



Denver Division- Colorado

DJ - Hereford Ranch

Critter Creek 13-17H

Critter Creek 13-17H

Original Wellbore

Plan: APD

Standard Planning Report

23 February, 2010

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Site Critter Creek 13-17H
Company:	Denver Division- Colorado	TVD Reference:	RIG @ 5306.0ft (TBD)
Project:	DJ - Hereford Ranch	MD Reference:	RIG @ 5306.0ft (TBD)
Site:	Critter Creek 13-17H	North Reference:	True
Well:	Critter Creek 13-17H	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 13-17H			
Site Position:		Northing:	578,433.65 ft	Latitude:	40° 54' 59.288 N
From:	Lat/Long	Easting:	2,290,538.31 ft	Longitude:	104° 26' 55.709 W
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.68 °

Well	Critter Creek 13-17H					
Well Position	+N/-S	0.0 ft	Northing:	578,433.65 ft	Latitude:	40° 54' 59.288 N
	+E/-W	0.0 ft	Easting:	2,290,538.31 ft	Longitude:	104° 26' 55.709 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,281.0 ft

Wellbore	Original Wellbore				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	2/22/2010	8.88	67.57	53,587

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	315.49

Plan Sections										
Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Dogleg Rate	Build Rate	Turn Rate	TFO	Target
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(°/100ft)	(°/100ft)	(°/100ft)	(°)	
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
6,935.5	0.00	0.00	6,935.5	0.0	0.0	0.00	0.00	0.00	0.00	
7,685.5	90.00	315.49	7,413.0	340.5	-334.7	12.00	12.00	0.00	315.49	
13,075.7	90.00	315.49	7,413.0	4,184.5	-4,113.2	0.00	0.00	0.00	0.00	Critter Creek 13-17H

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Site Critter Creek 13-17H
Company:	Denver Division- Colorado	TVD Reference:	RIG @ 5306.0ft (TBD)
Project:	DJ - Hereford Ranch	MD Reference:	RIG @ 5306.0ft (TBD)
Site:	Critter Creek 13-17H	North Reference:	True
Well:	Critter Creek 13-17H	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
1,330.0	0.00	0.00	1,330.0	0.0	0.0	0.0	0.00	0.00	0.00
9 5/8"									
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
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

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Site Critter Creek 13-17H
Company:	Denver Division- Colorado	TVD Reference:	RIG @ 5306.0ft (TBD)
Project:	DJ - Hereford Ranch	MD Reference:	RIG @ 5306.0ft (TBD)
Site:	Critter Creek 13-17H	North Reference:	True
Well:	Critter Creek 13-17H	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
6,935.5	0.00	0.00	6,935.5	0.0	0.0	0.0	0.00	0.00	0.00
7,000.0	7.74	315.49	6,999.8	3.1	-3.0	4.3	12.00	12.00	0.00
7,100.0	19.74	315.49	7,096.8	20.0	-19.7	28.0	12.00	12.00	0.00
7,200.0	31.74	315.49	7,186.7	50.9	-50.0	71.4	12.00	12.00	0.00
7,300.0	43.74	315.49	7,265.6	94.5	-92.9	132.5	12.00	12.00	0.00
7,400.0	55.74	315.49	7,330.1	148.8	-146.3	208.6	12.00	12.00	0.00
7,500.0	67.74	315.49	7,377.4	211.5	-207.9	296.6	12.00	12.00	0.00
7,600.0	79.74	315.49	7,405.4	279.8	-275.1	392.4	12.00	12.00	0.00
7,685.5	90.00	315.49	7,413.0	340.5	-334.7	477.4	12.00	12.00	0.00
7"									
7,700.0	90.00	315.49	7,413.0	350.8	-344.8	491.9	0.03	0.03	0.00
7,800.0	90.00	315.49	7,413.0	422.1	-414.9	591.9	0.00	0.00	0.00
7,900.0	90.00	315.49	7,413.0	493.5	-485.0	691.9	0.00	0.00	0.00
8,000.0	90.00	315.49	7,413.0	564.8	-555.1	791.9	0.00	0.00	0.00
8,100.0	90.00	315.49	7,413.0	636.1	-625.2	891.9	0.00	0.00	0.00
8,200.0	90.00	315.49	7,413.0	707.4	-695.3	991.9	0.00	0.00	0.00
8,300.0	90.00	315.49	7,413.0	778.7	-765.4	1,091.9	0.00	0.00	0.00
8,400.0	90.00	315.49	7,413.0	850.0	-835.5	1,191.9	0.00	0.00	0.00
8,500.0	90.00	315.49	7,413.0	921.4	-905.6	1,291.9	0.00	0.00	0.00
8,600.0	90.00	315.49	7,413.0	992.7	-975.7	1,391.9	0.00	0.00	0.00
8,700.0	90.00	315.49	7,413.0	1,064.0	-1,045.8	1,491.9	0.00	0.00	0.00
8,800.0	90.00	315.49	7,413.0	1,135.3	-1,115.9	1,591.9	0.00	0.00	0.00
8,900.0	90.00	315.49	7,413.0	1,206.6	-1,186.0	1,691.9	0.00	0.00	0.00
9,000.0	90.00	315.49	7,413.0	1,277.9	-1,256.1	1,791.9	0.00	0.00	0.00
9,100.0	90.00	315.49	7,413.0	1,349.2	-1,326.2	1,891.9	0.00	0.00	0.00
9,200.0	90.00	315.49	7,413.0	1,420.6	-1,396.3	1,991.9	0.00	0.00	0.00
9,300.0	90.00	315.49	7,413.0	1,491.9	-1,466.4	2,091.9	0.00	0.00	0.00
9,400.0	90.00	315.49	7,413.0	1,563.2	-1,536.5	2,191.9	0.00	0.00	0.00
9,500.0	90.00	315.49	7,413.0	1,634.5	-1,606.6	2,291.9	0.00	0.00	0.00
9,600.0	90.00	315.49	7,413.0	1,705.8	-1,676.7	2,391.9	0.00	0.00	0.00
9,700.0	90.00	315.49	7,413.0	1,777.1	-1,746.8	2,491.9	0.00	0.00	0.00
9,800.0	90.00	315.49	7,413.0	1,848.5	-1,816.9	2,591.9	0.00	0.00	0.00
9,900.0	90.00	315.49	7,413.0	1,919.8	-1,887.0	2,691.9	0.00	0.00	0.00
10,000.0	90.00	315.49	7,413.0	1,991.1	-1,957.1	2,791.9	0.00	0.00	0.00
10,100.0	90.00	315.49	7,413.0	2,062.4	-2,027.2	2,891.9	0.00	0.00	0.00

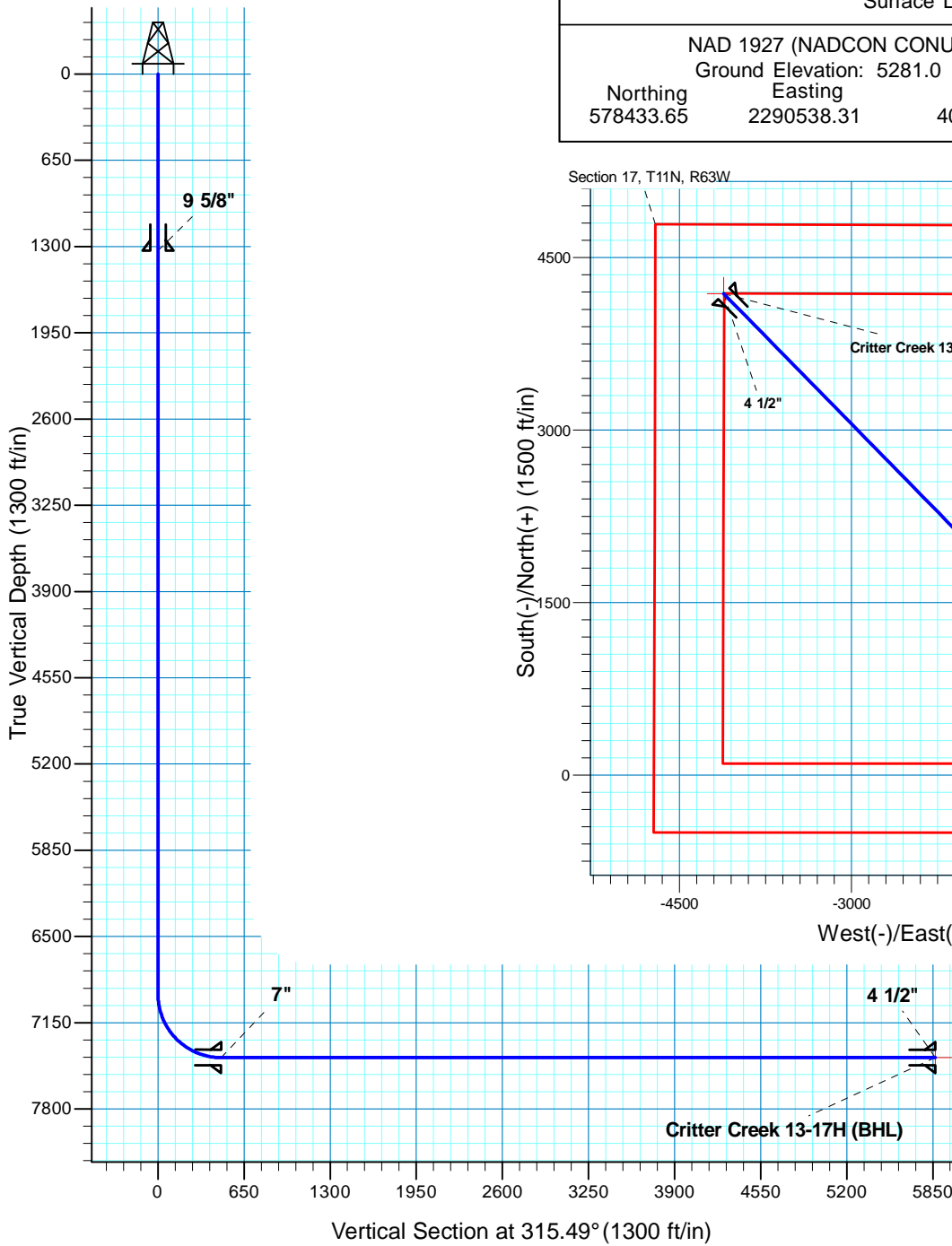
Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Site Critter Creek 13-17H
Company:	Denver Division- Colorado	TVD Reference:	RIG @ 5306.0ft (TBD)
Project:	DJ - Hereford Ranch	MD Reference:	RIG @ 5306.0ft (TBD)
Site:	Critter Creek 13-17H	North Reference:	True
Well:	Critter Creek 13-17H	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	315.49	7,413.0	2,133.7	-2,097.3	2,991.9	0.00	0.00	0.00	
10,300.0	90.00	315.49	7,413.0	2,205.0	-2,167.4	3,091.9	0.00	0.00	0.00	
10,400.0	90.00	315.49	7,413.0	2,276.4	-2,237.5	3,191.9	0.00	0.00	0.00	
10,500.0	90.00	315.49	7,413.0	2,347.7	-2,307.6	3,291.9	0.00	0.00	0.00	
10,600.0	90.00	315.49	7,413.0	2,419.0	-2,377.7	3,391.9	0.00	0.00	0.00	
10,700.0	90.00	315.49	7,413.0	2,490.3	-2,447.8	3,491.9	0.00	0.00	0.00	
10,800.0	90.00	315.49	7,413.0	2,561.6	-2,517.9	3,591.9	0.00	0.00	0.00	
10,900.0	90.00	315.49	7,413.0	2,632.9	-2,588.0	3,691.9	0.00	0.00	0.00	
11,000.0	90.00	315.49	7,413.0	2,704.3	-2,658.1	3,791.9	0.00	0.00	0.00	
11,100.0	90.00	315.49	7,413.0	2,775.6	-2,728.2	3,891.9	0.00	0.00	0.00	
11,200.0	90.00	315.49	7,413.0	2,846.9	-2,798.3	3,991.9	0.00	0.00	0.00	
11,300.0	90.00	315.49	7,413.0	2,918.2	-2,868.4	4,091.9	0.00	0.00	0.00	
11,400.0	90.00	315.49	7,413.0	2,989.5	-2,938.5	4,191.9	0.00	0.00	0.00	
11,500.0	90.00	315.49	7,413.0	3,060.8	-3,008.6	4,291.9	0.00	0.00	0.00	
11,600.0	90.00	315.49	7,413.0	3,132.1	-3,078.7	4,391.9	0.00	0.00	0.00	
11,700.0	90.00	315.49	7,413.0	3,203.5	-3,148.8	4,491.9	0.00	0.00	0.00	
11,800.0	90.00	315.49	7,413.0	3,274.8	-3,218.9	4,591.9	0.00	0.00	0.00	
11,900.0	90.00	315.49	7,413.0	3,346.1	-3,289.0	4,691.9	0.00	0.00	0.00	
12,000.0	90.00	315.49	7,413.0	3,417.4	-3,359.1	4,791.9	0.00	0.00	0.00	
12,100.0	90.00	315.49	7,413.0	3,488.7	-3,429.2	4,891.9	0.00	0.00	0.00	
12,200.0	90.00	315.49	7,413.0	3,560.0	-3,499.3	4,991.9	0.00	0.00	0.00	
12,300.0	90.00	315.49	7,413.0	3,631.4	-3,569.4	5,091.9	0.00	0.00	0.00	
12,400.0	90.00	315.49	7,413.0	3,702.7	-3,639.5	5,191.9	0.00	0.00	0.00	
12,500.0	90.00	315.49	7,413.0	3,774.0	-3,709.6	5,291.9	0.00	0.00	0.00	
12,600.0	90.00	315.49	7,413.0	3,845.3	-3,779.7	5,391.9	0.00	0.00	0.00	
12,700.0	90.00	315.49	7,413.0	3,916.6	-3,849.8	5,491.9	0.00	0.00	0.00	
12,800.0	90.00	315.49	7,413.0	3,987.9	-3,919.9	5,591.9	0.00	0.00	0.00	
12,900.0	90.00	315.49	7,413.0	4,059.3	-3,990.0	5,691.9	0.00	0.00	0.00	
13,000.0	90.00	315.49	7,413.0	4,130.6	-4,060.2	5,791.9	0.00	0.00	0.00	
13,075.7	90.00	315.49	7,413.0	4,184.5	-4,113.2	5,867.6	0.00	0.00	0.00	
Critter Creek 13-17H (BHL)										

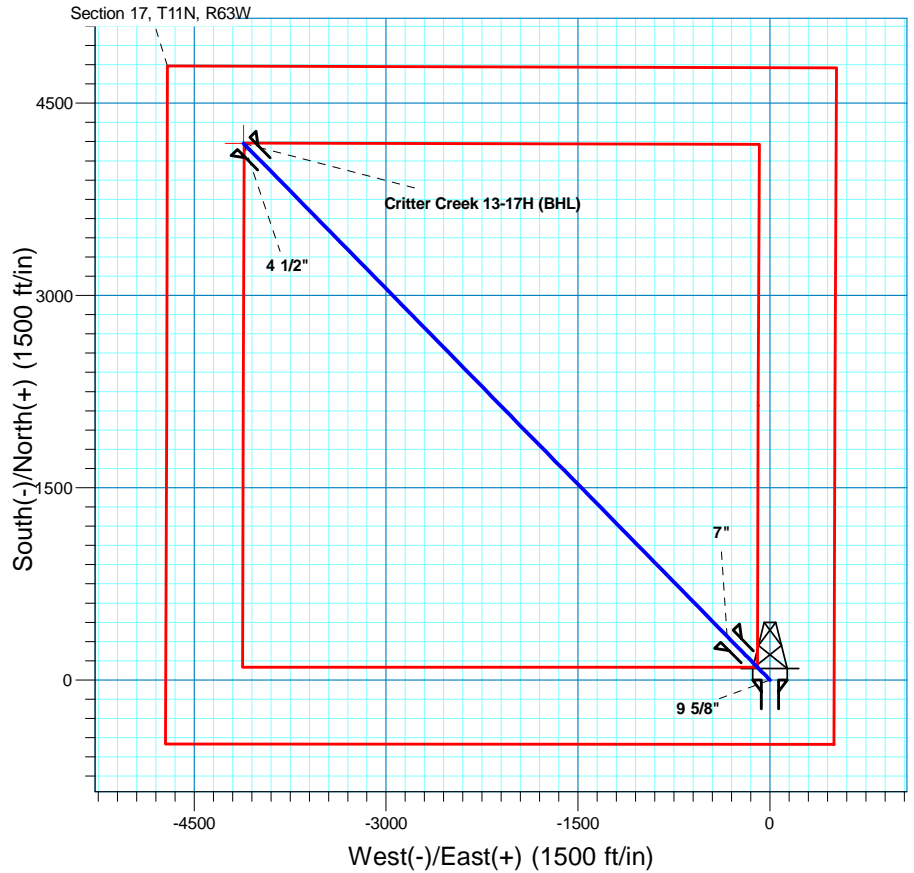
Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
1,330.0	1,330.0	9 5/8"	9-5/8	13-1/2	
7,685.5	7,413.0	7"	7	8-3/4	
13,075.7	7,413.0	4 1/2"	4-1/2	6-1/4	

Critter Creek 13-17H

Section 17 T11N R63W
Weld County, CO



Surface Location			
NAD 1927 (NADCON CONUS) Colorado North 501			
Ground Elevation: 5281.0 RIG @ 5306.0ft (TBD)			
Northing	Easting	Latitude	Longitude
578433.65	2290538.31	40° 54' 59.288 N	104° 26' 55.709 W



T M

Azimuths to True North
Magnetic North: 8.87°

Magnetic Field
Strength: 53586.9snT
Dip Angle: 67.57°
Date: 2/22/2010
Model: IGRF200510

Project: DJ - Hereford Ranch
Site: Critter Creek 13-17H
Well: Critter Creek 13-17H
Plan: APD

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	6935.5	0.00	0.00	6935.5	0.0	0.0	0.00	0.00	0.0	
3	7685.5	90.00	315.49	7413.0	340.5	-334.7	12.00	315.49	477.5	
4	13075.7	90.00	315.49	7413.0	4184.5	-4113.2	0.00	0.00	5867.6	Critter Creek 13-17H (BHL)

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
Critter Creek 13-17H (BHL)	7413.0	4184.5	-4113.2	582569.11	2286375.82	40° 55' 40.631 N	104° 27' 49.291 W	Point