

US ROCKIES WATTENBERG PLANNING

**WELD-NAD83-UTMFT13N
3N-65W-29 RW 15-29HZ Pad
RW 15N-32HZ**

Plan A

Plan: Permit Rev-1

Standard Planning Report

12 December, 2016



Azimuths to True North
Magnetic North: 8.06°

Magnetic Field
Strength: 52452.7snT
Dip Angle: 66.70°
Date: 12/6/2016
Model: IGRF2010

SITE: 3N-65W-29 RW 15-29HZ Pad

Well: RW 15N-32HZ
Wellbore: Plan A
Design: Permit Rev-1

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1202.00	1211.35	Fox Hills Mkr
3918.00	3987.84	Parkman
4611.00	4692.41	Sussex
6860.00	6979.67	Sharon Springs
6927.00	7074.79	Niobrara
6970.00	7145.68	Nio B
7057.00	7354.05	Nio C

WELL DETAILS: RW 15N-32HZ

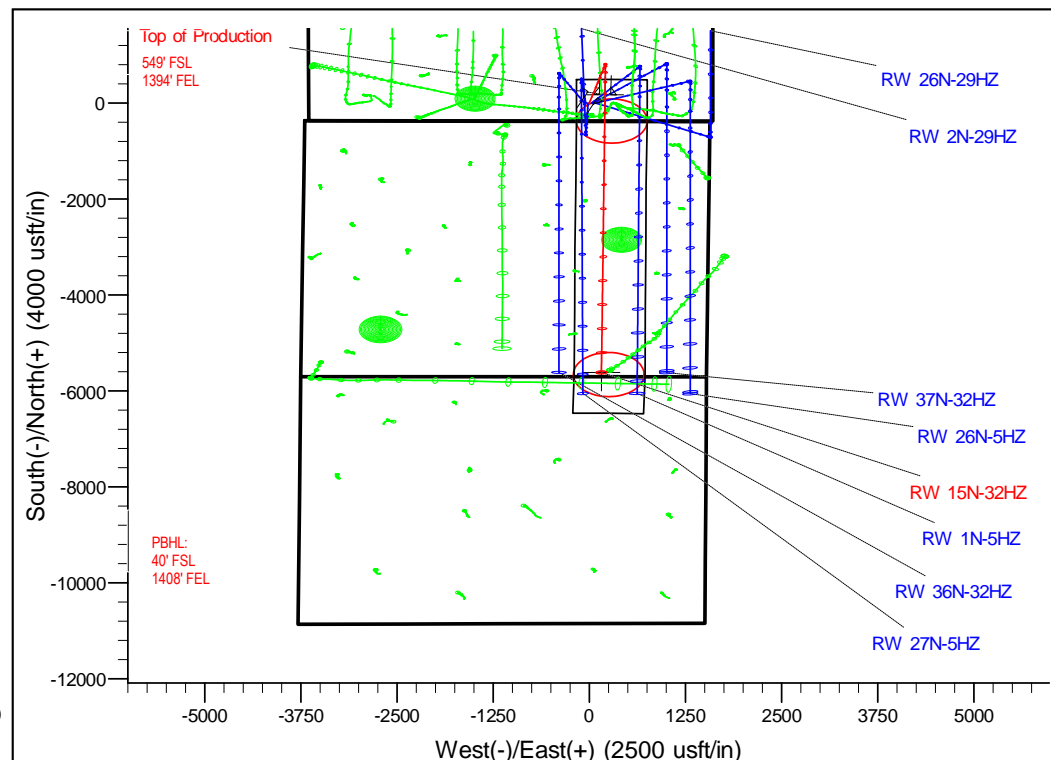
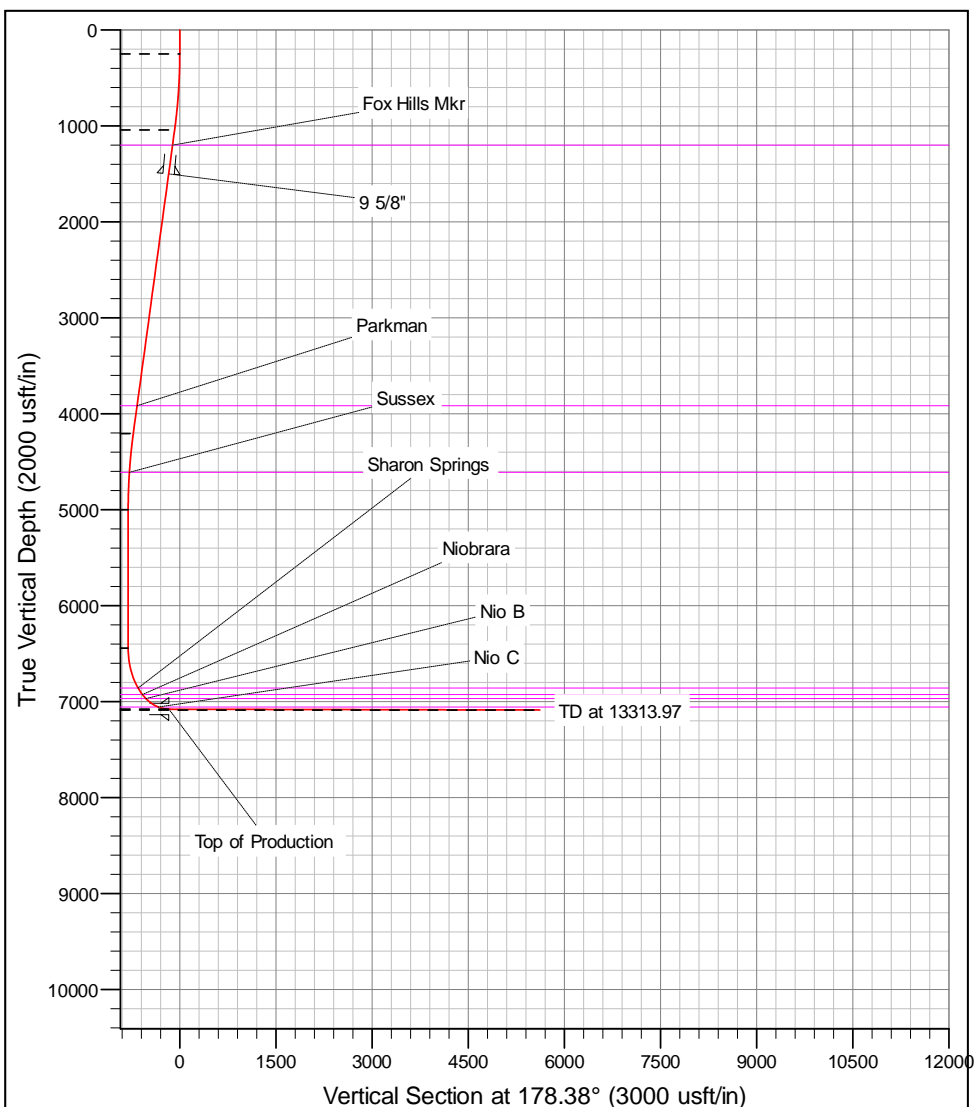
+N/-S	+E/-W	GL: 4867.00 Northing	RKB @ 4884.00usft (D Rig) Easting	Latitude	Longitude	Slot
0.00	0.00	14596148.23	1728761.22	40.190191	-104.683662	

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
1048.79	11.98	14.57	1042.98	80.54	20.93	1.50	-79.92
4283.30	11.98	14.57	4207.02	730.44	189.85	0.00	-724.77
5082.09	0.00	0.00	5000.00	810.98	210.79	1.50	-804.69
6525.38	0.00	0.00	6443.30	810.98	210.79	0.00	-804.69
7524.50	89.92	180.46	7079.92	175.27	205.66	9.00	-169.38
13313.97	89.92	180.46	7088.00	-5614.01	158.94	0.00	5616.26

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
RW 15N-29HZ_PBHL	7088.00	-5614.01	158.94	14590534.82	1728940.17	40.174774	-104.683093



Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well RW 15N-32HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4884.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4884.00usft (D Rig)
Site:	3N-65W-29 RW 15-29HZ Pad	North Reference:	True
Well:	RW 15N-32HZ	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		3N-65W-29 RW 15-29HZ Pad			
Site Position:		Northing:	14,596,148.74 usft	Latitude:	40.190193
From:	Lat/Long	Easting:	1,728,701.18 usft	Longitude:	-104.683877
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.20

Well	RW 15N-32HZ					
Well Position	+N/-S	-0.73 usft	Northing:	14,596,148.22 usft	Latitude:	40.190191
	+E/-W	60.04 usft	Easting:	1,728,761.22 usft	Longitude:	-104.683662
Position Uncertainty		3.28 usft	Wellhead Elevation:		Ground Level:	4,867.00 usft

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	12/6/2016	8.07	66.70	52,452.73000196

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	178.38

Plan Survey Tool Program	Date	12/12/2016		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	13,313.76	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWI Fixed:v2:Rockies, crustal dex

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	
1,048.79	11.98	14.57	1,042.98	80.54	20.93	1.50	1.50	0.00	14.57	
4,283.30	11.98	14.57	4,207.02	730.44	189.85	0.00	0.00	0.00	0.00	
5,082.09	0.00	0.00	5,000.00	810.98	210.79	1.50	-1.50	0.00	180.00	
6,525.38	0.00	0.00	6,443.30	810.98	210.79	0.00	0.00	0.00	0.00	
7,524.50	89.92	180.46	7,079.92	175.27	205.66	9.00	9.00	0.00	180.46	
13,313.97	89.92	180.46	7,088.00	-5,614.01	158.94	0.00	0.00	0.00	0.00	RW 15N-29HZ_PBI

Corporate Planning Report

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Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4884.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4884.00usft (D Rig)
Site:	3N-65W-29 RW 15-29HZ Pad	North Reference:	True
Well:	RW 15N-32HZ	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	14.57	300.00	0.32	0.08	-0.31	1.50	1.50	0.00
400.00	2.25	14.57	399.96	2.85	0.74	-2.83	1.50	1.50	0.00
500.00	3.75	14.57	499.82	7.92	2.06	-7.85	1.50	1.50	0.00
600.00	5.25	14.57	599.51	15.51	4.03	-15.39	1.50	1.50	0.00
700.00	6.75	14.57	698.96	25.63	6.66	-25.43	1.50	1.50	0.00
800.00	8.25	14.57	798.10	38.26	9.94	-37.96	1.50	1.50	0.00
900.00	9.75	14.57	896.87	53.40	13.88	-52.98	1.50	1.50	0.00
1,000.00	11.25	14.57	995.19	71.03	18.46	-70.48	1.50	1.50	0.00
1,048.79	11.98	14.57	1,042.98	80.54	20.93	-79.92	1.50	1.50	0.00
1,100.00	11.98	14.57	1,093.07	90.83	23.61	-90.13	0.00	0.00	0.00
1,200.00	11.98	14.57	1,190.90	110.92	28.83	-110.06	0.00	0.00	0.00
1,211.35	11.98	14.57	1,202.00	113.21	29.42	-112.33	0.00	0.00	0.00
Fox Hills Mkr									
1,300.00	11.98	14.57	1,288.72	131.02	34.05	-130.00	0.00	0.00	0.00
1,400.00	11.98	14.57	1,386.54	151.11	39.28	-149.94	0.00	0.00	0.00
1,500.00	11.98	14.57	1,484.36	171.20	44.50	-169.87	0.00	0.00	0.00
1,515.99	11.98	14.57	1,500.00	174.41	45.33	-173.06	0.00	0.00	0.00
9 5/8"									
1,600.00	11.98	14.57	1,582.18	191.29	49.72	-189.81	0.00	0.00	0.00
1,700.00	11.98	14.57	1,680.00	211.39	54.94	-209.75	0.00	0.00	0.00
1,800.00	11.98	14.57	1,777.82	231.48	60.17	-229.68	0.00	0.00	0.00
1,900.00	11.98	14.57	1,875.65	251.57	65.39	-249.62	0.00	0.00	0.00
2,000.00	11.98	14.57	1,973.47	271.66	70.61	-269.56	0.00	0.00	0.00
2,100.00	11.98	14.57	2,071.29	291.76	75.83	-289.49	0.00	0.00	0.00
2,200.00	11.98	14.57	2,169.11	311.85	81.05	-309.43	0.00	0.00	0.00
2,300.00	11.98	14.57	2,266.93	331.94	86.28	-329.37	0.00	0.00	0.00
2,400.00	11.98	14.57	2,364.75	352.03	91.50	-349.30	0.00	0.00	0.00
2,500.00	11.98	14.57	2,462.57	372.13	96.72	-369.24	0.00	0.00	0.00
2,600.00	11.98	14.57	2,560.40	392.22	101.94	-389.18	0.00	0.00	0.00
2,700.00	11.98	14.57	2,658.22	412.31	107.17	-409.11	0.00	0.00	0.00
2,800.00	11.98	14.57	2,756.04	432.40	112.39	-429.05	0.00	0.00	0.00
2,900.00	11.98	14.57	2,853.86	452.50	117.61	-448.99	0.00	0.00	0.00
3,000.00	11.98	14.57	2,951.68	472.59	122.83	-468.92	0.00	0.00	0.00
3,100.00	11.98	14.57	3,049.50	492.68	128.06	-488.86	0.00	0.00	0.00
3,200.00	11.98	14.57	3,147.32	512.77	133.28	-508.80	0.00	0.00	0.00
3,300.00	11.98	14.57	3,245.14	532.87	138.50	-528.73	0.00	0.00	0.00
3,400.00	11.98	14.57	3,342.97	552.96	143.72	-548.67	0.00	0.00	0.00
3,500.00	11.98	14.57	3,440.79	573.05	148.95	-568.61	0.00	0.00	0.00
3,600.00	11.98	14.57	3,538.61	593.14	154.17	-588.54	0.00	0.00	0.00
3,700.00	11.98	14.57	3,636.43	613.24	159.39	-608.48	0.00	0.00	0.00
3,800.00	11.98	14.57	3,734.25	633.33	164.61	-628.42	0.00	0.00	0.00
3,900.00	11.98	14.57	3,832.07	653.42	169.83	-648.35	0.00	0.00	0.00
3,987.84	11.98	14.57	3,918.00	671.07	174.42	-665.87	0.00	0.00	0.00
Parkman									
4,000.00	11.98	14.57	3,929.89	673.51	175.06	-668.29	0.00	0.00	0.00
4,100.00	11.98	14.57	4,027.72	693.61	180.28	-688.23	0.00	0.00	0.00
4,200.00	11.98	14.57	4,125.54	713.70	185.50	-708.16	0.00	0.00	0.00
4,283.30	11.98	14.57	4,207.02	730.44	189.85	-724.77	0.00	0.00	0.00
4,300.00	11.73	14.57	4,223.37	733.76	190.71	-728.07	1.50	-1.50	0.00

Corporate Planning Report

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Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4884.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4884.00usft (D Rig)
Site:	3N-65W-29 RW 15-29HZ Pad	North Reference:	True
Well:	RW 15N-32HZ	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	10.23	14.57	4,321.53	752.19	195.51	-746.36	1.50	-1.50	0.00	
4,500.00	8.73	14.57	4,420.16	768.14	199.65	-762.18	1.50	-1.50	0.00	
4,600.00	7.23	14.57	4,519.19	781.57	203.14	-775.51	1.50	-1.50	0.00	
4,692.41	5.85	14.57	4,611.00	791.76	205.79	-785.62	1.50	-1.50	0.00	
Sussex										
4,700.00	5.73	14.57	4,618.55	792.50	205.98	-786.35	1.50	-1.50	0.00	
4,800.00	4.23	14.57	4,718.17	800.90	208.17	-794.69	1.50	-1.50	0.00	
4,900.00	2.73	14.57	4,817.98	806.78	209.69	-800.52	1.50	-1.50	0.00	
5,000.00	1.23	14.57	4,917.92	810.12	210.56	-803.84	1.50	-1.50	0.00	
5,082.09	0.00	0.00	5,000.00	810.98	210.79	-804.69	1.50	-1.50	0.00	
5,100.00	0.00	0.00	5,017.91	810.98	210.79	-804.69	0.00	0.00	0.00	
5,200.00	0.00	0.00	5,117.91	810.98	210.79	-804.69	0.00	0.00	0.00	
5,300.00	0.00	0.00	5,217.91	810.98	210.79	-804.69	0.00	0.00	0.00	
5,400.00	0.00	0.00	5,317.91	810.98	210.79	-804.69	0.00	0.00	0.00	
5,500.00	0.00	0.00	5,417.91	810.98	210.79	-804.69	0.00	0.00	0.00	
5,600.00	0.00	0.00	5,517.91	810.98	210.79	-804.69	0.00	0.00	0.00	
5,700.00	0.00	0.00	5,617.91	810.98	210.79	-804.69	0.00	0.00	0.00	
5,800.00	0.00	0.00	5,717.91	810.98	210.79	-804.69	0.00	0.00	0.00	
5,900.00	0.00	0.00	5,817.91	810.98	210.79	-804.69	0.00	0.00	0.00	
6,000.00	0.00	0.00	5,917.91	810.98	210.79	-804.69	0.00	0.00	0.00	
6,100.00	0.00	0.00	6,017.91	810.98	210.79	-804.69	0.00	0.00	0.00	
6,200.00	0.00	0.00	6,117.91	810.98	210.79	-804.69	0.00	0.00	0.00	
6,300.00	0.00	0.00	6,217.91	810.98	210.79	-804.69	0.00	0.00	0.00	
6,400.00	0.00	0.00	6,317.91	810.98	210.79	-804.69	0.00	0.00	0.00	
6,500.00	0.00	0.00	6,417.91	810.98	210.79	-804.69	0.00	0.00	0.00	
6,525.38	0.00	0.00	6,443.30	810.98	210.79	-804.69	0.00	0.00	0.00	
6,600.00	6.72	180.46	6,517.74	806.61	210.75	-800.32	9.00	9.00	0.00	
6,700.00	15.72	180.46	6,615.73	787.18	210.59	-780.91	9.00	9.00	0.00	
6,800.00	24.72	180.46	6,709.48	752.66	210.32	-746.41	9.00	9.00	0.00	
6,900.00	33.72	180.46	6,796.66	703.91	209.92	-697.68	9.00	9.00	0.00	
6,979.67	40.89	180.46	6,860.00	655.66	209.53	-649.47	9.00	9.00	0.00	
Sharon Springs										
7,000.00	42.72	180.46	6,875.15	642.11	209.42	-635.93	9.00	9.00	0.00	
7,074.79	49.45	180.46	6,927.00	588.27	208.99	-582.12	9.00	9.00	0.00	
Niobrara										
7,100.00	51.72	180.46	6,943.01	568.80	208.83	-562.66	9.00	9.00	0.00	
7,145.68	55.83	180.46	6,970.00	531.96	208.53	-525.84	9.00	9.00	0.00	
Nio B										
7,200.00	60.72	180.46	6,998.56	485.77	208.16	-479.69	9.00	9.00	0.00	
7,300.00	69.72	180.46	7,040.44	395.08	207.43	-389.05	9.00	9.00	0.00	
7,354.05	74.58	180.46	7,057.00	343.65	207.01	-337.65	9.00	9.00	0.00	
Nio C										
7,400.00	78.72	180.46	7,067.61	298.95	206.65	-292.98	9.00	9.00	0.00	
7,500.00	87.72	180.46	7,079.41	199.76	205.85	-193.85	9.00	9.00	0.00	
7,524.50	89.92	180.46	7,079.92	175.26	205.66	-169.37	9.00	9.00	0.00	
Top of Production - RW 15N-32HZ_PHL										
7,600.00	89.92	180.46	7,080.02	99.77	205.05	-93.92	0.00	0.00	0.00	
7,700.00	89.92	180.46	7,080.16	-0.23	204.24	6.01	0.00	0.00	0.00	
7,800.00	89.92	180.46	7,080.30	-100.23	203.43	105.94	0.00	0.00	0.00	
7,900.00	89.92	180.46	7,080.44	-200.22	202.63	205.88	0.00	0.00	0.00	
8,000.00	89.92	180.46	7,080.58	-300.22	201.82	305.81	0.00	0.00	0.00	
8,100.00	89.92	180.46	7,080.72	-400.22	201.01	405.74	0.00	0.00	0.00	
8,200.00	89.92	180.46	7,080.86	-500.21	200.21	505.68	0.00	0.00	0.00	

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Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4884.00usft (D Rig)
Site:	3N-65W-29 RW 15-29HZ Pad	North Reference:	True
Well:	RW 15N-32HZ	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	89.92	180.46	7,081.00	-600.21	199.40	605.61	0.00	0.00	0.00
8,400.00	89.92	180.46	7,081.14	-700.21	198.59	705.55	0.00	0.00	0.00
8,500.00	89.92	180.46	7,081.28	-800.20	197.79	805.48	0.00	0.00	0.00
8,600.00	89.92	180.46	7,081.42	-900.20	196.98	905.41	0.00	0.00	0.00
8,700.00	89.92	180.46	7,081.56	-1,000.20	196.17	1,005.35	0.00	0.00	0.00
8,800.00	89.92	180.46	7,081.70	-1,100.19	195.36	1,105.28	0.00	0.00	0.00
8,900.00	89.92	180.46	7,081.84	-1,200.19	194.56	1,205.22	0.00	0.00	0.00
9,000.00	89.92	180.46	7,081.98	-1,300.19	193.75	1,305.15	0.00	0.00	0.00
9,100.00	89.92	180.46	7,082.12	-1,400.18	192.94	1,405.08	0.00	0.00	0.00
9,200.00	89.92	180.46	7,082.26	-1,500.18	192.14	1,505.02	0.00	0.00	0.00
9,300.00	89.92	180.46	7,082.40	-1,600.18	191.33	1,604.95	0.00	0.00	0.00
9,400.00	89.92	180.46	7,082.54	-1,700.17	190.52	1,704.88	0.00	0.00	0.00
9,500.00	89.92	180.46	7,082.67	-1,800.17	189.72	1,804.82	0.00	0.00	0.00
9,600.00	89.92	180.46	7,082.81	-1,900.17	188.91	1,904.75	0.00	0.00	0.00
9,700.00	89.92	180.46	7,082.95	-2,000.16	188.10	2,004.69	0.00	0.00	0.00
9,800.00	89.92	180.46	7,083.09	-2,100.16	187.30	2,104.62	0.00	0.00	0.00
9,900.00	89.92	180.46	7,083.23	-2,200.16	186.49	2,204.55	0.00	0.00	0.00
10,000.00	89.92	180.46	7,083.37	-2,300.15	185.68	2,304.49	0.00	0.00	0.00
10,100.00	89.92	180.46	7,083.51	-2,400.15	184.88	2,404.42	0.00	0.00	0.00
10,200.00	89.92	180.46	7,083.65	-2,500.15	184.07	2,504.35	0.00	0.00	0.00
10,300.00	89.92	180.46	7,083.79	-2,600.14	183.26	2,604.29	0.00	0.00	0.00
10,400.00	89.92	180.46	7,083.93	-2,700.14	182.45	2,704.22	0.00	0.00	0.00
10,500.00	89.92	180.46	7,084.07	-2,800.14	181.65	2,804.16	0.00	0.00	0.00
10,600.00	89.92	180.46	7,084.21	-2,900.13	180.84	2,904.09	0.00	0.00	0.00
10,700.00	89.92	180.46	7,084.35	-3,000.13	180.03	3,004.02	0.00	0.00	0.00
10,800.00	89.92	180.46	7,084.49	-3,100.13	179.23	3,103.96	0.00	0.00	0.00
10,900.00	89.92	180.46	7,084.63	-3,200.12	178.42	3,203.89	0.00	0.00	0.00
11,000.00	89.92	180.46	7,084.77	-3,300.12	177.61	3,303.82	0.00	0.00	0.00
11,100.00	89.92	180.46	7,084.91	-3,400.12	176.81	3,403.76	0.00	0.00	0.00
11,200.00	89.92	180.46	7,085.05	-3,500.11	176.00	3,503.69	0.00	0.00	0.00
11,300.00	89.92	180.46	7,085.19	-3,600.11	175.19	3,603.63	0.00	0.00	0.00
11,400.00	89.92	180.46	7,085.33	-3,700.11	174.39	3,703.56	0.00	0.00	0.00
11,500.00	89.92	180.46	7,085.47	-3,800.10	173.58	3,803.49	0.00	0.00	0.00
11,600.00	89.92	180.46	7,085.61	-3,900.10	172.77	3,903.43	0.00	0.00	0.00
11,700.00	89.92	180.46	7,085.75	-4,000.10	171.97	4,003.36	0.00	0.00	0.00
11,800.00	89.92	180.46	7,085.89	-4,100.09	171.16	4,103.29	0.00	0.00	0.00
11,900.00	89.92	180.46	7,086.03	-4,200.09	170.35	4,203.23	0.00	0.00	0.00
12,000.00	89.92	180.46	7,086.17	-4,300.09	169.54	4,303.16	0.00	0.00	0.00
12,100.00	89.92	180.46	7,086.31	-4,400.08	168.74	4,403.10	0.00	0.00	0.00
12,200.00	89.92	180.46	7,086.44	-4,500.08	167.93	4,503.03	0.00	0.00	0.00
12,300.00	89.92	180.46	7,086.58	-4,600.08	167.12	4,602.96	0.00	0.00	0.00
12,400.00	89.92	180.46	7,086.72	-4,700.07	166.32	4,702.90	0.00	0.00	0.00
12,500.00	89.92	180.46	7,086.86	-4,800.07	165.51	4,802.83	0.00	0.00	0.00
12,600.00	89.92	180.46	7,087.00	-4,900.07	164.70	4,902.76	0.00	0.00	0.00
12,700.00	89.92	180.46	7,087.14	-5,000.06	163.90	5,002.70	0.00	0.00	0.00
12,800.00	89.92	180.46	7,087.28	-5,100.06	163.09	5,102.63	0.00	0.00	0.00
12,900.00	89.92	180.46	7,087.42	-5,200.06	162.28	5,202.57	0.00	0.00	0.00
13,000.00	89.92	180.46	7,087.56	-5,300.05	161.48	5,302.50	0.00	0.00	0.00
13,100.00	89.92	180.46	7,087.70	-5,400.05	160.67	5,402.43	0.00	0.00	0.00
13,200.00	89.92	180.46	7,087.84	-5,500.05	159.86	5,502.37	0.00	0.00	0.00
13,300.00	89.92	180.46	7,087.98	-5,600.04	159.06	5,602.30	0.00	0.00	0.00
13,313.97	89.92	180.46	7,088.00	-5,614.01	158.94	5,616.26	0.00	0.00	0.00
RW 15N-29HZ_PBHL									

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well RW 15N-32HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4884.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4884.00usft (D Rig)
Site:	3N-65W-29 RW 15-29HZ Pad	North Reference:	True
Well:	RW 15N-32HZ	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)		
RW 15N-32HZ_PHL	0.00	0.00	7,079.92	175.26	205.66	14,596,324.22	1,728,966.25	40.190672	-104.682926
- plan hits target center									
- Point									
RW 15N-29HZ_PBHL	0.00	0.00	7,088.00	-5,614.01	158.94	14,590,534.81	1,728,940.17	40.174775	-104.683093
- plan hits target center									
- Point									

Casing Points					
	Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
	1,515.99	1,500.00	9 5/8"	9-5/8	13-1/2
	7,524.50	7,079.92	Top of Production	5-1/2	8-1/2

Formations						
	Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
	1,211.35	1,202.00	Fox Hills Mkr			
	3,987.84	3,918.00	Parkman			
	4,692.41	4,611.00	Sussex			
	6,979.67	6,860.00	Sharon Springs			
	7,074.79	6,927.00	Niobrara			
	7,145.68	6,970.00	Nio B			
	7,354.05	7,057.00	Nio C			