



## **Denver Division- Colorado**

**DJ - Hereford Ranch**

**Critter Creek 6-12H**

**Critter Creek 6-12H**

**Original Wellbore**

**Plan: APD Directional Plan**

## **Standard Planning Report**

**12 January, 2010**

<b>Database:</b>	EDM 2003.21 Single User Db	<b>Local Co-ordinate Reference:</b>	Site Critter Creek 6-12H
<b>Company:</b>	Denver Division- Colorado	<b>TVD Reference:</b>	RIG @ 5287.0ft (TBD)
<b>Project:</b>	DJ - Hereford Ranch	<b>MD Reference:</b>	RIG @ 5287.0ft (TBD)
<b>Site:</b>	Critter Creek 6-12H	<b>North Reference:</b>	True
<b>Well:</b>	Critter Creek 6-12H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Wellbore		
<b>Design:</b>	APD Directional Plan		

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

Site		Critter Creek 6-12H			
Site Position:		Northing:	587,853.92 ft	Latitude:	40° 56' 30.322 N
From:	Lat/Long	Easting:	2,307,444.92 ft	Longitude:	104° 23' 13.981 W
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.72 °

Well	Critter Creek 6-12H					
Well Position	+N/-S	0.0 ft	Northing:	587,853.92 ft	Latitude:	40° 56' 30.322 N
	+E/-W	0.0 ft	Easting:	2,307,444.92 ft	Longitude:	104° 23' 13.981 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,270.0 ft

<b>Wellbore</b>	Original Wellbore				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF200510	1/7/2010	8.86	67.61	53,620

<b>Design</b>	APD Directional Plan			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD)</b>	<b>+N/-S</b>	<b>+E/-W</b>	<b>Direction</b>
	(ft)	(ft)	(ft)	(°)
	0.0	0.0	0.0	134.41

<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
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
6,724.5	0.00	0.00	6,724.5	0.0	0.0	0.00	0.00	0.00	0.00	
7,474.5	90.00	148.30	7,202.0	-406.2	250.9	12.00	12.00	0.00	148.30	
9,094.6	90.00	148.30	7,202.0	-1,784.6	1,102.2	0.00	0.00	0.00	0.00	Critter Creek 6-12H (1
11,903.2	90.00	109.76	7,202.0	-3,520.1	3,243.0	1.37	0.00	-1.37	-90.00	Critter Creek 6-12H (1
12,552.8	90.00	114.73	7,202.0	-3,766.0	3,844.1	0.76	0.00	0.76	90.00	Critter Creek 6-12H (E

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<b>Project:</b>	DJ - Hereford Ranch	<b>MD Reference:</b>	RIG @ 5287.0ft (TBD)
<b>Site:</b>	Critter Creek 6-12H	<b>North Reference:</b>	True
<b>Well:</b>	Critter Creek 6-12H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Wellbore		
<b>Design:</b>	APD Directional Plan		

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
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
5,200.0	0.00	0.00	5,200.0	0.0	0.0	0.0	0.00	0.00	0.00

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<b>Well:</b>	Critter Creek 6-12H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Wellbore		
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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)
5,300.0	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
6,724.5	0.00	0.00	6,724.5	0.0	0.0	0.0	0.00	0.00	0.00
6,800.0	9.06	148.30	6,799.7	-5.1	3.1	5.8	12.00	12.00	0.00
6,900.0	21.06	148.30	6,896.1	-27.1	16.8	30.9	12.00	12.00	0.00
7,000.0	33.06	148.30	6,985.0	-65.8	40.6	75.0	12.00	12.00	0.00
7,100.0	45.06	148.30	7,062.5	-119.3	73.7	136.1	12.00	12.00	0.00
7,200.0	57.06	148.30	7,125.2	-185.3	114.5	211.4	12.00	12.00	0.00
7,300.0	69.06	148.30	7,170.5	-261.0	161.2	297.8	12.00	12.00	0.00
7,400.0	81.06	148.30	7,196.2	-343.1	211.9	391.4	12.00	12.00	0.00
7,474.5	90.00	148.30	7,202.0	-406.2	250.9	463.5	12.00	12.00	0.00
7"									
7,500.0	90.00	148.30	7,202.0	-427.9	264.3	488.2	0.02	0.02	0.00
7,600.0	90.00	148.30	7,202.0	-513.0	316.8	585.3	0.00	0.00	0.00
7,700.0	90.00	148.30	7,202.0	-598.1	369.4	682.4	0.00	0.00	0.00
7,800.0	90.00	148.30	7,202.0	-683.1	421.9	779.5	0.00	0.00	0.00
7,900.0	90.00	148.30	7,202.0	-768.2	474.5	876.5	0.00	0.00	0.00
8,000.0	90.00	148.30	7,202.0	-853.3	527.0	973.6	0.00	0.00	0.00
8,100.0	90.00	148.30	7,202.0	-938.4	579.6	1,070.7	0.00	0.00	0.00
8,200.0	90.00	148.30	7,202.0	-1,023.5	632.1	1,167.8	0.00	0.00	0.00
8,300.0	90.00	148.30	7,202.0	-1,108.5	684.7	1,264.8	0.00	0.00	0.00
8,400.0	90.00	148.30	7,202.0	-1,193.6	737.2	1,361.9	0.00	0.00	0.00
8,500.0	90.00	148.30	7,202.0	-1,278.7	789.8	1,459.0	0.00	0.00	0.00
8,600.0	90.00	148.30	7,202.0	-1,363.8	842.3	1,556.1	0.00	0.00	0.00
8,700.0	90.00	148.30	7,202.0	-1,448.9	894.9	1,653.2	0.00	0.00	0.00
8,800.0	90.00	148.30	7,202.0	-1,533.9	947.4	1,750.2	0.00	0.00	0.00
8,900.0	90.00	148.30	7,202.0	-1,619.0	1,000.0	1,847.3	0.00	0.00	0.00
9,000.0	90.00	148.30	7,202.0	-1,704.1	1,052.5	1,944.4	0.00	0.00	0.00
9,094.6	90.00	148.30	7,202.0	-1,784.6	1,102.2	2,036.2	0.00	0.00	0.00
Critter Creek 6-12H (Target 1)									
9,100.0	90.00	148.22	7,202.0	-1,789.2	1,105.1	2,041.5	1.37	0.00	-1.37
9,200.0	90.00	146.85	7,202.0	-1,873.5	1,158.7	2,138.8	1.37	0.00	-1.37
9,300.0	90.00	145.48	7,202.0	-1,956.6	1,214.4	2,236.7	1.37	0.00	-1.37
9,400.0	90.00	144.11	7,202.0	-2,038.3	1,272.1	2,335.1	1.37	0.00	-1.37
9,500.0	90.00	142.74	7,202.0	-2,118.6	1,331.6	2,433.9	1.37	0.00	-1.37
9,600.0	90.00	141.36	7,202.0	-2,197.5	1,393.1	2,533.0	1.37	0.00	-1.37
9,700.0	90.00	139.99	7,202.0	-2,274.8	1,456.5	2,632.4	1.37	0.00	-1.37
9,800.0	90.00	138.62	7,202.0	-2,350.7	1,521.7	2,732.0	1.37	0.00	-1.37
9,900.0	90.00	137.25	7,202.0	-2,424.9	1,588.7	2,831.8	1.37	0.00	-1.37
10,000.0	90.00	135.88	7,202.0	-2,497.5	1,657.5	2,931.8	1.37	0.00	-1.37
10,100.0	90.00	134.50	7,202.0	-2,568.4	1,727.9	3,031.7	1.37	0.00	-1.37

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<b>Site:</b>	Critter Creek 6-12H	<b>North Reference:</b>	True
<b>Well:</b>	Critter Creek 6-12H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Wellbore		
<b>Design:</b>	APD Directional Plan		

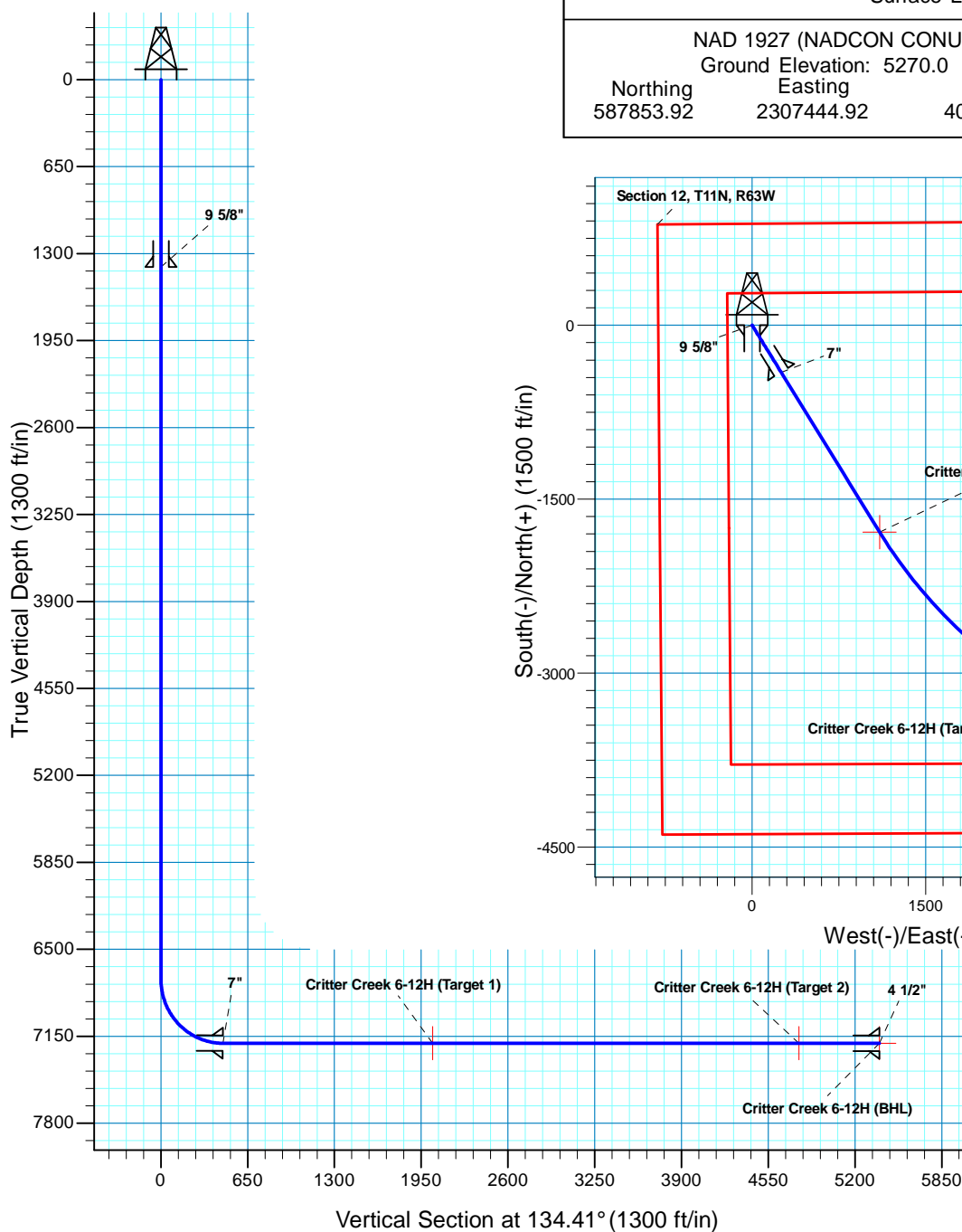
Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
10,200.0	90.00	133.13	7,202.0	-2,637.7	1,800.1	3,131.7	1.37	0.00	-1.37
10,300.0	90.00	131.76	7,202.0	-2,705.2	1,873.9	3,231.7	1.37	0.00	-1.37
10,400.0	90.00	130.39	7,202.0	-2,770.9	1,949.3	3,331.5	1.37	0.00	-1.37
10,500.0	90.00	129.02	7,202.0	-2,834.8	2,026.2	3,431.2	1.37	0.00	-1.37
10,600.0	90.00	127.64	7,202.0	-2,896.8	2,104.6	3,530.6	1.37	0.00	-1.37
10,700.0	90.00	126.27	7,202.0	-2,956.9	2,184.5	3,629.7	1.37	0.00	-1.37
10,800.0	90.00	124.90	7,202.0	-3,015.1	2,265.9	3,728.6	1.37	0.00	-1.37
10,900.0	90.00	123.53	7,202.0	-3,071.3	2,348.6	3,827.0	1.37	0.00	-1.37
11,000.0	90.00	122.16	7,202.0	-3,125.5	2,432.6	3,924.9	1.37	0.00	-1.37
11,100.0	90.00	120.78	7,202.0	-3,177.7	2,517.9	4,022.4	1.37	0.00	-1.37
11,200.0	90.00	119.41	7,202.0	-3,227.9	2,604.4	4,119.3	1.37	0.00	-1.37
11,300.0	90.00	118.04	7,202.0	-3,276.0	2,692.1	4,215.6	1.37	0.00	-1.37
11,400.0	90.00	116.67	7,202.0	-3,321.9	2,780.9	4,311.2	1.37	0.00	-1.37
11,500.0	90.00	115.30	7,202.0	-3,365.7	2,870.8	4,406.0	1.37	0.00	-1.37
11,600.0	90.00	113.92	7,202.0	-3,407.4	2,961.7	4,500.1	1.37	0.00	-1.37
11,700.0	90.00	112.55	7,202.0	-3,446.8	3,053.6	4,593.4	1.37	0.00	-1.37
11,800.0	90.00	111.18	7,202.0	-3,484.1	3,146.4	4,685.7	1.37	0.00	-1.37
11,900.0	90.00	109.81	7,202.0	-3,519.1	3,240.0	4,777.1	1.37	0.00	-1.37
11,903.2	90.00	109.76	7,202.0	-3,520.1	3,243.0	4,780.0	1.37	0.00	-1.37
Critter Creek 6-12H (Target 2)									
12,000.0	90.00	110.50	7,202.0	-3,553.5	3,333.9	4,868.3	0.76	0.00	0.76
12,100.0	90.00	111.27	7,202.0	-3,589.1	3,427.4	4,960.0	0.76	0.00	0.76
12,200.0	90.00	112.03	7,202.0	-3,626.0	3,520.3	5,052.2	0.76	0.00	0.76
12,300.0	90.00	112.80	7,202.0	-3,664.1	3,612.8	5,144.9	0.76	0.00	0.76
12,400.0	90.00	113.56	7,202.0	-3,703.5	3,704.7	5,238.1	0.76	0.00	0.76
12,500.0	90.00	114.32	7,202.0	-3,744.1	3,796.1	5,331.8	0.76	0.00	0.76
12,552.8	90.00	114.73	7,202.0	-3,766.0	3,844.1	5,381.4	0.76	0.00	0.76
Critter Creek 6-12H (BHL)									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
1,400.0	1,400.0	9 5/8"	9-5/8	12-1/4	
7,474.5	7,202.0	7"	7	8-3/4	
12,552.8	7,202.0	4 1/2"	4-1/2	6	

# Critter Creek 6-12H

Section 12 T11N R63W

Weld County, CO



## Surface Location

NAD 1927 (NADCON CONUS) Colorado North 501  
Ground Elevation: 5270.0 RIG @ 5287.0ft (TBD)

Northing	Easting	Latitude	Longitude
587853.92	2307444.92	40° 56' 30.322 N	104° 23' 13.981 W

**T M**

Azimuths to True North  
Magnetic North: 8.86°

Magnetic Field  
Strength: 53619.5snT  
Dip Angle: 67.61°  
Date: 1/7/2010  
Model: IGRF200510

Project: DJ - Hereford Ranch  
Site: Critter Creek 6-12H  
Well: Critter Creek 6-12H  
Plan: APD Directional Plan

## 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	6724.5	0.00	0.00	6724.5	0.0	0.0	0.00	0.00	0.0	
3	7474.5	90.00	148.30	7202.0	-406.2	250.9	12.00	148.30	463.5	
4	9094.6	90.00	148.30	7202.0	-1784.6	1102.2	0.00	0.00	2036.2	Critter Creek 6-12H (Target 1)
5	11903.2	90.00	109.76	7202.0	-3520.1	3243.0	1.37	-90.00	4780.0	Critter Creek 6-12H (Target 2)
6	12552.8	90.00	114.73	7202.0	-3766.0	3844.1	0.76	90.00	5381.4	Critter Creek 6-12H (BHL)

## TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
Critter Creek 6-12H (BHL)	7202.0	-3766.0	3844.1	584136.47	2311335.97	40° 55' 53.108 N	104° 22' 23.902 W	Point
Critter Creek 6-12H (Target 1)	7202.0	-1784.6	1102.2	586083.33	2308569.44	40° 56' 12.689 N	104° 22' 59.621 W	P oint
Critter Creek 6-12H (Target 2)	7202.0	-3520.1	3243.0	584374.76	2310731.87	40° 55' 55.538 N	104° 22' 31.732 W	P oint