

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

1N-67W-24 QUARTER CIRCLE 14-24HZ

QUARTER CIRCLE 24-6HZ

Plan A

Plan: Permit Rev-1

Standard Planning Report

05 April, 2017



Azimuths to True North
Magnetic North: 8.09°

Magnetic Field
Strength: 52318.0snT
Dip Angle: 66.54°
Date: 4/3/2017
Model: IGRF2010

SITE: 1N-67W-24 QUARTER CIRCLE 14-24HZ

Well: QUARTER CIRCLE 24-6HZ
Wellbore: Plan A
Design: Permit Rev-1

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
655.00	655.76	Fox Hills
4158.00	4177.14	Parkman
4958.00	4977.14	Sussex
7175.00	7235.70	Sharon Springs
7189.00	7254.90	Niobrara
7359.00	7589.81	Nio B

WELL DETAILS: QUARTER CIRCLE 24-6HZ

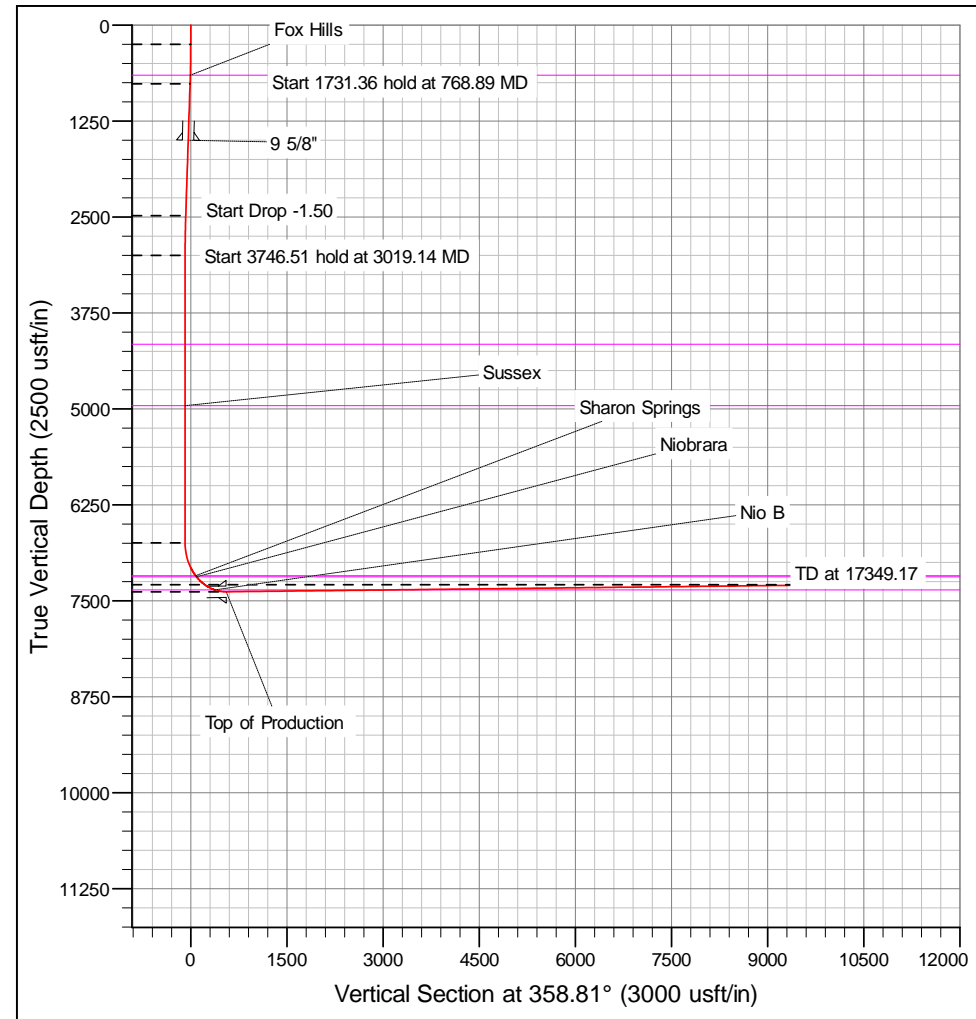
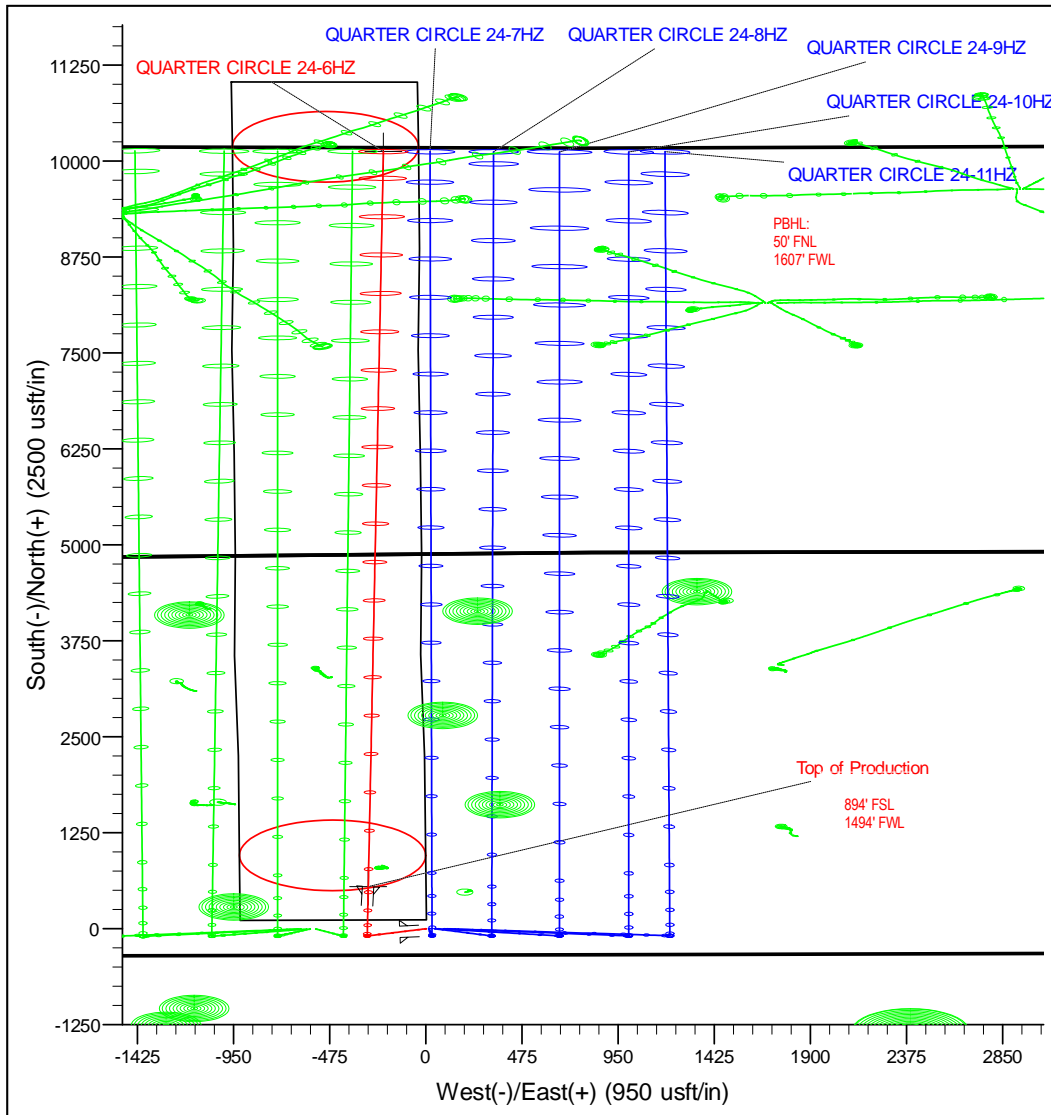
+N/-S	+E/-W	GL: 4941.00 Northing	RKB @ 4958.00usft (D Rig) Easting	Latitude 40.030336	Longitude -104.842040	Slot
0.00	0.00	14537819.27	1684633.94			

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
QUARTER CIRCLE 24-6HZ_PBL	7282.00	10125.39	-210.00	14547944.27	1684405.99	40.058142	-104.842790

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Diag	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
768.89	7.78	252.04	767.30	-10.85	-33.48	1.50	-10.15
2500.25	7.78	252.04	2462.70	-83.15	-256.52	0.00	-77.81
3019.14	0.00	0.00	3000.00	-94.00	-290.00	1.50	-87.97
6765.65	0.00	0.00	6746.51	-94.00	-290.00	0.00	-87.97
7771.70	90.54	0.45	7383.10	548.66	-284.97	9.00	554.45
17349.17	90.54	0.45	7292.00	10125.39	-210.00	0.00	0127.57



Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well QUARTER CIRCLE 24-6HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4958.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4958.00usft (D Rig)
Site:	1N-67W-24 QUARTER CIRCLE 14-24HZ	North Reference:	True
Well:	QUARTER CIRCLE 24-6HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

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-67W-24 QUARTER CIRCLE 14-24HZ											
Site Position:						Northing:			14,537,819.28 usft			Latitude:			40.030336		
From:			Lat/Long			Easting:			1,684,633.94 usft			Longitude:			-104.842040		
Position Uncertainty:			0.00 usft			Slot Radius:			13-3/16 "			Grid Convergence:			0.10 °		

Well	QUARTER CIRCLE 24-6HZ					
Well Position	+N/-S	0.00 usft	Northing:	14,537,819.28 usft	Latitude:	40.030336
	+E/-W	0.00 usft	Easting:	1,684,633.94 usft	Longitude:	-104.842040
Position Uncertainty		3.28 usft	Wellhead Elevation:		Ground Level:	4,941.00 usft

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/3/2017	8.09	66.54	52,318.01063746

Design	Permit Rev-1			
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	358.81

Plan Survey Tool Program	Date	4/4/2017		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	17,349.17	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWI Fixed:v2:Rockies, crustal dex

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	
768.89	7.78	252.04	767.30	-10.85	-33.48	1.50	1.50	0.00	252.04	
2,500.25	7.78	252.04	2,482.70	-83.15	-256.52	0.00	0.00	0.00	0.00	
3,019.14	0.00	0.00	3,000.00	-94.00	-290.00	1.50	-1.50	0.00	180.00	
6,765.65	0.00	0.00	6,746.51	-94.00	-290.00	0.00	0.00	0.00	0.00	
7,771.70	90.55	0.45	7,383.10	548.66	-284.97	9.00	9.00	0.00	0.45	
17,349.17	90.55	0.45	7,292.00	10,125.39	-210.00	0.00	0.00	0.00	0.00	QUARTER CIRCLE

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well QUARTER CIRCLE 24-6HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4958.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4958.00usft (D Rig)
Site:	1N-67W-24 QUARTER CIRCLE 14-24HZ	North Reference:	True
Well:	QUARTER CIRCLE 24-6HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

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	252.04	300.00	-0.10	-0.31	-0.09	1.50	1.50	0.00
400.00	2.25	252.04	399.96	-0.91	-2.80	-0.85	1.50	1.50	0.00
500.00	3.75	252.04	499.82	-2.52	-7.78	-2.36	1.50	1.50	0.00
600.00	5.25	252.04	599.51	-4.94	-15.24	-4.62	1.50	1.50	0.00
655.76	6.09	252.04	655.00	-6.64	-20.48	-6.21	1.50	1.50	0.00
Fox Hills									
700.00	6.75	252.04	698.96	-8.16	-25.19	-7.64	1.50	1.50	0.00
768.89	7.78	252.04	767.30	-10.85	-33.48	-10.15	1.50	1.50	0.00
800.00	7.78	252.04	798.12	-12.15	-37.48	-11.37	0.00	0.00	0.00
900.00	7.78	252.04	897.20	-16.33	-50.37	-15.28	0.00	0.00	0.00
1,000.00	7.78	252.04	996.28	-20.50	-63.25	-19.19	0.00	0.00	0.00
1,100.00	7.78	252.04	1,095.36	-24.68	-76.13	-23.09	0.00	0.00	0.00
1,200.00	7.78	252.04	1,194.43	-28.85	-89.01	-27.00	0.00	0.00	0.00
1,300.00	7.78	252.04	1,293.51	-33.03	-101.90	-30.91	0.00	0.00	0.00
1,400.00	7.78	252.04	1,392.59	-37.20	-114.78	-34.82	0.00	0.00	0.00
1,500.00	7.78	252.04	1,491.67	-41.38	-127.66	-38.72	0.00	0.00	0.00
1,508.41	7.78	252.04	1,500.00	-41.73	-128.75	-39.05	0.00	0.00	0.00
9 5/8"									
1,600.00	7.78	252.04	1,590.75	-45.56	-140.55	-42.63	0.00	0.00	0.00
1,700.00	7.78	252.04	1,689.83	-49.73	-153.43	-46.54	0.00	0.00	0.00
1,800.00	7.78	252.04	1,788.91	-53.91	-166.31	-50.45	0.00	0.00	0.00
1,900.00	7.78	252.04	1,887.98	-58.08	-179.20	-54.36	0.00	0.00	0.00
2,000.00	7.78	252.04	1,987.06	-62.26	-192.08	-58.26	0.00	0.00	0.00
2,100.00	7.78	252.04	2,086.14	-66.44	-204.96	-62.17	0.00	0.00	0.00
2,200.00	7.78	252.04	2,185.22	-70.61	-217.84	-66.08	0.00	0.00	0.00
2,300.00	7.78	252.04	2,284.30	-74.79	-230.73	-69.99	0.00	0.00	0.00
2,400.00	7.78	252.04	2,383.38	-78.96	-243.61	-73.89	0.00	0.00	0.00
2,500.00	7.78	252.04	2,482.46	-83.14	-256.49	-77.80	0.00	0.00	0.00
2,500.25	7.78	252.04	2,482.70	-83.15	-256.52	-77.81	0.00	0.00	0.00
2,600.00	6.29	252.04	2,581.70	-86.92	-268.15	-81.34	1.50	-1.50	0.00
2,700.00	4.79	252.04	2,681.23	-89.89	-277.32	-84.12	1.50	-1.50	0.00
2,800.00	3.29	252.04	2,780.98	-92.06	-284.02	-86.15	1.50	-1.50	0.00
2,900.00	1.79	252.04	2,880.88	-93.43	-288.23	-87.43	1.50	-1.50	0.00
3,000.00	0.29	252.04	2,980.86	-93.99	-289.95	-87.95	1.50	-1.50	0.00
3,019.14	0.00	0.00	3,000.00	-94.00	-290.00	-87.97	1.50	-1.50	0.00
3,100.00	0.00	0.00	3,080.86	-94.00	-290.00	-87.97	0.00	0.00	0.00
3,200.00	0.00	0.00	3,180.86	-94.00	-290.00	-87.97	0.00	0.00	0.00
3,300.00	0.00	0.00	3,280.86	-94.00	-290.00	-87.97	0.00	0.00	0.00
3,400.00	0.00	0.00	3,380.86	-94.00	-290.00	-87.97	0.00	0.00	0.00
3,500.00	0.00	0.00	3,480.86	-94.00	-290.00	-87.97	0.00	0.00	0.00
3,600.00	0.00	0.00	3,580.86	-94.00	-290.00	-87.97	0.00	0.00	0.00
3,700.00	0.00	0.00	3,680.86	-94.00	-290.00	-87.97	0.00	0.00	0.00
3,800.00	0.00	0.00	3,780.86	-94.00	-290.00	-87.97	0.00	0.00	0.00
3,900.00	0.00	0.00	3,880.86	-94.00	-290.00	-87.97	0.00	0.00	0.00
4,000.00	0.00	0.00	3,980.86	-94.00	-290.00	-87.97	0.00	0.00	0.00
4,100.00	0.00	0.00	4,080.86	-94.00	-290.00	-87.97	0.00	0.00	0.00
4,177.14	0.00	0.00	4,158.00	-94.00	-290.00	-87.97	0.00	0.00	0.00
Parkman									
4,200.00	0.00	0.00	4,180.86	-94.00	-290.00	-87.97	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well QUARTER CIRCLE 24-6HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4958.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4958.00usft (D Rig)
Site:	1N-67W-24 QUARTER CIRCLE 14-24HZ	North Reference:	True
Well:	QUARTER CIRCLE 24-6HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

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	4,280.86	-94.00	-290.00	-87.97	0.00	0.00	0.00
4,400.00	0.00	0.00	4,380.86	-94.00	-290.00	-87.97	0.00	0.00	0.00
4,500.00	0.00	0.00	4,480.86	-94.00	-290.00	-87.97	0.00	0.00	0.00
4,600.00	0.00	0.00	4,580.86	-94.00	-290.00	-87.97	0.00	0.00	0.00
4,700.00	0.00	0.00	4,680.86	-94.00	-290.00	-87.97	0.00	0.00	0.00
4,800.00	0.00	0.00	4,780.86	-94.00	-290.00	-87.97	0.00	0.00	0.00
4,900.00	0.00	0.00	4,880.86	-94.00	-290.00	-87.97	0.00	0.00	0.00
4,977.14	0.00	0.00	4,958.00	-94.00	-290.00	-87.97	0.00	0.00	0.00
Sussex									
5,000.00	0.00	0.00	4,980.86	-94.00	-290.00	-87.97	0.00	0.00	0.00
5,100.00	0.00	0.00	5,080.86	-94.00	-290.00	-87.97	0.00	0.00	0.00
5,200.00	0.00	0.00	5,180.86	-94.00	-290.00	-87.97	0.00	0.00	0.00
5,300.00	0.00	0.00	5,280.86	-94.00	-290.00	-87.97	0.00	0.00	0.00
5,400.00	0.00	0.00	5,380.86	-94.00	-290.00	-87.97	0.00	0.00	0.00
5,500.00	0.00	0.00	5,480.86	-94.00	-290.00	-87.97	0.00	0.00	0.00
5,600.00	0.00	0.00	5,580.86	-94.00	-290.00	-87.97	0.00	0.00	0.00
5,700.00	0.00	0.00	5,680.86	-94.00	-290.00	-87.97	0.00	0.00	0.00
5,800.00	0.00	0.00	5,780.86	-94.00	-290.00	-87.97	0.00	0.00	0.00
5,900.00	0.00	0.00	5,880.86	-94.00	-290.00	-87.97	0.00	0.00	0.00
6,000.00	0.00	0.00	5,980.86	-94.00	-290.00	-87.97	0.00	0.00	0.00
6,100.00	0.00	0.00	6,080.86	-94.00	-290.00	-87.97	0.00	0.00	0.00
6,200.00	0.00	0.00	6,180.86	-94.00	-290.00	-87.97	0.00	0.00	0.00
6,300.00	0.00	0.00	6,280.86	-94.00	-290.00	-87.97	0.00	0.00	0.00
6,400.00	0.00	0.00	6,380.86	-94.00	-290.00	-87.97	0.00	0.00	0.00
6,500.00	0.00	0.00	6,480.86	-94.00	-290.00	-87.97	0.00	0.00	0.00
6,600.00	0.00	0.00	6,580.86	-94.00	-290.00	-87.97	0.00	0.00	0.00
6,700.00	0.00	0.00	6,680.86	-94.00	-290.00	-87.97	0.00	0.00	0.00
6,765.65	0.00	0.00	6,746.51	-94.00	-290.00	-87.97	0.00	0.00	0.00
6,800.00	3.09	0.45	6,780.84	-93.07	-289.99	-87.04	9.00	9.00	0.00
6,900.00	12.09	0.45	6,879.87	-79.88	-289.89	-73.85	9.00	9.00	0.00
7,000.00	21.09	0.45	6,975.60	-51.35	-289.67	-45.33	9.00	9.00	0.00
7,100.00	30.09	0.45	7,065.70	-8.20	-289.33	-2.20	9.00	9.00	0.00
7,200.00	39.09	0.45	7,147.94	48.51	-288.88	54.49	9.00	9.00	0.00
7,235.70	42.30	0.45	7,175.00	71.79	-288.70	77.76	9.00	9.00	0.00
Sharon Springs									
7,254.90	44.03	0.45	7,189.00	84.92	-288.60	90.88	9.00	9.00	0.00
Niobrara									
7,300.00	48.09	0.45	7,220.29	117.39	-288.35	123.34	9.00	9.00	0.00
7,400.00	57.09	0.45	7,280.98	196.74	-287.72	202.66	9.00	9.00	0.00
7,500.00	66.09	0.45	7,328.50	284.60	-287.04	290.49	9.00	9.00	0.00
7,589.81	74.17	0.45	7,359.00	369.00	-286.38	374.86	9.00	9.00	0.00
Nio B									
7,600.00	75.09	0.45	7,361.70	378.82	-286.30	384.67	9.00	9.00	0.00
7,700.00	84.09	0.45	7,379.75	477.07	-285.53	482.89	9.00	9.00	0.00
7,771.70	90.54	0.45	7,383.10	548.65	-284.97	554.44	9.00	9.00	0.00
Top of Production - QUARTER CIRCLE 24-6HZ_PHL									
7,800.00	90.55	0.45	7,382.83	576.95	-284.75	582.73	0.00	0.00	0.00
7,900.00	90.55	0.45	7,381.88	676.94	-283.96	682.68	0.00	0.00	0.00
8,000.00	90.55	0.45	7,380.93	776.93	-283.18	782.64	0.00	0.00	0.00
8,100.00	90.55	0.45	7,379.98	876.93	-282.40	882.59	0.00	0.00	0.00
8,200.00	90.55	0.45	7,379.03	976.92	-281.62	982.55	0.00	0.00	0.00
8,300.00	90.55	0.45	7,378.07	1,076.91	-280.83	1,082.50	0.00	0.00	0.00
8,400.00	90.55	0.45	7,377.12	1,176.90	-280.05	1,182.46	0.00	0.00	0.00
8,500.00	90.55	0.45	7,376.17	1,276.90	-279.27	1,282.41	0.00	0.00	0.00

Corporate Planning Report

Database: PLANNING
Company: US ROCKIES WATTENBERG PLANNING
Project: WELD-NAD83-UTMFT13N
Site: 1N-67W-24 QUARTER CIRCLE 14-24HZ
Well: QUARTER CIRCLE 24-6HZ
Wellbore: Plan A
Design: Permit Rev-1

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:

Well QUARTER CIRCLE 24-6HZ
RKB @ 4958.00usft (D Rig)
RKB @ 4958.00usft (D Rig)
True
Minimum Curvature

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)
8,600.00	90.55	0.45	7,375.22	1,376.89	-278.49	1,382.37	0.00	0.00	0.00
8,700.00	90.55	0.45	7,374.27	1,476.88	-277.70	1,482.32	0.00	0.00	0.00
8,800.00	90.55	0.45	7,373.32	1,576.87	-276.92	1,582.28	0.00	0.00	0.00
8,900.00	90.55	0.45	7,372.37	1,676.87	-276.14	1,682.23	0.00	0.00	0.00
9,000.00	90.55	0.45	7,371.42	1,776.86	-275.35	1,782.19	0.00	0.00	0.00
9,100.00	90.55	0.45	7,370.47	1,876.85	-274.57	1,882.14	0.00	0.00	0.00
9,200.00	90.55	0.45	7,369.51	1,976.84	-273.79	1,982.10	0.00	0.00	0.00
9,300.00	90.55	0.45	7,368.56	2,076.84	-273.01	2,082.05	0.00	0.00	0.00
9,400.00	90.55	0.45	7,367.61	2,176.83	-272.22	2,182.00	0.00	0.00	0.00
9,500.00	90.55	0.45	7,366.66	2,276.82	-271.44	2,281.96	0.00	0.00	0.00
9,600.00	90.55	0.45	7,365.71	2,376.81	-270.66	2,381.91	0.00	0.00	0.00
9,700.00	90.55	0.45	7,364.76	2,476.81	-269.88	2,481.87	0.00	0.00	0.00
9,800.00	90.55	0.45	7,363.81	2,576.80	-269.09	2,581.82	0.00	0.00	0.00
9,900.00	90.55	0.45	7,362.86	2,676.79	-268.31	2,681.78	0.00	0.00	0.00
10,000.00	90.55	0.45	7,361.90	2,776.78	-267.53	2,781.73	0.00	0.00	0.00
10,100.00	90.55	0.45	7,360.95	2,876.78	-266.74	2,881.69	0.00	0.00	0.00
10,200.00	90.55	0.45	7,360.00	2,976.77	-265.96	2,981.64	0.00	0.00	0.00
10,300.00	90.55	0.45	7,359.05	3,076.76	-265.18	3,081.60	0.00	0.00	0.00
10,400.00	90.55	0.45	7,358.10	3,176.75	-264.40	3,181.55	0.00	0.00	0.00
10,500.00	90.55	0.45	7,357.15	3,276.74	-263.61	3,281.51	0.00	0.00	0.00
10,600.00	90.55	0.45	7,356.20	3,376.74	-262.83	3,381.46	0.00	0.00	0.00
10,700.00	90.55	0.45	7,355.25	3,476.73	-262.05	3,481.42	0.00	0.00	0.00
10,800.00	90.55	0.45	7,354.30	3,576.72	-261.26	3,581.37	0.00	0.00	0.00
10,900.00	90.55	0.45	7,353.34	3,676.71	-260.48	3,681.33	0.00	0.00	0.00
11,000.00	90.55	0.45	7,352.39	3,776.71	-259.70	3,781.28	0.00	0.00	0.00
11,100.00	90.55	0.45	7,351.44	3,876.70	-258.92	3,881.23	0.00	0.00	0.00
11,200.00	90.55	0.45	7,350.49	3,976.69	-258.13	3,981.19	0.00	0.00	0.00
11,300.00	90.55	0.45	7,349.54	4,076.68	-257.35	4,081.14	0.00	0.00	0.00
11,400.00	90.55	0.45	7,348.59	4,176.68	-256.57	4,181.10	0.00	0.00	0.00
11,500.00	90.55	0.45	7,347.64	4,276.67	-255.79	4,281.05	0.00	0.00	0.00
11,600.00	90.55	0.45	7,346.69	4,376.66	-255.00	4,381.01	0.00	0.00	0.00
11,700.00	90.55	0.45	7,345.73	4,476.65	-254.22	4,480.96	0.00	0.00	0.00
11,800.00	90.55	0.45	7,344.78	4,576.65	-253.44	4,580.92	0.00	0.00	0.00
11,900.00	90.55	0.45	7,343.83	4,676.64	-252.65	4,680.87	0.00	0.00	0.00
12,000.00	90.55	0.45	7,342.88	4,776.63	-251.87	4,780.83	0.00	0.00	0.00
12,100.00	90.55	0.45	7,341.93	4,876.62	-251.09	4,880.78	0.00	0.00	0.00
12,200.00	90.55	0.45	7,340.98	4,976.62	-250.31	4,980.74	0.00	0.00	0.00
12,300.00	90.55	0.45	7,340.03	5,076.61	-249.52	5,080.69	0.00	0.00	0.00
12,400.00	90.55	0.45	7,339.08	5,176.60	-248.74	5,180.65	0.00	0.00	0.00
12,500.00	90.55	0.45	7,338.12	5,276.59	-247.96	5,280.60	0.00	0.00	0.00
12,600.00	90.55	0.45	7,337.17	5,376.59	-247.17	5,380.55	0.00	0.00	0.00
12,700.00	90.55	0.45	7,336.22	5,476.58	-246.39	5,480.51	0.00	0.00	0.00
12,800.00	90.55	0.45	7,335.27	5,576.57	-245.61	5,580.46	0.00	0.00	0.00
12,900.00	90.55	0.45	7,334.32	5,676.56	-244.83	5,680.42	0.00	0.00	0.00
13,000.00	90.55	0.45	7,333.37	5,776.56	-244.04	5,780.37	0.00	0.00	0.00
13,100.00	90.55	0.45	7,332.42	5,876.55	-243.26	5,880.33	0.00	0.00	0.00
13,200.00	90.55	0.45	7,331.47	5,976.54	-242.48	5,980.28	0.00	0.00	0.00
13,300.00	90.55	0.45	7,330.52	6,076.53	-241.70	6,080.24	0.00	0.00	0.00
13,400.00	90.55	0.45	7,329.56	6,176.52	-240.91	6,180.19	0.00	0.00	0.00
13,500.00	90.55	0.45	7,328.61	6,276.52	-240.13	6,280.15	0.00	0.00	0.00
13,600.00	90.55	0.45	7,327.66	6,376.51	-239.35	6,380.10	0.00	0.00	0.00
13,700.00	90.55	0.45	7,326.71	6,476.50	-238.56	6,480.06	0.00	0.00	0.00
13,800.00	90.55	0.45	7,325.76	6,576.49	-237.78	6,580.01	0.00	0.00	0.00
13,900.00	90.55	0.45	7,324.81	6,676.49	-237.00	6,679.97	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well QUARTER CIRCLE 24-6HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4958.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4958.00usft (D Rig)
Site:	1N-67W-24 QUARTER CIRCLE 14-24HZ	North Reference:	True
Well:	QUARTER CIRCLE 24-6HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

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)	
14,000.00	90.55	0.45	7,323.86	6,776.48	-236.22	6,779.92	0.00	0.00	0.00	
14,100.00	90.55	0.45	7,322.91	6,876.47	-235.43	6,879.87	0.00	0.00	0.00	
14,200.00	90.55	0.45	7,321.95	6,976.46	-234.65	6,979.83	0.00	0.00	0.00	
14,300.00	90.55	0.45	7,321.00	7,076.46	-233.87	7,079.78	0.00	0.00	0.00	
14,400.00	90.55	0.45	7,320.05	7,176.45	-233.09	7,179.74	0.00	0.00	0.00	
14,500.00	90.55	0.45	7,319.10	7,276.44	-232.30	7,279.69	0.00	0.00	0.00	
14,600.00	90.55	0.45	7,318.15	7,376.43	-231.52	7,379.65	0.00	0.00	0.00	
14,700.00	90.55	0.45	7,317.20	7,476.43	-230.74	7,479.60	0.00	0.00	0.00	
14,800.00	90.55	0.45	7,316.25	7,576.42	-229.95	7,579.56	0.00	0.00	0.00	
14,900.00	90.55	0.45	7,315.30	7,676.41	-229.17	7,679.51	0.00	0.00	0.00	
15,000.00	90.55	0.45	7,314.35	7,776.40	-228.39	7,779.47	0.00	0.00	0.00	
15,100.00	90.55	0.45	7,313.39	7,876.40	-227.61	7,879.42	0.00	0.00	0.00	
15,200.00	90.55	0.45	7,312.44	7,976.39	-226.82	7,979.38	0.00	0.00	0.00	
15,300.00	90.55	0.45	7,311.49	8,076.38	-226.04	8,079.33	0.00	0.00	0.00	
15,400.00	90.55	0.45	7,310.54	8,176.37	-225.26	8,179.29	0.00	0.00	0.00	
15,500.00	90.55	0.45	7,309.59	8,276.37	-224.47	8,279.24	0.00	0.00	0.00	
15,600.00	90.55	0.45	7,308.64	8,376.36	-223.69	8,379.20	0.00	0.00	0.00	
15,700.00	90.55	0.45	7,307.69	8,476.35	-222.91	8,479.15	0.00	0.00	0.00	
15,800.00	90.55	0.45	7,306.74	8,576.34	-222.13	8,579.10	0.00	0.00	0.00	
15,900.00	90.55	0.45	7,305.78	8,676.34	-221.34	8,679.06	0.00	0.00	0.00	
16,000.00	90.55	0.45	7,304.83	8,776.33	-220.56	8,779.01	0.00	0.00	0.00	
16,100.00	90.55	0.45	7,303.88	8,876.32	-219.78	8,878.97	0.00	0.00	0.00	
16,200.00	90.55	0.45	7,302.93	8,976.31	-219.00	8,978.92	0.00	0.00	0.00	
16,300.00	90.55	0.45	7,301.98	9,076.30	-218.21	9,078.88	0.00	0.00	0.00	
16,400.00	90.55	0.45	7,301.03	9,176.30	-217.43	9,178.83	0.00	0.00	0.00	
16,500.00	90.55	0.45	7,300.08	9,276.29	-216.65	9,278.79	0.00	0.00	0.00	
16,600.00	90.55	0.45	7,299.13	9,376.28	-215.86	9,378.74	0.00	0.00	0.00	
16,700.00	90.55	0.45	7,298.17	9,476.27	-215.08	9,478.70	0.00	0.00	0.00	
16,800.00	90.55	0.45	7,297.22	9,576.27	-214.30	9,578.65	0.00	0.00	0.00	
16,900.00	90.55	0.45	7,296.27	9,676.26	-213.52	9,678.61	0.00	0.00	0.00	
17,000.00	90.55	0.45	7,295.32	9,776.25	-212.73	9,778.56	0.00	0.00	0.00	
17,100.00	90.55	0.45	7,294.37	9,876.24	-211.95	9,878.52	0.00	0.00	0.00	
17,200.00	90.55	0.45	7,293.42	9,976.24	-211.17	9,978.47	0.00	0.00	0.00	
17,300.00	90.55	0.45	7,292.47	10,076.23	-210.38	10,078.42	0.00	0.00	0.00	
17,349.17	90.55	0.45	7,292.00	10,125.39	-210.00	10,127.57	0.00	0.00	0.00	
QUARTER CIRCLE 24-6HZ_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										
QUARTER CIRCLE 2	0.00	0.00	7,292.00	10,125.39	-210.00	14,547,944.27	1,684,405.98	40.058142	-104.842791	
- plan hits target center										
- Point										
QUARTER CIRCLE 2	0.00	0.00	7,383.10	548.65	-284.97	14,538,367.42	1,684,348.00	40.031843	-104.843058	
- plan hits target center										
- Point										

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well QUARTER CIRCLE 24-6HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4958.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4958.00usft (D Rig)
Site:	1N-67W-24 QUARTER CIRCLE 14-24HZ	North Reference:	True
Well:	QUARTER CIRCLE 24-6HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,508.41	1,500.00	9 5/8"	9-5/8	13-1/2	
7,771.70	7,383.10	Top of Production	5-1/2	7-7/8	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
655.76	655.00	Fox Hills				
4,177.14	4,158.00	Parkman				
4,977.14	4,958.00	Sussex				
7,235.70	7,175.00	Sharon Springs				
7,254.90	7,189.00	Niobrara				
7,589.81	7,359.00	Nio B				