

US ROCKIES WATTENBERG PLANNING

**WELD-NAD83-UTMFT13N
1N-67W-10 JZM 16-10HZ Pad
JZM 1N-3HZ**

Plan A

Plan: Permit Rev-1

Standard Planning Report

20 August, 2015

Project: WELD-NAD83-UTMFT13N

Site: 1N-67W-10 JZM 16-10HZ Pad

Well: JZM 1N-3HZ

Wellbore: Plan A

Design: Permit Rev-1

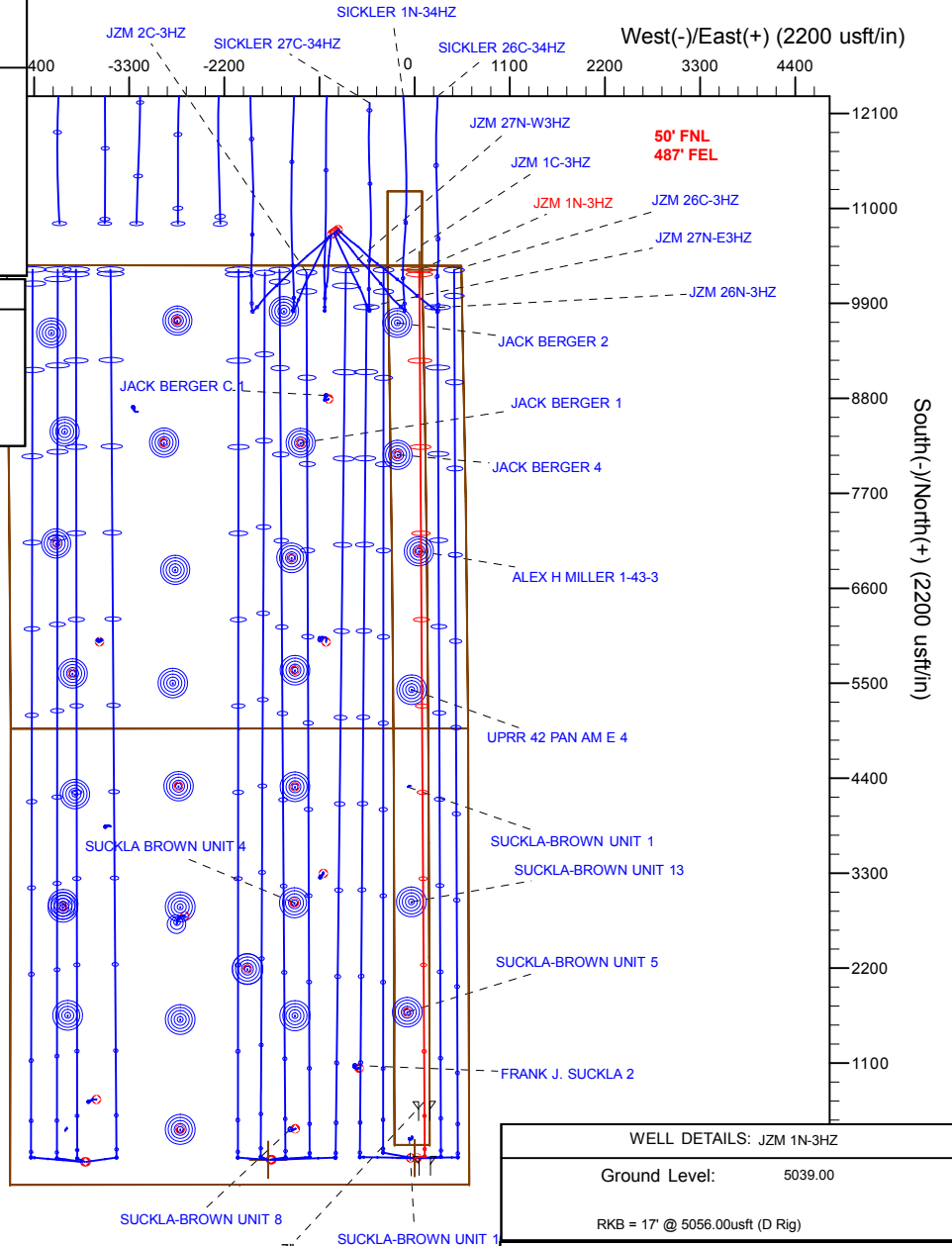
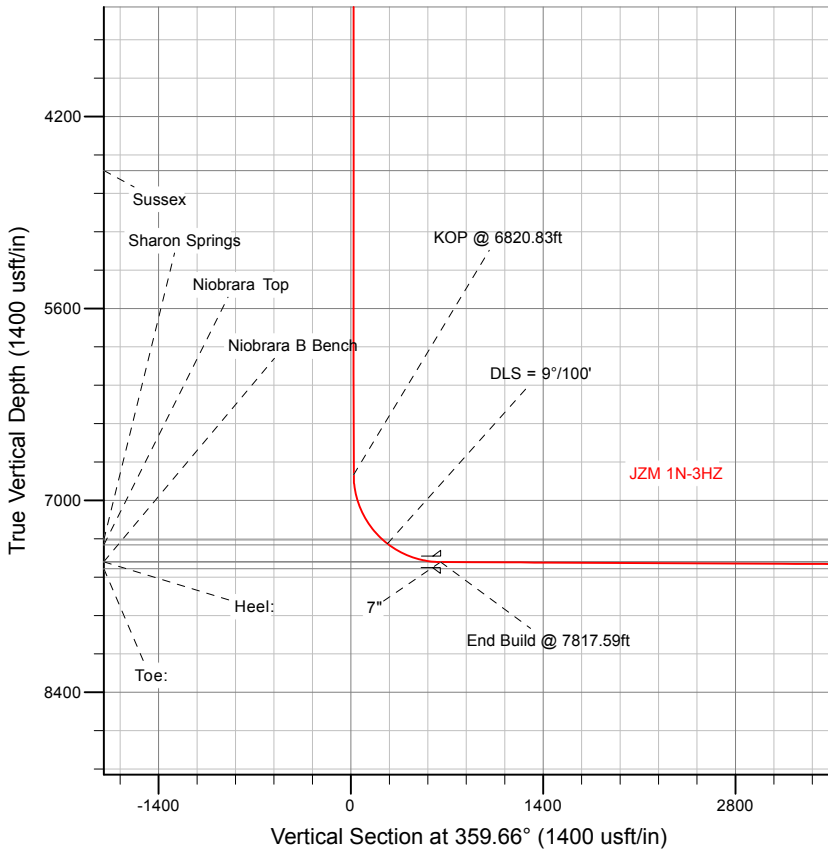
US ROCKIES WATTENBERG PLANNING

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	
2	250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	
3	916.67	10.00	80.00	913.29	10.08	57.15	1.50	80.00	9.74	
4	1016.67	10.00	80.00	1011.77	13.09	74.25	0.00	0.00	12.65	
5	1516.67	0.00	0.00	1509.23	20.65	117.11	2.00	180.00	19.95	
6	6820.83	0.00	0.00	6813.39	20.65	117.11	0.00	0.00	19.95	
7	7817.59	89.71	359.66	7450.00	654.02	113.31	9.00	359.66	653.34	JZM 1N-3HZ_TOE
8	17450.62	89.71	359.66	7499.00	10286.75	55.50	0.00	0.00	10286.24	JZM 1N-3HZ_TOE

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
JZM 1N-3HZ_SHL	0.00	0.00	0.00	40.059121	-104.869607	Point
JZM 1N-3HZ_TOE	7499.00	10286.75	55.50	40.087370	-104.869409	Point



WELL DETAILS: JZM 1N-3HZ	
Ground Level:	5039.00
RKB = 17' @ 5056.00usft (D Rig)	
Plan: Permit Rev-1 (JZM 1N-3HZ/Plan A)	
Created By: Clint Eshelman	Date: 8/20/2015
Reviewed: _____	Date: _____

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well JZM 1N-3HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5056.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5056.00usft (D Rig)
Site:	1N-67W-10 JZM 16-10HZ Pad	North Reference:	True
Well:	JZM 1N-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 16-10HZ Pad			
Site Position:		Northing:	14,548,288.94 usft
From:	Lat/Long	Easting:	1,676,856.79 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	40.059122
		Longitude:	-104.869768
		Grid Convergence:	0.08 °

Well JZM 1N-3HZ			
Well Position	+N-S	-0.36 usft	Northing: 14,548,288.64 usft
	+E-W	45.05 usft	Easting: 1,676,901.84 usft
Position Uncertainty		3.28 usft	Wellhead Elevation: 0.00 usft
			Latitude: 40.059121
			Longitude: -104.869607
			Ground Level: 5,039.00 usft

Wellbore Plan A					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/19/2015	8.33	66.61	52,500

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)
	0.00	0.00	0.00
			Direction (°) 359.66

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	80.00	913.29	10.08	57.15	1.50	1.50	0.00	80.00	
1,016.67	10.00	80.00	1,011.77	13.09	74.25	0.00	0.00	0.00	0.00	
1,516.67	0.00	0.00	1,509.23	20.65	117.11	2.00	-2.00	0.00	180.00	
6,820.83	0.00	0.00	6,813.39	20.65	117.11	0.00	0.00	0.00	0.00	
7,817.59	89.71	359.66	7,450.01	654.02	113.31	9.00	9.00	-0.03	359.66	
17,450.62	89.71	359.66	7,499.00	10,286.75	55.50	0.00	0.00	0.00	0.00	JZM 1N-3HZ_TOE

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Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well JZM 1N-3HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5056.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5056.00usft (D Rig)
Site:	1N-67W-10 JZM 16-10HZ Pad	North Reference:	True
Well:	JZM 1N-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	80.00	300.00	0.06	0.32	0.05	1.50	1.50	0.00	
400.00	2.25	80.00	399.96	0.51	2.90	0.49	1.50	1.50	0.00	
500.00	3.75	80.00	499.82	1.42	8.05	1.37	1.50	1.50	0.00	
600.00	5.25	80.00	599.51	2.78	15.78	2.69	1.50	1.50	0.00	
700.00	6.75	80.00	698.96	4.60	26.07	4.44	1.50	1.50	0.00	
800.00	8.25	80.00	798.10	6.86	38.93	6.63	1.50	1.50	0.00	
900.00	9.75	80.00	896.87	9.58	54.33	9.26	1.50	1.50	0.00	
916.67	10.00	80.00	913.29	10.08	57.15	9.74	1.50	1.50	0.00	
End Nudge @ 916.67ft										
1,000.00	10.00	80.00	995.35	12.59	71.40	12.17	0.00	0.00	0.00	
1,016.67	10.00	80.00	1,011.77	13.09	74.25	12.65	0.00	0.00	0.00	
Begin Drop @ 1016.67ft										
1,100.00	8.33	80.00	1,094.03	15.40	87.32	14.88	2.00	-2.00	0.00	
1,200.00	6.33	80.00	1,193.21	17.61	99.89	17.02	2.00	-2.00	0.00	
1,300.00	4.33	80.00	1,292.77	19.23	109.05	18.58	2.00	-2.00	0.00	
1,356.35	3.21	80.00	1,349.00	19.87	112.69	19.20	2.00	-2.00	0.00	
Fox Hills										
1,400.00	2.33	80.00	1,392.60	20.24	114.77	19.56	2.00	-2.00	0.00	
1,500.00	0.33	80.00	1,492.57	20.64	117.06	19.95	2.00	-2.00	0.00	
1,516.67	0.00	0.00	1,509.24	20.65	117.11	19.95	2.00	-2.00	0.00	
End Drop @ 1516.67ft										
1,600.00	0.00	0.00	1,592.57	20.65	117.11	19.95	0.00	0.00	0.00	
1,700.00	0.00	0.00	1,692.57	20.65	117.11	19.95	0.00	0.00	0.00	
1,800.00	0.00	0.00	1,792.57	20.65	117.11	19.95	0.00	0.00	0.00	
1,807.43	0.00	0.00	1,800.00	20.65	117.11	19.95	0.00	0.00	0.00	
9 5/8"										
1,900.00	0.00	0.00	1,892.57	20.65	117.11	19.95	0.00	0.00	0.00	
2,000.00	0.00	0.00	1,992.57	20.65	117.11	19.95	0.00	0.00	0.00	
2,100.00	0.00	0.00	2,092.57	20.65	117.11	19.95	0.00	0.00	0.00	
2,200.00	0.00	0.00	2,192.57	20.65	117.11	19.95	0.00	0.00	0.00	
2,300.00	0.00	0.00	2,292.57	20.65	117.11	19.95	0.00	0.00	0.00	
2,400.00	0.00	0.00	2,392.57	20.65	117.11	19.95	0.00	0.00	0.00	
2,500.00	0.00	0.00	2,492.57	20.65	117.11	19.95	0.00	0.00	0.00	
2,600.00	0.00	0.00	2,592.57	20.65	117.11	19.95	0.00	0.00	0.00	
2,700.00	0.00	0.00	2,692.57	20.65	117.11	19.95	0.00	0.00	0.00	
2,800.00	0.00	0.00	2,792.57	20.65	117.11	19.95	0.00	0.00	0.00	
2,900.00	0.00	0.00	2,892.57	20.65	117.11	19.95	0.00	0.00	0.00	
3,000.00	0.00	0.00	2,992.57	20.65	117.11	19.95	0.00	0.00	0.00	
3,100.00	0.00	0.00	3,092.57	20.65	117.11	19.95	0.00	0.00	0.00	
3,200.00	0.00	0.00	3,192.57	20.65	117.11	19.95	0.00	0.00	0.00	
3,300.00	0.00	0.00	3,292.57	20.65	117.11	19.95	0.00	0.00	0.00	
3,400.00	0.00	0.00	3,392.57	20.65	117.11	19.95	0.00	0.00	0.00	
3,500.00	0.00	0.00	3,492.57	20.65	117.11	19.95	0.00	0.00	0.00	
3,600.00	0.00	0.00	3,592.57	20.65	117.11	19.95	0.00	0.00	0.00	
3,700.00	0.00	0.00	3,692.57	20.65	117.11	19.95	0.00	0.00	0.00	
3,800.00	0.00	0.00	3,792.57	20.65	117.11	19.95	0.00	0.00	0.00	
3,900.00	0.00	0.00	3,892.57	20.65	117.11	19.95	0.00	0.00	0.00	
4,000.00	0.00	0.00	3,992.57	20.65	117.11	19.95	0.00	0.00	0.00	

Anadarko Planning Report

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Well:	JZM 1N-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	4,092.57	20.65	117.11	19.95	0.00	0.00	0.00	
4,200.00	0.00	0.00	4,192.57	20.65	117.11	19.95	0.00	0.00	0.00	
4,300.00	0.00	0.00	4,292.57	20.65	117.11	19.95	0.00	0.00	0.00	
4,400.00	0.00	0.00	4,392.57	20.65	117.11	19.95	0.00	0.00	0.00	
4,500.00	0.00	0.00	4,492.57	20.65	117.11	19.95	0.00	0.00	0.00	
4,600.00	0.00	0.00	4,592.57	20.65	117.11	19.95	0.00	0.00	0.00	
4,602.43	0.00	0.00	4,595.00	20.65	117.11	19.95	0.00	0.00	0.00	
Sussex										
4,700.00	0.00	0.00	4,692.57	20.65	117.11	19.95	0.00	0.00	0.00	
4,800.00	0.00	0.00	4,792.57	20.65	117.11	19.95	0.00	0.00	0.00	
4,900.00	0.00	0.00	4,892.57	20.65	117.11	19.95	0.00	0.00	0.00	
5,000.00	0.00	0.00	4,992.57	20.65	117.11	19.95	0.00	0.00	0.00	
5,100.00	0.00	0.00	5,092.57	20.65	117.11	19.95	0.00	0.00	0.00	
5,200.00	0.00	0.00	5,192.57	20.65	117.11	19.95	0.00	0.00	0.00	
5,300.00	0.00	0.00	5,292.57	20.65	117.11	19.95	0.00	0.00	0.00	
5,400.00	0.00	0.00	5,392.57	20.65	117.11	19.95	0.00	0.00	0.00	
5,500.00	0.00	0.00	5,492.57	20.65	117.11	19.95	0.00	0.00	0.00	
5,600.00	0.00	0.00	5,592.57	20.65	117.11	19.95	0.00	0.00	0.00	
5,700.00	0.00	0.00	5,692.57	20.65	117.11	19.95	0.00	0.00	0.00	
5,800.00	0.00	0.00	5,792.57	20.65	117.11	19.95	0.00	0.00	0.00	
5,900.00	0.00	0.00	5,892.57	20.65	117.11	19.95	0.00	0.00	0.00	
6,000.00	0.00	0.00	5,992.57	20.65	117.11	19.95	0.00	0.00	0.00	
6,100.00	0.00	0.00	6,092.57	20.65	117.11	19.95	0.00	0.00	0.00	
6,200.00	0.00	0.00	6,192.57	20.65	117.11	19.95	0.00	0.00	0.00	
6,300.00	0.00	0.00	6,292.57	20.65	117.11	19.95	0.00	0.00	0.00	
6,400.00	0.00	0.00	6,392.57	20.65	117.11	19.95	0.00	0.00	0.00	
6,500.00	0.00	0.00	6,492.57	20.65	117.11	19.95	0.00	0.00	0.00	
6,600.00	0.00	0.00	6,592.57	20.65	117.11	19.95	0.00	0.00	0.00	
6,700.00	0.00	0.00	6,692.57	20.65	117.11	19.95	0.00	0.00	0.00	
6,800.00	0.00	0.00	6,792.57	20.65	117.11	19.95	0.00	0.00	0.00	
6,820.83	0.00	0.00	6,813.40	20.65	117.11	19.95	0.00	0.00	0.00	
KOP @ 6820.83ft										
6,900.00	7.13	359.66	6,892.36	25.57	117.08	24.87	9.00	9.00	0.00	
7,000.00	16.13	359.66	6,990.21	45.70	116.96	45.00	9.00	9.00	0.00	
7,100.00	25.13	359.66	7,083.70	80.89	116.75	80.19	9.00	9.00	0.00	
7,200.00	34.13	359.66	7,170.54	130.27	116.45	129.57	9.00	9.00	0.00	
7,300.00	43.13	359.66	7,248.59	192.63	116.08	191.93	9.00	9.00	0.00	
7,356.95	48.25	359.66	7,288.36	233.36	115.83	232.67	9.00	9.00	0.00	
Sharon Springs										
7,400.00	52.13	359.66	7,315.91	266.42	115.64	265.73	9.00	9.00	0.00	
DLS = 9°/100'										
7,415.63	53.53	359.66	7,325.36	278.87	115.56	278.18	9.00	9.00	0.00	
Niobrara Top										
7,500.00	61.13	359.66	7,370.87	349.85	115.14	349.16	9.00	9.00	0.00	
7,600.00	70.13	359.66	7,412.10	440.84	114.59	440.15	9.00	9.00	0.00	
7,700.00	79.13	359.66	7,438.58	537.16	114.01	536.47	9.00	9.00	0.00	
7,752.40	83.84	359.66	7,446.34	588.97	113.70	588.28	9.00	9.00	0.00	
Niobrara B Bench										
7,800.00	88.13	359.66	7,449.67	636.44	113.42	635.75	9.00	9.00	0.00	
7,817.59	89.71	359.66	7,450.01	654.02	113.31	653.34	9.00	9.00	0.00	
End Build @ 7817.59ft - Heel: - 7"										
7,900.00	89.71	359.66	7,450.42	736.43	112.82	735.75	0.00	0.00	0.00	
8,000.00	89.71	359.66	7,450.93	836.43	112.22	835.75	0.00	0.00	0.00	

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well JZM 1N-3HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5056.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5056.00usft (D Rig)
Site:	1N-67W-10 JZM 16-10HZ Pad	North Reference:	True
Well:	JZM 1N-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	89.71	359.66	7,451.44	936.42	111.61	935.74	0.00	0.00	0.00	
8,200.00	89.71	359.66	7,451.95	1,036.42	111.01	1,035.74	0.00	0.00	0.00	
8,300.00	89.71	359.66	7,452.46	1,136.42	110.41	1,135.74	0.00	0.00	0.00	
8,400.00	89.71	359.66	7,452.97	1,236.41	109.81	1,235.74	0.00	0.00	0.00	
8,500.00	89.71	359.66	7,453.48	1,336.41	109.21	1,335.74	0.00	0.00	0.00	
8,600.00	89.71	359.66	7,453.98	1,436.41	108.61	1,435.74	0.00	0.00	0.00	
8,700.00	89.71	359.66	7,454.49	1,536.40	108.01	1,535.74	0.00	0.00	0.00	
8,800.00	89.71	359.66	7,455.00	1,636.40	107.41	1,635.73	0.00	0.00	0.00	
8,900.00	89.71	359.66	7,455.51	1,736.40	106.81	1,735.73	0.00	0.00	0.00	
9,000.00	89.71	359.66	7,456.02	1,836.39	106.21	1,835.73	0.00	0.00	0.00	
9,100.00	89.71	359.66	7,456.53	1,936.39	105.61	1,935.73	0.00	0.00	0.00	
9,200.00	89.71	359.66	7,457.04	2,036.39	105.01	2,035.73	0.00	0.00	0.00	
9,300.00	89.71	359.66	7,457.54	2,136.39	104.41	2,135.73	0.00	0.00	0.00	
9,400.00	89.71	359.66	7,458.05	2,236.38	103.81	2,235.73	0.00	0.00	0.00	
9,500.00	89.71	359.66	7,458.56	2,336.38	103.21	2,335.73	0.00	0.00	0.00	
9,600.00	89.71	359.66	7,459.07	2,436.38	102.61	2,435.72	0.00	0.00	0.00	
9,700.00	89.71	359.66	7,459.58	2,536.37	102.01	2,535.72	0.00	0.00	0.00	
9,800.00	89.71	359.66	7,460.09	2,636.37	101.41	2,635.72	0.00	0.00	0.00	
9,900.00	89.71	359.66	7,460.60	2,736.37	100.81	2,735.72	0.00	0.00	0.00	
10,000.00	89.71	359.66	7,461.11	2,836.36	100.21	2,835.72	0.00	0.00	0.00	
10,100.00	89.71	359.66	7,461.61	2,936.36	99.61	2,935.72	0.00	0.00	0.00	
10,200.00	89.71	359.66	7,462.12	3,036.36	99.01	3,035.72	0.00	0.00	0.00	
10,300.00	89.71	359.66	7,462.63	3,136.35	98.41	3,135.72	0.00	0.00	0.00	
10,400.00	89.71	359.66	7,463.14	3,236.35	97.81	3,235.71	0.00	0.00	0.00	
10,500.00	89.71	359.66	7,463.65	3,336.35	97.21	3,335.71	0.00	0.00	0.00	
10,600.00	89.71	359.66	7,464.16	3,436.35	96.61	3,435.71	0.00	0.00	0.00	
10,700.00	89.71	359.66	7,464.67	3,536.34	96.01	3,535.71	0.00	0.00	0.00	
10,800.00	89.71	359.66	7,465.17	3,636.34	95.41	3,635.71	0.00	0.00	0.00	
10,900.00	89.71	359.66	7,465.68	3,736.34	94.81	3,735.71	0.00	0.00	0.00	
11,000.00	89.71	359.66	7,466.19	3,836.33	94.21	3,835.71	0.00	0.00	0.00	
11,100.00	89.71	359.66	7,466.70	3,936.33	93.61	3,935.71	0.00	0.00	0.00	
11,200.00	89.71	359.66	7,467.21	4,036.33	93.01	4,035.70	0.00	0.00	0.00	
11,300.00	89.71	359.66	7,467.72	4,136.32	92.41	4,135.70	0.00	0.00	0.00	
11,400.00	89.71	359.66	7,468.23	4,236.32	91.81	4,235.70	0.00	0.00	0.00	
11,500.00	89.71	359.66	7,468.73	4,336.32	91.21	4,335.70	0.00	0.00	0.00	
11,600.00	89.71	359.66	7,469.24	4,436.31	90.61	4,435.70	0.00	0.00	0.00	
11,700.00	89.71	359.66	7,469.75	4,536.31	90.01	4,535.70	0.00	0.00	0.00	
11,800.00	89.71	359.66	7,470.26	4,636.31	89.41	4,635.70	0.00	0.00	0.00	
11,900.00	89.71	359.66	7,470.77	4,736.31	88.81	4,735.69	0.00	0.00	0.00	
12,000.00	89.71	359.66	7,471.28	4,836.30	88.21	4,835.69	0.00	0.00	0.00	
12,100.00	89.71	359.66	7,471.79	4,936.30	87.61	4,935.69	0.00	0.00	0.00	
12,200.00	89.71	359.66	7,472.29	5,036.30	87.01	5,035.69	0.00	0.00	0.00	
12,300.00	89.71	359.66	7,472.80	5,136.29	86.41	5,135.69	0.00	0.00	0.00	
12,400.00	89.71	359.66	7,473.31	5,236.29	85.81	5,235.69	0.00	0.00	0.00	
12,500.00	89.71	359.66	7,473.82	5,336.29	85.21	5,335.69	0.00	0.00	0.00	
12,600.00	89.71	359.66	7,474.33	5,436.28	84.61	5,435.69	0.00	0.00	0.00	
12,700.00	89.71	359.66	7,474.84	5,536.28	84.01	5,535.68	0.00	0.00	0.00	
12,800.00	89.71	359.66	7,475.35	5,636.28	83.41	5,635.68	0.00	0.00	0.00	
12,900.00	89.71	359.66	7,475.86	5,736.27	82.81	5,735.68	0.00	0.00	0.00	
13,000.00	89.71	359.66	7,476.36	5,836.27	82.21	5,835.68	0.00	0.00	0.00	
13,100.00	89.71	359.66	7,476.87	5,936.27	81.61	5,935.68	0.00	0.00	0.00	
13,200.00	89.71	359.66	7,477.38	6,036.27	81.01	6,035.68	0.00	0.00	0.00	
13,300.00	89.71	359.66	7,477.89	6,136.26	80.41	6,135.68	0.00	0.00	0.00	
13,400.00	89.71	359.66	7,478.40	6,236.26	79.81	6,235.68	0.00	0.00	0.00	

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Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well JZM 1N-3HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5056.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5056.00usft (D Rig)
Site:	1N-67W-10 JZM 16-10HZ Pad	North Reference:	True
Well:	JZM 1N-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	89.71	359.66	7,478.91	6,336.26	79.21	6,335.67	0.00	0.00	0.00
13,600.00	89.71	359.66	7,479.42	6,436.25	78.61	6,435.67	0.00	0.00	0.00
13,700.00	89.71	359.66	7,479.92	6,536.25	78.01	6,535.67	0.00	0.00	0.00
13,800.00	89.71	359.66	7,480.43	6,636.25	77.41	6,635.67	0.00	0.00	0.00
13,900.00	89.71	359.66	7,480.94	6,736.24	76.81	6,735.67	0.00	0.00	0.00
14,000.00	89.71	359.66	7,481.45	6,836.24	76.21	6,835.67	0.00	0.00	0.00
14,100.00	89.71	359.66	7,481.96	6,936.24	75.61	6,935.67	0.00	0.00	0.00
14,200.00	89.71	359.66	7,482.47	7,036.23	75.01	7,035.67	0.00	0.00	0.00
14,300.00	89.71	359.66	7,482.98	7,136.23	74.41	7,135.66	0.00	0.00	0.00
14,400.00	89.71	359.66	7,483.48	7,236.23	73.81	7,235.66	0.00	0.00	0.00
14,500.00	89.71	359.66	7,483.99	7,336.22	73.21	7,335.66	0.00	0.00	0.00
14,600.00	89.71	359.66	7,484.50	7,436.22	72.61	7,435.66	0.00	0.00	0.00
14,700.00	89.71	359.66	7,485.01	7,536.22	72.01	7,535.66	0.00	0.00	0.00
14,800.00	89.71	359.66	7,485.52	7,636.22	71.41	7,635.66	0.00	0.00	0.00
14,900.00	89.71	359.66	7,486.03	7,736.21	70.81	7,735.66	0.00	0.00	0.00
15,000.00	89.71	359.66	7,486.54	7,836.21	70.21	7,835.65	0.00	0.00	0.00
15,100.00	89.71	359.66	7,487.04	7,936.21	69.61	7,935.65	0.00	0.00	0.00
15,200.00	89.71	359.66	7,487.55	8,036.20	69.01	8,035.65	0.00	0.00	0.00
15,300.00	89.71	359.66	7,488.06	8,136.20	68.41	8,135.65	0.00	0.00	0.00
15,400.00	89.71	359.66	7,488.57	8,236.20	67.81	8,235.65	0.00	0.00	0.00
15,500.00	89.71	359.66	7,489.08	8,336.19	67.21	8,335.65	0.00	0.00	0.00
15,600.00	89.71	359.66	7,489.59	8,436.19	66.61	8,435.65	0.00	0.00	0.00
15,700.00	89.71	359.66	7,490.10	8,536.19	66.01	8,535.65	0.00	0.00	0.00
15,800.00	89.71	359.66	7,490.60	8,636.18	65.41	8,635.64	0.00	0.00	0.00
15,900.00	89.71	359.66	7,491.11	8,736.18	64.81	8,735.64	0.00	0.00	0.00
16,000.00	89.71	359.66	7,491.62	8,836.18	64.21	8,835.64	0.00	0.00	0.00
16,100.00	89.71	359.66	7,492.13	8,936.18	63.61	8,935.64	0.00	0.00	0.00
16,200.00	89.71	359.66	7,492.64	9,036.17	63.01	9,035.64	0.00	0.00	0.00
16,300.00	89.71	359.66	7,493.15	9,136.17	62.41	9,135.64	0.00	0.00	0.00
16,400.00	89.71	359.66	7,493.66	9,236.17	61.80	9,235.64	0.00	0.00	0.00
16,500.00	89.71	359.66	7,494.17	9,336.16	61.20	9,335.64	0.00	0.00	0.00
16,600.00	89.71	359.66	7,494.67	9,436.16	60.60	9,435.63	0.00	0.00	0.00
16,700.00	89.71	359.66	7,495.18	9,536.16	60.00	9,535.63	0.00	0.00	0.00
16,800.00	89.71	359.66	7,495.69	9,636.15	59.40	9,635.63	0.00	0.00	0.00
16,900.00	89.71	359.66	7,496.20	9,736.15	58.80	9,735.63	0.00	0.00	0.00
17,000.00	89.71	359.66	7,496.71	9,836.15	58.20	9,835.63	0.00	0.00	0.00
17,100.00	89.71	359.66	7,497.22	9,936.14	57.60	9,935.63	0.00	0.00	0.00
17,200.00	89.71	359.66	7,497.73	10,036.14	57.00	10,035.63	0.00	0.00	0.00
17,300.00	89.71	359.66	7,498.23	10,136.14	56.40	10,135.63	0.00	0.00	0.00
17,400.00	89.71	359.66	7,498.74	10,236.14	55.80	10,235.62	0.00	0.00	0.00
17,450.61	89.71	359.66	7,499.00	10,286.74	55.50	10,286.23	0.00	0.00	0.00
Toe:									
17,450.62	89.71	359.66	7,499.00	10,286.75	55.50	10,286.24	0.00	0.00	0.00
TD Well @ 17450.62ft									

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Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well JZM 1N-3HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5056.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5056.00usft (D Rig)
Site:	1N-67W-10 JZM 16-10HZ Pad	North Reference:	True
Well:	JZM 1N-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 1N-3HZ_Hardline B	0.00	0.00	0.00	0.00	0.00	14,548,288.64	1,676,901.84	40.059121	-104.869607	
- plan hits target center										
- Polygon										
Point 1			0.00	11,198.17	-311.05	14,559,486.35	1,676,574.39			
Point 2			0.00	11,197.96	86.28	14,559,486.72	1,676,971.72			
Point 3			0.00	10,334.10	84.31	14,558,622.86	1,676,971.01			
Point 4			0.00	8,977.45	110.19	14,557,266.25	1,676,998.88			
Point 5			0.00	7,620.79	136.15	14,555,909.63	1,677,026.83			
Point 6			0.00	6,297.73	149.24	14,554,586.59	1,677,041.86			
Point 7			0.00	3,652.89	165.67	14,551,941.77	1,677,062.16			
Point 8			0.00	2,332.97	169.11	14,550,621.86	1,677,067.53			
Point 9			0.00	1,011.24	172.49	14,549,300.14	1,677,072.85			
Point 10			0.00	151.38	174.68	14,548,440.28	1,677,076.30			
Point 11			0.00	151.19	-232.23	14,548,439.49	1,676,669.39			
Point 12			0.00	1,011.96	-233.67	14,549,300.26	1,676,666.69			
Point 13			0.00	2,332.73	-235.87	14,550,621.03	1,676,662.55			
Point 14			0.00	3,653.58	-237.98	14,551,941.87	1,676,658.51			
Point 15			0.00	4,974.90	-240.09	14,553,263.19	1,676,654.46			
Point 16			0.00	6,300.79	-254.79	14,554,589.05	1,676,637.82			
Point 17			0.00	7,627.15	-269.53	14,555,915.39	1,676,621.14			
Point 18			0.00	8,980.88	-290.85	14,557,269.09	1,676,597.84			
Point 19			0.00	10,334.62	-312.24	14,558,622.80	1,676,574.46			
Point 20			0.00	11,198.17	-311.05	14,559,486.35	1,676,574.39			
JZM 1N-3HZ_SHL	0.00	0.00	0.00	0.00	0.00	14,548,288.64	1,676,901.84	40.059121	-104.869607	
- plan hits target center										
- Point										
1N-R67W-Sec. 10_Secti	0.00	0.00	-24.00	-18.88	-1,693.97	14,548,267.29	1,675,207.90	40.059069	-104.875661	
- plan misses target center by 1694.24usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)										
- Polygon										
Point 1			-24.00	4,992.86	-2,976.12	14,553,255.78	1,672,224.47			
Point 2			-24.00	4,994.59	-331.69	14,553,261.38	1,674,868.90			
Point 3			-24.00	4,996.25	2,313.07	14,553,266.92	1,677,513.65			
Point 4			-24.00	2,354.63	2,320.05	14,550,625.31	1,677,524.50			
Point 5			-24.00	-287.06	2,326.97	14,547,983.63	1,677,535.29			
Point 6			-24.00	-288.46	-327.65	14,547,978.35	1,674,880.67			
Point 7			-24.00	-290.97	-2,982.55	14,547,971.95	1,672,225.78			
1N-R67W-Sec. 3_Sectio	0.00	0.00	-24.00	-18.88	-1,693.97	14,548,267.29	1,675,207.90	40.059069	-104.875661	
- plan misses target center by 1694.24usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)										
- Polygon										
Point 1			-24.00	10,361.30	-3,022.88	14,558,624.15	1,672,169.85			
Point 2			-24.00	10,358.07	-398.53	14,558,624.76	1,674,794.20			
Point 3			-24.00	10,354.85	2,234.71	14,558,625.40	1,677,427.44			
Point 4			-24.00	7,634.95	2,286.94	14,555,905.58	1,677,483.66			
Point 5			-24.00	4,996.25	2,313.07	14,553,266.92	1,677,513.65			
Point 6			-24.00	4,994.59	-331.69	14,553,261.38	1,674,868.90			
Point 7			-24.00	4,992.86	-2,976.12	14,553,255.78	1,672,224.47			
Point 8			-24.00	7,632.17	-2,992.40	14,555,895.06	1,672,204.32			
JZM 1N-3HZ_TOE	0.00	0.00	7,499.00	10,286.75	55.50	14,558,575.46	1,676,942.27	40.087370	-104.869409	
- plan hits target center										
- Point										

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well JZM 1N-3HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5056.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5056.00usft (D Rig)
Site:	1N-67W-10 JZM 16-10HZ Pad	North Reference:	True
Well:	JZM 1N-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 (")
1,807.43	1,800.00	9 5/8"		9-5/8	13-1/2
7,817.59	7,450.01	7"		7	8-3/4

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,356.35	1,349.00	Fox Hills		0.00		
4,602.43	4,595.00	Sussex		0.00		
7,356.95	7,288.36	Sharon Springs		0.00		
7,415.63	7,325.36	Niobrara Top		0.00		
7,752.40	7,446.34	Niobrara B Bench		0.00		
7,817.59	7,450.01	Heel:		0.00		
17,450.61	7,499.00	Toe:		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	10.08	57.15	End Nudge @ 916.67ft	
1,016.67	1,011.77	13.09	74.25	Begin Drop @ 1016.67ft	
1,516.67	1,509.24	20.65	117.11	End Drop @ 1516.67ft	
6,820.83	6,813.40	20.65	117.11	KOP @ 6820.83ft	
7,400.00	7,315.91	266.42	115.64	DLS = 9°/100'	
7,817.59	7,450.01	654.02	113.31	End Build @ 7817.59ft	
17,450.62	7,499.00	10,286.75	55.50	TD Well @ 17450.62ft	