



**D90 ENERGY LLC**

## **D90 Energy, LLC**

Jackson County, Colorado  
Sec 17, T7N, R80W, 6th PM  
Castle 0780 4-17H20

**Wellbore #1**

**Plan: Prelim #1**

## **KLX Well Planning Report**

**16 March, 2022**



**D90 Energy, LLC**  
**Jackson County, Colorado**  
**Sec 17, T7N, R80W, 6th PM**  
**Castle 0780 4-17H20**  
**Prelim #1**  
**26' kb**

# ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSec	Departure	Annotation
2000.0	0.00	0.00	2000.0	0.0	0.0	0.0	0.0	Build 3"/100'
2769.6	23.09	83.78	2748.9	16.6	152.1	-15.2	153.0	EOB @ 23.09° Inc. / 83.78° Azm
5899.4	23.09	83.78	5628.1	149.5	1372.1	-137.1	1380.3	Drop 3"/100'
6669.0	0.00	0.00	6377.0	166.1	1524.2	-152.3	1533.2	EOD @ Vert.
6869.0	0.00	0.00	6577.0	166.1	1524.2	-152.3	1533.2	Build 10"/100'
7769.0	90.00	179.48	7150.0	-406.8	1529.4	420.7	2106.2	EOB @ 90.00° Inc. / 179.48° Azm
17366.9	90.00	179.48	7150.0	-10004.4	1616.5	10018.6	11704.1	TD @ 17366.9' MD / 7150.0' TVD

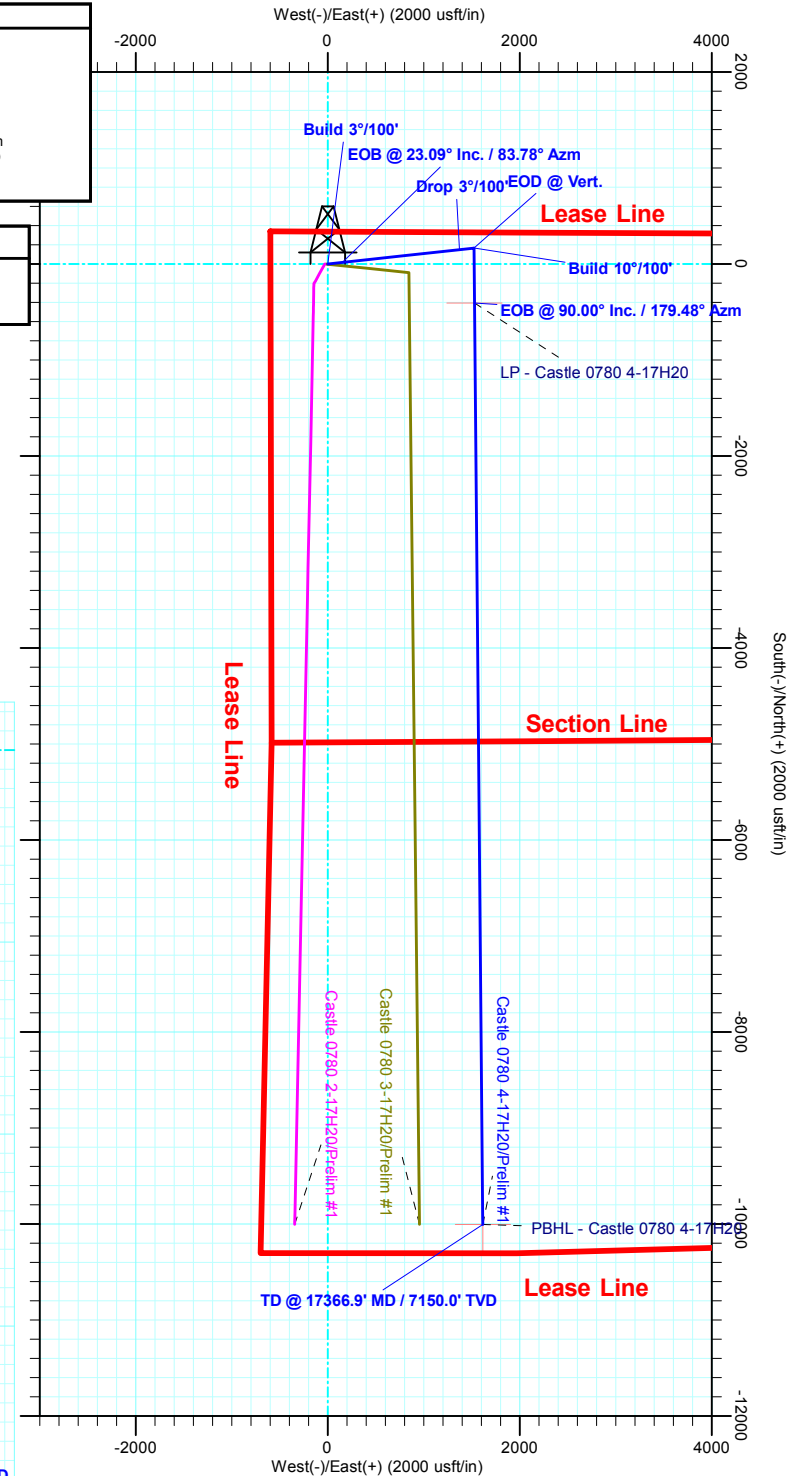
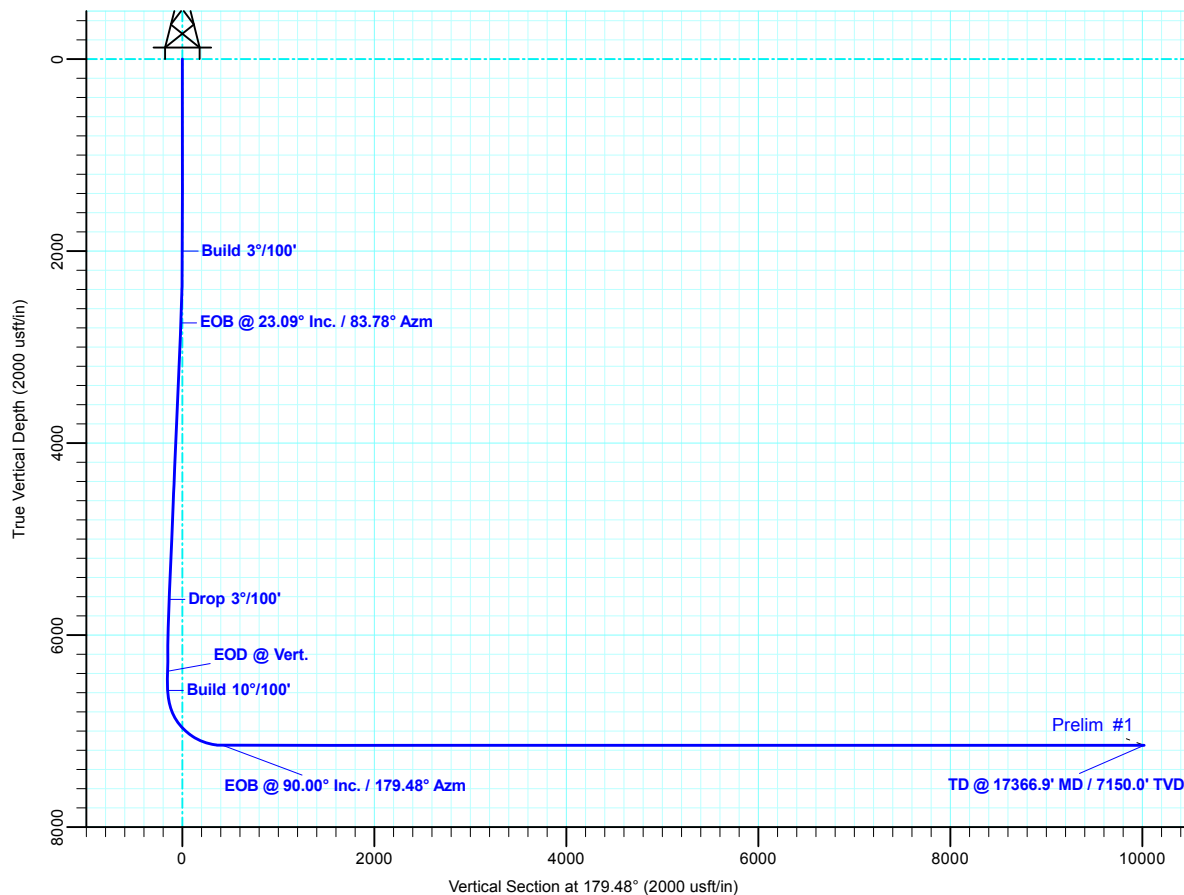
## PROJECT DETAILS: Jackson County, Colorado

**Geodetic System:** US State Plane 1983  
**Datum:** North American Datum 1983  
**Ellipsoid:** GRS 1980  
**Zone:** Colorado Northern Zone  
**System Datum:** Mean Sea Level

## WELL DETAILS: Castle 0780 4-17H20

+N/-S	+E/-W	North	East	Lat	Long
0.0	0.0	1456815.08	2748644.45	40.583835	-106.404970

**D90 ENERGY LLC**





<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well Castle 0780 4-17H20
<b>Company:</b>	D90 Energy, LLC	<b>TVD Reference:</b>	RKB @ 8175.0usft (26' kb)
<b>Project:</b>	Jackson County, Colorado	<b>MD Reference:</b>	RKB @ 8175.0usft (26' kb)
<b>Site:</b>	Sec 17, T7N, R80W, 6th PM	<b>North Reference:</b>	True
<b>Well:</b>	Castle 0780 4-17H20	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Prelim #1		

<b>Project</b>	Jackson County, Colorado		
<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		

<b>Site</b>	Sec 17, T7N, R80W, 6th PM		
<b>Site Position:</b>		<b>Northing:</b>	1,456,815.41 usft
<b>From:</b>	Map	<b>Easting:</b>	2,748,614.51 usft
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13-3/16 "
		<b>Latitude:</b>	40.583835
		<b>Longitude:</b>	-106.405078
		<b>Grid Convergence:</b>	-0.58 °

<b>Well</b>	Castle 0780 4-17H20		
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>
	<b>+E/-W</b>	29.9 usft	<b>Easting:</b>
<b>Position Uncertainty</b>	0.0 usft		<b>Wellhead Elevation:</b>
			<b>Latitude:</b>
			<b>Longitude:</b>
			<b>Ground Level:</b>

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	HDGM2022	3/16/2022	8.65	66.52	51,782.20000000

<b>Design</b>	Prelim #1			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	179.48

<b>Plan Sections</b>										
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>	<b>TFO (°)</b>	<b>Target</b>
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,769.6	23.09	83.78	2,748.9	16.6	152.1	3.00	3.00	0.00	83.78	
5,899.4	23.09	83.78	5,628.1	149.5	1,372.1	0.00	0.00	0.00	0.00	
6,669.0	0.00	0.00	6,377.0	166.1	1,524.2	3.00	-3.00	0.00	180.00	
6,869.0	0.00	0.00	6,577.0	166.1	1,524.2	0.00	0.00	0.00	0.00	
7,769.0	90.00	179.48	7,150.0	-406.8	1,529.4	10.00	10.00	0.00	179.48	
17,366.9	90.00	179.48	7,150.0	-10,004.4	1,616.5	0.00	0.00	0.00	0.00	PBHL - Castle 0780

<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well Castle 0780 4-17H20
<b>Company:</b>	D90 Energy, LLC	<b>TVD Reference:</b>	RKB @ 8175.0usft (26' kb)
<b>Project:</b>	Jackson County, Colorado	<b>MD Reference:</b>	RKB @ 8175.0usft (26' kb)
<b>Site:</b>	Sec 17, T7N, R80W, 6th PM	<b>North Reference:</b>	True
<b>Well:</b>	Castle 0780 4-17H20	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Prelim #1		

## Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
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
1,500.0	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
<b>Build 3°/100'</b>									
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	3.00	83.78	2,100.0	0.3	2.6	-0.3	3.00	3.00	0.00
2,200.0	6.00	83.78	2,199.6	1.1	10.4	-1.0	3.00	3.00	0.00
2,300.0	9.00	83.78	2,298.8	2.5	23.4	-2.3	3.00	3.00	0.00
2,400.0	12.00	83.78	2,397.1	4.5	41.5	-4.1	3.00	3.00	0.00
2,500.0	15.00	83.78	2,494.3	7.1	64.7	-6.5	3.00	3.00	0.00
2,600.0	18.00	83.78	2,590.2	10.1	92.9	-9.3	3.00	3.00	0.00
2,700.0	21.00	83.78	2,684.4	13.7	126.1	-12.6	3.00	3.00	0.00
<b>EOB @ 23.09° Inc. / 83.78° Azm</b>									
2,769.6	23.09	83.78	2,748.9	16.6	152.1	-15.2	3.00	3.00	0.00
2,800.0	23.09	83.78	2,776.9	17.9	163.9	-16.4	0.00	0.00	0.00
2,900.0	23.09	83.78	2,868.9	22.1	202.9	-20.3	0.00	0.00	0.00
3,000.0	23.09	83.78	2,960.9	26.4	241.9	-24.2	0.00	0.00	0.00
3,100.0	23.09	83.78	3,052.9	30.6	280.9	-28.1	0.00	0.00	0.00
3,200.0	23.09	83.78	3,144.9	34.9	319.9	-32.0	0.00	0.00	0.00
3,300.0	23.09	83.78	3,236.9	39.1	358.8	-35.8	0.00	0.00	0.00
3,400.0	23.09	83.78	3,328.9	43.4	397.8	-39.7	0.00	0.00	0.00
3,500.0	23.09	83.78	3,420.8	47.6	436.8	-43.6	0.00	0.00	0.00
3,600.0	23.09	83.78	3,512.8	51.8	475.8	-47.5	0.00	0.00	0.00
3,700.0	23.09	83.78	3,604.8	56.1	514.8	-51.4	0.00	0.00	0.00
3,800.0	23.09	83.78	3,696.8	60.3	553.7	-55.3	0.00	0.00	0.00
3,900.0	23.09	83.78	3,788.8	64.6	592.7	-59.2	0.00	0.00	0.00
4,000.0	23.09	83.78	3,880.8	68.8	631.7	-63.1	0.00	0.00	0.00
4,100.0	23.09	83.78	3,972.8	73.1	670.7	-67.0	0.00	0.00	0.00
4,200.0	23.09	83.78	4,064.8	77.3	709.7	-70.9	0.00	0.00	0.00
4,300.0	23.09	83.78	4,156.8	81.6	748.7	-74.8	0.00	0.00	0.00
4,400.0	23.09	83.78	4,248.8	85.8	787.6	-78.7	0.00	0.00	0.00
4,500.0	23.09	83.78	4,340.8	90.1	826.6	-82.6	0.00	0.00	0.00
4,600.0	23.09	83.78	4,432.7	94.3	865.6	-86.5	0.00	0.00	0.00
4,700.0	23.09	83.78	4,524.7	98.6	904.6	-90.4	0.00	0.00	0.00
4,800.0	23.09	83.78	4,616.7	102.8	943.6	-94.3	0.00	0.00	0.00
4,900.0	23.09	83.78	4,708.7	107.1	982.5	-98.2	0.00	0.00	0.00
5,000.0	23.09	83.78	4,800.7	111.3	1,021.5	-102.0	0.00	0.00	0.00

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<b>Project:</b>	Jackson County, Colorado	<b>MD Reference:</b>	RKB @ 8175.0usft (26' kb)
<b>Site:</b>	Sec 17, T7N, R80W, 6th PM	<b>North Reference:</b>	True
<b>Well:</b>	Castle 0780 4-17H20	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Prelim #1		

## Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,100.0	23.09	83.78	4,892.7	115.6	1,060.5	-105.9	0.00	0.00	0.00
5,200.0	23.09	83.78	4,984.7	119.8	1,099.5	-109.8	0.00	0.00	0.00
5,300.0	23.09	83.78	5,076.7	124.1	1,138.5	-113.7	0.00	0.00	0.00
5,400.0	23.09	83.78	5,168.7	128.3	1,177.5	-117.6	0.00	0.00	0.00
5,500.0	23.09	83.78	5,260.7	132.6	1,216.4	-121.5	0.00	0.00	0.00
5,600.0	23.09	83.78	5,352.7	136.8	1,255.4	-125.4	0.00	0.00	0.00
5,700.0	23.09	83.78	5,444.6	141.1	1,294.4	-129.3	0.00	0.00	0.00
5,800.0	23.09	83.78	5,536.6	145.3	1,333.4	-133.2	0.00	0.00	0.00
<b>Drop 3°/100'</b>									
5,899.4	23.09	83.78	5,628.1	149.5	1,372.1	-137.1	0.00	0.00	0.00
6,000.0	20.07	83.78	5,721.6	153.5	1,408.9	-140.7	3.00	-3.00	0.00
6,100.0	17.07	83.78	5,816.4	157.0	1,440.6	-143.9	3.00	-3.00	0.00
6,200.0	14.07	83.78	5,912.7	159.9	1,467.2	-146.6	3.00	-3.00	0.00
6,300.0	11.07	83.78	6,010.3	162.3	1,488.9	-148.7	3.00	-3.00	0.00
6,400.0	8.07	83.78	6,108.9	164.1	1,505.4	-150.4	3.00	-3.00	0.00
6,500.0	5.07	83.78	6,208.2	165.3	1,516.8	-151.5	3.00	-3.00	0.00
6,600.0	2.07	83.78	6,308.0	166.0	1,523.0	-152.1	3.00	-3.00	0.00
<b>EOD @ Vert.</b>									
6,669.0	0.00	0.00	6,377.0	166.1	1,524.2	-152.3	3.00	-3.00	0.00
6,700.0	0.00	0.00	6,408.0	166.1	1,524.2	-152.3	0.00	0.00	0.00
6,800.0	0.00	0.00	6,508.0	166.1	1,524.2	-152.3	0.00	0.00	0.00
<b>Build 10°/100'</b>									
6,869.0	0.00	0.00	6,577.0	166.1	1,524.2	-152.3	0.00	0.00	0.00
6,900.0	3.10	179.48	6,608.0	165.3	1,524.2	-151.4	10.00	10.00	0.00
6,950.0	8.10	179.48	6,657.7	160.4	1,524.3	-146.5	10.00	10.00	0.00
7,000.0	13.10	179.48	6,706.9	151.2	1,524.3	-137.3	10.00	10.00	0.00
7,050.0	18.10	179.48	6,755.0	137.7	1,524.5	-123.9	10.00	10.00	0.00
7,100.0	23.10	179.48	6,801.8	120.2	1,524.6	-106.3	10.00	10.00	0.00
7,150.0	28.10	179.48	6,846.9	98.6	1,524.8	-84.7	10.00	10.00	0.00
7,200.0	33.10	179.48	6,889.9	73.1	1,525.0	-59.3	10.00	10.00	0.00
7,250.0	38.10	179.48	6,930.5	44.0	1,525.3	-30.2	10.00	10.00	0.00
7,300.0	43.10	179.48	6,968.5	11.5	1,525.6	2.4	10.00	10.00	0.00
7,350.0	48.10	179.48	7,003.5	-24.2	1,525.9	38.1	10.00	10.00	0.00
7,400.0	53.10	179.48	7,035.2	-62.8	1,526.3	76.7	10.00	10.00	0.00
7,450.0	58.10	179.48	7,063.4	-104.1	1,526.7	117.9	10.00	10.00	0.00
7,500.0	63.10	179.48	7,088.0	-147.6	1,527.0	161.5	10.00	10.00	0.00
7,550.0	68.10	179.48	7,108.6	-193.2	1,527.5	207.0	10.00	10.00	0.00
7,600.0	73.10	179.48	7,125.2	-240.3	1,527.9	254.2	10.00	10.00	0.00
7,650.0	78.10	179.48	7,137.6	-288.7	1,528.3	302.6	10.00	10.00	0.00
7,700.0	83.10	179.48	7,145.8	-338.0	1,528.8	351.9	10.00	10.00	0.00
7,750.0	88.10	179.48	7,149.6	-387.9	1,529.2	401.7	10.00	10.00	0.00
<b>EOB @ 90.00° Inc. / 179.48° Azm</b>									
7,769.0	90.00	179.48	7,150.0	-406.8	1,529.4	420.7	10.00	10.00	0.00
7,800.0	90.00	179.48	7,150.0	-437.9	1,529.7	451.7	0.00	0.00	0.00
7,900.0	90.00	179.48	7,150.0	-537.8	1,530.6	551.7	0.00	0.00	0.00
8,000.0	90.00	179.48	7,150.0	-637.8	1,531.5	651.7	0.00	0.00	0.00
8,100.0	90.00	179.48	7,150.0	-737.8	1,532.4	751.7	0.00	0.00	0.00
8,200.0	90.00	179.48	7,150.0	-837.8	1,533.3	851.7	0.00	0.00	0.00
8,300.0	90.00	179.48	7,150.0	-937.8	1,534.2	951.7	0.00	0.00	0.00
8,400.0	90.00	179.48	7,150.0	-1,037.8	1,535.1	1,051.7	0.00	0.00	0.00
8,500.0	90.00	179.48	7,150.0	-1,137.8	1,536.0	1,151.7	0.00	0.00	0.00
8,600.0	90.00	179.48	7,150.0	-1,237.8	1,536.9	1,251.7	0.00	0.00	0.00
8,700.0	90.00	179.48	7,150.0	-1,337.8	1,537.8	1,351.7	0.00	0.00	0.00

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<b>Project:</b>	Jackson County, Colorado	<b>MD Reference:</b>	RKB @ 8175.0usft (26' kb)
<b>Site:</b>	Sec 17, T7N, R80W, 6th PM	<b>North Reference:</b>	True
<b>Well:</b>	Castle 0780 4-17H20	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Prelim #1		

## Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,800.0	90.00	179.48	7,150.0	-1,437.8	1,538.8	1,451.7	0.00	0.00	0.00
8,900.0	90.00	179.48	7,150.0	-1,537.8	1,539.7	1,551.7	0.00	0.00	0.00
9,000.0	90.00	179.48	7,150.0	-1,637.8	1,540.6	1,651.7	0.00	0.00	0.00
9,100.0	90.00	179.48	7,150.0	-1,737.8	1,541.5	1,751.7	0.00	0.00	0.00
9,200.0	90.00	179.48	7,150.0	-1,837.8	1,542.4	1,851.7	0.00	0.00	0.00
9,300.0	90.00	179.48	7,150.0	-1,937.8	1,543.3	1,951.7	0.00	0.00	0.00
9,400.0	90.00	179.48	7,150.0	-2,037.8	1,544.2	2,051.7	0.00	0.00	0.00
9,500.0	90.00	179.48	7,150.0	-2,137.8	1,545.1	2,151.7	0.00	0.00	0.00
9,600.0	90.00	179.48	7,150.0	-2,237.8	1,546.0	2,251.7	0.00	0.00	0.00
9,700.0	90.00	179.48	7,150.0	-2,337.8	1,546.9	2,351.7	0.00	0.00	0.00
9,800.0	90.00	179.48	7,150.0	-2,437.8	1,547.8	2,451.7	0.00	0.00	0.00
9,900.0	90.00	179.48	7,150.0	-2,537.8	1,548.7	2,551.7	0.00	0.00	0.00
10,000.0	90.00	179.48	7,150.0	-2,637.8	1,549.6	2,651.7	0.00	0.00	0.00
10,100.0	90.00	179.48	7,150.0	-2,737.8	1,550.6	2,751.7	0.00	0.00	0.00
10,200.0	90.00	179.48	7,150.0	-2,837.8	1,551.5	2,851.7	0.00	0.00	0.00
10,300.0	90.00	179.48	7,150.0	-2,937.7	1,552.4	2,951.7	0.00	0.00	0.00
10,400.0	90.00	179.48	7,150.0	-3,037.7	1,553.3	3,051.7	0.00	0.00	0.00
10,500.0	90.00	179.48	7,150.0	-3,137.7	1,554.2	3,151.7	0.00	0.00	0.00
10,600.0	90.00	179.48	7,150.0	-3,237.7	1,555.1	3,251.7	0.00	0.00	0.00
10,700.0	90.00	179.48	7,150.0	-3,337.7	1,556.0	3,351.7	0.00	0.00	0.00
10,800.0	90.00	179.48	7,150.0	-3,437.7	1,556.9	3,451.7	0.00	0.00	0.00
10,900.0	90.00	179.48	7,150.0	-3,537.7	1,557.8	3,551.7	0.00	0.00	0.00
11,000.0	90.00	179.48	7,150.0	-3,637.7	1,558.7	3,651.7	0.00	0.00	0.00
11,100.0	90.00	179.48	7,150.0	-3,737.7	1,559.6	3,751.7	0.00	0.00	0.00
11,200.0	90.00	179.48	7,150.0	-3,837.7	1,560.5	3,851.7	0.00	0.00	0.00
11,300.0	90.00	179.48	7,150.0	-3,937.7	1,561.4	3,951.7	0.00	0.00	0.00
11,400.0	90.00	179.48	7,150.0	-4,037.7	1,562.4	4,051.7	0.00	0.00	0.00
11,500.0	90.00	179.48	7,150.0	-4,137.7	1,563.3	4,151.7	0.00	0.00	0.00
11,600.0	90.00	179.48	7,150.0	-4,237.7	1,564.2	4,251.7	0.00	0.00	0.00
11,700.0	90.00	179.48	7,150.0	-4,337.7	1,565.1	4,351.7	0.00	0.00	0.00
11,800.0	90.00	179.48	7,150.0	-4,437.7	1,566.0	4,451.7	0.00	0.00	0.00
11,900.0	90.00	179.48	7,150.0	-4,537.7	1,566.9	4,551.7	0.00	0.00	0.00
12,000.0	90.00	179.48	7,150.0	-4,637.7	1,567.8	4,651.7	0.00	0.00	0.00
12,100.0	90.00	179.48	7,150.0	-4,737.7	1,568.7	4,751.7	0.00	0.00	0.00
12,200.0	90.00	179.48	7,150.0	-4,837.7	1,569.6	4,851.7	0.00	0.00	0.00
12,300.0	90.00	179.48	7,150.0	-4,937.7	1,570.5	4,951.7	0.00	0.00	0.00
12,400.0	90.00	179.48	7,150.0	-5,037.7	1,571.4	5,051.7	0.00	0.00	0.00
12,500.0	90.00	179.48	7,150.0	-5,137.7	1,572.3	5,151.7	0.00	0.00	0.00
12,600.0	90.00	179.48	7,150.0	-5,237.7	1,573.2	5,251.7	0.00	0.00	0.00
12,700.0	90.00	179.48	7,150.0	-5,337.6	1,574.2	5,351.7	0.00	0.00	0.00
12,800.0	90.00	179.48	7,150.0	-5,437.6	1,575.1	5,451.7	0.00	0.00	0.00
12,900.0	90.00	179.48	7,150.0	-5,537.6	1,576.0	5,551.7	0.00	0.00	0.00
13,000.0	90.00	179.48	7,150.0	-5,637.6	1,576.9	5,651.7	0.00	0.00	0.00
13,100.0	90.00	179.48	7,150.0	-5,737.6	1,577.8	5,751.7	0.00	0.00	0.00
13,200.0	90.00	179.48	7,150.0	-5,837.6	1,578.7	5,851.7	0.00	0.00	0.00
13,300.0	90.00	179.48	7,150.0	-5,937.6	1,579.6	5,951.7	0.00	0.00	0.00
13,400.0	90.00	179.48	7,150.0	-6,037.6	1,580.5	6,051.7	0.00	0.00	0.00
13,500.0	90.00	179.48	7,150.0	-6,137.6	1,581.4	6,151.7	0.00	0.00	0.00
13,600.0	90.00	179.48	7,150.0	-6,237.6	1,582.3	6,251.7	0.00	0.00	0.00
13,700.0	90.00	179.48	7,150.0	-6,337.6	1,583.2	6,351.7	0.00	0.00	0.00
13,800.0	90.00	179.48	7,150.0	-6,437.6	1,584.1	6,451.7	0.00	0.00	0.00
13,900.0	90.00	179.48	7,150.0	-6,537.6	1,585.0	6,551.7	0.00	0.00	0.00
14,000.0	90.00	179.48	7,150.0	-6,637.6	1,586.0	6,651.7	0.00	0.00	0.00
14,100.0	90.00	179.48	7,150.0	-6,737.6	1,586.9	6,751.7	0.00	0.00	0.00



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well Castle 0780 4-17H20
<b>Company:</b>	D90 Energy, LLC	<b>TVD Reference:</b>	RKB @ 8175.0usft (26' kb)
<b>Project:</b>	Jackson County, Colorado	<b>MD Reference:</b>	RKB @ 8175.0usft (26' kb)
<b>Site:</b>	Sec 17, T7N, R80W, 6th PM	<b>North Reference:</b>	True
<b>Well:</b>	Castle 0780 4-17H20	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Prelim #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
14,200.0	90.00	179.48	7,150.0	-6,837.6	1,587.8	6,851.7	0.00	0.00	0.00
14,300.0	90.00	179.48	7,150.0	-6,937.6	1,588.7	6,951.7	0.00	0.00	0.00
14,400.0	90.00	179.48	7,150.0	-7,037.6	1,589.6	7,051.7	0.00	0.00	0.00
14,500.0	90.00	179.48	7,150.0	-7,137.6	1,590.5	7,151.7	0.00	0.00	0.00
14,600.0	90.00	179.48	7,150.0	-7,237.6	1,591.4	7,251.7	0.00	0.00	0.00
14,700.0	90.00	179.48	7,150.0	-7,337.6	1,592.3	7,351.7	0.00	0.00	0.00
14,800.0	90.00	179.48	7,150.0	-7,437.6	1,593.2	7,451.7	0.00	0.00	0.00
14,900.0	90.00	179.48	7,150.0	-7,537.6	1,594.1	7,551.7	0.00	0.00	0.00
15,000.0	90.00	179.48	7,150.0	-7,637.6	1,595.0	7,651.7	0.00	0.00	0.00
15,100.0	90.00	179.48	7,150.0	-7,737.6	1,595.9	7,751.7	0.00	0.00	0.00
15,200.0	90.00	179.48	7,150.0	-7,837.5	1,596.8	7,851.7	0.00	0.00	0.00
15,300.0	90.00	179.48	7,150.0	-7,937.5	1,597.7	7,951.7	0.00	0.00	0.00
15,400.0	90.00	179.48	7,150.0	-8,037.5	1,598.7	8,051.7	0.00	0.00	0.00
15,500.0	90.00	179.48	7,150.0	-8,137.5	1,599.6	8,151.7	0.00	0.00	0.00
15,600.0	90.00	179.48	7,150.0	-8,237.5	1,600.5	8,251.7	0.00	0.00	0.00
15,700.0	90.00	179.48	7,150.0	-8,337.5	1,601.4	8,351.7	0.00	0.00	0.00
15,800.0	90.00	179.48	7,150.0	-8,437.5	1,602.3	8,451.7	0.00	0.00	0.00
15,900.0	90.00	179.48	7,150.0	-8,537.5	1,603.2	8,551.7	0.00	0.00	0.00
16,000.0	90.00	179.48	7,150.0	-8,637.5	1,604.1	8,651.7	0.00	0.00	0.00
16,100.0	90.00	179.48	7,150.0	-8,737.5	1,605.0	8,751.7	0.00	0.00	0.00
16,200.0	90.00	179.48	7,150.0	-8,837.5	1,605.9	8,851.7	0.00	0.00	0.00
16,300.0	90.00	179.48	7,150.0	-8,937.5	1,606.8	8,951.7	0.00	0.00	0.00
16,400.0	90.00	179.48	7,150.0	-9,037.5	1,607.7	9,051.7	0.00	0.00	0.00
16,500.0	90.00	179.48	7,150.0	-9,137.5	1,608.6	9,151.7	0.00	0.00	0.00
16,600.0	90.00	179.48	7,150.0	-9,237.5	1,609.5	9,251.7	0.00	0.00	0.00
16,700.0	90.00	179.48	7,150.0	-9,337.5	1,610.5	9,351.7	0.00	0.00	0.00
16,800.0	90.00	179.48	7,150.0	-9,437.5	1,611.4	9,451.7	0.00	0.00	0.00
16,900.0	90.00	179.48	7,150.0	-9,537.5	1,612.3	9,551.7	0.00	0.00	0.00
17,000.0	90.00	179.48	7,150.0	-9,637.5	1,613.2	9,651.7	0.00	0.00	0.00
17,100.0	90.00	179.48	7,150.0	-9,737.5	1,614.1	9,751.7	0.00	0.00	0.00
17,200.0	90.00	179.48	7,150.0	-9,837.5	1,615.0	9,851.7	0.00	0.00	0.00
17,300.0	90.00	179.48	7,150.0	-9,937.5	1,615.9	9,951.7	0.00	0.00	0.00
TD @ 17366.9' MD / 7150.0' TVD									
17,366.9	90.00	179.48	7,150.0	-10,004.4	1,616.5	10,018.6	0.00	0.00	0.00

Design Targets									
Target Name									
- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- Shape									
PBHL - Castle 0780 4	0.00	0.00	0.0	-10,004.4	1,616.8	1,446,794.73	2,750,159.04	40.556374	-106.399151
- plan misses target center by 7150.0usft at 17366.9usft MD (7150.0 TVD, -10004.4 N, 1616.5 E)									
- Point									
LP - Castle 0780 4-17	0.00	0.00	0.0	-406.8	1,529.4	1,456,392.70	2,750,169.57	40.582719	-106.399464
- plan misses target center by 1582.5usft at 0.0usft MD (0.0 TVD, 0.0 N, 0.0 E)									
- Point									



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well Castle 0780 4-17H20
<b>Company:</b>	D90 Energy, LLC	<b>TVD Reference:</b>	RKB @ 8175.0usft (26' kb)
<b>Project:</b>	Jackson County, Colorado	<b>MD Reference:</b>	RKB @ 8175.0usft (26' kb)
<b>Site:</b>	Sec 17, T7N, R80W, 6th PM	<b>North Reference:</b>	True
<b>Well:</b>	Castle 0780 4-17H20	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Prelim #1		

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
2,000.0	2,000.0	0.0	0.0	Build 3°/100'
2,769.6	2,748.9	16.6	152.1	EOB @ 23.09° Inc. / 83.78° Azm
5,899.4	5,628.1	149.5	1,372.1	Drop 3°/100'
6,669.0	6,377.0	166.1	1,524.2	EOD @ Vert.
6,869.0	6,577.0	166.1	1,524.2	Build 10°/100'
7,769.0	7,150.0	-406.8	1,529.4	EOB @ 90.00° Inc. / 179.48° Azm
17,366.9	7,150.0	-10,004.4	1,616.5	TD @ 17366.9' MD / 7150.0' TVD