

Weld County, Colorado
Section 34-T01N-R65W
Desha 4-2-2L
plan1

Section Details

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	VSec	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	5000.74	0.00	0.00	5000.00	0.00	0.00	0.00	0.00	KOP Begin 10°/100' build
3	5380.74	38.07	246.61	5353.33	-48.39	-111.90	10.00	63.65	Begin 38.07° tangent
4	7390.85	38.07	246.61	6935.72	-540.44	-1249.65	0.00	710.81	Begin 10°/100' build/turn
5	8147.82	89.77	179.91	7288.00	-1094.63	-1500.91	10.00	1294.83	LP Begin 89.77° lateral section
6	17510.99	89.77	179.91	7326.00	-10457.71	-1485.42	0.00	10562.68	PBHL/TD 17510.99 MD/7326.00 TVD

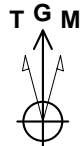
DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
LP Desha 4-2-2L 470 FNL 610 FEL	7288.00	-1094.63	-1500.91	14526645.37	1735174.91	39.99926415	-104.66164325
BHL Desha 4-2-2L 470 FSL 610 FEL	7326.00	-10457.71	-1485.42	14517282.31	1735190.40	39.97355161	-104.66171478

Desha 4-2-2L			
Surf loc: 620 FSL 943 FWL Sec34-T01N-R65W			
NAD83 Colorado - HARN			
Universal Transverse Mercator (US Survey Feet)			
Zone 13N (108 W to 102 W)			
RKB=5140+25 @ 5165.00ft			
Northing	Easting	Latitude	Longitude
14527740.00	1736675.82	40.00225439	-104.65626891

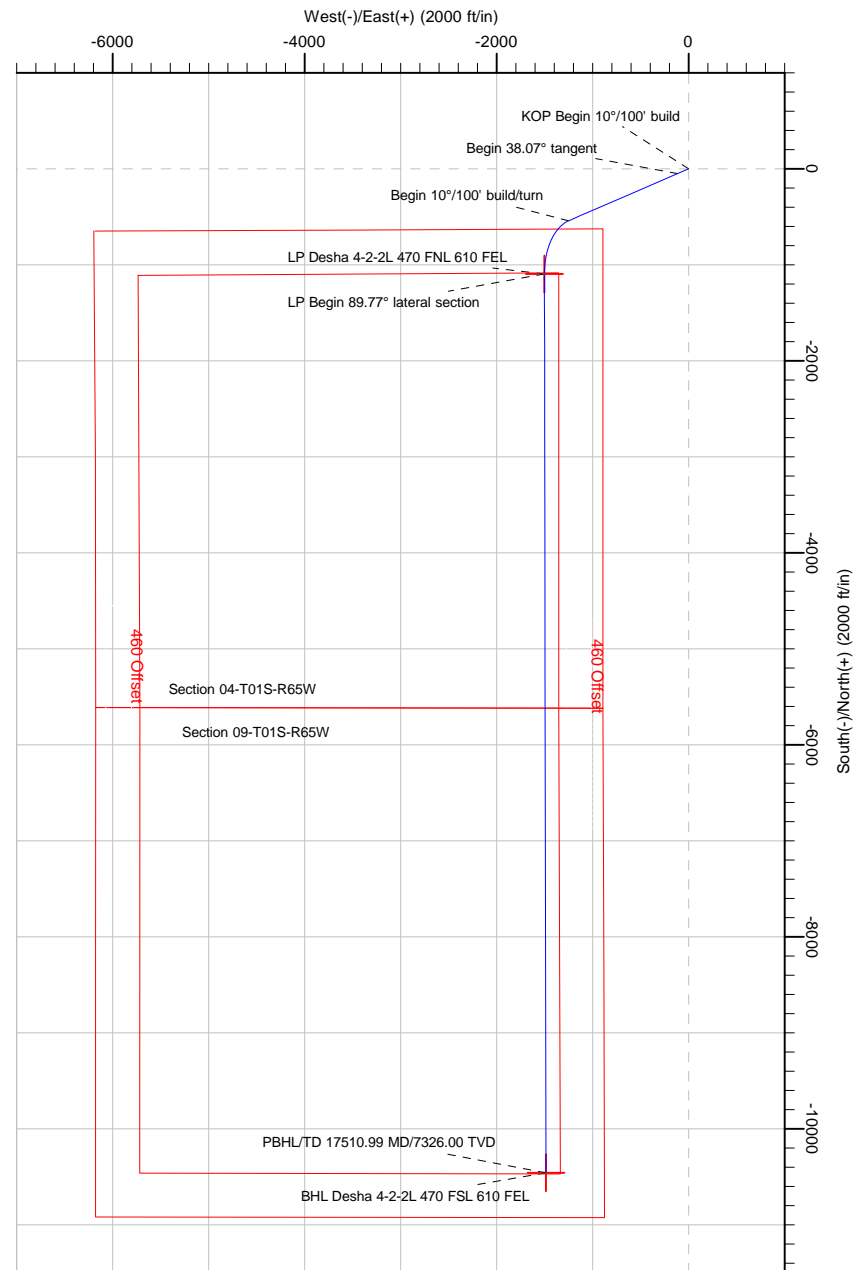
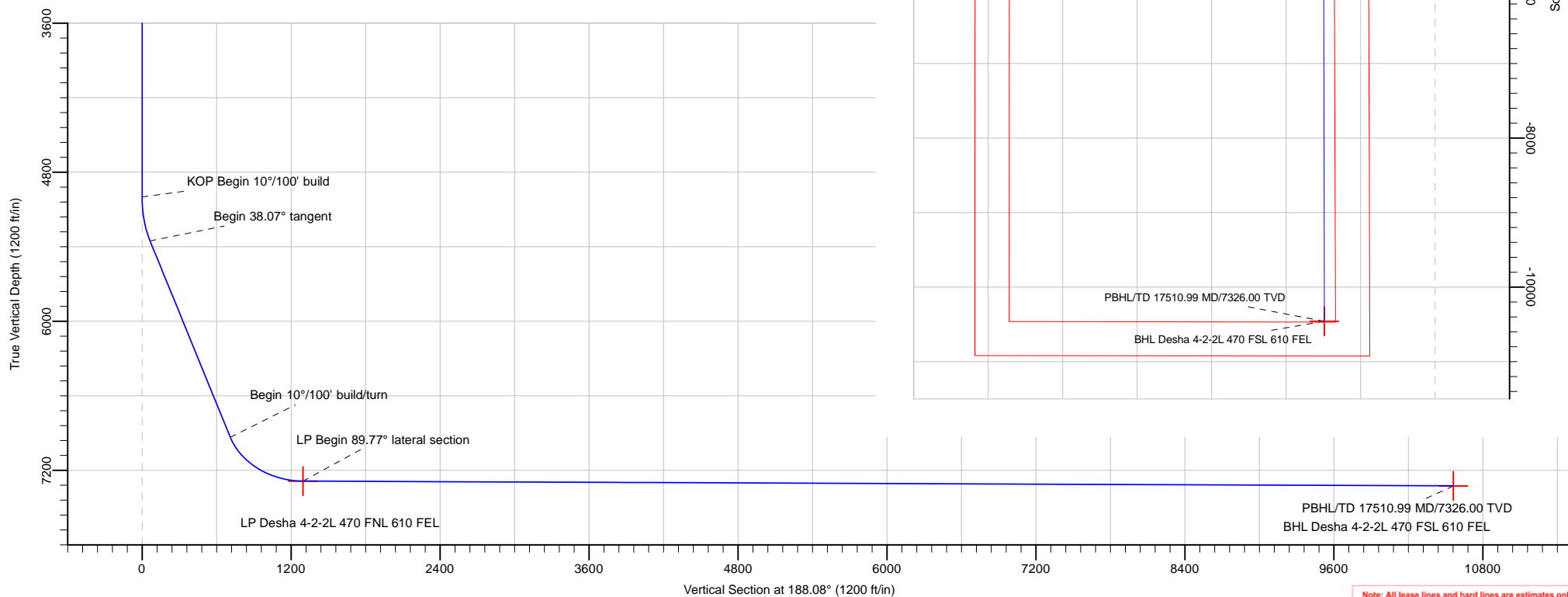
Azimuth Corrections:

To convert a Magnetic Direction to a True Direction, Add 8.27° East



Azimuths to Grid North
True North: -0.22°
Magnetic North: 8.05°

Magnetic Field
Strength: 52109.3snT
Dip Angle: 66.45°
Date: 8/30/2017
Model: HDGM



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 Desha 4-2-2L
Company:	Confluence Resources	TVD Reference:	RKB=5140+25 @ 5165.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5140+25 @ 5165.00ft
Site:	Section 34-T01N-R65W	North Reference:	Grid
Well:	Desha 4-2-2L	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 34-T01N-R65W			
Site Position:		Northing:	14,527,892.80 usft	Latitude:	40.00267560
From:	Map	Easting:	1,736,525.30 usft	Longitude:	-104.65680429
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.22 °

Well	Desha 4-2-2L, Surf loc: 620 FSL 943 FWL Sec34-T01N-R65W					
Well Position	+N/-S	-152.80 ft	Northing:	14,527,740.00 usft	Latitude:	40.00225440
	+E/-W	150.52 ft	Easting:	1,736,675.82 usft	Longitude:	-104.65626891
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	5,140.00 ft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	8/30/2017	8.27	66.45	52,109.30000000

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	188.08

Plan Survey Tool Program	Date	8/30/2017		
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	17,510.99	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	
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,380.74	38.07	246.61	5,353.33	-48.39	-111.90	10.00	10.00	0.00	246.61	
7,390.85	38.07	246.61	6,935.72	-540.44	-1,249.65	0.00	0.00	0.00	0.00	
8,147.82	89.77	179.91	7,288.00	-1,094.63	-1,500.91	10.00	6.83	-8.81	-71.42	LP Desha 4-2-2L 470
17,510.99	89.77	179.91	7,326.00	-10,457.71	-1,485.42	0.00	0.00	0.00	0.00	BHL Desha 4-2-2L 47

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-2-2L
Company:	Confluence Resources	TVD Reference:	RKB=5140+25 @ 5165.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5140+25 @ 5165.00ft
Site:	Section 34-T01N-R65W	North Reference:	Grid
Well:	Desha 4-2-2L	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
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP Begin 10°/100' build									
5,100.00	10.00	246.61	5,099.49	-3.46	-7.99	4.54	10.00	10.00	0.00
5,200.00	20.00	246.61	5,195.96	-13.72	-31.71	18.04	10.00	10.00	0.00

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-2-2L
Company:	Confluence Resources	TVD Reference:	RKB=5140+25 @ 5165.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5140+25 @ 5165.00ft
Site:	Section 34-T01N-R65W	North Reference:	Grid
Well:	Desha 4-2-2L	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)
5,300.00	30.00	246.61	5,286.48	-30.47	-70.46	40.08	10.00	10.00	0.00
5,380.74	38.07	246.61	5,353.33	-48.39	-111.90	63.65	10.00	10.00	0.00
Begin 38.07° tangent									
5,400.00	38.07	246.61	5,368.49	-53.11	-122.80	69.85	0.00	0.00	0.00
5,500.00	38.07	246.61	5,447.21	-77.59	-179.40	102.05	0.00	0.00	0.00
5,600.00	38.07	246.61	5,525.94	-102.07	-236.01	134.24	0.00	0.00	0.00
5,700.00	38.07	246.61	5,604.66	-126.54	-292.61	166.44	0.00	0.00	0.00
5,800.00	38.07	246.61	5,683.38	-151.02	-349.21	198.63	0.00	0.00	0.00
5,900.00	38.07	246.61	5,762.10	-175.50	-405.81	230.83	0.00	0.00	0.00
6,000.00	38.07	246.61	5,840.82	-199.98	-462.41	263.02	0.00	0.00	0.00
6,100.00	38.07	246.61	5,919.54	-224.46	-519.01	295.22	0.00	0.00	0.00
6,200.00	38.07	246.61	5,998.26	-248.94	-575.61	327.41	0.00	0.00	0.00
6,300.00	38.07	246.61	6,076.99	-273.42	-632.22	359.61	0.00	0.00	0.00
6,400.00	38.07	246.61	6,155.71	-297.90	-688.82	391.80	0.00	0.00	0.00
6,500.00	38.07	246.61	6,234.43	-322.37	-745.42	424.00	0.00	0.00	0.00
6,600.00	38.07	246.61	6,313.15	-346.85	-802.02	456.19	0.00	0.00	0.00
6,700.00	38.07	246.61	6,391.87	-371.33	-858.62	488.39	0.00	0.00	0.00
6,800.00	38.07	246.61	6,470.59	-395.81	-915.22	520.58	0.00	0.00	0.00
6,900.00	38.07	246.61	6,549.31	-420.29	-971.83	552.78	0.00	0.00	0.00
7,000.00	38.07	246.61	6,628.04	-444.77	-1,028.43	584.98	0.00	0.00	0.00
7,100.00	38.07	246.61	6,706.76	-469.25	-1,085.03	617.17	0.00	0.00	0.00
7,200.00	38.07	246.61	6,785.48	-493.73	-1,141.63	649.37	0.00	0.00	0.00
7,300.00	38.07	246.61	6,864.20	-518.20	-1,198.23	681.56	0.00	0.00	0.00
7,390.85	38.07	246.61	6,935.72	-540.44	-1,249.65	710.81	0.00	0.00	0.00
Begin 10°/100' build/turn									
7,400.00	38.37	245.22	6,942.91	-542.75	-1,254.82	713.82	10.00	3.28	-15.27
7,500.00	42.63	231.24	7,019.09	-577.05	-1,309.55	755.48	10.00	4.25	-13.97
7,600.00	48.30	219.66	7,089.31	-627.11	-1,359.91	812.13	10.00	5.67	-11.58
7,700.00	54.94	210.11	7,151.45	-691.42	-1,404.38	882.05	10.00	6.64	-9.56
7,800.00	62.21	202.05	7,203.61	-768.03	-1,441.61	963.13	10.00	7.27	-8.06
7,900.00	69.89	195.03	7,244.21	-854.59	-1,470.47	1,052.89	10.00	7.68	-7.02
8,000.00	77.82	188.68	7,272.02	-948.49	-1,490.07	1,148.61	10.00	7.93	-6.35
8,100.00	85.89	182.71	7,286.19	-1,046.87	-1,499.83	1,247.39	10.00	8.07	-5.98
8,147.82	89.77	179.91	7,288.00	-1,094.63	-1,500.91	1,294.83	10.00	8.11	-5.86
LP Begin 89.77° lateral section									
8,200.00	89.77	179.91	7,288.21	-1,146.81	-1,500.83	1,346.47	0.00	0.00	0.00
8,300.00	89.77	179.91	7,288.62	-1,246.81	-1,500.66	1,445.46	0.00	0.00	0.00
8,400.00	89.77	179.91	7,289.02	-1,346.81	-1,500.50	1,544.44	0.00	0.00	0.00
8,500.00	89.77	179.91	7,289.43	-1,446.81	-1,500.33	1,643.42	0.00	0.00	0.00
8,600.00	89.77	179.91	7,289.84	-1,546.81	-1,500.16	1,742.40	0.00	0.00	0.00
8,700.00	89.77	179.91	7,290.24	-1,646.81	-1,500.00	1,841.38	0.00	0.00	0.00
8,800.00	89.77	179.91	7,290.65	-1,746.80	-1,499.83	1,940.37	0.00	0.00	0.00
8,900.00	89.77	179.91	7,291.05	-1,846.80	-1,499.67	2,039.35	0.00	0.00	0.00
9,000.00	89.77	179.91	7,291.46	-1,946.80	-1,499.50	2,138.33	0.00	0.00	0.00
9,100.00	89.77	179.91	7,291.86	-2,046.80	-1,499.34	2,237.31	0.00	0.00	0.00
9,200.00	89.77	179.91	7,292.27	-2,146.80	-1,499.17	2,336.29	0.00	0.00	0.00
9,300.00	89.77	179.91	7,292.68	-2,246.80	-1,499.01	2,435.28	0.00	0.00	0.00
9,400.00	89.77	179.91	7,293.08	-2,346.80	-1,498.84	2,534.26	0.00	0.00	0.00
9,500.00	89.77	179.91	7,293.49	-2,446.80	-1,498.68	2,633.24	0.00	0.00	0.00
9,600.00	89.77	179.91	7,293.89	-2,546.80	-1,498.51	2,732.22	0.00	0.00	0.00
9,700.00	89.77	179.91	7,294.30	-2,646.80	-1,498.35	2,831.20	0.00	0.00	0.00
9,800.00	89.77	179.91	7,294.71	-2,746.79	-1,498.18	2,930.19	0.00	0.00	0.00
9,900.00	89.77	179.91	7,295.11	-2,846.79	-1,498.01	3,029.17	0.00	0.00	0.00

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Company:	Confluence Resources	TVD Reference:	RKB=5140+25 @ 5165.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5140+25 @ 5165.00ft
Site:	Section 34-T01N-R65W	North Reference:	Grid
Well:	Desha 4-2-2L	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	89.77	179.91	7,295.52	-2,946.79	-1,497.85	3,128.15	0.00	0.00	0.00
10,100.00	89.77	179.91	7,295.92	-3,046.79	-1,497.68	3,227.13	0.00	0.00	0.00
10,200.00	89.77	179.91	7,296.33	-3,146.79	-1,497.52	3,326.11	0.00	0.00	0.00
10,300.00	89.77	179.91	7,296.73	-3,246.79	-1,497.35	3,425.10	0.00	0.00	0.00
10,400.00	89.77	179.91	7,297.14	-3,346.79	-1,497.19	3,524.08	0.00	0.00	0.00
10,500.00	89.77	179.91	7,297.55	-3,446.79	-1,497.02	3,623.06	0.00	0.00	0.00
10,600.00	89.77	179.91	7,297.95	-3,546.79	-1,496.86	3,722.04	0.00	0.00	0.00
10,700.00	89.77	179.91	7,298.36	-3,646.79	-1,496.69	3,821.02	0.00	0.00	0.00
10,800.00	89.77	179.91	7,298.76	-3,746.79	-1,496.53	3,920.01	0.00	0.00	0.00
10,900.00	89.77	179.91	7,299.17	-3,846.78	-1,496.36	4,018.99	0.00	0.00	0.00
11,000.00	89.77	179.91	7,299.58	-3,946.78	-1,496.19	4,117.97	0.00	0.00	0.00
11,100.00	89.77	179.91	7,299.98	-4,046.78	-1,496.03	4,216.95	0.00	0.00	0.00
11,200.00	89.77	179.91	7,300.39	-4,146.78	-1,495.86	4,315.93	0.00	0.00	0.00
11,300.00	89.77	179.91	7,300.79	-4,246.78	-1,495.70	4,414.92	0.00	0.00	0.00
11,400.00	89.77	179.91	7,301.20	-4,346.78	-1,495.53	4,513.90	0.00	0.00	0.00
11,500.00	89.77	179.91	7,301.60	-4,446.78	-1,495.37	4,612.88	0.00	0.00	0.00
11,600.00	89.77	179.91	7,302.01	-4,546.78	-1,495.20	4,711.86	0.00	0.00	0.00
11,700.00	89.77	179.91	7,302.42	-4,646.78	-1,495.04	4,810.84	0.00	0.00	0.00
11,800.00	89.77	179.91	7,302.82	-4,746.78	-1,494.87	4,909.83	0.00	0.00	0.00
11,900.00	89.77	179.91	7,303.23	-4,846.77	-1,494.71	5,008.81	0.00	0.00	0.00
12,000.00	89.77	179.91	7,303.63	-4,946.77	-1,494.54	5,107.79	0.00	0.00	0.00
12,100.00	89.77	179.91	7,304.04	-5,046.77	-1,494.37	5,206.77	0.00	0.00	0.00
12,200.00	89.77	179.91	7,304.45	-5,146.77	-1,494.21	5,305.75	0.00	0.00	0.00
12,300.00	89.77	179.91	7,304.85	-5,246.77	-1,494.04	5,404.74	0.00	0.00	0.00
12,400.00	89.77	179.91	7,305.26	-5,346.77	-1,493.88	5,503.72	0.00	0.00	0.00
12,500.00	89.77	179.91	7,305.66	-5,446.77	-1,493.71	5,602.70	0.00	0.00	0.00
12,600.00	89.77	179.91	7,306.07	-5,546.77	-1,493.55	5,701.68	0.00	0.00	0.00
12,700.00	89.77	179.91	7,306.47	-5,646.77	-1,493.38	5,800.66	0.00	0.00	0.00
12,800.00	89.77	179.91	7,306.88	-5,746.77	-1,493.22	5,899.65	0.00	0.00	0.00
12,900.00	89.77	179.91	7,307.29	-5,846.76	-1,493.05	5,998.63	0.00	0.00	0.00
13,000.00	89.77	179.91	7,307.69	-5,946.76	-1,492.89	6,097.61	0.00	0.00	0.00
13,100.00	89.77	179.91	7,308.10	-6,046.76	-1,492.72	6,196.59	0.00	0.00	0.00
13,200.00	89.77	179.91	7,308.50	-6,146.76	-1,492.55	6,295.57	0.00	0.00	0.00
13,300.00	89.77	179.91	7,308.91	-6,246.76	-1,492.39	6,394.56	0.00	0.00	0.00
13,400.00	89.77	179.91	7,309.32	-6,346.76	-1,492.22	6,493.54	0.00	0.00	0.00
13,500.00	89.77	179.91	7,309.72	-6,446.76	-1,492.06	6,592.52	0.00	0.00	0.00
13,600.00	89.77	179.91	7,310.13	-6,546.76	-1,491.89	6,691.50	0.00	0.00	0.00
13,700.00	89.77	179.91	7,310.53	-6,646.76	-1,491.73	6,790.48	0.00	0.00	0.00
13,800.00	89.77	179.91	7,310.94	-6,746.76	-1,491.56	6,889.47	0.00	0.00	0.00
13,900.00	89.77	179.91	7,311.35	-6,846.76	-1,491.40	6,988.45	0.00	0.00	0.00
14,000.00	89.77	179.91	7,311.75	-6,946.75	-1,491.23	7,087.43	0.00	0.00	0.00
14,100.00	89.77	179.91	7,312.16	-7,046.75	-1,491.07	7,186.41	0.00	0.00	0.00
14,200.00	89.77	179.91	7,312.56	-7,146.75	-1,490.90	7,285.39	0.00	0.00	0.00
14,300.00	89.77	179.91	7,312.97	-7,246.75	-1,490.74	7,384.38	0.00	0.00	0.00
14,400.00	89.77	179.91	7,313.37	-7,346.75	-1,490.57	7,483.36	0.00	0.00	0.00
14,500.00	89.77	179.91	7,313.78	-7,446.75	-1,490.40	7,582.34	0.00	0.00	0.00
14,600.00	89.77	179.91	7,314.19	-7,546.75	-1,490.24	7,681.32	0.00	0.00	0.00
14,700.00	89.77	179.91	7,314.59	-7,646.75	-1,490.07	7,780.30	0.00	0.00	0.00
14,800.00	89.77	179.91	7,315.00	-7,746.75	-1,489.91	7,879.29	0.00	0.00	0.00
14,900.00	89.77	179.91	7,315.40	-7,846.75	-1,489.74	7,978.27	0.00	0.00	0.00
15,000.00	89.77	179.91	7,315.81	-7,946.74	-1,489.58	8,077.25	0.00	0.00	0.00
15,100.00	89.77	179.91	7,316.22	-8,046.74	-1,489.41	8,176.23	0.00	0.00	0.00
15,200.00	89.77	179.91	7,316.62	-8,146.74	-1,489.25	8,275.21	0.00	0.00	0.00
15,300.00	89.77	179.91	7,317.03	-8,246.74	-1,489.08	8,374.20	0.00	0.00	0.00

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-2-2L
Company:	Confluence Resources	TVD Reference:	RKB=5140+25 @ 5165.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5140+25 @ 5165.00ft
Site:	Section 34-T01N-R65W	North Reference:	Grid
Well:	Desha 4-2-2L	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	89.77	179.91	7,317.43	-8,346.74	-1,488.92	8,473.18	0.00	0.00	0.00	
15,500.00	89.77	179.91	7,317.84	-8,446.74	-1,488.75	8,572.16	0.00	0.00	0.00	
15,600.00	89.77	179.91	7,318.24	-8,546.74	-1,488.58	8,671.14	0.00	0.00	0.00	
15,700.00	89.77	179.91	7,318.65	-8,646.74	-1,488.42	8,770.12	0.00	0.00	0.00	
15,800.00	89.77	179.91	7,319.06	-8,746.74	-1,488.25	8,869.11	0.00	0.00	0.00	
15,900.00	89.77	179.91	7,319.46	-8,846.74	-1,488.09	8,968.09	0.00	0.00	0.00	
16,000.00	89.77	179.91	7,319.87	-8,946.74	-1,487.92	9,067.07	0.00	0.00	0.00	
16,100.00	89.77	179.91	7,320.27	-9,046.73	-1,487.76	9,166.05	0.00	0.00	0.00	
16,200.00	89.77	179.91	7,320.68	-9,146.73	-1,487.59	9,265.04	0.00	0.00	0.00	
16,300.00	89.77	179.91	7,321.09	-9,246.73	-1,487.43	9,364.02	0.00	0.00	0.00	
16,400.00	89.77	179.91	7,321.49	-9,346.73	-1,487.26	9,463.00	0.00	0.00	0.00	
16,500.00	89.77	179.91	7,321.90	-9,446.73	-1,487.10	9,561.98	0.00	0.00	0.00	
16,600.00	89.77	179.91	7,322.30	-9,546.73	-1,486.93	9,660.96	0.00	0.00	0.00	
16,700.00	89.77	179.91	7,322.71	-9,646.73	-1,486.76	9,759.95	0.00	0.00	0.00	
16,800.00	89.77	179.91	7,323.11	-9,746.73	-1,486.60	9,858.93	0.00	0.00	0.00	
16,900.00	89.77	179.91	7,323.52	-9,846.73	-1,486.43	9,957.91	0.00	0.00	0.00	
17,000.00	89.77	179.91	7,323.93	-9,946.73	-1,486.27	10,056.89	0.00	0.00	0.00	
17,100.00	89.77	179.91	7,324.33	-10,046.72	-1,486.10	10,155.87	0.00	0.00	0.00	
17,200.00	89.77	179.91	7,324.74	-10,146.72	-1,485.94	10,254.86	0.00	0.00	0.00	
17,300.00	89.77	179.91	7,325.14	-10,246.72	-1,485.77	10,353.84	0.00	0.00	0.00	
17,400.00	89.77	179.91	7,325.55	-10,346.72	-1,485.61	10,452.82	0.00	0.00	0.00	
17,500.00	89.77	179.91	7,325.96	-10,446.72	-1,485.44	10,551.80	0.00	0.00	0.00	
17,510.99	89.77	179.91	7,326.00	-10,457.71	-1,485.42	10,562.68	0.00	0.00	0.00	
PBHL/TD 17510.99 MD/7326.00 TVD										

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
LP Desha 4-2-2L 470 FM - plan hits target center - Point	0.00	0.00	7,288.00	-1,094.63	-1,500.91	14,526,645.37	1,735,174.91	39.99926416	-104.66164324
BHL Desha 4-2-2L 470 F - plan hits target center - Point	0.00	0.00	7,326.00	-10,457.71	-1,485.42	14,517,282.31	1,735,190.40	39.97355161	-104.66171478

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
5,000.00	5,000.00	0.00	0.00	KOP Begin 10°/100' build	
5,380.74	5,353.33	-48.39	-111.90	Begin 38.07° tangent	
7,390.85	6,935.72	-540.44	-1,249.65	Begin 10°/100' build/turn	
8,147.82	7,288.00	-1,094.63	-1,500.91	LP Begin 89.77° lateral section	
17,510.99	7,326.00	-10,457.71	-1,485.42	PBHL/TD 17510.99 MD/7326.00 TVD	

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-2-2L
Company:	Confluence Resources	TVD Reference:	RKB=5140+25 @ 5165.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5140+25 @ 5165.00ft
Site:	Section 34-T01N-R65W	North Reference:	Grid
Well:	Desha 4-2-2L	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 34-T01N-R65W			
Site Position:		Northing:	14,527,892.80 usft	Latitude:	40.00267560
From:	Map	Easting:	1,736,525.30 usft	Longitude:	-104.65680429
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.22 °

Well	Desha 4-2-2L, Surf loc: 620 FSL 943 FWL Sec34-T01N-R65W					
Well Position	+N/-S	0.00 ft	Northing:	14,527,740.00 usft	Latitude:	40.00225440
	+E/-W	0.00 ft	Easting:	1,736,675.82 usft	Longitude:	-104.65626891
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	5,140.00 ft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	8/30/2017	8.27	66.45	52,109.30000000

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	188.08

Plan Survey Tool Program	Date	8/30/2017		
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	17,510.99 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	
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,380.74	38.07	246.61	5,353.33	-48.39	-111.90	10.00	10.00	0.00	246.61	
7,390.85	38.07	246.61	6,935.72	-540.44	-1,249.65	0.00	0.00	0.00	0.00	
8,147.82	89.77	179.91	7,288.00	-1,094.63	-1,500.91	10.00	6.83	-8.81	-71.42	LP Desha 4-2-2L 470
17,510.99	89.77	179.91	7,326.00	-10,457.71	-1,485.42	0.00	0.00	0.00	0.00	BHL Desha 4-2-2L 47

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-2-2L
Company:	Confluence Resources	TVD Reference:	RKB=5140+25 @ 5165.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5140+25 @ 5165.00ft
Site:	Section 34-T01N-R65W	North Reference:	Grid
Well:	Desha 4-2-2L	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	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
100.00	0.00	0.00	100.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
200.00	0.00	0.00	200.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
300.00	0.00	0.00	300.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
400.00	0.00	0.00	400.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
500.00	0.00	0.00	500.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
600.00	0.00	0.00	600.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
700.00	0.00	0.00	700.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
800.00	0.00	0.00	800.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
900.00	0.00	0.00	900.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
1,100.00	0.00	0.00	1,100.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
1,200.00	0.00	0.00	1,200.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
1,300.00	0.00	0.00	1,300.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
1,400.00	0.00	0.00	1,400.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
1,500.00	0.00	0.00	1,500.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
1,600.00	0.00	0.00	1,600.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
1,700.00	0.00	0.00	1,700.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
1,800.00	0.00	0.00	1,800.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
1,900.00	0.00	0.00	1,900.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
2,000.00	0.00	0.00	2,000.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
2,100.00	0.00	0.00	2,100.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
2,200.00	0.00	0.00	2,200.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
2,300.00	0.00	0.00	2,300.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
2,400.00	0.00	0.00	2,400.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
2,500.00	0.00	0.00	2,500.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
2,600.00	0.00	0.00	2,600.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
2,700.00	0.00	0.00	2,700.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
2,800.00	0.00	0.00	2,800.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
2,900.00	0.00	0.00	2,900.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
3,000.00	0.00	0.00	3,000.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
3,100.00	0.00	0.00	3,100.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
3,200.00	0.00	0.00	3,200.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
3,300.00	0.00	0.00	3,300.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
3,400.00	0.00	0.00	3,400.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
3,500.00	0.00	0.00	3,500.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
3,600.00	0.00	0.00	3,600.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
3,700.00	0.00	0.00	3,700.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
3,800.00	0.00	0.00	3,800.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
3,900.00	0.00	0.00	3,900.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
4,000.00	0.00	0.00	4,000.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
4,100.00	0.00	0.00	4,100.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
4,200.00	0.00	0.00	4,200.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
4,300.00	0.00	0.00	4,300.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
4,400.00	0.00	0.00	4,400.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
4,500.00	0.00	0.00	4,500.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
4,600.00	0.00	0.00	4,600.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
4,700.00	0.00	0.00	4,700.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
4,800.00	0.00	0.00	4,800.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
4,900.00	0.00	0.00	4,900.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
5,000.00	0.00	0.00	5,000.00	0.00	0.00	14,527,740.00	1,736,675.82	40.00225440	-104.65626891
KOP Begin 10°/100' build									
5,100.00	10.00	246.61	5,099.49	-3.46	-7.99	14,527,736.55	1,736,667.83	40.00224499	-104.65629748
5,200.00	20.00	246.61	5,195.96	-13.72	-31.71	14,527,726.29	1,736,644.10	40.00221707	-104.65638234

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-2-2L
Company:	Confluence Resources	TVD Reference:	RKB=5140+25 @ 5165.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5140+25 @ 5165.00ft
Site:	Section 34-T01N-R65W	North Reference:	Grid
Well:	Desha 4-2-2L	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
5,300.00	30.00	246.61	5,286.48	-30.47	-70.46	14,527,709.53	1,736,605.36	40.00217147	-104.65652091
5,380.74	38.07	246.61	5,353.33	-48.39	-111.90	14,527,691.61	1,736,563.92	40.00212268	-104.65666915
Begin 38.07° tangent									
5,400.00	38.07	246.61	5,368.49	-53.11	-122.80	14,527,686.90	1,736,553.02	40.00210985	-104.65670814
5,500.00	38.07	246.61	5,447.21	-77.59	-179.40	14,527,662.42	1,736,496.42	40.00204323	-104.65691059
5,600.00	38.07	246.61	5,525.94	-102.07	-236.01	14,527,637.94	1,736,439.81	40.00197661	-104.65711304
5,700.00	38.07	246.61	5,604.66	-126.54	-292.61	14,527,613.46	1,736,383.21	40.00190998	-104.65731549
5,800.00	38.07	246.61	5,683.38	-151.02	-349.21	14,527,588.98	1,736,326.61	40.00184336	-104.65751794
5,900.00	38.07	246.61	5,762.10	-175.50	-405.81	14,527,564.50	1,736,270.01	40.00177673	-104.65772039
6,000.00	38.07	246.61	5,840.82	-199.98	-462.41	14,527,540.02	1,736,213.41	40.00171011	-104.65792284
6,100.00	38.07	246.61	5,919.54	-224.46	-519.01	14,527,515.55	1,736,156.81	40.00164348	-104.65812528
6,200.00	38.07	246.61	5,998.26	-248.94	-575.61	14,527,491.07	1,736,100.21	40.00157686	-104.65832773
6,300.00	38.07	246.61	6,076.99	-273.42	-632.22	14,527,466.59	1,736,043.60	40.00151023	-104.65853018
6,400.00	38.07	246.61	6,155.71	-297.90	-688.82	14,527,442.11	1,735,987.00	40.00144360	-104.65873262
6,500.00	38.07	246.61	6,234.43	-322.37	-745.42	14,527,417.63	1,735,930.40	40.00137698	-104.65893507
6,600.00	38.07	246.61	6,313.15	-346.85	-802.02	14,527,393.15	1,735,873.80	40.00131035	-104.65913752
6,700.00	38.07	246.61	6,391.87	-371.33	-858.62	14,527,368.67	1,735,817.20	40.00124372	-104.65933996
6,800.00	38.07	246.61	6,470.59	-395.81	-915.22	14,527,344.19	1,735,760.60	40.00117709	-104.65954241
6,900.00	38.07	246.61	6,549.31	-420.29	-971.83	14,527,319.72	1,735,704.00	40.00111046	-104.65974485
7,000.00	38.07	246.61	6,628.04	-444.77	-1,028.43	14,527,295.24	1,735,647.39	40.00104384	-104.65994730
7,100.00	38.07	246.61	6,706.76	-469.25	-1,085.03	14,527,270.76	1,735,590.79	40.00097721	-104.66014974
7,200.00	38.07	246.61	6,785.48	-493.73	-1,141.63	14,527,246.28	1,735,534.19	40.00091058	-104.66035218
7,300.00	38.07	246.61	6,864.20	-518.20	-1,198.23	14,527,221.80	1,735,477.59	40.00084395	-104.66055463
7,390.85	38.07	246.61	6,935.72	-540.44	-1,249.65	14,527,199.56	1,735,426.17	40.00078342	-104.66073854
Begin 10°/100' build/turn									
7,400.00	38.37	245.22	6,942.91	-542.75	-1,254.82	14,527,197.25	1,735,421.00	40.00077712	-104.66075703
7,500.00	42.63	231.24	7,019.09	-577.05	-1,309.55	14,527,162.96	1,735,366.27	40.00068351	-104.66095291
7,600.00	48.30	219.66	7,089.31	-627.11	-1,359.91	14,527,112.89	1,735,315.91	40.00054656	-104.66113343
7,700.00	54.94	210.11	7,151.45	-691.42	-1,404.38	14,527,048.58	1,735,271.44	40.00037042	-104.66129310
7,800.00	62.21	202.05	7,203.61	-768.03	-1,441.61	14,526,971.98	1,735,234.21	40.00016045	-104.66142707
7,900.00	69.89	195.03	7,244.21	-854.59	-1,470.47	14,526,885.42	1,735,205.35	39.99992303	-104.66153128
8,000.00	77.82	188.68	7,272.02	-948.49	-1,490.07	14,526,791.52	1,735,185.75	39.99966537	-104.66160254
8,100.00	85.89	182.71	7,286.19	-1,046.87	-1,499.83	14,526,693.14	1,735,176.00	39.99939530	-104.66163871
8,147.82	89.77	179.91	7,288.00	-1,094.63	-1,500.91	14,526,645.37	1,735,174.91	39.99926416	-104.66164324
LP Begin 89.77° lateral section									
8,200.00	89.77	179.91	7,288.21	-1,146.81	-1,500.83	14,526,593.20	1,735,175.00	39.99912087	-104.66164364
8,300.00	89.77	179.91	7,288.62	-1,246.81	-1,500.66	14,526,493.20	1,735,175.16	39.99884625	-104.66164441
8,400.00	89.77	179.91	7,289.02	-1,346.81	-1,500.50	14,526,393.20	1,735,175.33	39.99857164	-104.66164517
8,500.00	89.77	179.91	7,289.43	-1,446.81	-1,500.33	14,526,293.20	1,735,175.49	39.99829703	-104.66164594
8,600.00	89.77	179.91	7,289.84	-1,546.81	-1,500.16	14,526,193.20	1,735,175.66	39.99802242	-104.66164670
8,700.00	89.77	179.91	7,290.24	-1,646.81	-1,500.00	14,526,093.20	1,735,175.82	39.99774780	-104.66164746
8,800.00	89.77	179.91	7,290.65	-1,746.80	-1,499.83	14,525,993.20	1,735,175.99	39.99747319	-104.66164823
8,900.00	89.77	179.91	7,291.05	-1,846.80	-1,499.67	14,525,893.21	1,735,176.15	39.99719858	-104.66164899
9,000.00	89.77	179.91	7,291.46	-1,946.80	-1,499.50	14,525,793.21	1,735,176.32	39.99692396	-104.66164976
9,100.00	89.77	179.91	7,291.86	-2,046.80	-1,499.34	14,525,693.21	1,735,176.48	39.99664935	-104.66165052
9,200.00	89.77	179.91	7,292.27	-2,146.80	-1,499.17	14,525,593.21	1,735,176.65	39.99637474	-104.66165129
9,300.00	89.77	179.91	7,292.68	-2,246.80	-1,499.01	14,525,493.21	1,735,176.81	39.99610012	-104.66165205
9,400.00	89.77	179.91	7,293.08	-2,346.80	-1,498.84	14,525,393.21	1,735,176.98	39.99582551	-104.66165282
9,500.00	89.77	179.91	7,293.49	-2,446.80	-1,498.68	14,525,293.21	1,735,177.15	39.99555090	-104.66165358
9,600.00	89.77	179.91	7,293.89	-2,546.80	-1,498.51	14,525,193.21	1,735,177.31	39.99527628	-104.66165435
9,700.00	89.77	179.91	7,294.30	-2,646.80	-1,498.35	14,525,093.21	1,735,177.48	39.99500167	-104.66165511
9,800.00	89.77	179.91	7,294.71	-2,746.79	-1,498.18	14,524,993.22	1,735,177.64	39.99472706	-104.66165587
9,900.00	89.77	179.91	7,295.11	-2,846.79	-1,498.01	14,524,893.22	1,735,177.81	39.99445244	-104.66165664
10,000.00	89.77	179.91	7,295.52	-2,946.79	-1,497.85	14,524,793.22	1,735,177.97	39.99417783	-104.66165740

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-2-2L
Company:	Confluence Resources	TVD Reference:	RKB=5140+25 @ 5165.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5140+25 @ 5165.00ft
Site:	Section 34-T01N-R65W	North Reference:	Grid
Well:	Desha 4-2-2L	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	89.77	179.91	7,295.92	-3,046.79	-1,497.68	14,524,693.22	1,735,178.14	39.99390322	-104.66165817	
10,200.00	89.77	179.91	7,296.33	-3,146.79	-1,497.52	14,524,593.22	1,735,178.30	39.99362860	-104.66165893	
10,300.00	89.77	179.91	7,296.73	-3,246.79	-1,497.35	14,524,493.22	1,735,178.47	39.99335399	-104.66165970	
10,400.00	89.77	179.91	7,297.14	-3,346.79	-1,497.19	14,524,393.22	1,735,178.63	39.99307938	-104.66166046	
10,500.00	89.77	179.91	7,297.55	-3,446.79	-1,497.02	14,524,293.22	1,735,178.80	39.99280476	-104.66166123	
10,600.00	89.77	179.91	7,297.95	-3,546.79	-1,496.86	14,524,193.22	1,735,178.97	39.99253015	-104.66166199	
10,700.00	89.77	179.91	7,298.36	-3,646.79	-1,496.69	14,524,093.23	1,735,179.13	39.99225554	-104.66166275	
10,800.00	89.77	179.91	7,298.76	-3,746.79	-1,496.53	14,523,993.23	1,735,179.30	39.99198092	-104.66166352	
10,900.00	89.77	179.91	7,299.17	-3,846.78	-1,496.36	14,523,893.23	1,735,179.46	39.99170631	-104.66166428	
11,000.00	89.77	179.91	7,299.58	-3,946.78	-1,496.19	14,523,793.23	1,735,179.63	39.99143170	-104.66166505	
11,100.00	89.77	179.91	7,299.98	-4,046.78	-1,496.03	14,523,693.23	1,735,179.79	39.99115708	-104.66166581	
11,200.00	89.77	179.91	7,300.39	-4,146.78	-1,495.86	14,523,593.23	1,735,179.96	39.99088247	-104.66166658	
11,300.00	89.77	179.91	7,300.79	-4,246.78	-1,495.70	14,523,493.23	1,735,180.12	39.99060785	-104.66166734	
11,400.00	89.77	179.91	7,301.20	-4,346.78	-1,495.53	14,523,393.23	1,735,180.29	39.99033324	-104.66166810	
11,500.00	89.77	179.91	7,301.60	-4,446.78	-1,495.37	14,523,293.24	1,735,180.45	39.99005863	-104.66166887	
11,600.00	89.77	179.91	7,302.01	-4,546.78	-1,495.20	14,523,193.24	1,735,180.62	39.98978401	-104.66166963	
11,700.00	89.77	179.91	7,302.42	-4,646.78	-1,495.04	14,523,093.24	1,735,180.79	39.98950940	-104.66167040	
11,800.00	89.77	179.91	7,302.82	-4,746.78	-1,494.87	14,522,993.24	1,735,180.95	39.98923479	-104.66167116	
11,900.00	89.77	179.91	7,303.23	-4,846.77	-1,494.71	14,522,893.24	1,735,181.12	39.98896017	-104.66167192	
12,000.00	89.77	179.91	7,303.63	-4,946.77	-1,494.54	14,522,793.24	1,735,181.28	39.98868556	-104.66167269	
12,100.00	89.77	179.91	7,304.04	-5,046.77	-1,494.37	14,522,693.24	1,735,181.45	39.98841095	-104.66167345	
12,200.00	89.77	179.91	7,304.45	-5,146.77	-1,494.21	14,522,593.24	1,735,181.61	39.98813633	-104.66167422	
12,300.00	89.77	179.91	7,304.85	-5,246.77	-1,494.04	14,522,493.24	1,735,181.78	39.98786172	-104.66167498	
12,400.00	89.77	179.91	7,305.26	-5,346.77	-1,493.88	14,522,393.25	1,735,181.94	39.98758710	-104.66167575	
12,500.00	89.77	179.91	7,305.66	-5,446.77	-1,493.71	14,522,293.25	1,735,182.11	39.98731249	-104.66167651	
12,600.00	89.77	179.91	7,306.07	-5,546.77	-1,493.55	14,522,193.25	1,735,182.27	39.98703788	-104.66167727	
12,700.00	89.77	179.91	7,306.47	-5,646.77	-1,493.38	14,522,093.25	1,735,182.44	39.98676326	-104.66167804	
12,800.00	89.77	179.91	7,306.88	-5,746.77	-1,493.22	14,521,993.25	1,735,182.61	39.98648865	-104.66167880	
12,900.00	89.77	179.91	7,307.29	-5,846.76	-1,493.05	14,521,893.25	1,735,182.77	39.98621404	-104.66167957	
13,000.00	89.77	179.91	7,307.69	-5,946.76	-1,492.89	14,521,793.25	1,735,182.94	39.98593942	-104.66168033	
13,100.00	89.77	179.91	7,308.10	-6,046.76	-1,492.72	14,521,693.25	1,735,183.10	39.98566481	-104.66168109	
13,200.00	89.77	179.91	7,308.50	-6,146.76	-1,492.55	14,521,593.25	1,735,183.27	39.98539020	-104.66168186	
13,300.00	89.77	179.91	7,308.91	-6,246.76	-1,492.39	14,521,493.26	1,735,183.43	39.98511558	-104.66168262	
13,400.00	89.77	179.91	7,309.32	-6,346.76	-1,492.22	14,521,393.26	1,735,183.60	39.98484097	-104.66168339	
13,500.00	89.77	179.91	7,309.72	-6,446.76	-1,492.06	14,521,293.26	1,735,183.76	39.98456635	-104.66168415	
13,600.00	89.77	179.91	7,310.13	-6,546.76	-1,491.89	14,521,193.26	1,735,183.93	39.98429174	-104.66168491	
13,700.00	89.77	179.91	7,310.53	-6,646.76	-1,491.73	14,521,093.26	1,735,184.09	39.98401713	-104.66168568	
13,800.00	89.77	179.91	7,310.94	-6,746.76	-1,491.56	14,520,993.26	1,735,184.26	39.98374251	-104.66168644	
13,900.00	89.77	179.91	7,311.35	-6,846.76	-1,491.40	14,520,893.26	1,735,184.42	39.98346790	-104.66168720	
14,000.00	89.77	179.91	7,311.75	-6,946.75	-1,491.23	14,520,793.26	1,735,184.59	39.98319328	-104.66168797	
14,100.00	89.77	179.91	7,312.16	-7,046.75	-1,491.07	14,520,693.27	1,735,184.76	39.98291867	-104.66168873	
14,200.00	89.77	179.91	7,312.56	-7,146.75	-1,490.90	14,520,593.27	1,735,184.92	39.98264406	-104.66168950	
14,300.00	89.77	179.91	7,312.97	-7,246.75	-1,490.74	14,520,493.27	1,735,185.09	39.98236944	-104.66169026	
14,400.00	89.77	179.91	7,313.37	-7,346.75	-1,490.57	14,520,393.27	1,735,185.25	39.98209483	-104.66169102	
14,500.00	89.77	179.91	7,313.78	-7,446.75	-1,490.40	14,520,293.27	1,735,185.42	39.98182021	-104.66169179	
14,600.00	89.77	179.91	7,314.19	-7,546.75	-1,490.24	14,520,193.27	1,735,185.58	39.98154560	-104.66169255	
14,700.00	89.77	179.91	7,314.59	-7,646.75	-1,490.07	14,520,093.27	1,735,185.75	39.98127099	-104.66169332	
14,800.00	89.77	179.91	7,315.00	-7,746.75	-1,489.91	14,519,993.27	1,735,185.91	39.98099637	-104.66169408	
14,900.00	89.77	179.91	7,315.40	-7,846.75	-1,489.74	14,519,893.27	1,735,186.08	39.98072176	-104.66169484	
15,000.00	89.77	179.91	7,315.81	-7,946.74	-1,489.58	14,519,793.28	1,735,186.24	39.98044715	-104.66169561	
15,100.00	89.77	179.91	7,316.22	-8,046.74	-1,489.41	14,519,693.28	1,735,186.41	39.98017253	-104.66169637	
15,200.00	89.77	179.91	7,316.62	-8,146.74	-1,489.25	14,519,593.28	1,735,186.58	39.97989792	-104.66169713	
15,300.00	89.77	179.91	7,317.03	-8,246.74	-1,489.08	14,519,493.28	1,735,186.74	39.97962330	-104.66169790	
15,400.00	89.77	179.91	7,317.43	-8,346.74	-1,488.92	14,519,393.28	1,735,186.91	39.97934869	-104.66169866	
15,500.00	89.77	179.91	7,317.84	-8,446.74	-1,488.75	14,519,293.28	1,735,187.07	39.97907407	-104.66169942	

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-2-2L
Company:	Confluence Resources	TVD Reference:	RKB=5140+25 @ 5165.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5140+25 @ 5165.00ft
Site:	Section 34-T01N-R65W	North Reference:	Grid
Well:	Desha 4-2-2L	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	89.77	179.91	7,318.24	-8,546.74	-1,488.58	14,519,193.28	1,735,187.24	39.97879946	-104.66170019
15,700.00	89.77	179.91	7,318.65	-8,646.74	-1,488.42	14,519,093.28	1,735,187.40	39.97852485	-104.66170095
15,800.00	89.77	179.91	7,319.06	-8,746.74	-1,488.25	14,518,993.29	1,735,187.57	39.97825023	-104.66170172
15,900.00	89.77	179.91	7,319.46	-8,846.74	-1,488.09	14,518,893.29	1,735,187.73	39.97797562	-104.66170248
16,000.00	89.77	179.91	7,319.87	-8,946.74	-1,487.92	14,518,793.29	1,735,187.90	39.97770100	-104.66170324
16,100.00	89.77	179.91	7,320.27	-9,046.73	-1,487.76	14,518,693.29	1,735,188.06	39.97742639	-104.66170401
16,200.00	89.77	179.91	7,320.68	-9,146.73	-1,487.59	14,518,593.29	1,735,188.23	39.97715178	-104.66170477
16,300.00	89.77	179.91	7,321.09	-9,246.73	-1,487.43	14,518,493.29	1,735,188.40	39.97687716	-104.66170553
16,400.00	89.77	179.91	7,321.49	-9,346.73	-1,487.26	14,518,393.29	1,735,188.56	39.97660255	-104.66170630
16,500.00	89.77	179.91	7,321.90	-9,446.73	-1,487.10	14,518,293.29	1,735,188.73	39.97632793	-104.66170706
16,600.00	89.77	179.91	7,322.30	-9,546.73	-1,486.93	14,518,193.29	1,735,188.89	39.97605332	-104.66170782
16,700.00	89.77	179.91	7,322.71	-9,646.73	-1,486.76	14,518,093.30	1,735,189.06	39.97577870	-104.66170859
16,800.00	89.77	179.91	7,323.11	-9,746.73	-1,486.60	14,517,993.30	1,735,189.22	39.97550409	-104.66170935
16,900.00	89.77	179.91	7,323.52	-9,846.73	-1,486.43	14,517,893.30	1,735,189.39	39.97522948	-104.66171011
17,000.00	89.77	179.91	7,323.93	-9,946.73	-1,486.27	14,517,793.30	1,735,189.55	39.97495486	-104.66171088
17,100.00	89.77	179.91	7,324.33	-10,046.72	-1,486.10	14,517,693.30	1,735,189.72	39.97468025	-104.66171164
17,200.00	89.77	179.91	7,324.74	-10,146.72	-1,485.94	14,517,593.30	1,735,189.88	39.97440563	-104.66171241
17,300.00	89.77	179.91	7,325.14	-10,246.72	-1,485.77	14,517,493.30	1,735,190.05	39.97413102	-104.66171317
17,400.00	89.77	179.91	7,325.55	-10,346.72	-1,485.61	14,517,393.30	1,735,190.22	39.97385641	-104.66171393
17,500.00	89.77	179.91	7,325.96	-10,446.72	-1,485.44	14,517,293.30	1,735,190.38	39.97358179	-104.66171470
17,510.99	89.77	179.91	7,326.00	-10,457.71	-1,485.42	14,517,282.31	1,735,190.40	39.97355161	-104.66171478
PBHL/TD 17510.99 MD/7326.00 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									
LP Desha 4-2-2L 470 FM	0.00	0.00	7,288.00	-1,094.63	-1,500.91	14,526,645.37	1,735,174.91	39.99926416	-104.66164324
- plan hits target center									
- Point									
BHL Desha 4-2-2L 470 F	0.00	0.00	7,326.00	-10,457.71	-1,485.42	14,517,282.31	1,735,190.40	39.97355161	-104.66171478
- plan hits target center									
- Point									

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
5,000.00	5,000.00	0.00	0.00	KOP Begin 10°/100' build
5,380.74	5,353.33	-48.39	-111.90	Begin 38.07° tangent
7,390.85	6,935.72	-540.44	-1,249.65	Begin 10°/100' build/turn
8,147.82	7,288.00	-1,094.63	-1,500.91	LP Begin 89.77° lateral section
17,510.99	7,326.00	-10,457.71	-1,485.42	PBHL/TD 17510.99 MD/7326.00 TVD