

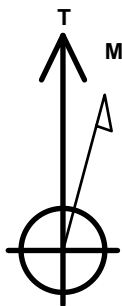
# PDC Energy Inc. DJ Basin

Well Name: **Jagged 3N**

Surface Location: Jagged 4N64W08 Pad Sec.8-T4N-R64W  
North American Datum 1983 , US State Plane 1983 Colorado Northern Zone  
Ground Elevation: 4772.0  
+N/-S +E/-W Northing Easting Latitude Longitude Slot  
0.0 0.0 1362800.57 3257757.91 40.325600 -104.575510  
Original Well Elev WELL @ 4795.0ft (Original Well Elev)

## DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 2166'FSL, 2365'FWL, SEC.8	1.0	0.0	0.0	Point
BHL 2410'FSL, 500'FWL, SEC.7	6895.0	162.8	-6897.6	Point
LPL 2410'FSL,1908'FWL, SEC.8	6895.0	240.3	-456.3	Point



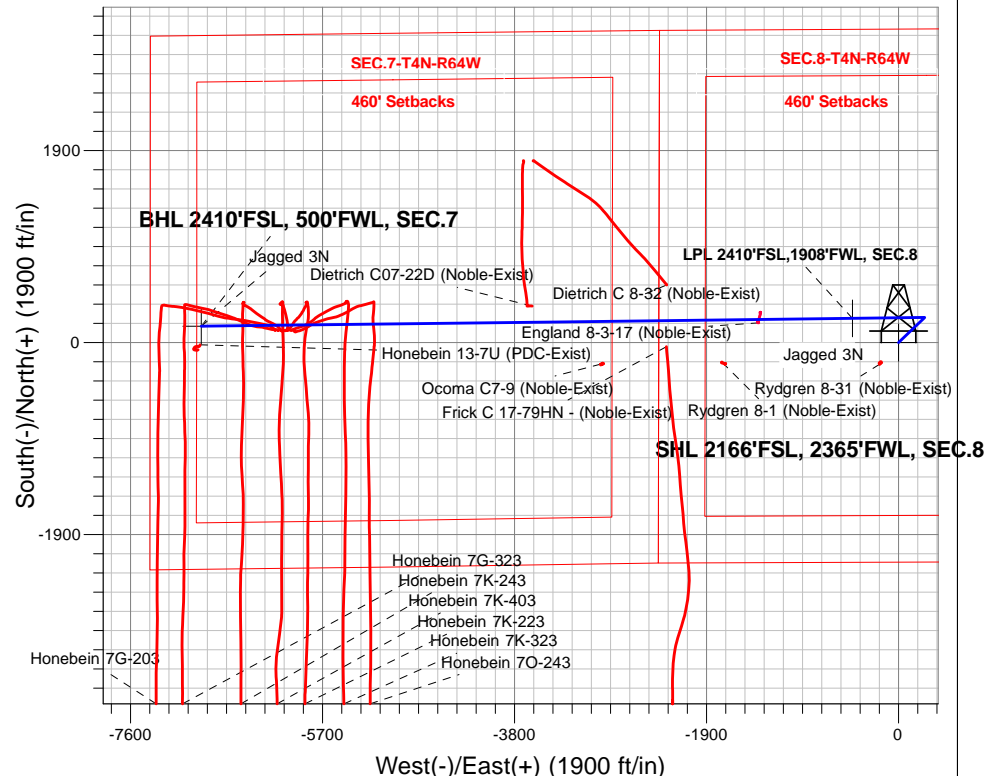
Azimuths to True North  
Magnetic North: 7.94°

Magnetic Field  
Strength: 52476.4snT  
Dip Angle: 66.81°  
Date: 6/28/2017  
Model: IGRF2010

Jagged 4N64W08 Pad Sec.8-T4N-R64W  
Jagged 3N  
Plan #3 (6-27-17)  
8:38, June 28 2017

## ANNOTATIONS

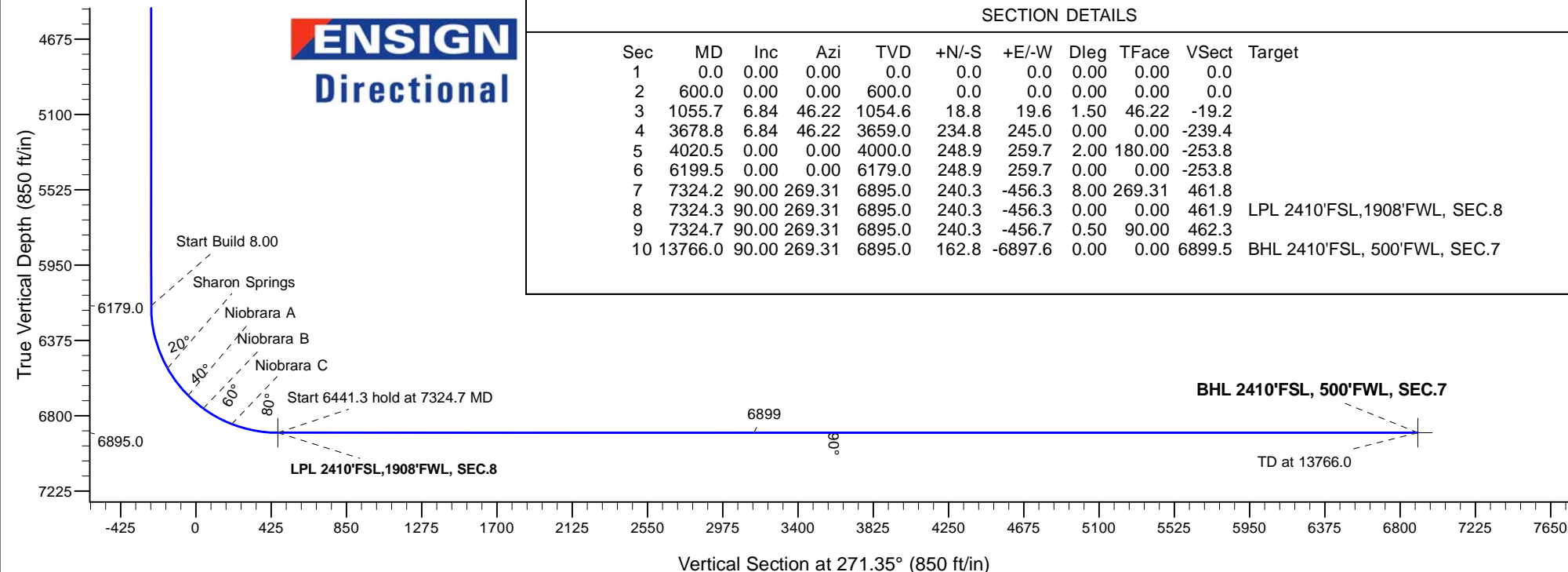
TVD	MD	Annotation
600.0	600.0	KOP - Start Build 1.50
3659.0	3678.8	Start Drop -2.00
4000.0	4020.5	Start 2179.0 hold at 4020.5 MD
6179.0	6199.5	Start Build 8.00
6895.0	7324.7	Start 6441.3 hold at 7324.7 MD
6895.0	13766.0	TD at 13766.0



**ENSIGN**  
Directional

## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	600.0	0.00	0.00	600.0	0.0	0.0	0.00	0.00	0.0	
3	1055.7	6.84	46.22	1054.6	18.8	19.6	1.50	46.22	-19.2	
4	3678.8	6.84	46.22	3659.0	234.8	245.0	0.00	0.00	-239.4	
5	4020.5	0.00	0.00	4000.0	248.9	259.7	2.00	180.00	-253.8	
6	6199.5	0.00	0.00	6179.0	248.9	259.7	0.00	0.00	-253.8	
7	7324.2	90.00	269.31	6895.0	240.3	-456.3	8.00	269.31	461.8	
8	7324.3	90.00	269.31	6895.0	240.3	-456.3	0.00	0.00	461.9	LPL 2410'FSL,1908'FWL, SEC.8
9	7324.7	90.00	269.31	6895.0	240.3	-456.7	0.50	90.00	462.3	
10	13766.0	90.00	269.31	6895.0	162.8	-6897.6	0.00	0.00	6899.5	BHL 2410'FSL, 500'FWL, SEC.7



## **PDC Energy Inc. DJ Basin**

**SEC.8-T4N-R64W**

**Jagged 4N64W08 Pad Sec.8-T4N-R64W**

**Jagged 3N**

**Wellbore #1**

**Plan #3 (6-27-17)**

## **Anticollision Summary Report**

**28 June, 2017**

<b>Company:</b>	PDC Energy Inc. DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Jagged 3N
<b>Project:</b>	SEC.8-T4N-R64W	<b>TVD Reference:</b>	WELL @ 4795.0ft (Original Well Elev)
<b>Reference Site:</b>	Jagged 4N64W08 Pad Sec.8-T4N-R64W	<b>MD Reference:</b>	WELL @ 4795.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Jagged 3N	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #3 (6-27-17)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Plan #3 (6-27-17)		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	Stations	<b>Error Model:</b>	ISCWSA
<b>Depth Range:</b>	Unlimited	<b>Scan Method:</b>	Closest Approach 3D
<b>Results Limited by:</b>	Maximum center-center distance of 800.0 ft	<b>Error Surface:</b>	Elliptical Conic
<b>Warning Levels Evaluated at:</b>	2.45 Sigma	<b>Casing Method:</b>	Not applied

<b>Survey Tool Program</b>	<b>Date</b>	6/28/2017		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	13,766.0	Plan #3 (6-27-17) (Wellbore #1)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
<b>Offset Well - Wellbore - Design</b>						
Dietrich C Pad Sec.7-T4N-R64W						
Dietrich C 8-32 (Noble-Exist) - Dietrich C 8-32 - Dietrich C	9,158.7	7,228.6	355.1	235.5	2.970	CC, ES
Dietrich C 8-32 (Noble-Exist) - Dietrich C 8-32 - Dietrich C	9,200.0	7,228.2	357.5	236.5	2.955	SF
Dietrich C07-18 Pad Sec.7-T4N-R64W						
Dietrich C07-22D (Noble-Exist) - Wellbore #1 - Wellbore	10,506.3	7,166.9	161.0	10.8	1.072	Level 2, CC, ES, SF
Existing Wells Sec.7-T4N-R64W						
Honebein 13-7U (PDC-Exist) - Wellbore #1 - Wellbore #1	13,766.0	6,942.0	202.3	-53.2	0.792	Level 1, CC, ES, SF
Ocoma C7-9 (Noble-Exist) - Wellbore #1 - Wellbore #1	9,819.0	6,945.1	423.7	302.4	3.493	CC, ES
Ocoma C7-9 (Noble-Exist) - Wellbore #1 - Wellbore #1	9,900.0	6,945.5	431.4	307.3	3.478	SF
Existing Wells Sec.8-T4N-R64W						
Rydgren 8-1 (Noble-Exist) - Wellbore #1 - Wellbore #1	8,618.3	6,918.2	418.2	336.6	5.122	CC, ES
Rydgren 8-1 (Noble-Exist) - Wellbore #1 - Wellbore #1	8,700.0	6,917.7	426.1	341.8	5.053	SF
Existing Wells Sec.8-T4N-R64W (GRID)						
England 8-3-17 (Noble-Exist) - Wellbore #1 - Wellbore #1	8,253.6	6,905.9	30.0	-39.5	0.432	Level 1, CC, ES, SF
Rydgren 8-31 (Noble-Exist) - Wellbore #1 - Wellbore #1	100.0	75.3	265.5	265.2	1,019.666	CC
Rydgren 8-31 (Noble-Exist) - Wellbore #1 - Wellbore #1	610.7	588.4	266.4	263.4	88.400	ES
Rydgren 8-31 (Noble-Exist) - Wellbore #1 - Wellbore #1	7,200.0	6,863.4	479.5	440.0	12.151	SF
Frick Pad 18-4N-64W						
Frick C 17-79HN - (Noble-Exist) - API #05-123-33279 - M	9,168.4	10,735.0	257.7	149.9	2.391	CC, ES
Frick C 17-79HN - (Noble-Exist) - API #05-123-33279 - M	9,200.0	10,735.0	259.7	150.8	2.385	SF
Honebein 4N64W7K Pad Sec.7-T4N-R64W						
Honebein 7G-203 - Wellbore #1 - Wellbore #1	13,766.0	7,053.6	433.4	309.8	3.505	CC, ES, SF
Honebein 7G-323 - Wellbore #1 - Wellbore #1	13,766.0	7,037.4	223.8	50.5	1.291	Level 3, CC, ES, SF
Honebein 7K-223 - Wellbore #1 - Wellbore #1	12,739.1	6,948.5	174.4	35.2	1.253	Level 3, CC, ES, SF
Honebein 7K-243 - Wellbore #1 - Wellbore #1	13,357.2	7,001.5	124.5	-27.9	0.817	Level 1, CC, ES, SF
Honebein 7K-323 - Wellbore #1 - Wellbore #1	12,335.7	7,012.9	120.8	-4.4	0.965	Level 1, CC, ES, SF
Honebein 7K-403 - Wellbore #1 - Wellbore #1	12,963.6	7,028.6	51.7	-106.4	0.327	Level 1, CC, ES, SF
Honebein 7O-243 - Wellbore #1 - Wellbore #1	12,057.2	7,038.0	151.2	14.1	1.103	Level 2, CC, ES, SF

<b>Company:</b>	PDC Energy Inc. DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Jagged 3N
<b>Project:</b>	SEC.8-T4N-R64W	<b>TVD Reference:</b>	WELL @ 4795.0ft (Original Well Elev)
<b>Reference Site:</b>	Jagged 4N64W08 Pad Sec.8-T4N-R64W	<b>MD Reference:</b>	WELL @ 4795.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Jagged 3N	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #3 (6-27-17)	<b>Offset TVD Reference:</b>	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Jagged 4N64W08 Pad Sec.8-T4N-R64W						
Jagged 10N - Wellbore #1 - Plan #2 (6-27-17)	593.9	594.6	104.0	101.0	35.101	CC
Jagged 10N - Wellbore #1 - Plan #2 (6-27-17)	600.0	600.7	104.0	101.0	34.693	ES
Jagged 10N - Wellbore #1 - Plan #2 (6-27-17)	900.0	894.5	124.3	119.3	25.044	SF
Jagged 1N - Wellbore #1 - Plan #3 (6-27-17)	200.0	200.0	30.7	29.9	37.165	CC
Jagged 1N - Wellbore #1 - Plan #3 (6-27-17)	13,766.0	13,820.9	510.3	28.9	1.060	Level 2, ES, SF
Jagged 2N - Wellbore #1 - Plan #3 (6-27-17)	400.0	400.0	14.0	12.0	7.248	CC
Jagged 2N - Wellbore #1 - Plan #3 (6-27-17)	13,766.0	13,714.1	272.4	-194.7	0.583	Level 1, ES, SF
Jagged 4N - Wellbore #1 - Plan #2 (6-27-17)	600.0	600.0	13.9	10.9	4.594	CC
Jagged 4N - Wellbore #1 - Plan #2 (6-27-17)	11,960.6	11,880.4	267.8	-77.8	0.775	Level 1, SF
Jagged 4N - Wellbore #1 - Plan #2 (6-27-17)	12,000.0	11,892.0	269.1	-78.2	0.775	Level 1, ES
Jagged 5N - Wellbore #1 - Plan #2 (6-27-17)	600.0	600.0	30.6	27.6	10.118	CC, ES
Jagged 5N - Wellbore #1 - Plan #2 (6-27-17)	12,000.0	12,010.5	534.4	176.3	1.492	Level 3, SF
Jagged 6N - Wellbore #1 - Plan #2 (6-27-17)	600.0	600.0	44.6	41.6	14.721	CC, ES
Jagged 6N - Wellbore #1 - Plan #2 (6-27-17)	12,000.0	11,915.7	796.6	439.4	2.230	SF
Jagged 7N - Wellbore #1 - Plan #3 (6-27-17)	600.0	600.0	61.3	58.3	20.244	CC, ES
Jagged 7N - Wellbore #1 - Plan #3 (6-27-17)	1,000.0	999.9	76.9	71.8	14.977	SF
Jagged 8N - Wellbore #1 - Plan #2 (6-27-17)	600.0	600.0	75.3	72.2	24.847	CC, ES
Jagged 8N - Wellbore #1 - Plan #2 (6-27-17)	1,000.0	999.2	90.8	85.7	17.764	SF
Jagged 9C - Wellbore #1 - Plan #3 (6-27-17)	651.4	652.5	87.7	84.5	27.194	CC, ES
Jagged 9C - Wellbore #1 - Plan #3 (6-27-17)	1,000.0	996.3	110.2	104.9	20.888	SF