

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

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

QUARTER CIRCLE 24-3HZ

Plan A

Plan: Permit Rev-1

Standard Planning Report

06 March, 2017



Azimuths to True North
Magnetic North: 8.11°

Magnetic Field
Strength: 52329.3snT
Dip Angle: 66.54°
Date: 2/22/2017
Model: IGRF2010

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

Well: QUARTER CIRCLE 24-3HZ
Wellbore: Plan A
Design: Permit Rev-1

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
657.00	657.77	Fox Hills
4160.00	4182.22	Parkman
4960.00	4985.64	Sussex
7177.00	7233.79	Sharon Springs
7191.00	7251.85	Niobrara
7361.00	7534.89	Nio B

WELL DETAILS: QUARTER CIRCLE 24-3HZ

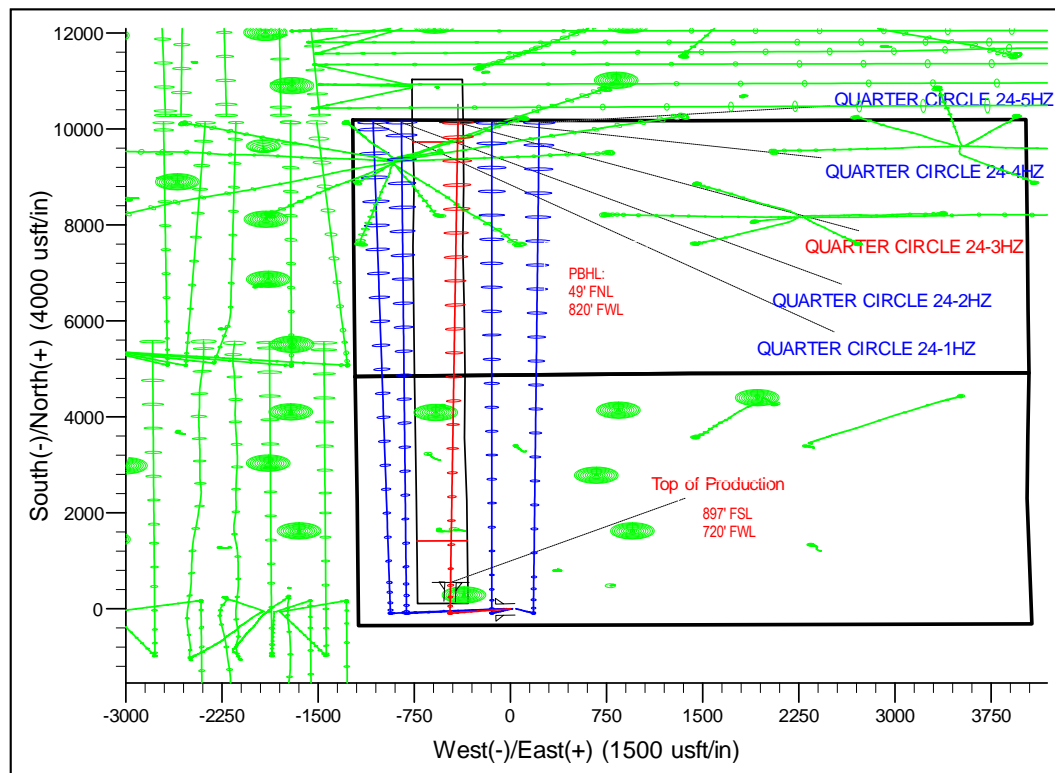
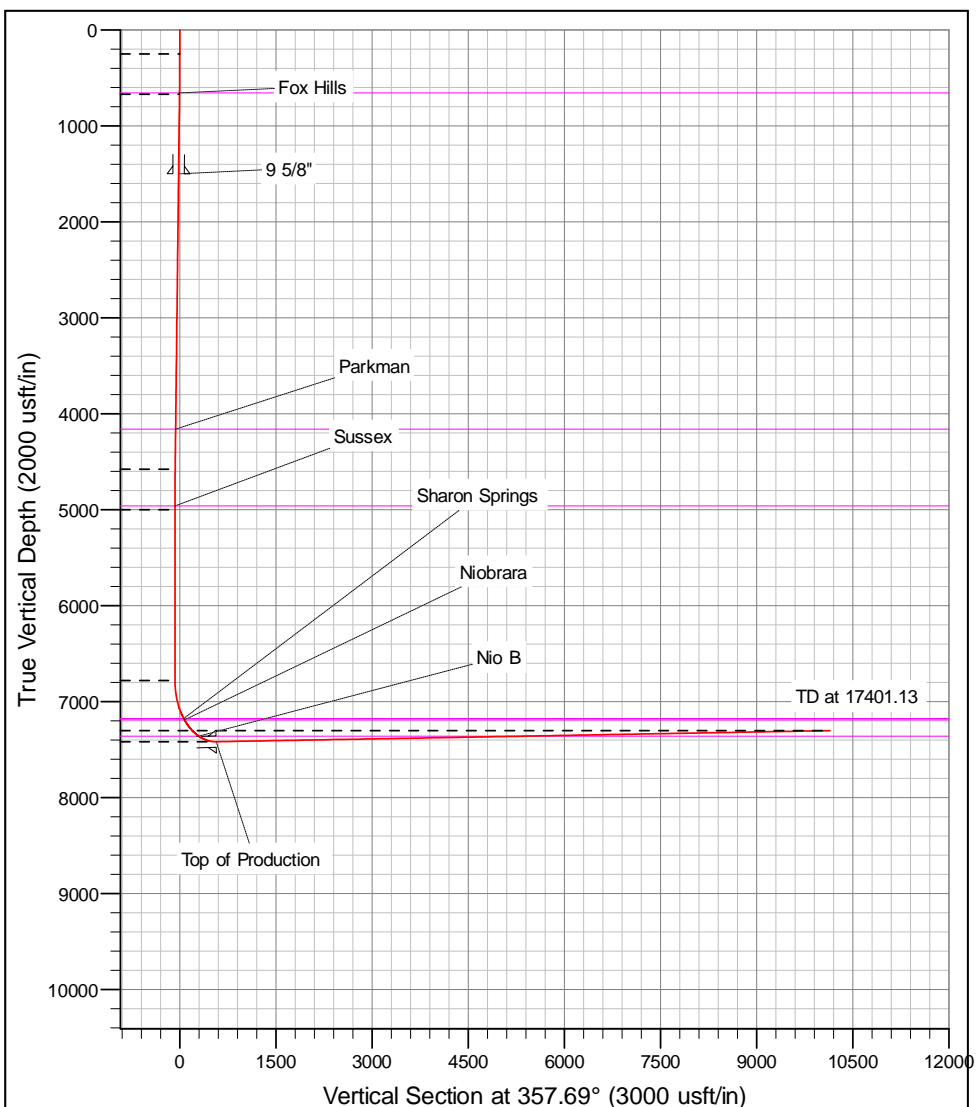
+N/-S	+E/-W	GL: 4943.00	RKB @ 4960.00usft (D Rig)	Longitude	Slot
0.00	0.00	Northings 14537814.59	Easting 1684046.10	Latitude 40.030326	Longitude -104.844140

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
671.59	6.32	258.70	670.74	-4.56	-22.79	1.50	-3.63
4604.05	6.32	258.70	4579.26	-89.44	-447.55	0.00	-71.33
5025.64	0.00	0.00	5000.00	-94.00	-470.34	1.50	-74.96
6807.50	0.00	0.00	6781.87	-94.00	-470.34	0.00	-74.96
7815.17	90.69	0.34	7418.44	550.27	-466.48	9.00	568.64
17401.13	90.69	0.34	7303.00	10135.37	-409.00	0.00	0143.62

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northings	Easting	Latitude	Longitude
QUARTER CIRCLE 24-3HZ_PBHL	7303.00	10135.37	-409.00	14547949.23	1683619.37	40.056159	-104.845602



Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well QUARTER CIRCLE 24-3HZ
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 24-3HZ	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 24-3HZ					
Well Position	+N-S	-0.36 usft	Northing:	14,537,814.60 usft	Latitude:	40.030326
	+E-W	45.07 usft	Easting:	1,684,046.10 usft	Longitude:	-104.844140
Position Uncertainty	0.00 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	52,329.26418426

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	357.69	

Plan Survey Tool Program	Date	3/3/2017			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	17,401.02 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		
671.59	6.32	258.70	670.74	-4.56	-22.79	1.50	1.50	0.00	258.70		
4,604.05	6.32	258.70	4,579.26	-89.44	-447.55	0.00	0.00	0.00	0.00		
5,025.64	0.00	0.00	5,000.00	-94.00	-470.34	1.50	-1.50	0.00	180.00		
6,807.50	0.00	0.00	6,781.87	-94.00	-470.34	0.00	0.00	0.00	0.00		
7,815.17	90.69	0.34	7,418.44	550.27	-466.48	9.00	9.00	0.00	0.34		
17,401.13	90.69	0.34	7,303.00	10,135.37	-409.00	0.00	0.00	0.00	0.00	QUARTER CIRLCE	

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 PAD	North Reference:	True
Well:	QUARTER CIRCLE 24-3HZ	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	258.70	300.00	-0.06	-0.32	-0.05	1.50	1.50	0.00
400.00	2.25	258.70	399.96	-0.58	-2.89	-0.46	1.50	1.50	0.00
500.00	3.75	258.70	499.82	-1.60	-8.02	-1.28	1.50	1.50	0.00
600.00	5.25	258.70	599.51	-3.14	-15.71	-2.50	1.50	1.50	0.00
657.77	6.12	258.70	657.00	-4.26	-21.32	-3.40	1.50	1.50	0.00
Fox Hills									
671.59	6.32	258.70	670.74	-4.56	-22.79	-3.63	1.50	1.50	0.00
700.00	6.32	258.70	698.97	-5.17	-25.86	-4.12	0.00	0.00	0.00
800.00	6.32	258.70	798.36	-7.33	-36.66	-5.84	0.00	0.00	0.00
900.00	6.32	258.70	897.75	-9.49	-47.46	-7.56	0.00	0.00	0.00
1,000.00	6.32	258.70	997.15	-11.64	-58.26	-9.29	0.00	0.00	0.00
1,100.00	6.32	258.70	1,096.54	-13.80	-69.07	-11.01	0.00	0.00	0.00
1,200.00	6.32	258.70	1,195.93	-15.96	-79.87	-12.73	0.00	0.00	0.00
1,300.00	6.32	258.70	1,295.32	-18.12	-90.67	-14.45	0.00	0.00	0.00
1,400.00	6.32	258.70	1,394.71	-20.28	-101.47	-16.17	0.00	0.00	0.00
1,500.00	6.32	258.70	1,494.10	-22.44	-112.27	-17.89	0.00	0.00	0.00
1,505.93	6.32	258.70	1,500.00	-22.57	-112.91	-17.99	0.00	0.00	0.00
9 5/8"									
1,600.00	6.32	258.70	1,593.50	-24.60	-123.07	-19.61	0.00	0.00	0.00
1,700.00	6.32	258.70	1,692.89	-26.76	-133.87	-21.34	0.00	0.00	0.00
1,800.00	6.32	258.70	1,792.28	-28.91	-144.67	-23.06	0.00	0.00	0.00
1,900.00	6.32	258.70	1,891.67	-31.07	-155.48	-24.78	0.00	0.00	0.00
2,000.00	6.32	258.70	1,991.06	-33.23	-166.28	-26.50	0.00	0.00	0.00
2,100.00	6.32	258.70	2,090.45	-35.39	-177.08	-28.22	0.00	0.00	0.00
2,200.00	6.32	258.70	2,189.84	-37.55	-187.88	-29.94	0.00	0.00	0.00
2,300.00	6.32	258.70	2,289.24	-39.71	-198.68	-31.66	0.00	0.00	0.00
2,400.00	6.32	258.70	2,388.63	-41.87	-209.48	-33.39	0.00	0.00	0.00
2,500.00	6.32	258.70	2,488.02	-44.02	-220.28	-35.11	0.00	0.00	0.00
2,600.00	6.32	258.70	2,587.41	-46.18	-231.08	-36.83	0.00	0.00	0.00
2,700.00	6.32	258.70	2,686.80	-48.34	-241.89	-38.55	0.00	0.00	0.00
2,800.00	6.32	258.70	2,786.19	-50.50	-252.69	-40.27	0.00	0.00	0.00
2,900.00	6.32	258.70	2,885.58	-52.66	-263.49	-41.99	0.00	0.00	0.00
3,000.00	6.32	258.70	2,984.98	-54.82	-274.29	-43.71	0.00	0.00	0.00
3,100.00	6.32	258.70	3,084.37	-56.98	-285.09	-45.44	0.00	0.00	0.00
3,200.00	6.32	258.70	3,183.76	-59.14	-295.89	-47.16	0.00	0.00	0.00
3,300.00	6.32	258.70	3,283.15	-61.29	-306.69	-48.88	0.00	0.00	0.00
3,400.00	6.32	258.70	3,382.54	-63.45	-317.50	-50.60	0.00	0.00	0.00
3,500.00	6.32	258.70	3,481.93	-65.61	-328.30	-52.32	0.00	0.00	0.00
3,600.00	6.32	258.70	3,581.33	-67.77	-339.10	-54.04	0.00	0.00	0.00
3,700.00	6.32	258.70	3,680.72	-69.93	-349.90	-55.76	0.00	0.00	0.00
3,800.00	6.32	258.70	3,780.11	-72.09	-360.70	-57.49	0.00	0.00	0.00
3,900.00	6.32	258.70	3,879.50	-74.25	-371.50	-59.21	0.00	0.00	0.00
4,000.00	6.32	258.70	3,978.89	-76.41	-382.30	-60.93	0.00	0.00	0.00
4,100.00	6.32	258.70	4,078.28	-78.56	-393.10	-62.65	0.00	0.00	0.00
4,182.22	6.32	258.70	4,160.00	-80.34	-401.99	-64.07	0.00	0.00	0.00
Parkman									
4,200.00	6.32	258.70	4,177.67	-80.72	-403.91	-64.37	0.00	0.00	0.00
4,300.00	6.32	258.70	4,277.07	-82.88	-414.71	-66.09	0.00	0.00	0.00
4,400.00	6.32	258.70	4,376.46	-85.04	-425.51	-67.81	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well QUARTER CIRCLE 24-3HZ
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 24-3HZ	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)
4,500.00	6.32	258.70	4,475.85	-87.20	-436.31	-69.54	0.00	0.00	0.00
4,600.00	6.32	258.70	4,575.24	-89.36	-447.11	-71.26	0.00	0.00	0.00
4,604.05	6.32	258.70	4,579.26	-89.44	-447.55	-71.33	0.00	0.00	0.00
4,700.00	4.88	258.70	4,674.75	-91.28	-456.74	-72.79	1.50	-1.50	0.00
4,800.00	3.38	258.70	4,774.49	-92.69	-463.81	-73.92	1.50	-1.50	0.00
4,900.00	1.88	258.70	4,874.38	-93.60	-468.31	-74.64	1.50	-1.50	0.00
4,985.64	0.60	258.70	4,960.00	-93.96	-470.13	-74.93	1.50	-1.50	0.00
Sussex									
5,000.00	0.38	258.70	4,974.36	-93.98	-470.26	-74.95	1.50	-1.50	0.00
5,025.64	0.00	0.00	5,000.00	-94.00	-470.34	-74.96	1.50	-1.50	0.00
5,100.00	0.00	0.00	5,074.36	-94.00	-470.34	-74.96	0.00	0.00	0.00
5,200.00	0.00	0.00	5,174.36	-94.00	-470.34	-74.96	0.00	0.00	0.00
5,300.00	0.00	0.00	5,274.36	-94.00	-470.34	-74.96	0.00	0.00	0.00
5,400.00	0.00	0.00	5,374.36	-94.00	-470.34	-74.96	0.00	0.00	0.00
5,500.00	0.00	0.00	5,474.36	-94.00	-470.34	-74.96	0.00	0.00	0.00
5,600.00	0.00	0.00	5,574.36	-94.00	-470.34	-74.96	0.00	0.00	0.00
5,700.00	0.00	0.00	5,674.36	-94.00	-470.34	-74.96	0.00	0.00	0.00
5,800.00	0.00	0.00	5,774.36	-94.00	-470.34	-74.96	0.00	0.00	0.00
5,900.00	0.00	0.00	5,874.36	-94.00	-470.34	-74.96	0.00	0.00	0.00
6,000.00	0.00	0.00	5,974.36	-94.00	-470.34	-74.96	0.00	0.00	0.00
6,100.00	0.00	0.00	6,074.36	-94.00	-470.34	-74.96	0.00	0.00	0.00
6,200.00	0.00	0.00	6,174.36	-94.00	-470.34	-74.96	0.00	0.00	0.00
6,300.00	0.00	0.00	6,274.36	-94.00	-470.34	-74.96	0.00	0.00	0.00
6,400.00	0.00	0.00	6,374.36	-94.00	-470.34	-74.96	0.00	0.00	0.00
6,500.00	0.00	0.00	6,474.36	-94.00	-470.34	-74.96	0.00	0.00	0.00
6,600.00	0.00	0.00	6,574.36	-94.00	-470.34	-74.96	0.00	0.00	0.00
6,700.00	0.00	0.00	6,674.36	-94.00	-470.34	-74.96	0.00	0.00	0.00
6,800.00	0.00	0.00	6,774.36	-94.00	-470.34	-74.96	0.00	0.00	0.00
6,807.50	0.00	0.00	6,781.87	-94.00	-470.34	-74.96	0.00	0.00	0.00
6,900.00	8.32	0.34	6,874.04	-87.29	-470.30	-68.26	9.00	9.00	0.00
7,000.00	17.32	0.34	6,971.44	-65.12	-470.17	-46.11	9.00	9.00	0.00
7,100.00	26.32	0.34	7,064.18	-27.98	-469.94	-9.01	9.00	9.00	0.00
7,200.00	35.32	0.34	7,149.96	23.21	-469.64	42.12	9.00	9.00	0.00
7,233.79	38.37	0.34	7,177.00	43.46	-469.52	62.36	9.00	9.00	0.00
Sharon Springs									
7,251.85	39.99	0.34	7,191.00	54.87	-469.45	73.76	9.00	9.00	0.00
Niobrara									
7,300.00	44.32	0.34	7,226.69	87.18	-469.25	106.03	9.00	9.00	0.00
7,400.00	53.32	0.34	7,292.45	162.37	-468.80	181.14	9.00	9.00	0.00
7,500.00	62.32	0.34	7,345.65	246.93	-468.30	265.61	9.00	9.00	0.00
7,534.89	65.46	0.34	7,361.00	278.25	-468.11	296.90	9.00	9.00	0.00
Nio B									
7,600.00	71.32	0.34	7,384.97	338.76	-467.74	357.35	9.00	9.00	0.00
7,700.00	80.32	0.34	7,409.43	435.62	-467.16	454.10	9.00	9.00	0.00
7,800.00	89.32	0.34	7,418.44	535.10	-466.57	553.48	9.00	9.00	0.00
7,815.17	90.69	0.34	7,418.44	550.27	-466.48	568.63	9.00	9.00	0.00
Top of Production - QUARTER CIRCLE 24-3HZ_PHL									
7,900.00	90.69	0.34	7,417.42	635.10	-465.97	653.37	0.00	0.00	0.00
8,000.00	90.69	0.34	7,416.21	735.09	-465.37	753.25	0.00	0.00	0.00
8,100.00	90.69	0.34	7,415.01	835.08	-464.77	853.14	0.00	0.00	0.00
8,200.00	90.69	0.34	7,413.80	935.07	-464.17	953.02	0.00	0.00	0.00
8,300.00	90.69	0.34	7,412.60	1,035.06	-463.57	1,052.91	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well QUARTER CIRCLE 24-3HZ
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 24-3HZ	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)
8,400.00	90.69	0.34	7,411.40	1,135.05	-462.97	1,152.79	0.00	0.00	0.00
8,500.00	90.69	0.34	7,410.19	1,235.04	-462.37	1,252.68	0.00	0.00	0.00
8,600.00	90.69	0.34	7,408.99	1,335.03	-461.77	1,352.57	0.00	0.00	0.00
8,700.00	90.69	0.34	7,407.78	1,435.02	-461.17	1,452.45	0.00	0.00	0.00
8,800.00	90.69	0.34	7,406.58	1,535.01	-460.57	1,552.34	0.00	0.00	0.00
8,900.00	90.69	0.34	7,405.37	1,635.01	-459.97	1,652.22	0.00	0.00	0.00
9,000.00	90.69	0.34	7,404.17	1,735.00	-459.37	1,752.11	0.00	0.00	0.00
9,100.00	90.69	0.34	7,402.97	1,834.99	-458.77	1,851.99	0.00	0.00	0.00
9,200.00	90.69	0.34	7,401.76	1,934.98	-458.17	1,951.88	0.00	0.00	0.00
9,300.00	90.69	0.34	7,400.56	2,034.97	-457.57	2,051.76	0.00	0.00	0.00
9,400.00	90.69	0.34	7,399.35	2,134.96	-456.97	2,151.65	0.00	0.00	0.00
9,500.00	90.69	0.34	7,398.15	2,234.95	-456.37	2,251.53	0.00	0.00	0.00
9,600.00	90.69	0.34	7,396.95	2,334.94	-455.77	2,351.42	0.00	0.00	0.00
9,700.00	90.69	0.34	7,395.74	2,434.93	-455.18	2,451.31	0.00	0.00	0.00
9,800.00	90.69	0.34	7,394.54	2,534.92	-454.58	2,551.19	0.00	0.00	0.00
9,900.00	90.69	0.34	7,393.33	2,634.91	-453.98	2,651.08	0.00	0.00	0.00
10,000.00	90.69	0.34	7,392.13	2,734.91	-453.38	2,750.96	0.00	0.00	0.00
10,100.00	90.69	0.34	7,390.92	2,834.90	-452.78	2,850.85	0.00	0.00	0.00
10,200.00	90.69	0.34	7,389.72	2,934.89	-452.18	2,950.73	0.00	0.00	0.00
10,300.00	90.69	0.34	7,388.52	3,034.88	-451.58	3,050.62	0.00	0.00	0.00
10,400.00	90.69	0.34	7,387.31	3,134.87	-450.98	3,150.50	0.00	0.00	0.00
10,500.00	90.69	0.34	7,386.11	3,234.86	-450.38	3,250.39	0.00	0.00	0.00
10,600.00	90.69	0.34	7,384.90	3,334.85	-449.78	3,350.27	0.00	0.00	0.00
10,700.00	90.69	0.34	7,383.70	3,434.84	-449.18	3,450.16	0.00	0.00	0.00
10,800.00	90.69	0.34	7,382.49	3,534.83	-448.58	3,550.05	0.00	0.00	0.00
10,900.00	90.69	0.34	7,381.29	3,634.82	-447.98	3,649.93	0.00	0.00	0.00
11,000.00	90.69	0.34	7,380.09	3,734.82	-447.38	3,749.82	0.00	0.00	0.00
11,100.00	90.69	0.34	7,378.88	3,834.81	-446.78	3,849.70	0.00	0.00	0.00
11,200.00	90.69	0.34	7,377.68	3,934.80	-446.18	3,949.59	0.00	0.00	0.00
11,300.00	90.69	0.34	7,376.47	4,034.79	-445.58	4,049.47	0.00	0.00	0.00
11,400.00	90.69	0.34	7,375.27	4,134.78	-444.98	4,149.36	0.00	0.00	0.00
11,500.00	90.69	0.34	7,374.06	4,234.77	-444.38	4,249.24	0.00	0.00	0.00
11,600.00	90.69	0.34	7,372.86	4,334.76	-443.78	4,349.13	0.00	0.00	0.00
11,700.00	90.69	0.34	7,371.66	4,434.75	-443.18	4,449.01	0.00	0.00	0.00
11,800.00	90.69	0.34	7,370.45	4,534.74	-442.58	4,548.90	0.00	0.00	0.00
11,900.00	90.69	0.34	7,369.25	4,634.73	-441.98	4,648.79	0.00	0.00	0.00
12,000.00	90.69	0.34	7,368.04	4,734.72	-441.38	4,748.67	0.00	0.00	0.00
12,100.00	90.69	0.34	7,366.84	4,834.72	-440.79	4,848.56	0.00	0.00	0.00
12,200.00	90.69	0.34	7,365.63	4,934.71	-440.19	4,948.44	0.00	0.00	0.00
12,300.00	90.69	0.34	7,364.43	5,034.70	-439.59	5,048.33	0.00	0.00	0.00
12,400.00	90.69	0.34	7,363.23	5,134.69	-438.99	5,148.21	0.00	0.00	0.00
12,500.00	90.69	0.34	7,362.02	5,234.68	-438.39	5,248.10	0.00	0.00	0.00
12,600.00	90.69	0.34	7,360.82	5,334.67	-437.79	5,347.98	0.00	0.00	0.00
12,700.00	90.69	0.34	7,359.61	5,434.66	-437.19	5,447.87	0.00	0.00	0.00
12,800.00	90.69	0.34	7,358.41	5,534.65	-436.59	5,547.76	0.00	0.00	0.00
12,900.00	90.69	0.34	7,357.20	5,634.64	-435.99	5,647.64	0.00	0.00	0.00
13,000.00	90.69	0.34	7,356.00	5,734.63	-435.39	5,747.53	0.00	0.00	0.00
13,100.00	90.69	0.34	7,354.80	5,834.63	-434.79	5,847.41	0.00	0.00	0.00
13,200.00	90.69	0.34	7,353.59	5,934.62	-434.19	5,947.30	0.00	0.00	0.00
13,300.00	90.69	0.34	7,352.39	6,034.61	-433.59	6,047.18	0.00	0.00	0.00
13,400.00	90.69	0.34	7,351.18	6,134.60	-432.99	6,147.07	0.00	0.00	0.00
13,500.00	90.69	0.34	7,349.98	6,234.59	-432.39	6,246.95	0.00	0.00	0.00
13,600.00	90.69	0.34	7,348.78	6,334.58	-431.79	6,346.84	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well QUARTER CIRCLE 24-3HZ
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 24-3HZ	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)
13,700.00	90.69	0.34	7,347.57	6,434.57	-431.19	6,446.72	0.00	0.00	0.00
13,800.00	90.69	0.34	7,346.37	6,534.56	-430.59	6,546.61	0.00	0.00	0.00
13,900.00	90.69	0.34	7,345.16	6,634.55	-429.99	6,646.50	0.00	0.00	0.00
14,000.00	90.69	0.34	7,343.96	6,734.54	-429.39	6,746.38	0.00	0.00	0.00
14,100.00	90.69	0.34	7,342.75	6,834.53	-428.79	6,846.27	0.00	0.00	0.00
14,200.00	90.69	0.34	7,341.55	6,934.53	-428.19	6,946.15	0.00	0.00	0.00
14,300.00	90.69	0.34	7,340.35	7,034.52	-427.59	7,046.04	0.00	0.00	0.00
14,400.00	90.69	0.34	7,339.14	7,134.51	-426.99	7,145.92	0.00	0.00	0.00
14,500.00	90.69	0.34	7,337.94	7,234.50	-426.39	7,245.81	0.00	0.00	0.00
14,600.00	90.69	0.34	7,336.73	7,334.49	-425.80	7,345.69	0.00	0.00	0.00
14,700.00	90.69	0.34	7,335.53	7,434.48	-425.20	7,445.58	0.00	0.00	0.00
14,800.00	90.69	0.34	7,334.32	7,534.47	-424.60	7,545.46	0.00	0.00	0.00
14,900.00	90.69	0.34	7,333.12	7,634.46	-424.00	7,645.35	0.00	0.00	0.00
15,000.00	90.69	0.34	7,331.92	7,734.45	-423.40	7,745.24	0.00	0.00	0.00
15,100.00	90.69	0.34	7,330.71	7,834.44	-422.80	7,845.12	0.00	0.00	0.00
15,200.00	90.69	0.34	7,329.51	7,934.44	-422.20	7,945.01	0.00	0.00	0.00
15,300.00	90.69	0.34	7,328.30	8,034.43	-421.60	8,044.89	0.00	0.00	0.00
15,400.00	90.69	0.34	7,327.10	8,134.42	-421.00	8,144.78	0.00	0.00	0.00
15,500.00	90.69	0.34	7,325.89	8,234.41	-420.40	8,244.66	0.00	0.00	0.00
15,600.00	90.69	0.34	7,324.69	8,334.40	-419.80	8,344.55	0.00	0.00	0.00
15,700.00	90.69	0.34	7,323.49	8,434.39	-419.20	8,444.43	0.00	0.00	0.00
15,800.00	90.69	0.34	7,322.28	8,534.38	-418.60	8,544.32	0.00	0.00	0.00
15,900.00	90.69	0.34	7,321.08	8,634.37	-418.00	8,644.20	0.00	0.00	0.00
16,000.00	90.69	0.34	7,319.87	8,734.36	-417.40	8,744.09	0.00	0.00	0.00
16,100.00	90.69	0.34	7,318.67	8,834.35	-416.80	8,843.98	0.00	0.00	0.00
16,200.00	90.69	0.34	7,317.46	8,934.34	-416.20	8,943.86	0.00	0.00	0.00
16,300.00	90.69	0.34	7,316.26	9,034.34	-415.60	9,043.75	0.00	0.00	0.00
16,400.00	90.69	0.34	7,315.06	9,134.33	-415.00	9,143.63	0.00	0.00	0.00
16,500.00	90.69	0.34	7,313.85	9,234.32	-414.40	9,243.52	0.00	0.00	0.00
16,600.00	90.69	0.34	7,312.65	9,334.31	-413.80	9,343.40	0.00	0.00	0.00
16,700.00	90.69	0.34	7,311.44	9,434.30	-413.20	9,443.29	0.00	0.00	0.00
16,800.00	90.69	0.34	7,310.24	9,534.29	-412.60	9,543.17	0.00	0.00	0.00
16,900.00	90.69	0.34	7,309.04	9,634.28	-412.00	9,643.06	0.00	0.00	0.00
17,000.00	90.69	0.34	7,307.83	9,734.27	-411.41	9,742.94	0.00	0.00	0.00
17,100.00	90.69	0.34	7,306.63	9,834.26	-410.81	9,842.83	0.00	0.00	0.00
17,200.00	90.69	0.34	7,305.42	9,934.25	-410.21	9,942.72	0.00	0.00	0.00
17,300.00	90.69	0.34	7,304.22	10,034.25	-409.61	10,042.60	0.00	0.00	0.00
17,400.00	90.69	0.34	7,303.01	10,134.24	-409.01	10,142.49	0.00	0.00	0.00
17,401.13	90.69	0.34	7,303.00	10,135.37	-409.00	10,143.62	0.00	0.00	0.00
QUARTER CIRCLE 24-3HZ_PBHL									

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well QUARTER CIRCLE 24-3HZ
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 24-3HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Design Targets

Target Name

- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- Shape									
QUARTER CIRCLE 2	0.00	0.00	7,303.00	10,135.37	-409.00	14,547,949.23	1,683,619.37	40.058160	-104.845602
- plan hits target center									
- Point									
QUARTER CIRCLE 2	0.00	0.00	7,418.44	550.27	-466.48	14,538,364.06	1,683,578.66	40.031837	-104.845807
- plan hits target center									
- Point									

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,505.93	1,500.00	9 5/8"	9-5/8	13-1/2
7,815.17	7,418.44	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			
4,182.22	4,160.00	Parkman			
4,985.64	4,960.00	Sussex			
7,233.79	7,177.00	Sharon Springs			
7,251.85	7,191.00	Niobrara			
7,534.89	7,361.00	Nio B			