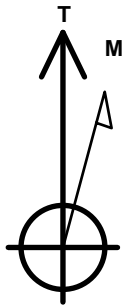


PDC Energy Inc. DJ Basin

Well Name: **Barr 1N (Nio C)**
 Surface Location: Barr 5N65W11TY Pad Sec.11-T5N-R65W
 North American Datum 1983 , US State Plane 1983, Colorado Northern Zone
 Ground Elevation: 4611.0
 +N/-S +E/-W Northing Easting Longitude Slot
 0.0 0.0 1392431.49 3244226.32 40.407311 -104.622989
 Original Well Elev WELL @ 4634.0ft (Original Well Elev)

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 244'FSL, 529'FEL, SEC.11	1.0	0.0	0.0	Point
BHL 500'FNL, 900'FEL, SEC.11	6834.0	4599.1	-362.8	Point
LPL 180'FSL, 900'FEL, SEC.11	6864.0	-61.0	-371.8	Point



Azimuths to True North
 Magnetic North: 8.03°

Magnetic Field
 Strength: 52558.0snT
 Dip Angle: 66.88°
 Date: 2/1/2017
 Model: IGRF2010

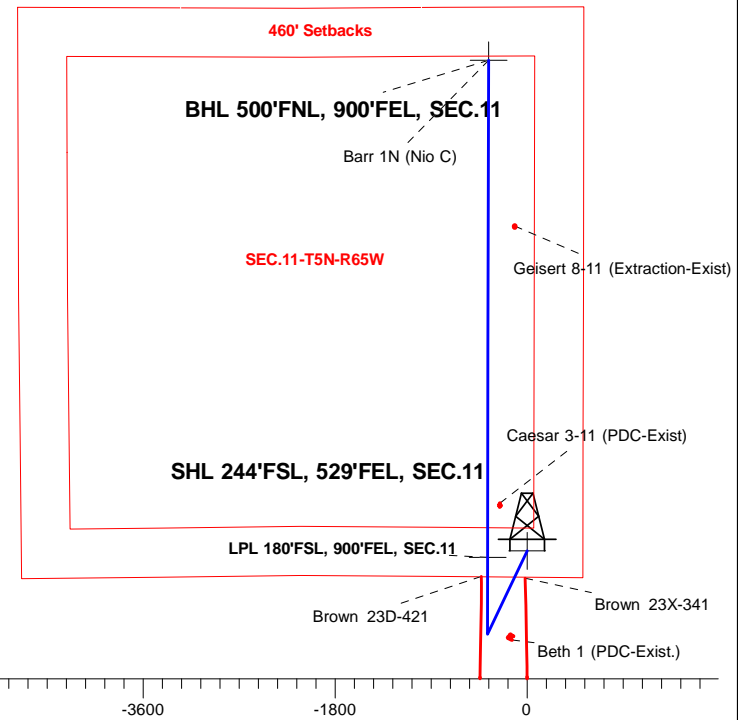
Barr 5N65W11TY Pad Sec.11-T5N-R65W
 Barr 1N (Nio C)
 Plan #3 (10-11-17)
 13:33, October 12 2017

ANNOTATIONS

TVD	MD	Annotation
200.0	200.0	KOP - Start Build 1.50
5091.3	5163.0	Start Drop -2.00
6147.8	6222.2	KOP #2 - Start Build 8.00
6864.0	7352.0	Start DLS 0.50 TFO 94.64
6864.0	7354.8	Start 4657.3 hold at 7354.8 MD
6834.0	12012.2	TD at 12012.2

South(-)/North(+) (1800 ft/in)

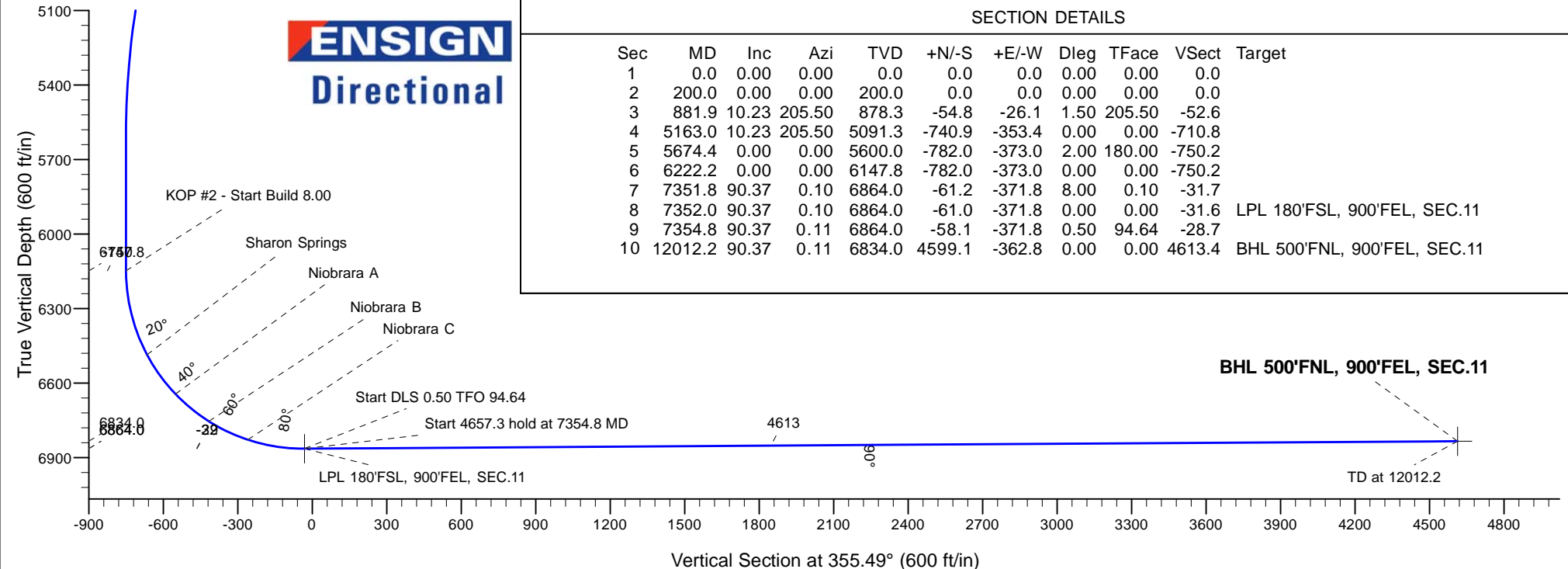
West(-)/East(+) (1800 ft/in)



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	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
3	881.9	10.23	205.50	878.3	-54.8	-26.1	1.50	205.50	-52.6	
4	5163.0	10.23	205.50	5091.3	-740.9	-353.4	0.00	0.00	-710.8	
5	5674.4	0.00	0.00	5600.0	-782.0	-373.0	2.00	180.00	-750.2	
6	6222.2	0.00	0.00	6147.8	-782.0	-373.0	0.00	0.00	-750.2	
7	7351.8	90.37	0.10	6864.0	-61.2	-371.8	8.00	0.10	-31.7	
8	7352.0	90.37	0.10	6864.0	-61.0	-371.8	0.00	0.00	-31.6	LPL 180'FSL, 900'FEL, SEC.11
9	7354.8	90.37	0.11	6864.0	-58.1	-371.8	0.50	94.64	-28.7	
10	12012.2	90.37	0.11	6834.0	4599.1	-362.8	0.00	0.00	4613.4	BHL 500'FNL, 900'FEL, SEC.11

ENSIGN
 Directional



PDC Energy Inc. DJ Basin

SEC.11-T5N-R65W

Barr 5N65W11TY Pad Sec.11-T5N-R65W

Barr 1N (Nio C)

Wellbore #1

Plan #3 (10-11-17)

Anticollision Summary Report

12 October, 2017

Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well Barr 1N (Nio C)
Project:	SEC.11-T5N-R65W	TVD Reference:	WELL @ 4634.0ft (Original Well Elev)
Reference Site:	Barr 5N65W11TY Pad Sec.11-T5N-R65W	MD Reference:	WELL @ 4634.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Barr 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 #3 (10-11-17)	Offset TVD Reference:	Offset Datum

Reference	Plan #3 (10-11-17)		
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 500.0 ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.45 Sigma	Casing Method:	Not applied

Survey Tool Program	Date 10/12/2017			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	12,012.2	Plan #3 (10-11-17) (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						
Barr 5N65W11TY Pad Sec.11-T5N-R65W						
Barr 11L-221 - Wellbore #1 - Plan #2 (6-19-17)	200.0	200.0	74.9	74.1	90.698	CC, ES
Barr 11L-221 - Wellbore #1 - Plan #2 (6-19-17)	900.0	896.1	117.2	112.4	24.270	SF
Barr 11L-301 - Wellbore #1 - Plan #2 (6-19-17)	200.0	200.0	59.9	59.1	72.493	CC, ES
Barr 11L-301 - Wellbore #1 - Plan #2 (6-19-17)	800.0	797.5	90.3	86.1	21.442	SF
Barr 11L-201 - Wellbore #1 - Plan #2 (6-19-17)	200.0	200.0	105.0	104.2	127.113	CC, ES
Barr 11L-201 - Wellbore #1 - Plan #2 (6-19-17)	1,100.0	1,091.0	172.9	166.8	28.619	SF
Barr 11L-221 - Wellbore #1 - Plan #2 (6-19-17)	200.0	200.0	149.8	149.0	181.396	CC, ES
Barr 11L-221 - Wellbore #1 - Plan #2 (6-19-17)	1,400.0	1,328.8	345.2	336.7	40.886	SF
Barr 11L-301 - Wellbore #1 - Plan #2 (6-19-17)	200.0	200.0	135.1	134.3	163.528	CC, ES
Barr 11L-301 - Wellbore #1 - Plan #2 (6-19-17)	1,700.0	1,629.6	368.2	357.4	34.353	SF
Barr 11L-321 - Wellbore #1 - Plan #2 (6-19-17)	200.0	200.0	164.9	164.0	199.601	CC, ES
Barr 11L-321 - Wellbore #1 - Plan #2 (6-19-17)	1,500.0	1,385.6	444.4	434.9	46.799	SF
Barr 11L-341 - Wellbore #1 - Plan #3 (6-19-17)	200.0	200.0	90.0	89.1	108.904	CC, ES
Barr 11L-341 - Wellbore #1 - Plan #3 (6-19-17)	1,100.0	1,092.9	159.8	153.8	26.513	SF
Barr 11L-401 - Wellbore #1 - Plan #2 (6-19-17)	200.0	200.0	120.0	119.2	145.318	CC, ES
Barr 11L-401 - Wellbore #1 - Plan #2 (6-19-17)	1,800.0	1,744.5	344.9	333.8	31.087	SF
Barr 2N (Nio B) - Wellbore #1 - Plan #3 (10-11-17)	200.0	200.0	15.0	14.2	18.206	CC, ES
Barr 2N (Nio B) - Wellbore #1 - Plan #3 (10-11-17)	12,012.2	12,062.6	262.3	40.7	1.184	Level 2, SF
Barr 3N (Nio C) - Wellbore #1 - Plan #4 (10-11-17)	200.0	200.0	29.8	29.0	36.078	CC, ES
Barr 3N (Nio C) - Wellbore #1 - Plan #4 (10-11-17)	12,012.2	12,156.5	499.8	267.9	2.155	SF
Barr 4N (Nio B) - Wellbore #1 - Plan #3 (10-11-17)	200.0	200.0	44.8	44.0	54.283	CC, ES
Barr 4N (Nio B) - Wellbore #1 - Plan #3 (10-11-17)	700.0	698.6	65.7	62.1	18.218	SF
Brown 5N65W23 Pad Sec.23-T5N-R65W						
Brown 23D-421 - Wellbore #1 - Wellbore #1	7,189.1	15,203.0	100.9	-46.7	0.684	Level 1, CC, ES, SF
Brown 23X-341 - Wellbore #1 - Wellbore #1	7,145.8	15,567.0	353.0	121.9	1.528	CC, ES, SF
Existing Wells Sec.11-T5N-R65W						
Caesar 3-11 (PDC-Exist) - Wellbore #1 - Wellbore #1	7,858.8	6,836.8	113.9	71.7	2.699	CC, ES, SF
Geisert 8-11 (Extraction-Exist) - Wellbore #1 - Wellbore #1	10,459.2	6,821.0	249.1	2.4	1.010	Level 2, CC, ES, SF
Existing Wells Sec.14-T5N-R65W						
Beth 1 (PDC-Exist) - Wellbore #1 - Wellbore #1	5,127.9	5,037.7	185.9	148.6	4.984	CC
Beth 1 (PDC-Exist) - Wellbore #1 - Wellbore #1	5,200.0	5,108.3	186.3	148.5	4.930	ES
Beth 1 (PDC-Exist) - Wellbore #1 - Wellbore #1	5,800.0	5,703.1	193.9	153.9	4.850	SF