

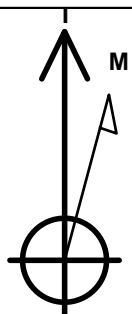
PETROLEUM DEVELOPMENT CORP DJ Basin

Well Name: **Paul 27X-434**

Surface Location: Paul 5N67W27D Pad Sec.27-T5N-R67W
 North American Datum 1983 , US State Plane 1983, Colorado Northern Zone
 Ground Elevation: 4928.0
 +N/-S+E/-W Northing Easting Latitude Longitude Slot
 0.0 0.0 1376991.233174549.09 40.366550 -104.873580
 RKB - 23' WELL @ 4951.0ft (RKB - 23')

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 1138'FSL & 1059'FEL	1.0	0.0	0.0	Point
BHL 705'FSL & 75'FWL	7151.0	-440.5	-3990.5	Point
LP - 697'FSL & 819'FEL	7179.1	-440.5	240.0	Point



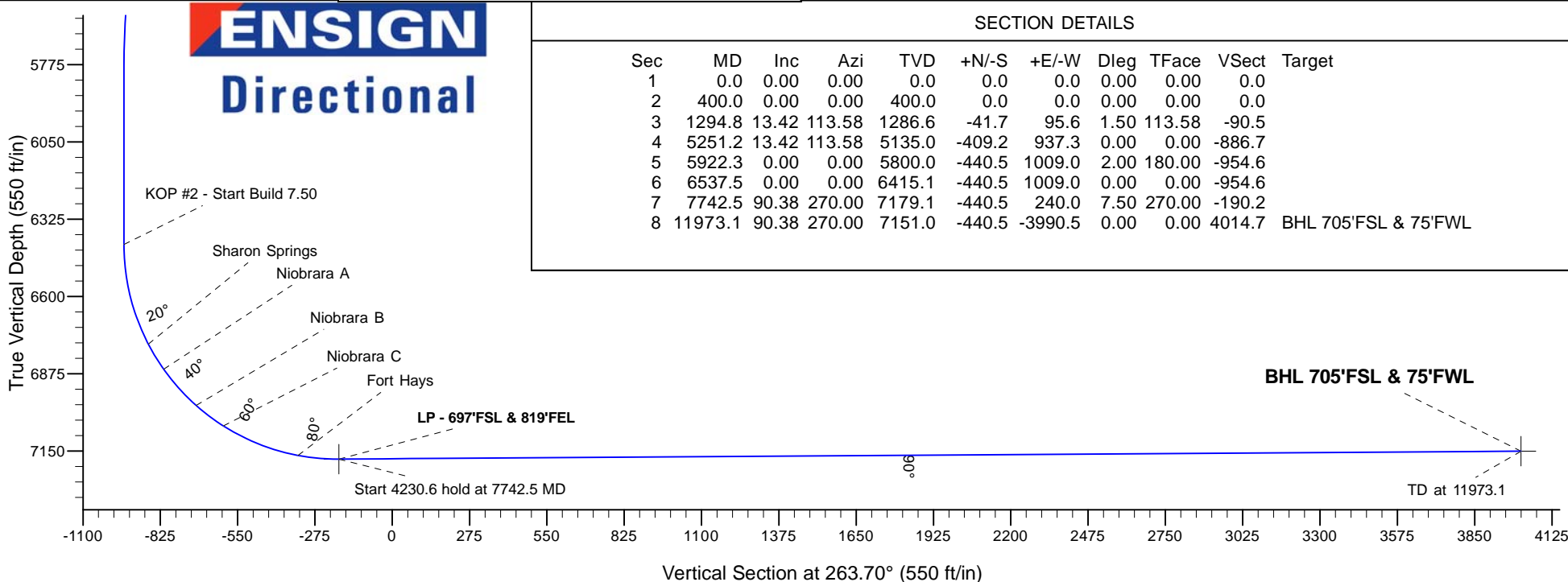
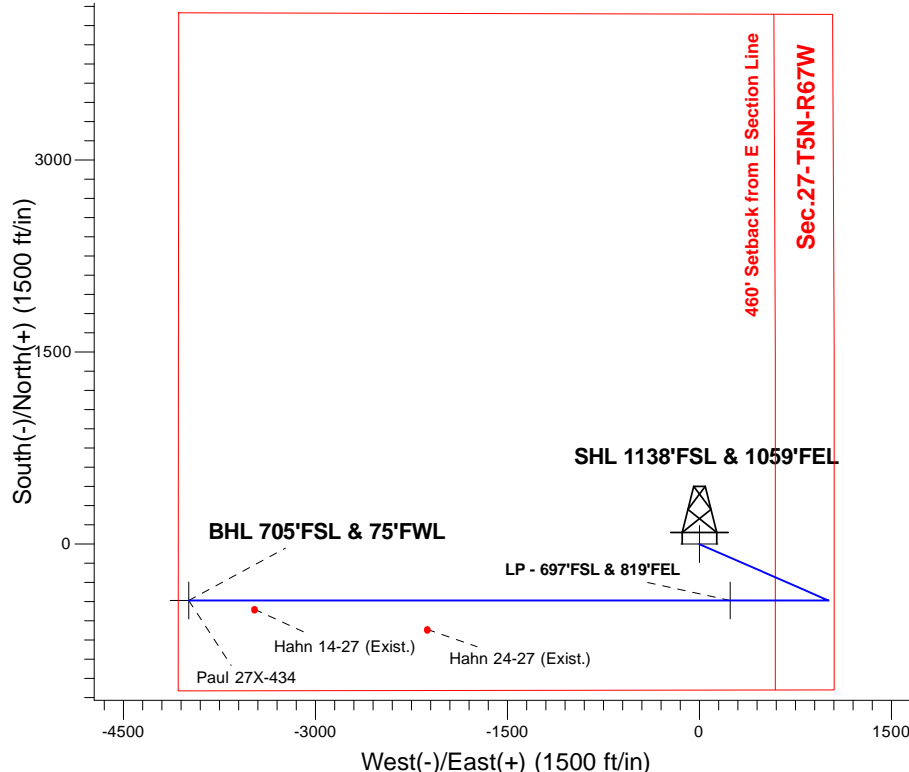
Azimuths to True North
 Magnetic North: 8.25°

Magnetic Field
 Strength: 52581.3nT
 Dip Angle: 66.83°
 Date: 5/24/2016
 Model: IGRF2010

Paul 5N67W27D Pad Sec.27-T5N-R67W
 Paul 27X-434
 Plan #1 (5-24-16)
 11:00, May 26 2016

ANNOTATIONS

TVD	MD	Annotation
400.0	400.0	KOP - Start Build 1.50
5135.0	5251.2	Start Drop -2.00
6415.1	6537.5	KOP #2 - Start Build 7.50
7179.1	7742.5	Start 4230.6 hold at 7742.5 MD
7151.0	11973.1	TD at 11973.1



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	400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.0	
3	1294.8	13.42	113.58	1286.6	-41.7	95.6	1.50	113.58	-90.5	
4	5251.2	13.42	113.58	5135.0	-409.2	937.3	0.00	0.00	-886.7	
5	5922.3	0.00	0.00	5800.0	-440.5	1009.0	2.00	180.00	-954.6	
6	6537.5	0.00	0.00	6415.1	-440.5	1009.0	0.00	0.00	-954.6	
7	7742.5	90.38	270.00	7179.1	-440.5	240.0	7.50	270.00	-190.2	
8	11973.1	90.38	270.00	7151.0	-440.5	-3990.5	0.00	0.00	4014.7	BHL 705'FSL & 75'FWL



PETROLEUM DEVELOPMENT CORP DJ Basin

SEC.27-T5N-R67W

Paul 5N67W27D Pad Sec.27-T5N-R67W

Paul 27X-434

Wellbore #1

Plan #1 (5-24-16)

Anticollision Report

26 May, 2016

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Paul 27X-434
Project:	SEC.27-T5N-R67W	TVD Reference:	WELL @ 4951.0ft (RKB - 23')
Reference Site:	Paul 5N67W27D Pad Sec.27-T5N-R67W	MD Reference:	WELL @ 4951.0ft (RKB - 23')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Paul 27X-434	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 (5-24-16)	Offset TVD Reference:	Offset Datum

Reference	Plan #1 (5-24-16)		
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 1,000.0 ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.45 Sigma	Casing Method:	Not applied

Survey Tool Program	Date 5/26/2016			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	11,973.1	Plan #1 (5-24-16) (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						
Offset Wells Sec.27-T5N-R67W						
Hahn 14-27 (Exist.) - Wellbore #1 - Wellbore #1	11,457.6	7,026.4	69.3	-247.3	0.219	Level 1, CC, ES, SF
Hahn 24-27 (Exist.) - Wellbore #1 - Wellbore #1	10,108.8	7,095.4	226.1	-47.1	0.828	Level 1, CC, ES, SF
Paul 5N67W27D Pad Sec.27-T5N-R67W						
Paul 27W-204 - Wellbore #1 - Plan #1 (5-24-16)	414.2	413.8	119.3	117.3	59.614	CC, ES
Paul 27W-204 - Wellbore #1 - Plan #1 (5-24-16)	1,200.0	1,180.7	219.1	211.7	29.629	SF
Paul 27W-334 - Wellbore #1 - Plan #1 (5-24-16)	400.0	399.0	106.5	104.6	55.353	CC, ES
Paul 27W-334 - Wellbore #1 - Plan #1 (5-24-16)	2,400.0	2,329.5	522.2	502.4	26.449	SF
Paul 27W-434 - Wellbore #1 - Plan #1 (5-24-16)	400.0	399.0	90.9	89.0	47.228	CC, ES
Paul 27W-434 - Wellbore #1 - Plan #1 (5-24-16)	3,400.0	3,317.3	706.8	676.1	23.041	SF
Paul 27X-214 - Wellbore #1 - Plan #1 (5-24-16)	400.0	399.0	75.6	73.7	39.275	CC, ES
Paul 27X-214 - Wellbore #1 - Plan #1 (5-24-16)	4,300.0	4,223.2	802.3	761.3	19.578	SF
Paul 27X-234 - Wellbore #1 - Plan #1 (5-24-16)	400.0	400.0	15.7	13.8	8.158	CC, ES
Paul 27X-234 - Wellbore #1 - Plan #1 (5-24-16)	11,973.1	11,785.8	307.8	56.3	1.224	Level 2, SF
Paul 27X-304 - Wellbore #1 - Plan #1 (5-24-16)	400.0	399.0	46.6	44.7	24.217	CC, ES
Paul 27X-304 - Wellbore #1 - Plan #1 (5-24-16)	11,973.1	11,904.7	694.6	371.9	2.153	SF
Paul 27X-404 - Wellbore #1 - Plan #1 (5-24-16)	200.0	200.0	29.0	28.2	35.115	CC
Paul 27X-404 - Wellbore #1 - Plan #1 (5-24-16)	300.0	299.8	29.4	28.0	21.712	ES
Paul 27X-404 - Wellbore #1 - Plan #1 (5-24-16)	11,973.1	11,991.9	464.8	141.8	1.439	Level 3, SF
Paul 27X-414 - Wellbore #1 - Plan #1 (5-24-16)	400.0	399.0	59.9	58.0	31.136	CC, ES
Paul 27X-414 - Wellbore #1 - Plan #1 (5-24-16)	11,973.1	11,998.2	922.7	599.6	2.856	SF
Paul 27Y-314 - Wellbore #1 - Plan #1 (5-24-16)	200.0	200.0	13.3	12.5	16.121	CC, ES
Paul 27Y-314 - Wellbore #1 - Plan #1 (5-24-16)	11,973.1	11,915.3	324.9	27.6	1.093	Level 2, SF

Offset Design	Offset Wells Sec.27-T5N-R67W - Hahn 14-27 (Exist.) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program:	7200-UNKNOWN												Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis		Distance										Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
10,500.0	7,160.8	7,032.8	7,032.8	112.4	172.3	-95.24	-509.8	-3,475.0	960.1	676.6	283.42	3.387		
10,600.0	7,160.1	7,032.1	7,032.1	115.7	172.3	-94.69	-509.8	-3,475.0	860.4	573.4	286.96	2.998		
10,700.0	7,159.4	7,031.4	7,031.4	119.0	172.3	-94.15	-509.8	-3,475.0	760.7	470.2	290.48	2.619		
10,800.0	7,158.8	7,030.8	7,030.8	122.4	172.3	-93.60	-509.8	-3,475.0	661.2	367.2	293.99	2.249		
10,900.0	7,158.1	7,030.1	7,030.1	125.7	172.2	-93.05	-509.8	-3,475.0	561.9	264.4	297.49	1.889		

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