

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

3N-68W-33 Newby 27N-33HZ Pad

NEWBY 28N-33HZ

Plan A

Plan: Permit Rev-1

Standard Survey Report

18 January, 2016

0-1800' MD

APC_ISCWSA REV 2 MWD

1800-12593.06' MD

APC_ISCWSA REV 2 MWD+IFR1+MSA

Project: WELD-NAD83-UTMFT13N
 Site: 3N-68W-33 Newby 27N-33HZ Pad
 Well: NEWBY 28N-33HZ
 Wellbore: Plan A
 Design: Permit Rev-1

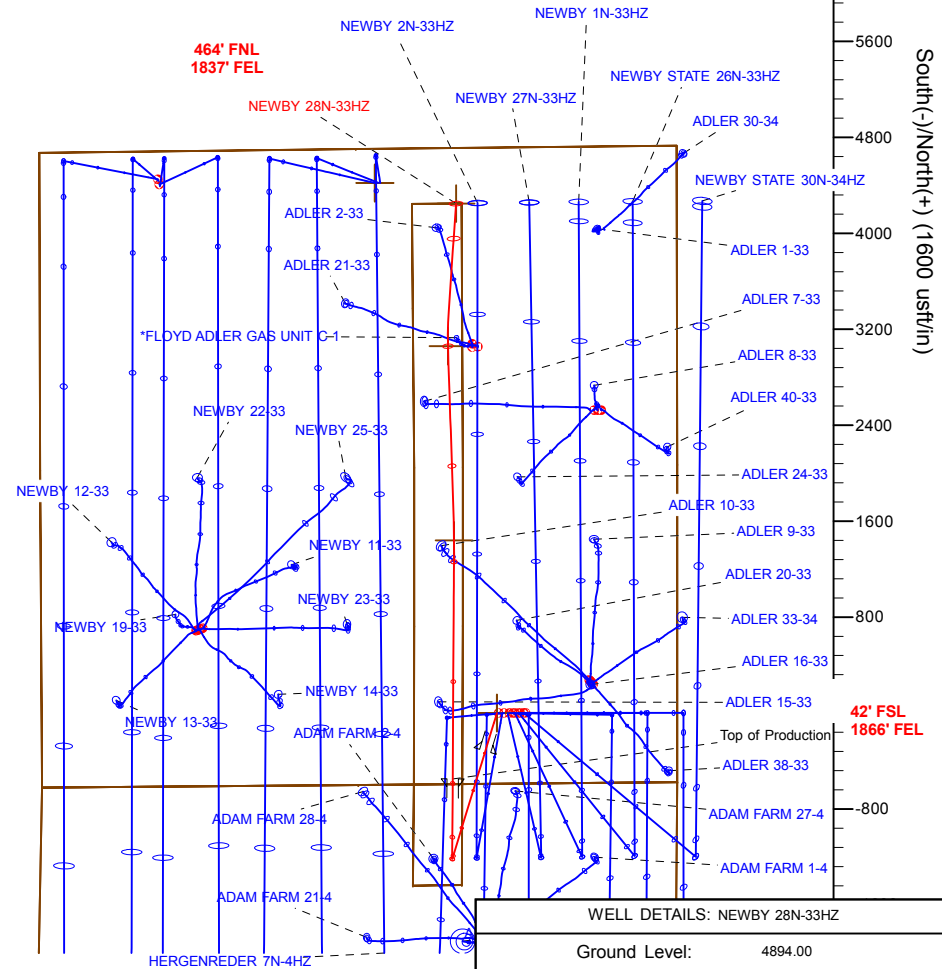
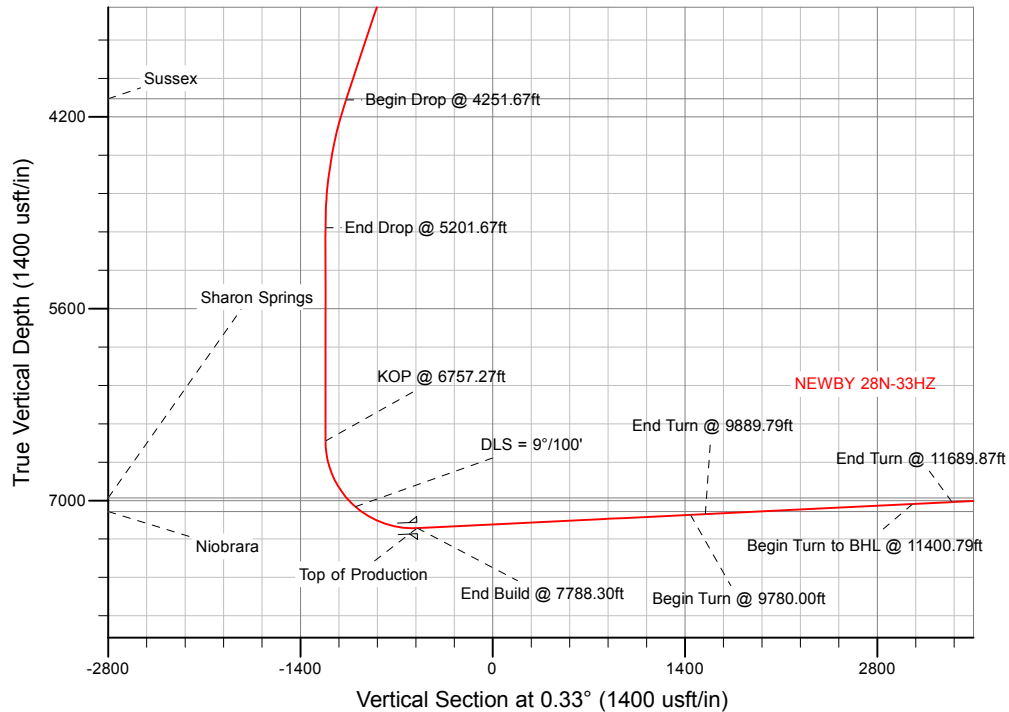
US ROCKIES WATTENBERG PLANNING

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	200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	
3	1466.67	19.00	197.00	1443.58	-199.01	-60.84	1.50	197.00	-199.36	
4	4251.67	19.00	197.00	4076.85	-1066.10	-325.94	0.00	0.00	-1067.96	
5	5201.67	0.00	0.00	5009.53	-1215.36	-371.57	2.00	180.00	-1217.48	
6	6757.27	0.00	0.00	6565.13	-1215.36	-371.57	0.00	0.00	-1217.48	
7	7788.30	92.79	0.33	7201.00	-547.73	-367.69	9.00	0.33	-549.83	
8	9780.00	92.79	0.33	7103.94	1441.57	-356.14	0.00	0.00	1439.49	NEWBY 28N-33HZ_Target 1
9	9889.79	92.79	358.13	7098.59	1551.21	-357.61	2.00	-89.98	1549.13	
10	11400.79	92.79	358.13	7024.99	3059.62	-406.74	0.00	0.00	3057.23	NEWBY 28N-33HZ_Target 2
11	11689.87	92.79	3.92	7010.91	3348.19	-401.56	2.00	89.91	3345.83	
12	12593.06	92.79	3.92	6967.00	4248.20	-339.84	0.00	0.00	4246.17	NEWBY 28N-33HZ_Toe

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
NEWBY 28N-33HZ_SHL	0.00	0.00	0.00	40.176575	-105.003718	Point
NEWBY 28N-33HZ_Toe	6967.00	4248.20	-339.84	40.188241	-105.004935	Point



WELL DETAILS: NEWBY 28N-33HZ	
Ground Level:	4894.00
RKB = 20' @ 4914.00usft (D Rig)	
Plan: Permit Rev-1 (NEWBY 28N-33HZ/Plan A)	
Created By: Clint Eshelman	Date: 1/18/2016
Reviewed:	Date:

Anadarko

Survey Report

Company: US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference: Well NEWBY 28N-33HZ
Project: WELD-NAD83-UTMFT13N	TVD Reference: RKB = 20' @ 4914.00usft (D Rig)
Site: 3N-68W-33 Newby 27N-33HZ Pad	MD Reference: RKB = 20' @ 4914.00usft (D Rig)
Well: NEWBY 28N-33HZ	North Reference: True
Wellbore: Plan A	Survey Calculation Method: Minimum Curvature
Design: Permit Rev-1	Database: PLANNING

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-68W-33 Newby 27N-33HZ Pad		
Site Position:	Northing: 14,591,032.57 usft	Latitude: 40.176575
From: Lat/Long	Easting: 1,639,378.12 usft	Longitude: -105.003718
Position Uncertainty: 0.00 usft	Slot Radius: 13-3/16 "	Grid Convergence: 0.00 °

Well NEWBY 28N-33HZ		
Well Position +N/-S 0.00 usft	Northing: 14,591,032.57 usft	Latitude: 40.176575
+E/-W 0.00 usft	Easting: 1,639,378.12 usft	Longitude: -105.003718
Position Uncertainty 3.28 usft	Wellhead Elevation: 0.00 usft	Ground Level: 4,894.00 usft

Wellbore Plan A					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/14/2016	8.36	66.67	52,506

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	0.33	

Survey Tool Program		Date 1/18/2016		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	1,800.00	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWD	Fixed:v2:standard declination
1,800.00	12,593.06	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWD+	Fixed:v2:Rockies, crustal dec + 3-axis correction

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	
Begin Nudge @ 200.00ft										
300.00	1.50	197.00	299.99	-1.25	-0.38	-1.25	1.50	1.50	0.00	
400.00	3.00	197.00	399.91	-5.01	-1.53	-5.01	1.50	1.50	0.00	
500.00	4.50	197.00	499.69	-11.26	-3.44	-11.28	1.50	1.50	0.00	
600.00	6.00	197.00	599.27	-20.01	-6.12	-20.05	1.50	1.50	0.00	
700.00	7.50	197.00	698.57	-31.25	-9.55	-31.30	1.50	1.50	0.00	
800.00	9.00	197.00	797.54	-44.97	-13.75	-45.05	1.50	1.50	0.00	

Anadarko

Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well NEWBY 28N-33HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	RKB = 20' @ 4914.00usft (D Rig)
Site:	3N-68W-33 Newby 27N-33HZ Pad	MD Reference:	RKB = 20' @ 4914.00usft (D Rig)
Well:	NEWBY 28N-33HZ	North Reference:	True
Wellbore:	Plan A	Survey Calculation Method:	Minimum Curvature
Design:	Permit Rev-1	Database:	PLANNING

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)
821.74	9.33	197.00	819.00	-48.28	-14.76	-48.37	1.50	1.50	0.00
Fox Hills									
900.00	10.50	197.00	896.09	-61.17	-18.70	-61.27	1.50	1.50	0.00
1,000.00	12.00	197.00	994.16	-79.82	-24.40	-79.96	1.50	1.50	0.00
1,100.00	13.50	197.00	1,091.70	-100.93	-30.86	-101.10	1.50	1.50	0.00
1,200.00	15.00	197.00	1,188.62	-124.47	-38.05	-124.68	1.50	1.50	0.00
1,300.00	16.50	197.00	1,284.86	-150.42	-45.99	-150.69	1.50	1.50	0.00
1,400.00	18.00	197.00	1,380.36	-178.78	-54.66	-179.09	1.50	1.50	0.00
1,466.67	19.00	197.00	1,443.58	-199.01	-60.84	-199.36	1.50	1.50	0.00
End Nudge @ 1466.67ft									
1,500.00	19.00	197.00	1,475.10	-209.39	-64.02	-209.75	0.00	0.00	0.00
1,600.00	19.00	197.00	1,569.65	-240.52	-73.54	-240.94	0.00	0.00	0.00
1,700.00	19.00	197.00	1,664.20	-271.66	-83.05	-272.13	0.00	0.00	0.00
1,800.00	19.00	197.00	1,758.75	-302.79	-92.57	-303.32	0.00	0.00	0.00
1,843.63	19.00	197.00	1,800.00	-316.37	-96.73	-316.93	0.00	0.00	0.00
9 5/8"									
1,900.00	19.00	197.00	1,853.30	-333.93	-102.09	-334.51	0.00	0.00	0.00
2,000.00	19.00	197.00	1,947.86	-365.06	-111.61	-365.70	0.00	0.00	0.00
2,100.00	19.00	197.00	2,042.41	-396.19	-121.13	-396.89	0.00	0.00	0.00
2,200.00	19.00	197.00	2,136.96	-427.33	-130.65	-428.07	0.00	0.00	0.00
2,300.00	19.00	197.00	2,231.51	-458.46	-140.17	-459.26	0.00	0.00	0.00
2,400.00	19.00	197.00	2,326.06	-489.60	-149.68	-490.45	0.00	0.00	0.00
2,500.00	19.00	197.00	2,420.61	-520.73	-159.20	-521.64	0.00	0.00	0.00
2,600.00	19.00	197.00	2,515.17	-551.87	-168.72	-552.83	0.00	0.00	0.00
2,700.00	19.00	197.00	2,609.72	-583.00	-178.24	-584.02	0.00	0.00	0.00
2,800.00	19.00	197.00	2,704.27	-614.13	-187.76	-615.20	0.00	0.00	0.00
2,900.00	19.00	197.00	2,798.82	-645.27	-197.28	-646.39	0.00	0.00	0.00
3,000.00	19.00	197.00	2,893.37	-676.40	-206.80	-677.58	0.00	0.00	0.00
3,100.00	19.00	197.00	2,987.93	-707.54	-216.32	-708.77	0.00	0.00	0.00
3,200.00	19.00	197.00	3,082.48	-738.67	-225.83	-739.96	0.00	0.00	0.00
3,300.00	19.00	197.00	3,177.03	-769.80	-235.35	-771.15	0.00	0.00	0.00
3,400.00	19.00	197.00	3,271.58	-800.94	-244.87	-802.34	0.00	0.00	0.00
3,500.00	19.00	197.00	3,366.13	-832.07	-254.39	-833.52	0.00	0.00	0.00
3,600.00	19.00	197.00	3,460.69	-863.21	-263.91	-864.71	0.00	0.00	0.00
3,700.00	19.00	197.00	3,555.24	-894.34	-273.43	-895.90	0.00	0.00	0.00
3,800.00	19.00	197.00	3,649.79	-925.48	-282.95	-927.09	0.00	0.00	0.00
3,900.00	19.00	197.00	3,744.34	-956.61	-292.47	-958.28	0.00	0.00	0.00
4,000.00	19.00	197.00	3,838.89	-987.74	-301.98	-989.47	0.00	0.00	0.00
4,100.00	19.00	197.00	3,933.44	-1,018.88	-311.50	-1,020.66	0.00	0.00	0.00
4,200.00	19.00	197.00	4,028.00	-1,050.01	-321.02	-1,051.84	0.00	0.00	0.00
4,242.31	19.00	197.00	4,068.00	-1,063.19	-325.05	-1,065.04	0.00	0.00	0.00
Sussex									
4,251.67	19.00	197.00	4,076.85	-1,066.10	-325.94	-1,067.96	0.00	0.00	0.00
Begin Drop @ 4251.67ft									

Anadarko Survey Report

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Well:	NEWBY 28N-33HZ	North Reference:	True
Wellbore:	Plan A	Survey Calculation Method:	Minimum Curvature
Design:	Permit Rev-1	Database:	PLANNING

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	18.03	197.00	4,122.68	-1,080.78	-330.43	-1,082.66	2.00	-2.00	0.00
4,400.00	16.03	197.00	4,218.29	-1,108.79	-338.99	-1,110.72	2.00	-2.00	0.00
4,500.00	14.03	197.00	4,314.86	-1,133.59	-346.57	-1,135.57	2.00	-2.00	0.00
4,600.00	12.03	197.00	4,412.28	-1,155.16	-353.17	-1,157.17	2.00	-2.00	0.00
4,700.00	10.03	197.00	4,510.43	-1,173.46	-358.76	-1,175.51	2.00	-2.00	0.00
4,800.00	8.03	197.00	4,609.18	-1,188.47	-363.35	-1,190.55	2.00	-2.00	0.00
4,900.00	6.03	197.00	4,708.42	-1,200.18	-366.93	-1,202.28	2.00	-2.00	0.00
5,000.00	4.03	197.00	4,808.03	-1,208.57	-369.50	-1,210.68	2.00	-2.00	0.00
5,100.00	2.03	197.00	4,907.89	-1,213.63	-371.04	-1,215.75	2.00	-2.00	0.00
5,200.00	0.03	197.00	5,007.87	-1,215.36	-371.57	-1,217.48	2.00	-2.00	0.00
5,201.67	0.00	0.00	5,009.54	-1,215.36	-371.57	-1,217.48	2.00	-2.00	9,760.45
End Drop @ 5201.67ft									
5,300.00	0.00	0.00	5,107.87	-1,215.36	-371.57	-1,217.48	0.00	0.00	0.00
5,400.00	0.00	0.00	5,207.87	-1,215.36	-371.57	-1,217.48	0.00	0.00	0.00
5,500.00	0.00	0.00	5,307.87	-1,215.36	-371.57	-1,217.48	0.00	0.00	0.00
5,600.00	0.00	0.00	5,407.87	-1,215.36	-371.57	-1,217.48	0.00	0.00	0.00
5,700.00	0.00	0.00	5,507.87	-1,215.36	-371.57	-1,217.48	0.00	0.00	0.00
5,800.00	0.00	0.00	5,607.87	-1,215.36	-371.57	-1,217.48	0.00	0.00	0.00
5,900.00	0.00	0.00	5,707.87	-1,215.36	-371.57	-1,217.48	0.00	0.00	0.00
6,000.00	0.00	0.00	5,807.87	-1,215.36	-371.57	-1,217.48	0.00	0.00	0.00
6,100.00	0.00	0.00	5,907.87	-1,215.36	-371.57	-1,217.48	0.00	0.00	0.00
6,200.00	0.00	0.00	6,007.87	-1,215.36	-371.57	-1,217.48	0.00	0.00	0.00
6,300.00	0.00	0.00	6,107.87	-1,215.36	-371.57	-1,217.48	0.00	0.00	0.00
6,400.00	0.00	0.00	6,207.87	-1,215.36	-371.57	-1,217.48	0.00	0.00	0.00
6,500.00	0.00	0.00	6,307.87	-1,215.36	-371.57	-1,217.48	0.00	0.00	0.00
6,600.00	0.00	0.00	6,407.87	-1,215.36	-371.57	-1,217.48	0.00	0.00	0.00
6,700.00	0.00	0.00	6,507.87	-1,215.36	-371.57	-1,217.48	0.00	0.00	0.00
6,757.27	0.00	0.00	6,565.14	-1,215.36	-371.57	-1,217.48	0.00	0.00	0.00
KOP @ 6757.27ft									
6,800.00	3.85	0.33	6,607.83	-1,213.92	-371.56	-1,216.04	9.00	9.00	0.78
6,900.00	12.85	0.33	6,706.67	-1,199.42	-371.48	-1,201.54	9.00	9.00	0.00
7,000.00	21.85	0.33	6,802.03	-1,169.64	-371.31	-1,171.76	9.00	9.00	0.00
7,100.00	30.85	0.33	6,891.55	-1,125.31	-371.05	-1,127.43	9.00	9.00	0.00
7,200.00	39.85	0.33	6,973.03	-1,067.52	-370.71	-1,069.63	9.00	9.00	0.00
7,209.13	40.67	0.33	6,980.00	-1,061.62	-370.68	-1,063.73	9.00	9.00	0.00
Sharon Springs									
7,300.00	48.85	0.33	7,044.47	-997.69	-370.31	-999.81	9.00	9.00	0.00
DLS = 9°/100'									
7,356.98	53.97	0.33	7,080.00	-953.17	-370.05	-955.28	9.00	9.00	0.00
Niobrara									
7,400.00	57.85	0.33	7,104.11	-917.55	-369.84	-919.66	9.00	9.00	0.00
7,500.00	66.85	0.33	7,150.47	-829.07	-369.33	-831.18	9.00	9.00	0.00
7,600.00	75.85	0.33	7,182.43	-734.42	-368.78	-736.53	9.00	9.00	0.00
7,700.00	84.85	0.33	7,199.18	-635.94	-368.21	-638.05	9.00	9.00	0.00

Anadarko Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well NEWBY 28N-33HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	RKB = 20' @ 4914.00usft (D Rig)
Site:	3N-68W-33 Newby 27N-33HZ Pad	MD Reference:	RKB = 20' @ 4914.00usft (D Rig)
Well:	NEWBY 28N-33HZ	North Reference:	True
Wellbore:	Plan A	Survey Calculation Method:	Minimum Curvature
Design:	Permit Rev-1	Database:	PLANNING

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)
7,788.30	92.79	0.33	7,201.00	-547.73	-367.69	-549.84	9.00	9.00	0.00
End Build @ 7788.30ft - Top of Production									
7,800.00	92.79	0.33	7,200.43	-536.04	-367.63	-538.15	0.00	0.00	0.00
7,900.00	92.79	0.33	7,195.55	-436.16	-367.05	-438.27	0.00	0.00	0.00
8,000.00	92.79	0.33	7,190.68	-336.28	-366.47	-338.39	0.00	0.00	0.00
8,100.00	92.79	0.33	7,185.81	-236.40	-365.89	-238.51	0.00	0.00	0.00
8,200.00	92.79	0.33	7,180.93	-136.52	-365.31	-138.63	0.00	0.00	0.00
8,300.00	92.79	0.33	7,176.06	-36.64	-364.73	-38.74	0.00	0.00	0.00
8,400.00	92.79	0.33	7,171.19	63.24	-364.15	61.14	0.00	0.00	0.00
8,500.00	92.79	0.33	7,166.31	163.12	-363.57	161.02	0.00	0.00	0.00
8,600.00	92.79	0.33	7,161.44	262.99	-362.99	260.90	0.00	0.00	0.00
8,700.00	92.79	0.33	7,156.57	362.87	-362.41	360.78	0.00	0.00	0.00
8,800.00	92.79	0.33	7,151.70	462.75	-361.83	460.66	0.00	0.00	0.00
8,900.00	92.79	0.33	7,146.82	562.63	-361.25	560.54	0.00	0.00	0.00
9,000.00	92.79	0.33	7,141.95	662.51	-360.66	660.42	0.00	0.00	0.00
9,100.00	92.79	0.33	7,137.08	762.39	-360.08	760.31	0.00	0.00	0.00
9,200.00	92.79	0.33	7,132.20	862.27	-359.50	860.19	0.00	0.00	0.00
9,300.00	92.79	0.33	7,127.33	962.15	-358.92	960.07	0.00	0.00	0.00
9,400.00	92.79	0.33	7,122.46	1,062.03	-358.34	1,059.95	0.00	0.00	0.00
9,500.00	92.79	0.33	7,117.58	1,161.91	-357.76	1,159.83	0.00	0.00	0.00
9,600.00	92.79	0.33	7,112.71	1,261.79	-357.18	1,259.71	0.00	0.00	0.00
9,700.00	92.79	0.33	7,107.84	1,361.67	-356.60	1,359.59	0.00	0.00	0.00
9,780.00	92.79	0.33	7,103.94	1,441.57	-356.14	1,439.50	0.00	0.00	0.00
Begin Turn @ 9780.00ft									
9,800.00	92.79	359.93	7,102.97	1,461.55	-356.09	1,459.47	2.00	0.00	-2.00
9,889.79	92.79	358.13	7,098.59	1,551.22	-357.61	1,549.13	2.00	0.00	-2.00
End Turn @ 9889.79ft									
9,900.00	92.79	358.13	7,098.09	1,561.41	-357.94	1,559.32	0.00	0.00	0.00
10,000.00	92.79	358.13	7,093.22	1,661.24	-361.19	1,659.13	0.00	0.00	0.00
10,100.00	92.79	358.13	7,088.35	1,761.07	-364.44	1,758.94	0.00	0.00	0.00
10,200.00	92.79	358.13	7,083.48	1,860.89	-367.69	1,858.74	0.00	0.00	0.00
10,300.00	92.79	358.13	7,078.61	1,960.72	-370.95	1,958.55	0.00	0.00	0.00
10,400.00	92.79	358.13	7,073.74	2,060.55	-374.20	2,058.36	0.00	0.00	0.00
10,500.00	92.79	358.13	7,068.87	2,160.38	-377.45	2,158.17	0.00	0.00	0.00
10,600.00	92.79	358.13	7,064.00	2,260.21	-380.70	2,257.98	0.00	0.00	0.00
10,700.00	92.79	358.13	7,059.13	2,360.04	-383.95	2,357.78	0.00	0.00	0.00
10,800.00	92.79	358.13	7,054.25	2,459.86	-387.20	2,457.59	0.00	0.00	0.00
10,900.00	92.79	358.13	7,049.38	2,559.69	-390.46	2,557.40	0.00	0.00	0.00
11,000.00	92.79	358.13	7,044.51	2,659.52	-393.71	2,657.21	0.00	0.00	0.00
11,100.00	92.79	358.13	7,039.64	2,759.35	-396.96	2,757.02	0.00	0.00	0.00
11,200.00	92.79	358.13	7,034.77	2,859.18	-400.21	2,856.82	0.00	0.00	0.00
11,300.00	92.79	358.13	7,029.90	2,959.01	-403.46	2,956.63	0.00	0.00	0.00
11,400.00	92.79	358.13	7,025.03	3,058.83	-406.71	3,056.44	0.00	0.00	0.00
11,400.79	92.79	358.13	7,024.99	3,059.62	-406.74	3,057.23	0.00	0.00	0.00

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Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well NEWBY 28N-33HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	RKB = 20' @ 4914.00usft (D Rig)
Site:	3N-68W-33 Newby 27N-33HZ Pad	MD Reference:	RKB = 20' @ 4914.00usft (D Rig)
Well:	NEWBY 28N-33HZ	North Reference:	True
Wellbore:	Plan A	Survey Calculation Method:	Minimum Curvature
Design:	Permit Rev-1	Database:	PLANNING

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)
Begin Turn to BHL @ 11400.79ft									
11,500.00	92.79	0.12	7,020.16	3,158.70	-408.25	3,156.29	2.00	0.00	2.00
11,600.00	92.79	2.12	7,015.28	3,258.56	-406.29	3,256.16	2.00	0.00	2.00
11,689.87	92.79	3.92	7,010.91	3,348.19	-401.56	3,345.82	2.00	-0.01	2.00
End Turn @ 11689.87ft									
11,700.00	92.79	3.92	7,010.42	3,358.28	-400.87	3,355.92	0.00	0.00	0.00
11,800.00	92.79	3.92	7,005.56	3,457.93	-394.03	3,455.61	0.00	0.00	0.00
11,900.00	92.79	3.92	7,000.69	3,557.58	-387.20	3,555.29	0.00	0.00	0.00
12,000.00	92.79	3.92	6,995.83	3,657.23	-380.37	3,654.98	0.00	0.00	0.00
12,100.00	92.79	3.92	6,990.97	3,756.88	-373.53	3,754.66	0.00	0.00	0.00
12,200.00	92.79	3.92	6,986.11	3,856.52	-366.70	3,854.35	0.00	0.00	0.00
12,300.00	92.79	3.92	6,981.25	3,956.17	-359.87	3,954.03	0.00	0.00	0.00
12,400.00	92.79	3.92	6,976.39	4,055.82	-353.03	4,053.72	0.00	0.00	0.00
12,500.00	92.79	3.92	6,971.52	4,155.47	-346.20	4,153.40	0.00	0.00	0.00
12,593.06	92.79	3.92	6,967.00	4,248.20	-339.84	4,246.17	0.00	0.00	0.00
TD Well @ 12593.06ft									

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Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well NEWBY 28N-33HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	RKB = 20' @ 4914.00usft (D Rig)
Site:	3N-68W-33 Newby 27N-33HZ Pad	MD Reference:	RKB = 20' @ 4914.00usft (D Rig)
Well:	NEWBY 28N-33HZ	North Reference:	True
Wellbore:	Plan A	Survey Calculation Method:	Minimum Curvature
Design:	Permit Rev-1	Database:	PLANNING

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									
NEWBY 28N-33HZ_SHL - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	14,591,032.57	1,639,378.12	40.176575	-105.003718
NEWBY 28N-33HZ_Har - plan hits target center - Polygon	0.00	0.00	0.00	0.00	0.00	14,591,032.57	1,639,378.12	40.176575	-105.003718
Point 1		0.00	4,245.40	-706.80	14,595,278.00	1,638,671.50			
Point 2		0.00	4,249.82	-293.90	14,595,282.40	1,639,084.40			
Point 3		0.00	3,381.92	-289.87	14,594,414.50	1,639,088.40			
Point 4		0.00	2,054.12	-283.61	14,593,086.70	1,639,094.60			
Point 5		0.00	730.82	-284.35	14,591,763.40	1,639,093.80			
Point 6		0.00	-1,433.38	-292.06	14,589,599.20	1,639,086.00			
Point 7		0.00	-1,437.70	-698.86	14,589,594.90	1,638,679.20			
Point 8		0.00	-596.10	-689.90	14,590,436.50	1,638,688.20			
Point 9		0.00	727.30	-689.15	14,591,759.90	1,638,689.00			
Point 10		0.00	2,050.70	-688.51	14,593,083.30	1,638,689.70			
Point 11		0.00	3,378.00	-699.57	14,594,410.60	1,638,678.70			
Point 12		0.00	4,245.40	-706.80	14,595,278.00	1,638,671.50			
3N-R68W-Sec. 33_Secti - plan misses target center by 4535.68usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E) - Polygon	0.00	0.00	-15.00	4,420.46	-1,015.74	14,595,453.07	1,638,362.57	40.188714	-105.007355
Point 1			-15.00	251.45	-2,791.30	14,595,704.64	1,635,571.28		
Point 2			-15.00	282.36	-157.69	14,595,735.44	1,638,204.90		
Point 3			-15.00	310.96	2,511.36	14,595,763.93	1,640,873.95		
Point 4			-15.00	-2,346.36	2,515.74	14,593,106.61	1,640,878.22		
Point 5			-15.00	-4,995.84	2,515.63	14,590,457.13	1,640,877.99		
Point 6			-15.00	-5,018.95	-136.58	14,590,434.13	1,638,225.78		
Point 7			-15.00	-5,040.96	-2,769.50	14,590,412.23	1,635,592.86		
Point 8			-15.00	-2,394.09	-2,784.98	14,593,059.10	1,635,577.49		
2N-R68W-Sec. 4_Sectio - plan misses target center by 4535.68usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E) - Polygon	0.00	0.00	-15.00	4,420.46	-1,015.74	14,595,453.07	1,638,362.57	40.188714	-105.007355
Point 1			-15.00	-5,040.96	-2,769.50	14,590,412.23	1,635,592.86		
Point 2			-15.00	-5,018.95	-136.58	14,590,434.13	1,638,225.78		
Point 3			-15.00	-4,995.84	2,515.63	14,590,457.13	1,640,877.99		
Point 4			-15.00	-7,591.82	2,497.44	14,587,861.15	1,640,859.70		
Point 5			-15.00	-10,216.42	2,462.98	14,585,236.55	1,640,825.13		
Point 6			-15.00	-10,271.92	-193.52	14,585,181.16	1,638,168.62		
Point 7			-15.00	-10,321.42	-2,870.28	14,585,131.78	1,635,491.86		
Point 8			-15.00	-7,652.28	-2,819.20	14,587,800.91	1,635,543.05		
NEWBY 28N-33HZ_Toe - plan hits target center - Point	0.00	0.00	6,967.00	4,248.20	-339.84	14,595,280.78	1,639,038.46	40.188241	-105.004935
NEWBY 28N-33HZ_Tarç - plan hits target center - Point	0.00	0.00	7,024.99	3,059.62	-406.74	14,594,092.21	1,638,971.51	40.184977	-105.005175
NEWBY 28N-33HZ_Tarç - plan hits target center - Point	0.00	0.00	7,103.94	1,441.57	-356.14	14,592,474.15	1,639,022.04	40.180534	-105.004993

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Survey Report

Company: US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference: Well NEWBY 28N-33HZ
Project: WELD-NAD83-UTMFT13N	TVD Reference: RKB = 20' @ 4914.00usft (D Rig)
Site: 3N-68W-33 Newby 27N-33HZ Pad	MD Reference: RKB = 20' @ 4914.00usft (D Rig)
Well: NEWBY 28N-33HZ	North Reference: True
Wellbore: Plan A	North Calculation Method: Minimum Curvature
Design: Permit Rev-1	Database: PLANNING

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,843.63	1,800.00	9 5/8"	9-5/8	13-1/2	
7,788.30	7,201.00	Top of Production	5-1/2	7-7/8	

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
821.74	819.00	Fox Hills			
4,242.31	4,068.00	Sussex			
7,209.13	6,980.00	Sharon Springs			
7,356.98	7,080.00	Niobrara			

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
200	200	0	0	Begin Nudge @ 200.00ft	
1467	1444	-199	-61	End Nudge @ 1466.67ft	
4252	4077	-1066	-326	Begin Drop @ 4251.67ft	
5202	5010	-1215	-372	End Drop @ 5201.67ft	
6757	6565	-1215	-372	KOP @ 6757.27ft	
7300	7044	-998	-370	DLS = 9°/100'	
7788	7201	-548	-368	End Build @ 7788.30ft	
9780	7104	1442	-356	Begin Turn @ 9780.00ft	
9890	7099	1551	-358	End Turn @ 9889.79ft	
11,401	7025	3060	-407	Begin Turn to BHL @ 11400.79ft	
11,690	7011	3348	-402	End Turn @ 11689.87ft	
12,593	6967	4248	-340	TD Well @ 12593.06ft	

Checked By: _____ Approved By: _____ Date: _____