

# PETROLEUM DEVELOPMENT CORP Weld County CO

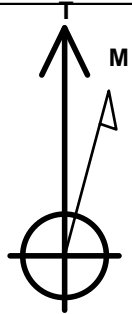
Well Name: **Bernhardt 6G-323**

Surface Location: Bernhardt 4N66W6G Pad Sec.6-T4N-R66W  
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone  
Ground Elevation: 4722.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1367451.93	3187718.36	40.340100	-104.826580	
RKB - 15' WELL @ 4737.0ft (RKB - 15')						

## WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 2265'FSL & 892'FWL, Sec.6	1.0	0.0	0.0	Point
BHL 2162'FNL & 405'FWL, Sec.7	7075.0	-4440.9	-479.6	Point



Azimuths to True North  
Magnetic North: 8.46°

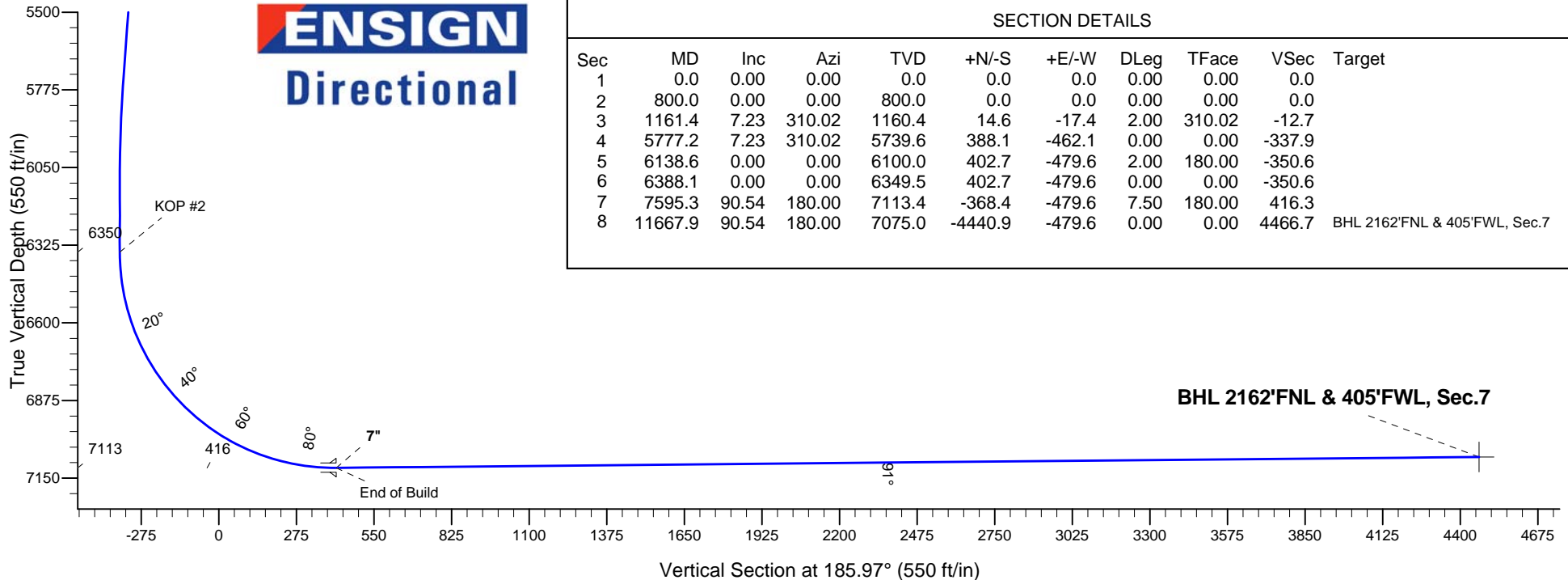
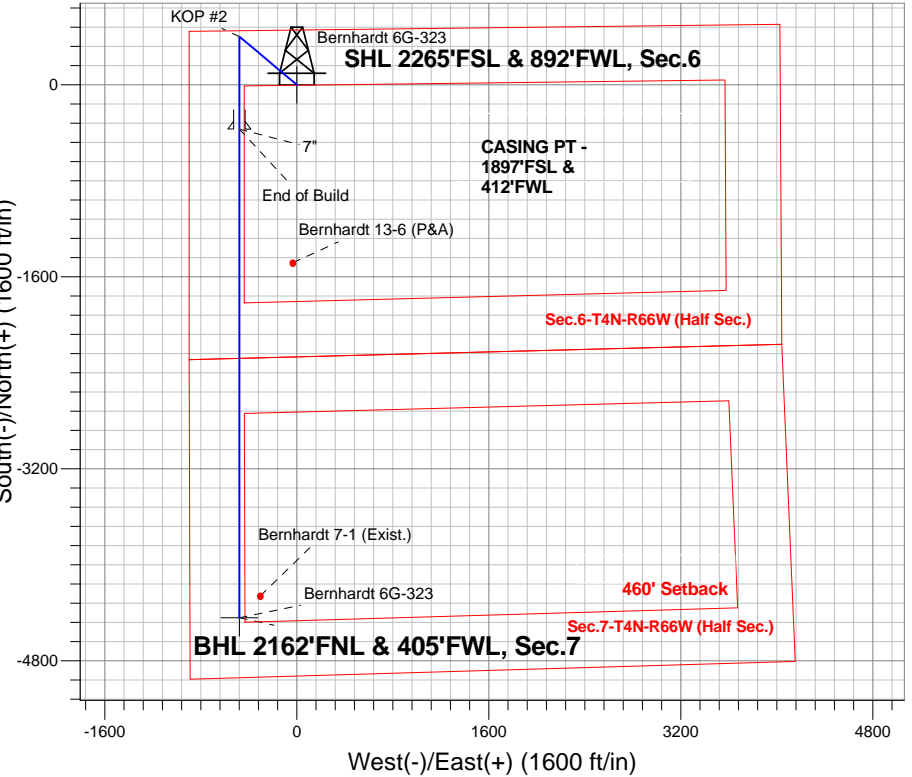
Magnetic Field  
Strength: 52755.2srT  
Dip Angle: 66.88°  
Date: 9/3/2014  
Model: IGRF2010

Bernhardt 4N66W6G Pad Sec.6-T4N-R66W  
Bernhardt 6G-323  
Plan #2 (9-3-14)

## ANNOTATIONS

TVD	MD	Annotation
800.0	800.0	KOP #1
6349.5	6388.1	KOP #2
7113.4	7595.3	End of Build

South(-)/North(+) (1600 ft/in)



## 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	800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.0	
3	1161.4	7.23	310.02	1160.4	14.6	-17.4	2.00	310.02	-12.7	
4	5777.2	7.23	310.02	5739.6	388.1	-462.1	0.00	0.00	-337.9	
5	6138.6	0.00	0.00	6100.0	402.7	-479.6	2.00	180.00	-350.6	
6	6388.1	0.00	0.00	6349.5	402.7	-479.6	0.00	0.00	-350.6	
7	7595.3	90.54	180.00	7113.4	-368.4	-479.6	7.50	180.00	416.3	
8	11667.9	90.54	180.00	7075.0	-4440.9	-479.6	0.00	0.00	4466.7	BHL 2162'FNL & 405'FWL, Sec.7



# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.6-T4N-R66W**

**Bernhardt 4N66W6G Pad Sec.6-T4N-R66W**

**Bernhardt 6G-323**

**Wellbore #1**

**Plan: Plan #2 (9-3-14)**

## **Standard Planning Report**

**08 September, 2014**

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Bernhardt 6G-323
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4737.0ft (RKB - 15')
<b>Project:</b>	SEC.6-T4N-R66W	<b>MD Reference:</b>	WELL @ 4737.0ft (RKB - 15')
<b>Site:</b>	Bernhardt 4N66W6G Pad Sec.6-T4N-R66W	<b>North Reference:</b>	True
<b>Well:</b>	Bernhardt 6G-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2 (9-3-14)		

<b>Project</b>	SEC.6-T4N-R66W, Weld County, CO		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		Using Well Reference Point
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

Site						Bernhardt 4N66W6G Pad Sec.6-T4N-R66W											
Site Position:						Northing:			1,367,654.84 ft			Latitude:			40.340660		
From:			Lat/Long			Easting:			3,187,571.86 ft			Longitude:			-104.827100		
Position Uncertainty:			0.0 ft			Slot Radius:			"			Grid Convergence:			0.43 °		

Well	Bernhardt 6G-323					
Well Position	+N/-S	-204.0 ft	Northing:	1,367,451.93 ft	Latitude:	40.340100
	+E/-W	145.0 ft	Easting:	3,187,718.36 ft	Longitude:	-104.826580
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,722.0 ft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	9/3/2014	8.46	66.88	52,755

<b>Design</b>	Plan #2 (9-3-14)			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	185.97

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,161.4	7.23	310.02	1,160.4	14.6	-17.4	2.00	2.00	0.00	310.02	
5,777.2	7.23	310.02	5,739.6	388.1	-462.1	0.00	0.00	0.00	0.00	
6,138.6	0.00	0.00	6,100.0	402.7	-479.6	2.00	-2.00	0.00	180.00	
6,388.1	0.00	0.00	6,349.5	402.7	-479.6	0.00	0.00	0.00	0.00	
7,595.3	90.54	180.00	7,113.4	-368.4	-479.6	7.50	7.50	0.00	180.00	
11,667.9	90.54	180.00	7,075.0	-4,440.9	-479.6	0.00	0.00	0.00	0.00	BHL 2162'FNL & 4C

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<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4737.0ft (RKB - 15')
<b>Project:</b>	SEC.6-T4N-R66W	<b>MD Reference:</b>	WELL @ 4737.0ft (RKB - 15')
<b>Site:</b>	Bernhardt 4N66W6G Pad Sec.6-T4N-R66W	<b>North Reference:</b>	True
<b>Well:</b>	Bernhardt 6G-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2 (9-3-14)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>KOP #1</b>									
900.0	2.00	310.02	900.0	1.1	-1.3	-1.0	2.00	2.00	0.00
1,000.0	4.00	310.02	999.8	4.5	-5.3	-3.9	2.00	2.00	0.00
1,100.0	6.00	310.02	1,099.5	10.1	-12.0	-8.8	2.00	2.00	0.00
1,161.4	7.23	310.02	1,160.4	14.6	-17.4	-12.7	2.00	2.00	0.00
1,200.0	7.23	310.02	1,198.7	17.8	-21.2	-15.5	0.00	0.00	0.00
1,300.0	7.23	310.02	1,297.9	25.9	-30.8	-22.5	0.00	0.00	0.00
1,400.0	7.23	310.02	1,397.1	33.9	-40.4	-29.6	0.00	0.00	0.00
1,500.0	7.23	310.02	1,496.4	42.0	-50.1	-36.6	0.00	0.00	0.00
1,600.0	7.23	310.02	1,595.6	50.1	-59.7	-43.6	0.00	0.00	0.00
1,700.0	7.23	310.02	1,694.8	58.2	-69.3	-50.7	0.00	0.00	0.00
1,800.0	7.23	310.02	1,794.0	66.3	-79.0	-57.7	0.00	0.00	0.00
1,900.0	7.23	310.02	1,893.2	74.4	-88.6	-64.8	0.00	0.00	0.00
2,000.0	7.23	310.02	1,992.4	82.5	-98.2	-71.8	0.00	0.00	0.00
2,100.0	7.23	310.02	2,091.6	90.6	-107.9	-78.9	0.00	0.00	0.00
2,200.0	7.23	310.02	2,190.8	98.7	-117.5	-85.9	0.00	0.00	0.00
2,300.0	7.23	310.02	2,290.0	106.8	-127.1	-92.9	0.00	0.00	0.00
2,400.0	7.23	310.02	2,389.2	114.8	-136.8	-100.0	0.00	0.00	0.00
2,500.0	7.23	310.02	2,488.4	122.9	-146.4	-107.0	0.00	0.00	0.00
2,600.0	7.23	310.02	2,587.6	131.0	-156.0	-114.1	0.00	0.00	0.00
2,700.0	7.23	310.02	2,686.8	139.1	-165.7	-121.1	0.00	0.00	0.00
2,800.0	7.23	310.02	2,786.0	147.2	-175.3	-128.2	0.00	0.00	0.00
2,900.0	7.23	310.02	2,885.2	155.3	-184.9	-135.2	0.00	0.00	0.00
3,000.0	7.23	310.02	2,984.4	163.4	-194.6	-142.3	0.00	0.00	0.00
3,100.0	7.23	310.02	3,083.6	171.5	-204.2	-149.3	0.00	0.00	0.00
3,200.0	7.23	310.02	3,182.8	179.6	-213.8	-156.3	0.00	0.00	0.00
3,300.0	7.23	310.02	3,282.1	187.7	-223.5	-163.4	0.00	0.00	0.00
3,400.0	7.23	310.02	3,381.3	195.7	-233.1	-170.4	0.00	0.00	0.00
3,500.0	7.23	310.02	3,480.5	203.8	-242.7	-177.5	0.00	0.00	0.00
3,600.0	7.23	310.02	3,579.7	211.9	-252.4	-184.5	0.00	0.00	0.00
3,700.0	7.23	310.02	3,678.9	220.0	-262.0	-191.6	0.00	0.00	0.00
3,800.0	7.23	310.02	3,778.1	228.1	-271.6	-198.6	0.00	0.00	0.00
3,900.0	7.23	310.02	3,877.3	236.2	-281.3	-205.6	0.00	0.00	0.00
4,000.0	7.23	310.02	3,976.5	244.3	-290.9	-212.7	0.00	0.00	0.00
4,100.0	7.23	310.02	4,075.7	252.4	-300.5	-219.7	0.00	0.00	0.00
4,200.0	7.23	310.02	4,174.9	260.5	-310.2	-226.8	0.00	0.00	0.00
4,300.0	7.23	310.02	4,274.1	268.6	-319.8	-233.8	0.00	0.00	0.00
4,400.0	7.23	310.02	4,373.3	276.6	-329.5	-240.9	0.00	0.00	0.00
4,500.0	7.23	310.02	4,472.5	284.7	-339.1	-247.9	0.00	0.00	0.00
4,600.0	7.23	310.02	4,571.7	292.8	-348.7	-255.0	0.00	0.00	0.00
4,700.0	7.23	310.02	4,670.9	300.9	-358.4	-262.0	0.00	0.00	0.00
4,800.0	7.23	310.02	4,770.1	309.0	-368.0	-269.0	0.00	0.00	0.00
4,900.0	7.23	310.02	4,869.3	317.1	-377.6	-276.1	0.00	0.00	0.00
5,000.0	7.23	310.02	4,968.5	325.2	-387.3	-283.1	0.00	0.00	0.00

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<b>Site:</b>	Bernhardt 4N66W6G Pad Sec.6-T4N-R66W	<b>North Reference:</b>	True
<b>Well:</b>	Bernhardt 6G-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2 (9-3-14)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
5,100.0	7.23	310.02	5,067.7	333.3	-396.9	-290.2	0.00	0.00	0.00
5,200.0	7.23	310.02	5,167.0	341.4	-406.5	-297.2	0.00	0.00	0.00
5,300.0	7.23	310.02	5,266.2	349.5	-416.2	-304.3	0.00	0.00	0.00
5,400.0	7.23	310.02	5,365.4	357.5	-425.8	-311.3	0.00	0.00	0.00
5,500.0	7.23	310.02	5,464.6	365.6	-435.4	-318.3	0.00	0.00	0.00
5,600.0	7.23	310.02	5,563.8	373.7	-445.1	-325.4	0.00	0.00	0.00
5,700.0	7.23	310.02	5,663.0	381.8	-454.7	-332.4	0.00	0.00	0.00
5,777.2	7.23	310.02	5,739.6	388.1	-462.1	-337.9	0.00	0.00	0.00
5,800.0	6.77	310.02	5,762.2	389.9	-464.3	-339.4	2.00	-2.00	0.00
5,900.0	4.77	310.02	5,861.7	396.3	-472.0	-345.1	2.00	-2.00	0.00
6,000.0	2.77	310.02	5,961.5	400.5	-477.0	-348.7	2.00	-2.00	0.00
6,100.0	0.77	310.02	6,061.4	402.5	-479.4	-350.5	2.00	-2.00	0.00
6,138.6	0.00	0.00	6,100.0	402.7	-479.6	-350.6	2.00	-2.00	0.00
6,200.0	0.00	0.00	6,161.4	402.7	-479.6	-350.6	0.00	0.00	0.00
6,300.0	0.00	0.00	6,261.4	402.7	-479.6	-350.6	0.00	0.00	0.00
6,388.1	0.00	0.00	6,349.5	402.7	-479.6	-350.6	0.00	0.00	0.00
KOP #2									
6,400.0	0.90	180.00	6,361.4	402.6	-479.6	-350.5	7.52	7.52	0.00
6,500.0	8.40	180.00	6,461.0	394.5	-479.6	-342.5	7.50	7.50	0.00
6,600.0	15.90	180.00	6,558.7	373.5	-479.6	-321.6	7.50	7.50	0.00
6,700.0	23.40	180.00	6,652.8	339.9	-479.6	-288.2	7.50	7.50	0.00
6,800.0	30.90	180.00	6,741.7	294.3	-479.6	-242.8	7.50	7.50	0.00
6,900.0	38.40	180.00	6,823.9	237.5	-479.6	-186.3	7.50	7.50	0.00
7,000.0	45.90	180.00	6,898.0	170.4	-479.6	-119.6	7.50	7.50	0.00
7,100.0	53.40	180.00	6,962.7	94.3	-479.6	-43.9	7.50	7.50	0.00
7,200.0	60.90	180.00	7,017.0	10.3	-479.6	39.6	7.50	7.50	0.00
7,300.0	68.40	180.00	7,059.7	-80.0	-479.6	129.4	7.50	7.50	0.00
7,400.0	75.90	180.00	7,090.4	-175.1	-479.6	224.0	7.50	7.50	0.00
7,500.0	83.40	180.00	7,108.3	-273.4	-479.6	321.8	7.50	7.50	0.00
7,595.3	90.54	180.00	7,113.4	-368.5	-479.6	416.4	7.50	7.50	0.00
End of Build - 7"									
7,600.0	90.54	180.00	7,113.3	-373.2	-479.6	421.1	0.00	0.00	0.00
7,700.0	90.54	180.00	7,112.4	-473.2	-479.6	520.5	0.00	0.00	0.00
7,800.0	90.54	180.00	7,111.5	-573.2	-479.6	620.0	0.00	0.00	0.00
7,900.0	90.54	180.00	7,110.5	-673.2	-479.6	719.4	0.00	0.00	0.00
8,000.0	90.54	180.00	7,109.6	-773.2	-479.6	818.9	0.00	0.00	0.00
8,100.0	90.54	180.00	7,108.6	-873.2	-479.6	918.3	0.00	0.00	0.00
8,200.0	90.54	180.00	7,107.7	-973.2	-479.6	1,017.8	0.00	0.00	0.00
8,300.0	90.54	180.00	7,106.7	-1,073.1	-479.6	1,117.2	0.00	0.00	0.00
8,400.0	90.54	180.00	7,105.8	-1,173.1	-479.6	1,216.7	0.00	0.00	0.00
8,500.0	90.54	180.00	7,104.9	-1,273.1	-479.6	1,316.1	0.00	0.00	0.00
8,600.0	90.54	180.00	7,103.9	-1,373.1	-479.6	1,415.6	0.00	0.00	0.00
8,700.0	90.54	180.00	7,103.0	-1,473.1	-479.6	1,515.0	0.00	0.00	0.00
8,800.0	90.54	180.00	7,102.0	-1,573.1	-479.6	1,614.5	0.00	0.00	0.00
8,900.0	90.54	180.00	7,101.1	-1,673.1	-479.6	1,713.9	0.00	0.00	0.00
9,000.0	90.54	180.00	7,100.1	-1,773.1	-479.6	1,813.4	0.00	0.00	0.00
9,100.0	90.54	180.00	7,099.2	-1,873.1	-479.6	1,912.8	0.00	0.00	0.00
9,200.0	90.54	180.00	7,098.3	-1,973.1	-479.6	2,012.3	0.00	0.00	0.00
9,300.0	90.54	180.00	7,097.3	-2,073.1	-479.6	2,111.7	0.00	0.00	0.00
9,400.0	90.54	180.00	7,096.4	-2,173.1	-479.6	2,211.2	0.00	0.00	0.00
9,500.0	90.54	180.00	7,095.4	-2,273.1	-479.6	2,310.7	0.00	0.00	0.00
9,600.0	90.54	180.00	7,094.5	-2,373.1	-479.6	2,410.1	0.00	0.00	0.00
9,700.0	90.54	180.00	7,093.5	-2,473.1	-479.6	2,509.6	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Bernhardt 6G-323
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4737.0ft (RKB - 15')
<b>Project:</b>	SEC.6-T4N-R66W	<b>MD Reference:</b>	WELL @ 4737.0ft (RKB - 15')
<b>Site:</b>	Bernhardt 4N66W6G Pad Sec.6-T4N-R66W	<b>North Reference:</b>	True
<b>Well:</b>	Bernhardt 6G-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2 (9-3-14)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
9,800.0	90.54	180.00	7,092.6	-2,573.1	-479.6	2,609.0	0.00	0.00	0.00
9,900.0	90.54	180.00	7,091.7	-2,673.1	-479.6	2,708.5	0.00	0.00	0.00
10,000.0	90.54	180.00	7,090.7	-2,773.1	-479.6	2,807.9	0.00	0.00	0.00
10,100.0	90.54	180.00	7,089.8	-2,873.1	-479.6	2,907.4	0.00	0.00	0.00
10,200.0	90.54	180.00	7,088.8	-2,973.1	-479.6	3,006.8	0.00	0.00	0.00
10,300.0	90.54	180.00	7,087.9	-3,073.1	-479.6	3,106.3	0.00	0.00	0.00
10,400.0	90.54	180.00	7,086.9	-3,173.1	-479.6	3,205.7	0.00	0.00	0.00
10,500.0	90.54	180.00	7,086.0	-3,273.0	-479.6	3,305.2	0.00	0.00	0.00
10,600.0	90.54	180.00	7,085.1	-3,373.0	-479.6	3,404.6	0.00	0.00	0.00
10,700.0	90.54	180.00	7,084.1	-3,473.0	-479.6	3,504.1	0.00	0.00	0.00
10,800.0	90.54	180.00	7,083.2	-3,573.0	-479.6	3,603.5	0.00	0.00	0.00
10,900.0	90.54	180.00	7,082.2	-3,673.0	-479.6	3,703.0	0.00	0.00	0.00
11,000.0	90.54	180.00	7,081.3	-3,773.0	-479.6	3,802.4	0.00	0.00	0.00
11,100.0	90.54	180.00	7,080.4	-3,873.0	-479.6	3,901.9	0.00	0.00	0.00
11,200.0	90.54	180.00	7,079.4	-3,973.0	-479.6	4,001.4	0.00	0.00	0.00
11,300.0	90.54	180.00	7,078.5	-4,073.0	-479.6	4,100.8	0.00	0.00	0.00
11,400.0	90.54	180.00	7,077.5	-4,173.0	-479.6	4,200.3	0.00	0.00	0.00
11,500.0	90.54	180.00	7,076.6	-4,273.0	-479.6	4,299.7	0.00	0.00	0.00
11,600.0	90.54	180.00	7,075.6	-4,373.0	-479.6	4,399.2	0.00	0.00	0.00
11,667.9	90.54	180.00	7,075.0	-4,440.9	-479.6	4,466.7	0.00	0.00	0.00

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
SHL 2265'FSL & 892'I	0.00	0.00	1.0	0.0	0.0	1,367,451.94	3,187,718.36	40.340100	-104.826580
- plan hits target center									
- Point									
BHL 2162'FNL & 405'	0.00	0.00	7,075.0	-4,440.9	-479.6	1,363,007.71	3,187,272.55	40.327910	-104.828300
- plan hits target center									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name		Casing Diameter (")	Hole Diameter (")
7,595.3	7,113.4	7"		7	7-1/2

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	+E/-W (ft)	Comment
800.0	800.0	0.0	0.0	KOP #1
6,388.1	6,349.5	402.7	-479.6	KOP #2
7,595.3	7,113.4	-368.5	-479.6	End of Build



# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.6-T4N-R66W**

**Bernhardt 4N66W6G Pad Sec.6-T4N-R66W**

**Bernhardt 6G-323**

**Wellbore #1**

**Plan #2 (9-3-14)**

## **Anticollision Report**

**08 September, 2014**







<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Bernhardt 6G-323
<b>Project:</b>	SEC.6-T4N-R66W	<b>TVD Reference:</b>	WELL @ 4737.0ft (RKB - 15')
<b>Reference Site:</b>	Bernhardt 4N66W6G Pad Sec.6-T4N-R66W	<b>MD Reference:</b>	WELL @ 4737.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bernhardt 6G-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #2 (9-3-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Bernhardt 4N66W6G Pad Sec.6-T4N-R66W - Bernhardt 6G-403 - Wellbore #1 - Plan #2 (9-3-14)												Offset Site Error: 0.0 ft	
Survey Program: 0-MWD												Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
1,700.0	1,694.8	1,688.3	1,673.6	4.0	5.2	-28.98	84.1	-206.2	140.9	133.2	7.76	18.162	
1,800.0	1,794.0	1,788.2	1,772.3	4.3	5.6	-29.63	91.3	-220.1	145.0	136.7	8.28	17.515	
1,900.0	1,893.2	1,888.1	1,870.9	4.6	6.0	-30.24	98.5	-234.0	149.1	140.3	8.80	16.937	
2,000.0	1,992.4	1,988.0	1,969.6	5.0	6.3	-30.82	105.8	-247.9	153.2	143.8	9.33	16.419	
2,100.0	2,091.6	2,087.9	2,068.3	5.3	6.7	-31.37	113.0	-261.8	157.3	147.4	9.86	15.952	
2,200.0	2,190.8	2,187.8	2,167.0	5.6	7.1	-31.90	120.2	-275.7	161.4	151.0	10.39	15.528	
2,300.0	2,290.0	2,287.7	2,265.6	5.9	7.5	-32.39	127.4	-289.5	165.5	154.6	10.93	15.143	
2,400.0	2,389.2	2,387.6	2,364.3	6.2	7.8	-32.86	134.7	-303.4	169.7	158.2	11.47	14.792	
2,500.0	2,488.4	2,487.5	2,463.0	6.5	8.2	-33.31	141.9	-317.3	173.8	161.8	12.01	14.470	
2,600.0	2,587.6	2,587.4	2,561.6	6.8	8.6	-33.74	149.1	-331.2	178.0	165.4	12.56	14.173	
2,700.0	2,686.8	2,687.3	2,660.3	7.2	8.9	-34.15	156.3	-345.1	182.2	169.1	13.11	13.900	
2,800.0	2,786.0	2,787.2	2,759.0	7.5	9.3	-34.54	163.6	-359.0	186.4	172.7	13.66	13.647	
2,900.0	2,885.2	2,887.1	2,857.7	7.8	9.7	-34.91	170.8	-372.8	190.5	176.3	14.21	13.412	
3,000.0	2,984.4	2,987.0	2,956.3	8.1	10.1	-35.27	178.0	-386.7	194.7	180.0	14.76	13.194	
3,100.0	3,083.6	3,086.9	3,055.0	8.4	10.4	-35.61	185.2	-400.6	199.0	183.6	15.32	12.990	
3,200.0	3,182.8	3,186.8	3,153.7	8.7	10.8	-35.94	192.5	-414.5	203.2	187.3	15.87	12.800	
3,300.0	3,282.1	3,286.7	3,252.3	9.1	11.2	-36.26	199.7	-428.4	207.4	191.0	16.43	12.622	
3,400.0	3,381.3	3,386.6	3,351.0	9.4	11.5	-36.56	206.9	-442.3	211.6	194.6	16.99	12.455	
3,500.0	3,480.5	3,486.6	3,449.7	9.7	11.9	-36.85	214.1	-456.1	215.9	198.3	17.55	12.298	
3,600.0	3,579.7	3,586.5	3,548.4	10.0	12.3	-37.13	221.4	-470.0	220.1	202.0	18.11	12.150	
3,700.0	3,678.9	3,686.4	3,647.0	10.4	12.7	-37.40	228.6	-483.9	224.3	205.7	18.68	12.011	
3,800.0	3,778.1	3,786.3	3,745.7	10.7	13.0	-37.65	235.8	-497.8	228.6	209.3	19.24	11.879	
3,900.0	3,877.3	3,886.2	3,844.4	11.0	13.4	-37.90	243.1	-511.7	232.8	213.0	19.81	11.755	
4,000.0	3,976.5	3,986.1	3,943.0	11.3	13.8	-38.14	250.3	-525.6	237.1	216.7	20.38	11.636	
4,100.0	4,075.7	4,086.0	4,041.7	11.6	14.1	-38.38	257.5	-539.4	241.4	220.4	20.94	11.524	
4,200.0	4,174.9	4,185.9	4,140.4	12.0	14.5	-38.60	264.7	-553.3	245.6	224.1	21.51	11.418	
4,300.0	4,274.1	4,285.8	4,239.0	12.3	14.9	-38.82	272.0	-567.2	249.9	227.8	22.08	11.317	
4,400.0	4,373.3	4,385.7	4,337.7	12.6	15.3	-39.02	279.2	-581.1	254.2	231.5	22.65	11.221	
4,500.0	4,472.5	4,485.6	4,436.4	12.9	15.6	-39.23	286.4	-595.0	258.4	235.2	23.22	11.129	
4,600.0	4,571.7	4,585.5	4,535.1	13.3	16.0	-39.42	293.6	-608.9	262.7	238.9	23.79	11.041	
4,700.0	4,670.9	4,685.4	4,633.7	13.6	16.4	-39.61	300.9	-622.7	267.0	242.6	24.37	10.957	
4,800.0	4,770.1	4,785.3	4,732.4	13.9	16.7	-39.79	308.1	-636.6	271.3	246.3	24.94	10.877	
4,900.0	4,869.3	4,885.2	4,831.1	14.2	17.1	-39.97	315.3	-650.5	275.6	250.1	25.51	10.801	
5,000.0	4,968.5	4,985.1	4,929.7	14.5	17.5	-40.14	322.5	-664.4	279.9	253.8	26.09	10.727	
5,100.0	5,067.7	5,085.0	5,028.4	14.9	17.9	-40.31	329.8	-678.3	284.1	257.5	26.66	10.657	
5,200.0	5,167.0	5,184.9	5,127.1	15.2	18.2	-40.47	337.0	-692.2	288.4	261.2	27.24	10.589	
5,300.0	5,266.2	5,284.8	5,225.8	15.5	18.6	-40.63	344.2	-706.0	292.7	264.9	27.81	10.525	
5,400.0	5,365.4	5,384.7	5,324.4	15.8	19.0	-40.78	351.4	-719.9	297.0	268.6	28.39	10.462	
5,500.0	5,464.6	5,484.6	5,423.1	16.2	19.3	-40.93	358.7	-733.8	301.3	272.4	28.97	10.402	
5,600.0	5,563.8	5,584.5	5,521.8	16.5	19.7	-41.07	365.9	-747.7	305.6	276.1	29.55	10.345	
5,700.0	5,663.0	5,684.5	5,620.4	16.8	20.1	-41.21	373.1	-761.6	309.9	279.8	30.12	10.289	
5,800.0	5,762.2	5,784.4	5,719.1	17.1	20.5	-41.35	380.3	-775.5	314.3	283.6	30.69	10.241	
5,900.0	5,861.7	5,891.5	5,825.0	17.4	20.8	-41.32	387.6	-789.5	319.8	288.6	31.15	10.264	
6,000.0	5,961.5	6,002.3	5,935.1	17.5	21.1	-41.18	393.4	-800.5	324.6	293.1	31.52	10.300	
6,100.0	6,061.4	6,113.3	6,045.9	17.7	21.3	-40.95	397.1	-807.7	328.7	296.9	31.80	10.336	
6,200.0	6,161.4	6,224.5	6,157.0	17.9	21.5	-90.66	398.9	-811.1	331.6	299.5	32.09	10.333	
6,300.0	6,261.4	6,328.9	6,261.4	18.0	21.6	-90.64	399.0	-811.4	331.8	299.4	32.44	10.230	
6,400.0	6,361.4	6,428.9	6,361.4	18.2	21.7	89.38	399.0	-811.4	331.8	299.0	32.79	10.119	
6,463.1	6,424.4	6,491.9	6,424.4	18.2	21.8	90.00	399.0	-811.4	331.8	298.9	32.86	10.097	
6,500.0	6,461.0	6,528.7	6,461.2	18.3	21.9	90.66	398.3	-811.4	331.8	299.0	32.84	10.103	
6,600.0	6,558.7	6,629.3	6,561.2	18.3	21.9	92.44	387.5	-811.4	332.1	299.4	32.66	10.168	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Bernhardt 6G-323
<b>Project:</b>	SEC.6-T4N-R66W	<b>TVD Reference:</b>	WELL @ 4737.0ft (RKB - 15')
<b>Reference Site:</b>	Bernhardt 4N66W6G Pad Sec.6-T4N-R66W	<b>MD Reference:</b>	WELL @ 4737.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bernhardt 6G-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #2 (9-3-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Bernhardt 4N66W6G Pad Sec.6-T4N-R66W - Bernhardt 6G-403 - Wellbore #1 - Plan #2 (9-3-14)												Offset Site Error: 0.0 ft	
Survey Program: 0-MWD												Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
6,700.0	6,652.8	6,731.4	6,660.2	18.2	21.9	94.19	363.2	-811.4	332.7	300.3	32.36	10.279	
6,800.0	6,741.7	6,834.9	6,756.4	18.1	21.9	95.87	325.3	-811.4	333.6	301.5	32.02	10.418	
6,900.0	6,823.9	6,939.8	6,847.8	18.0	21.8	97.45	273.9	-811.4	334.6	302.9	31.69	10.560	
7,000.0	6,898.0	7,046.1	6,932.4	17.9	21.6	98.90	209.7	-811.4	335.9	304.4	31.45	10.678	
7,100.0	6,962.7	7,153.7	7,008.1	17.8	21.5	100.19	133.3	-811.4	337.1	305.7	31.39	10.742	
7,200.0	7,017.0	7,262.5	7,072.9	17.7	21.4	101.29	46.1	-811.4	338.4	306.8	31.56	10.722	
7,300.0	7,059.7	7,372.3	7,125.1	17.7	21.4	102.19	-50.4	-811.4	339.5	307.4	32.04	10.596	
7,400.0	7,090.4	7,482.9	7,163.2	17.8	21.4	102.86	-154.2	-811.4	340.3	307.5	32.82	10.369	
7,500.0	7,108.3	7,594.1	7,186.0	18.3	21.7	103.29	-262.9	-811.4	340.9	307.0	33.96	10.038	
7,600.0	7,113.3	7,704.4	7,192.9	19.1	22.2	103.49	-372.8	-811.4	341.2	305.8	35.42	9.632	
7,700.0	7,112.4	7,804.4	7,193.3	20.1	22.8	103.71	-472.8	-811.4	341.5	304.3	37.23	9.173	
7,800.0	7,111.5	7,904.3	7,193.8	21.2	23.7	103.93	-572.8	-811.4	341.8	302.5	39.30	8.698	
7,900.0	7,110.5	8,004.3	7,194.2	22.4	24.7	104.15	-672.8	-811.4	342.2	300.6	41.60	8.226	
8,000.0	7,109.6	8,104.3	7,194.6	23.8	25.8	104.37	-772.8	-811.4	342.5	298.4	44.08	7.769	
8,100.0	7,108.6	8,204.3	7,195.0	25.1	27.1	104.59	-872.8	-811.4	342.9	296.1	46.73	7.337	
8,200.0	7,107.7	8,304.3	7,195.4	26.6	28.4	104.81	-972.8	-811.4	343.2	293.7	49.50	6.933	
8,300.0	7,106.7	8,404.3	7,195.9	28.1	29.8	105.03	-1,072.8	-811.4	343.5	291.2	52.38	6.559	
8,400.0	7,105.8	8,504.3	7,196.3	29.6	31.2	105.25	-1,172.8	-811.4	343.9	288.6	55.35	6.213	
8,500.0	7,104.9	8,604.3	7,196.7	31.2	32.7	105.47	-1,272.8	-811.4	344.3	285.9	58.39	5.895	
8,600.0	7,103.9	8,704.3	7,197.1	32.9	34.3	105.69	-1,372.7	-811.4	344.6	283.1	61.50	5.604	
8,700.0	7,103.0	8,804.3	7,197.5	34.5	35.9	105.91	-1,472.7	-811.4	345.0	280.3	64.66	5.336	
8,800.0	7,102.0	8,904.3	7,198.0	36.2	37.5	106.12	-1,572.7	-811.4	345.4	277.5	67.86	5.089	
8,900.0	7,101.1	9,004.2	7,198.4	37.9	39.1	106.34	-1,672.7	-811.4	345.8	274.7	71.10	4.863	
9,000.0	7,100.1	9,104.2	7,198.8	39.6	40.8	106.56	-1,772.7	-811.4	346.1	271.8	74.37	4.654	
9,100.0	7,099.2	9,204.2	7,199.2	41.4	42.5	106.77	-1,872.7	-811.4	346.5	268.9	77.67	4.462	
9,200.0	7,098.3	9,304.2	7,199.6	43.1	44.2	106.99	-1,972.7	-811.4	346.9	265.9	80.98	4.284	
9,300.0	7,097.3	9,404.2	7,200.0	44.9	45.9	107.20	-2,072.7	-811.4	347.3	263.0	84.32	4.119	
9,400.0	7,096.4	9,504.2	7,200.5	46.6	47.6	107.42	-2,172.7	-811.4	347.7	260.1	87.67	3.967	
9,500.0	7,095.4	9,604.2	7,200.9	48.4	49.4	107.63	-2,272.7	-811.4	348.1	257.1	91.03	3.825	
9,600.0	7,094.5	9,704.2	7,201.3	50.2	51.1	107.84	-2,372.6	-811.4	348.6	254.2	94.40	3.693	
9,700.0	7,093.5	9,804.2	7,201.7	52.0	52.9	108.06	-2,472.6	-811.4	349.0	251.2	97.77	3.569	
9,800.0	7,092.6	9,904.2	7,202.1	53.9	54.7	108.27	-2,572.6	-811.4	349.4	248.2	101.16	3.454	
9,900.0	7,091.7	10,004.2	7,202.6	55.7	56.5	108.48	-2,672.6	-811.4	349.8	245.3	104.55	3.346	
10,000.0	7,090.7	10,104.1	7,203.0	57.5	58.3	108.69	-2,772.6	-811.4	350.3	242.3	107.94	3.245	
10,100.0	7,089.8	10,204.1	7,203.4	59.3	60.1	108.90	-2,872.6	-811.4	350.7	239.4	111.33	3.150	
10,200.0	7,088.8	10,304.1	7,203.8	61.2	61.9	109.11	-2,972.6	-811.4	351.1	236.4	114.73	3.061	
10,300.0	7,087.9	10,404.1	7,204.2	63.0	63.7	109.32	-3,072.6	-811.4	351.6	233.5	118.12	2.977	
10,400.0	7,086.9	10,504.1	7,204.7	64.9	65.5	109.53	-3,172.6	-811.4	352.1	230.5	121.51	2.897	
10,500.0	7,086.0	10,604.1	7,205.1	66.7	67.4	109.74	-3,272.6	-811.4	352.5	227.6	124.91	2.822	
10,600.0	7,085.1	10,704.1	7,205.5	68.6	69.2	109.95	-3,372.5	-811.4	353.0	224.7	128.30	2.751	
10,700.0	7,084.1	10,804.1	7,205.9	70.4	71.0	110.16	-3,472.5	-811.4	353.4	221.8	131.68	2.684	
10,800.0	7,083.2	10,904.1	7,206.3	72.3	72.9	110.36	-3,572.5	-811.4	353.9	218.8	135.07	2.620	
10,900.0	7,082.2	11,004.1	7,206.8	74.2	74.7	110.57	-3,672.5	-811.4	354.4	215.9	138.45	2.560	
11,000.0	7,081.3	11,104.1	7,207.2	76.0	76.6	110.77	-3,772.5	-811.4	354.9	213.0	141.82	2.502	
11,100.0	7,080.4	11,204.0	7,207.6	77.9	78.4	110.98	-3,872.5	-811.4	355.3	210.2	145.20	2.447	
11,200.0	7,079.4	11,304.0	7,208.0	79.8	80.3	111.18	-3,972.5	-811.4	355.8	207.3	148.56	2.395	
11,300.0	7,078.5	11,404.0	7,208.4	81.6	82.1	111.39	-4,072.5	-811.4	356.3	204.4	151.92	2.346	
11,400.0	7,077.5	11,504.0	7,208.8	83.5	84.0	111.59	-4,172.5	-811.4	356.8	201.6	155.28	2.298	
11,500.0	7,076.6	11,604.0	7,209.3	85.4	85.9	111.79	-4,272.4	-811.4	357.3	198.7	158.63	2.253	
11,600.0	7,075.6	11,704.0	7,209.7	87.3	87.7	112.00	-4,372.4	-811.4	357.8	195.9	161.97	2.209	
11,667.9	7,075.0	11,771.9	7,210.0	88.6	89.0	112.13	-4,440.3	-811.4	358.2	194.0	164.23	2.181 SF	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Bernhardt 6G-323
<b>Project:</b>	SEC.6-T4N-R66W	<b>TVD Reference:</b>	WELL @ 4737.0ft (RKB - 15')
<b>Reference Site:</b>	Bernhardt 4N66W6G Pad Sec.6-T4N-R66W	<b>MD Reference:</b>	WELL @ 4737.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bernhardt 6G-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #2 (9-3-14)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Bernhardt 6G-323
<b>Project:</b>	SEC.6-T4N-R66W	<b>TVD Reference:</b>	WELL @ 4737.0ft (RKB - 15')
<b>Reference Site:</b>	Bernhardt 4N66W6G Pad Sec.6-T4N-R66W	<b>MD Reference:</b>	WELL @ 4737.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bernhardt 6G-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #2 (9-3-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Bernhardt 4N66W6G Pad Sec.6-T4N-R66W - Bernhardt 6K-243 - Wellbore #1 - Plan #2 (9-3-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	71.91	71.91	18.2	55.8	58.7				
100.0	100.0	100.0	100.0	0.1	0.1	71.91	71.91	18.2	55.8	58.7	58.4	0.22	260.955	
200.0	200.0	200.0	200.0	0.3	0.3	71.91	71.91	18.2	55.8	58.7	58.0	0.67	86.985	
300.0	300.0	300.0	300.0	0.6	0.6	71.91	71.91	18.2	55.8	58.7	57.5	1.12	52.191	
400.0	400.0	400.0	400.0	0.8	0.8	71.91	71.91	18.2	55.8	58.7	57.1	1.57	37.279	
500.0	500.0	500.0	500.0	1.0	1.0	71.91	71.91	18.2	55.8	58.7	56.6	2.02	28.995	
600.0	600.0	600.0	600.0	1.2	1.2	71.91	71.91	18.2	55.8	58.7	56.2	2.47	23.723	
700.0	700.0	700.0	700.0	1.5	1.5	71.91	71.91	18.2	55.8	58.7	55.7	2.92	20.073	
800.0	800.0	800.0	800.0	1.7	1.7	71.91	71.91	18.2	55.8	58.7	55.3	3.37	17.397 CC, ES	
900.0	900.0	900.0	900.0	1.9	1.9	123.29	123.29	18.2	55.8	59.6	55.8	3.82	15.617	
1,000.0	999.8	999.8	999.8	2.1	2.1	127.25	127.25	18.2	55.8	62.6	58.4	4.26	14.709	
1,100.0	1,099.5	1,099.5	1,099.5	2.4	2.4	132.99	132.99	18.2	55.8	68.3	63.6	4.70	14.518 SF	
1,200.0	1,198.7	1,198.7	1,198.7	2.6	2.6	139.42	139.42	18.2	55.8	76.9	71.8	5.15	14.936	
1,300.0	1,297.9	1,297.9	1,297.9	2.9	2.8	144.81	144.81	18.2	55.8	86.9	81.3	5.60	15.510	
1,400.0	1,397.1	1,397.1	1,397.1	3.2	3.0	149.07	149.07	18.2	55.8	97.5	91.4	6.05	16.096	
1,500.0	1,496.4	1,496.4	1,496.4	3.4	3.3	152.48	152.48	18.2	55.8	108.5	101.9	6.51	16.665	
1,600.0	1,595.6	1,595.6	1,595.6	3.7	3.5	155.26	155.26	18.2	55.8	119.8	112.8	6.96	17.204	
1,700.0	1,694.8	1,694.8	1,694.8	4.0	3.7	157.55	157.55	18.2	55.8	131.3	123.9	7.42	17.707	
1,800.0	1,794.0	1,794.0	1,794.0	4.3	3.9	159.47	159.47	18.2	55.8	143.0	135.2	7.87	18.173	
1,900.0	1,893.2	1,893.2	1,893.2	4.6	4.1	161.10	161.10	18.2	55.8	154.9	146.6	8.33	18.603	
2,000.0	1,992.4	1,992.4	1,992.4	5.0	4.4	162.50	162.50	18.2	55.8	166.9	158.1	8.78	18.999	
2,100.0	2,091.6	2,092.2	2,092.2	5.3	4.6	163.25	163.25	19.6	56.2	178.7	169.5	9.24	19.343	
2,200.0	2,190.8	2,192.2	2,192.0	5.6	4.8	162.85	162.85	24.4	57.7	190.3	180.6	9.70	19.608	
2,300.0	2,290.0	2,292.0	2,291.5	5.9	5.0	161.51	161.51	32.4	60.2	201.5	191.4	10.18	19.801	
2,400.0	2,389.2	2,391.4	2,390.2	6.2	5.3	159.42	159.42	43.5	63.7	212.8	202.1	10.67	19.942	
2,500.0	2,488.4	2,490.5	2,488.5	6.5	5.5	157.34	157.34	55.4	67.4	224.2	213.0	11.17	20.066	
2,600.0	2,587.6	2,589.5	2,586.7	6.8	5.7	155.46	155.46	67.3	71.1	235.9	224.2	11.69	20.184	
2,700.0	2,686.8	2,688.5	2,685.0	7.2	6.0	153.76	153.76	79.2	74.9	247.9	235.7	12.21	20.295	
2,800.0	2,786.0	2,787.5	2,783.2	7.5	6.3	152.22	152.22	91.1	78.6	260.0	247.3	12.75	20.398	
2,900.0	2,885.2	2,886.6	2,881.4	7.8	6.5	150.82	150.82	103.0	82.3	272.3	259.0	13.29	20.495	
3,000.0	2,984.4	2,985.6	2,979.7	8.1	6.8	149.53	149.53	114.8	86.0	284.8	271.0	13.83	20.586	
3,100.0	3,083.6	3,084.6	3,077.9	8.4	7.1	148.36	148.36	126.7	89.7	297.4	283.0	14.39	20.672	
3,200.0	3,182.8	3,183.6	3,176.2	8.7	7.3	147.28	147.28	138.6	93.5	310.1	295.1	14.94	20.752	
3,300.0	3,282.1	3,282.7	3,274.4	9.1	7.6	146.28	146.28	150.5	97.2	322.9	307.4	15.50	20.828	
3,400.0	3,381.3	3,381.7	3,372.6	9.4	7.9	145.37	145.37	162.4	100.9	335.8	319.7	16.07	20.900	
3,500.0	3,480.5	3,480.7	3,470.9	9.7	8.2	144.52	144.52	174.3	104.6	348.8	332.1	16.63	20.968	
3,600.0	3,579.7	3,579.7	3,569.1	10.0	8.5	143.73	143.73	186.1	108.3	361.8	344.6	17.20	21.033	
3,700.0	3,678.9	3,678.8	3,667.4	10.4	8.8	142.99	142.99	198.0	112.1	374.9	357.1	17.77	21.094	
3,800.0	3,778.1	3,777.8	3,765.6	10.7	9.0	142.31	142.31	209.9	115.8	388.1	369.7	18.35	21.152	
3,900.0	3,877.3	3,876.8	3,863.8	11.0	9.3	141.67	141.67	221.8	119.5	401.3	382.4	18.92	21.207	
4,000.0	3,976.5	3,975.9	3,962.1	11.3	9.6	141.07	141.07	233.7	123.2	414.5	395.0	19.50	21.260	
4,100.0	4,075.7	4,074.9	4,060.3	11.6	9.9	140.50	140.50	245.6	127.0	427.8	407.8	20.08	21.311	
4,200.0	4,174.9	4,173.9	4,158.6	12.0	10.2	139.98	139.98	257.4	130.7	441.2	420.5	20.66	21.359	
4,300.0	4,274.1	4,272.9	4,256.8	12.3	10.5	139.48	139.48	269.3	134.4	454.5	433.3	21.24	21.405	
4,400.0	4,373.3	4,372.0	4,355.0	12.6	10.8	139.01	139.01	281.2	138.1	468.0	446.1	21.82	21.449	
4,500.0	4,472.5	4,471.0	4,453.3	12.9	11.1	138.57	138.57	293.1	141.8	481.4	459.0	22.40	21.492	
4,600.0	4,571.7	4,570.0	4,551.5	13.3	11.4	138.15	138.15	305.0	145.6	494.8	471.9	22.98	21.532	
4,700.0	4,670.9	4,669.0	4,649.8	13.6	11.7	137.75	137.75	316.9	149.3	508.3	484.8	23.57	21.571	
4,800.0	4,770.1	4,768.1	4,748.0	13.9	12.0	137.37	137.37	328.7	153.0	521.8	497.7	24.15	21.609	
4,900.0	4,869.3	4,867.1	4,846.3	14.2	12.3	137.02	137.02	340.6	156.7	535.4	510.6	24.73	21.645	
5,000.0	4,968.5	4,966.1	4,944.5	14.5	12.6	136.68	136.68	352.5	160.5	548.9	523.6	25.32	21.679	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Bernhardt 6G-323
<b>Project:</b>	SEC.6-T4N-R66W	<b>TVD Reference:</b>	WELL @ 4737.0ft (RKB - 15')
<b>Reference Site:</b>	Bernhardt 4N66W6G Pad Sec.6-T4N-R66W	<b>MD Reference:</b>	WELL @ 4737.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bernhardt 6G-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #2 (9-3-14)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Bernhardt 4N66W6G Pad Sec.6-T4N-R66W - Bernhardt 6K-243 - Wellbore #1 - Plan #2 (9-3-14)												<b>Offset Site Error:</b>	0.0 ft
Survey Program: 0-MWD												<b>Offset Well Error:</b>	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)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
5,100.0	5,067.7	5,065.2	5,042.7	14.9	12.9	136.36	364.4	164.2	562.5	536.6	25.91	21.713	
5,200.0	5,167.0	5,164.2	5,141.0	15.2	13.2	136.05	376.3	167.9	576.1	549.6	26.49	21.745	
5,300.0	5,266.2	5,263.2	5,239.2	15.5	13.6	135.75	388.2	171.6	589.7	562.6	27.08	21.776	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Bernhardt 6G-323
<b>Project:</b>	SEC.6-T4N-R66W	<b>TVD Reference:</b>	WELL @ 4737.0ft (RKB - 15')
<b>Reference Site:</b>	Bernhardt 4N66W6G Pad Sec.6-T4N-R66W	<b>MD Reference:</b>	WELL @ 4737.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bernhardt 6G-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #2 (9-3-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Bernhardt 4N66W6G Pad Sec.6-T4N-R66W - Bernhardt 6K-443 - Wellbore #1 - Plan #2 (9-3-14)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	75.34	7.3	27.9	28.8				
100.0	100.0	100.0	100.0	0.1	0.1	75.34	7.3	27.9	28.8	28.6	0.22	128.197	
200.0	200.0	200.0	200.0	0.3	0.3	75.34	7.3	27.9	28.8	28.1	0.67	42.732	
300.0	300.0	300.0	300.0	0.6	0.6	75.34	7.3	27.9	28.8	27.7	1.12	25.639	
400.0	400.0	400.0	400.0	0.8	0.8	75.34	7.3	27.9	28.8	27.2	1.57	18.314	
500.0	500.0	500.0	500.0	1.0	1.0	75.34	7.3	27.9	28.8	26.8	2.02	14.244	
600.0	600.0	600.0	600.0	1.2	1.2	75.34	7.3	27.9	28.8	26.3	2.47	11.654	
700.0	700.0	700.0	700.0	1.5	1.5	75.34	7.3	27.9	28.8	25.9	2.92	9.861	
800.0	800.0	800.0	800.0	1.7	1.7	75.34	7.3	27.9	28.8	25.4	3.37	8.546	CC, ES
900.0	900.0	900.0	900.0	1.9	1.9	128.04	7.3	27.9	29.9	26.0	3.82	7.824	
1,000.0	999.8	999.8	999.8	2.1	2.1	135.09	7.3	27.9	33.3	29.1	4.26	7.833	
1,100.0	1,099.5	1,099.5	1,099.5	2.4	2.4	143.85	7.3	27.9	40.0	35.3	4.70	8.514	
1,200.0	1,198.7	1,198.7	1,198.7	2.6	2.6	151.85	7.3	27.9	50.1	45.0	5.14	9.757	
1,300.0	1,297.9	1,297.9	1,297.9	2.9	2.8	157.38	7.3	27.9	61.5	55.9	5.58	11.018	
1,400.0	1,397.1	1,397.1	1,397.1	3.2	3.0	161.16	7.3	27.9	73.3	67.3	6.03	12.152	
1,500.0	1,496.4	1,496.4	1,496.4	3.4	3.3	163.89	7.3	27.9	85.3	78.8	6.48	13.161	
1,600.0	1,595.6	1,595.6	1,595.6	3.7	3.5	165.94	7.3	27.9	97.5	90.5	6.94	14.056	
1,700.0	1,694.8	1,697.7	1,697.6	4.0	3.7	167.03	8.8	27.2	108.5	101.1	7.39	14.674	
1,800.0	1,794.0	1,800.5	1,800.3	4.3	3.9	166.81	13.7	25.0	116.7	108.8	7.85	14.863	
1,900.0	1,893.2	1,903.6	1,903.0	4.6	4.2	165.52	22.0	21.3	122.2	113.9	8.32	14.685	
2,000.0	1,992.4	2,005.0	2,003.7	5.0	4.4	163.42	32.9	16.4	125.4	116.6	8.80	14.256	
2,100.0	2,091.6	2,104.8	2,102.8	5.3	4.7	161.34	44.1	11.4	128.5	119.2	9.28	13.846	
2,200.0	2,190.8	2,204.7	2,201.9	5.6	4.9	159.37	55.2	6.4	131.8	122.0	9.78	13.478	
2,300.0	2,290.0	2,304.5	2,301.0	5.9	5.2	157.49	66.3	1.5	135.2	125.0	10.29	13.146	
2,400.0	2,389.2	2,404.4	2,400.1	6.2	5.4	155.70	77.5	-3.5	138.8	128.0	10.81	12.846	
2,500.0	2,488.4	2,504.2	2,499.2	6.5	5.7	154.01	88.6	-8.5	142.5	131.2	11.33	12.573	
2,600.0	2,587.6	2,604.1	2,598.3	6.8	6.0	152.40	99.8	-13.5	146.3	134.5	11.87	12.324	
2,700.0	2,686.8	2,703.9	2,697.4	7.2	6.3	150.88	110.9	-18.5	150.2	137.8	12.42	12.098	
2,800.0	2,786.0	2,803.8	2,796.5	7.5	6.6	149.43	122.1	-23.5	154.3	141.3	12.97	11.891	
2,900.0	2,885.2	2,903.6	2,895.6	7.8	6.8	148.06	133.2	-28.4	158.4	144.9	13.54	11.701	
3,000.0	2,984.4	3,003.5	2,994.7	8.1	7.1	146.76	144.3	-33.4	162.6	148.5	14.11	11.527	
3,100.0	3,083.6	3,103.3	3,093.8	8.4	7.4	145.52	155.5	-38.4	166.9	152.2	14.68	11.366	
3,200.0	3,182.8	3,203.1	3,192.9	8.7	7.7	144.35	166.6	-43.4	171.2	156.0	15.26	11.219	
3,300.0	3,282.1	3,303.0	3,292.0	9.1	8.0	143.23	177.8	-48.4	175.7	159.8	15.85	11.083	
3,400.0	3,381.3	3,402.8	3,391.1	9.4	8.3	142.17	188.9	-53.4	180.2	163.7	16.44	10.957	
3,500.0	3,480.5	3,502.7	3,490.2	9.7	8.6	141.17	200.1	-58.3	184.7	167.7	17.04	10.841	
3,600.0	3,579.7	3,602.5	3,589.3	10.0	8.9	140.21	211.2	-63.3	189.3	171.7	17.64	10.734	
3,700.0	3,678.9	3,702.4	3,688.4	10.4	9.2	139.29	222.3	-68.3	194.0	175.7	18.24	10.634	
3,800.0	3,778.1	3,802.2	3,787.4	10.7	9.5	138.42	233.5	-73.3	198.7	179.8	18.84	10.542	
3,900.0	3,877.3	3,902.1	3,886.5	11.0	9.8	137.59	244.6	-78.3	203.4	183.9	19.45	10.456	
4,000.0	3,976.5	4,001.9	3,985.6	11.3	10.1	136.80	255.8	-83.3	208.2	188.1	20.06	10.375	
4,100.0	4,075.7	4,101.7	4,084.7	11.6	10.4	136.05	266.9	-88.2	213.0	192.3	20.68	10.301	
4,200.0	4,174.9	4,201.6	4,183.8	12.0	10.7	135.32	278.1	-93.2	217.9	196.6	21.29	10.231	
4,300.0	4,274.1	4,301.4	4,282.9	12.3	11.0	134.63	289.2	-98.2	222.7	200.8	21.91	10.166	
4,400.0	4,373.3	4,401.3	4,382.0	12.6	11.3	133.97	300.3	-103.2	227.7	205.1	22.53	10.105	
4,500.0	4,472.5	4,501.1	4,481.1	12.9	11.7	133.34	311.5	-108.2	232.6	209.5	23.15	10.048	
4,600.0	4,571.7	4,601.0	4,580.2	13.3	12.0	132.73	322.6	-113.2	237.6	213.8	23.77	9.994	
4,700.0	4,670.9	4,700.8	4,679.3	13.6	12.3	132.15	333.8	-118.1	242.6	218.2	24.40	9.944	
4,800.0	4,770.1	4,800.7	4,778.4	13.9	12.6	131.59	344.9	-123.1	247.6	222.6	25.02	9.897	
4,900.0	4,869.3	4,900.5	4,877.5	14.2	12.9	131.05	356.1	-128.1	252.7	227.0	25.65	9.852	
5,000.0	4,968.5	5,000.4	4,976.6	14.5	13.2	130.54	367.2	-133.1	257.7	231.5	26.27	9.810	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Bernhardt 6G-323
<b>Project:</b>	SEC.6-T4N-R66W	<b>TVD Reference:</b>	WELL @ 4737.0ft (RKB - 15')
<b>Reference Site:</b>	Bernhardt 4N66W6G Pad Sec.6-T4N-R66W	<b>MD Reference:</b>	WELL @ 4737.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bernhardt 6G-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #2 (9-3-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Bernhardt 4N66W6G Pad Sec.6-T4N-R66W - Bernhardt 6K-443 - Wellbore #1 - Plan #2 (9-3-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,067.7	5,100.2	5,075.7	14.9	13.5	130.04		378.3	-138.1	262.8	235.9	26.90	9.771	
5,200.0	5,167.0	5,199.5	5,174.3	15.2	13.8	129.59		389.3	-143.0	268.0	240.5	27.52	9.739	
5,300.0	5,266.2	5,297.1	5,271.4	15.5	14.0	129.65		398.0	-146.8	273.7	245.7	28.02	9.768	
5,400.0	5,365.4	5,394.5	5,368.6	15.8	14.2	130.37		403.5	-149.3	280.3	251.8	28.45	9.851	
5,500.0	5,464.6	5,491.5	5,465.5	16.2	14.4	131.69		406.1	-150.5	287.8	259.0	28.81	9.992	
5,600.0	5,563.8	5,589.7	5,563.8	16.5	14.5	133.44		406.3	-150.6	296.3	267.2	29.11	10.177	
5,700.0	5,663.0	5,688.9	5,663.0	16.8	14.7	135.15		406.3	-150.6	305.1	275.7	29.44	10.364	
5,800.0	5,762.2	5,788.1	5,762.2	17.1	14.9	136.78		406.3	-150.6	314.1	284.4	29.77	10.553	
5,900.0	5,861.7	5,887.6	5,861.7	17.4	15.1	138.10		406.3	-150.6	321.6	291.5	30.07	10.695	
6,000.0	5,961.5	5,987.4	5,961.5	17.5	15.3	138.94		406.3	-150.6	326.5	296.1	30.37	10.749	
6,100.0	6,061.4	6,087.4	6,061.4	17.7	15.5	139.32		406.3	-150.6	328.8	298.1	30.69	10.716	
6,200.0	6,161.4	6,187.3	6,161.4	17.9	15.7	89.38		406.3	-150.6	329.0	298.0	31.03	10.603	
6,300.0	6,261.4	6,287.3	6,261.4	18.0	15.9	89.38		406.3	-150.6	329.0	297.6	31.41	10.475	
6,362.2	6,323.6	6,349.6	6,323.6	18.1	16.0	-90.68		406.3	-150.6	329.0	297.4	31.65	10.396	
6,400.0	6,361.4	6,387.3	6,361.4	18.2	16.0	-90.64		406.3	-150.6	329.0	297.2	31.79	10.350	
6,500.0	6,461.0	6,487.4	6,461.5	18.3	16.2	-91.92		405.6	-150.6	329.2	297.0	32.18	10.229	
6,600.0	6,558.7	6,589.1	6,562.4	18.3	16.3	-93.70		394.5	-150.6	329.7	297.3	32.41	10.172	
6,700.0	6,652.8	6,682.1	6,662.4	18.2	16.3	-95.42		369.8	-150.6	330.5	298.0	32.45	10.185	
6,800.0	6,741.7	6,796.6	6,759.4	18.1	16.2	-97.05		331.1	-150.6	331.5	299.2	32.32	10.258	
6,900.0	6,823.9	6,902.5	6,851.4	18.0	16.1	-98.55		278.9	-150.6	332.7	300.6	32.09	10.369	
7,000.0	6,898.0	7,009.7	6,936.3	17.9	16.0	-99.91		213.5	-150.6	334.0	302.2	31.85	10.488	
7,100.0	6,962.7	7,118.2	7,012.0	17.8	16.0	-101.08		136.0	-150.6	335.3	303.6	31.71	10.572	
7,200.0	7,017.0	7,227.7	7,076.6	17.7	15.9	-102.05		47.6	-150.6	336.4	304.6	31.82	10.573	
7,300.0	7,059.7	7,338.1	7,128.2	17.7	16.1	-102.79		-49.8	-150.6	337.4	305.1	32.28	10.451	
7,400.0	7,090.4	7,449.2	7,165.4	17.8	16.6	-103.30		-154.4	-150.6	338.1	304.9	33.19	10.185	
7,500.0	7,108.3	7,560.6	7,187.1	18.3	17.4	-103.56		-263.6	-150.6	338.4	303.9	34.58	9.786	
7,600.0	7,113.3	7,670.1	7,193.0	19.1	18.4	-103.61		-372.8	-150.6	338.5	302.1	36.39	9.302	
7,700.0	7,112.4	7,770.1	7,193.4	20.1	19.4	-103.83		-472.8	-150.6	338.8	300.5	38.35	8.836	
7,800.0	7,111.5	7,870.1	7,193.8	21.2	20.5	-104.06		-572.8	-150.6	339.2	298.6	40.54	8.367	
7,900.0	7,110.5	7,970.1	7,194.3	22.4	21.8	-104.28		-672.8	-150.6	339.5	296.6	42.94	7.907	
8,000.0	7,109.6	8,070.1	7,194.7	23.8	23.1	-104.50		-772.8	-150.6	339.8	294.3	45.51	7.467	
8,100.0	7,108.6	8,170.1	7,195.1	25.1	24.6	-104.73		-872.8	-150.6	340.2	291.9	48.23	7.053	
8,200.0	7,107.7	8,270.1	7,195.5	26.6	26.0	-104.95		-972.8	-150.6	340.5	289.5	51.07	6.668	
8,300.0	7,106.7	8,370.1	7,195.9	28.1	27.6	-105.17		-1,072.8	-150.6	340.9	286.9	54.01	6.312	
8,400.0	7,105.8	8,470.0	7,196.4	29.6	29.2	-105.39		-1,172.8	-150.6	341.2	284.2	57.03	5.984	
8,500.0	7,104.9	8,570.0	7,196.8	31.2	30.8	-105.61		-1,272.8	-150.6	341.6	281.5	60.12	5.682	
8,600.0	7,103.9	8,670.0	7,197.2	32.9	32.4	-105.83		-1,372.7	-150.6	342.0	278.7	63.27	5.405	
8,700.0	7,103.0	8,770.0	7,197.6	34.5	34.1	-106.05		-1,472.7	-150.6	342.3	275.9	66.46	5.151	
8,800.0	7,102.0	8,870.0	7,198.0	36.2	35.8	-106.27		-1,572.7	-150.6	342.7	273.0	69.70	4.917	
8,900.0	7,101.1	8,970.0	7,198.5	37.9	37.5	-106.48		-1,672.7	-150.6	343.1	270.1	72.97	4.702	
9,000.0	7,100.1	9,070.0	7,198.9	39.6	39.3	-106.70		-1,772.7	-150.6	343.5	267.2	76.26	4.504	
9,100.0	7,099.2	9,170.0	7,199.3	41.4	41.0	-106.92		-1,872.7	-150.6	343.9	264.3	79.58	4.321	
9,200.0	7,098.3	9,270.0	7,199.7	43.1	42.8	-107.14		-1,972.7	-150.6	344.3	261.4	82.92	4.152	
9,300.0	7,097.3	9,370.0	7,200.1	44.9	44.6	-107.35		-2,072.7	-150.6	344.7	258.4	86.28	3.995	
9,400.0	7,096.4	9,470.0	7,200.5	46.6	46.4	-107.57		-2,172.7	-150.6	345.1	255.4	89.65	3.849	
9,500.0	7,095.4	9,569.9	7,201.0	48.4	48.2	-107.78		-2,272.7	-150.6	345.5	252.5	93.03	3.714	
9,600.0	7,094.5	9,669.9	7,201.4	50.2	50.0	-108.00		-2,372.6	-150.6	345.9	249.5	96.42	3.588	
9,700.0	7,093.5	9,769.9	7,201.8	52.0	51.8	-108.21		-2,472.6	-150.6	346.4	246.5	99.82	3.470	
9,800.0	7,092.6	9,869.9	7,202.2	53.9	53.7	-108.43		-2,572.6	-150.6	346.8	243.6	103.22	3.360	
9,900.0	7,091.7	9,969.9	7,202.6	55.7	55.5	-108.64		-2,672.6	-150.6	347.2	240.6	106.62	3.257	
10,000.0	7,090.7	10,069.9	7,203.1	57.5	57.3	-108.85		-2,772.6	-150.6	347.7	237.6	110.03	3.160	

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



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Bernhardt 6G-323
<b>Project:</b>	SEC.6-T4N-R66W	<b>TVD Reference:</b>	WELL @ 4737.0ft (RKB - 15')
<b>Reference Site:</b>	Bernhardt 4N66W6G Pad Sec.6-T4N-R66W	<b>MD Reference:</b>	WELL @ 4737.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bernhardt 6G-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #2 (9-3-14)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Bernhardt 4N66W6G Pad Sec.6-T4N-R66W - Bernhardt 6K-443 - Wellbore #1 - Plan #2 (9-3-14)												<b>Offset Site Error:</b>	0.0 ft
Survey Program: 0-MWD												<b>Offset Well Error:</b>	0.0 ft
Reference	Offset	Semi Major Axis		Distance									
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	Warning
10,100.0	7,089.8	10,169.9	7,203.5	59.3	59.2	-109.06	-2,872.6	-150.6	348.1	234.7	113.44	3.069	
10,200.0	7,088.8	10,269.9	7,203.9	61.2	61.0	-109.27	-2,972.6	-150.6	348.5	231.7	116.85	2.983	
10,300.0	7,087.9	10,369.9	7,204.3	63.0	62.9	-109.49	-3,072.6	-150.6	349.0	228.7	120.25	2.902	
10,400.0	7,086.9	10,469.9	7,204.7	64.9	64.7	-109.70	-3,172.6	-150.6	349.4	225.8	123.66	2.826	
10,500.0	7,086.0	10,569.9	7,205.2	66.7	66.6	-109.91	-3,272.6	-150.6	349.9	222.8	127.07	2.754	
10,600.0	7,085.1	10,669.8	7,205.6	68.6	68.5	-110.12	-3,372.5	-150.6	350.4	219.9	130.47	2.686	
10,700.0	7,084.1	10,769.8	7,206.0	70.4	70.3	-110.32	-3,472.5	-150.6	350.8	217.0	133.87	2.621	
10,800.0	7,083.2	10,869.8	7,206.4	72.3	72.2	-110.53	-3,572.5	-150.6	351.3	214.1	137.26	2.559	
10,900.0	7,082.2	10,969.8	7,206.8	74.2	74.1	-110.74	-3,672.5	-150.6	351.8	211.1	140.66	2.501	
11,000.0	7,081.3	11,069.8	7,207.2	76.0	75.9	-110.95	-3,772.5	-150.6	352.3	208.2	144.04	2.446	
11,100.0	7,080.4	11,169.8	7,207.7	77.9	77.8	-111.15	-3,872.5	-150.6	352.8	205.4	147.42	2.393	
11,200.0	7,079.4	11,269.8	7,208.1	79.8	79.7	-111.36	-3,972.5	-150.6	353.3	202.5	150.80	2.343	
11,300.0	7,078.5	11,369.8	7,208.5	81.6	81.6	-111.56	-4,072.5	-150.6	353.8	199.6	154.17	2.295	
11,400.0	7,077.5	11,469.8	7,208.9	83.5	83.5	-111.77	-4,172.5	-150.6	354.3	196.7	157.53	2.249	
11,500.0	7,076.6	11,569.8	7,209.3	85.4	85.3	-111.97	-4,272.4	-150.6	354.8	193.9	160.89	2.205	
11,600.0	7,075.6	11,669.7	7,209.8	87.3	87.2	-112.18	-4,372.4	-150.6	355.3	191.0	164.24	2.163	
11,667.9	7,075.0	11,727.3	7,210.0	88.6	88.2	-112.29	-4,430.0	-150.6	355.8	189.5	166.25	2.140 SF	



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Bernhardt 6G-323
<b>Project:</b>	SEC.6-T4N-R66W	<b>TVD Reference:</b>	WELL @ 4737.0ft (RKB - 15')
<b>Reference Site:</b>	Bernhardt 4N66W6G Pad Sec.6-T4N-R66W	<b>MD Reference:</b>	WELL @ 4737.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bernhardt 6G-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #2 (9-3-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.6-T4N-R66W - Bernhardt 13-6 (P&A) - Wellbore #1 - Wellbore #1											Offset Site Error:		0.0 ft
Survey Program: 7292-UNKNOWN											Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
8,400.0	7,105.8	7,081.8	7,081.8	29.6	141.6	-90.37	-1,482.0	-34.6	541.7	371.1	170.60	3.175	
8,500.0	7,104.9	7,080.9	7,080.9	31.2	141.6	-90.25	-1,482.0	-34.6	491.6	319.4	172.19	2.855	
8,600.0	7,103.9	7,079.9	7,079.9	32.9	141.6	-90.13	-1,482.0	-34.6	458.1	284.3	173.82	2.636	
8,700.0	7,103.0	7,079.0	7,079.0	34.5	141.6	-90.01	-1,482.0	-34.6	445.1	269.6	175.47	2.536	
8,708.9	7,102.9	7,078.9	7,078.9	34.7	141.6	-90.00	-1,482.0	-34.6	445.0	269.4	175.62	2.534	CC, ES, SF
8,800.0	7,102.0	7,078.0	7,078.0	36.2	141.6	-89.89	-1,482.0	-34.6	454.2	277.1	177.15	2.564	
8,900.0	7,101.1	7,077.1	7,077.1	37.9	141.5	-89.77	-1,482.0	-34.6	484.3	305.5	178.85	2.708	
9,000.0	7,100.1	7,076.1	7,076.1	39.6	141.5	-89.65	-1,482.0	-34.6	531.8	351.2	180.57	2.945	
9,100.0	7,099.2	7,075.2	7,075.2	41.4	141.5	-89.53	-1,482.0	-34.6	592.4	410.1	182.30	3.250	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Bernhardt 6G-323
<b>Project:</b>	SEC.6-T4N-R66W	<b>TVD Reference:</b>	WELL @ 4737.0ft (RKB - 15')
<b>Reference Site:</b>	Bernhardt 4N66W6G Pad Sec.6-T4N-R66W	<b>MD Reference:</b>	WELL @ 4737.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bernhardt 6G-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #2 (9-3-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.6-T4N-R66W - Bernhardt 7-1 (Exist.) - Wellbore #1 - Wellbore #1											Offset Site Error:		0.0 ft
Survey Program: 7310-UNKNOWN											Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (")	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
11,000.0	7,081.3	7,073.3	7,073.3	76.0	141.5	-91.49	-4,258.7	-303.9	516.5	299.4	217.15	2.379	
11,100.0	7,080.4	7,072.4	7,072.4	77.9	141.4	-91.19	-4,258.7	-303.9	423.8	204.8	219.02	1.935	
11,200.0	7,079.4	7,071.4	7,071.4	79.8	141.4	-90.88	-4,258.7	-303.9	335.4	114.5	220.90	1.518	
11,300.0	7,078.5	7,070.5	7,070.5	81.6	141.4	-90.57	-4,258.7	-303.9	255.6	32.9	222.76	1.148	Level 2
11,400.0	7,077.5	7,069.5	7,069.5	83.5	141.4	-90.26	-4,258.7	-303.9	195.5	-29.2	224.63	0.870	Level 1
11,485.7	7,076.7	7,068.7	7,068.7	85.1	141.4	-90.00	-4,258.7	-303.9	175.7	-50.6	226.22	0.776	Level 1, CC, ES, SF
11,500.0	7,076.6	7,068.6	7,068.6	85.4	141.4	-89.96	-4,258.7	-303.9	176.2	-50.3	226.49	0.778	Level 1
11,600.0	7,075.6	7,067.6	7,067.6	87.3	141.4	-89.65	-4,258.7	-303.9	209.5	-18.8	228.34	0.918	Level 1
11,667.9	7,075.0	7,067.0	7,067.0	88.6	141.3	-89.44	-4,258.7	-303.9	253.0	23.4	229.60	1.102	Level 2

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Bernhardt 6G-323
<b>Project:</b>	SEC.6-T4N-R66W	<b>TVD Reference:</b>	WELL @ 4737.0ft (RKB - 15')
<b>Reference Site:</b>	Bernhardt 4N66W6G Pad Sec.6-T4N-R66W	<b>MD Reference:</b>	WELL @ 4737.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bernhardt 6G-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #2 (9-3-14)	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4737.0ft (RKB - 15')

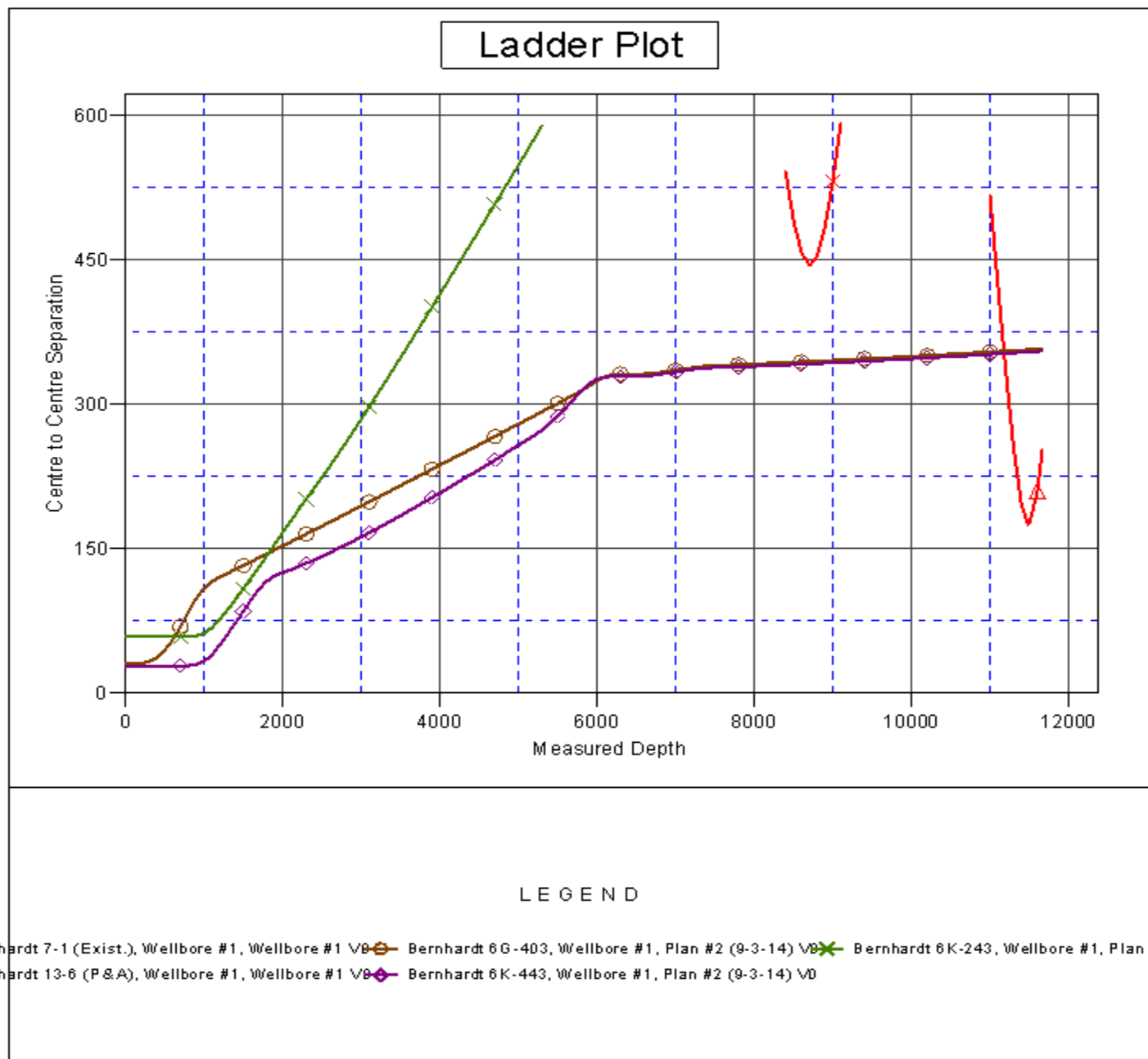
Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Bernhardt 6G-323

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.44°



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Bernhardt 6G-323
<b>Project:</b>	SEC.6-T4N-R66W	<b>TVD Reference:</b>	WELL @ 4737.0ft (RKB - 15')
<b>Reference Site:</b>	Bernhardt 4N66W6G Pad Sec.6-T4N-R66W	<b>MD Reference:</b>	WELL @ 4737.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bernhardt 6G-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #2 (9-3-14)	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4737.0ft (RKB - 15')  
Offset Depths are relative to Offset Datum  
Central Meridian is -105.500000 °

Coordinates are relative to: Bernhardt 6G-323  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.44°

