



# **Weatherford®**

## **US ROCKIES REGION PLANNING**

**COLORADO NORTHERN ZONE - 83**

**WELD\_Kunzman 35-5HZ Pad**

**Kunzman Federal 13N-8HZ**

**Wellbore #1**

**Plan: Permit**

## **Standard Planning Report**

**06 March, 2013**



Weatherford®

Project: COLORADO NORTHERN ZONE - 83  
Site: WELD\_Kunzman 35-5HZ Pad  
Well: Kunzman Federal 13N-8HZ  
Wellbore: Wellbore #1  
Section: Sec. 5-T2N-R66W  
SHL: 225' FSL 1724' FWL SEC. 5  
Design: Permit  
Latitude: 40.160462  
Longitude: -104.804453  
GL: 4858.00  
KB: gl + rkb @ 4875.00ft



Azimuths to True North  
Magnetic North: 8.72°  
Magnetic Field  
Strength: 52886.1nT  
Dip Angle: 66.81°  
Date: 7/17/2012  
Model: IGRF2010

WELL DETAILS: Kunzman Federal 13N-8HZ

+N/-S	+E/-W	Northing	Ground Level: Easting	4858.00 Latitude	Longitude	Slot
0.00	0.00	1302061.88	3194399.51	40.160462	-104.804453	

ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	Vsect	Departure	Annotation
1000.00	1000.00	0.00	0.00	0.00	0.00	0.00	0.00	Start Build 2.00
1468.25	1470.36	9.41	292.99	15.05	-35.47	-8.71	38.53	Start 5143.01 hold at 1470.36 MD
6542.09	6613.37	9.41	292.99	343.42	-809.29	-198.71	879.14	Start DLS 10.00 TFO -112.93
7145.00	7548.61	89.83	179.81	-227.00	-899.00	378.64	1474.73	Start 4818.68 hold at 7548.61 MD
7159.00	12367.29	89.83	179.81	-5045.63	-883.38	5122.38	6293.39	TD at 12367.29

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)

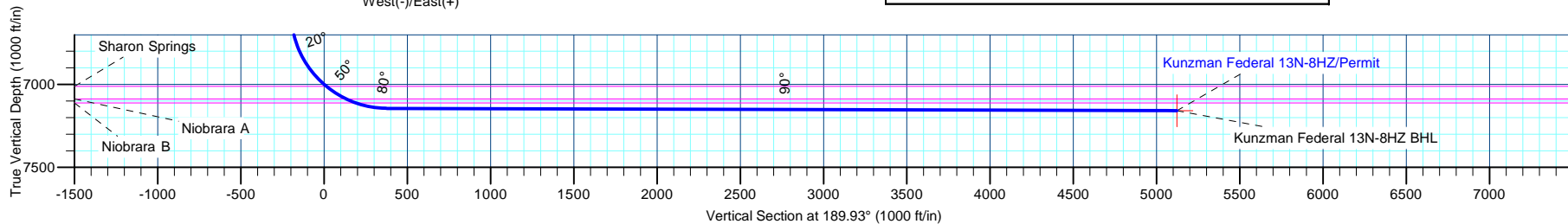
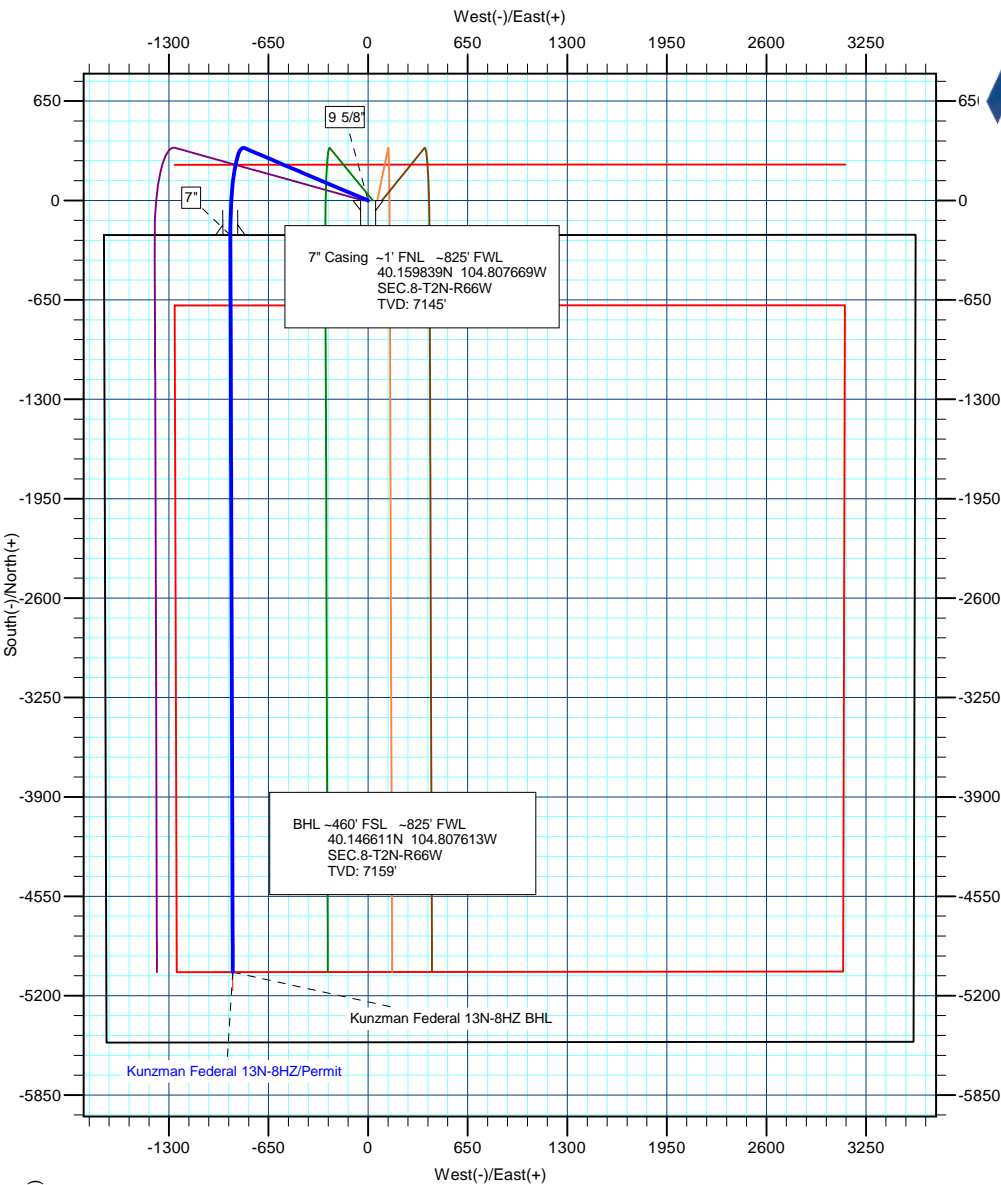
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Kunzman Federal 13N-8HZ BHL	7159.00	-5045.63	-883.38	40.146611	-104.807613	Point

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3921.00	3956.54	Parkman
4321.00	4362.00	Sussex
7012.00	7149.53	Sharon Springs
7088.00	7291.04	Niobrara A
7112.00	7353.75	Niobrara B

CASING DETAILS

TVD	MD	Name	Size
839.00	839.00	9 5/8"	9-5/8
7145.00	7548.61	7"	7





**Weatherford®**

# Andarko Petroleum Corporation

## Planning Report



<b>Database:</b>	edmp	<b>Local Co-ordinate Reference:</b>	Well Kunzman Federal 13N-8HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	gl + rkb @ 4875.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	gl + rkb @ 4875.00ft
<b>Site:</b>	WELD_Kunzman 35-5HZ Pad	<b>North Reference:</b>	True
<b>Well:</b>	Kunzman Federal 13N-8HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Permit		

<b>Project</b>	COLORADO NORTHERN ZONE - 83		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		

Site		WELD_Kunzman 35-5HZ Pad, Sec. 5-T2N-R66W			
Site Position:		Northing:	1,302,062.73 usft	Latitude:	40.160463
From:	Lat/Long	Easting:	3,194,459.59 usft	Longitude:	-104.804238
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.45 °

Well	Kunzman Federal 13N-8HZ					
Well Position	+N/-S	-0.38 ft	Northing:	1,302,061.88 usft	Latitude:	40.160462
	+E/-W	-60.09 ft	Easting:	3,194,399.51 usft	Longitude:	-104.804453
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,858.00 ft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	7/17/2012	8.72	66.81	52,886

<b>Design</b>	Permit			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	189.93

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	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	
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,470.36	9.41	292.99	1,468.25	15.05	-35.47	2.00	2.00	0.00	292.99	
6,613.37	9.41	292.99	6,542.09	343.42	-809.29	0.00	0.00	0.00	0.00	
7,548.61	89.83	179.81	7,145.00	-227.00	-899.00	10.00	8.60	-12.10	-112.93	
12,367.29	89.83	179.81	7,159.00	-5,045.63	-883.38	0.00	0.00	0.00	0.00	Kunzman Federal 13N-8HZ

<b>Database:</b>	edmp	<b>Local Co-ordinate Reference:</b>	Well Kunzman Federal 13N-8HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	gl + rkb @ 4875.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	gl + rkb @ 4875.00ft
<b>Site:</b>	WELD_Kunzman 35-5HZ Pad	<b>North Reference:</b>	True
<b>Well:</b>	Kunzman Federal 13N-8HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Permit		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	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
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
839.00	0.00	0.00	839.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>9 5/8"</b>									
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Start Build 2.00</b>									
1,100.00	2.00	292.99	1,099.98	0.68	-1.61	-0.39	2.00	2.00	0.00
1,200.00	4.00	292.99	1,199.84	2.73	-6.42	-1.58	2.00	2.00	0.00
1,300.00	6.00	292.99	1,299.45	6.13	-14.45	-3.55	2.00	2.00	0.00
1,400.00	8.00	292.99	1,398.70	10.89	-25.66	-6.30	2.00	2.00	0.00
1,470.36	9.41	292.99	1,468.25	15.05	-35.47	-8.71	2.00	2.00	0.00
<b>Start 5143.01 hold at 1470.36 MD</b>									
1,500.00	9.41	292.99	1,497.49	16.94	-39.93	-9.80	0.00	0.00	0.00
1,600.00	9.41	292.99	1,596.15	23.33	-54.97	-13.50	0.00	0.00	0.00
1,700.00	9.41	292.99	1,694.80	29.71	-70.02	-17.19	0.00	0.00	0.00
1,800.00	9.41	292.99	1,793.46	36.10	-85.06	-20.89	0.00	0.00	0.00
1,900.00	9.41	292.99	1,892.11	42.48	-100.11	-24.58	0.00	0.00	0.00
2,000.00	9.41	292.99	1,990.77	48.87	-115.16	-28.27	0.00	0.00	0.00
2,100.00	9.41	292.99	2,089.42	55.25	-130.20	-31.97	0.00	0.00	0.00
2,200.00	9.41	292.99	2,188.08	61.64	-145.25	-35.66	0.00	0.00	0.00
2,300.00	9.41	292.99	2,286.73	68.02	-160.30	-39.36	0.00	0.00	0.00
2,400.00	9.41	292.99	2,385.39	74.41	-175.34	-43.05	0.00	0.00	0.00
2,500.00	9.41	292.99	2,484.04	80.79	-190.39	-46.75	0.00	0.00	0.00
2,600.00	9.41	292.99	2,582.70	87.17	-205.43	-50.44	0.00	0.00	0.00
2,700.00	9.41	292.99	2,681.35	93.56	-220.48	-54.13	0.00	0.00	0.00
2,800.00	9.41	292.99	2,780.01	99.94	-235.53	-57.83	0.00	0.00	0.00
2,900.00	9.41	292.99	2,878.66	106.33	-250.57	-61.52	0.00	0.00	0.00
3,000.00	9.41	292.99	2,977.32	112.71	-265.62	-65.22	0.00	0.00	0.00
3,100.00	9.41	292.99	3,075.97	119.10	-280.66	-68.91	0.00	0.00	0.00
3,200.00	9.41	292.99	3,174.63	125.48	-295.71	-72.61	0.00	0.00	0.00
3,300.00	9.41	292.99	3,273.28	131.87	-310.76	-76.30	0.00	0.00	0.00
3,400.00	9.41	292.99	3,371.94	138.25	-325.80	-80.00	0.00	0.00	0.00
3,500.00	9.41	292.99	3,470.59	144.64	-340.85	-83.69	0.00	0.00	0.00
3,600.00	9.41	292.99	3,569.25	151.02	-355.90	-87.38	0.00	0.00	0.00
3,700.00	9.41	292.99	3,667.91	157.41	-370.94	-91.08	0.00	0.00	0.00
3,800.00	9.41	292.99	3,766.56	163.79	-385.99	-94.77	0.00	0.00	0.00
3,900.00	9.41	292.99	3,865.22	170.18	-401.03	-98.47	0.00	0.00	0.00
3,956.55	9.41	292.99	3,921.00	173.79	-409.54	-100.56	0.00	0.00	0.00
<b>Parkman</b>									
4,000.00	9.41	292.99	3,963.87	176.56	-416.08	-102.16	0.00	0.00	0.00
4,100.00	9.41	292.99	4,062.53	182.95	-431.13	-105.86	0.00	0.00	0.00
4,200.00	9.41	292.99	4,161.18	189.33	-446.17	-109.55	0.00	0.00	0.00
4,300.00	9.41	292.99	4,259.84	195.72	-461.22	-113.24	0.00	0.00	0.00
4,362.00	9.41	292.99	4,321.00	199.67	-470.55	-115.53	0.00	0.00	0.00
<b>Sussex</b>									
4,400.00	9.41	292.99	4,358.49	202.10	-476.27	-116.94	0.00	0.00	0.00



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Planning Report



<b>Database:</b>	edmp	<b>Local Co-ordinate Reference:</b>	Well Kunzman Federal 13N-8HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	gl + rkb @ 4875.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	gl + rkb @ 4875.00ft
<b>Site:</b>	WELD_Kunzman 35-5HZ Pad	<b>North Reference:</b>	True
<b>Well:</b>	Kunzman Federal 13N-8HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Permit		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,500.00	9.41	292.99	4,457.15	208.49	-491.31	-120.63	0.00	0.00	0.00
4,600.00	9.41	292.99	4,555.80	214.87	-506.36	-124.33	0.00	0.00	0.00
4,700.00	9.41	292.99	4,654.46	221.26	-521.40	-128.02	0.00	0.00	0.00
4,800.00	9.41	292.99	4,753.11	227.64	-536.45	-131.72	0.00	0.00	0.00
4,900.00	9.41	292.99	4,851.77	234.02	-551.50	-135.41	0.00	0.00	0.00
5,000.00	9.41	292.99	4,950.42	240.41	-566.54	-139.10	0.00	0.00	0.00
5,100.00	9.41	292.99	5,049.08	246.79	-581.59	-142.80	0.00	0.00	0.00
5,200.00	9.41	292.99	5,147.73	253.18	-596.64	-146.49	0.00	0.00	0.00
5,300.00	9.41	292.99	5,246.39	259.56	-611.68	-150.19	0.00	0.00	0.00
5,400.00	9.41	292.99	5,345.04	265.95	-626.73	-153.88	0.00	0.00	0.00
5,500.00	9.41	292.99	5,443.70	272.33	-641.77	-157.58	0.00	0.00	0.00
5,600.00	9.41	292.99	5,542.35	278.72	-656.82	-161.27	0.00	0.00	0.00
5,700.00	9.41	292.99	5,641.01	285.10	-671.87	-164.96	0.00	0.00	0.00
5,800.00	9.41	292.99	5,739.66	291.49	-686.91	-168.66	0.00	0.00	0.00
5,900.00	9.41	292.99	5,838.32	297.87	-701.96	-172.35	0.00	0.00	0.00
6,000.00	9.41	292.99	5,936.97	304.26	-717.00	-176.05	0.00	0.00	0.00
6,100.00	9.41	292.99	6,035.63	310.64	-732.05	-179.74	0.00	0.00	0.00
6,200.00	9.41	292.99	6,134.28	317.03	-747.10	-183.44	0.00	0.00	0.00
6,300.00	9.41	292.99	6,232.94	323.41	-762.14	-187.13	0.00	0.00	0.00
6,400.00	9.41	292.99	6,331.60	329.80	-777.19	-190.82	0.00	0.00	0.00
6,500.00	9.41	292.99	6,430.25	336.18	-792.24	-194.52	0.00	0.00	0.00
6,600.00	9.41	292.99	6,528.91	342.57	-807.28	-198.21	0.00	0.00	0.00
6,613.37	9.41	292.99	6,542.09	343.42	-809.29	-198.71	0.00	0.00	0.00
<b>Start DLS 10.00 TFO -112.93</b>									
6,650.00	8.66	269.98	6,578.28	344.59	-814.81	-198.91	10.00	-2.04	-62.81
6,700.00	9.97	239.77	6,627.65	342.41	-822.32	-195.46	10.00	2.63	-60.42
6,750.00	13.18	220.36	6,676.65	335.88	-829.75	-187.75	10.00	6.40	-38.82
6,800.00	17.24	209.17	6,724.90	325.06	-837.06	-175.83	10.00	8.14	-22.39
6,850.00	21.70	202.29	6,772.03	310.03	-844.18	-159.80	10.00	8.90	-13.75
6,900.00	26.34	197.70	6,817.69	290.90	-851.07	-139.77	10.00	9.28	-9.18
6,950.00	31.08	194.42	6,861.54	267.82	-857.66	-115.89	10.00	9.49	-6.57
7,000.00	35.89	191.94	6,903.23	240.96	-863.91	-88.36	10.00	9.62	-4.97
7,050.00	40.74	189.97	6,942.44	210.53	-869.77	-57.38	10.00	9.70	-3.93
7,100.00	45.62	188.36	6,978.89	176.76	-875.19	-23.18	10.00	9.75	-3.22
7,149.53	50.47	187.01	7,012.00	140.26	-880.10	13.62	10.00	9.79	-2.73
<b>Sharon Springs</b>									
7,150.00	50.52	187.00	7,012.30	139.90	-880.14	13.98	10.00	9.81	-2.53
7,200.00	55.43	185.81	7,042.40	100.25	-884.58	53.80	10.00	9.82	-2.37
7,250.00	60.35	184.76	7,068.97	58.09	-888.47	96.00	10.00	9.84	-2.10
7,291.04	64.39	183.97	7,088.00	21.84	-891.24	132.18	10.00	9.85	-1.92
<b>Niobrara A</b>									
7,300.00	65.28	183.81	7,091.81	13.75	-891.79	140.25	10.00	9.86	-1.84
7,350.00	70.21	182.93	7,110.74	-32.43	-894.50	186.20	10.00	9.87	-1.76
7,353.75	70.58	182.87	7,112.00	-35.95	-894.68	189.70	10.00	9.87	-1.70
<b>Niobrara B</b>									
7,400.00	75.15	182.10	7,125.63	-80.10	-896.59	233.52	10.00	9.88	-1.65
7,450.00	80.09	181.31	7,136.35	-128.90	-898.04	281.84	10.00	9.88	-1.58
7,500.00	85.03	180.55	7,142.82	-178.45	-898.85	330.79	10.00	9.88	-1.53
7,548.61	89.83	179.81	7,145.00	-227.00	-899.00	378.64	10.00	9.89	-1.51
<b>Start 4818.68 hold at 7548.61 MD - 7"</b>									
7,600.00	89.83	179.81	7,145.15	-278.39	-898.83	429.23	0.00	0.00	0.00
7,700.00	89.83	179.81	7,145.44	-378.39	-898.51	527.67	0.00	0.00	0.00
7,800.00	89.83	179.81	7,145.73	-478.39	-898.19	626.12	0.00	0.00	0.00

<b>Database:</b>	edmp	<b>Local Co-ordinate Reference:</b>	Well Kunzman Federal 13N-8HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	gl + rkb @ 4875.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	gl + rkb @ 4875.00ft
<b>Site:</b>	WELD_Kunzman 35-5HZ Pad	<b>North Reference:</b>	True
<b>Well:</b>	Kunzman Federal 13N-8HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Permit		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
7,900.00	89.83	179.81	7,146.02	-578.39	-897.86	724.56	0.00	0.00	0.00	
8,000.00	89.83	179.81	7,146.31	-678.38	-897.54	823.01	0.00	0.00	0.00	
8,100.00	89.83	179.81	7,146.60	-778.38	-897.21	921.45	0.00	0.00	0.00	
8,200.00	89.83	179.81	7,146.89	-878.38	-896.89	1,019.90	0.00	0.00	0.00	
8,300.00	89.83	179.81	7,147.18	-978.38	-896.56	1,118.34	0.00	0.00	0.00	
8,400.00	89.83	179.81	7,147.47	-1,078.38	-896.24	1,216.79	0.00	0.00	0.00	
8,500.00	89.83	179.81	7,147.76	-1,178.38	-895.92	1,315.23	0.00	0.00	0.00	
8,600.00	89.83	179.81	7,148.05	-1,278.38	-895.59	1,413.68	0.00	0.00	0.00	
8,700.00	89.83	179.81	7,148.35	-1,378.38	-895.27	1,512.12	0.00	0.00	0.00	
8,800.00	89.83	179.81	7,148.64	-1,478.38	-894.94	1,610.57	0.00	0.00	0.00	
8,900.00	89.83	179.81	7,148.93	-1,578.38	-894.62	1,709.01	0.00	0.00	0.00	
9,000.00	89.83	179.81	7,149.22	-1,678.38	-894.30	1,807.46	0.00	0.00	0.00	
9,100.00	89.83	179.81	7,149.51	-1,778.37	-893.97	1,905.90	0.00	0.00	0.00	
9,200.00	89.83	179.81	7,149.80	-1,878.37	-893.65	2,004.34	0.00	0.00	0.00	
9,300.00	89.83	179.81	7,150.09	-1,978.37	-893.32	2,102.79	0.00	0.00	0.00	
9,400.00	89.83	179.81	7,150.38	-2,078.37	-893.00	2,201.23	0.00	0.00	0.00	
9,500.00	89.83	179.81	7,150.67	-2,178.37	-892.68	2,299.68	0.00	0.00	0.00	
9,600.00	89.83	179.81	7,150.96	-2,278.37	-892.35	2,398.12	0.00	0.00	0.00	
9,700.00	89.83	179.81	7,151.25	-2,378.37	-892.03	2,496.57	0.00	0.00	0.00	
9,800.00	89.83	179.81	7,151.54	-2,478.37	-891.70	2,595.01	0.00	0.00	0.00	
9,900.00	89.83	179.81	7,151.83	-2,578.37	-891.38	2,693.46	0.00	0.00	0.00	
10,000.00	89.83	179.81	7,152.12	-2,678.37	-891.06	2,791.90	0.00	0.00	0.00	
10,100.00	89.83	179.81	7,152.41	-2,778.36	-890.73	2,890.35	0.00	0.00	0.00	
10,200.00	89.83	179.81	7,152.70	-2,878.36	-890.41	2,988.79	0.00	0.00	0.00	
10,300.00	89.83	179.81	7,152.99	-2,978.36	-890.08	3,087.24	0.00	0.00	0.00	
10,400.00	89.83	179.81	7,153.28	-3,078.36	-889.76	3,185.68	0.00	0.00	0.00	
10,500.00	89.83	179.81	7,153.58	-3,178.36	-889.44	3,284.13	0.00	0.00	0.00	
10,600.00	89.83	179.81	7,153.87	-3,278.36	-889.11	3,382.57	0.00	0.00	0.00	
10,700.00	89.83	179.81	7,154.16	-3,378.36	-888.79	3,481.02	0.00	0.00	0.00	
10,800.00	89.83	179.81	7,154.45	-3,478.36	-888.46	3,579.46	0.00	0.00	0.00	
10,900.00	89.83	179.81	7,154.74	-3,578.36	-888.14	3,677.91	0.00	0.00	0.00	
11,000.00	89.83	179.81	7,155.03	-3,678.36	-887.81	3,776.35	0.00	0.00	0.00	
11,100.00	89.83	179.81	7,155.32	-3,778.36	-887.49	3,874.80	0.00	0.00	0.00	
11,200.00	89.83	179.81	7,155.61	-3,878.35	-887.17	3,973.24	0.00	0.00	0.00	
11,300.00	89.83	179.81	7,155.90	-3,978.35	-886.84	4,071.69	0.00	0.00	0.00	
11,400.00	89.83	179.81	7,156.19	-4,078.35	-886.52	4,170.13	0.00	0.00	0.00	
11,500.00	89.83	179.81	7,156.48	-4,178.35	-886.19	4,268.58	0.00	0.00	0.00	
11,600.00	89.83	179.81	7,156.77	-4,278.35	-885.87	4,367.02	0.00	0.00	0.00	
11,700.00	89.83	179.81	7,157.06	-4,378.35	-885.55	4,465.47	0.00	0.00	0.00	
11,800.00	89.83	179.81	7,157.35	-4,478.35	-885.22	4,563.91	0.00	0.00	0.00	
11,900.00	89.83	179.81	7,157.64	-4,578.35	-884.90	4,662.36	0.00	0.00	0.00	
12,000.00	89.83	179.81	7,157.93	-4,678.35	-884.57	4,760.80	0.00	0.00	0.00	
12,100.00	89.83	179.81	7,158.22	-4,778.35	-884.25	4,859.25	0.00	0.00	0.00	
12,200.00	89.83	179.81	7,158.51	-4,878.34	-883.93	4,957.69	0.00	0.00	0.00	
12,300.00	89.83	179.81	7,158.80	-4,978.34	-883.60	5,056.14	0.00	0.00	0.00	
12,367.29	89.83	179.81	7,159.00	-5,045.63	-883.38	5,122.38	0.00	0.00	0.00	
TD at 12367.29 - Kunzman Federal 13N-8HZ BHL										



<b>Database:</b>	edmp	<b>Local Co-ordinate Reference:</b>	Well Kunzman Federal 13N-8HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	gl + rkb @ 4875.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	gl + rkb @ 4875.00ft
<b>Site:</b>	WELD_Kunzman 35-5HZ Pad	<b>North Reference:</b>	True
<b>Well:</b>	Kunzman Federal 13N-8HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Permit		

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Kunzman Federal 13N-8	0.00	0.00	7,159.00	-5,045.63	-883.38	1,297,009.49	3,193,555.73	40.146611	-104.807613
- plan hits target center									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
839.00	839.00	9 5/8"	9-5/8	12-1/4	
7,548.61	7,145.00	7"	7	8-3/4	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,956.55	3,921.00	Parkman				
4,362.00	4,321.00	Sussex				
7,149.53	7,012.00	Sharon Springs				
7,291.04	7,088.00	Niobrara A				
7,353.75	7,112.00	Niobrara B				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
1,000.00	1,000.00	0.00	0.00	Start Build 2.00	
1,470.36	1,468.25	15.05	-35.47	Start 5143.01 hold at 1470.36 MD	
6,613.37	6,542.09	343.42	-809.29	Start DLS 10.00 TFO -112.93	
7,548.61	7,145.00	-227.00	-899.00	Start 4818.68 hold at 7548.61 MD	
12,367.29	7,159.00	-5,045.63	-883.38	TD at 12367.29	