



Denver Division- Colorado

**DJ - Hereford Ranch
Fiscus Mesa #27-29H
Fiscus Mesa #27-29H**

Original Wellbore

Plan: APD Directional Plan

Standard Planning Report (Field)

06 January, 2011



Database:	Local	Local Co-ordinate Reference:	Well Fiscus Mesa #27-29H
Company:	Denver Division- Colorado	TVD Reference:	Rig @ 4837.0ft (TBD)
Project:	DJ - Hereford Ranch	MD Reference:	Rig @ 4837.0ft (TBD)
Site:	Fiscus Mesa #27-29H	North Reference:	True
Well:	Fiscus Mesa #27-29H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Wellbore		
Design:	APD Directional Plan		

Project	DJ - Hereford Ranch, Weld County		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	Colorado North 501		

Site	Fiscus Mesa #27-29H		
Site Position:		Northing:	512,033.68 ft
From:	Lat/Long	Easting:	2,444,754.50 ft
Position Uncertainty:	0.0 ft	Slot Radius:	
		Latitude:	40° 43' 40.440 N
		Longitude:	103° 53' 43.040 W
		Grid Convergence:	1.04 °

Well	Fiscus Mesa #27-29H		
Well Position	+N/-S	0.0 ft	Northing:
	+E/-W	0.0 ft	Easting:
Position Uncertainty	0.0 ft	Wellhead Elevation:	
		Latitude:	40° 43' 40.440 N
		Longitude:	103° 53' 43.040 W
		Ground Level:	4,815.0 ft

Wellbore	Original Wellbore				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	12/31/09	8.57	67.52	53,564

Design	APD Directional Plan			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.0	0.0	0.0	152.61

Plan Sections										
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
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
5,407.5	0.00	0.00	5,407.5	0.0	0.0	0.00	0.00	0.00	0.00	
6,157.5	90.00	160.00	5,885.0	-448.7	163.3	12.00	12.00	0.00	160.00	
6,157.5	90.00	160.00	5,885.0	-448.7	163.3	0.00	0.00	0.00	0.00	Fiscus Mesa #27-29H
10,430.0	90.00	143.58	5,885.0	-4,200.7	2,176.2	0.38	0.00	-0.38	-90.00	Fiscus Mesa #27-29H

Database:	Local	Local Co-ordinate Reference:	Well Fiscus Mesa #27-29H
Company:	Denver Division- Colorado	TVD Reference:	Rig @ 4837.0ft (TBD)
Project:	DJ - Hereford Ranch	MD Reference:	Rig @ 4837.0ft (TBD)
Site:	Fiscus Mesa #27-29H	North Reference:	True
Well:	Fiscus Mesa #27-29H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Wellbore		
Design:	APD Directional Plan		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	Subsea Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
FOX HILLS - Best #10-29(Existing Well)										
0.0	0.00	0.00	0.0	-4,837.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	-4,737.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	-4,637.0	0.0	0.0	0.0	0.00	0.00	0.00
PIERRE SHALE										
235.0	0.00	0.00	235.0	-4,602.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	-4,537.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	-4,437.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	-4,337.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	-4,237.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	-4,137.0	0.0	0.0	0.0	0.00	0.00	0.00
9 5/8"										
800.0	0.00	0.00	800.0	-4,037.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	-3,937.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	-3,837.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	-3,737.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	-3,637.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	-3,537.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	-3,437.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	-3,337.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	-3,237.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	-3,137.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	-3,037.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	-2,937.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	-2,837.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	-2,737.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	-2,637.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	-2,537.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	-2,437.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	-2,337.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	-2,237.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	-2,137.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	-2,037.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	-1,937.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	-1,837.0	0.0	0.0	0.0	0.00	0.00	0.00
3,100.0	0.00	0.00	3,100.0	-1,737.0	0.0	0.0	0.0	0.00	0.00	0.00
RICHARD SAND										
3,193.0	0.00	0.00	3,193.0	-1,644.0	0.0	0.0	0.0	0.00	0.00	0.00
3,200.0	0.00	0.00	3,200.0	-1,637.0	0.0	0.0	0.0	0.00	0.00	0.00
HYGIENE										
3,298.0	0.00	0.00	3,298.0	-1,539.0	0.0	0.0	0.0	0.00	0.00	0.00
3,300.0	0.00	0.00	3,300.0	-1,537.0	0.0	0.0	0.0	0.00	0.00	0.00
3,400.0	0.00	0.00	3,400.0	-1,437.0	0.0	0.0	0.0	0.00	0.00	0.00
3,500.0	0.00	0.00	3,500.0	-1,337.0	0.0	0.0	0.0	0.00	0.00	0.00
3,600.0	0.00	0.00	3,600.0	-1,237.0	0.0	0.0	0.0	0.00	0.00	0.00
3,700.0	0.00	0.00	3,700.0	-1,137.0	0.0	0.0	0.0	0.00	0.00	0.00
3,800.0	0.00	0.00	3,800.0	-1,037.0	0.0	0.0	0.0	0.00	0.00	0.00
3,900.0	0.00	0.00	3,900.0	-937.0	0.0	0.0	0.0	0.00	0.00	0.00
4,000.0	0.00	0.00	4,000.0	-837.0	0.0	0.0	0.0	0.00	0.00	0.00
4,100.0	0.00	0.00	4,100.0	-737.0	0.0	0.0	0.0	0.00	0.00	0.00
4,200.0	0.00	0.00	4,200.0	-637.0	0.0	0.0	0.0	0.00	0.00	0.00
4,300.0	0.00	0.00	4,300.0	-537.0	0.0	0.0	0.0	0.00	0.00	0.00
4,400.0	0.00	0.00	4,400.0	-437.0	0.0	0.0	0.0	0.00	0.00	0.00
4,500.0	0.00	0.00	4,500.0	-337.0	0.0	0.0	0.0	0.00	0.00	0.00

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Well:	Fiscus Mesa #27-29H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Wellbore		
Design:	APD Directional Plan		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	Subsea Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,600.0	0.00	0.00	4,600.0	-237.0	0.0	0.0	0.0	0.00	0.00	0.00
4,700.0	0.00	0.00	4,700.0	-137.0	0.0	0.0	0.0	0.00	0.00	0.00
4,800.0	0.00	0.00	4,800.0	-37.0	0.0	0.0	0.0	0.00	0.00	0.00
4,900.0	0.00	0.00	4,900.0	63.0	0.0	0.0	0.0	0.00	0.00	0.00
5,000.0	0.00	0.00	5,000.0	163.0	0.0	0.0	0.0	0.00	0.00	0.00
5,100.0	0.00	0.00	5,100.0	263.0	0.0	0.0	0.0	0.00	0.00	0.00
5,200.0	0.00	0.00	5,200.0	363.0	0.0	0.0	0.0	0.00	0.00	0.00
5,300.0	0.00	0.00	5,300.0	463.0	0.0	0.0	0.0	0.00	0.00	0.00
5,400.0	0.00	0.00	5,400.0	563.0	0.0	0.0	0.0	0.00	0.00	0.00
5,407.5	0.00	0.00	5,407.5	570.5	0.0	0.0	0.0	0.00	0.00	0.00
5,500.0	11.10	160.00	5,499.4	662.4	-8.4	3.1	8.9	12.00	12.00	0.00
5,600.0	23.10	160.00	5,594.8	757.8	-36.0	13.1	38.0	12.00	12.00	0.00
5,700.0	35.10	160.00	5,682.1	845.1	-81.6	29.7	86.1	12.00	12.00	0.00
SHARON SPRINGS										
5,728.7	38.54	160.00	5,705.0	868.0	-97.7	35.6	103.1	12.00	12.00	0.00
5,800.0	47.10	160.00	5,757.3	920.3	-143.2	52.1	151.2	12.00	12.00	0.00
NIOBRARA										
5,826.9	50.32	160.00	5,775.0	938.0	-162.2	59.0	171.2	12.00	12.00	0.00
5,900.0	59.10	160.00	5,817.2	980.2	-218.2	79.4	230.3	12.00	12.00	0.00
B1 CHALK										
5,926.1	62.23	160.00	5,830.0	993.0	-239.6	87.2	252.9	12.00	12.00	0.00
6,000.0	71.10	160.00	5,859.2	1,022.2	-303.3	110.4	320.1	12.00	12.00	0.00
B-CHALK										
6,018.9	73.36	160.00	5,865.0	1,028.0	-320.2	116.5	337.9	12.00	12.00	0.00
6,100.0	83.10	160.00	5,881.5	1,044.5	-394.7	143.7	416.6	12.00	12.00	0.00
7" - Fiscus Mesa #27-29H (ICP)										
6,157.5	90.00	160.00	5,885.0	1,048.0	-448.7	163.3	473.5	11.99	11.99	0.00
6,200.0	90.00	159.84	5,885.0	1,048.0	-488.6	177.9	515.6	0.38	0.01	-0.38
6,300.0	90.00	159.45	5,885.0	1,048.0	-582.3	212.7	614.9	0.38	0.00	-0.38
6,400.0	90.00	159.07	5,885.0	1,048.0	-675.8	248.1	714.2	0.38	0.00	-0.38
6,500.0	90.00	158.68	5,885.0	1,048.0	-769.1	284.1	813.6	0.38	0.00	-0.38
6,600.0	90.00	158.30	5,885.0	1,048.0	-862.1	320.8	913.1	0.38	0.00	-0.38
6,700.0	90.00	157.91	5,885.0	1,048.0	-954.9	358.1	1,012.6	0.38	0.00	-0.38
6,800.0	90.00	157.53	5,885.0	1,048.0	-1,047.5	396.0	1,112.2	0.38	0.00	-0.38
6,900.0	90.00	157.15	5,885.0	1,048.0	-1,139.7	434.5	1,211.9	0.38	0.00	-0.38
7,000.0	90.00	156.76	5,885.0	1,048.0	-1,231.8	473.7	1,311.6	0.38	0.00	-0.38
7,100.0	90.00	156.38	5,885.0	1,048.0	-1,323.5	513.4	1,411.4	0.38	0.00	-0.38
7,200.0	90.00	155.99	5,885.0	1,048.0	-1,415.0	553.8	1,511.2	0.38	0.00	-0.38
7,300.0	90.00	155.61	5,885.0	1,048.0	-1,506.2	594.8	1,611.0	0.38	0.00	-0.38
7,400.0	90.00	155.22	5,885.0	1,048.0	-1,597.2	636.4	1,710.9	0.38	0.00	-0.38
7,500.0	90.00	154.84	5,885.0	1,048.0	-1,687.8	678.6	1,810.8	0.38	0.00	-0.38
7,600.0	90.00	154.45	5,885.0	1,048.0	-1,778.2	721.4	1,910.7	0.38	0.00	-0.38
7,700.0	90.00	154.07	5,885.0	1,048.0	-1,868.3	764.8	2,010.7	0.38	0.00	-0.38
7,800.0	90.00	153.69	5,885.0	1,048.0	-1,958.0	808.9	2,110.7	0.38	0.00	-0.38
7,900.0	90.00	153.30	5,885.0	1,048.0	-2,047.5	853.5	2,210.7	0.38	0.00	-0.38
8,000.0	90.00	152.92	5,885.0	1,048.0	-2,136.7	898.7	2,310.7	0.38	0.00	-0.38
8,100.0	90.00	152.53	5,885.0	1,048.0	-2,225.6	944.6	2,410.7	0.38	0.00	-0.38
8,200.0	90.00	152.15	5,885.0	1,048.0	-2,314.2	991.0	2,510.6	0.38	0.00	-0.38
8,300.0	90.00	151.76	5,885.0	1,048.0	-2,402.4	1,038.0	2,610.6	0.38	0.00	-0.38
8,400.0	90.00	151.38	5,885.0	1,048.0	-2,490.4	1,085.6	2,710.6	0.38	0.00	-0.38
8,500.0	90.00	151.00	5,885.0	1,048.0	-2,578.0	1,133.8	2,810.6	0.38	0.00	-0.38
8,600.0	90.00	150.61	5,885.0	1,048.0	-2,665.3	1,182.6	2,910.5	0.38	0.00	-0.38
8,700.0	90.00	150.23	5,885.0	1,048.0	-2,752.2	1,231.9	3,010.5	0.38	0.00	-0.38

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Well:	Fiscus Mesa #27-29H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Wellbore		
Design:	APD Directional Plan		

Planned Survey											
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	Subsea Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
8,800.0	90.00	149.84	5,885.0	1,048.0	-2,838.9	1,281.9	3,110.4	0.38	0.00	-0.38	
8,900.0	90.00	149.46	5,885.0	1,048.0	-2,925.2	1,332.4	3,210.2	0.38	0.00	-0.38	
9,000.0	90.00	149.07	5,885.0	1,048.0	-3,011.1	1,383.5	3,310.1	0.38	0.00	-0.38	
9,100.0	90.00	148.69	5,885.0	1,048.0	-3,096.7	1,435.2	3,409.9	0.38	0.00	-0.38	
9,200.0	90.00	148.30	5,885.0	1,048.0	-3,182.0	1,487.5	3,509.6	0.38	0.00	-0.38	
9,300.0	90.00	147.92	5,885.0	1,048.0	-3,266.9	1,540.3	3,609.3	0.38	0.00	-0.38	
9,400.0	90.00	147.54	5,885.0	1,048.0	-3,351.5	1,593.7	3,708.9	0.38	0.00	-0.38	
9,500.0	90.00	147.15	5,885.0	1,048.0	-3,435.7	1,647.6	3,808.5	0.38	0.00	-0.38	
9,600.0	90.00	146.77	5,885.0	1,048.0	-3,519.5	1,702.2	3,908.0	0.38	0.00	-0.38	
9,700.0	90.00	146.38	5,885.0	1,048.0	-3,602.9	1,757.3	4,007.5	0.38	0.00	-0.38	
9,800.0	90.00	146.00	5,885.0	1,048.0	-3,686.0	1,812.9	4,106.8	0.38	0.00	-0.38	
9,900.0	90.00	145.61	5,885.0	1,048.0	-3,768.7	1,869.1	4,206.1	0.38	0.00	-0.38	
10,000.0	90.00	145.23	5,885.0	1,048.0	-3,851.1	1,925.8	4,305.3	0.38	0.00	-0.38	
10,100.0	90.00	144.84	5,885.0	1,048.0	-3,933.0	1,983.2	4,404.5	0.38	0.00	-0.38	
10,200.0	90.00	144.46	5,885.0	1,048.0	-4,014.6	2,041.0	4,503.5	0.38	0.00	-0.38	
10,300.0	90.00	144.08	5,885.0	1,048.0	-4,095.8	2,099.4	4,602.4	0.38	0.00	-0.38	
10,400.0	90.00	143.69	5,885.0	1,048.0	-4,176.6	2,158.3	4,701.3	0.38	0.00	-0.38	
4 1/2"											
10,411.0	90.00	143.65	5,885.0	1,048.0	-4,185.4	2,164.9	4,712.1	0.38	0.00	-0.38	
Fiscus Mesa #27-29H (BHL)											
10,430.0	90.00	143.58	5,885.0	1,048.0	-4,200.7	2,176.2	4,731.0	0.38	0.00	-0.38	

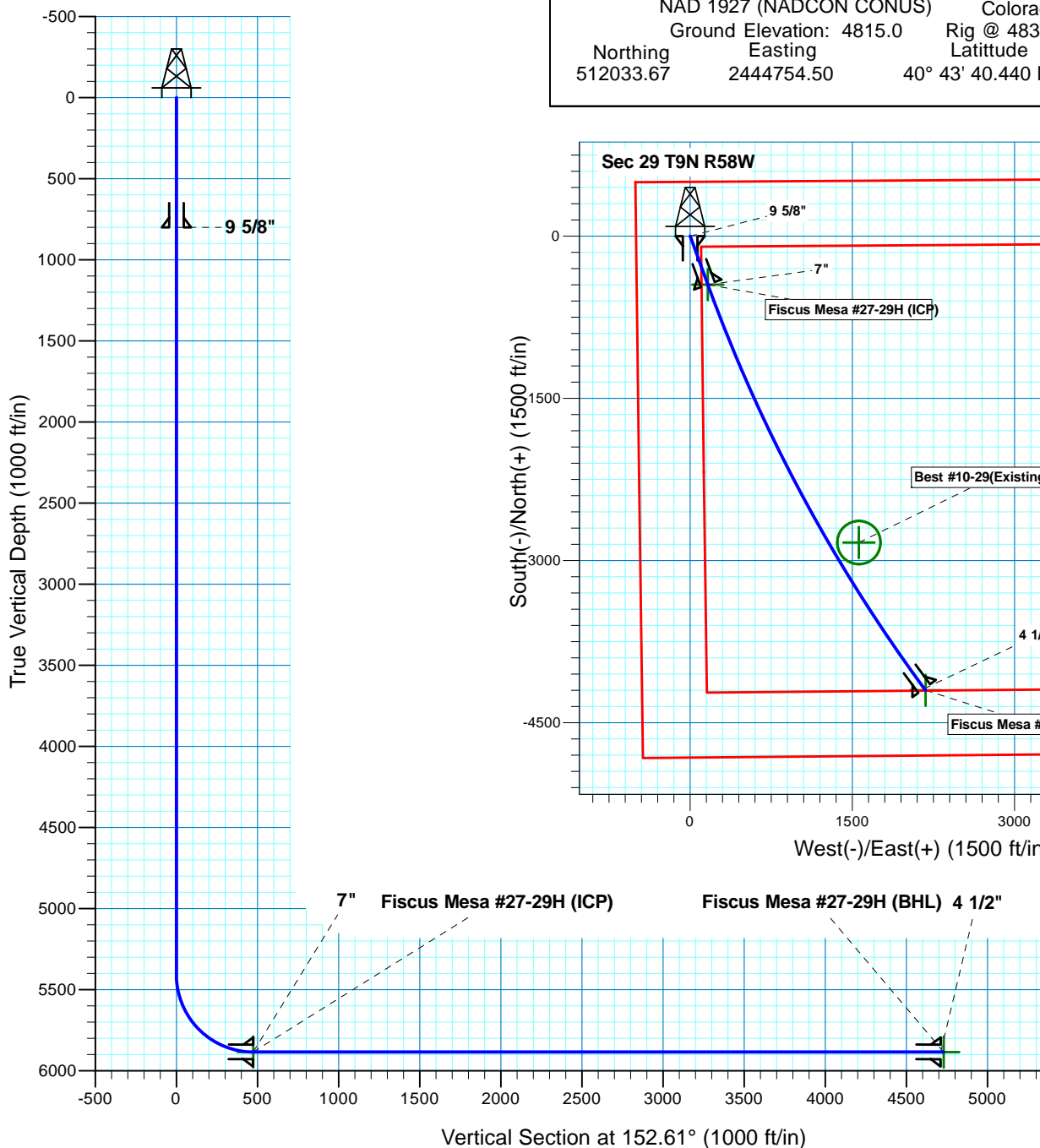
Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude	
- hit/miss target										
- Shape										
Fiscus Mesa #27-29H (E	0.00	0.00	5,885.0	-4,200.7	2,176.2	507,873.00	2,447,006.32	40° 42' 58.930 N	103° 53' 14.780 W	
- plan hits target center										
- Point										
Fiscus Mesa #27-29H (H		0.00	5,885.0	-448.7	163.3	511,588.03	2,444,925.90	40° 43' 36.006 N	103° 53' 40.919 W	
- plan hits target center										
- Point										

Casing Points						
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")		
800.0	800.0	9 5/8"	9-5/8	13-1/2		
6,157.5	5,885.0	7"	7	8-3/4		
10,411.0	5,885.0	4 1/2"	4-1/2	6		

Database:	Local	Local Co-ordinate Reference:	Well Fiscus Mesa #27-29H
Company:	Denver Division- Colorado	TVD Reference:	Rig @ 4837.0ft (TBD)
Project:	DJ - Hereford Ranch	MD Reference:	Rig @ 4837.0ft (TBD)
Site:	Fiscus Mesa #27-29H	North Reference:	True
Well:	Fiscus Mesa #27-29H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Wellbore		
Design:	APD Directional Plan		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
0.0	0.0	FOX HILLS		0.00		
235.0	235.0	PIERRE SHALE		0.00		
3,193.0	3,193.0	RICHARD SAND		0.00		
3,298.0	3,298.0	HYGIENE		0.00		
5,728.7	5,705.0	SHARON SPRINGS		0.00		
5,826.9	5,775.0	NIOBRARA		0.00		
5,926.1	5,830.0	B1 CHALK		0.00		
6,018.9	5,865.0	B-CHALK		0.00		

Fiscus Mesa #27-29H
Section 29 T9N R58W
Weld County, CO



SECTION DETAILS											
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target	
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0		
2	5407.5	0.00	0.00	5407.5	0.0	0.0	0.00	0.00	0.0		
3	6157.5	90.00	160.00	5885.0	-448.7	163.3	12.00	160.00	473.5		
4	6157.5	90.00	160.00	5885.0	-448.7	163.3	0.00	0.00	473.5	Fiscus Mesa #27-29H (ICP)	
5	10430.0	90.00	143.58	5885.0	-4200.7	2176.2	0.38	-90.00	4731.0	Fiscus Mesa #27-29H (BHL)	
TARGET DETAILS											
Name		TVD	+N/-S	+E/-W	Northing	Easting		Latitude		Longitude	Shape
Fiscus Mesa #27-29H (BHL)		5885.0	-4200.7	2176.2	507873.00	2447006.32		40° 42' 58.930 N		103° 53' 14.780 W	Point