



Weatherford®

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_Kunzman 35-5HZ Pad

Kunzman Federal 13C-8HZ

Wellbore #1

Plan: Permit

Standard Planning Report

06 March, 2013





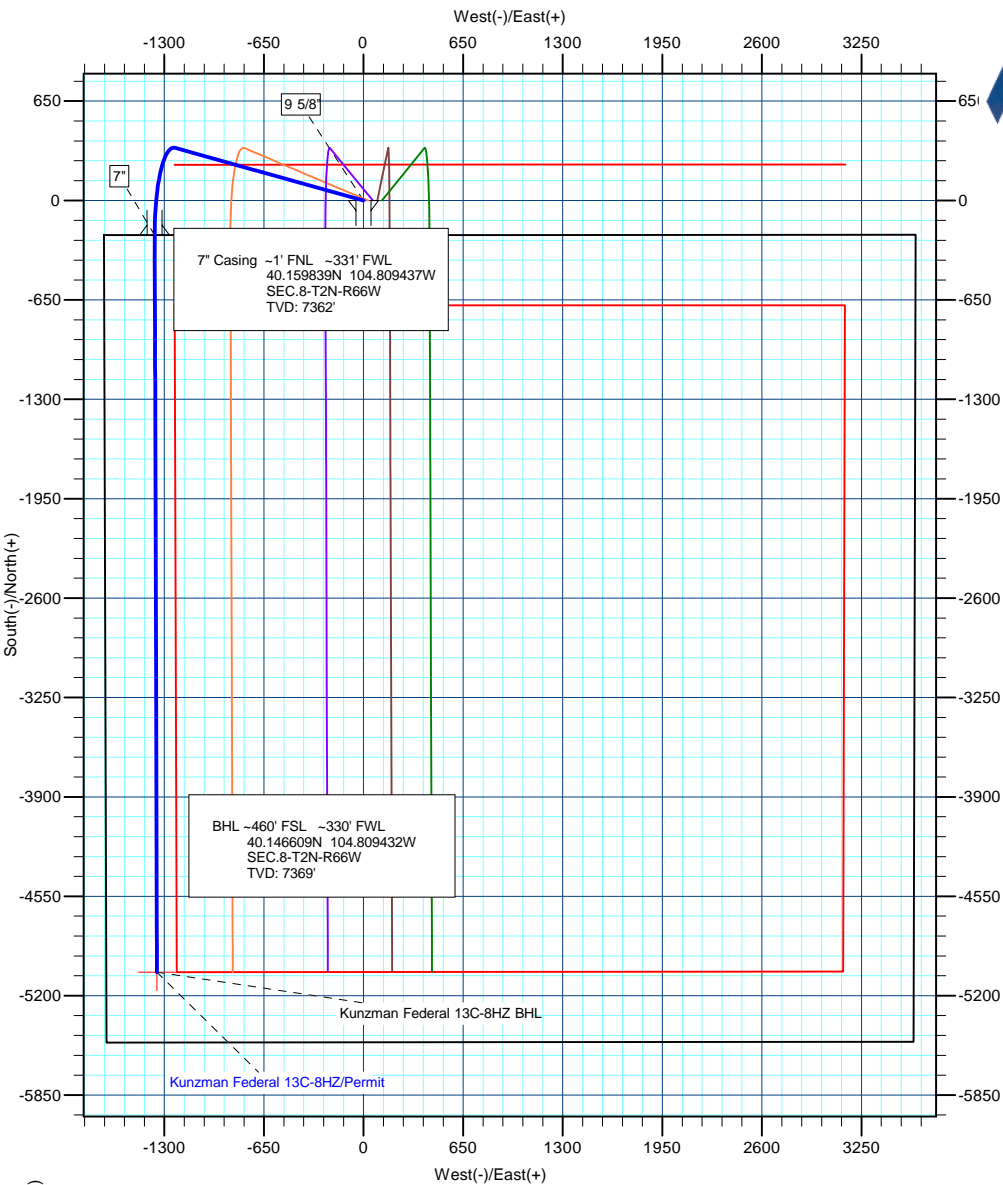
Weatherford

Project: COLORADO NORTHERN ZONE - 83
 Site: WELD_Kunzman 35-5HZ Pad
 Well: Kunzman Federal 13C-8HZ
 Wellbore: Wellbore #1
 Section: Sec. 5-T2N-R66W
 SHL: 225' FSL 1694' FWL SEC. 5
 Design: Permit
 Latitude: 40.160462
 Longitude: -104.804560
 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



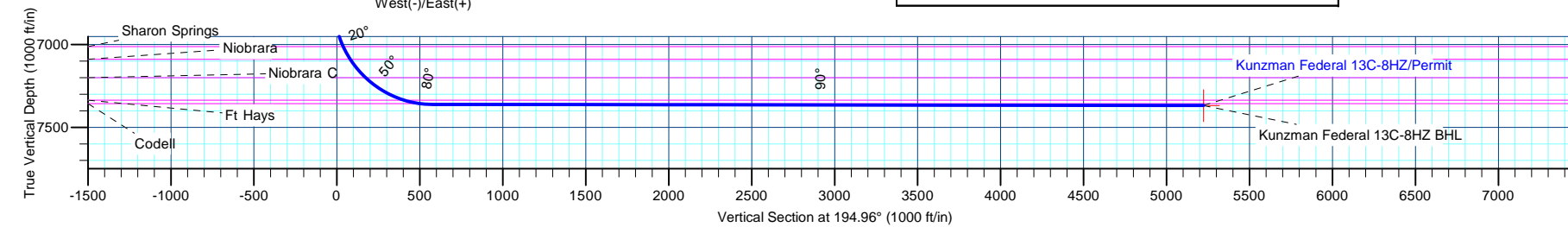
WELL DETAILS: Kunzman Federal 13C-8HZ						
+N/-S	+E/-W	Northing	Ground Level: Easting	4858.00 3194369.60	Latitude 40.160462	Longitude -104.804560
0.00	0.00	1302061.65				Slot

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	
1655.62	1661.48	13.23	285.64	20.49	-73.22	-0.90	76.03	Start 5252.03 hold at 1661.48 MD	
6768.26	6913.51	13.23	285.64	344.45	-1230.68	-15.17	1277.97	Start DLS 10.00 TFO -105.43	
7362.00	7848.46	89.92	179.82	-227.00	-1363.00	571.07	1892.36	Start 4819.35 hold at 7848.46 MD	
7369.00	12667.81	89.92	179.82	-5046.32	-1348.00	5223.26	6711.70	TD at 12667.81	

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)						
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Kunzman Federal 13C-8HZ BHL	7369.00	-5046.34	-1348.00	40.146609	-104.809382	Point

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
3926.00	3993.76	Parkman
4325.00	4403.64	Sussex
7013.00	7169.86	Sharon Springs
7089.00	7256.94	Niobrara
7200.00	7401.75	Niobrara C
7336.00	7673.85	Ft Hays
7357.00	7772.60	Codell

CASING DETAILS			
TVD	MD	Name	Size
839.00	839.00	9 5/8"	9-5/8
7362.00	7848.46	7"	7



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

Project	COLORADO NORTHERN ZONE - 83		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	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 13C-8HZ					
Well Position	+N/-S	-0.38 ft	Northing:	1,302,061.65 usft	Latitude:	40.160462
	+E/-W	-90.00 ft	Easting:	3,194,369.60 usft	Longitude:	-104.804560
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,858.00 ft

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

Design	Permit				
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	0.00	
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00	194.96	

Plan Sections										
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	
1,661.48	13.23	285.64	1,655.62	20.49	-73.22	2.00	2.00	0.00	285.64	
6,913.51	13.23	285.64	6,768.26	344.45	-1,230.68	0.00	0.00	0.00	0.00	
7,848.46	89.92	179.82	7,362.00	-227.00	-1,363.00	10.00	8.20	-11.32	-105.43	
12,667.82	89.92	179.82	7,369.00	-5,046.34	-1,348.00	0.00	0.00	0.00	0.00	Kunzman Federal 13C

Database:	edmp	Local Co-ordinate Reference:	Well Kunzman Federal 13C-8HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	gl + rkb @ 4875.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	gl + rkb @ 4875.00ft
Site:	WELD_Kunzman 35-5HZ Pad	North Reference:	True
Well:	Kunzman Federal 13C-8HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	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	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
300.00	0.00	0.00	300.00	0.00	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	0.00
500.00	0.00	0.00	500.00	0.00	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	0.00
700.00	0.00	0.00	700.00	0.00	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	0.00
839.00	0.00	0.00	839.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9 5/8"										
900.00	0.00	0.00	900.00	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	0.00
Start Build 2.00										
1,100.00	2.00	285.64	1,099.98	0.47	-1.68	-0.02	2.00	2.00	0.00	0.00
1,200.00	4.00	285.64	1,199.84	1.88	-6.72	-0.08	2.00	2.00	0.00	0.00
1,300.00	6.00	285.64	1,299.45	4.23	-15.11	-0.19	2.00	2.00	0.00	0.00
1,400.00	8.00	285.64	1,398.70	7.51	-26.85	-0.33	2.00	2.00	0.00	0.00
1,500.00	10.00	285.64	1,497.47	11.73	-41.91	-0.52	2.00	2.00	0.00	0.00
1,600.00	12.00	285.64	1,595.62	16.87	-60.29	-0.74	2.00	2.00	0.00	0.00
1,661.48	13.23	285.64	1,655.62	20.49	-73.22	-0.90	2.00	2.00	0.00	0.00
Start 5252.03 hold at 1661.48 MD										
1,700.00	13.23	285.64	1,693.12	22.87	-81.70	-1.01	0.00	0.00	0.00	0.00
1,800.00	13.23	285.64	1,790.46	29.04	-103.74	-1.28	0.00	0.00	0.00	0.00
1,900.00	13.23	285.64	1,887.81	35.20	-125.78	-1.55	0.00	0.00	0.00	0.00
2,000.00	13.23	285.64	1,985.15	41.37	-147.82	-1.82	0.00	0.00	0.00	0.00
2,100.00	13.23	285.64	2,082.50	47.54	-169.86	-2.09	0.00	0.00	0.00	0.00
2,200.00	13.23	285.64	2,179.85	53.71	-191.90	-2.37	0.00	0.00	0.00	0.00
2,300.00	13.23	285.64	2,277.19	59.88	-213.93	-2.64	0.00	0.00	0.00	0.00
2,400.00	13.23	285.64	2,374.54	66.05	-235.97	-2.91	0.00	0.00	0.00	0.00
2,500.00	13.23	285.64	2,471.88	72.21	-258.01	-3.18	0.00	0.00	0.00	0.00
2,600.00	13.23	285.64	2,569.23	78.38	-280.05	-3.45	0.00	0.00	0.00	0.00
2,700.00	13.23	285.64	2,666.58	84.55	-302.09	-3.72	0.00	0.00	0.00	0.00
2,800.00	13.23	285.64	2,763.92	90.72	-324.13	-4.00	0.00	0.00	0.00	0.00
2,900.00	13.23	285.64	2,861.27	96.89	-346.17	-4.27	0.00	0.00	0.00	0.00
3,000.00	13.23	285.64	2,958.61	103.05	-368.20	-4.54	0.00	0.00	0.00	0.00
3,100.00	13.23	285.64	3,055.96	109.22	-390.24	-4.81	0.00	0.00	0.00	0.00
3,200.00	13.23	285.64	3,153.31	115.39	-412.28	-5.08	0.00	0.00	0.00	0.00
3,300.00	13.23	285.64	3,250.65	121.56	-434.32	-5.35	0.00	0.00	0.00	0.00
3,400.00	13.23	285.64	3,348.00	127.73	-456.36	-5.63	0.00	0.00	0.00	0.00
3,500.00	13.23	285.64	3,445.35	133.90	-478.40	-5.90	0.00	0.00	0.00	0.00
3,600.00	13.23	285.64	3,542.69	140.06	-500.43	-6.17	0.00	0.00	0.00	0.00
3,700.00	13.23	285.64	3,640.04	146.23	-522.47	-6.44	0.00	0.00	0.00	0.00
3,800.00	13.23	285.64	3,737.38	152.40	-544.51	-6.71	0.00	0.00	0.00	0.00
3,900.00	13.23	285.64	3,834.73	158.57	-566.55	-6.98	0.00	0.00	0.00	0.00
3,993.76	13.23	285.64	3,926.00	164.35	-587.21	-7.24	0.00	0.00	0.00	0.00
Parkman										
4,000.00	13.23	285.64	3,932.08	164.74	-588.59	-7.26	0.00	0.00	0.00	0.00
4,100.00	13.23	285.64	4,029.42	170.90	-610.63	-7.53	0.00	0.00	0.00	0.00
4,200.00	13.23	285.64	4,126.77	177.07	-632.66	-7.80	0.00	0.00	0.00	0.00
4,300.00	13.23	285.64	4,224.11	183.24	-654.70	-8.07	0.00	0.00	0.00	0.00
4,400.00	13.23	285.64	4,321.46	189.41	-676.74	-8.34	0.00	0.00	0.00	0.00
4,403.64	13.23	285.64	4,325.00	189.63	-677.54	-8.35	0.00	0.00	0.00	0.00
Sussex										

Database:	edmp	Local Co-ordinate Reference:	Well Kunzman Federal 13C-8HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	gl + rkb @ 4875.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	gl + rkb @ 4875.00ft
Site:	WELD_Kunzman 35-5HZ Pad	North Reference:	True
Well:	Kunzman Federal 13C-8HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	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	13.23	285.64	4,418.81	195.58	-698.78	-8.61	0.00	0.00	0.00
4,600.00	13.23	285.64	4,516.15	201.75	-720.82	-8.89	0.00	0.00	0.00
4,700.00	13.23	285.64	4,613.50	207.91	-742.86	-9.16	0.00	0.00	0.00
4,800.00	13.23	285.64	4,710.84	214.08	-764.89	-9.43	0.00	0.00	0.00
4,900.00	13.23	285.64	4,808.19	220.25	-786.93	-9.70	0.00	0.00	0.00
5,000.00	13.23	285.64	4,905.54	226.42	-808.97	-9.97	0.00	0.00	0.00
5,100.00	13.23	285.64	5,002.88	232.59	-831.01	-10.24	0.00	0.00	0.00
5,200.00	13.23	285.64	5,100.23	238.75	-853.05	-10.52	0.00	0.00	0.00
5,300.00	13.23	285.64	5,197.58	244.92	-875.09	-10.79	0.00	0.00	0.00
5,400.00	13.23	285.64	5,294.92	251.09	-897.13	-11.06	0.00	0.00	0.00
5,500.00	13.23	285.64	5,392.27	257.26	-919.16	-11.33	0.00	0.00	0.00
5,600.00	13.23	285.64	5,489.61	263.43	-941.20	-11.60	0.00	0.00	0.00
5,700.00	13.23	285.64	5,586.96	269.60	-963.24	-11.87	0.00	0.00	0.00
5,800.00	13.23	285.64	5,684.31	275.76	-985.28	-12.15	0.00	0.00	0.00
5,900.00	13.23	285.64	5,781.65	281.93	-1,007.32	-12.42	0.00	0.00	0.00
6,000.00	13.23	285.64	5,879.00	288.10	-1,029.36	-12.69	0.00	0.00	0.00
6,100.00	13.23	285.64	5,976.34	294.27	-1,051.39	-12.96	0.00	0.00	0.00
6,200.00	13.23	285.64	6,073.69	300.44	-1,073.43	-13.23	0.00	0.00	0.00
6,300.00	13.23	285.64	6,171.04	306.60	-1,095.47	-13.50	0.00	0.00	0.00
6,400.00	13.23	285.64	6,268.38	312.77	-1,117.51	-13.78	0.00	0.00	0.00
6,500.00	13.23	285.64	6,365.73	318.94	-1,139.55	-14.05	0.00	0.00	0.00
6,600.00	13.23	285.64	6,463.07	325.11	-1,161.59	-14.32	0.00	0.00	0.00
6,700.00	13.23	285.64	6,560.42	331.28	-1,183.62	-14.59	0.00	0.00	0.00
6,800.00	13.23	285.64	6,657.77	337.45	-1,205.66	-14.86	0.00	0.00	0.00
6,900.00	13.23	285.64	6,755.11	343.61	-1,227.70	-15.13	0.00	0.00	0.00
6,913.51	13.23	285.64	6,768.26	344.45	-1,230.68	-15.17	0.00	0.00	0.00
Start DLS 10.00 TFO -105.43									
6,950.00	12.74	269.49	6,803.83	345.54	-1,238.73	-14.15	10.00	-1.33	-44.25
7,000.00	13.70	247.90	6,852.54	343.26	-1,249.73	-9.10	10.00	1.91	-43.18
7,050.00	16.19	230.97	6,900.86	336.64	-1,260.64	0.11	10.00	4.98	-33.85
7,100.00	19.64	219.13	6,948.45	325.72	-1,271.37	13.42	10.00	6.90	-23.68
7,150.00	23.63	210.93	6,994.93	310.60	-1,281.83	30.73	10.00	7.98	-16.41
7,169.86	25.31	208.37	7,013.00	303.45	-1,285.89	38.69	10.00	8.46	-12.87
Sharon Springs									
7,200.00	27.93	205.05	7,039.95	291.38	-1,291.94	51.91	10.00	8.70	-11.01
7,250.00	32.42	200.66	7,083.16	268.21	-1,301.64	76.80	10.00	8.98	-8.78
7,256.94	33.06	200.14	7,089.00	264.69	-1,302.95	80.53	10.00	9.13	-7.54
Niobrara									
7,300.00	37.03	197.25	7,124.25	241.27	-1,310.84	105.20	10.00	9.23	-6.71
7,350.00	41.72	194.50	7,162.89	210.77	-1,319.47	136.90	10.00	9.37	-5.50
7,400.00	46.46	192.21	7,198.80	176.93	-1,327.48	171.66	10.00	9.48	-4.57
7,401.75	46.63	192.14	7,200.00	175.68	-1,327.75	172.93	10.00	9.53	-4.19
Niobrara C									
7,450.00	51.24	190.26	7,231.69	140.01	-1,334.79	209.21	10.00	9.56	-3.89
7,500.00	56.05	188.56	7,261.32	100.29	-1,341.36	249.28	10.00	9.62	-3.41
7,550.00	60.88	187.04	7,287.47	58.08	-1,347.12	291.54	10.00	9.66	-3.04
7,600.00	65.72	185.66	7,309.93	13.70	-1,352.05	335.69	10.00	9.69	-2.77
7,650.00	70.58	184.38	7,328.53	-32.51	-1,356.10	381.39	10.00	9.71	-2.56
7,673.85	72.90	183.79	7,336.00	-55.10	-1,357.71	403.63	10.00	9.73	-2.45
Ft Hays									
7,700.00	75.45	183.17	7,343.13	-80.21	-1,359.24	428.28	10.00	9.73	-2.38
7,750.00	80.32	182.01	7,353.63	-129.03	-1,361.44	476.02	10.00	9.74	-2.31
7,772.60	82.52	181.50	7,357.00	-151.37	-1,362.13	497.78	10.00	9.75	-2.26

Database:	edmp	Local Co-ordinate Reference:	Well Kunzman Federal 13C-8HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	gl + rkb @ 4875.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	gl + rkb @ 4875.00ft
Site:	WELD_Kunzman 35-5HZ Pad	North Reference:	True
Well:	Kunzman Federal 13C-8HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	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)	
Codell										
7,800.00	85.19	180.89	7,359.93	-178.60	-1,362.70	524.23	10.00	9.75	-2.23	
7,848.46	89.92	179.82	7,362.00	-227.00	-1,363.00	571.07	10.00	9.75	-2.21	
Start 4819.35 hold at 7848.46 MD - 7"										
7,900.00	89.92	179.82	7,362.08	-278.54	-1,362.84	620.82	0.00	0.00	0.00	
8,000.00	89.92	179.82	7,362.22	-378.54	-1,362.53	717.36	0.00	0.00	0.00	
8,100.00	89.92	179.82	7,362.37	-478.54	-1,362.22	813.89	0.00	0.00	0.00	
8,200.00	89.92	179.82	7,362.51	-578.54	-1,361.91	910.42	0.00	0.00	0.00	
8,300.00	89.92	179.82	7,362.66	-678.54	-1,361.59	1,006.95	0.00	0.00	0.00	
8,400.00	89.92	179.82	7,362.80	-778.54	-1,361.28	1,103.48	0.00	0.00	0.00	
8,500.00	89.92	179.82	7,362.95	-878.54	-1,360.97	1,200.01	0.00	0.00	0.00	
8,600.00	89.92	179.82	7,363.09	-978.54	-1,360.66	1,296.54	0.00	0.00	0.00	
8,700.00	89.92	179.82	7,363.24	-1,078.54	-1,360.35	1,393.08	0.00	0.00	0.00	
8,800.00	89.92	179.82	7,363.38	-1,178.54	-1,360.04	1,489.61	0.00	0.00	0.00	
8,900.00	89.92	179.82	7,363.53	-1,278.54	-1,359.73	1,586.14	0.00	0.00	0.00	
9,000.00	89.92	179.82	7,363.67	-1,378.54	-1,359.42	1,682.67	0.00	0.00	0.00	
9,100.00	89.92	179.82	7,363.82	-1,478.54	-1,359.11	1,779.20	0.00	0.00	0.00	
9,200.00	89.92	179.82	7,363.96	-1,578.54	-1,358.79	1,875.73	0.00	0.00	0.00	
9,300.00	89.92	179.82	7,364.11	-1,678.54	-1,358.48	1,972.27	0.00	0.00	0.00	
9,400.00	89.92	179.82	7,364.25	-1,778.53	-1,358.17	2,068.80	0.00	0.00	0.00	
9,500.00	89.92	179.82	7,364.40	-1,878.53	-1,357.86	2,165.33	0.00	0.00	0.00	
9,600.00	89.92	179.82	7,364.54	-1,978.53	-1,357.55	2,261.86	0.00	0.00	0.00	
9,700.00	89.92	179.82	7,364.69	-2,078.53	-1,357.24	2,358.39	0.00	0.00	0.00	
9,800.00	89.92	179.82	7,364.83	-2,178.53	-1,356.93	2,454.92	0.00	0.00	0.00	
9,900.00	89.92	179.82	7,364.98	-2,278.53	-1,356.62	2,551.46	0.00	0.00	0.00	
10,000.00	89.92	179.82	7,365.12	-2,378.53	-1,356.30	2,647.99	0.00	0.00	0.00	
10,100.00	89.92	179.82	7,365.27	-2,478.53	-1,355.99	2,744.52	0.00	0.00	0.00	
10,200.00	89.92	179.82	7,365.42	-2,578.53	-1,355.68	2,841.05	0.00	0.00	0.00	
10,300.00	89.92	179.82	7,365.56	-2,678.53	-1,355.37	2,937.58	0.00	0.00	0.00	
10,400.00	89.92	179.82	7,365.71	-2,778.53	-1,355.06	3,034.11	0.00	0.00	0.00	
10,500.00	89.92	179.82	7,365.85	-2,878.53	-1,354.75	3,130.64	0.00	0.00	0.00	
10,600.00	89.92	179.82	7,366.00	-2,978.53	-1,354.44	3,227.18	0.00	0.00	0.00	
10,700.00	89.92	179.82	7,366.14	-3,078.53	-1,354.13	3,323.71	0.00	0.00	0.00	
10,800.00	89.92	179.82	7,366.29	-3,178.53	-1,353.81	3,420.24	0.00	0.00	0.00	
10,900.00	89.92	179.82	7,366.43	-3,278.53	-1,353.50	3,516.77	0.00	0.00	0.00	
11,000.00	89.92	179.82	7,366.58	-3,378.53	-1,353.19	3,613.30	0.00	0.00	0.00	
11,100.00	89.92	179.82	7,366.72	-3,478.52	-1,352.88	3,709.83	0.00	0.00	0.00	
11,200.00	89.92	179.82	7,366.87	-3,578.52	-1,352.57	3,806.37	0.00	0.00	0.00	
11,300.00	89.92	179.82	7,367.01	-3,678.52	-1,352.26	3,902.90	0.00	0.00	0.00	
11,400.00	89.92	179.82	7,367.16	-3,778.52	-1,351.95	3,999.43	0.00	0.00	0.00	
11,500.00	89.92	179.82	7,367.30	-3,878.52	-1,351.64	4,095.96	0.00	0.00	0.00	
11,600.00	89.92	179.82	7,367.45	-3,978.52	-1,351.33	4,192.49	0.00	0.00	0.00	
11,700.00	89.92	179.82	7,367.59	-4,078.52	-1,351.01	4,289.02	0.00	0.00	0.00	
11,800.00	89.92	179.82	7,367.74	-4,178.52	-1,350.70	4,385.56	0.00	0.00	0.00	
11,900.00	89.92	179.82	7,367.88	-4,278.52	-1,350.39	4,482.09	0.00	0.00	0.00	
12,000.00	89.92	179.82	7,368.03	-4,378.52	-1,350.08	4,578.62	0.00	0.00	0.00	
12,100.00	89.92	179.82	7,368.17	-4,478.52	-1,349.77	4,675.15	0.00	0.00	0.00	
12,200.00	89.92	179.82	7,368.32	-4,578.52	-1,349.46	4,771.68	0.00	0.00	0.00	
12,300.00	89.92	179.82	7,368.46	-4,678.52	-1,349.15	4,868.21	0.00	0.00	0.00	
12,400.00	89.92	179.82	7,368.61	-4,778.52	-1,348.84	4,964.75	0.00	0.00	0.00	
12,500.00	89.92	179.82	7,368.76	-4,878.52	-1,348.52	5,061.28	0.00	0.00	0.00	
12,600.00	89.92	179.82	7,368.90	-4,978.52	-1,348.21	5,157.81	0.00	0.00	0.00	
12,667.81	89.92	179.82	7,369.00	-5,046.32	-1,348.00	5,223.26	0.00	0.00	0.00	

Database:	edmp	Local Co-ordinate Reference:	Well Kunzman Federal 13C-8HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	gl + rkb @ 4875.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	gl + rkb @ 4875.00ft
Site:	WELD_Kunzman 35-5HZ Pad	North Reference:	True
Well:	Kunzman Federal 13C-8HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	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)
TD at 12667.81									
12,667.82	89.92	179.82	7,369.00	-5,046.34	-1,348.00	5,223.28	0.00	0.00	0.00
Kunzman Federal 13C-8HZ BHL									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Kunzman Federal 13C-8 - hit/miss target - Shape - Point	0.00	0.00	7,369.00	-5,046.34	-1,348.00	1,297,004.90	3,193,061.22	40.146609	-104.809382

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	
7,848.46	7,362.00	7"	7	8-3/4	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,993.76	3,926.00	Parkman				
4,403.64	4,325.00	Sussex				
7,169.86	7,013.00	Sharon Springs				
7,256.94	7,089.00	Niobrara				
7,401.75	7,200.00	Niobrara C				
7,673.85	7,336.00	Ft Hays				
7,772.60	7,357.00	Codell				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Comment	
1,000.00	1,000.00	0.00	0.00	Start Build 2.00	
1,661.48	1,655.62	20.49	-73.22	Start 5252.03 hold at 1661.48 MD	
6,913.51	6,768.26	344.45	-1,230.68	Start DLS 10.00 TFO -105.43	
7,848.46	7,362.00	-227.00	-1,363.00	Start 4819.35 hold at 7848.46 MD	
12,667.81	7,369.00	-5,046.32	-1,348.00	TD at 12667.81	