

Edge Energy LLC

Weld County, Co (NAD 83)

Sec. 33 Twn 1N Rng 65W

Cherry Knolls 33-12 - Slot 12

Hz

UWI:

WL:

Plan: #1

Standard Planning Report

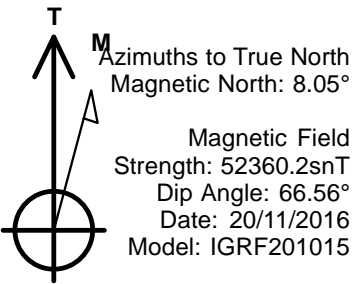
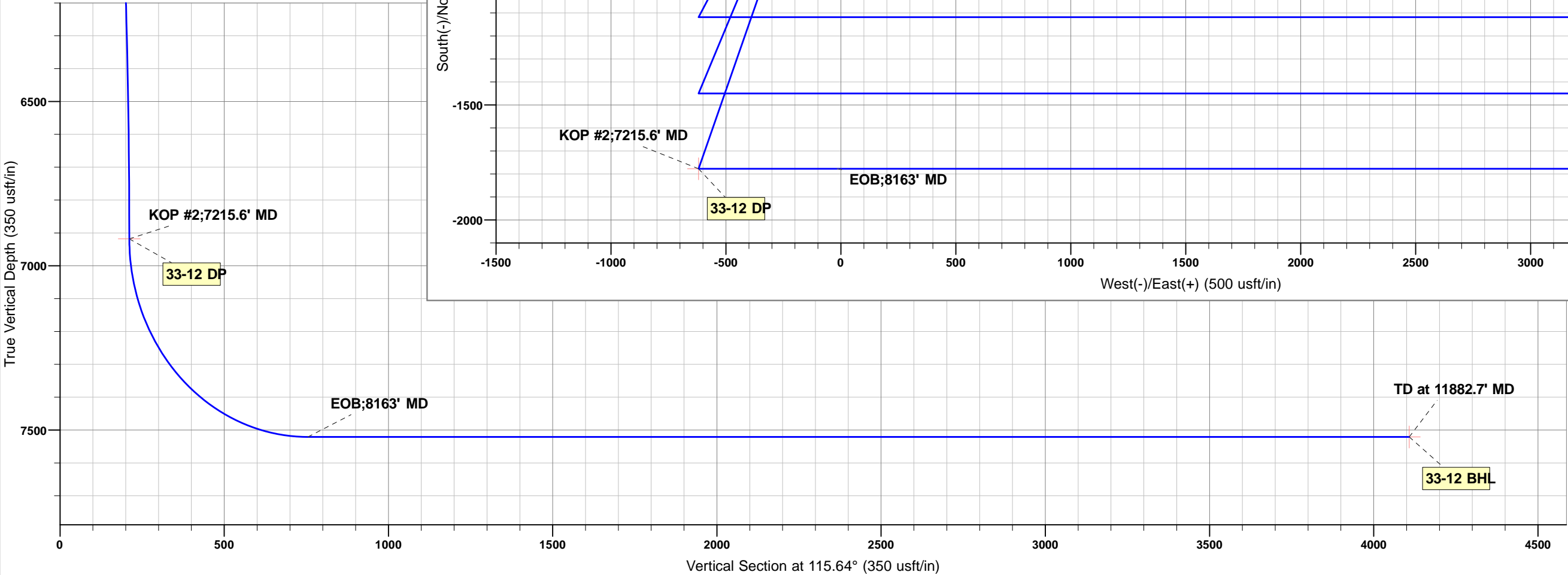
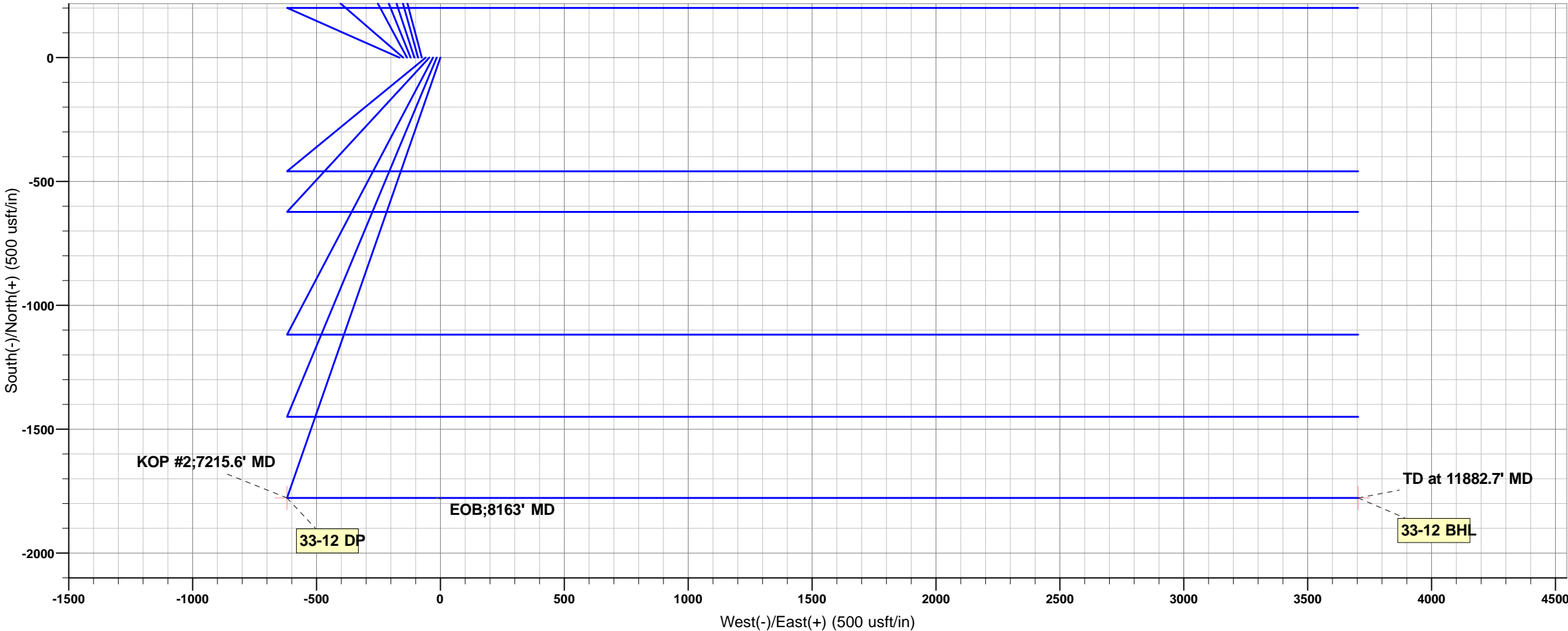
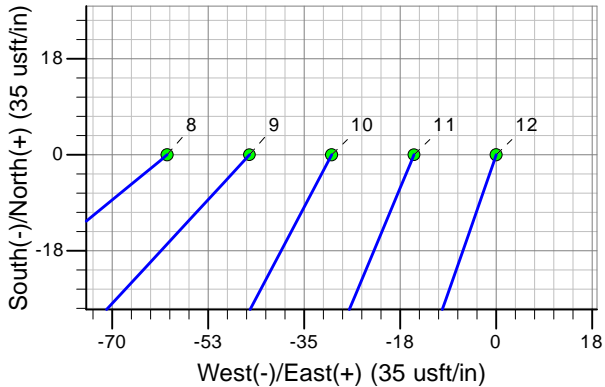
07 December, 2016

Project: Weld County, Co (NAD 83)
Site: Sec. 33 TwN 1N Rng 65W
Well: Cherry Knolls 33-12
Wellbore: Hz
Plan: #1

Reference Details - WELL CENTRE
Geodetic System: US State Plane 1983
Ellipsoid: GRS 1980
Zone: Colorado Northern Zone
Northing: 1246560.36
Easting: 3231221.82
Latitude: 40° 0' 26.06395 N
Longitude: 104° 40' 28.41951 W
Grid Convergence: 0.53° West
Ground Elevation: 5106.0
KB Elevation: RKB @ 5126.0usft (kb;20')

PLAN DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	500.0	0.00	0.00	500.0	0.0	0.0	0.00	0.00	0.0	
3	1451.3	19.03	199.20	1433.9	-147.8	-51.5	2.00	199.20	17.5	
4	6264.3	19.03	199.20	5984.0	-1629.6	-567.5	0.00	0.00	193.4	
5	7215.6	0.00	0.00	6917.9	-1777.4	-619.0	2.00	180.00	210.9	33-12 DP
6	8163.0	90.00	90.00	7521.0	-1777.4	-15.9	9.50	90.00	754.7	
7	11882.7	90.00	90.00	7521.0	-1777.4	3703.8	0.00	0.00	4108.2	33-12 BHL



Planning Report

Database:	WellPlan Services	Local Co-ordinate Reference:	Well Cherry Knolls 33-12 - Slot 12
Company:	Edge Energy LLC	TVD Reference:	RKB @ 5126.0usft (kb;20')
Project:	Weld County, Co (NAD 83)	MD Reference:	RKB @ 5126.0usft (kb;20')
Site:	Sec. 33 Twn 1N Rng 65W	North Reference:	True
Well:	Cherry Knolls 33-12	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	#1		

Project	Weld County, Co (NAD 83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site		Sec. 33 Twn 1N Rng 65W			
Site Position:		Northing:	1,246,558.82 usft	Latitude:	40° 0' 26.06400 N
From:	Lat/Long	Easting:	3,231,056.83 usft	Longitude:	104° 40' 30.54000 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.53 °

Well	Cherry Knolls 33-12 - Slot 12					
Well Position	+N/-S	0.0 usft	Northing:	1,246,560.36 usft	Latitude:	40° 0' 26.06395 N
	+E/-W	165.0 usft	Easting:	3,231,221.82 usft	Longitude:	104° 40' 28.41951 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	5,106.0 usft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF201015	20/11/2016	8.05	66.56	52,360

Design	#1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	115.64

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
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,451.3	19.03	199.20	1,433.9	-147.8	-51.5	2.00	2.00	0.00	199.20	
6,264.3	19.03	199.20	5,984.0	-1,629.6	-567.5	0.00	0.00	0.00	0.00	
7,215.6	0.00	0.00	6,917.9	-1,777.4	-619.0	2.00	-2.00	0.00	180.00	33-12 DP
8,163.0	90.00	90.00	7,521.0	-1,777.4	-15.9	9.50	9.50	0.00	90.00	
11,882.7	90.00	90.00	7,521.0	-1,777.4	3,703.8	0.00	0.00	0.00	0.00	33-12 BHL

Planning Report

Database:	WellPlan Services	Local Co-ordinate Reference:	Well Cherry Knolls 33-12 - Slot 12
Company:	Edge Energy LLC	TVD Reference:	RKB @ 5126.0usft (kb;20')
Project:	Weld County, Co (NAD 83)	MD Reference:	RKB @ 5126.0usft (kb;20')
Site:	Sec. 33 Twn 1N Rng 65W	North Reference:	True
Well:	Cherry Knolls 33-12	Survey Calculation Method:	Minimum Curvature
Wellbore:	H2		
Design:	#1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea (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	-5,126.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP;500' MD										
500.0	0.00	0.00	500.0	-4,626.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	2.00	199.20	600.0	-4,526.0	-1.6	-0.6	0.2	2.00	2.00	0.00
700.0	4.00	199.20	699.8	-4,426.2	-6.6	-2.3	0.8	2.00	2.00	0.00
800.0	6.00	199.20	799.5	-4,326.5	-14.8	-5.2	1.8	2.00	2.00	0.00
900.0	8.00	199.20	898.7	-4,227.3	-26.3	-9.2	3.1	2.00	2.00	0.00
1,000.0	10.00	199.20	997.5	-4,128.5	-41.1	-14.3	4.9	2.00	2.00	0.00
1,100.0	12.00	199.20	1,095.6	-4,030.4	-59.1	-20.6	7.0	2.00	2.00	0.00
1,200.0	14.00	199.20	1,193.1	-3,932.9	-80.4	-28.0	9.5	2.00	2.00	0.00
1,300.0	16.00	199.20	1,289.6	-3,836.4	-104.8	-36.5	12.4	2.00	2.00	0.00
1,400.0	18.00	199.20	1,385.3	-3,740.7	-132.4	-46.1	15.7	2.00	2.00	0.00
1,451.3	19.03	199.20	1,433.9	-3,692.1	-147.8	-51.5	17.5	2.00	2.00	0.00
1,500.0	19.03	199.20	1,480.0	-3,646.0	-162.8	-56.7	19.3	0.00	0.00	0.00
1,600.0	19.03	199.20	1,574.5	-3,551.5	-193.6	-67.4	23.0	0.00	0.00	0.00
1,700.0	19.03	199.20	1,669.0	-3,457.0	-224.4	-78.1	26.6	0.00	0.00	0.00
1,800.0	19.03	199.20	1,763.6	-3,362.4	-255.1	-88.9	30.3	0.00	0.00	0.00
1,900.0	19.03	199.20	1,858.1	-3,267.9	-285.9	-99.6	33.9	0.00	0.00	0.00
2,000.0	19.03	199.20	1,952.6	-3,173.4	-316.7	-110.3	37.6	0.00	0.00	0.00
2,100.0	19.03	199.20	2,047.2	-3,078.8	-347.5	-121.0	41.2	0.00	0.00	0.00
2,200.0	19.03	199.20	2,141.7	-2,984.3	-378.3	-131.7	44.9	0.00	0.00	0.00
2,300.0	19.03	199.20	2,236.2	-2,889.8	-409.1	-142.5	48.5	0.00	0.00	0.00
2,400.0	19.03	199.20	2,330.8	-2,795.2	-439.9	-153.2	52.2	0.00	0.00	0.00
2,500.0	19.03	199.20	2,425.3	-2,700.7	-470.7	-163.9	55.8	0.00	0.00	0.00
2,600.0	19.03	199.20	2,519.9	-2,606.1	-501.4	-174.6	59.5	0.00	0.00	0.00
2,700.0	19.03	199.20	2,614.4	-2,511.6	-532.2	-185.4	63.2	0.00	0.00	0.00
2,800.0	19.03	199.20	2,708.9	-2,417.1	-563.0	-196.1	66.8	0.00	0.00	0.00
2,900.0	19.03	199.20	2,803.5	-2,322.5	-593.8	-206.8	70.5	0.00	0.00	0.00
3,000.0	19.03	199.20	2,898.0	-2,228.0	-624.6	-217.5	74.1	0.00	0.00	0.00
3,100.0	19.03	199.20	2,992.5	-2,133.5	-655.4	-228.2	77.8	0.00	0.00	0.00
3,200.0	19.03	199.20	3,087.1	-2,038.9	-686.2	-239.0	81.4	0.00	0.00	0.00
3,300.0	19.03	199.20	3,181.6	-1,944.4	-717.0	-249.7	85.1	0.00	0.00	0.00
3,400.0	19.03	199.20	3,276.2	-1,849.8	-747.7	-260.4	88.7	0.00	0.00	0.00
3,500.0	19.03	199.20	3,370.7	-1,755.3	-778.5	-271.1	92.4	0.00	0.00	0.00
3,600.0	19.03	199.20	3,465.2	-1,660.8	-809.3	-281.9	96.0	0.00	0.00	0.00
3,700.0	19.03	199.20	3,559.8	-1,566.2	-840.1	-292.6	99.7	0.00	0.00	0.00
3,800.0	19.03	199.20	3,654.3	-1,471.7	-870.9	-303.3	103.3	0.00	0.00	0.00
3,900.0	19.03	199.20	3,748.8	-1,377.2	-901.7	-314.0	107.0	0.00	0.00	0.00
4,000.0	19.03	199.20	3,843.4	-1,282.6	-932.5	-324.7	110.6	0.00	0.00	0.00
4,100.0	19.03	199.20	3,937.9	-1,188.1	-963.3	-335.5	114.3	0.00	0.00	0.00
4,200.0	19.03	199.20	4,032.4	-1,093.6	-994.0	-346.2	118.0	0.00	0.00	0.00
4,300.0	19.03	199.20	4,127.0	-999.0	-1,024.8	-356.9	121.6	0.00	0.00	0.00
4,400.0	19.03	199.20	4,221.5	-904.5	-1,055.6	-367.6	125.3	0.00	0.00	0.00
4,500.0	19.03	199.20	4,316.1	-809.9	-1,086.4	-378.4	128.9	0.00	0.00	0.00
4,600.0	19.03	199.20	4,410.6	-715.4	-1,117.2	-389.1	132.6	0.00	0.00	0.00
4,700.0	19.03	199.20	4,505.1	-620.9	-1,148.0	-399.8	136.2	0.00	0.00	0.00

Planning Report

Database:	WellPlan Services	Local Co-ordinate Reference:	Well Cherry Knolls 33-12 - Slot 12
Company:	Edge Energy LLC	TVD Reference:	RKB @ 5126.0usft (kb;20')
Project:	Weld County, Co (NAD 83)	MD Reference:	RKB @ 5126.0usft (kb;20')
Site:	Sec. 33 Twn 1N Rng 65W	North Reference:	True
Well:	Cherry Knolls 33-12	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	#1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,800.0	19.03	199.20	4,599.7	-526.3	-1,178.8	-410.5	139.9	0.00	0.00	0.00
4,900.0	19.03	199.20	4,694.2	-431.8	-1,209.6	-421.2	143.5	0.00	0.00	0.00
5,000.0	19.03	199.20	4,788.7	-337.3	-1,240.3	-432.0	147.2	0.00	0.00	0.00
5,100.0	19.03	199.20	4,883.3	-242.7	-1,271.1	-442.7	150.8	0.00	0.00	0.00
5,200.0	19.03	199.20	4,977.8	-148.2	-1,301.9	-453.4	154.5	0.00	0.00	0.00
5,300.0	19.03	199.20	5,072.3	-53.7	-1,332.7	-464.1	158.1	0.00	0.00	0.00
5,400.0	19.03	199.20	5,166.9	40.9	-1,363.5	-474.9	161.8	0.00	0.00	0.00
5,500.0	19.03	199.20	5,261.4	135.4	-1,394.3	-485.6	165.4	0.00	0.00	0.00
5,600.0	19.03	199.20	5,356.0	230.0	-1,425.1	-496.3	169.1	0.00	0.00	0.00
5,700.0	19.03	199.20	5,450.5	324.5	-1,455.8	-507.0	172.8	0.00	0.00	0.00
5,800.0	19.03	199.20	5,545.0	419.0	-1,486.6	-517.7	176.4	0.00	0.00	0.00
5,900.0	19.03	199.20	5,639.6	513.6	-1,517.4	-528.5	180.1	0.00	0.00	0.00
6,000.0	19.03	199.20	5,734.1	608.1	-1,548.2	-539.2	183.7	0.00	0.00	0.00
6,100.0	19.03	199.20	5,828.6	702.6	-1,579.0	-549.9	187.4	0.00	0.00	0.00
6,200.0	19.03	199.20	5,923.2	797.2	-1,609.8	-560.6	191.0	0.00	0.00	0.00
6,264.3	19.03	199.20	5,984.0	858.0	-1,629.6	-567.5	193.4	0.00	0.00	0.00
6,300.0	18.31	199.20	6,017.8	891.8	-1,640.4	-571.3	194.7	2.00	-2.00	0.00
6,400.0	16.31	199.20	6,113.3	987.3	-1,668.5	-581.1	198.0	2.00	-2.00	0.00
6,500.0	14.31	199.20	6,209.7	1,083.7	-1,693.4	-589.8	200.9	2.00	-2.00	0.00
6,600.0	12.31	199.20	6,307.0	1,181.0	-1,715.2	-597.3	203.5	2.00	-2.00	0.00
6,700.0	10.31	199.20	6,405.1	1,279.1	-1,733.7	-603.8	205.7	2.00	-2.00	0.00
6,800.0	8.31	199.20	6,503.7	1,377.7	-1,749.0	-609.1	207.5	2.00	-2.00	0.00
6,900.0	6.31	199.20	6,602.9	1,476.9	-1,761.0	-613.3	209.0	2.00	-2.00	0.00
7,000.0	4.31	199.20	6,702.5	1,576.5	-1,769.7	-616.3	210.0	2.00	-2.00	0.00
7,100.0	2.31	199.20	6,802.3	1,676.3	-1,775.2	-618.2	210.6	2.00	-2.00	0.00
7,200.0	0.31	199.20	6,902.3	1,776.3	-1,777.3	-619.0	210.9	2.00	-2.00	0.00
KOP #2;7215.6' MD										
7,215.6	0.00	199.20	6,917.9	1,791.9	-1,777.4	-619.0	210.9	2.00	-2.00	0.00
7,300.0	8.02	90.00	7,002.0	1,876.0	-1,777.4	-613.1	216.2	9.50	9.50	-129.39
7,400.0	17.52	90.00	7,099.4	1,973.4	-1,777.4	-591.0	236.1	9.50	9.50	0.00
7,500.0	27.02	90.00	7,191.9	2,065.9	-1,777.4	-553.2	270.2	9.50	9.50	0.00
7,600.0	36.52	90.00	7,276.8	2,150.8	-1,777.4	-500.6	317.6	9.50	9.50	0.00
7,700.0	46.02	90.00	7,351.9	2,225.9	-1,777.4	-434.7	377.0	9.50	9.50	0.00
7,800.0	55.52	90.00	7,415.0	2,289.0	-1,777.4	-357.4	446.8	9.50	9.50	0.00
7,900.0	65.02	90.00	7,464.6	2,338.6	-1,777.4	-270.6	525.0	9.50	9.50	0.00
8,000.0	74.52	90.00	7,499.1	2,373.1	-1,777.4	-176.9	609.5	9.50	9.50	0.00
8,100.0	84.02	90.00	7,517.7	2,391.7	-1,777.4	-78.8	698.0	9.50	9.50	0.00
EOB;8163' MD										
8,163.0	90.00	90.00	7,521.0	2,395.0	-1,777.4	-15.9	754.7	9.50	9.50	0.00
8,200.0	90.00	90.00	7,521.0	2,395.0	-1,777.4	21.1	788.0	0.00	0.00	0.00
8,300.0	90.00	90.00	7,521.0	2,395.0	-1,777.4	121.1	878.2	0.00	0.00	0.00
8,400.0	90.00	90.00	7,521.0	2,395.0	-1,777.4	221.1	968.3	0.00	0.00	0.00
8,500.0	90.00	90.00	7,521.0	2,395.0	-1,777.4	321.1	1,058.5	0.00	0.00	0.00
8,600.0	90.00	90.00	7,521.0	2,395.0	-1,777.4	421.1	1,148.6	0.00	0.00	0.00
8,700.0	90.00	90.00	7,521.0	2,395.0	-1,777.4	521.1	1,238.8	0.00	0.00	0.00
8,800.0	90.00	90.00	7,521.0	2,395.0	-1,777.4	621.1	1,329.0	0.00	0.00	0.00

Planning Report

Database:	WellPlan Services	Local Co-ordinate Reference:	Well Cherry Knolls 33-12 - Slot 12
Company:	Edge Energy LLC	TVD Reference:	RKB @ 5126.0usft (kb;20')
Project:	Weld County, Co (NAD 83)	MD Reference:	RKB @ 5126.0usft (kb;20')
Site:	Sec. 33 TwN 1N Rng 65W	North Reference:	True
Well:	Cherry Knolls 33-12	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	#1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,900.0	90.00	90.00	7,521.0	2,395.0	-1,777.4	721.1	1,419.1	0.00	0.00	0.00
9,000.0	90.00	90.00	7,521.0	2,395.0	-1,777.4	821.1	1,509.3	0.00	0.00	0.00
9,100.0	90.00	90.00	7,521.0	2,395.0	-1,777.4	921.1	1,599.4	0.00	0.00	0.00
9,200.0	90.00	90.00	7,521.0	2,395.0	-1,777.4	1,021.1	1,689.6	0.00	0.00	0.00
9,300.0	90.00	90.00	7,521.0	2,395.0	-1,777.4	1,121.1	1,779.7	0.00	0.00	0.00
9,400.0	90.00	90.00	7,521.0	2,395.0	-1,777.4	1,221.1	1,869.9	0.00	0.00	0.00
9,500.0	90.00	90.00	7,521.0	2,395.0	-1,777.4	1,321.1	1,960.1	0.00	0.00	0.00
9,600.0	90.00	90.00	7,521.0	2,395.0	-1,777.4	1,421.1	2,050.2	0.00	0.00	0.00
9,700.0	90.00	90.00	7,521.0	2,395.0	-1,777.4	1,521.1	2,140.4	0.00	0.00	0.00
9,800.0	90.00	90.00	7,521.0	2,395.0	-1,777.4	1,621.1	2,230.5	0.00	0.00	0.00
9,900.0	90.00	90.00	7,521.0	2,395.0	-1,777.4	1,721.1	2,320.7	0.00	0.00	0.00
10,000.0	90.00	90.00	7,521.0	2,395.0	-1,777.4	1,821.1	2,410.8	0.00	0.00	0.00
10,100.0	90.00	90.00	7,521.0	2,395.0	-1,777.4	1,921.1	2,501.0	0.00	0.00	0.00
10,200.0	90.00	90.00	7,521.0	2,395.0	-1,777.4	2,021.1	2,591.1	0.00	0.00	0.00
10,300.0	90.00	90.00	7,521.0	2,395.0	-1,777.4	2,121.1	2,681.3	0.00	0.00	0.00
10,400.0	90.00	90.00	7,521.0	2,395.0	-1,777.4	2,221.1	2,771.5	0.00	0.00	0.00
10,500.0	90.00	90.00	7,521.0	2,395.0	-1,777.4	2,321.1	2,861.6	0.00	0.00	0.00
10,600.0	90.00	90.00	7,521.0	2,395.0	-1,777.4	2,421.1	2,951.8	0.00	0.00	0.00
10,700.0	90.00	90.00	7,521.0	2,395.0	-1,777.4	2,521.1	3,041.9	0.00	0.00	0.00
10,800.0	90.00	90.00	7,521.0	2,395.0	-1,777.4	2,621.1	3,132.1	0.00	0.00	0.00
10,900.0	90.00	90.00	7,521.0	2,395.0	-1,777.4	2,721.1	3,222.2	0.00	0.00	0.00
11,000.0	90.00	90.00	7,521.0	2,395.0	-1,777.4	2,821.1	3,312.4	0.00	0.00	0.00
11,100.0	90.00	90.00	7,521.0	2,395.0	-1,777.4	2,921.1	3,402.6	0.00	0.00	0.00
11,200.0	90.00	90.00	7,521.0	2,395.0	-1,777.4	3,021.1	3,492.7	0.00	0.00	0.00
11,300.0	90.00	90.00	7,521.0	2,395.0	-1,777.4	3,121.1	3,582.9	0.00	0.00	0.00
11,400.0	90.00	90.00	7,521.0	2,395.0	-1,777.4	3,221.1	3,673.0	0.00	0.00	0.00
11,500.0	90.00	90.00	7,521.0	2,395.0	-1,777.4	3,321.1	3,763.2	0.00	0.00	0.00
11,600.0	90.00	90.00	7,521.0	2,395.0	-1,777.4	3,421.1	3,853.3	0.00	0.00	0.00
11,700.0	90.00	90.00	7,521.0	2,395.0	-1,777.4	3,521.1	3,943.5	0.00	0.00	0.00
11,800.0	90.00	90.00	7,521.0	2,395.0	-1,777.4	3,621.1	4,033.6	0.00	0.00	0.00
TD at 11882.7' MD										
11,882.7	90.00	90.00	7,521.0	2,395.0	-1,777.4	3,703.8	4,108.2	0.00	0.00	0.00

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude		Longitude
33-12 DP - hit/miss target - Shape	0.00	0.00	6,917.9	-1,777.4	-619.0	1,244,777.29	3,230,619.39	40° 0' 8.49861 N		104° 40' 36.37399 W
33-12 BHL - plan hits target center - Point	0.00	0.00	7,521.0	-1,777.4	3,703.8	1,244,817.53	3,234,941.98	40° 0' 8.49596 N		104° 39' 40.82400 W

Planning Report

Database:	WellPlan Services	Local Co-ordinate Reference:	Well Cherry Knolls 33-12 - Slot 12
Company:	Edge Energy LLC	TVD Reference:	RKB @ 5126.0usft (kb;20')
Project:	Weld County, Co (NAD 83)	MD Reference:	RKB @ 5126.0usft (kb;20')
Site:	Sec. 33 Twn 1N Rng 65W	North Reference:	True
Well:	Cherry Knolls 33-12	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	#1		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
500.0	500.0	0.0	0.0	KOP;500' MD
7,215.6	6,917.9	-1,777.4	-619.0	KOP #2;7215.6' MD
8,163.0	7,521.0	-1,777.4	-15.9	EOB;8163' MD
11,882.7	7,521.0	-1,777.4	3,703.8	TD at 11882.7' MD

Anticollision Report

Company:	Edge Energy LLC	Local Co-ordinate Reference:	Well Cherry Knolls 33-12 - Slot 12
Project:	Weld County, Co (NAD 83)	TVD Reference:	RKB @ 5126.0usft (kb;20')
Reference Site:	Sec. 33 Twn 1N Rng 65W	MD Reference:	RKB @ 5126.0usft (kb;20')
Site Error:	0.0 usft	North Reference:	True
Reference Well:	Cherry Knolls 33-12	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	WellPlan Services
Reference Design:	#1	Offset TVD Reference:	Offset Datum

Reference	#1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 50.0usft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 100.0 usft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program		Date	06/12/2016		
From (usft)	To (usft)	Survey (Wellbore)		Tool Name	Description
0.0	11,882.7	#1 (Hz)		MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Sec. 33 Twn 1N Rng 65W						
Cherry Knolls 33-1* - Hz - #1						Out of range
Cherry Knolls 33-10 - Hz - #1	500.0	500.0	30.0	28.0	15.167	CC
Cherry Knolls 33-10 - Hz - #1	600.0	599.5	30.2	27.9	12.738	ES
Cherry Knolls 33-10 - Hz - #1	1,500.0	1,495.6	52.6	44.1	6.154	SF
Cherry Knolls 33-11 - Hz - #1	500.0	500.0	15.0	13.0	7.584	CC
Cherry Knolls 33-11 - Hz - #1	700.0	699.6	15.4	12.6	5.599	ES
Cherry Knolls 33-11 - Hz - #1	1,550.0	1,548.1	25.3	15.9	2.701	SF
Cherry Knolls 33-2* - Hz - #1						Out of range
Cherry Knolls 33-3* - Hz - #1						Out of range
Cherry Knolls 33-4 - Hz - #1						Out of range
Cherry Knolls 33-5* - Hz - #1						Out of range
Cherry Knolls 33-6* - Hz - #1	790.9	782.0	87.1	83.9	27.296	CC
Cherry Knolls 33-6* - Hz - #1	800.0	791.0	87.1	83.9	26.966	ES
Cherry Knolls 33-6* - Hz - #1	1,000.0	983.0	98.3	94.1	23.313	SF
Cherry Knolls 33-7* - Hz - #1	757.4	749.0	72.7	69.7	23.895	CC, ES
Cherry Knolls 33-7* - Hz - #1	950.0	935.4	82.1	78.2	20.729	SF
Cherry Knolls 33-8 - Hz - #1	836.4	833.7	56.7	53.2	16.574	CC
Cherry Knolls 33-8 - Hz - #1	850.0	847.1	56.7	53.2	16.275	ES
Cherry Knolls 33-8 - Hz - #1	1,000.0	995.5	61.5	57.2	14.570	SF
Cherry Knolls 33-9 - Hz - #1	500.0	499.0	45.0	43.0	22.777	CC
Cherry Knolls 33-9 - Hz - #1	550.0	548.5	45.1	43.0	20.757	ES
Cherry Knolls 33-9 - Hz - #1	1,400.0	1,390.4	89.9	82.6	12.214	SF

Offset Design	Sec. 33 Twn 1N Rng 65W - Cherry Knolls 33-10 - Hz - #1											Offset Site Error:	0.0 usft
Survey Program:	0-MWD											Offset Well Error:	0.0 usft
Reference	Offset	Semi Major Axis		Distance				Warning					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
0.0	0.0	0.0	0.0	0.0	0.0	-90.00	0.0	-30.0	30.0				
50.0	50.0	50.0	50.0	0.0	0.0	-90.00	0.0	-30.0	30.0	29.9	0.08	381.348	
100.0	100.0	100.0	100.0	0.1	0.1	-90.00	0.0	-30.0	30.0	29.8	0.18	166.840	
150.0	150.0	150.0	150.0	0.2	0.2	-90.00	0.0	-30.0	30.0	29.6	0.40	74.151	
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	0.0	-30.0	30.0	29.4	0.63	47.669	
250.0	250.0	250.0	250.0	0.4	0.4	-90.00	0.0	-30.0	30.0	29.1	0.85	35.124	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company:	Edge Energy LLC	Local Co-ordinate Reference:	Well Cherry Knolls 33-12 - Slot 12
Project:	Weld County, Co (NAD 83)	TVD Reference:	RKB @ 5126.0usft (kb;20')
Reference Site:	Sec. 33 Twn 1N Rng 65W	MD Reference:	RKB @ 5126.0usft (kb;20')
Site Error:	0.0 usft	North Reference:	True
Reference Well:	Cherry Knolls 33-12	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	WellPlan Services
Reference Design:	#1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 usft
Survey Program: 0-MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
300.0	300.0	300.0	300.0	0.5	0.5	-90.00	0.0	-30.0	30.0	28.9	1.08	27.807		
350.0	350.0	350.0	350.0	0.7	0.7	-90.00	0.0	-30.0	30.0	28.7	1.30	23.012		
400.0	400.0	400.0	400.0	0.8	0.8	-90.00	0.0	-30.0	30.0	28.5	1.53	19.628		
450.0	450.0	450.0	450.0	0.9	0.9	-90.00	0.0	-30.0	30.0	28.2	1.75	17.112		
500.0	500.0	500.0	500.0	1.0	1.0	-90.00	0.0	-30.0	30.0	28.0	1.98	15.167 CC		
550.0	550.0	549.8	549.8	1.1	1.1	70.85	-0.4	-30.2	30.1	27.9	2.18	13.814		
600.0	600.0	599.5	599.5	1.2	1.2	71.00	-1.5	-30.8	30.2	27.9	2.37	12.738 ES		
650.0	649.9	649.3	649.2	1.3	1.3	71.26	-3.4	-31.8	30.5	28.0	2.56	11.921		
700.0	699.8	699.0	698.9	1.4	1.4	71.60	-6.1	-33.2	30.9	28.2	2.75	11.260		
750.0	749.7	748.8	748.5	1.5	1.5	72.03	-9.6	-35.0	31.5	28.5	2.96	10.636		
800.0	799.5	798.5	798.0	1.6	1.6	72.54	-13.7	-37.2	32.1	29.0	3.17	10.132		
850.0	849.1	848.3	847.4	1.7	1.7	73.11	-18.7	-39.9	32.9	29.5	3.42	9.636		
900.0	898.7	898.0	896.7	1.8	1.8	73.74	-24.4	-42.9	33.8	30.1	3.66	9.236		
950.0	948.2	947.8	945.9	2.0	2.0	74.41	-30.9	-46.3	34.8	30.9	3.95	8.828		
1,000.0	997.5	997.5	995.0	2.1	2.1	75.11	-38.1	-50.1	36.0	31.7	4.23	8.498		
1,050.0	1,046.6	1,047.2	1,043.9	2.3	2.3	75.83	-46.1	-54.3	37.3	32.7	4.57	8.153		
1,100.0	1,095.6	1,097.0	1,092.7	2.5	2.5	76.57	-54.8	-58.9	38.6	33.7	4.91	7.875		
1,150.0	1,144.4	1,146.7	1,141.2	2.7	2.7	77.31	-64.3	-63.9	40.2	34.9	5.29	7.587		
1,200.0	1,193.1	1,196.7	1,189.9	2.9	2.9	78.72	-74.1	-69.1	41.7	36.0	5.70	7.309		
1,250.0	1,241.5	1,246.6	1,238.6	3.1	3.1	81.16	-84.0	-74.2	43.0	36.9	6.15	6.994		
1,300.0	1,289.6	1,296.5	1,287.3	3.4	3.3	84.57	-93.8	-79.4	44.4	37.7	6.61	6.708		
1,350.0	1,337.6	1,346.4	1,335.9	3.6	3.5	88.85	-103.6	-84.6	45.8	38.7	7.11	6.442		
1,400.0	1,385.3	1,396.2	1,384.5	3.9	3.7	93.88	-113.4	-89.7	47.6	40.0	7.61	6.257		
1,450.0	1,432.7	1,445.9	1,432.9	4.2	4.0	99.47	-123.1	-94.9	49.8	41.7	8.10	6.156		
1,500.0	1,480.0	1,495.6	1,481.4	4.5	4.2	105.06	-132.9	-100.0	52.6	44.1	8.56	6.154 SF		
1,550.0	1,527.2	1,545.2	1,529.8	4.8	4.4	110.05	-142.7	-105.2	55.9	46.9	8.98	6.223		
1,600.0	1,574.5	1,594.9	1,578.2	5.1	4.6	114.47	-152.5	-110.3	59.5	50.2	9.38	6.348		
1,650.0	1,621.8	1,644.6	1,626.7	5.4	4.9	118.36	-162.2	-115.5	63.5	53.7	9.75	6.509		
1,700.0	1,669.0	1,694.3	1,675.1	5.7	5.1	121.78	-172.0	-120.6	67.7	57.6	10.11	6.695		
1,750.0	1,716.3	1,743.9	1,723.5	6.0	5.3	124.80	-181.8	-125.8	72.1	61.7	10.46	6.898		
1,800.0	1,763.6	1,793.6	1,771.9	6.3	5.6	127.46	-191.5	-130.9	76.7	65.9	10.79	7.110		
1,850.0	1,810.8	1,843.3	1,820.4	6.6	5.8	129.82	-201.3	-136.0	81.5	70.3	11.12	7.326		
1,900.0	1,858.1	1,892.9	1,868.8	7.0	6.0	131.92	-211.1	-141.2	86.3	74.9	11.44	7.545		
1,950.0	1,905.4	1,942.6	1,917.2	7.3	6.3	133.79	-220.8	-146.3	91.3	79.5	11.76	7.761		
2,000.0	1,952.6	1,992.3	1,965.6	7.6	6.5	135.47	-230.6	-151.5	96.3	84.3	12.08	7.975		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company:	Edge Energy LLC	Local Co-ordinate Reference:	Well Cherry Knolls 33-12 - Slot 12
Project:	Weld County, Co (NAD 83)	TVD Reference:	RKB @ 5126.0usft (kb;20')
Reference Site:	Sec. 33 Twn 1N Rng 65W	MD Reference:	RKB @ 5126.0usft (kb;20')
Site Error:	0.0 usft	North Reference:	True
Reference Well:	Cherry Knolls 33-12	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	WellPlan Services
Reference Design:	#1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 usft
Survey Program: 0-MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-90.00	0.0	-15.0	15.0					
50.0	50.0	50.0	50.0	0.0	0.0	-90.00	0.0	-15.0	15.0	14.9	0.08	190.674		
100.0	100.0	100.0	100.0	0.1	0.1	-90.00	0.0	-15.0	15.0	14.8	0.18	83.420		
150.0	150.0	150.0	150.0	0.2	0.2	-90.00	0.0	-15.0	15.0	14.6	0.40	37.076		
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	0.0	-15.0	15.0	14.4	0.63	23.834		
250.0	250.0	250.0	250.0	0.4	0.4	-90.00	0.0	-15.0	15.0	14.1	0.85	17.562		
300.0	300.0	300.0	300.0	0.5	0.5	-90.00	0.0	-15.0	15.0	13.9	1.08	13.903		
350.0	350.0	350.0	350.0	0.7	0.7	-90.00	0.0	-15.0	15.0	13.7	1.30	11.506		
400.0	400.0	400.0	400.0	0.8	0.8	-90.00	0.0	-15.0	15.0	13.5	1.53	9.814		
450.0	450.0	450.0	450.0	0.9	0.9	-90.00	0.0	-15.0	15.0	13.2	1.75	8.556		
500.0	500.0	500.0	500.0	1.0	1.0	-90.00	0.0	-15.0	15.0	13.0	1.98	7.584 CC		
550.0	550.0	549.9	549.9	1.1	1.1	70.84	-0.4	-15.2	15.0	12.8	2.18	6.905		
600.0	600.0	599.8	599.8	1.2	1.2	70.95	-1.6	-15.7	15.1	12.7	2.37	6.360		
650.0	649.9	649.7	649.6	1.3	1.3	71.14	-3.6	-16.5	15.2	12.7	2.56	5.942		
700.0	699.8	699.6	699.4	1.4	1.4	71.39	-6.4	-17.7	15.4	12.6	2.75	5.599 ES		
750.0	749.7	749.5	749.2	1.5	1.5	71.71	-10.0	-19.2	15.6	12.6	2.96	5.271		
800.0	799.5	799.4	798.9	1.6	1.6	72.09	-14.4	-21.0	15.9	12.7	3.17	5.002		
850.0	849.1	849.3	848.4	1.7	1.7	72.52	-19.6	-23.2	16.2	12.8	3.42	4.736		
900.0	898.7	899.2	897.9	1.8	1.8	73.00	-25.6	-25.7	16.5	12.9	3.66	4.517		
950.0	948.2	949.1	947.3	2.0	2.0	73.52	-32.4	-28.5	17.0	13.0	3.95	4.294		
1,000.0	997.5	999.0	996.5	2.1	2.1	74.07	-40.0	-31.7	17.4	13.2	4.24	4.111		
1,050.0	1,046.6	1,048.9	1,045.5	2.3	2.3	74.64	-48.4	-35.2	17.9	13.4	4.58	3.919		
1,100.0	1,095.6	1,098.8	1,094.4	2.5	2.5	75.22	-57.6	-39.0	18.5	13.6	4.92	3.763		
1,150.0	1,144.4	1,148.7	1,143.1	2.7	2.7	75.82	-67.5	-43.1	19.1	13.8	5.31	3.599		
1,200.0	1,193.1	1,198.6	1,191.7	2.9	2.9	76.43	-78.2	-47.6	19.8	14.1	5.71	3.464		
1,250.0	1,241.5	1,248.5	1,240.0	3.1	3.1	77.03	-89.7	-52.4	20.5	14.3	6.17	3.323		
1,300.0	1,289.6	1,298.4	1,288.1	3.4	3.3	77.63	-102.0	-57.5	21.3	14.6	6.63	3.208		
1,350.0	1,337.6	1,348.3	1,336.1	3.6	3.6	79.12	-114.8	-62.8	22.0	14.8	7.15	3.075		
1,400.0	1,385.3	1,398.3	1,384.1	3.9	3.9	82.69	-127.5	-68.1	22.6	14.9	7.69	2.936		
1,450.0	1,432.7	1,448.3	1,432.1	4.2	4.1	88.20	-140.3	-73.5	23.2	15.0	8.28	2.808		
1,500.0	1,480.0	1,498.2	1,480.1	4.5	4.4	94.46	-153.1	-78.8	24.1	15.3	8.84	2.730		
1,550.0	1,527.2	1,548.1	1,528.1	4.8	4.6	100.21	-165.8	-84.1	25.3	15.9	9.36	2.701 SF		
1,600.0	1,574.5	1,598.0	1,576.0	5.1	4.9	105.42	-178.5	-89.4	26.7	16.8	9.84	2.711		
1,650.0	1,621.8	1,648.0	1,624.0	5.4	5.2	110.08	-191.3	-94.7	28.3	18.0	10.28	2.749		
1,700.0	1,669.0	1,697.9	1,672.0	5.7	5.5	114.22	-204.0	-100.0	30.0	19.3	10.69	2.808		
1,750.0	1,716.3	1,747.8	1,720.0	6.0	5.7	117.88	-216.8	-105.3	31.9	20.8	11.07	2.881		
1,800.0	1,763.6	1,797.7	1,768.0	6.3	6.0	121.13	-229.5	-110.6	33.9	22.5	11.44	2.965		
1,850.0	1,810.8	1,847.7	1,815.9	6.6	6.3	124.01	-242.3	-116.0	36.0	24.2	11.79	3.054		
1,900.0	1,858.1	1,897.6	1,863.9	7.0	6.6	126.56	-255.0	-121.3	38.2	26.1	12.13	3.148		
1,950.0	1,905.4	1,947.5	1,911.9	7.3	6.8	128.83	-267.8	-126.6	40.4	28.0	12.47	3.244		
2,000.0	1,952.6	1,997.4	1,959.9	7.6	7.1	130.87	-280.5	-131.9	42.7	30.0	12.80	3.341		
2,050.0	1,999.9	2,047.4	2,007.8	7.9	7.4	132.69	-293.3	-137.2	45.1	32.0	13.12	3.437		
2,100.0	2,047.2	2,097.3	2,055.8	8.2	7.7	134.33	-306.0	-142.5	47.5	34.1	13.45	3.532		
2,150.0	2,094.4	2,147.2	2,103.8	8.6	8.0	135.81	-318.8	-147.8	49.9	36.2	13.77	3.625		
2,200.0	2,141.7	2,197.1	2,151.8	8.9	8.2	137.15	-331.5	-153.2	52.4	38.3	14.10	3.716		
2,250.0	2,189.0	2,247.1	2,199.7	9.2	8.5	138.37	-344.3	-158.5	54.9	40.5	14.42	3.805		
2,300.0	2,236.2	2,297.0	2,247.7	9.5	8.8	139.49	-357.0	-163.8	57.4	42.6	14.75	3.892		
2,350.0	2,283.5	2,346.9	2,295.7	9.9	9.1	140.51	-369.8	-169.1	59.9	44.8	15.07	3.975		
2,400.0	2,330.8	2,396.8	2,343.7	10.2	9.4	141.45	-382.5	-174.4	62.5	47.1	15.40	4.056		
2,450.0	2,378.1	2,446.8	2,391.6	10.5	9.7	142.31	-395.3	-179.7	65.0	49.3	15.73	4.135		
2,500.0	2,425.3	2,496.7	2,439.6	10.8	9.9	143.11	-408.0	-185.0	67.6	51.6	16.06	4.211		
2,550.0	2,472.6	2,546.6	2,487.6	11.2	10.2	143.85	-420.8	-190.3	70.2	53.8	16.39	4.284		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company:	Edge Energy LLC	Local Co-ordinate Reference:	Well Cherry Knolls 33-12 - Slot 12
Project:	Weld County, Co (NAD 83)	TVD Reference:	RKB @ 5126.0usft (kb;20')
Reference Site:	Sec. 33 Twn 1N Rng 65W	MD Reference:	RKB @ 5126.0usft (kb;20')
Site Error:	0.0 usft	North Reference:	True
Reference Well:	Cherry Knolls 33-12	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	WellPlan Services
Reference Design:	#1	Offset TVD Reference:	Offset Datum

Offset Design Sec. 33 Twn 1N Rng 65W - Cherry Knolls 33-11 - Hz - #1												Offset Site Error:	0.0 usft
Survey Program: 0-MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
2,600.0	2,519.9	2,596.5	2,535.6	11.5	10.5	144.54	-433.5	-195.7	72.8	56.1	16.72	4.355	
2,650.0	2,567.1	2,646.5	2,583.6	11.8	10.8	145.18	-446.3	-201.0	75.4	58.4	17.05	4.423	
2,700.0	2,614.4	2,696.4	2,631.5	12.1	11.1	145.77	-459.0	-206.3	78.0	60.6	17.38	4.489	
2,750.0	2,661.7	2,746.3	2,679.5	12.5	11.4	146.33	-471.8	-211.6	80.7	62.9	17.71	4.553	
2,800.0	2,708.9	2,796.2	2,727.5	12.8	11.6	146.86	-484.5	-216.9	83.3	65.2	18.05	4.615	
2,850.0	2,756.2	2,846.2	2,775.5	13.1	11.9	147.35	-497.3	-222.2	85.9	67.5	18.38	4.674	
2,900.0	2,803.5	2,896.1	2,823.4	13.5	12.2	147.81	-510.0	-227.5	88.6	69.9	18.72	4.732	
2,950.0	2,850.7	2,946.0	2,871.4	13.8	12.5	148.24	-522.8	-232.8	91.2	72.2	19.06	4.787	
3,000.0	2,898.0	2,995.9	2,919.4	14.1	12.8	148.65	-535.5	-238.2	93.9	74.5	19.39	4.841	
3,050.0	2,945.3	3,045.9	2,967.4	14.4	13.1	149.04	-548.3	-243.5	96.5	76.8	19.73	4.893	
3,100.0	2,992.5	3,095.8	3,015.3	14.8	13.4	149.41	-561.0	-248.8	99.2	79.1	20.07	4.943	

Anticollision Report

Company:	Edge Energy LLC	Local Co-ordinate Reference:	Well Cherry Knolls 33-12 - Slot 12
Project:	Weld County, Co (NAD 83)	TVD Reference:	RKB @ 5126.0usft (kb;20')
Reference Site:	Sec. 33 Twn 1N Rng 65W	MD Reference:	RKB @ 5126.0usft (kb;20')
Site Error:	0.0 usft	North Reference:	True
Reference Well:	Cherry Knolls 33-12	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	WellPlan Services
Reference Design:	#1	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 usft
Survey Program: 0-MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
0.0	0.0	0.0	0.0	0.0	0.0	-90.00	0.0	-90.0	90.3				
50.0	50.0	43.0	43.0	0.0	0.0	-90.00	0.0	-90.0	90.0	89.9	0.07	1,243.528	
100.0	100.0	93.0	93.0	0.1	0.1	-90.00	0.0	-90.0	90.0	89.8	0.17	518.673	
150.0	150.0	143.0	143.0	0.2	0.2	-90.00	0.0	-90.0	90.0	89.6	0.39	231.454	
200.0	200.0	193.0	193.0	0.3	0.3	-90.00	0.0	-90.0	90.0	89.4	0.61	146.673	
250.0	250.0	243.0	243.0	0.4	0.4	-90.00	0.0	-90.0	90.0	89.2	0.84	107.350	
300.0	300.0	293.0	293.0	0.5	0.5	-90.00	0.0	-90.0	90.0	88.9	1.06	84.655	
350.0	350.0	343.0	343.0	0.7	0.6	-90.00	0.0	-90.0	90.0	88.7	1.29	69.881	
400.0	400.0	393.0	393.0	0.8	0.7	-90.00	0.0	-90.0	90.0	88.5	1.51	59.497	
450.0	450.0	443.0	443.0	0.9	0.9	-90.00	0.0	-90.0	90.0	88.3	1.74	51.800	
500.0	500.0	493.0	493.0	1.0	1.0	-90.00	0.0	-90.0	90.0	88.0	1.96	45.867	
550.0	550.0	543.0	543.0	1.1	1.1	71.06	0.0	-90.0	89.9	87.7	2.17	41.340	
600.0	600.0	593.0	593.0	1.2	1.2	71.87	0.0	-90.0	89.4	87.1	2.38	37.502	
650.0	649.9	642.9	642.9	1.3	1.3	73.21	0.0	-90.0	88.8	86.2	2.59	34.266	
700.0	699.8	692.7	692.7	1.4	1.4	75.14	0.0	-90.0	88.0	85.2	2.80	31.455	
750.0	749.7	742.0	742.0	1.5	1.5	78.00	0.6	-90.2	87.3	84.3	3.01	28.972	
790.9	790.4	782.0	782.0	1.6	1.6	81.13	1.8	-90.5	87.1	83.9	3.19	27.296 CC	
800.0	799.5	791.0	790.9	1.6	1.6	81.92	2.1	-90.6	87.1	83.9	3.23	26.966 ES	
850.0	849.1	839.6	839.6	1.7	1.8	86.81	4.3	-91.2	87.7	84.2	3.46	25.312	
900.0	898.7	887.9	887.7	1.8	1.9	92.48	7.3	-92.0	89.5	85.8	3.70	24.184	
950.0	948.2	935.7	935.4	2.0	2.0	98.66	11.0	-93.1	92.9	89.0	3.96	23.463	
1,000.0	997.5	983.0	982.4	2.1	2.1	105.01	15.4	-94.3	98.3	94.1	4.22	23.313 SF	

Anticollision Report

Company:	Edge Energy LLC	Local Co-ordinate Reference:	Well Cherry Knolls 33-12 - Slot 12
Project:	Weld County, Co (NAD 83)	TVD Reference:	RKB @ 5126.0usft (kb;20')
Reference Site:	Sec. 33 Twn 1N Rng 65W	MD Reference:	RKB @ 5126.0usft (kb;20')
Site Error:	0.0 usft	North Reference:	True
Reference Well:	Cherry Knolls 33-12	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	WellPlan Services
Reference Design:	#1	Offset TVD Reference:	Offset Datum

Offset Design Sec. 33 Twn 1N Rng 65W - Cherry Knolls 33-7* - HZ - #1												Offset Site Error:	0.0 usft
Survey Program: 0-MWD												Offset Well Error:	0.0 usft
Reference	Offset	Semi Major Axis		Distance									
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-90.00	0.0	-75.0	75.3				
50.0	50.0	43.0	43.0	0.0	0.0	-90.00	0.0	-75.0	75.0	74.9	0.07	1,036.273	
100.0	100.0	93.0	93.0	0.1	0.1	-90.00	0.0	-75.0	75.0	74.8	0.17	432.228	
150.0	150.0	143.0	143.0	0.2	0.2	-90.00	0.0	-75.0	75.0	74.6	0.39	192.879	
200.0	200.0	193.0	193.0	0.3	0.3	-90.00	0.0	-75.0	75.0	74.4	0.61	122.227	
250.0	250.0	243.0	243.0	0.4	0.4	-90.00	0.0	-75.0	75.0	74.2	0.84	89.459	
300.0	300.0	293.0	293.0	0.5	0.5	-90.00	0.0	-75.0	75.0	73.9	1.06	70.546	
350.0	350.0	343.0	343.0	0.7	0.6	-90.00	0.0	-75.0	75.0	73.7	1.29	58.234	
400.0	400.0	393.0	393.0	0.8	0.7	-90.00	0.0	-75.0	75.0	73.5	1.51	49.581	
450.0	450.0	443.0	443.0	0.9	0.9	-90.00	0.0	-75.0	75.0	73.3	1.74	43.167	
500.0	500.0	493.0	493.0	1.0	1.0	-90.00	0.0	-75.0	75.0	73.0	1.96	38.222	
550.0	550.0	543.0	543.0	1.1	1.1	71.12	0.0	-75.0	74.9	72.7	2.17	34.439	
600.0	600.0	593.0	593.0	1.2	1.2	72.08	0.0	-75.0	74.4	72.1	2.38	31.214	
650.0	649.9	642.9	642.9	1.3	1.3	73.70	0.0	-75.0	73.8	71.2	2.59	28.483	
700.0	699.8	692.5	692.5	1.4	1.4	76.22	0.3	-75.1	73.1	70.3	2.80	26.154	
750.0	749.7	741.7	741.7	1.5	1.5	80.04	1.4	-75.4	72.7	69.7	3.01	24.151	
757.4	757.0	749.0	749.0	1.5	1.5	80.71	1.7	-75.4	72.7	69.7	3.04	23.895 CC, ES	
800.0	799.5	790.8	790.7	1.6	1.6	85.08	3.3	-75.9	73.0	69.8	3.23	22.616	
850.0	849.1	839.4	839.3	1.7	1.8	91.17	6.1	-76.6	74.4	70.9	3.47	21.468	
900.0	898.7	887.6	887.4	1.8	1.9	97.95	9.5	-77.5	77.3	73.6	3.70	20.872	
950.0	948.2	935.4	934.9	2.0	2.0	105.01	13.7	-78.6	82.1	78.2	3.96	20.729 SF	
1,000.0	997.5	982.5	981.8	2.1	2.1	111.89	18.6	-79.9	89.2	84.9	4.21	21.156	
1,050.0	1,046.6	1,029.0	1,027.9	2.3	2.2	118.25	24.2	-81.4	98.5	94.0	4.48	21.994	

Anticollision Report

Company:	Edge Energy LLC	Local Co-ordinate Reference:	Well Cherry Knolls 33-12 - Slot 12
Project:	Weld County, Co (NAD 83)	TVD Reference:	RKB @ 5126.0usft (kb;20')
Reference Site:	Sec. 33 Twn 1N Rng 65W	MD Reference:	RKB @ 5126.0usft (kb;20')
Site Error:	0.0 usft	North Reference:	True
Reference Well:	Cherry Knolls 33-12	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	WellPlan Services
Reference Design:	#1	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 usft
Survey Program: 0-MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
0.0	0.0	0.0	0.0	0.0	0.0	-90.00	0.0	-60.0	60.0				
50.0	50.0	48.0	48.0	0.0	0.0	-90.00	0.0	-60.0	60.0	59.9	0.08	780.538	
100.0	100.0	98.0	98.0	0.1	0.1	-90.00	0.0	-60.0	60.0	59.8	0.18	337.050	
150.0	150.0	148.0	148.0	0.2	0.2	-90.00	0.0	-60.0	60.0	59.6	0.40	149.969	
200.0	200.0	198.0	198.0	0.3	0.3	-90.00	0.0	-60.0	60.0	59.4	0.62	96.023	
250.0	250.0	248.0	248.0	0.4	0.4	-90.00	0.0	-60.0	60.0	59.2	0.85	70.620	
300.0	300.0	298.0	298.0	0.5	0.5	-90.00	0.0	-60.0	60.0	58.9	1.07	55.846	
350.0	350.0	348.0	348.0	0.7	0.6	-90.00	0.0	-60.0	60.0	58.7	1.30	46.184	
400.0	400.0	398.0	398.0	0.8	0.8	-90.00	0.0	-60.0	60.0	58.5	1.52	39.372	
450.0	450.0	448.0	448.0	0.9	0.9	-90.00	0.0	-60.0	60.0	58.3	1.75	34.312	
500.0	500.0	498.0	498.0	1.0	1.0	-90.00	0.0	-60.0	60.0	58.0	1.97	30.404	
550.0	550.0	548.0	548.0	1.1	1.1	71.20	0.0	-60.0	59.9	57.7	2.18	27.396	
600.0	600.0	598.0	598.0	1.2	1.2	72.40	0.0	-60.0	59.4	57.1	2.40	24.809	
650.0	649.9	647.9	647.9	1.3	1.3	74.43	0.0	-60.0	58.8	56.2	2.60	22.606	
700.0	699.8	697.8	697.8	1.4	1.4	77.34	0.0	-60.0	58.1	55.3	2.81	20.683	
750.0	749.7	747.7	747.7	1.5	1.5	81.17	0.0	-60.0	57.3	54.3	3.03	18.946	
800.0	799.5	797.5	797.5	1.6	1.7	85.94	0.0	-60.0	56.8	53.6	3.25	17.498	
836.4	835.7	833.7	833.7	1.7	1.7	90.00	0.0	-60.0	56.7	53.2	3.42	16.574 CC	
850.0	849.1	847.1	847.1	1.7	1.8	91.63	0.0	-60.0	56.7	53.2	3.48	16.275 ES	
900.0	898.7	896.7	896.7	1.8	1.9	98.10	0.0	-60.0	57.2	53.5	3.72	15.391	
950.0	948.2	946.2	946.2	2.0	2.0	105.15	0.0	-60.0	58.8	54.8	3.97	14.792	
1,000.0	997.5	995.5	995.5	2.1	2.1	112.46	0.0	-60.0	61.5	57.2	4.22	14.570 SF	
1,050.0	1,046.6	1,044.6	1,044.6	2.3	2.2	119.38	-0.2	-60.3	65.5	61.1	4.46	14.682	
1,100.0	1,095.6	1,093.8	1,093.8	2.5	2.3	125.30	-1.0	-61.2	70.9	66.2	4.70	15.098	
1,150.0	1,144.4	1,143.1	1,143.1	2.7	2.4	130.22	-2.3	-62.8	77.4	72.5	4.93	15.689	
1,200.0	1,193.1	1,192.5	1,192.4	2.9	2.5	134.20	-4.1	-65.0	84.8	79.6	5.16	16.430	
1,250.0	1,241.5	1,242.0	1,241.7	3.1	2.6	137.39	-6.5	-67.9	92.9	87.5	5.40	17.194	

Anticollision Report

Company:	Edge Energy LLC	Local Co-ordinate Reference:	Well Cherry Knolls 33-12 - Slot 12
Project:	Weld County, Co (NAD 83)	TVD Reference:	RKB @ 5126.0usft (kb;20')
Reference Site:	Sec. 33 Twn 1N Rng 65W	MD Reference:	RKB @ 5126.0usft (kb;20')
Site Error:	0.0 usft	North Reference:	True
Reference Well:	Cherry Knolls 33-12	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	WellPlan Services
Reference Design:	#1	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 usft
Survey Program: 0-MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
0.0	0.0	0.0	0.0	0.0	0.0	-90.00	0.0	-45.0	45.0				
50.0	50.0	49.0	49.0	0.0	0.0	-90.00	0.0	-45.0	45.0	44.9	0.08	578.636	
100.0	100.0	99.0	99.0	0.1	0.1	-90.00	0.0	-45.0	45.0	44.8	0.18	251.518	
150.0	150.0	149.0	149.0	0.2	0.2	-90.00	0.0	-45.0	45.0	44.6	0.40	111.848	
200.0	200.0	199.0	199.0	0.3	0.3	-90.00	0.0	-45.0	45.0	44.4	0.63	71.759	
250.0	250.0	249.0	249.0	0.4	0.4	-90.00	0.0	-45.0	45.0	44.1	0.85	52.825	
300.0	300.0	299.0	299.0	0.5	0.5	-90.00	0.0	-45.0	45.0	43.9	1.08	41.797	
350.0	350.0	349.0	349.0	0.7	0.6	-90.00	0.0	-45.0	45.0	43.7	1.30	34.578	
400.0	400.0	399.0	399.0	0.8	0.8	-90.00	0.0	-45.0	45.0	43.5	1.53	29.486	
450.0	450.0	449.0	449.0	0.9	0.9	-90.00	0.0	-45.0	45.0	43.2	1.75	25.701	
500.0	500.0	499.0	499.0	1.0	1.0	-90.00	0.0	-45.0	45.0	43.0	1.98	22.777 CC	
550.0	550.0	548.5	548.5	1.1	1.1	70.93	-0.3	-45.3	45.1	43.0	2.17	20.757 ES	
600.0	600.0	598.0	597.9	1.2	1.2	71.29	-1.2	-46.1	45.6	43.2	2.37	19.207	
650.0	649.9	647.4	647.4	1.3	1.3	71.86	-2.8	-47.6	46.3	43.8	2.56	18.080	
700.0	699.8	696.9	696.7	1.4	1.4	72.63	-5.0	-49.6	47.4	44.6	2.75	17.224	
750.0	749.7	746.3	746.0	1.5	1.5	73.56	-7.8	-52.2	48.7	45.8	2.96	16.459	
800.0	799.5	795.7	795.2	1.6	1.6	74.62	-11.2	-55.3	50.4	47.2	3.17	15.890	
850.0	849.1	845.1	844.3	1.7	1.7	75.78	-15.3	-59.1	52.4	49.0	3.41	15.357	
900.0	898.7	894.5	893.3	1.8	1.8	77.00	-19.9	-63.4	54.8	51.1	3.66	14.974	
950.0	948.2	943.9	942.1	2.0	2.0	78.27	-25.2	-68.3	57.5	53.5	3.94	14.588	
1,000.0	997.5	993.2	990.7	2.1	2.1	79.54	-31.1	-73.7	60.5	56.3	4.22	14.318	
1,050.0	1,046.6	1,043.0	1,039.8	2.3	2.3	81.06	-37.5	-79.6	63.7	59.1	4.55	13.995	
1,100.0	1,095.6	1,092.8	1,088.9	2.5	2.5	83.16	-43.8	-85.4	66.9	62.0	4.89	13.676	
1,150.0	1,144.4	1,142.6	1,137.9	2.7	2.6	85.77	-50.2	-91.3	70.0	64.8	5.26	13.301	
1,200.0	1,193.1	1,192.3	1,186.9	2.9	2.8	88.82	-56.6	-97.1	73.3	67.7	5.65	12.979	
1,250.0	1,241.5	1,242.0	1,235.8	3.1	3.0	92.24	-62.9	-103.0	76.8	70.8	6.07	12.661	
1,300.0	1,289.6	1,291.6	1,284.6	3.4	3.2	95.94	-69.2	-108.8	80.7	74.2	6.49	12.438	
1,350.0	1,337.6	1,341.1	1,333.3	3.6	3.4	99.85	-75.5	-114.6	85.0	78.1	6.93	12.266	
1,400.0	1,385.3	1,390.4	1,381.9	3.9	3.6	103.87	-81.8	-120.4	89.9	82.6	7.36	12.214 SF	
1,450.0	1,432.7	1,439.6	1,430.4	4.2	3.7	107.94	-88.1	-126.2	95.5	87.7	7.80	12.250	

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Reference Wellbore	Hz	Database:	WellPlan Services
Reference Design:	#1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to RKB @ 5126.0usft (kb;20')

Offset Depths are relative to Offset Datum

Central Meridian is 105° 30' 0.00000 W

Coordinates are relative to: Cherry Knolls 33-12 - Slot 12

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.53°

