

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

Section Details

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	VSec	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	5000.00	0.00	0.00	5000.00	0.00	0.00	0.00	0.00	KOP Begin 10°/100' build
3	5479.82	47.98	255.65	5425.67	-46.94	-183.53	10.00	87.36	Begin 47.98° tangent
4	8155.57	47.98	255.65	7216.73	-539.51	-2109.44	0.00	1004.06	Begin 10°/100' build/turn
5	8949.40	89.88	179.91	7536.00	-1102.57	-2450.92	10.00	1629.92	LP Begin 89.88° lateral section
6	18300.61	89.88	179.91	7555.00	-10453.75	-2435.44	0.00	10733.70	PBHL/TD 18300.61 MD/7555.00 TVD

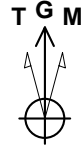
DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
LP Desha 4-4-4L 470 FNL 1660 FEL	7536.00	-1102.57	-2450.9214526637.43	1734124.90	39.9925323	-104.66539260	
BHL Desha 4-4-4L 470 FSL 1660 FEL	7555.00	-10453.75	-2435.4414517286.27	1734140.38	39.97357336	-104.66546261	

Desha 4-4-4L			
Surf loc: 620 FSL 818 FWL Sec34-T01N-R65W			
NAD83 Colorado - HARN			
Universal Transverse Mercator (US Survey Feet)			
Zone 13N (108 W to 102 W)			
RKB=5140+25 @ 5165.00ft			
Northing	Easting	Latitude	Longitude
14527740.00	1736575.82	40.00225545	-104.65662599

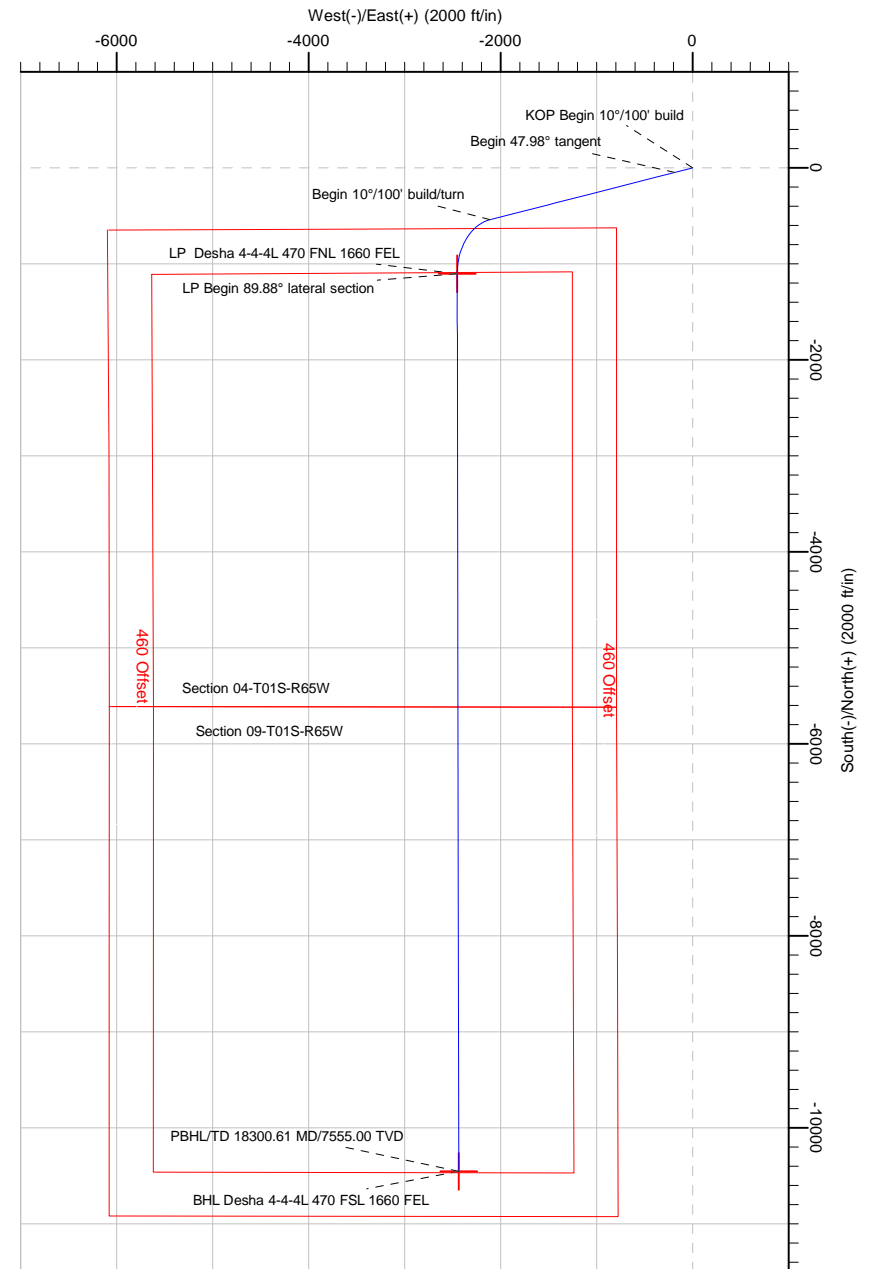
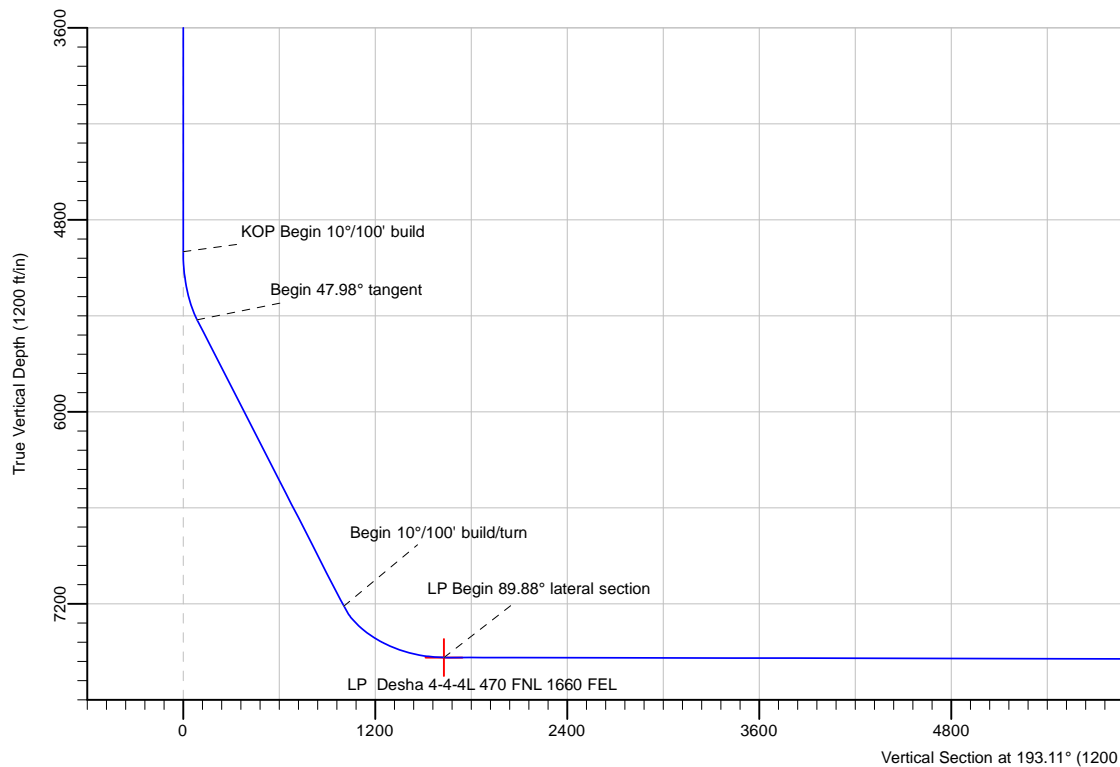
Azimuth Corrections:

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



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

Magnetic Field
Strength: 52109.9snT
Dip Angle: 66.45°
Date: 8/29/2017
Model: HDGM



Note: All lease lines and hard lines are estimates only and are subject to customers approval.

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

Well	Desha 4-4-4L, Surf loc: 620 FSL 818 FWL Sec34-T01N-R65W					
Well Position	+N/-S	-152.80 ft	Northing:	14,527,740.00 usft	Latitude:	40.00225546
	+E/-W	50.52 ft	Easting:	1,736,575.82 usft	Longitude:	-104.65662599
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	5,140.00 ft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	8/29/2017	8.27	66.45	52,109.90000000

Design	plan1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	193.11

Plan Survey Tool Program	Date	8/29/2017		
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	18,300.61	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	
5,479.82	47.98	255.65	5,425.67	-46.94	-183.53	10.00	10.00	0.00	255.65	
8,155.57	47.98	255.65	7,216.73	-539.51	-2,109.44	0.00	0.00	0.00	0.00	
8,949.40	89.88	179.91	7,536.00	-1,102.57	-2,450.92	10.00	5.28	-9.54	-80.44	LP Desha 4-4-4L 47C
18,300.61	89.88	179.91	7,555.00	-10,453.75	-2,435.44	0.00	0.00	0.00	0.00	BHL Desha 4-4-4L 47

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-4-4L
Company:	Confluence Resources	TVD Reference:	RKB=5140+25 @ 5165.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5140+25 @ 5165.00ft
Site:	Section 34-T01N-R65W	North Reference:	Grid
Well:	Desha 4-4-4L	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	255.65	5,099.49	-2.16	-8.43	4.01	10.00	10.00	0.00
5,200.00	20.00	255.65	5,195.96	-8.56	-33.48	15.93	10.00	10.00	0.00

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-4-4L
Company:	Confluence Resources	TVD Reference:	RKB=5140+25 @ 5165.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5140+25 @ 5165.00ft
Site:	Section 34-T01N-R65W	North Reference:	Grid
Well:	Desha 4-4-4L	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)
5,300.00	30.00	255.65	5,286.48	-19.02	-74.37	35.40	10.00	10.00	0.00
5,400.00	40.00	255.65	5,368.29	-33.21	-129.87	61.81	10.00	10.00	0.00
5,479.82	47.98	255.65	5,425.67	-46.94	-183.53	87.36	10.00	10.00	0.00
Begin 47.98° tangent									
5,500.00	47.98	255.65	5,439.18	-50.65	-198.06	94.27	0.00	0.00	0.00
5,600.00	47.98	255.65	5,506.11	-69.06	-270.03	128.53	0.00	0.00	0.00
5,700.00	47.98	255.65	5,573.05	-87.47	-342.01	162.79	0.00	0.00	0.00
5,800.00	47.98	255.65	5,639.99	-105.88	-413.99	197.05	0.00	0.00	0.00
5,900.00	47.98	255.65	5,706.92	-124.29	-485.96	231.31	0.00	0.00	0.00
6,000.00	47.98	255.65	5,773.86	-142.70	-557.94	265.57	0.00	0.00	0.00
6,100.00	47.98	255.65	5,840.80	-161.11	-629.92	299.83	0.00	0.00	0.00
6,200.00	47.98	255.65	5,907.74	-179.51	-701.89	334.09	0.00	0.00	0.00
6,300.00	47.98	255.65	5,974.67	-197.92	-773.87	368.35	0.00	0.00	0.00
6,400.00	47.98	255.65	6,041.61	-216.33	-845.85	402.61	0.00	0.00	0.00
6,500.00	47.98	255.65	6,108.55	-234.74	-917.82	436.87	0.00	0.00	0.00
6,600.00	47.98	255.65	6,175.48	-253.15	-989.80	471.13	0.00	0.00	0.00
6,700.00	47.98	255.65	6,242.42	-271.56	-1,061.77	505.39	0.00	0.00	0.00
6,800.00	47.98	255.65	6,309.36	-289.97	-1,133.75	539.65	0.00	0.00	0.00
6,900.00	47.98	255.65	6,376.29	-308.37	-1,205.73	573.91	0.00	0.00	0.00
7,000.00	47.98	255.65	6,443.23	-326.78	-1,277.70	608.17	0.00	0.00	0.00
7,100.00	47.98	255.65	6,510.17	-345.19	-1,349.68	642.43	0.00	0.00	0.00
7,200.00	47.98	255.65	6,577.10	-363.60	-1,421.66	676.69	0.00	0.00	0.00
7,300.00	47.98	255.65	6,644.04	-382.01	-1,493.63	710.95	0.00	0.00	0.00
7,400.00	47.98	255.65	6,710.98	-400.42	-1,565.61	745.21	0.00	0.00	0.00
7,500.00	47.98	255.65	6,777.91	-418.83	-1,637.59	779.47	0.00	0.00	0.00
7,600.00	47.98	255.65	6,844.85	-437.23	-1,709.56	813.72	0.00	0.00	0.00
7,700.00	47.98	255.65	6,911.79	-455.64	-1,781.54	847.98	0.00	0.00	0.00
7,800.00	47.98	255.65	6,978.72	-474.05	-1,853.52	882.24	0.00	0.00	0.00
7,900.00	47.98	255.65	7,045.66	-492.46	-1,925.49	916.50	0.00	0.00	0.00
8,000.00	47.98	255.65	7,112.60	-510.87	-1,997.47	950.76	0.00	0.00	0.00
8,100.00	47.98	255.65	7,179.53	-529.28	-2,069.44	985.02	0.00	0.00	0.00
8,155.57	47.98	255.65	7,216.73	-539.51	-2,109.44	1,004.06	0.00	0.00	0.00
Begin 10°/100' build/turn									
8,200.00	48.87	249.83	7,246.23	-549.37	-2,141.15	1,020.86	10.00	1.99	-13.10
8,300.00	51.87	237.43	7,310.15	-583.61	-2,209.83	1,069.79	10.00	3.00	-12.40
8,400.00	56.06	226.19	7,369.09	-633.62	-2,273.07	1,132.85	10.00	4.19	-11.24
8,500.00	61.17	216.11	7,421.25	-697.89	-2,328.96	1,208.12	10.00	5.11	-10.08
8,600.00	66.95	207.03	7,465.04	-774.45	-2,375.81	1,293.32	10.00	5.78	-9.08
8,700.00	73.21	198.73	7,499.15	-860.99	-2,412.18	1,385.85	10.00	6.26	-8.30
8,800.00	79.78	190.97	7,522.52	-954.87	-2,436.98	1,482.91	10.00	6.57	-7.76
8,900.00	86.52	183.53	7,534.45	-1,053.24	-2,449.45	1,581.54	10.00	6.74	-7.44
8,949.40	89.88	179.91	7,536.00	-1,102.57	-2,450.92	1,629.92	10.00	6.80	-7.34
LP Begin 89.88° lateral section									
9,000.00	89.88	179.91	7,536.10	-1,153.18	-2,450.84	1,679.19	0.00	0.00	0.00
9,100.00	89.88	179.91	7,536.31	-1,253.18	-2,450.68	1,776.54	0.00	0.00	0.00
9,200.00	89.88	179.91	7,536.51	-1,353.18	-2,450.51	1,873.90	0.00	0.00	0.00
9,300.00	89.88	179.91	7,536.71	-1,453.18	-2,450.34	1,971.25	0.00	0.00	0.00
9,400.00	89.88	179.91	7,536.92	-1,553.18	-2,450.18	2,068.61	0.00	0.00	0.00
9,500.00	89.88	179.91	7,537.12	-1,653.18	-2,450.01	2,165.96	0.00	0.00	0.00
9,600.00	89.88	179.91	7,537.32	-1,753.17	-2,449.85	2,263.31	0.00	0.00	0.00
9,700.00	89.88	179.91	7,537.53	-1,853.17	-2,449.68	2,360.67	0.00	0.00	0.00
9,800.00	89.88	179.91	7,537.73	-1,953.17	-2,449.52	2,458.02	0.00	0.00	0.00
9,900.00	89.88	179.91	7,537.93	-2,053.17	-2,449.35	2,555.38	0.00	0.00	0.00

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-4-4L
Company:	Confluence Resources	TVD Reference:	RKB=5140+25 @ 5165.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5140+25 @ 5165.00ft
Site:	Section 34-T01N-R65W	North Reference:	Grid
Well:	Desha 4-4-4L	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	89.88	179.91	7,538.13	-2,153.17	-2,449.19	2,652.73	0.00	0.00	0.00
10,100.00	89.88	179.91	7,538.34	-2,253.17	-2,449.02	2,750.08	0.00	0.00	0.00
10,200.00	89.88	179.91	7,538.54	-2,353.17	-2,448.85	2,847.44	0.00	0.00	0.00
10,300.00	89.88	179.91	7,538.74	-2,453.17	-2,448.69	2,944.79	0.00	0.00	0.00
10,400.00	89.88	179.91	7,538.95	-2,553.17	-2,448.52	3,042.15	0.00	0.00	0.00
10,500.00	89.88	179.91	7,539.15	-2,653.17	-2,448.36	3,139.50	0.00	0.00	0.00
10,600.00	89.88	179.91	7,539.35	-2,753.17	-2,448.19	3,236.85	0.00	0.00	0.00
10,700.00	89.88	179.91	7,539.56	-2,853.17	-2,448.03	3,334.21	0.00	0.00	0.00
10,800.00	89.88	179.91	7,539.76	-2,953.17	-2,447.86	3,431.56	0.00	0.00	0.00
10,900.00	89.88	179.91	7,539.96	-3,053.17	-2,447.70	3,528.92	0.00	0.00	0.00
11,000.00	89.88	179.91	7,540.17	-3,153.17	-2,447.53	3,626.27	0.00	0.00	0.00
11,100.00	89.88	179.91	7,540.37	-3,253.17	-2,447.36	3,723.62	0.00	0.00	0.00
11,200.00	89.88	179.91	7,540.57	-3,353.17	-2,447.20	3,820.98	0.00	0.00	0.00
11,300.00	89.88	179.91	7,540.78	-3,453.17	-2,447.03	3,918.33	0.00	0.00	0.00
11,400.00	89.88	179.91	7,540.98	-3,553.17	-2,446.87	4,015.68	0.00	0.00	0.00
11,500.00	89.88	179.91	7,541.18	-3,653.17	-2,446.70	4,113.04	0.00	0.00	0.00
11,600.00	89.88	179.91	7,541.39	-3,753.17	-2,446.54	4,210.39	0.00	0.00	0.00
11,700.00	89.88	179.91	7,541.59	-3,853.17	-2,446.37	4,307.75	0.00	0.00	0.00
11,800.00	89.88	179.91	7,541.79	-3,953.17	-2,446.21	4,405.10	0.00	0.00	0.00
11,900.00	89.88	179.91	7,542.00	-4,053.17	-2,446.04	4,502.45	0.00	0.00	0.00
12,000.00	89.88	179.91	7,542.20	-4,153.17	-2,445.87	4,599.81	0.00	0.00	0.00
12,100.00	89.88	179.91	7,542.40	-4,253.17	-2,445.71	4,697.16	0.00	0.00	0.00
12,200.00	89.88	179.91	7,542.60	-4,353.17	-2,445.54	4,794.52	0.00	0.00	0.00
12,300.00	89.88	179.91	7,542.81	-4,453.17	-2,445.38	4,891.87	0.00	0.00	0.00
12,400.00	89.88	179.91	7,543.01	-4,553.17	-2,445.21	4,989.22	0.00	0.00	0.00
12,500.00	89.88	179.91	7,543.21	-4,653.17	-2,445.05	5,086.58	0.00	0.00	0.00
12,600.00	89.88	179.91	7,543.42	-4,753.16	-2,444.88	5,183.93	0.00	0.00	0.00
12,700.00	89.88	179.91	7,543.62	-4,853.16	-2,444.72	5,281.29	0.00	0.00	0.00
12,800.00	89.88	179.91	7,543.82	-4,953.16	-2,444.55	5,378.64	0.00	0.00	0.00
12,900.00	89.88	179.91	7,544.03	-5,053.16	-2,444.39	5,475.99	0.00	0.00	0.00
13,000.00	89.88	179.91	7,544.23	-5,153.16	-2,444.22	5,573.35	0.00	0.00	0.00
13,100.00	89.88	179.91	7,544.43	-5,253.16	-2,444.05	5,670.70	0.00	0.00	0.00
13,200.00	89.88	179.91	7,544.64	-5,353.16	-2,443.89	5,768.06	0.00	0.00	0.00
13,300.00	89.88	179.91	7,544.84	-5,453.16	-2,443.72	5,865.41	0.00	0.00	0.00
13,400.00	89.88	179.91	7,545.04	-5,553.16	-2,443.56	5,962.76	0.00	0.00	0.00
13,500.00	89.88	179.91	7,545.25	-5,653.16	-2,443.39	6,060.12	0.00	0.00	0.00
13,600.00	89.88	179.91	7,545.45	-5,753.16	-2,443.23	6,157.47	0.00	0.00	0.00
13,700.00	89.88	179.91	7,545.65	-5,853.16	-2,443.06	6,254.83	0.00	0.00	0.00
13,800.00	89.88	179.91	7,545.86	-5,953.16	-2,442.90	6,352.18	0.00	0.00	0.00
13,900.00	89.88	179.91	7,546.06	-6,053.16	-2,442.73	6,449.53	0.00	0.00	0.00
14,000.00	89.88	179.91	7,546.26	-6,153.16	-2,442.56	6,546.89	0.00	0.00	0.00
14,100.00	89.88	179.91	7,546.47	-6,253.16	-2,442.40	6,644.24	0.00	0.00	0.00
14,200.00	89.88	179.91	7,546.67	-6,353.16	-2,442.23	6,741.60	0.00	0.00	0.00
14,300.00	89.88	179.91	7,546.87	-6,453.16	-2,442.07	6,838.95	0.00	0.00	0.00
14,400.00	89.88	179.91	7,547.07	-6,553.16	-2,441.90	6,936.30	0.00	0.00	0.00
14,500.00	89.88	179.91	7,547.28	-6,653.16	-2,441.74	7,033.66	0.00	0.00	0.00
14,600.00	89.88	179.91	7,547.48	-6,753.16	-2,441.57	7,131.01	0.00	0.00	0.00
14,700.00	89.88	179.91	7,547.68	-6,853.16	-2,441.41	7,228.37	0.00	0.00	0.00
14,800.00	89.88	179.91	7,547.89	-6,953.16	-2,441.24	7,325.72	0.00	0.00	0.00
14,900.00	89.88	179.91	7,548.09	-7,053.16	-2,441.07	7,423.07	0.00	0.00	0.00
15,000.00	89.88	179.91	7,548.29	-7,153.16	-2,440.91	7,520.43	0.00	0.00	0.00
15,100.00	89.88	179.91	7,548.50	-7,253.16	-2,440.74	7,617.78	0.00	0.00	0.00
15,200.00	89.88	179.91	7,548.70	-7,353.16	-2,440.58	7,715.14	0.00	0.00	0.00
15,300.00	89.88	179.91	7,548.90	-7,453.16	-2,440.41	7,812.49	0.00	0.00	0.00

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-4-4L
Company:	Confluence Resources	TVD Reference:	RKB=5140+25 @ 5165.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5140+25 @ 5165.00ft
Site:	Section 34-T01N-R65W	North Reference:	Grid
Well:	Desha 4-4-4L	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	89.88	179.91	7,549.11	-7,553.16	-2,440.25	7,909.84	0.00	0.00	0.00
15,500.00	89.88	179.91	7,549.31	-7,653.15	-2,440.08	8,007.20	0.00	0.00	0.00
15,600.00	89.88	179.91	7,549.51	-7,753.15	-2,439.92	8,104.55	0.00	0.00	0.00
15,700.00	89.88	179.91	7,549.72	-7,853.15	-2,439.75	8,201.91	0.00	0.00	0.00
15,800.00	89.88	179.91	7,549.92	-7,953.15	-2,439.58	8,299.26	0.00	0.00	0.00
15,900.00	89.88	179.91	7,550.12	-8,053.15	-2,439.42	8,396.61	0.00	0.00	0.00
16,000.00	89.88	179.91	7,550.33	-8,153.15	-2,439.25	8,493.97	0.00	0.00	0.00
16,100.00	89.88	179.91	7,550.53	-8,253.15	-2,439.09	8,591.32	0.00	0.00	0.00
16,200.00	89.88	179.91	7,550.73	-8,353.15	-2,438.92	8,688.68	0.00	0.00	0.00
16,300.00	89.88	179.91	7,550.94	-8,453.15	-2,438.76	8,786.03	0.00	0.00	0.00
16,400.00	89.88	179.91	7,551.14	-8,553.15	-2,438.59	8,883.38	0.00	0.00	0.00
16,500.00	89.88	179.91	7,551.34	-8,653.15	-2,438.43	8,980.74	0.00	0.00	0.00
16,600.00	89.88	179.91	7,551.54	-8,753.15	-2,438.26	9,078.09	0.00	0.00	0.00
16,700.00	89.88	179.91	7,551.75	-8,853.15	-2,438.09	9,175.45	0.00	0.00	0.00
16,800.00	89.88	179.91	7,551.95	-8,953.15	-2,437.93	9,272.80	0.00	0.00	0.00
16,900.00	89.88	179.91	7,552.15	-9,053.15	-2,437.76	9,370.15	0.00	0.00	0.00
17,000.00	89.88	179.91	7,552.36	-9,153.15	-2,437.60	9,467.51	0.00	0.00	0.00
17,100.00	89.88	179.91	7,552.56	-9,253.15	-2,437.43	9,564.86	0.00	0.00	0.00
17,200.00	89.88	179.91	7,552.76	-9,353.15	-2,437.27	9,662.22	0.00	0.00	0.00
17,300.00	89.88	179.91	7,552.97	-9,453.15	-2,437.10	9,759.57	0.00	0.00	0.00
17,400.00	89.88	179.91	7,553.17	-9,553.15	-2,436.94	9,856.92	0.00	0.00	0.00
17,500.00	89.88	179.91	7,553.37	-9,653.15	-2,436.77	9,954.28	0.00	0.00	0.00
17,600.00	89.88	179.91	7,553.58	-9,753.15	-2,436.60	10,051.63	0.00	0.00	0.00
17,700.00	89.88	179.91	7,553.78	-9,853.15	-2,436.44	10,148.99	0.00	0.00	0.00
17,800.00	89.88	179.91	7,553.98	-9,953.15	-2,436.27	10,246.34	0.00	0.00	0.00
17,900.00	89.88	179.91	7,554.19	-10,053.15	-2,436.11	10,343.69	0.00	0.00	0.00
18,000.00	89.88	179.91	7,554.39	-10,153.15	-2,435.94	10,441.05	0.00	0.00	0.00
18,100.00	89.88	179.91	7,554.59	-10,253.15	-2,435.78	10,538.40	0.00	0.00	0.00
18,200.00	89.88	179.91	7,554.80	-10,353.15	-2,435.61	10,635.76	0.00	0.00	0.00
18,300.00	89.88	179.91	7,555.00	-10,453.15	-2,435.45	10,733.11	0.00	0.00	0.00
18,300.61	89.88	179.91	7,555.00	-10,453.75	-2,435.44	10,733.70	0.00	0.00	0.00
PBHL/TD 18300.61 MD/7555.00 TVD									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
LP Desha 4-4-4L 470 FI	0.00	0.00	7,536.00	-1,102.57	-2,450.92	14,526,637.43	1,734,124.90	39.99925324	-104.66539260
- plan hits target center									
- Point									
BHL Desha 4-4-4L 470 F	0.00	0.00	7,555.00	-10,453.75	-2,435.44	14,517,286.27	1,734,140.38	39.97357336	-104.66546261
- plan hits target center									
- Point									

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-4-4L
Company:	Confluence Resources	TVD Reference:	RKB=5140+25 @ 5165.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5140+25 @ 5165.00ft
Site:	Section 34-T01N-R65W	North Reference:	Grid
Well:	Desha 4-4-4L	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	plan1		

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
5,000.00	5,000.00	0.00	0.00	KOP Begin 10°/100' build	
5,479.82	5,425.67	-46.94	-183.53	Begin 47.98° tangent	
8,155.57	7,216.73	-539.51	-2,109.44	Begin 10°/100' build/turn	
8,949.40	7,536.00	-1,102.57	-2,450.92	LP Begin 89.88° lateral section	
18,300.61	7,555.00	-10,453.75	-2,435.44	PBHL/TD 18300.61 MD/7555.00 TVD	

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

Well	Desha 4-4-4L, Surf loc: 620 FSL 818 FWL Sec34-T01N-R65W					
Well Position	+N/-S	0.00 ft	Northing:	14,527,740.00 usft	Latitude:	40.00225546
	+E/-W	0.00 ft	Easting:	1,736,575.82 usft	Longitude:	-104.65662599
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	5,140.00 ft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	8/29/2017	8.27	66.45	52,109.90000000

Design	plan1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	193.11

Plan Survey Tool Program	Date	8/29/2017		
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	18,300.61 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	
5,479.82	47.98	255.65	5,425.67	-46.94	-183.53	10.00	10.00	0.00	255.65	
8,155.57	47.98	255.65	7,216.73	-539.51	-2,109.44	0.00	0.00	0.00	0.00	
8,949.40	89.88	179.91	7,536.00	-1,102.57	-2,450.92	10.00	5.28	-9.54	-80.44	LP Desha 4-4-4L 47C
18,300.61	89.88	179.91	7,555.00	-10,453.75	-2,435.44	0.00	0.00	0.00	0.00	BHL Desha 4-4-4L 47

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-4-4L
Company:	Confluence Resources	TVD Reference:	RKB=5140+25 @ 5165.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5140+25 @ 5165.00ft
Site:	Section 34-T01N-R65W	North Reference:	Grid
Well:	Desha 4-4-4L	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	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
100.00	0.00	0.00	100.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
200.00	0.00	0.00	200.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
300.00	0.00	0.00	300.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
400.00	0.00	0.00	400.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
500.00	0.00	0.00	500.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
600.00	0.00	0.00	600.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
700.00	0.00	0.00	700.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
800.00	0.00	0.00	800.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
900.00	0.00	0.00	900.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
1,100.00	0.00	0.00	1,100.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
1,200.00	0.00	0.00	1,200.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
1,300.00	0.00	0.00	1,300.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
1,400.00	0.00	0.00	1,400.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
1,500.00	0.00	0.00	1,500.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
1,600.00	0.00	0.00	1,600.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
1,700.00	0.00	0.00	1,700.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
1,800.00	0.00	0.00	1,800.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
1,900.00	0.00	0.00	1,900.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
2,000.00	0.00	0.00	2,000.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
2,100.00	0.00	0.00	2,100.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
2,200.00	0.00	0.00	2,200.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
2,300.00	0.00	0.00	2,300.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
2,400.00	0.00	0.00	2,400.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
2,500.00	0.00	0.00	2,500.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
2,600.00	0.00	0.00	2,600.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
2,700.00	0.00	0.00	2,700.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
2,800.00	0.00	0.00	2,800.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
2,900.00	0.00	0.00	2,900.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
3,000.00	0.00	0.00	3,000.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
3,100.00	0.00	0.00	3,100.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
3,200.00	0.00	0.00	3,200.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
3,300.00	0.00	0.00	3,300.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
3,400.00	0.00	0.00	3,400.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
3,500.00	0.00	0.00	3,500.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
3,600.00	0.00	0.00	3,600.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
3,700.00	0.00	0.00	3,700.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
3,800.00	0.00	0.00	3,800.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
3,900.00	0.00	0.00	3,900.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
4,000.00	0.00	0.00	4,000.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
4,100.00	0.00	0.00	4,100.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
4,200.00	0.00	0.00	4,200.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
4,300.00	0.00	0.00	4,300.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
4,400.00	0.00	0.00	4,400.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
4,500.00	0.00	0.00	4,500.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
4,600.00	0.00	0.00	4,600.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
4,700.00	0.00	0.00	4,700.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
4,800.00	0.00	0.00	4,800.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
4,900.00	0.00	0.00	4,900.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
5,000.00	0.00	0.00	5,000.00	0.00	0.00	14,527,740.00	1,736,575.82	40.00225546	-104.65662599
KOP Begin 10°/100' build									
5,100.00	10.00	255.65	5,099.49	-2.16	-8.43	14,527,737.85	1,736,567.39	40.00224962	-104.65665613
5,200.00	20.00	255.65	5,195.96	-8.56	-33.48	14,527,731.44	1,736,542.34	40.00223230	-104.65674564

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-4-4L
Company:	Confluence Resources	TVD Reference:	RKB=5140+25 @ 5165.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5140+25 @ 5165.00ft
Site:	Section 34-T01N-R65W	North Reference:	Grid
Well:	Desha 4-4-4L	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
5,300.00	30.00	255.65	5,286.48	-19.02	-74.37	14,527,720.98	1,736,501.45	40.00220401	-104.65689181
5,400.00	40.00	255.65	5,368.29	-33.21	-129.87	14,527,706.79	1,736,445.95	40.00216562	-104.65709018
5,479.82	47.98	255.65	5,425.67	-46.94	-183.53	14,527,693.07	1,736,392.29	40.00212849	-104.65728199
Begin 47.98° tangent									
5,500.00	47.98	255.65	5,439.18	-50.65	-198.06	14,527,689.35	1,736,377.76	40.00211844	-104.65733391
5,600.00	47.98	255.65	5,506.11	-69.06	-270.03	14,527,670.94	1,736,305.79	40.00206865	-104.65759118
5,700.00	47.98	255.65	5,573.05	-87.47	-342.01	14,527,652.53	1,736,233.81	40.00201886	-104.65784845
5,800.00	47.98	255.65	5,639.99	-105.88	-413.99	14,527,634.12	1,736,161.83	40.00196906	-104.65810571
5,900.00	47.98	255.65	5,706.92	-124.29	-485.96	14,527,615.72	1,736,089.86	40.00191927	-104.65836298
6,000.00	47.98	255.65	5,773.86	-142.70	-557.94	14,527,597.31	1,736,017.88	40.00186947	-104.65862025
6,100.00	47.98	255.65	5,840.80	-161.11	-629.92	14,527,578.90	1,735,945.90	40.00181968	-104.65887751
6,200.00	47.98	255.65	5,907.74	-179.51	-701.89	14,527,560.49	1,735,873.93	40.00176988	-104.65913478
6,300.00	47.98	255.65	5,974.67	-197.92	-773.87	14,527,542.08	1,735,801.95	40.00172009	-104.65939204
6,400.00	47.98	255.65	6,041.61	-216.33	-845.85	14,527,523.67	1,735,729.98	40.00167029	-104.65964930
6,500.00	47.98	255.65	6,108.55	-234.74	-917.82	14,527,505.27	1,735,658.00	40.00162049	-104.65990657
6,600.00	47.98	255.65	6,175.48	-253.15	-989.80	14,527,486.86	1,735,586.02	40.00157069	-104.66016383
6,700.00	47.98	255.65	6,242.42	-271.56	-1,061.77	14,527,468.45	1,735,514.05	40.00152089	-104.66042110
6,800.00	47.98	255.65	6,309.36	-289.97	-1,133.75	14,527,450.04	1,735,442.07	40.00147109	-104.66067836
6,900.00	47.98	255.65	6,376.29	-308.37	-1,205.73	14,527,431.63	1,735,370.09	40.00142129	-104.66093562
7,000.00	47.98	255.65	6,443.23	-326.78	-1,277.70	14,527,413.22	1,735,298.12	40.00137149	-104.66119288
7,100.00	47.98	255.65	6,510.17	-345.19	-1,349.68	14,527,394.81	1,735,226.14	40.00132169	-104.66145014
7,200.00	47.98	255.65	6,577.10	-363.60	-1,421.66	14,527,376.41	1,735,154.16	40.00127189	-104.66170741
7,300.00	47.98	255.65	6,644.04	-382.01	-1,493.63	14,527,358.00	1,735,082.19	40.00122209	-104.66196467
7,400.00	47.98	255.65	6,710.98	-400.42	-1,565.61	14,527,339.59	1,735,010.21	40.00117228	-104.66222193
7,500.00	47.98	255.65	6,777.91	-418.83	-1,637.59	14,527,321.18	1,734,938.24	40.00112248	-104.66247919
7,600.00	47.98	255.65	6,844.85	-437.23	-1,709.56	14,527,302.77	1,734,866.26	40.00107268	-104.66273645
7,700.00	47.98	255.65	6,911.79	-455.64	-1,781.54	14,527,284.36	1,734,794.28	40.00102287	-104.66299371
7,800.00	47.98	255.65	6,978.72	-474.05	-1,853.52	14,527,265.96	1,734,722.31	40.00097307	-104.66325097
7,900.00	47.98	255.65	7,045.66	-492.46	-1,925.49	14,527,247.55	1,734,650.33	40.00092326	-104.66350822
8,000.00	47.98	255.65	7,112.60	-510.87	-1,997.47	14,527,229.14	1,734,578.35	40.00087345	-104.66376548
8,100.00	47.98	255.65	7,179.53	-529.28	-2,069.44	14,527,210.73	1,734,506.38	40.00082365	-104.66402274
8,155.57	47.98	255.65	7,216.73	-539.51	-2,109.44	14,527,200.50	1,734,466.38	40.00079597	-104.66416570
Begin 10°/100' build/turn									
8,200.00	48.87	249.83	7,246.23	-549.37	-2,141.15	14,527,190.64	1,734,434.67	40.00076921	-104.66427907
8,300.00	51.87	237.43	7,310.15	-583.61	-2,209.83	14,527,156.40	1,734,366.00	40.00067589	-104.66452474
8,400.00	56.06	226.19	7,369.09	-633.62	-2,273.07	14,527,106.38	1,734,302.75	40.00053920	-104.66475124
8,500.00	61.17	216.11	7,421.25	-697.89	-2,328.96	14,527,042.12	1,734,246.86	40.00036330	-104.66495169
8,600.00	66.95	207.03	7,465.04	-774.45	-2,375.81	14,526,965.55	1,734,200.01	40.00015353	-104.66511999
8,700.00	73.21	198.73	7,499.15	-860.99	-2,412.18	14,526,879.02	1,734,163.64	39.99991626	-104.66525103
8,800.00	79.78	190.97	7,522.52	-954.87	-2,436.98	14,526,785.14	1,734,138.84	39.99965871	-104.66534083
8,900.00	86.52	183.53	7,534.45	-1,053.24	-2,449.45	14,526,686.77	1,734,126.38	39.99938870	-104.66538666
8,949.40	89.88	179.91	7,536.00	-1,102.57	-2,450.92	14,526,637.43	1,734,124.90	39.99925324	-104.66539260
LP Begin 89.88° lateral section									
9,000.00	89.88	179.91	7,536.10	-1,153.18	-2,450.84	14,526,586.83	1,734,124.98	39.99911427	-104.66539298
9,100.00	89.88	179.91	7,536.31	-1,253.18	-2,450.68	14,526,486.83	1,734,125.15	39.99883965	-104.66539373
9,200.00	89.88	179.91	7,536.51	-1,353.18	-2,450.51	14,526,386.83	1,734,125.31	39.99856504	-104.66539448
9,300.00	89.88	179.91	7,536.71	-1,453.18	-2,450.34	14,526,286.83	1,734,125.48	39.99829042	-104.66539522
9,400.00	89.88	179.91	7,536.92	-1,553.18	-2,450.18	14,526,186.83	1,734,125.64	39.99801581	-104.66539597
9,500.00	89.88	179.91	7,537.12	-1,653.18	-2,450.01	14,526,086.83	1,734,125.81	39.99774119	-104.66539672
9,600.00	89.88	179.91	7,537.32	-1,753.17	-2,449.85	14,525,986.83	1,734,125.98	39.99746658	-104.66539747
9,700.00	89.88	179.91	7,537.53	-1,853.17	-2,449.68	14,525,886.83	1,734,126.14	39.99719196	-104.66539822
9,800.00	89.88	179.91	7,537.73	-1,953.17	-2,449.52	14,525,786.83	1,734,126.31	39.99691735	-104.66539897
9,900.00	89.88	179.91	7,537.93	-2,053.17	-2,449.35	14,525,686.83	1,734,126.47	39.99664273	-104.66539972
10,000.00	89.88	179.91	7,538.13	-2,153.17	-2,449.19	14,525,586.84	1,734,126.64	39.99636812	-104.66540047

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-4-4L
Company:	Confluence Resources	TVD Reference:	RKB=5140+25 @ 5165.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5140+25 @ 5165.00ft
Site:	Section 34-T01N-R65W	North Reference:	Grid
Well:	Desha 4-4-4L	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
10,100.00	89.88	179.91	7,538.34	-2,253.17	-2,449.02	14,525,486.84	1,734,126.80	39.99609350	-104.66540122
10,200.00	89.88	179.91	7,538.54	-2,353.17	-2,448.85	14,525,386.84	1,734,126.97	39.99581889	-104.66540197
10,300.00	89.88	179.91	7,538.74	-2,453.17	-2,448.69	14,525,286.84	1,734,127.13	39.99554427	-104.66540272
10,400.00	89.88	179.91	7,538.95	-2,553.17	-2,448.52	14,525,186.84	1,734,127.30	39.99526966	-104.66540347
10,500.00	89.88	179.91	7,539.15	-2,653.17	-2,448.36	14,525,086.84	1,734,127.47	39.99499504	-104.66540421
10,600.00	89.88	179.91	7,539.35	-2,753.17	-2,448.19	14,524,986.84	1,734,127.63	39.99472043	-104.66540496
10,700.00	89.88	179.91	7,539.56	-2,853.17	-2,448.03	14,524,886.84	1,734,127.80	39.99444581	-104.66540571
10,800.00	89.88	179.91	7,539.76	-2,953.17	-2,447.86	14,524,786.84	1,734,127.96	39.99417120	-104.66540646
10,900.00	89.88	179.91	7,539.96	-3,053.17	-2,447.70	14,524,686.84	1,734,128.13	39.99389658	-104.66540721
11,000.00	89.88	179.91	7,540.17	-3,153.17	-2,447.53	14,524,586.84	1,734,128.29	39.99362197	-104.66540796
11,100.00	89.88	179.91	7,540.37	-3,253.17	-2,447.36	14,524,486.84	1,734,128.46	39.99334735	-104.66540871
11,200.00	89.88	179.91	7,540.57	-3,353.17	-2,447.20	14,524,386.84	1,734,128.62	39.99307274	-104.66540946
11,300.00	89.88	179.91	7,540.78	-3,453.17	-2,447.03	14,524,286.84	1,734,128.79	39.99279812	-104.66541021
11,400.00	89.88	179.91	7,540.98	-3,553.17	-2,446.87	14,524,186.84	1,734,128.96	39.99252351	-104.66541096
11,500.00	89.88	179.91	7,541.18	-3,653.17	-2,446.70	14,524,086.84	1,734,129.12	39.99224889	-104.66541170
11,600.00	89.88	179.91	7,541.39	-3,753.17	-2,446.54	14,523,986.84	1,734,129.29	39.99197428	-104.66541245
11,700.00	89.88	179.91	7,541.59	-3,853.17	-2,446.37	14,523,886.84	1,734,129.45	39.99169966	-104.66541320
11,800.00	89.88	179.91	7,541.79	-3,953.17	-2,446.21	14,523,786.85	1,734,129.62	39.99142505	-104.66541395
11,900.00	89.88	179.91	7,542.00	-4,053.17	-2,446.04	14,523,686.85	1,734,129.78	39.99115043	-104.66541470
12,000.00	89.88	179.91	7,542.20	-4,153.17	-2,445.87	14,523,586.85	1,734,129.95	39.99087581	-104.66541545
12,100.00	89.88	179.91	7,542.40	-4,253.17	-2,445.71	14,523,486.85	1,734,130.11	39.99060120	-104.66541620
12,200.00	89.88	179.91	7,542.60	-4,353.17	-2,445.54	14,523,386.85	1,734,130.28	39.99032658	-104.66541695
12,300.00	89.88	179.91	7,542.81	-4,453.17	-2,445.38	14,523,286.85	1,734,130.45	39.99005197	-104.66541770
12,400.00	89.88	179.91	7,543.01	-4,553.17	-2,445.21	14,523,186.85	1,734,130.61	39.98977735	-104.66541844
12,500.00	89.88	179.91	7,543.21	-4,653.17	-2,445.05	14,523,086.85	1,734,130.78	39.98950274	-104.66541919
12,600.00	89.88	179.91	7,543.42	-4,753.16	-2,444.88	14,522,986.85	1,734,130.94	39.98922812	-104.66541994
12,700.00	89.88	179.91	7,543.62	-4,853.16	-2,444.72	14,522,886.85	1,734,131.11	39.98895351	-104.66542069
12,800.00	89.88	179.91	7,543.82	-4,953.16	-2,444.55	14,522,786.85	1,734,131.27	39.98867889	-104.66542144
12,900.00	89.88	179.91	7,544.03	-5,053.16	-2,444.39	14,522,686.85	1,734,131.44	39.98840428	-104.66542219
13,000.00	89.88	179.91	7,544.23	-5,153.16	-2,444.22	14,522,586.85	1,734,131.60	39.98812966	-104.66542294
13,100.00	89.88	179.91	7,544.43	-5,253.16	-2,444.05	14,522,486.85	1,734,131.77	39.98785505	-104.66542369
13,200.00	89.88	179.91	7,544.64	-5,353.16	-2,443.89	14,522,386.85	1,734,131.94	39.98758043	-104.66542443
13,300.00	89.88	179.91	7,544.84	-5,453.16	-2,443.72	14,522,286.85	1,734,132.10	39.98730581	-104.66542518
13,400.00	89.88	179.91	7,545.04	-5,553.16	-2,443.56	14,522,186.85	1,734,132.27	39.98703120	-104.66542593
13,500.00	89.88	179.91	7,545.25	-5,653.16	-2,443.39	14,522,086.85	1,734,132.43	39.98675658	-104.66542668
13,600.00	89.88	179.91	7,545.45	-5,753.16	-2,443.23	14,521,986.85	1,734,132.60	39.98648197	-104.66542743
13,700.00	89.88	179.91	7,545.65	-5,853.16	-2,443.06	14,521,886.86	1,734,132.76	39.98620735	-104.66542818
13,800.00	89.88	179.91	7,545.86	-5,953.16	-2,442.90	14,521,786.86	1,734,132.93	39.98593274	-104.66542893
13,900.00	89.88	179.91	7,546.06	-6,053.16	-2,442.73	14,521,686.86	1,734,133.09	39.98565812	-104.66542968
14,000.00	89.88	179.91	7,546.26	-6,153.16	-2,442.56	14,521,586.86	1,734,133.26	39.98538351	-104.66543042
14,100.00	89.88	179.91	7,546.47	-6,253.16	-2,442.40	14,521,486.86	1,734,133.43	39.98510889	-104.66543117
14,200.00	89.88	179.91	7,546.67	-6,353.16	-2,442.23	14,521,386.86	1,734,133.59	39.98483427	-104.66543192
14,300.00	89.88	179.91	7,546.87	-6,453.16	-2,442.07	14,521,286.86	1,734,133.76	39.98455966	-104.66543267
14,400.00	89.88	179.91	7,547.07	-6,553.16	-2,441.90	14,521,186.86	1,734,133.92	39.98428504	-104.66543342
14,500.00	89.88	179.91	7,547.28	-6,653.16	-2,441.74	14,521,086.86	1,734,134.09	39.98401043	-104.66543417
14,600.00	89.88	179.91	7,547.48	-6,753.16	-2,441.57	14,520,986.86	1,734,134.25	39.98373581	-104.66543492
14,700.00	89.88	179.91	7,547.68	-6,853.16	-2,441.41	14,520,886.86	1,734,134.42	39.98346120	-104.66543566
14,800.00	89.88	179.91	7,547.89	-6,953.16	-2,441.24	14,520,786.86	1,734,134.58	39.98318658	-104.66543641
14,900.00	89.88	179.91	7,548.09	-7,053.16	-2,441.07	14,520,686.86	1,734,134.75	39.98291197	-104.66543716
15,000.00	89.88	179.91	7,548.29	-7,153.16	-2,440.91	14,520,586.86	1,734,134.91	39.98263735	-104.66543791
15,100.00	89.88	179.91	7,548.50	-7,253.16	-2,440.74	14,520,486.86	1,734,135.08	39.98236273	-104.66543866
15,200.00	89.88	179.91	7,548.70	-7,353.16	-2,440.58	14,520,386.86	1,734,135.25	39.98208812	-104.66543941
15,300.00	89.88	179.91	7,548.90	-7,453.16	-2,440.41	14,520,286.86	1,734,135.41	39.98181350	-104.66544015
15,400.00	89.88	179.91	7,549.11	-7,553.16	-2,440.25	14,520,186.86	1,734,135.58	39.98153889	-104.66544090
15,500.00	89.88	179.91	7,549.31	-7,653.15	-2,440.08	14,520,086.87	1,734,135.74	39.98126427	-104.66544165

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Desha 4-4-4L
Company:	Confluence Resources	TVD Reference:	RKB=5140+25 @ 5165.00ft
Project:	Weld County, Colorado	MD Reference:	RKB=5140+25 @ 5165.00ft
Site:	Section 34-T01N-R65W	North Reference:	Grid
Well:	Desha 4-4-4L	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
15,600.00	89.88	179.91	7,549.51	-7,753.15	-2,439.92	14,519,986.87	1,734,135.91	39.98098966	-104.66544240
15,700.00	89.88	179.91	7,549.72	-7,853.15	-2,439.75	14,519,886.87	1,734,136.07	39.98071504	-104.66544315
15,800.00	89.88	179.91	7,549.92	-7,953.15	-2,439.58	14,519,786.87	1,734,136.24	39.98044042	-104.66544390
15,900.00	89.88	179.91	7,550.12	-8,053.15	-2,439.42	14,519,686.87	1,734,136.40	39.98016581	-104.66544464
16,000.00	89.88	179.91	7,550.33	-8,153.15	-2,439.25	14,519,586.87	1,734,136.57	39.97989119	-104.66544539
16,100.00	89.88	179.91	7,550.53	-8,253.15	-2,439.09	14,519,486.87	1,734,136.74	39.97961658	-104.66544614
16,200.00	89.88	179.91	7,550.73	-8,353.15	-2,438.92	14,519,386.87	1,734,136.90	39.97934196	-104.66544689
16,300.00	89.88	179.91	7,550.94	-8,453.15	-2,438.76	14,519,286.87	1,734,137.07	39.97906734	-104.66544764
16,400.00	89.88	179.91	7,551.14	-8,553.15	-2,438.59	14,519,186.87	1,734,137.23	39.97879273	-104.66544839
16,500.00	89.88	179.91	7,551.34	-8,653.15	-2,438.43	14,519,086.87	1,734,137.40	39.97851811	-104.66544913
16,600.00	89.88	179.91	7,551.54	-8,753.15	-2,438.26	14,518,986.87	1,734,137.56	39.97824350	-104.66544988
16,700.00	89.88	179.91	7,551.75	-8,853.15	-2,438.09	14,518,886.87	1,734,137.73	39.97796888	-104.66545063
16,800.00	89.88	179.91	7,551.95	-8,953.15	-2,437.93	14,518,786.87	1,734,137.89	39.97769427	-104.66545138
16,900.00	89.88	179.91	7,552.15	-9,053.15	-2,437.76	14,518,686.87	1,734,138.06	39.97741965	-104.66545213
17,000.00	89.88	179.91	7,552.36	-9,153.15	-2,437.60	14,518,586.87	1,734,138.23	39.97714503	-104.66545288
17,100.00	89.88	179.91	7,552.56	-9,253.15	-2,437.43	14,518,486.87	1,734,138.39	39.97687042	-104.66545362
17,200.00	89.88	179.91	7,552.76	-9,353.15	-2,437.27	14,518,386.87	1,734,138.56	39.97659580	-104.66545437
17,300.00	89.88	179.91	7,552.97	-9,453.15	-2,437.10	14,518,286.87	1,734,138.72	39.97632119	-104.66545512
17,400.00	89.88	179.91	7,553.17	-9,553.15	-2,436.94	14,518,186.88	1,734,138.89	39.97604657	-104.66545587
17,500.00	89.88	179.91	7,553.37	-9,653.15	-2,436.77	14,518,086.88	1,734,139.05	39.97577195	-104.66545662
17,600.00	89.88	179.91	7,553.58	-9,753.15	-2,436.60	14,517,986.88	1,734,139.22	39.97549734	-104.66545736
17,700.00	89.88	179.91	7,553.78	-9,853.15	-2,436.44	14,517,886.88	1,734,139.38	39.97522272	-104.66545811
17,800.00	89.88	179.91	7,553.98	-9,953.15	-2,436.27	14,517,786.88	1,734,139.55	39.97494811	-104.66545886
17,900.00	89.88	179.91	7,554.19	-10,053.15	-2,436.11	14,517,686.88	1,734,139.72	39.97467349	-104.66545961
18,000.00	89.88	179.91	7,554.39	-10,153.15	-2,435.94	14,517,586.88	1,734,139.88	39.97439887	-104.66546036
18,100.00	89.88	179.91	7,554.59	-10,253.15	-2,435.78	14,517,486.88	1,734,140.05	39.97412426	-104.66546110
18,200.00	89.88	179.91	7,554.80	-10,353.15	-2,435.61	14,517,386.88	1,734,140.21	39.97384964	-104.66546185
18,300.00	89.88	179.91	7,555.00	-10,453.15	-2,435.45	14,517,286.88	1,734,140.38	39.97357502	-104.66546260
18,300.61	89.88	179.91	7,555.00	-10,453.75	-2,435.44	14,517,286.27	1,734,140.38	39.97357336	-104.66546261
PBHL/TD 18300.61 MD/7555.00 TVD									

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
LP Desha 4-4-4L 470 FI - hit/miss target - Shape - Point	0.00	0.00	7,536.00	-1,102.57	-2,450.92	14,526,637.43	1,734,124.90	39.99925324	-104.66539260	
BHL Desha 4-4-4L 470 F - plan hits target center - Point	0.00	0.00	7,555.00	-10,453.75	-2,435.44	14,517,286.27	1,734,140.38	39.97357336	-104.66546261	

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
5,000.00	5,000.00	+N/-S (ft)	+E/-W (ft)	KOP Begin 10°/100' build	
5,479.82	5,425.67	-46.94	-183.53	Begin 47.98° tangent	
8,155.57	7,216.73	-539.51	-2,109.44	Begin 10°/100' build/turn	
8,949.40	7,536.00	-1,102.57	-2,450.92	LP Begin 89.88° lateral section	
18,300.61	7,555.00	-10,453.75	-2,435.44	PBHL/TD 18300.61 MD/7555.00 TVD	