

US ROCKIES WATTENBERG PLANNING

**WELD-NAD83-UTMFT13N
1N-67W-10 JZM 13-10HZ Pad
JZM 4N-3HZ**

Plan A

Plan: Permit Rev-1

Standard Planning Report

19 August, 2015

Project: WELD-NAD83-UTMFT13N

Site: 1N-67W-10 JZM 13-10HZ Pad

Well: JZM 4N-3HZ

Wellbore: Plan A

Design: Permit Rev-1

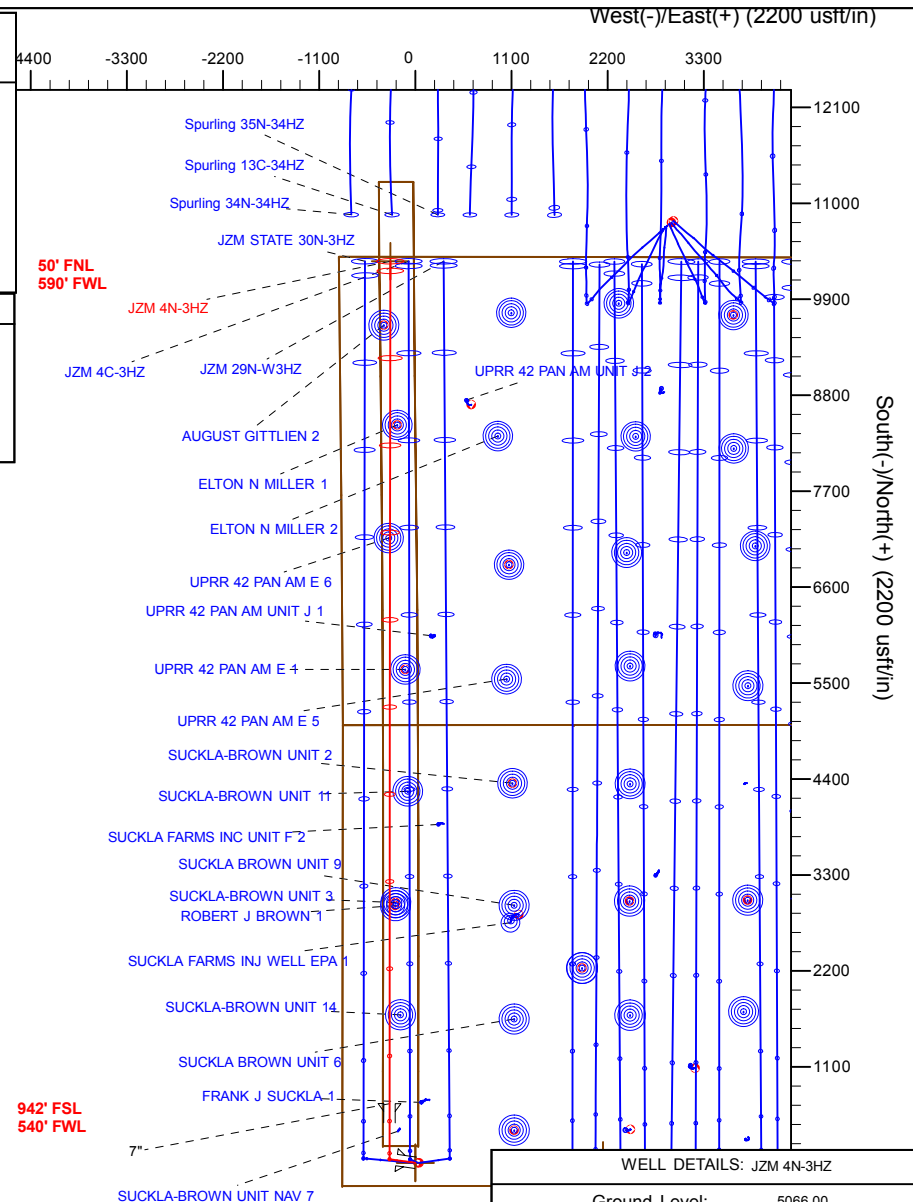
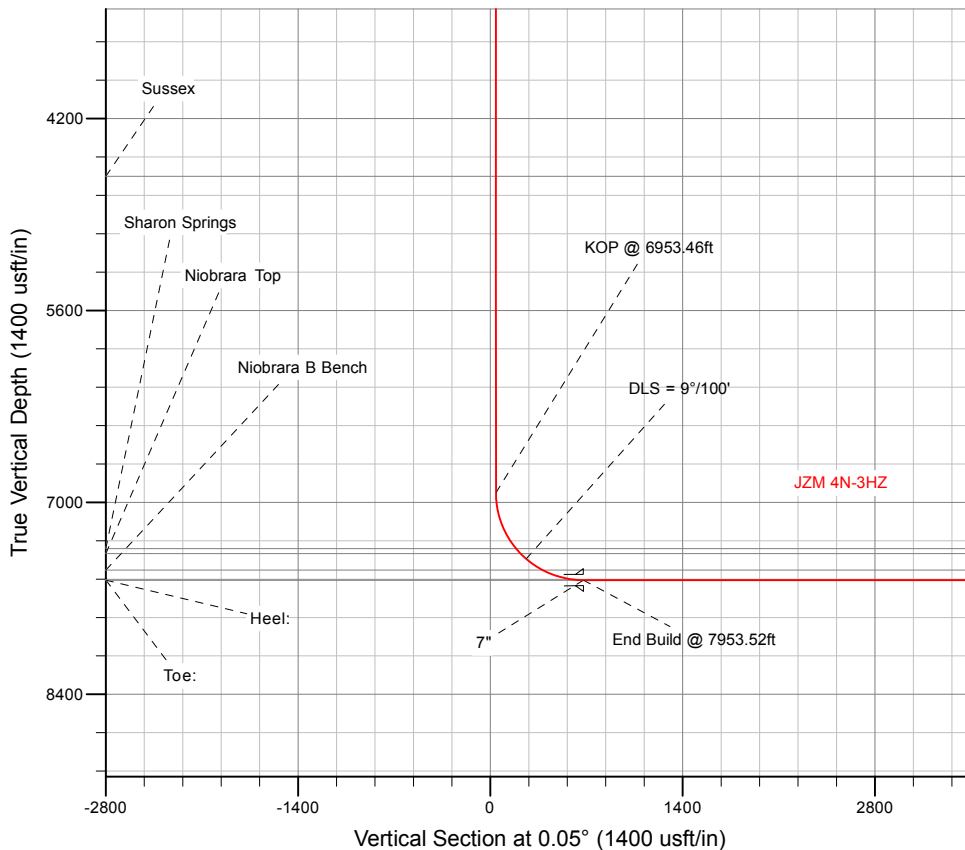
US ROCKIES WATTENBERG PLANNING

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	0.00
2	250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00
3	916.67	10.00	278.00	913.29	8.08	-57.47	1.50	278.00	8.03	
4	2046.67	10.00	278.00	2026.12	35.39	-251.78	0.00	0.00	35.17	
5	2546.67	0.00	0.00	2523.59	41.44	-294.88	2.00	180.00	41.18	
6	6953.46	0.00	0.00	6930.38	41.44	-294.88	0.00	0.00	41.18	
7	7953.52	90.01	0.05	7567.00	678.13	-294.34	9.00	0.05	677.87	
8	17610.58	90.01	0.05	7566.00	10335.18	-286.13	0.00	0.00	10334.92	JZM 4N-3HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
JZM 4N-3HZ_SHL	0.00	0.00	0.00	40.059001	-104.883335	Point
JZM 4N-3HZ_BHL	7566.00	10335.18	-286.13	40.087383	-104.884358	Point



WELL DETAILS: JZM 4N-3HZ	
Ground Level:	5066.00
RKB = 17' @ 5083.00usft (D Rig)	
Plan: Permit Rev-1 (JZM 4N-3HZ/Plan A)	
Created By: Clint Eshelman	Date: 8/19/2015
Reviewed:	Date:

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Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well JZM 4N-3HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5083.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5083.00usft (D Rig)
Site:	1N-67W-10 JZM 13-10HZ Pad	North Reference:	True
Well:	JZM 4N-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	1N-67W-10 JZM 13-10HZ Pad				
Site Position:		Northing:	14,548,239.60 usft	Latitude:	40.059001
From:	Lat/Long	Easting:	1,673,045.56 usft	Longitude:	-104.883389
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.08 °

Well	JZM 4N-3HZ					
Well Position	+N/-S	0.00 usft	Northing:	14,548,239.62 usft	Latitude:	40.059001
	+E/-W	15.11 usft	Easting:	1,673,060.67 usft	Longitude:	-104.883335
Position Uncertainty		3.28 usft	Wellhead Elevation:	0.00 usft	Ground Level:	5,066.00 usft

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/19/2015	8.34	66.61	52,498

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	0.05

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	
916.67	10.00	278.00	913.29	8.08	-57.47	1.50	1.50	0.00	278.00	
2,046.67	10.00	278.00	2,026.12	35.39	-251.78	0.00	0.00	0.00	0.00	
2,546.67	0.00	0.00	2,523.59	41.44	-294.88	2.00	-2.00	0.00	180.00	
6,953.46	0.00	0.00	6,930.38	41.44	-294.88	0.00	0.00	0.00	0.00	
7,953.52	90.01	0.05	7,567.00	678.13	-294.34	9.00	9.00	0.00	0.05	
17,610.58	90.01	0.05	7,566.00	10,335.18	-286.13	0.00	0.00	0.00	0.00	JZM 4N-3HZ_BHL

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Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well JZM 4N-3HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5083.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5083.00usft (D Rig)
Site:	1N-67W-10 JZM 13-10HZ Pad	North Reference:	True
Well:	JZM 4N-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	0.00
100.00	0.00	0.00	100.00	0.00	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	0.00
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 250.00ft										
300.00	0.75	278.00	300.00	0.05	-0.32	0.05	1.50	1.50	0.00	
400.00	2.25	278.00	399.96	0.41	-2.92	0.41	1.50	1.50	0.00	
500.00	3.75	278.00	499.82	1.14	-8.10	1.13	1.50	1.50	0.00	
600.00	5.25	278.00	599.51	2.23	-15.87	2.22	1.50	1.50	0.00	
700.00	6.75	278.00	698.96	3.68	-26.22	3.66	1.50	1.50	0.00	
800.00	8.25	278.00	798.10	5.50	-39.14	5.47	1.50	1.50	0.00	
900.00	9.75	278.00	896.87	7.68	-54.63	7.63	1.50	1.50	0.00	
916.67	10.00	278.00	913.29	8.08	-57.47	8.03	1.50	1.50	0.00	
End Nudge @ 916.67ft										
1,000.00	10.00	278.00	995.35	10.09	-71.80	10.03	0.00	0.00	0.00	
1,100.00	10.00	278.00	1,093.84	12.51	-88.99	12.43	0.00	0.00	0.00	
1,200.00	10.00	278.00	1,192.32	14.92	-106.19	14.83	0.00	0.00	0.00	
1,300.00	10.00	278.00	1,290.80	17.34	-123.38	17.23	0.00	0.00	0.00	
1,386.52	10.00	278.00	1,376.00	19.43	-138.26	19.31	0.00	0.00	0.00	
Fox Hills										
1,400.00	10.00	278.00	1,389.28	19.76	-140.58	19.63	0.00	0.00	0.00	
1,500.00	10.00	278.00	1,487.76	22.17	-157.77	22.04	0.00	0.00	0.00	
1,600.00	10.00	278.00	1,586.24	24.59	-174.97	24.44	0.00	0.00	0.00	
1,700.00	10.00	278.00	1,684.72	27.01	-192.17	26.84	0.00	0.00	0.00	
1,800.00	10.00	278.00	1,783.20	29.42	-209.36	29.24	0.00	0.00	0.00	
1,817.06	10.00	278.00	1,800.00	29.84	-212.30	29.65	0.00	0.00	0.00	
9 5/8"										
1,900.00	10.00	278.00	1,881.68	31.84	-226.56	31.64	0.00	0.00	0.00	
2,000.00	10.00	278.00	1,980.16	34.26	-243.75	34.04	0.00	0.00	0.00	
2,046.67	10.00	278.00	2,026.12	35.39	-251.78	35.17	0.00	0.00	0.00	
Begin Drop @ 2046.67ft										
2,100.00	8.93	278.00	2,078.73	36.61	-260.46	36.38	2.00	-2.00	0.00	
2,200.00	6.93	278.00	2,177.76	38.53	-274.13	38.29	2.00	-2.00	0.00	
2,300.00	4.93	278.00	2,277.22	39.97	-284.37	39.72	2.00	-2.00	0.00	
2,400.00	2.93	278.00	2,376.98	40.92	-291.16	40.67	2.00	-2.00	0.00	
2,500.00	0.93	278.00	2,476.92	41.39	-294.50	41.13	2.00	-2.00	0.00	
2,546.67	0.00	0.00	2,523.59	41.44	-294.88	41.18	2.00	-2.00	0.00	
End Drop @ 2546.67ft										
2,600.00	0.00	0.00	2,576.92	41.44	-294.88	41.18	0.00	0.00	0.00	
2,700.00	0.00	0.00	2,676.92	41.44	-294.88	41.18	0.00	0.00	0.00	
2,800.00	0.00	0.00	2,776.92	41.44	-294.88	41.18	0.00	0.00	0.00	
2,900.00	0.00	0.00	2,876.92	41.44	-294.88	41.18	0.00	0.00	0.00	
3,000.00	0.00	0.00	2,976.92	41.44	-294.88	41.18	0.00	0.00	0.00	
3,100.00	0.00	0.00	3,076.92	41.44	-294.88	41.18	0.00	0.00	0.00	
3,200.00	0.00	0.00	3,176.92	41.44	-294.88	41.18	0.00	0.00	0.00	
3,300.00	0.00	0.00	3,276.92	41.44	-294.88	41.18	0.00	0.00	0.00	
3,400.00	0.00	0.00	3,376.92	41.44	-294.88	41.18	0.00	0.00	0.00	
3,500.00	0.00	0.00	3,476.92	41.44	-294.88	41.18	0.00	0.00	0.00	
3,600.00	0.00	0.00	3,576.92	41.44	-294.88	41.18	0.00	0.00	0.00	
3,700.00	0.00	0.00	3,676.92	41.44	-294.88	41.18	0.00	0.00	0.00	
3,800.00	0.00	0.00	3,776.92	41.44	-294.88	41.18	0.00	0.00	0.00	
3,900.00	0.00	0.00	3,876.92	41.44	-294.88	41.18	0.00	0.00	0.00	
4,000.00	0.00	0.00	3,976.92	41.44	-294.88	41.18	0.00	0.00	0.00	

Anadarko Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well JZM 4N-3HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5083.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5083.00usft (D Rig)
Site:	1N-67W-10 JZM 13-10HZ Pad	North Reference:	True
Well:	JZM 4N-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)
4,100.00	0.00	0.00	4,076.92	41.44	-294.88	41.18	0.00	0.00	0.00
4,200.00	0.00	0.00	4,176.92	41.44	-294.88	41.18	0.00	0.00	0.00
4,300.00	0.00	0.00	4,276.92	41.44	-294.88	41.18	0.00	0.00	0.00
4,400.00	0.00	0.00	4,376.92	41.44	-294.88	41.18	0.00	0.00	0.00
4,500.00	0.00	0.00	4,476.92	41.44	-294.88	41.18	0.00	0.00	0.00
4,600.00	0.00	0.00	4,576.92	41.44	-294.88	41.18	0.00	0.00	0.00
4,645.08	0.00	0.00	4,622.00	41.44	-294.88	41.18	0.00	0.00	0.00
Sussex									
4,700.00	0.00	0.00	4,676.92	41.44	-294.88	41.18	0.00	0.00	0.00
4,800.00	0.00	0.00	4,776.92	41.44	-294.88	41.18	0.00	0.00	0.00
4,900.00	0.00	0.00	4,876.92	41.44	-294.88	41.18	0.00	0.00	0.00
5,000.00	0.00	0.00	4,976.92	41.44	-294.88	41.18	0.00	0.00	0.00
5,100.00	0.00	0.00	5,076.92	41.44	-294.88	41.18	0.00	0.00	0.00
5,200.00	0.00	0.00	5,176.92	41.44	-294.88	41.18	0.00	0.00	0.00
5,300.00	0.00	0.00	5,276.92	41.44	-294.88	41.18	0.00	0.00	0.00
5,400.00	0.00	0.00	5,376.92	41.44	-294.88	41.18	0.00	0.00	0.00
5,500.00	0.00	0.00	5,476.92	41.44	-294.88	41.18	0.00	0.00	0.00
5,600.00	0.00	0.00	5,576.92	41.44	-294.88	41.18	0.00	0.00	0.00
5,700.00	0.00	0.00	5,676.92	41.44	-294.88	41.18	0.00	0.00	0.00
5,800.00	0.00	0.00	5,776.92	41.44	-294.88	41.18	0.00	0.00	0.00
5,900.00	0.00	0.00	5,876.92	41.44	-294.88	41.18	0.00	0.00	0.00
6,000.00	0.00	0.00	5,976.92	41.44	-294.88	41.18	0.00	0.00	0.00
6,100.00	0.00	0.00	6,076.92	41.44	-294.88	41.18	0.00	0.00	0.00
6,200.00	0.00	0.00	6,176.92	41.44	-294.88	41.18	0.00	0.00	0.00
6,300.00	0.00	0.00	6,276.92	41.44	-294.88	41.18	0.00	0.00	0.00
6,400.00	0.00	0.00	6,376.92	41.44	-294.88	41.18	0.00	0.00	0.00
6,500.00	0.00	0.00	6,476.92	41.44	-294.88	41.18	0.00	0.00	0.00
6,600.00	0.00	0.00	6,576.92	41.44	-294.88	41.18	0.00	0.00	0.00
6,700.00	0.00	0.00	6,676.92	41.44	-294.88	41.18	0.00	0.00	0.00
6,800.00	0.00	0.00	6,776.92	41.44	-294.88	41.18	0.00	0.00	0.00
6,900.00	0.00	0.00	6,876.92	41.44	-294.88	41.18	0.00	0.00	0.00
6,953.46	0.00	0.00	6,930.38	41.44	-294.88	41.18	0.00	0.00	0.00
KOP @ 6953.46ft									
7,000.00	4.19	0.05	6,976.88	43.14	-294.88	42.89	9.00	9.00	0.00
7,100.00	13.19	0.05	7,075.63	58.23	-294.86	57.98	9.00	9.00	0.00
7,200.00	22.19	0.05	7,170.80	88.59	-294.84	88.33	9.00	9.00	0.00
7,300.00	31.19	0.05	7,260.06	133.46	-294.80	133.20	9.00	9.00	0.00
7,394.33	39.68	0.05	7,336.85	188.10	-294.75	187.84	9.00	9.00	0.00
Sharon Springs									
7,400.00	40.19	0.05	7,341.19	191.73	-294.75	191.48	9.00	9.00	0.00
7,444.07	44.16	0.05	7,373.85	221.31	-294.72	221.06	9.00	9.00	0.00
Niobrara Top									
7,500.00	49.19	0.05	7,412.21	261.99	-294.69	261.73	9.00	9.00	0.00
DLS = 9°/100'									
7,600.00	58.19	0.05	7,471.37	342.49	-294.62	342.23	9.00	9.00	0.00
7,646.88	62.41	0.05	7,494.59	383.20	-294.59	382.94	9.00	9.00	0.00
Niobrara B Bench									
7,700.00	67.19	0.05	7,517.20	431.25	-294.55	430.99	9.00	9.00	0.00
7,800.00	76.19	0.05	7,548.59	526.09	-294.47	525.83	9.00	9.00	0.00
7,900.00	85.19	0.05	7,564.75	624.67	-294.38	624.41	9.00	9.00	0.00
7,953.52	90.01	0.05	7,567.00	678.13	-294.34	677.87	9.00	9.00	0.00
End Build @ 7953.52ft - Heel: - 7"									
8,000.00	90.01	0.05	7,566.99	724.61	-294.30	724.35	0.00	0.00	0.00

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well JZM 4N-3HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5083.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5083.00usft (D Rig)
Site:	1N-67W-10 JZM 13-10HZ Pad	North Reference:	True
Well:	JZM 4N-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)
8,100.00	90.01	0.05	7,566.98	824.61	-294.21	824.35	0.00	0.00	0.00
8,200.00	90.01	0.05	7,566.97	924.61	-294.13	924.35	0.00	0.00	0.00
8,300.00	90.01	0.05	7,566.96	1,024.61	-294.04	1,024.35	0.00	0.00	0.00
8,400.00	90.01	0.05	7,566.95	1,124.61	-293.96	1,124.35	0.00	0.00	0.00
8,500.00	90.01	0.05	7,566.94	1,224.60	-293.87	1,224.35	0.00	0.00	0.00
8,600.00	90.01	0.05	7,566.93	1,324.60	-293.79	1,324.35	0.00	0.00	0.00
8,700.00	90.01	0.05	7,566.92	1,424.60	-293.70	1,424.35	0.00	0.00	0.00
8,800.00	90.01	0.05	7,566.91	1,524.60	-293.62	1,524.35	0.00	0.00	0.00
8,900.00	90.01	0.05	7,566.90	1,624.60	-293.53	1,624.35	0.00	0.00	0.00
9,000.00	90.01	0.05	7,566.89	1,724.60	-293.45	1,724.35	0.00	0.00	0.00
9,100.00	90.01	0.05	7,566.88	1,824.60	-293.36	1,824.35	0.00	0.00	0.00
9,200.00	90.01	0.05	7,566.87	1,924.60	-293.28	1,924.35	0.00	0.00	0.00
9,300.00	90.01	0.05	7,566.86	2,024.60	-293.19	2,024.35	0.00	0.00	0.00
9,400.00	90.01	0.05	7,566.85	2,124.60	-293.11	2,124.35	0.00	0.00	0.00
9,500.00	90.01	0.05	7,566.84	2,224.60	-293.02	2,224.35	0.00	0.00	0.00
9,600.00	90.01	0.05	7,566.83	2,324.60	-292.94	2,324.35	0.00	0.00	0.00
9,700.00	90.01	0.05	7,566.82	2,424.60	-292.85	2,424.35	0.00	0.00	0.00
9,800.00	90.01	0.05	7,566.80	2,524.60	-292.77	2,524.35	0.00	0.00	0.00
9,900.00	90.01	0.05	7,566.79	2,624.60	-292.68	2,624.35	0.00	0.00	0.00
10,000.00	90.01	0.05	7,566.78	2,724.60	-292.60	2,724.35	0.00	0.00	0.00
10,100.00	90.01	0.05	7,566.77	2,824.60	-292.51	2,824.35	0.00	0.00	0.00
10,200.00	90.01	0.05	7,566.76	2,924.60	-292.43	2,924.35	0.00	0.00	0.00
10,300.00	90.01	0.05	7,566.75	3,024.60	-292.34	3,024.35	0.00	0.00	0.00
10,400.00	90.01	0.05	7,566.74	3,124.60	-292.26	3,124.35	0.00	0.00	0.00
10,500.00	90.01	0.05	7,566.73	3,224.60	-292.17	3,224.35	0.00	0.00	0.00
10,600.00	90.01	0.05	7,566.72	3,324.60	-292.09	3,324.35	0.00	0.00	0.00
10,700.00	90.01	0.05	7,566.71	3,424.60	-292.00	3,424.35	0.00	0.00	0.00
10,800.00	90.01	0.05	7,566.70	3,524.60	-291.92	3,524.35	0.00	0.00	0.00
10,900.00	90.01	0.05	7,566.69	3,624.60	-291.83	3,624.35	0.00	0.00	0.00
11,000.00	90.01	0.05	7,566.68	3,724.60	-291.75	3,724.35	0.00	0.00	0.00
11,100.00	90.01	0.05	7,566.67	3,824.60	-291.66	3,824.35	0.00	0.00	0.00
11,200.00	90.01	0.05	7,566.66	3,924.60	-291.58	3,924.35	0.00	0.00	0.00
11,300.00	90.01	0.05	7,566.65	4,024.60	-291.49	4,024.35	0.00	0.00	0.00
11,400.00	90.01	0.05	7,566.64	4,124.60	-291.41	4,124.35	0.00	0.00	0.00
11,500.00	90.01	0.05	7,566.63	4,224.60	-291.32	4,224.35	0.00	0.00	0.00
11,600.00	90.01	0.05	7,566.62	4,324.60	-291.24	4,324.35	0.00	0.00	0.00
11,700.00	90.01	0.05	7,566.61	4,424.60	-291.15	4,424.35	0.00	0.00	0.00
11,800.00	90.01	0.05	7,566.60	4,524.60	-291.07	4,524.35	0.00	0.00	0.00
11,900.00	90.01	0.05	7,566.59	4,624.60	-290.98	4,624.35	0.00	0.00	0.00
12,000.00	90.01	0.05	7,566.58	4,724.60	-290.90	4,724.35	0.00	0.00	0.00
12,100.00	90.01	0.05	7,566.57	4,824.60	-290.81	4,824.35	0.00	0.00	0.00
12,200.00	90.01	0.05	7,566.56	4,924.60	-290.73	4,924.35	0.00	0.00	0.00
12,300.00	90.01	0.05	7,566.55	5,024.60	-290.64	5,024.35	0.00	0.00	0.00
12,400.00	90.01	0.05	7,566.54	5,124.60	-290.56	5,124.35	0.00	0.00	0.00
12,500.00	90.01	0.05	7,566.53	5,224.60	-290.47	5,224.35	0.00	0.00	0.00
12,600.00	90.01	0.05	7,566.52	5,324.60	-290.39	5,324.35	0.00	0.00	0.00
12,700.00	90.01	0.05	7,566.51	5,424.60	-290.30	5,424.35	0.00	0.00	0.00
12,800.00	90.01	0.05	7,566.50	5,524.60	-290.22	5,524.35	0.00	0.00	0.00
12,900.00	90.01	0.05	7,566.49	5,624.60	-290.13	5,624.35	0.00	0.00	0.00
13,000.00	90.01	0.05	7,566.48	5,724.60	-290.05	5,724.35	0.00	0.00	0.00
13,100.00	90.01	0.05	7,566.46	5,824.60	-289.96	5,824.35	0.00	0.00	0.00
13,200.00	90.01	0.05	7,566.45	5,924.60	-289.88	5,924.35	0.00	0.00	0.00
13,300.00	90.01	0.05	7,566.44	6,024.60	-289.79	6,024.35	0.00	0.00	0.00
13,400.00	90.01	0.05	7,566.43	6,124.60	-289.71	6,124.35	0.00	0.00	0.00

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Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well JZM 4N-3HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5083.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5083.00usft (D Rig)
Site:	1N-67W-10 JZM 13-10HZ Pad	North Reference:	True
Well:	JZM 4N-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)	
13,500.00	90.01	0.05	7,566.42	6,224.60	-289.62	6,224.35	0.00	0.00	0.00	
13,600.00	90.01	0.05	7,566.41	6,324.60	-289.54	6,324.35	0.00	0.00	0.00	
13,700.00	90.01	0.05	7,566.40	6,424.60	-289.45	6,424.35	0.00	0.00	0.00	
13,800.00	90.01	0.05	7,566.39	6,524.60	-289.37	6,524.35	0.00	0.00	0.00	
13,900.00	90.01	0.05	7,566.38	6,624.60	-289.28	6,624.35	0.00	0.00	0.00	
14,000.00	90.01	0.05	7,566.37	6,724.60	-289.20	6,724.35	0.00	0.00	0.00	
14,100.00	90.01	0.05	7,566.36	6,824.60	-289.11	6,824.35	0.00	0.00	0.00	
14,200.00	90.01	0.05	7,566.35	6,924.60	-289.03	6,924.35	0.00	0.00	0.00	
14,300.00	90.01	0.05	7,566.34	7,024.60	-288.94	7,024.35	0.00	0.00	0.00	
14,400.00	90.01	0.05	7,566.33	7,124.60	-288.86	7,124.35	0.00	0.00	0.00	
14,500.00	90.01	0.05	7,566.32	7,224.60	-288.77	7,224.35	0.00	0.00	0.00	
14,600.00	90.01	0.05	7,566.31	7,324.60	-288.69	7,324.35	0.00	0.00	0.00	
14,700.00	90.01	0.05	7,566.30	7,424.60	-288.60	7,424.35	0.00	0.00	0.00	
14,800.00	90.01	0.05	7,566.29	7,524.60	-288.52	7,524.35	0.00	0.00	0.00	
14,900.00	90.01	0.05	7,566.28	7,624.60	-288.43	7,624.35	0.00	0.00	0.00	
15,000.00	90.01	0.05	7,566.27	7,724.60	-288.35	7,724.35	0.00	0.00	0.00	
15,100.00	90.01	0.05	7,566.26	7,824.60	-288.26	7,824.35	0.00	0.00	0.00	
15,200.00	90.01	0.05	7,566.25	7,924.60	-288.18	7,924.35	0.00	0.00	0.00	
15,300.00	90.01	0.05	7,566.24	8,024.60	-288.09	8,024.35	0.00	0.00	0.00	
15,400.00	90.01	0.05	7,566.23	8,124.60	-288.01	8,124.35	0.00	0.00	0.00	
15,500.00	90.01	0.05	7,566.22	8,224.60	-287.92	8,224.35	0.00	0.00	0.00	
15,600.00	90.01	0.05	7,566.21	8,324.60	-287.84	8,324.35	0.00	0.00	0.00	
15,700.00	90.01	0.05	7,566.20	8,424.60	-287.75	8,424.35	0.00	0.00	0.00	
15,800.00	90.01	0.05	7,566.19	8,524.60	-287.67	8,524.35	0.00	0.00	0.00	
15,900.00	90.01	0.05	7,566.18	8,624.60	-287.58	8,624.35	0.00	0.00	0.00	
16,000.00	90.01	0.05	7,566.17	8,724.60	-287.50	8,724.35	0.00	0.00	0.00	
16,100.00	90.01	0.05	7,566.16	8,824.60	-287.41	8,824.35	0.00	0.00	0.00	
16,200.00	90.01	0.05	7,566.15	8,924.60	-287.33	8,924.35	0.00	0.00	0.00	
16,300.00	90.01	0.05	7,566.14	9,024.60	-287.24	9,024.35	0.00	0.00	0.00	
16,400.00	90.01	0.05	7,566.12	9,124.60	-287.16	9,124.35	0.00	0.00	0.00	
16,500.00	90.01	0.05	7,566.11	9,224.60	-287.07	9,224.35	0.00	0.00	0.00	
16,600.00	90.01	0.05	7,566.10	9,324.60	-286.99	9,324.35	0.00	0.00	0.00	
16,700.00	90.01	0.05	7,566.09	9,424.60	-286.90	9,424.35	0.00	0.00	0.00	
16,800.00	90.01	0.05	7,566.08	9,524.60	-286.82	9,524.35	0.00	0.00	0.00	
16,900.00	90.01	0.05	7,566.07	9,624.60	-286.73	9,624.35	0.00	0.00	0.00	
17,000.00	90.01	0.05	7,566.06	9,724.60	-286.65	9,724.35	0.00	0.00	0.00	
17,100.00	90.01	0.05	7,566.05	9,824.60	-286.56	9,824.35	0.00	0.00	0.00	
17,200.00	90.01	0.05	7,566.04	9,924.60	-286.48	9,924.35	0.00	0.00	0.00	
17,300.00	90.01	0.05	7,566.03	10,024.60	-286.39	10,024.35	0.00	0.00	0.00	
17,400.00	90.01	0.05	7,566.02	10,124.60	-286.31	10,124.35	0.00	0.00	0.00	
17,500.00	90.01	0.05	7,566.01	10,224.60	-286.22	10,224.35	0.00	0.00	0.00	
17,600.00	90.01	0.05	7,566.00	10,324.60	-286.14	10,324.35	0.00	0.00	0.00	
17,610.57	90.01	0.05	7,566.00	10,335.17	-286.13	10,334.92	0.00	0.00	0.00	
Toe:										
17,610.58	90.01	0.05	7,566.00	10,335.18	-286.13	10,334.92	0.00	0.00	0.00	
TD Well @ 17610.58ft										

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well JZM 4N-3HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5083.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5083.00usft (D Rig)
Site:	1N-67W-10 JZM 13-10HZ Pad	North Reference:	True
Well:	JZM 4N-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										
JZM 4N-3HZ_Hardline B	0.00	0.00	0.00	0.00	0.00	14,548,239.62	1,673,060.67	40.059001	-104.883335	
- plan hits target center										
- Polygon										
Point 1			0.00	11,243.82	-22.45	14,559,483.40	1,673,023.49			
Point 2			0.00	9,025.67	-5.38	14,557,265.27	1,673,043.47			
Point 3			0.00	6,342.24	23.21	14,554,581.88	1,673,075.57			
Point 4			0.00	3,694.90	35.47	14,551,934.56	1,673,091.30			
Point 5			0.00	2,374.06	35.23	14,550,613.72	1,673,092.79			
Point 6			0.00	1,053.14	34.87	14,549,292.80	1,673,094.16			
Point 7			0.00	192.22	34.64	14,548,431.88	1,673,095.06			
Point 8			0.00	191.82	-371.95	14,548,430.95	1,672,688.47			
Point 9			0.00	1,052.75	-371.09	14,549,291.88	1,672,688.21			
Point 10			0.00	2,373.67	-369.76	14,550,612.80	1,672,687.80			
Point 11			0.00	3,694.56	-368.12	14,551,933.69	1,672,687.71			
Point 12			0.00	5,015.46	-366.47	14,553,254.59	1,672,687.63			
Point 13			0.00	6,338.73	-374.75	14,554,577.85	1,672,677.62			
Point 14			0.00	7,662.03	-383.06	14,555,901.14	1,672,667.57			
Point 15			0.00	9,022.56	-398.34	14,557,261.65	1,672,650.51			
Point 16			0.00	10,383.09	-413.64	14,558,622.16	1,672,633.43			
Point 17			0.00	11,244.05	-416.03	14,559,483.11	1,672,629.91			
Point 18			0.00	11,243.82	-22.45	14,559,483.40	1,673,023.49			
JZM 4N-3HZ_SHL	0.00	0.00	0.00	0.00	0.00	14,548,239.62	1,673,060.67	40.059001	-104.883335	
- plan hits target center										
- Point										
1N-R67W-Sec. 10_Secti	0.00	0.00	3.00	24.85	2,147.26	14,548,267.29	1,675,207.90	40.059069	-104.875661	
- plan misses target center by 2147.40usft at 3.00usft MD (3.00 TVD, 0.00 N, 0.00 E)										
- Polygon										
Point 1			3.00	4,992.86	-2,976.12	14,553,256.24	1,672,225.24			
Point 2			3.00	4,994.59	-331.69	14,553,261.44	1,674,869.67			
Point 3			3.00	4,996.25	2,313.07	14,553,266.56	1,677,514.42			
Point 4			3.00	2,354.63	2,320.05	14,550,624.95	1,677,524.86			
Point 5			3.00	-287.06	2,326.97	14,547,983.28	1,677,535.25			
Point 6			3.00	-288.46	-327.65	14,547,978.40	1,674,880.63			
Point 7			3.00	-290.97	-2,982.55	14,547,972.41	1,672,225.73			
1N-R67W-Sec. 3_Sectio	0.00	0.00	3.00	24.85	2,147.26	14,548,267.29	1,675,207.90	40.059069	-104.875661	
- plan misses target center by 2147.40usft at 3.00usft MD (3.00 TVD, 0.00 N, 0.00 E)										
- Polygon										
Point 1			3.00	10,361.30	-3,022.88	14,558,624.62	1,672,171.44			
Point 2			3.00	10,358.07	-398.53	14,558,624.82	1,674,795.80			
Point 3			3.00	10,354.85	2,234.71	14,558,625.06	1,677,429.04			
Point 4			3.00	7,634.95	2,286.94	14,555,905.23	1,677,484.83			
Point 5			3.00	4,996.25	2,313.07	14,553,266.56	1,677,514.42			
Point 6			3.00	4,994.59	-331.69	14,553,261.44	1,674,869.67			
Point 7			3.00	4,992.86	-2,976.12	14,553,256.24	1,672,225.24			
Point 8			3.00	7,632.17	-2,992.40	14,555,895.53	1,672,205.50			
JZM 4N-3HZ_BHL	0.00	0.00	7,566.00	10,335.18	-286.13	14,558,574.41	1,672,761.00	40.087383	-104.884358	
- plan hits target center										
- Point										

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well JZM 4N-3HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5083.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5083.00usft (D Rig)
Site:	1N-67W-10 JZM 13-10HZ Pad	North Reference:	True
Well:	JZM 4N-3HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,817.06	1,800.00	9 5/8"	9-5/8	13-1/2	
7,953.52	7,567.00	7"	7	8-3/4	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,386.52	1,376.00	Fox Hills		0.00		
4,645.08	4,622.00	Sussex		0.00		
7,394.33	7,336.85	Sharon Springs		0.00		
7,444.07	7,373.85	Niobrara Top		0.00		
7,646.88	7,494.59	Niobrara B Bench		0.00		
17,610.57	7,566.00	Toe:		0.00		
7,953.52	7,567.00	Heel:		0.00		

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
250.00	250.00	0.00	0.00	Begin Nudge @ 250.00ft	
916.67	913.29	8.08	-57.47	End Nudge @ 916.67ft	
2,046.67	2,026.12	35.39	-251.78	Begin Drop @ 2046.67ft	
2,546.67	2,523.59	41.44	-294.88	End Drop @ 2546.67ft	
6,953.46	6,930.38	41.44	-294.88	KOP @ 6953.46ft	
7,500.00	7,412.21	261.99	-294.69	DLS = 9°/100'	
7,953.52	7,567.00	678.13	-294.34	End Build @ 7953.52ft	
17,610.58	7,566.00	10,335.18	-286.13	TD Well @ 17610.58ft	