

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

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

NEWBY STATE 30N-34HZ

Plan A

Plan: Permit Rev-1

Standard Survey Report

18 January, 2016

0-1800' MD APC_ISCWSA REV 2 MWD
1800-12747.40' MD APC_ISCWSA REV 2 MWD+IFR

Project: WELD-NAD83-UTMFT13N
Site: 3N-68W-33 Newby 27N-33HZ Pad
Well: NEWBY STATE 30N-34HZ
Wellbore: Plan A
Design: Permit Rev-1

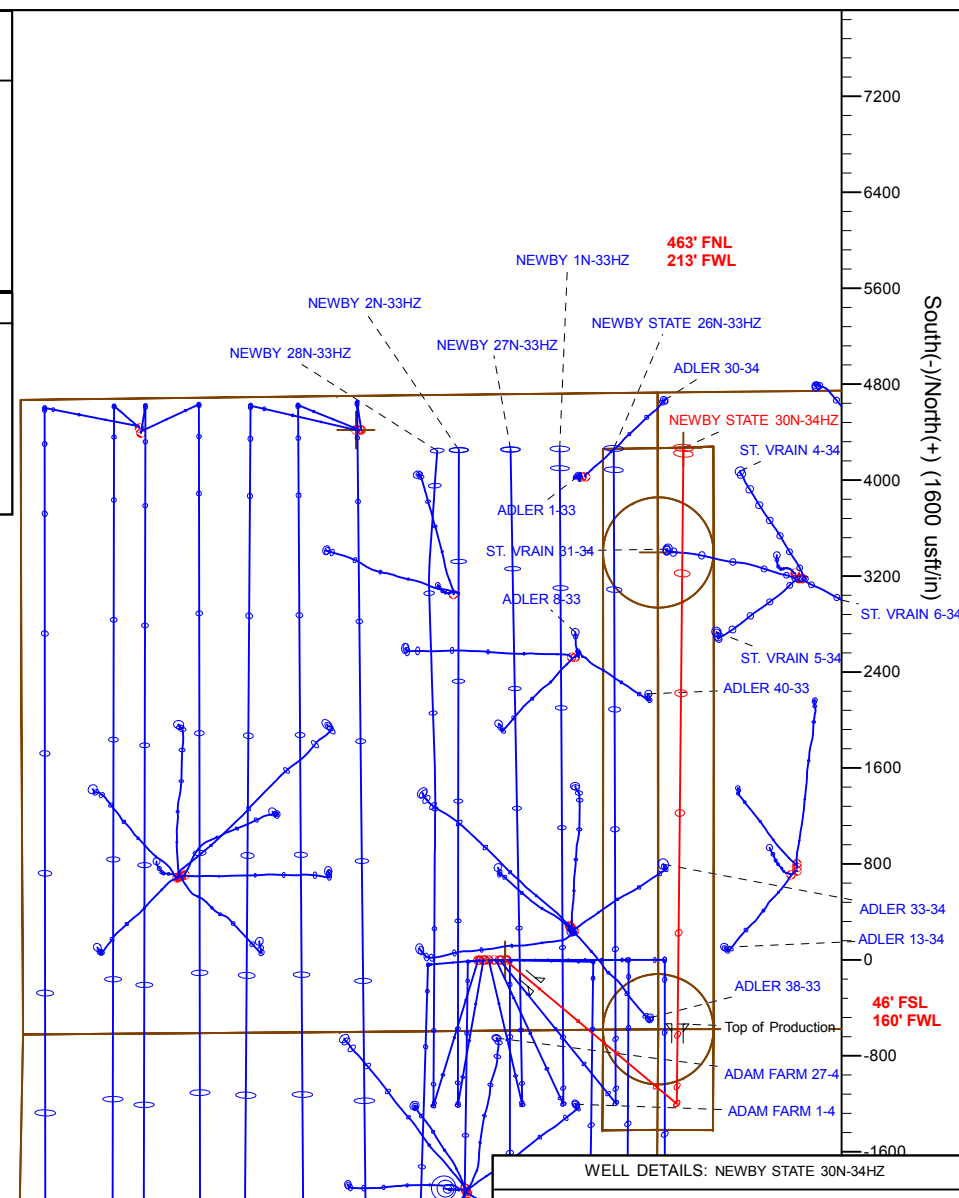
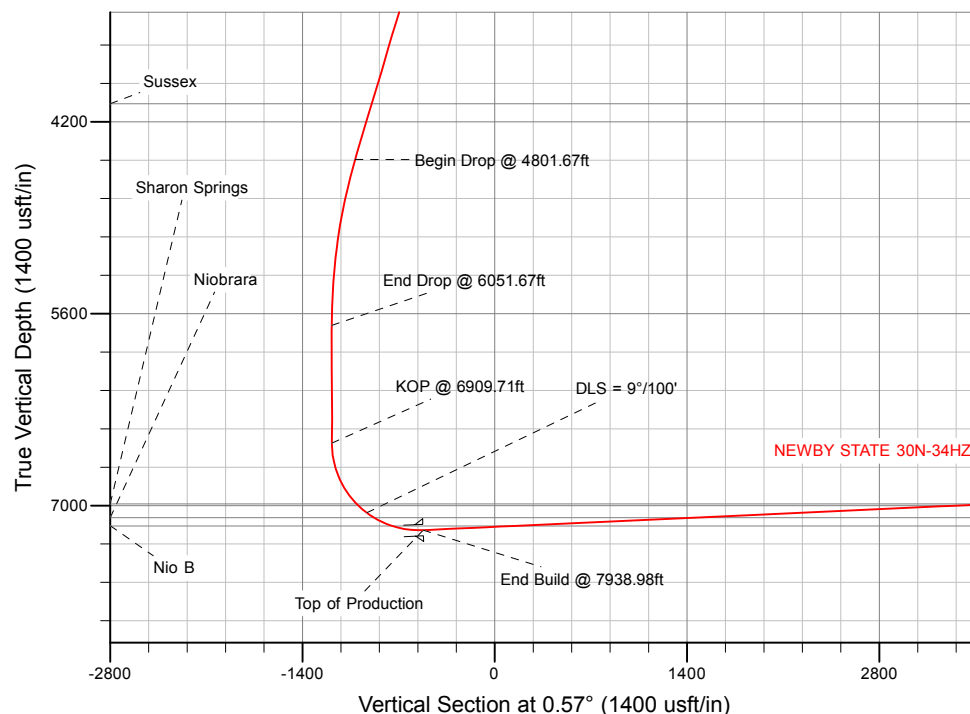
US ROCKIES WATTENBERG PLANNING

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	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	1866.67	25.00	130.00	1814.28	-230.04	274.15	1.50	130.00	-227.30	
4	4801.67	25.00	130.00	4474.30	-1027.34	1224.34	0.00	0.00	-1015.11	
5	6051.67	0.00	0.00	5685.01	-1199.87	1429.95	2.00	180.00	-1185.59	
6	6909.71	0.00	0.00	6543.05	-1199.87	1429.95	0.00	0.00	-1185.59	
7	7938.98	92.63	0.57	7179.00	-534.03	1436.58	9.00	0.57	-519.71	
8	12747.40	92.63	0.57	6958.00	4269.08	1484.40	0.00	0.00	4283.64	NEWBY STATE 30N-34HZ_Toe

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
NEWBY STATE 30N-34HZ_SHL	0.00	0.00	0.00	40.176580	-105.002913	Point
NEWBY STATE 30N-34HZ_Toe	6958.00	4269.08	1484.40	40.188303	-104.997598	Point



WELL DETAILS: NEWBY STATE 30N-34HZ

Ground Level: 4894.00

RKB = 20' @ 4914.00usft (D Rig)

Plan: Permit Rev-1 (NEWBY STATE 30N-34HZ/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 STATE 30N-34HZ
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 STATE 30N-34HZ	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 STATE 30N-34HZ				
Well Position	+N/-S	0.00 usft	Northing:	14,591,034.38 usft	Latitude:	40.176580
	+E/-W	0.00 usft	Easting:	1,639,602.98 usft	Longitude:	-105.002913
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	0.57	

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	12,747.40	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	130.00	299.99	-0.84	1.00	-0.83	1.50	1.50	0.00	
400.00	3.00	130.00	399.91	-3.36	4.01	-3.32	1.50	1.50	0.00	
500.00	4.50	130.00	499.69	-7.57	9.02	-7.48	1.50	1.50	0.00	
600.00	6.00	130.00	599.27	-13.45	16.03	-13.29	1.50	1.50	0.00	
700.00	7.50	130.00	698.57	-21.01	25.03	-20.76	1.50	1.50	0.00	
800.00	9.00	130.00	797.54	-30.23	36.02	-29.87	1.50	1.50	0.00	

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Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well NEWBY STATE 30N-34HZ
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Site:	3N-68W-33 Newby 27N-33HZ Pad	MD Reference:	RKB = 20' @ 4914.00usft (D Rig)
Well:	NEWBY STATE 30N-34HZ	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	130.00	819.00	-32.45	38.68	-32.07	1.50	1.50	0.00
Fox Hills									
900.00	10.50	130.00	896.09	-41.11	49.00	-40.62	1.50	1.50	0.00
1,000.00	12.00	130.00	994.16	-53.65	63.94	-53.01	1.50	1.50	0.00
1,100.00	13.50	130.00	1,091.70	-67.84	80.85	-67.03	1.50	1.50	0.00
1,200.00	15.00	130.00	1,188.62	-83.66	99.70	-82.67	1.50	1.50	0.00
1,300.00	16.50	130.00	1,284.86	-101.11	120.50	-99.90	1.50	1.50	0.00
1,400.00	18.00	130.00	1,380.36	-120.17	143.21	-118.74	1.50	1.50	0.00
1,500.00	19.50	130.00	1,475.05	-140.83	167.84	-139.15	1.50	1.50	0.00
1,600.00	21.00	130.00	1,568.86	-163.08	194.35	-161.14	1.50	1.50	0.00
1,700.00	22.50	130.00	1,661.74	-186.90	222.73	-184.67	1.50	1.50	0.00
1,800.00	24.00	130.00	1,753.62	-212.27	252.97	-209.74	1.50	1.50	0.00
1,850.92	24.76	130.00	1,800.00	-225.78	269.08	-223.09	1.50	1.50	0.00
9 5/8"									
1,866.67	25.00	130.00	1,814.29	-230.04	274.15	-227.30	1.50	1.50	0.00
End Nudge @ 1866.67ft									
1,900.00	25.00	130.00	1,844.49	-239.09	284.94	-236.25	0.00	0.00	0.00
2,000.00	25.00	130.00	1,935.12	-266.26	317.32	-263.09	0.00	0.00	0.00
2,100.00	25.00	130.00	2,025.75	-293.43	349.69	-289.93	0.00	0.00	0.00
2,200.00	25.00	130.00	2,116.39	-320.59	382.07	-316.77	0.00	0.00	0.00
2,300.00	25.00	130.00	2,207.02	-347.76	414.44	-343.62	0.00	0.00	0.00
2,400.00	25.00	130.00	2,297.65	-374.92	446.81	-370.46	0.00	0.00	0.00
2,500.00	25.00	130.00	2,388.28	-402.09	479.19	-397.30	0.00	0.00	0.00
2,600.00	25.00	130.00	2,478.91	-429.25	511.56	-424.14	0.00	0.00	0.00
2,700.00	25.00	130.00	2,569.54	-456.42	543.94	-450.98	0.00	0.00	0.00
2,800.00	25.00	130.00	2,660.17	-483.58	576.31	-477.83	0.00	0.00	0.00
2,900.00	25.00	130.00	2,750.80	-510.75	608.69	-504.67	0.00	0.00	0.00
3,000.00	25.00	130.00	2,841.43	-537.91	641.06	-531.51	0.00	0.00	0.00
3,100.00	25.00	130.00	2,932.06	-565.08	673.44	-558.35	0.00	0.00	0.00
3,200.00	25.00	130.00	3,022.69	-592.24	705.81	-585.19	0.00	0.00	0.00
3,300.00	25.00	130.00	3,113.32	-619.41	738.18	-612.04	0.00	0.00	0.00
3,400.00	25.00	130.00	3,203.95	-646.58	770.56	-638.88	0.00	0.00	0.00
3,500.00	25.00	130.00	3,294.59	-673.74	802.93	-665.72	0.00	0.00	0.00
3,600.00	25.00	130.00	3,385.22	-700.91	835.31	-692.56	0.00	0.00	0.00
3,700.00	25.00	130.00	3,475.85	-728.07	867.68	-719.40	0.00	0.00	0.00
3,800.00	25.00	130.00	3,566.48	-755.24	900.06	-746.25	0.00	0.00	0.00
3,900.00	25.00	130.00	3,657.11	-782.40	932.43	-773.09	0.00	0.00	0.00
4,000.00	25.00	130.00	3,747.74	-809.57	964.81	-799.93	0.00	0.00	0.00
4,100.00	25.00	130.00	3,838.37	-836.73	997.18	-826.77	0.00	0.00	0.00
4,200.00	25.00	130.00	3,929.00	-863.90	1,029.55	-853.61	0.00	0.00	0.00
4,300.00	25.00	130.00	4,019.63	-891.06	1,061.93	-880.46	0.00	0.00	0.00
4,353.37	25.00	130.00	4,068.00	-905.56	1,079.21	-894.78	0.00	0.00	0.00
Sussex									
4,400.00	25.00	130.00	4,110.26	-918.23	1,094.30	-907.30	0.00	0.00	0.00

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Survey Report

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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)
4,500.00	25.00	130.00	4,200.89	-945.39	1,126.68	-934.14	0.00	0.00	0.00
4,600.00	25.00	130.00	4,291.52	-972.56	1,159.05	-960.98	0.00	0.00	0.00
4,700.00	25.00	130.00	4,382.16	-999.73	1,191.43	-987.82	0.00	0.00	0.00
4,800.00	25.00	130.00	4,472.79	-1,026.89	1,223.80	-1,014.67	0.00	0.00	0.00
4,801.67	25.00	130.00	4,474.30	-1,027.34	1,224.34	-1,015.11	0.00	0.00	0.00
Begin Drop @ 4801.67ft									
4,900.00	23.03	130.00	4,564.11	-1,053.07	1,255.00	-1,040.53	2.00	-2.00	0.00
5,000.00	21.03	130.00	4,656.80	-1,077.18	1,283.73	-1,064.36	2.00	-2.00	0.00
5,100.00	19.03	130.00	4,750.75	-1,099.20	1,309.97	-1,086.11	2.00	-2.00	0.00
5,200.00	17.03	130.00	4,845.83	-1,119.10	1,333.69	-1,105.77	2.00	-2.00	0.00
5,300.00	15.03	130.00	4,941.94	-1,136.85	1,354.84	-1,123.31	2.00	-2.00	0.00
5,400.00	13.03	130.00	5,038.95	-1,152.44	1,373.42	-1,138.72	2.00	-2.00	0.00
5,500.00	11.03	130.00	5,136.74	-1,165.84	1,389.39	-1,151.96	2.00	-2.00	0.00
5,600.00	9.03	130.00	5,235.21	-1,177.03	1,402.73	-1,163.02	2.00	-2.00	0.00
5,700.00	7.03	130.00	5,334.22	-1,186.02	1,413.44	-1,171.90	2.00	-2.00	0.00
5,800.00	5.03	130.00	5,433.67	-1,192.77	1,421.49	-1,178.57	2.00	-2.00	0.00
5,900.00	3.03	130.00	5,533.41	-1,197.29	1,426.88	-1,183.04	2.00	-2.00	0.00
6,000.00	1.03	130.00	5,633.34	-1,199.57	1,429.60	-1,185.29	2.00	-2.00	0.00
6,051.67	0.00	0.00	5,685.01	-1,199.87	1,429.95	-1,185.59	2.00	-2.00	0.00
End Drop @ 6051.67ft									
6,100.00	0.00	0.00	5,733.34	-1,199.87	1,429.95	-1,185.59	0.00	0.00	0.00
6,200.00	0.00	0.00	5,833.34	-1,199.87	1,429.95	-1,185.59	0.00	0.00	0.00
6,300.00	0.00	0.00	5,933.34	-1,199.87	1,429.95	-1,185.59	0.00	0.00	0.00
6,400.00	0.00	0.00	6,033.34	-1,199.87	1,429.95	-1,185.59	0.00	0.00	0.00
6,500.00	0.00	0.00	6,133.34	-1,199.87	1,429.95	-1,185.59	0.00	0.00	0.00
6,600.00	0.00	0.00	6,233.34	-1,199.87	1,429.95	-1,185.59	0.00	0.00	0.00
6,700.00	0.00	0.00	6,333.34	-1,199.87	1,429.95	-1,185.59	0.00	0.00	0.00
6,800.00	0.00	0.00	6,433.34	-1,199.87	1,429.95	-1,185.59	0.00	0.00	0.00
6,900.00	0.00	0.00	6,533.34	-1,199.87	1,429.95	-1,185.59	0.00	0.00	0.00
6,909.71	0.00	0.00	6,543.05	-1,199.87	1,429.95	-1,185.59	0.00	0.00	0.00
KOP @ 6909.71ft									
7,000.00	8.13	0.57	6,633.04	-1,193.48	1,430.02	-1,179.20	9.00	9.00	0.00
7,100.00	17.13	0.57	6,730.52	-1,171.64	1,430.23	-1,157.36	9.00	9.00	0.00
7,200.00	26.13	0.57	6,823.39	-1,134.83	1,430.60	-1,120.54	9.00	9.00	0.00
7,300.00	35.13	0.57	6,909.35	-1,083.94	1,431.11	-1,069.65	9.00	9.00	0.00
7,400.00	44.13	0.57	6,986.29	-1,020.23	1,431.74	-1,005.94	9.00	9.00	0.00
7,402.39	44.34	0.57	6,988.00	-1,018.57	1,431.76	-1,004.27	9.00	9.00	0.00
Sharon Springs									
7,500.00	53.13	0.57	7,052.32	-945.27	1,432.49	-930.97	9.00	9.00	0.00
DLS = 9°/100'									
7,563.83	58.87	0.57	7,088.00	-892.38	1,433.01	-878.08	9.00	9.00	0.00
Niobrara									
7,600.00	62.13	0.57	7,105.81	-860.90	1,433.33	-846.60	9.00	9.00	0.00
7,700.00	71.13	0.57	7,145.44	-769.21	1,434.24	-754.90	9.00	9.00	0.00

Anadarko

Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well NEWBY STATE 30N-34HZ
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 STATE 30N-34HZ	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)
7,708.06	71.85	0.57	7,148.00	-761.56	1,434.32	-747.26	9.00	9.00	0.00
Nio B									
7,800.00	80.13	0.57	7,170.24	-672.44	1,435.20	-658.13	9.00	9.00	0.00
7,900.00	89.13	0.57	7,179.59	-572.99	1,436.19	-558.67	9.00	9.00	0.00
7,938.98	92.63	0.57	7,179.00	-534.02	1,436.58	-519.71	9.00	9.00	0.00
End Build @ 7938.98ft - Top of Production									
8,000.00	92.63	0.57	7,176.19	-473.07	1,437.19	-458.75	0.00	0.00	0.00
8,100.00	92.63	0.57	7,171.59	-373.18	1,438.18	-358.86	0.00	0.00	0.00
8,200.00	92.63	0.57	7,167.00	-273.29	1,439.18	-258.96	0.00	0.00	0.00
8,300.00	92.63	0.57	7,162.40	-173.40	1,440.17	-159.07	0.00	0.00	0.00
8,400.00	92.63	0.57	7,157.81	-73.51	1,441.17	-59.17	0.00	0.00	0.00
8,500.00	92.63	0.57	7,153.21	26.38	1,442.16	40.72	0.00	0.00	0.00
8,600.00	92.63	0.57	7,148.61	126.27	1,443.16	140.62	0.00	0.00	0.00
8,700.00	92.63	0.57	7,144.02	226.16	1,444.15	240.51	0.00	0.00	0.00
8,800.00	92.63	0.57	7,139.42	326.04	1,445.14	340.40	0.00	0.00	0.00
8,900.00	92.63	0.57	7,134.83	425.93	1,446.14	440.30	0.00	0.00	0.00
9,000.00	92.63	0.57	7,130.23	525.82	1,447.13	540.19	0.00	0.00	0.00
9,100.00	92.63	0.57	7,125.63	625.71	1,448.13	640.09	0.00	0.00	0.00
9,200.00	92.63	0.57	7,121.04	725.60	1,449.12	739.98	0.00	0.00	0.00
9,300.00	92.63	0.57	7,116.44	825.49	1,450.12	839.88	0.00	0.00	0.00
9,400.00	92.63	0.57	7,111.85	925.38	1,451.11	939.77	0.00	0.00	0.00
9,500.00	92.63	0.57	7,107.25	1,025.27	1,452.11	1,039.67	0.00	0.00	0.00
9,600.00	92.63	0.57	7,102.65	1,125.16	1,453.10	1,139.56	0.00	0.00	0.00
9,700.00	92.63	0.57	7,098.06	1,225.05	1,454.09	1,239.45	0.00	0.00	0.00
9,800.00	92.63	0.57	7,093.46	1,324.94	1,455.09	1,339.35	0.00	0.00	0.00
9,900.00	92.63	0.57	7,088.87	1,424.83	1,456.08	1,439.24	0.00	0.00	0.00
10,000.00	92.63	0.57	7,084.27	1,524.72	1,457.08	1,539.14	0.00	0.00	0.00
10,100.00	92.63	0.57	7,079.67	1,624.61	1,458.07	1,639.03	0.00	0.00	0.00
10,200.00	92.63	0.57	7,075.08	1,724.50	1,459.07	1,738.93	0.00	0.00	0.00
10,300.00	92.63	0.57	7,070.48	1,824.39	1,460.06	1,838.82	0.00	0.00	0.00
10,400.00	92.63	0.57	7,065.89	1,924.27	1,461.06	1,938.71	0.00	0.00	0.00
10,500.00	92.63	0.57	7,061.29	2,024.16	1,462.05	2,038.61	0.00	0.00	0.00
10,600.00	92.63	0.57	7,056.69	2,124.05	1,463.04	2,138.50	0.00	0.00	0.00
10,700.00	92.63	0.57	7,052.10	2,223.94	1,464.04	2,238.40	0.00	0.00	0.00
10,800.00	92.63	0.57	7,047.50	2,323.83	1,465.03	2,338.29	0.00	0.00	0.00
10,900.00	92.63	0.57	7,042.91	2,423.72	1,466.03	2,438.19	0.00	0.00	0.00
11,000.00	92.63	0.57	7,038.31	2,523.61	1,467.02	2,538.08	0.00	0.00	0.00
11,100.00	92.63	0.57	7,033.71	2,623.50	1,468.02	2,637.97	0.00	0.00	0.00
11,200.00	92.63	0.57	7,029.12	2,723.39	1,469.01	2,737.87	0.00	0.00	0.00
11,300.00	92.63	0.57	7,024.52	2,823.28	1,470.01	2,837.76	0.00	0.00	0.00
11,400.00	92.63	0.57	7,019.93	2,923.17	1,471.00	2,937.66	0.00	0.00	0.00
11,500.00	92.63	0.57	7,015.33	3,023.06	1,472.00	3,037.55	0.00	0.00	0.00
11,600.00	92.63	0.57	7,010.73	3,122.95	1,472.99	3,137.45	0.00	0.00	0.00
11,700.00	92.63	0.57	7,006.14	3,222.84	1,473.98	3,237.34	0.00	0.00	0.00

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Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well NEWBY STATE 30N-34HZ
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 STATE 30N-34HZ	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	92.63	0.57	7,001.54	3,322.73	1,474.98	3,337.23	0.00	0.00	0.00	
11,900.00	92.63	0.57	6,996.95	3,422.62	1,475.97	3,437.13	0.00	0.00	0.00	
12,000.00	92.63	0.57	6,992.35	3,522.50	1,476.97	3,537.02	0.00	0.00	0.00	
12,100.00	92.63	0.57	6,987.75	3,622.39	1,477.96	3,636.92	0.00	0.00	0.00	
12,200.00	92.63	0.57	6,983.16	3,722.28	1,478.96	3,736.81	0.00	0.00	0.00	
12,300.00	92.63	0.57	6,978.56	3,822.17	1,479.95	3,836.71	0.00	0.00	0.00	
12,400.00	92.63	0.57	6,973.97	3,922.06	1,480.95	3,936.60	0.00	0.00	0.00	
12,500.00	92.63	0.57	6,969.37	4,021.95	1,481.94	4,036.50	0.00	0.00	0.00	
12,600.00	92.63	0.57	6,964.77	4,121.84	1,482.93	4,136.39	0.00	0.00	0.00	
12,700.00	92.63	0.57	6,960.18	4,221.73	1,483.93	4,236.28	0.00	0.00	0.00	
12,747.40	92.63	0.57	6,958.00	4,269.08	1,484.40	4,283.63	0.00	0.00	0.00	
TD Well @ 12747.40ft										

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Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well NEWBY STATE 30N-34HZ
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 STATE 30N-34HZ	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 STATE 30N-34I	0.00	0.00	0.00	0.00	0.00	14,591,034.38	1,639,602.98	40.176580	-105.002913
- plan hits target center									
- Point									
NEWBY STATE 30N-34I	0.00	0.00	0.00	0.00	0.00	14,591,034.38	1,639,602.98	40.176580	-105.002913
- plan hits target center									
- Polygon									
Point 1		0.00	4,262.24	814.18		14,595,296.60	1,640,417.30		
Point 2		0.00	4,267.06	1,274.18		14,595,301.40	1,640,877.30		
Point 3		0.00	4,280.37	1,734.18		14,595,314.70	1,641,337.30		
Point 4		0.00	3,397.67	1,735.01		14,594,432.00	1,641,338.10		
Point 5		0.00	2,067.47	1,736.35		14,593,101.80	1,641,339.40		
Point 6		0.00	744.57	1,735.69		14,591,778.90	1,641,338.70		
Point 7		0.00	-581.43	1,735.04		14,590,452.90	1,641,338.00		
Point 8		0.00	-1,417.73	1,729.96		14,589,616.60	1,641,332.90		
Point 9		0.00	-1,416.74	1,262.36		14,589,617.60	1,640,865.30		
Point 10		0.00	-1,421.46	809.86		14,589,612.90	1,640,412.80		
Point 11		0.00	-581.96	814.94		14,590,452.40	1,640,417.90		
Point 12		0.00	740.74	815.69		14,591,775.10	1,640,418.70		
Point 13		0.00	2,063.44	816.35		14,593,097.80	1,640,419.40		
Point 14		0.00	3,392.84	815.01		14,594,427.20	1,640,418.10		
Point 15		0.00	4,262.24	814.18		14,595,296.60	1,640,417.30		
NEWBY STATE 30N-34I	0.00	0.00	0.00	3,397.26	1,275.01	14,594,431.60	1,640,878.10	40.185909	-104.998348
- plan misses target center by 3628.64usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Circle (radius 460.00)									
NEWBY STATE 30N-34I	0.00	0.00	0.00	-577.74	1,275.04	14,590,456.60	1,640,878.00	40.174993	-104.998349
- plan misses target center by 1399.82usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Circle (radius 460.00)									
3N-R68W-Sec. 33_Secti	0.00	0.00	-15.00	4,418.65	-1,240.56	14,595,453.07	1,638,362.57	40.188714	-105.007355
- plan misses target center by 4589.52usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1		-15.00	251.45	-2,791.30		14,595,704.62	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	1,640,878.24		
Point 5		-15.00	-4,995.84	2,515.63		14,590,457.15	1,640,878.04		
Point 6		-15.00	-5,018.95	-136.58		14,590,434.13	1,638,225.83		
Point 7		-15.00	-5,040.96	-2,769.50		14,590,412.21	1,635,592.91		
Point 8		-15.00	-2,394.09	-2,784.98		14,593,059.08	1,635,577.51		
2N-R68W-Sec. 4_Sectio	0.00	0.00	-15.00	4,418.65	-1,240.56	14,595,453.07	1,638,362.57	40.188714	-105.007355
- plan misses target center by 4589.52usft 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	1,635,592.91		
Point 2		-15.00	-5,018.95	-136.58		14,590,434.13	1,638,225.83		
Point 3		-15.00	-4,995.84	2,515.63		14,590,457.15	1,640,878.04		
Point 4		-15.00	-7,591.82	2,497.44		14,587,861.17	1,640,859.76		
Point 5		-15.00	-10,216.42	2,462.98		14,585,236.57	1,640,825.22		
Point 6		-15.00	-10,271.92	-193.52		14,585,181.16	1,638,168.72		
Point 7		-15.00	-10,321.42	-2,870.28		14,585,131.75	1,635,491.95		
Point 8		-15.00	-7,652.28	-2,819.20		14,587,800.89	1,635,543.12		
NEWBY STATE 30N-34I	0.00	0.00	6,958.00	4,269.08	1,484.40	14,595,303.41	1,641,087.52	40.188303	-104.997598
- plan hits target center									
- Point									

Anadarko

Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well NEWBY STATE 30N-34HZ
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 STATE 30N-34HZ	North Reference:	True
Wellbore:	Plan A	Survey Calculation Method:	Minimum Curvature
Design:	Permit Rev-1	Database:	PLANNING

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,850.92	1,800.00	9 5/8"	9-5/8	13-1/2	
7,938.98	7,179.00	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			
4,353.37	4,068.00	Sussex			
7,402.39	6,988.00	Sharon Springs			
7,563.83	7,088.00	Niobrara			
7,708.06	7,148.00	Nio B			

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
200	200	0	0	Begin Nudge @ 200.00ft	
1867	1814	-230	274	End Nudge @ 1866.67ft	
4802	4474	-1027	1224	Begin Drop @ 4801.67ft	
6052	5685	-1200	1430	End Drop @ 6051.67ft	
6910	6543	-1200	1430	KOP @ 6909.71ft	
7500	7052	-945	1432	DLS = 9°/100'	
7939	7179	-534	1437	End Build @ 7938.98ft	
12,747	6958	4269	1484	TD Well @ 12747.40ft	

Checked By: _____ Approved By: _____ Date: _____