

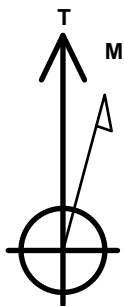
PDC Energy Inc. DJ Basin

Well Name: **Jagged 2N**

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 1362800.71 3257771.88 40.325600 -104.575460
 Original Well Elev WELL @ 4795.0ft (Original Well Elev)

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 2166'FSL, 2380'FWL, SEC.8	1.0	0.0	0.0	Point
BHL 2612'FNL, 500'FWL, SEC.7	6825.0	426.1	-6911.2	Point
LPL 2612'FNL, 1908'FWL, SEC.8	6825.0	491.3	-469.7	Point



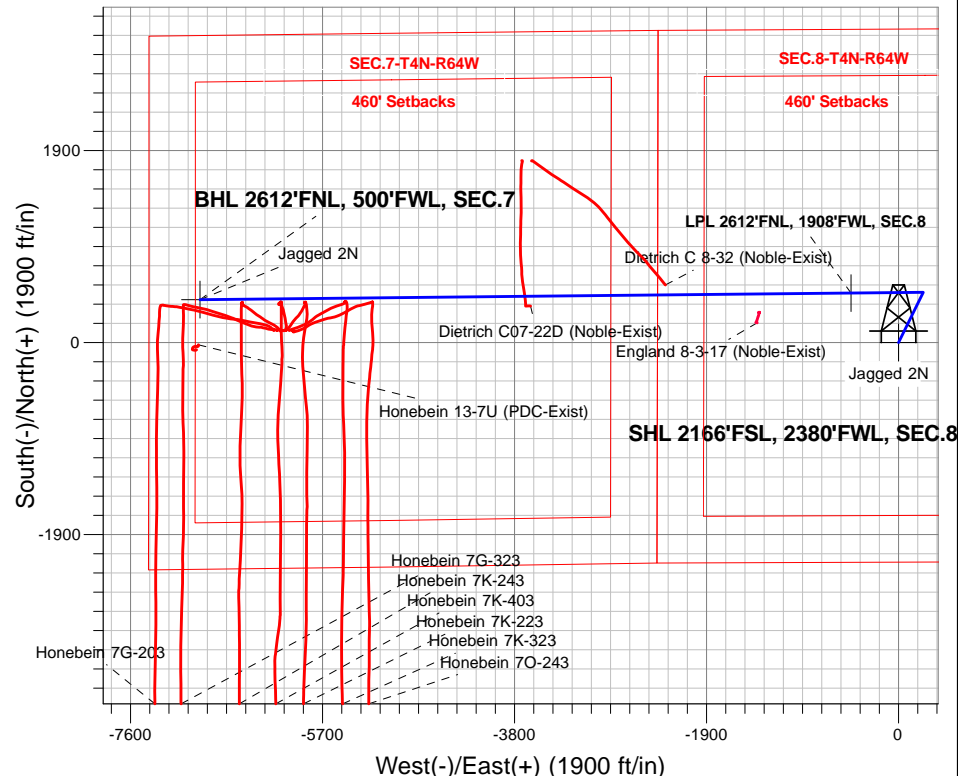
Azimuths to True North
 Magnetic North: 7.94°

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

Jagged 4N64W08 Pad Sec.8-T4N-R64W
 Jagged 2N
 Plan #3 (6-27-17)
 8:13, June 28 2017

ANNOTATIONS

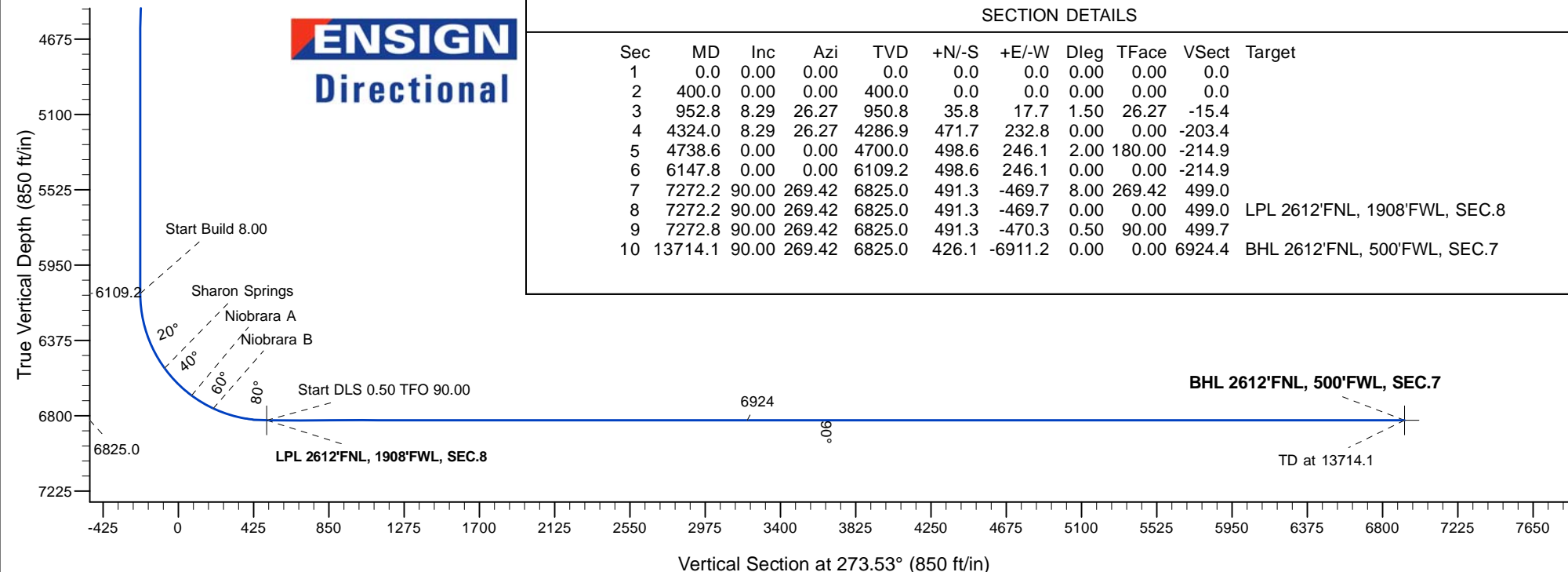
TVD	MD	Annotation
400.0	400.0	KOP - Start Build 1.50
4286.9	4324.0	Start Drop -2.00
6109.2	6147.8	Start Build 8.00
6825.0	7272.2	Start DLS 0.50 TFO 90.00
6825.0	7272.8	Start 6441.3 hold at 7272.8 MD
6825.0	13714.1	TD at 13714.1



ENSIGN
 Directional

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.0	
3	952.8	8.29	26.27	950.8	35.8	17.7	1.50	26.27	-15.4	
4	4324.0	8.29	26.27	4286.9	471.7	232.8	0.00	0.00	-203.4	
5	4738.6	0.00	0.00	4700.0	498.6	246.1	2.00	180.00	-214.9	
6	6147.8	0.00	0.00	6109.2	498.6	246.1	0.00	0.00	-214.9	
7	7272.2	90.00	269.42	6825.0	491.3	-469.7	8.00	269.42	499.0	
8	7272.2	90.00	269.42	6825.0	491.3	-469.7	0.00	0.00	499.0	LPL 2612'FNL, 1908'FWL, SEC.8
9	7272.8	90.00	269.42	6825.0	491.3	-470.3	0.50	90.00	499.7	
10	13714.1	90.00	269.42	6825.0	426.1	-6911.2	0.00	0.00	6924.4	BHL 2612'FNL, 500'FWL, SEC.7



PDC Energy Inc. DJ Basin

SEC.8-T4N-R64W

Jagged 4N64W08 Pad Sec.8-T4N-R64W

Jagged 2N

Wellbore #1

Plan #3 (6-27-17)

Anticollision Summary Report

28 June, 2017

Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well Jagged 2N
Project:	SEC.8-T4N-R64W	TVD Reference:	WELL @ 4795.0ft (Original Well Elev)
Reference Site:	Jagged 4N64W08 Pad Sec.8-T4N-R64W	MD Reference:	WELL @ 4795.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Jagged 2N	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.45 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #3 (6-27-17)	Offset TVD Reference:	Offset Datum

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

Survey Tool Program	Date 6/28/2017			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	13,714.1	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
Offset Well - Wellbore - Design						
Dietrich C Pad Sec.7-T4N-R64W						
Dietrich C 8-32 (Noble-Exist) - Dietrich C 8-32 - Dietrich C	9,111.3	7,156.0	101.6	-18.1	0.849	Level 1, CC, ES, SF
Dietrich C07-18 Pad Sec.7-T4N-R64W						
Dietrich C07-22D (Noble-Exist) - Wellbore #1 - Wellbore	10,461.0	7,096.7	96.0	-54.4	0.638	Level 1, CC, ES, SF
Existing Wells Sec.7-T4N-R64W						
Honebein 13-7U (PDC-Exist) - Wellbore #1 - Wellbore #1	13,714.1	6,872.7	465.4	210.0	1.822	CC, ES, SF
Existing Wells Sec.8-T4N-R64W (GRID)						
England 8-3-17 (Noble-Exist) - Wellbore #1 - Wellbore #1	8,205.3	6,832.0	281.9	212.3	4.055	CC, ES, SF
Honebein 4N64W7K Pad Sec.7-T4N-R64W						
Honebein 7G-203 - Wellbore #1 - Wellbore #1	13,714.1	6,892.0	487.5	273.6	2.279	CC, ES, SF
Honebein 7G-323 - Wellbore #1 - Wellbore #1	13,714.1	6,858.1	330.0	113.3	1.523	CC, ES, SF
Honebein 7K-223 - Wellbore #1 - Wellbore #1	12,665.2	6,770.0	303.4	128.2	1.731	CC
Honebein 7K-223 - Wellbore #1 - Wellbore #1	12,700.0	6,772.5	305.4	128.1	1.723	ES, SF
Honebein 7K-243 - Wellbore #1 - Wellbore #1	13,307.9	6,820.2	263.0	65.2	1.330	Level 3, CC, ES, SF
Honebein 7K-323 - Wellbore #1 - Wellbore #1	12,271.6	6,836.5	252.0	80.3	1.468	Level 3, CC
Honebein 7K-323 - Wellbore #1 - Wellbore #1	12,300.0	6,838.4	253.6	80.3	1.463	Level 3, ES, SF
Honebein 7K-403 - Wellbore #1 - Wellbore #1	12,911.8	6,834.2	203.1	11.0	1.057	Level 2, CC, ES, SF
Honebein 7O-243 - Wellbore #1 - Wellbore #1	12,018.2	6,865.5	292.5	122.5	1.721	CC, ES, SF

Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well Jagged 2N
Project:	SEC.8-T4N-R64W	TVD Reference:	WELL @ 4795.0ft (Original Well Elev)
Reference Site:	Jagged 4N64W08 Pad Sec.8-T4N-R64W	MD Reference:	WELL @ 4795.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Jagged 2N	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.45 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #3 (6-27-17)	Offset TVD Reference:	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)	459.4	460.6	118.7	116.5	53.872	CC
Jagged 10N - Wellbore #1 - Plan #2 (6-27-17)	500.0	501.1	118.9	116.5	48.916	ES
Jagged 10N - Wellbore #1 - Plan #2 (6-27-17)	900.0	890.4	152.6	147.6	30.531	SF
Jagged 1N - Wellbore #1 - Plan #3 (6-27-17)	200.0	200.0	16.7	15.9	20.254	CC
Jagged 1N - Wellbore #1 - Plan #3 (6-27-17)	13,714.1	13,820.9	259.6	-199.1	0.566	Level 1, ES, SF
Jagged 3N - Wellbore #1 - Plan #3 (6-27-17)	400.0	400.0	14.0	12.0	7.248	CC
Jagged 3N - Wellbore #1 - Plan #3 (6-27-17)	13,714.1	13,762.5	272.4	-194.6	0.583	Level 1, ES, SF
Jagged 4N - Wellbore #1 - Plan #2 (6-27-17)	400.0	400.0	27.9	26.0	14.467	CC, ES
Jagged 4N - Wellbore #1 - Plan #2 (6-27-17)	11,905.7	11,874.5	518.3	161.0	1.451	Level 3, SF
Jagged 5N - Wellbore #1 - Plan #2 (6-27-17)	400.0	400.0	44.6	42.7	23.147	CC, ES
Jagged 5N - Wellbore #1 - Plan #2 (6-27-17)	11,900.0	11,983.9	799.8	446.3	2.263	SF
Jagged 6N - Wellbore #1 - Plan #2 (6-27-17)	400.0	400.0	58.6	56.6	30.380	CC, ES
Jagged 6N - Wellbore #1 - Plan #2 (6-27-17)	900.0	898.6	78.7	73.9	16.607	SF
Jagged 7N - Wellbore #1 - Plan #3 (6-27-17)	400.0	400.0	75.3	73.4	39.060	CC, ES
Jagged 7N - Wellbore #1 - Plan #3 (6-27-17)	952.8	950.8	99.6	94.6	19.976	SF
Jagged 8N - Wellbore #1 - Plan #2 (6-27-17)	400.0	400.0	89.2	87.3	46.294	CC, ES
Jagged 8N - Wellbore #1 - Plan #2 (6-27-17)	952.8	949.7	114.1	109.2	23.148	SF
Jagged 9C - Wellbore #1 - Plan #3 (6-27-17)	400.0	400.0	103.2	101.2	53.527	CC
Jagged 9C - Wellbore #1 - Plan #3 (6-27-17)	500.0	500.6	103.4	101.0	42.295	ES
Jagged 9C - Wellbore #1 - Plan #3 (6-27-17)	952.8	946.5	133.3	128.3	26.454	SF