



Denver Division- Colorado

DJ - Hereford Ranch

Critter Creek 16-20H

Critter Creek 16-20H

Original Wellbore

Plan: APD

Standard Planning Report

23 February, 2010

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Site Critter Creek 16-20H
Company:	Denver Division- Colorado	TVD Reference:	RIG @ 5362.0ft (TBD)
Project:	DJ - Hereford Ranch	MD Reference:	RIG @ 5362.0ft (TBD)
Site:	Critter Creek 16-20H	North Reference:	True
Well:	Critter Creek 16-20H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Wellbore		
Design:	APD		

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		Critter Creek 16-20H			
Site Position:		Northing:	577,280.13 ft	Latitude:	40° 54' 48.380 N
From:	Lat/Long	Easting:	2,286,334.80 ft	Longitude:	104° 27' 50.630 W
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.67 °

Well	Critter Creek 16-20H					
Well Position	+N/-S	0.0 ft	Northing:	577,280.13 ft	Latitude:	40° 54' 48.380 N
	+E/-W	0.0 ft	Easting:	2,286,334.80 ft	Longitude:	104° 27' 50.630 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,337.0 ft

Wellbore	Original Wellbore				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	2/22/2010	8.88	67.57	53,583

Design	APD			
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	134.50

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	
7,010.5	0.00	0.00	7,010.5	0.0	0.0	0.00	0.00	0.00	0.00	
7,760.5	90.00	134.50	7,488.0	-334.6	340.6	12.00	12.00	0.00	134.50	
13,094.9	90.00	134.50	7,488.0	-4,073.4	4,145.4	0.00	0.00	0.00	0.00	Critter Creek 16-20H

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Well:	Critter Creek 16-20H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Wellbore		
Design:	APD		

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)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,440.0	0.00	0.00	1,440.0	0.0	0.0	0.0	0.00	0.00	0.00
9 5/8"									
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	0.00
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	0.00
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	0.00
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	0.00
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	0.00
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	0.00
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	0.00
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	0.00
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.0	0.00	0.00	0.00
5,000.0	0.00	0.00	5,000.0	0.0	0.0	0.0	0.00	0.00	0.00
5,100.0	0.00	0.00	5,100.0	0.0	0.0	0.0	0.00	0.00	0.00

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Well:	Critter Creek 16-20H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Wellbore		
Design:	APD		

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)
5,200.0	0.00	0.00	5,200.0	0.0	0.0	0.0	0.00	0.00	0.00
5,300.0	0.00	0.00	5,300.0	0.0	0.0	0.0	0.00	0.00	0.00
5,400.0	0.00	0.00	5,400.0	0.0	0.0	0.0	0.00	0.00	0.00
5,500.0	0.00	0.00	5,500.0	0.0	0.0	0.0	0.00	0.00	0.00
5,600.0	0.00	0.00	5,600.0	0.0	0.0	0.0	0.00	0.00	0.00
5,700.0	0.00	0.00	5,700.0	0.0	0.0	0.0	0.00	0.00	0.00
5,800.0	0.00	0.00	5,800.0	0.0	0.0	0.0	0.00	0.00	0.00
5,900.0	0.00	0.00	5,900.0	0.0	0.0	0.0	0.00	0.00	0.00
6,000.0	0.00	0.00	6,000.0	0.0	0.0	0.0	0.00	0.00	0.00
6,100.0	0.00	0.00	6,100.0	0.0	0.0	0.0	0.00	0.00	0.00
6,200.0	0.00	0.00	6,200.0	0.0	0.0	0.0	0.00	0.00	0.00
6,300.0	0.00	0.00	6,300.0	0.0	0.0	0.0	0.00	0.00	0.00
6,400.0	0.00	0.00	6,400.0	0.0	0.0	0.0	0.00	0.00	0.00
6,500.0	0.00	0.00	6,500.0	0.0	0.0	0.0	0.00	0.00	0.00
6,600.0	0.00	0.00	6,600.0	0.0	0.0	0.0	0.00	0.00	0.00
6,700.0	0.00	0.00	6,700.0	0.0	0.0	0.0	0.00	0.00	0.00
6,800.0	0.00	0.00	6,800.0	0.0	0.0	0.0	0.00	0.00	0.00
6,900.0	0.00	0.00	6,900.0	0.0	0.0	0.0	0.00	0.00	0.00
7,000.0	0.00	0.00	7,000.0	0.0	0.0	0.0	0.00	0.00	0.00
7,010.5	0.00	0.00	7,010.5	0.0	0.0	0.0	0.00	0.00	0.00
7,100.0	10.74	134.50	7,099.5	-5.9	6.0	8.4	12.00	12.00	0.00
7,200.0	22.74	134.50	7,195.1	-26.0	26.5	37.1	12.00	12.00	0.00
7,300.0	34.74	134.50	7,282.6	-59.6	60.7	85.1	12.00	12.00	0.00
7,400.0	46.74	134.50	7,358.2	-105.3	107.2	150.2	12.00	12.00	0.00
7,500.0	58.74	134.50	7,418.7	-161.0	163.8	229.7	12.00	12.00	0.00
7,600.0	70.74	134.50	7,461.3	-224.2	228.2	319.9	12.00	12.00	0.00
7,700.0	82.74	134.50	7,484.2	-292.3	297.5	417.1	12.00	12.00	0.00
7,760.5	90.00	134.50	7,488.0	-334.6	340.5	477.4	12.00	12.00	0.00
7"									
7,800.0	90.00	134.50	7,488.0	-362.3	368.7	516.9	0.01	0.01	0.00
7,900.0	90.00	134.50	7,488.0	-432.4	440.0	616.9	0.00	0.00	0.00
8,000.0	90.00	134.50	7,488.0	-502.5	511.4	716.9	0.00	0.00	0.00
8,100.0	90.00	134.50	7,488.0	-572.6	582.7	816.9	0.00	0.00	0.00
8,200.0	90.00	134.50	7,488.0	-642.7	654.0	916.9	0.00	0.00	0.00
8,300.0	90.00	134.50	7,488.0	-712.7	725.4	1,016.9	0.00	0.00	0.00
8,400.0	90.00	134.50	7,488.0	-782.8	796.7	1,116.9	0.00	0.00	0.00
8,500.0	90.00	134.50	7,488.0	-852.9	868.0	1,216.9	0.00	0.00	0.00
8,600.0	90.00	134.50	7,488.0	-923.0	939.3	1,316.9	0.00	0.00	0.00
8,700.0	90.00	134.50	7,488.0	-993.1	1,010.7	1,416.9	0.00	0.00	0.00
8,800.0	90.00	134.50	7,488.0	-1,063.2	1,082.0	1,516.9	0.00	0.00	0.00
8,900.0	90.00	134.50	7,488.0	-1,133.3	1,153.3	1,616.9	0.00	0.00	0.00
9,000.0	90.00	134.50	7,488.0	-1,203.4	1,224.6	1,716.9	0.00	0.00	0.00
9,100.0	90.00	134.50	7,488.0	-1,273.5	1,296.0	1,816.9	0.00	0.00	0.00
9,200.0	90.00	134.50	7,488.0	-1,343.5	1,367.3	1,916.9	0.00	0.00	0.00
9,300.0	90.00	134.50	7,488.0	-1,413.6	1,438.6	2,016.9	0.00	0.00	0.00
9,400.0	90.00	134.50	7,488.0	-1,483.7	1,510.0	2,116.9	0.00	0.00	0.00
9,500.0	90.00	134.50	7,488.0	-1,553.8	1,581.3	2,216.9	0.00	0.00	0.00
9,600.0	90.00	134.50	7,488.0	-1,623.9	1,652.6	2,316.9	0.00	0.00	0.00
9,700.0	90.00	134.50	7,488.0	-1,694.0	1,723.9	2,416.9	0.00	0.00	0.00
9,800.0	90.00	134.50	7,488.0	-1,764.1	1,795.3	2,516.9	0.00	0.00	0.00
9,900.0	90.00	134.50	7,488.0	-1,834.2	1,866.6	2,616.9	0.00	0.00	0.00
10,000.0	90.00	134.50	7,488.0	-1,904.2	1,937.9	2,716.9	0.00	0.00	0.00
10,100.0	90.00	134.50	7,488.0	-1,974.3	2,009.3	2,816.9	0.00	0.00	0.00

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Site:	Critter Creek 16-20H	North Reference:	True
Well:	Critter Creek 16-20H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Wellbore		
Design:	APD		

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)
10,200.0	90.00	134.50	7,488.0	-2,044.4	2,080.6	2,916.9	0.00	0.00	0.00
10,300.0	90.00	134.50	7,488.0	-2,114.5	2,151.9	3,016.9	0.00	0.00	0.00
10,400.0	90.00	134.50	7,488.0	-2,184.6	2,223.2	3,116.9	0.00	0.00	0.00
10,500.0	90.00	134.50	7,488.0	-2,254.7	2,294.6	3,216.9	0.00	0.00	0.00
10,600.0	90.00	134.50	7,488.0	-2,324.8	2,365.9	3,316.9	0.00	0.00	0.00
10,700.0	90.00	134.50	7,488.0	-2,394.9	2,437.2	3,416.9	0.00	0.00	0.00
10,800.0	90.00	134.50	7,488.0	-2,465.0	2,508.5	3,516.9	0.00	0.00	0.00
10,900.0	90.00	134.50	7,488.0	-2,535.0	2,579.9	3,616.9	0.00	0.00	0.00
11,000.0	90.00	134.50	7,488.0	-2,605.1	2,651.2	3,716.9	0.00	0.00	0.00
11,100.0	90.00	134.50	7,488.0	-2,675.2	2,722.5	3,816.9	0.00	0.00	0.00
11,200.0	90.00	134.50	7,488.0	-2,745.3	2,793.9	3,916.9	0.00	0.00	0.00
11,300.0	90.00	134.50	7,488.0	-2,815.4	2,865.2	4,016.9	0.00	0.00	0.00
11,400.0	90.00	134.50	7,488.0	-2,885.5	2,936.5	4,116.9	0.00	0.00	0.00
11,500.0	90.00	134.50	7,488.0	-2,955.6	3,007.8	4,216.9	0.00	0.00	0.00
11,600.0	90.00	134.50	7,488.0	-3,025.7	3,079.2	4,316.9	0.00	0.00	0.00
11,700.0	90.00	134.50	7,488.0	-3,095.8	3,150.5	4,416.9	0.00	0.00	0.00
11,800.0	90.00	134.50	7,488.0	-3,165.8	3,221.8	4,516.9	0.00	0.00	0.00
11,900.0	90.00	134.50	7,488.0	-3,235.9	3,293.1	4,616.9	0.00	0.00	0.00
12,000.0	90.00	134.50	7,488.0	-3,306.0	3,364.5	4,716.9	0.00	0.00	0.00
12,100.0	90.00	134.50	7,488.0	-3,376.1	3,435.8	4,816.9	0.00	0.00	0.00
12,200.0	90.00	134.50	7,488.0	-3,446.2	3,507.1	4,916.9	0.00	0.00	0.00
12,300.0	90.00	134.50	7,488.0	-3,516.3	3,578.5	5,016.9	0.00	0.00	0.00
12,400.0	90.00	134.50	7,488.0	-3,586.4	3,649.8	5,116.9	0.00	0.00	0.00
12,500.0	90.00	134.50	7,488.0	-3,656.5	3,721.1	5,216.9	0.00	0.00	0.00
12,600.0	90.00	134.50	7,488.0	-3,726.5	3,792.4	5,316.9	0.00	0.00	0.00
12,700.0	90.00	134.50	7,488.0	-3,796.6	3,863.8	5,416.9	0.00	0.00	0.00
12,800.0	90.00	134.50	7,488.0	-3,866.7	3,935.1	5,516.9	0.00	0.00	0.00
12,900.0	90.00	134.50	7,488.0	-3,936.8	4,006.4	5,616.9	0.00	0.00	0.00
13,000.0	90.00	134.50	7,488.0	-4,006.9	4,077.8	5,716.9	0.00	0.00	0.00
13,094.9	90.00	134.50	7,488.0	-4,073.4	4,145.4	5,811.8	0.00	0.00	0.00
Critter Creek 16-20H (BHL)									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
1,440.0	1,440.0	9 5/8"	9-5/8	13-1/2	
7,760.5	7,488.0	7"	7	8-3/4	
13,094.9	7,488.0	4 1/2"	4-1/2	6-1/4	