

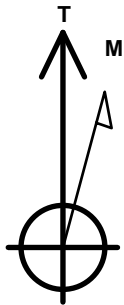
PETROLEUM DEVELOPMENT CORP DJ Basin

Well Name: **Stella 2N**

Surface Location: Stella 5N65W22Y Pad Sec.22-T5N-R65W
 North American Datum 1983 , US State Plane 1983 Colorado Northern Zone
 Ground Elevation: 4647.0
 +N/-S +E/-W Northing Easting Latitude Longitude Slot
 0.0 0.0 1382384.91 3239173.97 40.379870 -104.641480
 RKB - 23' WELL @ 4670.0ft (RKB - 23')

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 861'FSL & 438'FEL, Sec.22	1.0	0.0	0.0	Point
BHL 620'FSL & 50'FWL, Sec.21	6855.0	-293.0	-10066.1	Point
LPL 571'FSL & 732'FEL, Sec.22	6865.0	-293.0	-294.7	Point



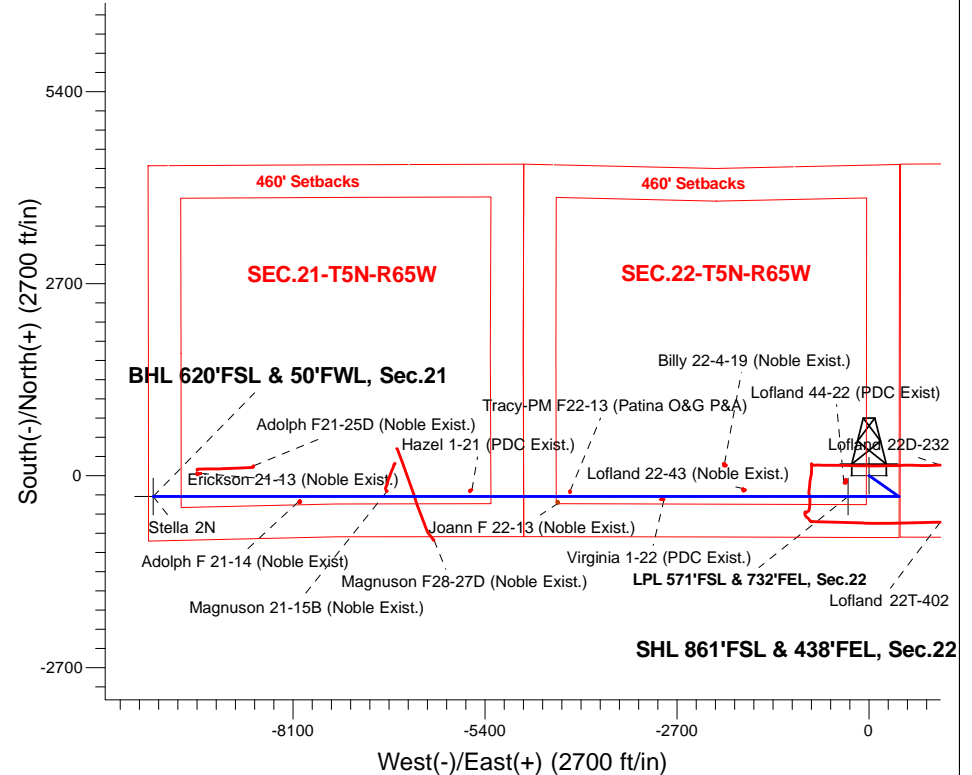
Azimuths to True North
 Magnetic North: 8.04°

Magnetic Field
 Strength: 52543.5snT
 Dip Angle: 66.86°
 Date: 1/25/2017
 Model: IGRF2010

Stella 5N65W22Y Pad Sec.22-T5N-R65W
 Stella 2N
 Plan #1 (1-24-17)
 16:36, January 27 2017

ANNOTATIONS

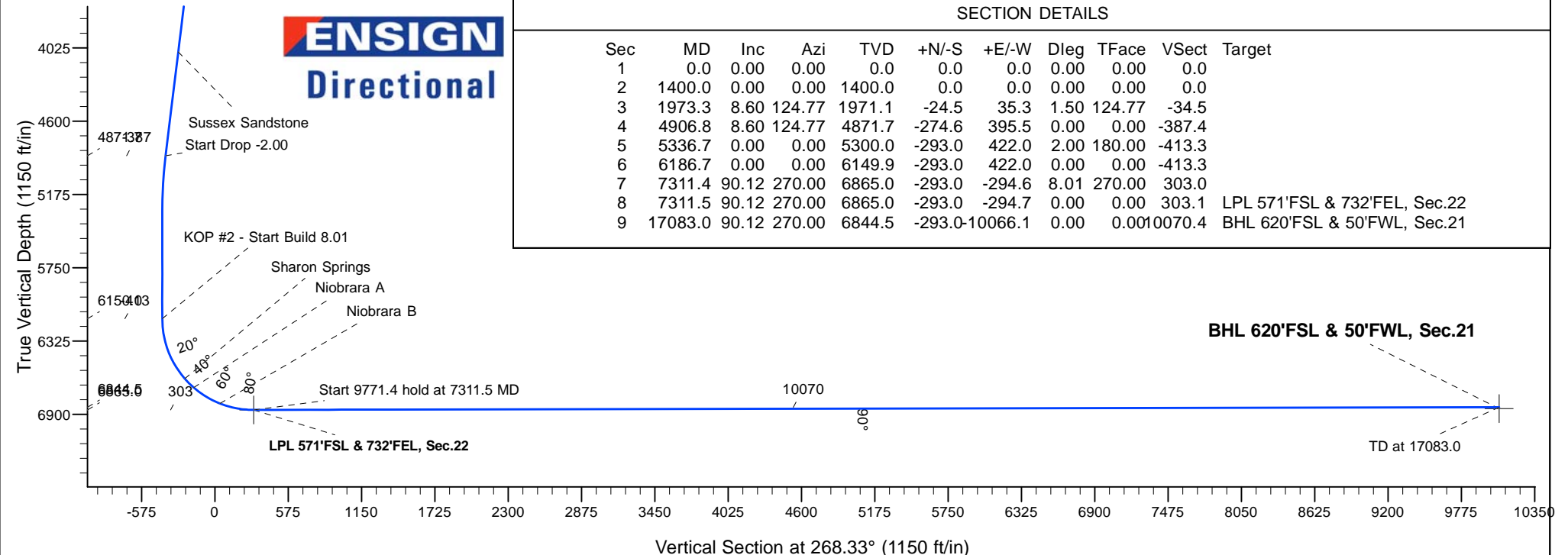
TVD	MD	Annotation
1400.0	1400.0	KOP - Start Build 1.50
4871.7	4906.8	Start Drop -2.00
6150.0	6186.7	KOP #2 - Start Build 8.01
6865.0	7311.5	Start 9771.4 hold at 7311.5 MD
6844.5	17083.0	TD at 17083.0



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	1400.0	0.00	0.00	1400.0	0.0	0.0	0.00	0.00	0.0	
3	1973.3	8.60	124.77	1971.1	-24.5	35.3	1.50	124.77	-34.5	
4	4906.8	8.60	124.77	4871.7	-274.6	395.5	0.00	0.00	-387.4	
5	5336.7	0.00	0.00	5300.0	-293.0	422.0	2.00	180.00	-413.3	
6	6186.7	0.00	0.00	6149.9	-293.0	422.0	0.00	0.00	-413.3	
7	7311.4	90.12	270.00	6865.0	-293.0	-294.6	8.01	270.00	303.0	
8	7311.5	90.12	270.00	6865.0	-293.0	-294.7	0.00	0.00	303.1	LPL 571'FSL & 732'FEL, Sec.22
9	17083.0	90.12	270.00	6844.5	-293.0	-10066.1	0.00	0.00	10070.4	BHL 620'FSL & 50'FWL, Sec.21

ENSIGN
 Directional





PETROLEUM DEVELOPMENT CORP DJ Basin

SEC.22-T5N-R65W

Stella 5N65W22Y Pad Sec.22-T5N-R65W

Stella 2N

Wellbore #1

Plan #1 (1-24-17)

Anticollision Report

27 January, 2017



Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Stella 2N
Project:	SEC.22-T5N-R65W	TVD Reference:	WELL @ 4670.0ft (RKB - 23')
Reference Site:	Stella 5N65W22Y Pad Sec.22-T5N-R65W	MD Reference:	WELL @ 4670.0ft (RKB - 23')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Stella 2N	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 (1-24-17)	Offset TVD Reference:	Offset Datum

Reference	Plan #1 (1-24-17)		
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 1,200.0 ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.45 Sigma	Casing Method:	Not applied

Survey Tool Program	Date	1/27/2017		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	17,083.0	Plan #1 (1-24-17) (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						
Adolph F21-25D Pad Sec.21-T5N-R65W						
Adolph F21-25D (Noble Exist.) - Wellbore #1 - Wellbore #	15,670.7	6,913.8	431.6	101.4	1.307	Level 3, CC
Adolph F21-25D (Noble Exist.) - Wellbore #1 - Wellbore #	15,700.0	6,913.6	432.6	101.4	1.306	Level 3, ES, SF
Erickson 21-13 (Noble Exist.) - Wellbore #1 - Wellbore #1	16,413.5	6,816.8	322.6	-23.8	0.931	Level 1, CC, ES, SF
Elbert 1-12 Pad Sec.21-T5N-R65W						
Elbert 12N - Wellbore #1 - Plan #6 (1-13-17)	7,071.8	16,654.6	472.0	116.1	1.326	Level 3, CC, ES, SF
Existing Wells Sec.22-T5N-R65W						
Lofland 44-22 (PDC Exist.) - Wellbore #1 - Wellbore #1	7,368.4	6,842.8	193.8	151.1	4.539	CC, ES
Lofland 44-22 (PDC Exist.) - Wellbore #1 - Wellbore #1	7,400.0	6,842.2	196.3	152.9	4.522	SF
Existing Wells Sec.25-T5N-R65W						
Magnuson 21-15B (Noble Exist.) - Wellbore #1 - Wellbor	13,793.6	6,869.6	73.3	-184.2	0.285	Level 1, CC, ES, SF
Tracy-PM F22-13 (Patina O&G P&A) - Wellbore #1 - We	11,221.0	6,823.8	74.8	-245.1	0.234	Level 1, CC, ES, SF
Existing Wells Sec.26-T5N-R65W						
Hazel 1-21 (PDC Exist.) - Wellbore #1 - Wellbore #1	12,601.0	6,822.3	92.4	-122.7	0.430	Level 1, CC, ES, SF
Virginia 1-22 (PDC Exist.) - Wellbore #1 - Wellbore #1	9,903.7	6,827.0	40.8	-82.0	0.332	Level 1, CC, ES, SF
Lofland 22T-HZ Pad Sec.22-T5N-R65W						
Lofland 22D-232 - Wellbore #1 - Wellbore #1	7,000.0	7,386.5	432.8	380.7	8.298	ES, SF
Lofland 22D-232 - Wellbore #1 - Wellbore #1	7,077.3	7,306.7	432.2	380.8	8.394	CC
Lofland 22T-402 - Wellbore #1 - Wellbore #1	7,495.8	6,962.6	362.5	311.5	7.110	CC
Lofland 22T-402 - Wellbore #1 - Wellbore #1	7,500.0	6,959.2	362.5	311.5	7.102	ES
Lofland 22T-402 - Wellbore #1 - Wellbore #1	7,600.0	6,882.5	368.3	316.0	7.041	SF
Lorenz F22-67-1HN Pad Sec.22-T5N-R65W						
Adolph F 21-14 (Noble Exist.) - Wellbore #1 - Wellbore #1	15,035.3	6,816.3	71.8	-226.6	0.241	Level 1, CC, ES, SF
Billy 22-4-19 (Noble Exist.) - Wellbore #1 - Wellbore #1	9,051.5	6,826.3	463.1	369.1	4.924	CC, ES
Billy 22-4-19 (Noble Exist.) - Wellbore #1 - Wellbore #1	9,100.0	6,825.6	465.7	370.0	4.867	SF
Joann F 22-13 (Noble Exist.) - Wellbore #1 - Wellbore #1	11,387.6	6,826.8	88.3	-84.7	0.510	Level 1, CC, ES, SF
Lofland 22-43 (Noble Exist.) - Wellbore #1 - Wellbore #1	8,788.4	6,828.4	106.4	20.5	1.239	Level 2, CC, ES, SF
Magnuson Pad Sec.21-T5N-R65W						
Magnuson F28-27D (Noble Exist.) - Magnuson F28-27D	13,137.6	7,021.9	614.8	373.6	2.549	CC, ES
Magnuson F28-27D (Noble Exist.) - Magnuson F28-27D	13,200.0	7,021.3	618.0	374.6	2.539	SF

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

