US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N
3N-68W-33 Newby 27N-33HZ Pad
NEWBY 1N-33HZ

Plan A

Plan: Permit Rev-1

Standard Survey Report

18 January, 2016

0-1800' MD	APC_ISCWSA REV 2 MWD
1800-12560.57' MD	APC_ISCWSA REV 2 MWD+IFR1

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

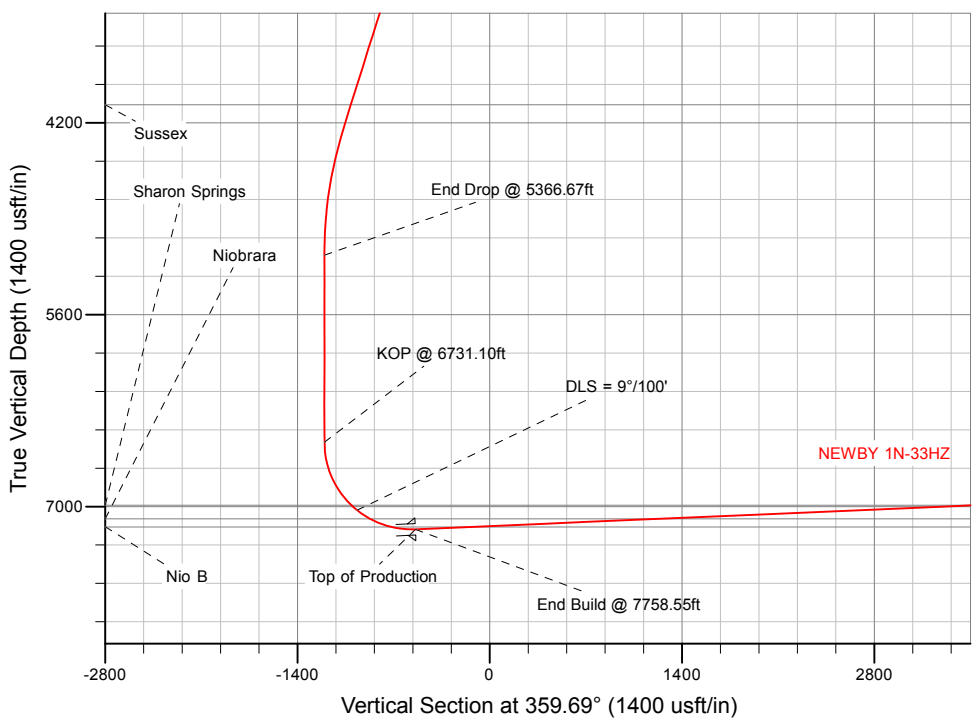
US ROCKIES WATTENBERG PLANNING

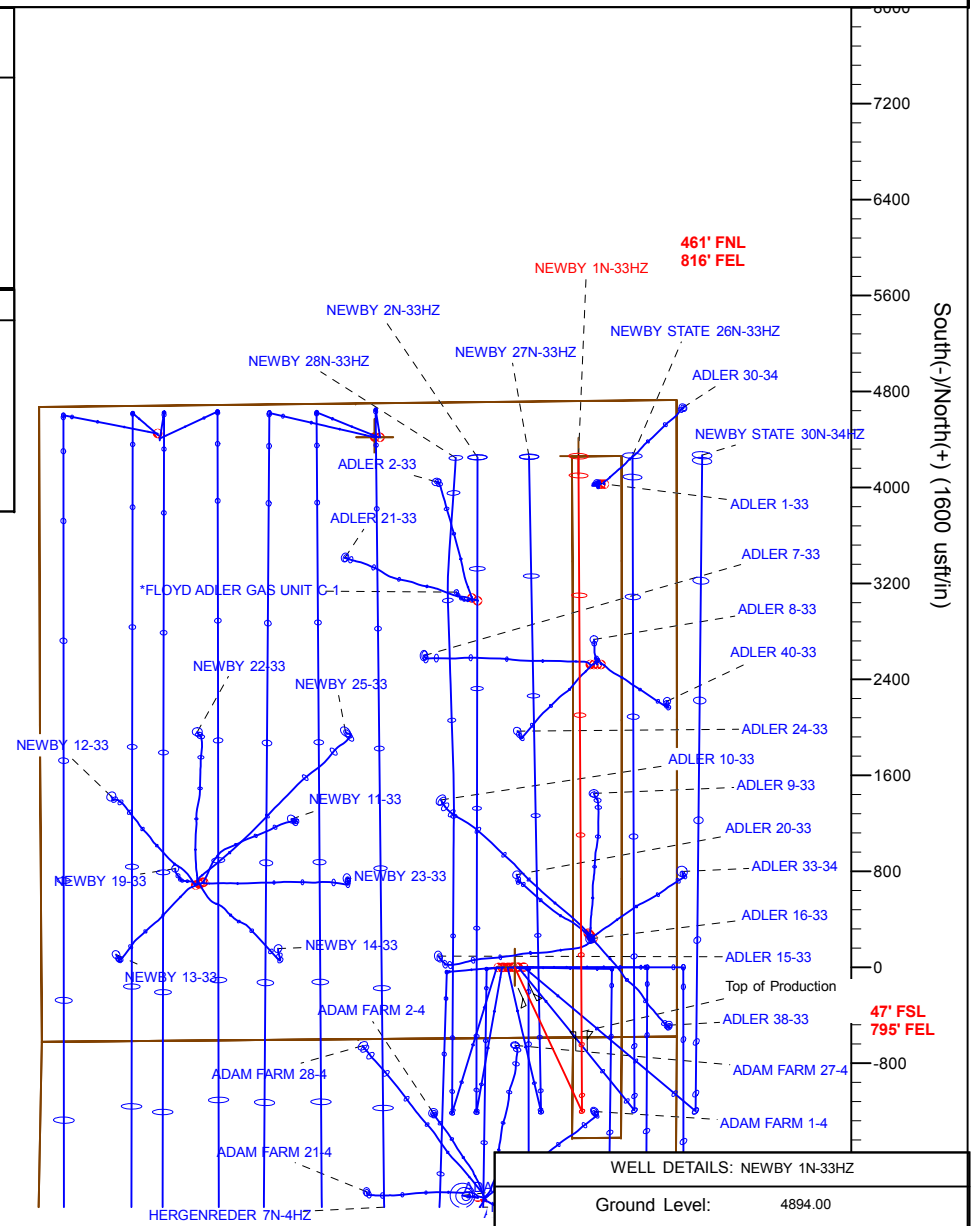
SECTION DETAILS

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	155.00	1443.58	-188.61	87.95	1.50	155.00	-189.08	
4	4416.67	19.00	155.00	4232.86	-1059.05	493.84	0.00	0.00	-1061.70	
5	5366.67	0.00	0.00	5165.54	-1200.50	559.80	2.00	180.00	-1203.51	
6	6731.10	0.00	0.00	6529.97	-1200.50	559.80	0.00	0.00	-1203.51	
7	7758.55	92.47	359.69	7166.00	-536.45	556.26	9.00	359.69	-539.45	
8	12560.57	92.47	359.69	6959.00	4261.04	530.66	0.00	0.00	4258.11	NEWBY 1N-33HZ_Toe

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
NEWBY 1N-33HZ_SHL	0.00	0.00	0.00	40.176578	-105.003181	Point
NEWBY 1N-33HZ_Toe	6959.00	4261.04	530.66	40.188279	-105.001281	Point





WELL DETAILS: NEWBY 1N-33HZ

Ground Level: 4894.00

RKB = 20' @ 4914.00usft (D Rig)

Plan: Permit Rev-1 (NEWBY 1N-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 1N-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 1N-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 1N-33HZ

Well Position	**+N/-S**	0.00 usft	**Northing:**	14,591,033.65 usft	**Latitude:**	40.176578
	+E/-W	0.00 usft	**Easting:**	1,639,528.12 usft	**Longitude:**	-105.003181
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	359.69

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	12,560.57	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWD+	Fixed:v2:crustal field declination

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	155.00	299.99	-1.19	0.55	-1.19	1.50	1.50	0.00
400.00	3.00	155.00	399.91	-4.74	2.21	-4.76	1.50	1.50	0.00
500.00	4.50	155.00	499.69	-10.67	4.98	-10.70	1.50	1.50	0.00
600.00	6.00	155.00	599.27	-18.96	8.84	-19.01	1.50	1.50	0.00
700.00	7.50	155.00	698.57	-29.62	13.81	-29.69	1.50	1.50	0.00
800.00	9.00	155.00	797.54	-42.62	19.87	-42.73	1.50	1.50	0.00

Company:	US ROCKIES WATTENBERG PLANNING	**Local Co-ordinate Reference:**	Well NEWBY 1N-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 1N-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	155.00	819.00	-45.76	21.34	-45.87	1.50	1.50	0.00
Fox Hills									
900.00	10.50	155.00	896.09	-57.97	27.03	-58.11	1.50	1.50	0.00
1,000.00	12.00	155.00	994.16	-75.65	35.28	-75.84	1.50	1.50	0.00
1,100.00	13.50	155.00	1,091.70	-95.65	44.60	-95.89	1.50	1.50	0.00
1,200.00	15.00	155.00	1,188.62	-117.96	55.01	-118.26	1.50	1.50	0.00
1,300.00	16.50	155.00	1,284.86	-142.56	66.48	-142.92	1.50	1.50	0.00
1,400.00	18.00	155.00	1,380.36	-169.43	79.01	-169.86	1.50	1.50	0.00
1,466.67	19.00	155.00	1,443.58	-188.61	87.95	-189.08	1.50	1.50	0.00
End Nudge @ 1466.67ft									
1,500.00	19.00	155.00	1,475.10	-198.44	92.53	-198.94	0.00	0.00	0.00
1,600.00	19.00	155.00	1,569.65	-227.95	106.29	-228.52	0.00	0.00	0.00
1,700.00	19.00	155.00	1,664.20	-257.45	120.05	-258.10	0.00	0.00	0.00
1,800.00	19.00	155.00	1,758.75	-286.96	133.81	-287.68	0.00	0.00	0.00
1,843.63	19.00	155.00	1,800.00	-299.83	139.81	-300.59	0.00	0.00	0.00
9 5/8"									
1,900.00	19.00	155.00	1,853.30	-316.47	147.57	-317.26	0.00	0.00	0.00
2,000.00	19.00	155.00	1,947.86	-345.97	161.33	-346.84	0.00	0.00	0.00
2,100.00	19.00	155.00	2,042.41	-375.48	175.09	-376.42	0.00	0.00	0.00
2,200.00	19.00	155.00	2,136.96	-404.99	188.85	-406.00	0.00	0.00	0.00
2,300.00	19.00	155.00	2,231.51	-434.49	202.61	-435.58	0.00	0.00	0.00
2,400.00	19.00	155.00	2,326.06	-464.00	216.37	-465.16	0.00	0.00	0.00
2,500.00	19.00	155.00	2,420.61	-493.51	230.13	-494.74	0.00	0.00	0.00
2,600.00	19.00	155.00	2,515.17	-523.01	243.88	-524.32	0.00	0.00	0.00
2,700.00	19.00	155.00	2,609.72	-552.52	257.64	-553.91	0.00	0.00	0.00
2,800.00	19.00	155.00	2,704.27	-582.03	271.40	-583.49	0.00	0.00	0.00
2,900.00	19.00	155.00	2,798.82	-611.53	285.16	-613.07	0.00	0.00	0.00
3,000.00	19.00	155.00	2,893.37	-641.04	298.92	-642.65	0.00	0.00	0.00
3,100.00	19.00	155.00	2,987.93	-670.55	312.68	-672.23	0.00	0.00	0.00
3,200.00	19.00	155.00	3,082.48	-700.05	326.44	-701.81	0.00	0.00	0.00
3,300.00	19.00	155.00	3,177.03	-729.56	340.20	-731.39	0.00	0.00	0.00
3,400.00	19.00	155.00	3,271.58	-759.06	353.96	-760.97	0.00	0.00	0.00
3,500.00	19.00	155.00	3,366.13	-788.57	367.72	-790.55	0.00	0.00	0.00
3,600.00	19.00	155.00	3,460.69	-818.08	381.48	-820.13	0.00	0.00	0.00
3,700.00	19.00	155.00	3,555.24	-847.58	395.24	-849.71	0.00	0.00	0.00
3,800.00	19.00	155.00	3,649.79	-877.09	408.99	-879.29	0.00	0.00	0.00
3,900.00	19.00	155.00	3,744.34	-906.60	422.75	-908.87	0.00	0.00	0.00
4,000.00	19.00	155.00	3,838.89	-936.10	436.51	-938.45	0.00	0.00	0.00
4,100.00	19.00	155.00	3,933.44	-965.61	450.27	-968.03	0.00	0.00	0.00
4,200.00	19.00	155.00	4,028.00	-995.12	464.03	-997.61	0.00	0.00	0.00
4,242.31	19.00	155.00	4,068.00	-1,007.60	469.85	-1,010.13	0.00	0.00	0.00
Sussex									
4,300.00	19.00	155.00	4,122.55	-1,024.62	477.79	-1,027.19	0.00	0.00	0.00
4,400.00	19.00	155.00	4,217.10	-1,054.13	491.55	-1,056.77	0.00	0.00	0.00

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Well:	NEWBY 1N-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)
4,416.67	19.00	155.00	4,232.86	-1,059.05	493.84	-1,061.71	0.00	0.00	0.00
Begin Drop @ 4416.67ft									
4,500.00	17.33	155.00	4,312.04	-1,082.59	504.82	-1,085.31	2.00	-2.00	0.00
4,600.00	15.33	155.00	4,407.99	-1,108.08	516.71	-1,110.86	2.00	-2.00	0.00
4,700.00	13.33	155.00	4,504.88	-1,130.52	527.17	-1,133.35	2.00	-2.00	0.00
4,800.00	11.33	155.00	4,602.56	-1,149.87	536.20	-1,152.76	2.00	-2.00	0.00
4,900.00	9.33	155.00	4,700.94	-1,166.13	543.78	-1,169.06	2.00	-2.00	0.00
5,000.00	7.33	155.00	4,799.88	-1,179.26	549.90	-1,182.22	2.00	-2.00	0.00
5,100.00	5.33	155.00	4,899.26	-1,189.26	554.56	-1,192.24	2.00	-2.00	0.00
5,200.00	3.33	155.00	4,998.97	-1,196.11	557.76	-1,199.11	2.00	-2.00	0.00
5,300.00	1.33	155.00	5,098.88	-1,199.80	559.48	-1,202.81	2.00	-2.00	0.00
5,366.67	0.00	0.00	5,165.55	-1,200.50	559.80	-1,203.51	2.00	-2.00	-232.49
End Drop @ 5366.67ft									
5,400.00	0.00	0.00	5,198.88	-1,200.50	559.80	-1,203.51	0.00	0.00	0.00
5,500.00	0.00	0.00	5,298.88	-1,200.50	559.80	-1,203.51	0.00	0.00	0.00
5,600.00	0.00	0.00	5,398.88	-1,200.50	559.80	-1,203.51	0.00	0.00	0.00
5,700.00	0.00	0.00	5,498.88	-1,200.50	559.80	-1,203.51	0.00	0.00	0.00
5,800.00	0.00	0.00	5,598.88	-1,200.50	559.80	-1,203.51	0.00	0.00	0.00
5,900.00	0.00	0.00	5,698.88	-1,200.50	559.80	-1,203.51	0.00	0.00	0.00
6,000.00	0.00	0.00	5,798.88	-1,200.50	559.80	-1,203.51	0.00	0.00	0.00
6,100.00	0.00	0.00	5,898.88	-1,200.50	559.80	-1,203.51	0.00	0.00	0.00
6,200.00	0.00	0.00	5,998.88	-1,200.50	559.80	-1,203.51	0.00	0.00	0.00
6,300.00	0.00	0.00	6,098.88	-1,200.50	559.80	-1,203.51	0.00	0.00	0.00
6,400.00	0.00	0.00	6,198.88	-1,200.50	559.80	-1,203.51	0.00	0.00	0.00
6,500.00	0.00	0.00	6,298.88	-1,200.50	559.80	-1,203.51	0.00	0.00	0.00
6,600.00	0.00	0.00	6,398.88	-1,200.50	559.80	-1,203.51	0.00	0.00	0.00
6,700.00	0.00	0.00	6,498.88	-1,200.50	559.80	-1,203.51	0.00	0.00	0.00
6,731.10	0.00	0.00	6,529.98	-1,200.50	559.80	-1,203.51	0.00	0.00	0.00
KOP @ 6731.10ft									
6,800.00	6.20	359.69	6,598.74	-1,196.78	559.78	-1,199.79	9.00	9.00	-0.44
6,900.00	15.20	359.69	6,696.90	-1,178.23	559.68	-1,181.24	9.00	9.00	0.00
7,000.00	24.20	359.69	6,790.95	-1,144.55	559.50	-1,147.56	9.00	9.00	0.00
7,100.00	33.20	359.69	6,878.57	-1,096.58	559.25	-1,099.59	9.00	9.00	0.00
7,200.00	42.20	359.69	6,957.61	-1,035.49	558.92	-1,038.49	9.00	9.00	0.00
7,245.21	46.27	359.69	6,990.00	-1,003.95	558.75	-1,006.96	9.00	9.00	0.00
Sharon Springs									
7,300.00	51.20	359.69	7,026.12	-962.78	558.53	-965.79	9.00	9.00	0.00
DLS = 9°/100'									
7,400.00	60.20	359.69	7,082.42	-880.26	558.09	-883.26	9.00	9.00	0.00
7,415.60	61.60	359.69	7,090.00	-866.63	558.02	-869.64	9.00	9.00	0.00
Niobrara									
7,500.00	69.20	359.69	7,125.11	-789.94	557.61	-792.95	9.00	9.00	0.00
7,576.86	76.12	359.69	7,148.00	-716.62	557.22	-719.62	9.00	9.00	0.00
Nio B									

Anadarko

Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	**Local Co-ordinate Reference:**	Well NEWBY 1N-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 1N-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)
7,600.00	78.20	359.69	7,153.14	-694.06	557.10	-697.07	9.00	9.00	0.00
7,700.00	87.20	359.69	7,165.83	-594.98	556.57	-597.98	9.00	9.00	0.00
7,758.55	92.47	359.69	7,166.00	-536.45	556.26	-539.45	9.00	9.00	0.00
End Build @ 7758.55ft - Top of Production									
7,800.00	92.47	359.69	7,164.21	-495.04	556.04	-498.04	0.00	0.00	0.00
7,900.00	92.47	359.69	7,159.90	-395.13	555.51	-398.13	0.00	0.00	0.00
8,000.00	92.47	359.69	7,155.59	-295.22	554.97	-298.22	0.00	0.00	0.00
8,100.00	92.47	359.69	7,151.28	-195.32	554.44	-198.32	0.00	0.00	0.00
8,200.00	92.47	359.69	7,146.97	-95.41	553.91	-98.41	0.00	0.00	0.00
8,300.00	92.47	359.69	7,142.66	4.49	553.37	1.50	0.00	0.00	0.00
8,400.00	92.47	359.69	7,138.35	104.40	552.84	101.40	0.00	0.00	0.00
8,500.00	92.47	359.69	7,134.04	204.30	552.31	201.31	0.00	0.00	0.00
8,600.00	92.47	359.69	7,129.73	304.21	551.77	301.22	0.00	0.00	0.00
8,700.00	92.47	359.69	7,125.42	404.11	551.24	401.13	0.00	0.00	0.00
8,800.00	92.47	359.69	7,121.11	504.02	550.71	501.03	0.00	0.00	0.00
8,900.00	92.47	359.69	7,116.80	603.93	550.17	600.94	0.00	0.00	0.00
9,000.00	92.47	359.69	7,112.49	703.83	549.64	700.85	0.00	0.00	0.00
9,100.00	92.47	359.69	7,108.17	803.74	549.11	800.75	0.00	0.00	0.00
9,200.00	92.47	359.69	7,103.86	903.64	548.58	900.66	0.00	0.00	0.00
9,300.00	92.47	359.69	7,099.55	1,003.55	548.04	1,000.57	0.00	0.00	0.00
9,400.00	92.47	359.69	7,095.24	1,103.45	547.51	1,100.48	0.00	0.00	0.00
9,500.00	92.47	359.69	7,090.93	1,203.36	546.98	1,200.38	0.00	0.00	0.00
9,600.00	92.47	359.69	7,086.62	1,303.27	546.44	1,300.29	0.00	0.00	0.00
9,700.00	92.47	359.69	7,082.31	1,403.17	545.91	1,400.20	0.00	0.00	0.00
9,800.00	92.47	359.69	7,078.00	1,503.08	545.38	1,500.10	0.00	0.00	0.00
9,900.00	92.47	359.69	7,073.69	1,602.98	544.84	1,600.01	0.00	0.00	0.00
10,000.00	92.47	359.69	7,069.38	1,702.89	544.31	1,699.92	0.00	0.00	0.00
10,100.00	92.47	359.69	7,065.07	1,802.79	543.78	1,799.82	0.00	0.00	0.00
10,200.00	92.47	359.69	7,060.76	1,902.70	543.24	1,899.73	0.00	0.00	0.00
10,300.00	92.47	359.69	7,056.45	2,002.60	542.71	1,999.64	0.00	0.00	0.00
10,400.00	92.47	359.69	7,052.14	2,102.51	542.18	2,099.55	0.00	0.00	0.00
10,500.00	92.47	359.69	7,047.83	2,202.42	541.65	2,199.45	0.00	0.00	0.00
10,600.00	92.47	359.69	7,043.51	2,302.32	541.11	2,299.36	0.00	0.00	0.00
10,700.00	92.47	359.69	7,039.20	2,402.23	540.58	2,399.27	0.00	0.00	0.00
10,800.00	92.47	359.69	7,034.89	2,502.13	540.05	2,499.17	0.00	0.00	0.00
10,900.00	92.47	359.69	7,030.58	2,602.04	539.51	2,599.08	0.00	0.00	0.00
11,000.00	92.47	359.69	7,026.27	2,701.94	538.98	2,698.99	0.00	0.00	0.00
11,100.00	92.47	359.69	7,021.96	2,801.85	538.45	2,798.90	0.00	0.00	0.00
11,200.00	92.47	359.69	7,017.65	2,901.76	537.91	2,898.80	0.00	0.00	0.00
11,300.00	92.47	359.69	7,013.34	3,001.66	537.38	2,998.71	0.00	0.00	0.00
11,400.00	92.47	359.69	7,009.03	3,101.57	536.85	3,098.62	0.00	0.00	0.00
11,500.00	92.47	359.69	7,004.72	3,201.47	536.31	3,198.52	0.00	0.00	0.00
11,600.00	92.47	359.69	7,000.41	3,301.38	535.78	3,298.43	0.00	0.00	0.00
11,700.00	92.47	359.69	6,996.10	3,401.28	535.25	3,398.34	0.00	0.00	0.00

Company:	US ROCKIES WATTENBERG PLANNING	**Local Co-ordinate Reference:**	Well NEWBY 1N-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 1N-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)
11,800.00	92.47	359.69	6,991.79	3,501.19	534.71	3,498.24	0.00	0.00	0.00
11,900.00	92.47	359.69	6,987.48	3,601.09	534.18	3,598.15	0.00	0.00	0.00
12,000.00	92.47	359.69	6,983.16	3,701.00	533.65	3,698.06	0.00	0.00	0.00
12,100.00	92.47	359.69	6,978.85	3,800.91	533.12	3,797.97	0.00	0.00	0.00
12,200.00	92.47	359.69	6,974.54	3,900.81	532.58	3,897.87	0.00	0.00	0.00
12,300.00	92.47	359.69	6,970.23	4,000.72	532.05	3,997.78	0.00	0.00	0.00
12,400.00	92.47	359.69	6,965.92	4,100.62	531.52	4,097.69	0.00	0.00	0.00
12,500.00	92.47	359.69	6,961.61	4,200.53	530.98	4,197.59	0.00	0.00	0.00
12,560.57	92.47	359.69	6,959.00	4,261.04	530.66	4,258.11	0.00	0.00	0.00

TD Well @ 12560.57ft

Anadarko

Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	**Local Co-ordinate Reference:**	Well NEWBY 1N-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 1N-33HZ	**North Reference:**	True
Wellbore:	Plan A	**Survey Calculation Method:**	Minimum Curvature
Design:	Permit Rev-1	**Database:**	PLANNING

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
NEWBY 1N-33HZ_SHL	0.00	0.00	0.00	0.00	0.00	14,591,033.65	1,639,528.12	40.176578	-105.003181
- plan hits target center									
- Point									
NEWBY 1N-33HZ_Hard	0.00	0.00	0.00	0.00	0.00	14,591,033.65	1,639,528.12	40.176578	-105.003181
- plan hits target center									
- Polygon									
Point 1			0.00	4,258.56	476.12	14,595,292.20	1,640,004.40		
Point 2			0.00	4,262.97	889.02	14,595,296.60	1,640,417.30		
Point 3			0.00	3,393.57	889.86	14,594,427.20	1,640,418.10		
Point 4			0.00	2,064.17	891.20	14,593,097.80	1,640,419.40		
Point 5			0.00	741.47	890.55	14,591,775.10	1,640,418.70		
Point 6			0.00	-581.23	889.80	14,590,452.40	1,640,417.90		
Point 7			0.00	-1,420.73	884.73	14,589,612.90	1,640,412.80		
Point 8			0.00	-1,424.94	478.03	14,589,608.70	1,640,006.10		
Point 9			0.00	-584.94	485.00	14,590,448.70	1,640,013.10		
Point 10			0.00	737.86	485.65	14,591,771.50	1,640,013.80		
Point 11			0.00	2,060.76	486.40	14,593,094.40	1,640,014.60		
Point 12			0.00	3,389.66	480.16	14,594,423.30	1,640,008.40		
Point 13			0.00	4,258.56	476.12	14,595,292.20	1,640,004.40		
3N-R68W-Sec. 33_Secti	0.00	0.00	-15.00	4,419.38	-1,165.71	14,595,453.07	1,638,362.57	40.188714	-105.007355
- plan misses target center by 4570.56usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1			-15.00	251.45	-2,791.30	14,595,704.63	1,635,571.28		
Point 2			-15.00	282.36	-157.69	14,595,735.44	1,638,204.89		
Point 3			-15.00	310.96	2,511.36	14,595,763.95	1,640,873.94		
Point 4			-15.00	-2,346.36	2,515.74	14,593,106.63	1,640,878.23		
Point 5			-15.00	-4,995.84	2,515.63	14,590,457.15	1,640,878.02		
Point 6			-15.00	-5,018.95	-136.58	14,590,434.13	1,638,225.81		
Point 7			-15.00	-5,040.96	-2,769.50	14,590,412.21	1,635,592.89		
Point 8			-15.00	-2,394.09	-2,784.98	14,593,059.09	1,635,577.51		
2N-R68W-Sec. 4_Sectio	0.00	0.00	-15.00	4,419.38	-1,165.71	14,595,453.07	1,638,362.57	40.188714	-105.007355
- plan misses target center by 4570.56usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1			-15.00	-5,040.96	-2,769.50	14,590,412.21	1,635,592.89		
Point 2			-15.00	-5,018.95	-136.58	14,590,434.13	1,638,225.81		
Point 3			-15.00	-4,995.84	2,515.63	14,590,457.15	1,640,878.02		
Point 4			-15.00	-7,591.82	2,497.44	14,587,861.17	1,640,859.74		
Point 5			-15.00	-10,216.42	2,462.98	14,585,236.57	1,640,825.19		
Point 6			-15.00	-10,271.92	-193.52	14,585,181.16	1,638,168.69		
Point 7			-15.00	-10,321.42	-2,870.28	14,585,131.76	1,635,491.92		
Point 8			-15.00	-7,652.28	-2,819.20	14,587,800.90	1,635,543.10		
NEWBY 1N-33HZ_Toe	0.00	0.00	6,959.00	4,261.04	530.66	14,595,294.68	1,640,058.93	40.188279	-105.001281
- plan hits target center									
- Point									

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
7,758.55	7,166.00	Top of Production	5-1/2	7-7/8

Anadarko

Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	**Local Co-ordinate Reference:**	Well NEWBY 1N-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 1N-33HZ	**North Reference:**	True
Wellbore:	Plan A	**Survey Calculation Method:**	Minimum Curvature
Design:	Permit Rev-1	**Database:**	PLANNING

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			
7,245.21	6,990.00	Sharon Springs			
7,415.60	7,090.00	Niobrara			
7,576.86	7,148.00	Nio B			

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
200	200	0	0	Begin Nudge @ 200.00ft
1467	1444	-189	88	End Nudge @ 1466.67ft
4417	4233	-1059	494	Begin Drop @ 4416.67ft
5367	5166	-1201	560	End Drop @ 5366.67ft
6731	6530	-1201	560	KOP @ 6731.10ft
7300	7026	-963	559	DLS = 9°/100'
7759	7166	-536	556	End Build @ 7758.55ft
12,561	6959	4261	531	TD Well @ 12560.57ft

Checked By: _____ Approved By: _____ Date: _____