highlands 27-9HZ Pad	North Reference:	True
Well:	HIGHLANDS 26N-33HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-3		

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)	
13,900.00	89.75	0.40	7,287.71	5,184.01	746.52	5,237.09	0.00	0.00	0.00	
14,000.00	89.75	0.40	7,288.15	5,284.01	747.22	5,336.32	0.00	0.00	0.00	
14,100.00	89.75	0.40	7,288.58	5,384.01	747.92	5,435.56	0.00	0.00	0.00	
14,200.00	89.75	0.40	7,289.02	5,484.00	748.62	5,534.80	0.00	0.00	0.00	
14,300.00	89.75	0.40	7,289.45	5,584.00	749.33	5,634.03	0.00	0.00	0.00	
14,400.00	89.75	0.40	7,289.89	5,684.00	750.03	5,733.27	0.00	0.00	0.00	
14,425.03	89.75	0.40	7,290.00	5,709.02	750.20	5,758.10	0.00	0.00	0.00	
HIGHLANDS 26N-33HZ_PBHL										

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
HIGHLANDS 26N-33H - hit/miss target - Shape - Point	0.00	0.00	7,261.58	-804.17	704.45	14,552,300.71	1,703,660.61	40.069992	-104.773939
HIGHLANDS 26N-33H - plan hits target center - Point	0.00	0.00	7,290.00	5,709.02	750.20	14,558,814.00	1,703,690.00	40.087878	-104.773775

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,846.02	1,800.00	9 5/8"	9-5/8	12-1/4	
7,911.61	7,261.58	Top of Production	5-1/2	8-1/2	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,479.10	1,458.00	Fox Hills				
4,466.11	4,203.00	Parkman				
4,879.85	4,599.00	Sussex				
7,524.71	7,146.00	Sharon Springs				
7,603.13	7,187.00	Niobrara				
7,792.74	7,250.00	Nio B				