

# **US ROCKIES REGION PLANNING**

**COLORADO NORTHERN ZONE - 83**

**WELD\_BARCLAY 13-27 PAD**

**BARCLAY 4N-27HZ**

**BARCLAY 4N-27HZ**

**Plan: BARCLAY 4N-27HZ (wp01)**

## **Standard Planning Report**

**26 July, 2011**



**Weatherford®**



T

M

Azimuths to True North

Magnetic North: 8.84°

Magnetic Field

Strength: 53008.0snT

Dip Angle: 66.88°

Date: 7/25/2011

Model: IGRF2010

Project: COLORADO NORTHERN ZONE - 83

Site: WELD BARCLAY 13-27 PAD

Well: BARCLAY 4N-27HZ

Wellbore: BARCLAY 4N-27HZ

Section: SHL:

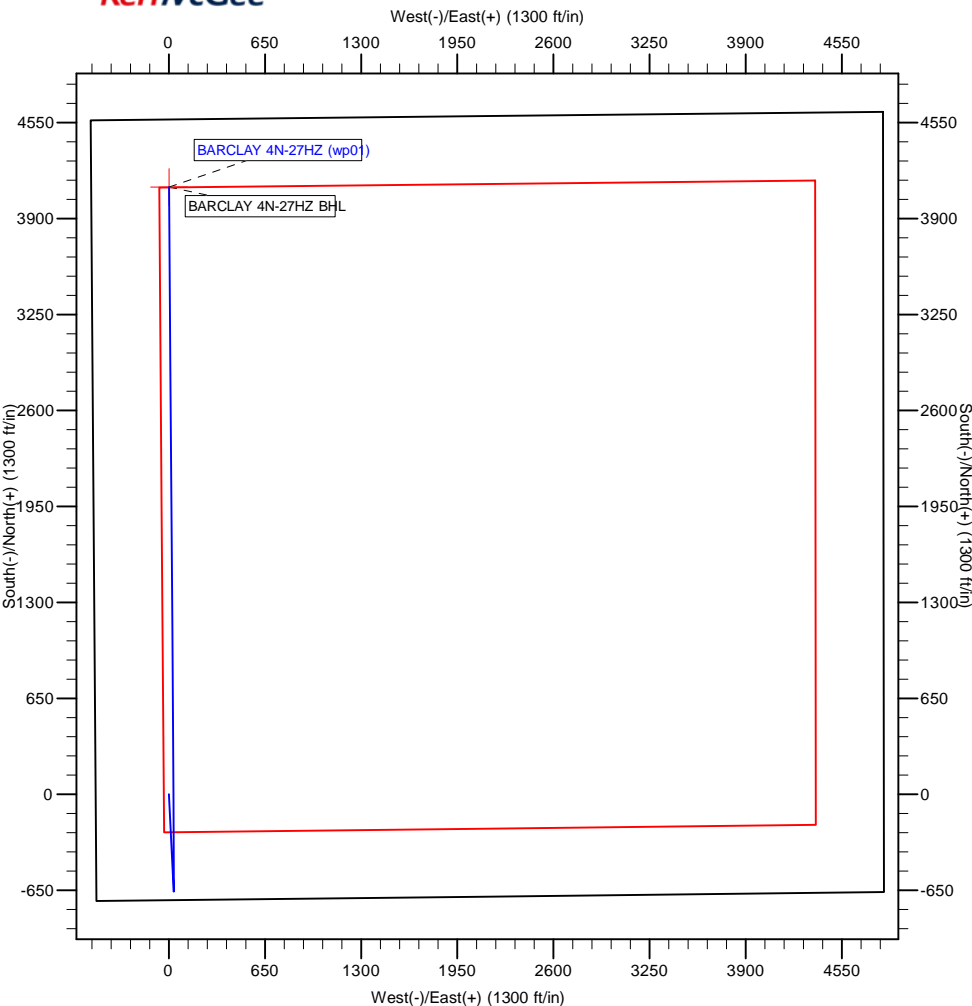
Design: BARCLAY 4N-27HZ (wp01)

Latitude: 40.190764

Longitude: -104.771093

GL: 4964.00

KB: 17' RKB + 4964' GL @ 4981.00ft



WELL DETAILS: BARCLAY 4N-27HZ						
+N/-S	+E/-W	Northing	Ground Level: Easting	4964.00 Latitude	40.190764 Longitude	Slot
0.00	0.00	1313174.87	3203632.40		-104.771093	

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)						
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
BARCLAY 4N-27HZ BHL	7195.00	4113.85	1.40	40.202057	-104.771088	Point

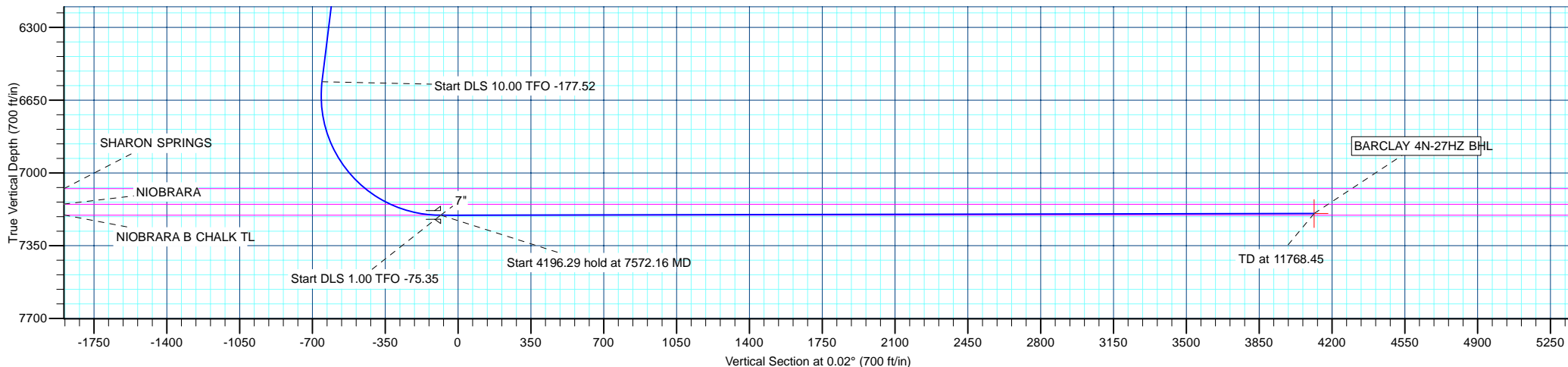
SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1000.00	0.00	0.00	1000.00	0.00	0.00	0.00	0.00	0.00	
1346.41	6.93	177.14	1345.56	-20.89	1.04	2.00	177.14	-20.89	
6600.21	6.93	177.14	6561.00	-653.84	32.64	0.00	0.00	-653.83	
7570.48	90.10	359.60	7203.00	-84.00	32.00	10.00	-177.52	-83.99	
7572.16	90.11	359.58	7203.00	-82.32	31.99	1.00	-75.35	-82.31	
11768.45	90.11	359.58	7195.00	4113.85	1.40	0.00	0.00	4113.85	BARCLAY 4N-27HZ BHL

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
3247.00	3261.83	PARKMAN
4425.00	4448.49	SUSSEX
5067.00	5095.22	SHANNON
7075.00	7178.92	SHARON SPRINGS
7150.00	7321.04	NIOBRARA
7203.00	7570.48	NIOBRARA B CHALK TL

CASING DETAILS			
TVD	MD	Name	Size
850.00	850.00	9 5/8"	9-5/8
7203.00	7570.40	7"	7



Weatherford®



<b>Database:</b>	edm5000p	<b>Local Co-ordinate Reference:</b>	Well BARCLAY 4N-27HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	17' RKB + 4964' GL @ 4981.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	17' RKB + 4964' GL @ 4981.00ft
<b>Site:</b>	WELD_BARCLAY 13-27 PAD	<b>North Reference:</b>	True
<b>Well:</b>	BARCLAY 4N-27HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	BARCLAY 4N-27HZ		
<b>Design:</b>	BARCLAY 4N-27HZ (wp01)		

<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_BARCLAY 13-27 PAD			
Site Position:		Northing:	1,313,174.88 ft	Latitude:	40.190764
From:	Lat/Long	Easting:	3,203,632.41 ft	Longitude:	-104.771093
Position Uncertainty:	0.00 ft	Slot Radius:	0 "	Grid Convergence:	0.47 °

Well	BARCLAY 4N-27HZ					
Well Position	+N-S	0.00 ft	Northing:	1,313,174.87 ft	Latitude:	40.190764
	+E-W	0.00 ft	Easting:	3,203,632.41 ft	Longitude:	-104.771093
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,964.00 ft

<b>Wellbore</b>	BARCLAY 4N-27HZ				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	7/25/2011	8.83	66.88	53,008

<b>Design</b>	BARCLAY 4N-27HZ (wp01)			
<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	0.02

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	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	
1,346.41	6.93	177.14	1,345.56	-20.89	1.04	2.00	2.00	0.00	177.14	
6,600.21	6.93	177.14	6,561.00	-653.84	32.64	0.00	0.00	0.00	0.00	
7,570.48	90.10	359.60	7,203.00	-84.00	32.00	10.00	8.57	-18.30	-177.52	
7,572.16	90.11	359.58	7,203.00	-82.32	31.99	1.00	0.25	-0.97	-75.35	
11,768.45	90.11	359.58	7,195.00	4,113.85	1.40	0.00	0.00	0.00	0.00	BARCLAY 4N-27HZ

<b>Database:</b>	edm5000p	<b>Local Co-ordinate Reference:</b>	Well BARCLAY 4N-27HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	17' RKB + 4964' GL @ 4981.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	17' RKB + 4964' GL @ 4981.00ft
<b>Site:</b>	WELD_BARCLAY 13-27 PAD	<b>North Reference:</b>	True
<b>Well:</b>	BARCLAY 4N-27HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	BARCLAY 4N-27HZ		
<b>Design:</b>	BARCLAY 4N-27HZ (wp01)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
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
850.00	0.00	0.00	850.00	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
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
1,100.00	2.00	177.14	1,099.98	-1.74	0.09	-1.74	2.00	2.00	0.00
1,200.00	4.00	177.14	1,199.84	-6.97	0.35	-6.97	2.00	2.00	0.00
1,300.00	6.00	177.14	1,299.45	-15.67	0.78	-15.67	2.00	2.00	0.00
1,346.41	6.93	177.14	1,345.56	-20.89	1.04	-20.89	2.00	2.00	0.00
Start 5253.80 hold at 1346.41 MD									
1,400.00	6.93	177.14	1,398.77	-27.35	1.37	-27.35	0.00	0.00	0.00
1,500.00	6.93	177.14	1,498.03	-39.40	1.97	-39.40	0.00	0.00	0.00
1,600.00	6.93	177.14	1,597.30	-51.44	2.57	-51.44	0.00	0.00	0.00
1,700.00	6.93	177.14	1,696.57	-63.49	3.17	-63.49	0.00	0.00	0.00
1,800.00	6.93	177.14	1,795.84	-75.54	3.77	-75.54	0.00	0.00	0.00
1,900.00	6.93	177.14	1,895.11	-87.59	4.37	-87.58	0.00	0.00	0.00
2,000.00	6.93	177.14	1,994.38	-99.63	4.97	-99.63	0.00	0.00	0.00
2,100.00	6.93	177.14	2,093.65	-111.68	5.58	-111.68	0.00	0.00	0.00
2,200.00	6.93	177.14	2,192.92	-123.73	6.18	-123.73	0.00	0.00	0.00
2,300.00	6.93	177.14	2,292.19	-135.78	6.78	-135.77	0.00	0.00	0.00
2,400.00	6.93	177.14	2,391.46	-147.82	7.38	-147.82	0.00	0.00	0.00
2,500.00	6.93	177.14	2,490.73	-159.87	7.98	-159.87	0.00	0.00	0.00
2,600.00	6.93	177.14	2,590.00	-171.92	8.58	-171.92	0.00	0.00	0.00
2,700.00	6.93	177.14	2,689.27	-183.97	9.18	-183.96	0.00	0.00	0.00
2,800.00	6.93	177.14	2,788.54	-196.01	9.79	-196.01	0.00	0.00	0.00
2,900.00	6.93	177.14	2,887.81	-208.06	10.39	-208.06	0.00	0.00	0.00
3,000.00	6.93	177.14	2,987.08	-220.11	10.99	-220.10	0.00	0.00	0.00
3,100.00	6.93	177.14	3,086.35	-232.16	11.59	-232.15	0.00	0.00	0.00
3,200.00	6.93	177.14	3,185.62	-244.20	12.19	-244.20	0.00	0.00	0.00
3,261.83	6.93	177.14	3,247.00	-251.65	12.56	-251.65	0.00	0.00	0.00
PARKMAN									
3,300.00	6.93	177.14	3,284.89	-256.25	12.79	-256.25	0.00	0.00	0.00
3,400.00	6.93	177.14	3,384.16	-268.30	13.39	-268.29	0.00	0.00	0.00
3,500.00	6.93	177.14	3,483.43	-280.34	14.00	-280.34	0.00	0.00	0.00
3,600.00	6.93	177.14	3,582.70	-292.39	14.60	-292.39	0.00	0.00	0.00
3,700.00	6.93	177.14	3,681.97	-304.44	15.20	-304.43	0.00	0.00	0.00
3,800.00	6.93	177.14	3,781.24	-316.49	15.80	-316.48	0.00	0.00	0.00
3,900.00	6.93	177.14	3,880.51	-328.53	16.40	-328.53	0.00	0.00	0.00
4,000.00	6.93	177.14	3,979.78	-340.58	17.00	-340.58	0.00	0.00	0.00
4,100.00	6.93	177.14	4,079.05	-352.63	17.60	-352.62	0.00	0.00	0.00
4,200.00	6.93	177.14	4,178.32	-364.68	18.21	-364.67	0.00	0.00	0.00
4,300.00	6.93	177.14	4,277.59	-376.72	18.81	-376.72	0.00	0.00	0.00
4,400.00	6.93	177.14	4,376.86	-388.77	19.41	-388.77	0.00	0.00	0.00
4,448.49	6.93	177.14	4,425.00	-394.61	19.70	-394.61	0.00	0.00	0.00
SUSSEX									

<b>Database:</b>	edm5000p	<b>Local Co-ordinate Reference:</b>	Well BARCLAY 4N-27HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	17' RKB + 4964' GL @ 4981.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	17' RKB + 4964' GL @ 4981.00ft
<b>Site:</b>	WELD_BARCLAY 13-27 PAD	<b>North Reference:</b>	True
<b>Well:</b>	BARCLAY 4N-27HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	BARCLAY 4N-27HZ		
<b>Design:</b>	BARCLAY 4N-27HZ (wp01)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,500.00	6.93	177.14	4,476.13	-400.82	20.01	-400.81	0.00	0.00	0.00
4,600.00	6.93	177.14	4,575.40	-412.87	20.61	-412.86	0.00	0.00	0.00
4,700.00	6.93	177.14	4,674.67	-424.91	21.21	-424.91	0.00	0.00	0.00
4,800.00	6.93	177.14	4,773.94	-436.96	21.82	-436.95	0.00	0.00	0.00
4,900.00	6.93	177.14	4,873.21	-449.01	22.42	-449.00	0.00	0.00	0.00
5,000.00	6.93	177.14	4,972.48	-461.06	23.02	-461.05	0.00	0.00	0.00
5,095.22	6.93	177.14	5,067.00	-472.53	23.59	-472.52	0.00	0.00	0.00
<b>SHANNON</b>									
5,100.00	6.93	177.14	5,071.75	-473.10	23.62	-473.10	0.00	0.00	0.00
5,200.00	6.93	177.14	5,171.02	-485.15	24.22	-485.14	0.00	0.00	0.00
5,300.00	6.93	177.14	5,270.29	-497.20	24.82	-497.19	0.00	0.00	0.00
5,400.00	6.93	177.14	5,369.56	-509.25	25.42	-509.24	0.00	0.00	0.00
5,500.00	6.93	177.14	5,468.83	-521.29	26.03	-521.28	0.00	0.00	0.00
5,600.00	6.93	177.14	5,568.10	-533.34	26.63	-533.33	0.00	0.00	0.00
5,700.00	6.93	177.14	5,667.37	-545.39	27.23	-545.38	0.00	0.00	0.00
5,800.00	6.93	177.14	5,766.64	-557.44	27.83	-557.43	0.00	0.00	0.00
5,900.00	6.93	177.14	5,865.91	-569.48	28.43	-569.47	0.00	0.00	0.00
6,000.00	6.93	177.14	5,965.18	-581.53	29.03	-581.52	0.00	0.00	0.00
6,100.00	6.93	177.14	6,064.45	-593.58	29.63	-593.57	0.00	0.00	0.00
6,200.00	6.93	177.14	6,163.72	-605.63	30.24	-605.62	0.00	0.00	0.00
6,300.00	6.93	177.14	6,262.99	-617.67	30.84	-617.66	0.00	0.00	0.00
6,400.00	6.93	177.14	6,362.26	-629.72	31.44	-629.71	0.00	0.00	0.00
6,500.00	6.93	177.14	6,461.53	-641.77	32.04	-641.76	0.00	0.00	0.00
6,600.00	6.93	177.14	6,560.80	-653.82	32.64	-653.80	0.00	0.00	0.00
6,600.21	6.93	177.14	6,561.00	-653.84	32.64	-653.83	0.00	0.00	0.00
<b>Start DLS 10.00 TFO -177.52</b>									
6,700.00	3.07	5.17	6,660.61	-657.20	33.18	-657.19	10.00	-3.86	-172.33
6,800.00	13.06	0.89	6,759.50	-643.20	33.60	-643.18	10.00	9.99	-4.28
6,900.00	23.06	0.30	6,854.45	-612.24	33.88	-612.22	10.00	10.00	-0.59
7,000.00	33.06	0.06	6,942.58	-565.26	34.01	-565.25	10.00	10.00	-0.24
7,100.00	43.06	359.92	7,021.22	-503.69	33.99	-503.68	10.00	10.00	-0.14
7,178.92	50.95	359.84	7,075.00	-446.01	33.87	-446.00	10.00	10.00	-0.10
<b>SHARON SPRINGS</b>									
7,200.00	53.06	359.82	7,087.97	-429.40	33.82	-429.39	10.00	10.00	-0.08
7,300.00	63.06	359.75	7,140.81	-344.65	33.50	-344.64	10.00	10.00	-0.07
7,321.04	65.16	359.74	7,150.00	-325.72	33.42	-325.71	10.00	10.00	-0.06
<b>NIOBRARA</b>									
7,400.00	73.06	359.69	7,178.13	-252.01	33.05	-252.00	10.00	10.00	-0.06
7,500.00	83.06	359.64	7,198.80	-154.30	32.47	-154.29	10.00	10.00	-0.05
7,570.40	90.10	359.60	7,203.00	-84.08	32.00	-84.06	10.00	10.00	-0.05
<b>7"</b>									
7,570.48	90.10	359.60	7,203.00	-84.00	32.00	-83.99	10.00	10.00	-0.05
<b>Start DLS 1.00 TFO -75.35 - NIOBRARA B CHALK TL</b>									
7,572.16	90.11	359.58	7,203.00	-82.32	31.99	-82.31	1.00	0.25	-0.97
<b>Start 4196.29 hold at 7572.16 MD</b>									
7,600.00	90.11	359.58	7,202.94	-54.48	31.79	-54.47	0.00	0.00	0.00
7,700.00	90.11	359.58	7,202.75	45.52	31.06	45.53	0.00	0.00	0.00
7,800.00	90.11	359.58	7,202.56	145.52	30.33	145.53	0.00	0.00	0.00
7,900.00	90.11	359.58	7,202.37	245.52	29.60	245.53	0.00	0.00	0.00
8,000.00	90.11	359.58	7,202.18	345.51	28.87	345.52	0.00	0.00	0.00
8,100.00	90.11	359.58	7,201.99	445.51	28.14	445.52	0.00	0.00	0.00
8,200.00	90.11	359.58	7,201.80	545.51	27.41	545.52	0.00	0.00	0.00
8,300.00	90.11	359.58	7,201.61	645.50	26.68	645.51	0.00	0.00	0.00

<b>Database:</b>	edm5000p	<b>Local Co-ordinate Reference:</b>	Well BARCLAY 4N-27HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	17' RKB + 4964' GL @ 4981.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	17' RKB + 4964' GL @ 4981.00ft
<b>Site:</b>	WELD_BARCLAY 13-27 PAD	<b>North Reference:</b>	True
<b>Well:</b>	BARCLAY 4N-27HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	BARCLAY 4N-27HZ		
<b>Design:</b>	BARCLAY 4N-27HZ (wp01)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,400.00	90.11	359.58	7,201.42	745.50	25.95	745.51	0.00	0.00	0.00
8,500.00	90.11	359.58	7,201.23	845.50	25.22	845.51	0.00	0.00	0.00
8,600.00	90.11	359.58	7,201.04	945.50	24.49	945.50	0.00	0.00	0.00
8,700.00	90.11	359.58	7,200.85	1,045.49	23.77	1,045.50	0.00	0.00	0.00
8,800.00	90.11	359.58	7,200.66	1,145.49	23.04	1,145.50	0.00	0.00	0.00
8,900.00	90.11	359.58	7,200.47	1,245.49	22.31	1,245.49	0.00	0.00	0.00
9,000.00	90.11	359.58	7,200.28	1,345.48	21.58	1,345.49	0.00	0.00	0.00
9,100.00	90.11	359.58	7,200.09	1,445.48	20.85	1,445.49	0.00	0.00	0.00
9,200.00	90.11	359.58	7,199.89	1,545.48	20.12	1,545.49	0.00	0.00	0.00
9,300.00	90.11	359.58	7,199.70	1,645.48	19.39	1,645.48	0.00	0.00	0.00
9,400.00	90.11	359.58	7,199.51	1,745.47	18.66	1,745.48	0.00	0.00	0.00
9,500.00	90.11	359.58	7,199.32	1,845.47	17.93	1,845.48	0.00	0.00	0.00
9,600.00	90.11	359.58	7,199.13	1,945.47	17.20	1,945.47	0.00	0.00	0.00
9,700.00	90.11	359.58	7,198.94	2,045.46	16.48	2,045.47	0.00	0.00	0.00
9,800.00	90.11	359.58	7,198.75	2,145.46	15.75	2,145.47	0.00	0.00	0.00
9,900.00	90.11	359.58	7,198.56	2,245.46	15.02	2,245.46	0.00	0.00	0.00
10,000.00	90.11	359.58	7,198.37	2,345.46	14.29	2,345.46	0.00	0.00	0.00
10,100.00	90.11	359.58	7,198.18	2,445.45	13.56	2,445.46	0.00	0.00	0.00
10,200.00	90.11	359.58	7,197.99	2,545.45	12.83	2,545.45	0.00	0.00	0.00
10,300.00	90.11	359.58	7,197.80	2,645.45	12.10	2,645.45	0.00	0.00	0.00
10,400.00	90.11	359.58	7,197.61	2,745.44	11.37	2,745.45	0.00	0.00	0.00
10,500.00	90.11	359.58	7,197.42	2,845.44	10.64	2,845.45	0.00	0.00	0.00
10,600.00	90.11	359.58	7,197.23	2,945.44	9.91	2,945.44	0.00	0.00	0.00
10,700.00	90.11	359.58	7,197.04	3,045.44	9.19	3,045.44	0.00	0.00	0.00
10,800.00	90.11	359.58	7,196.85	3,145.43	8.46	3,145.44	0.00	0.00	0.00
10,900.00	90.11	359.58	7,196.66	3,245.43	7.73	3,245.43	0.00	0.00	0.00
11,000.00	90.11	359.58	7,196.46	3,345.43	7.00	3,345.43	0.00	0.00	0.00
11,100.00	90.11	359.58	7,196.27	3,445.42	6.27	3,445.43	0.00	0.00	0.00
11,200.00	90.11	359.58	7,196.08	3,545.42	5.54	3,545.42	0.00	0.00	0.00
11,300.00	90.11	359.58	7,195.89	3,645.42	4.81	3,645.42	0.00	0.00	0.00
11,400.00	90.11	359.58	7,195.70	3,745.42	4.08	3,745.42	0.00	0.00	0.00
11,500.00	90.11	359.58	7,195.51	3,845.41	3.35	3,845.41	0.00	0.00	0.00
11,600.00	90.11	359.58	7,195.32	3,945.41	2.62	3,945.41	0.00	0.00	0.00
11,700.00	90.11	359.58	7,195.13	4,045.41	1.90	4,045.41	0.00	0.00	0.00
11,768.45	90.11	359.58	7,195.00	4,113.85	1.40	4,113.85	0.00	0.00	0.00
BARCLAY 4N-27HZ BHL									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
BARCLAY 4N-27HZ E	0.00	0.00	7,195.00	4,113.85	1.40	1,317,288.60	3,203,599.99	40.202057	-104.771088
- hit/miss target									
- Shape									
- plan hits target center									
- Point									

<b>Database:</b>	edm5000p	<b>Local Co-ordinate Reference:</b>	Well BARCLAY 4N-27HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	17' RKB + 4964' GL @ 4981.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	17' RKB + 4964' GL @ 4981.00ft
<b>Site:</b>	WELD_BARCLAY 13-27 PAD	<b>North Reference:</b>	True
<b>Well:</b>	BARCLAY 4N-27HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	BARCLAY 4N-27HZ		
<b>Design:</b>	BARCLAY 4N-27HZ (wp01)		

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
850.00	850.00	9 5/8"	9-5/8	12-1/4	
7,570.40	7,203.00	7"	7	8-3/4	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,261.83	3,247.00	PARKMAN		0.00	
4,448.49	4,425.00	SUSSEX		0.00	
5,095.22	5,067.00	SHANNON		0.00	
7,178.92	7,075.00	SHARON SPRINGS		0.00	
7,321.04	7,150.00	NIOBRARA		0.00	
7,570.48	7,203.00	NIOBRARA B CHALK TL		0.00	

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	
1,346.41	1,345.56	-20.89	1.04	Start 5253.80 hold at 1346.41 MD	
6,600.21	6,561.00	-653.84	32.64	Start DLS 10.00 TFO -177.52	
7,570.48	7,203.00	-84.00	32.00	Start DLS 1.00 TFO -75.35	
7,572.16	7,203.00	-82.32	31.99	Start 4196.29 hold at 7572.16 MD	
11,768.45	7,195.00	4,113.85	1.40	TD at 11768.45	