

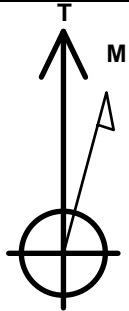
# PETROLEUM DEVELOPMENT CORP DJ Basin

Well Name: **Popham 3P-341**

Surface Location: Popham 4N64W3Q Pad Sec.3-T4N-R64W  
 North American Datum 1983 , US State Plane 1983, Colorado Northern Zone  
 Ground Elevation: 4660.0  
 +N/-S +E/-W Northing Easting Latitude Longitude Slot  
 0.0 0.0 1366824.77 3268237.41 40.336340 -104.537770  
 RKB - 23' WELL @ 4683.0ft (RKB - 23')

## WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 806'FSL & 2288'FWL, Sec.3	1.0	0.0	0.0	Point
BHL 200'FSL & 2004'FWL, Sec.34	6693.0	4655.9	-47.4	Point
LPL 819'FSL & 2240'FWL, Sec.3	6727.8	13.7	-47.4	Point



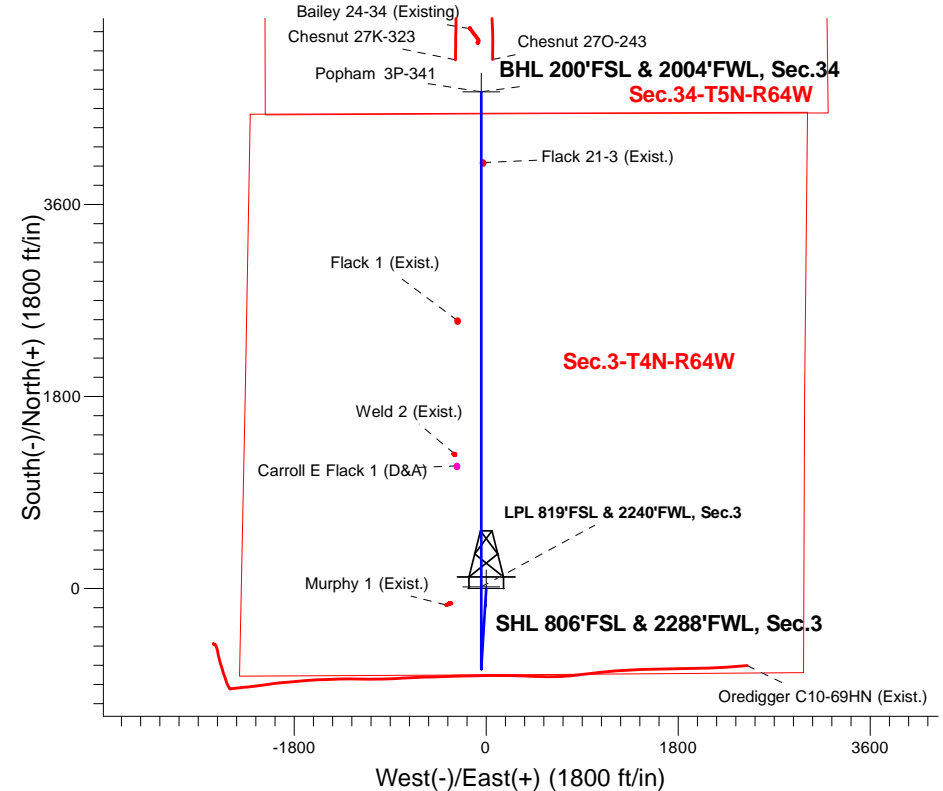
Azimuths to True North  
 Magnetic North: 8.04°

Magnetic Field  
 Strength: 52579.0snT  
 Dip Angle: 66.85°  
 Date: 8/12/2016  
 Model: IGRF2010

Popham 4N64W3Q Pad Sec.3-T4N-R64W  
 Popham 3P-341  
 Plan #1 (8-12-16)  
 10:15, August 16 2016

## ANNOTATIONS

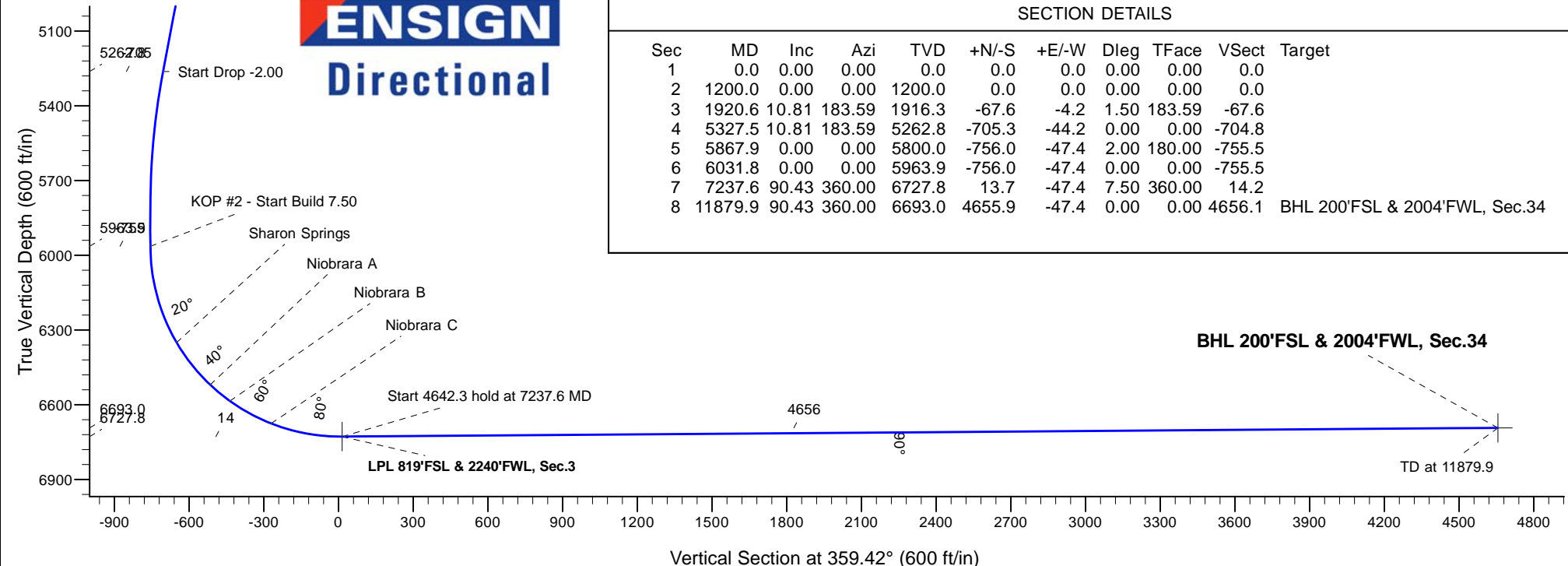
TVD	MD	Annotation
1200.0	1200.0	KOP - Start Build 1.50
5262.8	5327.5	Start Drop -2.00
5963.9	6031.8	KOP #2 - Start Build 7.50
6727.8	7237.6	Start 4642.3 hold at 7237.6 MD
6693.0	11879.9	TD at 11879.9



**ENSIGN**  
 Directional

## 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	1200.0	0.00	0.00	1200.0	0.0	0.0	0.00	0.00	0.0	
3	1920.6	10.81	183.59	1916.3	-67.6	-4.2	1.50	183.59	-67.6	
4	5327.5	10.81	183.59	5262.8	-705.3	-44.2	0.00	0.00	-704.8	
5	5867.9	0.00	0.00	5800.0	-756.0	-47.4	2.00	180.00	-755.5	
6	6031.8	0.00	0.00	5963.9	-756.0	-47.4	0.00	0.00	-755.5	
7	7237.6	90.43	360.00	6727.8	13.7	-47.4	7.50	360.00	14.2	
8	11879.9	90.43	360.00	6693.0	4655.9	-47.4	0.00	0.00	4656.1	BHL 200'FSL & 2004'FWL, Sec.34





# **PETROLEUM DEVELOPMENT CORP DJ Basin**

**SEC.3-T4N-R64W**

**Popham 4N64W3Q Pad Sec.3-T4N-R64W**

**Popham 3P-341**

**Wellbore #1**

**Plan #1 (8-12-16)**

## **Anticollision Report**

**16 August, 2016**



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Popham 3P-341
<b>Project:</b>	SEC.3-T4N-R64W	<b>TVD Reference:</b>	WELL @ 4683.0ft (RKB - 23')
<b>Reference Site:</b>	Popham 4N64W3Q Pad Sec.3-T4N-R64W	<b>MD Reference:</b>	WELL @ 4683.0ft (RKB - 23')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Popham 3P-341	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (8-12-16)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Plan #1 (8-12-16)		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	MD Interval 100.0ft	<b>Error Model:</b>	ISCWSA
<b>Depth Range:</b>	Unlimited	<b>Scan Method:</b>	Closest Approach 3D
<b>Results Limited by:</b>	Maximum center-center distance of 1,000.0 ft	<b>Error Surface:</b>	Elliptical Conic
<b>Warning Levels Evaluated at:</b>	2.45 Sigma	<b>Casing Method:</b>	Not applied

<b>Survey Tool Program</b>	<b>Date</b>	8/16/2016		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	11,879.9	Plan #1 (8-12-16) (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
<b>Offset Well - Wellbore - Design</b>						
Chesnut 27K-HZ Pad Sec.27-T5N-R64W						
Chesnut 27K-323 - Wellbore #1 - Wellbore #1	11,879.9	14,120.0	383.6	110.5	1.404	Level 3, CC, ES, SF
Chesnut 27O-243 - Wellbore #1 - Wellbore #1	11,879.9	14,066.0	330.0	90.5	1.378	Level 3, CC, ES, SF
Chesnut Existing Pad Sec.27-T5N-R64W						
Bailey 24-34 (Existing) - Wellbore #1 - Wellbore #1	11,879.9	6,673.9	604.1	472.6	4.594	CC, ES, SF
Existing Wells for Sec.3-T4N-R64W GRID						
Murphy 1 (Exist.) - Wellbore #1 - Wellbore #1	7,067.5	6,690.8	324.8	288.1	8.845	CC, ES, SF
Oredigger C10-69HN (Exist.) - Wellbore #1 - Wellbore #1	6,500.0	8,760.2	318.0	237.7	3.959	SF
Oredigger C10-69HN (Exist.) - Wellbore #1 - Wellbore #1	6,562.2	8,761.5	309.3	233.7	4.090	CC, ES
Weld 2 (Exist.) - Wellbore #1 - Wellbore #1	8,487.9	6,706.8	253.3	198.0	4.582	CC, ES
Weld 2 (Exist.) - Wellbore #1 - Wellbore #1	8,500.0	6,706.7	253.5	198.0	4.567	SF
Existing Wells Sec.3-T4N-R64W						
Carroll E Flack 1 (D&A) - Wellbore #1 - Wellbore #1	8,371.5	6,702.3	228.6	26.2	1.129	Level 2, CC, ES, SF
Flack 1 (Exist.) - Wellbore #1 - Wellbore #1	9,734.0	6,700.1	220.2	-11.3	0.951	Level 1, CC, ES, SF
Flack 21-3 (Exist.) - Wellbore #1 - Wellbore #1	11,216.8	6,679.0	16.7	-248.0	0.063	Level 1, CC, ES, SF
Popham 4N64W3Q Pad Sec.3-T4N-R64W						
Popham 3B-201 - Wellbore #1 - Plan #1 (8-12-16)	200.0	200.0	62.0	61.2	75.053	CC, ES
Popham 3B-201 - Wellbore #1 - Plan #1 (8-12-16)	11,879.9	11,864.6	802.1	569.6	3.449	SF
Popham 3B-221 - Wellbore #1 - Plan #1 (8-12-16)	600.0	600.0	32.8	29.8	10.824	CC, ES
Popham 3B-221 - Wellbore #1 - Plan #1 (8-12-16)	11,879.9	11,810.8	314.3	85.6	1.374	Level 3, SF
Popham 3B-301 - Wellbore #1 - Plan #1 (8-12-16)	400.0	400.0	47.4	45.5	24.613	CC, ES
Popham 3B-301 - Wellbore #1 - Plan #1 (8-12-16)	11,879.9	11,917.5	557.5	324.6	2.394	SF
Popham 3P-241 - Wellbore #1 - Plan #1 (8-12-16)	1,000.0	1,000.0	14.6	9.3	2.786	CC, ES
Popham 3P-241 - Wellbore #1 - Plan #1 (8-12-16)	11,879.9	11,808.7	317.0	88.4	1.387	Level 3, SF

Chesnut 27K-HZ Pad Sec.27-T5N-R64W - Chesnut 27K-323 - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program:		164-MWD										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
11,300.0	6,697.4	14,120.0	6,648.5	103.0	157.4	-92.43	4,954.2	-288.4	910.7	650.9	259.77	3.506	

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