

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

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

HIGHLANDS 2C-33HZ

Plan A

Plan: Permit Rev-3

Standard Planning Report

16 June, 2016



Azimuths to True North
Magnetic North: 8.32°

Magnetic Field
Strength: 52544.3snT
Dip Angle: 66.65°
Date: 5/14/2015
Model: IGRF2010

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

Well: HIGHLANDS 2C-33HZ
Wellbore: Plan A
Design: Permit Rev-3

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1458.00	1479.10	Fox Hills
4203.00	4381.63	Parkman
4599.00	4800.37	Sussex
7110.00	7350.02	Sharon Springs
7151.00	7395.16	Niobrara
7250.00	7512.06	Nio B
7310.00	7591.41	Nio C
7471.00	7901.20	Fort Hayes
7493.00	7995.80	Codell

WELL DETAILS: HIGHLANDS 2C-33HZ

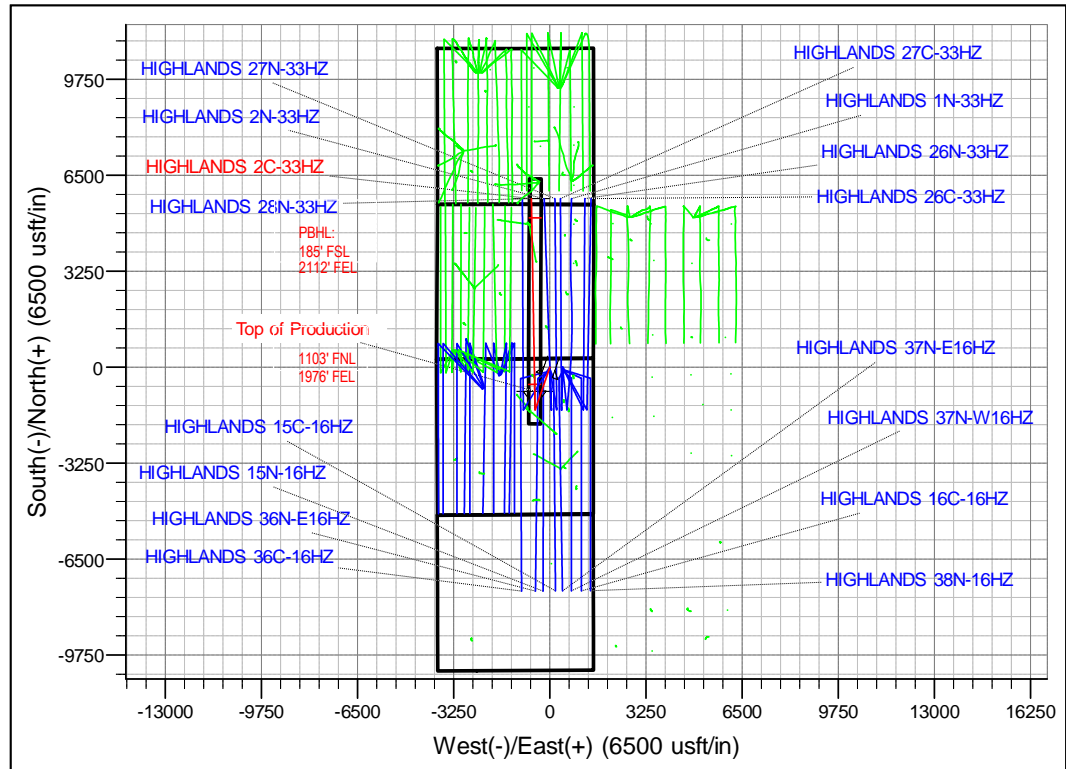
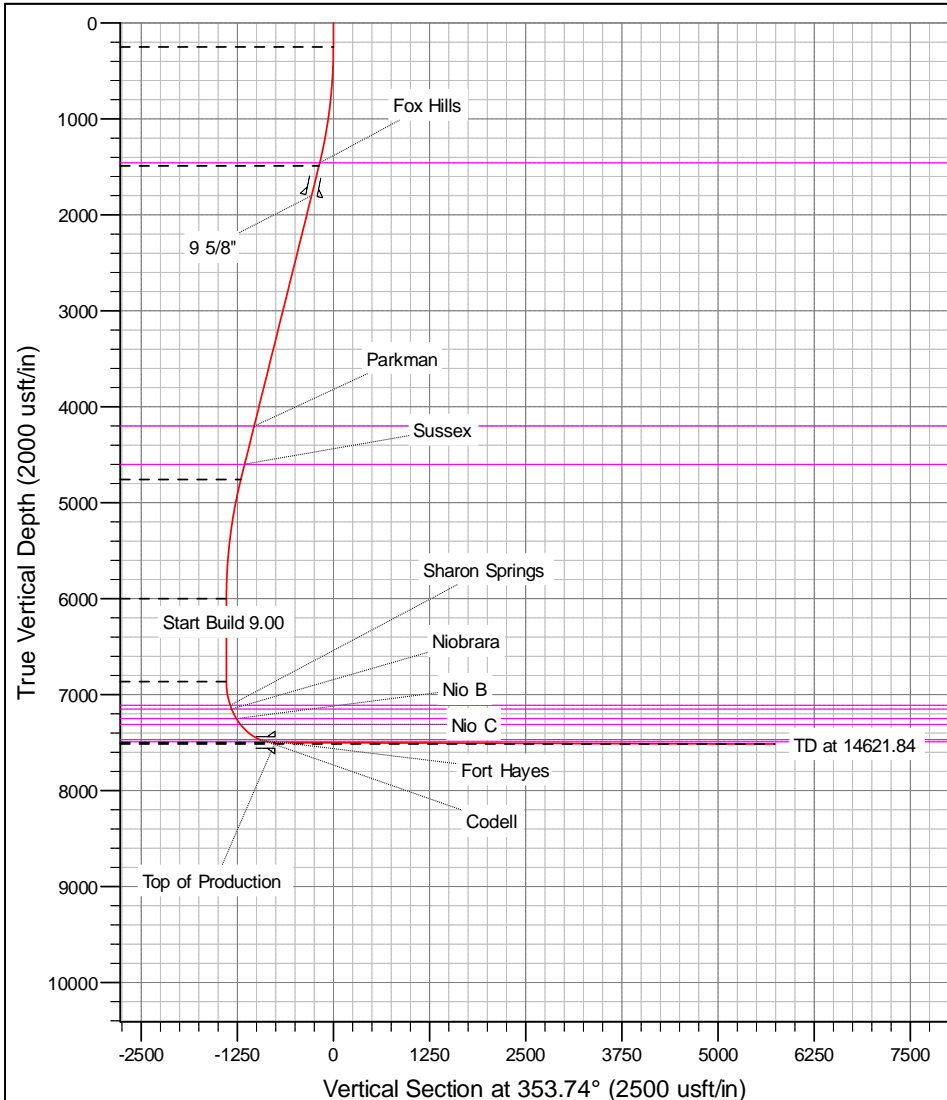
+N/-S	+E/-W	GL: 5001.00 Northing	RKB @ 5018.00usft (D Rig) Easting	Latitude	Longitude	Slot
0.00	0.00	14553105.31	1702521.91	40.072209	-104.778002	

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
1514.44	18.97	198.98	1491.48	-196.11	-67.44	1.50	-187.59
4969.05	18.97	198.98	4758.52	-1257.89	-432.56	0.00	1203.24
6233.49	0.00	0.00	6000.00	-1454.00	-500.00	1.50	1390.83
7098.07	0.00	0.00	6864.58	-1454.00	-500.00	0.00	1390.83
8096.62	89.87	358.99	7501.19	-818.92	-511.15	9.00	-758.32
14621.84	89.87	358.99	7516.00	5705.27	-625.68	0.00	5739.48

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
HIGHLANDS 2C-33HZ_PHL	7501.19	-818.93	-511.15	14552285.11	1702012.80	40.069960	-104.779829
HIGHLANDS 2C-33HZ_PBHL	7516.00	5705.27	-625.68	14558809.00	1701882.00	40.087876	-104.780239



Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HIGHLANDS 2C-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 2C-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 2C-33HZ					
Well Position	+N/-S	-14.93 usft	Northing:	14,553,105.30 usft	Latitude:	40.072209
	+E/-W	0.00 usft	Easting:	1,702,521.91 usft	Longitude:	-104.778002
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	5/14/2015	8.32	66.65	52,544

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	353.74

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	
1,514.44	18.97	198.98	1,491.48	-196.11	-67.44	1.50	1.50	0.00	198.98	
4,969.05	18.97	198.98	4,758.52	-1,257.89	-432.56	0.00	0.00	0.00	0.00	
6,233.49	0.00	0.00	6,000.00	-1,454.00	-500.00	1.50	-1.50	0.00	180.00	
7,098.07	0.00	0.00	6,864.58	-1,454.00	-500.00	0.00	0.00	0.00	0.00	
8,096.62	89.87	358.99	7,501.19	-818.92	-511.15	9.00	9.00	0.00	358.99	
14,621.84	89.87	358.99	7,516.00	5,705.27	-625.68	0.00	0.00	0.00	0.00	HIGHLANDS 2C-33

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Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HIGHLANDS 2C-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 2C-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	198.98	300.00	-0.31	-0.11	-0.30	1.50	1.50	0.00
400.00	2.25	198.98	399.96	-2.78	-0.96	-2.66	1.50	1.50	0.00
500.00	3.75	198.98	499.82	-7.73	-2.66	-7.40	1.50	1.50	0.00
600.00	5.25	198.98	599.51	-15.15	-5.21	-14.49	1.50	1.50	0.00
700.00	6.75	198.98	698.96	-25.04	-8.61	-23.95	1.50	1.50	0.00
800.00	8.25	198.98	798.10	-37.38	-12.85	-35.76	1.50	1.50	0.00
900.00	9.75	198.98	896.87	-52.17	-17.94	-49.91	1.50	1.50	0.00
1,000.00	11.25	198.98	995.19	-69.41	-23.87	-66.39	1.50	1.50	0.00
1,100.00	12.75	198.98	1,093.00	-89.07	-30.63	-85.20	1.50	1.50	0.00
1,200.00	14.25	198.98	1,190.24	-111.14	-38.22	-106.31	1.50	1.50	0.00
1,300.00	15.75	198.98	1,286.83	-135.62	-46.64	-129.72	1.50	1.50	0.00
1,400.00	17.25	198.98	1,382.71	-162.47	-55.87	-155.41	1.50	1.50	0.00
1,479.10	18.44	198.98	1,458.00	-185.39	-63.75	-177.34	1.50	1.50	0.00
Fox Hills									
1,500.00	18.75	198.98	1,477.81	-191.69	-65.92	-183.37	1.50	1.50	0.00
1,514.44	18.97	198.98	1,491.48	-196.11	-67.44	-187.59	1.50	1.50	0.00
1,600.00	18.97	198.98	1,572.39	-222.41	-76.48	-212.74	0.00	0.00	0.00
1,700.00	18.97	198.98	1,666.96	-253.14	-87.05	-242.14	0.00	0.00	0.00
1,800.00	18.97	198.98	1,761.53	-283.88	-97.62	-271.54	0.00	0.00	0.00
1,840.68	18.97	198.98	1,800.00	-296.38	-101.92	-283.50	0.00	0.00	0.00
9 5/8"									
1,900.00	18.97	198.98	1,856.10	-314.61	-108.19	-300.94	0.00	0.00	0.00
2,000.00	18.97	198.98	1,950.67	-345.35	-118.76	-330.34	0.00	0.00	0.00
2,100.00	18.97	198.98	2,045.24	-376.08	-129.33	-359.74	0.00	0.00	0.00
2,200.00	18.97	198.98	2,139.81	-406.82	-139.90	-389.14	0.00	0.00	0.00
2,300.00	18.97	198.98	2,234.38	-437.55	-150.46	-418.54	0.00	0.00	0.00
2,400.00	18.97	198.98	2,328.95	-468.29	-161.03	-447.94	0.00	0.00	0.00
2,500.00	18.97	198.98	2,423.53	-499.02	-171.60	-477.34	0.00	0.00	0.00
2,600.00	18.97	198.98	2,518.10	-529.76	-182.17	-506.74	0.00	0.00	0.00
2,700.00	18.97	198.98	2,612.67	-560.49	-192.74	-536.14	0.00	0.00	0.00
2,800.00	18.97	198.98	2,707.24	-591.23	-203.31	-565.54	0.00	0.00	0.00
2,900.00	18.97	198.98	2,801.81	-621.96	-213.88	-594.94	0.00	0.00	0.00
3,000.00	18.97	198.98	2,896.38	-652.70	-224.45	-624.34	0.00	0.00	0.00
3,100.00	18.97	198.98	2,990.95	-683.43	-235.02	-653.74	0.00	0.00	0.00
3,200.00	18.97	198.98	3,085.52	-714.17	-245.59	-683.14	0.00	0.00	0.00
3,300.00	18.97	198.98	3,180.09	-744.90	-256.16	-712.54	0.00	0.00	0.00
3,400.00	18.97	198.98	3,274.66	-775.64	-266.73	-741.94	0.00	0.00	0.00
3,500.00	18.97	198.98	3,369.23	-806.38	-277.30	-771.34	0.00	0.00	0.00
3,600.00	18.97	198.98	3,463.80	-837.11	-287.86	-800.74	0.00	0.00	0.00
3,700.00	18.97	198.98	3,558.37	-867.85	-298.43	-830.14	0.00	0.00	0.00
3,800.00	18.97	198.98	3,652.95	-898.58	-309.00	-859.54	0.00	0.00	0.00
3,900.00	18.97	198.98	3,747.52	-929.32	-319.57	-888.94	0.00	0.00	0.00
4,000.00	18.97	198.98	3,842.09	-960.05	-330.14	-918.34	0.00	0.00	0.00
4,100.00	18.97	198.98	3,936.66	-990.79	-340.71	-947.74	0.00	0.00	0.00
4,200.00	18.97	198.98	4,031.23	-1,021.52	-351.28	-977.14	0.00	0.00	0.00
4,300.00	18.97	198.98	4,125.80	-1,052.26	-361.85	-1,006.54	0.00	0.00	0.00
4,381.63	18.97	198.98	4,203.00	-1,077.35	-370.48	-1,030.54	0.00	0.00	0.00
Parkman									
4,400.00	18.97	198.98	4,220.37	-1,082.99	-372.42	-1,035.94	0.00	0.00	0.00

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Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HIGHLANDS 2C-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 2C-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	18.97	198.98	4,314.94	-1,113.73	-382.99	-1,065.34	0.00	0.00	0.00	
4,600.00	18.97	198.98	4,409.51	-1,144.46	-393.56	-1,094.74	0.00	0.00	0.00	
4,700.00	18.97	198.98	4,504.08	-1,175.20	-404.13	-1,124.14	0.00	0.00	0.00	
4,800.00	18.97	198.98	4,598.65	-1,205.93	-414.70	-1,153.54	0.00	0.00	0.00	
4,800.37	18.97	198.98	4,599.00	-1,206.05	-414.73	-1,153.65	0.00	0.00	0.00	
Sussex										
4,900.00	18.97	198.98	4,693.22	-1,236.67	-425.26	-1,182.94	0.00	0.00	0.00	
4,969.05	18.97	198.98	4,758.52	-1,257.89	-432.56	-1,203.24	0.00	0.00	0.00	
5,000.00	18.50	198.98	4,787.84	-1,267.29	-435.79	-1,212.23	1.50	-1.50	0.00	
5,100.00	17.00	198.98	4,883.07	-1,296.12	-445.71	-1,239.81	1.50	-1.50	0.00	
5,200.00	15.50	198.98	4,979.07	-1,322.59	-454.81	-1,265.13	1.50	-1.50	0.00	
5,300.00	14.00	198.98	5,075.77	-1,346.67	-463.09	-1,288.16	1.50	-1.50	0.00	
5,400.00	12.50	198.98	5,173.11	-1,368.35	-470.55	-1,308.90	1.50	-1.50	0.00	
5,500.00	11.00	198.98	5,271.01	-1,387.61	-477.17	-1,327.32	1.50	-1.50	0.00	
5,600.00	9.50	198.98	5,369.41	-1,404.44	-482.96	-1,343.42	1.50	-1.50	0.00	
5,700.00	8.00	198.98	5,468.24	-1,418.83	-487.90	-1,357.18	1.50	-1.50	0.00	
5,800.00	6.50	198.98	5,567.44	-1,430.76	-492.01	-1,368.60	1.50	-1.50	0.00	
5,900.00	5.00	198.98	5,666.93	-1,440.24	-495.27	-1,377.67	1.50	-1.50	0.00	
6,000.00	3.50	198.98	5,766.65	-1,447.25	-497.68	-1,384.37	1.50	-1.50	0.00	
6,100.00	2.00	198.98	5,866.54	-1,451.79	-499.24	-1,388.72	1.50	-1.50	0.00	
6,200.00	0.50	198.98	5,966.51	-1,453.86	-499.95	-1,390.70	1.50	-1.50	0.00	
6,233.49	0.00	0.00	6,000.00	-1,454.00	-500.00	-1,390.83	1.50	-1.50	0.00	
6,300.00	0.00	0.00	6,066.51	-1,454.00	-500.00	-1,390.83	0.00	0.00	0.00	
6,400.00	0.00	0.00	6,166.51	-1,454.00	-500.00	-1,390.83	0.00	0.00	0.00	
6,500.00	0.00	0.00	6,266.51	-1,454.00	-500.00	-1,390.83	0.00	0.00	0.00	
6,600.00	0.00	0.00	6,366.51	-1,454.00	-500.00	-1,390.83	0.00	0.00	0.00	
6,700.00	0.00	0.00	6,466.51	-1,454.00	-500.00	-1,390.83	0.00	0.00	0.00	
6,800.00	0.00	0.00	6,566.51	-1,454.00	-500.00	-1,390.83	0.00	0.00	0.00	
6,900.00	0.00	0.00	6,666.51	-1,454.00	-500.00	-1,390.83	0.00	0.00	0.00	
7,000.00	0.00	0.00	6,766.51	-1,454.00	-500.00	-1,390.83	0.00	0.00	0.00	
7,098.07	0.00	0.00	6,864.58	-1,454.00	-500.00	-1,390.83	0.00	0.00	0.00	
7,100.00	0.17	358.99	6,866.51	-1,454.00	-500.00	-1,390.83	9.00	9.00	0.00	
7,200.00	9.17	358.99	6,966.07	-1,445.86	-500.14	-1,382.72	9.00	9.00	0.00	
7,300.00	18.17	358.99	7,063.14	-1,422.25	-500.56	-1,359.20	9.00	9.00	0.00	
7,350.02	22.67	358.99	7,110.00	-1,404.80	-500.86	-1,341.83	9.00	9.00	0.00	
Sharon Springs										
7,395.16	26.74	358.99	7,151.00	-1,385.94	-501.19	-1,323.04	9.00	9.00	0.00	
Niobrara										
7,400.00	27.17	358.99	7,155.32	-1,383.74	-501.23	-1,320.86	9.00	9.00	0.00	
7,500.00	36.17	358.99	7,240.33	-1,331.30	-502.15	-1,268.62	9.00	9.00	0.00	
7,512.06	37.26	358.99	7,250.00	-1,324.09	-502.28	-1,261.44	9.00	9.00	0.00	
Nio B										
7,591.41	44.40	358.99	7,310.00	-1,272.25	-503.19	-1,209.82	9.00	9.00	0.00	
Nio C										
7,600.00	45.17	358.99	7,316.10	-1,266.20	-503.30	-1,203.79	9.00	9.00	0.00	
7,700.00	54.17	358.99	7,380.75	-1,190.05	-504.63	-1,127.95	9.00	9.00	0.00	
7,800.00	63.17	358.99	7,432.68	-1,104.73	-506.13	-1,042.97	9.00	9.00	0.00	
7,900.00	72.17	358.99	7,470.63	-1,012.34	-507.75	-950.95	9.00	9.00	0.00	
7,901.21	72.28	358.99	7,471.00	-1,011.19	-507.77	-949.81	9.00	9.00	0.00	
Fort Hayes										
7,995.80	80.80	358.99	7,493.00	-919.29	-509.39	-858.28	9.00	9.00	0.00	
Codell										
8,000.00	81.17	358.99	7,493.66	-915.14	-509.46	-854.15	9.00	9.00	0.00	

Anadarko

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 2C-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)
8,096.62	89.87	358.99	7,501.19	-818.93	-511.15	-758.32	9.00	9.00	0.00
Top of Production - HIGHLANDS 2C-33HZ_PHL									
8,100.00	89.87	358.99	7,501.20	-815.55	-511.21	-754.96	0.01	0.01	0.00
8,200.00	89.87	358.99	7,501.43	-715.56	-512.96	-655.38	0.00	0.00	0.00
8,300.00	89.87	358.99	7,501.66	-615.58	-514.72	-555.80	0.00	0.00	0.00
8,400.00	89.87	358.99	7,501.88	-515.59	-516.47	-456.22	0.00	0.00	0.00
8,500.00	89.87	358.99	7,502.11	-415.61	-518.23	-356.64	0.00	0.00	0.00
8,600.00	89.87	358.99	7,502.34	-315.63	-519.98	-257.06	0.00	0.00	0.00
8,700.00	89.87	358.99	7,502.56	-215.64	-521.74	-157.48	0.00	0.00	0.00
8,800.00	89.87	358.99	7,502.79	-115.66	-523.49	-57.90	0.00	0.00	0.00
8,900.00	89.87	358.99	7,503.02	-15.67	-525.25	41.68	0.00	0.00	0.00
9,000.00	89.87	358.99	7,503.24	84.31	-527.00	141.26	0.00	0.00	0.00
9,100.00	89.87	358.99	7,503.47	184.30	-528.76	240.84	0.00	0.00	0.00
9,200.00	89.87	358.99	7,503.70	284.28	-530.51	340.42	0.00	0.00	0.00
9,300.00	89.87	358.99	7,503.93	384.27	-532.27	440.00	0.00	0.00	0.00
9,400.00	89.87	358.99	7,504.15	484.25	-534.03	539.58	0.00	0.00	0.00
9,500.00	89.87	358.99	7,504.38	584.23	-535.78	639.16	0.00	0.00	0.00
9,600.00	89.87	358.99	7,504.61	684.22	-537.54	738.74	0.00	0.00	0.00
9,700.00	89.87	358.99	7,504.83	784.20	-539.29	838.32	0.00	0.00	0.00
9,800.00	89.87	358.99	7,505.06	884.19	-541.05	937.90	0.00	0.00	0.00
9,900.00	89.87	358.99	7,505.29	984.17	-542.80	1,037.48	0.00	0.00	0.00
10,000.00	89.87	358.99	7,505.51	1,084.16	-544.56	1,137.06	0.00	0.00	0.00
10,100.00	89.87	358.99	7,505.74	1,184.14	-546.31	1,236.64	0.00	0.00	0.00
10,200.00	89.87	358.99	7,505.97	1,284.12	-548.07	1,336.22	0.00	0.00	0.00
10,300.00	89.87	358.99	7,506.19	1,384.11	-549.82	1,435.80	0.00	0.00	0.00
10,400.00	89.87	358.99	7,506.42	1,484.09	-551.58	1,535.38	0.00	0.00	0.00
10,500.00	89.87	358.99	7,506.65	1,584.08	-553.33	1,634.96	0.00	0.00	0.00
10,600.00	89.87	358.99	7,506.87	1,684.06	-555.09	1,734.54	0.00	0.00	0.00
10,700.00	89.87	358.99	7,507.10	1,784.05	-556.84	1,834.12	0.00	0.00	0.00
10,800.00	89.87	358.99	7,507.33	1,884.03	-558.60	1,933.70	0.00	0.00	0.00
10,900.00	89.87	358.99	7,507.56	1,984.01	-560.35	2,033.28	0.00	0.00	0.00
11,000.00	89.87	358.99	7,507.78	2,084.00	-562.11	2,132.86	0.00	0.00	0.00
11,100.00	89.87	358.99	7,508.01	2,183.98	-563.86	2,232.44	0.00	0.00	0.00
11,200.00	89.87	358.99	7,508.24	2,283.97	-565.62	2,332.02	0.00	0.00	0.00
11,300.00	89.87	358.99	7,508.46	2,383.95	-567.37	2,431.60	0.00	0.00	0.00
11,400.00	89.87	358.99	7,508.69	2,483.94	-569.13	2,531.18	0.00	0.00	0.00
11,500.00	89.87	358.99	7,508.92	2,583.92	-570.88	2,630.76	0.00	0.00	0.00
11,600.00	89.87	358.99	7,509.14	2,683.91	-572.64	2,730.34	0.00	0.00	0.00
11,700.00	89.87	358.99	7,509.37	2,783.89	-574.39	2,829.91	0.00	0.00	0.00
11,800.00	89.87	358.99	7,509.60	2,883.87	-576.15	2,929.49	0.00	0.00	0.00
11,900.00	89.87	358.99	7,509.82	2,983.86	-577.90	3,029.07	0.00	0.00	0.00
12,000.00	89.87	358.99	7,510.05	3,083.84	-579.66	3,128.65	0.00	0.00	0.00
12,100.00	89.87	358.99	7,510.28	3,183.83	-581.42	3,228.23	0.00	0.00	0.00
12,200.00	89.87	358.99	7,510.51	3,283.81	-583.17	3,327.81	0.00	0.00	0.00
12,300.00	89.87	358.99	7,510.73	3,383.80	-584.93	3,427.39	0.00	0.00	0.00
12,400.00	89.87	358.99	7,510.96	3,483.78	-586.68	3,526.97	0.00	0.00	0.00
12,500.00	89.87	358.99	7,511.19	3,583.76	-588.44	3,626.55	0.00	0.00	0.00
12,600.00	89.87	358.99	7,511.41	3,683.75	-590.19	3,726.13	0.00	0.00	0.00
12,700.00	89.87	358.99	7,511.64	3,783.73	-591.95	3,825.71	0.00	0.00	0.00
12,800.00	89.87	358.99	7,511.87	3,883.72	-593.70	3,925.29	0.00	0.00	0.00
12,900.00	89.87	358.99	7,512.09	3,983.70	-595.46	4,024.87	0.00	0.00	0.00
13,000.00	89.87	358.99	7,512.32	4,083.69	-597.21	4,124.45	0.00	0.00	0.00
13,100.00	89.87	358.99	7,512.55	4,183.67	-598.97	4,224.03	0.00	0.00	0.00
13,200.00	89.87	358.99	7,512.77	4,283.65	-600.72	4,323.61	0.00	0.00	0.00

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Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HIGHLANDS 2C-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 2C-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	89.87	358.99	7,513.00	4,383.64	-602.48	4,423.19	0.00	0.00	0.00	
13,400.00	89.87	358.99	7,513.23	4,483.62	-604.23	4,522.77	0.00	0.00	0.00	
13,500.00	89.87	358.99	7,513.45	4,583.61	-605.99	4,622.35	0.00	0.00	0.00	
13,600.00	89.87	358.99	7,513.68	4,683.59	-607.74	4,721.93	0.00	0.00	0.00	
13,700.00	89.87	358.99	7,513.91	4,783.58	-609.50	4,821.51	0.00	0.00	0.00	
13,800.00	89.87	358.99	7,514.14	4,883.56	-611.25	4,921.09	0.00	0.00	0.00	
13,900.00	89.87	358.99	7,514.36	4,983.55	-613.01	5,020.67	0.00	0.00	0.00	
14,000.00	89.87	358.99	7,514.59	5,083.53	-614.76	5,120.25	0.00	0.00	0.00	
14,100.00	89.87	358.99	7,514.82	5,183.51	-616.52	5,219.83	0.00	0.00	0.00	
14,200.00	89.87	358.99	7,515.04	5,283.50	-618.27	5,319.41	0.00	0.00	0.00	
14,300.00	89.87	358.99	7,515.27	5,383.48	-620.03	5,418.99	0.00	0.00	0.00	
14,400.00	89.87	358.99	7,515.50	5,483.47	-621.78	5,518.57	0.00	0.00	0.00	
14,500.00	89.87	358.99	7,515.72	5,583.45	-623.54	5,618.15	0.00	0.00	0.00	
14,600.00	89.87	358.99	7,515.95	5,683.44	-625.29	5,717.73	0.00	0.00	0.00	
14,621.84	89.87	358.99	7,516.00	5,705.27	-625.68	5,739.48	0.00	0.00	0.00	
HIGHLANDS 2C-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 2C-33HZ; - hit/miss target - Shape - Point	0.00	0.00	7,501.19	-818.93	-511.15	14,552,285.10	1,702,012.80	40.069960	-104.779829	
HIGHLANDS 2C-33HZ; - plan hits target center - Point	0.00	0.00	7,516.00	5,705.27	-625.68	14,558,809.00	1,701,882.00	40.087877	-104.780239	

Casing Points							Casing Diameter (")	Hole Diameter (")
Measured Depth (usft)	Vertical Depth (usft)	Name						
1,840.68	1,800.00	9 5/8"					9-5/8	13-1/2
8,096.62	7,501.19	Top of Production					5-1/2	8-1/2

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HIGHLANDS 2C-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 2C-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			
	4,381.63	4,203.00	Parkman			
	4,800.37	4,599.00	Sussex			
	7,350.02	7,110.00	Sharon Springs			
	7,395.16	7,151.00	Niobrara			
	7,512.06	7,250.00	Nio B			
	7,591.41	7,310.00	Nio C			
	7,901.21	7,471.00	Fort Hayes			
	7,995.80	7,493.00	Codell			