

# **Edge Energy LLC**

**Weld County, Co (NAD 83)**

**Sec. 10 Twn 4N Rng 63W**

**70 Ranch-10-11-8 - Slot A8**

**Hz**

**UWI:**

**WL:**

**Plan: #1**

## **Standard Planning Report**

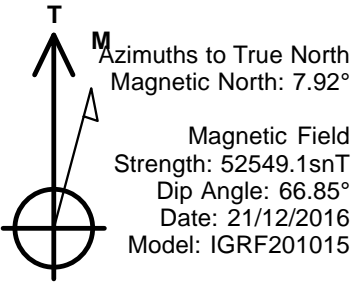
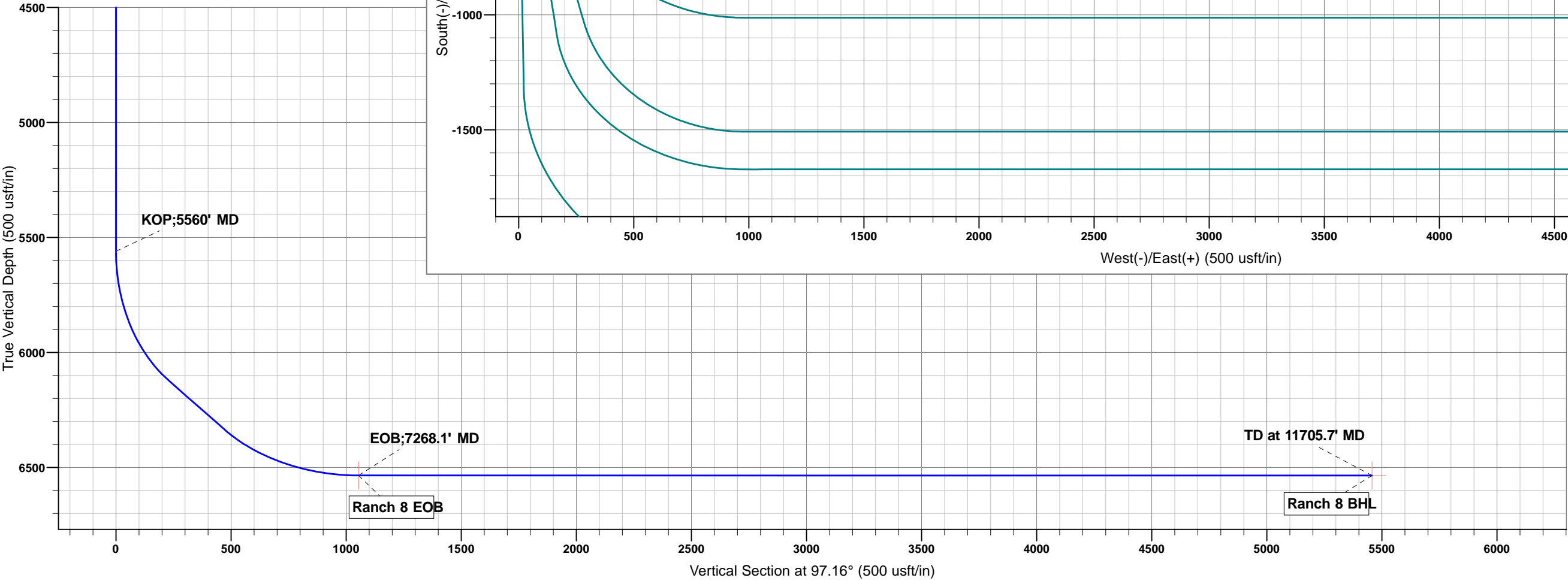
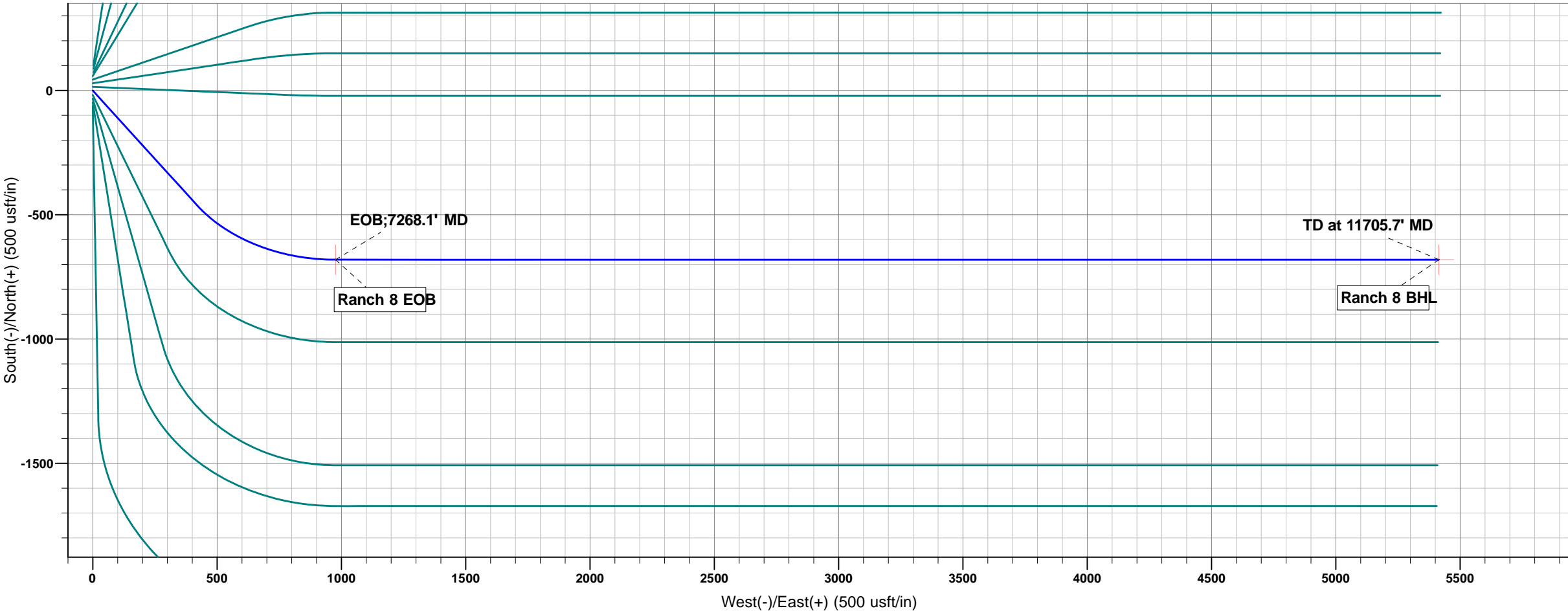
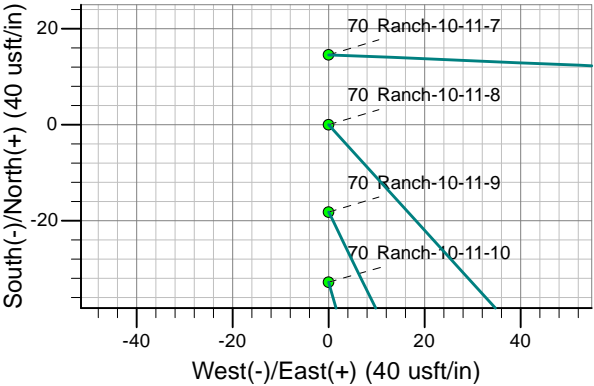
**28 December, 2016**

Project: Weld County, Co (NAD 83)  
Site: Sec. 10 TwN 4N Rng 63W  
Well: 70 Ranch-10-11-8  
Wellbore: Hz  
Plan: #1

Reference Details - WELL CENTRE  
Geodetic System: US State Plane 1983  
Ellipsoid: GRS 1980  
Zone: Colorado Northern Zone  
Northing: 1363920.30  
Easting: 3301962.18  
Latitude: 40° 19' 38.27988 N  
Longitude: 104° 25' 0.94800 W  
Grid Convergence: 0.70° West  
Ground Elevation: 4605.0  
KB Elevation: RKB @ 4625.0usft (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	5560.0	0.00	0.00	5560.0	0.0	0.0	0.00	0.00	0.0	
3	6221.6	56.24	137.73	6120.4	-221.6	201.4	8.50	137.73	227.5	
4	6609.3	56.24	137.73	6335.8	-460.1	418.2	0.00	0.00	472.3	
5	7268.1	90.00	90.00	6535.0	-680.6	977.0	8.50	-63.20	1054.3	Ranch 8 EOB
6	11705.7	90.00	90.00	6535.0	-680.6	5414.6	0.00	0.00	5457.2	Ranch 8 BHL



# Planning Report

<b>Database:</b>	WellPlan Services	<b>Local Co-ordinate Reference:</b>	Well 70 Ranch-10-11-8 - Slot A8
<b>Company:</b>	Edge Energy LLC	<b>TVD Reference:</b>	RKB @ 4625.0usft (kb;20')
<b>Project:</b>	Weld County, Co (NAD 83)	<b>MD Reference:</b>	RKB @ 4625.0usft (kb;20')
<b>Site:</b>	Sec. 10 Twn 4N Rng 63W	<b>North Reference:</b>	True
<b>Well:</b>	70 Ranch-10-11-8	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Hz		
<b>Design:</b>	#1		

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

Site		Sec. 10 Twn 4N Rng 63W			
Site Position:		Northing:	1,364,022.34 usft	Latitude:	40° 19' 39.28800 N
From:	Lat/Long	Easting:	3,301,963.73 usft	Longitude:	104° 25' 0.91200 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.70 °

Well	70 Ranch-10-11-8 - Slot A8					
Well Position	+N/-S	-102.0 usft	Northing:	1,363,920.30 usft	Latitude:	40° 19' 38.27988 N
	+E/-W	-2.8 usft	Easting:	3,301,962.18 usft	Longitude:	104° 25' 0.94800 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	4,605.0 usft

<b>Wellbore</b>	Hz				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF201015	21/12/2016	7.92	66.85	52,549

<b>Design</b>	#1			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	97.16

<b>Plan Sections</b>										
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	
5,560.0	0.00	0.00	5,560.0	0.0	0.0	0.00	0.00	0.00	0.00	
6,221.6	56.24	137.73	6,120.4	-221.6	201.4	8.50	8.50	0.00	137.73	
6,609.3	56.24	137.73	6,335.8	-460.1	418.2	0.00	0.00	0.00	0.00	
7,268.1	90.00	90.00	6,535.0	-680.6	977.0	8.50	5.12	-7.25	-63.20	Ranch 8 EOB
11,705.7	90.00	90.00	6,535.0	-680.6	5,414.6	0.00	0.00	0.00	0.00	Ranch 8 BHL

# Planning Report

<b>Database:</b>	WellPlan Services	<b>Local Co-ordinate Reference:</b>	Well 70 Ranch-10-11-8 - Slot A8
<b>Company:</b>	Edge Energy LLC	<b>TVD Reference:</b>	RKB @ 4625.0usft (kb;20')
<b>Project:</b>	Weld County, Co (NAD 83)	<b>MD Reference:</b>	RKB @ 4625.0usft (kb;20')
<b>Site:</b>	Sec. 10 Twn 4N Rng 63W	<b>North Reference:</b>	True
<b>Well:</b>	70 Ranch-10-11-8	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	H2		
<b>Design:</b>	#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	-4,625.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>KOP;5560' MD</b>										
5,560.0	0.00	0.00	5,560.0	935.0	0.0	0.0	0.0	0.00	0.00	0.00
5,600.0	3.40	137.73	5,600.0	975.0	-0.9	0.8	0.9	8.50	8.50	0.00
5,700.0	11.90	137.73	5,699.0	1,074.0	-10.7	9.7	11.0	8.50	8.50	0.00
5,800.0	20.40	137.73	5,795.0	1,170.0	-31.3	28.4	32.1	8.50	8.50	0.00
5,900.0	28.90	137.73	5,885.8	1,260.8	-62.1	56.5	63.8	8.50	8.50	0.00
6,000.0	37.40	137.73	5,969.4	1,344.4	-102.6	93.2	105.3	8.50	8.50	0.00
6,100.0	45.90	137.73	6,044.1	1,419.1	-151.7	137.9	155.7	8.50	8.50	0.00
6,200.0	54.40	137.73	6,108.1	1,483.1	-208.5	189.4	214.0	8.50	8.50	0.00
6,221.6	56.24	137.73	6,120.4	1,495.4	-221.6	201.4	227.5	8.50	8.50	0.00
6,300.0	56.24	137.73	6,163.9	1,538.9	-269.8	245.2	277.0	0.00	0.00	0.00
6,400.0	56.24	137.73	6,219.5	1,594.5	-331.4	301.1	340.1	0.00	0.00	0.00
6,500.0	56.24	137.73	6,275.1	1,650.1	-392.9	357.1	403.3	0.00	0.00	0.00
6,600.0	56.24	137.73	6,330.7	1,705.7	-454.4	413.0	466.4	0.00	0.00	0.00
6,609.3	56.24	137.73	6,335.8	1,710.8	-460.1	418.2	472.3	0.00	0.00	0.00
6,700.0	59.97	129.78	6,383.8	1,758.8	-513.2	473.8	534.1	8.50	4.12	-8.76
6,800.0	64.60	121.72	6,430.4	1,805.4	-564.8	545.6	611.8	8.50	4.62	-8.06
6,900.0	69.63	114.28	6,469.3	1,844.3	-607.9	626.9	697.8	8.50	5.03	-7.44
7,000.0	74.95	107.32	6,499.7	1,874.7	-641.6	715.9	790.3	8.50	5.32	-6.96
7,100.0	80.48	100.70	6,521.0	1,896.0	-665.1	810.6	887.2	8.50	5.53	-6.61
7,200.0	86.12	94.30	6,532.7	1,907.7	-678.1	909.0	986.5	8.50	5.65	-6.40
<b>EOB;7268.1' MD</b>										
7,268.1	90.00	90.00	6,535.0	1,910.0	-680.6	977.0	1,054.2	8.50	5.69	-6.32
7,300.0	90.00	90.00	6,535.0	1,910.0	-680.6	1,008.9	1,085.9	0.01	0.00	0.00
7,400.0	90.00	90.00	6,535.0	1,910.0	-680.6	1,108.9	1,185.1	0.00	0.00	0.00
7,500.0	90.00	90.00	6,535.0	1,910.0	-680.6	1,208.9	1,284.3	0.00	0.00	0.00
7,600.0	90.00	90.00	6,535.0	1,910.0	-680.6	1,308.9	1,383.5	0.00	0.00	0.00
7,700.0	90.00	90.00	6,535.0	1,910.0	-680.6	1,408.9	1,482.8	0.00	0.00	0.00
7,800.0	90.00	90.00	6,535.0	1,910.0	-680.6	1,508.9	1,582.0	0.00	0.00	0.00
7,900.0	90.00	90.00	6,535.0	1,910.0	-680.6	1,608.9	1,681.2	0.00	0.00	0.00
8,000.0	90.00	90.00	6,535.0	1,910.0	-680.6	1,708.9	1,780.4	0.00	0.00	0.00
8,100.0	90.00	90.00	6,535.0	1,910.0	-680.6	1,808.9	1,879.6	0.00	0.00	0.00
8,200.0	90.00	90.00	6,535.0	1,910.0	-680.6	1,908.9	1,978.9	0.00	0.00	0.00
8,300.0	90.00	90.00	6,535.0	1,910.0	-680.6	2,008.9	2,078.1	0.00	0.00	0.00
8,400.0	90.00	90.00	6,535.0	1,910.0	-680.6	2,108.9	2,177.3	0.00	0.00	0.00
8,500.0	90.00	90.00	6,535.0	1,910.0	-680.6	2,208.9	2,276.5	0.00	0.00	0.00
8,600.0	90.00	90.00	6,535.0	1,910.0	-680.6	2,308.9	2,375.7	0.00	0.00	0.00
8,700.0	90.00	90.00	6,535.0	1,910.0	-680.6	2,408.9	2,475.0	0.00	0.00	0.00
8,800.0	90.00	90.00	6,535.0	1,910.0	-680.6	2,508.9	2,574.2	0.00	0.00	0.00
8,900.0	90.00	90.00	6,535.0	1,910.0	-680.6	2,608.9	2,673.4	0.00	0.00	0.00
9,000.0	90.00	90.00	6,535.0	1,910.0	-680.6	2,708.9	2,772.6	0.00	0.00	0.00
9,100.0	90.00	90.00	6,535.0	1,910.0	-680.6	2,808.9	2,871.8	0.00	0.00	0.00
9,200.0	90.00	90.00	6,535.0	1,910.0	-680.6	2,908.9	2,971.1	0.00	0.00	0.00
9,300.0	90.00	90.00	6,535.0	1,910.0	-680.6	3,008.9	3,070.3	0.00	0.00	0.00
9,400.0	90.00	90.00	6,535.0	1,910.0	-680.6	3,108.9	3,169.5	0.00	0.00	0.00

# Planning Report

<b>Database:</b>	WellPlan Services	<b>Local Co-ordinate Reference:</b>	Well 70 Ranch-10-11-8 - Slot A8
<b>Company:</b>	Edge Energy LLC	<b>TVD Reference:</b>	RKB @ 4625.0usft (kb;20')
<b>Project:</b>	Weld County, Co (NAD 83)	<b>MD Reference:</b>	RKB @ 4625.0usft (kb;20')
<b>Site:</b>	Sec. 10 Twn 4N Rng 63W	<b>North Reference:</b>	True
<b>Well:</b>	70 Ranch-10-11-8	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Hz		
<b>Design:</b>	#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)
9,500.0	90.00	90.00	6,535.0	1,910.0	-680.6	3,208.9	3,268.7	0.00	0.00	0.00
9,600.0	90.00	90.00	6,535.0	1,910.0	-680.6	3,308.9	3,367.9	0.00	0.00	0.00
9,700.0	90.00	90.00	6,535.0	1,910.0	-680.6	3,408.9	3,467.1	0.00	0.00	0.00
9,800.0	90.00	90.00	6,535.0	1,910.0	-680.6	3,508.9	3,566.4	0.00	0.00	0.00
9,900.0	90.00	90.00	6,535.0	1,910.0	-680.6	3,608.9	3,665.6	0.00	0.00	0.00
10,000.0	90.00	90.00	6,535.0	1,910.0	-680.6	3,708.9	3,764.8	0.00	0.00	0.00
10,100.0	90.00	90.00	6,535.0	1,910.0	-680.6	3,808.9	3,864.0	0.00	0.00	0.00
10,200.0	90.00	90.00	6,535.0	1,910.0	-680.6	3,908.9	3,963.2	0.00	0.00	0.00
10,300.0	90.00	90.00	6,535.0	1,910.0	-680.6	4,008.9	4,062.5	0.00	0.00	0.00
10,400.0	90.00	90.00	6,535.0	1,910.0	-680.6	4,108.9	4,161.7	0.00	0.00	0.00
10,500.0	90.00	90.00	6,535.0	1,910.0	-680.6	4,208.9	4,260.9	0.00	0.00	0.00
10,600.0	90.00	90.00	6,535.0	1,910.0	-680.6	4,308.9	4,360.1	0.00	0.00	0.00
10,700.0	90.00	90.00	6,535.0	1,910.0	-680.6	4,408.9	4,459.3	0.00	0.00	0.00
10,800.0	90.00	90.00	6,535.0	1,910.0	-680.6	4,508.9	4,558.6	0.00	0.00	0.00
10,900.0	90.00	90.00	6,535.0	1,910.0	-680.6	4,608.9	4,657.8	0.00	0.00	0.00
11,000.0	90.00	90.00	6,535.0	1,910.0	-680.6	4,708.9	4,757.0	0.00	0.00	0.00
11,100.0	90.00	90.00	6,535.0	1,910.0	-680.6	4,808.9	4,856.2	0.00	0.00	0.00
11,200.0	90.00	90.00	6,535.0	1,910.0	-680.6	4,908.9	4,955.4	0.00	0.00	0.00
11,300.0	90.00	90.00	6,535.0	1,910.0	-680.6	5,008.9	5,054.7	0.00	0.00	0.00
11,400.0	90.00	90.00	6,535.0	1,910.0	-680.6	5,108.9	5,153.9	0.00	0.00	0.00
11,500.0	90.00	90.00	6,535.0	1,910.0	-680.6	5,208.9	5,253.1	0.00	0.00	0.00
11,600.0	90.00	90.00	6,535.0	1,910.0	-680.6	5,308.9	5,352.3	0.00	0.00	0.00
11,700.0	90.00	90.00	6,535.0	1,910.0	-680.6	5,408.9	5,451.5	0.00	0.00	0.00
TD at 11705.7' MD										
11,705.7	90.00	90.00	6,535.0	1,910.0	-680.6	5,414.6	5,457.2	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	
Ranch 8 EOB	0.00	0.00	6,535.0	-680.6	977.0	1,363,251.66	3,302,947.42	40° 19' 31.55363 N	104° 24' 48.33326 W	
- plan hits target center										
- Point										
Ranch 8 BHL	0.00	0.00	6,535.0	-680.6	5,414.6	1,363,305.86	3,307,384.71	40° 19' 31.54796 N	104° 23' 51.03600 W	
- plan hits target center										
- Point										

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
5,560.0	5,560.0	0.0	0.0	KOP;5560' MD	
7,268.1	6,535.0	-680.6	977.0	EOB;7268.1' MD	
11,705.7	6,535.0	-680.6	5,414.6	TD at 11705.7' MD	

# Anticollision Report

<b>Company:</b>	Edge Energy LLC	<b>Local Co-ordinate Reference:</b>	Well 70 Ranch-10-11-8 - Slot A8
<b>Project:</b>	Weld County, Co (NAD 83)	<b>TVD Reference:</b>	RKB @ 4625.0usft (kb;20')
<b>Reference Site:</b>	Sec. 10 Twn 4N Rng 63W	<b>MD Reference:</b>	RKB @ 4625.0usft (kb;20')
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	70 Ranch-10-11-8	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	WellPlan Services
<b>Reference Design:</b>	#1	<b>Offset TVD Reference:</b>	Offset Datum

Reference	#1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 50.0usft	Error Model:	ISCSWA
Depth Range:	5,000.0 to 99,999.0usft	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 50.0 usft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program		Date	28/12/2016		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.0	11,705.7	#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. 10 Twn 4N Rng 63W						
70 Ranch-10-11-1 - Hz - #1						Out of range
70 Ranch-10-11-10 - Hz - #1	5,200.0	5,200.0	32.8	9.7	1.419	Level 3, CC, ES, SF
70 Ranch-10-11-11 - Hz - #1						Out of range
70 Ranch-10-11-12 - Hz - #1						Out of range
70 Ranch-10-11-2 - Hz - #1						Out of range
70 Ranch-10-11-3 - Hz - #1						Out of range
70 Ranch-10-11-4 - Hz - #1						Out of range
70 Ranch-10-11-5 - Hz - #1	5,517.0	5,517.0	43.7	19.2	1.782	CC
70 Ranch-10-11-5 - Hz - #1	5,550.0	5,549.6	43.8	19.1	1.776	ES, SF
70 Ranch-10-11-6 - Hz - #1	5,379.2	5,379.2	29.1	5.2	1.219	Level 2, CC
70 Ranch-10-11-6 - Hz - #1	5,400.0	5,400.0	29.1	5.1	1.214	Level 2, ES, SF
70 Ranch-10-11-7 - Hz - #1	5,550.0	5,550.0	14.6	-10.1	0.590	Level 1, CC, ES, SF
70 Ranch-10-11-9 - Hz - #1	5,200.0	5,200.0	18.2	-4.9	0.788	Level 1, CC, ES, SF

Offset Design		Sec. 10 Twn 4N Rng 63W - 70 Ranch-10-11-10 - 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			
5,000.0	5,000.0	5,000.0	5,000.0	11.1	11.1	-180.00	-32.8	0.0	32.8	10.6	22.21	1.476	Level 3		
5,050.0	5,050.0	5,050.0	5,050.0	11.2	11.2	-180.00	-32.8	0.0	32.8	10.4	22.43	1.462	Level 3		
5,100.0	5,100.0	5,100.0	5,100.0	11.3	11.3	-180.00	-32.8	0.0	32.8	10.1	22.66	1.447	Level 3		
5,150.0	5,150.0	5,150.0	5,150.0	11.4	11.4	-180.00	-32.8	0.0	32.8	9.9	22.88	1.433	Level 3		
5,183.3	5,183.3	5,183.3	5,183.3	11.5	11.5	-180.00	-32.8	0.0	32.8	9.8	23.03	1.424	Level 3		
5,200.0	5,200.0	5,200.0	5,200.0	11.6	11.6	-180.00	-32.8	0.0	32.8	9.7	23.11	1.419	Level 3, CC, ES, SF		
5,250.0	5,250.0	5,247.8	5,247.8	11.7	11.6	179.27	-34.3	0.4	34.4	11.1	23.31	1.475	Level 3		
5,300.0	5,300.0	5,295.2	5,294.9	11.8	11.7	177.46	-38.9	1.7	39.2	15.7	23.50	1.669			
5,350.0	5,350.0	5,341.8	5,340.9	11.9	11.8	175.28	-46.2	3.8	47.3	23.6	23.70	1.996			

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

# Anticollision Report

<b>Company:</b>	Edge Energy LLC	<b>Local Co-ordinate Reference:</b>	Well 70 Ranch-10-11-8 - Slot A8
<b>Project:</b>	Weld County, Co (NAD 83)	<b>TVD Reference:</b>	RKB @ 4625.0usft (kb;20')
<b>Reference Site:</b>	Sec. 10 Twn 4N Rng 63W	<b>MD Reference:</b>	RKB @ 4625.0usft (kb;20')
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	70 Ranch-10-11-8	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	WellPlan Services
<b>Reference Design:</b>	#1	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Sec. 10 Twn 4N Rng 63W - 70 Ranch-10-11-5 - Hz - #1												<b>Offset Site Error:</b>	0.0 usft
Survey Program: 0-MWD												<b>Offset Well Error:</b>	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	
5,000.0	5,000.0	5,000.0	5,000.0	11.1	11.1	0.00	43.7	0.0	43.7	21.5	22.21	1.968	
5,050.0	5,050.0	5,050.0	5,050.0	11.2	11.2	0.00	43.7	0.0	43.7	21.3	22.43	1.949	
5,100.0	5,100.0	5,100.0	5,100.0	11.3	11.3	0.00	43.7	0.0	43.7	21.1	22.66	1.929	
5,150.0	5,150.0	5,150.0	5,150.0	11.4	11.4	0.00	43.7	0.0	43.7	20.8	22.88	1.910	
5,200.0	5,200.0	5,200.0	5,200.0	11.6	11.6	0.00	43.7	0.0	43.7	20.6	23.11	1.892	
5,250.0	5,250.0	5,250.0	5,250.0	11.7	11.7	0.00	43.7	0.0	43.7	20.4	23.33	1.874	
5,300.0	5,300.0	5,300.0	5,300.0	11.8	11.8	0.00	43.7	0.0	43.7	20.2	23.56	1.856	
5,350.0	5,350.0	5,350.0	5,350.0	11.9	11.9	0.00	43.7	0.0	43.7	19.9	23.78	1.838	
5,400.0	5,400.0	5,400.0	5,400.0	12.0	12.0	0.00	43.7	0.0	43.7	19.7	24.01	1.821	
5,450.0	5,450.0	5,450.0	5,450.0	12.1	12.1	0.00	43.7	0.0	43.7	19.5	24.23	1.804	
5,500.0	5,500.0	5,500.0	5,500.0	12.2	12.2	0.00	43.7	0.0	43.7	19.3	24.45	1.787	
5,517.0	5,517.0	5,517.0	5,517.0	12.3	12.3	0.00	43.7	0.0	43.7	19.2	24.53	1.782 CC	
5,550.0	5,550.0	5,549.6	5,549.6	12.3	12.3	0.42	43.8	0.3	43.8	19.1	24.68	1.776 ES, SF	
5,600.0	5,600.0	5,598.7	5,598.6	12.4	12.4	-134.96	44.7	2.9	45.7	20.8	24.86	1.836	

# Anticollision Report

<b>Company:</b>	Edge Energy LLC	<b>Local Co-ordinate Reference:</b>	Well 70 Ranch-10-11-8 - Slot A8
<b>Project:</b>	Weld County, Co (NAD 83)	<b>TVD Reference:</b>	RKB @ 4625.0usft (kb;20')
<b>Reference Site:</b>	Sec. 10 Twn 4N Rng 63W	<b>MD Reference:</b>	RKB @ 4625.0usft (kb;20')
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	70 Ranch-10-11-8	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	WellPlan Services
<b>Reference Design:</b>	#1	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Sec. 10 Twn 4N Rng 63W - 70 Ranch-10-11-6 - Hz - #1												<b>Offset Site Error:</b>	0.0 usft
Survey Program: 0-MWD												<b>Offset Well Error:</b>	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
5,000.0	5,000.0	5,000.0	5,000.0	11.1	11.1	0.00	29.1	0.0	29.1	6.9	22.21	1.312	Level 3
5,050.0	5,050.0	5,050.0	5,050.0	11.2	11.2	0.00	29.1	0.0	29.1	6.7	22.43	1.299	Level 3
5,100.0	5,100.0	5,100.0	5,100.0	11.3	11.3	0.00	29.1	0.0	29.1	6.5	22.66	1.286	Level 3
5,150.0	5,150.0	5,150.0	5,150.0	11.4	11.4	0.00	29.1	0.0	29.1	6.3	22.88	1.274	Level 3
5,200.0	5,200.0	5,200.0	5,200.0	11.6	11.6	0.00	29.1	0.0	29.1	6.0	23.11	1.261	Level 3
5,250.0	5,250.0	5,250.0	5,250.0	11.7	11.7	0.00	29.1	0.0	29.1	5.8	23.33	1.249	Level 2
5,300.0	5,300.0	5,300.0	5,300.0	11.8	11.8	0.00	29.1	0.0	29.1	5.6	23.56	1.237	Level 2
5,350.0	5,350.0	5,350.0	5,350.0	11.9	11.9	0.00	29.1	0.0	29.1	5.4	23.78	1.225	Level 2
5,379.2	5,379.2	5,379.2	5,379.2	12.0	12.0	0.00	29.1	0.0	29.1	5.2	23.91	1.219	Level 2, CC
5,400.0	5,400.0	5,400.0	5,400.0	12.0	12.0	0.10	29.1	0.1	29.1	5.1	24.00	1.214	Level 2, ES, SF
5,450.0	5,450.0	5,449.7	5,449.6	12.1	12.1	3.58	29.4	1.8	29.5	5.3	24.22	1.217	Level 2
5,500.0	5,500.0	5,499.0	5,498.8	12.2	12.2	11.56	30.1	6.1	30.7	6.3	24.43	1.257	Level 3
5,550.0	5,550.0	5,547.8	5,547.1	12.3	12.3	22.51	31.1	12.9	33.7	9.1	24.64	1.369	Level 3
5,600.0	5,600.0	5,595.9	5,594.3	12.4	12.4	-104.89	32.4	21.9	39.8	14.9	24.85	1.601	
5,650.0	5,649.7	5,643.4	5,640.4	12.5	12.5	-99.19	34.1	33.0	49.1	24.1	25.04	1.961	



# Anticollision Report

<b>Company:</b>	Edge Energy LLC	<b>Local Co-ordinate Reference:</b>	Well 70 Ranch-10-11-8 - Slot A8
<b>Project:</b>	Weld County, Co (NAD 83)	<b>TVD Reference:</b>	RKB @ 4625.0usft (kb;20')
<b>Reference Site:</b>	Sec. 10 Twn 4N Rng 63W	<b>MD Reference:</b>	RKB @ 4625.0usft (kb;20')
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	70 Ranch-10-11-8	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	WellPlan Services
<b>Reference Design:</b>	#1	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Sec. 10 Twn 4N Rng 63W - 70 Ranch-10-11-7 - Hz - #1												<b>Offset Site Error:</b>	0.0 usft
Survey Program: 0-MWD												<b>Offset Well Error:</b>	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	
5,000.0	5,000.0	5,000.0	5,000.0	11.1	11.1	0.00	14.6	0.0	14.6	-7.6	22.21	0.656	Level 1
5,050.0	5,050.0	5,050.0	5,050.0	11.2	11.2	0.00	14.6	0.0	14.6	-7.9	22.43	0.650	Level 1
5,100.0	5,100.0	5,100.0	5,100.0	11.3	11.3	0.00	14.6	0.0	14.6	-8.1	22.66	0.643	Level 1
5,150.0	5,150.0	5,150.0	5,150.0	11.4	11.4	0.00	14.6	0.0	14.6	-8.3	22.88	0.637	Level 1
5,200.0	5,200.0	5,200.0	5,200.0	11.6	11.6	0.00	14.6	0.0	14.6	-8.5	23.11	0.631	Level 1
5,250.0	5,250.0	5,250.0	5,250.0	11.7	11.7	0.00	14.6	0.0	14.6	-8.8	23.33	0.625	Level 1
5,300.0	5,300.0	5,300.0	5,300.0	11.8	11.8	0.00	14.6	0.0	14.6	-9.0	23.56	0.619	Level 1
5,350.0	5,350.0	5,350.0	5,350.0	11.9	11.9	0.00	14.6	0.0	14.6	-9.2	23.78	0.613	Level 1
5,400.0	5,400.0	5,400.0	5,400.0	12.0	12.0	0.00	14.6	0.0	14.6	-9.4	24.01	0.607	Level 1
5,450.0	5,450.0	5,450.0	5,450.0	12.1	12.1	0.00	14.6	0.0	14.6	-9.7	24.23	0.601	Level 1
5,500.0	5,500.0	5,500.0	5,500.0	12.2	12.2	0.00	14.6	0.0	14.6	-9.9	24.45	0.596	Level 1
5,550.0	5,550.0	5,550.0	5,550.0	12.3	12.3	0.00	14.6	0.0	14.6	-10.1	24.68	0.590	Level 1, CC, ES, SF
5,600.0	5,600.0	5,600.0	5,600.0	12.4	12.5	-140.36	14.6	0.1	15.5	-9.4	24.87	0.622	Level 1
5,650.0	5,649.7	5,650.0	5,649.9	12.5	12.5	-141.20	14.5	2.8	18.9	-6.0	24.97	0.758	Level 1
5,700.0	5,699.0	5,699.8	5,699.2	12.6	12.7	-137.91	14.2	9.4	24.9	-0.1	25.03	0.995	Level 1
5,750.0	5,747.5	5,749.0	5,747.4	12.7	12.8	-133.37	13.8	19.7	33.5	8.4	25.09	1.335	Level 3
5,800.0	5,795.0	5,797.5	5,793.9	12.8	12.9	-129.02	13.2	33.5	44.8	19.6	25.18	1.778	

## Anticollision Report

<b>Company:</b>	Edge Energy LLC	<b>Local Co-ordinate Reference:</b>	Well 70 Ranch-10-11-8 - Slot A8
<b>Project:</b>	Weld County, Co (NAD 83)	<b>TVD Reference:</b>	RKB @ 4625.0usft (kb;20')
<b>Reference Site:</b>	Sec. 10 Twn 4N Rng 63W	<b>MD Reference:</b>	RKB @ 4625.0usft (kb;20')
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	70 Ranch-10-11-8	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	WellPlan Services
<b>Reference Design:</b>	#1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Sec. 10 Twn 4N Rng 63W - 70 Ranch-10-11-9 - 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 +N/-S (usft)	Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor					
5,000.0	5,000.0	5,000.0	5,000.0	11.1	11.1	-180.00	-18.2	0.0	18.2	-4.0	22.21	0.820	Level 1				
5,050.0	5,050.0	5,050.0	5,050.0	11.2	11.2	-180.00	-18.2	0.0	18.2	-4.2	22.43	0.812	Level 1				
5,100.0	5,100.0	5,100.0	5,100.0	11.3	11.3	-180.00	-18.2	0.0	18.2	-4.4	22.66	0.804	Level 1				
5,150.0	5,150.0	5,150.0	5,150.0	11.4	11.4	-180.00	-18.2	0.0	18.2	-4.7	22.88	0.796	Level 1				
5,183.3	5,183.3	5,183.3	5,183.3	11.5	11.5	-180.00	-18.2	0.0	18.2	-4.8	23.03	0.791	Level 1				
5,200.0	5,200.0	5,200.0	5,200.0	11.6	11.6	-180.00	-18.2	0.0	18.2	-4.9	23.11	0.788	Level 1, CC, ES, SF				
5,250.0	5,250.0	5,248.8	5,248.8	11.7	11.6	177.88	-19.7	0.7	19.8	-3.6	23.31	0.848	Level 1				
5,300.0	5,300.0	5,297.2	5,296.9	11.8	11.7	173.17	-24.1	2.9	24.5	1.0	23.51	1.042	Level 2				
5,350.0	5,350.0	5,344.6	5,343.7	11.9	11.8	168.45	-31.3	6.4	32.6	8.9	23.71	1.374	Level 3				
5,400.0	5,400.0	5,390.9	5,388.6	12.0	11.9	164.82	-40.9	11.1	43.9	20.0	23.90	1.837					

## Anticollision Report

<b>Company:</b>	Edge Energy LLC	<b>Local Co-ordinate Reference:</b>	Well 70 Ranch-10-11-8 - Slot A8
<b>Project:</b>	Weld County, Co (NAD 83)	<b>TVD Reference:</b>	RKB @ 4625.0usft (kb;20')
<b>Reference Site:</b>	Sec. 10 Twn 4N Rng 63W	<b>MD Reference:</b>	RKB @ 4625.0usft (kb;20')
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	70 Ranch-10-11-8	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	WellPlan Services
<b>Reference Design:</b>	#1	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to RKB @ 4625.0usft (kb;20')  
 Offset Depths are relative to Offset Datum  
 Central Meridian is 105° 30' 0.00000 W

Coordinates are relative to: 70 Ranch-10-11-8 - Slot A8  
 Coordinate System is US State Plane 1983, Colorado Northern Zone  
 Grid Convergence at Surface is: 0.70°

