



**Weatherford®**

## **US ROCKIES REGION PLANNING**

**COLORADO-NAD83-UTMFT13N**

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

**Kunzman Federal 13C-8HZ**

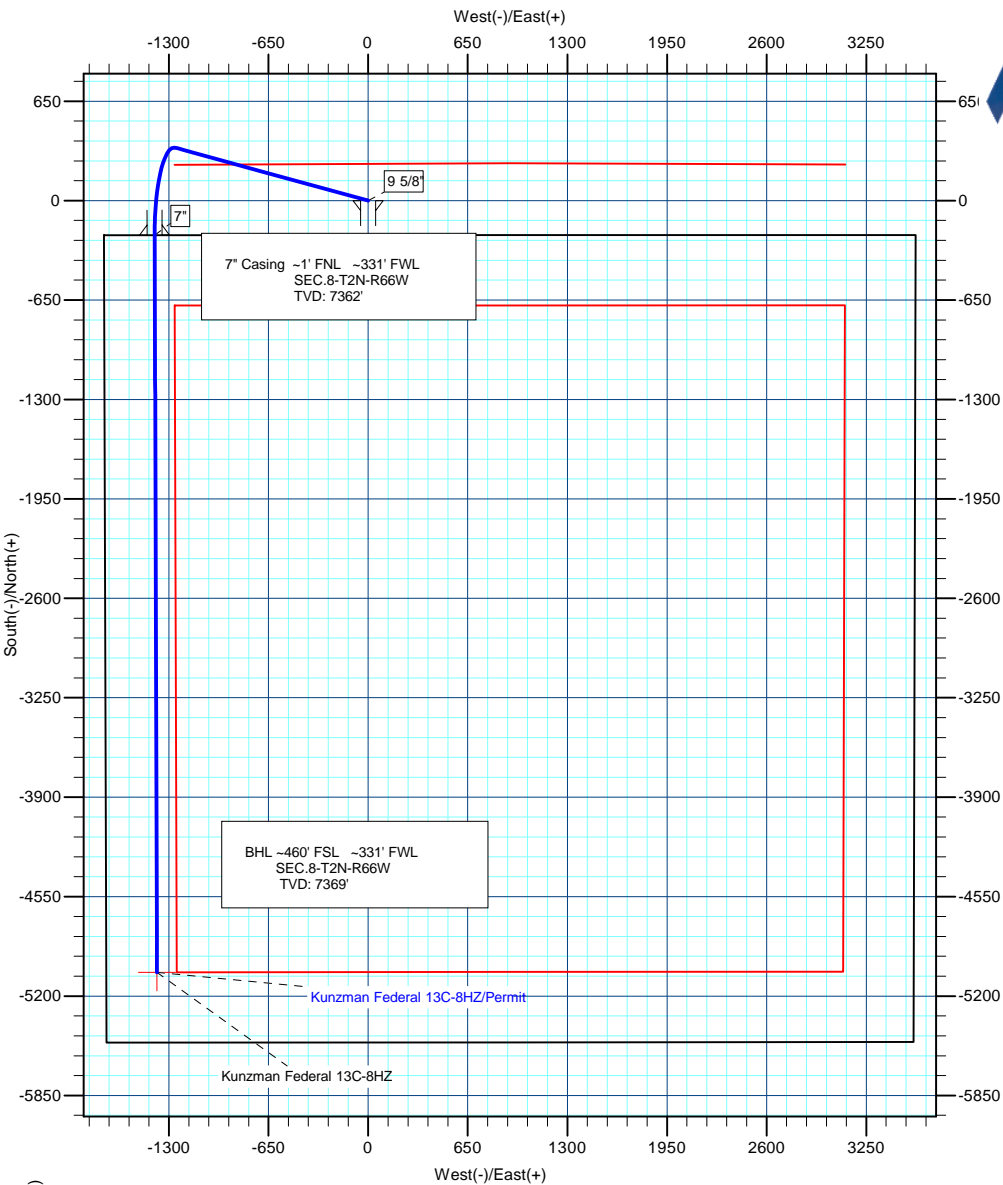
**Wellbore #1**

**Plan: Permit**

## **Standard Planning Report**

**02 May, 2013**





**Weatherford**

Project: COLORADO-NAD83-UTMFT13N  
 Site: WELD\_Kunzman 35-5HZ Pad  
 Well: Kunzman Federal 13C-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

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Azimuths to True North  
Magnetic North: 8.72°

Magnetic Field  
Strength: 52886.1nT  
Dip Angle: 66.81°  
Date: 7/17/2012  
Model: IGRF2010

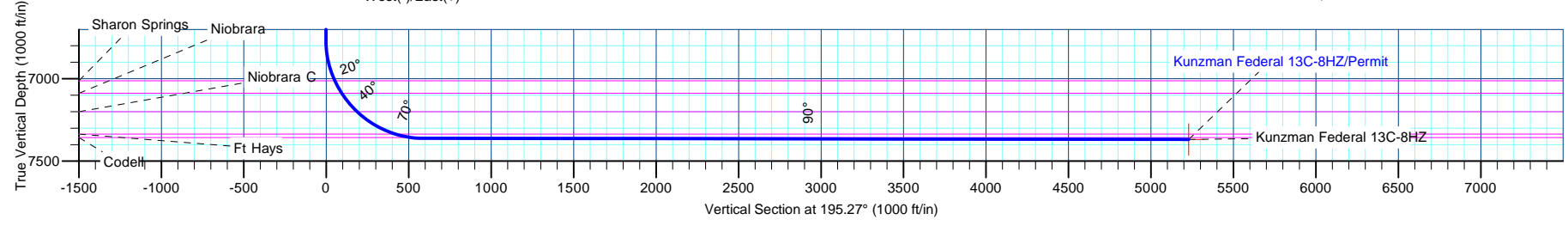
WELL DETAILS: Kunzman Federal 13C-8HZ						
+N/-S	+E/-W	Northing	Ground Level: Easting	4858.00	Latitude	Slot
0.00	0.00	14585225.10	1695051.41	40.160462	-104.804453	

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	
1669.18	1675.42	13.51	285.36	20.99	-76.42	-0.12	79.25	Start 5244.73 hold at 1675.42 MD	
6768.81	6920.14	13.51	285.36	345.46	-1257.76	-1.96	1304.34	Start DLS 10.00 TFO -105.15	
7362.00	7855.22	89.92	179.81	-226.00	-1393.00	584.95	1985.11	Start 4818.58 hold at 7855.22 MD	
7369.01	12673.79	89.92	179.81	-5044.55	-1377.42	5229.22	6803.68	TD at 12673.79	

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)						
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Kunzman Federal 13C-8HZ	7369.00	-5044.55	-1377.42	40.146609	-104.809382	Point

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
3926.00	3996.45	Parkman
4325.00	4406.80	Sussex
7013.00	7176.18	Sharon Springs
7089.00	7263.33	Niobrara
7200.00	7408.25	Niobrara C
7336.00	7680.51	Ft Hays
7357.00	7779.32	Codell

CASING DETAILS			
TVD	MD	Name	Size
839.00	839.00	9 5/8"	9-5/8
7362.00	7855.22	7"	7



<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well Kunzman Federal 13C-8HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	gl + rkb @ 4875.00ft
<b>Project:</b>	COLORADO-NAD83-UTMFT13N	<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 13C-8HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Permit		

<b>Project</b>	COLORADO-NAD83-UTMFT13N		
<b>Map System:</b>	Universal Transverse Mercator (US Survey Feet)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Zone 13N (108 W to 102 W)		

<b>Site</b>	WELD_Kunzman 35-5HZ Pad, Sec. 5-T2N-R66W				
<b>Site Position:</b>		<b>Northing:</b>	14,585,225.61 usft	<b>Latitude:</b>	40.160463
<b>From:</b>	Lat/Long	<b>Easting:</b>	1,695,111.19 usft	<b>Longitude:</b>	-104.804239
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	0.13 °

<b>Well</b>	Kunzman Federal 13C-8HZ					
<b>Well Position</b>	<b>+N/-S</b>	-0.38 ft	<b>Northing:</b>	14,585,225.10 usft	<b>Latitude:</b>	40.160462
	<b>+E/-W</b>	-59.79 ft	<b>Easting:</b>	1,695,051.40 usft	<b>Longitude:</b>	-104.804453
<b>Position Uncertainty</b>		0.00 ft	<b>Wellhead Elevation:</b>		<b>Ground Level:</b>	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	195.27	

<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	
1,675.42	13.51	285.36	1,669.18	20.99	-76.42	2.00	2.00	0.00	285.36	
6,920.14	13.51	285.36	6,768.81	345.46	-1,257.76	0.00	0.00	0.00	0.00	
7,855.22	89.92	179.81	7,362.00	-226.00	-1,393.00	10.00	8.17	-11.29	-105.15	
12,673.79	89.92	179.81	7,369.01	-5,044.55	-1,377.42	0.00	0.00	0.00	0.00	Kunzman Federal 13C

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well Kunzman Federal 13C-8HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	gl + rkb @ 4875.00ft
<b>Project:</b>	COLORADO-NAD83-UTMFT13N	<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 13C-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	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
<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	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
<b>Start Build 2.00</b>										
1,100.00	2.00	285.36	1,099.98	0.46	-1.68	0.00	2.00	2.00	2.00	0.00
1,200.00	4.00	285.36	1,199.84	1.85	-6.73	-0.01	2.00	2.00	2.00	0.00
1,300.00	6.00	285.36	1,299.45	4.16	-15.13	-0.02	2.00	2.00	2.00	0.00
1,400.00	8.00	285.36	1,398.70	7.38	-26.88	-0.04	2.00	2.00	2.00	0.00
1,500.00	10.00	285.36	1,497.47	11.53	-41.97	-0.07	2.00	2.00	2.00	0.00
1,600.00	12.00	285.36	1,595.62	16.58	-60.37	-0.09	2.00	2.00	2.00	0.00
1,675.42	13.51	285.36	1,669.18	20.99	-76.42	-0.12	2.00	2.00	2.00	0.00
<b>Start 5244.73 hold at 1675.42 MD</b>										
1,700.00	13.51	285.36	1,693.08	22.51	-81.96	-0.13	0.00	0.00	0.00	0.00
1,800.00	13.51	285.36	1,790.31	28.70	-104.48	-0.16	0.00	0.00	0.00	0.00
1,900.00	13.51	285.36	1,887.55	34.88	-127.01	-0.20	0.00	0.00	0.00	0.00
2,000.00	13.51	285.36	1,984.78	41.07	-149.53	-0.23	0.00	0.00	0.00	0.00
2,100.00	13.51	285.36	2,082.01	47.26	-172.06	-0.27	0.00	0.00	0.00	0.00
2,200.00	13.51	285.36	2,179.25	53.44	-194.58	-0.30	0.00	0.00	0.00	0.00
2,300.00	13.51	285.36	2,276.48	59.63	-217.10	-0.34	0.00	0.00	0.00	0.00
2,400.00	13.51	285.36	2,373.72	65.82	-239.63	-0.37	0.00	0.00	0.00	0.00
2,500.00	13.51	285.36	2,470.95	72.00	-262.15	-0.41	0.00	0.00	0.00	0.00
2,600.00	13.51	285.36	2,568.18	78.19	-284.68	-0.44	0.00	0.00	0.00	0.00
2,700.00	13.51	285.36	2,665.42	84.38	-307.20	-0.48	0.00	0.00	0.00	0.00
2,800.00	13.51	285.36	2,762.65	90.56	-329.73	-0.51	0.00	0.00	0.00	0.00
2,900.00	13.51	285.36	2,859.88	96.75	-352.25	-0.55	0.00	0.00	0.00	0.00
3,000.00	13.51	285.36	2,957.12	102.94	-374.78	-0.58	0.00	0.00	0.00	0.00
3,100.00	13.51	285.36	3,054.35	109.12	-397.30	-0.62	0.00	0.00	0.00	0.00
3,200.00	13.51	285.36	3,151.58	115.31	-419.82	-0.65	0.00	0.00	0.00	0.00
3,300.00	13.51	285.36	3,248.82	121.50	-442.35	-0.69	0.00	0.00	0.00	0.00
3,400.00	13.51	285.36	3,346.05	127.68	-464.87	-0.72	0.00	0.00	0.00	0.00
3,500.00	13.51	285.36	3,443.29	133.87	-487.40	-0.76	0.00	0.00	0.00	0.00
3,600.00	13.51	285.36	3,540.52	140.06	-509.92	-0.79	0.00	0.00	0.00	0.00
3,700.00	13.51	285.36	3,637.75	146.24	-532.45	-0.83	0.00	0.00	0.00	0.00
3,800.00	13.51	285.36	3,734.99	152.43	-554.97	-0.86	0.00	0.00	0.00	0.00
3,900.00	13.51	285.36	3,832.22	158.62	-577.50	-0.90	0.00	0.00	0.00	0.00
3,996.45	13.51	285.36	3,926.00	164.58	-599.22	-0.93	0.00	0.00	0.00	0.00
<b>Parkman</b>										
4,000.00	13.51	285.36	3,929.45	164.80	-600.02	-0.93	0.00	0.00	0.00	0.00
4,100.00	13.51	285.36	4,026.69	170.99	-622.54	-0.97	0.00	0.00	0.00	0.00
4,200.00	13.51	285.36	4,123.92	177.18	-645.07	-1.00	0.00	0.00	0.00	0.00
4,300.00	13.51	285.36	4,221.15	183.36	-667.59	-1.04	0.00	0.00	0.00	0.00
4,400.00	13.51	285.36	4,318.39	189.55	-690.12	-1.07	0.00	0.00	0.00	0.00
4,406.80	13.51	285.36	4,325.00	189.97	-691.65	-1.08	0.00	0.00	0.00	0.00
<b>Sussex</b>										

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well Kunzman Federal 13C-8HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	gl + rkb @ 4875.00ft
<b>Project:</b>	COLORADO-NAD83-UTMFT13N	<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 13C-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	13.51	285.36	4,415.62	195.74	-712.64	-1.11	0.00	0.00	0.00
4,600.00	13.51	285.36	4,512.86	201.92	-735.17	-1.14	0.00	0.00	0.00
4,700.00	13.51	285.36	4,610.09	208.11	-757.69	-1.18	0.00	0.00	0.00
4,800.00	13.51	285.36	4,707.32	214.30	-780.22	-1.21	0.00	0.00	0.00
4,900.00	13.51	285.36	4,804.56	220.48	-802.74	-1.25	0.00	0.00	0.00
5,000.00	13.51	285.36	4,901.79	226.67	-825.26	-1.28	0.00	0.00	0.00
5,100.00	13.51	285.36	4,999.02	232.86	-847.79	-1.32	0.00	0.00	0.00
5,200.00	13.51	285.36	5,096.26	239.04	-870.31	-1.35	0.00	0.00	0.00
5,300.00	13.51	285.36	5,193.49	245.23	-892.84	-1.39	0.00	0.00	0.00
5,400.00	13.51	285.36	5,290.72	251.42	-915.36	-1.42	0.00	0.00	0.00
5,500.00	13.51	285.36	5,387.96	257.60	-937.89	-1.46	0.00	0.00	0.00
5,600.00	13.51	285.36	5,485.19	263.79	-960.41	-1.49	0.00	0.00	0.00
5,700.00	13.51	285.36	5,582.43	269.98	-982.93	-1.53	0.00	0.00	0.00
5,800.00	13.51	285.36	5,679.66	276.16	-1,005.46	-1.56	0.00	0.00	0.00
5,900.00	13.51	285.36	5,776.89	282.35	-1,027.98	-1.60	0.00	0.00	0.00
6,000.00	13.51	285.36	5,874.13	288.54	-1,050.51	-1.63	0.00	0.00	0.00
6,100.00	13.51	285.36	5,971.36	294.72	-1,073.03	-1.67	0.00	0.00	0.00
6,200.00	13.51	285.36	6,068.59	300.91	-1,095.56	-1.70	0.00	0.00	0.00
6,300.00	13.51	285.36	6,165.83	307.10	-1,118.08	-1.74	0.00	0.00	0.00
6,400.00	13.51	285.36	6,263.06	313.28	-1,140.61	-1.77	0.00	0.00	0.00
6,500.00	13.51	285.36	6,360.29	319.47	-1,163.13	-1.81	0.00	0.00	0.00
6,600.00	13.51	285.36	6,457.53	325.66	-1,185.65	-1.84	0.00	0.00	0.00
6,700.00	13.51	285.36	6,554.76	331.84	-1,208.18	-1.88	0.00	0.00	0.00
6,800.00	13.51	285.36	6,651.99	338.03	-1,230.70	-1.91	0.00	0.00	0.00
6,900.00	13.51	285.36	6,749.23	344.22	-1,253.23	-1.95	0.00	0.00	0.00
6,920.14	13.51	285.36	6,768.81	345.46	-1,257.76	-1.96	0.00	0.00	0.00
<b>Start DLS 10.00 TFO -105.15</b>									
6,950.00	13.04	272.49	6,797.88	346.53	-1,264.49	-1.22	10.00	-1.55	-43.11
7,000.00	13.74	250.98	6,846.55	344.84	-1,275.75	3.38	10.00	1.39	-43.01
7,050.00	16.02	233.53	6,894.90	338.80	-1,286.92	12.15	10.00	4.55	-34.90
7,100.00	19.32	221.10	6,942.55	328.46	-1,297.91	25.02	10.00	6.61	-24.86
7,150.00	23.22	212.44	6,989.14	313.90	-1,308.64	41.89	10.00	7.80	-17.33
7,176.18	25.41	208.95	7,013.00	304.63	-1,314.13	52.29	10.00	8.36	-13.33
<b>Sharon Springs</b>									
7,200.00	27.47	206.23	7,034.33	295.22	-1,319.03	62.65	10.00	8.62	-11.39
7,250.00	31.91	201.61	7,077.76	272.58	-1,329.00	87.12	10.00	8.90	-9.25
7,263.33	33.12	200.57	7,089.00	265.89	-1,331.58	94.25	10.00	9.08	-7.80
<b>Niobrara</b>									
7,300.00	36.49	198.03	7,119.10	246.14	-1,338.48	115.12	10.00	9.18	-6.94
7,350.00	41.16	195.15	7,158.05	216.10	-1,347.38	146.44	10.00	9.33	-5.76
7,400.00	45.88	192.76	7,194.30	182.69	-1,355.65	180.85	10.00	9.45	-4.77
7,408.25	46.66	192.41	7,200.00	176.88	-1,356.95	186.80	10.00	9.50	-4.32
<b>Niobrara C</b>									
7,450.00	50.65	190.74	7,227.58	146.17	-1,363.22	218.07	10.00	9.54	-4.01
7,500.00	55.44	188.97	7,257.63	106.82	-1,370.04	257.83	10.00	9.59	-3.54
7,550.00	60.26	187.39	7,284.23	64.93	-1,376.04	299.83	10.00	9.64	-3.15
7,600.00	65.10	185.96	7,307.17	20.82	-1,381.20	343.73	10.00	9.67	-2.86
7,650.00	69.95	184.64	7,326.28	-25.17	-1,385.45	389.22	10.00	9.70	-2.64
7,680.51	72.91	183.88	7,336.00	-54.01	-1,387.60	417.61	10.00	9.71	-2.51
<b>Ft Hays</b>									
7,700.00	74.80	183.40	7,341.42	-72.69	-1,388.79	435.94	10.00	9.72	-2.44
7,750.00	79.67	182.21	7,352.46	-121.38	-1,391.17	483.54	10.00	9.73	-2.37
7,779.32	82.52	181.54	7,357.00	-150.33	-1,392.12	511.72	10.00	9.74	-2.31

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well Kunzman Federal 13C-8HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	gl + rkb @ 4875.00ft
<b>Project:</b>	COLORADO-NAD83-UTMFT13N	<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 13C-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)	
<b>Codell</b>										
7,800.00	84.54	181.06	7,359.33	-170.87	-1,392.58	531.65	10.00	9.74	-2.28	
7,850.00	89.41	179.93	7,361.97	-220.78	-1,393.01	579.92	10.00	9.74	-2.26	
7,855.22	89.92	179.81	7,362.00	-226.00	-1,393.00	584.95	9.99	9.74	-2.25	
<b>Start 4818.58 hold at 7855.22 MD - 7"</b>										
7,900.00	89.92	179.81	7,362.07	-270.78	-1,392.86	628.11	0.00	0.00	0.00	
8,000.00	89.92	179.81	7,362.21	-370.78	-1,392.53	724.49	0.00	0.00	0.00	
8,100.00	89.92	179.81	7,362.36	-470.78	-1,392.21	820.88	0.00	0.00	0.00	
8,200.00	89.92	179.81	7,362.50	-570.78	-1,391.89	917.26	0.00	0.00	0.00	
8,300.00	89.92	179.81	7,362.65	-670.78	-1,391.56	1,013.64	0.00	0.00	0.00	
8,400.00	89.92	179.81	7,362.79	-770.78	-1,391.24	1,110.02	0.00	0.00	0.00	
8,500.00	89.92	179.81	7,362.94	-870.78	-1,390.92	1,206.41	0.00	0.00	0.00	
8,600.00	89.92	179.81	7,363.08	-970.78	-1,390.59	1,302.79	0.00	0.00	0.00	
8,700.00	89.92	179.81	7,363.23	-1,070.78	-1,390.27	1,399.17	0.00	0.00	0.00	
8,800.00	89.92	179.81	7,363.38	-1,170.78	-1,389.95	1,495.56	0.00	0.00	0.00	
8,900.00	89.92	179.81	7,363.52	-1,270.78	-1,389.62	1,591.94	0.00	0.00	0.00	
9,000.00	89.92	179.81	7,363.67	-1,370.78	-1,389.30	1,688.32	0.00	0.00	0.00	
9,100.00	89.92	179.81	7,363.81	-1,470.78	-1,388.98	1,784.70	0.00	0.00	0.00	
9,200.00	89.92	179.81	7,363.96	-1,570.77	-1,388.66	1,881.09	0.00	0.00	0.00	
9,300.00	89.92	179.81	7,364.10	-1,670.77	-1,388.33	1,977.47	0.00	0.00	0.00	
9,400.00	89.92	179.81	7,364.25	-1,770.77	-1,388.01	2,073.85	0.00	0.00	0.00	
9,500.00	89.92	179.81	7,364.39	-1,870.77	-1,387.69	2,170.23	0.00	0.00	0.00	
9,600.00	89.92	179.81	7,364.54	-1,970.77	-1,387.36	2,266.62	0.00	0.00	0.00	
9,700.00	89.92	179.81	7,364.69	-2,070.77	-1,387.04	2,363.00	0.00	0.00	0.00	
9,800.00	89.92	179.81	7,364.83	-2,170.77	-1,386.72	2,459.38	0.00	0.00	0.00	
9,900.00	89.92	179.81	7,364.98	-2,270.77	-1,386.39	2,555.76	0.00	0.00	0.00	
10,000.00	89.92	179.81	7,365.12	-2,370.77	-1,386.07	2,652.15	0.00	0.00	0.00	
10,100.00	89.92	179.81	7,365.27	-2,470.77	-1,385.75	2,748.53	0.00	0.00	0.00	
10,200.00	89.92	179.81	7,365.41	-2,570.77	-1,385.42	2,844.91	0.00	0.00	0.00	
10,300.00	89.92	179.81	7,365.56	-2,670.77	-1,385.10	2,941.30	0.00	0.00	0.00	
10,400.00	89.92	179.81	7,365.70	-2,770.77	-1,384.78	3,037.68	0.00	0.00	0.00	
10,500.00	89.92	179.81	7,365.85	-2,870.77	-1,384.45	3,134.06	0.00	0.00	0.00	
10,600.00	89.92	179.81	7,366.00	-2,970.77	-1,384.13	3,230.44	0.00	0.00	0.00	
10,700.00	89.92	179.81	7,366.14	-3,070.77	-1,383.81	3,326.83	0.00	0.00	0.00	
10,800.00	89.92	179.81	7,366.29	-3,170.76	-1,383.48	3,423.21	0.00	0.00	0.00	
10,900.00	89.92	179.81	7,366.43	-3,270.76	-1,383.16	3,519.59	0.00	0.00	0.00	
11,000.00	89.92	179.81	7,366.58	-3,370.76	-1,382.84	3,615.97	0.00	0.00	0.00	
11,100.00	89.92	179.81	7,366.72	-3,470.76	-1,382.51	3,712.36	0.00	0.00	0.00	
11,200.00	89.92	179.81	7,366.87	-3,570.76	-1,382.19	3,808.74	0.00	0.00	0.00	
11,300.00	89.92	179.81	7,367.01	-3,670.76	-1,381.87	3,905.12	0.00	0.00	0.00	
11,400.00	89.92	179.81	7,367.16	-3,770.76	-1,381.54	4,001.50	0.00	0.00	0.00	
11,500.00	89.92	179.81	7,367.31	-3,870.76	-1,381.22	4,097.89	0.00	0.00	0.00	
11,600.00	89.92	179.81	7,367.45	-3,970.76	-1,380.90	4,194.27	0.00	0.00	0.00	
11,700.00	89.92	179.81	7,367.60	-4,070.76	-1,380.57	4,290.65	0.00	0.00	0.00	
11,800.00	89.92	179.81	7,367.74	-4,170.76	-1,380.25	4,387.03	0.00	0.00	0.00	
11,900.00	89.92	179.81	7,367.89	-4,270.76	-1,379.93	4,483.42	0.00	0.00	0.00	
12,000.00	89.92	179.81	7,368.03	-4,370.76	-1,379.60	4,579.80	0.00	0.00	0.00	
12,100.00	89.92	179.81	7,368.18	-4,470.76	-1,379.28	4,676.18	0.00	0.00	0.00	
12,200.00	89.92	179.81	7,368.33	-4,570.76	-1,378.96	4,772.57	0.00	0.00	0.00	
12,300.00	89.92	179.81	7,368.47	-4,670.76	-1,378.63	4,868.95	0.00	0.00	0.00	
12,400.00	89.92	179.81	7,368.62	-4,770.75	-1,378.31	4,965.33	0.00	0.00	0.00	
12,500.00	89.92	179.81	7,368.76	-4,870.75	-1,377.99	5,061.71	0.00	0.00	0.00	
12,600.00	89.92	179.81	7,368.91	-4,970.75	-1,377.66	5,158.10	0.00	0.00	0.00	
12,673.79	89.92	179.81	7,369.01	-5,044.55	-1,377.42	5,229.22	0.00	0.00	0.00	

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well Kunzman Federal 13C-8HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	gl + rkb @ 4875.00ft
<b>Project:</b>	COLORADO-NAD83-UTMFT13N	<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 13C-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)
TD at 12673.79 - Kunzman Federal 13C-8HZ									

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	0.00	0.00	7,369.00	-5,044.55	-1,377.42	14,580,177.54	1,693,685.09	40.146609	-104.809382
- hit/miss target									
- Shape									
- plan misses target center by 0.01ft at 12673.79ft MD (7369.01 TVD, -5044.55 N, -1377.42 E)									
- 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	
7,855.22	7,362.00	7"	7	8-3/4	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,996.45	3,926.00	Parkman				
4,406.80	4,325.00	Sussex				
7,176.18	7,013.00	Sharon Springs				
7,263.33	7,089.00	Niobrara				
7,408.25	7,200.00	Niobrara C				
7,680.51	7,336.00	Ft Hays				
7,779.32	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	
1,675.42	1,669.18	20.99	-76.42	Start 5244.73 hold at 1675.42 MD	
6,920.14	6,768.81	345.46	-1,257.76	Start DLS 10.00 TFO -105.15	
7,855.22	7,362.00	-226.00	-1,393.00	Start 4818.58 hold at 7855.22 MD	
12,673.79	7,369.01	-5,044.55	-1,377.42	TD at 12673.79	