

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

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

HIGHLANDS 16C-16HZ

Plan A

Plan: Permit Rev-3

Standard Planning Report

16 June, 2016



Azimuths to True North
Magnetic North: 8.32°

Magnetic Field
Strength: 52544.9snT
Dip Angle: 66.65°
Date: 5/12/2015
Model: IGRF2010

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

Well: HIGHLANDS 16C-16HZ
Wellbore: Plan A
Design: Permit Rev-3

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1458.00	1477.39	Fox Hills
4203.00	4283.21	Parkman
4599.00	4679.21	Sussex
7135.00	7222.11	Sharon Springs
7176.00	7267.41	Niobrara
7248.00	7351.43	Nio B
7307.00	7426.47	Nio C
7485.00	7747.81	Fort Hayes
7507.00	7827.74	Codell

WELL DETAILS: HIGHLANDS 16C-16HZ

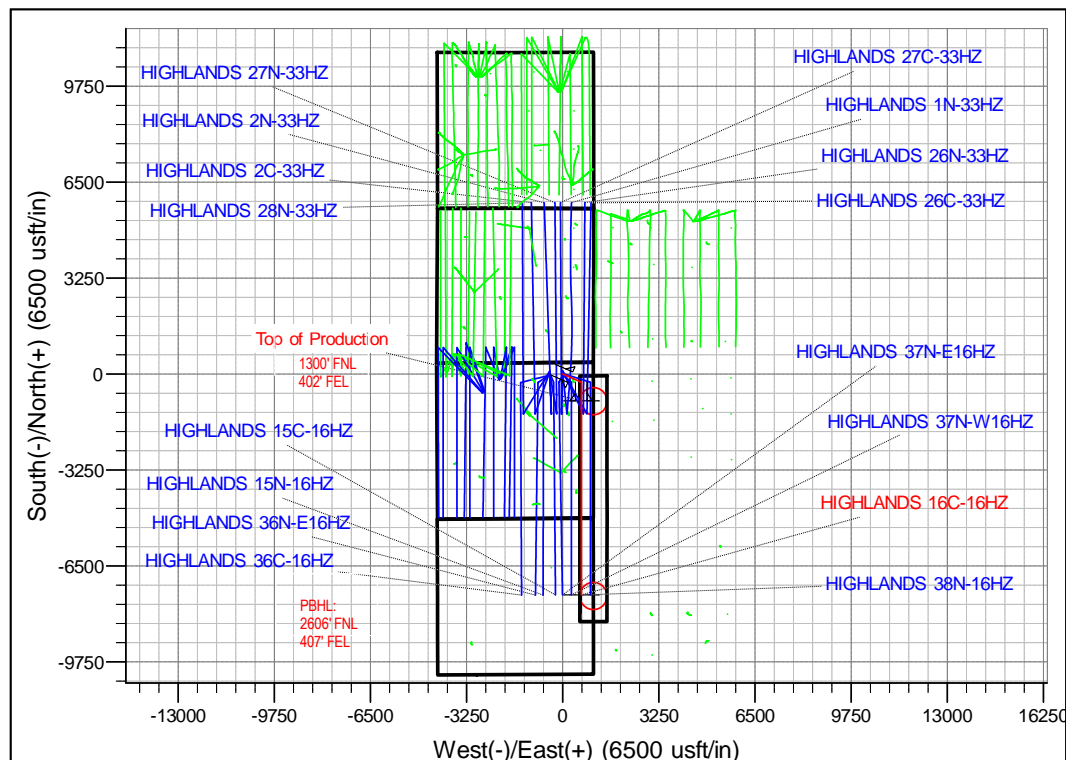
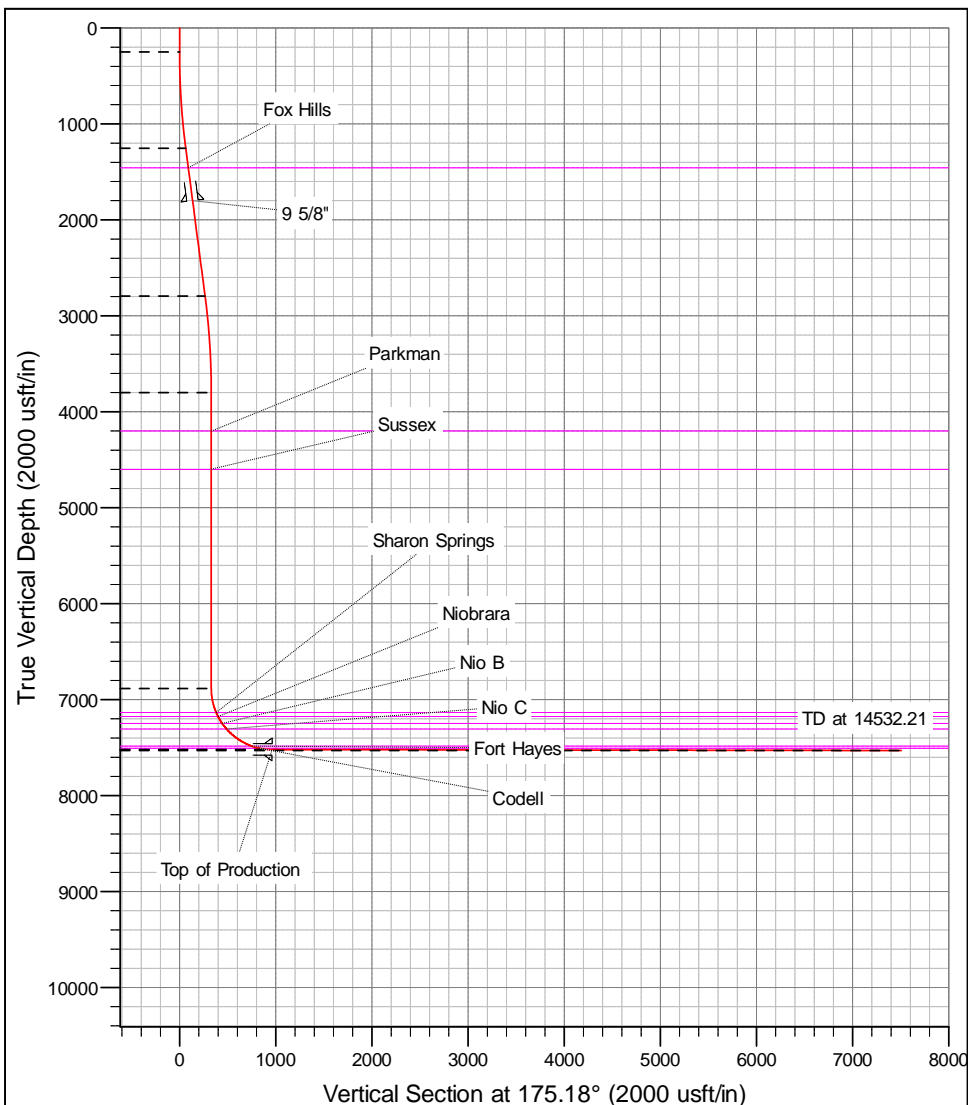
+N/-S	+E/-W	GL: 5001.00 Northing	RKB @ 5018.00usft (D Rig) Easting	Latitude	Longitude	Slot
0.00	0.00	14553012.80	1702953.53	40.071952	-104.776460	

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
1267.16	15.26	113.79	1255.18	-54.30	123.20	1.50	64.46
2863.05	15.26	113.79	2794.82	-223.70	507.48	0.00	265.54
3880.21	0.00	0.00	3800.00	-278.00	630.68	1.50	330.00
6965.42	0.00	0.00	6885.21	-278.00	630.68	0.00	330.00
7964.53	89.92	180.00	7521.83	-913.73	630.68	9.00	963.48
14532.21	89.92	180.00	7531.00	-7481.41	630.68	0.00	7507.95

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
HIGHLANDS 16C-16HZ_PHL	7521.83	-913.73	630.68	14552100.66	1703586.50	40.069443	-104.774206
HIGHLANDS 16C-16HZ_PBHL	7531.00	-7481.41	630.68	14545533.00	170386.03	40.051407	-104.774206



Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HIGHLANDS 16C-16HZ
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 16C-16HZ	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 16C-16HZ					
Well Position	+N/-S	-108.51 usft	Northing:	14,553,012.80 usft	Latitude:	40.071952
	+E/-W	431.39 usft	Easting:	1,702,953.52 usft	Longitude:	-104.776460
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	175.18

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	
1,267.16	15.26	113.79	1,255.18	-54.30	123.20	1.50	1.50	0.00	113.79	
2,863.05	15.26	113.79	2,794.82	-223.70	507.48	0.00	0.00	0.00	0.00	
3,880.21	0.00	0.00	3,800.00	-278.00	630.68	1.50	-1.50	0.00	180.00	
6,965.42	0.00	0.00	6,885.21	-278.00	630.68	0.00	0.00	0.00	0.00	
7,964.53	89.92	180.00	7,521.83	-913.73	630.68	9.00	9.00	0.00	180.00	
14,532.22	89.92	180.00	7,531.00	-7,481.41	630.68	0.00	0.00	0.00	0.00	HIGHLANDS 16C-1

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HIGHLANDS 16C-16HZ
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 16C-16HZ	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	113.79	300.00	-0.13	0.30	0.16	1.50	1.50	0.00
400.00	2.25	113.79	399.96	-1.19	2.69	1.41	1.50	1.50	0.00
500.00	3.75	113.79	499.82	-3.30	7.48	3.92	1.50	1.50	0.00
600.00	5.25	113.79	599.51	-6.46	14.66	7.67	1.50	1.50	0.00
700.00	6.75	113.79	698.96	-10.68	24.23	12.68	1.50	1.50	0.00
800.00	8.25	113.79	798.10	-15.94	36.17	18.93	1.50	1.50	0.00
900.00	9.75	113.79	896.87	-22.25	50.48	26.42	1.50	1.50	0.00
1,000.00	11.25	113.79	995.19	-29.60	67.16	35.14	1.50	1.50	0.00
1,100.00	12.75	113.79	1,093.00	-37.99	86.18	45.09	1.50	1.50	0.00
1,200.00	14.25	113.79	1,190.24	-47.41	107.54	56.27	1.50	1.50	0.00
1,267.16	15.26	113.79	1,255.18	-54.30	123.20	64.46	1.50	1.50	0.00
1,300.00	15.26	113.79	1,286.86	-57.79	131.10	68.60	0.00	0.00	0.00
1,400.00	15.26	113.79	1,383.34	-68.40	155.18	81.20	0.00	0.00	0.00
1,477.39	15.26	113.79	1,458.00	-76.62	173.82	90.95	0.00	0.00	0.00
Fox Hills									
1,500.00	15.26	113.79	1,479.81	-79.02	179.26	93.80	0.00	0.00	0.00
1,600.00	15.26	113.79	1,576.29	-89.63	203.34	106.40	0.00	0.00	0.00
1,700.00	15.26	113.79	1,672.77	-100.25	227.42	119.00	0.00	0.00	0.00
1,800.00	15.26	113.79	1,769.24	-110.86	251.50	131.60	0.00	0.00	0.00
1,831.88	15.26	113.79	1,800.00	-114.25	259.18	135.61	0.00	0.00	0.00
9 5/8"									
1,900.00	15.26	113.79	1,865.72	-121.48	275.58	144.20	0.00	0.00	0.00
2,000.00	15.26	113.79	1,962.19	-132.09	299.66	156.80	0.00	0.00	0.00
2,100.00	15.26	113.79	2,058.67	-142.70	323.74	169.39	0.00	0.00	0.00
2,200.00	15.26	113.79	2,155.14	-153.32	347.82	181.99	0.00	0.00	0.00
2,300.00	15.26	113.79	2,251.62	-163.93	371.90	194.59	0.00	0.00	0.00
2,400.00	15.26	113.79	2,348.09	-174.55	395.98	207.19	0.00	0.00	0.00
2,500.00	15.26	113.79	2,444.57	-185.16	420.06	219.79	0.00	0.00	0.00
2,600.00	15.26	113.79	2,541.04	-195.78	444.14	232.39	0.00	0.00	0.00
2,700.00	15.26	113.79	2,637.52	-206.39	468.22	244.99	0.00	0.00	0.00
2,800.00	15.26	113.79	2,733.99	-217.00	492.30	257.59	0.00	0.00	0.00
2,863.05	15.26	113.79	2,794.82	-223.70	507.48	265.54	0.00	0.00	0.00
2,900.00	14.70	113.79	2,830.52	-227.55	516.23	270.11	1.50	-1.50	0.00
3,000.00	13.20	113.79	2,927.56	-237.27	538.29	281.65	1.50	-1.50	0.00
3,100.00	11.70	113.79	3,025.21	-245.97	558.02	291.98	1.50	-1.50	0.00
3,200.00	10.20	113.79	3,123.38	-253.64	575.41	301.07	1.50	-1.50	0.00
3,300.00	8.70	113.79	3,222.02	-260.26	590.43	308.94	1.50	-1.50	0.00
3,400.00	7.20	113.79	3,321.06	-265.84	603.10	315.56	1.50	-1.50	0.00
3,500.00	5.70	113.79	3,420.42	-270.37	613.38	320.94	1.50	-1.50	0.00
3,600.00	4.20	113.79	3,520.04	-273.86	621.28	325.08	1.50	-1.50	0.00
3,700.00	2.70	113.79	3,619.86	-276.29	626.79	327.96	1.50	-1.50	0.00
3,800.00	1.20	113.79	3,719.80	-277.66	629.91	329.59	1.50	-1.50	0.00
3,880.21	0.00	0.00	3,800.00	-278.00	630.68	330.00	1.50	-1.50	0.00
3,900.00	0.00	0.00	3,819.79	-278.00	630.68	330.00	0.00	0.00	0.00
4,000.00	0.00	0.00	3,919.79	-278.00	630.68	330.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,019.79	-278.00	630.68	330.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,119.79	-278.00	630.68	330.00	0.00	0.00	0.00
4,283.21	0.00	0.00	4,203.00	-278.00	630.68	330.00	0.00	0.00	0.00
Parkman									

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HIGHLANDS 16C-16HZ
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 16C-16HZ	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)
4,300.00	0.00	0.00	4,219.79	-278.00	630.68	330.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,319.79	-278.00	630.68	330.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,419.79	-278.00	630.68	330.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,519.79	-278.00	630.68	330.00	0.00	0.00	0.00
4,679.21	0.00	0.00	4,599.00	-278.00	630.68	330.00	0.00	0.00	0.00
Sussex									
4,700.00	0.00	0.00	4,619.79	-278.00	630.68	330.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,719.79	-278.00	630.68	330.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,819.79	-278.00	630.68	330.00	0.00	0.00	0.00
5,000.00	0.00	0.00	4,919.79	-278.00	630.68	330.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,019.79	-278.00	630.68	330.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,119.79	-278.00	630.68	330.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,219.79	-278.00	630.68	330.00	0.00	0.00	0.00
5,400.00	0.00	0.00	5,319.79	-278.00	630.68	330.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,419.79	-278.00	630.68	330.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,519.79	-278.00	630.68	330.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,619.79	-278.00	630.68	330.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,719.79	-278.00	630.68	330.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,819.79	-278.00	630.68	330.00	0.00	0.00	0.00
6,000.00	0.00	0.00	5,919.79	-278.00	630.68	330.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,019.79	-278.00	630.68	330.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,119.79	-278.00	630.68	330.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,219.79	-278.00	630.68	330.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,319.79	-278.00	630.68	330.00	0.00	0.00	0.00
6,500.00	0.00	0.00	6,419.79	-278.00	630.68	330.00	0.00	0.00	0.00
6,600.00	0.00	0.00	6,519.79	-278.00	630.68	330.00	0.00	0.00	0.00
6,700.00	0.00	0.00	6,619.79	-278.00	630.68	330.00	0.00	0.00	0.00
6,800.00	0.00	0.00	6,719.79	-278.00	630.68	330.00	0.00	0.00	0.00
6,900.00	0.00	0.00	6,819.79	-278.00	630.68	330.00	0.00	0.00	0.00
6,965.42	0.00	0.00	6,885.21	-278.00	630.68	330.00	0.00	0.00	0.00
7,000.00	3.11	180.00	6,919.78	-278.94	630.68	330.93	9.00	9.00	0.00
7,100.00	12.11	180.00	7,018.79	-292.17	630.68	344.12	9.00	9.00	0.00
7,200.00	21.11	180.00	7,114.52	-320.73	630.68	372.58	9.00	9.00	0.00
7,222.11	23.10	180.00	7,135.00	-329.05	630.68	380.87	9.00	9.00	0.00
Sharon Springs									
7,267.41	27.18	180.00	7,176.00	-348.29	630.68	400.04	9.00	9.00	0.00
Niobrara									
7,300.00	30.11	180.00	7,204.60	-363.92	630.68	415.61	9.00	9.00	0.00
7,351.43	34.74	180.00	7,248.00	-391.49	630.68	443.08	9.00	9.00	0.00
Nio B									
7,400.00	39.11	180.00	7,286.82	-420.66	630.68	472.15	9.00	9.00	0.00
7,426.47	41.49	180.00	7,307.00	-437.78	630.68	489.21	9.00	9.00	0.00
Nio C									
7,500.00	48.11	180.00	7,359.15	-489.57	630.68	540.81	9.00	9.00	0.00
7,600.00	57.11	180.00	7,419.80	-568.94	630.68	619.91	9.00	9.00	0.00
7,700.00	66.11	180.00	7,467.30	-656.82	630.68	707.48	9.00	9.00	0.00
7,747.81	70.42	180.00	7,485.00	-701.22	630.68	751.72	9.00	9.00	0.00
Fort Hayes									
7,800.00	75.11	180.00	7,500.46	-751.06	630.68	801.38	9.00	9.00	0.00
7,827.74	77.61	180.00	7,507.00	-778.01	630.68	828.24	9.00	9.00	0.00
Codell									
7,900.00	84.11	180.00	7,518.47	-849.32	630.68	899.29	9.00	9.00	0.00
7,964.53	89.92	180.00	7,521.83	-913.73	630.68	963.48	9.00	9.00	0.00

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HIGHLANDS 16C-16HZ
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 16C-16HZ	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)
Top of Production - HIGHLANDS 16C-16HZ_PHL									
8,000.00	89.92	180.00	7,521.88	-949.20	630.68	998.83	0.00	0.00	0.00
8,100.00	89.92	180.00	7,522.02	-1,049.20	630.68	1,098.47	0.00	0.00	0.00
8,200.00	89.92	180.00	7,522.16	-1,149.20	630.68	1,198.12	0.00	0.00	0.00
8,300.00	89.92	180.00	7,522.30	-1,249.20	630.68	1,297.76	0.00	0.00	0.00
8,400.00	89.92	180.00	7,522.44	-1,349.20	630.68	1,397.41	0.00	0.00	0.00
8,500.00	89.92	180.00	7,522.58	-1,449.20	630.68	1,497.06	0.00	0.00	0.00
8,600.00	89.92	180.00	7,522.72	-1,549.20	630.68	1,596.70	0.00	0.00	0.00
8,700.00	89.92	180.00	7,522.86	-1,649.20	630.68	1,696.35	0.00	0.00	0.00
8,800.00	89.92	180.00	7,523.00	-1,749.20	630.68	1,796.00	0.00	0.00	0.00
8,900.00	89.92	180.00	7,523.14	-1,849.20	630.68	1,895.64	0.00	0.00	0.00
9,000.00	89.92	180.00	7,523.28	-1,949.20	630.68	1,995.29	0.00	0.00	0.00
9,100.00	89.92	180.00	7,523.42	-2,049.20	630.68	2,094.94	0.00	0.00	0.00
9,200.00	89.92	180.00	7,523.55	-2,149.20	630.68	2,194.58	0.00	0.00	0.00
9,300.00	89.92	180.00	7,523.69	-2,249.20	630.68	2,294.23	0.00	0.00	0.00
9,400.00	89.92	180.00	7,523.83	-2,349.20	630.68	2,393.88	0.00	0.00	0.00
9,500.00	89.92	180.00	7,523.97	-2,449.20	630.68	2,493.52	0.00	0.00	0.00
9,600.00	89.92	180.00	7,524.11	-2,549.20	630.68	2,593.17	0.00	0.00	0.00
9,700.00	89.92	180.00	7,524.25	-2,649.20	630.68	2,692.82	0.00	0.00	0.00
9,800.00	89.92	180.00	7,524.39	-2,749.20	630.68	2,792.46	0.00	0.00	0.00
9,900.00	89.92	180.00	7,524.53	-2,849.20	630.68	2,892.11	0.00	0.00	0.00
10,000.00	89.92	180.00	7,524.67	-2,949.20	630.68	2,991.75	0.00	0.00	0.00
10,100.00	89.92	180.00	7,524.81	-3,049.20	630.68	3,091.40	0.00	0.00	0.00
10,200.00	89.92	180.00	7,524.95	-3,149.20	630.68	3,191.05	0.00	0.00	0.00
10,300.00	89.92	180.00	7,525.09	-3,249.20	630.68	3,290.69	0.00	0.00	0.00
10,400.00	89.92	180.00	7,525.23	-3,349.20	630.68	3,390.34	0.00	0.00	0.00
10,500.00	89.92	180.00	7,525.37	-3,449.20	630.68	3,489.99	0.00	0.00	0.00
10,600.00	89.92	180.00	7,525.51	-3,549.20	630.68	3,589.63	0.00	0.00	0.00
10,700.00	89.92	180.00	7,525.65	-3,649.20	630.68	3,689.28	0.00	0.00	0.00
10,800.00	89.92	180.00	7,525.79	-3,749.20	630.68	3,788.93	0.00	0.00	0.00
10,900.00	89.92	180.00	7,525.93	-3,849.20	630.68	3,888.57	0.00	0.00	0.00
11,000.00	89.92	180.00	7,526.07	-3,949.20	630.68	3,988.22	0.00	0.00	0.00
11,100.00	89.92	180.00	7,526.21	-4,049.20	630.68	4,087.87	0.00	0.00	0.00
11,200.00	89.92	180.00	7,526.35	-4,149.20	630.68	4,187.51	0.00	0.00	0.00
11,300.00	89.92	180.00	7,526.49	-4,249.20	630.68	4,287.16	0.00	0.00	0.00
11,400.00	89.92	180.00	7,526.63	-4,349.20	630.68	4,386.81	0.00	0.00	0.00
11,500.00	89.92	180.00	7,526.77	-4,449.20	630.68	4,486.45	0.00	0.00	0.00
11,600.00	89.92	180.00	7,526.91	-4,549.20	630.68	4,586.10	0.00	0.00	0.00
11,700.00	89.92	180.00	7,527.05	-4,649.20	630.68	4,685.74	0.00	0.00	0.00
11,800.00	89.92	180.00	7,527.19	-4,749.20	630.68	4,785.39	0.00	0.00	0.00
11,900.00	89.92	180.00	7,527.32	-4,849.20	630.68	4,885.04	0.00	0.00	0.00
12,000.00	89.92	180.00	7,527.46	-4,949.20	630.68	4,984.68	0.00	0.00	0.00
12,100.00	89.92	180.00	7,527.60	-5,049.20	630.68	5,084.33	0.00	0.00	0.00
12,200.00	89.92	180.00	7,527.74	-5,149.20	630.68	5,183.98	0.00	0.00	0.00
12,300.00	89.92	180.00	7,527.88	-5,249.20	630.68	5,283.62	0.00	0.00	0.00
12,400.00	89.92	180.00	7,528.02	-5,349.20	630.68	5,383.27	0.00	0.00	0.00
12,500.00	89.92	180.00	7,528.16	-5,449.20	630.68	5,482.92	0.00	0.00	0.00
12,600.00	89.92	180.00	7,528.30	-5,549.20	630.68	5,582.56	0.00	0.00	0.00
12,700.00	89.92	180.00	7,528.44	-5,649.20	630.68	5,682.21	0.00	0.00	0.00
12,800.00	89.92	180.00	7,528.58	-5,749.20	630.68	5,781.86	0.00	0.00	0.00
12,900.00	89.92	180.00	7,528.72	-5,849.20	630.68	5,881.50	0.00	0.00	0.00
13,000.00	89.92	180.00	7,528.86	-5,949.20	630.68	5,981.15	0.00	0.00	0.00
13,100.00	89.92	180.00	7,529.00	-6,049.20	630.68	6,080.80	0.00	0.00	0.00
13,200.00	89.92	180.00	7,529.14	-6,149.20	630.68	6,180.44	0.00	0.00	0.00

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HIGHLANDS 16C-16HZ
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 16C-16HZ	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	89.92	180.00	7,529.28	-6,249.20	630.68	6,280.09	0.00	0.00	0.00
13,400.00	89.92	180.00	7,529.42	-6,349.20	630.68	6,379.73	0.00	0.00	0.00
13,500.00	89.92	180.00	7,529.56	-6,449.20	630.68	6,479.38	0.00	0.00	0.00
13,600.00	89.92	180.00	7,529.70	-6,549.20	630.68	6,579.03	0.00	0.00	0.00
13,700.00	89.92	180.00	7,529.84	-6,649.20	630.68	6,678.67	0.00	0.00	0.00
13,800.00	89.92	180.00	7,529.98	-6,749.20	630.68	6,778.32	0.00	0.00	0.00
13,900.00	89.92	180.00	7,530.12	-6,849.20	630.68	6,877.97	0.00	0.00	0.00
14,000.00	89.92	180.00	7,530.26	-6,949.20	630.68	6,977.61	0.00	0.00	0.00
14,100.00	89.92	180.00	7,530.40	-7,049.20	630.68	7,077.26	0.00	0.00	0.00
14,200.00	89.92	180.00	7,530.54	-7,149.20	630.68	7,176.91	0.00	0.00	0.00
14,300.00	89.92	180.00	7,530.68	-7,249.20	630.68	7,276.55	0.00	0.00	0.00
14,400.00	89.92	180.00	7,530.82	-7,349.20	630.68	7,376.20	0.00	0.00	0.00
14,500.00	89.92	180.00	7,530.96	-7,449.20	630.68	7,475.85	0.00	0.00	0.00
14,532.22	89.92	180.00	7,531.00	-7,481.41	630.68	7,507.95	0.00	0.00	0.00
HIGHLANDS 16C-16HZ_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 16C-16H - plan hits target center - Point	0.00	0.00	7,521.83	-913.73	630.68	14,552,100.65	1,703,586.50	40.069443	-104.774206
HIGHLANDS 16C-16H - plan hits target center - Point	0.00	0.00	7,531.00	-7,481.41	630.68	14,545,533.00	1,703,603.00	40.051407	-104.774207

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,831.88	1,800.00	9 5/8"	9-5/8	13-1/2	
7,964.53	7,521.83	Top of Production	5-1/2	8-1/2	

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HIGHLANDS 16C-16HZ
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 16C-16HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-3		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,477.39	1,458.00	Fox Hills				
4,283.21	4,203.00	Parkman				
4,679.21	4,599.00	Sussex				
7,222.11	7,135.00	Sharon Springs				
7,267.41	7,176.00	Niobrara				
7,351.43	7,248.00	Nio B				
7,426.47	7,307.00	Nio C				
7,747.81	7,485.00	Fort Hayes				
7,827.74	7,507.00	Codell				