

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

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

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

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1468.00	1479.10	Fox Hills
4203.00	4373.76	Parkman
4599.00	4791.35	Sussex
7141.00	7399.85	Sharon Springs
7181.00	7444.33	Niobrara
7236.00	7508.37	Nio B
7294.00	7580.96	Nio C
7490.00	7938.87	Fort Hayes
7512.00	8034.70	Codell

WELL DETAILS: HIGHLANDS 26C-33HZ

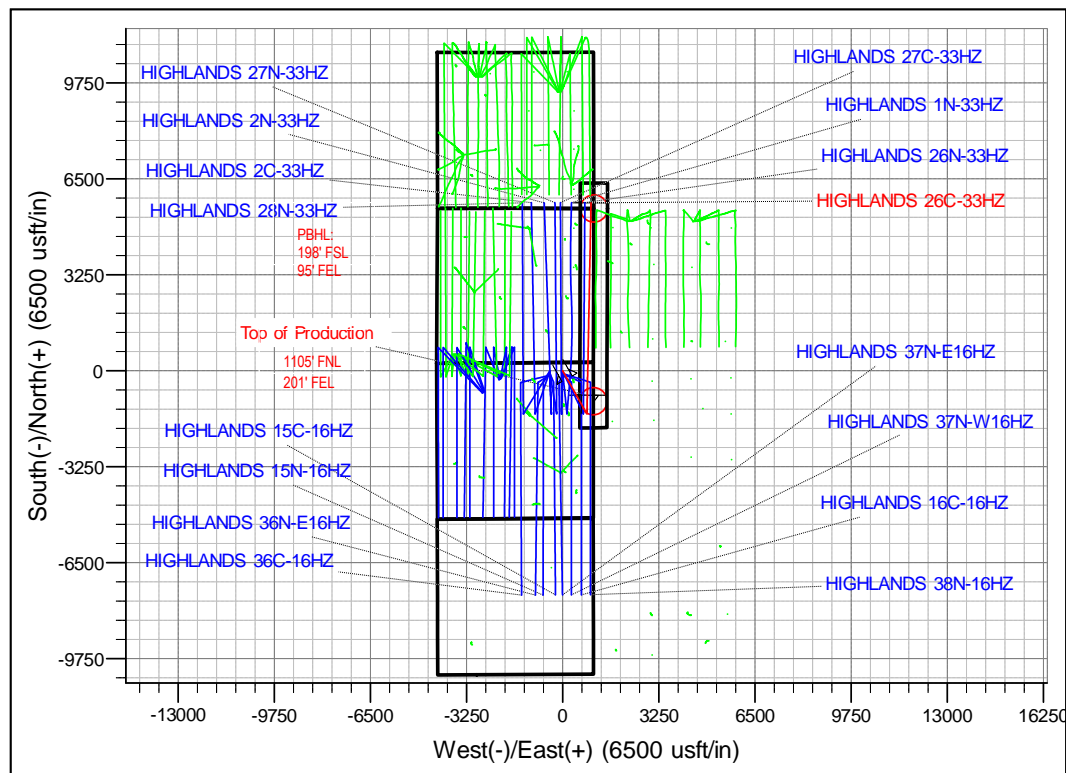
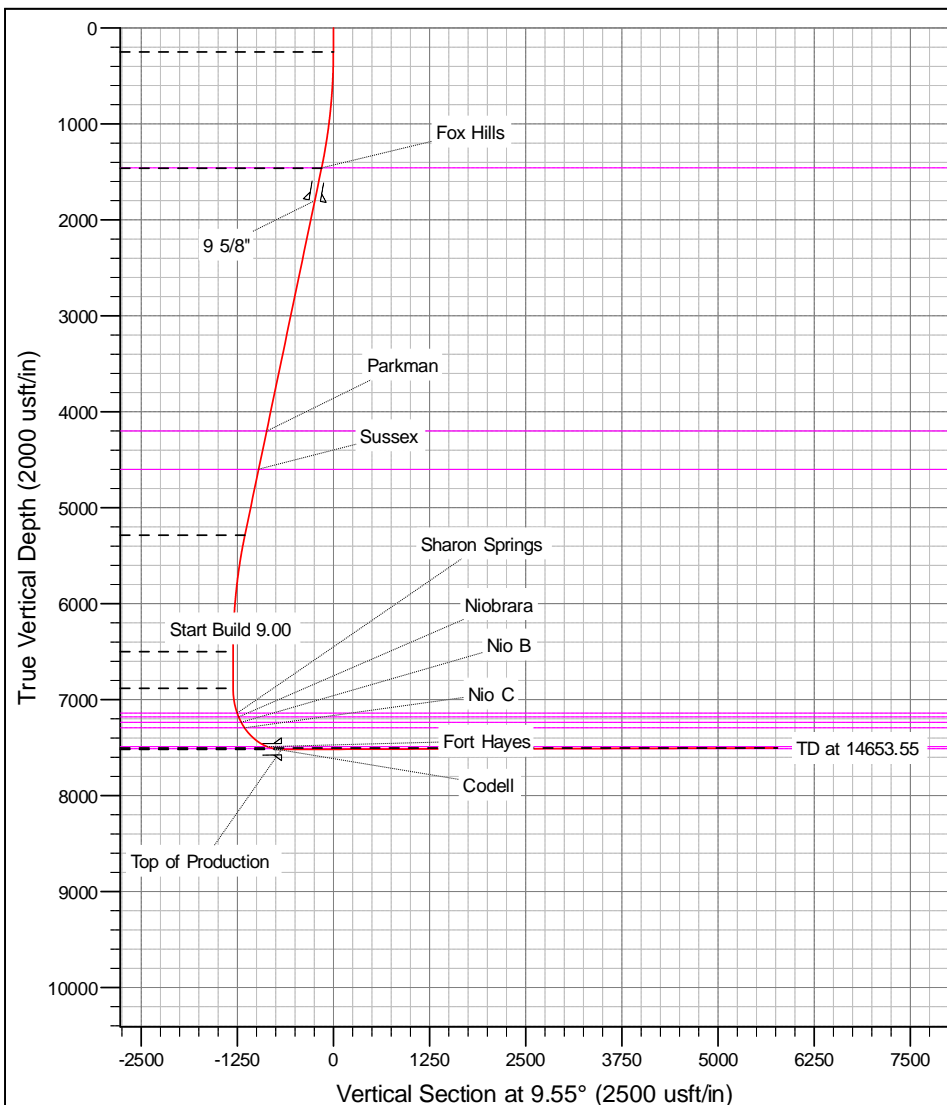
+N/-S	+E/-W	GL: 5001.00	RKB @ 5018.00usft (D Rig)	Longitude	Slot
0.00	0.00	Northing 14553118.04	Easting 1702954.10	Latitude 40.072241	-104.776457

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
1483.63	18.50	150.69	1462.29	-172.21	96.66	1.50	-153.78
5517.60	18.50	150.69	5287.71	-1288.64	723.34	0.00	-1150.73
6751.23	0.00	0.00	6500.00	-1460.85	820.00	1.50	-1304.50
7134.40	0.00	0.00	6883.17	-1460.85	820.00	0.00	-1304.50
8135.84	90.13	1.11	7519.79	-822.90	832.32	9.00	-673.36
14653.55	90.13	1.11	7505.00	5693.57	958.20	0.00	5773.64

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
HIGHLANDS 26C-33HZ_PBHL	7505.00	5693.57	958.20	14558814.00	1703898.00	40.087876	-104.773031
HIGHLANDS 26C-33HZ_PHL	7519.79	-822.91	832.32	14552297.23	1703788.49	40.069981	-104.773482



Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HIGHLANDS 26C-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 26C-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 26C-33HZ					
Well Position	+N/-S	-3.27 usft	Northing:	14,553,118.04 usft	Latitude:	40.072241
	+E/-W	432.22 usft	Easting:	1,702,954.10 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	9.55

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	
1,483.63	18.50	150.69	1,462.29	-172.21	96.66	1.50	1.50	0.00	150.69	
5,517.60	18.50	150.69	5,287.71	-1,288.64	723.34	0.00	0.00	0.00	0.00	
6,751.23	0.00	0.00	6,500.00	-1,460.85	820.00	1.50	-1.50	0.00	180.00	
7,134.40	0.00	0.00	6,883.17	-1,460.85	820.00	0.00	0.00	0.00	0.00	
8,135.84	90.13	1.11	7,519.79	-822.90	832.32	9.00	9.00	0.00	1.11	
14,653.55	90.13	1.11	7,505.00	5,693.57	958.20	0.00	0.00	0.00	0.00	HIGHLANDS 26C-3

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HIGHLANDS 26C-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 26C-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	150.69	300.00	-0.29	0.16	-0.25	1.50	1.50	0.00
400.00	2.25	150.69	399.96	-2.57	1.44	-2.29	1.50	1.50	0.00
500.00	3.75	150.69	499.82	-7.13	4.00	-6.37	1.50	1.50	0.00
600.00	5.25	150.69	599.51	-13.97	7.84	-12.48	1.50	1.50	0.00
700.00	6.75	150.69	698.96	-23.09	12.96	-20.62	1.50	1.50	0.00
800.00	8.25	150.69	798.10	-34.47	19.35	-30.78	1.50	1.50	0.00
900.00	9.75	150.69	896.87	-48.11	27.01	-42.96	1.50	1.50	0.00
1,000.00	11.25	150.69	995.19	-64.00	35.93	-57.15	1.50	1.50	0.00
1,100.00	12.75	150.69	1,093.00	-82.13	46.10	-73.34	1.50	1.50	0.00
1,200.00	14.25	150.69	1,190.24	-102.49	57.53	-91.52	1.50	1.50	0.00
1,300.00	15.75	150.69	1,286.83	-125.06	70.20	-111.67	1.50	1.50	0.00
1,400.00	17.25	150.69	1,382.71	-149.82	84.10	-133.79	1.50	1.50	0.00
1,479.10	18.44	150.69	1,458.00	-170.96	95.96	-152.66	1.50	1.50	0.00
Fox Hills									
1,483.63	18.50	150.69	1,462.29	-172.21	96.66	-153.78	1.50	1.50	0.00
1,500.00	18.50	150.69	1,477.82	-176.74	99.21	-157.82	0.00	0.00	0.00
1,600.00	18.50	150.69	1,572.65	-204.41	114.74	-182.54	0.00	0.00	0.00
1,700.00	18.50	150.69	1,667.48	-232.09	130.28	-207.25	0.00	0.00	0.00
1,800.00	18.50	150.69	1,762.31	-259.77	145.81	-231.96	0.00	0.00	0.00
1,839.75	18.50	150.69	1,800.00	-270.77	151.99	-241.79	0.00	0.00	0.00
9 5/8"									
1,900.00	18.50	150.69	1,857.14	-287.44	161.35	-256.68	0.00	0.00	0.00
2,000.00	18.50	150.69	1,951.97	-315.12	176.88	-281.39	0.00	0.00	0.00
2,100.00	18.50	150.69	2,046.80	-342.79	192.42	-306.11	0.00	0.00	0.00
2,200.00	18.50	150.69	2,141.63	-370.47	207.95	-330.82	0.00	0.00	0.00
2,300.00	18.50	150.69	2,236.46	-398.15	223.49	-355.53	0.00	0.00	0.00
2,400.00	18.50	150.69	2,331.29	-425.82	239.02	-380.25	0.00	0.00	0.00
2,500.00	18.50	150.69	2,426.12	-453.50	254.56	-404.96	0.00	0.00	0.00
2,600.00	18.50	150.69	2,520.95	-481.17	270.09	-429.68	0.00	0.00	0.00
2,700.00	18.50	150.69	2,615.78	-508.85	285.63	-454.39	0.00	0.00	0.00
2,800.00	18.50	150.69	2,710.61	-536.52	301.16	-479.10	0.00	0.00	0.00
2,900.00	18.50	150.69	2,805.44	-564.20	316.70	-503.82	0.00	0.00	0.00
3,000.00	18.50	150.69	2,900.27	-591.88	332.23	-528.53	0.00	0.00	0.00
3,100.00	18.50	150.69	2,995.10	-619.55	347.77	-553.24	0.00	0.00	0.00
3,200.00	18.50	150.69	3,089.93	-647.23	363.30	-577.96	0.00	0.00	0.00
3,300.00	18.50	150.69	3,184.76	-674.90	378.83	-602.67	0.00	0.00	0.00
3,400.00	18.50	150.69	3,279.59	-702.58	394.37	-627.39	0.00	0.00	0.00
3,500.00	18.50	150.69	3,374.42	-730.26	409.90	-652.10	0.00	0.00	0.00
3,600.00	18.50	150.69	3,469.25	-757.93	425.44	-676.81	0.00	0.00	0.00
3,700.00	18.50	150.69	3,564.08	-785.61	440.97	-701.53	0.00	0.00	0.00
3,800.00	18.50	150.69	3,658.91	-813.28	456.51	-726.24	0.00	0.00	0.00
3,900.00	18.50	150.69	3,753.74	-840.96	472.04	-750.95	0.00	0.00	0.00
4,000.00	18.50	150.69	3,848.57	-868.63	487.58	-775.67	0.00	0.00	0.00
4,100.00	18.50	150.69	3,943.40	-896.31	503.11	-800.38	0.00	0.00	0.00
4,200.00	18.50	150.69	4,038.23	-923.99	518.65	-825.10	0.00	0.00	0.00
4,300.00	18.50	150.69	4,133.06	-951.66	534.18	-849.81	0.00	0.00	0.00
4,373.76	18.50	150.69	4,203.00	-972.07	545.64	-868.04	0.00	0.00	0.00
Parkman									
4,400.00	18.50	150.69	4,227.89	-979.34	549.72	-874.52	0.00	0.00	0.00

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Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HIGHLANDS 26C-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 26C-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)
4,500.00	18.50	150.69	4,322.72	-1,007.01	565.25	-899.24	0.00	0.00	0.00
4,600.00	18.50	150.69	4,417.55	-1,034.69	580.79	-923.95	0.00	0.00	0.00
4,700.00	18.50	150.69	4,512.38	-1,062.36	596.32	-948.67	0.00	0.00	0.00
4,791.35	18.50	150.69	4,599.00	-1,087.65	610.51	-971.24	0.00	0.00	0.00
Sussex									
4,800.00	18.50	150.69	4,607.21	-1,090.04	611.86	-973.38	0.00	0.00	0.00
4,900.00	18.50	150.69	4,702.04	-1,117.72	627.39	-998.09	0.00	0.00	0.00
5,000.00	18.50	150.69	4,796.87	-1,145.39	642.93	-1,022.81	0.00	0.00	0.00
5,100.00	18.50	150.69	4,891.70	-1,173.07	658.46	-1,047.52	0.00	0.00	0.00
5,200.00	18.50	150.69	4,986.53	-1,200.74	674.00	-1,072.23	0.00	0.00	0.00
5,300.00	18.50	150.69	5,081.36	-1,228.42	689.53	-1,096.95	0.00	0.00	0.00
5,400.00	18.50	150.69	5,176.19	-1,256.10	705.07	-1,121.66	0.00	0.00	0.00
5,500.00	18.50	150.69	5,271.02	-1,283.77	720.60	-1,146.38	0.00	0.00	0.00
5,517.60	18.50	150.69	5,287.71	-1,288.64	723.34	-1,150.73	0.00	0.00	0.00
5,600.00	17.27	150.69	5,366.12	-1,310.71	735.72	-1,170.43	1.50	-1.50	0.00
5,700.00	15.77	150.69	5,461.99	-1,335.50	749.64	-1,192.57	1.50	-1.50	0.00
5,800.00	14.27	150.69	5,558.57	-1,358.10	762.32	-1,212.75	1.50	-1.50	0.00
5,900.00	12.77	150.69	5,655.80	-1,378.48	773.77	-1,230.95	1.50	-1.50	0.00
6,000.00	11.27	150.69	5,753.61	-1,396.64	783.96	-1,247.16	1.50	-1.50	0.00
6,100.00	9.77	150.69	5,851.92	-1,412.56	792.89	-1,261.38	1.50	-1.50	0.00
6,200.00	8.27	150.69	5,950.68	-1,426.23	800.57	-1,273.58	1.50	-1.50	0.00
6,300.00	6.77	150.69	6,049.82	-1,437.64	806.97	-1,283.77	1.50	-1.50	0.00
6,400.00	5.27	150.69	6,149.27	-1,446.78	812.10	-1,291.94	1.50	-1.50	0.00
6,500.00	3.77	150.69	6,248.95	-1,453.65	815.96	-1,298.07	1.50	-1.50	0.00
6,600.00	2.27	150.69	6,348.81	-1,458.24	818.53	-1,302.17	1.50	-1.50	0.00
6,700.00	0.77	150.69	6,448.77	-1,460.55	819.83	-1,304.24	1.50	-1.50	0.00
6,751.23	0.00	0.00	6,500.00	-1,460.85	820.00	-1,304.50	1.50	-1.50	0.00
6,800.00	0.00	0.00	6,548.77	-1,460.85	820.00	-1,304.50	0.00	0.00	0.00
6,900.00	0.00	0.00	6,648.77	-1,460.85	820.00	-1,304.50	0.00	0.00	0.00
7,000.00	0.00	0.00	6,748.77	-1,460.85	820.00	-1,304.50	0.00	0.00	0.00
7,100.00	0.00	0.00	6,848.77	-1,460.85	820.00	-1,304.50	0.00	0.00	0.00
7,134.40	0.00	0.00	6,883.17	-1,460.85	820.00	-1,304.50	0.00	0.00	0.00
7,200.00	5.90	1.11	6,948.66	-1,457.47	820.07	-1,301.16	9.00	9.00	0.00
7,300.00	14.90	1.11	7,046.91	-1,439.44	820.41	-1,283.32	9.00	9.00	0.00
7,399.85	23.89	1.11	7,141.00	-1,406.31	821.05	-1,250.55	9.00	9.00	0.00
Sharon Springs									
7,400.00	23.90	1.11	7,141.13	-1,406.25	821.05	-1,250.49	9.00	9.00	0.00
7,444.33	27.89	1.11	7,181.00	-1,386.90	821.43	-1,231.34	9.00	9.00	0.00
Niobrara									
7,500.00	32.90	1.11	7,229.01	-1,358.74	821.97	-1,203.48	9.00	9.00	0.00
7,508.37	33.66	1.11	7,236.00	-1,354.15	822.06	-1,198.94	9.00	9.00	0.00
Nio B									
7,580.96	40.19	1.11	7,294.00	-1,310.57	822.90	-1,155.83	9.00	9.00	0.00
Nio C									
7,600.00	41.90	1.11	7,308.36	-1,298.07	823.14	-1,143.46	9.00	9.00	0.00
7,700.00	50.90	1.11	7,377.25	-1,225.74	824.54	-1,071.90	9.00	9.00	0.00
7,800.00	59.90	1.11	7,433.97	-1,143.52	826.13	-990.56	9.00	9.00	0.00
7,900.00	68.90	1.11	7,477.12	-1,053.44	827.87	-901.44	9.00	9.00	0.00
7,938.87	72.40	1.11	7,490.00	-1,016.78	828.58	-865.16	9.00	9.00	0.00
Fort Hayes									
8,000.00	77.90	1.11	7,505.66	-957.73	829.72	-806.74	9.00	9.00	0.00
8,034.70	81.03	1.11	7,512.00	-923.62	830.38	-773.00	9.00	9.00	0.00
Codell									

Anadarko

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 26C-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)
8,100.00	86.90	1.11	7,518.86	-858.72	831.63	-708.80	9.00	9.00	0.00
8,135.84	90.13	1.11	7,519.79	-822.91	832.32	-673.36	9.00	9.00	0.00
Top of Production - HIGHLANDS 26C-33HZ_PHL									
8,200.00	90.13	1.11	7,519.64	-758.76	833.56	-609.90	0.00	0.00	0.00
8,300.00	90.13	1.11	7,519.42	-658.78	835.49	-510.98	0.00	0.00	0.00
8,400.00	90.13	1.11	7,519.19	-558.80	837.43	-412.07	0.00	0.00	0.00
8,500.00	90.13	1.11	7,518.96	-458.82	839.36	-313.15	0.00	0.00	0.00
8,600.00	90.13	1.11	7,518.74	-358.83	841.29	-214.24	0.00	0.00	0.00
8,700.00	90.13	1.11	7,518.51	-258.85	843.22	-115.32	0.00	0.00	0.00
8,800.00	90.13	1.11	7,518.28	-158.87	845.15	-16.41	0.00	0.00	0.00
8,900.00	90.13	1.11	7,518.05	-58.89	847.08	82.51	0.00	0.00	0.00
9,000.00	90.13	1.11	7,517.83	41.09	849.01	181.42	0.00	0.00	0.00
9,100.00	90.13	1.11	7,517.60	141.07	850.94	280.34	0.00	0.00	0.00
9,200.00	90.13	1.11	7,517.37	241.05	852.88	379.25	0.00	0.00	0.00
9,300.00	90.13	1.11	7,517.15	341.03	854.81	478.17	0.00	0.00	0.00
9,400.00	90.13	1.11	7,516.92	441.01	856.74	577.08	0.00	0.00	0.00
9,500.00	90.13	1.11	7,516.69	541.00	858.67	676.00	0.00	0.00	0.00
9,600.00	90.13	1.11	7,516.47	640.98	860.60	774.91	0.00	0.00	0.00
9,700.00	90.13	1.11	7,516.24	740.96	862.53	873.83	0.00	0.00	0.00
9,800.00	90.13	1.11	7,516.01	840.94	864.46	972.74	0.00	0.00	0.00
9,900.00	90.13	1.11	7,515.79	940.92	866.40	1,071.66	0.00	0.00	0.00
10,000.00	90.13	1.11	7,515.56	1,040.90	868.33	1,170.58	0.00	0.00	0.00
10,100.00	90.13	1.11	7,515.33	1,140.88	870.26	1,269.49	0.00	0.00	0.00
10,200.00	90.13	1.11	7,515.10	1,240.86	872.19	1,368.41	0.00	0.00	0.00
10,300.00	90.13	1.11	7,514.88	1,340.84	874.12	1,467.32	0.00	0.00	0.00
10,400.00	90.13	1.11	7,514.65	1,440.83	876.05	1,566.24	0.00	0.00	0.00
10,500.00	90.13	1.11	7,514.42	1,540.81	877.98	1,665.15	0.00	0.00	0.00
10,600.00	90.13	1.11	7,514.20	1,640.79	879.91	1,764.07	0.00	0.00	0.00
10,700.00	90.13	1.11	7,513.97	1,740.77	881.85	1,862.98	0.00	0.00	0.00
10,800.00	90.13	1.11	7,513.74	1,840.75	883.78	1,961.90	0.00	0.00	0.00
10,900.00	90.13	1.11	7,513.52	1,940.73	885.71	2,060.81	0.00	0.00	0.00
11,000.00	90.13	1.11	7,513.29	2,040.71	887.64	2,159.73	0.00	0.00	0.00
11,100.00	90.13	1.11	7,513.06	2,140.69	889.57	2,258.64	0.00	0.00	0.00
11,200.00	90.13	1.11	7,512.84	2,240.67	891.50	2,357.56	0.00	0.00	0.00
11,300.00	90.13	1.11	7,512.61	2,340.66	893.43	2,456.47	0.00	0.00	0.00
11,400.00	90.13	1.11	7,512.38	2,440.64	895.37	2,555.39	0.00	0.00	0.00
11,500.00	90.13	1.11	7,512.16	2,540.62	897.30	2,654.30	0.00	0.00	0.00
11,600.00	90.13	1.11	7,511.93	2,640.60	899.23	2,753.22	0.00	0.00	0.00
11,700.00	90.13	1.11	7,511.70	2,740.58	901.16	2,852.13	0.00	0.00	0.00
11,800.00	90.13	1.11	7,511.47	2,840.56	903.09	2,951.05	0.00	0.00	0.00
11,900.00	90.13	1.11	7,511.25	2,940.54	905.02	3,049.96	0.00	0.00	0.00
12,000.00	90.13	1.11	7,511.02	3,040.52	906.95	3,148.88	0.00	0.00	0.00
12,100.00	90.13	1.11	7,510.79	3,140.50	908.89	3,247.79	0.00	0.00	0.00
12,200.00	90.13	1.11	7,510.57	3,240.49	910.82	3,346.71	0.00	0.00	0.00
12,300.00	90.13	1.11	7,510.34	3,340.47	912.75	3,445.62	0.00	0.00	0.00
12,400.00	90.13	1.11	7,510.11	3,440.45	914.68	3,544.54	0.00	0.00	0.00
12,500.00	90.13	1.11	7,509.89	3,540.43	916.61	3,643.45	0.00	0.00	0.00
12,600.00	90.13	1.11	7,509.66	3,640.41	918.54	3,742.37	0.00	0.00	0.00
12,700.00	90.13	1.11	7,509.43	3,740.39	920.47	3,841.28	0.00	0.00	0.00
12,800.00	90.13	1.11	7,509.21	3,840.37	922.40	3,940.20	0.00	0.00	0.00
12,900.00	90.13	1.11	7,508.98	3,940.35	924.34	4,039.11	0.00	0.00	0.00
13,000.00	90.13	1.11	7,508.75	4,040.33	926.27	4,138.03	0.00	0.00	0.00
13,100.00	90.13	1.11	7,508.53	4,140.32	928.20	4,236.94	0.00	0.00	0.00
13,200.00	90.13	1.11	7,508.30	4,240.30	930.13	4,335.86	0.00	0.00	0.00

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Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HIGHLANDS 26C-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 26C-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)
13,300.00	90.13	1.11	7,508.07	4,340.28	932.06	4,434.77	0.00	0.00	0.00
13,400.00	90.13	1.11	7,507.84	4,440.26	933.99	4,533.69	0.00	0.00	0.00
13,500.00	90.13	1.11	7,507.62	4,540.24	935.92	4,632.60	0.00	0.00	0.00
13,600.00	90.13	1.11	7,507.39	4,640.22	937.86	4,731.52	0.00	0.00	0.00
13,700.00	90.13	1.11	7,507.16	4,740.20	939.79	4,830.43	0.00	0.00	0.00
13,800.00	90.13	1.11	7,506.94	4,840.18	941.72	4,929.35	0.00	0.00	0.00
13,900.00	90.13	1.11	7,506.71	4,940.16	943.65	5,028.26	0.00	0.00	0.00
14,000.00	90.13	1.11	7,506.48	5,040.14	945.58	5,127.18	0.00	0.00	0.00
14,100.00	90.13	1.11	7,506.26	5,140.13	947.51	5,226.09	0.00	0.00	0.00
14,200.00	90.13	1.11	7,506.03	5,240.11	949.44	5,325.01	0.00	0.00	0.00
14,300.00	90.13	1.11	7,505.80	5,340.09	951.37	5,423.92	0.00	0.00	0.00
14,400.00	90.13	1.11	7,505.58	5,440.07	953.31	5,522.84	0.00	0.00	0.00
14,500.00	90.13	1.11	7,505.35	5,540.05	955.24	5,621.75	0.00	0.00	0.00
14,600.00	90.13	1.11	7,505.12	5,640.03	957.17	5,720.67	0.00	0.00	0.00
14,653.55	90.13	1.11	7,505.00	5,693.57	958.20	5,773.64	0.00	0.00	0.00
HIGHLANDS 26C-33HZ_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									
HIGHLANDS 26C-33H	0.00	0.00	7,505.00	5,693.57	958.20	14,558,814.00	1,703,898.00	40.087876	-104.773031
- plan hits target center									
- Point									
HIGHLANDS 26C-33H	0.00	0.00	7,519.79	-822.91	832.32	14,552,297.22	1,703,788.49	40.069981	-104.773482
- plan hits target center									
- Point									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,839.75	1,800.00	9 5/8"	9-5/8	13-1/2	
8,135.84	7,519.79	Top of Production	5-1/2	8-1/2	

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HIGHLANDS 26C-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 26C-33HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-3		

Formations						
	Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
	1,479.10	1,458.00	Fox Hills			
	4,373.76	4,203.00	Parkman			
	4,791.35	4,599.00	Sussex			
	7,399.85	7,141.00	Sharon Springs			
	7,444.33	7,181.00	Niobrara			
	7,508.37	7,236.00	Nio B			
	7,580.96	7,294.00	Nio C			
	7,938.87	7,490.00	Fort Hayes			
	8,034.70	7,512.00	Codell			