PDC Energy Inc. DJ Basin

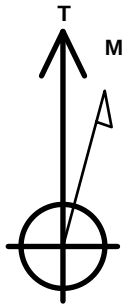
Well Name: **J Clark 12N (Nio B)**
Surface Location: Clark 5N65W14 1-21 Pad Sec.14-T5N-R65W
North American Datum 1983 , US State Plane 1983, Colorado Northern Zone
Ground Elevation: 4615.0

+N/-S	+E/-W	Northing	Easting	Latittude	Longitude	Slot
0.0	0.0	1391636.26	3242755.95	40.405168	-104.628297	

Original Well Elev WELL @ 4638.0ft (Original Well Elev)

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 550'FNL & 2009'FEL, Sec.14	1.0	0.0	0.0	Point
BHL 500'FNL & 2150'FEL, Sec.11	6778.0	5375.0	-135.1	Point
LPL 50'FSL & 2175'FEL, Sec.11	6788.0	601.6	-168.8	Point



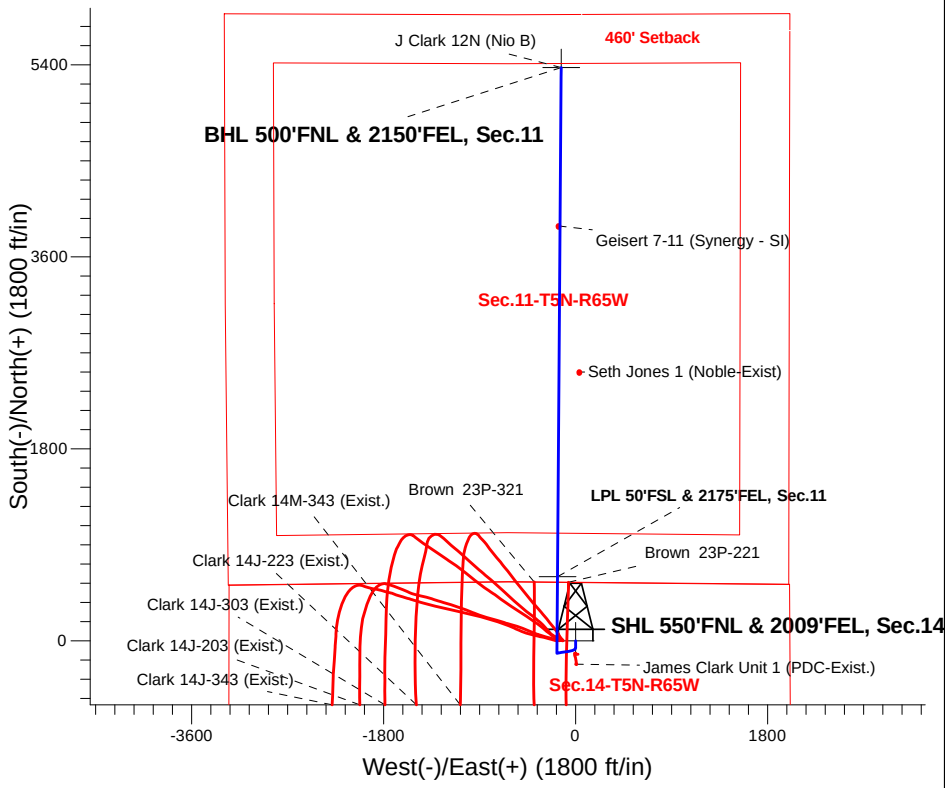
Azimuths to True North
Magnetic North: 7.91°

Magnetic Field
Strength: 52463.7snT
Dip Angle: 66.85°
Date: 12/19/2017
Model: IGRF2010

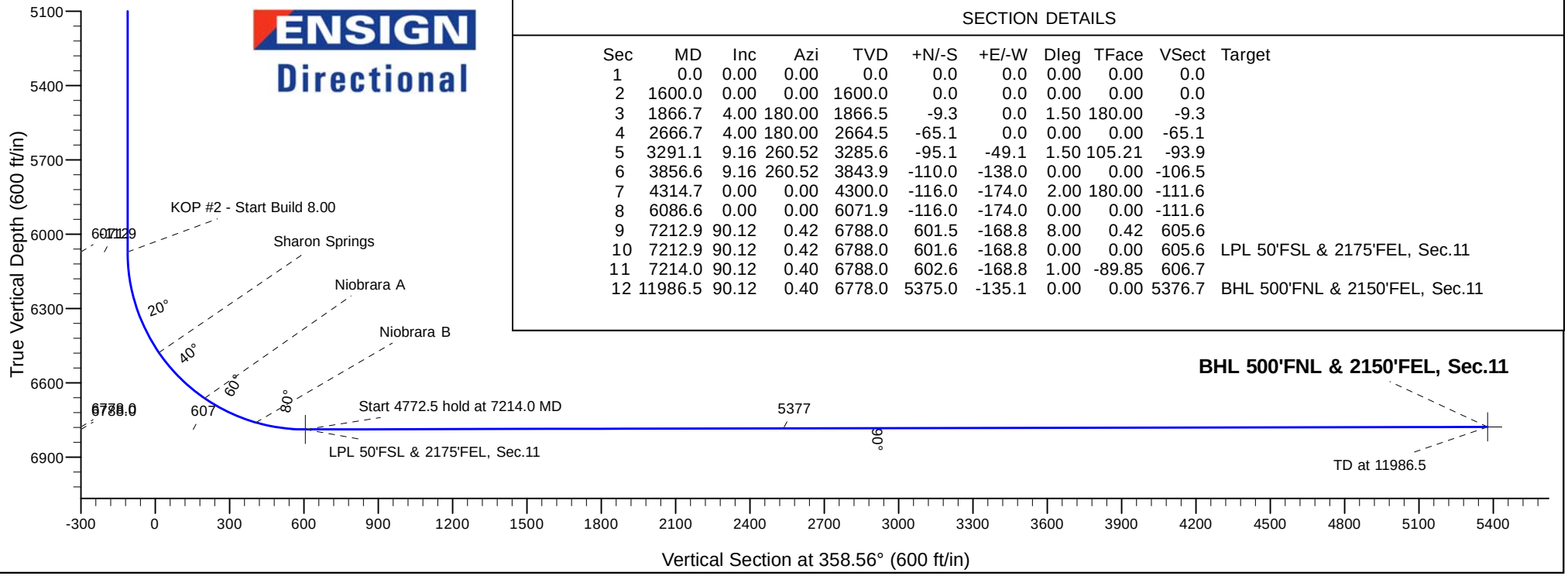
Clark 5N65W14 1-21 Pad Sec.14-T5N-R65W
J Clark 12N (Nio B)
Plan #1 (1-10-18)
14:10, January 12 2018

ANNOTATIONS

TVD	MD	Annotation
1600.0	1600.0	KOP - Start Build 1.50
1866.5	1866.7	Start 800.0 hold at 1866.7 MD
2664.5	2666.7	Start DLS 1.50 TFO 105.21
3843.9	3856.6	Start Drop -2.00
6071.9	6086.6	KOP #2 - Start Build 8.00
6788.0	7214.0	Start 4772.5 hold at 7214.0 MD
6778.0	11986.5	TD at 11986.5



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	1600.0	0.00	0.00	1600.0	0.0	0.0	0.00	0.00	0.0	
3	1866.7	4.00	180.00	1866.5	-9.3	0.0	1.50	180.00	-9.3	
4	2666.7	4.00	180.00	2664.5	-65.1	0.0	0.00	0.00	-65.1	
5	3291.1	9.16	260.52	3285.6	-95.1	-49.1	1.50	105.21	-93.9	
6	3856.6	9.16	260.52	3843.9	-110.0	-138.0	0.00	0.00	-106.5	
7	4314.7	0.00	0.00	4300.0	-116.0	-174.0	2.00	180.00	-111.6	
8	6086.6	0.00	0.00	6071.9	-116.0	-174.0	0.00	0.00	-111.6	
9	7212.9	90.12	0.42	6788.0	601.5	-168.8	8.00	0.42	605.6	
10	7212.9	90.12	0.42	6788.0	601.6	-168.8	0.00	0.00	605.6	LPL 50'FSL & 2175'FEL, Sec.11
11	7214.0	90.12	0.40	6788.0	602.6	-168.8	1.00	-89.85	606.7	
12	11986.5	90.12	0.40	6778.0	5375.0	-135.1	0.00	0.00	5376.7	BHL 500'FNL & 2150'FEL, Sec.11

ENSIGN Directional

PDC Energy Inc. DJ Basin

SEC.14-T5N-R65W
Clark 5N65W14 1-21 Pad Sec.14-T5N-R65W
J Clark 12N (Nio B)

Wellbore #1
Plan #1 (1-10-18)

Anticollision Summary Report

12 January, 2018

PDC ENERGY
Growing E&P Value

Company:	PDC Energy Inc. DJ Basin	**Local Co-ordinate Reference:**	Well J Clark 12N (Nio B)
Project:	SEC.14-T5N-R65W	**TVD Reference:**	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Clark 5N65W14 1-21 Pad Sec.14-T5N-R65W	**MD Reference:**	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	**North Reference:**	True
Reference Well:	J Clark 12N (Nio B)	**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 #1 (1-10-18)	**Offset TVD Reference:**	Offset Datum

Reference	Plan #1 (1-10-18)		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 50.0ft	**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** 1/12/2018

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	11,986.5	Plan #1 (1-10-18) (Wellbore #1)	MWD	MWD - Standard

Summary

Site Name / Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Brown 5N65W23 Pad Sec.23-T5N-R65W						
Brown 23P-221 - Wellbore #1 - Wellbore #1	7,025.8	15,120.9	101.6	-124.8	0.449	Level 1, CC
Brown 23P-221 - Wellbore #1 - Wellbore #1	7,050.0	15,144.6	101.8	-126.4	0.446	Level 1, SF
Brown 23P-221 - Wellbore #1 - Wellbore #1	7,100.0	15,194.3	103.0	-127.1	0.448	Level 1, ES
Brown 23P-321 - Wellbore #1 - Wellbore #1	7,108.9	15,779.0	219.0	-9.5	0.959	Level 1, CC
Brown 23P-321 - Wellbore #1 - Wellbore #1	7,150.0	15,819.5	219.2	-11.2	0.951	Level 1, ES, SF
Clark 5N65W14 1-21 Pad Sec.14-T5N-R65W						
J Clark 10N (Nio B) - Wellbore #1 - Plan #1 (12-18-17)	1,247.2	1,247.2	30.0	23.4	4.566	CC
J Clark 10N (Nio B) - Wellbore #1 - Plan #1 (12-18-17)	1,350.0	1,349.9	30.1	23.0	4.250	ES
J Clark 10N (Nio B) - Wellbore #1 - Plan #1 (12-18-17)	11,986.5	12,018.2	400.0	144.7	1.567	SF
J Clark 11N (Nio C) - Wellbore #1 - Plan #1 (12-18-17)	1,433.4	1,433.4	15.0	7.4	1.974	CC
J Clark 11N (Nio C) - Wellbore #1 - Plan #1 (12-18-17)	1,550.0	1,549.9	15.3	7.1	1.864	ES
J Clark 11N (Nio C) - Wellbore #1 - Plan #1 (12-18-17)	11,986.5	12,084.1	258.3	10.9	1.044	Level 2, SF
J Clark 13N (Nio C) - Wellbore #1 - Plan #1 (1-10-18)	1,632.9	1,632.9	15.0	6.3	1.721	CC
J Clark 13N (Nio C) - Wellbore #1 - Plan #1 (1-10-18)	1,750.0	1,750.0	15.2	6.0	1.641	ES
J Clark 13N (Nio C) - Wellbore #1 - Plan #1 (1-10-18)	11,986.5	12,057.0	258.3	9.9	1.040	Level 2, SF
J Clark 14N (Nio B) - Wellbore #1 - Plan #1 (1-10-18)	1,200.0	1,200.0	30.0	23.7	4.737	CC, ES
J Clark 14N (Nio B) - Wellbore #1 - Plan #1 (1-10-18)	11,986.5	11,999.3	500.0	244.8	1.959	SF
J Clark 15N (Nio C) - Wellbore #1 - Plan #1 (1-10-18)	800.0	800.0	45.0	40.9	10.891	CC, ES
J Clark 15N (Nio C) - Wellbore #1 - Plan #1 (1-10-18)	11,986.5	12,068.7	752.7	498.7	2.964	SF
J Clark 16N (Nio B) - Wellbore #1 - Plan #1 (1-10-18)	200.0	200.0	60.0	59.2	72.629	CC, ES
J Clark 16N (Nio B) - Wellbore #1 - Plan #1 (1-10-18)	750.0	738.0	98.5	94.7	25.736	SF
J Clark 1C (Codell) - Wellbore #1 - Plan #1 (1-10-18)	182.6	184.6	240.1	239.4	326.306	CC
J Clark 1C (Codell) - Wellbore #1 - Plan #1 (1-10-18)	200.0	200.0	240.1	239.3	290.725	ES
J Clark 1C (Codell) - Wellbore #1 - Plan #1 (1-10-18)	1,550.0	1,428.0	459.1	450.9	55.647	SF
J Clark 2N (Nio B) - Wellbore #1 - Plan #1 (1-10-18)	382.6	384.6	225.1	223.3	122.531	CC
J Clark 2N (Nio B) - Wellbore #1 - Plan #1 (1-10-18)	400.0	400.0	225.1	223.2	116.808	ES
J Clark 2N (Nio B) - Wellbore #1 - Plan #1 (1-10-18)	1,500.0	1,416.1	372.4	364.5	47.405	SF
J Clark 3N (Nio C) - Wellbore #1 - Plan #1 (1-10-18)	323.0	325.1	210.1	208.6	142.670	CC
J Clark 3N (Nio C) - Wellbore #1 - Plan #1 (1-10-18)	500.0	500.0	210.3	207.9	86.880	ES
J Clark 3N (Nio C) - Wellbore #1 - Plan #1 (1-10-18)	1,450.0	1,385.4	324.9	317.3	42.637	SF
J Clark 4N (Nio B) - Wellbore #1 - Plan #1 (1-10-18)	318.5	320.5	195.1	193.6	134.643	CC
J Clark 4N (Nio B) - Wellbore #1 - Plan #1 (1-10-18)	600.0	601.4	195.8	192.8	65.171	ES
J Clark 4N (Nio B) - Wellbore #1 - Plan #1 (1-10-18)	1,450.0	1,403.6	278.9	271.2	36.401	SF
J Clark 5N (Nio C) - Wellbore #1 - Plan #1 (1-10-18)	288.3	288.3	105.0	103.7	81.670	CC
J Clark 5N (Nio C) - Wellbore #1 - Plan #1 (1-10-18)	450.0	449.7	105.3	103.1	49.072	ES
J Clark 5N (Nio C) - Wellbore #1 - Plan #1 (1-10-18)	1,100.0	1,081.7	148.6	142.9	25.868	SF

Company:	PDC Energy Inc. DJ Basin	**Local Co-ordinate Reference:**	Well J Clark 12N (Nio B)
Project:	SEC.14-T5N-R65W	**TVD Reference:**	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Clark 5N65W14 1-21 Pad Sec.14-T5N-R65W	**MD Reference:**	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	**North Reference:**	True
Reference Well:	J Clark 12N (Nio B)	**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 #1 (1-10-18)	**Offset TVD Reference:**	Offset Datum

Summary

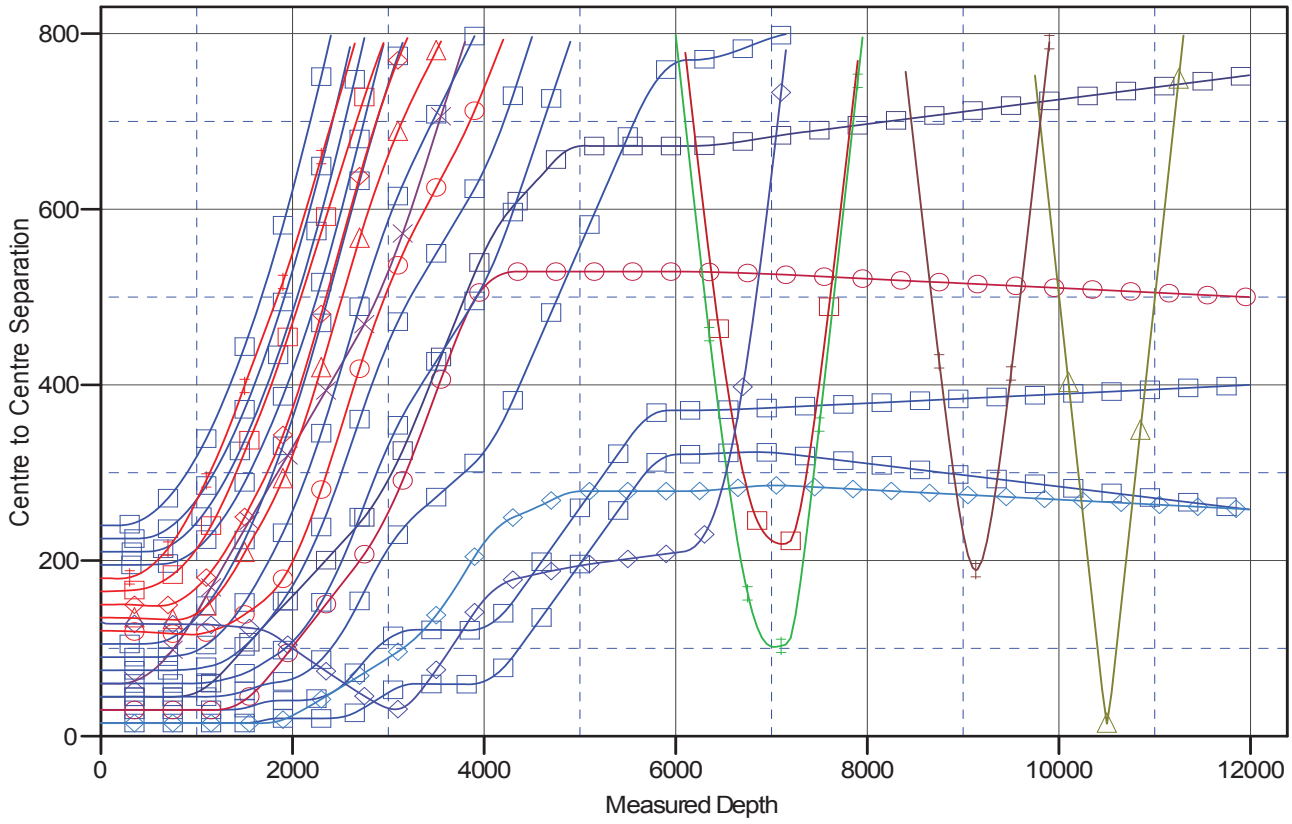
Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Clark 5N65W14 1-21 Pad Sec.14-T5N-R65W						
J Clark 6N (Nio B) - Wellbore #1 - Plan #1 (1-10-18)	481.7	481.7	90.0	87.7	38.299	CC
J Clark 6N (Nio B) - Wellbore #1 - Plan #1 (1-10-18)	650.0	649.7	90.3	87.1	28.102	ES
J Clark 6N (Nio B) - Wellbore #1 - Plan #1 (1-10-18)	1,200.0	1,190.5	112.8	106.5	18.099	SF
J Clark 7N (Nio C) - Wellbore #1 - Plan #1 (1-10-18)	674.6	674.6	75.0	71.6	21.970	CC
J Clark 7N (Nio C) - Wellbore #1 - Plan #1 (1-10-18)	850.0	849.7	75.4	71.1	17.533	ES
J Clark 7N (Nio C) - Wellbore #1 - Plan #1 (1-10-18)	1,350.0	1,345.2	89.5	82.5	12.769	SF
J Clark 8N (Nio B) - Wellbore #1 - Plan #1 (1-10-18)	864.6	864.6	60.0	55.6	13.448	CC
J Clark 8N (Nio B) - Wellbore #1 - Plan #1 (1-10-18)	1,000.0	999.8	60.2	55.1	11.717	ES
J Clark 8N (Nio B) - Wellbore #1 - Plan #1 (1-10-18)	1,550.0	1,547.3	74.1	66.1	9.195	SF
J Clark 9C (Codell) - Wellbore #1 - Plan #1 (1-10-18)	1,057.0	1,057.0	45.0	39.5	8.146	CC
J Clark 9C (Codell) - Wellbore #1 - Plan #1 (1-10-18)	1,200.0	1,199.8	45.3	39.0	7.259	ES
J Clark 9C (Codell) - Wellbore #1 - Plan #1 (1-10-18)	1,950.0	1,946.8	63.7	53.7	6.364	SF
Clark 5N65W14EJ Pad Sec.14-T5N-R65W						
Clark 14J-203 (Exist.) - Wellbore #1 - Wellbore #1	0.0	1.0	164.9			
Clark 14J-203 (Exist.) - Wellbore #1 - Wellbore #1	150.0	150.3	165.2	164.8	342.464	ES
Clark 14J-203 (Exist.) - Wellbore #1 - Wellbore #1	1,300.0	1,244.3	272.2	265.6	40.746	SF
Clark 14J-223 (Exist.) - Wellbore #1 - Wellbore #1	762.8	763.9	132.4	128.7	35.087	CC
Clark 14J-223 (Exist.) - Wellbore #1 - Wellbore #1	800.0	800.1	132.6	128.6	33.360	ES
Clark 14J-223 (Exist.) - Wellbore #1 - Wellbore #1	1,250.0	1,229.5	165.6	159.3	25.956	SF
Clark 14J-303 (Exist.) - Wellbore #1 - Wellbore #1	583.5	584.5	148.2	145.5	53.450	CC
Clark 14J-303 (Exist.) - Wellbore #1 - Wellbore #1	600.0	600.7	148.3	145.4	51.851	ES
Clark 14J-303 (Exist.) - Wellbore #1 - Wellbore #1	1,300.0	1,268.6	211.1	204.4	31.670	SF
Clark 14J-343 (Exist.) - Wellbore #1 - Wellbore #1	180.4	181.4	179.5	178.9	281.059	CC
Clark 14J-343 (Exist.) - Wellbore #1 - Wellbore #1	200.0	200.3	179.5	178.8	242.790	ES
Clark 14J-343 (Exist.) - Wellbore #1 - Wellbore #1	1,400.0	1,311.7	369.1	361.8	50.010	SF
Clark 14M-343 (Exist.) - Wellbore #1 - Wellbore #1	948.8	948.8	115.7	111.0	24.511	CC
Clark 14M-343 (Exist.) - Wellbore #1 - Wellbore #1	950.0	950.0	115.7	111.0	24.479	ES
Clark 14M-343 (Exist.) - Wellbore #1 - Wellbore #1	1,650.0	1,639.8	150.1	141.6	17.723	SF
Existing Wells Sec.11-T5N-R65W						
Geisert 7-11 (Synergy - SI) - Wellbore #1 - Wellbore #1	10,502.2	6,747.1	14.3	-244.1	0.055	Level 1, CC, ES, SF
Seth Jones 1 (Noble-Exist) - Wellbore #1 - Wellbore #1	9,132.7	6,759.0	189.2	-38.3	0.832	Level 1, CC, ES, SF
Existing Wells Sec.14-T5N-R65W						
James Clark Unit 1 (PDC-Exist.) - Wellbore #1 - Wellbore	3,069.6	3,044.3	30.6	13.3	1.765	CC, ES
James Clark Unit 1 (PDC-Exist.) - Wellbore #1 - Wellbore	3,100.0	3,074.4	30.9	13.4	1.762	SF

Company:	PDC Energy Inc. DJ Basin	**Local Co-ordinate Reference:**	Well J Clark 12N (Nio B)
Project:	SEC.14-T5N-R65W	**TVD Reference:**	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Clark 5N65W14 1-21 Pad Sec.14-T5N-R65W	**MD Reference:**	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	**North Reference:**	True
Reference Well:	J Clark 12N (Nio B)	**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 #1 (1-10-18)	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 4638.0ft (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: J Clark 12N (Nio B)
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.56°

Ladder Plot



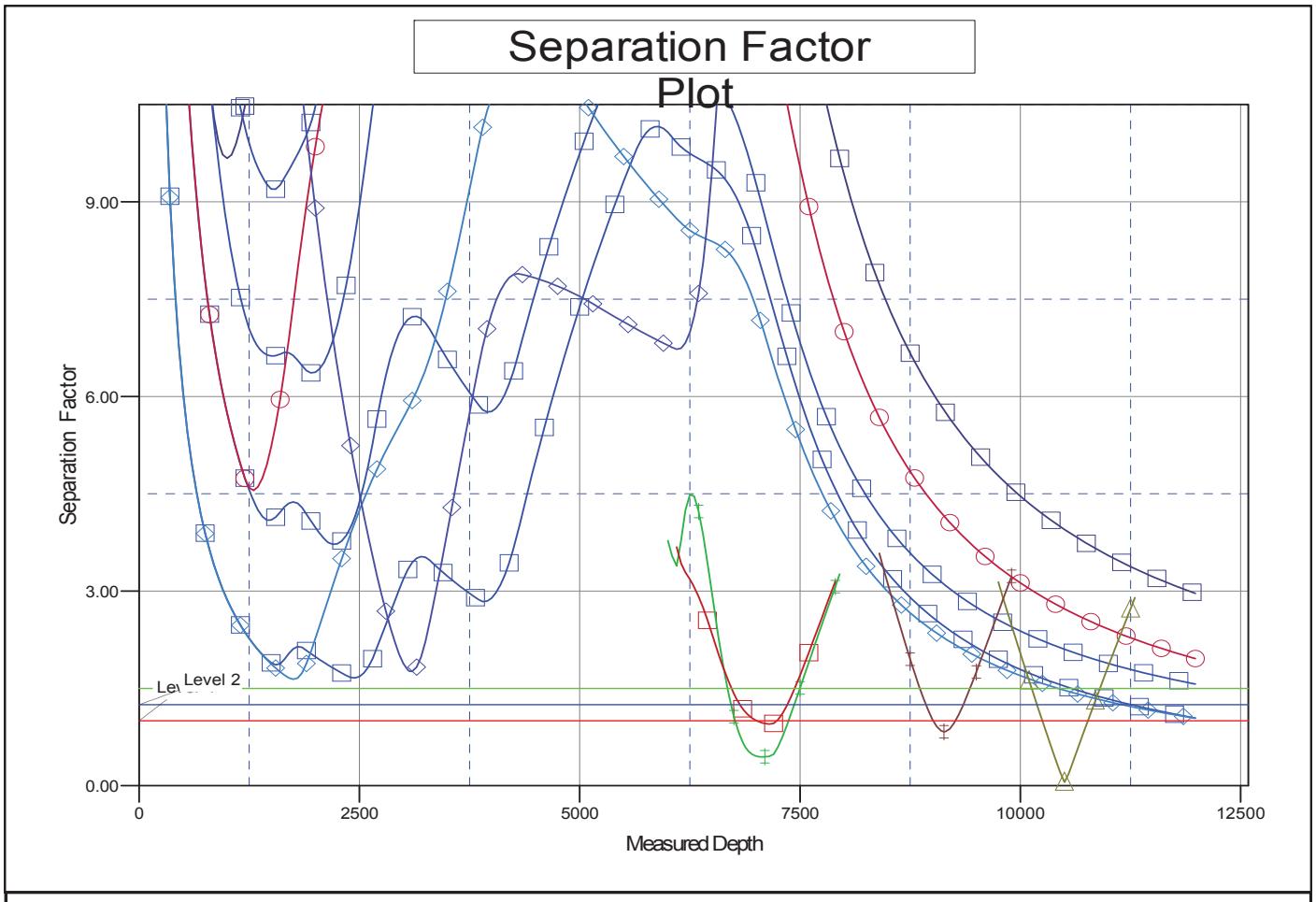
LEGEND

lio B), Wellbore #1, Plan #1 (12-18-17) V0
lio C), Wellbore #1, Plan #1 (12-18-17) V0
lio C), Wellbore #1, Plan #1 (1-10-18) V0
lio B), Wellbore #1, Plan #1 (1-10-18) V0
lio C), Wellbore #1, Plan #1 (1-10-18) V0
lio B), Wellbore #1, Plan #1 (1-10-18) V0
odell), Wellbore #1, Plan #1 (1-10-18) V0
o B), Wellbore #1, Plan #1 (1-10-18) V0
o C), Wellbore #1, Plan #1 (1-10-18) V0
J Clark 4N (Nio B), Wellbore #1, Plan #1 (1-10-18) V0
J Clark 5N (Nio C), Wellbore #1, Plan #1 (1-10-18) V0
J Clark 6N (Nio B), Wellbore #1, Plan #1 (1-10-18) V0
J Clark 7N (Nio C), Wellbore #1, Plan #1 (1-10-18) V0
J Clark 8N (Nio B), Wellbore #1, Plan #1 (1-10-18) V0
J Clark 9C (Codell), Wellbore #1, Plan #1 (1-10-18) V0
Brown 23P-221, Wellbore #1, Wellbore #1 V0
Brown 23P-321, Wellbore #1, Wellbore #1 V0
Clark 14M-343 (Exist.), Wellbore #1, Wellbore #1 V0
Clark 14J-343 (Exist.), Wellbore #1, Wellbo
Clark 14J-303 (Exist.), Wellbore #1, Wellbo
Clark 14J-223 (Exist.), Wellbore #1, Wellbo
Clark 14J-203 (Exist.), Wellbore #1, Wellbo
Geisert 7-11 (Synergy - SI), Wellbore #1, W
Seth Jones 1 (Noble-Exist), Wellbore #1, W
James Clark Unit 1 (PDC-Exist.), Wellbore

Company:	PDC Energy Inc. DJ Basin	**Local Co-ordinate Reference:**	Well J Clark 12N (Nio B)
Project:	SEC.14-T5N-R65W	**TVD Reference:**	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Clark 5N65W14 1-21 Pad Sec.14-T5N-R65W	**MD Reference:**	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	**North Reference:**	True
Reference Well:	J Clark 12N (Nio B)	**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 #1 (1-10-18)	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 4638.0ft (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: J Clark 12N (Nio B)
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.56°



LEGEND

- Jio B), Wellbore #1, Plan #1 (12-18-17) V0
- Jio C), Wellbore #1, Plan #1 (12-18-17) V0
- Jio C), Wellbore #1, Plan #1 (1-10-18) V0
- Jio B), Wellbore #1, Plan #1 (1-10-18) V0
- Jio C), Wellbore #1, Plan #1 (1-10-18) V0
- Jio B), Wellbore #1, Plan #1 (1-10-18) V0
- odell), Wellbore #1, Plan #1 (1-10-18) V0
- o B), Wellbore #1, Plan #1 (1-10-18) V0
- o C), Wellbore #1, Plan #1 (1-10-18) V0
- J Clark 4N (Nio B), Wellbore #1, Plan #1 (1-10-18) V0
- J Clark 5N (Nio C), Wellbore #1, Plan #1 (1-10-18) V0
- J Clark 6N (Nio B), Wellbore #1, Plan #1 (1-10-18) V0
- J Clark 7N (Nio C), Wellbore #1, Plan #1 (1-10-18) V0
- J Clark 8N (Nio B), Wellbore #1, Plan #1 (1-10-18) V0
- J Clark 9C (Codell), Wellbore #1, Plan #1 (1-10-18) V0
- Brown 23P-221, Wellbore #1, Wellbore #1 V0
- Brown 23P-321, Wellbore #1, Wellbore #1 V0
- Clark 14M-343 (Exist.), Wellbore #1, Wellbore #1 V0
- Clark 14J-343 (Exist.), Wellbore #1, Wellbo
- Clark 14J-303 (Exist.), Wellbore #1, Wellbo
- Clark 14J-223 (Exist.), Wellbore #1, Wellbo
- Clark 14J-203 (Exist.), Wellbore #1, Wellbo
- Geisert 7-11 (Synergy - SI), Wellbore #1 W
- Seth Jones 1 (Noble-Exist), Wellbore #1 W
- James Clark Unit 1 (PDC-Exist.), Wellbore