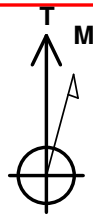




Well Name: Erwin 2N
Surface Location: Erwin 5N64W27 PAD
North American Datum 1983
US State Plane 1983 , Colorado Northern Zone
Ground Elevation: 4684.0
WELL @ 4707.0usft (Original Well Elev)
Easting Latitude Longitude Slot
0.0 0.0 1377056.64 3268944.53 40° 21' 51.855 N 104° 32' 5.403 W

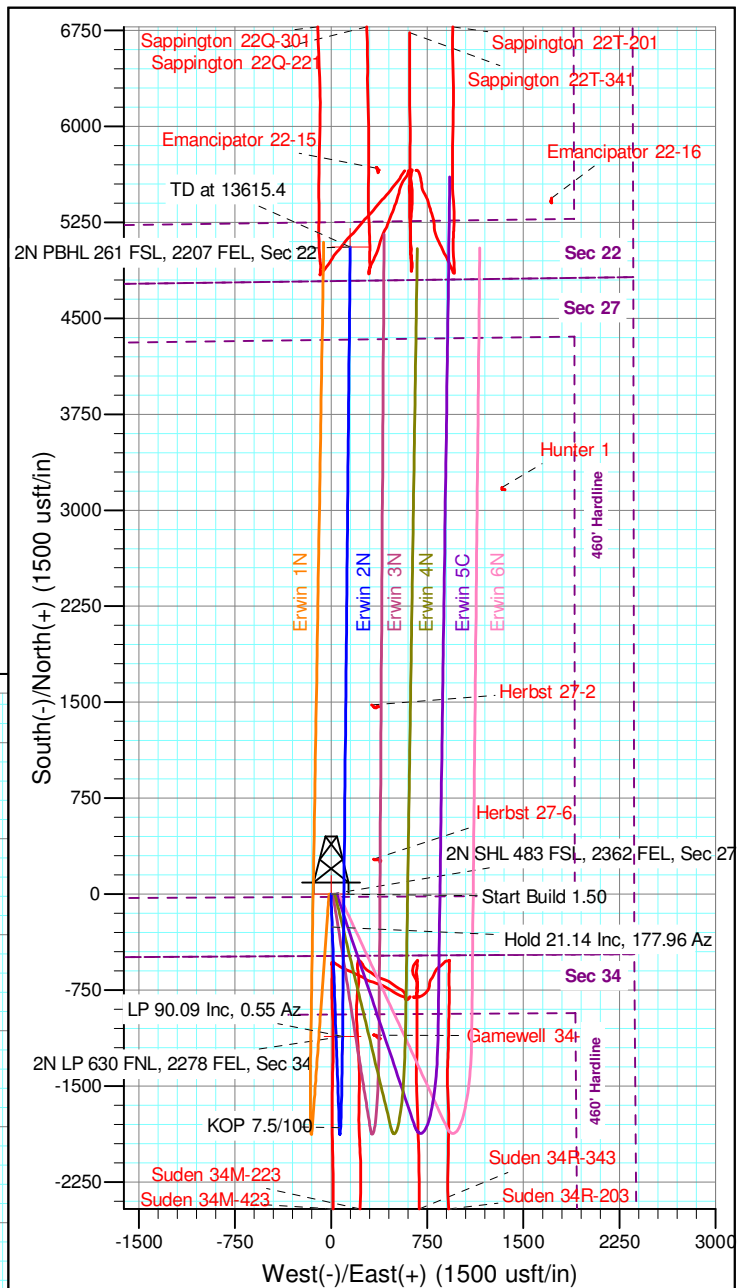
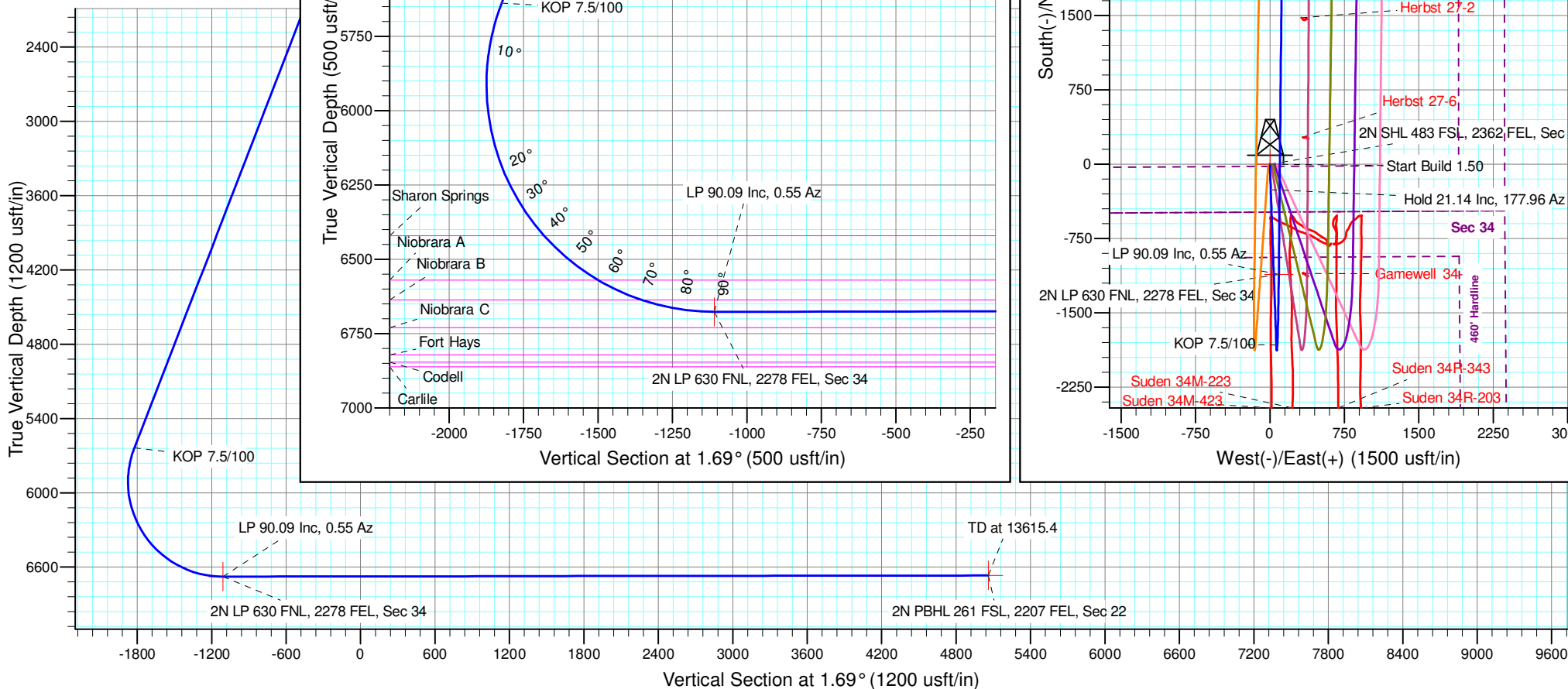
SECTION DETAILS

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	1609.2	21.14	177.96	1577.5	-256.9	9.1	1.50	177.96	-256.5	
4	5962.7	21.14	177.96	5638.0	-1825.8	65.0	0.00	0.00	-1823.1	
5	7445.4	90.09	0.55	6677.0	-1112.2	90.0	7.50	-177.22	-1109.1	2N LP 630 FNL, 2278 FEL, Sec 34
6	13615.4	90.09	0.55	6667.8	5057.5	149.6	0.00	0.00	5059.7	



Azimuths to True North
Magnetic North: 8.09°

Magnetic Field
Strength: 52398.6snT
Dip Angle: 66.86°
Date: 06/18/2017
Model: IGRF2015





PDC Energy Inc. DJ Basin

SEC. 27-T5N-R64W

Erwin 5N64W27 PAD

Erwin 2N

Wellbore #1

Plan #2 19Jul17 kjs

Anticollision Report

19 July, 2017

Company:	PDC Energy Inc. DJ Basin	Local Co-ordinate Reference:	Well Erwin 2N
Project:	SEC. 27-T5N-R64W	TVD Reference:	WELL @ 4707.0usft (Original Well Elev)
Reference Site:	Erwin 5N64W27 PAD	MD Reference:	WELL @ 4707.0usft (Original Well Elev)
Site Error:	0.0 usft	North Reference:	True
Reference Well:	Erwin 2N	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.45 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Plan #2 19Jul17 kjs	Offset TVD Reference:	Offset Datum

Reference	Plan #2 19Jul17 kjs		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0usft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,682.5 usft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.45 Sigma	Casing Method:	Not applied

Survey Tool Program	Date	07/19/17		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	13,615.4	Plan #2 19Jul17 kjs (Wellbore #1)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Erwin 5N64W27 PAD						
Erwin 1N - Wellbore #1 - Plan #2 19Jul17 kjs	200.0	200.0	14.9	14.2	19.584	CC
Erwin 1N - Wellbore #1 - Plan #2 19Jul17 kjs	13,615.4	13,697.3	222.2	-37.5	0.856	Level 1, ES, SF
Erwin 3N - Wellbore #1 - Design #1 18Jun17 jps	200.0	200.0	15.1	14.3	19.766	CC
Erwin 3N - Wellbore #1 - Design #1 18Jun17 jps	13,615.4	13,697.5	273.1	6.6	1.025	Level 2, ES, SF
Erwin 4N - Wellbore #1 - Design #1 18Jun17 jps	200.0	200.0	30.0	29.2	39.314	CC
Erwin 4N - Wellbore #1 - Design #1 18Jun17 jps	300.0	299.8	30.2	29.0	24.099	ES
Erwin 4N - Wellbore #1 - Design #1 18Jun17 jps	13,615.4	13,621.9	523.7	250.1	1.914	SF
Erwin 5C - Wellbore #1 - Design #1 18Jun17 jps	304.1	304.1	45.0	43.7	34.455	CC
Erwin 5C - Wellbore #1 - Design #1 18Jun17 jps	400.0	399.9	45.1	43.3	24.956	ES
Erwin 5C - Wellbore #1 - Design #1 18Jun17 jps	13,615.4	13,881.1	790.0	522.7	2.955	SF
Erwin 6N - Wellbore #1 - Design #1 18Jun17 jps	200.0	200.0	60.0	59.2	78.627	CC, ES
Erwin 6N - Wellbore #1 - Design #1 18Jun17 jps	13,615.4	13,683.8	1,011.2	737.0	3.687	SF
Existing Wells Sec 34 T5N R64W						
Gamewell 34-1 - Wellbore #1 - Wellbore #1	7,452.5	6,500.0	291.9	243.9	6.089	CC, ES, SF
Suden 34M-223 - Wellbore #1 - Wellbore #1	7,500.0	6,884.9	114.9	59.0	2.054	ES, SF
Suden 34M-223 - Wellbore #1 - Wellbore #1	7,510.0	6,875.7	114.9	59.3	2.067	CC
Suden 34M-423 - Wellbore #1 - Wellbore #1	7,703.6	6,786.7	83.7	29.4	1.543	CC, ES, SF
Suden 34R-203 - Wellbore #1 - Wellbore #1	2,771.3	2,617.0	746.1	721.5	30.449	CC
Suden 34R-203 - Wellbore #1 - Wellbore #1	2,800.0	2,637.4	746.3	721.4	30.067	ES
Suden 34R-203 - Wellbore #1 - Wellbore #1	6,900.0	7,400.1	856.7	789.7	12.779	SF
Suden 34R-343 - Wellbore #1 - Wellbore #1	7,100.0	7,319.6	606.5	544.1	9.718	SF
Suden 34R-343 - Wellbore #1 - Wellbore #1	7,600.0	6,818.0	578.2	523.6	10.585	ES
Suden 34R-343 - Wellbore #1 - Wellbore #1	7,651.9	6,765.4	577.9	523.8	10.692	CC
Existing Wells Sec. 22-T5N-R64W						
Emancipator 22-15 - Wellbore #1 - Wellbore #1	13,615.4	6,569.6	649.3	495.8	4.230	CC, ES, SF
Emancipator 22-16 - Wellbore #1 - Wellbore #1	13,615.4	6,536.2	1,617.2	1,463.7	10.535	CC, ES, SF
Sappington 22Q-221 - Wellbore #1 - Wellbore #1	13,615.4	6,620.1	204.3	69.1	1.511	CC, ES, SF
Sappington 22Q-301 - Wellbore #1 - Wellbore #1	13,615.4	6,674.6	262.7	109.3	1.712	CC, ES, SF
Sappington 22T-201 - Wellbore #1 - Wellbore #1	13,615.4	6,584.7	821.8	666.4	5.288	CC, ES, SF
Sappington 22T-341 - Wellbore #1 - Wellbore #1	13,615.4	6,634.0	487.8	333.0	3.151	CC, ES, SF
Existing Wells Sec. 27 T5N R64W						
Hunter 1 - Wellbore #1 - Wellbore #1						Out of range
Herbst 27-2 - Wellbore #1 - Wellbore #1	10,034.7	6,587.6	207.6	131.1	2.712	CC, ES, SF
Herbst 27-6 - Wellbore #1 - Wellbore #1	8,831.0	6,608.8	231.1	173.5	4.009	CC, ES, SF

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation