

US ROCKIES WATTENBERG PLANNING

**WELD-NAD83-UTMFT13N
2N-68W-15 Keown Pad
KEOWN STATE 33N-34HZ**

Plan A

Plan: Permit Rev-2

Standard Planning Report

29 September, 2016



Azimuths to True North
Magnetic North: 8.41°

Magnetic Field
Strength: 52532.9snT
Dip Angle: 66.66°
Date: 8/12/2015
Model: IGRF2010

SITE: 2N-68W-15 Keown Pad

Well: KEOWN STATE 33N-34HZ
Wellbore: Plan A
Design: Permit Rev-2

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
745.00	746.35	Fox Hills Mkr
3760.00	3761.59	Parkman
4497.00	4523.53	Sussex
7065.00	7139.78	Sharon Springs
7157.00	7285.04	Niobrara
7224.00	7438.47	Nio B

WELL DETAILS: KEOWN STATE 33N-34HZ

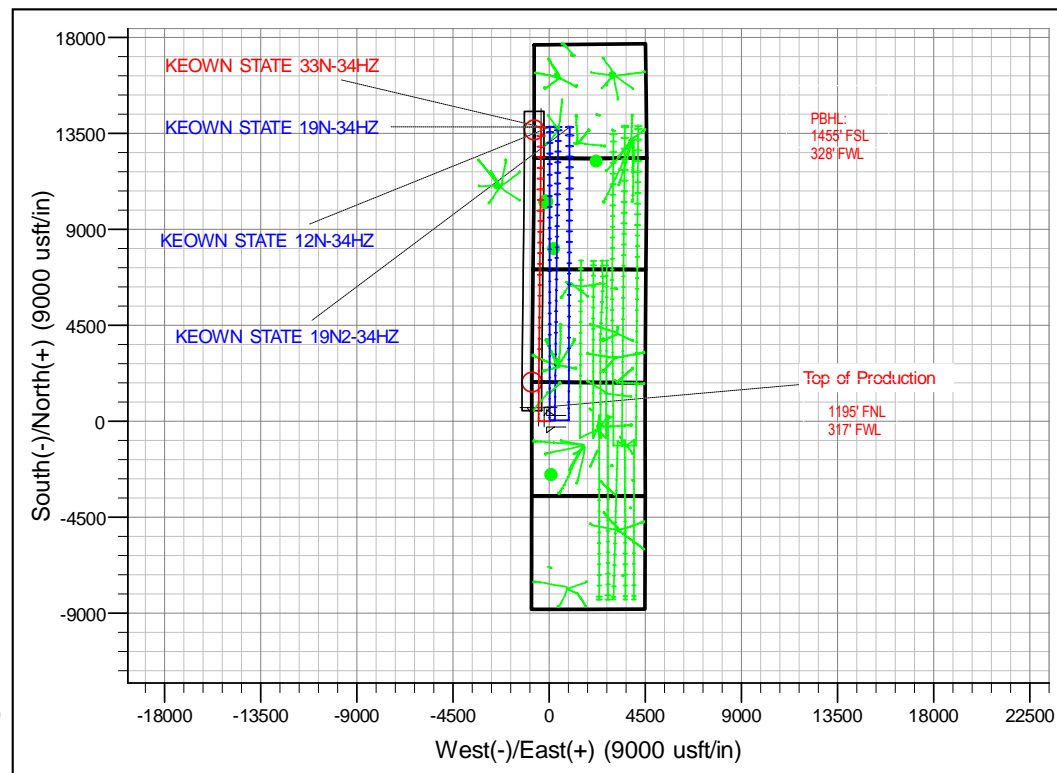
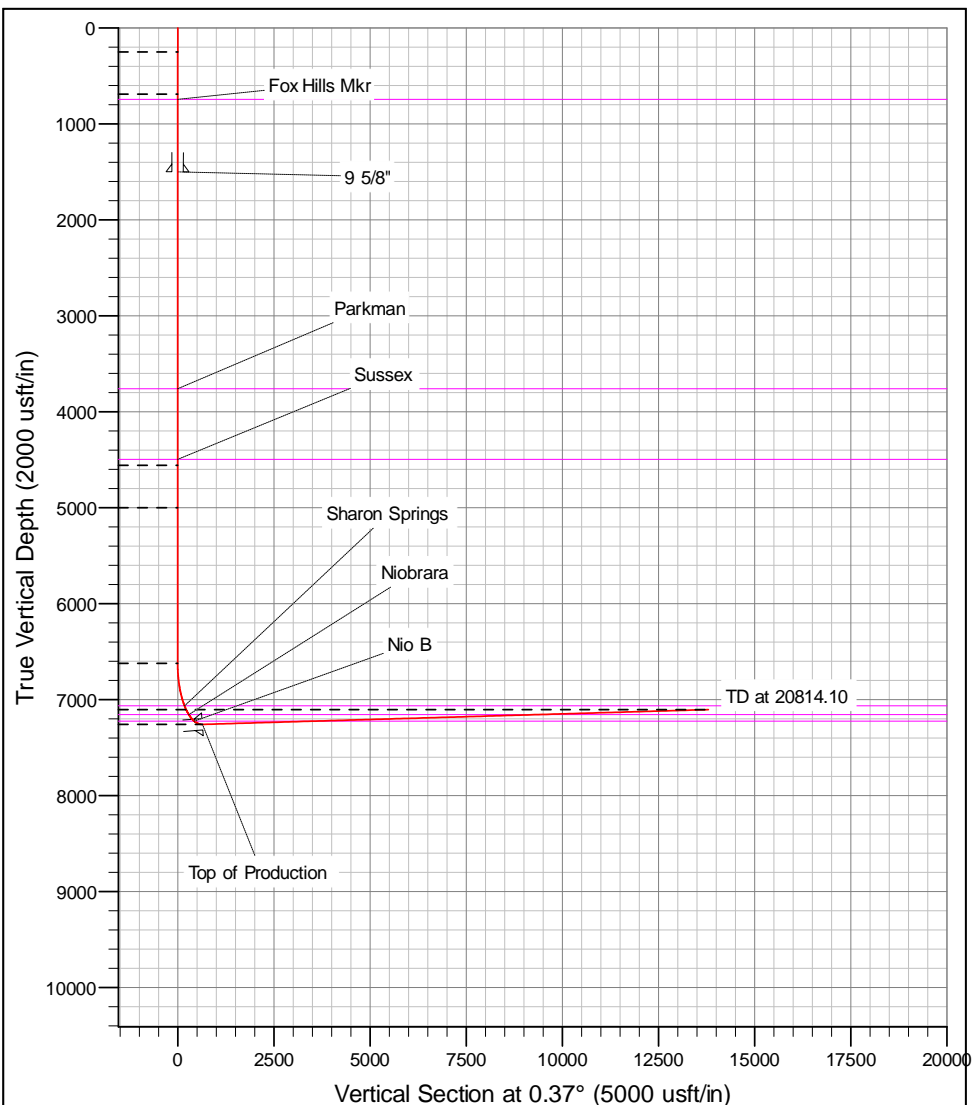
+N/-S	+E/-W	GL: 4872.00 Northing	RKB = 17' @ 4889.00usft (D Rig) Easting	Latitude	Longitude	Slot
0.00	0.00	14578109.97	1641581.51	40.141088	-104.995832	

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
691.34	6.62	270.00	690.36	0.00	-25.47	1.50	-0.16
4586.60	6.62	270.00	4559.64	0.00	-474.53	0.00	-3.06
5027.93	0.00	0.00	5000.00	0.00	-500.00	1.50	-3.23
6650.20	0.00	0.00	6622.27	0.00	-500.00	0.00	-3.23
7657.65	90.67	0.52	7258.84	644.04	-494.16	9.00	640.83
20814.10	90.67	0.52	7105.00	13799.05	-374.87	0.00	3796.34

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
KEOWN STATE 33N-34HZ, PBHL	7105.00	13799.05	-374.87	14591909.00	1641206.00	40.178982	-104.997174



Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well KEOWN STATE 33N-34HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4889.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4889.00usft (D Rig)
Site:	2N-68W-15 Keown Pad	North Reference:	True
Well:	KEOWN STATE 33N-34HZ	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		2N-68W-15 Keown Pad			
Site Position:		Northing:	14,578,109.97 usft	Latitude:	40.141088
From:	Lat/Long	Easting:	1,641,581.51 usft	Longitude:	-104.995832
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.00 °

Well	KEOWN STATE 33N-34HZ					
Well Position	+N/-S	0.00 usft	Northing:	14,578,109.97 usft	Latitude:	40.141088
	+E/-W	0.00 usft	Easting:	1,641,581.51 usft	Longitude:	-104.995832
Position Uncertainty		3.28 usft	Wellhead Elevation:	0.00 usft	Ground Level:	4,872.00 usft

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/12/2015	8.41	66.66	52,533

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	0.37

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	
691.34	6.62	270.00	690.36	0.00	-25.47	1.50	1.50	0.00	270.00	
4,586.60	6.62	270.00	4,559.65	0.00	-474.53	0.00	0.00	0.00	0.00	
5,027.93	0.00	0.00	5,000.00	0.00	-500.00	1.50	-1.50	0.00	180.00	
6,650.20	0.00	0.00	6,622.27	0.00	-500.00	0.00	0.00	0.00	0.00	
7,657.65	90.67	0.52	7,258.84	644.04	-494.16	9.00	9.00	0.00	0.52	
20,814.10	90.67	0.52	7,105.00	13,799.05	-374.87	0.00	0.00	0.00	0.00	KEOWN STATE 33

Corporate Planning Report

Database: PLANNING
Company: US ROCKIES WATTENBERG PLANNING
Project: WELD-NAD83-UTMFT13N
Site: 2N-68W-15 Keown Pad
Well: KEOWN STATE 33N-34HZ
Wellbore: Plan A
Design: Permit Rev-2

Local Co-ordinate Reference: Well KEOWN STATE 33N-34HZ
TVD Reference: RKB = 17' @ 4889.00usft (D Rig)
MD Reference: RKB = 17' @ 4889.00usft (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)
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	270.00	300.00	0.00	-0.33	0.00	1.50	1.50	0.00
400.00	2.25	270.00	399.96	0.00	-2.94	-0.02	1.50	1.50	0.00
500.00	3.75	270.00	499.82	0.00	-8.18	-0.05	1.50	1.50	0.00
600.00	5.25	270.00	599.51	0.00	-16.02	-0.10	1.50	1.50	0.00
691.34	6.62	270.00	690.36	0.00	-25.47	-0.16	1.50	1.50	0.00
700.00	6.62	270.00	698.96	0.00	-26.47	-0.17	0.00	0.00	0.00
746.35	6.62	270.00	745.00	0.00	-31.81	-0.21	0.00	0.00	0.00
Fox Hills Mkr									
800.00	6.62	270.00	798.29	0.00	-38.00	-0.25	0.00	0.00	0.00
900.00	6.62	270.00	897.63	0.00	-49.52	-0.32	0.00	0.00	0.00
1,000.00	6.62	270.00	996.96	0.00	-61.05	-0.39	0.00	0.00	0.00
1,100.00	6.62	270.00	1,096.29	0.00	-72.58	-0.47	0.00	0.00	0.00
1,200.00	6.62	270.00	1,195.63	0.00	-84.11	-0.54	0.00	0.00	0.00
1,300.00	6.62	270.00	1,294.96	0.00	-95.64	-0.62	0.00	0.00	0.00
1,400.00	6.62	270.00	1,394.29	0.00	-107.17	-0.69	0.00	0.00	0.00
1,500.00	6.62	270.00	1,493.63	0.00	-118.69	-0.77	0.00	0.00	0.00
1,506.42	6.62	270.00	1,500.00	0.00	-119.43	-0.77	0.00	0.00	0.00
9 5/8"									
1,600.00	6.62	270.00	1,592.96	0.00	-130.22	-0.84	0.00	0.00	0.00
1,700.00	6.62	270.00	1,692.29	0.00	-141.75	-0.92	0.00	0.00	0.00
1,800.00	6.62	270.00	1,791.63	0.00	-153.28	-0.99	0.00	0.00	0.00
1,900.00	6.62	270.00	1,890.96	0.00	-164.81	-1.06	0.00	0.00	0.00
2,000.00	6.62	270.00	1,990.29	0.00	-176.34	-1.14	0.00	0.00	0.00
2,100.00	6.62	270.00	2,089.63	0.00	-187.87	-1.21	0.00	0.00	0.00
2,200.00	6.62	270.00	2,188.96	0.00	-199.39	-1.29	0.00	0.00	0.00
2,300.00	6.62	270.00	2,288.29	0.00	-210.92	-1.36	0.00	0.00	0.00
2,400.00	6.62	270.00	2,387.63	0.00	-222.45	-1.44	0.00	0.00	0.00
2,500.00	6.62	270.00	2,486.96	0.00	-233.98	-1.51	0.00	0.00	0.00
2,600.00	6.62	270.00	2,586.29	0.00	-245.51	-1.59	0.00	0.00	0.00
2,700.00	6.62	270.00	2,685.63	0.00	-257.04	-1.66	0.00	0.00	0.00
2,800.00	6.62	270.00	2,784.96	0.00	-268.56	-1.73	0.00	0.00	0.00
2,900.00	6.62	270.00	2,884.29	0.00	-280.09	-1.81	0.00	0.00	0.00
3,000.00	6.62	270.00	2,983.63	0.00	-291.62	-1.88	0.00	0.00	0.00
3,100.00	6.62	270.00	3,082.96	0.00	-303.15	-1.96	0.00	0.00	0.00
3,200.00	6.62	270.00	3,182.29	0.00	-314.68	-2.03	0.00	0.00	0.00
3,300.00	6.62	270.00	3,281.63	0.00	-326.21	-2.11	0.00	0.00	0.00
3,400.00	6.62	270.00	3,380.96	0.00	-337.74	-2.18	0.00	0.00	0.00
3,500.00	6.62	270.00	3,480.29	0.00	-349.26	-2.26	0.00	0.00	0.00
3,600.00	6.62	270.00	3,579.63	0.00	-360.79	-2.33	0.00	0.00	0.00
3,700.00	6.62	270.00	3,678.96	0.00	-372.32	-2.40	0.00	0.00	0.00
3,781.59	6.62	270.00	3,760.00	0.00	-381.73	-2.47	0.00	0.00	0.00
Parkman									
3,800.00	6.62	270.00	3,778.29	0.00	-383.85	-2.48	0.00	0.00	0.00
3,900.00	6.62	270.00	3,877.62	0.00	-395.38	-2.55	0.00	0.00	0.00
4,000.00	6.62	270.00	3,976.96	0.00	-406.91	-2.63	0.00	0.00	0.00
4,100.00	6.62	270.00	4,076.29	0.00	-418.43	-2.70	0.00	0.00	0.00
4,200.00	6.62	270.00	4,175.62	0.00	-429.96	-2.78	0.00	0.00	0.00
4,300.00	6.62	270.00	4,274.96	0.00	-441.49	-2.85	0.00	0.00	0.00
4,400.00	6.62	270.00	4,374.29	0.00	-453.02	-2.93	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well KEOWN STATE 33N-34HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4889.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4889.00usft (D Rig)
Site:	2N-68W-15 Keown Pad	North Reference:	True
Well:	KEOWN STATE 33N-34HZ	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)
4,500.00	6.62	270.00	4,473.62	0.00	-464.55	-3.00	0.00	0.00	0.00
4,523.53	6.62	270.00	4,497.00	0.00	-467.26	-3.02	0.00	0.00	0.00
Sussex									
4,586.60	6.62	270.00	4,559.65	0.00	-474.53	-3.06	0.00	0.00	0.00
4,600.00	6.42	270.00	4,572.96	0.00	-476.05	-3.07	1.50	-1.50	0.00
4,700.00	4.92	270.00	4,672.47	0.00	-485.93	-3.14	1.50	-1.50	0.00
4,800.00	3.42	270.00	4,772.20	0.00	-493.20	-3.18	1.50	-1.50	0.00
4,900.00	1.92	270.00	4,872.09	0.00	-497.86	-3.22	1.50	-1.50	0.00
5,000.00	0.42	270.00	4,972.07	0.00	-499.90	-3.23	1.50	-1.50	0.00
5,027.93	0.00	0.00	5,000.00	0.00	-500.00	-3.23	1.50	-1.50	0.00
5,100.00	0.00	0.00	5,072.07	0.00	-500.00	-3.23	0.00	0.00	0.00
5,200.00	0.00	0.00	5,172.07	0.00	-500.00	-3.23	0.00	0.00	0.00
5,300.00	0.00	0.00	5,272.07	0.00	-500.00	-3.23	0.00	0.00	0.00
5,400.00	0.00	0.00	5,372.07	0.00	-500.00	-3.23	0.00	0.00	0.00
5,500.00	0.00	0.00	5,472.07	0.00	-500.00	-3.23	0.00	0.00	0.00
5,600.00	0.00	0.00	5,572.07	0.00	-500.00	-3.23	0.00	0.00	0.00
5,700.00	0.00	0.00	5,672.07	0.00	-500.00	-3.23	0.00	0.00	0.00
5,800.00	0.00	0.00	5,772.07	0.00	-500.00	-3.23	0.00	0.00	0.00
5,900.00	0.00	0.00	5,872.07	0.00	-500.00	-3.23	0.00	0.00	0.00
6,000.00	0.00	0.00	5,972.07	0.00	-500.00	-3.23	0.00	0.00	0.00
6,100.00	0.00	0.00	6,072.07	0.00	-500.00	-3.23	0.00	0.00	0.00
6,200.00	0.00	0.00	6,172.07	0.00	-500.00	-3.23	0.00	0.00	0.00
6,300.00	0.00	0.00	6,272.07	0.00	-500.00	-3.23	0.00	0.00	0.00
6,400.00	0.00	0.00	6,372.07	0.00	-500.00	-3.23	0.00	0.00	0.00
6,500.00	0.00	0.00	6,472.07	0.00	-500.00	-3.23	0.00	0.00	0.00
6,600.00	0.00	0.00	6,572.07	0.00	-500.00	-3.23	0.00	0.00	0.00
6,650.20	0.00	0.00	6,622.27	0.00	-500.00	-3.23	0.00	0.00	0.00
6,700.00	4.48	0.52	6,672.02	1.95	-499.98	-1.28	9.00	9.00	0.00
6,800.00	13.48	0.52	6,770.69	17.54	-499.84	14.31	9.00	9.00	0.00
6,900.00	22.48	0.52	6,865.71	48.38	-499.56	45.15	9.00	9.00	0.00
7,000.00	31.48	0.52	6,954.73	93.70	-499.15	90.48	9.00	9.00	0.00
7,100.00	40.48	0.52	7,035.57	152.39	-498.62	149.17	9.00	9.00	0.00
7,139.79	44.06	0.52	7,065.00	179.15	-498.38	175.93	9.00	9.00	0.00
Sharon Springs									
7,200.00	49.48	0.52	7,106.23	223.01	-497.98	219.78	9.00	9.00	0.00
7,285.04	57.14	0.52	7,157.00	291.14	-497.36	287.92	9.00	9.00	0.00
Niobrara									
7,300.00	58.48	0.52	7,164.97	303.80	-497.25	300.58	9.00	9.00	0.00
7,400.00	67.48	0.52	7,210.35	392.79	-496.44	389.58	9.00	9.00	0.00
7,438.47	70.94	0.52	7,224.00	428.75	-496.11	425.54	9.00	9.00	0.00
Nio B									
7,500.00	76.48	0.52	7,241.25	487.79	-495.58	484.58	9.00	9.00	0.00
7,600.00	85.48	0.52	7,256.91	586.45	-494.68	583.24	9.00	9.00	0.00
7,657.65	90.67	0.52	7,258.84	644.04	-494.16	640.84	9.00	9.00	0.00
Top of Production - KEOWN STATE 33N-34HZ_PHL									
7,700.00	90.67	0.52	7,258.35	686.39	-493.78	683.18	0.00	0.00	0.00
7,800.00	90.67	0.52	7,257.18	786.38	-492.87	783.18	0.00	0.00	0.00
7,900.00	90.67	0.52	7,256.01	886.36	-491.96	883.17	0.00	0.00	0.00
8,000.00	90.67	0.52	7,254.84	986.35	-491.06	983.16	0.00	0.00	0.00
8,100.00	90.67	0.52	7,253.67	1,086.34	-490.15	1,083.15	0.00	0.00	0.00
8,200.00	90.67	0.52	7,252.50	1,186.33	-489.24	1,183.15	0.00	0.00	0.00
8,300.00	90.67	0.52	7,251.33	1,286.32	-488.34	1,283.14	0.00	0.00	0.00
8,400.00	90.67	0.52	7,250.16	1,386.31	-487.43	1,383.13	0.00	0.00	0.00
8,500.00	90.67	0.52	7,248.99	1,486.30	-486.52	1,483.13	0.00	0.00	0.00

Corporate Planning Report

Database: PLANNING
Company: US ROCKIES WATTENBERG PLANNING
Project: WELD-NAD83-UTMFT13N
Site: 2N-68W-15 Keown Pad
Well: KEOWN STATE 33N-34HZ
Wellbore: Plan A
Design: Permit Rev-2

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:

Well KEOWN STATE 33N-34HZ
 RKB = 17' @ 4889.00usft (D Rig)
 RKB = 17' @ 4889.00usft (D Rig)
 True
 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)
8,600.00	90.67	0.52	7,247.82	1,586.29	-485.62	1,583.12	0.00	0.00	0.00
8,700.00	90.67	0.52	7,246.66	1,686.28	-484.71	1,683.11	0.00	0.00	0.00
8,800.00	90.67	0.52	7,245.49	1,786.27	-483.80	1,783.10	0.00	0.00	0.00
8,900.00	90.67	0.52	7,244.32	1,886.25	-482.89	1,883.10	0.00	0.00	0.00
9,000.00	90.67	0.52	7,243.15	1,986.24	-481.99	1,983.09	0.00	0.00	0.00
9,100.00	90.67	0.52	7,241.98	2,086.23	-481.08	2,083.08	0.00	0.00	0.00
9,200.00	90.67	0.52	7,240.81	2,186.22	-480.17	2,183.08	0.00	0.00	0.00
9,300.00	90.67	0.52	7,239.64	2,286.21	-479.27	2,283.07	0.00	0.00	0.00
9,400.00	90.67	0.52	7,238.47	2,386.20	-478.36	2,383.06	0.00	0.00	0.00
9,500.00	90.67	0.52	7,237.30	2,486.19	-477.45	2,483.05	0.00	0.00	0.00
9,600.00	90.67	0.52	7,236.13	2,586.18	-476.55	2,583.05	0.00	0.00	0.00
9,700.00	90.67	0.52	7,234.96	2,686.17	-475.64	2,683.04	0.00	0.00	0.00
9,800.00	90.67	0.52	7,233.79	2,786.16	-474.73	2,783.03	0.00	0.00	0.00
9,900.00	90.67	0.52	7,232.62	2,886.15	-473.83	2,883.03	0.00	0.00	0.00
10,000.00	90.67	0.52	7,231.45	2,986.13	-472.92	2,983.02	0.00	0.00	0.00
10,100.00	90.67	0.52	7,230.28	3,086.12	-472.01	3,083.01	0.00	0.00	0.00
10,200.00	90.67	0.52	7,229.12	3,186.11	-471.11	3,183.00	0.00	0.00	0.00
10,300.00	90.67	0.52	7,227.95	3,286.10	-470.20	3,283.00	0.00	0.00	0.00
10,400.00	90.67	0.52	7,226.78	3,386.09	-469.29	3,382.99	0.00	0.00	0.00
10,500.00	90.67	0.52	7,225.61	3,486.08	-468.39	3,482.98	0.00	0.00	0.00
10,600.00	90.67	0.52	7,224.44	3,586.07	-467.48	3,582.98	0.00	0.00	0.00
10,700.00	90.67	0.52	7,223.27	3,686.06	-466.57	3,682.97	0.00	0.00	0.00
10,800.00	90.67	0.52	7,222.10	3,786.05	-465.67	3,782.96	0.00	0.00	0.00
10,900.00	90.67	0.52	7,220.93	3,886.04	-464.76	3,882.95	0.00	0.00	0.00
11,000.00	90.67	0.52	7,219.76	3,986.03	-463.85	3,982.95	0.00	0.00	0.00
11,100.00	90.67	0.52	7,218.59	4,086.01	-462.95	4,082.94	0.00	0.00	0.00
11,200.00	90.67	0.52	7,217.42	4,186.00	-462.04	4,182.93	0.00	0.00	0.00
11,300.00	90.67	0.52	7,216.25	4,285.99	-461.13	4,282.93	0.00	0.00	0.00
11,400.00	90.67	0.52	7,215.08	4,385.98	-460.23	4,382.92	0.00	0.00	0.00
11,500.00	90.67	0.52	7,213.91	4,485.97	-459.32	4,482.91	0.00	0.00	0.00
11,600.00	90.67	0.52	7,212.74	4,585.96	-458.41	4,582.90	0.00	0.00	0.00
11,700.00	90.67	0.52	7,211.58	4,685.95	-457.51	4,682.90	0.00	0.00	0.00
11,800.00	90.67	0.52	7,210.41	4,785.94	-456.60	4,782.89	0.00	0.00	0.00
11,900.00	90.67	0.52	7,209.24	4,885.93	-455.69	4,882.88	0.00	0.00	0.00
12,000.00	90.67	0.52	7,208.07	4,985.92	-454.79	4,982.87	0.00	0.00	0.00
12,100.00	90.67	0.52	7,206.90	5,085.90	-453.88	5,082.87	0.00	0.00	0.00
12,200.00	90.67	0.52	7,205.73	5,185.89	-452.97	5,182.86	0.00	0.00	0.00
12,300.00	90.67	0.52	7,204.56	5,285.88	-452.07	5,282.85	0.00	0.00	0.00
12,400.00	90.67	0.52	7,203.39	5,385.87	-451.16	5,382.85	0.00	0.00	0.00
12,500.00	90.67	0.52	7,202.22	5,485.86	-450.25	5,482.84	0.00	0.00	0.00
12,600.00	90.67	0.52	7,201.05	5,585.85	-449.35	5,582.83	0.00	0.00	0.00
12,700.00	90.67	0.52	7,199.88	5,685.84	-448.44	5,682.82	0.00	0.00	0.00
12,800.00	90.67	0.52	7,198.71	5,785.83	-447.53	5,782.82	0.00	0.00	0.00
12,900.00	90.67	0.52	7,197.54	5,885.82	-446.63	5,882.81	0.00	0.00	0.00
13,000.00	90.67	0.52	7,196.37	5,985.81	-445.72	5,982.80	0.00	0.00	0.00
13,100.00	90.67	0.52	7,195.20	6,085.80	-444.81	6,082.80	0.00	0.00	0.00
13,200.00	90.67	0.52	7,194.04	6,185.78	-443.91	6,182.79	0.00	0.00	0.00
13,300.00	90.67	0.52	7,192.87	6,285.77	-443.00	6,282.78	0.00	0.00	0.00
13,400.00	90.67	0.52	7,191.70	6,385.76	-442.09	6,382.77	0.00	0.00	0.00
13,500.00	90.67	0.52	7,190.53	6,485.75	-441.19	6,482.77	0.00	0.00	0.00
13,600.00	90.67	0.52	7,189.36	6,585.74	-440.28	6,582.76	0.00	0.00	0.00
13,700.00	90.67	0.52	7,188.19	6,685.73	-439.37	6,682.75	0.00	0.00	0.00
13,800.00	90.67	0.52	7,187.02	6,785.72	-438.46	6,782.75	0.00	0.00	0.00
13,900.00	90.67	0.52	7,185.85	6,885.71	-437.56	6,882.74	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well KEOWN STATE 33N-34HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4889.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4889.00usft (D Rig)
Site:	2N-68W-15 Keown Pad	North Reference:	True
Well:	KEOWN STATE 33N-34HZ	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)	
14,000.00	90.67	0.52	7,184.68	6,985.70	-436.65	6,982.73	0.00	0.00	0.00	
14,100.00	90.67	0.52	7,183.51	7,085.69	-435.74	7,082.72	0.00	0.00	0.00	
14,200.00	90.67	0.52	7,182.34	7,185.67	-434.84	7,182.72	0.00	0.00	0.00	
14,300.00	90.67	0.52	7,181.17	7,285.66	-433.93	7,282.71	0.00	0.00	0.00	
14,400.00	90.67	0.52	7,180.00	7,385.65	-433.02	7,382.70	0.00	0.00	0.00	
14,500.00	90.67	0.52	7,178.83	7,485.64	-432.12	7,482.70	0.00	0.00	0.00	
14,600.00	90.67	0.52	7,177.66	7,585.63	-431.21	7,582.69	0.00	0.00	0.00	
14,700.00	90.67	0.52	7,176.49	7,685.62	-430.30	7,682.68	0.00	0.00	0.00	
14,800.00	90.67	0.52	7,175.33	7,785.61	-429.40	7,782.67	0.00	0.00	0.00	
14,900.00	90.67	0.52	7,174.16	7,885.60	-428.49	7,882.67	0.00	0.00	0.00	
15,000.00	90.67	0.52	7,172.99	7,985.59	-427.58	7,982.66	0.00	0.00	0.00	
15,100.00	90.67	0.52	7,171.82	8,085.58	-426.68	8,082.65	0.00	0.00	0.00	
15,200.00	90.67	0.52	7,170.65	8,185.57	-425.77	8,182.65	0.00	0.00	0.00	
15,300.00	90.67	0.52	7,169.48	8,285.55	-424.86	8,282.64	0.00	0.00	0.00	
15,400.00	90.67	0.52	7,168.31	8,385.54	-423.96	8,382.63	0.00	0.00	0.00	
15,500.00	90.67	0.52	7,167.14	8,485.53	-423.05	8,482.62	0.00	0.00	0.00	
15,600.00	90.67	0.52	7,165.97	8,585.52	-422.14	8,582.62	0.00	0.00	0.00	
15,700.00	90.67	0.52	7,164.80	8,685.51	-421.24	8,682.61	0.00	0.00	0.00	
15,800.00	90.67	0.52	7,163.63	8,785.50	-420.33	8,782.60	0.00	0.00	0.00	
15,900.00	90.67	0.52	7,162.46	8,885.49	-419.42	8,882.59	0.00	0.00	0.00	
16,000.00	90.67	0.52	7,161.29	8,985.48	-418.52	8,982.59	0.00	0.00	0.00	
16,100.00	90.67	0.52	7,160.12	9,085.47	-417.61	9,082.58	0.00	0.00	0.00	
16,200.00	90.67	0.52	7,158.95	9,185.46	-416.70	9,182.57	0.00	0.00	0.00	
16,300.00	90.67	0.52	7,157.79	9,285.44	-415.80	9,282.57	0.00	0.00	0.00	
16,400.00	90.67	0.52	7,156.62	9,385.43	-414.89	9,382.56	0.00	0.00	0.00	
16,500.00	90.67	0.52	7,155.45	9,485.42	-413.98	9,482.55	0.00	0.00	0.00	
16,600.00	90.67	0.52	7,154.28	9,585.41	-413.08	9,582.54	0.00	0.00	0.00	
16,700.00	90.67	0.52	7,153.11	9,685.40	-412.17	9,682.54	0.00	0.00	0.00	
16,800.00	90.67	0.52	7,151.94	9,785.39	-411.26	9,782.53	0.00	0.00	0.00	
16,900.00	90.67	0.52	7,150.77	9,885.38	-410.36	9,882.52	0.00	0.00	0.00	
17,000.00	90.67	0.52	7,149.60	9,985.37	-409.45	9,982.52	0.00	0.00	0.00	
17,100.00	90.67	0.52	7,148.43	10,085.36	-408.54	10,082.51	0.00	0.00	0.00	
17,200.00	90.67	0.52	7,147.26	10,185.35	-407.64	10,182.50	0.00	0.00	0.00	
17,300.00	90.67	0.52	7,146.09	10,285.34	-406.73	10,282.49	0.00	0.00	0.00	
17,400.00	90.67	0.52	7,144.92	10,385.32	-405.82	10,382.49	0.00	0.00	0.00	
17,500.00	90.67	0.52	7,143.75	10,485.31	-404.92	10,482.48	0.00	0.00	0.00	
17,600.00	90.67	0.52	7,142.58	10,585.30	-404.01	10,582.47	0.00	0.00	0.00	
17,700.00	90.67	0.52	7,141.41	10,685.29	-403.10	10,682.47	0.00	0.00	0.00	
17,800.00	90.67	0.52	7,140.25	10,785.28	-402.20	10,782.46	0.00	0.00	0.00	
17,900.00	90.67	0.52	7,139.08	10,885.27	-401.29	10,882.45	0.00	0.00	0.00	
18,000.00	90.67	0.52	7,137.91	10,985.26	-400.38	10,982.44	0.00	0.00	0.00	
18,100.00	90.67	0.52	7,136.74	11,085.25	-399.48	11,082.44	0.00	0.00	0.00	
18,200.00	90.67	0.52	7,135.57	11,185.24	-398.57	11,182.43	0.00	0.00	0.00	
18,300.00	90.67	0.52	7,134.40	11,285.23	-397.66	11,282.42	0.00	0.00	0.00	
18,400.00	90.67	0.52	7,133.23	11,385.22	-396.76	11,382.42	0.00	0.00	0.00	
18,500.00	90.67	0.52	7,132.06	11,485.20	-395.85	11,482.41	0.00	0.00	0.00	
18,600.00	90.67	0.52	7,130.89	11,585.19	-394.94	11,582.40	0.00	0.00	0.00	
18,700.00	90.67	0.52	7,129.72	11,685.18	-394.04	11,682.39	0.00	0.00	0.00	
18,800.00	90.67	0.52	7,128.55	11,785.17	-393.13	11,782.39	0.00	0.00	0.00	
18,900.00	90.67	0.52	7,127.38	11,885.16	-392.22	11,882.38	0.00	0.00	0.00	
19,000.00	90.67	0.52	7,126.21	11,985.15	-391.31	11,982.37	0.00	0.00	0.00	
19,100.00	90.67	0.52	7,125.04	12,085.14	-390.41	12,082.37	0.00	0.00	0.00	
19,200.00	90.67	0.52	7,123.87	12,185.13	-389.50	12,182.36	0.00	0.00	0.00	
19,300.00	90.67	0.52	7,122.71	12,285.12	-388.59	12,282.35	0.00	0.00	0.00	

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well KEOWN STATE 33N-34HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4889.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4889.00usft (D Rig)
Site:	2N-68W-15 Keown Pad	North Reference:	True
Well:	KEOWN STATE 33N-34HZ	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)	
19,400.00	90.67	0.52	7,121.54	12,385.11	-387.69	12,382.34	0.00	0.00	0.00	
19,500.00	90.67	0.52	7,120.37	12,485.09	-386.78	12,482.34	0.00	0.00	0.00	
19,600.00	90.67	0.52	7,119.20	12,585.08	-385.87	12,582.33	0.00	0.00	0.00	
19,700.00	90.67	0.52	7,118.03	12,685.07	-384.97	12,682.32	0.00	0.00	0.00	
19,800.00	90.67	0.52	7,116.86	12,785.06	-384.06	12,782.32	0.00	0.00	0.00	
19,900.00	90.67	0.52	7,115.69	12,885.05	-383.15	12,882.31	0.00	0.00	0.00	
20,000.00	90.67	0.52	7,114.52	12,985.04	-382.25	12,982.30	0.00	0.00	0.00	
20,100.00	90.67	0.52	7,113.35	13,085.03	-381.34	13,082.29	0.00	0.00	0.00	
20,200.00	90.67	0.52	7,112.18	13,185.02	-380.43	13,182.29	0.00	0.00	0.00	
20,300.00	90.67	0.52	7,111.01	13,285.01	-379.53	13,282.28	0.00	0.00	0.00	
20,400.00	90.67	0.52	7,109.84	13,385.00	-378.62	13,382.27	0.00	0.00	0.00	
20,500.00	90.67	0.52	7,108.67	13,484.99	-377.71	13,482.26	0.00	0.00	0.00	
20,600.00	90.67	0.52	7,107.50	13,584.97	-376.81	13,582.26	0.00	0.00	0.00	
20,700.00	90.67	0.52	7,106.33	13,684.96	-375.90	13,682.25	0.00	0.00	0.00	
20,800.00	90.67	0.52	7,105.16	13,784.95	-374.99	13,782.24	0.00	0.00	0.00	
20,814.10	90.67	0.52	7,105.00	13,799.05	-374.87	13,796.34	0.00	0.00	0.00	
KEOWN STATE 33N-34HZ_PBHL										

Design Targets									
Target Name	- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	
	- Shape								Latitude Longitude
KEOWN STATE 33N-	- plan hits target center	0.00	0.00	7,105.00	13,799.05	-374.87	14,591,909.00	1,641,206.00	40.178982 -104.997174
	- Point								
KEOWN STATE 33N-	- plan hits target center	0.00	0.00	7,258.84	644.04	-494.16	14,578,753.99	1,641,087.32	40.142857 -104.997600
	- Point								

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,506.42	1,500.00	9 5/8"	9-5/8	13-1/2	
7,657.65	7,258.84	Top of Production	5-1/2	8-1/2	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
746.35	745.00	Fox Hills Mkr				
3,781.59	3,760.00	Parkman				
4,523.53	4,497.00	Sussex				
7,139.79	7,065.00	Sharon Springs				
7,285.04	7,157.00	Niobrara				
7,438.47	7,224.00	Nio B				

Corporate Planning Report

Database: PLANNING
Company: US ROCKIES WATTENBERG PLANNING
Project: WELD-NAD83-UTMFT13N
Site: 2N-68W-15 Keown Pad
Well: KEOWN STATE 33N-34HZ
Wellbore: Plan A
Design: Permit Rev-2

Local Co-ordinate Reference: Well KEOWN STATE 33N-34HZ
TVD Reference: RKB = 17' @ 4889.00usft (D Rig)
MD Reference: RKB = 17' @ 4889.00usft (D Rig)
North Reference: True
Survey Calculation Method: Minimum Curvature