

Weld County, Colorado
Section 34-T01N-R65W
Desha 4-1-3L
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	5349.34	34.93	245.21	5328.10	-43.28	-93.73	10.00	55.18	Begin 34.93° tangent
4	7406.88	34.93	245.21	7014.88	-537.25	-1163.40	0.00	684.88	Begin 10°/100' build/turn
5	8168.16	89.96	179.91	7383.00	-1093.65	-1395.92	10.00	1266.92	LP Begin 89.96° lateral section
6	17532.73	89.96	179.91	7389.00	-10458.20	-1380.43	0.00	10548.91	PBHL/TD 17532.73 MD/7389.00 TVD

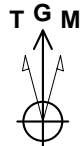
DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
LP Desha 4-1-3 L 470 FNL 480 FEL	7383.00	-1093.65	-1395.92	14526646.35	1735304.91	39.99926549	-104.66117904
BHL Desha 4-1-3 L 470 FSL 480 FEL	7389.00	-10458.20	-1380.43	14517281.82	1735320.40	39.97354891	-104.66125078

Desha 4-1-3L			
Surf loc: 620 FSL 968 FWL Sec34-T01N-R65W			
NAD83 Colorado - HARN			
Universal Transverse Mercator (US Survey Feet)			
Zone 13N (108 W to 102 W)			
RKB-5139+25 @ 5164.00ft			
Northing	Easting	Latitude	Longitude
14527740.00	1736700.83	40.00225413	-104.65617960

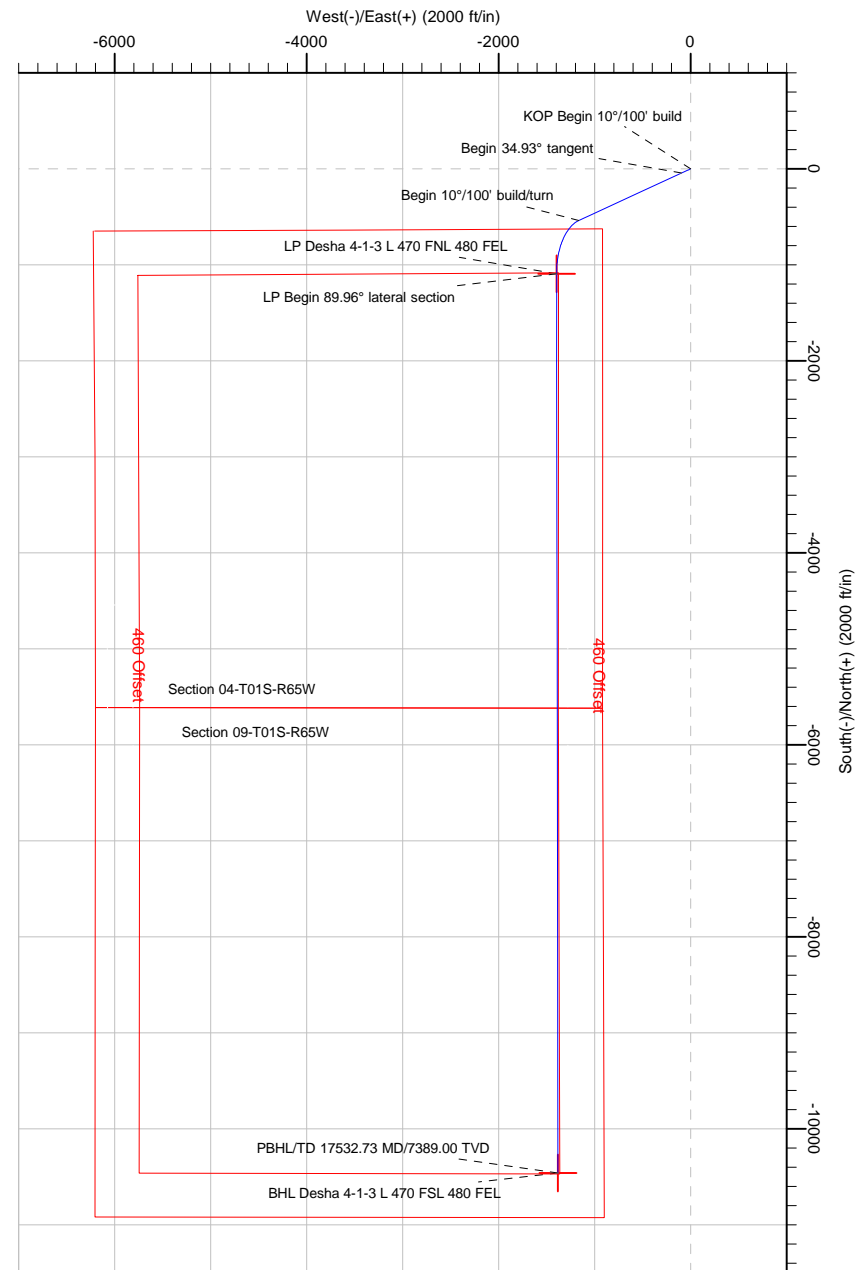
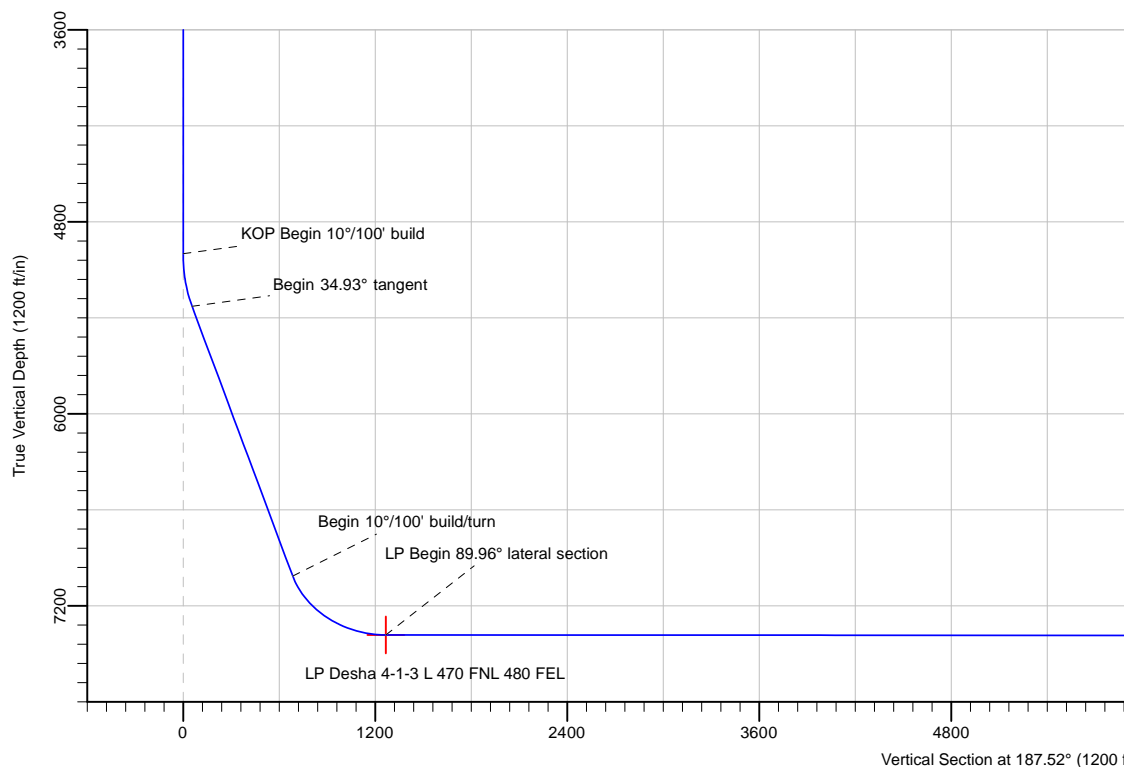
Azimuth Corrections:

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 4-1-3L
Company:	Confluence Resources	TVD Reference:	RKB=5139+25 @ 5164.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5139+25 @ 5164.00ft
Site:	Section 34-T01N-R65W	North Reference:	Grid
Well:	Desha 4-1-3L	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 4-1-3L, Surf loc: 620 FSL 968 FWL Sec34-T01N-R65W					
Well Position	+N/-S	-152.80 ft	Northing:	14,527,740.00 usft	Latitude:	40.00225413
	+E/-W	175.53 ft	Easting:	1,736,700.83 usft	Longitude:	-104.65617960
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	5,139.00 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	187.52

Plan Survey Tool Program	Date	8/30/2017		
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	17,532.73	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	
5,349.34	34.93	245.21	5,328.10	-43.28	-93.73	10.00	10.00	0.00	245.21	
7,406.88	34.93	245.21	7,014.88	-537.25	-1,163.40	0.00	0.00	0.00	0.00	
8,168.16	89.96	179.91	7,383.00	-1,093.65	-1,395.92	10.00	7.23	-8.58	-69.37	LP Desha 4-1-3 L 47C
17,532.73	89.96	179.91	7,389.00	-10,458.20	-1,380.43	0.00	0.00	0.00	0.00	BHL Desha 4-1-3 L 47

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-1-3L
Company:	Confluence Resources	TVD Reference:	RKB=5139+25 @ 5164.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5139+25 @ 5164.00ft
Site:	Section 34-T01N-R65W	North Reference:	Grid
Well:	Desha 4-1-3L	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	245.21	5,099.49	-3.65	-7.90	4.65	10.00	10.00	0.00
5,200.00	20.00	245.21	5,195.96	-14.49	-31.37	18.47	10.00	10.00	0.00

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-1-3L
Company:	Confluence Resources	TVD Reference:	RKB=5139+25 @ 5164.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5139+25 @ 5164.00ft
Site:	Section 34-T01N-R65W	North Reference:	Grid
Well:	Desha 4-1-3L	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	245.21	5,286.48	-32.18	-69.69	41.03	10.00	10.00	0.00
5,349.34	34.93	245.21	5,328.10	-43.28	-93.73	55.18	10.00	10.00	0.00
Begin 34.93° tangent									
5,400.00	34.93	245.21	5,369.63	-55.45	-120.07	70.68	0.00	0.00	0.00
5,500.00	34.93	245.21	5,451.61	-79.45	-172.05	101.29	0.00	0.00	0.00
5,600.00	34.93	245.21	5,533.59	-103.46	-224.04	131.89	0.00	0.00	0.00
5,700.00	34.93	245.21	5,615.57	-127.47	-276.03	162.49	0.00	0.00	0.00
5,800.00	34.93	245.21	5,697.55	-151.48	-328.02	193.10	0.00	0.00	0.00
5,900.00	34.93	245.21	5,779.53	-175.49	-380.01	223.70	0.00	0.00	0.00
6,000.00	34.93	245.21	5,861.51	-199.49	-431.99	254.31	0.00	0.00	0.00
6,100.00	34.93	245.21	5,943.49	-223.50	-483.98	284.91	0.00	0.00	0.00
6,200.00	34.93	245.21	6,025.47	-247.51	-535.97	315.52	0.00	0.00	0.00
6,300.00	34.93	245.21	6,107.45	-271.52	-587.96	346.12	0.00	0.00	0.00
6,400.00	34.93	245.21	6,189.43	-295.52	-639.95	376.73	0.00	0.00	0.00
6,500.00	34.93	245.21	6,271.41	-319.53	-691.94	407.33	0.00	0.00	0.00
6,600.00	34.93	245.21	6,353.40	-343.54	-743.92	437.94	0.00	0.00	0.00
6,700.00	34.93	245.21	6,435.38	-367.55	-795.91	468.54	0.00	0.00	0.00
6,800.00	34.93	245.21	6,517.36	-391.56	-847.90	499.15	0.00	0.00	0.00
6,900.00	34.93	245.21	6,599.34	-415.56	-899.89	529.75	0.00	0.00	0.00
7,000.00	34.93	245.21	6,681.32	-439.57	-951.88	560.35	0.00	0.00	0.00
7,100.00	34.93	245.21	6,763.30	-463.58	-1,003.86	590.96	0.00	0.00	0.00
7,200.00	34.93	245.21	6,845.28	-487.59	-1,055.85	621.56	0.00	0.00	0.00
7,300.00	34.93	245.21	6,927.26	-511.60	-1,107.84	652.17	0.00	0.00	0.00
7,400.00	34.93	245.21	7,009.24	-535.60	-1,159.83	682.77	0.00	0.00	0.00
7,406.88	34.93	245.21	7,014.88	-537.25	-1,163.40	684.88	0.00	0.00	0.00
Begin 10°/100' build/turn									
7,500.00	39.07	231.31	7,089.36	-566.84	-1,210.62	720.39	10.00	4.44	-14.93
7,600.00	45.01	219.26	7,163.72	-614.04	-1,257.72	773.35	10.00	5.94	-12.05
7,700.00	51.97	209.65	7,230.04	-675.81	-1,299.69	840.08	10.00	6.96	-9.62
7,800.00	59.57	201.77	7,286.30	-750.27	-1,335.25	918.55	10.00	7.60	-7.87
7,900.00	67.58	195.07	7,330.81	-835.15	-1,363.33	1,006.38	10.00	8.00	-6.70
8,000.00	75.83	189.11	7,362.21	-927.88	-1,383.07	1,100.89	10.00	8.25	-5.96
8,100.00	84.21	183.57	7,379.54	-1,025.65	-1,393.87	1,199.23	10.00	8.39	-5.54
8,168.16	89.96	179.91	7,383.00	-1,093.65	-1,395.92	1,266.92	10.00	8.44	-5.38
LP Begin 89.96° lateral section									
8,200.00	89.96	179.91	7,383.02	-1,125.49	-1,395.87	1,298.47	0.00	0.00	0.00
8,300.00	89.96	179.91	7,383.08	-1,225.49	-1,395.70	1,397.59	0.00	0.00	0.00
8,400.00	89.96	179.91	7,383.15	-1,325.49	-1,395.54	1,496.71	0.00	0.00	0.00
8,500.00	89.96	179.91	7,383.21	-1,425.49	-1,395.37	1,595.83	0.00	0.00	0.00
8,600.00	89.96	179.91	7,383.28	-1,525.49	-1,395.21	1,694.95	0.00	0.00	0.00
8,700.00	89.96	179.91	7,383.34	-1,625.49	-1,395.04	1,794.07	0.00	0.00	0.00
8,800.00	89.96	179.91	7,383.40	-1,725.49	-1,394.88	1,893.18	0.00	0.00	0.00
8,900.00	89.96	179.91	7,383.47	-1,825.49	-1,394.71	1,992.30	0.00	0.00	0.00
9,000.00	89.96	179.91	7,383.53	-1,925.49	-1,394.55	2,091.42	0.00	0.00	0.00
9,100.00	89.96	179.91	7,383.60	-2,025.49	-1,394.38	2,190.54	0.00	0.00	0.00
9,200.00	89.96	179.91	7,383.66	-2,125.49	-1,394.22	2,289.66	0.00	0.00	0.00
9,300.00	89.96	179.91	7,383.73	-2,225.49	-1,394.05	2,388.77	0.00	0.00	0.00
9,400.00	89.96	179.91	7,383.79	-2,325.49	-1,393.89	2,487.89	0.00	0.00	0.00
9,500.00	89.96	179.91	7,383.85	-2,425.49	-1,393.72	2,587.01	0.00	0.00	0.00
9,600.00	89.96	179.91	7,383.92	-2,525.49	-1,393.55	2,686.13	0.00	0.00	0.00
9,700.00	89.96	179.91	7,383.98	-2,625.49	-1,393.39	2,785.25	0.00	0.00	0.00
9,800.00	89.96	179.91	7,384.05	-2,725.49	-1,393.22	2,884.37	0.00	0.00	0.00
9,900.00	89.96	179.91	7,384.11	-2,825.49	-1,393.06	2,983.48	0.00	0.00	0.00

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-1-3L
Company:	Confluence Resources	TVD Reference:	RKB=5139+25 @ 5164.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5139+25 @ 5164.00ft
Site:	Section 34-T01N-R65W	North Reference:	Grid
Well:	Desha 4-1-3L	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	89.96	179.91	7,384.17	-2,925.49	-1,392.89	3,082.60	0.00	0.00	0.00
10,100.00	89.96	179.91	7,384.24	-3,025.49	-1,392.73	3,181.72	0.00	0.00	0.00
10,200.00	89.96	179.91	7,384.30	-3,125.49	-1,392.56	3,280.84	0.00	0.00	0.00
10,300.00	89.96	179.91	7,384.37	-3,225.48	-1,392.40	3,379.96	0.00	0.00	0.00
10,400.00	89.96	179.91	7,384.43	-3,325.48	-1,392.23	3,479.08	0.00	0.00	0.00
10,500.00	89.96	179.91	7,384.49	-3,425.48	-1,392.07	3,578.19	0.00	0.00	0.00
10,600.00	89.96	179.91	7,384.56	-3,525.48	-1,391.90	3,677.31	0.00	0.00	0.00
10,700.00	89.96	179.91	7,384.62	-3,625.48	-1,391.73	3,776.43	0.00	0.00	0.00
10,800.00	89.96	179.91	7,384.69	-3,725.48	-1,391.57	3,875.55	0.00	0.00	0.00
10,900.00	89.96	179.91	7,384.75	-3,825.48	-1,391.40	3,974.67	0.00	0.00	0.00
11,000.00	89.96	179.91	7,384.81	-3,925.48	-1,391.24	4,073.79	0.00	0.00	0.00
11,100.00	89.96	179.91	7,384.88	-4,025.48	-1,391.07	4,172.90	0.00	0.00	0.00
11,200.00	89.96	179.91	7,384.94	-4,125.48	-1,390.91	4,272.02	0.00	0.00	0.00
11,300.00	89.96	179.91	7,385.01	-4,225.48	-1,390.74	4,371.14	0.00	0.00	0.00
11,400.00	89.96	179.91	7,385.07	-4,325.48	-1,390.58	4,470.26	0.00	0.00	0.00
11,500.00	89.96	179.91	7,385.13	-4,425.48	-1,390.41	4,569.38	0.00	0.00	0.00
11,600.00	89.96	179.91	7,385.20	-4,525.48	-1,390.25	4,668.50	0.00	0.00	0.00
11,700.00	89.96	179.91	7,385.26	-4,625.48	-1,390.08	4,767.61	0.00	0.00	0.00
11,800.00	89.96	179.91	7,385.33	-4,725.48	-1,389.92	4,866.73	0.00	0.00	0.00
11,900.00	89.96	179.91	7,385.39	-4,825.48	-1,389.75	4,965.85	0.00	0.00	0.00
12,000.00	89.96	179.91	7,385.46	-4,925.48	-1,389.58	5,064.97	0.00	0.00	0.00
12,100.00	89.96	179.91	7,385.52	-5,025.48	-1,389.42	5,164.09	0.00	0.00	0.00
12,200.00	89.96	179.91	7,385.58	-5,125.48	-1,389.25	5,263.21	0.00	0.00	0.00
12,300.00	89.96	179.91	7,385.65	-5,225.48	-1,389.09	5,362.32	0.00	0.00	0.00
12,400.00	89.96	179.91	7,385.71	-5,325.48	-1,388.92	5,461.44	0.00	0.00	0.00
12,500.00	89.96	179.91	7,385.78	-5,425.48	-1,388.76	5,560.56	0.00	0.00	0.00
12,600.00	89.96	179.91	7,385.84	-5,525.48	-1,388.59	5,659.68	0.00	0.00	0.00
12,700.00	89.96	179.91	7,385.90	-5,625.48	-1,388.43	5,758.80	0.00	0.00	0.00
12,800.00	89.96	179.91	7,385.97	-5,725.48	-1,388.26	5,857.91	0.00	0.00	0.00
12,900.00	89.96	179.91	7,386.03	-5,825.48	-1,388.10	5,957.03	0.00	0.00	0.00
13,000.00	89.96	179.91	7,386.10	-5,925.48	-1,387.93	6,056.15	0.00	0.00	0.00
13,100.00	89.96	179.91	7,386.16	-6,025.48	-1,387.77	6,155.27	0.00	0.00	0.00
13,200.00	89.96	179.91	7,386.22	-6,125.48	-1,387.60	6,254.39	0.00	0.00	0.00
13,300.00	89.96	179.91	7,386.29	-6,225.48	-1,387.43	6,353.51	0.00	0.00	0.00
13,400.00	89.96	179.91	7,386.35	-6,325.48	-1,387.27	6,452.62	0.00	0.00	0.00
13,500.00	89.96	179.91	7,386.42	-6,425.48	-1,387.10	6,551.74	0.00	0.00	0.00
13,600.00	89.96	179.91	7,386.48	-6,525.48	-1,386.94	6,650.86	0.00	0.00	0.00
13,700.00	89.96	179.91	7,386.54	-6,625.48	-1,386.77	6,749.98	0.00	0.00	0.00
13,800.00	89.96	179.91	7,386.61	-6,725.48	-1,386.61	6,849.10	0.00	0.00	0.00
13,900.00	89.96	179.91	7,386.67	-6,825.48	-1,386.44	6,948.22	0.00	0.00	0.00
14,000.00	89.96	179.91	7,386.74	-6,925.48	-1,386.28	7,047.33	0.00	0.00	0.00
14,100.00	89.96	179.91	7,386.80	-7,025.48	-1,386.11	7,146.45	0.00	0.00	0.00
14,200.00	89.96	179.91	7,386.86	-7,125.48	-1,385.95	7,245.57	0.00	0.00	0.00
14,300.00	89.96	179.91	7,386.93	-7,225.48	-1,385.78	7,344.69	0.00	0.00	0.00
14,400.00	89.96	179.91	7,386.99	-7,325.48	-1,385.61	7,443.81	0.00	0.00	0.00
14,500.00	89.96	179.91	7,387.06	-7,425.48	-1,385.45	7,542.93	0.00	0.00	0.00
14,600.00	89.96	179.91	7,387.12	-7,525.48	-1,385.28	7,642.04	0.00	0.00	0.00
14,700.00	89.96	179.91	7,387.19	-7,625.48	-1,385.12	7,741.16	0.00	0.00	0.00
14,800.00	89.96	179.91	7,387.25	-7,725.48	-1,384.95	7,840.28	0.00	0.00	0.00
14,900.00	89.96	179.91	7,387.31	-7,825.48	-1,384.79	7,939.40	0.00	0.00	0.00
15,000.00	89.96	179.91	7,387.38	-7,925.48	-1,384.62	8,038.52	0.00	0.00	0.00
15,100.00	89.96	179.91	7,387.44	-8,025.48	-1,384.46	8,137.64	0.00	0.00	0.00
15,200.00	89.96	179.91	7,387.51	-8,125.48	-1,384.29	8,236.75	0.00	0.00	0.00
15,300.00	89.96	179.91	7,387.57	-8,225.48	-1,384.13	8,335.87	0.00	0.00	0.00

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-1-3L
Company:	Confluence Resources	TVD Reference:	RKB=5139+25 @ 5164.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5139+25 @ 5164.00ft
Site:	Section 34-T01N-R65W	North Reference:	Grid
Well:	Desha 4-1-3L	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	89.96	179.91	7,387.63	-8,325.48	-1,383.96	8,434.99	0.00	0.00	0.00	
15,500.00	89.96	179.91	7,387.70	-8,425.48	-1,383.80	8,534.11	0.00	0.00	0.00	
15,600.00	89.96	179.91	7,387.76	-8,525.48	-1,383.63	8,633.23	0.00	0.00	0.00	
15,700.00	89.96	179.91	7,387.83	-8,625.48	-1,383.46	8,732.34	0.00	0.00	0.00	
15,800.00	89.96	179.91	7,387.89	-8,725.48	-1,383.30	8,831.46	0.00	0.00	0.00	
15,900.00	89.96	179.91	7,387.95	-8,825.48	-1,383.13	8,930.58	0.00	0.00	0.00	
16,000.00	89.96	179.91	7,388.02	-8,925.48	-1,382.97	9,029.70	0.00	0.00	0.00	
16,100.00	89.96	179.91	7,388.08	-9,025.48	-1,382.80	9,128.82	0.00	0.00	0.00	
16,200.00	89.96	179.91	7,388.15	-9,125.48	-1,382.64	9,227.94	0.00	0.00	0.00	
16,300.00	89.96	179.91	7,388.21	-9,225.48	-1,382.47	9,327.05	0.00	0.00	0.00	
16,400.00	89.96	179.91	7,388.27	-9,325.48	-1,382.31	9,426.17	0.00	0.00	0.00	
16,500.00	89.96	179.91	7,388.34	-9,425.48	-1,382.14	9,525.29	0.00	0.00	0.00	
16,600.00	89.96	179.91	7,388.40	-9,525.48	-1,381.98	9,624.41	0.00	0.00	0.00	
16,700.00	89.96	179.91	7,388.47	-9,625.47	-1,381.81	9,723.53	0.00	0.00	0.00	
16,800.00	89.96	179.91	7,388.53	-9,725.47	-1,381.64	9,822.65	0.00	0.00	0.00	
16,900.00	89.96	179.91	7,388.59	-9,825.47	-1,381.48	9,921.76	0.00	0.00	0.00	
17,000.00	89.96	179.91	7,388.66	-9,925.47	-1,381.31	10,020.88	0.00	0.00	0.00	
17,100.00	89.96	179.91	7,388.72	-10,025.47	-1,381.15	10,120.00	0.00	0.00	0.00	
17,200.00	89.96	179.91	7,388.79	-10,125.47	-1,380.98	10,219.12	0.00	0.00	0.00	
17,300.00	89.96	179.91	7,388.85	-10,225.47	-1,380.82	10,318.24	0.00	0.00	0.00	
17,400.00	89.96	179.91	7,388.92	-10,325.47	-1,380.65	10,417.36	0.00	0.00	0.00	
17,500.00	89.96	179.91	7,388.98	-10,425.47	-1,380.49	10,516.47	0.00	0.00	0.00	
17,532.73	89.96	179.91	7,389.00	-10,458.20	-1,380.43	10,548.91	0.00	0.00	0.00	
PBHL/TD 17532.73 MD/7389.00 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 4-1-3 L 470 FI	0.00	0.00	7,383.00	-1,093.65	-1,395.92	14,526,646.35	1,735,304.91	39.99926549	-104.66117904
- plan hits target center									
- Point									
BHL Desha 4-1-3 L 470	0.00	0.00	7,389.00	-10,458.20	-1,380.43	14,517,281.82	1,735,320.40	39.97354891	-104.66125077
- plan hits target center									
- Point									

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	
5,349.34	5,328.10	-43.28	-93.73	Begin 34.93° tangent	
7,406.88	7,014.88	-537.25	-1,163.40	Begin 10°/100' build/turn	
8,168.16	7,383.00	-1,093.65	-1,395.92	LP Begin 89.96° lateral section	
17,532.73	7,389.00	-10,458.20	-1,380.43	PBHL/TD 17532.73 MD/7389.00 TVD	

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-1-3L
Company:	Confluence Resources	TVD Reference:	RKB=5139+25 @ 5164.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5139+25 @ 5164.00ft
Site:	Section 34-T01N-R65W	North Reference:	Grid
Well:	Desha 4-1-3L	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 4-1-3L, Surf loc: 620 FSL 968 FWL Sec34-T01N-R65W					
Well Position	+N/-S	0.00 ft	Northing:	14,527,740.00 usft	Latitude:	40.00225413
	+E/-W	0.00 ft	Easting:	1,736,700.83 usft	Longitude:	-104.65617960
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	5,139.00 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	187.52

Plan Survey Tool Program	Date	8/30/2017		
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	17,532.73 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	
5,349.34	34.93	245.21	5,328.10	-43.28	-93.73	10.00	10.00	0.00	245.21	
7,406.88	34.93	245.21	7,014.88	-537.25	-1,163.40	0.00	0.00	0.00	0.00	
8,168.16	89.96	179.91	7,383.00	-1,093.65	-1,395.92	10.00	7.23	-8.58	-69.37	LP Desha 4-1-3 L 47C
17,532.73	89.96	179.91	7,389.00	-10,458.20	-1,380.43	0.00	0.00	0.00	0.00	BHL Desha 4-1-3 L 47

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-1-3L
Company:	Confluence Resources	TVD Reference:	RKB=5139+25 @ 5164.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5139+25 @ 5164.00ft
Site:	Section 34-T01N-R65W	North Reference:	Grid
Well:	Desha 4-1-3L	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	1,736,700.83	40.00225413	-104.65617960
100.00	0.00	0.00	100.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
200.00	0.00	0.00	200.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
300.00	0.00	0.00	300.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
400.00	0.00	0.00	400.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
500.00	0.00	0.00	500.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
600.00	0.00	0.00	600.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
700.00	0.00	0.00	700.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
800.00	0.00	0.00	800.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
900.00	0.00	0.00	900.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
1,100.00	0.00	0.00	1,100.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
1,200.00	0.00	0.00	1,200.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
1,300.00	0.00	0.00	1,300.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
1,400.00	0.00	0.00	1,400.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
1,500.00	0.00	0.00	1,500.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
1,600.00	0.00	0.00	1,600.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
1,700.00	0.00	0.00	1,700.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
1,800.00	0.00	0.00	1,800.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
1,900.00	0.00	0.00	1,900.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
2,000.00	0.00	0.00	2,000.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
2,100.00	0.00	0.00	2,100.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
2,200.00	0.00	0.00	2,200.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
2,300.00	0.00	0.00	2,300.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
2,400.00	0.00	0.00	2,400.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
2,500.00	0.00	0.00	2,500.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
2,600.00	0.00	0.00	2,600.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
2,700.00	0.00	0.00	2,700.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
2,800.00	0.00	0.00	2,800.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
2,900.00	0.00	0.00	2,900.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
3,000.00	0.00	0.00	3,000.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
3,100.00	0.00	0.00	3,100.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
3,200.00	0.00	0.00	3,200.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
3,300.00	0.00	0.00	3,300.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
3,400.00	0.00	0.00	3,400.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
3,500.00	0.00	0.00	3,500.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
3,600.00	0.00	0.00	3,600.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
3,700.00	0.00	0.00	3,700.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
3,800.00	0.00	0.00	3,800.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
3,900.00	0.00	0.00	3,900.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
4,000.00	0.00	0.00	4,000.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
4,100.00	0.00	0.00	4,100.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
4,200.00	0.00	0.00	4,200.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
4,300.00	0.00	0.00	4,300.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
4,400.00	0.00	0.00	4,400.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
4,500.00	0.00	0.00	4,500.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
4,600.00	0.00	0.00	4,600.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
4,700.00	0.00	0.00	4,700.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
4,800.00	0.00	0.00	4,800.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
4,900.00	0.00	0.00	4,900.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
5,000.00	0.00	0.00	5,000.00	0.00	0.00	14,527,740.00	1,736,700.83	40.00225413	-104.65617960
KOP Begin 10°/100' build									
5,100.00	10.00	245.21	5,099.49	-3.65	-7.90	14,527,736.36	1,736,692.93	40.00224419	-104.65620787
5,200.00	20.00	245.21	5,195.96	-14.49	-31.37	14,527,725.52	1,736,669.46	40.00221468	-104.65629182

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-1-3L
Company:	Confluence Resources	TVD Reference:	RKB=5139+25 @ 5164.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5139+25 @ 5164.00ft
Site:	Section 34-T01N-R65W	North Reference:	Grid
Well:	Desha 4-1-3L	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	245.21	5,286.48	-32.18	-69.69	14,527,707.82	1,736,631.14	40.00216649	-104.65642889	
5,349.34	34.93	245.21	5,328.10	-43.28	-93.73	14,527,696.72	1,736,607.10	40.00213626	-104.65651489	
Begin 34.93° tangent										
5,400.00	34.93	245.21	5,369.63	-55.45	-120.07	14,527,684.56	1,736,580.76	40.00210314	-104.65660910	
5,500.00	34.93	245.21	5,451.61	-79.45	-172.05	14,527,660.55	1,736,528.78	40.00203776	-104.65679507	
5,600.00	34.93	245.21	5,533.59	-103.46	-224.04	14,527,636.54	1,736,476.79	40.00197238	-104.65698104	
5,700.00	34.93	245.21	5,615.57	-127.47	-276.03	14,527,612.54	1,736,424.80	40.00190700	-104.65716700	
5,800.00	34.93	245.21	5,697.55	-151.48	-328.02	14,527,588.53	1,736,372.81	40.00184162	-104.65735297	
5,900.00	34.93	245.21	5,779.53	-175.49	-380.01	14,527,564.52	1,736,320.82	40.00177624	-104.65753894	
6,000.00	34.93	245.21	5,861.51	-199.49	-431.99	14,527,540.51	1,736,268.84	40.00171086	-104.65772491	
6,100.00	34.93	245.21	5,943.49	-223.50	-483.98	14,527,516.50	1,736,216.85	40.00164548	-104.65791088	
6,200.00	34.93	245.21	6,025.47	-247.51	-535.97	14,527,492.50	1,736,164.86	40.00158010	-104.65809685	
6,300.00	34.93	245.21	6,107.45	-271.52	-587.96	14,527,468.49	1,736,112.87	40.00151472	-104.65828281	
6,400.00	34.93	245.21	6,189.43	-295.52	-639.95	14,527,444.48	1,736,060.88	40.00144934	-104.65846878	
6,500.00	34.93	245.21	6,271.41	-319.53	-691.94	14,527,420.47	1,736,008.89	40.00138396	-104.65865475	
6,600.00	34.93	245.21	6,353.40	-343.54	-743.92	14,527,396.47	1,735,956.91	40.00131857	-104.65884071	
6,700.00	34.93	245.21	6,435.38	-367.55	-795.91	14,527,372.46	1,735,904.92	40.00125319	-104.65902668	
6,800.00	34.93	245.21	6,517.36	-391.56	-847.90	14,527,348.45	1,735,852.93	40.00118781	-104.65921265	
6,900.00	34.93	245.21	6,599.34	-415.56	-899.89	14,527,324.44	1,735,800.94	40.00112242	-104.65939861	
7,000.00	34.93	245.21	6,681.32	-439.57	-951.88	14,527,300.43	1,735,748.95	40.00105704	-104.65958458	
7,100.00	34.93	245.21	6,763.30	-463.58	-1,003.86	14,527,276.43	1,735,696.97	40.00099166	-104.65977054	
7,200.00	34.93	245.21	6,845.28	-487.59	-1,055.85	14,527,252.42	1,735,644.98	40.00092627	-104.65995651	
7,300.00	34.93	245.21	6,927.26	-511.60	-1,107.84	14,527,228.41	1,735,592.99	40.00086089	-104.66014247	
7,400.00	34.93	245.21	7,009.24	-535.60	-1,159.83	14,527,204.40	1,735,541.00	40.00079550	-104.66032843	
7,406.88	34.93	245.21	7,014.88	-537.25	-1,163.40	14,527,202.75	1,735,537.43	40.00079101	-104.66034122	
Begin 10°/100' build/turn										
7,500.00	39.07	231.31	7,089.36	-566.84	-1,210.62	14,527,173.16	1,735,490.21	40.00071025	-104.66051023	
7,600.00	45.01	219.26	7,163.72	-614.04	-1,257.72	14,527,125.96	1,735,443.11	40.00058112	-104.66067905	
7,700.00	51.97	209.65	7,230.04	-675.81	-1,299.69	14,527,064.20	1,735,401.14	40.00041194	-104.66082975	
7,800.00	59.57	201.77	7,286.30	-750.27	-1,335.25	14,526,989.74	1,735,365.58	40.00020784	-104.66095774	
7,900.00	67.58	195.07	7,330.81	-835.15	-1,363.33	14,526,904.86	1,735,337.50	39.99997503	-104.66105915	
8,000.00	75.83	189.11	7,362.21	-927.88	-1,383.07	14,526,812.12	1,735,317.77	39.99972058	-104.66113089	
8,100.00	84.21	183.57	7,379.54	-1,025.65	-1,393.87	14,526,714.36	1,735,306.97	39.99945222	-104.66117077	
8,168.16	89.96	179.91	7,383.00	-1,093.65	-1,395.92	14,526,646.35	1,735,304.91	39.99926549	-104.66117904	
LP Begin 89.96° lateral section										
8,200.00	89.96	179.91	7,383.02	-1,125.49	-1,395.87	14,526,614.52	1,735,304.96	39.99917806	-104.66117929	
8,300.00	89.96	179.91	7,383.08	-1,225.49	-1,395.70	14,526,514.52	1,735,305.13	39.99890345	-104.66118005	
8,400.00	89.96	179.91	7,383.15	-1,325.49	-1,395.54	14,526,414.52	1,735,305.29	39.99862883	-104.66118082	
8,500.00	89.96	179.91	7,383.21	-1,425.49	-1,395.37	14,526,314.52	1,735,305.46	39.99835422	-104.66118158	
8,600.00	89.96	179.91	7,383.28	-1,525.49	-1,395.21	14,526,214.52	1,735,305.62	39.99807960	-104.66118235	
8,700.00	89.96	179.91	7,383.34	-1,625.49	-1,395.04	14,526,114.52	1,735,305.79	39.99780499	-104.66118312	
8,800.00	89.96	179.91	7,383.40	-1,725.49	-1,394.88	14,526,014.52	1,735,305.95	39.99753037	-104.66118388	
8,900.00	89.96	179.91	7,383.47	-1,825.49	-1,394.71	14,525,914.52	1,735,306.12	39.99725576	-104.66118465	
9,000.00	89.96	179.91	7,383.53	-1,925.49	-1,394.55	14,525,814.52	1,735,306.28	39.99698114	-104.66118542	
9,100.00	89.96	179.91	7,383.60	-2,025.49	-1,394.38	14,525,714.52	1,735,306.45	39.99670653	-104.66118618	
9,200.00	89.96	179.91	7,383.66	-2,125.49	-1,394.22	14,525,614.52	1,735,306.62	39.99643191	-104.66118695	
9,300.00	89.96	179.91	7,383.73	-2,225.49	-1,394.05	14,525,514.52	1,735,306.78	39.99615730	-104.66118772	
9,400.00	89.96	179.91	7,383.79	-2,325.49	-1,393.89	14,525,414.52	1,735,306.95	39.99588268	-104.66118848	
9,500.00	89.96	179.91	7,383.85	-2,425.49	-1,393.72	14,525,314.52	1,735,307.11	39.99560806	-104.66118925	
9,600.00	89.96	179.91	7,383.92	-2,525.49	-1,393.55	14,525,214.52	1,735,307.28	39.99533345	-104.66119002	
9,700.00	89.96	179.91	7,383.98	-2,625.49	-1,393.39	14,525,114.52	1,735,307.44	39.99505883	-104.66119078	
9,800.00	89.96	179.91	7,384.05	-2,725.49	-1,393.22	14,525,014.52	1,735,307.61	39.99478422	-104.66119155	
9,900.00	89.96	179.91	7,384.11	-2,825.49	-1,393.06	14,524,914.52	1,735,307.77	39.99450960	-104.66119232	
10,000.00	89.96	179.91	7,384.17	-2,925.49	-1,392.89	14,524,814.53	1,735,307.94	39.99423499	-104.66119308	

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-1-3L
Company:	Confluence Resources	TVD Reference:	RKB=5139+25 @ 5164.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5139+25 @ 5164.00ft
Site:	Section 34-T01N-R65W	North Reference:	Grid
Well:	Desha 4-1-3L	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	89.96	179.91	7,384.24	-3,025.49	-1,392.73	14,524,714.53	1,735,308.10	39.99396037	-104.66119385
10,200.00	89.96	179.91	7,384.30	-3,125.49	-1,392.56	14,524,614.53	1,735,308.27	39.99368576	-104.66119461
10,300.00	89.96	179.91	7,384.37	-3,225.48	-1,392.40	14,524,514.53	1,735,308.44	39.99341114	-104.66119538
10,400.00	89.96	179.91	7,384.43	-3,325.48	-1,392.23	14,524,414.53	1,735,308.60	39.99313652	-104.66119615
10,500.00	89.96	179.91	7,384.49	-3,425.48	-1,392.07	14,524,314.53	1,735,308.77	39.99286191	-104.66119691
10,600.00	89.96	179.91	7,384.56	-3,525.48	-1,391.90	14,524,214.53	1,735,308.93	39.99258729	-104.66119768
10,700.00	89.96	179.91	7,384.62	-3,625.48	-1,391.73	14,524,114.53	1,735,309.10	39.99231268	-104.66119845
10,800.00	89.96	179.91	7,384.69	-3,725.48	-1,391.57	14,524,014.53	1,735,309.26	39.99203806	-104.66119921
10,900.00	89.96	179.91	7,384.75	-3,825.48	-1,391.40	14,523,914.53	1,735,309.43	39.99176345	-104.66119998
11,000.00	89.96	179.91	7,384.81	-3,925.48	-1,391.24	14,523,814.53	1,735,309.59	39.99148883	-104.66120075
11,100.00	89.96	179.91	7,384.88	-4,025.48	-1,391.07	14,523,714.53	1,735,309.76	39.99121422	-104.66120151
11,200.00	89.96	179.91	7,384.94	-4,125.48	-1,390.91	14,523,614.53	1,735,309.92	39.99093960	-104.66120228
11,300.00	89.96	179.91	7,385.01	-4,225.48	-1,390.74	14,523,514.53	1,735,310.09	39.99066498	-104.66120304
11,400.00	89.96	179.91	7,385.07	-4,325.48	-1,390.58	14,523,414.53	1,735,310.25	39.99039037	-104.66120381
11,500.00	89.96	179.91	7,385.13	-4,425.48	-1,390.41	14,523,314.53	1,735,310.42	39.99011575	-104.66120458
11,600.00	89.96	179.91	7,385.20	-4,525.48	-1,390.25	14,523,214.53	1,735,310.59	39.98984114	-104.66120534
11,700.00	89.96	179.91	7,385.26	-4,625.48	-1,390.08	14,523,114.53	1,735,310.75	39.98956652	-104.66120611
11,800.00	89.96	179.91	7,385.33	-4,725.48	-1,389.92	14,523,014.53	1,735,310.92	39.98929190	-104.66120687
11,900.00	89.96	179.91	7,385.39	-4,825.48	-1,389.75	14,522,914.53	1,735,311.08	39.98901729	-104.66120764
12,000.00	89.96	179.91	7,385.46	-4,925.48	-1,389.58	14,522,814.53	1,735,311.25	39.98874267	-104.66120841
12,100.00	89.96	179.91	7,385.52	-5,025.48	-1,389.42	14,522,714.53	1,735,311.41	39.98846806	-104.66120917
12,200.00	89.96	179.91	7,385.58	-5,125.48	-1,389.25	14,522,614.53	1,735,311.58	39.98819344	-104.66120994
12,300.00	89.96	179.91	7,385.65	-5,225.48	-1,389.09	14,522,514.53	1,735,311.74	39.98791883	-104.66121071
12,400.00	89.96	179.91	7,385.71	-5,325.48	-1,388.92	14,522,414.53	1,735,311.91	39.98764421	-104.66121147
12,500.00	89.96	179.91	7,385.78	-5,425.48	-1,388.76	14,522,314.53	1,735,312.07	39.98736959	-104.66121224
12,600.00	89.96	179.91	7,385.84	-5,525.48	-1,388.59	14,522,214.53	1,735,312.24	39.98709498	-104.66121300
12,700.00	89.96	179.91	7,385.90	-5,625.48	-1,388.43	14,522,114.53	1,735,312.40	39.98682036	-104.66121377
12,800.00	89.96	179.91	7,385.97	-5,725.48	-1,388.26	14,522,014.54	1,735,312.57	39.98654575	-104.66121454
12,900.00	89.96	179.91	7,386.03	-5,825.48	-1,388.10	14,521,914.54	1,735,312.74	39.98627113	-104.66121530
13,000.00	89.96	179.91	7,386.10	-5,925.48	-1,387.93	14,521,814.54	1,735,312.90	39.98599651	-104.66121607
13,100.00	89.96	179.91	7,386.16	-6,025.48	-1,387.77	14,521,714.54	1,735,313.07	39.98572190	-104.66121683
13,200.00	89.96	179.91	7,386.22	-6,125.48	-1,387.60	14,521,614.54	1,735,313.23	39.98544728	-104.66121760
13,300.00	89.96	179.91	7,386.29	-6,225.48	-1,387.43	14,521,514.54	1,735,313.40	39.98517267	-104.66121836
13,400.00	89.96	179.91	7,386.35	-6,325.48	-1,387.27	14,521,414.54	1,735,313.56	39.98489805	-104.66121913
13,500.00	89.96	179.91	7,386.42	-6,425.48	-1,387.10	14,521,314.54	1,735,313.73	39.98462343	-104.66121990
13,600.00	89.96	179.91	7,386.48	-6,525.48	-1,386.94	14,521,214.54	1,735,313.89	39.98434882	-104.66122066
13,700.00	89.96	179.91	7,386.54	-6,625.48	-1,386.77	14,521,114.54	1,735,314.06	39.98407420	-104.66122143
13,800.00	89.96	179.91	7,386.61	-6,725.48	-1,386.61	14,521,014.54	1,735,314.22	39.98379959	-104.66122219
13,900.00	89.96	179.91	7,386.67	-6,825.48	-1,386.44	14,520,914.54	1,735,314.39	39.98352497	-104.66122296
14,000.00	89.96	179.91	7,386.74	-6,925.48	-1,386.28	14,520,814.54	1,735,314.56	39.98325035	-104.66122373
14,100.00	89.96	179.91	7,386.80	-7,025.48	-1,386.11	14,520,714.54	1,735,314.72	39.98297574	-104.66122449
14,200.00	89.96	179.91	7,386.86	-7,125.48	-1,385.95	14,520,614.54	1,735,314.89	39.98270112	-104.66122526
14,300.00	89.96	179.91	7,386.93	-7,225.48	-1,385.78	14,520,514.54	1,735,315.05	39.98242651	-104.66122602
14,400.00	89.96	179.91	7,386.99	-7,325.48	-1,385.61	14,520,414.54	1,735,315.22	39.98215189	-104.66122679
14,500.00	89.96	179.91	7,387.06	-7,425.48	-1,385.45	14,520,314.54	1,735,315.38	39.98187727	-104.66122755
14,600.00	89.96	179.91	7,387.12	-7,525.48	-1,385.28	14,520,214.54	1,735,315.55	39.98160266	-104.66122832
14,700.00	89.96	179.91	7,387.19	-7,625.48	-1,385.12	14,520,114.54	1,735,315.71	39.98132804	-104.66122909
14,800.00	89.96	179.91	7,387.25	-7,725.48	-1,384.95	14,520,014.54	1,735,315.88	39.98105343	-104.66122985
14,900.00	89.96	179.91	7,387.31	-7,825.48	-1,384.79	14,519,914.54	1,735,316.04	39.98077881	-104.66123062
15,000.00	89.96	179.91	7,387.38	-7,925.48	-1,384.62	14,519,814.54	1,735,316.21	39.98050419	-104.66123138
15,100.00	89.96	179.91	7,387.44	-8,025.48	-1,384.46	14,519,714.54	1,735,316.37	39.98022958	-104.66123215
15,200.00	89.96	179.91	7,387.51	-8,125.48	-1,384.29	14,519,614.54	1,735,316.54	39.97995496	-104.66123291
15,300.00	89.96	179.91	7,387.57	-8,225.48	-1,384.13	14,519,514.54	1,735,316.71	39.97968034	-104.66123368
15,400.00	89.96	179.91	7,387.63	-8,325.48	-1,383.96	14,519,414.54	1,735,316.87	39.97940573	-104.66123445
15,500.00	89.96	179.91	7,387.70	-8,425.48	-1,383.80	14,519,314.54	1,735,317.04	39.97913111	-104.66123521

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-1-3L
Company:	Confluence Resources	TVD Reference:	RKB=5139+25 @ 5164.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5139+25 @ 5164.00ft
Site:	Section 34-T01N-R65W	North Reference:	Grid
Well:	Desha 4-1-3L	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	89.96	179.91	7,387.76	-8,525.48	-1,383.63	14,519,214.55	1,735,317.20	39.97885650	-104.66123598
15,700.00	89.96	179.91	7,387.83	-8,625.48	-1,383.46	14,519,114.55	1,735,317.37	39.97858188	-104.66123674
15,800.00	89.96	179.91	7,387.89	-8,725.48	-1,383.30	14,519,014.55	1,735,317.53	39.97830726	-104.66123751
15,900.00	89.96	179.91	7,387.95	-8,825.48	-1,383.13	14,518,914.55	1,735,317.70	39.97803265	-104.66123827
16,000.00	89.96	179.91	7,388.02	-8,925.48	-1,382.97	14,518,814.55	1,735,317.86	39.97775803	-104.66123904
16,100.00	89.96	179.91	7,388.08	-9,025.48	-1,382.80	14,518,714.55	1,735,318.03	39.97748341	-104.66123981
16,200.00	89.96	179.91	7,388.15	-9,125.48	-1,382.64	14,518,614.55	1,735,318.19	39.97720880	-104.66124057
16,300.00	89.96	179.91	7,388.21	-9,225.48	-1,382.47	14,518,514.55	1,735,318.36	39.97693418	-104.66124134
16,400.00	89.96	179.91	7,388.27	-9,325.48	-1,382.31	14,518,414.55	1,735,318.53	39.97665956	-104.66124210
16,500.00	89.96	179.91	7,388.34	-9,425.48	-1,382.14	14,518,314.55	1,735,318.69	39.97638495	-104.66124287
16,600.00	89.96	179.91	7,388.40	-9,525.48	-1,381.98	14,518,214.55	1,735,318.86	39.97611033	-104.66124363
16,700.00	89.96	179.91	7,388.47	-9,625.47	-1,381.81	14,518,114.55	1,735,319.02	39.97583572	-104.66124440
16,800.00	89.96	179.91	7,388.53	-9,725.47	-1,381.64	14,518,014.55	1,735,319.19	39.97556110	-104.66124516
16,900.00	89.96	179.91	7,388.59	-9,825.47	-1,381.48	14,517,914.55	1,735,319.35	39.97528648	-104.66124593
17,000.00	89.96	179.91	7,388.66	-9,925.47	-1,381.31	14,517,814.55	1,735,319.52	39.97501187	-104.66124669
17,100.00	89.96	179.91	7,388.72	-10,025.47	-1,381.15	14,517,714.55	1,735,319.68	39.97473725	-104.66124746
17,200.00	89.96	179.91	7,388.79	-10,125.47	-1,380.98	14,517,614.55	1,735,319.85	39.97446263	-104.66124823
17,300.00	89.96	179.91	7,388.85	-10,225.47	-1,380.82	14,517,514.55	1,735,320.01	39.97418802	-104.66124899
17,400.00	89.96	179.91	7,388.92	-10,325.47	-1,380.65	14,517,414.55	1,735,320.18	39.97391340	-104.66124976
17,500.00	89.96	179.91	7,388.98	-10,425.47	-1,380.49	14,517,314.55	1,735,320.34	39.97363878	-104.66125052
17,532.73	89.96	179.91	7,389.00	-10,458.20	-1,380.43	14,517,281.82	1,735,320.40	39.97354891	-104.66125077
PBHL/TD 17532.73 MD/7389.00 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 4-1-3 L 470 FI - plan hits target center - Point	0.00	0.00	7,383.00	-1,093.65	-1,395.92	14,526,646.35	1,735,304.91	39.99926549	-104.66117904
BHL Desha 4-1-3 L 470 - plan hits target center - Point	0.00	0.00	7,389.00	-10,458.20	-1,380.43	14,517,281.82	1,735,320.40	39.97354891	-104.66125077

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	
5,349.34	5,328.10	-43.28	-93.73	Begin 34.93° tangent	
7,406.88	7,014.88	-537.25	-1,163.40	Begin 10°/100' build/turn	
8,168.16	7,383.00	-1,093.65	-1,395.92	LP Begin 89.96° lateral section	
17,532.73	7,389.00	-10,458.20	-1,380.43	PBHL/TD 17532.73 MD/7389.00 TVD	