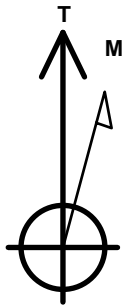


PDC Energy Inc. DJ Basin

Well Name: **Jagged 1N (Nio C)**
 Surface Location: Jagged 4N64W08 Pad Sec.8-T4N-R64W
 North American Datum 1983 , US State Plane 1983, Colorado Northern Zone
 Ground Elevation: 4771.0
 +N/-S +E/-W Northing Easting Latitude Longitude Slot
 0.0 0.0 1362799.42 3257787.84 40.325596 -104.575403
 Original Well Elev WELL @ 4794.0ft (Original Well Elev)

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 2166'FSL, 2395'FWL, SEC.8	1.0	0.0	0.0	Point
BHL 2365'FNL, 150'FWL, SEC.7	6904.0	675.7	-7277.2	Point
LPL 2365'FNL, 1909'FWL, SEC.8	6904.0	739.7	-485.0	Point



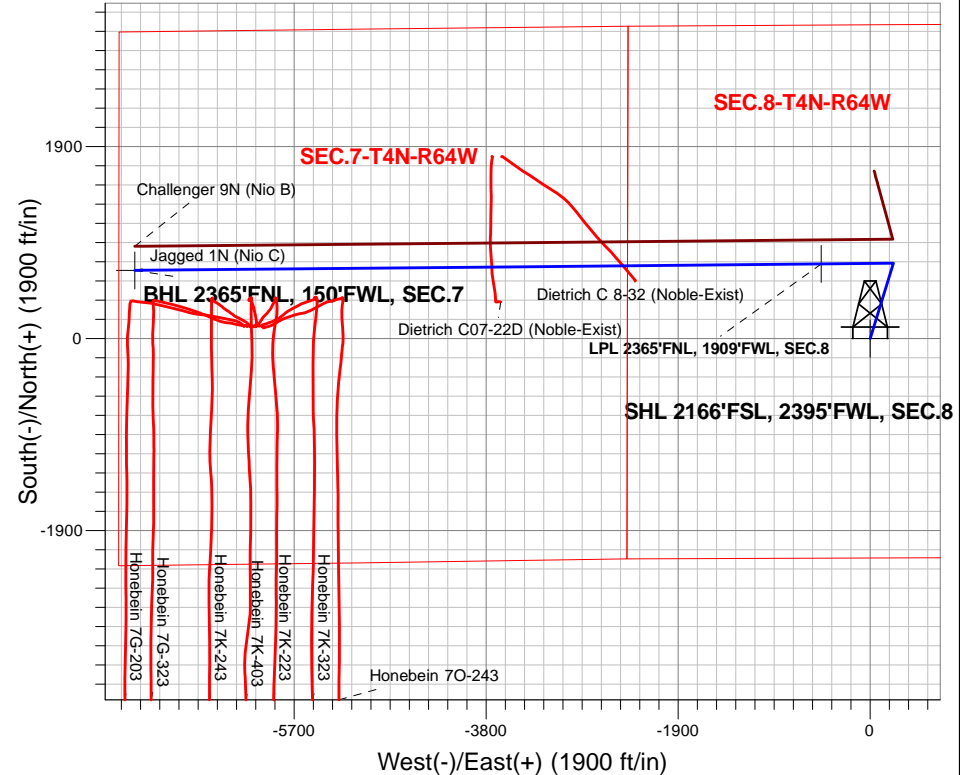
Azimuths to True North
 Magnetic North: 7.94°

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

Jagged 4N64W08 Pad Sec.8-T4N-R64W
 Jagged 1N (Nio C)
 Plan #4 (6-20-18)
 12:07, July 11 2018

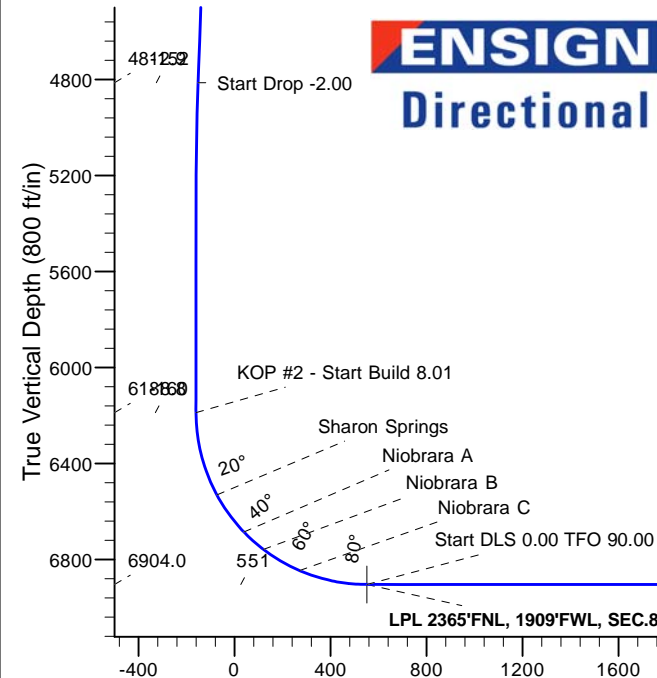
ANNOTATIONS

TVD	MD	Annotation
200.0	200.0	KOP - Start Build 1.50
4812.9	4874.6	Start Drop -2.00
6188.8	6252.9	KOP #2 - Start Build 8.01
6904.0	7376.4	Start DLS 0.00 TFO 90.00
6904.0	14168.9	TD at 14168.9



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	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
3	852.6	9.79	17.14	849.5	53.1	16.4	1.50	17.14	-11.4	
4	4874.6	9.79	17.14	4812.9	706.6	217.9	0.00	0.00	-151.6	
5	5364.1	0.00	0.00	5300.0	746.5	230.2	2.00	180.00	-160.2	
6	6252.9	0.00	0.00	6188.8	746.5	230.2	0.00	0.00	-160.2	
7	7376.3	90.00	269.46	6904.0	739.7	-484.9	8.01	269.46	551.3	
8	7376.4	90.00	269.46	6904.0	739.7	-485.0	0.00	0.00	551.3	LPL 2365'FNL, 1909'FWL, SEC.8
9	14168.9	90.00	269.47	6904.0	675.7	-7277.2	0.00	90.00	7308.5	BHL 2365'FNL, 150'FWL, SEC.7



Vertical Section at 275.31° (800 ft/in)

BHL 2365'FNL, 150'FWL, SEC.7



PDC Energy Inc. DJ Basin

SEC.8-T4N-R64W

Jagged 4N64W08 Pad Sec.8-T4N-R64W

Jagged 1N (Nio C)

Wellbore #1

Plan #4 (6-20-18)

Anticollision Report

11 July, 2018



Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well Jagged 1N (Nio C)
Project:	SEC.8-T4N-R64W	TVD Reference:	WELL @ 4794.0ft (Original Well Elev)
Reference Site:	Jagged 4N64W08 Pad Sec.8-T4N-R64W	MD Reference:	WELL @ 4794.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Jagged 1N (Nio C)	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 #4 (6-20-18)	Offset TVD Reference:	Offset Datum

Reference	Plan #4 (6-20-18)		
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 500.0 ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.45 Sigma	Casing Method:	Not applied

Survey Tool Program	Date	7/11/2018		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	14,168.6	Plan #4 (6-20-18) (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						
Challenger 4N64W8 Pad Sec.8-T4N-R64W						
Challenger 9N (Nio B) - Wellbore #1 - Plan #1 (6-28-18)	6,154.7	6,160.6	238.6	193.1	5.243	CC
Challenger 9N (Nio B) - Wellbore #1 - Plan #1 (6-28-18)	14,168.9	14,088.0	251.1	-230.2	0.522	Level 1, ES, SF
Dietrich C Pad Sec.7-T4N-R64W						
Dietrich C 8-32 (Noble-Exist) - Dietrich C 8-32 - Dietrich C	9,217.6	7,232.5	147.6	27.4	1.228	Level 2, CC, ES, SF
Dietrich C07-18 Pad Sec.7-T4N-R64W						
Dietrich C07-22D (Noble-Exist) - Wellbore #1 - Wellbore	10,564.3	7,177.4	345.0	194.3	2.289	CC, ES
Dietrich C07-22D (Noble-Exist) - Wellbore #1 - Wellbore	10,600.0	7,175.7	346.9	194.9	2.283	SF
Honebein 4N64W7K Pad Sec.7-T4N-R64W						
Honebein 7G-203 - Wellbore #1 - Wellbore #1						Out of range
Honebein 7G-323 - Wellbore #1 - Wellbore #1						Out of range
Honebein 7K-223 - Wellbore #1 - Wellbore #1						Out of range
Honebein 7K-243 - Wellbore #1 - Wellbore #1						Out of range
Honebein 7K-323 - Wellbore #1 - Wellbore #1						Out of range
Honebein 7K-403 - Wellbore #1 - Wellbore #1	13,018.5	6,794.0	458.1	257.4	2.283	CC, ES, SF
Honebein 7O-243 - Wellbore #1 - Wellbore #1						Out of range

Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well Jagged 1N (Nio C)
Project:	SEC.8-T4N-R64W	TVD Reference:	WELL @ 4794.0ft (Original Well Elev)
Reference Site:	Jagged 4N64W08 Pad Sec.8-T4N-R64W	MD Reference:	WELL @ 4794.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Jagged 1N (Nio C)	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 #4 (6-20-18)	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 (Nio B) - Wellbore #1 - Plan #3 (6-21-18)	200.0	203.0	134.9	134.1	161.728	CC
Jagged 10N (Nio B) - Wellbore #1 - Plan #3 (6-21-18)	300.0	303.0	135.3	133.9	97.704	ES
Jagged 10N (Nio B) - Wellbore #1 - Plan #3 (6-21-18)	1,100.0	1,087.4	198.7	192.7	33.077	SF
Jagged 11C (Codell) - Wellbore #1 - Plan #1 (6-21-18)	200.0	203.0	149.9	149.1	179.675	CC
Jagged 11C (Codell) - Wellbore #1 - Plan #1 (6-21-18)	300.0	303.0	150.3	148.9	108.516	ES
Jagged 11C (Codell) - Wellbore #1 - Plan #1 (6-21-18)	1,100.0	1,079.8	225.2	219.1	36.523	SF
Jagged 12N (Nio B) - Wellbore #1 - Plan #1 (6-28-18)	208.3	211.4	164.9	164.0	188.099	CC
Jagged 12N (Nio B) - Wellbore #1 - Plan #1 (6-28-18)	300.0	303.9	165.0	163.6	121.598	ES
Jagged 12N (Nio B) - Wellbore #1 - Plan #1 (6-28-18)	1,000.0	979.4	232.2	226.3	39.654	SF
Jagged 2N (Nio B) - Wellbore #1 - Plan #4 (6-20-18)	200.0	201.0	15.0	14.1	18.067	CC
Jagged 2N (Nio B) - Wellbore #1 - Plan #4 (6-20-18)	14,168.9	14,067.8	258.1	-226.1	0.533	Level 1, ES, SF
Jagged 3N (Nio C) - Wellbore #1 - Plan #4 (6-20-18)	200.0	201.0	29.9	29.1	36.133	CC
Jagged 3N (Nio C) - Wellbore #1 - Plan #4 (6-20-18)	300.0	301.0	30.4	29.0	22.002	ES
Jagged 3N (Nio C) - Wellbore #1 - Plan #4 (6-20-18)	8,400.0	8,341.1	499.9	385.8	4.382	SF
Jagged 4N (Nio B) - Wellbore #1 - Plan #3 (7-9-18)	200.0	201.0	44.9	44.1	54.200	CC
Jagged 4N (Nio B) - Wellbore #1 - Plan #3 (7-9-18)	300.0	301.0	45.3	43.9	32.850	ES
Jagged 4N (Nio B) - Wellbore #1 - Plan #3 (7-9-18)	700.0	699.6	62.8	59.1	17.036	SF
Jagged 5N (Nio C) - Wellbore #1 - Plan #3 (7-9-18)	200.0	202.0	60.0	59.1	72.128	CC
Jagged 5N (Nio C) - Wellbore #1 - Plan #3 (7-9-18)	300.0	302.0	60.4	59.0	43.676	ES
Jagged 5N (Nio C) - Wellbore #1 - Plan #3 (7-9-18)	800.0	799.5	86.3	82.0	20.095	SF
Jagged 6N (Nio B) - Wellbore #1 - Plan #3 (7-9-18)	200.0	202.0	74.9	74.1	90.068	CC
Jagged 6N (Nio B) - Wellbore #1 - Plan #3 (7-9-18)	300.0	302.0	75.3	73.9	54.467	ES
Jagged 6N (Nio B) - Wellbore #1 - Plan #3 (7-9-18)	900.0	898.1	111.6	106.7	22.719	SF
Jagged 7N (Nio C) - Wellbore #1 - Plan #4 (7-9-18)	200.0	202.0	90.0	89.1	108.176	CC
Jagged 7N (Nio C) - Wellbore #1 - Plan #4 (7-9-18)	300.0	302.0	90.3	89.0	65.360	ES
Jagged 7N (Nio C) - Wellbore #1 - Plan #4 (7-9-18)	1,200.0	1,193.8	165.1	158.4	24.668	SF
Jagged 8N (Nio B) - Wellbore #1 - Plan #3 (7-3-18)	200.0	202.0	105.0	104.1	126.216	CC
Jagged 8N (Nio B) - Wellbore #1 - Plan #3 (7-3-18)	300.0	302.0	105.3	104.0	76.213	ES
Jagged 8N (Nio B) - Wellbore #1 - Plan #3 (7-3-18)	1,100.0	1,094.2	163.2	157.1	26.727	SF
Jagged 9N (Nio C) - Wellbore #1 - Plan #4 (7-3-18)	200.0	202.0	120.0	119.1	144.256	CC
Jagged 9N (Nio C) - Wellbore #1 - Plan #4 (7-3-18)	300.0	302.0	120.3	119.0	87.066	ES
Jagged 9N (Nio C) - Wellbore #1 - Plan #4 (7-3-18)	1,100.0	1,091.2	178.7	172.7	29.722	SF

Offset Design												Offset Site Error:	0.0 ft
Challenger 4N64W8 Pad Sec.8-T4N-R64W - Challenger 9N (Nio B) - Wellbore #1 - Plan #1 (6-28-18)												Offset Well Error:	0.0 ft
Survey Program: 0-MWD													
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,200.0	4,148.1	4,300.8	4,244.2	18.1	18.2	-16.07	1,075.6	199.1	487.2	461.7	25.48	19.121	
4,300.0	4,246.6	4,394.8	4,336.4	18.5	18.7	-15.96	1,058.1	203.9	452.8	426.7	26.11	17.346	
4,400.0	4,345.2	4,488.7	4,428.5	19.0	19.2	-15.83	1,040.6	208.7	418.5	391.8	26.73	15.654	
4,500.0	4,443.7	4,574.0	4,512.4	19.5	19.6	-15.73	1,025.4	212.8	385.0	357.7	27.31	14.096	
4,600.0	4,542.3	4,658.7	4,596.0	19.9	19.9	-15.74	1,012.7	216.3	354.1	326.2	27.86	12.710	
4,700.0	4,640.8	4,744.8	4,681.5	20.4	20.1	-15.88	1,002.2	219.1	325.9	297.5	28.40	11.478	
4,800.0	4,739.4	4,832.4	4,768.6	20.9	20.4	-16.20	994.1	221.4	300.6	271.6	28.93	10.391	
4,874.6	4,812.9	4,900.0	4,836.1	21.2	20.5	-16.59	989.6	222.6	283.5	254.2	29.32	9.668	
4,900.0	4,837.9	4,921.2	4,857.2	21.3	20.6	-16.70	988.5	222.9	278.2	248.7	29.48	9.436	
5,000.0	4,936.9	5,011.5	4,947.5	21.7	20.7	-17.24	985.5	223.7	261.1	231.1	30.06	8.688	
5,100.0	5,036.3	5,106.3	5,042.3	22.0	20.9	-17.85	985.1	223.8	250.2	219.6	30.60	8.176	
5,200.0	5,136.0	5,206.0	5,142.0	22.2	21.0	-18.34	985.1	223.8	243.1	212.0	31.10	7.816	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation