

US ROCKIES WATTENBERG PLANNING

**WELD-NAD83-UTMFT13N
2N-68W-15 Keown Pad
KEOWN STATE 13N-3HZ**

Plan A

Plan: Permit Rev-1

Standard Planning Report

12 August, 2015

Project: WELD-NAD83-UTMFT13N
Site: 2N-68W-15 Keown Pad
Well: KEOWN STATE 13N-3HZ
Wellbore: Plan A
Design: Permit Rev-1

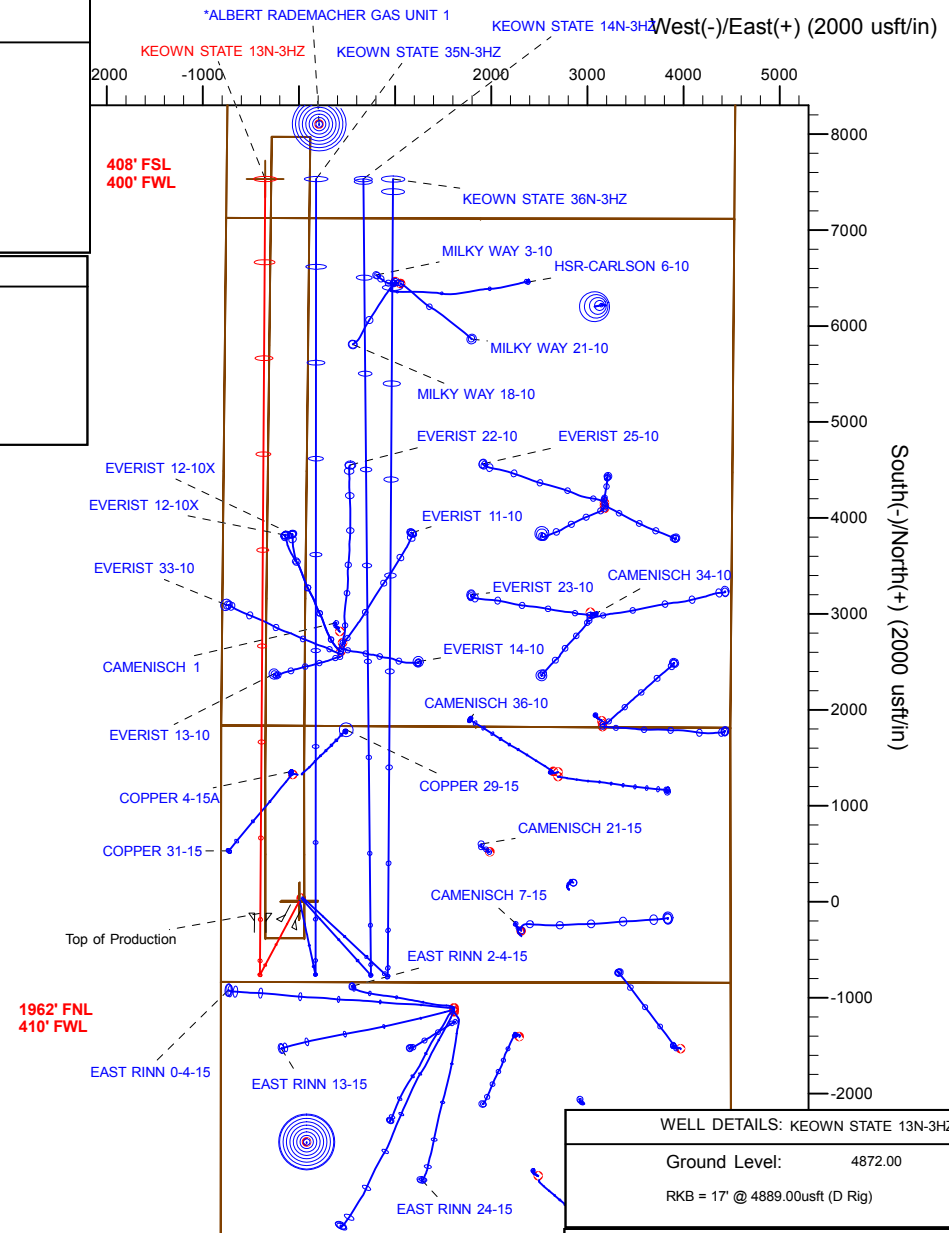
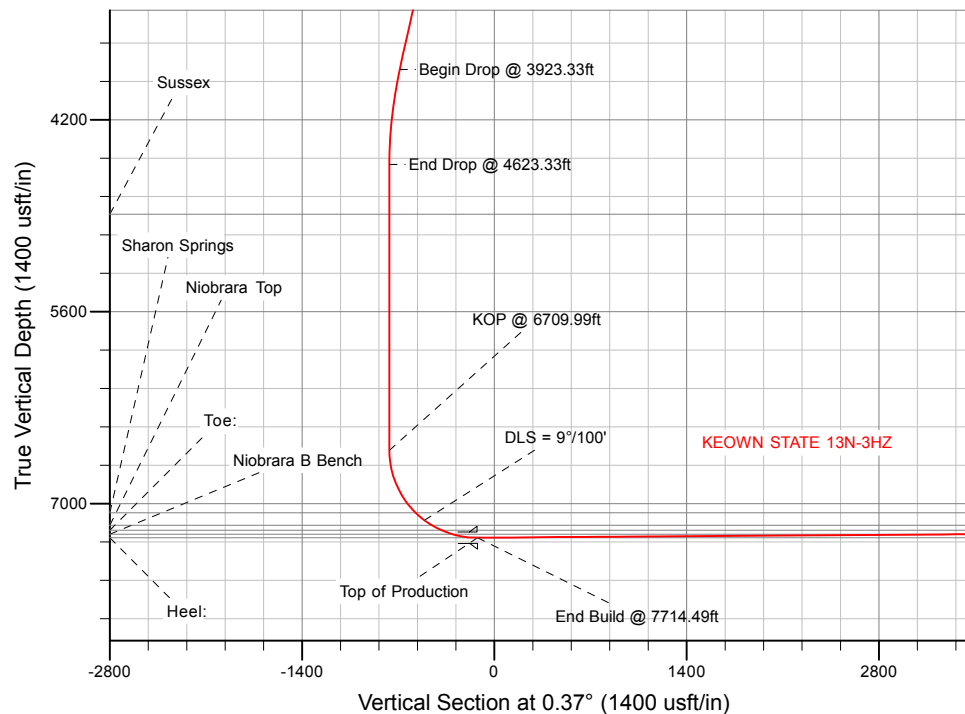
US ROCKIES WATTENBERG PLANNING

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	
3	1183.33	14.00	208.00	1174.07	-100.18	-53.27	1.50	208.00	-100.52	
4	3923.33	14.00	208.00	3832.68	-685.46	-364.46	0.00	0.00	-687.80	
5	4623.33	0.00	0.00	4525.74	-760.59	-404.41	2.00	180.00	-763.19	
6	6709.99	0.00	0.00	6612.40	-760.59	-404.41	0.00	0.00	-763.19	
7	7714.49	90.40	0.37	7249.00	-119.49	-400.28	9.00	0.37	-122.08	
8	15367.50	90.40	0.37	7195.00	7533.17	-350.89	0.00	0.00	7530.75	Keown State 13N-3HZ_Toe

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
Keown State 13N-3HZ_SHL	0.00	0.00	0.00	40.141088	-104.995832
Keown State 13N-3HZ_Toe	7195.00	7533.17	-350.89	40.161775	-104.997088



WELL DETAILS: KEOWN STATE 13N-3HZ

Ground Level: 4872.00

RKB = 17' @ 4889.00usft (D Rig)

Plan: Permit Rev-1 (KEOWN STATE 13N-3HZ/Plan A)

Created By: Clint Eshelman

Date: 8/12/2015

Reviewed: _____

Date: _____

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well KEOWN STATE 13N-3HZ
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 13N-3HZ	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		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 13N-3HZ					
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-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	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	
1,183.33	14.00	208.00	1,174.07	-100.18	-53.27	1.50	1.50	0.00	208.00	
3,923.33	14.00	208.00	3,832.68	-685.46	-364.46	0.00	0.00	0.00	0.00	
4,623.33	0.00	0.00	4,525.74	-760.59	-404.41	2.00	-2.00	0.00	180.00	
6,709.99	0.00	0.00	6,612.40	-760.59	-404.41	0.00	0.00	0.00	0.00	
7,714.49	90.40	0.37	7,249.00	-119.49	-400.28	9.00	9.00	0.04	0.37	
15,367.50	90.40	0.37	7,195.00	7,533.17	-350.89	0.00	0.00	0.00	0.00	Keown State 13N-3HZ

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Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well KEOWN STATE 13N-3HZ
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 13N-3HZ	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
2N-R68W-Sec. 15_Section Lines - Keown State 13N-3HZ_SHL - KEOWN STATE Half section line - 2N-R68W-Sec. 3_Section Lines - Keown									
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
Begin Nudge @ 250.00ft									
300.00	0.75	208.00	300.00	-0.29	-0.15	-0.29	1.50	1.50	0.00
400.00	2.25	208.00	399.96	-2.60	-1.38	-2.61	1.50	1.50	0.00
500.00	3.75	208.00	499.82	-7.22	-3.84	-7.25	1.50	1.50	0.00
600.00	5.25	208.00	599.51	-14.15	-7.52	-14.20	1.50	1.50	0.00
700.00	6.75	208.00	698.96	-23.38	-12.43	-23.46	1.50	1.50	0.00
746.40	7.45	208.00	745.00	-28.44	-15.12	-28.54	1.50	1.50	0.00
Fox Hills									
800.00	8.25	208.00	798.10	-34.90	-18.56	-35.02	1.50	1.50	0.00
900.00	9.75	208.00	896.87	-48.71	-25.90	-48.88	1.50	1.50	0.00
1,000.00	11.25	208.00	995.19	-64.80	-34.46	-65.02	1.50	1.50	0.00
1,100.00	12.75	208.00	1,093.00	-83.16	-44.22	-83.44	1.50	1.50	0.00
1,183.33	14.00	208.00	1,174.07	-100.18	-53.27	-100.52	1.50	1.50	0.00
End Nudge @ 1183.33ft									
1,200.00	14.00	208.00	1,190.25	-103.74	-55.16	-104.10	0.00	0.00	0.00
1,300.00	14.00	208.00	1,287.27	-125.10	-66.52	-125.53	0.00	0.00	0.00
1,400.00	14.00	208.00	1,384.30	-146.46	-77.88	-146.96	0.00	0.00	0.00
1,500.00	14.00	208.00	1,481.33	-167.82	-89.23	-168.40	0.00	0.00	0.00
1,600.00	14.00	208.00	1,578.36	-189.18	-100.59	-189.83	0.00	0.00	0.00
1,700.00	14.00	208.00	1,675.39	-210.54	-111.95	-211.26	0.00	0.00	0.00
1,800.00	14.00	208.00	1,772.42	-231.90	-123.31	-232.70	0.00	0.00	0.00
1,828.42	14.00	208.00	1,800.00	-237.97	-126.53	-238.79	0.00	0.00	0.00
9 5/8"									
1,900.00	14.00	208.00	1,869.45	-253.26	-134.66	-254.13	0.00	0.00	0.00
2,000.00	14.00	208.00	1,966.48	-274.62	-146.02	-275.56	0.00	0.00	0.00
2,100.00	14.00	208.00	2,063.51	-295.98	-157.38	-297.00	0.00	0.00	0.00
2,200.00	14.00	208.00	2,160.54	-317.35	-168.74	-318.43	0.00	0.00	0.00
2,300.00	14.00	208.00	2,257.57	-338.71	-180.09	-339.86	0.00	0.00	0.00
2,400.00	14.00	208.00	2,354.60	-360.07	-191.45	-361.30	0.00	0.00	0.00
2,500.00	14.00	208.00	2,451.63	-381.43	-202.81	-382.73	0.00	0.00	0.00
2,600.00	14.00	208.00	2,548.66	-402.79	-214.17	-404.16	0.00	0.00	0.00
2,700.00	14.00	208.00	2,645.69	-424.15	-225.52	-425.60	0.00	0.00	0.00
2,800.00	14.00	208.00	2,742.72	-445.51	-236.88	-447.03	0.00	0.00	0.00
2,900.00	14.00	208.00	2,839.75	-466.87	-248.24	-468.46	0.00	0.00	0.00
3,000.00	14.00	208.00	2,936.78	-488.23	-259.60	-489.90	0.00	0.00	0.00
3,100.00	14.00	208.00	3,033.81	-509.59	-270.95	-511.33	0.00	0.00	0.00
3,200.00	14.00	208.00	3,130.84	-530.95	-282.31	-532.76	0.00	0.00	0.00
3,300.00	14.00	208.00	3,227.87	-552.31	-293.67	-554.20	0.00	0.00	0.00
3,400.00	14.00	208.00	3,324.90	-573.67	-305.03	-575.63	0.00	0.00	0.00
3,500.00	14.00	208.00	3,421.93	-595.03	-316.38	-597.06	0.00	0.00	0.00
3,600.00	14.00	208.00	3,518.95	-616.39	-327.74	-618.50	0.00	0.00	0.00
3,700.00	14.00	208.00	3,615.98	-637.75	-339.10	-639.93	0.00	0.00	0.00
3,800.00	14.00	208.00	3,713.01	-659.11	-350.46	-661.36	0.00	0.00	0.00
3,900.00	14.00	208.00	3,810.04	-680.47	-361.81	-682.80	0.00	0.00	0.00
3,923.33	14.00	208.00	3,832.68	-685.46	-364.46	-687.80	0.00	0.00	0.00
Begin Drop @ 3923.33ft									
4,000.00	12.47	208.00	3,907.31	-700.95	-372.70	-703.34	2.00	-2.00	0.00
4,100.00	10.47	208.00	4,005.31	-718.50	-382.04	-720.96	2.00	-2.00	0.00

Anadarko

Planning Report

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Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4889.00usft (D Rig)
Site:	2N-68W-15 Keown Pad	North Reference:	True
Well:	KEOWN STATE 13N-3HZ	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)
4,200.00	8.47	208.00	4,103.94	-733.03	-389.76	-735.53	2.00	-2.00	0.00
4,300.00	6.47	208.00	4,203.09	-744.50	-395.86	-747.04	2.00	-2.00	0.00
4,400.00	4.47	208.00	4,302.63	-752.91	-400.33	-755.48	2.00	-2.00	0.00
4,500.00	2.47	208.00	4,402.44	-758.25	-403.17	-760.84	2.00	-2.00	0.00
4,600.00	0.47	208.00	4,502.41	-760.51	-404.37	-763.10	2.00	-2.00	0.00
4,623.33	0.00	208.00	4,525.74	-760.59	-404.41	-763.19	2.00	-2.00	0.00
End Drop @ 4623.33ft									
4,700.00	0.00	0.00	4,602.41	-760.59	-404.41	-763.19	0.00	0.00	0.00
4,800.00	0.00	0.00	4,702.41	-760.59	-404.41	-763.19	0.00	0.00	0.00
4,900.00	0.00	0.00	4,802.41	-760.59	-404.41	-763.19	0.00	0.00	0.00
4,986.59	0.00	0.00	4,889.00	-760.59	-404.41	-763.19	0.00	0.00	0.00
Sussex									
5,000.00	0.00	0.00	4,902.41	-760.59	-404.41	-763.19	0.00	0.00	0.00
5,100.00	0.00	0.00	5,002.41	-760.59	-404.41	-763.19	0.00	0.00	0.00
5,200.00	0.00	0.00	5,102.41	-760.59	-404.41	-763.19	0.00	0.00	0.00
5,300.00	0.00	0.00	5,202.41	-760.59	-404.41	-763.19	0.00	0.00	0.00
5,400.00	0.00	0.00	5,302.41	-760.59	-404.41	-763.19	0.00	0.00	0.00
5,500.00	0.00	0.00	5,402.41	-760.59	-404.41	-763.19	0.00	0.00	0.00
5,600.00	0.00	0.00	5,502.41	-760.59	-404.41	-763.19	0.00	0.00	0.00
5,700.00	0.00	0.00	5,602.41	-760.59	-404.41	-763.19	0.00	0.00	0.00
5,800.00	0.00	0.00	5,702.41	-760.59	-404.41	-763.19	0.00	0.00	0.00
5,900.00	0.00	0.00	5,802.41	-760.59	-404.41	-763.19	0.00	0.00	0.00
6,000.00	0.00	0.00	5,902.41	-760.59	-404.41	-763.19	0.00	0.00	0.00
6,100.00	0.00	0.00	6,002.41	-760.59	-404.41	-763.19	0.00	0.00	0.00
6,200.00	0.00	0.00	6,102.41	-760.59	-404.41	-763.19	0.00	0.00	0.00
6,300.00	0.00	0.00	6,202.41	-760.59	-404.41	-763.19	0.00	0.00	0.00
6,400.00	0.00	0.00	6,302.41	-760.59	-404.41	-763.19	0.00	0.00	0.00
6,500.00	0.00	0.00	6,402.41	-760.59	-404.41	-763.19	0.00	0.00	0.00
6,600.00	0.00	0.00	6,502.41	-760.59	-404.41	-763.19	0.00	0.00	0.00
6,700.00	0.00	0.00	6,602.41	-760.59	-404.41	-763.19	0.00	0.00	0.00
6,709.99	0.00	0.00	6,612.40	-760.59	-404.41	-763.19	0.00	0.00	0.00
KOP @ 6709.99ft									
6,800.00	8.10	0.37	6,702.11	-754.24	-404.37	-756.84	9.00	9.00	0.00
6,900.00	17.10	0.37	6,799.60	-732.45	-404.23	-735.04	9.00	9.00	0.00
7,000.00	26.10	0.37	6,892.48	-695.67	-404.00	-698.27	9.00	9.00	0.00
7,100.00	35.10	0.37	6,978.46	-644.82	-403.67	-647.42	9.00	9.00	0.00
7,200.00	44.10	0.37	7,055.44	-581.15	-403.26	-583.74	9.00	9.00	0.00
7,216.89	45.62	0.37	7,067.41	-569.23	-403.18	-571.83	9.00	9.00	0.00
Sharon Springs									
7,300.00	53.10	0.37	7,121.50	-506.21	-402.77	-508.80	9.00	9.00	0.00
DLS = 9°/100'									
7,366.17	59.06	0.37	7,158.41	-451.33	-402.42	-453.92	9.00	9.00	0.00
Niobrara Top									
7,400.00	62.10	0.37	7,175.02	-421.87	-402.23	-424.46	9.00	9.00	0.00
7,500.00	71.10	0.37	7,214.70	-330.19	-401.64	-332.77	9.00	9.00	0.00
7,531.40	73.93	0.37	7,224.13	-300.24	-401.44	-302.83	9.00	9.00	0.00
Niobrara B Bench									
7,600.00	80.10	0.37	7,239.54	-233.43	-401.01	-236.02	9.00	9.00	0.00
7,700.00	89.10	0.37	7,248.94	-133.98	-400.37	-136.56	9.00	9.00	0.00
7,714.49	90.40	0.37	7,249.00	-119.49	-400.28	-122.07	9.00	9.00	0.00
End Build @ 7714.49ft - Heel: - Top of Production									
7,800.00	90.40	0.37	7,248.40	-33.98	-399.73	-36.56	0.00	0.00	0.00
7,900.00	90.40	0.37	7,247.69	66.01	-399.08	63.43	0.00	0.00	0.00

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well KEOWN STATE 13N-3HZ
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 13N-3HZ	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)	
8,000.00	90.40	0.37	7,246.99	166.01	-398.43	163.43	0.00	0.00	0.00	
8,100.00	90.40	0.37	7,246.28	266.00	-397.79	263.43	0.00	0.00	0.00	
8,200.00	90.40	0.37	7,245.58	366.00	-397.14	363.43	0.00	0.00	0.00	
8,300.00	90.40	0.37	7,244.87	465.99	-396.50	463.42	0.00	0.00	0.00	
8,400.00	90.40	0.37	7,244.17	565.99	-395.85	563.42	0.00	0.00	0.00	
8,500.00	90.40	0.37	7,243.46	665.98	-395.21	663.42	0.00	0.00	0.00	
8,600.00	90.40	0.37	7,242.75	765.98	-394.56	763.42	0.00	0.00	0.00	
8,700.00	90.40	0.37	7,242.05	865.98	-393.92	863.41	0.00	0.00	0.00	
8,800.00	90.40	0.37	7,241.34	965.97	-393.27	963.41	0.00	0.00	0.00	
8,900.00	90.40	0.37	7,240.64	1,065.97	-392.63	1,063.41	0.00	0.00	0.00	
9,000.00	90.40	0.37	7,239.93	1,165.96	-391.98	1,163.41	0.00	0.00	0.00	
9,100.00	90.40	0.37	7,239.23	1,265.96	-391.34	1,263.40	0.00	0.00	0.00	
9,200.00	90.40	0.37	7,238.52	1,365.95	-390.69	1,363.40	0.00	0.00	0.00	
9,300.00	90.40	0.37	7,237.82	1,465.95	-390.05	1,463.40	0.00	0.00	0.00	
9,400.00	90.40	0.37	7,237.11	1,565.94	-389.40	1,563.40	0.00	0.00	0.00	
9,500.00	90.40	0.37	7,236.40	1,665.94	-388.75	1,663.39	0.00	0.00	0.00	
9,600.00	90.40	0.37	7,235.70	1,765.93	-388.11	1,763.39	0.00	0.00	0.00	
9,700.00	90.40	0.37	7,234.99	1,865.93	-387.46	1,863.39	0.00	0.00	0.00	
9,800.00	90.40	0.37	7,234.29	1,965.93	-386.82	1,963.39	0.00	0.00	0.00	
9,900.00	90.40	0.37	7,233.58	2,065.92	-386.17	2,063.38	0.00	0.00	0.00	
10,000.00	90.40	0.37	7,232.88	2,165.92	-385.53	2,163.38	0.00	0.00	0.00	
10,100.00	90.40	0.37	7,232.17	2,265.91	-384.88	2,263.38	0.00	0.00	0.00	
10,200.00	90.40	0.37	7,231.46	2,365.91	-384.24	2,363.38	0.00	0.00	0.00	
10,300.00	90.40	0.37	7,230.76	2,465.90	-383.59	2,463.37	0.00	0.00	0.00	
10,400.00	90.40	0.37	7,230.05	2,565.90	-382.95	2,563.37	0.00	0.00	0.00	
10,500.00	90.40	0.37	7,229.35	2,665.89	-382.30	2,663.37	0.00	0.00	0.00	
10,600.00	90.40	0.37	7,228.64	2,765.89	-381.66	2,763.37	0.00	0.00	0.00	
10,700.00	90.40	0.37	7,227.94	2,865.88	-381.01	2,863.36	0.00	0.00	0.00	
10,800.00	90.40	0.37	7,227.23	2,965.88	-380.37	2,963.36	0.00	0.00	0.00	
10,900.00	90.40	0.37	7,226.52	3,065.87	-379.72	3,063.36	0.00	0.00	0.00	
11,000.00	90.40	0.37	7,225.82	3,165.87	-379.07	3,163.36	0.00	0.00	0.00	
11,100.00	90.40	0.37	7,225.11	3,265.87	-378.43	3,263.35	0.00	0.00	0.00	
11,200.00	90.40	0.37	7,224.41	3,365.86	-377.78	3,363.35	0.00	0.00	0.00	
11,300.00	90.40	0.37	7,223.70	3,465.86	-377.14	3,463.35	0.00	0.00	0.00	
11,400.00	90.40	0.37	7,223.00	3,565.85	-376.49	3,563.35	0.00	0.00	0.00	
11,500.00	90.40	0.37	7,222.29	3,665.85	-375.85	3,663.34	0.00	0.00	0.00	
11,600.00	90.40	0.37	7,221.59	3,765.84	-375.20	3,763.34	0.00	0.00	0.00	
11,700.00	90.40	0.37	7,220.88	3,865.84	-374.56	3,863.34	0.00	0.00	0.00	
11,800.00	90.40	0.37	7,220.17	3,965.83	-373.91	3,963.34	0.00	0.00	0.00	
11,900.00	90.40	0.37	7,219.47	4,065.83	-373.27	4,063.33	0.00	0.00	0.00	
12,000.00	90.40	0.37	7,218.76	4,165.82	-372.62	4,163.33	0.00	0.00	0.00	
12,100.00	90.40	0.37	7,218.06	4,265.82	-371.98	4,263.33	0.00	0.00	0.00	
12,200.00	90.40	0.37	7,217.35	4,365.82	-371.33	4,363.33	0.00	0.00	0.00	
12,300.00	90.40	0.37	7,216.65	4,465.81	-370.69	4,463.32	0.00	0.00	0.00	
12,400.00	90.40	0.37	7,215.94	4,565.81	-370.04	4,563.32	0.00	0.00	0.00	
12,500.00	90.40	0.37	7,215.23	4,665.80	-369.39	4,663.32	0.00	0.00	0.00	
12,600.00	90.40	0.37	7,214.53	4,765.80	-368.75	4,763.32	0.00	0.00	0.00	
12,700.00	90.40	0.37	7,213.82	4,865.79	-368.10	4,863.31	0.00	0.00	0.00	
12,800.00	90.40	0.37	7,213.12	4,965.79	-367.46	4,963.31	0.00	0.00	0.00	
12,900.00	90.40	0.37	7,212.41	5,065.78	-366.81	5,063.31	0.00	0.00	0.00	
13,000.00	90.40	0.37	7,211.71	5,165.78	-366.17	5,163.31	0.00	0.00	0.00	
13,100.00	90.40	0.37	7,211.00	5,265.77	-365.52	5,263.30	0.00	0.00	0.00	
13,200.00	90.40	0.37	7,210.29	5,365.77	-364.88	5,363.30	0.00	0.00	0.00	
13,300.00	90.40	0.37	7,209.59	5,465.77	-364.23	5,463.30	0.00	0.00	0.00	

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Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well KEOWN STATE 13N-3HZ
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 13N-3HZ	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)
13,400.00	90.40	0.37	7,208.88	5,565.76	-363.59	5,563.30	0.00	0.00	0.00
13,500.00	90.40	0.37	7,208.18	5,665.76	-362.94	5,663.29	0.00	0.00	0.00
13,600.00	90.40	0.37	7,207.47	5,765.75	-362.30	5,763.29	0.00	0.00	0.00
13,700.00	90.40	0.37	7,206.77	5,865.75	-361.65	5,863.29	0.00	0.00	0.00
13,800.00	90.40	0.37	7,206.06	5,965.74	-361.01	5,963.29	0.00	0.00	0.00
13,900.00	90.40	0.37	7,205.36	6,065.74	-360.36	6,063.28	0.00	0.00	0.00
14,000.00	90.40	0.37	7,204.65	6,165.73	-359.71	6,163.28	0.00	0.00	0.00
14,100.00	90.40	0.37	7,203.94	6,265.73	-359.07	6,263.28	0.00	0.00	0.00
14,200.00	90.40	0.37	7,203.24	6,365.72	-358.42	6,363.28	0.00	0.00	0.00
14,300.00	90.40	0.37	7,202.53	6,465.72	-357.78	6,463.27	0.00	0.00	0.00
14,400.00	90.40	0.37	7,201.83	6,565.71	-357.13	6,563.27	0.00	0.00	0.00
14,500.00	90.40	0.37	7,201.12	6,665.71	-356.49	6,663.27	0.00	0.00	0.00
14,600.00	90.40	0.37	7,200.42	6,765.71	-355.84	6,763.27	0.00	0.00	0.00
14,700.00	90.40	0.37	7,199.71	6,865.70	-355.20	6,863.26	0.00	0.00	0.00
14,800.00	90.40	0.37	7,199.00	6,965.70	-354.55	6,963.26	0.00	0.00	0.00
14,900.00	90.40	0.37	7,198.30	7,065.69	-353.91	7,063.26	0.00	0.00	0.00
15,000.00	90.40	0.37	7,197.59	7,165.69	-353.26	7,163.26	0.00	0.00	0.00
15,100.00	90.40	0.37	7,196.89	7,265.68	-352.62	7,263.25	0.00	0.00	0.00
15,200.00	90.40	0.37	7,196.18	7,365.68	-351.97	7,363.25	0.00	0.00	0.00
15,300.00	90.40	0.37	7,195.48	7,465.67	-351.33	7,463.25	0.00	0.00	0.00
15,367.49	90.40	0.37	7,195.00	7,533.16	-350.89	7,530.74	0.00	0.00	0.00
Toe:									
15,367.50	90.40	0.37	7,195.00	7,533.17	-350.89	7,530.75	0.00	0.00	0.00
TD Well @ 15367.50ft - Keown State 13N-3HZ_Toe									

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Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well KEOWN STATE 13N-3HZ
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 13N-3HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
2N-R68W-Sec. 15_Secti	0.00	0.00	0.00	0.00	0.00	14,578,109.97	1,641,581.51	40.141088	-104.995832
- plan hits target center									
- Polygon									
Point 1			0.00	1,838.97	-809.58	14,579,948.90	1,640,771.84		
Point 2			0.00	1,825.91	1,838.52	14,579,935.96	1,643,419.94		
Point 3			0.00	1,813.87	4,487.46	14,579,924.05	1,646,068.88		
Point 4			0.00	-845.15	4,491.86	14,577,265.03	1,646,073.41		
Point 5			0.00	-3,504.52	4,495.41	14,574,605.66	1,646,077.08		
Point 6			0.00	-3,497.58	1,841.43	14,574,612.47	1,643,423.10		
Point 7			0.00	-3,492.17	-813.11	14,574,617.76	1,640,768.56		
Point 8			0.00	-835.71	-811.34	14,577,274.22	1,640,770.21		
Keown State 13N-3HZ_5	0.00	0.00	0.00	0.00	0.00	14,578,109.97	1,641,581.51	40.141088	-104.995832
- plan hits target center									
- Point									
KEOWN STATE Half sec	0.00	0.00	0.00	12.38	8.66	14,578,122.35	1,641,590.17	40.141122	-104.995801
- plan misses target center by 15.11usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1			0.00	-848.09	-820.01	14,577,274.22	1,640,770.20		
Point 2			0.00	-857.53	4,483.19	14,577,265.03	1,646,073.40		
2N-R68W-Sec. 3_Sectio	0.00	0.00	0.00	0.00	0.00	14,578,109.97	1,641,581.51	40.141088	-104.995832
- plan hits target center									
- Polygon									
Point 1			0.00	12,346.53	-703.08	14,590,456.46	1,640,877.85		
Point 2			0.00	12,327.66	1,945.29	14,590,437.72	1,643,526.22		
Point 3			0.00	12,348.39	4,570.76	14,590,458.57	1,646,151.69		
Point 4			0.00	9,783.31	4,550.84	14,587,893.49	1,646,131.89		
Point 5			0.00	7,116.64	4,529.53	14,585,226.82	1,646,110.71		
Point 6			0.00	7,121.75	1,889.82	14,585,231.81	1,643,471.00		
Point 7			0.00	7,126.42	-756.60	14,585,236.35	1,640,824.58		
Keown State 13N-3HZ_I	0.00	0.00	0.00	0.00	0.00	14,578,109.97	1,641,581.51	40.141088	-104.995832
- plan hits target center									
- Polygon									
Point 1			0.00	7,973.70	-282.39	14,586,083.65	1,641,298.75		
Point 2			0.00	7,971.34	119.66	14,586,081.31	1,641,700.80		
Point 3			0.00	7,122.49	109.52	14,585,232.46	1,641,690.70		
Point 4			0.00	5,807.88	95.20	14,583,917.85	1,641,676.44		
Point 5			0.00	4,493.28	80.89	14,582,603.25	1,641,662.19		
Point 6			0.00	3,164.03	67.71	14,581,274.00	1,641,649.07		
Point 7			0.00	1,834.78	54.52	14,579,944.75	1,641,635.94		
Point 8			0.00	497.56	55.87	14,578,607.53	1,641,637.36		
Point 9			0.00	-379.66	56.76	14,577,730.31	1,641,638.29		
Point 10			0.00	-378.92	-348.64	14,577,731.03	1,641,232.89		
Point 11			0.00	498.90	-348.99	14,578,608.85	1,641,232.50		
Point 12			0.00	1,836.73	-349.53	14,579,946.68	1,641,231.89		
Point 13			0.00	3,165.60	-336.20	14,581,275.55	1,641,245.16		
Point 14			0.00	4,490.70	-322.91	14,582,600.65	1,641,258.39		
Point 15			0.00	5,804.80	-308.32	14,583,914.75	1,641,272.92		
Point 16			0.00	7,123.20	-293.67	14,585,233.15	1,641,287.51		
Point 17			0.00	7,973.70	-282.39	14,586,083.65	1,641,298.75		
2N-R68W-Sec. 10_Secti	0.00	0.00	0.00	0.00	0.00	14,578,109.97	1,641,581.51	40.141088	-104.995832
- plan hits target center									
- Polygon									
Point 1			0.00	7,126.42	-756.60	14,585,236.35	1,640,824.58		
Point 2			0.00	7,121.75	1,889.82	14,585,231.81	1,643,471.00		
Point 3			0.00	7,116.64	4,529.53	14,585,226.82	1,646,110.71		

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well KEOWN STATE 13N-3HZ
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 13N-3HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Point 4	0.00	4,479.82	4,509.34	14,582,590.00	1,646,090.64				
Point 5	0.00	1,813.87	4,487.46	14,579,924.05	1,646,068.88				
Point 6	0.00	1,825.91	1,838.52	14,579,935.96	1,643,419.94				
Point 7	0.00	1,838.97	-809.58	14,579,948.90	1,640,771.84				
Point 8	0.00	4,495.81	-782.94	14,582,605.74	1,640,798.36				
Keown State 13N-3HZ_	0.00	0.00	7,195.00	7,533.17	-350.89	14,585,643.12	1,641,230.27	40.161775	-104.997088
- plan hits target center									
- Point									

Casing Points						
Measured Depth (usft)	Vertical Depth (usft)	Name		Casing Diameter (")	Hole Diameter (")	
1,828.42	1,800.00	9 5/8"		9-5/8	13-1/2	
7,714.49	7,249.00	Top of Production		5-1/2	7-7/8	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
746.40	745.00	Fox Hills		0.00		
4,986.59	4,889.00	Sussex		0.00		
7,216.89	7,067.41	Sharon Springs		0.00		
7,366.17	7,158.41	Niobrara Top		0.00		
15,367.49	7,195.00	Toe:		0.00		
7,531.40	7,224.13	Niobrara B Bench		0.00		
7,714.49	7,249.00	Heel:		0.00		

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
250.00	250.00	0.00	0.00	Begin Nudge @ 250.00ft	
1,183.33	1,174.07	-100.18	-53.27	End Nudge @ 1183.33ft	
3,923.33	3,832.68	-685.46	-364.46	Begin Drop @ 3923.33ft	
4,623.33	4,525.74	-760.59	-404.41	End Drop @ 4623.33ft	
6,709.99	6,612.40	-760.59	-404.41	KOP @ 6709.99ft	
7,300.00	7,121.50	-506.21	-402.77	DLS = 9°/100'	
7,714.49	7,249.00	-119.49	-400.28	End Build @ 7714.49ft	
15,367.50	7,195.00	7,533.17	-350.89	TD Well @ 15367.50ft	