

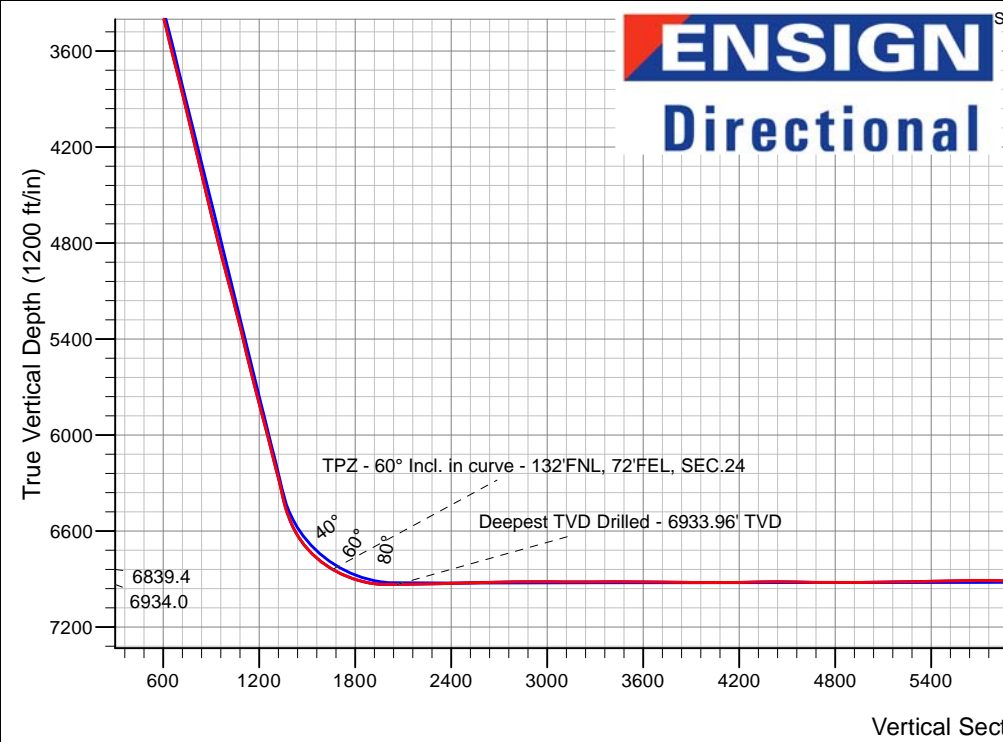
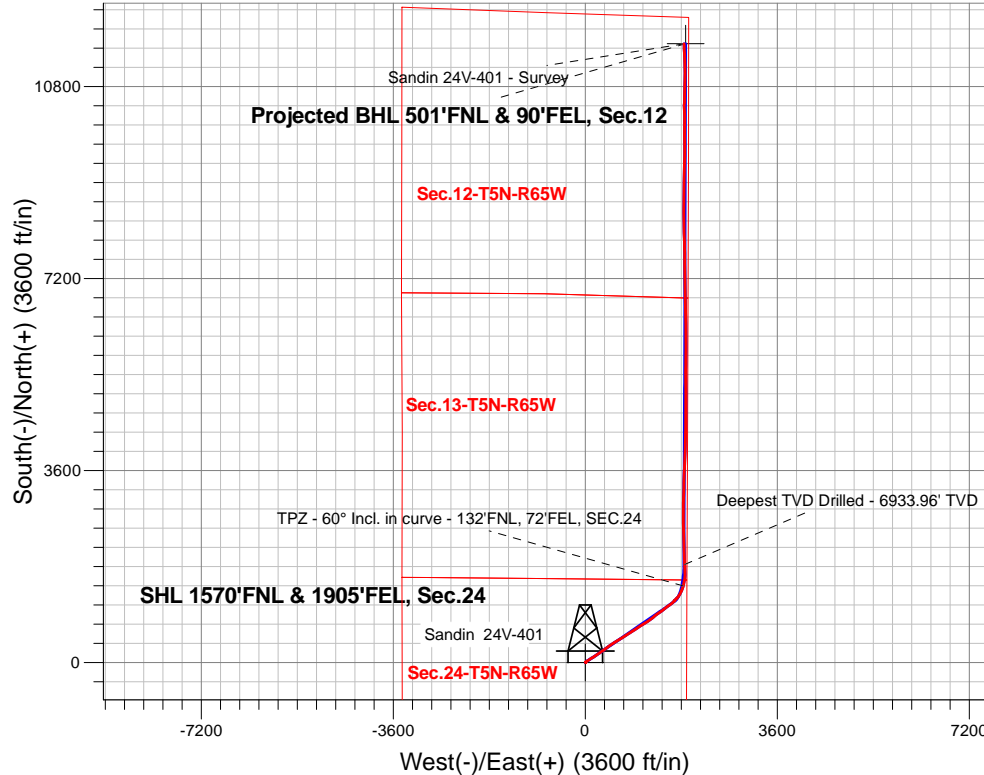
PDC Energy Inc. DJ Basin

Well Name: **Sandin 24V-401**

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 385287.15 248269.19 40.387590 -104.608730
 RKB - 23' WELL @ 4657.0ft (RKB - 23')

FINAL SURVEY

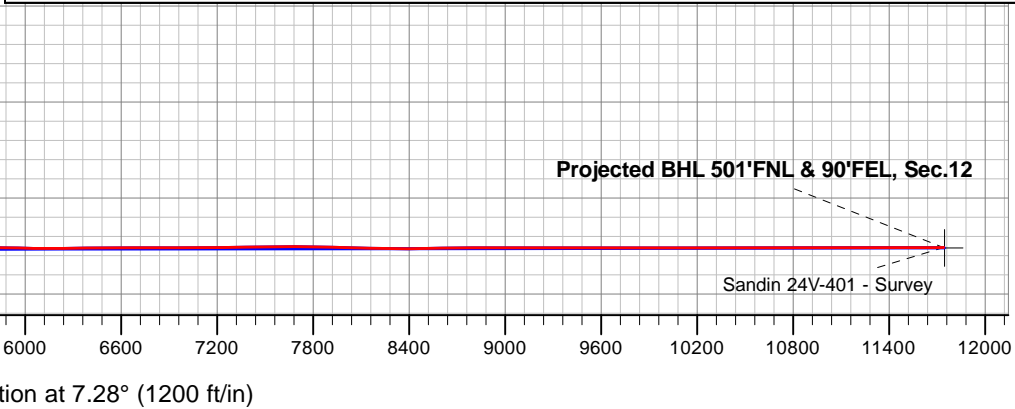
Projected Bottom Hole Location
17,499'MD 6909'TVD 11,600'N & 1850'E of SHL
90.2 degree Incl @ 357.5 degree AZM



Sandin Farms 5N65W24N Pad Sec.24-T5N-R65W
 Sandin 24V-401
 Sandin 24V-401 Wellbore #1
 8:02, April 05 2018

ANNOTATIONS		
TVD	MD	Annotation
6839.4	7313.2	TPZ - 60° Incl. in curve - 132'FNL, 72'FEL, SEC.24
6934.0	7736.0	Deepest TVD Drilled - 6933.96' TVD

LEGEND	
	Sandin 24V-401, Sandin 24V-401 Wellbore #1, Plan #5 (3-29-18) V0
	Sandin 24V-401 Wellbore #1
	Survey #1





PDC Energy Inc. DJ Basin

SEC.24-T5N-R65W

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

Sandin 24V-401

Sandin 24V-401 Wellbore #1

Survey: Survey #1

Standard Survey Report

05 April, 2018



Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well Sandin 24V-401
Project:	SEC.24-T5N-R65W	TVD Reference:	WELL @ 4657.0ft (RKB - 23')
Site:	Sandin Farms 5N65W24N Pad Sec.24-T5N-R65W	MD Reference:	WELL @ 4657.0ft (RKB - 23')
Well:	Sandin 24V-401	North Reference:	True
Wellbore:	Sandin 24V-401 Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Sandin 24V-401 Wellbore #1	Database:	US_EDM

Project	SEC.24-T5N-R65W, Weld County, Colorado		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site	Sandin Farms 5N65W24N Pad Sec.24-T5N-R65W				
Site Position:		Northing:	1,385,287.16 usft	Latitude:	40.387590
From:	Lat/Long	Easting:	3,248,269.19 usft	Longitude:	-104.608730
Position Uncertainty:	0.0 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.58 °

Well	Sandin 24V-401					
Well Position	+N/-S	0.0 ft	Northing:	1,385,287.15 usft	Latitude:	40.387590
	+E/-W	0.0 ft	Easting:	3,248,269.19 usft	Longitude:	-104.608730
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft	Ground Level:	4,634.0 ft

Wellbore	Sandin 24V-401 Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	3/29/2018	7.86	66.83	52,427

Design	Sandin 24V-401 Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.0	0.0	0.0	7.28	

Survey Program	Date	4/5/2018			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
156.0	17,499.0	Survey #1 (Sandin 24V-401 Wellbore #1)	MWD	MWD - Standard	

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
1.0	0.00	80.80	1.0	0.0	0.0	0.0	0.45	0.45	0.00	
SHL 1570'FNL & 1905'FEL, Sec.24										
156.0	0.70	80.80	156.0	0.2	0.9	0.3	0.45	0.45	0.00	
252.0	1.30	44.60	252.0	1.0	2.3	1.3	0.88	0.63	-37.71	
348.0	2.70	35.30	347.9	3.6	4.4	4.2	1.49	1.46	-9.69	
443.0	4.20	45.90	442.7	7.9	8.1	8.9	1.71	1.58	11.16	
539.0	5.90	49.60	538.4	13.5	14.4	15.3	1.80	1.77	3.85	
634.0	7.10	48.70	632.8	20.6	22.6	23.3	1.27	1.26	-0.95	
730.0	9.00	54.00	727.8	28.9	33.1	32.9	2.12	1.98	5.52	

Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well Sandin 24V-401
Project:	SEC.24-T5N-R65W	TVD Reference:	WELL @ 4657.0ft (RKB - 23')
Site:	Sandin Farms 5N65W24N Pad Sec.24-T5N-R65W	MD Reference:	WELL @ 4657.0ft (RKB - 23')
Well:	Sandin 24V-401	North Reference:	True
Wellbore:	Sandin 24V-401 Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Sandin 24V-401 Wellbore #1	Database:	US_EDM

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
825.0	10.10	56.80	821.5	37.8	46.1	43.4	1.26	1.16	2.95	
921.0	11.40	56.80	915.8	47.6	61.1	55.0	1.35	1.35	0.00	
1,017.0	12.40	58.00	1,009.7	58.3	77.7	67.7	1.07	1.04	1.25	
1,113.0	13.50	57.60	1,103.3	69.8	95.9	81.4	1.15	1.15	-0.42	
1,208.0	14.70	58.70	1,195.4	82.0	115.6	96.0	1.29	1.26	1.16	
1,304.0	16.60	59.10	1,287.9	95.3	137.8	112.0	1.98	1.98	0.42	
1,399.0	18.10	57.50	1,378.5	110.2	161.9	129.9	1.66	1.58	-1.68	
1,495.0	18.40	55.50	1,469.7	126.8	186.9	149.5	0.72	0.31	-2.08	
1,591.0	18.20	56.80	1,560.9	143.6	212.0	169.3	0.47	-0.21	1.35	
1,669.0	18.50	55.90	1,634.9	157.2	232.4	185.4	0.53	0.38	-1.15	
1,777.0	18.20	56.00	1,737.4	176.3	260.6	207.9	0.28	-0.28	0.09	
1,873.0	17.80	54.80	1,828.7	193.1	285.0	227.7	0.57	-0.42	-1.25	
1,970.0	19.00	54.30	1,920.7	210.9	309.9	248.5	1.25	1.24	-0.52	
2,065.0	20.80	55.50	2,010.1	229.4	336.4	270.2	1.94	1.89	1.26	
2,160.0	20.00	53.70	2,099.1	248.6	363.4	292.7	1.07	-0.84	-1.89	
2,256.0	18.50	51.60	2,189.7	267.8	388.6	314.9	1.72	-1.56	-2.19	
2,351.0	18.70	51.80	2,279.8	286.6	412.3	336.5	0.22	0.21	0.21	
2,447.0	20.60	53.00	2,370.2	306.3	437.9	359.3	2.02	1.98	1.25	
2,542.0	20.80	55.10	2,459.1	326.0	465.1	382.3	0.81	0.21	2.21	
2,638.0	21.70	59.00	2,548.5	344.9	494.3	404.8	1.75	0.94	4.06	
2,734.0	21.90	59.20	2,637.7	363.2	524.9	426.8	0.22	0.21	0.21	
2,829.0	22.00	58.70	2,725.8	381.5	555.3	448.8	0.22	0.11	-0.53	
2,925.0	20.80	56.90	2,815.2	400.1	585.0	471.1	1.42	-1.25	-1.88	
3,020.0	19.50	54.60	2,904.3	418.5	612.0	492.8	1.60	-1.37	-2.42	
3,116.0	19.70	58.70	2,994.8	436.2	638.9	513.7	1.45	0.21	4.27	
3,211.0	19.70	61.50	3,084.2	452.2	666.7	533.1	0.99	0.00	2.95	
3,307.0	19.60	58.30	3,174.6	468.4	694.6	552.7	1.13	-0.10	-3.33	
3,403.0	20.60	57.10	3,264.8	486.0	722.5	573.7	1.13	1.04	-1.25	
3,499.0	20.00	57.10	3,354.8	504.1	750.4	595.2	0.63	-0.63	0.00	
3,594.0	20.00	58.00	3,444.1	521.5	777.8	615.9	0.32	0.00	0.95	
3,690.0	20.80	56.00	3,534.1	539.8	805.9	637.6	1.11	0.83	-2.08	
3,785.0	21.40	58.00	3,622.7	558.4	834.6	659.7	0.99	0.63	2.11	
3,881.0	21.50	57.10	3,712.1	577.2	864.2	682.1	0.36	0.10	-0.94	
3,977.0	21.50	57.30	3,801.4	596.3	893.8	704.8	0.08	0.00	0.21	
4,072.0	21.10	57.10	3,889.9	615.0	922.8	727.0	0.43	-0.42	-0.21	
4,167.0	19.60	56.40	3,979.0	633.1	950.4	748.5	1.60	-1.58	-0.74	
4,263.0	20.90	56.20	4,069.0	651.5	978.1	770.3	1.36	1.35	-0.21	
4,359.0	19.10	55.00	4,159.2	670.0	1,005.2	792.1	1.92	-1.88	-1.25	
4,455.0	19.30	56.40	4,249.9	687.8	1,031.2	813.0	0.52	0.21	1.46	
4,550.0	20.40	59.40	4,339.3	705.0	1,058.6	833.5	1.58	1.16	3.16	
4,646.0	22.30	58.70	4,428.7	722.9	1,088.5	855.1	2.00	1.98	-0.73	
4,742.0	20.40	57.10	4,518.1	741.5	1,118.1	877.3	2.07	-1.98	-1.67	

Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well Sandin 24V-401
Project:	SEC.24-T5N-R65W	TVD Reference:	WELL @ 4657.0ft (RKB - 23')
Site:	Sandin Farms 5N65W24N Pad Sec.24-T5N-R65W	MD Reference:	WELL @ 4657.0ft (RKB - 23')
Well:	Sandin 24V-401	North Reference:	True
Wellbore:	Sandin 24V-401 Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Sandin 24V-401 Wellbore #1	Database:	US_EDM

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
4,838.0	20.40	59.70	4,608.0	759.0	1,146.6	898.3	0.94	0.00	2.71	
4,933.0	21.80	57.40	4,696.7	776.9	1,175.8	919.7	1.71	1.47	-2.42	
5,029.0	19.10	55.10	4,786.6	795.5	1,203.7	941.7	2.93	-2.81	-2.40	
5,125.0	20.00	51.10	4,877.1	814.8	1,229.4	964.1	1.68	0.94	-4.17	
5,220.0	20.00	49.20	4,966.4	835.6	1,254.3	987.9	0.68	0.00	-2.00	
5,316.0	20.80	49.20	5,056.3	857.4	1,279.6	1,012.8	0.83	0.83	0.00	
5,412.0	19.60	53.90	5,146.4	878.1	1,305.5	1,036.5	2.10	-1.25	4.90	
5,507.0	20.00	50.90	5,235.8	897.7	1,331.0	1,059.2	1.15	0.42	-3.16	
5,603.0	20.70	54.30	5,325.8	918.0	1,357.6	1,082.7	1.43	0.73	3.54	
5,699.0	19.30	54.40	5,416.0	937.1	1,384.2	1,105.0	1.46	-1.46	0.10	
5,794.0	19.90	55.70	5,505.5	955.4	1,410.4	1,126.5	0.78	0.63	1.37	
5,890.0	19.30	57.60	5,596.0	973.1	1,437.2	1,147.4	0.91	-0.63	1.98	
5,985.0	19.50	53.70	5,685.6	990.9	1,463.3	1,168.4	1.38	0.21	-4.11	
6,081.0	20.30	49.50	5,775.9	1,011.2	1,488.9	1,191.8	1.71	0.83	-4.38	
6,177.0	21.00	51.60	5,865.7	1,032.7	1,515.0	1,216.4	1.06	0.73	2.19	
6,272.0	21.40	52.90	5,954.3	1,053.7	1,542.2	1,240.7	0.65	0.42	1.37	
6,368.0	19.90	56.00	6,044.1	1,073.4	1,569.7	1,263.7	1.93	-1.56	3.23	
6,464.0	19.30	53.60	6,134.5	1,091.9	1,596.0	1,285.5	1.05	-0.63	-2.50	
6,560.0	20.90	50.40	6,224.7	1,112.3	1,622.0	1,308.9	2.02	1.67	-3.33	
6,656.0	16.40	45.30	6,315.6	1,132.7	1,644.8	1,332.1	4.98	-4.69	-5.31	
6,751.0	15.30	43.00	6,407.0	1,151.3	1,662.9	1,352.9	1.33	-1.16	-2.42	
6,846.0	24.20	41.60	6,496.3	1,175.1	1,684.4	1,379.2	9.38	9.37	-1.47	
6,942.0	31.00	44.80	6,581.4	1,207.4	1,714.9	1,415.1	7.25	7.08	3.33	
7,037.0	39.10	34.40	6,659.1	1,249.6	1,749.2	1,461.3	10.57	8.53	-10.95	
7,133.0	45.40	27.50	6,730.2	1,305.0	1,782.1	1,520.4	8.14	6.56	-7.19	
7,229.0	53.00	20.90	6,792.9	1,371.2	1,811.6	1,589.9	9.47	7.92	-6.88	
7,313.2	59.99	15.17	6,839.4	1,438.0	1,833.2	1,658.8	10.05	8.30	-6.80	
TPZ - 60° Incl. in curve - 132'FNL, 72'FEL, SEC.24										
7,324.0	60.90	14.50	6,844.7	1,447.0	1,835.6	1,668.1	10.05	8.46	-6.23	
7,420.0	69.50	10.10	6,885.0	1,532.1	1,854.0	1,754.8	9.87	8.96	-4.58	
7,516.0	74.70	4.30	6,914.5	1,622.7	1,865.4	1,846.1	7.90	5.42	-6.04	
7,612.0	85.30	358.50	6,931.2	1,717.0	1,867.6	1,939.9	12.54	11.04	-6.04	
7,640.0	88.40	357.00	6,932.7	1,744.9	1,866.5	1,967.5	12.30	11.07	-5.36	
7,736.0	90.10	355.60	6,934.0	1,840.7	1,860.3	2,061.7	2.29	1.77	-1.46	
Deepest TVD Drilled - 6933.96' TVD										
7,749.4	90.25	355.61	6,933.9	1,854.1	1,859.3	2,074.8	1.15	1.15	0.10	
LPL 300'FSL & 60'FEL, Sec.13										
7,832.0	91.20	355.70	6,932.9	1,936.4	1,853.1	2,155.7	1.15	1.15	0.10	
7,928.0	92.60	357.50	6,929.7	2,032.2	1,847.4	2,250.0	2.37	1.46	1.88	
8,023.0	90.90	0.30	6,926.8	2,127.1	1,845.6	2,344.0	3.45	-1.79	2.95	
8,119.0	91.10	359.90	6,925.1	2,223.1	1,845.7	2,439.2	0.47	0.21	-0.42	
8,214.0	91.00	359.10	6,923.4	2,318.1	1,844.9	2,533.3	0.85	-0.11	-0.84	
8,310.0	91.10	358.70	6,921.6	2,414.1	1,843.0	2,628.3	0.43	0.10	-0.42	

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Wellbore:	Sandin 24V-401 Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Sandin 24V-401 Wellbore #1	Database:	US_EDM

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,406.0	91.50	358.40	6,919.4	2,510.0	1,840.6	2,723.1	0.52	0.42	-0.31
8,501.0	90.30	358.20	6,917.9	2,605.0	1,837.8	2,816.9	1.28	-1.26	-0.21
8,597.0	90.70	359.20	6,917.1	2,700.9	1,835.6	2,911.9	1.12	0.42	1.04
8,693.0	89.40	359.80	6,917.0	2,796.9	1,834.8	3,007.0	1.49	-1.35	0.63
8,789.0	90.00	359.90	6,917.5	2,892.9	1,834.5	3,102.2	0.63	0.63	0.10
8,885.0	89.60	1.20	6,917.9	2,988.9	1,835.5	3,197.5	1.42	-0.42	1.35
8,981.0	90.70	1.50	6,917.6	3,084.9	1,837.7	3,293.0	1.19	1.15	0.31
9,077.0	89.40	2.20	6,917.5	3,180.8	1,840.8	3,388.5	1.54	-1.35	0.73
9,171.0	89.60	1.70	6,918.3	3,274.8	1,844.0	3,482.1	0.57	0.21	-0.53
9,267.0	90.10	1.70	6,918.6	3,370.7	1,846.9	3,577.7	0.52	0.52	0.00
9,363.0	90.50	1.50	6,918.1	3,466.7	1,849.5	3,673.2	0.47	0.42	-0.21
9,459.0	88.80	2.10	6,918.7	3,562.6	1,852.6	3,768.8	1.88	-1.77	0.63
9,554.0	89.20	2.20	6,920.3	3,657.6	1,856.1	3,863.4	0.43	0.42	0.11
9,650.0	89.50	2.10	6,921.4	3,753.5	1,859.7	3,959.0	0.33	0.31	-0.10
9,746.0	90.00	1.70	6,921.8	3,849.4	1,862.9	4,054.5	0.67	0.52	-0.42
9,841.0	90.60	1.70	6,921.3	3,944.4	1,865.7	4,149.1	0.63	0.63	0.00
9,937.0	91.10	2.40	6,919.9	4,040.3	1,869.2	4,244.7	0.90	0.52	0.73
10,033.0	91.60	2.30	6,917.7	4,136.2	1,873.1	4,340.3	0.53	0.52	-0.10
10,129.0	89.10	1.20	6,917.1	4,232.1	1,876.0	4,435.8	2.85	-2.60	-1.15
10,224.0	89.30	1.00	6,918.4	4,327.1	1,877.8	4,530.3	0.30	0.21	-0.21
10,320.0	89.30	0.80	6,919.6	4,423.1	1,879.4	4,625.7	0.21	0.00	-0.21
10,415.0	89.60	0.50	6,920.5	4,518.1	1,880.4	4,720.0	0.45	0.32	-0.32
10,511.0	89.90	0.80	6,920.9	4,614.1	1,881.5	4,815.4	0.44	0.31	0.31
10,606.0	90.20	0.30	6,920.8	4,709.1	1,882.4	4,909.7	0.61	0.32	-0.53
10,702.0	90.40	0.10	6,920.3	4,805.1	1,882.8	5,005.0	0.29	0.21	-0.21
10,798.0	90.70	0.10	6,919.4	4,901.1	1,882.9	5,100.2	0.31	0.31	0.00
10,894.0	90.90	359.80	6,918.1	4,997.1	1,882.9	5,195.4	0.38	0.21	-0.31
10,990.0	91.20	359.40	6,916.3	5,093.0	1,882.2	5,290.6	0.52	0.31	-0.42
11,086.0	91.40	359.10	6,914.1	5,189.0	1,880.9	5,385.6	0.38	0.21	-0.31
11,181.0	91.90	359.10	6,911.4	5,284.0	1,879.4	5,479.6	0.53	0.53	0.00
11,277.0	90.60	359.90	6,909.3	5,379.9	1,878.6	5,574.7	1.59	-1.35	0.83
11,373.0	91.20	0.70	6,907.8	5,475.9	1,879.1	5,670.0	1.04	0.63	0.83
11,469.0	88.50	0.80	6,908.0	5,571.9	1,880.4	5,765.3	2.81	-2.81	0.10
11,565.0	88.70	0.70	6,910.4	5,667.9	1,881.6	5,860.7	0.23	0.21	-0.10
11,661.0	89.00	0.50	6,912.3	5,763.8	1,882.6	5,956.0	0.38	0.31	-0.21
11,757.0	89.40	0.50	6,913.6	5,859.8	1,883.5	6,051.3	0.42	0.42	0.00
11,852.0	89.80	0.10	6,914.3	5,954.8	1,884.0	6,145.6	0.60	0.42	-0.42
11,948.0	90.20	359.90	6,914.3	6,050.8	1,884.0	6,240.8	0.47	0.42	-0.21
12,044.0	90.30	359.20	6,913.9	6,146.8	1,883.2	6,336.0	0.74	0.10	-0.73
12,139.0	90.70	359.10	6,913.1	6,241.8	1,881.8	6,430.0	0.43	0.42	-0.11
12,235.0	91.50	358.70	6,911.2	6,337.8	1,879.9	6,525.0	0.93	0.83	-0.42
12,331.0	90.20	359.60	6,909.8	6,433.7	1,878.5	6,620.0	1.65	-1.35	0.94
12,427.0	90.80	359.60	6,909.0	6,529.7	1,877.9	6,715.1	0.63	0.63	0.00

Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well Sandin 24V-401
Project:	SEC.24-T5N-R65W	TVD Reference:	WELL @ 4657.0ft (RKB - 23')
Site:	Sandin Farms 5N65W24N Pad Sec.24-T5N-R65W	MD Reference:	WELL @ 4657.0ft (RKB - 23')
Well:	Sandin 24V-401	North Reference:	True
Wellbore:	Sandin 24V-401 Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Sandin 24V-401 Wellbore #1	Database:	US_EDM

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
12,521.0	88.90	359.40	6,909.2	6,623.7	1,877.0	6,808.2	2.03	-2.02	-0.21	
12,617.0	89.70	359.60	6,910.4	6,719.7	1,876.2	6,903.4	0.86	0.83	0.21	
12,713.0	90.00	358.50	6,910.6	6,815.7	1,874.6	6,998.4	1.19	0.31	-1.15	
12,809.0	90.40	358.20	6,910.3	6,911.7	1,871.8	7,093.2	0.52	0.42	-0.31	
12,904.0	90.80	357.50	6,909.3	7,006.6	1,868.3	7,186.9	0.85	0.42	-0.74	
12,999.0	91.20	357.30	6,907.6	7,101.5	1,864.0	7,280.5	0.47	0.42	-0.21	
13,095.0	90.20	0.20	6,906.5	7,197.4	1,861.9	7,375.4	3.20	-1.04	3.02	
13,190.0	90.70	359.80	6,905.7	7,292.4	1,861.9	7,469.6	0.67	0.53	-0.42	
13,286.0	91.30	359.80	6,904.0	7,388.4	1,861.5	7,564.8	0.63	0.63	0.00	
13,382.0	89.70	0.30	6,903.2	7,484.4	1,861.6	7,660.0	1.75	-1.67	0.52	
13,477.0	90.00	359.20	6,903.5	7,579.4	1,861.2	7,754.2	1.20	0.32	-1.16	
13,573.0	87.80	358.90	6,905.3	7,675.4	1,859.6	7,849.2	2.31	-2.29	-0.31	
13,669.0	88.20	358.40	6,908.6	7,771.3	1,857.4	7,944.0	0.67	0.42	-0.52	
13,765.0	88.50	358.40	6,911.4	7,867.2	1,854.7	8,038.9	0.31	0.31	0.00	
13,860.0	88.90	357.80	6,913.6	7,962.1	1,851.5	8,132.6	0.76	0.42	-0.63	
13,956.0	89.60	357.80	6,914.8	8,058.0	1,847.8	8,227.3	0.73	0.73	0.00	
14,051.0	90.00	359.80	6,915.2	8,153.0	1,845.9	8,321.2	2.15	0.42	2.11	
14,147.0	90.60	359.90	6,914.7	8,249.0	1,845.6	8,416.4	0.63	0.63	0.10	
14,242.0	90.50	1.00	6,913.7	8,344.0	1,846.3	8,510.8	1.16	-0.11	1.16	
14,338.0	90.60	359.40	6,912.8	8,440.0	1,846.7	8,606.0	1.67	0.10	-1.67	
14,434.0	91.00	359.10	6,911.5	8,536.0	1,845.4	8,701.1	0.52	0.42	-0.31	
14,529.0	90.20	0.30	6,910.5	8,631.0	1,844.9	8,795.2	1.52	-0.84	1.26	
14,625.0	89.70	1.50	6,910.6	8,727.0	1,846.4	8,890.6	1.35	-0.52	1.25	
14,721.0	90.00	1.20	6,910.8	8,822.9	1,848.7	8,986.1	0.44	0.31	-0.31	
14,816.0	90.00	359.20	6,910.8	8,917.9	1,849.0	9,080.4	2.11	0.00	-2.11	
14,912.0	89.10	1.40	6,911.6	9,013.9	1,849.5	9,175.7	2.48	-0.94	2.29	
15,008.0	89.70	1.50	6,912.6	9,109.9	1,852.0	9,271.2	0.63	0.63	0.10	
15,104.0	90.30	0.70	6,912.6	9,205.9	1,853.8	9,366.6	1.04	0.63	-0.83	
15,200.0	91.30	0.80	6,911.2	9,301.8	1,855.1	9,462.0	1.05	1.04	0.10	
15,295.0	89.70	1.20	6,910.4	9,396.8	1,856.7	9,556.4	1.74	-1.68	0.42	
15,391.0	90.40	1.00	6,910.3	9,492.8	1,858.6	9,651.8	0.76	0.73	-0.21	
15,487.0	90.50	0.30	6,909.6	9,588.8	1,859.7	9,747.2	0.74	0.10	-0.73	
15,583.0	89.80	358.50	6,909.3	9,684.8	1,858.6	9,842.3	2.01	-0.73	-1.88	
15,679.0	89.30	359.80	6,910.1	9,780.8	1,857.2	9,937.3	1.45	-0.52	1.35	
15,774.0	89.60	0.70	6,911.0	9,875.8	1,857.6	10,031.6	1.00	0.32	0.95	
15,870.0	90.00	0.30	6,911.3	9,971.7	1,858.5	10,126.9	0.59	0.42	-0.42	
15,966.0	90.00	359.40	6,911.3	10,067.7	1,858.2	10,222.1	0.94	0.00	-0.94	
16,061.0	90.30	358.70	6,911.1	10,162.7	1,856.6	10,316.1	0.80	0.32	-0.74	
16,157.0	90.40	0.30	6,910.5	10,258.7	1,855.8	10,411.2	1.67	0.10	1.67	
16,253.0	89.50	358.90	6,910.6	10,354.7	1,855.1	10,506.4	1.73	-0.94	-1.46	
16,348.0	90.30	0.30	6,910.7	10,449.7	1,854.5	10,600.5	1.70	0.84	1.47	
16,444.0	89.50	1.40	6,910.9	10,545.7	1,855.9	10,695.9	1.42	-0.83	1.15	

Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well Sandin 24V-401
Project:	SEC.24-T5N-R65W	TVD Reference:	WELL @ 4657.0ft (RKB - 23')
Site:	Sandin Farms 5N65W24N Pad Sec.24-T5N-R65W	MD Reference:	WELL @ 4657.0ft (RKB - 23')
Well:	Sandin 24V-401	North Reference:	True
Wellbore:	Sandin 24V-401 Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Sandin 24V-401 Wellbore #1	Database:	US_EDM

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
16,540.0	89.60	0.80	6,911.7	10,641.7	1,857.7	10,791.3	0.63	0.10	-0.63
16,636.0	90.50	2.10	6,911.6	10,737.6	1,860.2	10,886.8	1.65	0.94	1.35
16,731.0	90.50	1.70	6,910.7	10,832.6	1,863.3	10,981.4	0.42	0.00	-0.42
16,828.0	90.70	1.20	6,909.7	10,929.6	1,865.8	11,077.9	0.56	0.21	-0.52
16,924.0	90.00	359.50	6,909.1	11,025.5	1,866.4	11,173.2	1.92	-0.73	-1.77
17,020.0	89.40	358.20	6,909.6	11,121.5	1,864.4	11,268.2	1.49	-0.63	-1.35
17,116.0	90.60	359.40	6,909.6	11,217.5	1,862.4	11,363.1	1.77	1.25	1.25
17,211.0	90.10	358.00	6,909.1	11,312.5	1,860.3	11,457.0	1.56	-0.53	-1.47
17,307.0	90.00	358.40	6,909.0	11,408.4	1,857.3	11,551.8	0.43	-0.10	0.42
17,403.0	90.00	357.70	6,909.0	11,504.4	1,854.0	11,646.6	0.73	0.00	-0.73
17,441.0	90.20	357.50	6,908.9	11,542.3	1,852.4	11,684.0	0.74	0.53	-0.53
17,498.9	90.20	357.50	6,908.7	11,600.2	1,849.9	11,741.1	0.00	0.00	0.00
BHL 500'FNL & 60'FEL, Sec.12									
17,499.0	90.20	357.50	6,908.7	11,600.3	1,849.9	11,741.2	0.00	0.00	0.00
BHL 2633'FSL & 60'FEL, Sec.1									

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
SHL 1570'FNL & 1905'F - hit/miss target - Shape - Point	0.00	0.00	1.0	0.0	0.0	1,385,287.16	3,248,269.19	40.387590	-104.608730
BHL 500'FNL & 60'FEL, - survey misses target center by 29.8ft at 17498.9ft MD (6908.7 TVD, 11600.2 N, 1849.9 E) - Point	0.00	0.00	6,912.0	11,601.5	1,879.5	1,396,906.46	3,250,031.86	40.419435	-104.601980

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	+E/-W (ft)	Comment
7,313.2	6,839.4	1,438.0	1,833.2	TPZ - 60° Incl. in curve - 132'FNL, 72'FEL, SEC.24
7,736.0	6,934.0	1,840.7	1,860.3	Deepest TVD Drilled - 6933.96' TVD

Checked By: _____ Approved By: _____ Date: _____