

US ROCKIES WATTENBERG PLANNING

**WELD-NAD83-UTMFT13N
1N-66W-13 AZUL 13-13HZ
AZUL 13-5HZ**

Plan A

Plan: Permit Rev-1

Standard Planning Report

12 June, 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 13-5HZ
Wellbore: Plan A
Design: Permit Rev-1

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
1619.00	1650.14	Fox Hills
4260.00	4500.52	Parkman
4624.00	4893.41	Sussex
7196.00	7576.28	Sharon Springs
7222.00	7612.00	Niobrara
7344.00	7822.29	Nio B
7394.00	7973.24	Nio C

WELL DETAILS: AZUL 13-5HZ

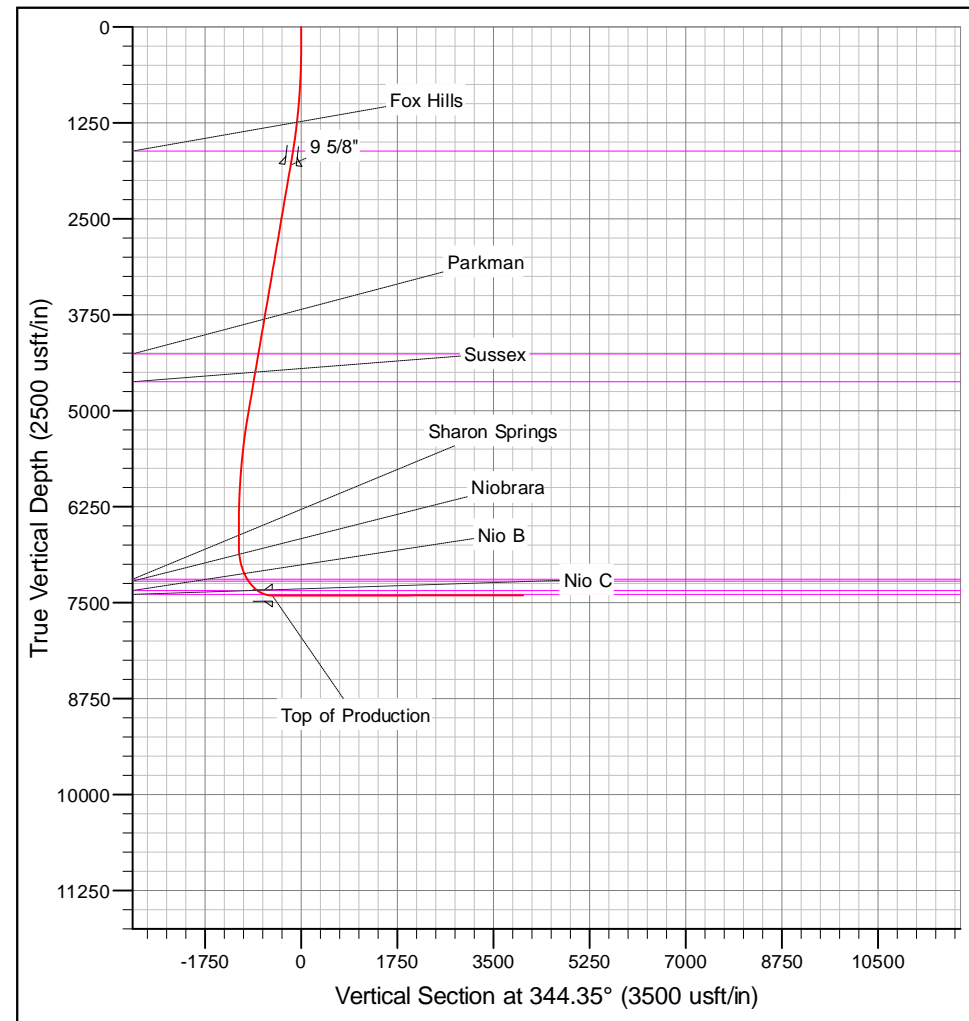
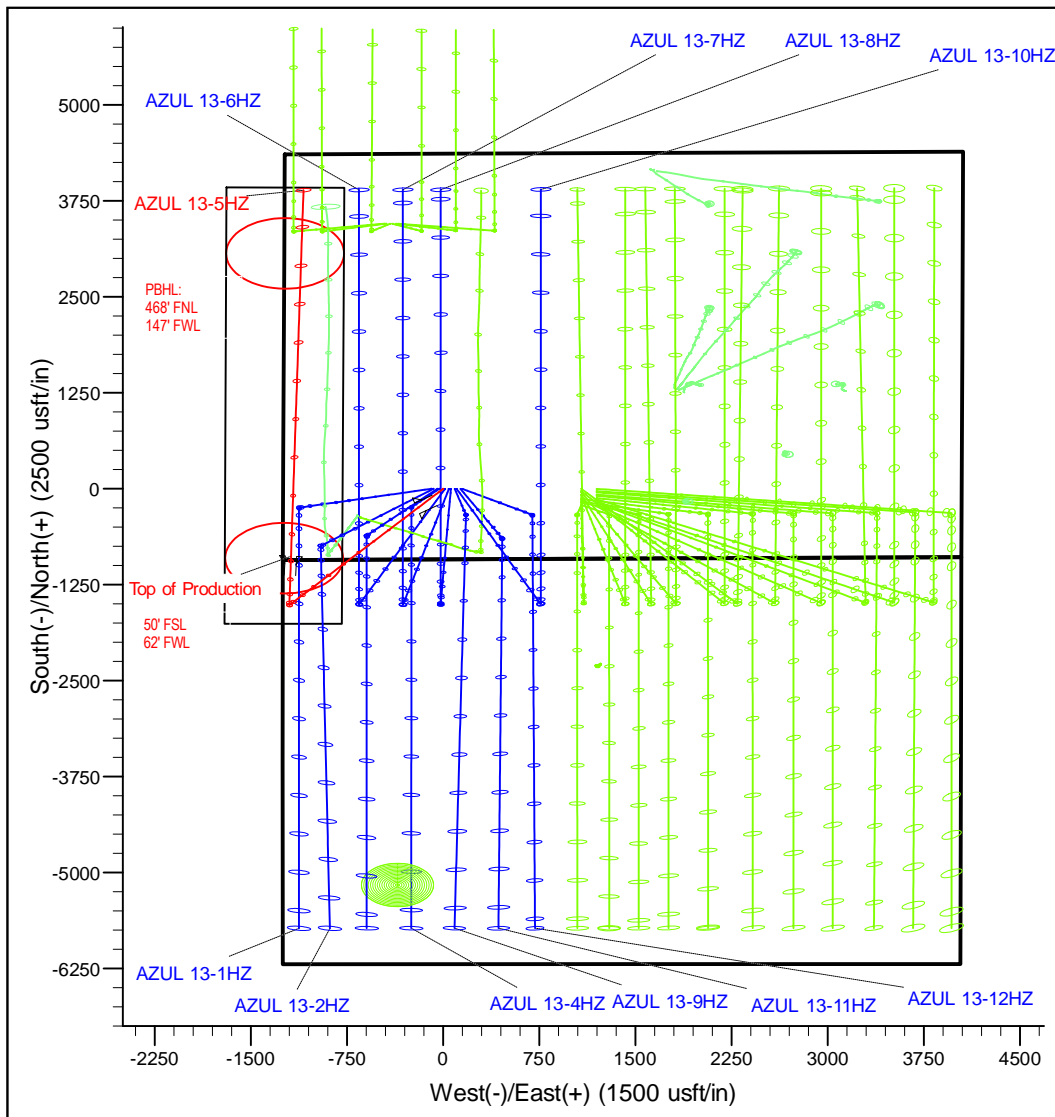
+N/-S	+E/-W	GL: 5071.00	RKB @ 5088.00usft (D Rig)	Longitude	Slot
0.00	0.00	Northing 14543794.78	Easting 1715842.54	Latitude 40.046540	-104.730488

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
AZUL 13-5HZ_PBHL	7406.00	3889.70	-1089.77	14547681.16	1714741.00	40.057222	-104.734383

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
1724.10	22.11	218.38	1687.78	-220.23	-174.41	1.50	-165.01
5366.42	22.11	218.38	5062.22	-1295.01	-1025.59	0.00	-970.31
6840.52	0.00	0.00	6500.00	-1515.24	-1200.00	1.50	-135.32
7113.23	0.00	0.00	6772.71	-1515.24	-1200.00	0.00	-135.32
8113.67	90.04	1.17	7409.33	-878.31	-1187.01	9.00	-525.51
12882.67	90.04	1.17	7406.00	3889.70	-1089.77	0.00	-039.48



Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well AZUL 13-5HZ
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 13-5HZ	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-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 13-5HZ					
Well Position	+N-S	-0.73 usft	Northing:	14,543,794.77 usft	Latitude:	40.046540
	+E-W	90.12 usft	Easting:	1,715,842.54 usft	Longitude:	-104.730488
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	52,317.93772487

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	344.35	

Plan Survey Tool Program	Date	6/12/2017			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	1,845.23	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWI	
				Fixed:v2:crustal field declinat	
2	1,845.23	12,882.67	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWI	
				Fixed:v2:Rockies, crustal dex	

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Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 5088.00usft (D Rig)
Site:	1N-66W-13 AZUL 13-13HZ	North Reference:	True
Well:	AZUL 13-5HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

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	
1,724.10	22.11	218.38	1,687.78	-220.23	-174.41	1.50	1.50	0.00	218.38	
5,366.42	22.11	218.38	5,062.22	-1,295.01	-1,025.59	0.00	0.00	0.00	0.00	
6,840.52	0.00	0.00	6,500.00	-1,515.24	-1,200.00	1.50	-1.50	0.00	180.00	
7,113.23	0.00	0.00	6,772.71	-1,515.24	-1,200.00	0.00	0.00	0.00	0.00	
8,113.67	90.04	1.17	7,409.33	-878.31	-1,187.01	9.00	9.00	0.00	1.17	
12,882.67	90.04	1.17	7,406.00	3,889.70	-1,089.77	0.00	0.00	0.00	0.00	AZUL 13-5HZ_PBH

Corporate Planning Report

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Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 5088.00usft (D Rig)
Site:	1N-66W-13 AZUL 13-13HZ	North Reference:	True
Well:	AZUL 13-5HZ	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	218.38	300.00	-0.26	-0.20	-0.19	1.50	1.50	0.00
400.00	2.25	218.38	399.96	-2.31	-1.83	-1.73	1.50	1.50	0.00
500.00	3.75	218.38	499.82	-6.41	-5.08	-4.80	1.50	1.50	0.00
600.00	5.25	218.38	599.51	-12.56	-9.95	-9.41	1.50	1.50	0.00
700.00	6.75	218.38	698.96	-20.76	-16.44	-15.55	1.50	1.50	0.00
800.00	8.25	218.38	798.10	-30.99	-24.54	-23.22	1.50	1.50	0.00
900.00	9.75	218.38	896.87	-43.25	-34.25	-32.41	1.50	1.50	0.00
1,000.00	11.25	218.38	995.19	-57.54	-45.57	-43.11	1.50	1.50	0.00
1,100.00	12.75	218.38	1,093.00	-73.84	-58.47	-55.32	1.50	1.50	0.00
1,200.00	14.25	218.38	1,190.24	-92.14	-72.97	-69.03	1.50	1.50	0.00
1,300.00	15.75	218.38	1,286.83	-112.42	-89.04	-84.24	1.50	1.50	0.00
1,400.00	17.25	218.38	1,382.71	-134.69	-106.67	-100.92	1.50	1.50	0.00
1,500.00	18.75	218.38	1,477.81	-158.91	-125.85	-119.07	1.50	1.50	0.00
1,600.00	20.25	218.38	1,572.07	-185.08	-146.58	-138.68	1.50	1.50	0.00
1,650.14	21.00	218.38	1,619.00	-198.93	-157.54	-149.05	1.50	1.50	0.00
Fox Hills									
1,700.00	21.75	218.38	1,665.43	-213.17	-168.82	-159.72	1.50	1.50	0.00
1,724.10	22.11	218.38	1,687.78	-220.23	-174.41	-165.01	1.50	1.50	0.00
1,800.00	22.11	218.38	1,758.10	-242.63	-192.15	-181.79	0.00	0.00	0.00
1,845.23	22.11	218.38	1,800.00	-255.97	-202.72	-191.79	0.00	0.00	0.00
9 5/8"									
1,900.00	22.11	218.38	1,850.74	-272.13	-215.52	-203.90	0.00	0.00	0.00
2,000.00	22.11	218.38	1,943.39	-301.64	-238.89	-226.01	0.00	0.00	0.00
2,100.00	22.11	218.38	2,036.03	-331.15	-262.26	-248.12	0.00	0.00	0.00
2,200.00	22.11	218.38	2,128.68	-360.66	-285.63	-270.23	0.00	0.00	0.00
2,300.00	22.11	218.38	2,221.33	-390.17	-308.99	-292.34	0.00	0.00	0.00
2,400.00	22.11	218.38	2,313.97	-419.68	-332.36	-314.45	0.00	0.00	0.00
2,500.00	22.11	218.38	2,406.62	-449.18	-355.73	-336.56	0.00	0.00	0.00
2,600.00	22.11	218.38	2,499.26	-478.69	-379.10	-358.67	0.00	0.00	0.00
2,700.00	22.11	218.38	2,591.91	-508.20	-402.47	-380.78	0.00	0.00	0.00
2,800.00	22.11	218.38	2,684.55	-537.71	-425.84	-402.89	0.00	0.00	0.00
2,900.00	22.11	218.38	2,777.20	-567.22	-449.21	-425.00	0.00	0.00	0.00
3,000.00	22.11	218.38	2,869.84	-596.72	-472.58	-447.11	0.00	0.00	0.00
3,100.00	22.11	218.38	2,962.49	-626.23	-495.95	-469.22	0.00	0.00	0.00
3,200.00	22.11	218.38	3,055.13	-655.74	-519.32	-491.33	0.00	0.00	0.00
3,300.00	22.11	218.38	3,147.78	-685.25	-542.69	-513.44	0.00	0.00	0.00
3,400.00	22.11	218.38	3,240.42	-714.76	-566.05	-535.54	0.00	0.00	0.00
3,500.00	22.11	218.38	3,333.07	-744.26	-589.42	-557.65	0.00	0.00	0.00
3,600.00	22.11	218.38	3,425.71	-773.77	-612.79	-579.76	0.00	0.00	0.00
3,700.00	22.11	218.38	3,518.36	-803.28	-636.16	-601.87	0.00	0.00	0.00
3,800.00	22.11	218.38	3,611.01	-832.79	-659.53	-623.98	0.00	0.00	0.00
3,900.00	22.11	218.38	3,703.65	-862.30	-682.90	-646.09	0.00	0.00	0.00
4,000.00	22.11	218.38	3,796.30	-891.81	-706.27	-668.20	0.00	0.00	0.00
4,100.00	22.11	218.38	3,888.94	-921.31	-729.64	-690.31	0.00	0.00	0.00
4,200.00	22.11	218.38	3,981.59	-950.82	-753.01	-712.42	0.00	0.00	0.00
4,300.00	22.11	218.38	4,074.23	-980.33	-776.38	-734.53	0.00	0.00	0.00
4,400.00	22.11	218.38	4,166.88	-1,009.84	-799.75	-756.64	0.00	0.00	0.00
4,500.00	22.11	218.38	4,259.52	-1,039.35	-823.11	-778.75	0.00	0.00	0.00
4,500.52	22.11	218.38	4,260.00	-1,039.50	-823.23	-778.86	0.00	0.00	0.00

Corporate Planning Report

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Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 5088.00usft (D Rig)
Site:	1N-66W-13 AZUL 13-13HZ	North Reference:	True
Well:	AZUL 13-5HZ	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)	
Parkman										
4,600.00	22.11	218.38	4,352.17	-1,068.85	-846.48	-800.86	0.00	0.00	0.00	
4,700.00	22.11	218.38	4,444.81	-1,098.36	-869.85	-822.97	0.00	0.00	0.00	
4,800.00	22.11	218.38	4,537.46	-1,127.87	-893.22	-845.08	0.00	0.00	0.00	
4,893.41	22.11	218.38	4,624.00	-1,155.43	-915.05	-865.73	0.00	0.00	0.00	
Sussex										
4,900.00	22.11	218.38	4,630.10	-1,157.38	-916.59	-867.19	0.00	0.00	0.00	
5,000.00	22.11	218.38	4,722.75	-1,186.89	-939.96	-889.30	0.00	0.00	0.00	
5,100.00	22.11	218.38	4,815.39	-1,216.39	-963.33	-911.41	0.00	0.00	0.00	
5,200.00	22.11	218.38	4,908.04	-1,245.90	-986.70	-933.52	0.00	0.00	0.00	
5,300.00	22.11	218.38	5,000.69	-1,275.41	-1,010.07	-955.63	0.00	0.00	0.00	
5,366.42	22.11	218.38	5,062.22	-1,295.01	-1,025.59	-970.31	0.00	0.00	0.00	
5,400.00	21.61	218.38	5,093.39	-1,304.81	-1,033.35	-977.65	1.50	-1.50	0.00	
5,500.00	20.11	218.38	5,186.83	-1,332.72	-1,055.46	-998.57	1.50	-1.50	0.00	
5,600.00	18.61	218.38	5,281.17	-1,358.71	-1,076.03	-1,018.04	1.50	-1.50	0.00	
5,700.00	17.11	218.38	5,376.35	-1,382.75	-1,095.07	-1,036.05	1.50	-1.50	0.00	
5,800.00	15.61	218.38	5,472.30	-1,404.82	-1,112.56	-1,052.59	1.50	-1.50	0.00	
5,900.00	14.11	218.38	5,568.96	-1,424.93	-1,128.47	-1,067.65	1.50	-1.50	0.00	
6,000.00	12.61	218.38	5,666.25	-1,443.04	-1,142.82	-1,081.22	1.50	-1.50	0.00	
6,100.00	11.11	218.38	5,764.11	-1,459.14	-1,155.57	-1,093.29	1.50	-1.50	0.00	
6,200.00	9.61	218.38	5,862.48	-1,473.24	-1,166.74	-1,103.85	1.50	-1.50	0.00	
6,300.00	8.11	218.38	5,961.28	-1,485.31	-1,176.30	-1,112.90	1.50	-1.50	0.00	
6,400.00	6.61	218.38	6,060.46	-1,495.35	-1,184.25	-1,120.42	1.50	-1.50	0.00	
6,500.00	5.11	218.38	6,159.93	-1,503.35	-1,190.58	-1,126.41	1.50	-1.50	0.00	
6,600.00	3.61	218.38	6,259.64	-1,509.31	-1,195.30	-1,130.88	1.50	-1.50	0.00	
6,700.00	2.11	218.38	6,359.51	-1,513.21	-1,198.40	-1,133.80	1.50	-1.50	0.00	
6,800.00	0.61	218.38	6,459.48	-1,515.07	-1,199.87	-1,135.20	1.50	-1.50	0.00	
6,840.52	0.00	0.00	6,500.00	-1,515.24	-1,200.00	-1,135.32	1.50	-1.50	0.00	
6,900.00	0.00	0.00	6,559.48	-1,515.24	-1,200.00	-1,135.32	0.00	0.00	0.00	
7,000.00	0.00	0.00	6,659.48	-1,515.24	-1,200.00	-1,135.32	0.00	0.00	0.00	
7,100.00	0.00	0.00	6,759.48	-1,515.24	-1,200.00	-1,135.32	0.00	0.00	0.00	
7,113.23	0.00	0.00	6,772.71	-1,515.24	-1,200.00	-1,135.32	0.00	0.00	0.00	
7,200.00	7.81	1.17	6,859.21	-1,509.34	-1,199.88	-1,129.67	9.00	9.00	0.00	
7,300.00	16.81	1.17	6,956.81	-1,488.04	-1,199.45	-1,109.28	9.00	9.00	0.00	
7,400.00	25.81	1.17	7,049.88	-1,451.75	-1,198.71	-1,074.53	9.00	9.00	0.00	
7,500.00	34.81	1.17	7,136.12	-1,401.34	-1,197.68	-1,026.28	9.00	9.00	0.00	
7,576.28	41.67	1.17	7,196.00	-1,354.16	-1,196.71	-981.10	9.00	9.00	0.00	
Sharon Springs										
7,600.00	43.81	1.17	7,213.42	-1,338.07	-1,196.39	-965.70	9.00	9.00	0.00	
7,612.00	44.89	1.17	7,222.00	-1,329.68	-1,196.22	-957.67	9.00	9.00	0.00	
Niobrara										
7,700.00	52.81	1.17	7,279.86	-1,263.49	-1,194.87	-894.29	9.00	9.00	0.00	
7,800.00	61.81	1.17	7,333.81	-1,179.43	-1,193.15	-813.81	9.00	9.00	0.00	
7,822.29	63.82	1.17	7,344.00	-1,159.61	-1,192.75	-794.83	9.00	9.00	0.00	
Nio B										
7,900.00	70.81	1.17	7,373.95	-1,087.97	-1,191.29	-726.25	9.00	9.00	0.00	
7,973.24	77.40	1.17	7,394.00	-1,017.59	-1,189.85	-658.86	9.00	9.00	0.00	
Nio C										
8,000.00	79.81	1.17	7,399.29	-991.36	-1,189.32	-633.75	9.00	9.00	0.00	
8,100.00	88.81	1.17	7,409.19	-891.98	-1,187.29	-538.60	9.00	9.00	0.00	
8,113.67	90.04	1.17	7,409.33	-878.31	-1,187.01	-525.51	9.00	9.00	0.00	
Top of Production - AZUL 13-5HZ_PHL										
8,200.00	90.04	1.17	7,409.27	-792.00	-1,185.25	-442.88	0.00	0.00	0.00	

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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 13-5HZ	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)	
8,300.00	90.04	1.17	7,409.20	-692.02	-1,183.21	-347.15	0.00	0.00	0.00	
8,400.00	90.04	1.17	7,409.13	-592.04	-1,181.17	-251.43	0.00	0.00	0.00	
8,500.00	90.04	1.17	7,409.06	-492.06	-1,179.13	-155.71	0.00	0.00	0.00	
8,600.00	90.04	1.17	7,408.99	-392.08	-1,177.09	-59.99	0.00	0.00	0.00	
8,700.00	90.04	1.17	7,408.92	-292.10	-1,175.05	35.73	0.00	0.00	0.00	
8,800.00	90.04	1.17	7,408.85	-192.12	-1,173.02	131.46	0.00	0.00	0.00	
8,900.00	90.04	1.17	7,408.78	-92.14	-1,170.98	227.18	0.00	0.00	0.00	
9,000.00	90.04	1.17	7,408.71	7.83	-1,168.94	322.90	0.00	0.00	0.00	
9,100.00	90.04	1.17	7,408.64	107.81	-1,166.90	418.62	0.00	0.00	0.00	
9,200.00	90.04	1.17	7,408.57	207.79	-1,164.86	514.34	0.00	0.00	0.00	
9,300.00	90.04	1.17	7,408.50	307.77	-1,162.82	610.07	0.00	0.00	0.00	
9,400.00	90.04	1.17	7,408.43	407.75	-1,160.78	705.79	0.00	0.00	0.00	
9,500.00	90.04	1.17	7,408.36	507.73	-1,158.74	801.51	0.00	0.00	0.00	
9,600.00	90.04	1.17	7,408.29	607.71	-1,156.70	897.23	0.00	0.00	0.00	
9,700.00	90.04	1.17	7,408.22	707.69	-1,154.66	992.95	0.00	0.00	0.00	
9,800.00	90.04	1.17	7,408.15	807.67	-1,152.63	1,088.68	0.00	0.00	0.00	
9,900.00	90.04	1.17	7,408.08	907.65	-1,150.59	1,184.40	0.00	0.00	0.00	
10,000.00	90.04	1.17	7,408.01	1,007.63	-1,148.55	1,280.12	0.00	0.00	0.00	
10,100.00	90.04	1.17	7,407.94	1,107.61	-1,146.51	1,375.84	0.00	0.00	0.00	
10,200.00	90.04	1.17	7,407.87	1,207.59	-1,144.47	1,471.57	0.00	0.00	0.00	
10,300.00	90.04	1.17	7,407.80	1,307.56	-1,142.43	1,567.29	0.00	0.00	0.00	
10,400.00	90.04	1.17	7,407.73	1,407.54	-1,140.39	1,663.01	0.00	0.00	0.00	
10,500.00	90.04	1.17	7,407.66	1,507.52	-1,138.35	1,758.73	0.00	0.00	0.00	
10,600.00	90.04	1.17	7,407.59	1,607.50	-1,136.31	1,854.45	0.00	0.00	0.00	
10,700.00	90.04	1.17	7,407.52	1,707.48	-1,134.27	1,950.18	0.00	0.00	0.00	
10,800.00	90.04	1.17	7,407.45	1,807.46	-1,132.24	2,045.90	0.00	0.00	0.00	
10,900.00	90.04	1.17	7,407.38	1,907.44	-1,130.20	2,141.62	0.00	0.00	0.00	
11,000.00	90.04	1.17	7,407.31	2,007.42	-1,128.16	2,237.34	0.00	0.00	0.00	
11,100.00	90.04	1.17	7,407.24	2,107.40	-1,126.12	2,333.06	0.00	0.00	0.00	
11,200.00	90.04	1.17	7,407.17	2,207.38	-1,124.08	2,428.79	0.00	0.00	0.00	
11,300.00	90.04	1.17	7,407.11	2,307.36	-1,122.04	2,524.51	0.00	0.00	0.00	
11,400.00	90.04	1.17	7,407.04	2,407.34	-1,120.00	2,620.23	0.00	0.00	0.00	
11,500.00	90.04	1.17	7,406.97	2,507.31	-1,117.96	2,715.95	0.00	0.00	0.00	
11,600.00	90.04	1.17	7,406.90	2,607.29	-1,115.92	2,811.67	0.00	0.00	0.00	
11,700.00	90.04	1.17	7,406.83	2,707.27	-1,113.88	2,907.40	0.00	0.00	0.00	
11,800.00	90.04	1.17	7,406.76	2,807.25	-1,111.85	3,003.12	0.00	0.00	0.00	
11,900.00	90.04	1.17	7,406.69	2,907.23	-1,109.81	3,098.84	0.00	0.00	0.00	
12,000.00	90.04	1.17	7,406.62	3,007.21	-1,107.77	3,194.56	0.00	0.00	0.00	
12,100.00	90.04	1.17	7,406.55	3,107.19	-1,105.73	3,290.28	0.00	0.00	0.00	
12,200.00	90.04	1.17	7,406.48	3,207.17	-1,103.69	3,386.01	0.00	0.00	0.00	
12,300.00	90.04	1.17	7,406.41	3,307.15	-1,101.65	3,481.73	0.00	0.00	0.00	
12,400.00	90.04	1.17	7,406.34	3,407.13	-1,099.61	3,577.45	0.00	0.00	0.00	
12,500.00	90.04	1.17	7,406.27	3,507.11	-1,097.57	3,673.17	0.00	0.00	0.00	
12,600.00	90.04	1.17	7,406.20	3,607.09	-1,095.53	3,768.90	0.00	0.00	0.00	
12,700.00	90.04	1.17	7,406.13	3,707.06	-1,093.49	3,864.62	0.00	0.00	0.00	
12,800.00	90.04	1.17	7,406.06	3,807.04	-1,091.46	3,960.34	0.00	0.00	0.00	
12,882.67	90.04	1.17	7,406.00	3,889.70	-1,089.77	4,039.48	0.00	0.00	0.00	
AZUL 13-5HZ_PBHL										

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well AZUL 13-5HZ
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 13-5HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Design Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
AZUL 13-5HZ_PBHL	0.00	0.00	7,406.00	3,889.70	-1,089.77	14,547,681.16	1,714,741.00	40.057222	-104.734383
- plan hits target center									
- Point									
AZUL 13-5HZ_PHL	0.00	0.00	7,409.33	-878.31	-1,187.01	14,542,912.87	1,714,658.19	40.044128	-104.734730
- plan hits target center									
- Point									

Casing Points					
	Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
	1,845.23	1,800.00	9 5/8"	9-5/8	13-1/2
	8,113.67	7,409.33	Top of Production	5-1/2	7-7/8

Formations						
	Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
	1,650.14	1,619.00	Fox Hills			
	4,500.52	4,260.00	Parkman			
	4,893.41	4,624.00	Sussex			
	7,576.28	7,196.00	Sharon Springs			
	7,612.00	7,222.00	Niobrara			
	7,822.29	7,344.00	Nio B			
	7,973.24	7,394.00	Nio C			