

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

1N-67W-24 QUARTER CIRCLE 13-24HZ PAD

QUARTER CIRCLE 24-1HZ

Plan A

Plan: Permit Rev-1

Standard Planning Report

03 March, 2017



Azimuths to True North
Magnetic North: 8.11°

Magnetic Field
Strength: 52329.2snT
Dip Angle: 66.54°
Date: 2/22/2017
Model: IGRF2010

SITE: 1N-67W-24 QUARTER CIRCLE 13-24HZ PAD

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

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
657.00	657.77	Fox Hills
4160.00	4247.49	Parkman
4960.00	5054.41	Sussex
7177.00	7286.78	Sharon Springs
7191.00	7303.10	Niobrara
7361.00	7533.32	Nio B
7426.00	7655.94	Nio C

WELL DETAILS: QUARTER CIRCLE 24-1HZ

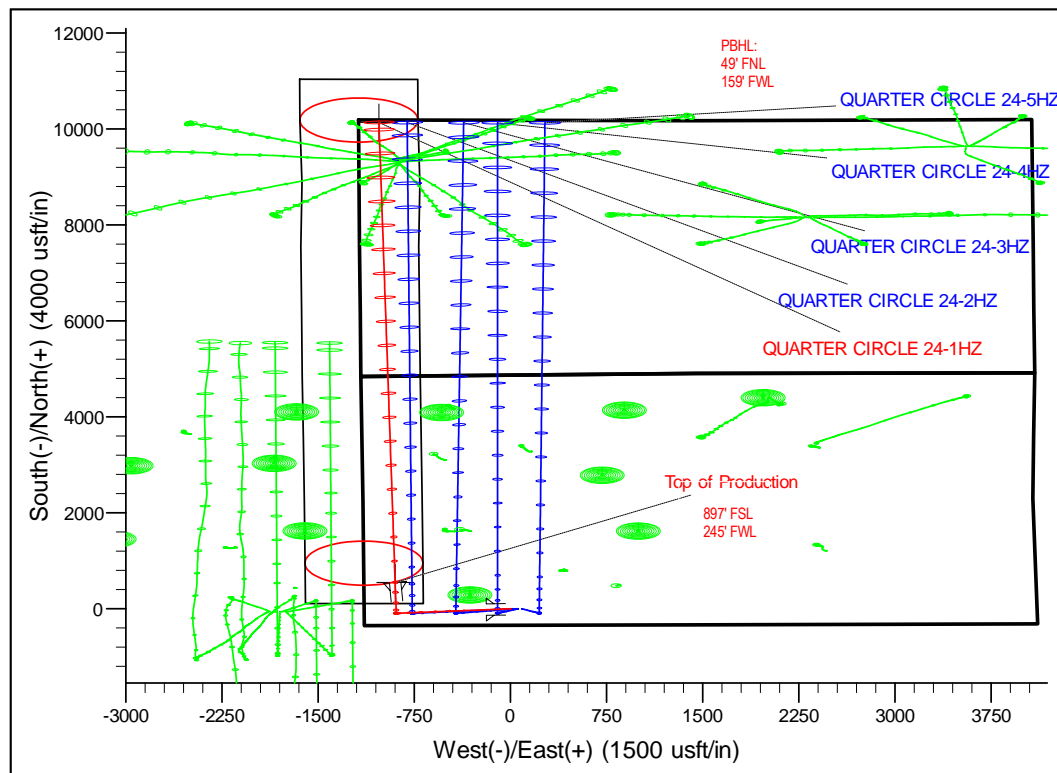
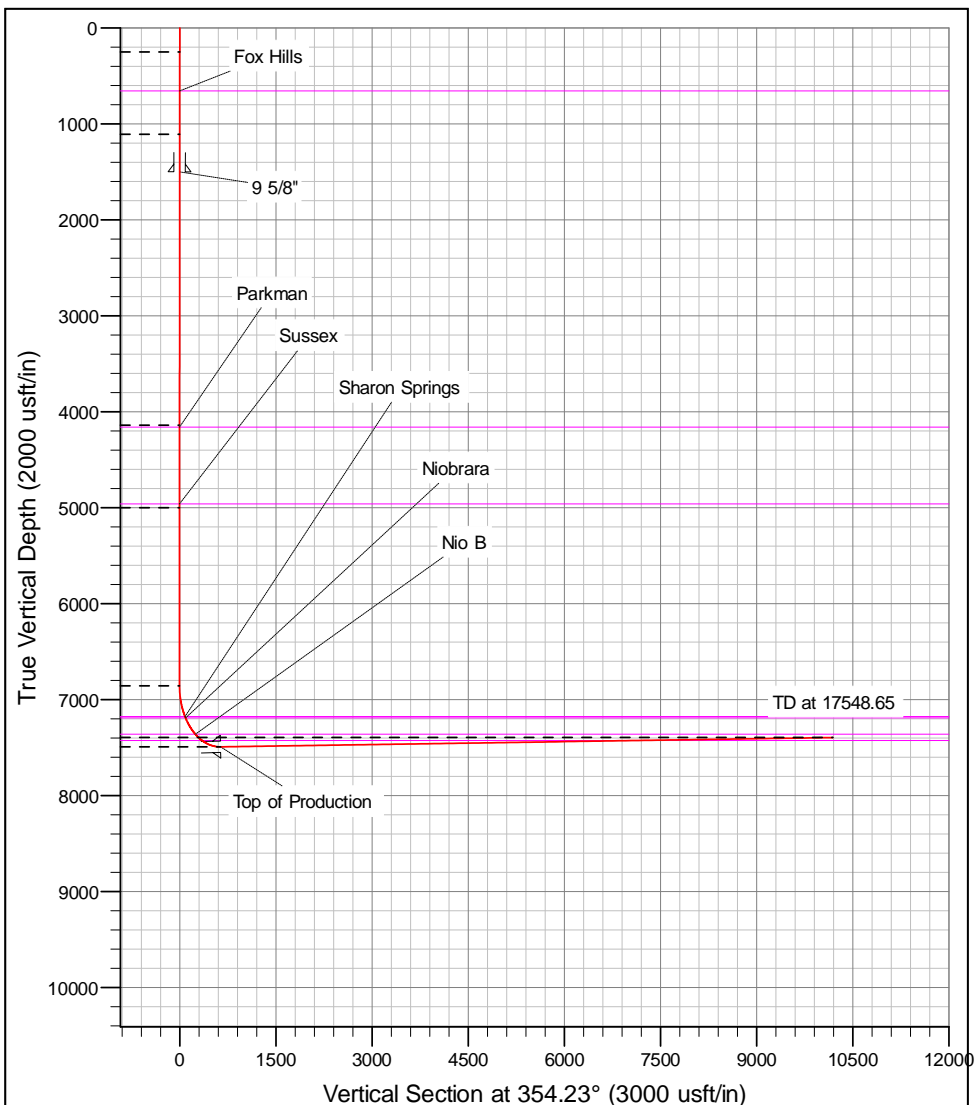
+N/-S	+E/-W	GL: 4943.00 Northing	RKB @ 4960.00usft (D Rig) Easting	Latitude 40.030327	Longitude -104.844301	Slot
0.00	0.00	14537814.88	1684001.03			

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
1115.80	12.99	263.97	1108.40	-10.26	-97.16	1.50	-0.44
4228.61	12.99	263.97	4141.60	-83.74	-792.84	0.00	-3.57
5094.41	0.00	0.00	5000.00	-94.00	-890.00	1.50	-4.00
6950.91	0.00	0.00	6856.50	-94.00	-890.00	0.00	-4.00
7957.36	90.58	359.24	7493.09	549.01	-898.48	9.00	636.60
17548.65	90.58	359.24	7396.00	10138.97	-1025.00	0.00	0190.65

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
QUARTER CIRCLE 24-1HZ_PBHL	7396.00	10138.97	-1025.00	14547952.04	1682958.31	40.058170	-104.847964



Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well QUARTER CIRCLE 24-1HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4960.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4960.00usft (D Rig)
Site:	1N-67W-24 QUARTER CIRCLE 13-24HZ PAD	North Reference:	True
Well:	QUARTER CIRCLE 24-1HZ	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 13-24HZ PAD											
Site Position:						Northing:			14,537,814.88 usft			Latitude:			40.030327		
From:			Lat/Long			Easting:			1,684,001.03 usft			Longitude:			-104.844301		
Position Uncertainty:			0.00 usft			Slot Radius:			13-3/16 "			Grid Convergence:			0.10 °		

Well	QUARTER CIRCLE 24-1HZ					
Well Position	+N-S	0.00 usft	Northing:	14,537,814.88 usft	Latitude:	40.030327
	+E-W	0.00 usft	Easting:	1,684,001.03 usft	Longitude:	-104.844301
Position Uncertainty		3.28 usft	Wellhead Elevation:		Ground Level:	4,943.00 usft

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/22/2017	8.11	66.54	52,329.24812785

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	354.23	

Plan Survey Tool Program	Date	3/2/2017			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	17,548.65 Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWI	Fixed:v2:Rockies, crustal dec	

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		
1,115.80	12.99	263.97	1,108.40	-10.26	-97.16	1.50	1.50	0.00	263.97		
4,228.61	12.99	263.97	4,141.60	-83.74	-792.84	0.00	0.00	0.00	0.00		
5,094.41	0.00	0.00	5,000.00	-94.00	-890.00	1.50	-1.50	0.00	180.00		
6,950.91	0.00	0.00	6,856.50	-94.00	-890.00	0.00	0.00	0.00	0.00		
7,957.36	90.58	359.24	7,493.09	549.01	-898.48	9.00	9.00	0.00	359.24		
17,548.65	90.58	359.24	7,396.00	10,138.97	-1,025.00	0.00	0.00	0.00	0.00	QUARTER CIRCLE	

Corporate Planning Report

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Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4960.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4960.00usft (D Rig)
Site:	1N-67W-24 QUARTER CIRCLE 13-24HZ	North Reference:	True
Well:	QUARTER CIRCLE 24-1HZ	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	263.97	300.00	-0.03	-0.33	0.00	1.50	1.50	0.00
400.00	2.25	263.97	399.96	-0.31	-2.93	-0.01	1.50	1.50	0.00
500.00	3.75	263.97	499.82	-0.86	-8.13	-0.04	1.50	1.50	0.00
600.00	5.25	263.97	599.51	-1.68	-15.94	-0.07	1.50	1.50	0.00
657.77	6.12	263.97	657.00	-2.28	-21.63	-0.10	1.50	1.50	0.00
Fox Hills									
700.00	6.75	263.97	698.96	-2.78	-26.33	-0.12	1.50	1.50	0.00
800.00	8.25	263.97	798.10	-4.15	-39.31	-0.18	1.50	1.50	0.00
900.00	9.75	263.97	896.87	-5.79	-54.87	-0.25	1.50	1.50	0.00
1,000.00	11.25	263.97	995.19	-7.71	-72.99	-0.33	1.50	1.50	0.00
1,100.00	12.75	263.97	1,093.00	-9.89	-93.66	-0.42	1.50	1.50	0.00
1,115.80	12.99	263.97	1,108.40	-10.26	-97.16	-0.44	1.50	1.50	0.00
1,200.00	12.99	263.97	1,190.45	-12.25	-115.98	-0.52	0.00	0.00	0.00
1,300.00	12.99	263.97	1,287.89	-14.61	-138.33	-0.62	0.00	0.00	0.00
1,400.00	12.99	263.97	1,385.34	-16.97	-160.68	-0.72	0.00	0.00	0.00
1,500.00	12.99	263.97	1,482.78	-19.33	-183.03	-0.82	0.00	0.00	0.00
1,517.67	12.99	263.97	1,500.00	-19.75	-186.98	-0.84	0.00	0.00	0.00
9 5/8"									
1,600.00	12.99	263.97	1,580.22	-21.69	-205.38	-0.92	0.00	0.00	0.00
1,700.00	12.99	263.97	1,677.66	-24.05	-227.72	-1.02	0.00	0.00	0.00
1,800.00	12.99	263.97	1,775.10	-26.41	-250.07	-1.13	0.00	0.00	0.00
1,900.00	12.99	263.97	1,872.55	-28.77	-272.42	-1.23	0.00	0.00	0.00
2,000.00	12.99	263.97	1,969.99	-31.13	-294.77	-1.33	0.00	0.00	0.00
2,100.00	12.99	263.97	2,067.43	-33.49	-317.12	-1.43	0.00	0.00	0.00
2,200.00	12.99	263.97	2,164.87	-35.85	-339.47	-1.53	0.00	0.00	0.00
2,300.00	12.99	263.97	2,262.31	-38.21	-361.82	-1.63	0.00	0.00	0.00
2,400.00	12.99	263.97	2,359.76	-40.57	-384.17	-1.73	0.00	0.00	0.00
2,500.00	12.99	263.97	2,457.20	-42.94	-406.51	-1.83	0.00	0.00	0.00
2,600.00	12.99	263.97	2,554.64	-45.30	-428.86	-1.93	0.00	0.00	0.00
2,700.00	12.99	263.97	2,652.08	-47.66	-451.21	-2.03	0.00	0.00	0.00
2,800.00	12.99	263.97	2,749.53	-50.02	-473.56	-2.13	0.00	0.00	0.00
2,900.00	12.99	263.97	2,846.97	-52.38	-495.91	-2.23	0.00	0.00	0.00
3,000.00	12.99	263.97	2,944.41	-54.74	-518.26	-2.33	0.00	0.00	0.00
3,100.00	12.99	263.97	3,041.85	-57.10	-540.61	-2.43	0.00	0.00	0.00
3,200.00	12.99	263.97	3,139.29	-59.46	-562.96	-2.53	0.00	0.00	0.00
3,300.00	12.99	263.97	3,236.74	-61.82	-585.30	-2.63	0.00	0.00	0.00
3,400.00	12.99	263.97	3,334.18	-64.18	-607.65	-2.73	0.00	0.00	0.00
3,500.00	12.99	263.97	3,431.62	-66.54	-630.00	-2.83	0.00	0.00	0.00
3,600.00	12.99	263.97	3,529.06	-68.90	-652.35	-2.94	0.00	0.00	0.00
3,700.00	12.99	263.97	3,626.50	-71.26	-674.70	-3.04	0.00	0.00	0.00
3,800.00	12.99	263.97	3,723.95	-73.62	-697.05	-3.14	0.00	0.00	0.00
3,900.00	12.99	263.97	3,821.39	-75.98	-719.40	-3.24	0.00	0.00	0.00
4,000.00	12.99	263.97	3,918.83	-78.34	-741.74	-3.34	0.00	0.00	0.00
4,100.00	12.99	263.97	4,016.27	-80.70	-764.09	-3.44	0.00	0.00	0.00
4,200.00	12.99	263.97	4,113.71	-83.06	-786.44	-3.54	0.00	0.00	0.00
4,228.61	12.99	263.97	4,141.60	-83.74	-792.84	-3.57	0.00	0.00	0.00
4,247.49	12.70	263.97	4,160.00	-84.18	-797.01	-3.59	1.50	-1.50	0.00
Parkman									
4,300.00	11.92	263.97	4,211.30	-85.35	-808.14	-3.64	1.50	-1.50	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well QUARTER CIRCLE 24-1HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4960.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4960.00usft (D Rig)
Site:	1N-67W-24 QUARTER CIRCLE 13-24HZ PAD	North Reference:	True
Well:	QUARTER CIRCLE 24-1HZ	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)
4,400.00	10.42	263.97	4,309.41	-87.39	-827.40	-3.72	1.50	-1.50	0.00
4,500.00	8.92	263.97	4,407.98	-89.15	-844.10	-3.80	1.50	-1.50	0.00
4,600.00	7.42	263.97	4,506.97	-90.64	-858.22	-3.86	1.50	-1.50	0.00
4,700.00	5.92	263.97	4,606.29	-91.86	-869.77	-3.91	1.50	-1.50	0.00
4,800.00	4.42	263.97	4,705.88	-92.81	-878.72	-3.95	1.50	-1.50	0.00
4,900.00	2.92	263.97	4,805.67	-93.48	-885.08	-3.98	1.50	-1.50	0.00
5,000.00	1.42	263.97	4,905.60	-93.88	-888.84	-4.00	1.50	-1.50	0.00
5,054.41	0.60	263.97	4,960.00	-93.98	-889.79	-4.00	1.50	-1.50	0.00
Sussex									
5,094.41	0.00	0.00	5,000.00	-94.00	-890.00	-4.00	1.50	-1.50	0.00
5,100.00	0.00	0.00	5,005.59	-94.00	-890.00	-4.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,105.59	-94.00	-890.00	-4.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,205.59	-94.00	-890.00	-4.00	0.00	0.00	0.00
5,400.00	0.00	0.00	5,305.59	-94.00	-890.00	-4.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,405.59	-94.00	-890.00	-4.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,505.59	-94.00	-890.00	-4.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,605.59	-94.00	-890.00	-4.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,705.59	-94.00	-890.00	-4.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,805.59	-94.00	-890.00	-4.00	0.00	0.00	0.00
6,000.00	0.00	0.00	5,905.59	-94.00	-890.00	-4.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,005.59	-94.00	-890.00	-4.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,105.59	-94.00	-890.00	-4.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,205.59	-94.00	-890.00	-4.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,305.59	-94.00	-890.00	-4.00	0.00	0.00	0.00
6,500.00	0.00	0.00	6,405.59	-94.00	-890.00	-4.00	0.00	0.00	0.00
6,600.00	0.00	0.00	6,505.59	-94.00	-890.00	-4.00	0.00	0.00	0.00
6,700.00	0.00	0.00	6,605.59	-94.00	-890.00	-4.00	0.00	0.00	0.00
6,800.00	0.00	0.00	6,705.59	-94.00	-890.00	-4.00	0.00	0.00	0.00
6,900.00	0.00	0.00	6,805.59	-94.00	-890.00	-4.00	0.00	0.00	0.00
6,950.91	0.00	0.00	6,856.50	-94.00	-890.00	-4.00	0.00	0.00	0.00
7,000.00	4.42	359.24	6,905.54	-92.11	-890.02	-2.12	9.00	9.00	0.00
7,100.00	13.42	359.24	7,004.23	-76.62	-890.23	13.31	9.00	9.00	0.00
7,200.00	22.42	359.24	7,099.28	-45.89	-890.63	43.92	9.00	9.00	0.00
7,286.78	30.23	359.24	7,177.00	-7.45	-891.14	82.22	9.00	9.00	0.00
Sharon Springs									
7,300.00	31.42	359.24	7,188.36	-0.67	-891.23	88.97	9.00	9.00	0.00
7,303.10	31.70	359.24	7,191.00	0.95	-891.25	90.59	9.00	9.00	0.00
Niobrara									
7,400.00	40.42	359.24	7,269.26	57.92	-892.00	147.35	9.00	9.00	0.00
7,500.00	49.42	359.24	7,340.00	128.45	-892.93	217.62	9.00	9.00	0.00
7,533.32	52.42	359.24	7,361.00	154.31	-893.28	243.38	9.00	9.00	0.00
Nio B									
7,600.00	58.42	359.24	7,398.83	209.18	-894.00	298.04	9.00	9.00	0.00
7,655.94	63.45	359.24	7,426.00	258.06	-894.64	346.74	9.00	9.00	0.00
Nio C									
7,700.00	67.42	359.24	7,444.31	298.12	-895.17	386.64	9.00	9.00	0.00
7,800.00	76.42	359.24	7,475.32	393.07	-896.43	481.24	9.00	9.00	0.00
7,900.00	85.42	359.24	7,491.09	491.71	-897.73	579.51	9.00	9.00	0.00
7,957.36	90.58	359.24	7,493.09	549.01	-898.48	636.60	9.00	9.00	0.00
Top of Production - QUARTER CIRCLE 24-1HZ_PHL									
8,000.00	90.58	359.24	7,492.66	591.64	-899.05	679.07	0.00	0.00	0.00
8,100.00	90.58	359.24	7,491.65	691.63	-900.36	778.68	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well QUARTER CIRCLE 24-1HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4960.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4960.00usft (D Rig)
Site:	1N-67W-24 QUARTER CIRCLE 13-24HZ PAD	North Reference:	True
Well:	QUARTER CIRCLE 24-1HZ	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)
8,200.00	90.58	359.24	7,490.63	791.62	-901.68	878.29	0.00	0.00	0.00
8,300.00	90.58	359.24	7,489.62	891.60	-903.00	977.91	0.00	0.00	0.00
8,400.00	90.58	359.24	7,488.61	991.59	-904.32	1,077.52	0.00	0.00	0.00
8,500.00	90.58	359.24	7,487.60	1,091.57	-905.64	1,177.13	0.00	0.00	0.00
8,600.00	90.58	359.24	7,486.58	1,191.56	-906.96	1,276.74	0.00	0.00	0.00
8,700.00	90.58	359.24	7,485.57	1,291.55	-908.28	1,376.35	0.00	0.00	0.00
8,800.00	90.58	359.24	7,484.56	1,391.53	-909.60	1,475.97	0.00	0.00	0.00
8,900.00	90.58	359.24	7,483.55	1,491.52	-910.92	1,575.58	0.00	0.00	0.00
9,000.00	90.58	359.24	7,482.54	1,591.50	-912.24	1,675.19	0.00	0.00	0.00
9,100.00	90.58	359.24	7,481.52	1,691.49	-913.56	1,774.80	0.00	0.00	0.00
9,200.00	90.58	359.24	7,480.51	1,791.48	-914.87	1,874.41	0.00	0.00	0.00
9,300.00	90.58	359.24	7,479.50	1,891.46	-916.19	1,974.02	0.00	0.00	0.00
9,400.00	90.58	359.24	7,478.49	1,991.45	-917.51	2,073.64	0.00	0.00	0.00
9,500.00	90.58	359.24	7,477.47	2,091.44	-918.83	2,173.25	0.00	0.00	0.00
9,600.00	90.58	359.24	7,476.46	2,191.42	-920.15	2,272.86	0.00	0.00	0.00
9,700.00	90.58	359.24	7,475.45	2,291.41	-921.47	2,372.47	0.00	0.00	0.00
9,800.00	90.58	359.24	7,474.44	2,391.39	-922.79	2,472.08	0.00	0.00	0.00
9,900.00	90.58	359.24	7,473.43	2,491.38	-924.11	2,571.70	0.00	0.00	0.00
10,000.00	90.58	359.24	7,472.41	2,591.37	-925.43	2,671.31	0.00	0.00	0.00
10,100.00	90.58	359.24	7,471.40	2,691.35	-926.75	2,770.92	0.00	0.00	0.00
10,200.00	90.58	359.24	7,470.39	2,791.34	-928.07	2,870.53	0.00	0.00	0.00
10,300.00	90.58	359.24	7,469.38	2,891.33	-929.38	2,970.14	0.00	0.00	0.00
10,400.00	90.58	359.24	7,468.36	2,991.31	-930.70	3,069.75	0.00	0.00	0.00
10,500.00	90.58	359.24	7,467.35	3,091.30	-932.02	3,169.37	0.00	0.00	0.00
10,600.00	90.58	359.24	7,466.34	3,191.28	-933.34	3,268.98	0.00	0.00	0.00
10,700.00	90.58	359.24	7,465.33	3,291.27	-934.66	3,368.59	0.00	0.00	0.00
10,800.00	90.58	359.24	7,464.31	3,391.26	-935.98	3,468.20	0.00	0.00	0.00
10,900.00	90.58	359.24	7,463.30	3,491.24	-937.30	3,567.81	0.00	0.00	0.00
11,000.00	90.58	359.24	7,462.29	3,591.23	-938.62	3,667.42	0.00	0.00	0.00
11,100.00	90.58	359.24	7,461.28	3,691.21	-939.94	3,767.04	0.00	0.00	0.00
11,200.00	90.58	359.24	7,460.27	3,791.20	-941.26	3,866.65	0.00	0.00	0.00
11,300.00	90.58	359.24	7,459.25	3,891.19	-942.58	3,966.26	0.00	0.00	0.00
11,400.00	90.58	359.24	7,458.24	3,991.17	-943.89	4,065.87	0.00	0.00	0.00
11,500.00	90.58	359.24	7,457.23	4,091.16	-945.21	4,165.48	0.00	0.00	0.00
11,600.00	90.58	359.24	7,456.22	4,191.15	-946.53	4,265.10	0.00	0.00	0.00
11,700.00	90.58	359.24	7,455.20	4,291.13	-947.85	4,364.71	0.00	0.00	0.00
11,800.00	90.58	359.24	7,454.19	4,391.12	-949.17	4,464.32	0.00	0.00	0.00
11,900.00	90.58	359.24	7,453.18	4,491.10	-950.49	4,563.93	0.00	0.00	0.00
12,000.00	90.58	359.24	7,452.17	4,591.09	-951.81	4,663.54	0.00	0.00	0.00
12,100.00	90.58	359.24	7,451.16	4,691.08	-953.13	4,763.15	0.00	0.00	0.00
12,200.00	90.58	359.24	7,450.14	4,791.06	-954.45	4,862.77	0.00	0.00	0.00
12,300.00	90.58	359.24	7,449.13	4,891.05	-955.77	4,962.38	0.00	0.00	0.00
12,400.00	90.58	359.24	7,448.12	4,991.03	-957.09	5,061.99	0.00	0.00	0.00
12,500.00	90.58	359.24	7,447.11	5,091.02	-958.40	5,161.60	0.00	0.00	0.00
12,600.00	90.58	359.24	7,446.09	5,191.01	-959.72	5,261.21	0.00	0.00	0.00
12,700.00	90.58	359.24	7,445.08	5,290.99	-961.04	5,360.83	0.00	0.00	0.00
12,800.00	90.58	359.24	7,444.07	5,390.98	-962.36	5,460.44	0.00	0.00	0.00
12,900.00	90.58	359.24	7,443.06	5,490.97	-963.68	5,560.05	0.00	0.00	0.00
13,000.00	90.58	359.24	7,442.04	5,590.95	-965.00	5,659.66	0.00	0.00	0.00
13,100.00	90.58	359.24	7,441.03	5,690.94	-966.32	5,759.27	0.00	0.00	0.00
13,200.00	90.58	359.24	7,440.02	5,790.92	-967.64	5,858.88	0.00	0.00	0.00
13,300.00	90.58	359.24	7,439.01	5,890.91	-968.96	5,958.50	0.00	0.00	0.00
13,400.00	90.58	359.24	7,438.00	5,990.90	-970.28	6,058.11	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well QUARTER CIRCLE 24-1HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4960.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4960.00usft (D Rig)
Site:	1N-67W-24 QUARTER CIRCLE 13-24HZ PAD	North Reference:	True
Well:	QUARTER CIRCLE 24-1HZ	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)
13,500.00	90.58	359.24	7,436.98	6,090.88	-971.60	6,157.72	0.00	0.00	0.00
13,600.00	90.58	359.24	7,435.97	6,190.87	-972.91	6,257.33	0.00	0.00	0.00
13,700.00	90.58	359.24	7,434.96	6,290.86	-974.23	6,356.94	0.00	0.00	0.00
13,800.00	90.58	359.24	7,433.95	6,390.84	-975.55	6,456.56	0.00	0.00	0.00
13,900.00	90.58	359.24	7,432.93	6,490.83	-976.87	6,556.17	0.00	0.00	0.00
14,000.00	90.58	359.24	7,431.92	6,590.81	-978.19	6,655.78	0.00	0.00	0.00
14,100.00	90.58	359.24	7,430.91	6,690.80	-979.51	6,755.39	0.00	0.00	0.00
14,200.00	90.58	359.24	7,429.90	6,790.79	-980.83	6,855.00	0.00	0.00	0.00
14,300.00	90.58	359.24	7,428.89	6,890.77	-982.15	6,954.61	0.00	0.00	0.00
14,400.00	90.58	359.24	7,427.87	6,990.76	-983.47	7,054.23	0.00	0.00	0.00
14,500.00	90.58	359.24	7,426.86	7,090.74	-984.79	7,153.84	0.00	0.00	0.00
14,600.00	90.58	359.24	7,425.85	7,190.73	-986.10	7,253.45	0.00	0.00	0.00
14,700.00	90.58	359.24	7,424.84	7,290.72	-987.42	7,353.06	0.00	0.00	0.00
14,800.00	90.58	359.24	7,423.82	7,390.70	-988.74	7,452.67	0.00	0.00	0.00
14,900.00	90.58	359.24	7,422.81	7,490.69	-990.06	7,552.28	0.00	0.00	0.00
15,000.00	90.58	359.24	7,421.80	7,590.68	-991.38	7,651.90	0.00	0.00	0.00
15,100.00	90.58	359.24	7,420.79	7,690.66	-992.70	7,751.51	0.00	0.00	0.00
15,200.00	90.58	359.24	7,419.77	7,790.65	-994.02	7,851.12	0.00	0.00	0.00
15,300.00	90.58	359.24	7,418.76	7,890.63	-995.34	7,950.73	0.00	0.00	0.00
15,400.00	90.58	359.24	7,417.75	7,990.62	-996.66	8,050.34	0.00	0.00	0.00
15,500.00	90.58	359.24	7,416.74	8,090.61	-997.98	8,149.96	0.00	0.00	0.00
15,600.00	90.58	359.24	7,415.73	8,190.59	-999.30	8,249.57	0.00	0.00	0.00
15,700.00	90.58	359.24	7,414.71	8,290.58	-1,000.61	8,349.18	0.00	0.00	0.00
15,800.00	90.58	359.24	7,413.70	8,390.57	-1,001.93	8,448.79	0.00	0.00	0.00
15,900.00	90.58	359.24	7,412.69	8,490.55	-1,003.25	8,548.40	0.00	0.00	0.00
16,000.00	90.58	359.24	7,411.68	8,590.54	-1,004.57	8,648.01	0.00	0.00	0.00
16,100.00	90.58	359.24	7,410.66	8,690.52	-1,005.89	8,747.63	0.00	0.00	0.00
16,200.00	90.58	359.24	7,409.65	8,790.51	-1,007.21	8,847.24	0.00	0.00	0.00
16,300.00	90.58	359.24	7,408.64	8,890.50	-1,008.53	8,946.85	0.00	0.00	0.00
16,400.00	90.58	359.24	7,407.63	8,990.48	-1,009.85	9,046.46	0.00	0.00	0.00
16,500.00	90.58	359.24	7,406.62	9,090.47	-1,011.17	9,146.07	0.00	0.00	0.00
16,600.00	90.58	359.24	7,405.60	9,190.45	-1,012.49	9,245.69	0.00	0.00	0.00
16,700.00	90.58	359.24	7,404.59	9,290.44	-1,013.81	9,345.30	0.00	0.00	0.00
16,800.00	90.58	359.24	7,403.58	9,390.43	-1,015.12	9,444.91	0.00	0.00	0.00
16,900.00	90.58	359.24	7,402.57	9,490.41	-1,016.44	9,544.52	0.00	0.00	0.00
17,000.00	90.58	359.24	7,401.55	9,590.40	-1,017.76	9,644.13	0.00	0.00	0.00
17,100.00	90.58	359.24	7,400.54	9,690.39	-1,019.08	9,743.74	0.00	0.00	0.00
17,200.00	90.58	359.24	7,399.53	9,790.37	-1,020.40	9,843.36	0.00	0.00	0.00
17,300.00	90.58	359.24	7,398.52	9,890.36	-1,021.72	9,942.97	0.00	0.00	0.00
17,400.00	90.58	359.24	7,397.50	9,990.34	-1,023.04	10,042.58	0.00	0.00	0.00
17,500.00	90.58	359.24	7,396.49	10,090.33	-1,024.36	10,142.19	0.00	0.00	0.00
17,548.65	90.58	359.24	7,396.00	10,138.97	-1,025.00	10,190.65	0.00	0.00	0.00
QUARTER CIRCLE 24-1HZ_PBHL									

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well QUARTER CIRCLE 24-1HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4960.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4960.00usft (D Rig)
Site:	1N-67W-24 QUARTER CIRCLE 13-24HZ PAD	North Reference:	True
Well:	QUARTER CIRCLE 24-1HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Design Targets

Target Name

- hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
QUARTER CIRCLE 2 - plan hits target center - Point	0.00	0.00	7,396.00	10,138.97	-1,025.00	14,547,952.04	1,682,958.31	40.058170	-104.847964
QUARTER CIRCLE 2 - plan hits target center - Point	0.00	0.00	7,493.09	549.01	-898.48	14,538,362.32	1,683,101.59	40.031835	-104.847511

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,517.67	1,500.00	9 5/8"	9-5/8	13-1/2
7,957.36	7,493.09	Top of Production	5-1/2	7-7/8

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
657.77	657.00	Fox Hills			
4,247.49	4,160.00	Parkman			
5,054.41	4,960.00	Sussex			
7,286.78	7,177.00	Sharon Springs			
7,303.10	7,191.00	Niobrara			
7,533.32	7,361.00	Nio B			
7,655.94	7,426.00	Nio C			