

Edge Energy LLC
Weld County, Colorado
Judy 34-33
Judy 34-03-8
rev0

Judy 34-03-8
 Surf Loc: 600 FSL 1030 FWL Sec34-T1N-R65W

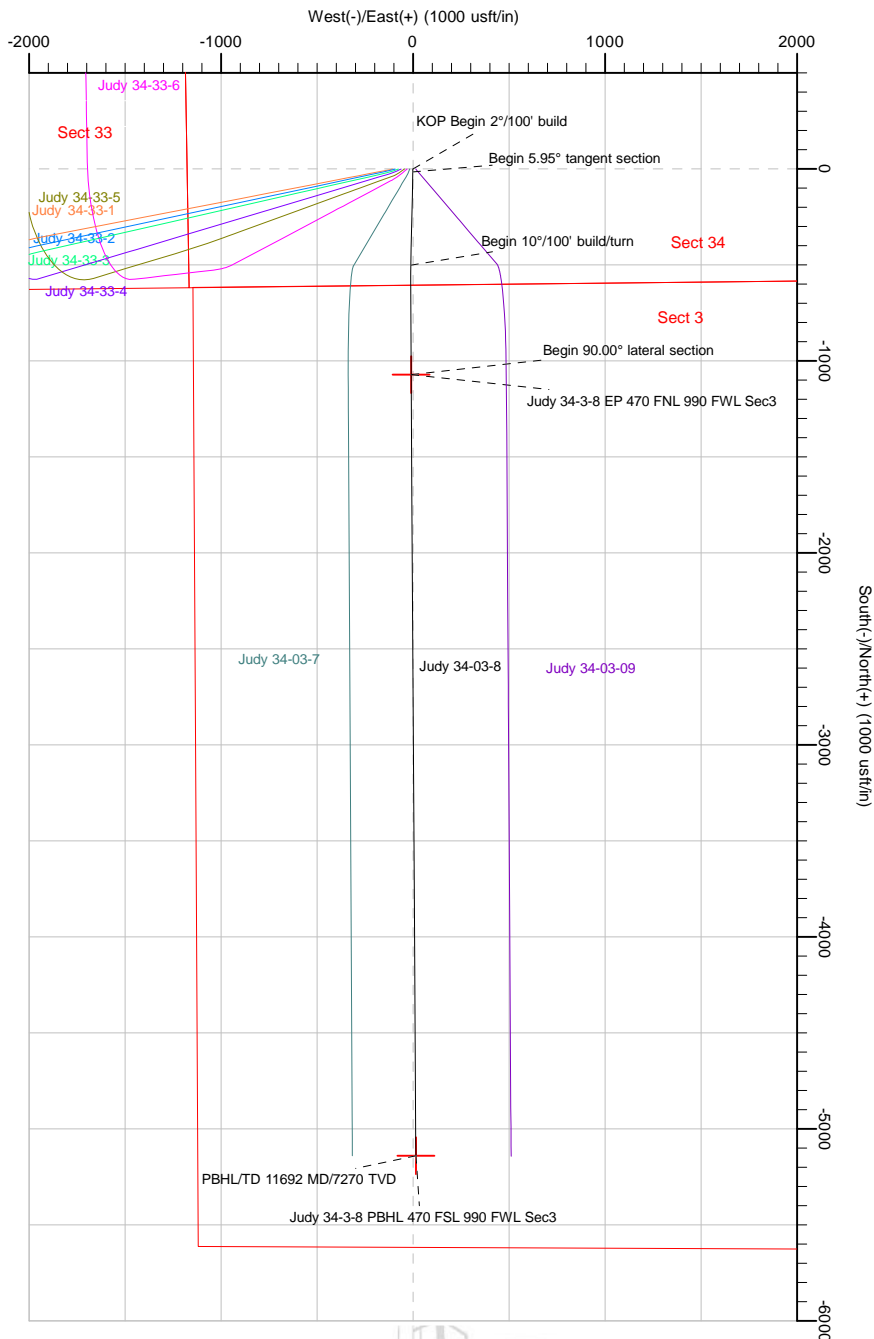
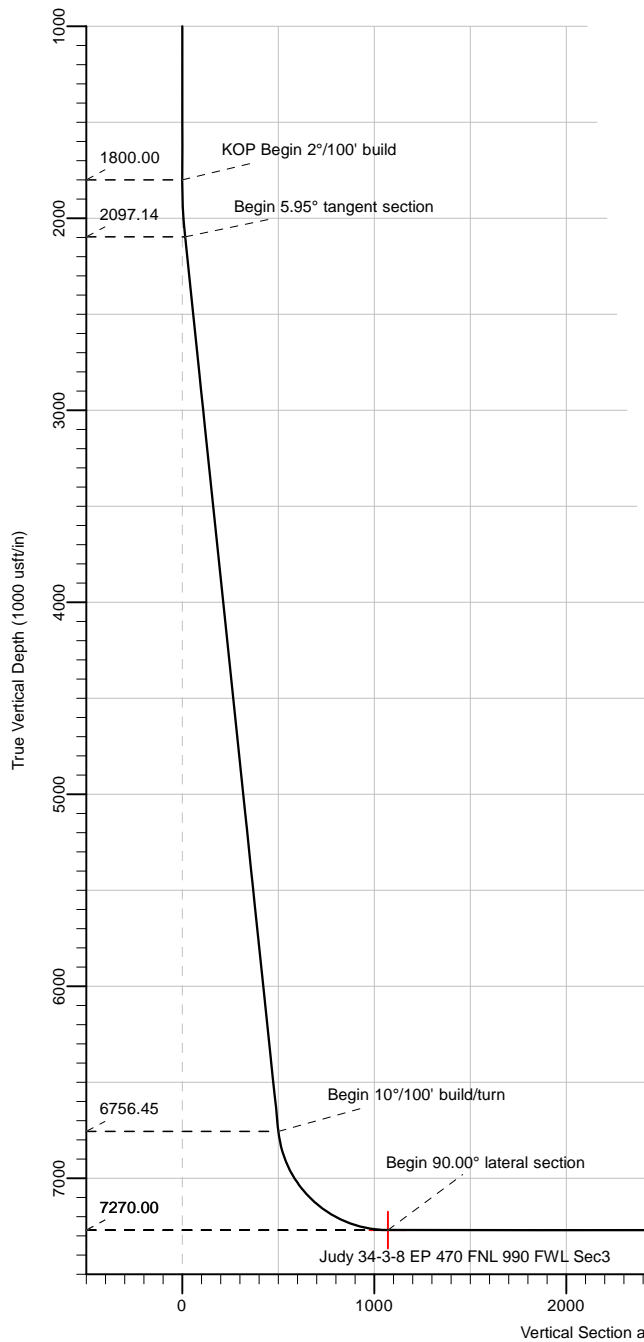
Azimuth Corrections:

To convert a Magnetic Direction to a True Direction, Add 8.21° East



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	1800.00	0.00	0.00	1800.00	0.00	0.00	0.00	0.00	KOP Begin 2°/100' build
3	2097.67	5.95	181.31	2097.14	-15.45	-0.35	2.00	15.45	Begin 5.95° tangent section
4	6782.25	5.95	181.31	6756.45	-501.21	-11.48	0.00	501.17	Begin 10°/100' build/turn
5	7622.74	90.00	179.65	7270.00	-1071.08	-9.55	10.00	1071.04	Begin 90.00° lateral section
6	11691.71	90.00	179.65	7270.00	-5139.97	15.31	0.00	5140.00	PBHL/TD 11692 MD/7270 TVD

RKB Elevation: RKB=5139+16 @ 5155.00usft

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	244773.77	3236474.85	40.00220	-104.65587	

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape Point
Judy 34-3-8 EP 470 FNL 990 FWL Sec3	7270.00	-1071.09	-9.42	243702.69	3236465.44	Point
Judy 34-3-8 PBHL 470 FSL 990 FWL Sec3	7270.00	-5139.97	15.31	239633.80	3236490.16	Point

PBHL/TD 11692 MD/7270 TVD

Judy 34-3-8 PBHL 470 FSL 990 FWL Sec3

Database:	DB Jul2216dt	Local Co-ordinate Reference:	Well Judy 34-03-8
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 34-03-8	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original hole		
Design:	rev0		

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:	40.00220
From:	Lat/Long	Easting:	3,236,368.40 usft	Longitude:	-104.65625
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.55 °

Well	Judy 34-03-8, Surf Loc: 600 FSL 1030 FWL Sec34-T1N-R65W					
Well Position	+N-S	1.00 usft	Northing:	1,244,773.77 usft	Latitude:	40.00220
	+E-W	106.45 usft	Easting:	3,236,474.85 usft	Longitude:	-104.65587
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	rev0			
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	179.83

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	
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,097.68	5.95	181.31	2,097.14	-15.45	-0.35	2.00	2.00	0.00	181.31	
6,782.25	5.95	181.31	6,756.45	-501.21	-11.48	0.00	0.00	0.00	0.00	
7,622.74	90.00	179.65	7,270.00	-1,071.08	-9.55	10.00	10.00	-0.20	-1.67	
11,691.71	90.00	179.65	7,270.00	-5,139.98	15.31	0.00	0.00	0.00	0.00	Judy 34-3-8 PBHL 47'

Database:	DB Jul2216dt	Local Co-ordinate Reference:	Well Judy 34-03-8
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 34-03-8	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original hole		
Design:	rev0		

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
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP Begin 2°/100' build									
1,900.00	2.00	181.31	1,899.98	-1.74	-0.04	1.74	2.00	2.00	0.00
2,000.00	4.00	181.31	1,999.83	-6.98	-0.16	6.98	2.00	2.00	0.00
2,097.68	5.95	181.31	2,097.14	-15.45	-0.35	15.45	2.00	2.00	0.00
Begin 5.95° tangent section									
2,100.00	5.95	181.31	2,099.45	-15.69	-0.36	15.69	0.00	0.00	0.00
2,200.00	5.95	181.31	2,198.91	-26.06	-0.60	26.06	0.00	0.00	0.00
2,300.00	5.95	181.31	2,298.37	-36.43	-0.83	36.42	0.00	0.00	0.00
2,400.00	5.95	181.31	2,397.83	-46.80	-1.07	46.79	0.00	0.00	0.00
2,500.00	5.95	181.31	2,497.29	-57.17	-1.31	57.16	0.00	0.00	0.00
2,599.99	5.95	181.31	2,596.75	-67.54	-1.55	67.53	0.00	0.00	0.00
2,699.99	5.95	181.31	2,696.21	-77.90	-1.78	77.90	0.00	0.00	0.00
2,799.99	5.95	181.31	2,795.67	-88.27	-2.02	88.27	0.00	0.00	0.00
2,899.99	5.95	181.31	2,895.13	-98.64	-2.26	98.64	0.00	0.00	0.00
2,999.99	5.95	181.31	2,994.59	-109.01	-2.50	109.01	0.00	0.00	0.00
3,099.99	5.95	181.31	3,094.05	-119.38	-2.73	119.37	0.00	0.00	0.00
3,199.99	5.95	181.31	3,193.51	-129.75	-2.97	129.74	0.00	0.00	0.00
3,299.99	5.95	181.31	3,292.97	-140.12	-3.21	140.11	0.00	0.00	0.00
3,399.99	5.95	181.31	3,392.43	-150.49	-3.45	150.48	0.00	0.00	0.00
3,499.99	5.95	181.31	3,491.89	-160.86	-3.68	160.85	0.00	0.00	0.00
3,599.99	5.95	181.31	3,591.35	-171.23	-3.92	171.22	0.00	0.00	0.00
3,699.99	5.95	181.31	3,690.81	-181.60	-4.16	181.59	0.00	0.00	0.00
3,799.99	5.95	181.31	3,790.28	-191.97	-4.40	191.95	0.00	0.00	0.00
3,899.99	5.95	181.31	3,889.74	-202.34	-4.63	202.32	0.00	0.00	0.00
3,999.99	5.95	181.31	3,989.20	-212.71	-4.87	212.69	0.00	0.00	0.00
4,099.99	5.95	181.31	4,088.66	-223.08	-5.11	223.06	0.00	0.00	0.00
4,199.99	5.95	181.31	4,188.12	-233.45	-5.35	233.43	0.00	0.00	0.00
4,299.99	5.95	181.31	4,287.58	-243.82	-5.58	243.80	0.00	0.00	0.00
4,399.99	5.95	181.31	4,387.04	-254.19	-5.82	254.17	0.00	0.00	0.00
4,499.99	5.95	181.31	4,486.50	-264.56	-6.06	264.54	0.00	0.00	0.00
4,599.99	5.95	181.31	4,585.96	-274.92	-6.30	274.90	0.00	0.00	0.00
4,699.99	5.95	181.31	4,685.42	-285.29	-6.53	285.27	0.00	0.00	0.00
4,799.99	5.95	181.31	4,784.88	-295.66	-6.77	295.64	0.00	0.00	0.00
4,899.99	5.95	181.31	4,884.34	-306.03	-7.01	306.01	0.00	0.00	0.00
4,999.99	5.95	181.31	4,983.80	-316.40	-7.25	316.38	0.00	0.00	0.00

Database:	DB Jul2216dt	Local Co-ordinate Reference:	Well Judy 34-03-8
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 34-03-8	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original hole		
Design:	rev0		

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)	
5,099.99	5.95	181.31	5,083.26	-326.77	-7.48	326.75	0.00	0.00	0.00	
5,199.99	5.95	181.31	5,182.72	-337.14	-7.72	337.12	0.00	0.00	0.00	
5,299.99	5.95	181.31	5,282.18	-347.51	-7.96	347.49	0.00	0.00	0.00	
5,399.99	5.95	181.31	5,381.64	-357.88	-8.20	357.85	0.00	0.00	0.00	
5,499.99	5.95	181.31	5,481.10	-368.25	-8.43	368.22	0.00	0.00	0.00	
5,599.99	5.95	181.31	5,580.56	-378.62	-8.67	378.59	0.00	0.00	0.00	
5,699.99	5.95	181.31	5,680.02	-388.99	-8.91	388.96	0.00	0.00	0.00	
5,799.99	5.95	181.31	5,779.48	-399.36	-9.15	399.33	0.00	0.00	0.00	
5,899.99	5.95	181.31	5,878.94	-409.73	-9.38	409.70	0.00	0.00	0.00	
5,999.99	5.95	181.31	5,978.40	-420.10	-9.62	420.07	0.00	0.00	0.00	
6,099.99	5.95	181.31	6,077.87	-430.47	-9.86	430.44	0.00	0.00	0.00	
6,199.99	5.95	181.31	6,177.33	-440.84	-10.10	440.80	0.00	0.00	0.00	
6,299.99	5.95	181.31	6,276.79	-451.21	-10.33	451.17	0.00	0.00	0.00	
6,399.99	5.95	181.31	6,376.25	-461.57	-10.57	461.54	0.00	0.00	0.00	
6,499.99	5.95	181.31	6,475.71	-471.94	-10.81	471.91	0.00	0.00	0.00	
6,599.99	5.95	181.31	6,575.17	-482.31	-11.05	482.28	0.00	0.00	0.00	
6,699.99	5.95	181.31	6,674.63	-492.68	-11.28	492.65	0.00	0.00	0.00	
6,782.25	5.95	181.31	6,756.45	-501.21	-11.48	501.18	0.00	0.00	0.00	
Begin 10°/100' build/turn										
6,799.99	7.73	180.93	6,774.06	-503.33	-11.52	503.29	10.00	10.00	-2.17	
6,899.99	17.73	180.19	6,871.48	-525.33	-11.68	525.29	10.00	10.00	-0.74	
6,999.99	27.73	179.98	6,963.60	-563.91	-11.72	563.87	10.00	10.00	-0.21	
7,099.99	37.72	179.87	7,047.62	-617.90	-11.65	617.86	10.00	10.00	-0.11	
7,199.99	47.72	179.81	7,120.99	-685.66	-11.45	685.62	10.00	10.00	-0.07	
7,299.99	57.72	179.76	7,181.47	-765.13	-11.15	765.10	10.00	10.00	-0.05	
7,399.99	67.72	179.72	7,227.24	-853.90	-10.75	853.86	10.00	10.00	-0.04	
7,499.99	77.72	179.69	7,256.90	-949.27	-10.26	949.23	10.00	10.00	-0.03	
7,599.98	87.72	179.66	7,269.55	-1,048.33	-9.69	1,048.30	10.00	10.00	-0.03	
7,622.74	90.00	179.65	7,270.00	-1,071.08	-9.55	1,071.05	10.00	10.00	-0.03	
Begin 90.00° lateral section										
7,699.98	90.00	179.65	7,270.00	-1,148.33	-9.08	1,148.29	0.00	0.00	0.00	
7,799.98	90.00	179.65	7,270.00	-1,248.32	-8.47	1,248.29	0.00	0.00	0.00	
7,899.98	90.00	179.65	7,270.00	-1,348.32	-7.86	1,348.29	0.00	0.00	0.00	
7,999.98	90.00	179.65	7,270.00	-1,448.32	-7.25	1,448.29	0.00	0.00	0.00	
8,099.98	90.00	179.65	7,270.00	-1,548.32	-6.64	1,548.29	0.00	0.00	0.00	
8,199.98	90.00	179.65	7,270.00	-1,648.32	-6.02	1,648.29	0.00	0.00	0.00	
8,299.98	90.00	179.65	7,270.00	-1,748.31	-5.41	1,748.29	0.00	0.00	0.00	
8,399.98	90.00	179.65	7,270.00	-1,848.31	-4.80	1,848.29	0.00	0.00	0.00	
8,499.98	90.00	179.65	7,270.00	-1,948.31	-4.19	1,948.29	0.00	0.00	0.00	
8,599.98	90.00	179.65	7,270.00	-2,048.31	-3.58	2,048.29	0.00	0.00	0.00	
8,699.98	90.00	179.65	7,270.00	-2,148.30	-2.97	2,148.29	0.00	0.00	0.00	
8,799.98	90.00	179.65	7,270.00	-2,248.30	-2.36	2,248.29	0.00	0.00	0.00	
8,899.98	90.00	179.65	7,270.00	-2,348.30	-1.75	2,348.29	0.00	0.00	0.00	
8,999.98	90.00	179.65	7,270.00	-2,448.30	-1.14	2,448.28	0.00	0.00	0.00	
9,099.98	90.00	179.65	7,270.00	-2,548.30	-0.53	2,548.28	0.00	0.00	0.00	
9,199.98	90.00	179.65	7,270.00	-2,648.29	0.08	2,648.28	0.00	0.00	0.00	
9,299.98	90.00	179.65	7,270.00	-2,748.29	0.69	2,748.28	0.00	0.00	0.00	
9,399.98	90.00	179.65	7,270.00	-2,848.29	1.31	2,848.28	0.00	0.00	0.00	
9,499.98	90.00	179.65	7,270.00	-2,948.29	1.92	2,948.28	0.00	0.00	0.00	
9,599.98	90.00	179.65	7,270.00	-3,048.29	2.53	3,048.28	0.00	0.00	0.00	
9,699.98	90.00	179.65	7,270.00	-3,148.28	3.14	3,148.28	0.00	0.00	0.00	
9,799.98	90.00	179.65	7,270.00	-3,248.28	3.75	3,248.28	0.00	0.00	0.00	
9,899.98	90.00	179.65	7,270.00	-3,348.28	4.36	3,348.28	0.00	0.00	0.00	
9,999.98	90.00	179.65	7,270.00	-3,448.28	4.97	3,448.28	0.00	0.00	0.00	

Database:	DB Jul2216dt	Local Co-ordinate Reference:	Well Judy 34-03-8
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 34-03-8	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original hole		
Design:	rev0		

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)	
10,099.98	90.00	179.65	7,270.00	-3,548.28	5.58	3,548.28	0.00	0.00	0.00	
10,199.98	90.00	179.65	7,270.00	-3,648.27	6.19	3,648.28	0.00	0.00	0.00	
10,299.98	90.00	179.65	7,270.00	-3,748.27	6.80	3,748.28	0.00	0.00	0.00	
10,399.98	90.00	179.65	7,270.00	-3,848.27	7.41	3,848.27	0.00	0.00	0.00	
10,499.98	90.00	179.65	7,270.00	-3,948.27	8.03	3,948.27	0.00	0.00	0.00	
10,599.98	90.00	179.65	7,270.00	-4,048.27	8.64	4,048.27	0.00	0.00	0.00	
10,699.98	90.00	179.65	7,270.00	-4,148.26	9.25	4,148.27	0.00	0.00	0.00	
10,799.98	90.00	179.65	7,270.00	-4,248.26	9.86	4,248.27	0.00	0.00	0.00	
10,899.98	90.00	179.65	7,270.00	-4,348.26	10.47	4,348.27	0.00	0.00	0.00	
10,999.98	90.00	179.65	7,270.00	-4,448.26	11.08	4,448.27	0.00	0.00	0.00	
11,099.98	90.00	179.65	7,270.00	-4,548.26	11.69	4,548.27	0.00	0.00	0.00	
11,199.98	90.00	179.65	7,270.00	-4,648.25	12.30	4,648.27	0.00	0.00	0.00	
11,299.98	90.00	179.65	7,270.00	-4,748.25	12.91	4,748.27	0.00	0.00	0.00	
11,399.98	90.00	179.65	7,270.00	-4,848.25	13.52	4,848.27	0.00	0.00	0.00	
11,499.98	90.00	179.65	7,270.00	-4,948.25	14.13	4,948.27	0.00	0.00	0.00	
11,599.98	90.00	179.65	7,270.00	-5,048.25	14.74	5,048.27	0.00	0.00	0.00	
11,691.71	90.00	179.65	7,270.00	-5,139.98	15.31	5,140.00	0.00	0.00	0.00	
PBHL/TD 11692 MD/7270 TVD										

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 34-3-8 PBHL 470 F	0.00	0.00	7,270.00	-5,139.98	15.31	1,239,633.80	3,236,490.16	39.98809	-104.65599	
- plan hits target center										
- Point										
Judy 34-3-8 EP 470 FNL	0.00	0.00	7,270.00	-1,071.09	-9.42	1,243,702.68	3,236,465.44	39.99926	-104.65594	
- plan misses target center by 0.14usft at 7622.75usft MD (7270.00 TVD, -1071.09 N, -9.55 E)										
- Point										

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
1,800.00	1,800.00	0.00	0.00	KOP Begin 2°/100' build	
2,097.68	2,097.14	-15.45	-0.35	Begin 5.95° tangent section	
6,782.25	6,756.45	-501.21	-11.48	Begin 10°/100' build/turn	
7,622.74	7,270.00	-1,071.08	-9.55	Begin 90.00° lateral section	
11,691.71	7,270.00	-5,139.98	15.31	PBHL/TD 11692 MD/7270 TVD	

Database:	DB Jul2216dt	Local Co-ordinate Reference:	Well Judy 34-03-8
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 34-03-8	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original hole		
Design:	rev0		

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:	40.00220
From:	Lat/Long	Easting:	3,236,368.40 usft	Longitude:	-104.65625
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.55 °

Well	Judy 34-03-8, Surf Loc: 600 FSL 1030 FWL Sec34-T1N-R65W					
Well Position	+N/-S	0.00 usft	Northing:	1,244,773.77 usft	Latitude:	40.00220
	+E/-W	0.00 usft	Easting:	3,236,474.85 usft	Longitude:	-104.65587
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	rev0				
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	179.83	

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	
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,097.68	5.95	181.31	2,097.14	-15.45	-0.35	2.00	2.00	0.00	181.31	
6,782.25	5.95	181.31	6,756.45	-501.21	-11.48	0.00	0.00	0.00	0.00	
7,622.74	90.00	179.65	7,270.00	-1,071.08	-9.55	10.00	10.00	-0.20	-1.67	
11,691.71	90.00	179.65	7,270.00	-5,139.98	15.31	0.00	0.00	0.00	0.00	Judy 34-3-8 PBHL 47'

Database:	DB Jul2216dt	Local Co-ordinate Reference:	Well Judy 34-03-8
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 34-03-8	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original hole		
Design:	rev0		

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	1,244,773.77	3,236,474.85	40.00220	-104.65587	
100.00	0.00	0.00	100.00	0.00	0.00	1,244,773.77	3,236,474.85	40.00220	-104.65587	
200.00	0.00	0.00	200.00	0.00	0.00	1,244,773.77	3,236,474.85	40.00220	-104.65587	
300.00	0.00	0.00	300.00	0.00	0.00	1,244,773.77	3,236,474.85	40.00220	-104.65587	
400.00	0.00	0.00	400.00	0.00	0.00	1,244,773.77	3,236,474.85	40.00220	-104.65587	
500.00	0.00	0.00	500.00	0.00	0.00	1,244,773.77	3,236,474.85	40.00220	-104.65587	
600.00	0.00	0.00	600.00	0.00	0.00	1,244,773.77	3,236,474.85	40.00220	-104.65587	
700.00	0.00	0.00	700.00	0.00	0.00	1,244,773.77	3,236,474.85	40.00220	-104.65587	
800.00	0.00	0.00	800.00	0.00	0.00	1,244,773.77	3,236,474.85	40.00220	-104.65587	
900.00	0.00	0.00	900.00	0.00	0.00	1,244,773.77	3,236,474.85	40.00220	-104.65587	
1,000.00	0.00	0.00	1,000.00	0.00	0.00	1,244,773.77	3,236,474.85	40.00220	-104.65587	
1,100.00	0.00	0.00	1,100.00	0.00	0.00	1,244,773.77	3,236,474.85	40.00220	-104.65587	
1,200.00	0.00	0.00	1,200.00	0.00	0.00	1,244,773.77	3,236,474.85	40.00220	-104.65587	
1,300.00	0.00	0.00	1,300.00	0.00	0.00	1,244,773.77	3,236,474.85	40.00220	-104.65587	
1,400.00	0.00	0.00	1,400.00	0.00	0.00	1,244,773.77	3,236,474.85	40.00220	-104.65587	
1,500.00	0.00	0.00	1,500.00	0.00	0.00	1,244,773.77	3,236,474.85	40.00220	-104.65587	
1,600.00	0.00	0.00	1,600.00	0.00	0.00	1,244,773.77	3,236,474.85	40.00220	-104.65587	
1,700.00	0.00	0.00	1,700.00	0.00	0.00	1,244,773.77	3,236,474.85	40.00220	-104.65587	
1,800.00	0.00	0.00	1,800.00	0.00	0.00	1,244,773.77	3,236,474.85	40.00220	-104.65587	
KOP Begin 2°/100' build										
1,900.00	2.00	181.31	1,899.98	-1.74	-0.04	1,244,772.03	3,236,474.81	40.00220	-104.65587	
2,000.00	4.00	181.31	1,999.83	-6.98	-0.16	1,244,766.80	3,236,474.69	40.00218	-104.65587	
2,097.68	5.95	181.31	2,097.14	-15.45	-0.35	1,244,758.33	3,236,474.50	40.00216	-104.65587	
Begin 5.95° tangent section										
2,100.00	5.95	181.31	2,099.45	-15.69	-0.36	1,244,758.09	3,236,474.49	40.00216	-104.65587	
2,200.00	5.95	181.31	2,198.91	-26.06	-0.60	1,244,747.72	3,236,474.26	40.00213	-104.65588	
2,300.00	5.95	181.31	2,298.37	-36.43	-0.83	1,244,737.35	3,236,474.02	40.00210	-104.65588	
2,400.00	5.95	181.31	2,397.83	-46.80	-1.07	1,244,726.98	3,236,473.78	40.00207	-104.65588	
2,500.00	5.95	181.31	2,497.29	-57.17	-1.31	1,244,716.61	3,236,473.54	40.00204	-104.65588	
2,599.99	5.95	181.31	2,596.75	-67.54	-1.55	1,244,706.24	3,236,473.31	40.00202	-104.65588	
2,699.99	5.95	181.31	2,696.21	-77.90	-1.78	1,244,695.87	3,236,473.07	40.00199	-104.65588	
2,799.99	5.95	181.31	2,795.67	-88.27	-2.02	1,244,685.50	3,236,472.83	40.00196	-104.65588	
2,899.99	5.95	181.31	2,895.13	-98.64	-2.26	1,244,675.13	3,236,472.59	40.00193	-104.65588	
2,999.99	5.95	181.31	2,994.59	-109.01	-2.50	1,244,664.76	3,236,472.36	40.00190	-104.65589	
3,099.99	5.95	181.31	3,094.05	-119.38	-2.73	1,244,654.39	3,236,472.12	40.00187	-104.65589	
3,199.99	5.95	181.31	3,193.51	-129.75	-2.97	1,244,644.02	3,236,471.88	40.00184	-104.65589	
3,299.99	5.95	181.31	3,292.97	-140.12	-3.21	1,244,633.65	3,236,471.64	40.00182	-104.65589	
3,399.99	5.95	181.31	3,392.43	-150.49	-3.45	1,244,623.28	3,236,471.41	40.00179	-104.65589	
3,499.99	5.95	181.31	3,491.89	-160.86	-3.68	1,244,612.91	3,236,471.17	40.00176	-104.65589	
3,599.99	5.95	181.31	3,591.35	-171.23	-3.92	1,244,602.54	3,236,470.93	40.00173	-104.65589	
3,699.99	5.95	181.31	3,690.81	-181.60	-4.16	1,244,592.18	3,236,470.69	40.00170	-104.65589	
3,799.99	5.95	181.31	3,790.28	-191.97	-4.40	1,244,581.81	3,236,470.46	40.00167	-104.65589	
3,899.99	5.95	181.31	3,889.74	-202.34	-4.63	1,244,571.44	3,236,470.22	40.00165	-104.65590	
3,999.99	5.95	181.31	3,989.20	-212.71	-4.87	1,244,561.07	3,236,469.98	40.00162	-104.65590	
4,099.99	5.95	181.31	4,088.66	-223.08	-5.11	1,244,550.70	3,236,469.74	40.00159	-104.65590	
4,199.99	5.95	181.31	4,188.12	-233.45	-5.35	1,244,540.33	3,236,469.51	40.00156	-104.65590	
4,299.99	5.95	181.31	4,287.58	-243.82	-5.58	1,244,529.96	3,236,469.27	40.00153	-104.65590	
4,399.99	5.95	181.31	4,387.04	-254.19	-5.82	1,244,519.59	3,236,469.03	40.00150	-104.65590	
4,499.99	5.95	181.31	4,486.50	-264.56	-6.06	1,244,509.22	3,236,468.79	40.00147	-104.65590	
4,599.99	5.95	181.31	4,585.96	-274.92	-6.30	1,244,498.85	3,236,468.56	40.00145	-104.65590	
4,699.99	5.95	181.31	4,685.42	-285.29	-6.53	1,244,488.48	3,236,468.32	40.00142	-104.65591	
4,799.99	5.95	181.31	4,784.88	-295.66	-6.77	1,244,478.11	3,236,468.08	40.00139	-104.65591	
4,899.99	5.95	181.31	4,884.34	-306.03	-7.01	1,244,467.74	3,236,467.84	40.00136	-104.65591	
4,999.99	5.95	181.31	4,983.80	-316.40	-7.25	1,244,457.37	3,236,467.61	40.00133	-104.65591	

Database:	DB Jul2216dt	Local Co-ordinate Reference:	Well Judy 34-03-8
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 34-03-8	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original hole		
Design:	rev0		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,099.99	5.95	181.31	5,083.26	-326.77	-7.48	1,244,447.00	3,236,467.37	40.00130	-104.65591
5,199.99	5.95	181.31	5,182.72	-337.14	-7.72	1,244,436.63	3,236,467.13	40.00128	-104.65591
5,299.99	5.95	181.31	5,282.18	-347.51	-7.96	1,244,426.26	3,236,466.89	40.00125	-104.65591
5,399.99	5.95	181.31	5,381.64	-357.88	-8.20	1,244,415.89	3,236,466.66	40.00122	-104.65591
5,499.99	5.95	181.31	5,481.10	-368.25	-8.43	1,244,405.53	3,236,466.42	40.00119	-104.65592
5,599.99	5.95	181.31	5,580.56	-378.62	-8.67	1,244,395.16	3,236,466.18	40.00116	-104.65592
5,699.99	5.95	181.31	5,680.02	-388.99	-8.91	1,244,384.79	3,236,465.94	40.00113	-104.65592
5,799.99	5.95	181.31	5,779.48	-399.36	-9.15	1,244,374.42	3,236,465.71	40.00110	-104.65592
5,899.99	5.95	181.31	5,878.94	-409.73	-9.38	1,244,364.05	3,236,465.47	40.00108	-104.65592
5,999.99	5.95	181.31	5,978.40	-420.10	-9.62	1,244,353.68	3,236,465.23	40.00105	-104.65592
6,099.99	5.95	181.31	6,077.87	-430.47	-9.86	1,244,343.31	3,236,464.99	40.00102	-104.65592
6,199.99	5.95	181.31	6,177.33	-440.84	-10.10	1,244,332.94	3,236,464.76	40.00099	-104.65592
6,299.99	5.95	181.31	6,276.79	-451.21	-10.33	1,244,322.57	3,236,464.52	40.00096	-104.65592
6,399.99	5.95	181.31	6,376.25	-461.57	-10.57	1,244,312.20	3,236,464.28	40.00093	-104.65593
6,499.99	5.95	181.31	6,475.71	-471.94	-10.81	1,244,301.83	3,236,464.04	40.00091	-104.65593
6,599.99	5.95	181.31	6,575.17	-482.31	-11.05	1,244,291.46	3,236,463.81	40.00088	-104.65593
6,699.99	5.95	181.31	6,674.63	-492.68	-11.28	1,244,281.09	3,236,463.57	40.00085	-104.65593
6,782.25	5.95	181.31	6,756.45	-501.21	-11.48	1,244,272.56	3,236,463.37	40.00083	-104.65593
Begin 10°/100' build/turn									
6,799.99	7.73	180.93	6,774.06	-503.33	-11.52	1,244,270.45	3,236,463.33	40.00082	-104.65593
6,899.99	17.73	180.19	6,871.48	-525.33	-11.68	1,244,248.45	3,236,463.17	40.00076	-104.65593
6,999.99	27.73	179.98	6,963.60	-563.91	-11.72	1,244,209.87	3,236,463.13	40.00065	-104.65593
7,099.99	37.72	179.87	7,047.62	-617.90	-11.65	1,244,155.88	3,236,463.21	40.00051	-104.65594
7,199.99	47.72	179.81	7,120.99	-685.66	-11.45	1,244,088.11	3,236,463.40	40.00032	-104.65594
7,299.99	57.72	179.76	7,181.47	-765.13	-11.15	1,244,008.64	3,236,463.70	40.00010	-104.65594
7,399.99	67.72	179.72	7,227.24	-853.90	-10.75	1,243,919.87	3,236,464.10	39.99986	-104.65594
7,499.99	77.72	179.69	7,256.90	-949.27	-10.26	1,243,824.51	3,236,464.60	39.99960	-104.65594
7,599.98	87.72	179.66	7,269.55	-1,048.33	-9.69	1,243,725.44	3,236,465.16	39.99932	-104.65594
7,622.74	90.00	179.65	7,270.00	-1,071.08	-9.55	1,243,702.69	3,236,465.30	39.99926	-104.65594
Begin 90.00° lateral section									
7,699.98	90.00	179.65	7,270.00	-1,148.33	-9.08	1,243,625.45	3,236,465.77	39.99905	-104.65594
7,799.98	90.00	179.65	7,270.00	-1,248.32	-8.47	1,243,525.45	3,236,466.39	39.99877	-104.65595
7,899.98	90.00	179.65	7,270.00	-1,348.32	-7.86	1,243,425.45	3,236,467.00	39.99850	-104.65595
7,999.98	90.00	179.65	7,270.00	-1,448.32	-7.25	1,243,325.46	3,236,467.61	39.99823	-104.65595
8,099.98	90.00	179.65	7,270.00	-1,548.32	-6.64	1,243,225.46	3,236,468.22	39.99795	-104.65595
8,199.98	90.00	179.65	7,270.00	-1,648.32	-6.02	1,243,125.46	3,236,468.83	39.99768	-104.65595
8,299.98	90.00	179.65	7,270.00	-1,748.31	-5.41	1,243,025.46	3,236,469.44	39.99740	-104.65595
8,399.98	90.00	179.65	7,270.00	-1,848.31	-4.80	1,242,925.46	3,236,470.05	39.99713	-104.65595
8,499.98	90.00	179.65	7,270.00	-1,948.31	-4.19	1,242,825.47	3,236,470.66	39.99685	-104.65595
8,599.98	90.00	179.65	7,270.00	-2,048.31	-3.58	1,242,725.47	3,236,471.27	39.99658	-104.65596
8,699.98	90.00	179.65	7,270.00	-2,148.30	-2.97	1,242,625.47	3,236,471.88	39.99630	-104.65596
8,799.98	90.00	179.65	7,270.00	-2,248.30	-2.36	1,242,525.47	3,236,472.49	39.99603	-104.65596
8,899.98	90.00	179.65	7,270.00	-2,348.30	-1.75	1,242,425.47	3,236,473.10	39.99575	-104.65596
8,999.98	90.00	179.65	7,270.00	-2,448.30	-1.14	1,242,325.48	3,236,473.72	39.99548	-104.65596
9,099.98	90.00	179.65	7,270.00	-2,548.30	-0.53	1,242,225.48	3,236,474.33	39.99521	-104.65596
9,199.98	90.00	179.65	7,270.00	-2,648.29	0.08	1,242,125.48	3,236,474.94	39.99493	-104.65596
9,299.98	90.00	179.65	7,270.00	-2,748.29	0.69	1,242,025.48	3,236,475.55	39.99466	-104.65596
9,399.98	90.00	179.65	7,270.00	-2,848.29	1.31	1,241,925.48	3,236,476.16	39.99438	-104.65596
9,499.98	90.00	179.65	7,270.00	-2,948.29	1.92	1,241,825.49	3,236,476.77	39.99411	-104.65597
9,599.98	90.00	179.65	7,270.00	-3,048.29	2.53	1,241,725.49	3,236,477.38	39.99383	-104.65597
9,699.98	90.00	179.65	7,270.00	-3,148.28	3.14	1,241,625.49	3,236,477.99	39.99356	-104.65597
9,799.98	90.00	179.65	7,270.00	-3,248.28	3.75	1,241,525.49	3,236,478.60	39.99328	-104.65597
9,899.98	90.00	179.65	7,270.00	-3,348.28	4.36	1,241,425.49	3,236,479.21	39.99301	-104.65597
9,999.98	90.00	179.65	7,270.00	-3,448.28	4.97	1,241,325.50	3,236,479.82	39.99274	-104.65597

Database:	DB Jul2216dt	Local Co-ordinate Reference:	Well Judy 34-03-8
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 34-03-8	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original hole		
Design:	rev0		

Planned Survey										
Measured			Vertical			Map	Map			
Depth	Inclination	Azimuth	Depth	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)			
10,099.98	90.00	179.65	7,270.00	-3,548.28	5.58	1,241,225.50	3,236,480.43	39.99246	-104.65597	
10,199.98	90.00	179.65	7,270.00	-3,648.27	6.19	1,241,125.50	3,236,481.05	39.99219	-104.65597	
10,299.98	90.00	179.65	7,270.00	-3,748.27	6.80	1,241,025.50	3,236,481.66	39.99191	-104.65598	
10,399.98	90.00	179.65	7,270.00	-3,848.27	7.41	1,240,925.51	3,236,482.27	39.99164	-104.65598	
10,499.98	90.00	179.65	7,270.00	-3,948.27	8.03	1,240,825.51	3,236,482.88	39.99136	-104.65598	
10,599.98	90.00	179.65	7,270.00	-4,048.27	8.64	1,240,725.51	3,236,483.49	39.99109	-104.65598	
10,699.98	90.00	179.65	7,270.00	-4,148.26	9.25	1,240,625.51	3,236,484.10	39.99081	-104.65598	
10,799.98	90.00	179.65	7,270.00	-4,248.26	9.86	1,240,525.51	3,236,484.71	39.99054	-104.65598	
10,899.98	90.00	179.65	7,270.00	-4,348.26	10.47	1,240,425.52	3,236,485.32	39.99026	-104.65598	
10,999.98	90.00	179.65	7,270.00	-4,448.26	11.08	1,240,325.52	3,236,485.93	39.98999	-104.65598	
11,099.98	90.00	179.65	7,270.00	-4,548.26	11.69	1,240,225.52	3,236,486.54	39.98972	-104.65599	
11,199.98	90.00	179.65	7,270.00	-4,648.25	12.30	1,240,125.52	3,236,487.15	39.98944	-104.65599	
11,299.98	90.00	179.65	7,270.00	-4,748.25	12.91	1,240,025.52	3,236,487.77	39.98917	-104.65599	
11,399.98	90.00	179.65	7,270.00	-4,848.25	13.52	1,239,925.53	3,236,488.38	39.98889	-104.65599	
11,499.98	90.00	179.65	7,270.00	-4,948.25	14.13	1,239,825.53	3,236,488.99	39.98862	-104.65599	
11,599.98	90.00	179.65	7,270.00	-5,048.25	14.74	1,239,725.53	3,236,489.60	39.98834	-104.65599	
11,691.71	90.00	179.65	7,270.00	-5,139.98	15.31	1,239,633.80	3,236,490.16	39.98809	-104.65599	
PBHL/TD 11692 MD/7270 TVD										

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 34-3-8 PBHL 470 F	0.00	0.00	7,270.00	-5,139.98	15.31	1,239,633.80	3,236,490.16	39.98809	-104.65599	
- plan hits target center										
- Point										
Judy 34-3-8 EP 470 FNL	0.00	0.00	7,270.00	-1,071.09	-9.42	1,243,702.68	3,236,465.44	39.99926	-104.65594	
- plan misses target center by 0.14usft at 7622.75usft MD (7270.00 TVD, -1071.09 N, -9.55 E)										
- Point										

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
1,800.00	1,800.00	0.00	0.00	KOP Begin 2°/100' build	
2,097.68	2,097.14	-15.45	-0.35	Begin 5.95° tangent section	
6,782.25	6,756.45	-501.21	-11.48	Begin 10°/100' build/turn	
7,622.74	7,270.00	-1,071.08	-9.55	Begin 90.00° lateral section	
11,691.71	7,270.00	-5,139.98	15.31	PBHL/TD 11692 MD/7270 TVD	