ENSIGN Directional

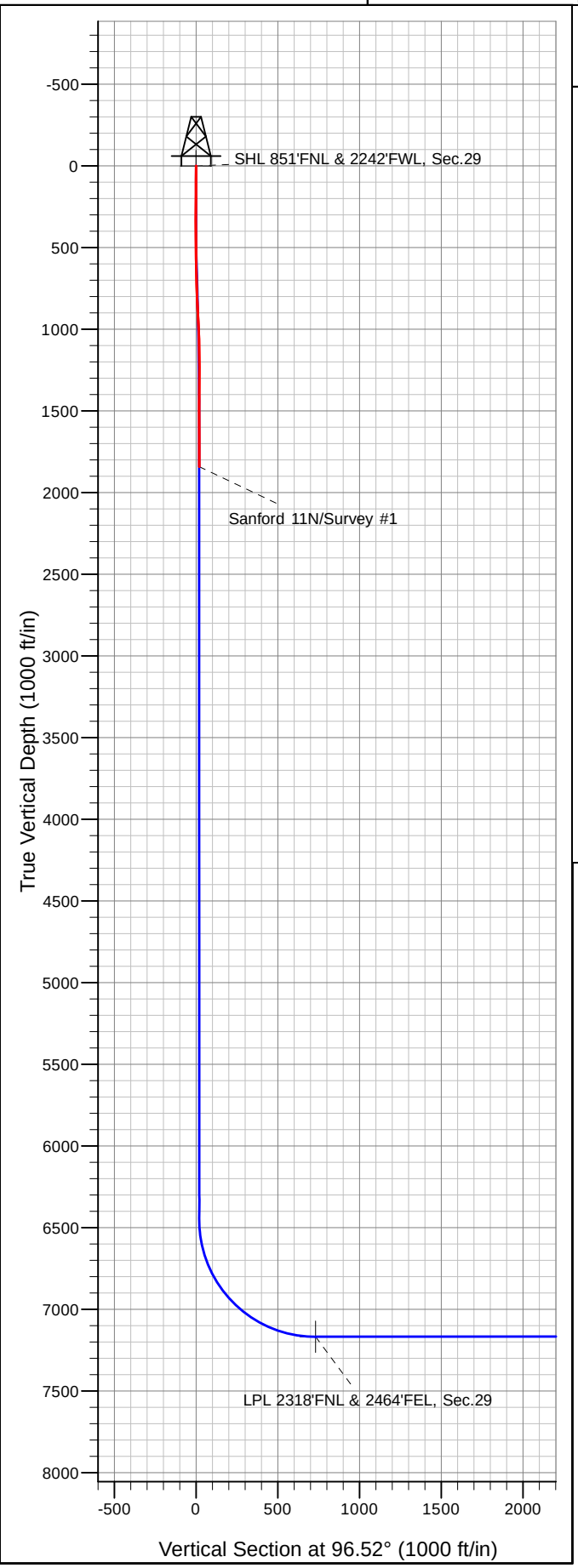
Well Name: Sanford 11N

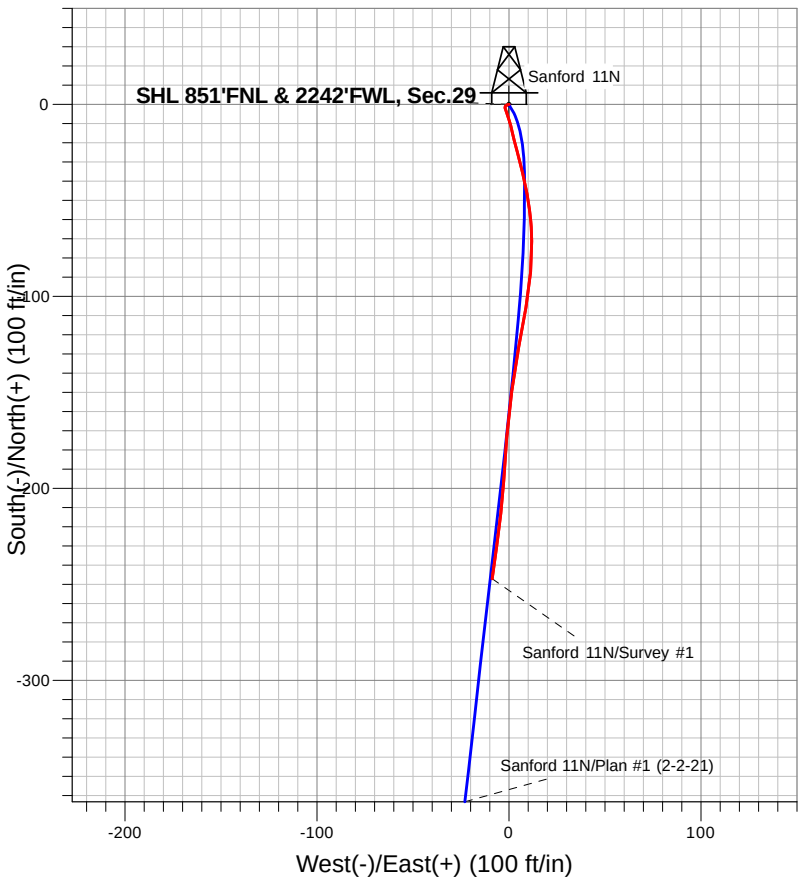
Surface Location: Sanford 5N65W29 1-12 Pad Sec.29-T5N-R66W
North American Datum 1983 US State Plane 1983 Colorado Northern Zone
Ground Elevation: 4905.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1380363.55	3193658.26	40.375416	-104.804909	

Ensign 122 RKB - 13' WELL @ 4918.0ft (Ensign 122 RKB - 13')

PDC Energy Inc. DJ Basin





LEGEND

- Sanford 11N, Sanford 11N Wellbore #1, Plan #1 (2-2-21) V0
- Sanford 11N Wellbore #1
- Survey #1

Final Survey Plot

Project: SEC.29-T5N-R66W
Site: Sanford 5N65W29 1-12 Pad Sec.29-T5N-R66W
Well: Sanford 11N
Plan: Sanford 11N Wellbore #1

ENSIGN Directional

PDC Energy Inc. DJ Basin

SEC.29-T5N-R66W
Sanford 5N65W29 1-12 Pad Sec.29-T5N-R66W
Sanford 11N

Sanford 11N Wellbore #1

Survey: Survey #1

Standard Survey Report

01 March, 2021

PDC ENERGY
Growing E&P Value

Company:	PDC Energy Inc. DJ Basin	**Local Co-ordinate Reference:**	Well Sanford 11N
Project:	SEC.29-T5N-R66W	**TVD Reference:**	WELL @ 4918.0ft (Ensign 122 RKB - 13')
Site:	Sanford 5N65W29 1-12 Pad Sec.29-T5N-R66W	**MD Reference:**	WELL @ 4918.0ft (Ensign 122 RKB - 13')
Well:	Sanford 11N	**North Reference:**	True
Wellbore:	Sanford 11N Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Sanford 11N Wellbore #1	**Database:**	US_EDM

Project SEC.29-T5N-R66W, Weld County, CO

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 Sanford 5N65W29 1-12 Pad Sec.29-T5N-R66W

Site Position:		**Northing:**	1,380,603.61 usft	**Latitude:**	40.376075
From:	Lat/Long	**Easting:**	3,193,654.99 usft	**Longitude:**	-104.804914
Position Uncertainty:	0.0 ft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.45 °

Well Sanford 11N

Well Position	**+N/-S**	0.0 ft	**Northing:**	1,380,363.55 usft	**Latitude:**	40.375416
	+E/-W	0.0 ft	**Easting:**	3,193,658.26 usft	**Longitude:**	-104.804909
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	0.0 ft	**Ground Level:**	4,905.0 ft

Wellbore Sanford 11N Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	02/02/2021	8.07	66.70	52,030

Design Sanford 11N 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 (°)
	7,153.0	0.0	0.0	96.52

Survey Program **Date** 03/01/2021

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
87.0	1,869.0	Survey #1 (Sanford 11N Wellbore #1)	MWD	MWD - Standard

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)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
87.0	0.44	255.75	87.0	-0.1	-0.3	-0.3	0.51	0.51	0.00
178.0	0.35	243.97	178.0	-0.3	-0.9	-0.9	0.13	-0.10	-12.95
269.0	0.26	229.38	269.0	-0.5	-1.3	-1.2	0.13	-0.10	-16.03
361.0	0.53	251.18	361.0	-0.8	-1.9	-1.8	0.33	0.29	23.70
447.0	1.06	167.68	447.0	-1.7	-2.1	-1.9	1.31	0.62	-97.09
536.0	2.20	158.36	535.9	-4.1	-1.3	-0.8	1.31	1.28	-10.47
626.0	3.34	162.93	625.8	-8.2	0.1	1.1	1.29	1.27	5.08
715.0	5.19	167.15	714.6	-14.6	1.8	3.4	2.11	2.08	4.74
804.0	7.03	165.39	803.1	-23.8	4.1	6.7	2.08	2.07	-1.98

Company:	PDC Energy Inc. DJ Basin	**Local Co-ordinate Reference:**	Well Sanford 11N
Project:	SEC.29-T5N-R66W	**TVD Reference:**	WELL @ 4918.0ft (Ensign 122 RKB - 13')
Site:	Sanford 5N65W29 1-12 Pad Sec.29-T5N-R66W	**MD Reference:**	WELL @ 4918.0ft (Ensign 122 RKB - 13')
Well:	Sanford 11N	**North Reference:**	True
Wellbore:	Sanford 11N Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Sanford 11N 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)
893.0	7.30	165.22	891.4	-34.6	6.9	10.7	0.30	0.30	-0.19
976.0	7.47	169.96	973.7	-45.0	9.2	14.2	0.76	0.20	5.71
1,065.0	8.44	172.78	1,061.8	-57.2	11.0	17.4	1.17	1.09	3.17
1,154.0	9.67	179.63	1,149.7	-71.1	11.9	19.8	1.84	1.38	7.70
1,244.0	11.08	184.38	1,238.3	-87.3	11.2	21.1	1.83	1.57	5.28
1,333.0	13.01	190.00	1,325.3	-105.7	8.8	20.8	2.54	2.17	6.31
1,419.0	15.04	190.36	1,408.7	-126.2	5.2	19.4	2.36	2.36	0.42
1,509.0	15.39	187.89	1,495.6	-149.5	1.4	18.4	0.82	0.39	-2.74
1,599.0	15.48	184.38	1,582.3	-173.3	-1.1	18.5	1.04	0.10	-3.90
1,685.0	15.48	183.85	1,665.2	-196.2	-2.8	19.5	0.16	0.00	-0.62
1,809.0	16.53	188.07	1,784.4	-230.2	-6.4	19.8	1.26	0.85	3.40
1,869.0	16.53	188.07	1,841.9	-247.1	-8.8	19.3	0.00	0.00	0.00

Checked By: _____ Approved By: _____ Date: _____