

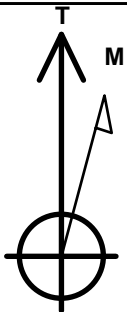
PDC Energy Inc. DJ Basin

Well Name: **Sandin 24C-201**

Surface Location: Sandin Farms 5N65W24N Pad Sec.24-T5N-R65W
 North American Datum 1983 , US State Plane 1983, Colorado Northern Zone
 Ground Elevation: 4634.0
 +N/-S +E/-W Northing Easting Latitude Longitude Slot
 0.0 0.0 1385286.53 3248207.90 40.387590 -104.608950
 RKB - 23' WELL @ 4657.0ft (RKB - 23')

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 1570'FNL & 1965'FEL, Sec.24	1.0	0.0	0.0	Point
BHL 500'FNL & 1190'FEL, Sec.12	6647.0	11641.6	813.0	Point
LPL 50'FSL & 1190'FEL, Sec.13	6762.0	1610.3	780.0	Point



Azimuths to True North
 Magnetic North: 8.03°

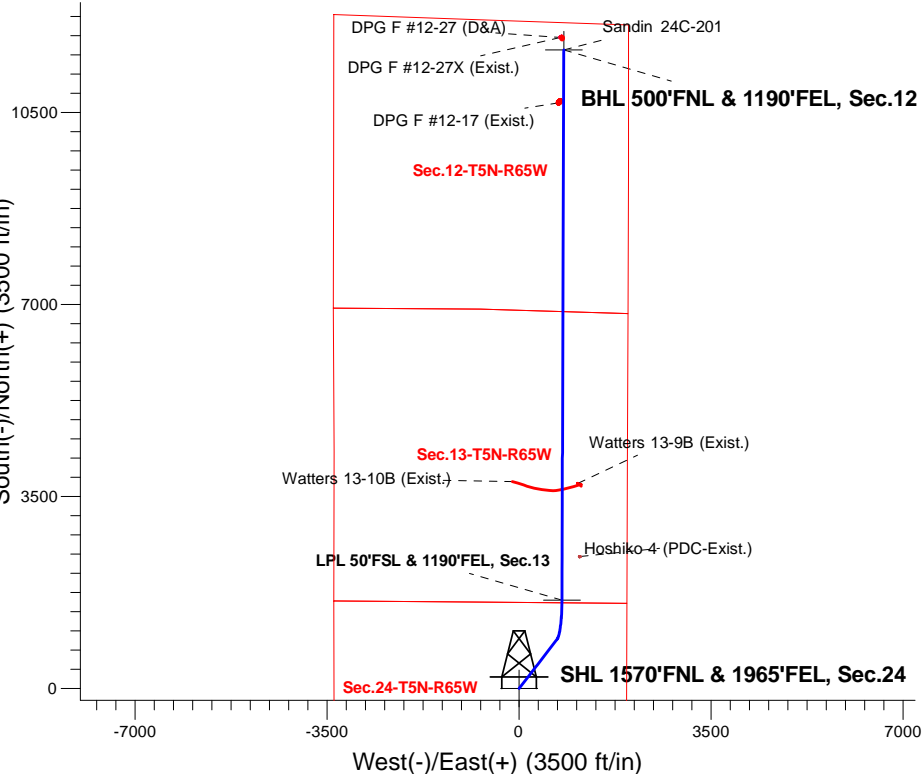
Magnetic Field
 Strength: 52561.0snT
 Dip Angle: 66.87°
 Date: 12/21/2016
 Model: IGRF2010

Sandin Farms 5N65W24N Pad Sec.24-T5N-R65W
 Sandin 24C-201
 Plan #2 (6-2-17)
 15:44, June 06 2017

ANNOTATIONS

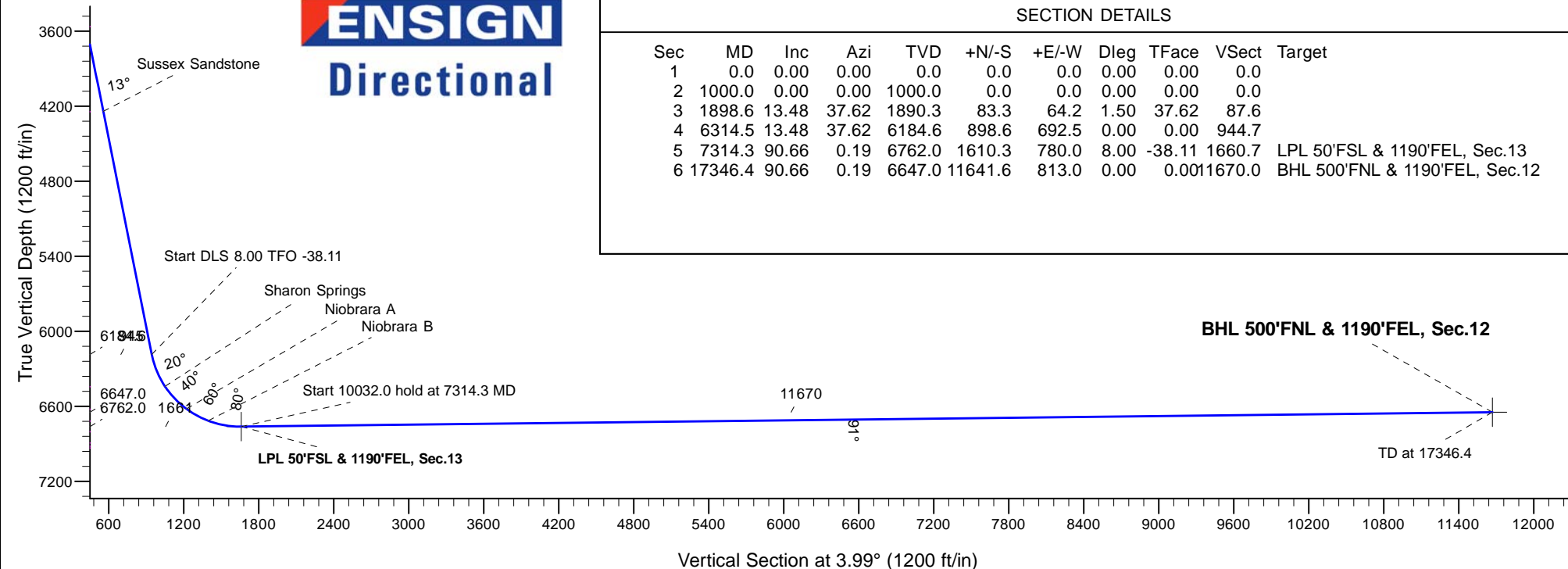
TVD	MD	Annotation
1000.0	1000.0	KOP - Start Build 1.50
1890.3	1898.6	Start 4416.0 hold at 1898.6 MD
6184.6	6314.5	Start DLS 8.00 TFO -38.11
6762.0	7314.3	Start 10032.0 hold at 7314.3 MD
6647.0	17346.4	TD at 17346.4

South(-)/North(+) (3500 ft/in)



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	1000.0	0.00	0.00	1000.0	0.0	0.0	0.00	0.00	0.0	
3	1898.6	13.48	37.62	1890.3	83.3	64.2	1.50	37.62	87.6	
4	6314.5	13.48	37.62	6184.6	898.6	692.5	0.00	0.00	944.7	
5	7314.3	90.66	0.19	6762.0	1610.3	780.0	8.00	-38.11	1660.7	LPL 50'FSL & 1190'FEL, Sec.13
6	17346.4	90.66	0.19	6647.0	11641.6	813.0	0.00	0.00	11670.0	BHL 500'FNL & 1190'FEL, Sec.12





PDC Energy Inc. DJ Basin

SEC.24-T5N-R65W

Sandin Farms 5N65W24N Pad Sec.24-T5N-R65W

Sandin 24C-201

Wellbore #1

Plan #2 (6-2-17)

Anticollision Summary Report

06 June, 2017



Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well Sandin 24C-201
Project:	SEC.24-T5N-R65W	TVD Reference:	WELL @ 4657.0ft (RKB - 23')
Reference Site:	Sandin Farms 5N65W24N Pad Sec.24-T5N-R65W	MD Reference:	WELL @ 4657.0ft (RKB - 23')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Sandin 24C-201	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 #2 (6-2-17)	Offset TVD Reference:	Offset Datum

Reference	Plan #2 (6-2-17)		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0ft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,000.0 ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.45 Sigma	Casing Method:	Not applied

Survey Tool Program	Date 6/6/2017			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	17,346.4	Plan #2 (6-2-17) (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						
Existing Wells Sec.13-T5N-R65W						
Hoshiko 4 (PDC-Exist.) - Wellbore #1 - Wellbore #1	8,108.9	6,723.4	334.8	261.8	4.586	CC, ES, SF
Existing Wells Sec.24-T5N-R65W						
Watters 13-10B (Exist.) - Wellbore #1 - Wellbore #1	9,450.8	6,859.1	850.3	746.1	8.161	CC, ES
Watters 13-10B (Exist.) - Wellbore #1 - Wellbore #1	9,600.0	6,868.8	863.2	755.4	8.009	SF
Watters 13-9B (Exist.) - Wellbore #1 - Wellbore #1	9,442.6	6,704.8	277.9	170.7	2.594	CC, ES, SF
Existing Wells Sec.7-T5N-R64W						
DPG F #12-27 (D&A) - Wellbore #1 - Wellbore #1	17,346.4	6,593.0	225.3	-207.3	0.521	Level 1, CC, ES, SF
Existing Wells Sec.7-T5N-R64W (Grid to True)						
DPG F #12-17 (Exist.) - Wellbore #1 - Wellbore #1	16,383.2	6,604.6	91.1	-276.8	0.248	Level 1, CC, ES, SF
DPG F #12-27X (Exist.) - Wellbore #1 - Wellbore #1	17,346.4	6,595.6	240.8	-46.9	0.837	Level 1, CC, ES, SF
Josephine 5N64W19N Pad Sec.19-T5N-R64W						
Josephine 19M-234 - Wellbore #1 - Plan #3 (3-09-17)	7,000.0	11,822.8	111.7	12.3	1.124	Level 2, ES, SF
Josephine 19M-234 - Wellbore #1 - Plan #3 (3-09-17)	7,030.8	11,821.0	106.7	12.8	1.137	Level 2, CC
Josephine 19M-334 - Wellbore #1 - Plan #3 (3-09-17)	6,800.0	11,798.3	223.9	89.8	1.669	SF
Josephine 19M-334 - Wellbore #1 - Plan #3 (3-09-17)	6,876.3	11,791.4	206.7	85.3	1.702	CC, ES
Josephine 19M-404 - Wellbore #1 - Plan #3 (3-09-17)	7,200.0	11,918.3	152.8	85.5	2.272	SF
Josephine 19M-404 - Wellbore #1 - Plan #3 (3-09-17)	7,233.3	11,917.8	148.3	85.0	2.341	CC, ES
Josephine 19N-204 - Wellbore #1 - Plan #3 (3-09-17)	6,400.0	11,632.1	977.7	794.0	5.321	SF
Josephine 19N-204 - Wellbore #1 - Plan #3 (3-09-17)	6,471.8	11,622.2	971.5	793.3	5.451	CC, ES
Josephine 19N-214 - Wellbore #1 - Plan #3 (3-09-17)	6,600.0	11,682.5	336.0	172.2	2.051	SF
Josephine 19N-214 - Wellbore #1 - Plan #3 (3-09-17)	6,684.4	11,672.6	320.5	167.7	2.098	CC, ES
Josephine 19N-314 - Wellbore #1 - Plan #3 (3-09-17)	6,500.0	11,755.2	581.8	407.3	3.333	SF
Josephine 19N-314 - Wellbore #1 - Plan #3 (3-09-17)	6,600.0	11,742.3	554.1	390.1	3.380	ES
Josephine 19N-314 - Wellbore #1 - Plan #3 (3-09-17)	6,640.3	11,737.4	551.5	392.7	3.472	CC
Josephine 19N-334 - Wellbore #1 - Plan #3 (3-09-17)						Out of range
Josephine 19N-404 - Wellbore #1 - Plan #3 (3-09-17)	6,500.0	11,815.8	832.7	657.6	4.755	SF
Josephine 19N-404 - Wellbore #1 - Plan #3 (3-09-17)	6,600.0	11,803.2	819.0	654.8	4.988	ES
Josephine 19N-404 - Wellbore #1 - Plan #3 (3-09-17)	6,603.4	11,802.8	818.9	655.2	5.001	CC

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Reference Well:	Sandin 24C-201	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 #2 (6-2-17)	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
Sandin Farms 5N65W24N Pad Sec.24-T5N-R65W						
Sandin 24C-221 - Wellbore #1 - Plan #2 (6-2-17)	600.0	600.0	30.6	27.6	10.117	CC
Sandin 24C-221 - Wellbore #1 - Plan #2 (6-2-17)	17,346.4	17,397.3	515.9	-18.3	0.966	Level 1, ES, SF
Sandin 24C-241 - Wellbore #1 - Plan #2 (6-2-17)	1,000.0	1,000.0	30.6	25.4	5.857	CC, ES
Sandin 24C-241 - Wellbore #1 - Plan #2 (6-2-17)	17,346.4	17,303.8	574.1	37.8	1.071	Level 2, SF
Sandin 24C-301 - Wellbore #1 - Plan #2 (6-2-17)	1,000.0	1,000.0	13.9	8.7	2.662	CC
Sandin 24C-301 - Wellbore #1 - Plan #2 (6-2-17)	17,346.4	17,280.8	336.0	-142.3	0.703	Level 1, ES, SF
Sandin 24C-321 - Wellbore #1 - Plan #2 (6-2-17)	800.0	800.0	13.9	9.8	3.372	CC
Sandin 24C-321 - Wellbore #1 - Plan #2 (6-2-17)	17,346.4	17,317.2	300.7	-157.7	0.656	Level 1, ES, SF
Sandin 24N-221 - Wellbore #1 - Plan #2 (6-2-17)	600.0	600.0	58.5	55.5	19.315	CC
Sandin 24N-221 - Wellbore #1 - Plan #2 (6-2-17)	700.0	699.5	58.9	55.3	16.472	ES
Sandin 24N-221 - Wellbore #1 - Plan #2 (6-2-17)	1,000.0	996.7	67.9	62.7	12.946	SF
Sandin 24N-241 - Wellbore #1 - Plan #2 (6-2-17)	200.0	200.0	89.1	88.3	107.920	CC, ES
Sandin 24N-241 - Wellbore #1 - Plan #2 (6-2-17)	1,000.0	975.8	158.6	153.0	28.330	SF
Sandin 24N-301 - Wellbore #1 - Plan #2 (6-2-17)	400.0	400.0	75.2	73.3	39.025	CC, ES
Sandin 24N-301 - Wellbore #1 - Plan #2 (6-2-17)	1,000.0	989.0	107.6	102.2	20.082	SF
Sandin 24N-321 - Wellbore #1 - Plan #2 (6-2-17)	1,000.0	1,000.0	44.6	39.3	8.520	CC, ES
Sandin 24N-321 - Wellbore #1 - Plan #2 (6-2-17)	17,346.4	17,262.3	872.6	336.8	1.628	SF
Sandin 24V-341 - Wellbore #1 - Plan #2 (6-2-17)	400.0	400.0	44.6	42.6	23.126	CC, ES
Sandin 24V-341 - Wellbore #1 - Plan #2 (6-2-17)	17,346.4	17,397.1	827.4	295.5	1.556	SF
Sandin 24V-401 - Wellbore #1 - Plan #2 (6-2-17)	200.0	200.0	61.3	60.5	74.195	CC, ES
Sandin 24V-401 - Wellbore #1 - Plan #2 (6-2-17)	6,700.0	6,561.8	998.8	938.4	16.532	SF