

Edge Energy LLC
Weld County, Colorado
Judy 34-33
Judy 34-03-07
rev1

Judy 34-03-07
 Surf Loc: 600 FSL 1015 FWL Sec34-T1N-R65W

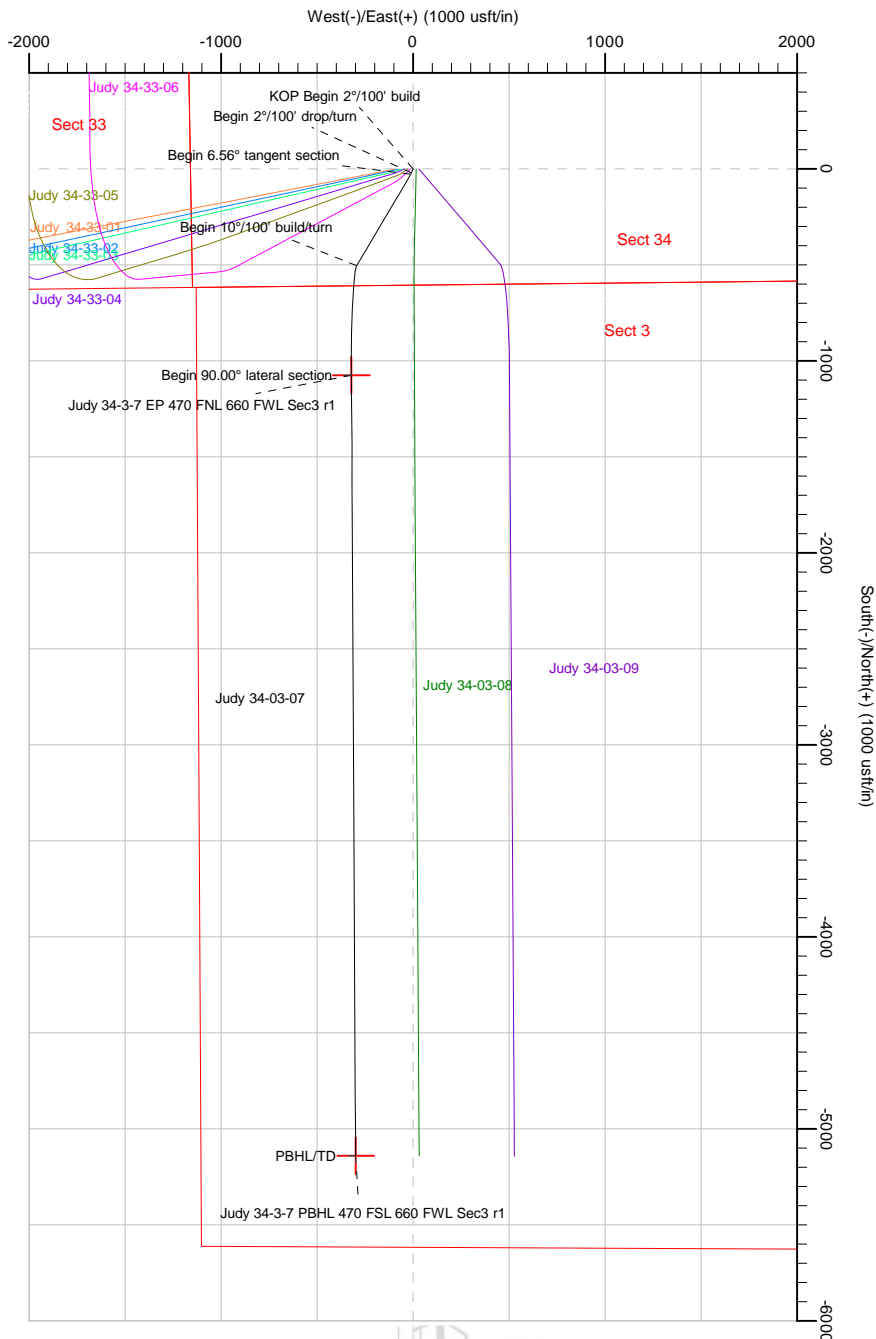
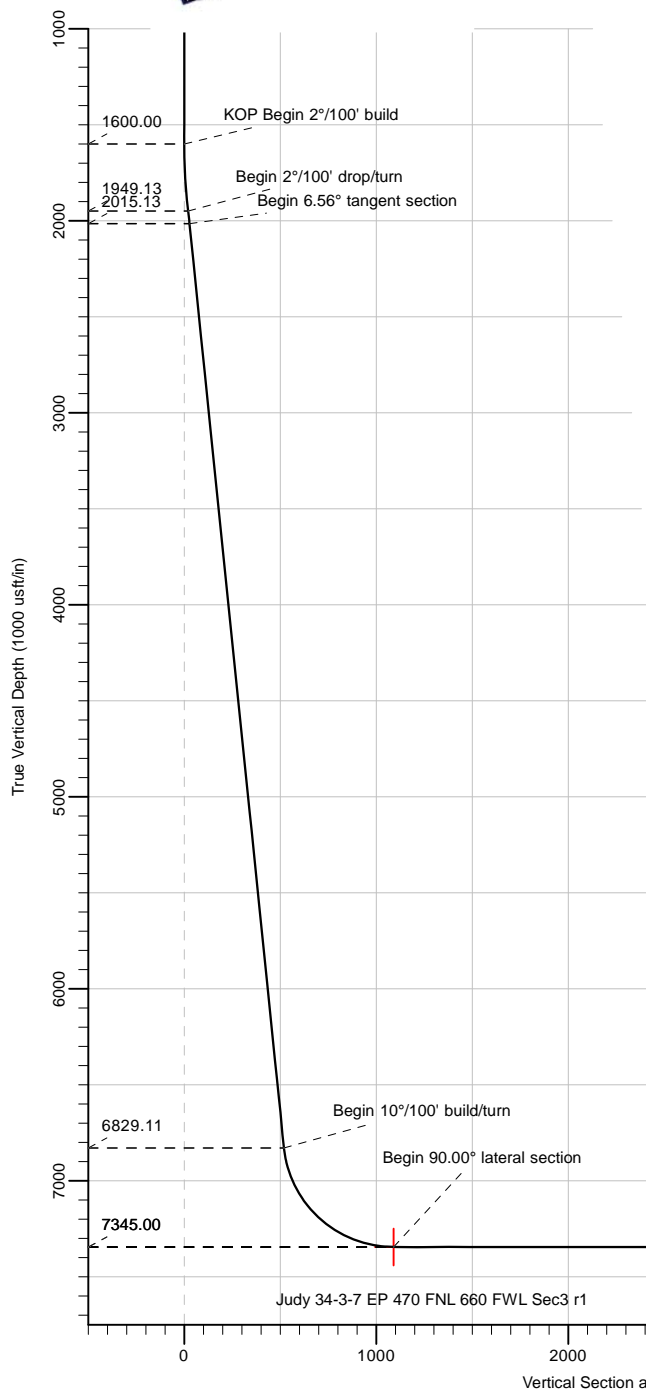
Azimuth Corrections:

To convert a Magnetic Direction to a Grid Direction, Add 7.66°



Azimuths to Grid North
 True North: -0.55°
 Magnetic North: 7.66°
 Magnetic Field
 Strength: 52285.9snT
 Dip Angle: 66.57°
 Date: 8/25/2016
 Model: IGRF2015

US State Plane 1983
 North American Datum 1983
 GRS 1980
 Colorado Northern Zone
 Mean Sea Level



Section Details

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	VSec	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	1600.00	0.00	0.00	1600.00	0.00	0.00	0.00	0.00	KOP Begin 2°/100' build
3	1950.00	7.00	200.00	1949.13	-20.07	-7.30	2.00	20.46	Begin 2°/100' drop/turn
4	2016.47	6.56	210.66	2015.13	-27.14	-10.63	2.00	27.71	Begin 6.56° tangent section
5	6862.21	6.56	210.66	6829.11	-503.69	-293.08	0.00	519.84	Begin 10°/100' build/turn
6	7705.96	90.00	179.69	7345.00	-1074.04	-320.54	10.00	1090.83	Begin 90.00° lateral section
7	11771.29	90.00	179.69	7345.00	-5139.31	-298.55	0.00	5147.98	PBHL/TD

RKB Elevation: RKB=5139+16 @ 5155.00usft

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	244773.61	3236458.04	40.00219994	-104.65593000	

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape Point
Judy 34-3-7 EP 470 FNL 660 FWL Sec3 r1	7345.00	-1074.04	-320.38	243699.57	3236137.67	Point
Judy 34-3-7 PBHL 470 FSL 660 FWL Sec3 r1	7345.00	-5139.31	-298.55	239634.30	3236159.50	Point

Planning Report

Database:	DB Jul2216dt	Local Co-ordinate Reference:	Well Judy 34-03-07
Company:	Edge Energy LLC	TVD Reference:	RKB=5139+16 @ 5155.00usft
Project:	Weld County, Colorado	MD Reference:	RKB=5139+16 @ 5155.00usft
Site:	Judy 34-33	North Reference:	Grid
Well:	Judy 34-03-07	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev1		

Project	Weld County, Colorado		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site	Judy 34-33				
Site Position:		Northing:	1,244,772.77 usft	Latitude:	40.00220000
From:	Lat/Long	Easting:	3,236,368.40 usft	Longitude:	-104.65625000
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.55 °

Well	Judy 34-03-07, Surf Loc: 600 FSL 1015 FEL Sec34-T1N-R65W					
Well Position	+N-S	0.84 usft	Northing:	1,244,773.61 usft	Latitude:	40.00219995
	+E-W	89.64 usft	Easting:	3,236,458.05 usft	Longitude:	-104.65593000
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	5,139.00 usft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	8/25/2016	8.21	66.57	52,286

Design	rev1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	183.32

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,950.00	7.00	200.00	1,949.13	-20.07	-7.30	2.00	2.00	0.00	200.00	
2,016.47	6.56	210.66	2,015.13	-27.14	-10.63	2.00	-0.66	16.03	114.33	
6,862.21	6.56	210.66	6,829.11	-503.69	-293.08	0.00	0.00	0.00	0.00	
7,705.96	90.00	179.69	7,345.00	-1,074.04	-320.54	10.00	9.89	-3.67	-31.13	
11,771.29	90.00	179.69	7,345.00	-5,139.31	-298.55	0.00	0.00	0.00	0.00	Judy 34-3-7 PBHL 47'

Planning Report

Database:	DB Jul2216dt	Local Co-ordinate Reference:	Well Judy 34-03-07
Company:	Edge Energy LLC	TVD Reference:	RKB=5139+16 @ 5155.00usft
Project:	Weld County, Colorado	MD Reference:	RKB=5139+16 @ 5155.00usft
Site:	Judy 34-33	North Reference:	Grid
Well:	Judy 34-03-07	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev1		

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)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP Begin 2°/100' build									
1,700.00	2.00	200.00	1,699.98	-1.64	-0.60	1.67	2.00	2.00	0.00
1,800.00	4.00	200.00	1,799.84	-6.56	-2.39	6.69	2.00	2.00	0.00
1,900.00	6.00	200.00	1,899.45	-14.75	-5.37	15.03	2.00	2.00	0.00
1,950.00	7.00	200.00	1,949.13	-20.07	-7.30	20.46	2.00	2.00	0.00
Begin 2°/100' drop/turn									
2,000.00	6.65	207.89	1,998.78	-25.49	-9.70	26.01	2.00	-0.70	15.78
2,016.47	6.56	210.66	2,015.13	-27.14	-10.63	27.71	2.00	-0.52	16.78
Begin 6.56° tangent section									
2,100.00	6.56	210.66	2,098.12	-35.36	-15.50	36.19	0.00	0.00	0.00
2,200.00	6.56	210.66	2,197.46	-45.19	-21.32	46.35	0.00	0.00	0.00
2,300.00	6.56	210.66	2,296.81	-55.02	-27.15	56.51	0.00	0.00	0.00
2,400.00	6.56	210.66	2,396.15	-64.86	-32.98	66.66	0.00	0.00	0.00
2,500.00	6.56	210.66	2,495.50	-74.69	-38.81	76.82	0.00	0.00	0.00
2,600.00	6.56	210.66	2,594.84	-84.53	-44.64	86.97	0.00	0.00	0.00
2,700.00	6.56	210.66	2,694.19	-94.36	-50.47	97.13	0.00	0.00	0.00
2,800.00	6.56	210.66	2,793.53	-104.20	-56.30	107.29	0.00	0.00	0.00
2,900.00	6.56	210.66	2,892.87	-114.03	-62.13	117.44	0.00	0.00	0.00
3,000.00	6.56	210.66	2,992.22	-123.86	-67.96	127.60	0.00	0.00	0.00
3,100.00	6.56	210.66	3,091.56	-133.70	-73.78	137.75	0.00	0.00	0.00
3,200.00	6.56	210.66	3,190.91	-143.53	-79.61	147.91	0.00	0.00	0.00
3,300.00	6.56	210.66	3,290.25	-153.37	-85.44	158.06	0.00	0.00	0.00
3,400.00	6.56	210.66	3,389.60	-163.20	-91.27	168.22	0.00	0.00	0.00
3,500.00	6.56	210.66	3,488.94	-173.04	-97.10	178.38	0.00	0.00	0.00
3,600.00	6.56	210.66	3,588.29	-182.87	-102.93	188.53	0.00	0.00	0.00
3,700.00	6.56	210.66	3,687.63	-192.71	-108.76	198.69	0.00	0.00	0.00
3,800.00	6.56	210.66	3,786.97	-202.54	-114.59	208.84	0.00	0.00	0.00
3,900.00	6.56	210.66	3,886.32	-212.37	-120.42	219.00	0.00	0.00	0.00
4,000.00	6.56	210.66	3,985.66	-222.21	-126.24	229.16	0.00	0.00	0.00
4,100.00	6.56	210.66	4,085.01	-232.04	-132.07	239.31	0.00	0.00	0.00
4,200.00	6.56	210.66	4,184.35	-241.88	-137.90	249.47	0.00	0.00	0.00
4,300.00	6.56	210.66	4,283.70	-251.71	-143.73	259.62	0.00	0.00	0.00
4,400.00	6.56	210.66	4,383.04	-261.55	-149.56	269.78	0.00	0.00	0.00
4,500.00	6.56	210.66	4,482.39	-271.38	-155.39	279.93	0.00	0.00	0.00
4,600.00	6.56	210.66	4,581.73	-281.21	-161.22	290.09	0.00	0.00	0.00
4,700.00	6.56	210.66	4,681.07	-291.05	-167.05	300.25	0.00	0.00	0.00

Planning Report

Database:	DB Jul2216dt	Local Co-ordinate Reference:	Well Judy 34-03-07
Company:	Edge Energy LLC	TVD Reference:	RKB=5139+16 @ 5155.00usft
Project:	Weld County, Colorado	MD Reference:	RKB=5139+16 @ 5155.00usft
Site:	Judy 34-33	North Reference:	Grid
Well:	Judy 34-03-07	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev1		

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)
4,800.00	6.56	210.66	4,780.42	-300.88	-172.88	310.40	0.00	0.00	0.00
4,900.00	6.56	210.66	4,879.76	-310.72	-178.71	320.56	0.00	0.00	0.00
5,000.00	6.56	210.66	4,979.11	-320.55	-184.53	330.71	0.00	0.00	0.00
5,100.00	6.56	210.66	5,078.45	-330.39	-190.36	340.87	0.00	0.00	0.00
5,200.00	6.56	210.66	5,177.80	-340.22	-196.19	351.03	0.00	0.00	0.00
5,300.00	6.56	210.66	5,277.14	-350.06	-202.02	361.18	0.00	0.00	0.00
5,400.00	6.56	210.66	5,376.48	-359.89	-207.85	371.34	0.00	0.00	0.00
5,500.00	6.56	210.66	5,475.83	-369.72	-213.68	381.49	0.00	0.00	0.00
5,600.00	6.56	210.66	5,575.17	-379.56	-219.51	391.65	0.00	0.00	0.00
5,700.00	6.56	210.66	5,674.52	-389.39	-225.34	401.81	0.00	0.00	0.00
5,800.00	6.56	210.66	5,773.86	-399.23	-231.17	411.96	0.00	0.00	0.00
5,900.00	6.56	210.66	5,873.21	-409.06	-236.99	422.12	0.00	0.00	0.00
6,000.00	6.56	210.66	5,972.55	-418.90	-242.82	432.27	0.00	0.00	0.00
6,100.00	6.56	210.66	6,071.90	-428.73	-248.65	442.43	0.00	0.00	0.00
6,200.00	6.56	210.66	6,171.24	-438.56	-254.48	452.58	0.00	0.00	0.00
6,300.00	6.56	210.66	6,270.58	-448.40	-260.31	462.74	0.00	0.00	0.00
6,400.00	6.56	210.66	6,369.93	-458.23	-266.14	472.90	0.00	0.00	0.00
6,500.00	6.56	210.66	6,469.27	-468.07	-271.97	483.05	0.00	0.00	0.00
6,600.00	6.56	210.66	6,568.62	-477.90	-277.80	493.21	0.00	0.00	0.00
6,700.00	6.56	210.66	6,667.96	-487.74	-283.63	503.36	0.00	0.00	0.00
6,800.00	6.56	210.66	6,767.31	-497.57	-289.46	513.52	0.00	0.00	0.00
6,862.21	6.56	210.66	6,829.11	-503.69	-293.08	519.84	0.00	0.00	0.00
Begin 10°/100' build/turn									
6,900.00	9.99	199.33	6,866.50	-508.64	-295.27	524.91	10.00	9.07	-29.97
7,000.00	19.69	189.22	6,963.07	-533.52	-300.85	550.07	10.00	9.70	-10.11
7,100.00	29.58	185.68	7,053.86	-574.81	-306.00	591.59	10.00	9.89	-3.54
7,200.00	39.53	183.81	7,136.12	-631.27	-310.57	648.22	10.00	9.94	-1.87
7,300.00	49.49	182.59	7,207.34	-701.17	-314.41	718.23	10.00	9.96	-1.22
7,400.00	59.46	181.69	7,265.37	-782.40	-317.40	799.49	10.00	9.97	-0.90
7,500.00	69.44	180.96	7,308.44	-872.48	-319.47	889.54	10.00	9.98	-0.73
7,600.00	79.42	180.32	7,335.25	-968.69	-320.53	985.65	10.00	9.98	-0.64
7,700.00	89.41	179.73	7,344.97	-1,068.09	-320.57	1,084.88	10.00	9.98	-0.60
7,705.96	90.00	179.69	7,345.00	-1,074.04	-320.54	1,090.83	10.00	9.98	-0.59
Begin 90.00° lateral section									
7,800.00	90.00	179.69	7,345.00	-1,168.09	-320.03	1,184.68	0.00	0.00	0.00
7,900.00	90.00	179.69	7,345.00	-1,268.08	-319.49	1,284.48	0.00	0.00	0.00
8,000.00	90.00	179.69	7,345.00	-1,368.08	-318.95	1,384.28	0.00	0.00	0.00
8,100.00	90.00	179.69	7,345.00	-1,468.08	-318.41	1,484.08	0.00	0.00	0.00
8,200.00	90.00	179.69	7,345.00	-1,568.08	-317.87	1,583.87	0.00	0.00	0.00
8,300.00	90.00	179.69	7,345.00	-1,668.08	-317.33	1,683.67	0.00	0.00	0.00
8,400.00	90.00	179.69	7,345.00	-1,768.08	-316.79	1,783.47	0.00	0.00	0.00
8,500.00	90.00	179.69	7,345.00	-1,868.08	-316.24	1,883.27	0.00	0.00	0.00
8,600.00	90.00	179.69	7,345.00	-1,968.07	-315.70	1,983.07	0.00	0.00	0.00
8,700.00	90.00	179.69	7,345.00	-2,068.07	-315.16	2,082.87	0.00	0.00	0.00
8,800.00	90.00	179.69	7,345.00	-2,168.07	-314.62	2,182.67	0.00	0.00	0.00
8,900.00	90.00	179.69	7,345.00	-2,268.07	-314.08	2,282.47	0.00	0.00	0.00
9,000.00	90.00	179.69	7,345.00	-2,368.07	-313.54	2,382.27	0.00	0.00	0.00
9,100.00	90.00	179.69	7,345.00	-2,468.07	-313.00	2,482.06	0.00	0.00	0.00
9,200.00	90.00	179.69	7,345.00	-2,568.07	-312.46	2,581.86	0.00	0.00	0.00
9,300.00	90.00	179.69	7,345.00	-2,668.06	-311.92	2,681.66	0.00	0.00	0.00
9,400.00	90.00	179.69	7,345.00	-2,768.06	-311.38	2,781.46	0.00	0.00	0.00
9,500.00	90.00	179.69	7,345.00	-2,868.06	-310.83	2,881.26	0.00	0.00	0.00
9,600.00	90.00	179.69	7,345.00	-2,968.06	-310.29	2,981.06	0.00	0.00	0.00
9,700.00	90.00	179.69	7,345.00	-3,068.06	-309.75	3,080.86	0.00	0.00	0.00

Planning Report

Database:	DB Jul2216dt	Local Co-ordinate Reference:	Well Judy 34-03-07
Company:	Edge Energy LLC	TVD Reference:	RKB=5139+16 @ 5155.00usft
Project:	Weld County, Colorado	MD Reference:	RKB=5139+16 @ 5155.00usft
Site:	Judy 34-33	North Reference:	Grid
Well:	Judy 34-03-07	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev1		

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)	
9,800.00	90.00	179.69	7,345.00	-3,168.06	-309.21	3,180.66	0.00	0.00	0.00	
9,900.00	90.00	179.69	7,345.00	-3,268.05	-308.67	3,280.46	0.00	0.00	0.00	
10,000.00	90.00	179.69	7,345.00	-3,368.05	-308.13	3,380.25	0.00	0.00	0.00	
10,100.00	90.00	179.69	7,345.00	-3,468.05	-307.59	3,480.05	0.00	0.00	0.00	
10,200.00	90.00	179.69	7,345.00	-3,568.05	-307.05	3,579.85	0.00	0.00	0.00	
10,300.00	90.00	179.69	7,345.00	-3,668.05	-306.51	3,679.65	0.00	0.00	0.00	
10,400.00	90.00	179.69	7,345.00	-3,768.05	-305.97	3,779.45	0.00	0.00	0.00	
10,500.00	90.00	179.69	7,345.00	-3,868.05	-305.42	3,879.25	0.00	0.00	0.00	
10,600.00	90.00	179.69	7,345.00	-3,968.04	-304.88	3,979.05	0.00	0.00	0.00	
10,700.00	90.00	179.69	7,345.00	-4,068.04	-304.34	4,078.85	0.00	0.00	0.00	
10,800.00	90.00	179.69	7,345.00	-4,168.04	-303.80	4,178.65	0.00	0.00	0.00	
10,900.00	90.00	179.69	7,345.00	-4,268.04	-303.26	4,278.44	0.00	0.00	0.00	
11,000.00	90.00	179.69	7,345.00	-4,368.04	-302.72	4,378.24	0.00	0.00	0.00	
11,100.00	90.00	179.69	7,345.00	-4,468.04	-302.18	4,478.04	0.00	0.00	0.00	
11,200.00	90.00	179.69	7,345.00	-4,568.04	-301.64	4,577.84	0.00	0.00	0.00	
11,300.00	90.00	179.69	7,345.00	-4,668.03	-301.10	4,677.64	0.00	0.00	0.00	
11,400.00	90.00	179.69	7,345.00	-4,768.03	-300.55	4,777.44	0.00	0.00	0.00	
11,500.00	90.00	179.69	7,345.00	-4,868.03	-300.01	4,877.24	0.00	0.00	0.00	
11,600.00	90.00	179.69	7,345.00	-4,968.03	-299.47	4,977.04	0.00	0.00	0.00	
11,700.00	90.00	179.69	7,345.00	-5,068.03	-298.93	5,076.83	0.00	0.00	0.00	
11,771.29	90.00	179.69	7,345.00	-5,139.31	-298.55	5,147.98	0.00	0.00	0.00	
PBHL/TD										

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Judy 34-3-7 PBHL 470 F	0.00	0.00	7,345.00	-5,139.31	-298.55	1,239,634.30	3,236,159.50	39.98809999	-104.65717000
- plan hits target center									
- Point									
Judy 34-3-7 EP 470 FNL	0.00	0.00	7,345.00	-1,074.04	-320.38	1,243,699.57	3,236,137.67	39.99925999	-104.65711000
- plan misses target center by 0.17usft at 7705.96usft MD (7345.00 TVD, -1074.05 N, -320.54 E)									
- Point									

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,600.00	1,600.00	0.00	0.00	KOP Begin 2°/100' build
1,950.00	1,949.13	-20.07	-7.30	Begin 2°/100' drop/turn
2,016.47	2,015.13	-27.14	-10.63	Begin 6.56° tangent section
6,862.21	6,829.11	-503.69	-293.08	Begin 10°/100' build/turn
7,705.96	7,345.00	-1,074.04	-320.54	Begin 90.00° lateral section
11,771.29	7,345.00	-5,139.31	-298.55	PBHL/TD

Planning Report - Geographic

Database:	DB Jul2216dt	Local Co-ordinate Reference:	Well Judy 34-03-07
Company:	Edge Energy LLC	TVD Reference:	RKB=5139+16 @ 5155.00usft
Project:	Weld County, Colorado	MD Reference:	RKB=5139+16 @ 5155.00usft
Site:	Judy 34-33	North Reference:	Grid
Well:	Judy 34-03-07	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev1		

Project	Weld County, Colorado		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site	Judy 34-33				
Site Position:		Northing:	1,244,772.77 usft	Latitude:	40.00220000
From:	Lat/Long	Easting:	3,236,368.40 usft	Longitude:	-104.65625000
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.55 °

Well	Judy 34-03-07, Surf Loc: 600 FSL 1015 FEL Sec34-T1N-R65W					
Well Position	+N/-S	0.00 usft	Northing:	1,244,773.61 usft	Latitude:	40.00219995
	+E/-W	0.00 usft	Easting:	3,236,458.05 usft	Longitude:	-104.65593000
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	5,139.00 usft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	8/25/2016	8.21	66.57	52,286

Design	rev1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	183.32

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,950.00	7.00	200.00	1,949.13	-20.07	-7.30	2.00	2.00	0.00	200.00	
2,016.47	6.56	210.66	2,015.13	-27.14	-10.63	2.00	-0.66	16.03	114.33	
6,862.21	6.56	210.66	6,829.11	-503.69	-293.08	0.00	0.00	0.00	0.00	
7,705.96	90.00	179.69	7,345.00	-1,074.04	-320.54	10.00	9.89	-3.67	-31.13	
11,771.29	90.00	179.69	7,345.00	-5,139.31	-298.55	0.00	0.00	0.00	0.00	Judy 34-3-7 PBHL 47'

Planning Report - Geographic

Database:	DB Jul2216dt	Local Co-ordinate Reference:	Well Judy 34-03-07
Company:	Edge Energy LLC	TVD Reference:	RKB=5139+16 @ 5155.00usft
Project:	Weld County, Colorado	MD Reference:	RKB=5139+16 @ 5155.00usft
Site:	Judy 34-33	North Reference:	Grid
Well:	Judy 34-03-07	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	1,244,773.61	3,236,458.05	40.00219995	-104.65593000
100.00	0.00	0.00	100.00	0.00	0.00	1,244,773.61	3,236,458.05	40.00219995	-104.65593000
200.00	0.00	0.00	200.00	0.00	0.00	1,244,773.61	3,236,458.05	40.00219995	-104.65593000
300.00	0.00	0.00	300.00	0.00	0.00	1,244,773.61	3,236,458.05	40.00219995	-104.65593000
400.00	0.00	0.00	400.00	0.00	0.00	1,244,773.61	3,236,458.05	40.00219995	-104.65593000
500.00	0.00	0.00	500.00	0.00	0.00	1,244,773.61	3,236,458.05	40.00219995	-104.65593000
600.00	0.00	0.00	600.00	0.00	0.00	1,244,773.61	3,236,458.05	40.00219995	-104.65593000
700.00	0.00	0.00	700.00	0.00	0.00	1,244,773.61	3,236,458.05	40.00219995	-104.65593000
800.00	0.00	0.00	800.00	0.00	0.00	1,244,773.61	3,236,458.05	40.00219995	-104.65593000
900.00	0.00	0.00	900.00	0.00	0.00	1,244,773.61	3,236,458.05	40.00219995	-104.65593000
1,000.00	0.00	0.00	1,000.00	0.00	0.00	1,244,773.61	3,236,458.05	40.00219995	-104.65593000
1,100.00	0.00	0.00	1,100.00	0.00	0.00	1,244,773.61	3,236,458.05	40.00219995	-104.65593000
1,200.00	0.00	0.00	1,200.00	0.00	0.00	1,244,773.61	3,236,458.05	40.00219995	-104.65593000
1,300.00	0.00	0.00	1,300.00	0.00	0.00	1,244,773.61	3,236,458.05	40.00219995	-104.65593000
1,400.00	0.00	0.00	1,400.00	0.00	0.00	1,244,773.61	3,236,458.05	40.00219995	-104.65593000
1,500.00	0.00	0.00	1,500.00	0.00	0.00	1,244,773.61	3,236,458.05	40.00219995	-104.65593000
1,600.00	0.00	0.00	1,600.00	0.00	0.00	1,244,773.61	3,236,458.05	40.00219995	-104.65593000
KOP Begin 2°/100' build									
1,700.00	2.00	200.00	1,699.98	-1.64	-0.60	1,244,771.97	3,236,457.45	40.00219546	-104.65593218
1,800.00	4.00	200.00	1,799.84	-6.56	-2.39	1,244,767.05	3,236,455.66	40.00218201	-104.65593874
1,900.00	6.00	200.00	1,899.45	-14.75	-5.37	1,244,758.86	3,236,452.68	40.00215960	-104.65594966
1,950.00	7.00	200.00	1,949.13	-20.07	-7.30	1,244,753.54	3,236,450.74	40.00214505	-104.65595675
Begin 2°/100' drop/turn									
2,000.00	6.65	207.89	1,998.78	-25.49	-9.70	1,244,748.12	3,236,448.35	40.00213023	-104.65596549
2,016.47	6.56	210.66	2,015.13	-27.14	-10.63	1,244,746.47	3,236,447.42	40.00212572	-104.65596885
Begin 6.56° tangent section									
2,100.00	6.56	210.66	2,098.12	-35.36	-15.50	1,244,738.26	3,236,442.55	40.00210330	-104.65598651
2,200.00	6.56	210.66	2,197.46	-45.19	-21.32	1,244,728.42	3,236,436.72	40.00207645	-104.65600765
2,300.00	6.56	210.66	2,296.81	-55.02	-27.15	1,244,718.59	3,236,430.89	40.00204961	-104.65602879
2,400.00	6.56	210.66	2,396.15	-64.86	-32.98	1,244,708.75	3,236,425.06	40.00202277	-104.65604993
2,500.00	6.56	210.66	2,495.50	-74.69	-38.81	1,244,698.92	3,236,419.23	40.00199592	-104.65607107
2,600.00	6.56	210.66	2,594.84	-84.53	-44.64	1,244,689.08	3,236,413.41	40.00196908	-104.65609221
2,700.00	6.56	210.66	2,694.19	-94.36	-50.47	1,244,679.25	3,236,407.58	40.00194224	-104.65611335
2,800.00	6.56	210.66	2,793.53	-104.20	-56.30	1,244,669.41	3,236,401.75	40.00191539	-104.65613449
2,900.00	6.56	210.66	2,892.87	-114.03	-62.13	1,244,659.58	3,236,395.92	40.00188855	-104.65615563
3,000.00	6.56	210.66	2,992.22	-123.86	-67.96	1,244,649.75	3,236,390.09	40.00186170	-104.65617677
3,100.00	6.56	210.66	3,091.56	-133.70	-73.78	1,244,639.91	3,236,384.26	40.00183486	-104.65619791
3,200.00	6.56	210.66	3,190.91	-143.53	-79.61	1,244,630.08	3,236,378.43	40.00180802	-104.65621905
3,300.00	6.56	210.66	3,290.25	-153.37	-85.44	1,244,620.24	3,236,372.60	40.00178117	-104.65624018
3,400.00	6.56	210.66	3,389.60	-163.20	-91.27	1,244,610.41	3,236,366.77	40.00175433	-104.65626132
3,500.00	6.56	210.66	3,488.94	-173.04	-97.10	1,244,600.57	3,236,360.94	40.00172749	-104.65628246
3,600.00	6.56	210.66	3,588.29	-182.87	-102.93	1,244,590.74	3,236,355.12	40.00170064	-104.65630360
3,700.00	6.56	210.66	3,687.63	-192.71	-108.76	1,244,580.91	3,236,349.29	40.00167380	-104.65632474
3,800.00	6.56	210.66	3,786.97	-202.54	-114.59	1,244,571.07	3,236,343.46	40.00164695	-104.65634588
3,900.00	6.56	210.66	3,886.32	-212.37	-120.42	1,244,561.24	3,236,337.63	40.00162011	-104.65636702
4,000.00	6.56	210.66	3,985.66	-222.21	-126.24	1,244,551.40	3,236,331.80	40.00159327	-104.65638816
4,100.00	6.56	210.66	4,085.01	-232.04	-132.07	1,244,541.57	3,236,325.97	40.00156642	-104.65640930
4,200.00	6.56	210.66	4,184.35	-241.88	-137.90	1,244,531.73	3,236,320.14	40.00153958	-104.65643044
4,300.00	6.56	210.66	4,283.70	-251.71	-143.73	1,244,521.90	3,236,314.31	40.00151274	-104.65645158
4,400.00	6.56	210.66	4,383.04	-261.55	-149.56	1,244,512.06	3,236,308.48	40.00148589	-104.65647272
4,500.00	6.56	210.66	4,482.39	-271.38	-155.39	1,244,502.23	3,236,302.66	40.00145905	-104.65649386
4,600.00	6.56	210.66	4,581.73	-281.21	-161.22	1,244,492.40	3,236,296.83	40.00143221	-104.65651500
4,700.00	6.56	210.66	4,681.07	-291.05	-167.05	1,244,482.56	3,236,291.00	40.00140536	-104.65653614
4,800.00	6.56	210.66	4,780.42	-300.88	-172.88	1,244,472.73	3,236,285.17	40.00137852	-104.65655728

Planning Report - Geographic

Database:	DB Jul2216dt	Local Co-ordinate Reference:	Well Judy 34-03-07
Company:	Edge Energy LLC	TVD Reference:	RKB=5139+16 @ 5155.00usft
Project:	Weld County, Colorado	MD Reference:	RKB=5139+16 @ 5155.00usft
Site:	Judy 34-33	North Reference:	Grid
Well:	Judy 34-03-07	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
4,900.00	6.56	210.66	4,879.76	-310.72	-178.71	1,244,462.89	3,236,279.34	40.00135167	-104.65657842
5,000.00	6.56	210.66	4,979.11	-320.55	-184.53	1,244,453.06	3,236,273.51	40.00132483	-104.65659956
5,100.00	6.56	210.66	5,078.45	-330.39	-190.36	1,244,443.22	3,236,267.68	40.00129799	-104.65662070
5,200.00	6.56	210.66	5,177.80	-340.22	-196.19	1,244,433.39	3,236,261.85	40.00127114	-104.65664184
5,300.00	6.56	210.66	5,277.14	-350.06	-202.02	1,244,423.56	3,236,256.02	40.00124430	-104.65666298
5,400.00	6.56	210.66	5,376.48	-359.89	-207.85	1,244,413.72	3,236,250.20	40.00121745	-104.65668412
5,500.00	6.56	210.66	5,475.83	-369.72	-213.68	1,244,403.89	3,236,244.37	40.00119061	-104.65670526
5,600.00	6.56	210.66	5,575.17	-379.56	-219.51	1,244,394.05	3,236,238.54	40.00116377	-104.65672640
5,700.00	6.56	210.66	5,674.52	-389.39	-225.34	1,244,384.22	3,236,232.71	40.00113692	-104.65674754
5,800.00	6.56	210.66	5,773.86	-399.23	-231.17	1,244,374.38	3,236,226.88	40.00111008	-104.65676868
5,900.00	6.56	210.66	5,873.21	-409.06	-236.99	1,244,364.55	3,236,221.05	40.00108324	-104.65678982
6,000.00	6.56	210.66	5,972.55	-418.90	-242.82	1,244,354.72	3,236,215.22	40.00105639	-104.65681095
6,100.00	6.56	210.66	6,071.90	-428.73	-248.65	1,244,344.88	3,236,209.39	40.00102955	-104.65683209
6,200.00	6.56	210.66	6,171.24	-438.56	-254.48	1,244,335.05	3,236,203.56	40.00100270	-104.65685323
6,300.00	6.56	210.66	6,270.58	-448.40	-260.31	1,244,325.21	3,236,197.73	40.00097586	-104.65687437
6,400.00	6.56	210.66	6,369.93	-458.23	-266.14	1,244,315.38	3,236,191.91	40.00094902	-104.65689551
6,500.00	6.56	210.66	6,469.27	-468.07	-271.97	1,244,305.54	3,236,186.08	40.00092217	-104.65691665
6,600.00	6.56	210.66	6,568.62	-477.90	-277.80	1,244,295.71	3,236,180.25	40.00089533	-104.65693779
6,700.00	6.56	210.66	6,667.96	-487.74	-283.63	1,244,285.87	3,236,174.42	40.00086849	-104.65695893
6,800.00	6.56	210.66	6,767.31	-497.57	-289.46	1,244,276.04	3,236,168.59	40.00084164	-104.65698007
6,862.21	6.56	210.66	6,829.11	-503.69	-293.08	1,244,269.92	3,236,164.96	40.00082494	-104.65699322
Begin 10°/100' build/turn									
6,900.00	9.99	199.33	6,866.50	-508.64	-295.27	1,244,264.97	3,236,162.78	40.00081140	-104.65700120
7,000.00	19.69	189.22	6,963.07	-533.52	-300.85	1,244,240.09	3,236,157.19	40.00074326	-104.65702197
7,100.00	29.58	185.68	7,053.86	-574.81	-306.00	1,244,198.80	3,236,152.04	40.00063005	-104.65704176
7,200.00	39.53	183.81	7,136.12	-631.27	-310.57	1,244,142.34	3,236,147.48	40.00047519	-104.65705997
7,300.00	49.49	182.59	7,207.34	-701.17	-314.41	1,244,072.44	3,236,143.64	40.00028339	-104.65707604
7,400.00	59.46	181.69	7,265.37	-782.40	-317.40	1,243,991.21	3,236,140.64	40.00006050	-104.65708949
7,500.00	69.44	180.96	7,308.44	-872.48	-319.47	1,243,901.13	3,236,138.58	39.99981326	-104.65709991
7,600.00	79.42	180.32	7,335.25	-968.69	-320.53	1,243,804.92	3,236,137.51	39.99954920	-104.65710698
7,700.00	89.41	179.73	7,344.97	-1,068.09	-320.57	1,243,705.52	3,236,137.47	39.99927635	-104.65711049
7,705.96	90.00	179.69	7,345.00	-1,074.04	-320.54	1,243,699.57	3,236,137.50	39.99926000	-104.65711059
Begin 90.00° lateral section									
7,800.00	90.00	179.69	7,345.00	-1,168.09	-320.03	1,243,605.53	3,236,138.01	39.99900183	-104.65711196
7,900.00	90.00	179.69	7,345.00	-1,268.08	-319.49	1,243,505.53	3,236,138.55	39.99872732	-104.65711342
8,000.00	90.00	179.69	7,345.00	-1,368.08	-318.95	1,243,405.53	3,236,139.09	39.99845280	-104.65711488
8,100.00	90.00	179.69	7,345.00	-1,468.08	-318.41	1,243,305.53	3,236,139.64	39.99817828	-104.65711634
8,200.00	90.00	179.69	7,345.00	-1,568.08	-317.87	1,243,205.53	3,236,140.18	39.99790377	-104.65711781
8,300.00	90.00	179.69	7,345.00	-1,668.08	-317.33	1,243,105.53	3,236,140.72	39.99762925	-104.65711927
8,400.00	90.00	179.69	7,345.00	-1,768.08	-316.79	1,243,005.53	3,236,141.26	39.99735473	-104.65712073
8,500.00	90.00	179.69	7,345.00	-1,868.08	-316.24	1,242,905.54	3,236,141.80	39.99708022	-104.65712219
8,600.00	90.00	179.69	7,345.00	-1,968.07	-315.70	1,242,805.54	3,236,142.34	39.99680570	-104.65712365
8,700.00	90.00	179.69	7,345.00	-2,068.07	-315.16	1,242,705.54	3,236,142.88	39.99653119	-104.65712511
8,800.00	90.00	179.69	7,345.00	-2,168.07	-314.62	1,242,605.54	3,236,143.42	39.99625667	-104.65712658
8,900.00	90.00	179.69	7,345.00	-2,268.07	-314.08	1,242,505.54	3,236,143.96	39.99598215	-104.65712804
9,000.00	90.00	179.69	7,345.00	-2,368.07	-313.54	1,242,405.54	3,236,144.51	39.99570764	-104.65712950
9,100.00	90.00	179.69	7,345.00	-2,468.07	-313.00	1,242,305.54	3,236,145.05	39.99543312	-104.65713096
9,200.00	90.00	179.69	7,345.00	-2,568.07	-312.46	1,242,205.55	3,236,145.59	39.99515860	-104.65713242
9,300.00	90.00	179.69	7,345.00	-2,668.06	-311.92	1,242,105.55	3,236,146.13	39.99488409	-104.65713388
9,400.00	90.00	179.69	7,345.00	-2,768.06	-311.38	1,242,005.55	3,236,146.67	39.99460957	-104.65713534
9,500.00	90.00	179.69	7,345.00	-2,868.06	-310.83	1,241,905.55	3,236,147.21	39.99433505	-104.65713681
9,600.00	90.00	179.69	7,345.00	-2,968.06	-310.29	1,241,805.55	3,236,147.75	39.99406054	-104.65713827
9,700.00	90.00	179.69	7,345.00	-3,068.06	-309.75	1,241,705.55	3,236,148.29	39.99378602	-104.65713973
9,800.00	90.00	179.69	7,345.00	-3,168.06	-309.21	1,241,605.55	3,236,148.83	39.99351150	-104.65714119

Planning Report - Geographic

Database:	DB Jul2216dt	Local Co-ordinate Reference:	Well Judy 34-03-07
Company:	Edge Energy LLC	TVD Reference:	RKB=5139+16 @ 5155.00usft
Project:	Weld County, Colorado	MD Reference:	RKB=5139+16 @ 5155.00usft
Site:	Judy 34-33	North Reference:	Grid
Well:	Judy 34-03-07	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
9,900.00	90.00	179.69	7,345.00	-3,268.05	-308.67	1,241,505.56	3,236,149.37	39.99323699	-104.65714265
10,000.00	90.00	179.69	7,345.00	-3,368.05	-308.13	1,241,405.56	3,236,149.92	39.99296247	-104.65714411
10,100.00	90.00	179.69	7,345.00	-3,468.05	-307.59	1,241,305.56	3,236,150.46	39.99268795	-104.65714557
10,200.00	90.00	179.69	7,345.00	-3,568.05	-307.05	1,241,205.56	3,236,151.00	39.99241344	-104.65714704
10,300.00	90.00	179.69	7,345.00	-3,668.05	-306.51	1,241,105.56	3,236,151.54	39.99213892	-104.65714850
10,400.00	90.00	179.69	7,345.00	-3,768.05	-305.97	1,241,005.56	3,236,152.08	39.99186440	-104.65714996
10,500.00	90.00	179.69	7,345.00	-3,868.05	-305.42	1,240,905.56	3,236,152.62	39.99158989	-104.65715142
10,600.00	90.00	179.69	7,345.00	-3,968.04	-304.88	1,240,805.57	3,236,153.16	39.99131537	-104.65715288
10,700.00	90.00	179.69	7,345.00	-4,068.04	-304.34	1,240,705.57	3,236,153.70	39.99104085	-104.65715434
10,800.00	90.00	179.69	7,345.00	-4,168.04	-303.80	1,240,605.57	3,236,154.24	39.99076634	-104.65715580
10,900.00	90.00	179.69	7,345.00	-4,268.04	-303.26	1,240,505.57	3,236,154.79	39.99049182	-104.65715726
11,000.00	90.00	179.69	7,345.00	-4,368.04	-302.72	1,240,405.57	3,236,155.33	39.99021730	-104.65715873
11,100.00	90.00	179.69	7,345.00	-4,468.04	-302.18	1,240,305.57	3,236,155.87	39.98994279	-104.65716019
11,200.00	90.00	179.69	7,345.00	-4,568.04	-301.64	1,240,205.57	3,236,156.41	39.98966827	-104.65716165
11,300.00	90.00	179.69	7,345.00	-4,668.03	-301.10	1,240,105.58	3,236,156.95	39.98939375	-104.65716311
11,400.00	90.00	179.69	7,345.00	-4,768.03	-300.55	1,240,005.58	3,236,157.49	39.98911924	-104.65716457
11,500.00	90.00	179.69	7,345.00	-4,868.03	-300.01	1,239,905.58	3,236,158.03	39.98884472	-104.65716603
11,600.00	90.00	179.69	7,345.00	-4,968.03	-299.47	1,239,805.58	3,236,158.57	39.98857020	-104.65716749
11,700.00	90.00	179.69	7,345.00	-5,068.03	-298.93	1,239,705.58	3,236,159.11	39.98829569	-104.65716895
11,771.29	90.00	179.69	7,345.00	-5,139.31	-298.55	1,239,634.30	3,236,159.50	39.98809999	-104.65717000
PBHL/TD									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Judy 34-3-7 PBHL 470 F	0.00	0.00	7,345.00	-5,139.31	-298.55	1,239,634.30	3,236,159.50	39.98809999	-104.65717000
- plan hits target center									
- Point									
Judy 34-3-7 EP 470 FNL	0.00	0.00	7,345.00	-1,074.04	-320.38	1,243,699.57	3,236,137.67	39.99925999	-104.65711000
- plan misses target center by 0.17usft at 7705.96usft MD (7345.00 TVD, -1074.05 N, -320.54 E)									
- Point									

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
1,600.00	1,600.00	0.00	0.00	KOP Begin 2°/100' build	
1,950.00	1,949.13	-20.07	-7.30	Begin 2°/100' drop/turn	
2,016.47	2,015.13	-27.14	-10.63	Begin 6.56° tangent section	
6,862.21	6,829.11	-503.69	-293.08	Begin 10°/100' build/turn	
7,705.96	7,345.00	-1,074.04	-320.54	Begin 90.00° lateral section	
11,771.29	7,345.00	-5,139.31	-298.55	PBHL/TD	