

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

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	5000.00	0.00	0.00	5000.00	0.00	0.00	0.00	0.00	KOP Begin 10°/100' build
3	5513.13	51.31	255.71	5447.23	-53.01	-208.18	10.00	99.29	Begin 51.31° tangent
4	8040.21	51.31	255.71	7026.83	-539.77	-2119.74	0.00	1011.05	Begin 10°/100' build/turn
5	8829.72	89.98	179.91	7322.00	-1102.57	-2475.92	10.00	1640.49	LP Begin 89.98° lateral section
6	18180.92	89.98	179.91	7326.00	-10453.75	-2460.44	0.00	10739.40	PBHL/TD 18180.92 MD/7326.00 TVD

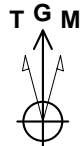
DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
LP Desha 4-4-2L 470 FNL 1660 FEL	7322.00	-1102.57	-2475.9214526637.43	1734124.90	39.9925323	-104.66539260	
BHL Desha 4-4-2L 470 FSL 1660 FEL	7326.00	-10453.75	-2460.4414517286.27	1734140.38	39.97357336	-104.66546261	

Desha 4-4-2L			
Surf loc: 620 FSL 843 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	1736600.82	40.00225519	-104.65653672

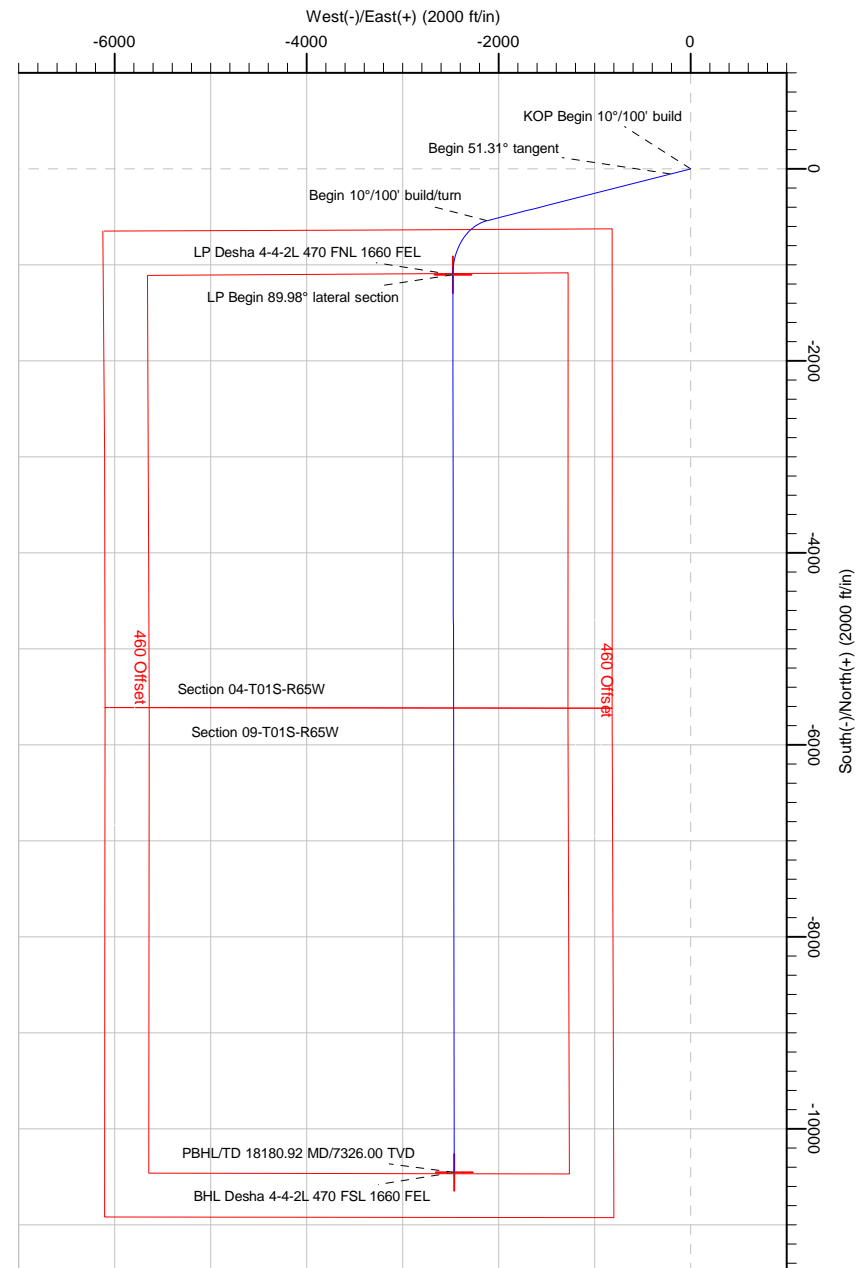
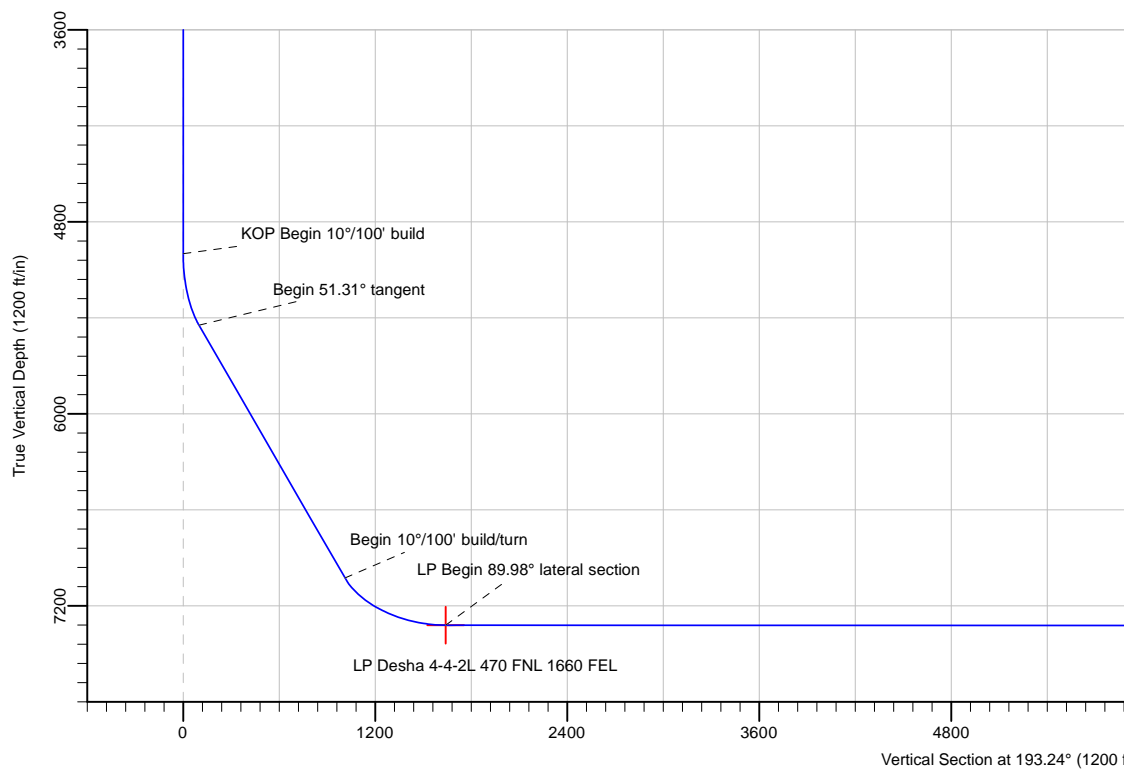
Azimuth Corrections:

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: 52109.9snT
Dip Angle: 66.45°
Date: 8/29/2017
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 4-4-2L
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 4-4-2L	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 4-4-2L, Surf loc: 620 FSL 843 FWL Sec34-T01N-R65W					
Well Position	+N/-S	-152.80 ft	Northing:	14,527,740.00 usft	Latitude:	40.00225519
	+E/-W	75.52 ft	Easting:	1,736,600.82 usft	Longitude:	-104.65653672
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	8/29/2017	8.27	66.45	52,109.90000000

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	193.24

Plan Survey Tool Program	Date	8/29/2017		
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	18,180.92	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	
5,513.13	51.31	255.71	5,447.23	-53.01	-208.18	10.00	10.00	0.00	255.71	
8,040.21	51.31	255.71	7,026.83	-539.77	-2,119.74	0.00	0.00	0.00	0.00	
8,829.72	89.98	179.91	7,322.00	-1,102.57	-2,475.93	10.00	4.90	-9.60	-81.04	LP Desha 4-4-2L 470
18,180.92	89.98	179.91	7,326.00	-10,453.75	-2,460.44	0.00	0.00	0.00	0.00	BHL Desha 4-4-2L 47

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-4-2L
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 4-4-2L	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	255.71	5,099.49	-2.15	-8.44	4.02	10.00	10.00	0.00
5,200.00	20.00	255.71	5,195.96	-8.53	-33.49	15.97	10.00	10.00	0.00

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-4-2L
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 4-4-2L	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	255.71	5,286.48	-18.94	-74.39	35.48	10.00	10.00	0.00
5,400.00	40.00	255.71	5,368.29	-33.08	-129.90	61.96	10.00	10.00	0.00
5,500.00	50.00	255.71	5,438.91	-50.50	-198.34	94.60	10.00	10.00	0.00
5,513.13	51.31	255.71	5,447.23	-53.01	-208.18	99.29	10.00	10.00	0.00
Begin 51.31° tangent									
5,600.00	51.31	255.71	5,501.53	-69.74	-273.89	130.64	0.00	0.00	0.00
5,700.00	51.31	255.71	5,564.04	-89.00	-349.53	166.72	0.00	0.00	0.00
5,800.00	51.31	255.71	5,626.55	-108.27	-425.18	202.80	0.00	0.00	0.00
5,900.00	51.31	255.71	5,689.05	-127.53	-500.82	238.88	0.00	0.00	0.00
6,000.00	51.31	255.71	5,751.56	-146.79	-576.46	274.96	0.00	0.00	0.00
6,100.00	51.31	255.71	5,814.07	-166.05	-652.11	311.04	0.00	0.00	0.00
6,200.00	51.31	255.71	5,876.57	-185.31	-727.75	347.12	0.00	0.00	0.00
6,300.00	51.31	255.71	5,939.08	-204.58	-803.39	383.19	0.00	0.00	0.00
6,400.00	51.31	255.71	6,001.59	-223.84	-879.04	419.27	0.00	0.00	0.00
6,500.00	51.31	255.71	6,064.09	-243.10	-954.68	455.35	0.00	0.00	0.00
6,600.00	51.31	255.71	6,126.60	-262.36	-1,030.32	491.43	0.00	0.00	0.00
6,700.00	51.31	255.71	6,189.11	-281.62	-1,105.97	527.51	0.00	0.00	0.00
6,800.00	51.31	255.71	6,251.61	-300.88	-1,181.61	563.59	0.00	0.00	0.00
6,900.00	51.31	255.71	6,314.12	-320.15	-1,257.25	599.67	0.00	0.00	0.00
7,000.00	51.31	255.71	6,376.63	-339.41	-1,332.90	635.75	0.00	0.00	0.00
7,100.00	51.31	255.71	6,439.13	-358.67	-1,408.54	671.83	0.00	0.00	0.00
7,200.00	51.31	255.71	6,501.64	-377.93	-1,484.18	707.91	0.00	0.00	0.00
7,300.00	51.31	255.71	6,564.15	-397.19	-1,559.83	743.99	0.00	0.00	0.00
7,400.00	51.31	255.71	6,626.65	-416.45	-1,635.47	780.07	0.00	0.00	0.00
7,500.00	51.31	255.71	6,689.16	-435.72	-1,711.11	816.15	0.00	0.00	0.00
7,600.00	51.31	255.71	6,751.67	-454.98	-1,786.76	852.23	0.00	0.00	0.00
7,700.00	51.31	255.71	6,814.17	-474.24	-1,862.40	888.31	0.00	0.00	0.00
7,800.00	51.31	255.71	6,876.68	-493.50	-1,938.04	924.39	0.00	0.00	0.00
7,900.00	51.31	255.71	6,939.19	-512.76	-2,013.68	960.47	0.00	0.00	0.00
8,000.00	51.31	255.71	7,001.69	-532.02	-2,089.33	996.55	0.00	0.00	0.00
8,040.21	51.31	255.71	7,026.83	-539.77	-2,119.74	1,011.05	0.00	0.00	0.00
Begin 10°/100' build/turn									
8,100.00	52.48	248.26	7,063.75	-554.32	-2,164.42	1,035.46	10.00	1.96	-12.47
8,200.00	55.43	236.43	7,122.73	-591.88	-2,235.75	1,088.35	10.00	2.95	-11.83
8,300.00	59.43	225.54	7,176.67	-644.93	-2,300.94	1,154.93	10.00	4.00	-10.89
8,400.00	64.25	215.60	7,223.94	-711.86	-2,358.04	1,233.17	10.00	4.83	-9.94
8,500.00	69.70	206.48	7,263.10	-790.66	-2,405.29	1,320.69	10.00	5.45	-9.12
8,600.00	75.59	198.01	7,292.97	-878.91	-2,441.26	1,414.83	10.00	5.89	-8.48
8,700.00	81.76	189.98	7,312.63	-973.94	-2,464.86	1,512.74	10.00	6.17	-8.03
8,800.00	88.08	182.20	7,321.50	-1,072.86	-2,475.38	1,611.44	10.00	6.33	-7.78
8,829.72	89.98	179.91	7,322.00	-1,102.57	-2,475.93	1,640.49	10.00	6.37	-7.71
LP Begin 89.98° lateral section									
8,900.00	89.98	179.91	7,322.03	-1,172.85	-2,475.81	1,708.87	0.00	0.00	0.00
9,000.00	89.98	179.91	7,322.07	-1,272.85	-2,475.64	1,806.17	0.00	0.00	0.00
9,100.00	89.98	179.91	7,322.12	-1,372.85	-2,475.48	1,903.47	0.00	0.00	0.00
9,200.00	89.98	179.91	7,322.16	-1,472.85	-2,475.31	2,000.78	0.00	0.00	0.00
9,300.00	89.98	179.91	7,322.20	-1,572.85	-2,475.15	2,098.08	0.00	0.00	0.00
9,400.00	89.98	179.91	7,322.24	-1,672.85	-2,474.98	2,195.38	0.00	0.00	0.00
9,500.00	89.98	179.91	7,322.29	-1,772.85	-2,474.82	2,292.68	0.00	0.00	0.00
9,600.00	89.98	179.91	7,322.33	-1,872.85	-2,474.65	2,389.99	0.00	0.00	0.00
9,700.00	89.98	179.91	7,322.37	-1,972.85	-2,474.48	2,487.29	0.00	0.00	0.00
9,800.00	89.98	179.91	7,322.42	-2,072.85	-2,474.32	2,584.59	0.00	0.00	0.00
9,900.00	89.98	179.91	7,322.46	-2,172.85	-2,474.15	2,681.89	0.00	0.00	0.00

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-4-2L
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 4-4-2L	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	89.98	179.91	7,322.50	-2,272.85	-2,473.99	2,779.19	0.00	0.00	0.00
10,100.00	89.98	179.91	7,322.54	-2,372.85	-2,473.82	2,876.50	0.00	0.00	0.00
10,200.00	89.98	179.91	7,322.59	-2,472.85	-2,473.66	2,973.80	0.00	0.00	0.00
10,300.00	89.98	179.91	7,322.63	-2,572.85	-2,473.49	3,071.10	0.00	0.00	0.00
10,400.00	89.98	179.91	7,322.67	-2,672.85	-2,473.33	3,168.40	0.00	0.00	0.00
10,500.00	89.98	179.91	7,322.71	-2,772.85	-2,473.16	3,265.70	0.00	0.00	0.00
10,600.00	89.98	179.91	7,322.76	-2,872.84	-2,472.99	3,363.01	0.00	0.00	0.00
10,700.00	89.98	179.91	7,322.80	-2,972.84	-2,472.83	3,460.31	0.00	0.00	0.00
10,800.00	89.98	179.91	7,322.84	-3,072.84	-2,472.66	3,557.61	0.00	0.00	0.00
10,900.00	89.98	179.91	7,322.89	-3,172.84	-2,472.50	3,654.91	0.00	0.00	0.00
11,000.00	89.98	179.91	7,322.93	-3,272.84	-2,472.33	3,752.22	0.00	0.00	0.00
11,100.00	89.98	179.91	7,322.97	-3,372.84	-2,472.17	3,849.52	0.00	0.00	0.00
11,200.00	89.98	179.91	7,323.01	-3,472.84	-2,472.00	3,946.82	0.00	0.00	0.00
11,300.00	89.98	179.91	7,323.06	-3,572.84	-2,471.84	4,044.12	0.00	0.00	0.00
11,400.00	89.98	179.91	7,323.10	-3,672.84	-2,471.67	4,141.42	0.00	0.00	0.00
11,500.00	89.98	179.91	7,323.14	-3,772.84	-2,471.50	4,238.73	0.00	0.00	0.00
11,600.00	89.98	179.91	7,323.19	-3,872.84	-2,471.34	4,336.03	0.00	0.00	0.00
11,700.00	89.98	179.91	7,323.23	-3,972.84	-2,471.17	4,433.33	0.00	0.00	0.00
11,800.00	89.98	179.91	7,323.27	-4,072.84	-2,471.01	4,530.63	0.00	0.00	0.00
11,900.00	89.98	179.91	7,323.31	-4,172.84	-2,470.84	4,627.93	0.00	0.00	0.00
12,000.00	89.98	179.91	7,323.36	-4,272.84	-2,470.68	4,725.24	0.00	0.00	0.00
12,100.00	89.98	179.91	7,323.40	-4,372.84	-2,470.51	4,822.54	0.00	0.00	0.00
12,200.00	89.98	179.91	7,323.44	-4,472.84	-2,470.35	4,919.84	0.00	0.00	0.00
12,300.00	89.98	179.91	7,323.48	-4,572.84	-2,470.18	5,017.14	0.00	0.00	0.00
12,400.00	89.98	179.91	7,323.53	-4,672.84	-2,470.01	5,114.44	0.00	0.00	0.00
12,500.00	89.98	179.91	7,323.57	-4,772.84	-2,469.85	5,211.75	0.00	0.00	0.00
12,600.00	89.98	179.91	7,323.61	-4,872.84	-2,469.68	5,309.05	0.00	0.00	0.00
12,700.00	89.98	179.91	7,323.66	-4,972.84	-2,469.52	5,406.35	0.00	0.00	0.00
12,800.00	89.98	179.91	7,323.70	-5,072.84	-2,469.35	5,503.65	0.00	0.00	0.00
12,900.00	89.98	179.91	7,323.74	-5,172.84	-2,469.19	5,600.96	0.00	0.00	0.00
13,000.00	89.98	179.91	7,323.78	-5,272.84	-2,469.02	5,698.26	0.00	0.00	0.00
13,100.00	89.98	179.91	7,323.83	-5,372.84	-2,468.86	5,795.56	0.00	0.00	0.00
13,200.00	89.98	179.91	7,323.87	-5,472.84	-2,468.69	5,892.86	0.00	0.00	0.00
13,300.00	89.98	179.91	7,323.91	-5,572.84	-2,468.52	5,990.16	0.00	0.00	0.00
13,400.00	89.98	179.91	7,323.96	-5,672.84	-2,468.36	6,087.47	0.00	0.00	0.00
13,500.00	89.98	179.91	7,324.00	-5,772.84	-2,468.19	6,184.77	0.00	0.00	0.00
13,600.00	89.98	179.91	7,324.04	-5,872.84	-2,468.03	6,282.07	0.00	0.00	0.00
13,700.00	89.98	179.91	7,324.08	-5,972.84	-2,467.86	6,379.37	0.00	0.00	0.00
13,800.00	89.98	179.91	7,324.13	-6,072.84	-2,467.70	6,476.67	0.00	0.00	0.00
13,900.00	89.98	179.91	7,324.17	-6,172.84	-2,467.53	6,573.98	0.00	0.00	0.00
14,000.00	89.98	179.91	7,324.21	-6,272.84	-2,467.37	6,671.28	0.00	0.00	0.00
14,100.00	89.98	179.91	7,324.25	-6,372.84	-2,467.20	6,768.58	0.00	0.00	0.00
14,200.00	89.98	179.91	7,324.30	-6,472.84	-2,467.04	6,865.88	0.00	0.00	0.00
14,300.00	89.98	179.91	7,324.34	-6,572.84	-2,466.87	6,963.19	0.00	0.00	0.00
14,400.00	89.98	179.91	7,324.38	-6,672.84	-2,466.70	7,060.49	0.00	0.00	0.00
14,500.00	89.98	179.91	7,324.43	-6,772.84	-2,466.54	7,157.79	0.00	0.00	0.00
14,600.00	89.98	179.91	7,324.47	-6,872.84	-2,466.37	7,255.09	0.00	0.00	0.00
14,700.00	89.98	179.91	7,324.51	-6,972.84	-2,466.21	7,352.39	0.00	0.00	0.00
14,800.00	89.98	179.91	7,324.55	-7,072.84	-2,466.04	7,449.70	0.00	0.00	0.00
14,900.00	89.98	179.91	7,324.60	-7,172.84	-2,465.88	7,547.00	0.00	0.00	0.00
15,000.00	89.98	179.91	7,324.64	-7,272.84	-2,465.71	7,644.30	0.00	0.00	0.00
15,100.00	89.98	179.91	7,324.68	-7,372.84	-2,465.55	7,741.60	0.00	0.00	0.00
15,200.00	89.98	179.91	7,324.73	-7,472.84	-2,465.38	7,838.90	0.00	0.00	0.00
15,300.00	89.98	179.91	7,324.77	-7,572.84	-2,465.21	7,936.21	0.00	0.00	0.00

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-4-2L
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 4-4-2L	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	89.98	179.91	7,324.81	-7,672.84	-2,465.05	8,033.51	0.00	0.00	0.00
15,500.00	89.98	179.91	7,324.85	-7,772.84	-2,464.88	8,130.81	0.00	0.00	0.00
15,600.00	89.98	179.91	7,324.90	-7,872.84	-2,464.72	8,228.11	0.00	0.00	0.00
15,700.00	89.98	179.91	7,324.94	-7,972.84	-2,464.55	8,325.41	0.00	0.00	0.00
15,800.00	89.98	179.91	7,324.98	-8,072.84	-2,464.39	8,422.72	0.00	0.00	0.00
15,900.00	89.98	179.91	7,325.02	-8,172.84	-2,464.22	8,520.02	0.00	0.00	0.00
16,000.00	89.98	179.91	7,325.07	-8,272.84	-2,464.06	8,617.32	0.00	0.00	0.00
16,100.00	89.98	179.91	7,325.11	-8,372.84	-2,463.89	8,714.62	0.00	0.00	0.00
16,200.00	89.98	179.91	7,325.15	-8,472.84	-2,463.72	8,811.93	0.00	0.00	0.00
16,300.00	89.98	179.91	7,325.20	-8,572.84	-2,463.56	8,909.23	0.00	0.00	0.00
16,400.00	89.98	179.91	7,325.24	-8,672.84	-2,463.39	9,006.53	0.00	0.00	0.00
16,500.00	89.98	179.91	7,325.28	-8,772.84	-2,463.23	9,103.83	0.00	0.00	0.00
16,600.00	89.98	179.91	7,325.32	-8,872.84	-2,463.06	9,201.13	0.00	0.00	0.00
16,700.00	89.98	179.91	7,325.37	-8,972.84	-2,462.90	9,298.44	0.00	0.00	0.00
16,800.00	89.98	179.91	7,325.41	-9,072.84	-2,462.73	9,395.74	0.00	0.00	0.00
16,900.00	89.98	179.91	7,325.45	-9,172.84	-2,462.57	9,493.04	0.00	0.00	0.00
17,000.00	89.98	179.91	7,325.50	-9,272.84	-2,462.40	9,590.34	0.00	0.00	0.00
17,100.00	89.98	179.91	7,325.54	-9,372.84	-2,462.23	9,687.64	0.00	0.00	0.00
17,200.00	89.98	179.91	7,325.58	-9,472.84	-2,462.07	9,784.95	0.00	0.00	0.00
17,300.00	89.98	179.91	7,325.62	-9,572.84	-2,461.90	9,882.25	0.00	0.00	0.00
17,400.00	89.98	179.91	7,325.67	-9,672.84	-2,461.74	9,979.55	0.00	0.00	0.00
17,500.00	89.98	179.91	7,325.71	-9,772.84	-2,461.57	10,076.85	0.00	0.00	0.00
17,600.00	89.98	179.91	7,325.75	-9,872.83	-2,461.41	10,174.15	0.00	0.00	0.00
17,700.00	89.98	179.91	7,325.79	-9,972.83	-2,461.24	10,271.46	0.00	0.00	0.00
17,800.00	89.98	179.91	7,325.84	-10,072.83	-2,461.08	10,368.76	0.00	0.00	0.00
17,900.00	89.98	179.91	7,325.88	-10,172.83	-2,460.91	10,466.06	0.00	0.00	0.00
18,000.00	89.98	179.91	7,325.92	-10,272.83	-2,460.74	10,563.36	0.00	0.00	0.00
18,100.00	89.98	179.91	7,325.97	-10,372.83	-2,460.58	10,660.67	0.00	0.00	0.00
18,180.92	89.98	179.91	7,326.00	-10,453.75	-2,460.44	10,739.40	0.00	0.00	0.00
PBHL/TD 18180.92 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 4-4-2L 470 F - plan hits target center - Point	0.00	0.00	7,322.00	-1,102.57	-2,475.93	14,526,637.43	1,734,124.90	39.99925324	-104.66539260
BHL Desha 4-4-2L 470 F - plan hits target center - Point	0.00	0.00	7,326.00	-10,453.75	-2,460.44	14,517,286.27	1,734,140.38	39.97357336	-104.66546261

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-4-2L
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 4-4-2L	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	plan1		

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	
5,513.13	5,447.23	-53.01	-208.18	Begin 51.31° tangent	
8,040.21	7,026.83	-539.77	-2,119.74	Begin 10°/100' build/turn	
8,829.72	7,322.00	-1,102.57	-2,475.93	LP Begin 89.98° lateral section	
18,180.92	7,326.00	-10,453.75	-2,460.44	PBHL/TD 18180.92 MD/7326.00 TVD	

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-4-2L
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 4-4-2L	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 4-4-2L, Surf loc: 620 FSL 843 FWL Sec34-T01N-R65W					
Well Position	+N/-S	0.00 ft	Northing:	14,527,740.00 usft	Latitude:	40.00225519
	+E/-W	0.00 ft	Easting:	1,736,600.82 usft	Longitude:	-104.65653672
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	8/29/2017	8.27	66.45	52,109.90000000

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	193.24

Plan Survey Tool Program	Date	8/29/2017		
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	18,180.92 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	
5,513.13	51.31	255.71	5,447.23	-53.01	-208.18	10.00	10.00	0.00	255.71	
8,040.21	51.31	255.71	7,026.83	-539.77	-2,119.74	0.00	0.00	0.00	0.00	
8,829.72	89.98	179.91	7,322.00	-1,102.57	-2,475.93	10.00	4.90	-9.60	-81.04	LP Desha 4-4-2L 470
18,180.92	89.98	179.91	7,326.00	-10,453.75	-2,460.44	0.00	0.00	0.00	0.00	BHL Desha 4-4-2L 47

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-4-2L
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 4-4-2L	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	1,736,600.82	40.00225519	-104.65653672
100.00	0.00	0.00	100.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
200.00	0.00	0.00	200.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
300.00	0.00	0.00	300.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
400.00	0.00	0.00	400.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
500.00	0.00	0.00	500.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
600.00	0.00	0.00	600.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
700.00	0.00	0.00	700.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
800.00	0.00	0.00	800.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
900.00	0.00	0.00	900.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
1,100.00	0.00	0.00	1,100.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
1,200.00	0.00	0.00	1,200.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
1,300.00	0.00	0.00	1,300.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
1,400.00	0.00	0.00	1,400.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
1,500.00	0.00	0.00	1,500.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
1,600.00	0.00	0.00	1,600.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
1,700.00	0.00	0.00	1,700.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
1,800.00	0.00	0.00	1,800.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
1,900.00	0.00	0.00	1,900.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
2,000.00	0.00	0.00	2,000.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
2,100.00	0.00	0.00	2,100.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
2,200.00	0.00	0.00	2,200.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
2,300.00	0.00	0.00	2,300.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
2,400.00	0.00	0.00	2,400.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
2,500.00	0.00	0.00	2,500.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
2,600.00	0.00	0.00	2,600.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
2,700.00	0.00	0.00	2,700.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
2,800.00	0.00	0.00	2,800.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
2,900.00	0.00	0.00	2,900.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
3,000.00	0.00	0.00	3,000.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
3,100.00	0.00	0.00	3,100.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
3,200.00	0.00	0.00	3,200.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
3,300.00	0.00	0.00	3,300.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
3,400.00	0.00	0.00	3,400.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
3,500.00	0.00	0.00	3,500.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
3,600.00	0.00	0.00	3,600.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
3,700.00	0.00	0.00	3,700.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
3,800.00	0.00	0.00	3,800.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
3,900.00	0.00	0.00	3,900.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
4,000.00	0.00	0.00	4,000.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
4,100.00	0.00	0.00	4,100.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
4,200.00	0.00	0.00	4,200.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
4,300.00	0.00	0.00	4,300.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
4,400.00	0.00	0.00	4,400.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
4,500.00	0.00	0.00	4,500.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
4,600.00	0.00	0.00	4,600.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
4,700.00	0.00	0.00	4,700.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
4,800.00	0.00	0.00	4,800.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
4,900.00	0.00	0.00	4,900.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
5,000.00	0.00	0.00	5,000.00	0.00	0.00	14,527,740.00	1,736,600.82	40.00225519	-104.65653672
KOP Begin 10°/100' build									
5,100.00	10.00	255.71	5,099.49	-2.15	-8.44	14,527,737.86	1,736,592.38	40.00224938	-104.65656687
5,200.00	20.00	255.71	5,195.96	-8.53	-33.49	14,527,731.48	1,736,567.33	40.00223213	-104.65656640

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-4-2L
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 4-4-2L	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	255.71	5,286.48	-18.94	-74.39	14,527,721.06	1,736,526.43	40.00220396	-104.65680260
5,400.00	40.00	255.71	5,368.29	-33.08	-129.90	14,527,706.93	1,736,470.92	40.00216573	-104.65700103
5,500.00	50.00	255.71	5,438.91	-50.50	-198.34	14,527,689.50	1,736,402.48	40.00211860	-104.65724564
5,513.13	51.31	255.71	5,447.23	-53.01	-208.18	14,527,686.99	1,736,392.64	40.00211182	-104.65728081
Begin 51.31° tangent									
5,600.00	51.31	255.71	5,501.53	-69.74	-273.89	14,527,670.26	1,736,326.93	40.00206656	-104.65751569
5,700.00	51.31	255.71	5,564.04	-89.00	-349.53	14,527,651.00	1,736,251.29	40.00201446	-104.65778606
5,800.00	51.31	255.71	5,626.55	-108.27	-425.18	14,527,631.74	1,736,175.64	40.00196237	-104.65805643
5,900.00	51.31	255.71	5,689.05	-127.53	-500.82	14,527,612.48	1,736,100.00	40.00191027	-104.65832680
6,000.00	51.31	255.71	5,751.56	-146.79	-576.46	14,527,593.22	1,736,024.36	40.00185817	-104.65859717
6,100.00	51.31	255.71	5,814.07	-166.05	-652.11	14,527,573.95	1,735,948.71	40.00180607	-104.65886754
6,200.00	51.31	255.71	5,876.57	-185.31	-727.75	14,527,554.69	1,735,873.07	40.00175397	-104.65913791
6,300.00	51.31	255.71	5,939.08	-204.58	-803.39	14,527,535.43	1,735,797.43	40.00170187	-104.65940828
6,400.00	51.31	255.71	6,001.59	-223.84	-879.04	14,527,516.17	1,735,721.78	40.00164976	-104.65967865
6,500.00	51.31	255.71	6,064.09	-243.10	-954.68	14,527,496.91	1,735,646.14	40.00159766	-104.65994902
6,600.00	51.31	255.71	6,126.60	-262.36	-1,030.32	14,527,477.64	1,735,570.50	40.00154556	-104.66021939
6,700.00	51.31	255.71	6,189.11	-281.62	-1,105.97	14,527,458.38	1,735,494.86	40.00149345	-104.66048976
6,800.00	51.31	255.71	6,251.61	-300.88	-1,181.61	14,527,439.12	1,735,419.21	40.00144135	-104.66076013
6,900.00	51.31	255.71	6,314.12	-320.15	-1,257.25	14,527,419.86	1,735,343.57	40.00138924	-104.66103049
7,000.00	51.31	255.71	6,376.63	-339.41	-1,332.90	14,527,400.60	1,735,267.93	40.00133714	-104.66130086
7,100.00	51.31	255.71	6,439.13	-358.67	-1,408.54	14,527,381.34	1,735,192.28	40.00128503	-104.66157123
7,200.00	51.31	255.71	6,501.64	-377.93	-1,484.18	14,527,362.07	1,735,116.64	40.00123293	-104.66184159
7,300.00	51.31	255.71	6,564.15	-397.19	-1,559.83	14,527,342.81	1,735,041.00	40.00118082	-104.66211196
7,400.00	51.31	255.71	6,626.65	-416.45	-1,635.47	14,527,323.55	1,734,965.35	40.00112871	-104.66238232
7,500.00	51.31	255.71	6,689.16	-435.72	-1,711.11	14,527,304.29	1,734,889.71	40.00107660	-104.66265269
7,600.00	51.31	255.71	6,751.67	-454.98	-1,786.76	14,527,285.03	1,734,814.07	40.00102449	-104.66292305
7,700.00	51.31	255.71	6,814.17	-474.24	-1,862.40	14,527,265.77	1,734,738.42	40.00097238	-104.66319342
7,800.00	51.31	255.71	6,876.68	-493.50	-1,938.04	14,527,246.50	1,734,662.78	40.00092027	-104.66346378
7,900.00	51.31	255.71	6,939.19	-512.76	-2,013.68	14,527,227.24	1,734,587.14	40.00086816	-104.66373414
8,000.00	51.31	255.71	7,001.69	-532.02	-2,089.33	14,527,207.98	1,734,511.49	40.00081605	-104.66400451
8,040.21	51.31	255.71	7,026.83	-539.77	-2,119.74	14,527,200.24	1,734,481.08	40.00079509	-104.66411321
Begin 10°/100' build/turn									
8,100.00	52.48	248.26	7,063.75	-554.32	-2,164.42	14,527,185.68	1,734,436.40	40.00075559	-104.66427296
8,200.00	55.43	236.43	7,122.73	-591.88	-2,235.75	14,527,148.13	1,734,365.08	40.00065320	-104.66452814
8,300.00	59.43	225.54	7,176.67	-644.93	-2,300.94	14,527,095.08	1,734,299.88	40.00050819	-104.66476165
8,400.00	64.25	215.60	7,223.94	-711.86	-2,358.04	14,527,028.14	1,734,242.79	40.00032496	-104.66496641
8,500.00	69.70	206.48	7,263.10	-790.66	-2,405.29	14,526,949.35	1,734,195.54	40.00010907	-104.66513618
8,600.00	75.59	198.01	7,292.97	-878.91	-2,441.26	14,526,861.10	1,734,159.56	39.99986709	-104.66526582
8,700.00	81.76	189.98	7,312.63	-973.94	-2,464.86	14,526,766.07	1,734,135.96	39.99960637	-104.66535137
8,800.00	88.08	182.20	7,321.50	-1,072.86	-2,475.38	14,526,667.15	1,734,125.44	39.99933482	-104.66539025
8,829.72	89.98	179.91	7,322.00	-1,102.57	-2,475.93	14,526,637.43	1,734,124.90	39.99925324	-104.66539260
LP Begin 89.98° lateral section									
8,900.00	89.98	179.91	7,322.03	-1,172.85	-2,475.81	14,526,567.16	1,734,125.02	39.99906025	-104.66539312
9,000.00	89.98	179.91	7,322.07	-1,272.85	-2,475.64	14,526,467.16	1,734,125.18	39.99878563	-104.66539387
9,100.00	89.98	179.91	7,322.12	-1,372.85	-2,475.48	14,526,367.16	1,734,125.35	39.99851102	-104.66539462
9,200.00	89.98	179.91	7,322.16	-1,472.85	-2,475.31	14,526,267.16	1,734,125.51	39.99823640	-104.66539537
9,300.00	89.98	179.91	7,322.20	-1,572.85	-2,475.15	14,526,167.16	1,734,125.68	39.99796179	-104.66539612
9,400.00	89.98	179.91	7,322.24	-1,672.85	-2,474.98	14,526,067.16	1,734,125.84	39.99768717	-104.66539687
9,500.00	89.98	179.91	7,322.29	-1,772.85	-2,474.82	14,525,967.16	1,734,126.01	39.99741256	-104.66539762
9,600.00	89.98	179.91	7,322.33	-1,872.85	-2,474.65	14,525,867.16	1,734,126.17	39.99713794	-104.66539837
9,700.00	89.98	179.91	7,322.37	-1,972.85	-2,474.48	14,525,767.16	1,734,126.34	39.99686333	-104.66539912
9,800.00	89.98	179.91	7,322.42	-2,072.85	-2,474.32	14,525,667.16	1,734,126.50	39.99658871	-104.66539987
9,900.00	89.98	179.91	7,322.46	-2,172.85	-2,474.15	14,525,567.16	1,734,126.67	39.99631409	-104.66540062
10,000.00	89.98	179.91	7,322.50	-2,272.85	-2,473.99	14,525,467.16	1,734,126.84	39.99603948	-104.66540137

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-4-2L
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 4-4-2L	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	89.98	179.91	7,322.54	-2,372.85	-2,473.82	14,525,367.16	1,734,127.00	39.99576486	-104.66540211
10,200.00	89.98	179.91	7,322.59	-2,472.85	-2,473.66	14,525,267.16	1,734,127.17	39.99549025	-104.66540286
10,300.00	89.98	179.91	7,322.63	-2,572.85	-2,473.49	14,525,167.16	1,734,127.33	39.99521563	-104.66540361
10,400.00	89.98	179.91	7,322.67	-2,672.85	-2,473.33	14,525,067.16	1,734,127.50	39.99494102	-104.66540436
10,500.00	89.98	179.91	7,322.71	-2,772.85	-2,473.16	14,524,967.17	1,734,127.66	39.99466640	-104.66540511
10,600.00	89.98	179.91	7,322.76	-2,872.84	-2,472.99	14,524,867.17	1,734,127.83	39.99439179	-104.66540586
10,700.00	89.98	179.91	7,322.80	-2,972.84	-2,472.83	14,524,767.17	1,734,127.99	39.99411717	-104.66540661
10,800.00	89.98	179.91	7,322.84	-3,072.84	-2,472.66	14,524,667.17	1,734,128.16	39.99384255	-104.66540736
10,900.00	89.98	179.91	7,322.89	-3,172.84	-2,472.50	14,524,567.17	1,734,128.33	39.99356794	-104.66540811
11,000.00	89.98	179.91	7,322.93	-3,272.84	-2,472.33	14,524,467.17	1,734,128.49	39.99329332	-104.66540886
11,100.00	89.98	179.91	7,322.97	-3,372.84	-2,472.17	14,524,367.17	1,734,128.66	39.99301871	-104.66540960
11,200.00	89.98	179.91	7,323.01	-3,472.84	-2,472.00	14,524,267.17	1,734,128.82	39.99274409	-104.66541035
11,300.00	89.98	179.91	7,323.06	-3,572.84	-2,471.84	14,524,167.17	1,734,128.99	39.99246948	-104.66541110
11,400.00	89.98	179.91	7,323.10	-3,672.84	-2,471.67	14,524,067.17	1,734,129.15	39.99219486	-104.66541185
11,500.00	89.98	179.91	7,323.14	-3,772.84	-2,471.50	14,523,967.17	1,734,129.32	39.99192024	-104.66541260
11,600.00	89.98	179.91	7,323.19	-3,872.84	-2,471.34	14,523,867.17	1,734,129.48	39.99164563	-104.66541335
11,700.00	89.98	179.91	7,323.23	-3,972.84	-2,471.17	14,523,767.17	1,734,129.65	39.99137101	-104.66541410
11,800.00	89.98	179.91	7,323.27	-4,072.84	-2,471.01	14,523,667.17	1,734,129.82	39.99109640	-104.66541485
11,900.00	89.98	179.91	7,323.31	-4,172.84	-2,470.84	14,523,567.17	1,734,129.98	39.99082178	-104.66541560
12,000.00	89.98	179.91	7,323.36	-4,272.84	-2,470.68	14,523,467.17	1,734,130.15	39.99054716	-104.66541635
12,100.00	89.98	179.91	7,323.40	-4,372.84	-2,470.51	14,523,367.17	1,734,130.31	39.99027255	-104.66541709
12,200.00	89.98	179.91	7,323.44	-4,472.84	-2,470.35	14,523,267.17	1,734,130.48	39.98999793	-104.66541784
12,300.00	89.98	179.91	7,323.48	-4,572.84	-2,470.18	14,523,167.17	1,734,130.64	39.98972332	-104.66541859
12,400.00	89.98	179.91	7,323.53	-4,672.84	-2,470.01	14,523,067.17	1,734,130.81	39.98944870	-104.66541934
12,500.00	89.98	179.91	7,323.57	-4,772.84	-2,469.85	14,522,967.17	1,734,130.97	39.98917409	-104.66542009
12,600.00	89.98	179.91	7,323.61	-4,872.84	-2,469.68	14,522,867.17	1,734,131.14	39.98889947	-104.66542084
12,700.00	89.98	179.91	7,323.66	-4,972.84	-2,469.52	14,522,767.17	1,734,131.31	39.98862485	-104.66542159
12,800.00	89.98	179.91	7,323.70	-5,072.84	-2,469.35	14,522,667.17	1,734,131.47	39.98835024	-104.66542234
12,900.00	89.98	179.91	7,323.74	-5,172.84	-2,469.19	14,522,567.17	1,734,131.64	39.98807562	-104.66542308
13,000.00	89.98	179.91	7,323.78	-5,272.84	-2,469.02	14,522,467.17	1,734,131.80	39.98780101	-104.66542383
13,100.00	89.98	179.91	7,323.83	-5,372.84	-2,468.86	14,522,367.17	1,734,131.97	39.98752639	-104.66542458
13,200.00	89.98	179.91	7,323.87	-5,472.84	-2,468.69	14,522,267.17	1,734,132.13	39.98725177	-104.66542533
13,300.00	89.98	179.91	7,323.91	-5,572.84	-2,468.52	14,522,167.17	1,734,132.30	39.98697716	-104.66542608
13,400.00	89.98	179.91	7,323.96	-5,672.84	-2,468.36	14,522,067.18	1,734,132.46	39.98670254	-104.66542683
13,500.00	89.98	179.91	7,324.00	-5,772.84	-2,468.19	14,521,967.18	1,734,132.63	39.98642793	-104.66542758
13,600.00	89.98	179.91	7,324.04	-5,872.84	-2,468.03	14,521,867.18	1,734,132.80	39.98615331	-104.66542833
13,700.00	89.98	179.91	7,324.08	-5,972.84	-2,467.86	14,521,767.18	1,734,132.96	39.98587869	-104.66542907
13,800.00	89.98	179.91	7,324.13	-6,072.84	-2,467.70	14,521,667.18	1,734,133.13	39.98560408	-104.66542982
13,900.00	89.98	179.91	7,324.17	-6,172.84	-2,467.53	14,521,567.18	1,734,133.29	39.98532946	-104.66543057
14,000.00	89.98	179.91	7,324.21	-6,272.84	-2,467.37	14,521,467.18	1,734,133.46	39.98505484	-104.66543132
14,100.00	89.98	179.91	7,324.25	-6,372.84	-2,467.20	14,521,367.18	1,734,133.62	39.98478023	-104.66543207
14,200.00	89.98	179.91	7,324.30	-6,472.84	-2,467.04	14,521,267.18	1,734,133.79	39.98450561	-104.66543282
14,300.00	89.98	179.91	7,324.34	-6,572.84	-2,466.87	14,521,167.18	1,734,133.95	39.98423100	-104.66543357
14,400.00	89.98	179.91	7,324.38	-6,672.84	-2,466.70	14,521,067.18	1,734,134.12	39.98395638	-104.66543431
14,500.00	89.98	179.91	7,324.43	-6,772.84	-2,466.54	14,520,967.18	1,734,134.29	39.98368176	-104.66543506
14,600.00	89.98	179.91	7,324.47	-6,872.84	-2,466.37	14,520,867.18	1,734,134.45	39.98340715	-104.66543581
14,700.00	89.98	179.91	7,324.51	-6,972.84	-2,466.21	14,520,767.18	1,734,134.62	39.98313253	-104.66543656
14,800.00	89.98	179.91	7,324.55	-7,072.84	-2,466.04	14,520,667.18	1,734,134.78	39.98285792	-104.66543731
14,900.00	89.98	179.91	7,324.60	-7,172.84	-2,465.88	14,520,567.18	1,734,134.95	39.98258330	-104.66543806
15,000.00	89.98	179.91	7,324.64	-7,272.84	-2,465.71	14,520,467.18	1,734,135.11	39.98230868	-104.66543880
15,100.00	89.98	179.91	7,324.68	-7,372.84	-2,465.55	14,520,367.18	1,734,135.28	39.98203407	-104.66543955
15,200.00	89.98	179.91	7,324.73	-7,472.84	-2,465.38	14,520,267.18	1,734,135.44	39.98175945	-104.66544030
15,300.00	89.98	179.91	7,324.77	-7,572.84	-2,465.21	14,520,167.18	1,734,135.61	39.98148483	-104.66544105
15,400.00	89.98	179.91	7,324.81	-7,672.84	-2,465.05	14,520,067.18	1,734,135.78	39.98121022	-104.66544180
15,500.00	89.98	179.91	7,324.85	-7,772.84	-2,464.88	14,519,967.18	1,734,135.94	39.98093560	-104.66544255

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-4-2L
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 4-4-2L	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	plan1		

Planned Survey										
Measured			Vertical			Map	Map			
Depth	Inclination	Azimuth	Depth	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(usft)	(usft)			
15,600.00	89.98	179.91	7,324.90	-7,872.84	-2,464.72	14,519,867.18	1,734,136.11	39.98066099	-104.66544330	
15,700.00	89.98	179.91	7,324.94	-7,972.84	-2,464.55	14,519,767.18	1,734,136.27	39.98038637	-104.66544404	
15,800.00	89.98	179.91	7,324.98	-8,072.84	-2,464.39	14,519,667.18	1,734,136.44	39.98011175	-104.66544479	
15,900.00	89.98	179.91	7,325.02	-8,172.84	-2,464.22	14,519,567.18	1,734,136.60	39.97983714	-104.66544554	
16,000.00	89.98	179.91	7,325.07	-8,272.84	-2,464.06	14,519,467.18	1,734,136.77	39.97956252	-104.66544629	
16,100.00	89.98	179.91	7,325.11	-8,372.84	-2,463.89	14,519,367.18	1,734,136.93	39.97928790	-104.66544704	
16,200.00	89.98	179.91	7,325.15	-8,472.84	-2,463.72	14,519,267.18	1,734,137.10	39.97901329	-104.66544779	
16,300.00	89.98	179.91	7,325.20	-8,572.84	-2,463.56	14,519,167.19	1,734,137.27	39.97873867	-104.66544853	
16,400.00	89.98	179.91	7,325.24	-8,672.84	-2,463.39	14,519,067.19	1,734,137.43	39.97846405	-104.66544928	
16,500.00	89.98	179.91	7,325.28	-8,772.84	-2,463.23	14,518,967.19	1,734,137.60	39.97818944	-104.66545003	
16,600.00	89.98	179.91	7,325.32	-8,872.84	-2,463.06	14,518,867.19	1,734,137.76	39.97791482	-104.66545078	
16,700.00	89.98	179.91	7,325.37	-8,972.84	-2,462.90	14,518,767.19	1,734,137.93	39.97764020	-104.66545153	
16,800.00	89.98	179.91	7,325.41	-9,072.84	-2,462.73	14,518,667.19	1,734,138.09	39.97736559	-104.66545227	
16,900.00	89.98	179.91	7,325.45	-9,172.84	-2,462.57	14,518,567.19	1,734,138.26	39.97709097	-104.66545302	
17,000.00	89.98	179.91	7,325.50	-9,272.84	-2,462.40	14,518,467.19	1,734,138.42	39.97681636	-104.66545377	
17,100.00	89.98	179.91	7,325.54	-9,372.84	-2,462.23	14,518,367.19	1,734,138.59	39.97654174	-104.66545452	
17,200.00	89.98	179.91	7,325.58	-9,472.84	-2,462.07	14,518,267.19	1,734,138.75	39.97626712	-104.66545527	
17,300.00	89.98	179.91	7,325.62	-9,572.84	-2,461.90	14,518,167.19	1,734,138.92	39.97599251	-104.66545602	
17,400.00	89.98	179.91	7,325.67	-9,672.84	-2,461.74	14,518,067.19	1,734,139.09	39.97571789	-104.66545676	
17,500.00	89.98	179.91	7,325.71	-9,772.84	-2,461.57	14,517,967.19	1,734,139.25	39.97544327	-104.66545751	
17,600.00	89.98	179.91	7,325.75	-9,872.83	-2,461.41	14,517,867.19	1,734,139.42	39.97516866	-104.66545826	
17,700.00	89.98	179.91	7,325.79	-9,972.83	-2,461.24	14,517,767.19	1,734,139.58	39.97489404	-104.66545901	
17,800.00	89.98	179.91	7,325.84	-10,072.83	-2,461.08	14,517,667.19	1,734,139.75	39.97461942	-104.66545976	
17,900.00	89.98	179.91	7,325.88	-10,172.83	-2,460.91	14,517,567.19	1,734,139.91	39.97434481	-104.66546050	
18,000.00	89.98	179.91	7,325.92	-10,272.83	-2,460.74	14,517,467.19	1,734,140.08	39.97407019	-104.66546125	
18,100.00	89.98	179.91	7,325.97	-10,372.83	-2,460.58	14,517,367.19	1,734,140.24	39.97379557	-104.66546200	
18,180.92	89.98	179.91	7,326.00	-10,453.75	-2,460.44	14,517,286.27	1,734,140.38	39.97357336	-104.66546261	
PBHL/TD 18180.92 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 4-4-2L 470 F - plan hits target center - Point	0.00	0.00	7,322.00	-1,102.57	-2,475.93	14,526,637.43	1,734,124.90	39.99925324	-104.66539260	
BHL Desha 4-4-2L 470 F - plan hits target center - Point	0.00	0.00	7,326.00	-10,453.75	-2,460.44	14,517,286.27	1,734,140.38	39.97357336	-104.66546261	

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	
5,513.13	5,447.23	-53.01	-208.18	Begin 51.31° tangent	
8,040.21	7,026.83	-539.77	-2,119.74	Begin 10°/100' build/turn	
8,829.72	7,322.00	-1,102.57	-2,475.93	LP Begin 89.98° lateral section	
18,180.92	7,326.00	-10,453.75	-2,460.44	PBHL/TD 18180.92 MD/7326.00 TVD	