



Weld County, Colorado
Section 33-T01N-R65W
Desha 4-08-2L
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	5329.87	32.99	127.12	5311.95	-55.75	73.65	10.00	62.86	Begin 32.99° tangent
4	7255.30	32.99	127.12	6926.98	-688.43	909.51	0.00	776.30	Begin 10°/100' build/turn
5	7963.79	89.98	180.12	7269.00	-1229.89	1085.60	10.00	1332.71	LP Begin 89.98° lateral section
6	17299.56	89.98	180.12	7273.00	-10565.64	1066.64	0.00	10619.34	PBHL/TD 17299.56 MD/7273.00 TVD

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
LP Desha 4-8-2L 470 FNL 1530 FWL	7269.00	-1229.89	1085.6014526625.74	1732013.46	39.99924265	-104.67293203	
BHL Desha 4-8-2L 470 FSL 1530 FWL	7273.00	-10565.64	1066.6414517290.00	1732028.35	39.97360511	-104.67300112	

Desha 4-08-2L			
Surf loc: 760 FSL 450 FWL Section 33-T01N-R65W			
NAD83 Colorado - HARN			
Universal Transverse Mercator (US Survey Feet)			
Zone 13N (108 W to 102 W)			
RKB=5077+25 @ 5102.00ft			
Northing	Easting	Latitude	Longitude
14527851.68	1730923.41	40.00262018	-104.67680838

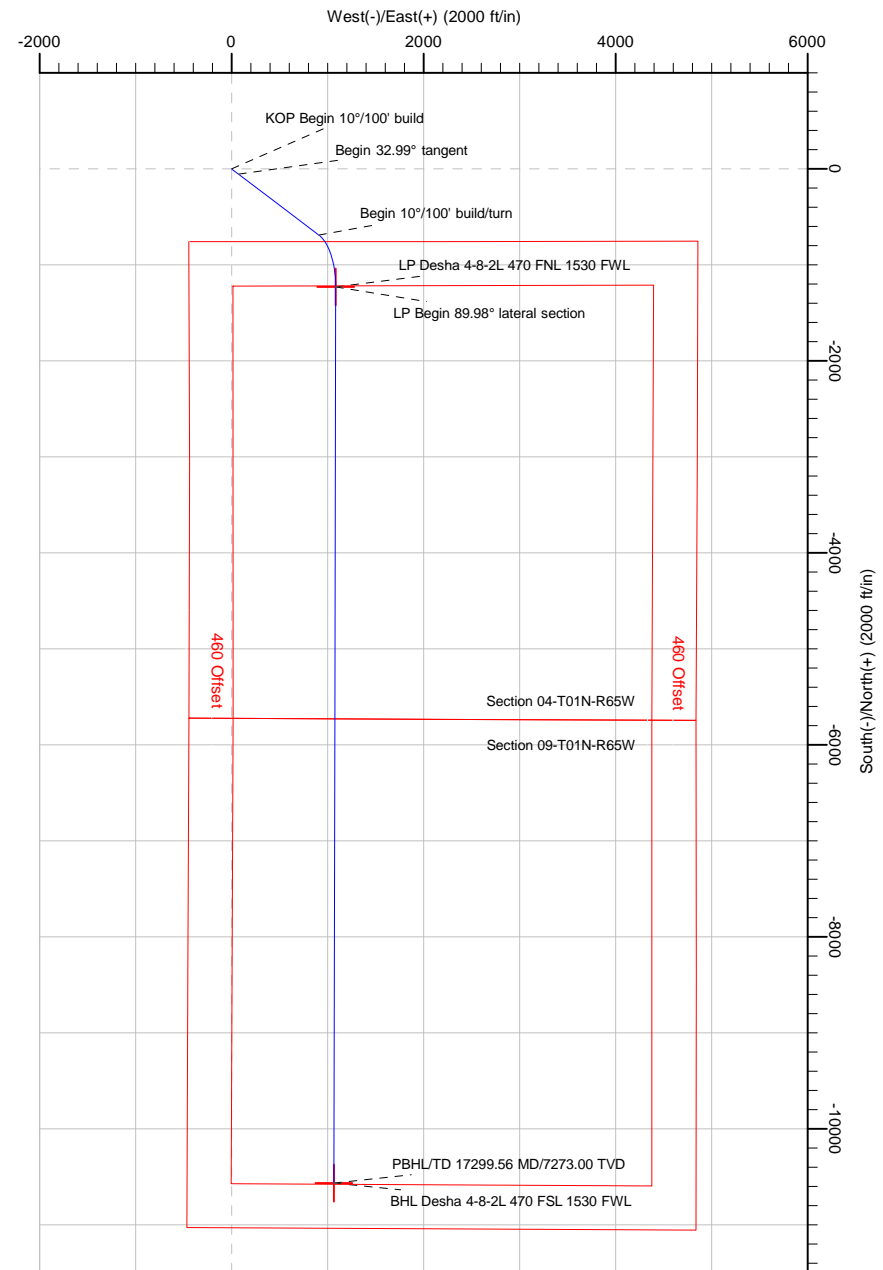
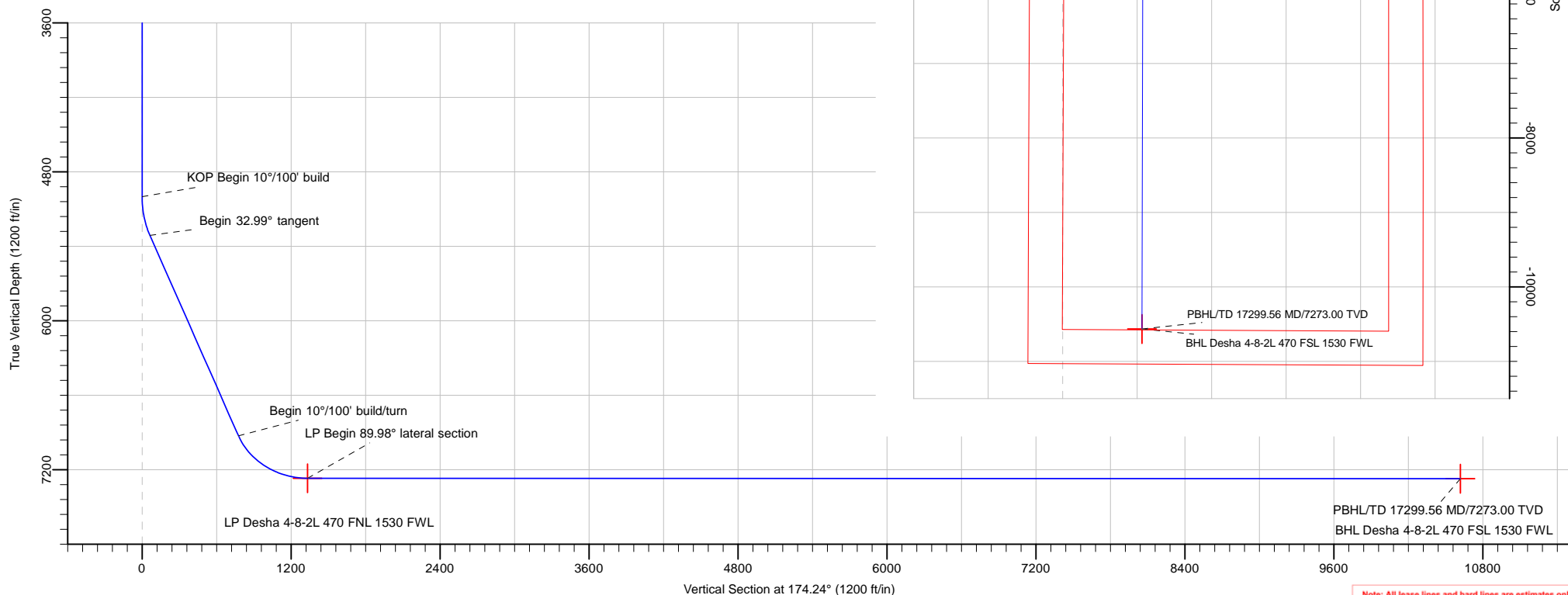
Azimuth Corrections:

To convert a Magnetic Direction to a True Direction, Add 8.28° East



Azimuths to True North
Magnetic North: 8.28°

Magnetic Field
Strength: 52146.2snT
Dip Angle: 66.45°
Date: 5/29/2017
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 4-08-2L
Company:	Confluence Resources	TVD Reference:	RKB=5077+25 @ 5102.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5077+25 @ 5102.00ft
Site:	Section 33-T01N-R65W	North Reference:	True
Well:	Desha 4-08-2L	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 33-T01N-R65W			
Site Position:		Northing:	14,527,751.12 usft	Latitude:	40.00234552
From:	Map	Easting:	1,730,774.27 usft	Longitude:	-104.67734224
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.21 °

Well	Desha 4-08-2L, Surf loc: 760 FSL 450 FWL Section 33-T01N-R65W					
Well Position	+N/-S	100.02 ft	Northing:	14,527,851.68 usft	Latitude:	40.00262019
	+E/-W	149.50 ft	Easting:	1,730,923.41 usft	Longitude:	-104.67680838
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	5,077.00 ft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	5/29/2017	8.28	66.45	52,146.20000000

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	174.24

Plan Survey Tool Program	Date	8/29/2017		
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	17,299.56	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	
5,329.87	32.99	127.12	5,311.95	-55.75	73.65	10.00	10.00	0.00	127.12	
7,255.30	32.99	127.12	6,926.98	-688.43	909.51	0.00	0.00	0.00	0.00	
7,963.79	89.98	180.12	7,269.00	-1,229.89	1,085.60	10.00	8.04	7.48	57.71	LP Desha 4-8-2L 470
17,299.56	89.98	180.12	7,273.00	-10,565.64	1,066.64	0.00	0.00	0.00	0.00	BHL Desha 4-8-2L 47

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-08-2L
Company:	Confluence Resources	TVD Reference:	RKB=5077+25 @ 5102.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5077+25 @ 5102.00ft
Site:	Section 33-T01N-R65W	North Reference:	True
Well:	Desha 4-08-2L	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	127.12	5,099.49	-5.25	6.94	5.92	10.00	10.00	0.00
5,200.00	20.00	127.12	5,195.96	-20.85	27.55	23.52	10.00	10.00	0.00

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Company:	Confluence Resources	TVD Reference:	RKB=5077+25 @ 5102.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5077+25 @ 5102.00ft
Site:	Section 33-T01N-R65W	North Reference:	True
Well:	Desha 4-08-2L	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	127.12	5,286.48	-46.33	61.21	52.24	10.00	10.00	0.00
5,329.87	32.99	127.12	5,311.95	-55.75	73.65	62.86	10.00	10.00	0.00
Begin 32.99° tangent									
5,400.00	32.99	127.12	5,370.77	-78.79	104.09	88.85	0.00	0.00	0.00
5,500.00	32.99	127.12	5,454.65	-111.65	147.50	125.90	0.00	0.00	0.00
5,600.00	32.99	127.12	5,538.53	-144.51	190.91	162.95	0.00	0.00	0.00
5,700.00	32.99	127.12	5,622.41	-177.37	234.33	200.01	0.00	0.00	0.00
5,800.00	32.99	127.12	5,706.29	-210.23	277.74	237.06	0.00	0.00	0.00
5,900.00	32.99	127.12	5,790.17	-243.09	321.15	274.11	0.00	0.00	0.00
6,000.00	32.99	127.12	5,874.05	-275.94	364.56	311.17	0.00	0.00	0.00
6,100.00	32.99	127.12	5,957.92	-308.80	407.97	348.22	0.00	0.00	0.00
6,200.00	32.99	127.12	6,041.80	-341.66	451.38	385.27	0.00	0.00	0.00
6,300.00	32.99	127.12	6,125.68	-374.52	494.79	422.33	0.00	0.00	0.00
6,400.00	32.99	127.12	6,209.56	-407.38	538.21	459.38	0.00	0.00	0.00
6,500.00	32.99	127.12	6,293.44	-440.24	581.62	496.43	0.00	0.00	0.00
6,600.00	32.99	127.12	6,377.32	-473.10	625.03	533.49	0.00	0.00	0.00
6,700.00	32.99	127.12	6,461.20	-505.96	668.44	570.54	0.00	0.00	0.00
6,800.00	32.99	127.12	6,545.08	-538.82	711.85	607.59	0.00	0.00	0.00
6,900.00	32.99	127.12	6,628.96	-571.68	755.26	644.65	0.00	0.00	0.00
7,000.00	32.99	127.12	6,712.84	-604.54	798.68	681.70	0.00	0.00	0.00
7,100.00	32.99	127.12	6,796.72	-637.40	842.09	718.76	0.00	0.00	0.00
7,200.00	32.99	127.12	6,880.59	-670.26	885.50	755.81	0.00	0.00	0.00
7,255.30	32.99	127.12	6,926.98	-688.43	909.51	776.30	0.00	0.00	0.00
Begin 10°/100' build/turn									
7,300.00	35.55	133.63	6,963.93	-704.75	928.62	794.46	10.00	5.74	14.55
7,400.00	42.31	145.41	7,041.78	-752.64	968.88	846.15	10.00	6.76	11.78
7,500.00	49.99	154.33	7,111.08	-815.02	1,004.66	911.81	10.00	7.68	8.92
7,600.00	58.20	161.38	7,169.72	-889.99	1,034.90	989.44	10.00	8.22	7.05
7,700.00	66.74	167.26	7,215.93	-975.29	1,058.66	1,076.69	10.00	8.54	5.87
7,800.00	75.48	172.41	7,248.29	-1,068.31	1,075.23	1,170.91	10.00	8.73	5.16
7,900.00	84.32	177.17	7,265.82	-1,166.23	1,084.10	1,269.22	10.00	8.84	4.76
7,963.79	89.98	180.12	7,269.00	-1,229.89	1,085.60	1,332.71	10.00	8.87	4.62
LP Begin 89.98° lateral section									
8,000.00	89.98	180.12	7,269.02	-1,266.10	1,085.53	1,368.73	0.00	0.00	0.00
8,100.00	89.98	180.12	7,269.06	-1,366.10	1,085.32	1,468.21	0.00	0.00	0.00
8,200.00	89.98	180.12	7,269.10	-1,466.10	1,085.12	1,567.68	0.00	0.00	0.00
8,300.00	89.98	180.12	7,269.14	-1,566.10	1,084.92	1,667.15	0.00	0.00	0.00
8,400.00	89.98	180.12	7,269.19	-1,666.10	1,084.71	1,766.63	0.00	0.00	0.00
8,500.00	89.98	180.12	7,269.23	-1,766.10	1,084.51	1,866.10	0.00	0.00	0.00
8,600.00	89.98	180.12	7,269.27	-1,866.10	1,084.31	1,965.57	0.00	0.00	0.00
8,700.00	89.98	180.12	7,269.32	-1,966.10	1,084.10	2,065.05	0.00	0.00	0.00
8,800.00	89.98	180.12	7,269.36	-2,066.10	1,083.90	2,164.52	0.00	0.00	0.00
8,900.00	89.98	180.12	7,269.40	-2,166.10	1,083.70	2,263.99	0.00	0.00	0.00
9,000.00	89.98	180.12	7,269.44	-2,266.10	1,083.49	2,363.47	0.00	0.00	0.00
9,100.00	89.98	180.12	7,269.49	-2,366.10	1,083.29	2,462.94	0.00	0.00	0.00
9,200.00	89.98	180.12	7,269.53	-2,466.10	1,083.09	2,562.42	0.00	0.00	0.00
9,300.00	89.98	180.12	7,269.57	-2,566.10	1,082.89	2,661.89	0.00	0.00	0.00
9,400.00	89.98	180.12	7,269.62	-2,666.10	1,082.68	2,761.36	0.00	0.00	0.00
9,500.00	89.98	180.12	7,269.66	-2,766.10	1,082.48	2,860.84	0.00	0.00	0.00
9,600.00	89.98	180.12	7,269.70	-2,866.10	1,082.28	2,960.31	0.00	0.00	0.00
9,700.00	89.98	180.12	7,269.74	-2,966.10	1,082.07	3,059.78	0.00	0.00	0.00
9,800.00	89.98	180.12	7,269.79	-3,066.10	1,081.87	3,159.26	0.00	0.00	0.00
9,900.00	89.98	180.12	7,269.83	-3,166.10	1,081.67	3,258.73	0.00	0.00	0.00

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Company:	Confluence Resources	TVD Reference:	RKB=5077+25 @ 5102.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5077+25 @ 5102.00ft
Site:	Section 33-T01N-R65W	North Reference:	True
Well:	Desha 4-08-2L	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	180.12	7,269.87	-3,266.10	1,081.46	3,358.21	0.00	0.00	0.00
10,100.00	89.98	180.12	7,269.92	-3,366.10	1,081.26	3,457.68	0.00	0.00	0.00
10,200.00	89.98	180.12	7,269.96	-3,466.10	1,081.06	3,557.15	0.00	0.00	0.00
10,300.00	89.98	180.12	7,270.00	-3,566.10	1,080.85	3,656.63	0.00	0.00	0.00
10,400.00	89.98	180.12	7,270.04	-3,666.10	1,080.65	3,756.10	0.00	0.00	0.00
10,500.00	89.98	180.12	7,270.09	-3,766.10	1,080.45	3,855.57	0.00	0.00	0.00
10,600.00	89.98	180.12	7,270.13	-3,866.10	1,080.24	3,955.05	0.00	0.00	0.00
10,700.00	89.98	180.12	7,270.17	-3,966.10	1,080.04	4,054.52	0.00	0.00	0.00
10,800.00	89.98	180.12	7,270.22	-4,066.10	1,079.84	4,153.99	0.00	0.00	0.00
10,900.00	89.98	180.12	7,270.26	-4,166.10	1,079.64	4,253.47	0.00	0.00	0.00
11,000.00	89.98	180.12	7,270.30	-4,266.09	1,079.43	4,352.94	0.00	0.00	0.00
11,100.00	89.98	180.12	7,270.34	-4,366.09	1,079.23	4,452.42	0.00	0.00	0.00
11,200.00	89.98	180.12	7,270.39	-4,466.09	1,079.03	4,551.89	0.00	0.00	0.00
11,300.00	89.98	180.12	7,270.43	-4,566.09	1,078.82	4,651.36	0.00	0.00	0.00
11,400.00	89.98	180.12	7,270.47	-4,666.09	1,078.62	4,750.84	0.00	0.00	0.00
11,500.00	89.98	180.12	7,270.52	-4,766.09	1,078.42	4,850.31	0.00	0.00	0.00
11,600.00	89.98	180.12	7,270.56	-4,866.09	1,078.21	4,949.78	0.00	0.00	0.00
11,700.00	89.98	180.12	7,270.60	-4,966.09	1,078.01	5,049.26	0.00	0.00	0.00
11,800.00	89.98	180.12	7,270.64	-5,066.09	1,077.81	5,148.73	0.00	0.00	0.00
11,900.00	89.98	180.12	7,270.69	-5,166.09	1,077.60	5,248.20	0.00	0.00	0.00
12,000.00	89.98	180.12	7,270.73	-5,266.09	1,077.40	5,347.68	0.00	0.00	0.00
12,100.00	89.98	180.12	7,270.77	-5,366.09	1,077.20	5,447.15	0.00	0.00	0.00
12,200.00	89.98	180.12	7,270.82	-5,466.09	1,076.99	5,546.63	0.00	0.00	0.00
12,300.00	89.98	180.12	7,270.86	-5,566.09	1,076.79	5,646.10	0.00	0.00	0.00
12,400.00	89.98	180.12	7,270.90	-5,666.09	1,076.59	5,745.57	0.00	0.00	0.00
12,500.00	89.98	180.12	7,270.94	-5,766.09	1,076.39	5,845.05	0.00	0.00	0.00
12,600.00	89.98	180.12	7,270.99	-5,866.09	1,076.18	5,944.52	0.00	0.00	0.00
12,700.00	89.98	180.12	7,271.03	-5,966.09	1,075.98	6,043.99	0.00	0.00	0.00
12,800.00	89.98	180.12	7,271.07	-6,066.09	1,075.78	6,143.47	0.00	0.00	0.00
12,900.00	89.98	180.12	7,271.12	-6,166.09	1,075.57	6,242.94	0.00	0.00	0.00
13,000.00	89.98	180.12	7,271.16	-6,266.09	1,075.37	6,342.42	0.00	0.00	0.00
13,100.00	89.98	180.12	7,271.20	-6,366.09	1,075.17	6,441.89	0.00	0.00	0.00
13,200.00	89.98	180.12	7,271.24	-6,466.09	1,074.96	6,541.36	0.00	0.00	0.00
13,300.00	89.98	180.12	7,271.29	-6,566.09	1,074.76	6,640.84	0.00	0.00	0.00
13,400.00	89.98	180.12	7,271.33	-6,666.09	1,074.56	6,740.31	0.00	0.00	0.00
13,500.00	89.98	180.12	7,271.37	-6,766.09	1,074.35	6,839.78	0.00	0.00	0.00
13,600.00	89.98	180.12	7,271.42	-6,866.09	1,074.15	6,939.26	0.00	0.00	0.00
13,700.00	89.98	180.12	7,271.46	-6,966.09	1,073.95	7,038.73	0.00	0.00	0.00
13,800.00	89.98	180.12	7,271.50	-7,066.09	1,073.74	7,138.20	0.00	0.00	0.00
13,900.00	89.98	180.12	7,271.54	-7,166.09	1,073.54	7,237.68	0.00	0.00	0.00
14,000.00	89.98	180.12	7,271.59	-7,266.09	1,073.34	7,337.15	0.00	0.00	0.00
14,100.00	89.98	180.12	7,271.63	-7,366.09	1,073.13	7,436.63	0.00	0.00	0.00
14,200.00	89.98	180.12	7,271.67	-7,466.09	1,072.93	7,536.10	0.00	0.00	0.00
14,300.00	89.98	180.12	7,271.71	-7,566.09	1,072.73	7,635.57	0.00	0.00	0.00
14,400.00	89.98	180.12	7,271.76	-7,666.09	1,072.53	7,735.05	0.00	0.00	0.00
14,500.00	89.98	180.12	7,271.80	-7,766.09	1,072.32	7,834.52	0.00	0.00	0.00
14,600.00	89.98	180.12	7,271.84	-7,866.09	1,072.12	7,933.99	0.00	0.00	0.00
14,700.00	89.98	180.12	7,271.89	-7,966.09	1,071.92	8,033.47	0.00	0.00	0.00
14,800.00	89.98	180.12	7,271.93	-8,066.09	1,071.71	8,132.94	0.00	0.00	0.00
14,900.00	89.98	180.12	7,271.97	-8,166.09	1,071.51	8,232.41	0.00	0.00	0.00
15,000.00	89.98	180.12	7,272.01	-8,266.09	1,071.31	8,331.89	0.00	0.00	0.00
15,100.00	89.98	180.12	7,272.06	-8,366.09	1,071.10	8,431.36	0.00	0.00	0.00
15,200.00	89.98	180.12	7,272.10	-8,466.09	1,070.90	8,530.84	0.00	0.00	0.00
15,300.00	89.98	180.12	7,272.14	-8,566.09	1,070.70	8,630.31	0.00	0.00	0.00

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-08-2L
Company:	Confluence Resources	TVD Reference:	RKB=5077+25 @ 5102.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5077+25 @ 5102.00ft
Site:	Section 33-T01N-R65W	North Reference:	True
Well:	Desha 4-08-2L	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	180.12	7,272.19	-8,666.09	1,070.49	8,729.78	0.00	0.00	0.00
15,500.00	89.98	180.12	7,272.23	-8,766.09	1,070.29	8,829.26	0.00	0.00	0.00
15,600.00	89.98	180.12	7,272.27	-8,866.09	1,070.09	8,928.73	0.00	0.00	0.00
15,700.00	89.98	180.12	7,272.31	-8,966.08	1,069.88	9,028.20	0.00	0.00	0.00
15,800.00	89.98	180.12	7,272.36	-9,066.08	1,069.68	9,127.68	0.00	0.00	0.00
15,900.00	89.98	180.12	7,272.40	-9,166.08	1,069.48	9,227.15	0.00	0.00	0.00
16,000.00	89.98	180.12	7,272.44	-9,266.08	1,069.28	9,326.63	0.00	0.00	0.00
16,100.00	89.98	180.12	7,272.49	-9,366.08	1,069.07	9,426.10	0.00	0.00	0.00
16,200.00	89.98	180.12	7,272.53	-9,466.08	1,068.87	9,525.57	0.00	0.00	0.00
16,300.00	89.98	180.12	7,272.57	-9,566.08	1,068.67	9,625.05	0.00	0.00	0.00
16,400.00	89.98	180.12	7,272.61	-9,666.08	1,068.46	9,724.52	0.00	0.00	0.00
16,500.00	89.98	180.12	7,272.66	-9,766.08	1,068.26	9,823.99	0.00	0.00	0.00
16,600.00	89.98	180.12	7,272.70	-9,866.08	1,068.06	9,923.47	0.00	0.00	0.00
16,700.00	89.98	180.12	7,272.74	-9,966.08	1,067.85	10,022.94	0.00	0.00	0.00
16,800.00	89.98	180.12	7,272.79	-10,066.08	1,067.65	10,122.41	0.00	0.00	0.00
16,900.00	89.98	180.12	7,272.83	-10,166.08	1,067.45	10,221.89	0.00	0.00	0.00
17,000.00	89.98	180.12	7,272.87	-10,266.08	1,067.24	10,321.36	0.00	0.00	0.00
17,100.00	89.98	180.12	7,272.91	-10,366.08	1,067.04	10,420.84	0.00	0.00	0.00
17,200.00	89.98	180.12	7,272.96	-10,466.08	1,066.84	10,520.31	0.00	0.00	0.00
17,299.56	89.98	180.12	7,273.00	-10,565.64	1,066.64	10,619.34	0.00	0.00	0.00
PBHL/TD 17299.56 MD/7273.00 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 4-8-2L 470 F	0.00	0.00	7,269.00	-1,229.89	1,085.60	14,526,625.74	1,732,013.46	39.99924265	-104.67293203
- plan hits target center									
- Point									
BHL Desha 4-8-2L 470 F	0.00	0.00	7,273.00	-10,565.64	1,066.64	14,517,290.00	1,732,028.35	39.97360512	-104.67300112
- 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	
5,329.87	5,311.95	-55.75	73.65	Begin 32.99° tangent	
7,255.30	6,926.98	-688.43	909.51	Begin 10°/100' build/turn	
7,963.79	7,269.00	-1,229.89	1,085.60	LP Begin 89.98° lateral section	
17,299.56	7,273.00	-10,565.64	1,066.64	PBHL/TD 17299.56 MD/7273.00 TVD	

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-08-2L
Company:	Confluence Resources	TVD Reference:	RKB=5077+25 @ 5102.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5077+25 @ 5102.00ft
Site:	Section 33-T01N-R65W	North Reference:	True
Well:	Desha 4-08-2L	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 33-T01N-R65W			
Site Position:		Northing:	14,527,751.12 usft	Latitude:	40.00234552
From:	Map	Easting:	1,730,774.27 usft	Longitude:	-104.67734224
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.21 °

Well	Desha 4-08-2L, Surf loc: 760 FSL 450 FWL Section 33-T01N-R65W					
Well Position	+N/-S	0.00 ft	Northing:	14,527,851.68 usft	Latitude:	40.00262019
	+E/-W	0.00 ft	Easting:	1,730,923.41 usft	Longitude:	-104.67680838
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	5,077.00 ft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	5/29/2017	8.28	66.45	52,146.20000000

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	174.24

Plan Survey Tool Program	Date	8/29/2017		
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	17,299.56 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	
5,329.87	32.99	127.12	5,311.95	-55.75	73.65	10.00	10.00	0.00	127.12	
7,255.30	32.99	127.12	6,926.98	-688.43	909.51	0.00	0.00	0.00	0.00	
7,963.79	89.98	180.12	7,269.00	-1,229.89	1,085.60	10.00	8.04	7.48	57.71	LP Desha 4-8-2L 470
17,299.56	89.98	180.12	7,273.00	-10,565.64	1,066.64	0.00	0.00	0.00	0.00	BHL Desha 4-8-2L 47

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-08-2L
Company:	Confluence Resources	TVD Reference:	RKB=5077+25 @ 5102.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5077+25 @ 5102.00ft
Site:	Section 33-T01N-R65W	North Reference:	True
Well:	Desha 4-08-2L	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	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
100.00	0.00	0.00	100.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
200.00	0.00	0.00	200.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
300.00	0.00	0.00	300.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
400.00	0.00	0.00	400.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
500.00	0.00	0.00	500.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
600.00	0.00	0.00	600.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
700.00	0.00	0.00	700.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
800.00	0.00	0.00	800.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
900.00	0.00	0.00	900.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
1,100.00	0.00	0.00	1,100.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
1,200.00	0.00	0.00	1,200.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
1,300.00	0.00	0.00	1,300.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
1,400.00	0.00	0.00	1,400.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
1,500.00	0.00	0.00	1,500.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
1,600.00	0.00	0.00	1,600.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
1,700.00	0.00	0.00	1,700.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
1,800.00	0.00	0.00	1,800.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
1,900.00	0.00	0.00	1,900.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
2,000.00	0.00	0.00	2,000.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
2,100.00	0.00	0.00	2,100.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
2,200.00	0.00	0.00	2,200.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
2,300.00	0.00	0.00	2,300.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
2,400.00	0.00	0.00	2,400.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
2,500.00	0.00	0.00	2,500.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
2,600.00	0.00	0.00	2,600.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
2,700.00	0.00	0.00	2,700.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
2,800.00	0.00	0.00	2,800.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
2,900.00	0.00	0.00	2,900.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
3,000.00	0.00	0.00	3,000.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
3,100.00	0.00	0.00	3,100.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
3,200.00	0.00	0.00	3,200.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
3,300.00	0.00	0.00	3,300.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
3,400.00	0.00	0.00	3,400.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
3,500.00	0.00	0.00	3,500.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
3,600.00	0.00	0.00	3,600.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
3,700.00	0.00	0.00	3,700.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
3,800.00	0.00	0.00	3,800.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
3,900.00	0.00	0.00	3,900.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
4,000.00	0.00	0.00	4,000.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
4,100.00	0.00	0.00	4,100.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
4,200.00	0.00	0.00	4,200.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
4,300.00	0.00	0.00	4,300.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
4,400.00	0.00	0.00	4,400.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
4,500.00	0.00	0.00	4,500.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
4,600.00	0.00	0.00	4,600.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
4,700.00	0.00	0.00	4,700.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
4,800.00	0.00	0.00	4,800.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
4,900.00	0.00	0.00	4,900.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
5,000.00	0.00	0.00	5,000.00	0.00	0.00	14,527,851.68	1,730,923.41	40.00262019	-104.67680838
KOP Begin 10°/100' build									
5,100.00	10.00	127.12	5,099.49	-5.25	6.94	14,527,846.46	1,730,930.37	40.00260576	-104.67678360
5,200.00	20.00	127.12	5,195.96	-20.85	27.55	14,527,830.93	1,730,951.04	40.00256292	-104.67671000

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-08-2L
Company:	Confluence Resources	TVD Reference:	RKB=5077+25 @ 5102.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5077+25 @ 5102.00ft
Site:	Section 33-T01N-R65W	North Reference:	True
Well:	Desha 4-08-2L	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	127.12	5,286.48	-46.33	61.21	14,527,805.58	1,730,984.78	40.00249296	-104.67658982
5,329.87	32.99	127.12	5,311.95	-55.75	73.65	14,527,796.21	1,730,997.26	40.00246710	-104.67654539
Begin 32.99° tangent									
5,400.00	32.99	127.12	5,370.77	-78.79	104.09	14,527,773.27	1,731,027.78	40.00240382	-104.67643669
5,500.00	32.99	127.12	5,454.65	-111.65	147.50	14,527,740.57	1,731,071.31	40.00231358	-104.67628167
5,600.00	32.99	127.12	5,538.53	-144.51	190.91	14,527,707.87	1,731,114.84	40.00222335	-104.67612665
5,700.00	32.99	127.12	5,622.41	-177.37	234.33	14,527,675.17	1,731,158.37	40.00213311	-104.67597164
5,800.00	32.99	127.12	5,706.29	-210.23	277.74	14,527,642.47	1,731,201.91	40.00204287	-104.67581662
5,900.00	32.99	127.12	5,790.17	-243.09	321.15	14,527,609.77	1,731,245.44	40.00195263	-104.67566161
6,000.00	32.99	127.12	5,874.05	-275.94	364.56	14,527,577.06	1,731,288.97	40.00186239	-104.67550660
6,100.00	32.99	127.12	5,957.92	-308.80	407.97	14,527,544.36	1,731,332.50	40.00177215	-104.67535158
6,200.00	32.99	127.12	6,041.80	-341.66	451.38	14,527,511.66	1,731,376.03	40.00168191	-104.67519657
6,300.00	32.99	127.12	6,125.68	-374.52	494.79	14,527,478.96	1,731,419.56	40.00159168	-104.67504156
6,400.00	32.99	127.12	6,209.56	-407.38	538.21	14,527,446.26	1,731,463.09	40.00150144	-104.67488654
6,500.00	32.99	127.12	6,293.44	-440.24	581.62	14,527,413.56	1,731,506.62	40.00141120	-104.67473153
6,600.00	32.99	127.12	6,377.32	-473.10	625.03	14,527,380.85	1,731,550.15	40.00132096	-104.67457652
6,700.00	32.99	127.12	6,461.20	-505.96	668.44	14,527,348.15	1,731,593.68	40.00123072	-104.67442151
6,800.00	32.99	127.12	6,545.08	-538.82	711.85	14,527,315.45	1,731,637.21	40.00114048	-104.67426650
6,900.00	32.99	127.12	6,628.96	-571.68	755.26	14,527,282.75	1,731,680.74	40.00105024	-104.67411149
7,000.00	32.99	127.12	6,712.84	-604.54	798.68	14,527,250.05	1,731,724.27	40.00096000	-104.67395648
7,100.00	32.99	127.12	6,796.72	-637.40	842.09	14,527,217.35	1,731,767.80	40.00086975	-104.67380147
7,200.00	32.99	127.12	6,880.59	-670.26	885.50	14,527,184.65	1,731,811.33	40.00077951	-104.67364646
7,255.30	32.99	127.12	6,926.98	-688.43	909.51	14,527,166.56	1,731,835.40	40.00072961	-104.67356074
Begin 10°/100' build/turn									
7,300.00	35.55	133.63	6,963.93	-704.75	928.62	14,527,150.31	1,731,854.58	40.00068479	-104.67349247
7,400.00	42.31	145.41	7,041.78	-752.64	968.88	14,527,102.57	1,731,895.01	40.00055328	-104.67334874
7,500.00	49.99	154.33	7,111.08	-815.02	1,004.66	14,527,040.32	1,731,931.02	40.00038196	-104.67322097
7,600.00	58.20	161.38	7,169.72	-889.99	1,034.90	14,526,965.45	1,731,961.52	40.00017606	-104.67311302
7,700.00	66.74	167.26	7,215.93	-975.29	1,058.66	14,526,880.24	1,731,985.60	39.99994182	-104.67302819
7,800.00	75.48	172.41	7,248.29	-1,068.31	1,075.23	14,526,787.28	1,732,002.50	39.99968637	-104.67296904
7,900.00	84.32	177.17	7,265.82	-1,166.23	1,084.10	14,526,689.39	1,732,011.72	39.99941746	-104.67293739
7,963.79	89.98	180.12	7,269.00	-1,229.89	1,085.60	14,526,625.74	1,732,013.46	39.99924265	-104.67293203
LP Begin 89.98° lateral section									
8,000.00	89.98	180.12	7,269.02	-1,266.10	1,085.53	14,526,589.53	1,732,013.52	39.99914321	-104.67293230
8,100.00	89.98	180.12	7,269.06	-1,366.10	1,085.32	14,526,489.53	1,732,013.68	39.99886859	-104.67293304
8,200.00	89.98	180.12	7,269.10	-1,466.10	1,085.12	14,526,389.53	1,732,013.84	39.99859397	-104.67293378
8,300.00	89.98	180.12	7,269.14	-1,566.10	1,084.92	14,526,289.53	1,732,013.99	39.99831936	-104.67293452
8,400.00	89.98	180.12	7,269.19	-1,666.10	1,084.71	14,526,189.53	1,732,014.15	39.99804474	-104.67293526
8,500.00	89.98	180.12	7,269.23	-1,766.10	1,084.51	14,526,089.53	1,732,014.31	39.99777013	-104.67293600
8,600.00	89.98	180.12	7,269.27	-1,866.10	1,084.31	14,525,989.53	1,732,014.47	39.99749551	-104.67293674
8,700.00	89.98	180.12	7,269.32	-1,966.10	1,084.10	14,525,889.53	1,732,014.63	39.99722090	-104.67293748
8,800.00	89.98	180.12	7,269.36	-2,066.10	1,083.90	14,525,789.53	1,732,014.79	39.99694628	-104.67293822
8,900.00	89.98	180.12	7,269.40	-2,166.10	1,083.70	14,525,689.53	1,732,014.95	39.99667166	-104.67293896
9,000.00	89.98	180.12	7,269.44	-2,266.10	1,083.49	14,525,589.53	1,732,015.11	39.99639705	-104.67293970
9,100.00	89.98	180.12	7,269.49	-2,366.10	1,083.29	14,525,489.53	1,732,015.27	39.99612243	-104.67294044
9,200.00	89.98	180.12	7,269.53	-2,466.10	1,083.09	14,525,389.53	1,732,015.43	39.99584782	-104.67294118
9,300.00	89.98	180.12	7,269.57	-2,566.10	1,082.89	14,525,289.53	1,732,015.59	39.99557320	-104.67294193
9,400.00	89.98	180.12	7,269.62	-2,666.10	1,082.68	14,525,189.54	1,732,015.75	39.99529859	-104.67294267
9,500.00	89.98	180.12	7,269.66	-2,766.10	1,082.48	14,525,089.54	1,732,015.91	39.99502397	-104.67294341
9,600.00	89.98	180.12	7,269.70	-2,866.10	1,082.28	14,524,989.54	1,732,016.07	39.99474935	-104.67294415
9,700.00	89.98	180.12	7,269.74	-2,966.10	1,082.07	14,524,889.54	1,732,016.23	39.99447474	-104.67294489
9,800.00	89.98	180.12	7,269.79	-3,066.10	1,081.87	14,524,789.54	1,732,016.39	39.99420012	-104.67294563
9,900.00	89.98	180.12	7,269.83	-3,166.10	1,081.67	14,524,689.54	1,732,016.55	39.99392551	-104.67294637
10,000.00	89.98	180.12	7,269.87	-3,266.10	1,081.46	14,524,589.54	1,732,016.71	39.99365089	-104.67294711

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-08-2L
Company:	Confluence Resources	TVD Reference:	RKB=5077+25 @ 5102.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5077+25 @ 5102.00ft
Site:	Section 33-T01N-R65W	North Reference:	True
Well:	Desha 4-08-2L	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	180.12	7,269.92	-3,366.10	1,081.26	14,524,489.54	1,732,016.87	39.99337627	-104.67294785
10,200.00	89.98	180.12	7,269.96	-3,466.10	1,081.06	14,524,389.54	1,732,017.03	39.99310166	-104.67294859
10,300.00	89.98	180.12	7,270.00	-3,566.10	1,080.85	14,524,289.54	1,732,017.18	39.99282704	-104.67294933
10,400.00	89.98	180.12	7,270.04	-3,666.10	1,080.65	14,524,189.54	1,732,017.34	39.99255243	-104.67295007
10,500.00	89.98	180.12	7,270.09	-3,766.10	1,080.45	14,524,089.54	1,732,017.50	39.99227781	-104.67295081
10,600.00	89.98	180.12	7,270.13	-3,866.10	1,080.24	14,523,989.54	1,732,017.66	39.99200320	-104.67295155
10,700.00	89.98	180.12	7,270.17	-3,966.10	1,080.04	14,523,889.54	1,732,017.82	39.99172858	-104.67295229
10,800.00	89.98	180.12	7,270.22	-4,066.10	1,079.84	14,523,789.54	1,732,017.98	39.99145396	-104.67295303
10,900.00	89.98	180.12	7,270.26	-4,166.10	1,079.64	14,523,689.54	1,732,018.14	39.99117935	-104.67295377
11,000.00	89.98	180.12	7,270.30	-4,266.09	1,079.43	14,523,589.54	1,732,018.30	39.99090473	-104.67295451
11,100.00	89.98	180.12	7,270.34	-4,366.09	1,079.23	14,523,489.54	1,732,018.46	39.99063012	-104.67295525
11,200.00	89.98	180.12	7,270.39	-4,466.09	1,079.03	14,523,389.54	1,732,018.62	39.99035550	-104.67295599
11,300.00	89.98	180.12	7,270.43	-4,566.09	1,078.82	14,523,289.54	1,732,018.78	39.99008088	-104.67295673
11,400.00	89.98	180.12	7,270.47	-4,666.09	1,078.62	14,523,189.54	1,732,018.94	39.98980627	-104.67295747
11,500.00	89.98	180.12	7,270.52	-4,766.09	1,078.42	14,523,089.54	1,732,019.10	39.98953165	-104.67295821
11,600.00	89.98	180.12	7,270.56	-4,866.09	1,078.21	14,522,989.54	1,732,019.26	39.98925704	-104.67295895
11,700.00	89.98	180.12	7,270.60	-4,966.09	1,078.01	14,522,889.54	1,732,019.42	39.98898242	-104.67295969
11,800.00	89.98	180.12	7,270.64	-5,066.09	1,077.81	14,522,789.54	1,732,019.58	39.98870780	-104.67296043
11,900.00	89.98	180.12	7,270.69	-5,166.09	1,077.60	14,522,689.54	1,732,019.74	39.98843319	-104.67296117
12,000.00	89.98	180.12	7,270.73	-5,266.09	1,077.40	14,522,589.54	1,732,019.90	39.98815857	-104.67296191
12,100.00	89.98	180.12	7,270.77	-5,366.09	1,077.20	14,522,489.54	1,732,020.06	39.98788396	-104.67296265
12,200.00	89.98	180.12	7,270.82	-5,466.09	1,076.99	14,522,389.54	1,732,020.22	39.98760934	-104.67296339
12,300.00	89.98	180.12	7,270.86	-5,566.09	1,076.79	14,522,289.54	1,732,020.37	39.98733472	-104.67296413
12,400.00	89.98	180.12	7,270.90	-5,666.09	1,076.59	14,522,189.55	1,732,020.53	39.98706011	-104.67296487
12,500.00	89.98	180.12	7,270.94	-5,766.09	1,076.39	14,522,089.55	1,732,020.69	39.98678549	-104.67296561
12,600.00	89.98	180.12	7,270.99	-5,866.09	1,076.18	14,521,989.55	1,732,020.85	39.98651087	-104.67296635
12,700.00	89.98	180.12	7,271.03	-5,966.09	1,075.98	14,521,889.55	1,732,021.01	39.98623626	-104.67296709
12,800.00	89.98	180.12	7,271.07	-6,066.09	1,075.78	14,521,789.55	1,732,021.17	39.98596164	-104.67296783
12,900.00	89.98	180.12	7,271.12	-6,166.09	1,075.57	14,521,689.55	1,732,021.33	39.98568703	-104.67296857
13,000.00	89.98	180.12	7,271.16	-6,266.09	1,075.37	14,521,589.55	1,732,021.49	39.98541241	-104.67296931
13,100.00	89.98	180.12	7,271.20	-6,366.09	1,075.17	14,521,489.55	1,732,021.65	39.98513779	-104.67297005
13,200.00	89.98	180.12	7,271.24	-6,466.09	1,074.96	14,521,389.55	1,732,021.81	39.98486318	-104.67297079
13,300.00	89.98	180.12	7,271.29	-6,566.09	1,074.76	14,521,289.55	1,732,021.97	39.98458856	-104.67297153
13,400.00	89.98	180.12	7,271.33	-6,666.09	1,074.56	14,521,189.55	1,732,022.13	39.98431394	-104.67297227
13,500.00	89.98	180.12	7,271.37	-6,766.09	1,074.35	14,521,089.55	1,732,022.29	39.98403933	-104.67297301
13,600.00	89.98	180.12	7,271.42	-6,866.09	1,074.15	14,520,989.55	1,732,022.45	39.98376471	-104.67297375
13,700.00	89.98	180.12	7,271.46	-6,966.09	1,073.95	14,520,889.55	1,732,022.61	39.98349010	-104.67297449
13,800.00	89.98	180.12	7,271.50	-7,066.09	1,073.74	14,520,789.55	1,732,022.77	39.98321548	-104.67297523
13,900.00	89.98	180.12	7,271.54	-7,166.09	1,073.54	14,520,689.55	1,732,022.93	39.98294086	-104.67297597
14,000.00	89.98	180.12	7,271.59	-7,266.09	1,073.34	14,520,589.55	1,732,023.09	39.98266625	-104.67297671
14,100.00	89.98	180.12	7,271.63	-7,366.09	1,073.13	14,520,489.55	1,732,023.25	39.98239163	-104.67297745
14,200.00	89.98	180.12	7,271.67	-7,466.09	1,072.93	14,520,389.55	1,732,023.41	39.98211701	-104.67297819
14,300.00	89.98	180.12	7,271.71	-7,566.09	1,072.73	14,520,289.55	1,732,023.56	39.98184240	-104.67297893
14,400.00	89.98	180.12	7,271.76	-7,666.09	1,072.53	14,520,189.55	1,732,023.72	39.98156778	-104.67297967
14,500.00	89.98	180.12	7,271.80	-7,766.09	1,072.32	14,520,089.55	1,732,023.88	39.98129316	-104.67298041
14,600.00	89.98	180.12	7,271.84	-7,866.09	1,072.12	14,519,989.55	1,732,024.04	39.98101855	-104.67298115
14,700.00	89.98	180.12	7,271.89	-7,966.09	1,071.92	14,519,889.55	1,732,024.20	39.98074393	-104.67298189
14,800.00	89.98	180.12	7,271.93	-8,066.09	1,071.71	14,519,789.55	1,732,024.36	39.98046932	-104.67298263
14,900.00	89.98	180.12	7,271.97	-8,166.09	1,071.51	14,519,689.55	1,732,024.52	39.98019470	-104.67298337
15,000.00	89.98	180.12	7,272.01	-8,266.09	1,071.31	14,519,589.55	1,732,024.68	39.97992008	-104.67298411
15,100.00	89.98	180.12	7,272.06	-8,366.09	1,071.10	14,519,489.55	1,732,024.84	39.97964547	-104.67298485
15,200.00	89.98	180.12	7,272.10	-8,466.09	1,070.90	14,519,389.55	1,732,025.00	39.97937085	-104.67298559
15,300.00	89.98	180.12	7,272.14	-8,566.09	1,070.70	14,519,289.56	1,732,025.16	39.97909623	-104.67298633
15,400.00	89.98	180.12	7,272.19	-8,666.09	1,070.49	14,519,189.56	1,732,025.32	39.97882162	-104.67298707
15,500.00	89.98	180.12	7,272.23	-8,766.09	1,070.29	14,519,089.56	1,732,025.48	39.97854700	-104.67298781

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-08-2L
Company:	Confluence Resources	TVD Reference:	RKB=5077+25 @ 5102.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5077+25 @ 5102.00ft
Site:	Section 33-T01N-R65W	North Reference:	True
Well:	Desha 4-08-2L	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	89.98	180.12	7,272.27	-8,866.09	1,070.09	14,518,989.56	1,732,025.64	39.97827238	-104.67298855
15,700.00	89.98	180.12	7,272.31	-8,966.08	1,069.88	14,518,889.56	1,732,025.80	39.97799777	-104.67298929
15,800.00	89.98	180.12	7,272.36	-9,066.08	1,069.68	14,518,789.56	1,732,025.96	39.97772315	-104.67299003
15,900.00	89.98	180.12	7,272.40	-9,166.08	1,069.48	14,518,689.56	1,732,026.12	39.97744853	-104.67299077
16,000.00	89.98	180.12	7,272.44	-9,266.08	1,069.28	14,518,589.56	1,732,026.28	39.97717392	-104.67299151
16,100.00	89.98	180.12	7,272.49	-9,366.08	1,069.07	14,518,489.56	1,732,026.44	39.97689930	-104.67299225
16,200.00	89.98	180.12	7,272.53	-9,466.08	1,068.87	14,518,389.56	1,732,026.59	39.97662468	-104.67299299
16,300.00	89.98	180.12	7,272.57	-9,566.08	1,068.67	14,518,289.56	1,732,026.75	39.97635007	-104.67299373
16,400.00	89.98	180.12	7,272.61	-9,666.08	1,068.46	14,518,189.56	1,732,026.91	39.97607545	-104.67299447
16,500.00	89.98	180.12	7,272.66	-9,766.08	1,068.26	14,518,089.56	1,732,027.07	39.97580083	-104.67299521
16,600.00	89.98	180.12	7,272.70	-9,866.08	1,068.06	14,517,989.56	1,732,027.23	39.97552622	-104.67299595
16,700.00	89.98	180.12	7,272.74	-9,966.08	1,067.85	14,517,889.56	1,732,027.39	39.97525160	-104.67299669
16,800.00	89.98	180.12	7,272.79	-10,066.08	1,067.65	14,517,789.56	1,732,027.55	39.97497698	-104.67299742
16,900.00	89.98	180.12	7,272.83	-10,166.08	1,067.45	14,517,689.56	1,732,027.71	39.97470237	-104.67299816
17,000.00	89.98	180.12	7,272.87	-10,266.08	1,067.24	14,517,589.56	1,732,027.87	39.97442775	-104.67299890
17,100.00	89.98	180.12	7,272.91	-10,366.08	1,067.04	14,517,489.56	1,732,028.03	39.97415313	-104.67299964
17,200.00	89.98	180.12	7,272.96	-10,466.08	1,066.84	14,517,389.56	1,732,028.19	39.97387852	-104.67300038
17,299.56	89.98	180.12	7,273.00	-10,565.64	1,066.64	14,517,290.00	1,732,028.35	39.97360512	-104.67300112
PBHL/TD 17299.56 MD/7273.00 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 4-8-2L 470 FM	0.00	0.00	7,269.00	-1,229.89	1,085.60	14,526,625.74	1,732,013.46	39.99924265	-104.67293203
- plan hits target center									
- Point									
BHL Desha 4-8-2L 470 F	0.00	0.00	7,273.00	-10,565.64	1,066.64	14,517,290.00	1,732,028.35	39.97360512	-104.67300112
- 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
5,329.87	5,311.95	-55.75	73.65	Begin 32.99° tangent
7,255.30	6,926.98	-688.43	909.51	Begin 10°/100' build/turn
7,963.79	7,269.00	-1,229.89	1,085.60	LP Begin 89.98° lateral section
17,299.56	7,273.00	-10,565.64	1,066.64	PBHL/TD 17299.56 MD/7273.00 TVD