



Well: 70 Ranch 10-05-4L
Site: Section 03-T04N-R63W
Project: Weld County, Colorado
Wellbore: Original Hole
Design: plan1

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
70 Ranch 10-05-4L SL 260 FSL 1162 FWL	24.00	-29.27	-3.7914649113.14	1799353.27	40.33466249	-104.42968011	
70 Ranch 10-05-4L BHL 470 FSL 1338 FWL	6530.00	-10388.06	232.9814638756.12	1799656.78	40.30621773	-104.42883078	
70 Ranch 10-05-4L LP 470 FNL 1338 FWL	6530.00	-751.30	161.4414648392.19	1799523.15	40.33267983	-104.42908723	

Section Details

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	Vsect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	2000.00	0.00	0.00	2000.00	0.00	0.00	0.00	0.00	KOP Begin 10°/100' build
3	2032.65	3.26	142.32	2032.63	-0.74	0.57	10.00	0.75	Begin 3.26° tangent
4	5989.78	3.26	142.32	5983.34	-179.09	138.32	0.00	182.15	Begin 10°/100' build/turn
5	6863.80	90.00	179.57	6530.00	-751.30	161.44	10.00	754.74	LP Begin 90° lateral
6	16500.82	90.00	179.57	6530.00	-10388.06	232.98	0.00	10390.67	PBHL/TD 16500.82 MD/6530.00 TVD



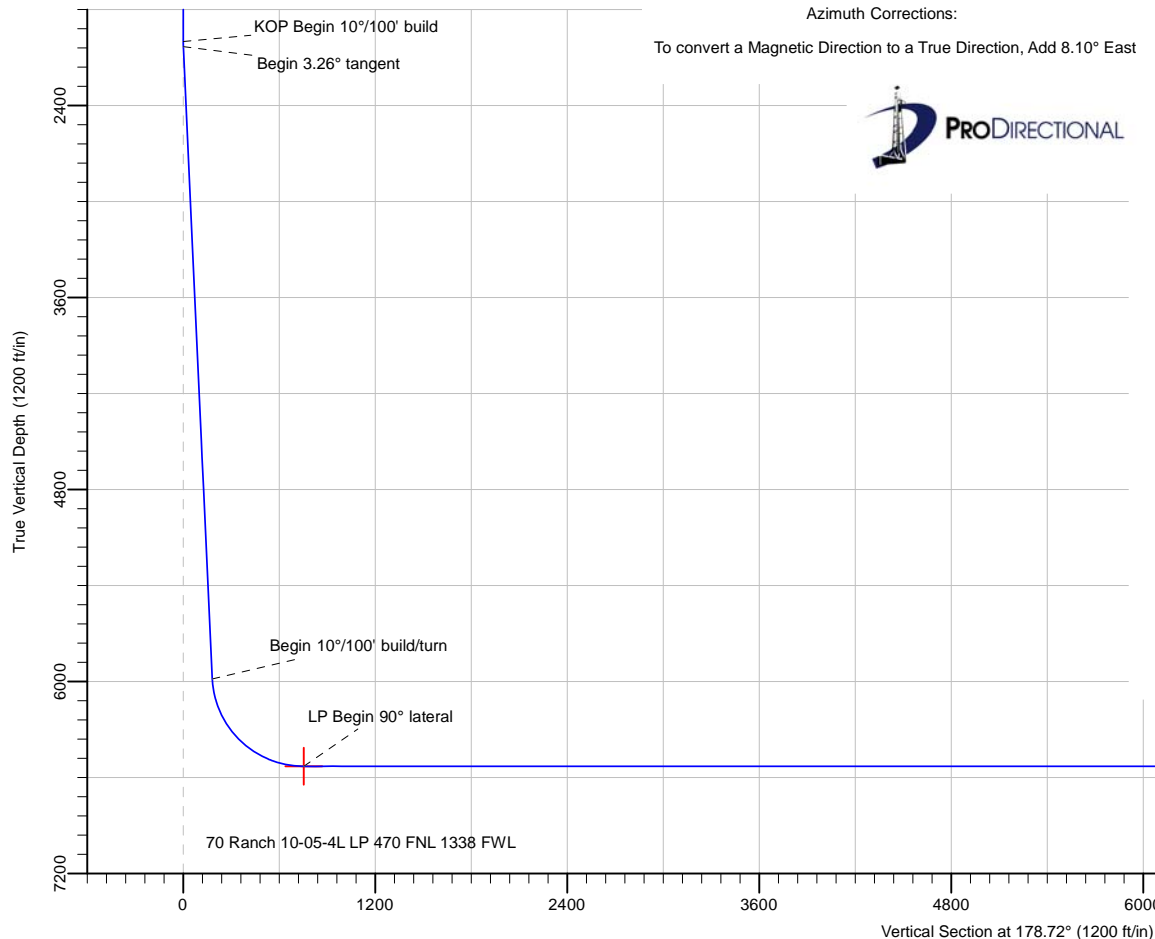
Azimuths to True North
Magnetic North: 8.10°

Magnetic Field
Strength: 52228.4snT
Dip Angle: 66.90°
Date: 5/21/2018
Model: HDGM

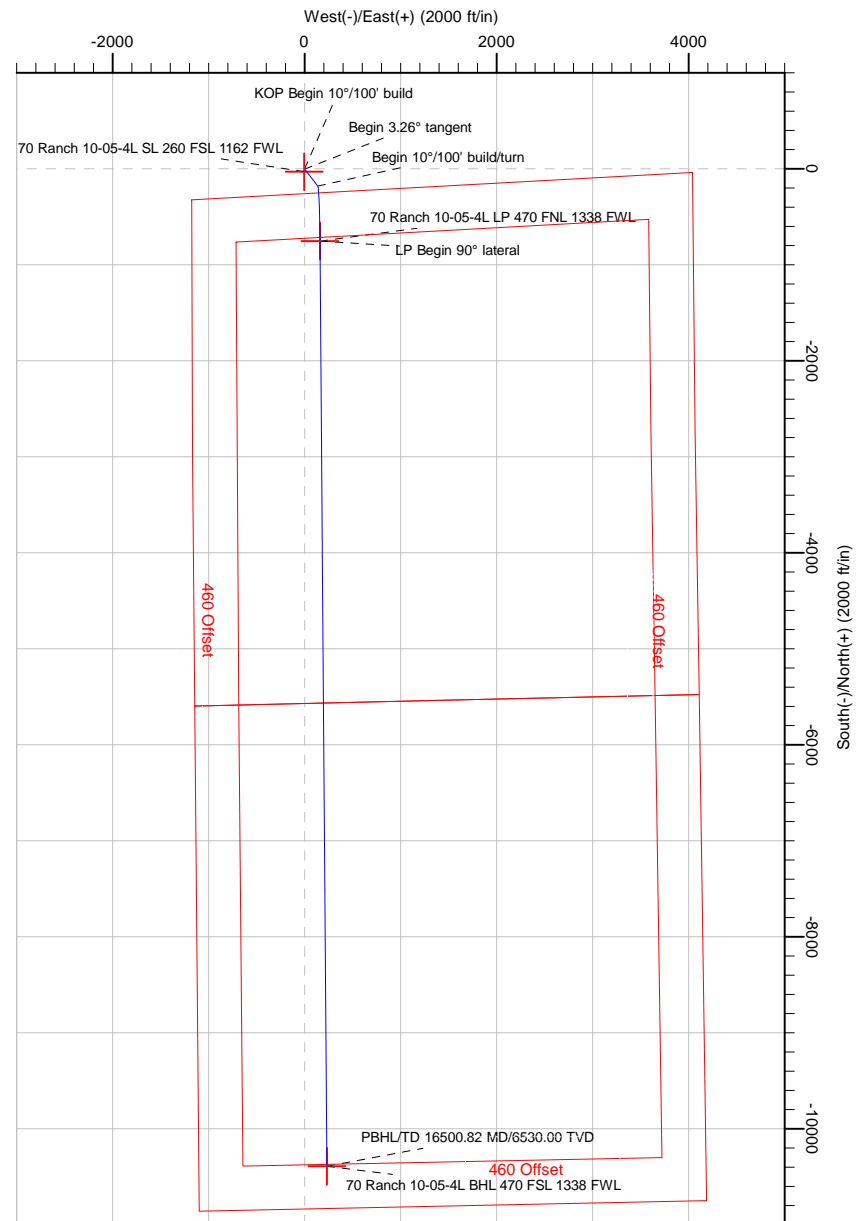
70 Ranch 10-05-4L Surf loc: 260 FSL 1162 FWL Section 03-T04N-R63W			
NAD83 Colorado - HARN Universal Transverse Mercator (US Survey Feet) Zone 13N (108 W to 102 W) RKB=4595+24 @ 4619.00ft			
Northing	Easting	Latitude	Longitude
14649142.44	1799356.87	40.33474287	-104.42966652

Azimuth Corrections:

To convert a Magnetic Direction to a True Direction, Add 8.10° East



Date: 3:07, May 21 2018



Note: All lease lines and hard lines are estimates only and are subject to customers approval.

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well 70 Ranch 10-05-4L
Company:	Confluence Resources	TVD Reference:	RKB=4595+24 @ 4619.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=4595+24 @ 4619.00ft
Site:	Section 03-T04N-R63W	North Reference:	True
Well:	70 Ranch 10-05-4L	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	plan1		

Project	Weld County, Colorado		
Map System:	Universal Transverse Mercator (US Survey Feet)	System Datum:	Mean Sea Level
Geo Datum:	NAD83 Colorado - HARN		
Map Zone:	Zone 13N (108 W to 102 W)		

Site	Section 03-T04N-R63W			
Site Position:		Northing:	14,650,244.32 usft	Latitude: 40.33774036
From:	Map	Easting:	1,800,940.24 usft	Longitude: -104.42395937
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence: 0.37 °

Well	70 Ranch 10-05-4L, Surf loc: 260 FSL 1162 FWL Section 03-T04N-R63W			
Well Position	+N/-S	-1,091.55 ft	Northing:	14,649,142.44 usft
	+E/-W	-1,590.51 ft	Easting:	1,799,356.87 usft
Position Uncertainty		0.00 ft	Wellhead Elevation:	Ground Level: 4,595.00 ft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	5/21/2018	8.10	66.90	52,228.40000000

Design	plan1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	178.72

Plan Survey Tool Program	Date	5/21/2018		
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	16,500.82	plan1 (Original Hole)	

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,032.65	3.26	142.32	2,032.63	-0.74	0.57	10.00	10.00	0.00	142.32	
5,989.78	3.26	142.32	5,983.34	-179.09	138.32	0.00	0.00	0.00	0.00	
6,863.80	90.00	179.57	6,530.00	-751.30	161.44	10.00	9.92	4.26	37.30	70 Ranch 10-05-4L LI
16,500.82	90.00	179.57	6,530.00	-10,388.06	232.98	0.00	0.00	0.00	0.00	70 Ranch 10-05-4L BI

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well 70 Ranch 10-05-4L
Company:	Confluence Resources	TVD Reference:	RKB=4595+24 @ 4619.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=4595+24 @ 4619.00ft
Site:	Section 03-T04N-R63W	North Reference:	True
Well:	70 Ranch 10-05-4L	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	plan1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
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
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP Begin 10°/100' build									
2,032.65	3.26	142.32	2,032.63	-0.74	0.57	0.75	10.00	10.00	0.00
Begin 3.26° tangent									
2,100.00	3.26	142.32	2,099.87	-3.77	2.91	3.84	0.00	0.00	0.00
2,200.00	3.26	142.32	2,199.71	-8.28	6.39	8.42	0.00	0.00	0.00
2,300.00	3.26	142.32	2,299.55	-12.79	9.88	13.00	0.00	0.00	0.00
2,400.00	3.26	142.32	2,399.39	-17.29	13.36	17.59	0.00	0.00	0.00
2,500.00	3.26	142.32	2,499.22	-21.80	16.84	22.17	0.00	0.00	0.00
2,600.00	3.26	142.32	2,599.06	-26.31	20.32	26.76	0.00	0.00	0.00
2,700.00	3.26	142.32	2,698.90	-30.81	23.80	31.34	0.00	0.00	0.00
2,800.00	3.26	142.32	2,798.74	-35.32	27.28	35.92	0.00	0.00	0.00
2,900.00	3.26	142.32	2,898.57	-39.83	30.76	40.51	0.00	0.00	0.00
3,000.00	3.26	142.32	2,998.41	-44.34	34.24	45.09	0.00	0.00	0.00
3,100.00	3.26	142.32	3,098.25	-48.84	37.72	49.68	0.00	0.00	0.00
3,200.00	3.26	142.32	3,198.09	-53.35	41.20	54.26	0.00	0.00	0.00
3,300.00	3.26	142.32	3,297.93	-57.86	44.69	58.85	0.00	0.00	0.00
3,400.00	3.26	142.32	3,397.76	-62.37	48.17	63.43	0.00	0.00	0.00
3,500.00	3.26	142.32	3,497.60	-66.87	51.65	68.01	0.00	0.00	0.00
3,600.00	3.26	142.32	3,597.44	-71.38	55.13	72.60	0.00	0.00	0.00
3,700.00	3.26	142.32	3,697.28	-75.89	58.61	77.18	0.00	0.00	0.00
3,800.00	3.26	142.32	3,797.11	-80.39	62.09	81.77	0.00	0.00	0.00
3,900.00	3.26	142.32	3,896.95	-84.90	65.57	86.35	0.00	0.00	0.00
4,000.00	3.26	142.32	3,996.79	-89.41	69.05	90.93	0.00	0.00	0.00
4,100.00	3.26	142.32	4,096.63	-93.92	72.53	95.52	0.00	0.00	0.00
4,200.00	3.26	142.32	4,196.46	-98.42	76.02	100.10	0.00	0.00	0.00
4,300.00	3.26	142.32	4,296.30	-102.93	79.50	104.69	0.00	0.00	0.00
4,400.00	3.26	142.32	4,396.14	-107.44	82.98	109.27	0.00	0.00	0.00
4,500.00	3.26	142.32	4,495.98	-111.94	86.46	113.85	0.00	0.00	0.00
4,600.00	3.26	142.32	4,595.82	-116.45	89.94	118.44	0.00	0.00	0.00
4,700.00	3.26	142.32	4,695.65	-120.96	93.42	123.02	0.00	0.00	0.00
4,800.00	3.26	142.32	4,795.49	-125.47	96.90	127.61	0.00	0.00	0.00
4,900.00	3.26	142.32	4,895.33	-129.97	100.38	132.19	0.00	0.00	0.00

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well 70 Ranch 10-05-4L
Company:	Confluence Resources	TVD Reference:	RKB=4595+24 @ 4619.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=4595+24 @ 4619.00ft
Site:	Section 03-T04N-R63W	North Reference:	True
Well:	70 Ranch 10-05-4L	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	plan1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
5,000.00	3.26	142.32	4,995.17	-134.48	103.86	136.78	0.00	0.00	0.00
5,100.00	3.26	142.32	5,095.00	-138.99	107.34	141.36	0.00	0.00	0.00
5,200.00	3.26	142.32	5,194.84	-143.49	110.83	145.94	0.00	0.00	0.00
5,300.00	3.26	142.32	5,294.68	-148.00	114.31	150.53	0.00	0.00	0.00
5,400.00	3.26	142.32	5,394.52	-152.51	117.79	155.11	0.00	0.00	0.00
5,500.00	3.26	142.32	5,494.36	-157.02	121.27	159.70	0.00	0.00	0.00
5,600.00	3.26	142.32	5,594.19	-161.52	124.75	164.28	0.00	0.00	0.00
5,700.00	3.26	142.32	5,694.03	-166.03	128.23	168.86	0.00	0.00	0.00
5,800.00	3.26	142.32	5,793.87	-170.54	131.71	173.45	0.00	0.00	0.00
5,900.00	3.26	142.32	5,893.71	-175.04	135.19	178.03	0.00	0.00	0.00
5,989.78	3.26	142.32	5,983.34	-179.09	138.32	182.15	0.00	0.00	0.00
Begin 10°/100' build/turn									
6,000.00	4.12	150.96	5,993.54	-179.64	138.67	182.71	10.00	8.41	84.57
6,100.00	13.76	171.47	6,092.23	-194.59	142.19	197.73	10.00	9.64	20.51
6,200.00	23.70	175.06	6,186.81	-226.45	145.70	229.66	10.00	9.94	3.59
6,300.00	33.67	176.60	6,274.43	-274.27	149.08	277.54	10.00	9.97	1.54
6,400.00	43.66	177.50	6,352.42	-336.58	152.23	339.91	10.00	9.98	0.90
6,500.00	53.65	178.12	6,418.40	-411.50	155.07	414.87	10.00	9.99	0.62
6,600.00	63.64	178.59	6,470.37	-496.75	157.49	500.16	10.00	9.99	0.48
6,700.00	73.63	178.99	6,506.76	-589.74	159.44	593.16	10.00	9.99	0.40
6,800.00	83.62	179.35	6,526.45	-687.64	160.85	691.07	10.00	9.99	0.36
6,863.80	90.00	179.57	6,530.00	-751.30	161.44	754.74	10.00	9.99	0.35
LP Begin 90° lateral									
6,900.00	90.00	179.57	6,530.00	-787.50	161.71	790.93	0.00	0.00	0.00
7,000.00	90.00	179.57	6,530.00	-887.50	162.45	890.92	0.00	0.00	0.00
7,100.00	90.00	179.57	6,530.00	-987.50	163.20	990.91	0.00	0.00	0.00
7,200.00	90.00	179.57	6,530.00	-1,087.50	163.94	1,090.90	0.00	0.00	0.00
7,300.00	90.00	179.57	6,530.00	-1,187.49	164.68	1,190.89	0.00	0.00	0.00
7,400.00	90.00	179.57	6,530.00	-1,287.49	165.42	1,290.88	0.00	0.00	0.00
7,500.00	90.00	179.57	6,530.00	-1,387.49	166.17	1,390.86	0.00	0.00	0.00
7,600.00	90.00	179.57	6,530.00	-1,487.48	166.91	1,490.85	0.00	0.00	0.00
7,700.00	90.00	179.57	6,530.00	-1,587.48	167.65	1,590.84	0.00	0.00	0.00
7,800.00	90.00	179.57	6,530.00	-1,687.48	168.39	1,690.83	0.00	0.00	0.00
7,900.00	90.00	179.57	6,530.00	-1,787.48	169.14	1,790.82	0.00	0.00	0.00
8,000.00	90.00	179.57	6,530.00	-1,887.47	169.88	1,890.81	0.00	0.00	0.00
8,100.00	90.00	179.57	6,530.00	-1,987.47	170.62	1,990.80	0.00	0.00	0.00
8,200.00	90.00	179.57	6,530.00	-2,087.47	171.36	2,090.79	0.00	0.00	0.00
8,300.00	90.00	179.57	6,530.00	-2,187.47	172.11	2,190.77	0.00	0.00	0.00
8,400.00	90.00	179.57	6,530.00	-2,287.46	172.85	2,290.76	0.00	0.00	0.00
8,500.00	90.00	179.57	6,530.00	-2,387.46	173.59	2,390.75	0.00	0.00	0.00
8,600.00	90.00	179.57	6,530.00	-2,487.46	174.33	2,490.74	0.00	0.00	0.00
8,700.00	90.00	179.57	6,530.00	-2,587.45	175.07	2,590.73	0.00	0.00	0.00
8,800.00	90.00	179.57	6,530.00	-2,687.45	175.82	2,690.72	0.00	0.00	0.00
8,900.00	90.00	179.57	6,530.00	-2,787.45	176.56	2,790.71	0.00	0.00	0.00
9,000.00	90.00	179.57	6,530.00	-2,887.45	177.30	2,890.70	0.00	0.00	0.00
9,100.00	90.00	179.57	6,530.00	-2,987.44	178.04	2,990.68	0.00	0.00	0.00
9,200.00	90.00	179.57	6,530.00	-3,087.44	178.79	3,090.67	0.00	0.00	0.00
9,300.00	90.00	179.57	6,530.00	-3,187.44	179.53	3,190.66	0.00	0.00	0.00
9,400.00	90.00	179.57	6,530.00	-3,287.44	180.27	3,290.65	0.00	0.00	0.00
9,500.00	90.00	179.57	6,530.00	-3,387.43	181.01	3,390.64	0.00	0.00	0.00
9,600.00	90.00	179.57	6,530.00	-3,487.43	181.76	3,490.63	0.00	0.00	0.00
9,700.00	90.00	179.57	6,530.00	-3,587.43	182.50	3,590.62	0.00	0.00	0.00
9,800.00	90.00	179.57	6,530.00	-3,687.42	183.24	3,690.61	0.00	0.00	0.00
9,900.00	90.00	179.57	6,530.00	-3,787.42	183.98	3,790.59	0.00	0.00	0.00

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well 70 Ranch 10-05-4L
Company:	Confluence Resources	TVD Reference:	RKB=4595+24 @ 4619.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=4595+24 @ 4619.00ft
Site:	Section 03-T04N-R63W	North Reference:	True
Well:	70 Ranch 10-05-4L	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	plan1		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
10,000.00	90.00	179.57	6,530.00	-3,887.42	184.72	3,890.58	0.00	0.00	0.00	
10,100.00	90.00	179.57	6,530.00	-3,987.42	185.47	3,990.57	0.00	0.00	0.00	
10,200.00	90.00	179.57	6,530.00	-4,087.41	186.21	4,090.56	0.00	0.00	0.00	
10,300.00	90.00	179.57	6,530.00	-4,187.41	186.95	4,190.55	0.00	0.00	0.00	
10,400.00	90.00	179.57	6,530.00	-4,287.41	187.69	4,290.54	0.00	0.00	0.00	
10,500.00	90.00	179.57	6,530.00	-4,387.41	188.44	4,390.53	0.00	0.00	0.00	
10,600.00	90.00	179.57	6,530.00	-4,487.40	189.18	4,490.52	0.00	0.00	0.00	
10,700.00	90.00	179.57	6,530.00	-4,587.40	189.92	4,590.50	0.00	0.00	0.00	
10,800.00	90.00	179.57	6,530.00	-4,687.40	190.66	4,690.49	0.00	0.00	0.00	
10,900.00	90.00	179.57	6,530.00	-4,787.39	191.41	4,790.48	0.00	0.00	0.00	
11,000.00	90.00	179.57	6,530.00	-4,887.39	192.15	4,890.47	0.00	0.00	0.00	
11,100.00	90.00	179.57	6,530.00	-4,987.39	192.89	4,990.46	0.00	0.00	0.00	
11,200.00	90.00	179.57	6,530.00	-5,087.39	193.63	5,090.45	0.00	0.00	0.00	
11,300.00	90.00	179.57	6,530.00	-5,187.38	194.38	5,190.44	0.00	0.00	0.00	
11,400.00	90.00	179.57	6,530.00	-5,287.38	195.12	5,290.43	0.00	0.00	0.00	
11,500.00	90.00	179.57	6,530.00	-5,387.38	195.86	5,390.41	0.00	0.00	0.00	
11,600.00	90.00	179.57	6,530.00	-5,487.37	196.60	5,490.40	0.00	0.00	0.00	
11,700.00	90.00	179.57	6,530.00	-5,587.37	197.34	5,590.39	0.00	0.00	0.00	
11,800.00	90.00	179.57	6,530.00	-5,687.37	198.09	5,690.38	0.00	0.00	0.00	
11,900.00	90.00	179.57	6,530.00	-5,787.37	198.83	5,790.37	0.00	0.00	0.00	
12,000.00	90.00	179.57	6,530.00	-5,887.36	199.57	5,890.36	0.00	0.00	0.00	
12,100.00	90.00	179.57	6,530.00	-5,987.36	200.31	5,990.35	0.00	0.00	0.00	
12,200.00	90.00	179.57	6,530.00	-6,087.36	201.06	6,090.34	0.00	0.00	0.00	
12,300.00	90.00	179.57	6,530.00	-6,187.36	201.80	6,190.32	0.00	0.00	0.00	
12,400.00	90.00	179.57	6,530.00	-6,287.35	202.54	6,290.31	0.00	0.00	0.00	
12,500.00	90.00	179.57	6,530.00	-6,387.35	203.28	6,390.30	0.00	0.00	0.00	
12,600.00	90.00	179.57	6,530.00	-6,487.35	204.03	6,490.29	0.00	0.00	0.00	
12,700.00	90.00	179.57	6,530.00	-6,587.34	204.77	6,590.28	0.00	0.00	0.00	
12,800.00	90.00	179.57	6,530.00	-6,687.34	205.51	6,690.27	0.00	0.00	0.00	
12,900.00	90.00	179.57	6,530.00	-6,787.34	206.25	6,790.26	0.00	0.00	0.00	
13,000.00	90.00	179.57	6,530.00	-6,887.34	206.99	6,890.25	0.00	0.00	0.00	
13,100.00	90.00	179.57	6,530.00	-6,987.33	207.74	6,990.23	0.00	0.00	0.00	
13,200.00	90.00	179.57	6,530.00	-7,087.33	208.48	7,090.22	0.00	0.00	0.00	
13,300.00	90.00	179.57	6,530.00	-7,187.33	209.22	7,190.21	0.00	0.00	0.00	
13,400.00	90.00	179.57	6,530.00	-7,287.33	209.96	7,290.20	0.00	0.00	0.00	
13,500.00	90.00	179.57	6,530.00	-7,387.32	210.71	7,390.19	0.00	0.00	0.00	
13,600.00	90.00	179.57	6,530.00	-7,487.32	211.45	7,490.18	0.00	0.00	0.00	
13,700.00	90.00	179.57	6,530.00	-7,587.32	212.19	7,590.17	0.00	0.00	0.00	
13,800.00	90.00	179.57	6,530.00	-7,687.31	212.93	7,690.16	0.00	0.00	0.00	
13,900.00	90.00	179.57	6,530.00	-7,787.31	213.68	7,790.14	0.00	0.00	0.00	
14,000.00	90.00	179.57	6,530.00	-7,887.31	214.42	7,890.13	0.00	0.00	0.00	
14,100.00	90.00	179.57	6,530.00	-7,987.31	215.16	7,990.12	0.00	0.00	0.00	
14,200.00	90.00	179.57	6,530.00	-8,087.30	215.90	8,090.11	0.00	0.00	0.00	
14,300.00	90.00	179.57	6,530.00	-8,187.30	216.65	8,190.10	0.00	0.00	0.00	
14,400.00	90.00	179.57	6,530.00	-8,287.30	217.39	8,290.09	0.00	0.00	0.00	
14,500.00	90.00	179.57	6,530.00	-8,387.29	218.13	8,390.08	0.00	0.00	0.00	
14,600.00	90.00	179.57	6,530.00	-8,487.29	218.87	8,490.07	0.00	0.00	0.00	
14,700.00	90.00	179.57	6,530.00	-8,587.29	219.61	8,590.05	0.00	0.00	0.00	
14,800.00	90.00	179.57	6,530.00	-8,687.29	220.36	8,690.04	0.00	0.00	0.00	
14,900.00	90.00	179.57	6,530.00	-8,787.28	221.10	8,790.03	0.00	0.00	0.00	
15,000.00	90.00	179.57	6,530.00	-8,887.28	221.84	8,890.02	0.00	0.00	0.00	
15,100.00	90.00	179.57	6,530.00	-8,987.28	222.58	8,990.01	0.00	0.00	0.00	
15,200.00	90.00	179.57	6,530.00	-9,087.28	223.33	9,090.00	0.00	0.00	0.00	
15,300.00	90.00	179.57	6,530.00	-9,187.27	224.07	9,189.99	0.00	0.00	0.00	

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well 70 Ranch 10-05-4L
Company:	Confluence Resources	TVD Reference:	RKB=4595+24 @ 4619.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=4595+24 @ 4619.00ft
Site:	Section 03-T04N-R63W	North Reference:	True
Well:	70 Ranch 10-05-4L	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	plan1		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
15,400.00	90.00	179.57	6,530.00	-9,287.27	224.81	9,289.98	0.00	0.00	0.00	
15,500.00	90.00	179.57	6,530.00	-9,387.27	225.55	9,389.96	0.00	0.00	0.00	
15,600.00	90.00	179.57	6,530.00	-9,487.26	226.30	9,489.95	0.00	0.00	0.00	
15,700.00	90.00	179.57	6,530.00	-9,587.26	227.04	9,589.94	0.00	0.00	0.00	
15,800.00	90.00	179.57	6,530.00	-9,687.26	227.78	9,689.93	0.00	0.00	0.00	
15,900.00	90.00	179.57	6,530.00	-9,787.26	228.52	9,789.92	0.00	0.00	0.00	
16,000.00	90.00	179.57	6,530.00	-9,887.25	229.26	9,889.91	0.00	0.00	0.00	
16,100.00	90.00	179.57	6,530.00	-9,987.25	230.01	9,989.90	0.00	0.00	0.00	
16,200.00	90.00	179.57	6,530.00	-10,087.25	230.75	10,089.89	0.00	0.00	0.00	
16,300.00	90.00	179.57	6,530.00	-10,187.25	231.49	10,189.87	0.00	0.00	0.00	
16,400.00	90.00	179.57	6,530.00	-10,287.24	232.23	10,289.86	0.00	0.00	0.00	
16,500.00	90.00	179.57	6,530.00	-10,387.24	232.98	10,389.85	0.00	0.00	0.00	
16,500.82	90.00	179.57	6,530.00	-10,388.06	232.98	10,390.67	0.00	0.00	0.00	
PBHL/TD 16500.82 MD/6530.00 TVD										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
70 Ranch 10-05-4L SL 2	0.00	0.37	24.00	-29.27	-3.79	14,649,113.14	1,799,353.27	40.33466248	-104.42968011	
- hit/miss target										
- Shape										
- plan misses target center by 29.52ft at 24.00ft MD (24.00 TVD, 0.00 N, 0.00 E)										
- Point										
70 Ranch 10-05-4L BHL	0.00	0.37	6,530.00	-10,388.06	232.98	14,638,756.12	1,799,656.78	40.30621773	-104.42883079	
- plan hits target center										
- Point										
70 Ranch 10-05-4L LP 4	0.00	0.37	6,530.00	-751.30	161.44	14,648,392.19	1,799,523.15	40.33267982	-104.42908724	
- plan hits target center										
- Point										

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
2,000.00	2,000.00	0.00	0.00	KOP Begin 10°/100' build	
2,032.65	2,032.63	-0.74	0.57	Begin 3.26° tangent	
5,989.78	5,983.34	-179.09	138.32	Begin 10°/100' build/turn	
6,863.80	6,530.00	-751.30	161.44	LP Begin 90° lateral	
16,500.82	6,530.00	-10,388.06	232.98	PBHL/TD 16500.82 MD/6530.00 TVD	

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well 70 Ranch 10-05-4L
Company:	Confluence Resources	TVD Reference:	RKB=4595+24 @ 4619.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=4595+24 @ 4619.00ft
Site:	Section 03-T04N-R63W	North Reference:	True
Well:	70 Ranch 10-05-4L	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	plan1		

Project	Weld County, Colorado		
Map System:	Universal Transverse Mercator (US Survey Feet)	System Datum:	Mean Sea Level
Geo Datum:	NAD83 Colorado - HARN		
Map Zone:	Zone 13N (108 W to 102 W)		

Site	Section 03-T04N-R63W		
Site Position:		Northing:	14,650,244.32 usft
From:	Map	Easting:	1,800,940.24 usft
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "
		Latitude:	40.33774036
		Longitude:	-104.42395937
		Grid Convergence:	0.37 °

Well	70 Ranch 10-05-4L, Surf loc: 260 FSL 1162 FWL Section 03-T04N-R63W		
Well Position	+N/-S	0.00 ft	Northing:
	+E/-W	0.00 ft	Easting:
Position Uncertainty	0.00 ft	Wellhead Elevation:	
		Latitude:	40.33474287
		Longitude:	-104.42966652
		Ground Level:	4,595.00 ft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	5/21/2018	8.10	66.90	52,228.40000000

Design	plan1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	178.72

Plan Survey Tool Program	Date	5/21/2018		
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	16,500.82 plan1 (Original Hole)		

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,032.65	3.26	142.32	2,032.63	-0.74	0.57	10.00	10.00	0.00	142.32	
5,989.78	3.26	142.32	5,983.34	-179.09	138.32	0.00	0.00	0.00	0.00	
6,863.80	90.00	179.57	6,530.00	-751.30	161.44	10.00	9.92	4.26	37.30	70 Ranch 10-05-4L LI
16,500.82	90.00	179.57	6,530.00	-10,388.06	232.98	0.00	0.00	0.00	0.00	70 Ranch 10-05-4L BI

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well 70 Ranch 10-05-4L
Company:	Confluence Resources	TVD Reference:	RKB=4595+24 @ 4619.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=4595+24 @ 4619.00ft
Site:	Section 03-T04N-R63W	North Reference:	True
Well:	70 Ranch 10-05-4L	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	plan1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	14,649,142.44	1,799,356.87	40.33474287	-104.42966652
100.00	0.00	0.00	100.00	0.00	0.00	14,649,142.44	1,799,356.87	40.33474287	-104.42966652
200.00	0.00	0.00	200.00	0.00	0.00	14,649,142.44	1,799,356.87	40.33474287	-104.42966652
300.00	0.00	0.00	300.00	0.00	0.00	14,649,142.44	1,799,356.87	40.33474287	-104.42966652
400.00	0.00	0.00	400.00	0.00	0.00	14,649,142.44	1,799,356.87	40.33474287	-104.42966652
500.00	0.00	0.00	500.00	0.00	0.00	14,649,142.44	1,799,356.87	40.33474287	-104.42966652
600.00	0.00	0.00	600.00	0.00	0.00	14,649,142.44	1,799,356.87	40.33474287	-104.42966652
700.00	0.00	0.00	700.00	0.00	0.00	14,649,142.44	1,799,356.87	40.33474287	-104.42966652
800.00	0.00	0.00	800.00	0.00	0.00	14,649,142.44	1,799,356.87	40.33474287	-104.42966652
900.00	0.00	0.00	900.00	0.00	0.00	14,649,142.44	1,799,356.87	40.33474287	-104.42966652
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,649,142.44	1,799,356.87	40.33474287	-104.42966652
1,100.00	0.00	0.00	1,100.00	0.00	0.00	14,649,142.44	1,799,356.87	40.33474287	-104.42966652
1,200.00	0.00	0.00	1,200.00	0.00	0.00	14,649,142.44	1,799,356.87	40.33474287	-104.42966652
1,300.00	0.00	0.00	1,300.00	0.00	0.00	14,649,142.44	1,799,356.87	40.33474287	-104.42966652
1,400.00	0.00	0.00	1,400.00	0.00	0.00	14,649,142.44	1,799,356.87	40.33474287	-104.42966652
1,500.00	0.00	0.00	1,500.00	0.00	0.00	14,649,142.44	1,799,356.87	40.33474287	-104.42966652
1,600.00	0.00	0.00	1,600.00	0.00	0.00	14,649,142.44	1,799,356.87	40.33474287	-104.42966652
1,700.00	0.00	0.00	1,700.00	0.00	0.00	14,649,142.44	1,799,356.87	40.33474287	-104.42966652
1,800.00	0.00	0.00	1,800.00	0.00	0.00	14,649,142.44	1,799,356.87	40.33474287	-104.42966652
1,900.00	0.00	0.00	1,900.00	0.00	0.00	14,649,142.44	1,799,356.87	40.33474287	-104.42966652
2,000.00	0.00	0.00	2,000.00	0.00	0.00	14,649,142.44	1,799,356.87	40.33474287	-104.42966652
KOP Begin 10°/100' build									
2,032.65	3.26	142.32	2,032.63	-0.74	0.57	14,649,141.71	1,799,357.44	40.33474085	-104.42966448
Begin 3.26° tangent									
2,100.00	3.26	142.32	2,099.87	-3.77	2.91	14,649,138.68	1,799,359.81	40.33473251	-104.42965607
2,200.00	3.26	142.32	2,199.71	-8.28	6.39	14,649,134.20	1,799,363.32	40.33472013	-104.42964358
2,300.00	3.26	142.32	2,299.55	-12.79	9.88	14,649,129.72	1,799,366.83	40.33470776	-104.42963109
2,400.00	3.26	142.32	2,399.39	-17.29	13.36	14,649,125.23	1,799,370.34	40.33469538	-104.42961860
2,500.00	3.26	142.32	2,499.22	-21.80	16.84	14,649,120.75	1,799,373.85	40.33468300	-104.42960610
2,600.00	3.26	142.32	2,599.06	-26.31	20.32	14,649,116.26	1,799,377.36	40.33467063	-104.42959361
2,700.00	3.26	142.32	2,698.90	-30.81	23.80	14,649,111.78	1,799,380.87	40.33465825	-104.42958112
2,800.00	3.26	142.32	2,798.74	-35.32	27.28	14,649,107.29	1,799,384.38	40.33464588	-104.42956863
2,900.00	3.26	142.32	2,898.57	-39.83	30.76	14,649,102.81	1,799,387.89	40.33463350	-104.42955614
3,000.00	3.26	142.32	2,998.41	-44.34	34.24	14,649,098.32	1,799,391.40	40.33462112	-104.42954365
3,100.00	3.26	142.32	3,098.25	-48.84	37.72	14,649,093.84	1,799,394.91	40.33460875	-104.42953116
3,200.00	3.26	142.32	3,198.09	-53.35	41.20	14,649,089.35	1,799,398.42	40.33459637	-104.42951867
3,300.00	3.26	142.32	3,297.93	-57.86	44.69	14,649,084.87	1,799,401.93	40.33458399	-104.42950618
3,400.00	3.26	142.32	3,397.76	-62.37	48.17	14,649,080.38	1,799,405.44	40.33457162	-104.42949369
3,500.00	3.26	142.32	3,497.60	-66.87	51.65	14,649,075.90	1,799,408.95	40.33455924	-104.42948120
3,600.00	3.26	142.32	3,597.44	-71.38	55.13	14,649,071.41	1,799,412.46	40.33454686	-104.42946870
3,700.00	3.26	142.32	3,697.28	-75.89	58.61	14,649,066.93	1,799,415.97	40.33453449	-104.42945621
3,800.00	3.26	142.32	3,797.11	-80.39	62.09	14,649,062.45	1,799,419.48	40.33452211	-104.42944372
3,900.00	3.26	142.32	3,896.95	-84.90	65.57	14,649,057.96	1,799,422.99	40.33450973	-104.42943123
4,000.00	3.26	142.32	3,996.79	-89.41	69.05	14,649,053.48	1,799,426.50	40.33449736	-104.42941874
4,100.00	3.26	142.32	4,096.63	-93.92	72.53	14,649,048.99	1,799,430.01	40.33448498	-104.42940625
4,200.00	3.26	142.32	4,196.46	-98.42	76.02	14,649,044.51	1,799,433.52	40.33447260	-104.42939376
4,300.00	3.26	142.32	4,296.30	-102.93	79.50	14,649,040.02	1,799,437.03	40.33446023	-104.42938127
4,400.00	3.26	142.32	4,396.14	-107.44	82.98	14,649,035.54	1,799,440.54	40.33444785	-104.42936878
4,500.00	3.26	142.32	4,495.98	-111.94	86.46	14,649,031.05	1,799,444.05	40.33443547	-104.42935629
4,600.00	3.26	142.32	4,595.82	-116.45	89.94	14,649,026.57	1,799,447.56	40.33442310	-104.42934380
4,700.00	3.26	142.32	4,695.65	-120.96	93.42	14,649,022.08	1,799,451.07	40.33441072	-104.42933131
4,800.00	3.26	142.32	4,795.49	-125.47	96.90	14,649,017.60	1,799,454.58	40.33439834	-104.42931882
4,900.00	3.26	142.32	4,895.33	-129.97	100.38	14,649,013.11	1,799,458.09	40.33438597	-104.42930632
5,000.00	3.26	142.32	4,995.17	-134.48	103.86	14,649,008.63	1,799,461.60	40.33437359	-104.42929383

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well 70 Ranch 10-05-4L
Company:	Confluence Resources	TVD Reference:	RKB=4595+24 @ 4619.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=4595+24 @ 4619.00ft
Site:	Section 03-T04N-R63W	North Reference:	True
Well:	70 Ranch 10-05-4L	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	plan1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,100.00	3.26	142.32	5,095.00	-138.99	107.34	14,649,004.15	1,799,465.11	40.33436122	-104.42928134
5,200.00	3.26	142.32	5,194.84	-143.49	110.83	14,648,999.66	1,799,468.62	40.33434884	-104.42926885
5,300.00	3.26	142.32	5,294.68	-148.00	114.31	14,648,995.18	1,799,472.13	40.33433646	-104.42925636
5,400.00	3.26	142.32	5,394.52	-152.51	117.79	14,648,990.69	1,799,475.64	40.33432409	-104.42924387
5,500.00	3.26	142.32	5,494.36	-157.02	121.27	14,648,986.21	1,799,479.15	40.33431171	-104.42923138
5,600.00	3.26	142.32	5,594.19	-161.52	124.75	14,648,981.72	1,799,482.66	40.33429933	-104.42921889
5,700.00	3.26	142.32	5,694.03	-166.03	128.23	14,648,977.24	1,799,486.17	40.33428696	-104.42920640
5,800.00	3.26	142.32	5,793.87	-170.54	131.71	14,648,972.75	1,799,489.68	40.33427458	-104.42919391
5,900.00	3.26	142.32	5,893.71	-175.04	135.19	14,648,968.27	1,799,493.17	40.33426220	-104.42918142
5,989.78	3.26	142.32	5,983.34	-179.09	138.32	14,648,964.24	1,799,496.34	40.33425109	-104.42917020
Begin 10°/100' build/turn									
6,000.00	4.12	150.96	5,993.54	-179.64	138.67	14,648,963.69	1,799,496.70	40.33424958	-104.42916892
6,100.00	13.76	171.47	6,092.23	-194.59	142.19	14,648,948.77	1,799,500.31	40.33420854	-104.42915630
6,200.00	23.70	175.06	6,186.81	-226.45	145.70	14,648,916.93	1,799,504.02	40.33412105	-104.42914373
6,300.00	33.67	176.60	6,274.43	-274.27	149.08	14,648,869.14	1,799,507.71	40.33398975	-104.42913160
6,400.00	43.66	177.50	6,352.42	-336.58	152.23	14,648,806.85	1,799,511.27	40.33381864	-104.42912028
6,500.00	53.65	178.12	6,418.40	-411.50	155.07	14,648,731.95	1,799,514.59	40.33361291	-104.42911011
6,600.00	63.64	178.59	6,470.37	-496.75	157.49	14,648,646.71	1,799,517.56	40.33337882	-104.42910140
6,700.00	73.63	178.99	6,506.76	-589.74	159.44	14,648,553.74	1,799,520.11	40.33312348	-104.42909442
6,800.00	83.62	179.35	6,526.45	-687.64	160.85	14,648,455.85	1,799,522.15	40.33285464	-104.42908937
6,863.80	90.00	179.57	6,530.00	-751.30	161.44	14,648,392.19	1,799,523.15	40.33267982	-104.42908724
LP Begin 90° lateral									
6,900.00	90.00	179.57	6,530.00	-787.50	161.71	14,648,355.99	1,799,523.65	40.33258042	-104.42908627
7,000.00	90.00	179.57	6,530.00	-887.50	162.45	14,648,256.00	1,799,525.04	40.33230583	-104.42908361
7,100.00	90.00	179.57	6,530.00	-987.50	163.20	14,648,156.01	1,799,526.43	40.33203124	-104.42908095
7,200.00	90.00	179.57	6,530.00	-1,087.50	163.94	14,648,056.02	1,799,527.81	40.33175666	-104.42907829
7,300.00	90.00	179.57	6,530.00	-1,187.49	164.68	14,647,956.03	1,799,529.20	40.33148207	-104.42907563
7,400.00	90.00	179.57	6,530.00	-1,287.49	165.42	14,647,856.04	1,799,530.59	40.33120748	-104.42907297
7,500.00	90.00	179.57	6,530.00	-1,387.49	166.17	14,647,756.05	1,799,531.97	40.33093289	-104.42907030
7,600.00	90.00	179.57	6,530.00	-1,487.48	166.91	14,647,656.06	1,799,533.36	40.33065831	-104.42906764
7,700.00	90.00	179.57	6,530.00	-1,587.48	167.65	14,647,556.07	1,799,534.75	40.33038372	-104.42906498
7,800.00	90.00	179.57	6,530.00	-1,687.48	168.39	14,647,456.08	1,799,536.13	40.33010913	-104.42906232
7,900.00	90.00	179.57	6,530.00	-1,787.48	169.14	14,647,356.09	1,799,537.52	40.32983454	-104.42905966
8,000.00	90.00	179.57	6,530.00	-1,887.47	169.88	14,647,256.10	1,799,538.91	40.32955996	-104.42905700
8,100.00	90.00	179.57	6,530.00	-1,987.47	170.62	14,647,156.11	1,799,540.29	40.32928537	-104.42905434
8,200.00	90.00	179.57	6,530.00	-2,087.47	171.36	14,647,056.12	1,799,541.68	40.32901078	-104.42905167
8,300.00	90.00	179.57	6,530.00	-2,187.47	172.11	14,646,956.13	1,799,543.07	40.32873619	-104.42904901
8,400.00	90.00	179.57	6,530.00	-2,287.46	172.85	14,646,856.14	1,799,544.45	40.32846161	-104.42904635
8,500.00	90.00	179.57	6,530.00	-2,387.46	173.59	14,646,756.15	1,799,545.84	40.32818702	-104.42904369
8,600.00	90.00	179.57	6,530.00	-2,487.46	174.33	14,646,656.16	1,799,547.23	40.32791243	-104.42904103
8,700.00	90.00	179.57	6,530.00	-2,587.45	175.07	14,646,556.17	1,799,548.61	40.32763784	-104.42903837
8,800.00	90.00	179.57	6,530.00	-2,687.45	175.82	14,646,456.18	1,799,550.00	40.32736326	-104.42903571
8,900.00	90.00	179.57	6,530.00	-2,787.45	176.56	14,646,356.19	1,799,551.39	40.32708867	-104.42903305
9,000.00	90.00	179.57	6,530.00	-2,887.45	177.30	14,646,256.20	1,799,552.77	40.32681408	-104.42903038
9,100.00	90.00	179.57	6,530.00	-2,987.44	178.04	14,646,156.21	1,799,554.16	40.32653949	-104.42902772
9,200.00	90.00	179.57	6,530.00	-3,087.44	178.79	14,646,056.22	1,799,555.55	40.32626490	-104.42902506
9,300.00	90.00	179.57	6,530.00	-3,187.44	179.53	14,645,956.23	1,799,556.93	40.32599032	-104.42902240
9,400.00	90.00	179.57	6,530.00	-3,287.44	180.27	14,645,856.24	1,799,558.32	40.32571573	-104.42901974
9,500.00	90.00	179.57	6,530.00	-3,387.43	181.01	14,645,756.25	1,799,559.71	40.32544114	-104.42901708
9,600.00	90.00	179.57	6,530.00	-3,487.43	181.76	14,645,656.26	1,799,561.09	40.32516655	-104.42901442
9,700.00	90.00	179.57	6,530.00	-3,587.43	182.50	14,645,556.27	1,799,562.48	40.32489197	-104.42901175
9,800.00	90.00	179.57	6,530.00	-3,687.42	183.24	14,645,456.28	1,799,563.87	40.32461738	-104.42900909
9,900.00	90.00	179.57	6,530.00	-3,787.42	183.98	14,645,356.29	1,799,565.25	40.32434279	-104.42900643
10,000.00	90.00	179.57	6,530.00	-3,887.42	184.72	14,645,256.30	1,799,566.64	40.32406820	-104.42900377

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well 70 Ranch 10-05-4L
Company:	Confluence Resources	TVD Reference:	RKB=4595+24 @ 4619.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=4595+24 @ 4619.00ft
Site:	Section 03-T04N-R63W	North Reference:	True
Well:	70 Ranch 10-05-4L	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	plan1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
10,100.00	90.00	179.57	6,530.00	-3,987.42	185.47	14,645,156.31	1,799,568.03	40.32379361	-104.42900111
10,200.00	90.00	179.57	6,530.00	-4,087.41	186.21	14,645,056.32	1,799,569.41	40.32351903	-104.42899845
10,300.00	90.00	179.57	6,530.00	-4,187.41	186.95	14,644,956.33	1,799,570.80	40.32324444	-104.42899579
10,400.00	90.00	179.57	6,530.00	-4,287.41	187.69	14,644,856.34	1,799,572.19	40.32296985	-104.42899313
10,500.00	90.00	179.57	6,530.00	-4,387.41	188.44	14,644,756.35	1,799,573.57	40.32269526	-104.42899047
10,600.00	90.00	179.57	6,530.00	-4,487.40	189.18	14,644,656.36	1,799,574.96	40.32242067	-104.42898780
10,700.00	90.00	179.57	6,530.00	-4,587.40	189.92	14,644,556.37	1,799,576.35	40.32214609	-104.42898514
10,800.00	90.00	179.57	6,530.00	-4,687.40	190.66	14,644,456.38	1,799,577.73	40.32187150	-104.42898248
10,900.00	90.00	179.57	6,530.00	-4,787.39	191.41	14,644,356.39	1,799,579.12	40.32159691	-104.42897982
11,000.00	90.00	179.57	6,530.00	-4,887.39	192.15	14,644,256.40	1,799,580.50	40.32132232	-104.42897716
11,100.00	90.00	179.57	6,530.00	-4,987.39	192.89	14,644,156.41	1,799,581.89	40.32104773	-104.42897450
11,200.00	90.00	179.57	6,530.00	-5,087.39	193.63	14,644,056.42	1,799,583.28	40.32077315	-104.42897184
11,300.00	90.00	179.57	6,530.00	-5,187.38	194.38	14,643,956.42	1,799,584.66	40.32049856	-104.42896918
11,400.00	90.00	179.57	6,530.00	-5,287.38	195.12	14,643,856.43	1,799,586.05	40.32022397	-104.42896652
11,500.00	90.00	179.57	6,530.00	-5,387.38	195.86	14,643,756.44	1,799,587.44	40.31994938	-104.42896385
11,600.00	90.00	179.57	6,530.00	-5,487.37	196.60	14,643,656.45	1,799,588.82	40.31967479	-104.42896119
11,700.00	90.00	179.57	6,530.00	-5,587.37	197.34	14,643,556.46	1,799,590.21	40.31940021	-104.42895853
11,800.00	90.00	179.57	6,530.00	-5,687.37	198.09	14,643,456.47	1,799,591.60	40.31912562	-104.42895587
11,900.00	90.00	179.57	6,530.00	-5,787.37	198.83	14,643,356.48	1,799,592.98	40.31885103	-104.42895321
12,000.00	90.00	179.57	6,530.00	-5,887.36	199.57	14,643,256.49	1,799,594.37	40.31857644	-104.42895055
12,100.00	90.00	179.57	6,530.00	-5,987.36	200.31	14,643,156.50	1,799,595.76	40.31830185	-104.42894789
12,200.00	90.00	179.57	6,530.00	-6,087.36	201.06	14,643,056.51	1,799,597.14	40.31802727	-104.42894523
12,300.00	90.00	179.57	6,530.00	-6,187.36	201.80	14,642,956.52	1,799,598.53	40.31775268	-104.42894257
12,400.00	90.00	179.57	6,530.00	-6,287.35	202.54	14,642,856.53	1,799,599.92	40.31747809	-104.42893990
12,500.00	90.00	179.57	6,530.00	-6,387.35	203.28	14,642,756.54	1,799,601.30	40.31720350	-104.42893724
12,600.00	90.00	179.57	6,530.00	-6,487.35	204.03	14,642,656.55	1,799,602.69	40.31692891	-104.42893458
12,700.00	90.00	179.57	6,530.00	-6,587.34	204.77	14,642,556.56	1,799,604.08	40.31665432	-104.42893192
12,800.00	90.00	179.57	6,530.00	-6,687.34	205.51	14,642,456.57	1,799,605.46	40.31637974	-104.42892926
12,900.00	90.00	179.57	6,530.00	-6,787.34	206.25	14,642,356.58	1,799,606.85	40.31610515	-104.42892660
13,000.00	90.00	179.57	6,530.00	-6,887.34	206.99	14,642,256.59	1,799,608.24	40.31583056	-104.42892394
13,100.00	90.00	179.57	6,530.00	-6,987.33	207.74	14,642,156.60	1,799,609.62	40.31555597	-104.42892128
13,200.00	90.00	179.57	6,530.00	-7,087.33	208.48	14,642,056.61	1,799,611.01	40.31528138	-104.42891862
13,300.00	90.00	179.57	6,530.00	-7,187.33	209.22	14,641,956.62	1,799,612.40	40.31500680	-104.42891596
13,400.00	90.00	179.57	6,530.00	-7,287.33	209.96	14,641,856.63	1,799,613.78	40.31473221	-104.42891329
13,500.00	90.00	179.57	6,530.00	-7,387.32	210.71	14,641,756.64	1,799,615.17	40.31445762	-104.42891063
13,600.00	90.00	179.57	6,530.00	-7,487.32	211.45	14,641,656.65	1,799,616.56	40.31418303	-104.42890797
13,700.00	90.00	179.57	6,530.00	-7,587.32	212.19	14,641,556.66	1,799,617.94	40.31390844	-104.42890531
13,800.00	90.00	179.57	6,530.00	-7,687.31	212.93	14,641,456.67	1,799,619.33	40.31363385	-104.42890265
13,900.00	90.00	179.57	6,530.00	-7,787.31	213.68	14,641,356.68	1,799,620.72	40.31335927	-104.42889999
14,000.00	90.00	179.57	6,530.00	-7,887.31	214.42	14,641,256.69	1,799,622.10	40.31308468	-104.42889733
14,100.00	90.00	179.57	6,530.00	-7,987.31	215.16	14,641,156.70	1,799,623.49	40.31281010	-104.42889467
14,200.00	90.00	179.57	6,530.00	-8,087.30	215.90	14,641,056.71	1,799,624.88	40.31253551	-104.42889201
14,300.00	90.00	179.57	6,530.00	-8,187.30	216.65	14,640,956.72	1,799,626.26	40.31226092	-104.42888935
14,400.00	90.00	179.57	6,530.00	-8,287.30	217.39	14,640,856.73	1,799,627.65	40.31198633	-104.42888669
14,500.00	90.00	179.57	6,530.00	-8,387.29	218.13	14,640,756.74	1,799,629.04	40.31171174	-104.42888403
14,600.00	90.00	179.57	6,530.00	-8,487.29	218.87	14,640,656.75	1,799,630.42	40.31143716	-104.42888136
14,700.00	90.00	179.57	6,530.00	-8,587.29	219.61	14,640,556.76	1,799,631.81	40.31116257	-104.42887870
14,800.00	90.00	179.57	6,530.00	-8,687.29	220.36	14,640,456.77	1,799,633.20	40.31088798	-104.42887604
14,900.00	90.00	179.57	6,530.00	-8,787.28	221.10	14,640,356.78	1,799,634.58	40.31061339	-104.42887338
15,000.00	90.00	179.57	6,530.00	-8,887.28	221.84	14,640,256.79	1,799,635.97	40.31033880	-104.42887072
15,100.00	90.00	179.57	6,530.00	-8,987.28	222.58	14,640,156.80	1,799,637.36	40.31006421	-104.42886806
15,200.00	90.00	179.57	6,530.00	-9,087.28	223.33	14,640,056.81	1,799,638.74	40.30978963	-104.42886540
15,300.00	90.00	179.57	6,530.00	-9,187.27	224.07	14,639,956.82	1,799,640.13	40.30951504	-104.42886274
15,400.00	90.00	179.57	6,530.00	-9,287.27	224.81	14,639,856.83	1,799,641.52	40.30924045	-104.42886008
15,500.00	90.00	179.57	6,530.00	-9,387.27	225.55	14,639,756.84	1,799,642.90	40.30896586	-104.42885742

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well 70 Ranch 10-05-4L
Company:	Confluence Resources	TVD Reference:	RKB=4595+24 @ 4619.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=4595+24 @ 4619.00ft
Site:	Section 03-T04N-R63W	North Reference:	True
Well:	70 Ranch 10-05-4L	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	plan1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
15,600.00	90.00	179.57	6,530.00	-9,487.26	226.30	14,639,656.85	1,799,644.29	40.30869127	-104.42885476
15,700.00	90.00	179.57	6,530.00	-9,587.26	227.04	14,639,556.86	1,799,645.68	40.30841668	-104.42885210
15,800.00	90.00	179.57	6,530.00	-9,687.26	227.78	14,639,456.87	1,799,647.06	40.30814209	-104.42884944
15,900.00	90.00	179.57	6,530.00	-9,787.26	228.52	14,639,356.88	1,799,648.45	40.30786751	-104.42884677
16,000.00	90.00	179.57	6,530.00	-9,887.25	229.26	14,639,256.89	1,799,649.84	40.30759292	-104.42884411
16,100.00	90.00	179.57	6,530.00	-9,987.25	230.01	14,639,156.90	1,799,651.22	40.30731833	-104.42884145
16,200.00	90.00	179.57	6,530.00	-10,087.25	230.75	14,639,056.91	1,799,652.61	40.30704374	-104.42883879
16,300.00	90.00	179.57	6,530.00	-10,187.25	231.49	14,638,956.92	1,799,654.00	40.30676915	-104.42883613
16,400.00	90.00	179.57	6,530.00	-10,287.24	232.23	14,638,856.93	1,799,655.38	40.30649456	-104.42883347
16,500.00	90.00	179.57	6,530.00	-10,387.24	232.98	14,638,756.94	1,799,656.77	40.30621997	-104.42883081
16,500.82	90.00	179.57	6,530.00	-10,388.06	232.98	14,638,756.12	1,799,656.78	40.30621773	-104.42883079
PBHL/TD 16500.82 MD/6530.00 TVD									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
70 Ranch 10-05-4L SL 2	0.00	0.37	24.00	-29.27	-3.79	14,649,113.14	1,799,353.27	40.33466248	-104.42968011
- plan misses target center by 29.52ft at 24.00ft MD (24.00 TVD, 0.00 N, 0.00 E)									
- Point									
70 Ranch 10-05-4L BHL	0.00	0.37	6,530.00	-10,388.06	232.98	14,638,756.12	1,799,656.78	40.30621773	-104.42883079
- plan hits target center									
- Point									
70 Ranch 10-05-4L LP 4	0.00	0.37	6,530.00	-751.30	161.44	14,648,392.19	1,799,523.15	40.33267982	-104.42908724
- plan hits target center									
- Point									

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
2,000.00	2,000.00	0.00	0.00	KOP Begin 10°/100' build
2,032.65	2,032.63	-0.74	0.57	Begin 3.26° tangent
5,989.78	5,983.34	-179.09	138.32	Begin 10°/100' build/turn
6,863.80	6,530.00	-751.30	161.44	LP Begin 90° lateral
16,500.82	6,530.00	-10,388.06	232.98	PBHL/TD 16500.82 MD/6530.00 TVD