

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

1N-67W-14 Johnson 13-14HZ Pad

JOHNSON 28C-14HZ

Plan A

Plan: Permit Rev-1

Standard Survey Report

09 February, 2016

Project: WELD-NAD83-UTMFT13N
Site: 1N-67W-14 Johnson 13-14HZ Pad
Well: JOHNSON 28C-14HZ
Wellbore: Plan A
Design: Permit Rev-1

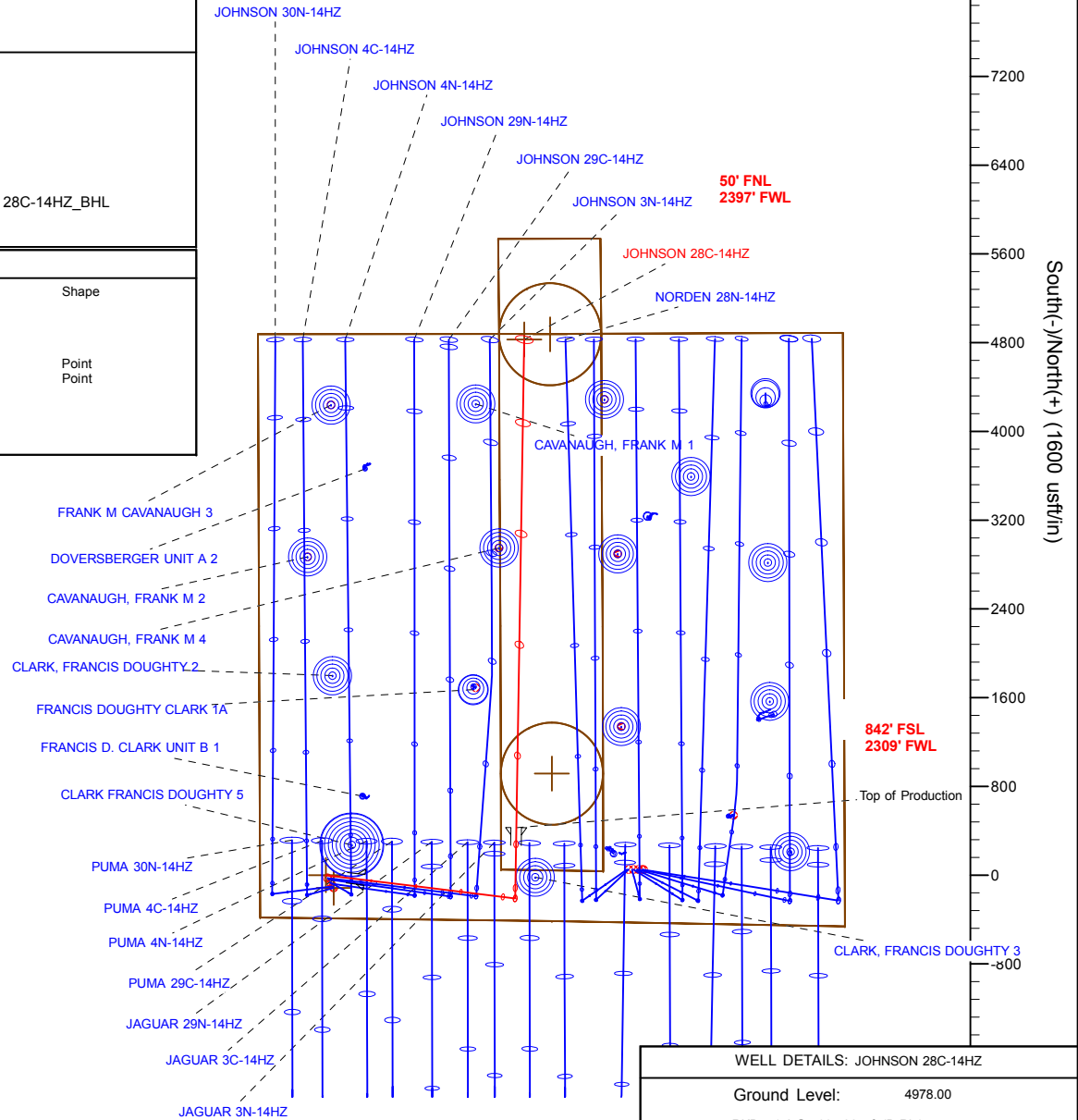
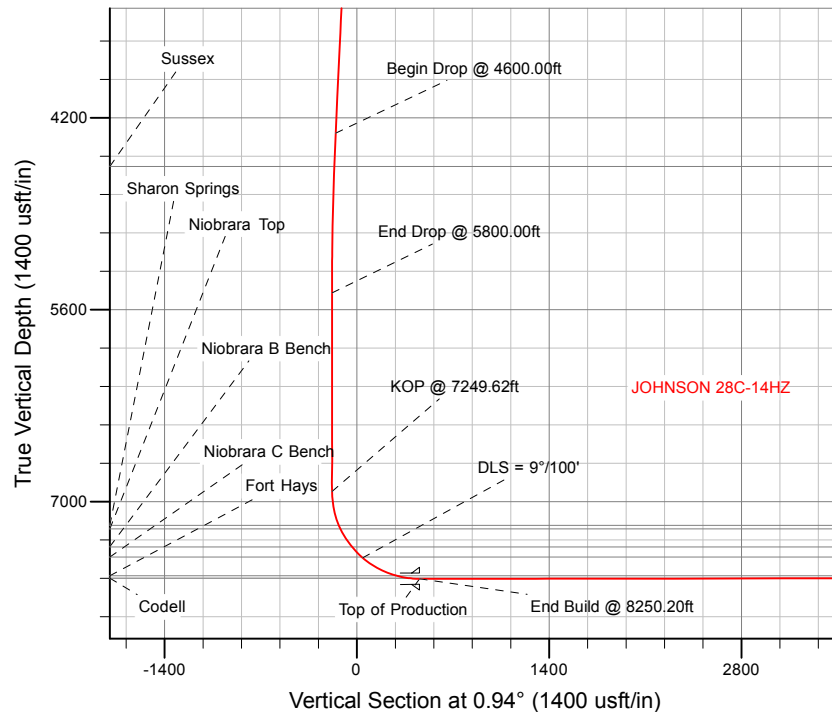
US ROCKIES WATTENBERG PLANNING

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	1800.00	24.00	97.00	1753.62	-40.25	327.77	1.50	97.00	-34.86	
4	4600.00	24.00	97.00	4311.55	-179.04	1458.14	0.00	0.00	-155.09	
5	5800.00	0.00	0.00	5476.76	-209.22	1703.97	2.00	-180.00	-181.24	
6	7249.62	0.00	0.00	6926.38	-209.22	1703.97	0.00	0.00	-181.24	
7	8250.20	90.05	0.94	7563.00	427.89	1714.39	9.00	0.94	455.96	
8	12651.88	90.05	0.94	7559.00	4828.98	1786.33	0.00	0.00	4857.64	JOHNSON 28C-14HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
JOHNSON 28C-14HZ_SHL	0.00	0.00	0.00	40.044884	-104.865165	Point
JOHNSON 28C-14HZ_BHL	7559.00	4828.98	1786.33	40.058145	-104.858781	Point



WELL DETAILS: JOHNSON 28C-14HZ

Ground Level: 4978.00

RKB = 17' @ 4995.00usft (D Rig)

Plan: Permit Rev-1 (JOHNSON 28C-14HZ/Plan A)

Created By: Clint Eshelman

Date: 2/9/2016

Reviewed: _____

Date: _____

Anadarko

Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well JOHNSON 28C-14HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	RKB = 17' @ 4995.00usft (D Rig)
Site:	1N-67W-14 Johnson 13-14HZ Pad	MD Reference:	RKB = 17' @ 4995.00usft (D Rig)
Well:	JOHNSON 28C-14HZ	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		1N-67W-14 Johnson 13-14HZ Pad			
Site Position:		Northing:	14,543,106.18 usft	Latitude:	40.044884
From:	Lat/Long	Easting:	1,678,152.60 usft	Longitude:	-104.865165
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.09 °

Well	JOHNSON 28C-14HZ					
Well Position	+N/-S	0.00 usft	Northing:	14,543,106.18 usft	Latitude:	40.044884
	+E/-W	0.00 usft	Easting:	1,678,152.60 usft	Longitude:	-104.865165
Position Uncertainty		3.28 usft	Wellhead Elevation:	0.00 usft	Ground Level:	4,978.00 usft

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/9/2016	8.26	66.59	52,443

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	0.94	

Survey Tool Program	Date	2/9/2016			
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	12,651.88	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	97.00	299.99	-0.16	1.30	-0.14	1.50	1.50	0.00	
400.00	3.00	97.00	399.91	-0.64	5.20	-0.55	1.50	1.50	0.00	
500.00	4.50	97.00	499.69	-1.44	11.69	-1.24	1.50	1.50	0.00	
600.00	6.00	97.00	599.27	-2.55	20.77	-2.21	1.50	1.50	0.00	
700.00	7.50	97.00	698.57	-3.98	32.43	-3.45	1.50	1.50	0.00	
800.00	9.00	97.00	797.54	-5.73	46.68	-4.96	1.50	1.50	0.00	

Anadarko

Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well JOHNSON 28C-14HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	RKB = 17' @ 4995.00usft (D Rig)
Site:	1N-67W-14 Johnson 13-14HZ Pad	MD Reference:	RKB = 17' @ 4995.00usft (D Rig)
Well:	JOHNSON 28C-14HZ	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)
900.00	10.50	97.00	896.09	-7.79	63.48	-6.75	1.50	1.50	0.00
1,000.00	12.00	97.00	994.16	-10.17	82.85	-8.81	1.50	1.50	0.00
1,100.00	13.50	97.00	1,091.70	-12.86	104.75	-11.14	1.50	1.50	0.00
1,200.00	15.00	97.00	1,188.62	-15.86	129.18	-13.74	1.50	1.50	0.00
1,300.00	16.50	97.00	1,284.86	-19.17	156.12	-16.61	1.50	1.50	0.00
1,400.00	18.00	97.00	1,380.36	-22.78	185.56	-19.74	1.50	1.50	0.00
1,403.83	18.06	97.00	1,384.00	-22.93	186.73	-19.86	1.50	1.50	0.00
Fox Hills									
1,500.00	19.50	97.00	1,475.05	-26.70	217.46	-23.13	1.50	1.50	0.00
1,600.00	21.00	97.00	1,568.86	-30.92	251.81	-26.78	1.50	1.50	0.00
1,700.00	22.50	97.00	1,661.74	-35.43	288.59	-30.70	1.50	1.50	0.00
1,800.00	24.00	97.00	1,753.62	-40.25	327.77	-34.86	1.50	1.50	0.00
End Nudge @ 1800.00ft									
1,850.77	24.00	97.00	1,800.00	-42.76	348.27	-37.04	0.00	0.00	0.00
9 5/8"									
1,900.00	24.00	97.00	1,844.97	-45.20	368.14	-39.16	0.00	0.00	0.00
2,000.00	24.00	97.00	1,936.33	-50.16	408.51	-43.45	0.00	0.00	0.00
2,100.00	24.00	97.00	2,027.68	-55.12	448.88	-47.74	0.00	0.00	0.00
2,200.00	24.00	97.00	2,119.04	-60.07	489.25	-52.04	0.00	0.00	0.00
2,300.00	24.00	97.00	2,210.39	-65.03	529.62	-56.33	0.00	0.00	0.00
2,400.00	24.00	97.00	2,301.75	-69.99	569.99	-60.63	0.00	0.00	0.00
2,500.00	24.00	97.00	2,393.10	-74.94	610.36	-64.92	0.00	0.00	0.00
2,600.00	24.00	97.00	2,484.46	-79.90	650.73	-69.21	0.00	0.00	0.00
2,700.00	24.00	97.00	2,575.81	-84.86	691.10	-73.51	0.00	0.00	0.00
2,800.00	24.00	97.00	2,667.17	-89.81	731.48	-77.80	0.00	0.00	0.00
2,900.00	24.00	97.00	2,758.52	-94.77	771.85	-82.10	0.00	0.00	0.00
3,000.00	24.00	97.00	2,849.87	-99.73	812.22	-86.39	0.00	0.00	0.00
3,100.00	24.00	97.00	2,941.23	-104.68	852.59	-90.68	0.00	0.00	0.00
3,200.00	24.00	97.00	3,032.58	-109.64	892.96	-94.98	0.00	0.00	0.00
3,300.00	24.00	97.00	3,123.94	-114.60	933.33	-99.27	0.00	0.00	0.00
3,400.00	24.00	97.00	3,215.29	-119.56	973.70	-103.57	0.00	0.00	0.00
3,500.00	24.00	97.00	3,306.65	-124.51	1,014.07	-107.86	0.00	0.00	0.00
3,600.00	24.00	97.00	3,398.00	-129.47	1,054.44	-112.15	0.00	0.00	0.00
3,700.00	24.00	97.00	3,489.36	-134.43	1,094.81	-116.45	0.00	0.00	0.00
3,800.00	24.00	97.00	3,580.71	-139.38	1,135.18	-120.74	0.00	0.00	0.00
3,900.00	24.00	97.00	3,672.07	-144.34	1,175.55	-125.03	0.00	0.00	0.00
4,000.00	24.00	97.00	3,763.42	-149.30	1,215.92	-129.33	0.00	0.00	0.00
4,100.00	24.00	97.00	3,854.77	-154.25	1,256.29	-133.62	0.00	0.00	0.00
4,200.00	24.00	97.00	3,946.13	-159.21	1,296.66	-137.92	0.00	0.00	0.00
4,300.00	24.00	97.00	4,037.48	-164.17	1,337.03	-142.21	0.00	0.00	0.00
4,400.00	24.00	97.00	4,128.84	-169.12	1,377.40	-146.50	0.00	0.00	0.00
4,500.00	24.00	97.00	4,220.19	-174.08	1,417.77	-150.80	0.00	0.00	0.00
4,600.00	24.00	97.00	4,311.55	-179.04	1,458.14	-155.09	0.00	0.00	0.00
Begin Drop @ 4600.00ft									

Anadarko

Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well JOHNSON 28C-14HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	RKB = 17' @ 4995.00usft (D Rig)
Site:	1N-67W-14 Johnson 13-14HZ Pad	MD Reference:	RKB = 17' @ 4995.00usft (D Rig)
Well:	JOHNSON 28C-14HZ	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)
4,700.00	22.00	97.00	4,403.59	-183.80	1,496.92	-159.22	2.00	-2.00	0.00
4,800.00	20.00	97.00	4,496.95	-188.17	1,532.49	-163.00	2.00	-2.00	0.00
4,862.60	18.75	97.00	4,556.00	-190.70	1,553.10	-165.19	2.00	-2.00	0.00
Sussex									
4,900.00	18.00	97.00	4,591.49	-192.13	1,564.80	-166.44	2.00	-2.00	0.00
5,000.00	16.00	97.00	4,687.12	-195.70	1,593.82	-169.52	2.00	-2.00	0.00
5,100.00	14.00	97.00	4,783.71	-198.85	1,619.51	-172.26	2.00	-2.00	0.00
5,200.00	12.00	97.00	4,881.14	-201.59	1,641.84	-174.63	2.00	-2.00	0.00
5,300.00	10.00	97.00	4,979.30	-203.92	1,660.77	-176.64	2.00	-2.00	0.00
5,400.00	8.00	97.00	5,078.06	-205.82	1,676.30	-178.30	2.00	-2.00	0.00
5,500.00	6.00	97.00	5,177.31	-207.31	1,688.40	-179.58	2.00	-2.00	0.00
5,600.00	4.00	97.00	5,276.92	-208.37	1,697.05	-180.50	2.00	-2.00	0.00
5,700.00	2.00	97.00	5,376.78	-209.01	1,702.24	-181.05	2.00	-2.00	0.00
5,800.00	0.00	0.00	5,476.76	-209.22	1,703.97	-181.24	2.00	-2.00	-97.00
End Drop @ 5800.00ft									
5,900.00	0.00	0.00	5,576.76	-209.22	1,703.97	-181.24	0.00	0.00	0.00
6,000.00	0.00	0.00	5,676.76	-209.22	1,703.97	-181.24	0.00	0.00	0.00
6,100.00	0.00	0.00	5,776.76	-209.22	1,703.97	-181.24	0.00	0.00	0.00
6,200.00	0.00	0.00	5,876.76	-209.22	1,703.97	-181.24	0.00	0.00	0.00
6,300.00	0.00	0.00	5,976.76	-209.22	1,703.97	-181.24	0.00	0.00	0.00
6,400.00	0.00	0.00	6,076.76	-209.22	1,703.97	-181.24	0.00	0.00	0.00
6,500.00	0.00	0.00	6,176.76	-209.22	1,703.97	-181.24	0.00	0.00	0.00
6,600.00	0.00	0.00	6,276.76	-209.22	1,703.97	-181.24	0.00	0.00	0.00
6,700.00	0.00	0.00	6,376.76	-209.22	1,703.97	-181.24	0.00	0.00	0.00
6,800.00	0.00	0.00	6,476.76	-209.22	1,703.97	-181.24	0.00	0.00	0.00
6,900.00	0.00	0.00	6,576.76	-209.22	1,703.97	-181.24	0.00	0.00	0.00
7,000.00	0.00	0.00	6,676.76	-209.22	1,703.97	-181.24	0.00	0.00	0.00
7,100.00	0.00	0.00	6,776.76	-209.22	1,703.97	-181.24	0.00	0.00	0.00
7,200.00	0.00	0.00	6,876.76	-209.22	1,703.97	-181.24	0.00	0.00	0.00
7,249.62	0.00	0.00	6,926.38	-209.22	1,703.97	-181.24	0.00	0.00	0.00
KOP @ 7249.62ft									
7,300.00	4.53	0.94	6,976.71	-207.23	1,704.00	-179.25	9.00	9.00	1.86
7,400.00	13.53	0.94	7,075.37	-191.55	1,704.26	-163.56	9.00	9.00	0.00
7,500.00	22.53	0.94	7,170.36	-160.62	1,704.77	-132.63	9.00	9.00	0.00
7,502.87	22.79	0.94	7,173.00	-159.52	1,704.78	-131.53	9.00	9.00	0.00
Sharon Springs									
7,531.35	25.36	0.94	7,199.00	-147.90	1,704.97	-119.91	9.00	9.00	0.00
Niobrara Top									
7,600.00	31.53	0.94	7,259.34	-115.22	1,705.51	-87.23	9.00	9.00	0.00
7,687.64	39.42	0.94	7,330.65	-64.41	1,706.34	-36.40	9.00	9.00	0.00
Niobrara B Bench									
7,700.00	40.53	0.94	7,340.12	-56.46	1,706.47	-28.46	9.00	9.00	0.00
7,791.02	48.73	0.94	7,404.84	7.42	1,707.51	35.43	9.00	9.00	0.00
Niobrara C Bench									

Anadarko

Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well JOHNSON 28C-14HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	RKB = 17' @ 4995.00usft (D Rig)
Site:	1N-67W-14 Johnson 13-14HZ Pad	MD Reference:	RKB = 17' @ 4995.00usft (D Rig)
Well:	JOHNSON 28C-14HZ	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)
7,800.00	49.53	0.94	7,410.72	14.21	1,707.62	42.22	9.00	9.00	0.00
DLS = 9°/100'									
7,900.00	58.53	0.94	7,469.39	95.05	1,708.95	123.07	9.00	9.00	0.00
8,000.00	67.53	0.94	7,514.69	184.07	1,710.40	212.11	9.00	9.00	0.00
8,077.37	74.50	0.94	7,539.84	257.18	1,711.60	285.23	9.00	9.00	0.00
Fort Hays									
8,100.00	76.53	0.94	7,545.50	279.09	1,711.95	307.13	9.00	9.00	0.00
8,175.00	83.28	0.94	7,558.63	352.87	1,713.16	380.93	9.00	9.00	0.00
Codell									
8,200.00	85.53	0.94	7,561.07	377.75	1,713.57	405.81	9.00	9.00	0.00
8,250.20	90.05	0.94	7,563.00	427.89	1,714.39	455.96	9.00	9.00	0.00
End Build @ 8250.20ft - Top of Production									
8,300.00	90.05	0.94	7,562.96	477.69	1,715.20	505.76	0.00	0.00	0.00
8,400.00	90.05	0.94	7,562.86	577.67	1,716.84	605.76	0.00	0.00	0.00
8,500.00	90.05	0.94	7,562.77	677.66	1,718.47	705.76	0.00	0.00	0.00
8,600.00	90.05	0.94	7,562.68	777.65	1,720.10	805.76	0.00	0.00	0.00
8,700.00	90.05	0.94	7,562.59	877.63	1,721.74	905.76	0.00	0.00	0.00
8,800.00	90.05	0.94	7,562.50	977.62	1,723.37	1,005.76	0.00	0.00	0.00
8,900.00	90.05	0.94	7,562.41	1,077.61	1,725.01	1,105.76	0.00	0.00	0.00
9,000.00	90.05	0.94	7,562.32	1,177.59	1,726.64	1,205.76	0.00	0.00	0.00
9,100.00	90.05	0.94	7,562.23	1,277.58	1,728.28	1,305.76	0.00	0.00	0.00
9,200.00	90.05	0.94	7,562.14	1,377.57	1,729.91	1,405.76	0.00	0.00	0.00
9,300.00	90.05	0.94	7,562.05	1,477.55	1,731.55	1,505.76	0.00	0.00	0.00
9,400.00	90.05	0.94	7,561.96	1,577.54	1,733.18	1,605.76	0.00	0.00	0.00
9,500.00	90.05	0.94	7,561.87	1,677.53	1,734.81	1,705.76	0.00	0.00	0.00
9,600.00	90.05	0.94	7,561.77	1,777.51	1,736.45	1,805.76	0.00	0.00	0.00
9,700.00	90.05	0.94	7,561.68	1,877.50	1,738.08	1,905.76	0.00	0.00	0.00
9,800.00	90.05	0.94	7,561.59	1,977.49	1,739.72	2,005.76	0.00	0.00	0.00
9,900.00	90.05	0.94	7,561.50	2,077.47	1,741.35	2,105.76	0.00	0.00	0.00
10,000.00	90.05	0.94	7,561.41	2,177.46	1,742.99	2,205.76	0.00	0.00	0.00
10,100.00	90.05	0.94	7,561.32	2,277.45	1,744.62	2,305.76	0.00	0.00	0.00
10,200.00	90.05	0.94	7,561.23	2,377.43	1,746.26	2,405.76	0.00	0.00	0.00
10,300.00	90.05	0.94	7,561.14	2,477.42	1,747.89	2,505.76	0.00	0.00	0.00
10,400.00	90.05	0.94	7,561.05	2,577.41	1,749.52	2,605.76	0.00	0.00	0.00
10,500.00	90.05	0.94	7,560.96	2,677.39	1,751.16	2,705.76	0.00	0.00	0.00
10,600.00	90.05	0.94	7,560.87	2,777.38	1,752.79	2,805.76	0.00	0.00	0.00
10,700.00	90.05	0.94	7,560.77	2,877.37	1,754.43	2,905.76	0.00	0.00	0.00
10,800.00	90.05	0.94	7,560.68	2,977.35	1,756.06	3,005.76	0.00	0.00	0.00
10,900.00	90.05	0.94	7,560.59	3,077.34	1,757.70	3,105.76	0.00	0.00	0.00
11,000.00	90.05	0.94	7,560.50	3,177.32	1,759.33	3,205.76	0.00	0.00	0.00
11,100.00	90.05	0.94	7,560.41	3,277.31	1,760.97	3,305.76	0.00	0.00	0.00
11,200.00	90.05	0.94	7,560.32	3,377.30	1,762.60	3,405.76	0.00	0.00	0.00
11,300.00	90.05	0.94	7,560.23	3,477.28	1,764.23	3,505.76	0.00	0.00	0.00
11,400.00	90.05	0.94	7,560.14	3,577.27	1,765.87	3,605.76	0.00	0.00	0.00

Anadarko

Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well JOHNSON 28C-14HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	RKB = 17' @ 4995.00usft (D Rig)
Site:	1N-67W-14 Johnson 13-14HZ Pad	MD Reference:	RKB = 17' @ 4995.00usft (D Rig)
Well:	JOHNSON 28C-14HZ	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)
11,500.00	90.05	0.94	7,560.05	3,677.26	1,767.50	3,705.76	0.00	0.00	0.00
11,600.00	90.05	0.94	7,559.96	3,777.24	1,769.14	3,805.76	0.00	0.00	0.00
11,700.00	90.05	0.94	7,559.87	3,877.23	1,770.77	3,905.76	0.00	0.00	0.00
11,800.00	90.05	0.94	7,559.77	3,977.22	1,772.41	4,005.76	0.00	0.00	0.00
11,900.00	90.05	0.94	7,559.68	4,077.20	1,774.04	4,105.76	0.00	0.00	0.00
12,000.00	90.05	0.94	7,559.59	4,177.19	1,775.68	4,205.76	0.00	0.00	0.00
12,100.00	90.05	0.94	7,559.50	4,277.18	1,777.31	4,305.76	0.00	0.00	0.00
12,200.00	90.05	0.94	7,559.41	4,377.16	1,778.94	4,405.76	0.00	0.00	0.00
12,300.00	90.05	0.94	7,559.32	4,477.15	1,780.58	4,505.76	0.00	0.00	0.00
12,400.00	90.05	0.94	7,559.23	4,577.14	1,782.21	4,605.76	0.00	0.00	0.00
12,500.00	90.05	0.94	7,559.14	4,677.12	1,783.85	4,705.76	0.00	0.00	0.00
12,600.00	90.05	0.94	7,559.05	4,777.11	1,785.48	4,805.76	0.00	0.00	0.00
12,651.88	90.05	0.94	7,559.00	4,828.98	1,786.33	4,857.64	0.00	0.00	0.00
TD Well @ 12651.88ft									

Anadarko

Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well JOHNSON 28C-14HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	RKB = 17' @ 4995.00usft (D Rig)
Site:	1N-67W-14 Johnson 13-14HZ Pad	MD Reference:	RKB = 17' @ 4995.00usft (D Rig)
Well:	JOHNSON 28C-14HZ	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
JOHNSON 28C-14HZ_S - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	14,543,106.18	1,678,152.60	40.044884	-104.865165
JOHNSON 28C-14HZ_4 - plan misses target center by 5278.00usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E) - Circle (radius 460.00)	0.00	0.00	0.00	4,876.66	2,018.78	14,547,985.90	1,680,164.00	40.058276	-104.857951
JOHNSON 28C-14HZ_H - plan misses target center by 134.93usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E) - Polygon	0.00	0.00	0.00	-114.34	71.65	14,542,991.95	1,678,224.42	40.044570	-104.864909
Point 1			0.00	163.97	1,505.12	14,543,158.20	1,679,729.30		
Point 2			0.00	1,032.97	1,503.34	14,544,027.20	1,679,726.20		
Point 3			0.00	2,364.17	1,500.66	14,545,358.39	1,679,721.51		
Point 4			0.00	3,682.89	1,491.86	14,546,677.10	1,679,710.71		
Point 5			0.00	4,990.80	1,487.15	14,547,985.00	1,679,704.02		
Point 6			0.00	5,851.91	1,479.05	14,548,846.09	1,679,694.61		
Point 7			0.00	5,852.42	2,399.05	14,548,848.00	1,680,614.61		
Point 8			0.00	4,991.10	2,407.15	14,547,986.69	1,680,624.02		
Point 9			0.00	3,681.19	2,411.86	14,546,676.79	1,680,630.71		
Point 10			0.00	2,360.48	2,420.66	14,545,356.09	1,680,641.51		
Point 11			0.00	1,031.37	2,423.34	14,544,026.99	1,680,646.20		
Point 12			0.00	150.07	2,425.20	14,543,145.69	1,680,649.40		
Point 13			0.00	163.97	1,505.12	14,543,158.20	1,679,729.30		
JOHNSON 28C-14HZ_4 - plan misses target center by 2231.36usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E) - Circle (radius 460.00)	0.00	0.00	0.00	915.34	2,034.98	14,544,024.60	1,680,186.20	40.047398	-104.857894
1N-R67W-Sec. 14_Secti - plan misses target center by 5365.18usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E) - Polygon	0.00	0.00	-12.00	-5,362.74	161.24	14,537,743.70	1,678,321.96	40.030157	-104.864589
Point 1			-12.00	10,240.97	-771.13	14,547,983.49	1,677,535.33		
Point 2			-12.00	10,241.68	1,854.89	14,547,988.17	1,680,161.34		
Point 3			-12.00	10,251.55	4,492.80	14,548,002.04	1,682,799.24		
Point 4			-12.00	4,901.92	4,512.15	14,542,652.44	1,682,826.69		
Point 5			-12.00	4,948.86	1,873.61	14,542,695.39	1,680,188.08		
Point 6			-12.00	4,981.70	-753.18	14,542,724.25	1,677,561.24		
Point 7			-12.00	7,611.26	-762.09	14,545,353.79	1,677,548.35		
JOHNSON 28C-14HZ_E - plan hits target center - Point	0.00	0.00	7,559.00	4,828.98	1,786.33	14,547,937.86	1,679,931.62	40.058145	-104.858781

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,850.77	1,800.00	9 5/8"	9-5/8	13-1/2	
8,250.20	7,563.00	Top of Production	5-1/2	7-7/8	

Anadarko

Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well JOHNSON 28C-14HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	RKB = 17' @ 4995.00usft (D Rig)
Site:	1N-67W-14 Johnson 13-14HZ Pad	MD Reference:	RKB = 17' @ 4995.00usft (D Rig)
Well:	JOHNSON 28C-14HZ	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 (°)
1,403.83	1,384.00	Fox Hills			
4,862.60	4,556.00	Sussex			
7,502.87	7,173.00	Sharon Springs			
7,531.35	7,199.00	Niobrara Top			
7,687.64	7,330.65	Niobrara B Bench			
7,791.02	7,404.84	Niobrara C Bench			
8,077.37	7,539.84	Fort Hays			
8,175.00	7,558.63	Codell			

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
1800	1754	-40	328	End Nudge @ 1800.00ft
4600	4312	-179	1458	Begin Drop @ 4600.00ft
5800	5477	-209	1704	End Drop @ 5800.00ft
7250	6926	-209	1704	KOP @ 7249.62ft
7800	7411	14	1708	DLS = 9°/100'
8250	7563	428	1714	End Build @ 8250.20ft
12,652	7559	4829	1786	TD Well @ 12651.88ft

Checked By: _____ Approved By: _____ Date: _____