



Weld County, Colorado
Section 33-T01N-R65W
Desha 4-10-4L
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	5169.27	16.93	177.18	5166.82	-24.79	1.22	10.00	24.79	Begin 16.93° tangent
4	7173.99	16.93	177.18	7084.69	-607.75	29.99	0.00	607.80	Begin 10°/100' build/turn
5	7904.03	89.91	180.12	7491.00	-1155.05	35.21	10.00	1155.10	LP Begin 89.91° lateral section
6	17235.84	89.91	180.12	7506.00	-10486.83	16.26	0.00	10486.84	PBHL/TD 17235.84 MD/7506.00 TVD

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
LP Desha 4-10-4L 470 FNL 480 FWL	7491.00	-1155.05	35.2114526621.77	1730963.46	39.99924227	-104.67668130	
BHL Desha 4-10-4L 470 FSL 480 FWL	7506.00	-10486.83	16.2614517290.00	1730978.35	39.97361562	-104.67674894	

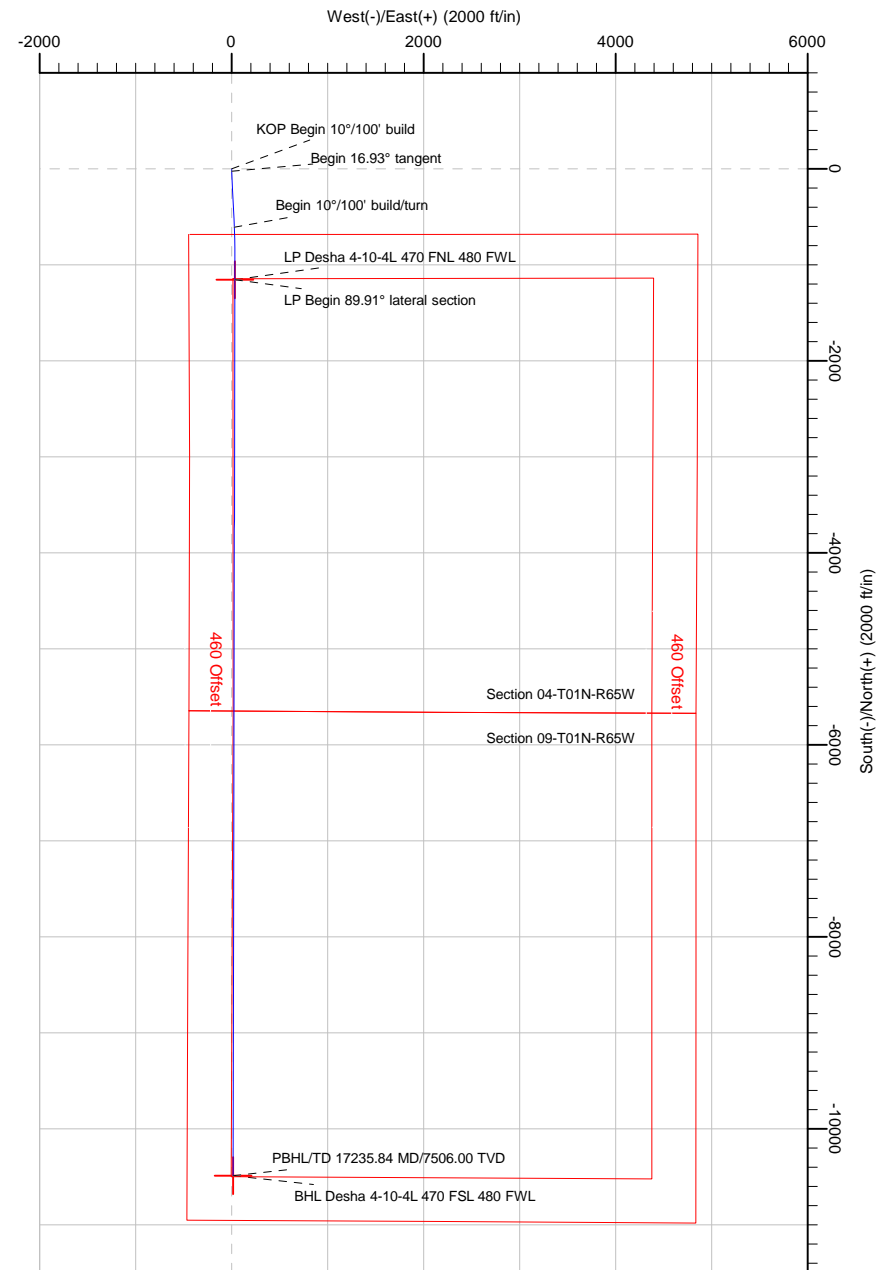
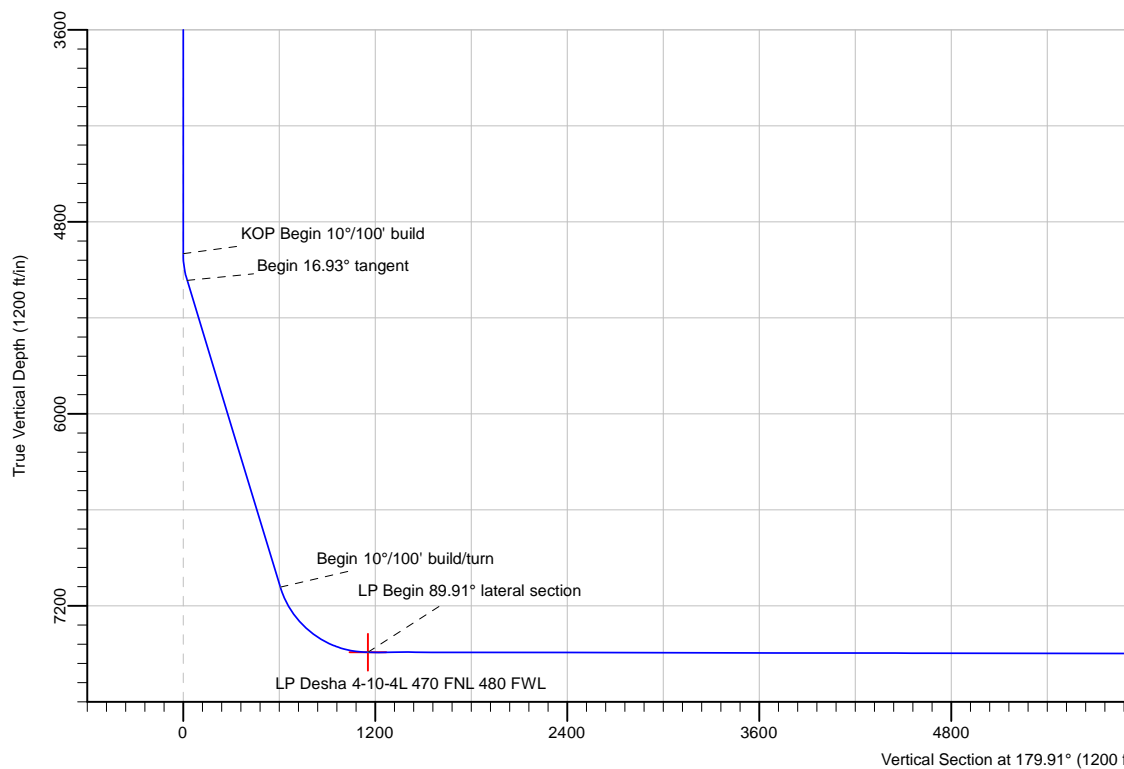
Desha 4-10-4L			
Surf loc: 685 FSL 450 FWL Section 33-T01N-R65W			
NAD83 Colorado - HARN			
Universal Transverse Mercator (US Survey Feet)			
Zone 13N (108 W to 102 W)			
RKB=5076+25 @ 5101.00ft			
Northing	Easting	Latitude	Longitude
14527776.68	1730924.06	40.00241422	-104.67680703

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: 52144.8snT
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 4-10-4L
Company:	Confluence Resources	TVD Reference:	RKB=5076+25 @ 5101.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5076+25 @ 5101.00ft
Site:	Section 33-T01N-R65W	North Reference:	True
Well:	Desha 4-10-4L	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	plan1		

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

Site		Section 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 4-10-4L, Surf loc: 685 FSL 450 FWL Section 33-T01N-R65W					
Well Position	+N/-S	25.02 ft	Northing:	14,527,776.68 usft	Latitude:	40.00241422
	+E/-W	149.88 ft	Easting:	1,730,924.06 usft	Longitude:	-104.67680703
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	5,076.00 ft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	5/29/2017	8.28	66.45	52,144.80000000

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	179.91

Plan Survey Tool Program	Date	8/29/2017		
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	17,235.84	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	
5,169.27	16.93	177.18	5,166.82	-24.79	1.22	10.00	10.00	0.00	177.18	
7,173.99	16.93	177.18	7,084.69	-607.75	29.99	0.00	0.00	0.00	0.00	
7,904.03	89.91	180.12	7,491.00	-1,155.05	35.21	10.00	10.00	0.40	3.08	LP Desha 4-10-4L 471
17,235.84	89.91	180.12	7,506.00	-10,486.83	16.26	0.00	0.00	0.00	0.00	BHL Desha 4-10-4L 4

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-10-4L
Company:	Confluence Resources	TVD Reference:	RKB=5076+25 @ 5101.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5076+25 @ 5101.00ft
Site:	Section 33-T01N-R65W	North Reference:	True
Well:	Desha 4-10-4L	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	plan1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
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	177.18	5,099.49	-8.69	0.43	8.69	10.00	10.00	0.00
5,169.27	16.93	177.18	5,166.82	-24.79	1.22	24.79	10.00	10.00	0.00

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-10-4L
Company:	Confluence Resources	TVD Reference:	RKB=5076+25 @ 5101.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5076+25 @ 5101.00ft
Site:	Section 33-T01N-R65W	North Reference:	True
Well:	Desha 4-10-4L	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	plan1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
Begin 16.93° tangent									
5,200.00	16.93	177.18	5,196.22	-33.73	1.66	33.73	0.00	0.00	0.00
5,300.00	16.93	177.18	5,291.89	-62.81	3.10	62.81	0.00	0.00	0.00
5,400.00	16.93	177.18	5,387.55	-91.89	4.53	91.89	0.00	0.00	0.00
5,500.00	16.93	177.18	5,483.22	-120.97	5.97	120.98	0.00	0.00	0.00
5,600.00	16.93	177.18	5,578.89	-150.05	7.40	150.06	0.00	0.00	0.00
5,700.00	16.93	177.18	5,674.56	-179.13	8.84	179.14	0.00	0.00	0.00
5,800.00	16.93	177.18	5,770.22	-208.21	10.27	208.22	0.00	0.00	0.00
5,900.00	16.93	177.18	5,865.89	-237.28	11.71	237.30	0.00	0.00	0.00
6,000.00	16.93	177.18	5,961.56	-266.36	13.14	266.38	0.00	0.00	0.00
6,100.00	16.93	177.18	6,057.23	-295.44	14.58	295.47	0.00	0.00	0.00
6,200.00	16.93	177.18	6,152.90	-324.52	16.01	324.55	0.00	0.00	0.00
6,300.00	16.93	177.18	6,248.56	-353.60	17.45	353.63	0.00	0.00	0.00
6,400.00	16.93	177.18	6,344.23	-382.68	18.88	382.71	0.00	0.00	0.00
6,500.00	16.93	177.18	6,439.90	-411.76	20.32	411.79	0.00	0.00	0.00
6,600.00	16.93	177.18	6,535.57	-440.84	21.75	440.87	0.00	0.00	0.00
6,700.00	16.93	177.18	6,631.23	-469.92	23.19	469.96	0.00	0.00	0.00
6,800.00	16.93	177.18	6,726.90	-499.00	24.62	499.04	0.00	0.00	0.00
6,900.00	16.93	177.18	6,822.57	-528.08	26.06	528.12	0.00	0.00	0.00
7,000.00	16.93	177.18	6,918.24	-557.16	27.49	557.20	0.00	0.00	0.00
7,100.00	16.93	177.18	7,013.91	-586.24	28.93	586.28	0.00	0.00	0.00
7,173.99	16.93	177.18	7,084.69	-607.75	29.99	607.80	0.00	0.00	0.00
Begin 10°/100' build/turn									
7,200.00	19.52	177.59	7,109.39	-615.88	30.36	615.93	10.00	9.99	1.60
7,300.00	29.52	178.54	7,200.26	-657.31	31.69	657.36	10.00	9.99	0.94
7,400.00	39.51	179.03	7,282.55	-713.89	32.86	713.94	10.00	10.00	0.50
7,500.00	49.51	179.35	7,353.77	-783.90	33.83	783.95	10.00	10.00	0.32
7,600.00	59.51	179.59	7,411.75	-865.21	34.57	865.26	10.00	10.00	0.24
7,700.00	69.51	179.78	7,454.74	-955.36	35.06	955.41	10.00	10.00	0.19
7,800.00	79.51	179.95	7,481.42	-1,051.60	35.27	1,051.66	10.00	10.00	0.17
7,900.00	89.50	180.11	7,490.98	-1,151.02	35.22	1,151.07	10.00	10.00	0.16
7,904.03	89.91	180.12	7,491.00	-1,155.05	35.21	1,155.10	10.00	10.00	0.16
LP Begin 89.91° lateral section									
8,000.00	89.91	180.12	7,491.15	-1,251.02	35.02	1,251.07	0.00	0.00	0.00
8,100.00	89.91	180.12	7,491.32	-1,351.02	34.81	1,351.07	0.00	0.00	0.00
8,200.00	89.91	180.12	7,491.48	-1,451.02	34.61	1,451.07	0.00	0.00	0.00
8,300.00	89.91	180.12	7,491.64	-1,551.02	34.41	1,551.07	0.00	0.00	0.00
8,400.00	89.91	180.12	7,491.80	-1,651.02	34.20	1,651.07	0.00	0.00	0.00
8,500.00	89.91	180.12	7,491.96	-1,751.02	34.00	1,751.07	0.00	0.00	0.00
8,600.00	89.91	180.12	7,492.12	-1,851.02	33.80	1,851.07	0.00	0.00	0.00
8,700.00	89.91	180.12	7,492.28	-1,951.01	33.60	1,951.06	0.00	0.00	0.00
8,800.00	89.91	180.12	7,492.44	-2,051.01	33.39	2,051.06	0.00	0.00	0.00
8,900.00	89.91	180.12	7,492.60	-2,151.01	33.19	2,151.06	0.00	0.00	0.00
9,000.00	89.91	180.12	7,492.76	-2,251.01	32.99	2,251.06	0.00	0.00	0.00
9,100.00	89.91	180.12	7,492.92	-2,351.01	32.78	2,351.06	0.00	0.00	0.00
9,200.00	89.91	180.12	7,493.08	-2,451.01	32.58	2,451.06	0.00	0.00	0.00
9,300.00	89.91	180.12	7,493.24	-2,551.01	32.38	2,551.06	0.00	0.00	0.00
9,400.00	89.91	180.12	7,493.40	-2,651.01	32.17	2,651.06	0.00	0.00	0.00
9,500.00	89.91	180.12	7,493.57	-2,751.01	31.97	2,751.06	0.00	0.00	0.00
9,600.00	89.91	180.12	7,493.73	-2,851.01	31.77	2,851.06	0.00	0.00	0.00
9,700.00	89.91	180.12	7,493.89	-2,951.01	31.56	2,951.06	0.00	0.00	0.00
9,800.00	89.91	180.12	7,494.05	-3,051.01	31.36	3,051.06	0.00	0.00	0.00
9,900.00	89.91	180.12	7,494.21	-3,151.01	31.16	3,151.06	0.00	0.00	0.00

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Company:	Confluence Resources	TVD Reference:	RKB=5076+25 @ 5101.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5076+25 @ 5101.00ft
Site:	Section 33-T01N-R65W	North Reference:	True
Well:	Desha 4-10-4L	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	plan1		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
10,000.00	89.91	180.12	7,494.37	-3,251.01	30.96	3,251.05	0.00	0.00	0.00	
10,100.00	89.91	180.12	7,494.53	-3,351.01	30.75	3,351.05	0.00	0.00	0.00	
10,200.00	89.91	180.12	7,494.69	-3,451.01	30.55	3,451.05	0.00	0.00	0.00	
10,300.00	89.91	180.12	7,494.85	-3,551.01	30.35	3,551.05	0.00	0.00	0.00	
10,400.00	89.91	180.12	7,495.01	-3,651.01	30.14	3,651.05	0.00	0.00	0.00	
10,500.00	89.91	180.12	7,495.17	-3,751.01	29.94	3,751.05	0.00	0.00	0.00	
10,600.00	89.91	180.12	7,495.33	-3,851.01	29.74	3,851.05	0.00	0.00	0.00	
10,700.00	89.91	180.12	7,495.49	-3,951.01	29.53	3,951.05	0.00	0.00	0.00	
10,800.00	89.91	180.12	7,495.66	-4,051.01	29.33	4,051.05	0.00	0.00	0.00	
10,900.00	89.91	180.12	7,495.82	-4,151.01	29.13	4,151.05	0.00	0.00	0.00	
11,000.00	89.91	180.12	7,495.98	-4,251.01	28.93	4,251.05	0.00	0.00	0.00	
11,100.00	89.91	180.12	7,496.14	-4,351.01	28.72	4,351.05	0.00	0.00	0.00	
11,200.00	89.91	180.12	7,496.30	-4,451.01	28.52	4,451.05	0.00	0.00	0.00	
11,300.00	89.91	180.12	7,496.46	-4,551.01	28.32	4,551.04	0.00	0.00	0.00	
11,400.00	89.91	180.12	7,496.62	-4,651.01	28.11	4,651.04	0.00	0.00	0.00	
11,500.00	89.91	180.12	7,496.78	-4,751.01	27.91	4,751.04	0.00	0.00	0.00	
11,600.00	89.91	180.12	7,496.94	-4,851.01	27.71	4,851.04	0.00	0.00	0.00	
11,700.00	89.91	180.12	7,497.10	-4,951.00	27.50	4,951.04	0.00	0.00	0.00	
11,800.00	89.91	180.12	7,497.26	-5,051.00	27.30	5,051.04	0.00	0.00	0.00	
11,900.00	89.91	180.12	7,497.42	-5,151.00	27.10	5,151.04	0.00	0.00	0.00	
12,000.00	89.91	180.12	7,497.58	-5,251.00	26.89	5,251.04	0.00	0.00	0.00	
12,100.00	89.91	180.12	7,497.74	-5,351.00	26.69	5,351.04	0.00	0.00	0.00	
12,200.00	89.91	180.12	7,497.91	-5,451.00	26.49	5,451.04	0.00	0.00	0.00	
12,300.00	89.91	180.12	7,498.07	-5,551.00	26.29	5,551.04	0.00	0.00	0.00	
12,400.00	89.91	180.12	7,498.23	-5,651.00	26.08	5,651.04	0.00	0.00	0.00	
12,500.00	89.91	180.12	7,498.39	-5,751.00	25.88	5,751.04	0.00	0.00	0.00	
12,600.00	89.91	180.12	7,498.55	-5,851.00	25.68	5,851.03	0.00	0.00	0.00	
12,700.00	89.91	180.12	7,498.71	-5,951.00	25.47	5,951.03	0.00	0.00	0.00	
12,800.00	89.91	180.12	7,498.87	-6,051.00	25.27	6,051.03	0.00	0.00	0.00	
12,900.00	89.91	180.12	7,499.03	-6,151.00	25.07	6,151.03	0.00	0.00	0.00	
13,000.00	89.91	180.12	7,499.19	-6,251.00	24.86	6,251.03	0.00	0.00	0.00	
13,100.00	89.91	180.12	7,499.35	-6,351.00	24.66	6,351.03	0.00	0.00	0.00	
13,200.00	89.91	180.12	7,499.51	-6,451.00	24.46	6,451.03	0.00	0.00	0.00	
13,300.00	89.91	180.12	7,499.67	-6,551.00	24.25	6,551.03	0.00	0.00	0.00	
13,400.00	89.91	180.12	7,499.83	-6,651.00	24.05	6,651.03	0.00	0.00	0.00	
13,500.00	89.91	180.12	7,500.00	-6,751.00	23.85	6,751.03	0.00	0.00	0.00	
13,600.00	89.91	180.12	7,500.16	-6,851.00	23.65	6,851.03	0.00	0.00	0.00	
13,700.00	89.91	180.12	7,500.32	-6,951.00	23.44	6,951.03	0.00	0.00	0.00	
13,800.00	89.91	180.12	7,500.48	-7,051.00	23.24	7,051.03	0.00	0.00	0.00	
13,900.00	89.91	180.12	7,500.64	-7,151.00	23.04	7,151.02	0.00	0.00	0.00	
14,000.00	89.91	180.12	7,500.80	-7,251.00	22.83	7,251.02	0.00	0.00	0.00	
14,100.00	89.91	180.12	7,500.96	-7,351.00	22.63	7,351.02	0.00	0.00	0.00	
14,200.00	89.91	180.12	7,501.12	-7,451.00	22.43	7,451.02	0.00	0.00	0.00	
14,300.00	89.91	180.12	7,501.28	-7,551.00	22.22	7,551.02	0.00	0.00	0.00	
14,400.00	89.91	180.12	7,501.44	-7,651.00	22.02	7,651.02	0.00	0.00	0.00	
14,500.00	89.91	180.12	7,501.60	-7,751.00	21.82	7,751.02	0.00	0.00	0.00	
14,600.00	89.91	180.12	7,501.76	-7,851.00	21.61	7,851.02	0.00	0.00	0.00	
14,700.00	89.91	180.12	7,501.92	-7,950.99	21.41	7,951.02	0.00	0.00	0.00	
14,800.00	89.91	180.12	7,502.08	-8,050.99	21.21	8,051.02	0.00	0.00	0.00	
14,900.00	89.91	180.12	7,502.25	-8,150.99	21.01	8,151.02	0.00	0.00	0.00	
15,000.00	89.91	180.12	7,502.41	-8,250.99	20.80	8,251.02	0.00	0.00	0.00	
15,100.00	89.91	180.12	7,502.57	-8,350.99	20.60	8,351.02	0.00	0.00	0.00	
15,200.00	89.91	180.12	7,502.73	-8,450.99	20.40	8,451.01	0.00	0.00	0.00	
15,300.00	89.91	180.12	7,502.89	-8,550.99	20.19	8,551.01	0.00	0.00	0.00	

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-10-4L
Company:	Confluence Resources	TVD Reference:	RKB=5076+25 @ 5101.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5076+25 @ 5101.00ft
Site:	Section 33-T01N-R65W	North Reference:	True
Well:	Desha 4-10-4L	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	plan1		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
15,400.00	89.91	180.12	7,503.05	-8,650.99	19.99	8,651.01	0.00	0.00	0.00	
15,500.00	89.91	180.12	7,503.21	-8,750.99	19.79	8,751.01	0.00	0.00	0.00	
15,600.00	89.91	180.12	7,503.37	-8,850.99	19.58	8,851.01	0.00	0.00	0.00	
15,700.00	89.91	180.12	7,503.53	-8,950.99	19.38	8,951.01	0.00	0.00	0.00	
15,800.00	89.91	180.12	7,503.69	-9,050.99	19.18	9,051.01	0.00	0.00	0.00	
15,900.00	89.91	180.12	7,503.85	-9,150.99	18.98	9,151.01	0.00	0.00	0.00	
16,000.00	89.91	180.12	7,504.01	-9,250.99	18.77	9,251.01	0.00	0.00	0.00	
16,100.00	89.91	180.12	7,504.17	-9,350.99	18.57	9,351.01	0.00	0.00	0.00	
16,200.00	89.91	180.12	7,504.34	-9,450.99	18.37	9,451.01	0.00	0.00	0.00	
16,300.00	89.91	180.12	7,504.50	-9,550.99	18.16	9,551.01	0.00	0.00	0.00	
16,400.00	89.91	180.12	7,504.66	-9,650.99	17.96	9,651.01	0.00	0.00	0.00	
16,500.00	89.91	180.12	7,504.82	-9,750.99	17.76	9,751.00	0.00	0.00	0.00	
16,600.00	89.91	180.12	7,504.98	-9,850.99	17.55	9,851.00	0.00	0.00	0.00	
16,700.00	89.91	180.12	7,505.14	-9,950.99	17.35	9,951.00	0.00	0.00	0.00	
16,800.00	89.91	180.12	7,505.30	-10,050.99	17.15	10,051.00	0.00	0.00	0.00	
16,900.00	89.91	180.12	7,505.46	-10,150.99	16.94	10,151.00	0.00	0.00	0.00	
17,000.00	89.91	180.12	7,505.62	-10,250.99	16.74	10,251.00	0.00	0.00	0.00	
17,100.00	89.91	180.12	7,505.78	-10,350.99	16.54	10,351.00	0.00	0.00	0.00	
17,200.00	89.91	180.12	7,505.94	-10,450.99	16.34	10,451.00	0.00	0.00	0.00	
17,235.84	89.91	180.12	7,506.00	-10,486.83	16.26	10,486.84	0.00	0.00	0.00	
PBHL/TD 17235.84 MD/7506.00 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 4-10-4L 470 F	0.00	0.00	7,491.00	-1,155.05	35.21	14,526,621.77	1,730,963.46	39.99924227	-104.67668130	
- plan hits target center										
- Point										
BHL Desha 4-10-4L 470	0.00	0.00	7,506.00	-10,486.83	16.26	14,517,290.00	1,730,978.35	39.97361563	-104.67674893	
- 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	
5,169.27	5,166.82	-24.79	1.22	Begin 16.93° tangent	
7,173.99	7,084.69	-607.75	29.99	Begin 10°/100' build/turn	
7,904.03	7,491.00	-1,155.05	35.21	LP Begin 89.91° lateral section	
17,235.84	7,506.00	-10,486.83	16.26	PBHL/TD 17235.84 MD/7506.00 TVD	

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-10-4L
Company:	Confluence Resources	TVD Reference:	RKB=5076+25 @ 5101.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5076+25 @ 5101.00ft
Site:	Section 33-T01N-R65W	North Reference:	True
Well:	Desha 4-10-4L	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	plan1		

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

Site		Section 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 4-10-4L, Surf loc: 685 FSL 450 FWL Section 33-T01N-R65W					
Well Position	+N/-S	0.00 ft	Northing:	14,527,776.68 usft	Latitude:	40.00241422
	+E/-W	0.00 ft	Easting:	1,730,924.06 usft	Longitude:	-104.67680703
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	5,076.00 ft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	5/29/2017	8.28	66.45	52,144.80000000

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	179.91

Plan Survey Tool Program	Date	8/29/2017		
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	17,235.84 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	
5,169.27	16.93	177.18	5,166.82	-24.79	1.22	10.00	10.00	0.00	177.18	
7,173.99	16.93	177.18	7,084.69	-607.75	29.99	0.00	0.00	0.00	0.00	
7,904.03	89.91	180.12	7,491.00	-1,155.05	35.21	10.00	10.00	0.40	3.08	LP Desha 4-10-4L 471
17,235.84	89.91	180.12	7,506.00	-10,486.83	16.26	0.00	0.00	0.00	0.00	BHL Desha 4-10-4L 4

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-10-4L
Company:	Confluence Resources	TVD Reference:	RKB=5076+25 @ 5101.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5076+25 @ 5101.00ft
Site:	Section 33-T01N-R65W	North Reference:	True
Well:	Desha 4-10-4L	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	plan1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
100.00	0.00	0.00	100.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
200.00	0.00	0.00	200.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
300.00	0.00	0.00	300.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
400.00	0.00	0.00	400.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
500.00	0.00	0.00	500.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
600.00	0.00	0.00	600.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
700.00	0.00	0.00	700.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
800.00	0.00	0.00	800.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
900.00	0.00	0.00	900.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
1,100.00	0.00	0.00	1,100.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
1,200.00	0.00	0.00	1,200.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
1,300.00	0.00	0.00	1,300.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
1,400.00	0.00	0.00	1,400.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
1,500.00	0.00	0.00	1,500.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
1,600.00	0.00	0.00	1,600.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
1,700.00	0.00	0.00	1,700.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
1,800.00	0.00	0.00	1,800.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
1,900.00	0.00	0.00	1,900.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
2,000.00	0.00	0.00	2,000.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
2,100.00	0.00	0.00	2,100.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
2,200.00	0.00	0.00	2,200.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
2,300.00	0.00	0.00	2,300.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
2,400.00	0.00	0.00	2,400.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
2,500.00	0.00	0.00	2,500.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
2,600.00	0.00	0.00	2,600.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
2,700.00	0.00	0.00	2,700.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
2,800.00	0.00	0.00	2,800.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
2,900.00	0.00	0.00	2,900.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
3,000.00	0.00	0.00	3,000.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
3,100.00	0.00	0.00	3,100.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
3,200.00	0.00	0.00	3,200.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
3,300.00	0.00	0.00	3,300.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
3,400.00	0.00	0.00	3,400.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
3,500.00	0.00	0.00	3,500.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
3,600.00	0.00	0.00	3,600.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
3,700.00	0.00	0.00	3,700.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
3,800.00	0.00	0.00	3,800.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
3,900.00	0.00	0.00	3,900.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
4,000.00	0.00	0.00	4,000.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
4,100.00	0.00	0.00	4,100.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
4,200.00	0.00	0.00	4,200.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
4,300.00	0.00	0.00	4,300.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
4,400.00	0.00	0.00	4,400.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
4,500.00	0.00	0.00	4,500.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
4,600.00	0.00	0.00	4,600.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
4,700.00	0.00	0.00	4,700.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
4,800.00	0.00	0.00	4,800.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
4,900.00	0.00	0.00	4,900.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
5,000.00	0.00	0.00	5,000.00	0.00	0.00	14,527,776.68	1,730,924.06	40.00241422	-104.67680703
KOP Begin 10°/100' build									
5,100.00	10.00	177.18	5,099.49	-8.69	0.43	14,527,767.99	1,730,924.52	40.00239034	-104.67680550

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-10-4L
Company:	Confluence Resources	TVD Reference:	RKB=5076+25 @ 5101.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5076+25 @ 5101.00ft
Site:	Section 33-T01N-R65W	North Reference:	True
Well:	Desha 4-10-4L	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	plan1		

Planned Survey										
Measured										
Depth	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Map	Map			
(ft)	(°)	(°)	Depth	(ft)	(ft)	Northing	Easting	Latitude	Longitude	
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(usft)	(usft)			
5,169.27	16.93	177.18	5,166.82	-24.79	1.22	14,527,751.90	1,730,925.37	40.00234614	-104.67680266	
Begin 16.93° tangent										
5,200.00	16.93	177.18	5,196.22	-33.73	1.66	14,527,742.96	1,730,925.85	40.00232160	-104.67680109	
5,300.00	16.93	177.18	5,291.89	-62.81	3.10	14,527,713.89	1,730,927.39	40.00224174	-104.67679596	
5,400.00	16.93	177.18	5,387.55	-91.89	4.53	14,527,684.81	1,730,928.93	40.00216188	-104.67679084	
5,500.00	16.93	177.18	5,483.22	-120.97	5.97	14,527,655.74	1,730,930.47	40.00208203	-104.67678571	
5,600.00	16.93	177.18	5,578.89	-150.05	7.40	14,527,626.67	1,730,932.01	40.00200217	-104.67678059	
5,700.00	16.93	177.18	5,674.56	-179.13	8.84	14,527,597.59	1,730,933.55	40.00192231	-104.67677547	
5,800.00	16.93	177.18	5,770.22	-208.21	10.27	14,527,568.52	1,730,935.09	40.00184245	-104.67677034	
5,900.00	16.93	177.18	5,865.89	-237.28	11.71	14,527,539.44	1,730,936.63	40.00176260	-104.67676522	
6,000.00	16.93	177.18	5,961.56	-266.36	13.14	14,527,510.37	1,730,938.17	40.00168274	-104.67676010	
6,100.00	16.93	177.18	6,057.23	-295.44	14.58	14,527,481.30	1,730,939.71	40.00160288	-104.67675497	
6,200.00	16.93	177.18	6,152.90	-324.52	16.01	14,527,452.22	1,730,941.25	40.00152303	-104.67674985	
6,300.00	16.93	177.18	6,248.56	-353.60	17.45	14,527,423.15	1,730,942.79	40.00144317	-104.67674472	
6,400.00	16.93	177.18	6,344.23	-382.68	18.88	14,527,394.07	1,730,944.33	40.00136331	-104.67673960	
6,500.00	16.93	177.18	6,439.90	-411.76	20.32	14,527,365.00	1,730,945.87	40.00128346	-104.67673448	
6,600.00	16.93	177.18	6,535.57	-440.84	21.75	14,527,335.93	1,730,947.41	40.00120360	-104.67672935	
6,700.00	16.93	177.18	6,631.23	-469.92	23.19	14,527,306.85	1,730,948.95	40.00112374	-104.67672423	
6,800.00	16.93	177.18	6,726.90	-499.00	24.62	14,527,277.78	1,730,950.49	40.00104389	-104.67671911	
6,900.00	16.93	177.18	6,822.57	-528.08	26.06	14,527,248.70	1,730,952.03	40.00096403	-104.67671398	
7,000.00	16.93	177.18	6,918.24	-557.16	27.49	14,527,219.63	1,730,953.57	40.00088417	-104.67670886	
7,100.00	16.93	177.18	7,013.91	-586.24	28.93	14,527,190.56	1,730,955.11	40.00080431	-104.67670374	
7,173.99	16.93	177.18	7,084.69	-607.75	29.99	14,527,169.04	1,730,956.25	40.00074523	-104.67669994	
Begin 10°/100' build/turn										
7,200.00	19.52	177.59	7,109.39	-615.88	30.36	14,527,160.92	1,730,956.65	40.00072291	-104.67669863	
7,300.00	29.52	178.54	7,200.26	-657.31	31.69	14,527,119.50	1,730,958.13	40.00060915	-104.67669386	
7,400.00	39.51	179.03	7,282.55	-713.89	32.86	14,527,062.92	1,730,959.51	40.00045377	-104.67668969	
7,500.00	49.51	179.35	7,353.77	-783.90	33.83	14,526,992.92	1,730,960.73	40.00026152	-104.67668623	
7,600.00	59.51	179.59	7,411.75	-865.21	34.57	14,526,911.61	1,730,961.77	40.00003821	-104.67668359	
7,700.00	69.51	179.78	7,454.74	-955.36	35.06	14,526,821.46	1,730,962.58	39.99979065	-104.67668185	
7,800.00	79.51	179.95	7,481.42	-1,051.60	35.27	14,526,725.22	1,730,963.15	39.99952635	-104.67668107	
7,900.00	89.50	180.11	7,490.98	-1,151.02	35.22	14,526,625.80	1,730,963.45	39.99925334	-104.67668127	
7,904.03	89.91	180.12	7,491.00	-1,155.05	35.21	14,526,621.77	1,730,963.46	39.99924227	-104.67668130	
LP Begin 89.91° lateral section										
8,000.00	89.91	180.12	7,491.15	-1,251.02	35.02	14,526,525.81	1,730,963.61	39.99897872	-104.67668199	
8,100.00	89.91	180.12	7,491.32	-1,351.02	34.81	14,526,425.81	1,730,963.77	39.99870411	-104.67668272	
8,200.00	89.91	180.12	7,491.48	-1,451.02	34.61	14,526,325.81	1,730,963.93	39.99842949	-104.67668344	
8,300.00	89.91	180.12	7,491.64	-1,551.02	34.41	14,526,225.81	1,730,964.09	39.99815488	-104.67668417	
8,400.00	89.91	180.12	7,491.80	-1,651.02	34.20	14,526,125.81	1,730,964.25	39.99788026	-104.67668489	
8,500.00	89.91	180.12	7,491.96	-1,751.02	34.00	14,526,025.81	1,730,964.41	39.99760565	-104.67668562	
8,600.00	89.91	180.12	7,492.12	-1,851.02	33.80	14,525,925.81	1,730,964.57	39.99733103	-104.67668635	
8,700.00	89.91	180.12	7,492.28	-1,951.01	33.60	14,525,825.81	1,730,964.73	39.99705642	-104.67668707	
8,800.00	89.91	180.12	7,492.44	-2,051.01	33.39	14,525,725.81	1,730,964.89	39.99678180	-104.67668780	
8,900.00	89.91	180.12	7,492.60	-2,151.01	33.19	14,525,625.81	1,730,965.05	39.99650719	-104.67668852	
9,000.00	89.91	180.12	7,492.76	-2,251.01	32.99	14,525,525.81	1,730,965.21	39.99623257	-104.67668925	
9,100.00	89.91	180.12	7,492.92	-2,351.01	32.78	14,525,425.81	1,730,965.37	39.99595795	-104.67668997	
9,200.00	89.91	180.12	7,493.08	-2,451.01	32.58	14,525,325.81	1,730,965.53	39.99568334	-104.67669070	
9,300.00	89.91	180.12	7,493.24	-2,551.01	32.38	14,525,225.81	1,730,965.69	39.99540872	-104.67669142	
9,400.00	89.91	180.12	7,493.40	-2,651.01	32.17	14,525,125.81	1,730,965.85	39.99513411	-104.67669215	
9,500.00	89.91	180.12	7,493.57	-2,751.01	31.97	14,525,025.81	1,730,966.01	39.99485949	-104.67669287	
9,600.00	89.91	180.12	7,493.73	-2,851.01	31.77	14,524,925.81	1,730,966.16	39.99458488	-104.67669360	
9,700.00	89.91	180.12	7,493.89	-2,951.01	31.56	14,524,825.81	1,730,966.32	39.99431026	-104.67669432	
9,800.00	89.91	180.12	7,494.05	-3,051.01	31.36	14,524,725.81	1,730,966.48	39.99403565	-104.67669505	
9,900.00	89.91	180.12	7,494.21	-3,151.01	31.16	14,524,625.81	1,730,966.64	39.99376103	-104.67669577	

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-10-4L
Company:	Confluence Resources	TVD Reference:	RKB=5076+25 @ 5101.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5076+25 @ 5101.00ft
Site:	Section 33-T01N-R65W	North Reference:	True
Well:	Desha 4-10-4L	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	plan1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
10,000.00	89.91	180.12	7,494.37	-3,251.01	30.96	14,524,525.81	1,730,966.80	39.99348641	-104.67669650
10,100.00	89.91	180.12	7,494.53	-3,351.01	30.75	14,524,425.81	1,730,966.96	39.99321180	-104.67669722
10,200.00	89.91	180.12	7,494.69	-3,451.01	30.55	14,524,325.82	1,730,967.12	39.99293718	-104.67669795
10,300.00	89.91	180.12	7,494.85	-3,551.01	30.35	14,524,225.82	1,730,967.28	39.99266257	-104.67669867
10,400.00	89.91	180.12	7,495.01	-3,651.01	30.14	14,524,125.82	1,730,967.44	39.99238795	-104.67669940
10,500.00	89.91	180.12	7,495.17	-3,751.01	29.94	14,524,025.82	1,730,967.60	39.99211334	-104.67670012
10,600.00	89.91	180.12	7,495.33	-3,851.01	29.74	14,523,925.82	1,730,967.76	39.99183872	-104.67670085
10,700.00	89.91	180.12	7,495.49	-3,951.01	29.53	14,523,825.82	1,730,967.92	39.99156411	-104.67670157
10,800.00	89.91	180.12	7,495.66	-4,051.01	29.33	14,523,725.82	1,730,968.08	39.99128949	-104.67670230
10,900.00	89.91	180.12	7,495.82	-4,151.01	29.13	14,523,625.82	1,730,968.24	39.99101487	-104.67670302
11,000.00	89.91	180.12	7,495.98	-4,251.01	28.93	14,523,525.82	1,730,968.40	39.99074026	-104.67670375
11,100.00	89.91	180.12	7,496.14	-4,351.01	28.72	14,523,425.82	1,730,968.56	39.99046564	-104.67670447
11,200.00	89.91	180.12	7,496.30	-4,451.01	28.52	14,523,325.82	1,730,968.72	39.99019103	-104.67670520
11,300.00	89.91	180.12	7,496.46	-4,551.01	28.32	14,523,225.82	1,730,968.88	39.98991641	-104.67670592
11,400.00	89.91	180.12	7,496.62	-4,651.01	28.11	14,523,125.82	1,730,969.04	39.98964179	-104.67670665
11,500.00	89.91	180.12	7,496.78	-4,751.01	27.91	14,523,025.82	1,730,969.20	39.98936718	-104.67670737
11,600.00	89.91	180.12	7,496.94	-4,851.01	27.71	14,522,925.82	1,730,969.36	39.98909256	-104.67670810
11,700.00	89.91	180.12	7,497.10	-4,951.00	27.50	14,522,825.82	1,730,969.52	39.98881795	-104.67670882
11,800.00	89.91	180.12	7,497.26	-5,051.00	27.30	14,522,725.82	1,730,969.68	39.98854333	-104.67670955
11,900.00	89.91	180.12	7,497.42	-5,151.00	27.10	14,522,625.82	1,730,969.83	39.98826872	-104.67671027
12,000.00	89.91	180.12	7,497.58	-5,251.00	26.89	14,522,525.82	1,730,969.99	39.98799410	-104.67671100
12,100.00	89.91	180.12	7,497.74	-5,351.00	26.69	14,522,425.82	1,730,970.15	39.98771948	-104.67671172
12,200.00	89.91	180.12	7,497.91	-5,451.00	26.49	14,522,325.82	1,730,970.31	39.98744487	-104.67671245
12,300.00	89.91	180.12	7,498.07	-5,551.00	26.29	14,522,225.82	1,730,970.47	39.98717025	-104.67671317
12,400.00	89.91	180.12	7,498.23	-5,651.00	26.08	14,522,125.83	1,730,970.63	39.98689564	-104.67671390
12,500.00	89.91	180.12	7,498.39	-5,751.00	25.88	14,522,025.83	1,730,970.79	39.98662102	-104.67671462
12,600.00	89.91	180.12	7,498.55	-5,851.00	25.68	14,521,925.83	1,730,970.95	39.98634640	-104.67671535
12,700.00	89.91	180.12	7,498.71	-5,951.00	25.47	14,521,825.83	1,730,971.11	39.98607179	-104.67671607
12,800.00	89.91	180.12	7,498.87	-6,051.00	25.27	14,521,725.83	1,730,971.27	39.98579717	-104.67671680
12,900.00	89.91	180.12	7,499.03	-6,151.00	25.07	14,521,625.83	1,730,971.43	39.98552256	-104.67671752
13,000.00	89.91	180.12	7,499.19	-6,251.00	24.86	14,521,525.83	1,730,971.59	39.98524794	-104.67671825
13,100.00	89.91	180.12	7,499.35	-6,351.00	24.66	14,521,425.83	1,730,971.75	39.98497332	-104.67671897
13,200.00	89.91	180.12	7,499.51	-6,451.00	24.46	14,521,325.83	1,730,971.91	39.98469871	-104.67671970
13,300.00	89.91	180.12	7,499.67	-6,551.00	24.25	14,521,225.83	1,730,972.07	39.98442409	-104.67672042
13,400.00	89.91	180.12	7,499.83	-6,651.00	24.05	14,521,125.83	1,730,972.23	39.98414948	-104.67672115
13,500.00	89.91	180.12	7,500.00	-6,751.00	23.85	14,521,025.83	1,730,972.39	39.98387486	-104.67672187
13,600.00	89.91	180.12	7,500.16	-6,851.00	23.65	14,520,925.83	1,730,972.55	39.98360024	-104.67672259
13,700.00	89.91	180.12	7,500.32	-6,951.00	23.44	14,520,825.83	1,730,972.71	39.98332563	-104.67672332
13,800.00	89.91	180.12	7,500.48	-7,051.00	23.24	14,520,725.83	1,730,972.87	39.98305101	-104.67672404
13,900.00	89.91	180.12	7,500.64	-7,151.00	23.04	14,520,625.83	1,730,973.03	39.98277640	-104.67672477
14,000.00	89.91	180.12	7,500.80	-7,251.00	22.83	14,520,525.83	1,730,973.19	39.98250178	-104.67672549
14,100.00	89.91	180.12	7,500.96	-7,351.00	22.63	14,520,425.83	1,730,973.35	39.98222716	-104.67672622
14,200.00	89.91	180.12	7,501.12	-7,451.00	22.43	14,520,325.83	1,730,973.50	39.98195255	-104.67672694
14,300.00	89.91	180.12	7,501.28	-7,551.00	22.22	14,520,225.83	1,730,973.66	39.98167793	-104.67672767
14,400.00	89.91	180.12	7,501.44	-7,651.00	22.02	14,520,125.83	1,730,973.82	39.98140332	-104.67672839
14,500.00	89.91	180.12	7,501.60	-7,751.00	21.82	14,520,025.83	1,730,973.98	39.98112870	-104.67672912
14,600.00	89.91	180.12	7,501.76	-7,851.00	21.61	14,519,925.84	1,730,974.14	39.98085408	-104.67672984
14,700.00	89.91	180.12	7,501.92	-7,950.99	21.41	14,519,825.84	1,730,974.30	39.98057947	-104.67673057
14,800.00	89.91	180.12	7,502.08	-8,050.99	21.21	14,519,725.84	1,730,974.46	39.98030485	-104.67673129
14,900.00	89.91	180.12	7,502.25	-8,150.99	21.01	14,519,625.84	1,730,974.62	39.98003023	-104.67673201
15,000.00	89.91	180.12	7,502.41	-8,250.99	20.80	14,519,525.84	1,730,974.78	39.97975562	-104.67673274
15,100.00	89.91	180.12	7,502.57	-8,350.99	20.60	14,519,425.84	1,730,974.94	39.97948100	-104.67673346
15,200.00	89.91	180.12	7,502.73	-8,450.99	20.40	14,519,325.84	1,730,975.10	39.97920639	-104.67673419
15,300.00	89.91	180.12	7,502.89	-8,550.99	20.19	14,519,225.84	1,730,975.26	39.97893177	-104.67673491
15,400.00	89.91	180.12	7,503.05	-8,650.99	19.99	14,519,125.84	1,730,975.42	39.97865715	-104.67673564

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-10-4L
Company:	Confluence Resources	TVD Reference:	RKB=5076+25 @ 5101.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5076+25 @ 5101.00ft
Site:	Section 33-T01N-R65W	North Reference:	True
Well:	Desha 4-10-4L	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	plan1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
15,500.00	89.91	180.12	7,503.21	-8,750.99	19.79	14,519,025.84	1,730,975.58	39.97838254	-104.67673636
15,600.00	89.91	180.12	7,503.37	-8,850.99	19.58	14,518,925.84	1,730,975.74	39.97810792	-104.67673709
15,700.00	89.91	180.12	7,503.53	-8,950.99	19.38	14,518,825.84	1,730,975.90	39.97783330	-104.67673781
15,800.00	89.91	180.12	7,503.69	-9,050.99	19.18	14,518,725.84	1,730,976.06	39.97755869	-104.67673853
15,900.00	89.91	180.12	7,503.85	-9,150.99	18.98	14,518,625.84	1,730,976.22	39.97728407	-104.67673926
16,000.00	89.91	180.12	7,504.01	-9,250.99	18.77	14,518,525.84	1,730,976.38	39.97700945	-104.67673998
16,100.00	89.91	180.12	7,504.17	-9,350.99	18.57	14,518,425.84	1,730,976.54	39.97673484	-104.67674071
16,200.00	89.91	180.12	7,504.34	-9,450.99	18.37	14,518,325.84	1,730,976.70	39.97646022	-104.67674143
16,300.00	89.91	180.12	7,504.50	-9,550.99	18.16	14,518,225.84	1,730,976.86	39.97618561	-104.67674216
16,400.00	89.91	180.12	7,504.66	-9,650.99	17.96	14,518,125.84	1,730,977.02	39.97591099	-104.67674288
16,500.00	89.91	180.12	7,504.82	-9,750.99	17.76	14,518,025.84	1,730,977.17	39.97563637	-104.67674360
16,600.00	89.91	180.12	7,504.98	-9,850.99	17.55	14,517,925.84	1,730,977.33	39.97536176	-104.67674433
16,700.00	89.91	180.12	7,505.14	-9,950.99	17.35	14,517,825.84	1,730,977.49	39.97508714	-104.67674505
16,800.00	89.91	180.12	7,505.30	-10,050.99	17.15	14,517,725.85	1,730,977.65	39.97481252	-104.67674578
16,900.00	89.91	180.12	7,505.46	-10,150.99	16.94	14,517,625.85	1,730,977.81	39.97453791	-104.67674650
17,000.00	89.91	180.12	7,505.62	-10,250.99	16.74	14,517,525.85	1,730,977.97	39.97426329	-104.67674723
17,100.00	89.91	180.12	7,505.78	-10,350.99	16.54	14,517,425.85	1,730,978.13	39.97398867	-104.67674795
17,200.00	89.91	180.12	7,505.94	-10,450.99	16.34	14,517,325.85	1,730,978.29	39.97371406	-104.67674867
17,235.84	89.91	180.12	7,506.00	-10,486.83	16.26	14,517,290.00	1,730,978.35	39.97361563	-104.67674893
PBHL/TD 17235.84 MD/7506.00 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 4-10-4L 470 F	0.00	0.00	7,491.00	-1,155.05	35.21	14,526,621.77	1,730,963.46	39.99924227	-104.67668130
- plan hits target center									
- Point									
BHL Desha 4-10-4L 470	0.00	0.00	7,506.00	-10,486.83	16.26	14,517,290.00	1,730,978.35	39.97361563	-104.67674893
- 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
5,169.27	5,166.82	-24.79	1.22	Begin 16.93° tangent
7,173.99	7,084.69	-607.75	29.99	Begin 10°/100' build/turn
7,904.03	7,491.00	-1,155.05	35.21	LP Begin 89.91° lateral section
17,235.84	7,506.00	-10,486.83	16.26	PBHL/TD 17235.84 MD/7506.00 TVD