

US ROCKIES WATTENBERG PLANNING

**WELD-NAD83-UTMFT13N
1N-66W-13 AZUL 13-13HZ
AZUL 13-4HZ**

Plan A

Plan: Permit Rev-2

Standard Planning Report

05 July, 2017



Azimuths to True North
Magnetic North: 8.01°

Magnetic Field
Strength: 52317.9snT
Dip Angle: 66.56°
Date: 6/8/2017
Model: IGRF2010

SITE: 1N-66W-13 AZUL 13-13HZ

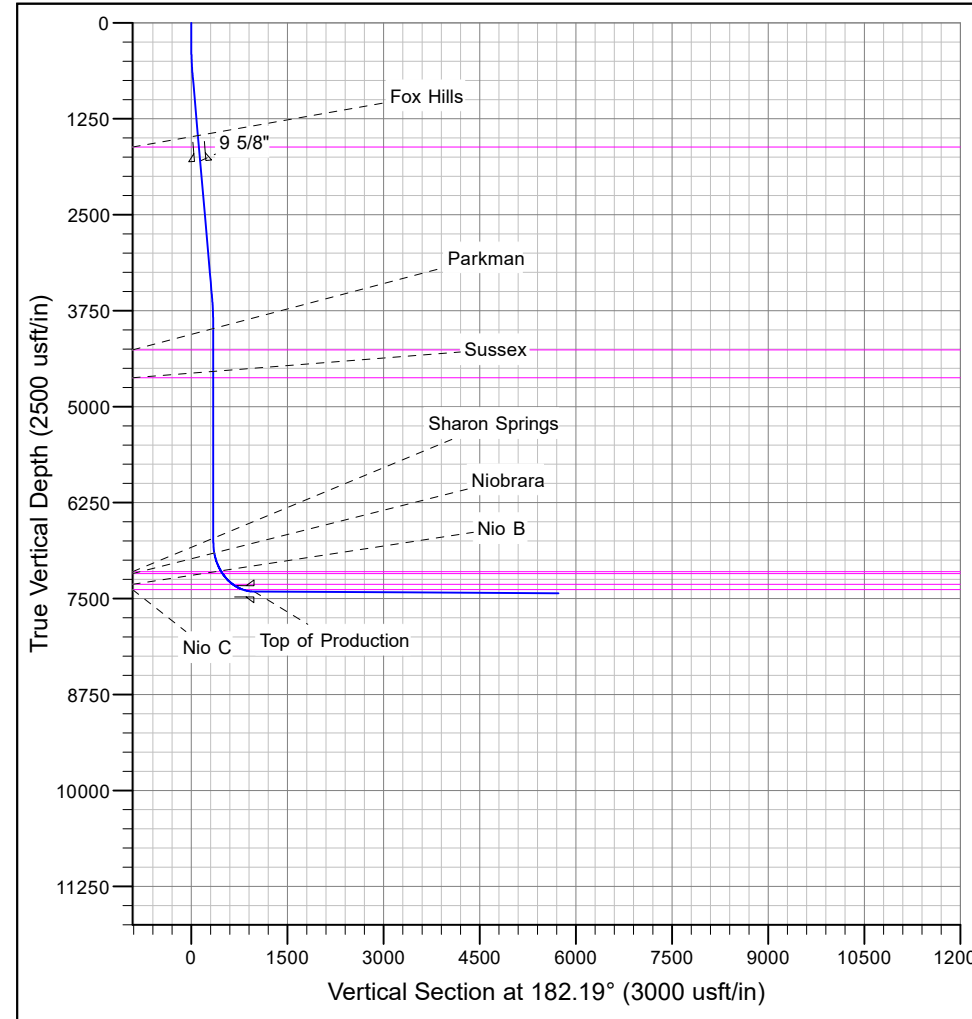
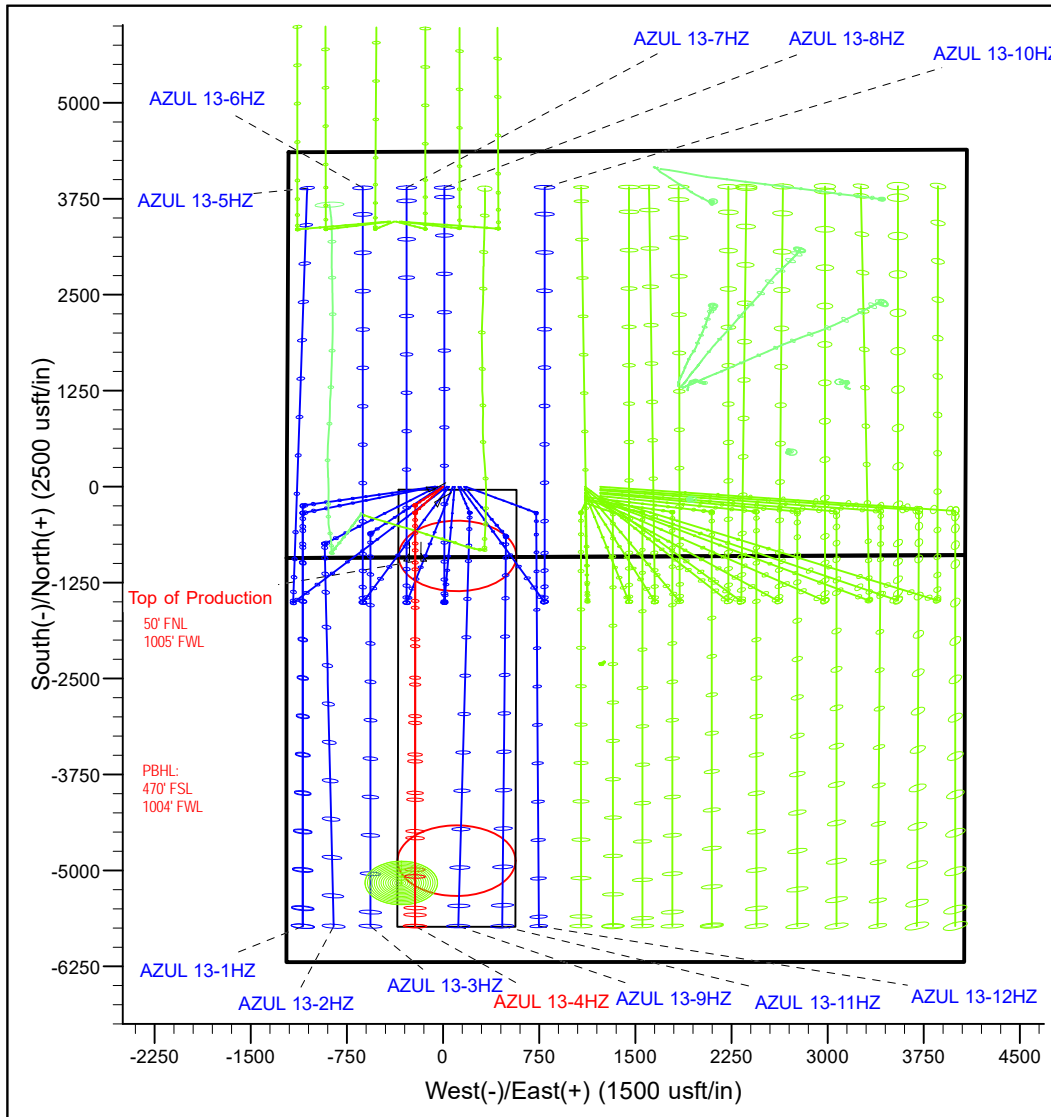
Well: AZUL 13-4HZ
Wellbore: Plan A
Design: Permit Rev-2

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
1619.00	1626.88	Fox Hills
4260.00	4283.27	Parkman
4624.00	4647.27	Sussex
7150.00	7199.79	Sharon Springs
7176.00	7232.71	Niobrara
7317.00	7448.73	Nio B
7384.00	7615.52	Nio C

DESIGN TARGET DETAILS							
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
AZUL 13-4HZ_PBHL	7431.00	-5724.05	-218.91	14538070.00	1715611.00	40.030821	-104.731377

WELL DETAILS: AZUL 13-4HZ							
		GL: 5071.00	RKB @ 5088.00usft (D Rig)				
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude		
0.00	0.00	14543794.69	1715812.59	40.046540	-104.730595		

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
714.29	6.96	212.91	713.15	-23.66	-15.31	1.50	24.23
3558.98	6.96	212.91	3536.85	-313.25	-202.69	0.00	320.77
4023.27	0.00	0.00	4000.00	-336.91	-218.00	1.50	345.00
6796.09	0.00	0.00	6772.82	-336.91	-218.00	0.00	345.00
7793.20	89.74	180.01	7409.43	-970.64	-218.11	9.00	978.27
12546.66	89.74	180.01	7431.00	-5724.05	-218.91	0.00	5728.23



Database:	PLANNING	Local Co-ordinate Reference:	Well AZUL 13-4HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 5088.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 5088.00usft (D Rig)
Site:	1N-66W-13 AZUL 13-13HZ	North Reference:	True
Well:	AZUL 13-4HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-2		

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-13 AZUL 13-13HZ				
Site Position:		Northing:	14,543,795.23 usft	Latitude:	40.046542
From:	Lat/Long	Easting:	1,715,752.42 usft	Longitude:	-104.730810
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.17

Well	AZUL 13-4HZ					
Well Position	+N/-S	-0.73 usft	Northing:	14,543,794.68 usft	Latitude:	40.046540
	+E/-W	60.17 usft	Easting:	1,715,812.59 usft	Longitude:	-104.730595
Position Uncertainty		3.28 usft	Wellhead Elevation:		Ground Level:	5,071.00 usft

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/8/2017	8.01	66.56	52,317.92682908

Design	Permit Rev-2			
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	182.19

Plan Survey Tool Program	Date	7/5/2017		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	12,546.66	Permit Rev-2 (Plan A)	APC_ISCWSA REV 2 MWD+I Fixed:v2:crustal field declination

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	
714.29	6.96	212.91	713.15	-23.66	-15.31	1.50	1.50	0.00	212.91	
3,558.99	6.96	212.91	3,536.85	-313.25	-202.69	0.00	0.00	0.00	0.00	
4,023.27	0.00	0.00	4,000.00	-336.91	-218.00	1.50	-1.50	0.00	180.00	
6,796.09	0.00	0.00	6,772.82	-336.91	-218.00	0.00	0.00	0.00	0.00	
7,793.20	89.74	180.01	7,409.43	-970.64	-218.11	9.00	9.00	0.00	180.01	
12,546.66	89.74	180.01	7,431.00	-5,724.05	-218.91	0.00	0.00	0.00	0.00	AZUL 13-4HZ_PBHL

Database:	PLANNING	Local Co-ordinate Reference:	Well AZUL 13-4HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 5088.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 5088.00usft (D Rig)
Site:	1N-66W-13 AZUL 13-13HZ	North Reference:	True
Well:	AZUL 13-4HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-2		

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	212.91	300.00	-0.27	-0.18	0.28	1.50	1.50	0.00
400.00	2.25	212.91	399.96	-2.47	-1.60	2.53	1.50	1.50	0.00
500.00	3.75	212.91	499.82	-6.87	-4.44	7.03	1.50	1.50	0.00
600.00	5.25	212.91	599.51	-13.45	-8.71	13.78	1.50	1.50	0.00
700.00	6.75	212.91	698.96	-22.23	-14.38	22.76	1.50	1.50	0.00
714.29	6.96	212.91	713.15	-23.66	-15.31	24.23	1.50	1.50	0.00
800.00	6.96	212.91	798.23	-32.39	-20.96	33.16	0.00	0.00	0.00
900.00	6.96	212.91	897.49	-42.57	-27.54	43.59	0.00	0.00	0.00
1,000.00	6.96	212.91	996.75	-52.75	-34.13	54.01	0.00	0.00	0.00
1,100.00	6.96	212.91	1,096.01	-62.93	-40.72	64.44	0.00	0.00	0.00
1,200.00	6.96	212.91	1,195.27	-73.11	-47.30	74.86	0.00	0.00	0.00
1,300.00	6.96	212.91	1,294.54	-83.29	-53.89	85.28	0.00	0.00	0.00
1,400.00	6.96	212.91	1,393.80	-93.47	-60.48	95.71	0.00	0.00	0.00
1,500.00	6.96	212.91	1,493.06	-103.65	-67.06	106.13	0.00	0.00	0.00
1,600.00	6.96	212.91	1,592.32	-113.83	-73.65	116.56	0.00	0.00	0.00
1,626.88	6.96	212.91	1,619.00	-116.56	-75.42	119.36	0.00	0.00	0.00
Fox Hills									
1,700.00	6.96	212.91	1,691.58	-124.01	-80.24	126.98	0.00	0.00	0.00
1,800.00	6.96	212.91	1,790.85	-134.19	-86.83	137.41	0.00	0.00	0.00
1,809.22	6.96	212.91	1,800.00	-135.12	-87.43	138.37	0.00	0.00	0.00
9 5/8"									
1,900.00	6.96	212.91	1,890.11	-144.37	-93.41	147.83	0.00	0.00	0.00
2,000.00	6.96	212.91	1,989.37	-154.55	-100.00	158.25	0.00	0.00	0.00
2,100.00	6.96	212.91	2,088.63	-164.73	-106.59	168.68	0.00	0.00	0.00
2,200.00	6.96	212.91	2,187.90	-174.91	-113.17	179.10	0.00	0.00	0.00
2,300.00	6.96	212.91	2,287.16	-185.09	-119.76	189.53	0.00	0.00	0.00
2,400.00	6.96	212.91	2,386.42	-195.27	-126.35	199.95	0.00	0.00	0.00
2,500.00	6.96	212.91	2,485.68	-205.45	-132.93	210.38	0.00	0.00	0.00
2,600.00	6.96	212.91	2,584.94	-215.62	-139.52	220.80	0.00	0.00	0.00
2,700.00	6.96	212.91	2,684.21	-225.80	-146.11	231.22	0.00	0.00	0.00
2,800.00	6.96	212.91	2,783.47	-235.98	-152.70	241.65	0.00	0.00	0.00
2,900.00	6.96	212.91	2,882.73	-246.16	-159.28	252.07	0.00	0.00	0.00
3,000.00	6.96	212.91	2,981.99	-256.34	-165.87	262.50	0.00	0.00	0.00
3,100.00	6.96	212.91	3,081.26	-266.52	-172.46	272.92	0.00	0.00	0.00
3,200.00	6.96	212.91	3,180.52	-276.70	-179.04	283.34	0.00	0.00	0.00
3,300.00	6.96	212.91	3,279.78	-286.88	-185.63	293.77	0.00	0.00	0.00
3,400.00	6.96	212.91	3,379.04	-297.06	-192.22	304.19	0.00	0.00	0.00
3,500.00	6.96	212.91	3,478.30	-307.24	-198.80	314.62	0.00	0.00	0.00
3,558.99	6.96	212.91	3,536.85	-313.25	-202.69	320.77	0.00	0.00	0.00
3,600.00	6.35	212.91	3,577.59	-317.24	-205.27	324.85	1.50	-1.50	0.00
3,700.00	4.85	212.91	3,677.11	-325.43	-210.57	333.24	1.50	-1.50	0.00
3,800.00	3.35	212.91	3,776.85	-331.43	-214.46	339.39	1.50	-1.50	0.00
3,900.00	1.85	212.91	3,876.75	-335.24	-216.92	343.29	1.50	-1.50	0.00
4,000.00	0.35	212.91	3,976.73	-336.85	-217.96	344.93	1.50	-1.50	0.00
4,023.27	0.00	0.00	4,000.00	-336.91	-218.00	345.00	1.50	-1.50	0.00
4,100.00	0.00	0.00	4,076.73	-336.91	-218.00	345.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,176.73	-336.91	-218.00	345.00	0.00	0.00	0.00
4,283.27	0.00	0.00	4,260.00	-336.91	-218.00	345.00	0.00	0.00	0.00
Parkman									

Database:	PLANNING	Local Co-ordinate Reference:	Well AZUL 13-4HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 5088.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 5088.00usft (D Rig)
Site:	1N-66W-13 AZUL 13-13HZ	North Reference:	True
Well:	AZUL 13-4HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-2		

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	4,276.73	-336.91	-218.00	345.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,376.73	-336.91	-218.00	345.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,476.73	-336.91	-218.00	345.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,576.73	-336.91	-218.00	345.00	0.00	0.00	0.00
4,647.27	0.00	0.00	4,624.00	-336.91	-218.00	345.00	0.00	0.00	0.00
Sussex									
4,700.00	0.00	0.00	4,676.73	-336.91	-218.00	345.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,776.73	-336.91	-218.00	345.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,876.73	-336.91	-218.00	345.00	0.00	0.00	0.00
5,000.00	0.00	0.00	4,976.73	-336.91	-218.00	345.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,076.73	-336.91	-218.00	345.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,176.73	-336.91	-218.00	345.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,276.73	-336.91	-218.00	345.00	0.00	0.00	0.00
5,400.00	0.00	0.00	5,376.73	-336.91	-218.00	345.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,476.73	-336.91	-218.00	345.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,576.73	-336.91	-218.00	345.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,676.73	-336.91	-218.00	345.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,776.73	-336.91	-218.00	345.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,876.73	-336.91	-218.00	345.00	0.00	0.00	0.00
6,000.00	0.00	0.00	5,976.73	-336.91	-218.00	345.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,076.73	-336.91	-218.00	345.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,176.73	-336.91	-218.00	345.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,276.73	-336.91	-218.00	345.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,376.73	-336.91	-218.00	345.00	0.00	0.00	0.00
6,500.00	0.00	0.00	6,476.73	-336.91	-218.00	345.00	0.00	0.00	0.00
6,600.00	0.00	0.00	6,576.73	-336.91	-218.00	345.00	0.00	0.00	0.00
6,700.00	0.00	0.00	6,676.73	-336.91	-218.00	345.00	0.00	0.00	0.00
6,796.09	0.00	0.00	6,772.82	-336.91	-218.00	345.00	0.00	0.00	0.00
6,800.00	0.35	180.01	6,776.73	-336.92	-218.00	345.01	9.00	9.00	0.00
6,900.00	9.35	180.01	6,876.27	-345.37	-218.00	353.45	9.00	9.00	0.00
7,000.00	18.35	180.01	6,973.26	-369.29	-218.01	377.35	9.00	9.00	0.00
7,100.00	27.35	180.01	7,065.31	-408.08	-218.01	416.12	9.00	9.00	0.00
7,199.79	36.33	180.01	7,150.00	-460.68	-218.02	468.67	9.00	9.00	0.00
Sharon Springs									
7,200.00	36.35	180.01	7,150.17	-460.80	-218.02	468.80	9.00	9.00	0.00
7,232.71	39.30	180.01	7,176.00	-480.86	-218.02	488.84	9.00	9.00	0.00
Niobrara									
7,300.00	45.35	180.01	7,225.73	-526.14	-218.03	534.09	9.00	9.00	0.00
7,400.00	54.35	180.01	7,290.14	-602.50	-218.05	610.40	9.00	9.00	0.00
7,448.73	58.74	180.01	7,317.00	-643.15	-218.05	651.02	9.00	9.00	0.00
Nio B									
7,500.00	63.35	180.01	7,341.81	-688.00	-218.06	695.83	9.00	9.00	0.00
7,600.00	72.35	180.01	7,379.47	-780.53	-218.08	788.29	9.00	9.00	0.00
7,615.52	73.75	180.01	7,384.00	-795.37	-218.08	803.13	9.00	9.00	0.00
Nio C									
7,700.00	81.35	180.01	7,402.20	-877.80	-218.09	885.50	9.00	9.00	0.00
7,793.20	89.74	180.01	7,409.43	-970.64	-218.11	978.27	9.00	9.00	0.00
Top of Production									
7,800.00	89.74	180.01	7,409.46	-977.44	-218.11	985.06	0.00	0.00	0.00
7,900.00	89.74	180.01	7,409.91	-1,077.44	-218.13	1,084.99	0.00	0.00	0.00
8,000.00	89.74	180.01	7,410.37	-1,177.44	-218.14	1,184.91	0.00	0.00	0.00
8,100.00	89.74	180.01	7,410.82	-1,277.44	-218.16	1,284.84	0.00	0.00	0.00
8,200.00	89.74	180.01	7,411.28	-1,377.44	-218.18	1,384.77	0.00	0.00	0.00

Database:	PLANNING	Local Co-ordinate Reference:	Well AZUL 13-4HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 5088.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 5088.00usft (D Rig)
Site:	1N-66W-13 AZUL 13-13HZ	North Reference:	True
Well:	AZUL 13-4HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-2		

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	89.74	180.01	7,411.73	-1,477.43	-218.19	1,484.69	0.00	0.00	0.00	
8,400.00	89.74	180.01	7,412.18	-1,577.43	-218.21	1,584.62	0.00	0.00	0.00	
8,500.00	89.74	180.01	7,412.64	-1,677.43	-218.23	1,684.55	0.00	0.00	0.00	
8,600.00	89.74	180.01	7,413.09	-1,777.43	-218.24	1,784.47	0.00	0.00	0.00	
8,700.00	89.74	180.01	7,413.54	-1,877.43	-218.26	1,884.40	0.00	0.00	0.00	
8,800.00	89.74	180.01	7,414.00	-1,977.43	-218.28	1,984.33	0.00	0.00	0.00	
8,900.00	89.74	180.01	7,414.45	-2,077.43	-218.30	2,084.25	0.00	0.00	0.00	
9,000.00	89.74	180.01	7,414.91	-2,177.43	-218.31	2,184.18	0.00	0.00	0.00	
9,100.00	89.74	180.01	7,415.36	-2,277.43	-218.33	2,284.11	0.00	0.00	0.00	
9,200.00	89.74	180.01	7,415.81	-2,377.43	-218.35	2,384.03	0.00	0.00	0.00	
9,300.00	89.74	180.01	7,416.27	-2,477.42	-218.36	2,483.96	0.00	0.00	0.00	
9,400.00	89.74	180.01	7,416.72	-2,577.42	-218.38	2,583.89	0.00	0.00	0.00	
9,500.00	89.74	180.01	7,417.17	-2,677.42	-218.40	2,683.81	0.00	0.00	0.00	
9,600.00	89.74	180.01	7,417.63	-2,777.42	-218.41	2,783.74	0.00	0.00	0.00	
9,700.00	89.74	180.01	7,418.08	-2,877.42	-218.43	2,883.67	0.00	0.00	0.00	
9,800.00	89.74	180.01	7,418.54	-2,977.42	-218.45	2,983.59	0.00	0.00	0.00	
9,900.00	89.74	180.01	7,418.99	-3,077.42	-218.46	3,083.52	0.00	0.00	0.00	
10,000.00	89.74	180.01	7,419.44	-3,177.42	-218.48	3,183.45	0.00	0.00	0.00	
10,100.00	89.74	180.01	7,419.90	-3,277.42	-218.50	3,283.37	0.00	0.00	0.00	
10,200.00	89.74	180.01	7,420.35	-3,377.42	-218.52	3,383.30	0.00	0.00	0.00	
10,300.00	89.74	180.01	7,420.81	-3,477.41	-218.53	3,483.23	0.00	0.00	0.00	
10,400.00	89.74	180.01	7,421.26	-3,577.41	-218.55	3,583.15	0.00	0.00	0.00	
10,500.00	89.74	180.01	7,421.71	-3,677.41	-218.57	3,683.08	0.00	0.00	0.00	
10,600.00	89.74	180.01	7,422.17	-3,777.41	-218.58	3,783.01	0.00	0.00	0.00	
10,700.00	89.74	180.01	7,422.62	-3,877.41	-218.60	3,882.93	0.00	0.00	0.00	
10,800.00	89.74	180.01	7,423.07	-3,977.41	-218.62	3,982.86	0.00	0.00	0.00	
10,900.00	89.74	180.01	7,423.53	-4,077.41	-218.63	4,082.78	0.00	0.00	0.00	
11,000.00	89.74	180.01	7,423.98	-4,177.41	-218.65	4,182.71	0.00	0.00	0.00	
11,100.00	89.74	180.01	7,424.44	-4,277.41	-218.67	4,282.64	0.00	0.00	0.00	
11,200.00	89.74	180.01	7,424.89	-4,377.40	-218.69	4,382.56	0.00	0.00	0.00	
11,300.00	89.74	180.01	7,425.34	-4,477.40	-218.70	4,482.49	0.00	0.00	0.00	
11,400.00	89.74	180.01	7,425.80	-4,577.40	-218.72	4,582.42	0.00	0.00	0.00	
11,500.00	89.74	180.01	7,426.25	-4,677.40	-218.74	4,682.34	0.00	0.00	0.00	
11,600.00	89.74	180.01	7,426.70	-4,777.40	-218.75	4,782.27	0.00	0.00	0.00	
11,700.00	89.74	180.01	7,427.16	-4,877.40	-218.77	4,882.20	0.00	0.00	0.00	
11,800.00	89.74	180.01	7,427.61	-4,977.40	-218.79	4,982.12	0.00	0.00	0.00	
11,900.00	89.74	180.01	7,428.07	-5,077.40	-218.80	5,082.05	0.00	0.00	0.00	
12,000.00	89.74	180.01	7,428.52	-5,177.40	-218.82	5,181.98	0.00	0.00	0.00	
12,100.00	89.74	180.01	7,428.97	-5,277.40	-218.84	5,281.90	0.00	0.00	0.00	
12,200.00	89.74	180.01	7,429.43	-5,377.39	-218.86	5,381.83	0.00	0.00	0.00	
12,300.00	89.74	180.01	7,429.88	-5,477.39	-218.87	5,481.76	0.00	0.00	0.00	
12,400.00	89.74	180.01	7,430.33	-5,577.39	-218.89	5,581.68	0.00	0.00	0.00	
12,500.00	89.74	180.01	7,430.79	-5,677.39	-218.91	5,681.61	0.00	0.00	0.00	
12,546.66	89.74	180.01	7,431.00	-5,724.05	-218.91	5,728.23	0.00	0.00	0.00	

Database:	PLANNING	Local Co-ordinate Reference:	Well AZUL 13-4HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 5088.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 5088.00usft (D Rig)
Site:	1N-66W-13 AZUL 13-13HZ	North Reference:	True
Well:	AZUL 13-4HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-2		

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
AZUL 13-4HZ_PHL - hit/miss target - Shape	0.00	0.00	7,408.98	-872.64	-218.11	14,542,921.39	1,715,597.13	40.044144	-104.731375
- plan misses target center by 7.51usft at 7696.41usft MD (7401.65 TVD, -874.26 N, -218.09 E)									
- Point									
AZUL 13-4HZ_PHL - plan misses target center by 0.43usft at 7793.17usft MD (7409.43 TVD, -970.61 N, -218.11 E)	0.00	0.00	7,409.00	-970.64	-218.11	14,542,823.39	1,715,597.43	40.043875	-104.731375
- Point									
AZUL 13-4HZ_PBHL - plan hits target center - Point	0.00	0.00	7,431.00	-5,724.05	-218.91	14,538,070.00	1,715,611.00	40.030821	-104.731377

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,809.22	1,800.00	9 5/8"	9-5/8	13-1/2	
7,793.20	7,409.43	Top of Production	5-1/2	7-7/8	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,626.88	1,619.00	Fox Hills				
4,283.27	4,260.00	Parkman				
4,647.27	4,624.00	Sussex				
7,199.79	7,150.00	Sharon Springs				
7,232.71	7,176.00	Niobrara				
7,448.73	7,317.00	Nio B				
7,615.52	7,384.00	Nio C				