

# **US ROCKIES WATTENBERG PLANNING**

**WELD-NAD83-UTMFT13N**

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

**HIGHLANDS 37N-E16HZ**

**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 37N-E16HZ  
Wellbore: Plan A  
Design: Permit Rev-3

#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1458.00	1467.56	Fox Hills
4203.00	4221.34	Parkman
4599.00	4617.34	Sussex
7131.00	7192.22	Sharon Springs
7172.00	7250.61	Niobrara
7246.00	7375.62	Nio B
7303.00	7513.04	Nio C

#### WELL DETAILS: HIGHLANDS 37N-E16HZ

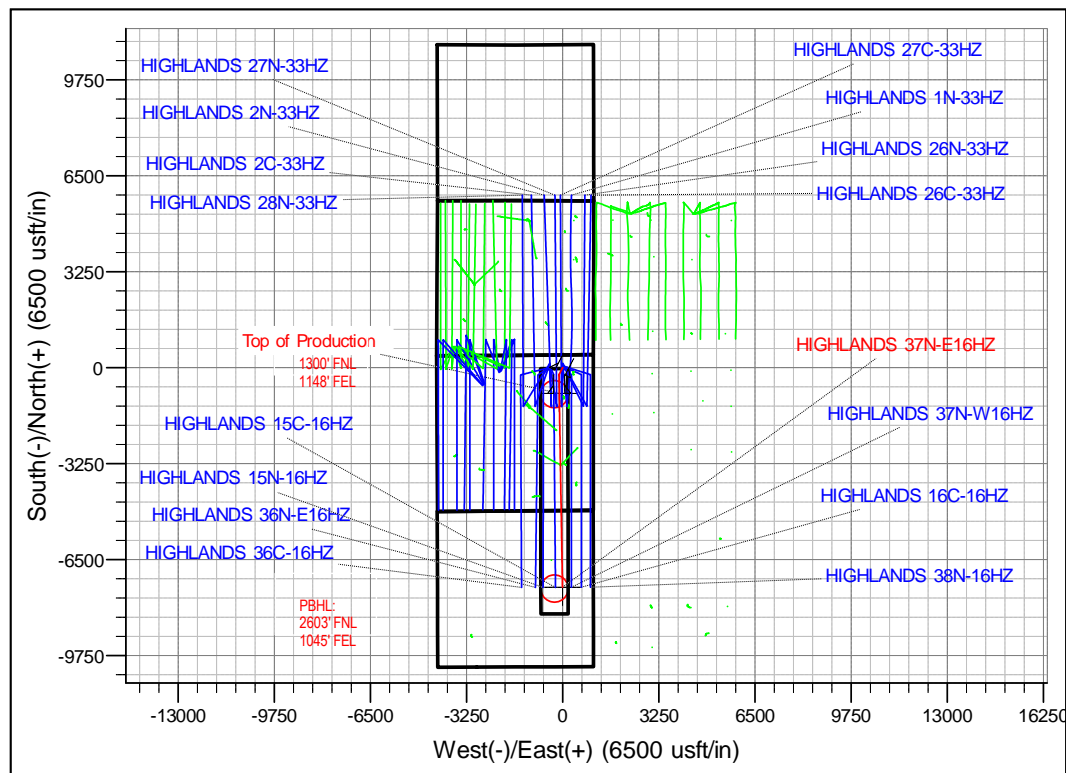
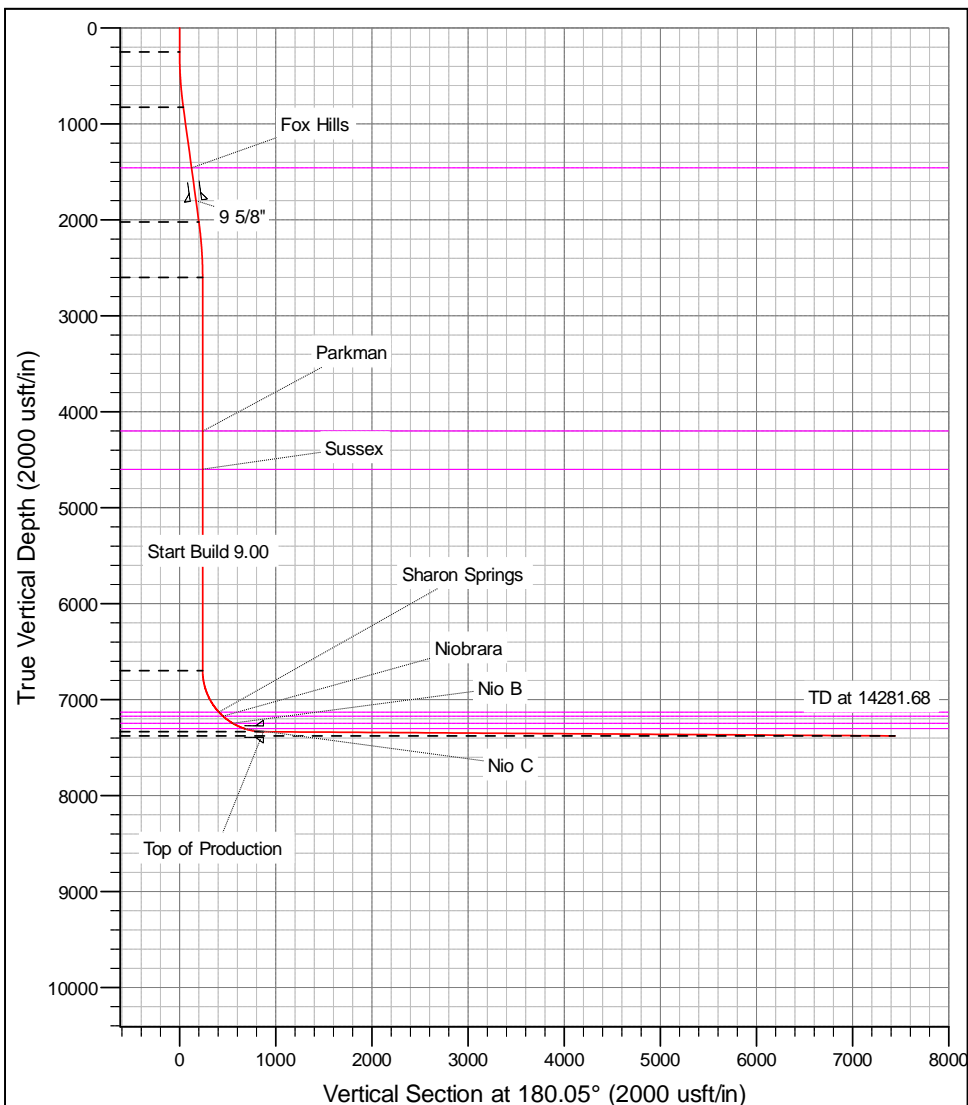
+N/-S	+E/-W	GL: 5001.00 Northing	RKB @ 5018.00usft (D Rig) Easting	Latitude	Longitude	Slot
0.00	0.00	14552968.01	1702953.36	40.071829	-104.776461	

#### 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
829.76	8.70	207.51	827.54	-38.95	-20.29	1.50	38.97
2038.58	8.70	207.51	2022.46	-201.05	-104.71	0.00	201.15
2618.34	0.00	0.00	2600.00	-240.00	-125.00	1.50	240.12
6717.17	0.00	0.00	6698.83	-240.00	-125.00	0.00	240.12
7712.95	89.62	179.06	7335.43	-872.31	-114.64	9.00	872.42
14281.68	89.62	179.06	7379.00	-7440.02	-7.05	0.00	7440.02

#### DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
HIGHLANDS 37N-E16HZ_PHL	7335.43	-872.31	-114.64	14552095.42	1702840.91	40.069434	-104.776871
HIGHLANDS 37N-E16HZ_PBHL	7379.00	-7440.02	-7.05	14545528.00	1702965.00	40.051398	-104.776486



# Anadarko

## Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well HIGHLANDS 37N-E16HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB @ 5018.00usft (D Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB @ 5018.00usft (D Rig)
<b>Site:</b>	1N-66W-09 Highlands 27-9HZ Pad	<b>North Reference:</b>	True
<b>Well:</b>	HIGHLANDS 37N-E16HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	Permit Rev-3		

<b>Project</b>	WELD-NAD83-UTMFT13N		
<b>Map System:</b>	Universal Transverse Mercator (US Survey Feet)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	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 37N-E16HZ					
Well Position	+N/-S	-153.30 usft	Northing:	14,552,968.01 usft	Latitude:	40.071829
	+E/-W	431.11 usft	Easting:	1,702,953.36 usft	Longitude:	-104.776461
Position Uncertainty		3.28 usft	Wellhead Elevation:	0.00 usft	Ground Level:	5,001.00 usft

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

<b>Design</b>	Permit Rev-3			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	180.05

<b>Plan Sections</b>										
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	
829.76	8.70	207.51	827.54	-38.95	-20.29	1.50	1.50	0.00	207.51	
2,038.58	8.70	207.51	2,022.46	-201.05	-104.71	0.00	0.00	0.00	0.00	
2,618.34	0.00	0.00	2,600.00	-240.00	-125.00	1.50	-1.50	0.00	180.00	
6,717.17	0.00	0.00	6,698.83	-240.00	-125.00	0.00	0.00	0.00	0.00	
7,712.95	89.62	179.06	7,335.44	-872.31	-114.64	9.00	9.00	0.00	179.06	
14,281.68	89.62	179.06	7,379.00	-7,440.02	-7.05	0.00	0.00	0.00	0.00	HIGHLANDS 37N-E

# Anadarko

## Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well HIGHLANDS 37N-E16HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB @ 5018.00usft (D Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB @ 5018.00usft (D Rig)
<b>Site:</b>	1N-66W-09 Highlands 27-9HZ Pad	<b>North Reference:</b>	True
<b>Well:</b>	HIGHLANDS 37N-E16HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	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	207.51	300.00	-0.29	-0.15	0.29	1.50	1.50	0.00
400.00	2.25	207.51	399.96	-2.61	-1.36	2.61	1.50	1.50	0.00
500.00	3.75	207.51	499.82	-7.25	-3.78	7.26	1.50	1.50	0.00
600.00	5.25	207.51	599.51	-14.21	-7.40	14.22	1.50	1.50	0.00
700.00	6.75	207.51	698.96	-23.48	-12.23	23.49	1.50	1.50	0.00
800.00	8.25	207.51	798.10	-35.06	-18.26	35.08	1.50	1.50	0.00
829.76	8.70	207.51	827.54	-38.95	-20.29	38.97	1.50	1.50	0.00
900.00	8.70	207.51	896.97	-48.37	-25.19	48.39	0.00	0.00	0.00
1,000.00	8.70	207.51	995.82	-61.78	-32.18	61.81	0.00	0.00	0.00
1,100.00	8.70	207.51	1,094.67	-75.19	-39.16	75.22	0.00	0.00	0.00
1,200.00	8.70	207.51	1,193.52	-88.60	-46.14	88.64	0.00	0.00	0.00
1,300.00	8.70	207.51	1,292.37	-102.01	-53.13	102.06	0.00	0.00	0.00
1,400.00	8.70	207.51	1,391.22	-115.42	-60.11	115.47	0.00	0.00	0.00
1,467.56	8.70	207.51	1,458.00	-124.48	-64.83	124.54	0.00	0.00	0.00
<b>Fox Hills</b>									
1,500.00	8.70	207.51	1,490.07	-128.83	-67.10	128.89	0.00	0.00	0.00
1,600.00	8.70	207.51	1,588.92	-142.24	-74.08	142.31	0.00	0.00	0.00
1,700.00	8.70	207.51	1,687.77	-155.65	-81.07	155.72	0.00	0.00	0.00
1,800.00	8.70	207.51	1,786.62	-169.06	-88.05	169.14	0.00	0.00	0.00
1,813.53	8.70	207.51	1,800.00	-170.87	-89.00	170.96	0.00	0.00	0.00
<b>9 5/8"</b>									
1,900.00	8.70	207.51	1,885.47	-182.47	-95.04	182.56	0.00	0.00	0.00
2,000.00	8.70	207.51	1,984.32	-195.88	-102.02	195.97	0.00	0.00	0.00
2,038.58	8.70	207.51	2,022.46	-201.05	-104.71	201.15	0.00	0.00	0.00
2,100.00	7.78	207.51	2,083.25	-208.85	-108.78	208.96	1.50	-1.50	0.00
2,200.00	6.28	207.51	2,182.49	-219.70	-114.43	219.81	1.50	-1.50	0.00
2,300.00	4.78	207.51	2,282.02	-228.24	-118.88	228.35	1.50	-1.50	0.00
2,400.00	3.28	207.51	2,381.77	-234.47	-122.12	234.58	1.50	-1.50	0.00
2,500.00	1.78	207.51	2,481.67	-238.37	-124.15	238.49	1.50	-1.50	0.00
2,600.00	0.28	207.51	2,581.66	-239.96	-124.98	240.08	1.50	-1.50	0.00
2,618.34	0.00	0.00	2,600.00	-240.00	-125.00	240.12	1.50	-1.50	0.00
2,700.00	0.00	0.00	2,681.66	-240.00	-125.00	240.12	0.00	0.00	0.00
2,800.00	0.00	0.00	2,781.66	-240.00	-125.00	240.12	0.00	0.00	0.00
2,900.00	0.00	0.00	2,881.66	-240.00	-125.00	240.12	0.00	0.00	0.00
3,000.00	0.00	0.00	2,981.66	-240.00	-125.00	240.12	0.00	0.00	0.00
3,100.00	0.00	0.00	3,081.66	-240.00	-125.00	240.12	0.00	0.00	0.00
3,200.00	0.00	0.00	3,181.66	-240.00	-125.00	240.12	0.00	0.00	0.00
3,300.00	0.00	0.00	3,281.66	-240.00	-125.00	240.12	0.00	0.00	0.00
3,400.00	0.00	0.00	3,381.66	-240.00	-125.00	240.12	0.00	0.00	0.00
3,500.00	0.00	0.00	3,481.66	-240.00	-125.00	240.12	0.00	0.00	0.00
3,600.00	0.00	0.00	3,581.66	-240.00	-125.00	240.12	0.00	0.00	0.00
3,700.00	0.00	0.00	3,681.66	-240.00	-125.00	240.12	0.00	0.00	0.00
3,800.00	0.00	0.00	3,781.66	-240.00	-125.00	240.12	0.00	0.00	0.00
3,900.00	0.00	0.00	3,881.66	-240.00	-125.00	240.12	0.00	0.00	0.00
4,000.00	0.00	0.00	3,981.66	-240.00	-125.00	240.12	0.00	0.00	0.00
4,100.00	0.00	0.00	4,081.66	-240.00	-125.00	240.12	0.00	0.00	0.00
4,200.00	0.00	0.00	4,181.66	-240.00	-125.00	240.12	0.00	0.00	0.00
4,221.34	0.00	0.00	4,203.00	-240.00	-125.00	240.12	0.00	0.00	0.00
<b>Parkman</b>									

# Anadarko

## Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well HIGHLANDS 37N-E16HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB @ 5018.00usft (D Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB @ 5018.00usft (D Rig)
<b>Site:</b>	1N-66W-09 Highlands 27-9HZ Pad	<b>North Reference:</b>	True
<b>Well:</b>	HIGHLANDS 37N-E16HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	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	4,281.66	-240.00	-125.00	240.12	0.00	0.00	0.00
4,400.00	0.00	0.00	4,381.66	-240.00	-125.00	240.12	0.00	0.00	0.00
4,500.00	0.00	0.00	4,481.66	-240.00	-125.00	240.12	0.00	0.00	0.00
4,600.00	0.00	0.00	4,581.66	-240.00	-125.00	240.12	0.00	0.00	0.00
4,617.34	0.00	0.00	4,599.00	-240.00	-125.00	240.12	0.00	0.00	0.00
<b>Sussex</b>									
4,700.00	0.00	0.00	4,681.66	-240.00	-125.00	240.12	0.00	0.00	0.00
4,800.00	0.00	0.00	4,781.66	-240.00	-125.00	240.12	0.00	0.00	0.00
4,900.00	0.00	0.00	4,881.66	-240.00	-125.00	240.12	0.00	0.00	0.00
5,000.00	0.00	0.00	4,981.66	-240.00	-125.00	240.12	0.00	0.00	0.00
5,100.00	0.00	0.00	5,081.66	-240.00	-125.00	240.12	0.00	0.00	0.00
5,200.00	0.00	0.00	5,181.66	-240.00	-125.00	240.12	0.00	0.00	0.00
5,300.00	0.00	0.00	5,281.66	-240.00	-125.00	240.12	0.00	0.00	0.00
5,400.00	0.00	0.00	5,381.66	-240.00	-125.00	240.12	0.00	0.00	0.00
5,500.00	0.00	0.00	5,481.66	-240.00	-125.00	240.12	0.00	0.00	0.00
5,600.00	0.00	0.00	5,581.66	-240.00	-125.00	240.12	0.00	0.00	0.00
5,700.00	0.00	0.00	5,681.66	-240.00	-125.00	240.12	0.00	0.00	0.00
5,800.00	0.00	0.00	5,781.66	-240.00	-125.00	240.12	0.00	0.00	0.00
5,900.00	0.00	0.00	5,881.66	-240.00	-125.00	240.12	0.00	0.00	0.00
6,000.00	0.00	0.00	5,981.66	-240.00	-125.00	240.12	0.00	0.00	0.00
6,100.00	0.00	0.00	6,081.66	-240.00	-125.00	240.12	0.00	0.00	0.00
6,200.00	0.00	0.00	6,181.66	-240.00	-125.00	240.12	0.00	0.00	0.00
6,300.00	0.00	0.00	6,281.66	-240.00	-125.00	240.12	0.00	0.00	0.00
6,400.00	0.00	0.00	6,381.66	-240.00	-125.00	240.12	0.00	0.00	0.00
6,500.00	0.00	0.00	6,481.66	-240.00	-125.00	240.12	0.00	0.00	0.00
6,600.00	0.00	0.00	6,581.66	-240.00	-125.00	240.12	0.00	0.00	0.00
6,700.00	0.00	0.00	6,681.66	-240.00	-125.00	240.12	0.00	0.00	0.00
6,717.17	0.00	0.00	6,698.83	-240.00	-125.00	240.12	0.00	0.00	0.00
6,800.00	7.45	179.06	6,781.42	-245.38	-124.91	245.50	9.00	9.00	0.00
6,900.00	16.45	179.06	6,879.15	-266.07	-124.57	266.19	9.00	9.00	0.00
7,000.00	25.45	179.06	6,972.44	-301.79	-123.99	301.91	9.00	9.00	0.00
7,100.00	34.45	179.06	7,059.00	-351.66	-123.17	351.78	9.00	9.00	0.00
7,192.22	42.75	179.06	7,131.00	-409.14	-122.23	409.26	9.00	9.00	0.00
<b>Sharon Springs</b>									
7,200.00	43.45	179.06	7,136.68	-414.46	-122.14	414.58	9.00	9.00	0.00
7,250.61	48.01	179.06	7,172.00	-450.69	-121.55	450.80	9.00	9.00	0.00
<b>Niobrara</b>									
7,300.00	52.45	179.06	7,203.58	-488.63	-120.93	488.75	9.00	9.00	0.00
7,375.62	59.26	179.06	7,246.00	-551.17	-119.90	551.29	9.00	9.00	0.00
<b>Nio B</b>									
7,400.00	61.45	179.06	7,258.06	-572.36	-119.56	572.47	9.00	9.00	0.00
7,500.00	70.45	179.06	7,298.76	-663.58	-118.06	663.69	9.00	9.00	0.00
7,513.04	71.63	179.06	7,303.00	-675.91	-117.86	676.02	9.00	9.00	0.00
<b>Nio C</b>									
7,600.00	79.45	179.06	7,324.70	-760.04	-116.48	760.15	9.00	9.00	0.00
7,700.00	88.45	179.06	7,335.22	-859.37	-114.85	859.47	9.00	9.00	0.00
7,712.95	89.62	179.06	7,335.44	-872.31	-114.64	872.42	9.00	9.00	0.00
<b>Top of Production - HIGHLANDS 37N-E16HZ_PHL</b>									
7,800.00	89.62	179.06	7,336.01	-959.35	-113.22	959.45	0.00	0.00	0.00
7,900.00	89.62	179.06	7,336.68	-1,059.33	-111.58	1,059.44	0.00	0.00	0.00
8,000.00	89.62	179.06	7,337.34	-1,159.32	-109.94	1,159.42	0.00	0.00	0.00
8,100.00	89.62	179.06	7,338.00	-1,259.30	-108.30	1,259.40	0.00	0.00	0.00
8,200.00	89.62	179.06	7,338.67	-1,359.29	-106.66	1,359.39	0.00	0.00	0.00

# Anadarko

## Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well HIGHLANDS 37N-E16HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB @ 5018.00usft (D Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB @ 5018.00usft (D Rig)
<b>Site:</b>	1N-66W-09 Highlands 27-9HZ Pad	<b>North Reference:</b>	True
<b>Well:</b>	HIGHLANDS 37N-E16HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	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)	
8,300.00	89.62	179.06	7,339.33	-1,459.27	-105.03	1,459.37	0.00	0.00	0.00	
8,400.00	89.62	179.06	7,339.99	-1,559.25	-103.39	1,559.35	0.00	0.00	0.00	
8,500.00	89.62	179.06	7,340.65	-1,659.24	-101.75	1,659.33	0.00	0.00	0.00	
8,600.00	89.62	179.06	7,341.32	-1,759.22	-100.11	1,759.32	0.00	0.00	0.00	
8,700.00	89.62	179.06	7,341.98	-1,859.21	-98.47	1,859.30	0.00	0.00	0.00	
8,800.00	89.62	179.06	7,342.64	-1,959.19	-96.84	1,959.28	0.00	0.00	0.00	
8,900.00	89.62	179.06	7,343.31	-2,059.18	-95.20	2,059.27	0.00	0.00	0.00	
9,000.00	89.62	179.06	7,343.97	-2,159.16	-93.56	2,159.25	0.00	0.00	0.00	
9,100.00	89.62	179.06	7,344.63	-2,259.14	-91.92	2,259.23	0.00	0.00	0.00	
9,200.00	89.62	179.06	7,345.30	-2,359.13	-90.28	2,359.21	0.00	0.00	0.00	
9,300.00	89.62	179.06	7,345.96	-2,459.11	-88.65	2,459.20	0.00	0.00	0.00	
9,400.00	89.62	179.06	7,346.62	-2,559.10	-87.01	2,559.18	0.00	0.00	0.00	
9,500.00	89.62	179.06	7,347.29	-2,659.08	-85.37	2,659.16	0.00	0.00	0.00	
9,600.00	89.62	179.06	7,347.95	-2,759.07	-83.73	2,759.14	0.00	0.00	0.00	
9,700.00	89.62	179.06	7,348.61	-2,859.05	-82.09	2,859.13	0.00	0.00	0.00	
9,800.00	89.62	179.06	7,349.28	-2,959.04	-80.46	2,959.11	0.00	0.00	0.00	
9,900.00	89.62	179.06	7,349.94	-3,059.02	-78.82	3,059.09	0.00	0.00	0.00	
10,000.00	89.62	179.06	7,350.60	-3,159.00	-77.18	3,159.08	0.00	0.00	0.00	
10,100.00	89.62	179.06	7,351.27	-3,258.99	-75.54	3,259.06	0.00	0.00	0.00	
10,200.00	89.62	179.06	7,351.93	-3,358.97	-73.90	3,359.04	0.00	0.00	0.00	
10,300.00	89.62	179.06	7,352.59	-3,458.96	-72.27	3,459.02	0.00	0.00	0.00	
10,400.00	89.62	179.06	7,353.26	-3,558.94	-70.63	3,559.01	0.00	0.00	0.00	
10,500.00	89.62	179.06	7,353.92	-3,658.93	-68.99	3,658.99	0.00	0.00	0.00	
10,600.00	89.62	179.06	7,354.58	-3,758.91	-67.35	3,758.97	0.00	0.00	0.00	
10,700.00	89.62	179.06	7,355.25	-3,858.90	-65.71	3,858.96	0.00	0.00	0.00	
10,800.00	89.62	179.06	7,355.91	-3,958.88	-64.08	3,958.94	0.00	0.00	0.00	
10,900.00	89.62	179.06	7,356.57	-4,058.86	-62.44	4,058.92	0.00	0.00	0.00	
11,000.00	89.62	179.06	7,357.24	-4,158.85	-60.80	4,158.90	0.00	0.00	0.00	
11,100.00	89.62	179.06	7,357.90	-4,258.83	-59.16	4,258.89	0.00	0.00	0.00	
11,200.00	89.62	179.06	7,358.56	-4,358.82	-57.52	4,358.87	0.00	0.00	0.00	
11,300.00	89.62	179.06	7,359.23	-4,458.80	-55.89	4,458.85	0.00	0.00	0.00	
11,400.00	89.62	179.06	7,359.89	-4,558.79	-54.25	4,558.84	0.00	0.00	0.00	
11,500.00	89.62	179.06	7,360.55	-4,658.77	-52.61	4,658.82	0.00	0.00	0.00	
11,600.00	89.62	179.06	7,361.21	-4,758.75	-50.97	4,758.80	0.00	0.00	0.00	
11,700.00	89.62	179.06	7,361.88	-4,858.74	-49.33	4,858.78	0.00	0.00	0.00	
11,800.00	89.62	179.06	7,362.54	-4,958.72	-47.70	4,958.77	0.00	0.00	0.00	
11,900.00	89.62	179.06	7,363.20	-5,058.71	-46.06	5,058.75	0.00	0.00	0.00	
12,000.00	89.62	179.06	7,363.87	-5,158.69	-44.42	5,158.73	0.00	0.00	0.00	
12,100.00	89.62	179.06	7,364.53	-5,258.68	-42.78	5,258.71	0.00	0.00	0.00	
12,200.00	89.62	179.06	7,365.19	-5,358.66	-41.14	5,358.70	0.00	0.00	0.00	
12,300.00	89.62	179.06	7,365.86	-5,458.65	-39.51	5,458.68	0.00	0.00	0.00	
12,400.00	89.62	179.06	7,366.52	-5,558.63	-37.87	5,558.66	0.00	0.00	0.00	
12,500.00	89.62	179.06	7,367.18	-5,658.61	-36.23	5,658.65	0.00	0.00	0.00	
12,600.00	89.62	179.06	7,367.85	-5,758.60	-34.59	5,758.63	0.00	0.00	0.00	
12,700.00	89.62	179.06	7,368.51	-5,858.58	-32.95	5,858.61	0.00	0.00	0.00	
12,800.00	89.62	179.06	7,369.17	-5,958.57	-31.32	5,958.59	0.00	0.00	0.00	
12,900.00	89.62	179.06	7,369.84	-6,058.55	-29.68	6,058.58	0.00	0.00	0.00	
13,000.00	89.62	179.06	7,370.50	-6,158.54	-28.04	6,158.56	0.00	0.00	0.00	
13,100.00	89.62	179.06	7,371.16	-6,258.52	-26.40	6,258.54	0.00	0.00	0.00	
13,200.00	89.62	179.06	7,371.83	-6,358.50	-24.76	6,358.53	0.00	0.00	0.00	
13,300.00	89.62	179.06	7,372.49	-6,458.49	-23.13	6,458.51	0.00	0.00	0.00	
13,400.00	89.62	179.06	7,373.15	-6,558.47	-21.49	6,558.49	0.00	0.00	0.00	
13,500.00	89.62	179.06	7,373.82	-6,658.46	-19.85	6,658.47	0.00	0.00	0.00	
13,600.00	89.62	179.06	7,374.48	-6,758.44	-18.21	6,758.46	0.00	0.00	0.00	

# Anadarko

## Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well HIGHLANDS 37N-E16HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB @ 5018.00usft (D Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB @ 5018.00usft (D Rig)
<b>Site:</b>	1N-66W-09 Highlands 27-9HZ Pad	<b>North Reference:</b>	True
<b>Well:</b>	HIGHLANDS 37N-E16HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	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)	
13,700.00	89.62	179.06	7,375.14	-6,858.43	-16.57	6,858.44	0.00	0.00	0.00	
13,800.00	89.62	179.06	7,375.81	-6,958.41	-14.94	6,958.42	0.00	0.00	0.00	
13,900.00	89.62	179.06	7,376.47	-7,058.40	-13.30	7,058.40	0.00	0.00	0.00	
14,000.00	89.62	179.06	7,377.13	-7,158.38	-11.66	7,158.39	0.00	0.00	0.00	
14,100.00	89.62	179.06	7,377.80	-7,258.36	-10.02	7,258.37	0.00	0.00	0.00	
14,200.00	89.62	179.06	7,378.46	-7,358.35	-8.38	7,358.35	0.00	0.00	0.00	
14,281.68	89.62	179.06	7,379.00	-7,440.02	-7.05	7,440.02	0.00	0.00	0.00	
HIGHLANDS 37N-E16HZ_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 37N-E16	0.00	0.00	7,335.44	-872.31	-114.64	14,552,095.41	1,702,840.91	40.069434	-104.776871	
- plan hits target center										
- Point										
HIGHLANDS 37N-E16	0.00	0.00	7,379.00	-7,440.02	-7.05	14,545,528.00	1,702,965.00	40.051398	-104.776486	
- plan hits target center										
- Point										

Casing Points						
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")		
1,813.53	1,800.00	9 5/8"	9-5/8	13-1/2		
7,712.95	7,335.44	Top of Production	5-1/2	8-1/2		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,467.56	1,458.00	Fox Hills				
4,221.34	4,203.00	Parkman				
4,617.34	4,599.00	Sussex				
7,192.22	7,131.00	Sharon Springs				
7,250.61	7,172.00	Niobrara				
7,375.62	7,246.00	Nio B				
7,513.04	7,303.00	Nio C				