

US ROCKIES WATTENBERG PLANNING

**WELD-NAD83-UTMFT13N
1N-66W-13 AZUL 13-13HZ
AZUL 13-9HZ**

Plan A

Plan: Permit Rev-1

Standard Planning Report

12 June, 2017



Magnetic Field
Strength: 52318.0nT
Dip Angle: 66.56°
Date: 6/8/2017
Model: IGRF2010

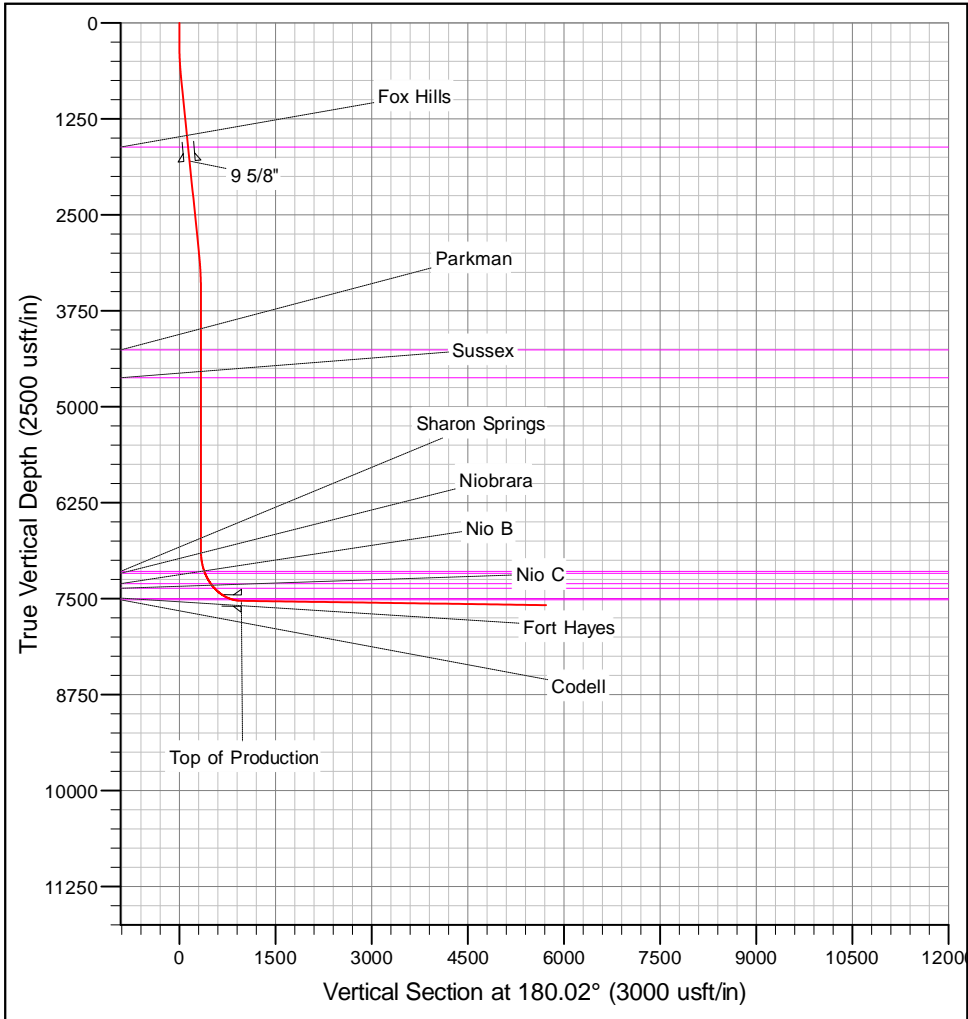
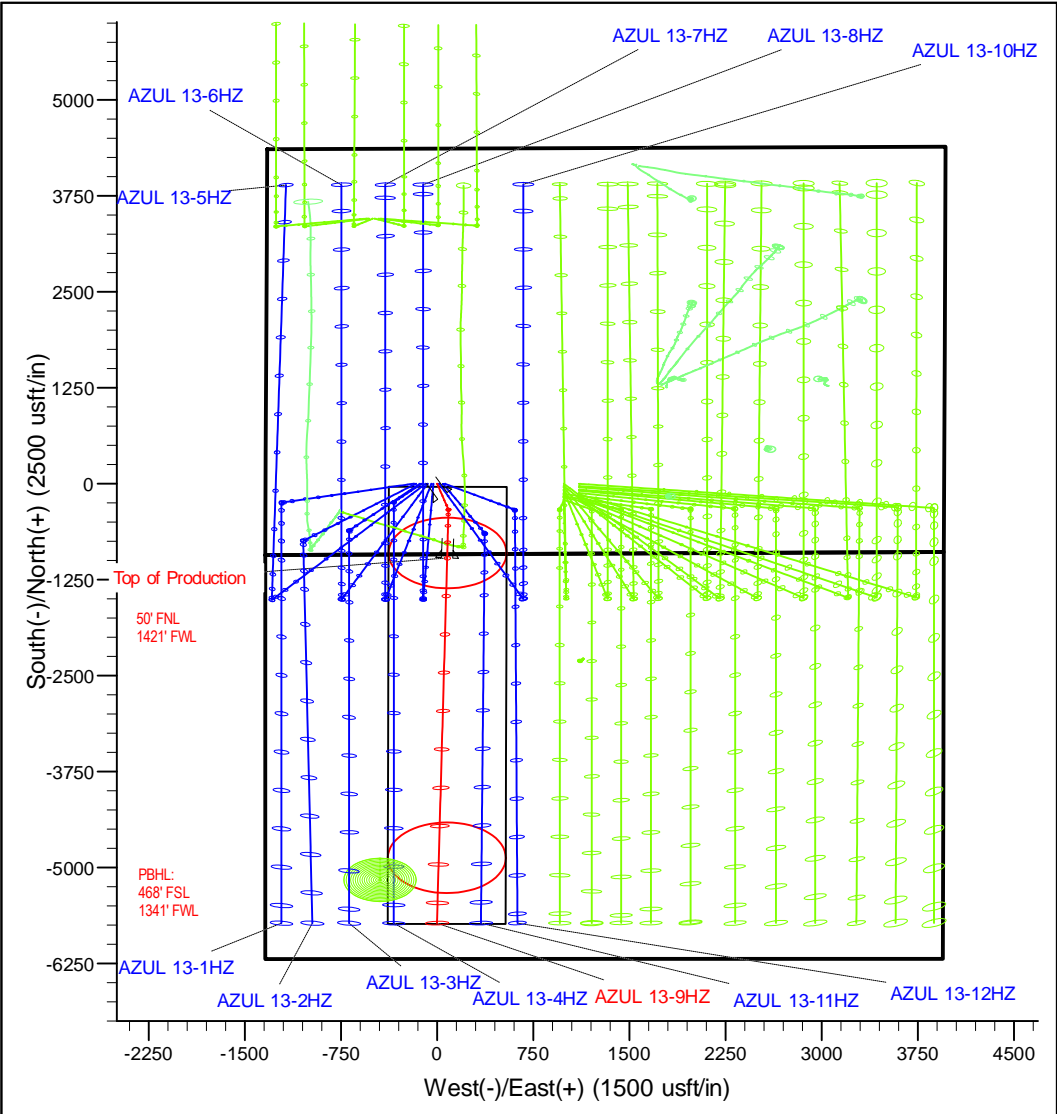
Well: AZUL 13-9HZ
Wellbore: Plan A
Design: Permit Rev-1

FORMATION TOP DETAILS		
TVDPATH	MDPATH	Formation
1619.00	1627.31	Fox Hills
4260.00	4280.66	Parkman
4624.00	4644.66	Sussex
7145.00	7172.76	Sharon Springs
7171.00	7201.36	Nobara
7305.00	7361.76	Nio C
7366.00	7446.86	Nio C
7493.00	7696.75	Fort Hayes
7515.00	7777.08	Codell

DESIGN TARGET DETAILS						
Name	TVD	+N-S	+E-W	Northing	Easting	Latitude Longitude
AZUL 13-9HZ_PBHL	7586.00	-5722.98	-1.72	14538071.00	1715948.00	40.030821 -104.730173

WELL DETAILS: AZUL 13-9HZ						
		GL: 5071.00	RKB @ 5088.00usft (D Rig)			
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	14543793.96	1715932.38	40.046537	-104.730167	

SECTION DETAILS									
	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	V/Sect	
	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
	728.89	7.18	165.38	727.64	-29.01	7.57	1.50	29.01	
	3041.77	7.18	165.38	3022.36	-308.86	80.57	0.00	308.84	
	3520.66	0.00	0.00	3500.00	-337.87	88.14	1.50	337.84	
	6913.63	0.00	0.00	6892.97	-337.87	88.14	0.00	337.84	
	7906.07	89.32	180.96	7529.54	-966.85	77.64	9.00	966.82	
	12663.20	89.32	180.96	7586.00	-5722.98	-1.72	0.00	5722.98	



Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well AZUL 13-9HZ
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 13-9HZ	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 13-9HZ					
Well Position	+N/-S	-1.82 usft	Northing:	14,543,793.95 usft	Latitude:	40.046537
	+E/-W	179.95 usft	Easting:	1,715,932.38 usft	Longitude:	-104.730167
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	52,317.96883376

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	180.02

Plan Survey Tool Program	Date	6/12/2017		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	12,663.20	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWI Fixed:v2:crustal field declinat

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	
728.89	7.18	165.38	727.64	-29.01	7.57	1.50	1.50	0.00	165.38	
3,041.77	7.18	165.38	3,022.36	-308.86	80.57	0.00	0.00	0.00	0.00	
3,520.66	0.00	0.00	3,500.00	-337.87	88.14	1.50	-1.50	0.00	180.00	
6,913.63	0.00	0.00	6,892.97	-337.87	88.14	0.00	0.00	0.00	0.00	
7,906.07	89.32	180.96	7,529.54	-966.85	77.64	9.00	9.00	0.00	180.96	
12,663.20	89.32	180.96	7,586.00	-5,722.98	-1.72	0.00	0.00	0.00	0.00	AZUL 13-9HZ_PBH

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well AZUL 13-9HZ
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 13-9HZ	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	165.38	300.00	-0.32	0.08	0.32	1.50	1.50	0.00
400.00	2.25	165.38	399.96	-2.85	0.74	2.85	1.50	1.50	0.00
500.00	3.75	165.38	499.82	-7.91	2.06	7.91	1.50	1.50	0.00
600.00	5.25	165.38	599.51	-15.51	4.04	15.50	1.50	1.50	0.00
700.00	6.75	165.38	698.96	-25.62	6.68	25.62	1.50	1.50	0.00
728.89	7.18	165.38	727.64	-29.01	7.57	29.01	1.50	1.50	0.00
800.00	7.18	165.38	798.19	-37.61	9.81	37.61	0.00	0.00	0.00
900.00	7.18	165.38	897.40	-49.71	12.97	49.71	0.00	0.00	0.00
1,000.00	7.18	165.38	996.62	-61.81	16.13	61.81	0.00	0.00	0.00
1,100.00	7.18	165.38	1,095.83	-73.91	19.28	73.91	0.00	0.00	0.00
1,200.00	7.18	165.38	1,195.05	-86.01	22.44	86.01	0.00	0.00	0.00
1,300.00	7.18	165.38	1,294.26	-98.11	25.59	98.10	0.00	0.00	0.00
1,400.00	7.18	165.38	1,393.48	-110.21	28.75	110.20	0.00	0.00	0.00
1,500.00	7.18	165.38	1,492.69	-122.31	31.91	122.30	0.00	0.00	0.00
1,600.00	7.18	165.38	1,591.91	-134.41	35.06	134.40	0.00	0.00	0.00
1,627.31	7.18	165.38	1,619.00	-137.71	35.93	137.70	0.00	0.00	0.00
Fox Hills									
1,700.00	7.18	165.38	1,691.12	-146.51	38.22	146.50	0.00	0.00	0.00
1,800.00	7.18	165.38	1,790.34	-158.61	41.38	158.60	0.00	0.00	0.00
1,809.74	7.18	165.38	1,800.00	-159.79	41.68	159.78	0.00	0.00	0.00
9 5/8"									
1,900.00	7.18	165.38	1,889.55	-170.71	44.53	170.70	0.00	0.00	0.00
2,000.00	7.18	165.38	1,988.77	-182.81	47.69	182.80	0.00	0.00	0.00
2,100.00	7.18	165.38	2,087.98	-194.91	50.85	194.89	0.00	0.00	0.00
2,200.00	7.18	165.38	2,187.20	-207.01	54.00	206.99	0.00	0.00	0.00
2,300.00	7.18	165.38	2,286.41	-219.11	57.16	219.09	0.00	0.00	0.00
2,400.00	7.18	165.38	2,385.63	-231.21	60.32	231.19	0.00	0.00	0.00
2,500.00	7.18	165.38	2,484.84	-243.31	63.47	243.29	0.00	0.00	0.00
2,600.00	7.18	165.38	2,584.06	-255.41	66.63	255.39	0.00	0.00	0.00
2,700.00	7.18	165.38	2,683.28	-267.51	69.78	267.49	0.00	0.00	0.00
2,800.00	7.18	165.38	2,782.49	-279.61	72.94	279.58	0.00	0.00	0.00
2,900.00	7.18	165.38	2,881.71	-291.71	76.10	291.68	0.00	0.00	0.00
3,000.00	7.18	165.38	2,980.92	-303.81	79.25	303.78	0.00	0.00	0.00
3,041.77	7.18	165.38	3,022.36	-308.86	80.57	308.84	0.00	0.00	0.00
3,100.00	6.31	165.38	3,080.19	-315.48	82.30	315.45	1.50	-1.50	0.00
3,200.00	4.81	165.38	3,179.72	-324.85	84.74	324.83	1.50	-1.50	0.00
3,300.00	3.31	165.38	3,279.46	-331.70	86.53	331.68	1.50	-1.50	0.00
3,400.00	1.81	165.38	3,379.36	-336.03	87.66	336.00	1.50	-1.50	0.00
3,500.00	0.31	165.38	3,479.34	-337.82	88.13	337.79	1.50	-1.50	0.00
3,520.66	0.00	0.00	3,500.00	-337.87	88.14	337.84	1.50	-1.50	0.00
3,600.00	0.00	0.00	3,579.34	-337.87	88.14	337.84	0.00	0.00	0.00
3,700.00	0.00	0.00	3,679.34	-337.87	88.14	337.84	0.00	0.00	0.00
3,800.00	0.00	0.00	3,779.34	-337.87	88.14	337.84	0.00	0.00	0.00
3,900.00	0.00	0.00	3,879.34	-337.87	88.14	337.84	0.00	0.00	0.00
4,000.00	0.00	0.00	3,979.34	-337.87	88.14	337.84	0.00	0.00	0.00
4,100.00	0.00	0.00	4,079.34	-337.87	88.14	337.84	0.00	0.00	0.00
4,200.00	0.00	0.00	4,179.34	-337.87	88.14	337.84	0.00	0.00	0.00
4,280.66	0.00	0.00	4,260.00	-337.87	88.14	337.84	0.00	0.00	0.00
Parkman									

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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 13-9HZ	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	4,279.34	-337.87	88.14	337.84	0.00	0.00	0.00
4,400.00	0.00	0.00	4,379.34	-337.87	88.14	337.84	0.00	0.00	0.00
4,500.00	0.00	0.00	4,479.34	-337.87	88.14	337.84	0.00	0.00	0.00
4,600.00	0.00	0.00	4,579.34	-337.87	88.14	337.84	0.00	0.00	0.00
4,644.66	0.00	0.00	4,624.00	-337.87	88.14	337.84	0.00	0.00	0.00
Sussex									
4,700.00	0.00	0.00	4,679.34	-337.87	88.14	337.84	0.00	0.00	0.00
4,800.00	0.00	0.00	4,779.34	-337.87	88.14	337.84	0.00	0.00	0.00
4,900.00	0.00	0.00	4,879.34	-337.87	88.14	337.84	0.00	0.00	0.00
5,000.00	0.00	0.00	4,979.34	-337.87	88.14	337.84	0.00	0.00	0.00
5,100.00	0.00	0.00	5,079.34	-337.87	88.14	337.84	0.00	0.00	0.00
5,200.00	0.00	0.00	5,179.34	-337.87	88.14	337.84	0.00	0.00	0.00
5,300.00	0.00	0.00	5,279.34	-337.87	88.14	337.84	0.00	0.00	0.00
5,400.00	0.00	0.00	5,379.34	-337.87	88.14	337.84	0.00	0.00	0.00
5,500.00	0.00	0.00	5,479.34	-337.87	88.14	337.84	0.00	0.00	0.00
5,600.00	0.00	0.00	5,579.34	-337.87	88.14	337.84	0.00	0.00	0.00
5,700.00	0.00	0.00	5,679.34	-337.87	88.14	337.84	0.00	0.00	0.00
5,800.00	0.00	0.00	5,779.34	-337.87	88.14	337.84	0.00	0.00	0.00
5,900.00	0.00	0.00	5,879.34	-337.87	88.14	337.84	0.00	0.00	0.00
6,000.00	0.00	0.00	5,979.34	-337.87	88.14	337.84	0.00	0.00	0.00
6,100.00	0.00	0.00	6,079.34	-337.87	88.14	337.84	0.00	0.00	0.00
6,200.00	0.00	0.00	6,179.34	-337.87	88.14	337.84	0.00	0.00	0.00
6,300.00	0.00	0.00	6,279.34	-337.87	88.14	337.84	0.00	0.00	0.00
6,400.00	0.00	0.00	6,379.34	-337.87	88.14	337.84	0.00	0.00	0.00
6,500.00	0.00	0.00	6,479.34	-337.87	88.14	337.84	0.00	0.00	0.00
6,600.00	0.00	0.00	6,579.34	-337.87	88.14	337.84	0.00	0.00	0.00
6,700.00	0.00	0.00	6,679.34	-337.87	88.14	337.84	0.00	0.00	0.00
6,800.00	0.00	0.00	6,779.34	-337.87	88.14	337.84	0.00	0.00	0.00
6,900.00	0.00	0.00	6,879.34	-337.87	88.14	337.84	0.00	0.00	0.00
6,913.63	0.00	0.00	6,892.97	-337.87	88.14	337.84	0.00	0.00	0.00
7,000.00	7.77	180.96	6,979.07	-343.72	88.04	343.69	9.00	9.00	0.00
7,100.00	16.77	180.96	7,076.69	-364.95	87.69	364.93	9.00	9.00	0.00
7,172.76	23.32	180.96	7,145.00	-389.88	87.27	389.85	9.00	9.00	0.00
Sharon Springs									
7,200.00	25.77	180.96	7,169.78	-401.19	87.08	401.17	9.00	9.00	0.00
7,201.36	25.90	180.96	7,171.00	-401.78	87.07	401.76	9.00	9.00	0.00
Niobrara									
7,300.00	34.77	180.96	7,256.05	-451.55	86.24	451.52	9.00	9.00	0.00
7,361.76	40.33	180.96	7,305.00	-489.17	85.62	489.15	9.00	9.00	0.00
Nio B									
7,400.00	43.77	180.96	7,333.39	-514.77	85.19	514.75	9.00	9.00	0.00
7,446.86	47.99	180.96	7,366.00	-548.40	84.63	548.38	9.00	9.00	0.00
Nio C									
7,500.00	52.77	180.96	7,399.88	-589.32	83.94	589.29	9.00	9.00	0.00
7,600.00	61.77	180.96	7,453.88	-673.35	82.54	673.32	9.00	9.00	0.00
7,696.75	70.48	180.96	7,493.00	-761.72	81.07	761.70	9.00	9.00	0.00
Fort Hayes									
7,700.00	70.77	180.96	7,494.08	-764.79	81.02	764.76	9.00	9.00	0.00
7,777.08	77.71	180.96	7,515.00	-838.92	79.78	838.90	9.00	9.00	0.00
Codell									
7,800.00	79.77	180.96	7,519.47	-861.39	79.40	861.37	9.00	9.00	0.00
7,900.00	88.77	180.96	7,529.44	-960.78	77.75	960.75	9.00	9.00	0.00
7,906.07	89.32	180.96	7,529.54	-966.84	77.64	966.82	9.00	9.00	0.00

Corporate Planning Report

Database: PLANNING
Company: US ROCKIES WATTENBERG PLANNING
Project: WELD-NAD83-UTMFT13N
Site: 1N-66W-13 AZUL 13-13HZ
Well: AZUL 13-9HZ
Wellbore: Plan A
Design: Permit Rev-1

Local Co-ordinate Reference: Well AZUL 13-9HZ
TVD Reference: RKB @ 5088.00usft (D Rig)
MD Reference: RKB @ 5088.00usft (D Rig)
North Reference: True
Survey Calculation Method: 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)
Top of Production - AZUL 13-9HZ_PHL									
8,000.00	89.32	180.96	7,530.66	-1,060.75	76.08	1,060.73	0.00	0.00	0.00
8,100.00	89.32	180.96	7,531.84	-1,160.73	74.41	1,160.71	0.00	0.00	0.00
8,200.00	89.32	180.96	7,533.03	-1,260.71	72.74	1,260.69	0.00	0.00	0.00
8,300.00	89.32	180.96	7,534.22	-1,360.69	71.07	1,360.67	0.00	0.00	0.00
8,400.00	89.32	180.96	7,535.40	-1,460.67	69.40	1,460.65	0.00	0.00	0.00
8,500.00	89.32	180.96	7,536.59	-1,560.65	67.74	1,560.63	0.00	0.00	0.00
8,600.00	89.32	180.96	7,537.78	-1,660.63	66.07	1,660.61	0.00	0.00	0.00
8,700.00	89.32	180.96	7,538.97	-1,760.61	64.40	1,760.59	0.00	0.00	0.00
8,800.00	89.32	180.96	7,540.15	-1,860.59	62.73	1,860.57	0.00	0.00	0.00
8,900.00	89.32	180.96	7,541.34	-1,960.57	61.06	1,960.55	0.00	0.00	0.00
9,000.00	89.32	180.96	7,542.53	-2,060.54	59.39	2,060.53	0.00	0.00	0.00
9,100.00	89.32	180.96	7,543.71	-2,160.52	57.73	2,160.51	0.00	0.00	0.00
9,200.00	89.32	180.96	7,544.90	-2,260.50	56.06	2,260.49	0.00	0.00	0.00
9,300.00	89.32	180.96	7,546.09	-2,360.48	54.39	2,360.47	0.00	0.00	0.00
9,400.00	89.32	180.96	7,547.27	-2,460.46	52.72	2,460.44	0.00	0.00	0.00
9,500.00	89.32	180.96	7,548.46	-2,560.44	51.05	2,560.42	0.00	0.00	0.00
9,600.00	89.32	180.96	7,549.65	-2,660.42	49.38	2,660.40	0.00	0.00	0.00
9,700.00	89.32	180.96	7,550.83	-2,760.40	47.72	2,760.38	0.00	0.00	0.00
9,800.00	89.32	180.96	7,552.02	-2,860.38	46.05	2,860.36	0.00	0.00	0.00
9,900.00	89.32	180.96	7,553.21	-2,960.36	44.38	2,960.34	0.00	0.00	0.00
10,000.00	89.32	180.96	7,554.39	-3,060.33	42.71	3,060.32	0.00	0.00	0.00
10,100.00	89.32	180.96	7,555.58	-3,160.31	41.04	3,160.30	0.00	0.00	0.00
10,200.00	89.32	180.96	7,556.77	-3,260.29	39.37	3,260.28	0.00	0.00	0.00
10,300.00	89.32	180.96	7,557.95	-3,360.27	37.71	3,360.26	0.00	0.00	0.00
10,400.00	89.32	180.96	7,559.14	-3,460.25	36.04	3,460.24	0.00	0.00	0.00
10,500.00	89.32	180.96	7,560.33	-3,560.23	34.37	3,560.22	0.00	0.00	0.00
10,600.00	89.32	180.96	7,561.51	-3,660.21	32.70	3,660.20	0.00	0.00	0.00
10,700.00	89.32	180.96	7,562.70	-3,760.19	31.03	3,760.18	0.00	0.00	0.00
10,800.00	89.32	180.96	7,563.89	-3,860.17	29.36	3,860.16	0.00	0.00	0.00
10,900.00	89.32	180.96	7,565.07	-3,960.15	27.70	3,960.14	0.00	0.00	0.00
11,000.00	89.32	180.96	7,566.26	-4,060.13	26.03	4,060.12	0.00	0.00	0.00
11,100.00	89.32	180.96	7,567.45	-4,160.10	24.36	4,160.10	0.00	0.00	0.00
11,200.00	89.32	180.96	7,568.63	-4,260.08	22.69	4,260.08	0.00	0.00	0.00
11,300.00	89.32	180.96	7,569.82	-4,360.06	21.02	4,360.06	0.00	0.00	0.00
11,400.00	89.32	180.96	7,571.01	-4,460.04	19.35	4,460.04	0.00	0.00	0.00
11,500.00	89.32	180.96	7,572.20	-4,560.02	17.69	4,560.01	0.00	0.00	0.00
11,600.00	89.32	180.96	7,573.38	-4,660.00	16.02	4,659.99	0.00	0.00	0.00
11,700.00	89.32	180.96	7,574.57	-4,759.98	14.35	4,759.97	0.00	0.00	0.00
11,800.00	89.32	180.96	7,575.76	-4,859.96	12.68	4,859.95	0.00	0.00	0.00
11,900.00	89.32	180.96	7,576.94	-4,959.94	11.01	4,959.93	0.00	0.00	0.00
12,000.00	89.32	180.96	7,578.13	-5,059.92	9.34	5,059.91	0.00	0.00	0.00
12,100.00	89.32	180.96	7,579.32	-5,159.89	7.68	5,159.89	0.00	0.00	0.00
12,200.00	89.32	180.96	7,580.50	-5,259.87	6.01	5,259.87	0.00	0.00	0.00
12,300.00	89.32	180.96	7,581.69	-5,359.85	4.34	5,359.85	0.00	0.00	0.00
12,400.00	89.32	180.96	7,582.88	-5,459.83	2.67	5,459.83	0.00	0.00	0.00
12,500.00	89.32	180.96	7,584.06	-5,559.81	1.00	5,559.81	0.00	0.00	0.00
12,600.00	89.32	180.96	7,585.25	-5,659.79	-0.67	5,659.79	0.00	0.00	0.00
12,663.20	89.32	180.96	7,586.00	-5,722.98	-1.72	5,722.98	0.00	0.00	0.00
AZUL 13-9HZ_PBHL									

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well AZUL 13-9HZ
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 13-9HZ	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 13-9HZ_PHL	0.00	0.00	7,529.54	-966.84	77.64	14,542,827.35	1,716,012.95	40.043882	-104.729890
- plan hits target center									
- Point									
AZUL 13-9HZ_PBHL	0.00	0.00	7,586.00	-5,722.98	-1.72	14,538,071.00	1,715,948.00	40.030821	-104.730173
- plan hits target center									
- Point									

Casing Points					
	Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
	1,809.74	1,800.00	9 5/8"	9-5/8	13-1/2
	7,906.07	7,529.54	Top of Production	5-1/2	7-7/8

Formations						
	Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
	1,627.31	1,619.00	Fox Hills			
	4,280.66	4,260.00	Parkman			
	4,644.66	4,624.00	Sussex			
	7,172.76	7,145.00	Sharon Springs			
	7,201.36	7,171.00	Niobrara			
	7,361.76	7,305.00	Nio B			
	7,446.86	7,366.00	Nio C			
	7,696.75	7,493.00	Fort Hayes			
	7,777.08	7,515.00	Codell			