

PETROLEUM DEVELOPMENT CORP Weld County CO

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

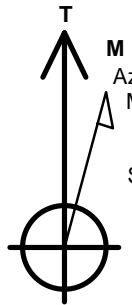
Surface Location: Bernhardt 4N66W6K Pad Sec.6-T4N-R66W
 North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
 Ground Elevation: 4713.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1367104.19	3187980.25	40.339140	-104.825650	

RKB - 15' WELL @ 4728.0ft (RKB - 15')

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 1909'FSL & 1152'FWL, Sec.6	1.0	0.0	0.0	Point
BHL 2156'FNL & 1725'FWL, Sec.7	7097.0	-4029.2	579.9	Point



Azimuths to True North
 Magnetic North: 8.46°

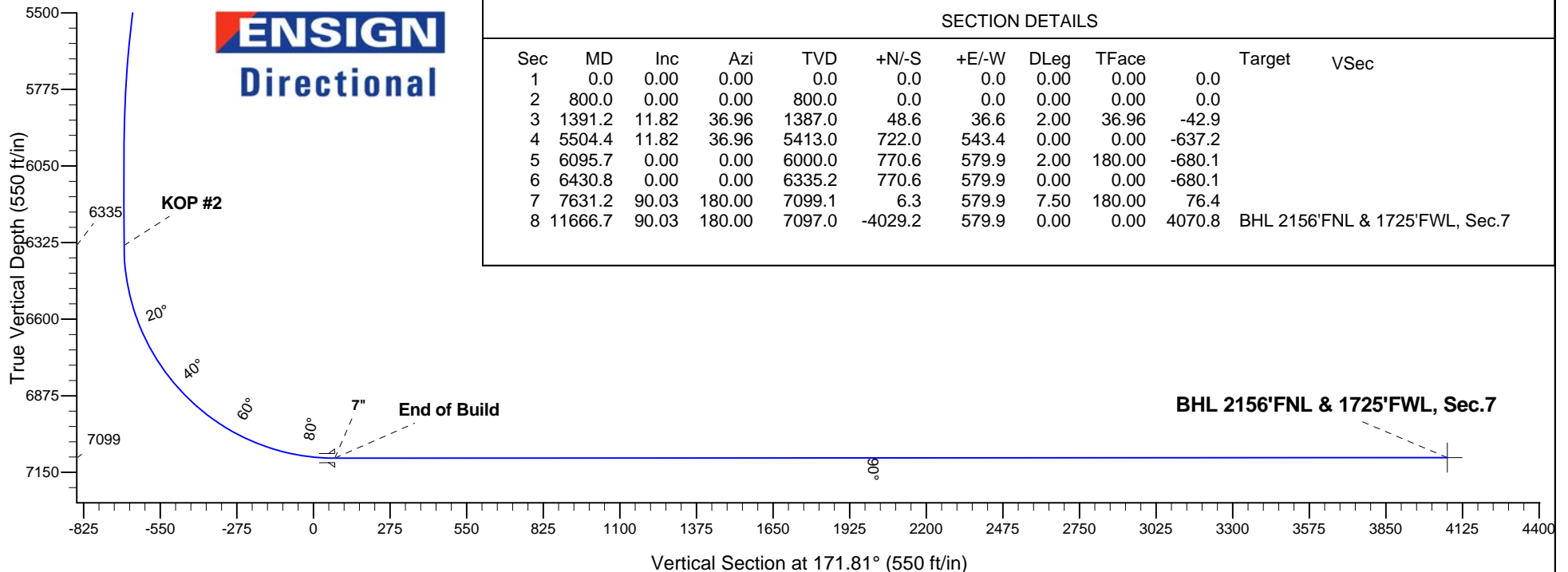
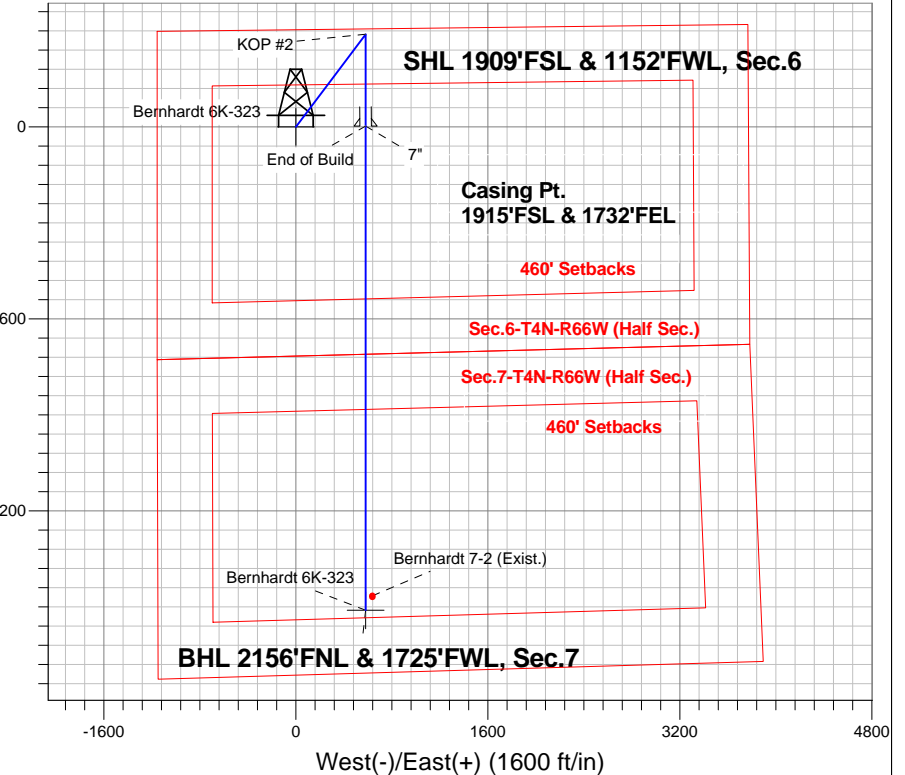
Magnetic Field
 Strength: 52754.8snT
 Dip Angle: 66.88°
 Date: 9/3/2014
 Model: IGRF2010

ANNOTATIONS

TVD	MD	Annotation
800.0	800.0	KOP #1
6335.1	6430.8	KOP #2
7099.1	7631.2	End of Build

Bernhardt 4N66W6K Pad Sec.6-T4N-R66W
 Bernhardt 6K-323
 Plan #2 (9-3-14)
 8:59, September 11 2014

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



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	Target	VSec
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	1391.2	11.82	36.96	1387.0	48.6	36.6	2.00	36.96	-42.9	
4	5504.4	11.82	36.96	5413.0	722.0	543.4	0.00	0.00	-637.2	
5	6095.7	0.00	0.00	6000.0	770.6	579.9	2.00	180.00	-680.1	
6	6430.8	0.00	0.00	6335.2	770.6	579.9	0.00	0.00	-680.1	
7	7631.2	90.03	180.00	7099.1	6.3	579.9	7.50	180.00	76.4	
8	11666.7	90.03	180.00	7097.0	-4029.2	579.9	0.00	0.00	4070.8	BHL 2156'FNL & 1725'FWL, Sec.7



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.6-T4N-R66W

Bernhardt 4N66W6K Pad Sec.6-T4N-R66W

Bernhardt 6K-323

Wellbore #1

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

Standard Planning Report

11 September, 2014

Database:	Landmark	Local Co-ordinate Reference:	Well Bernhardt 6K-323
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4728.0ft (RKB - 15')
Project:	SEC.6-T4N-R66W	MD Reference:	WELL @ 4728.0ft (RKB - 15')
Site:	Bernhardt 4N66W6K Pad Sec.6-T4N-R66W	North Reference:	True
Well:	Bernhardt 6K-323	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (9-3-14)		

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

Site						Bernhardt 4N66W6K Pad Sec.6-T4N-R66W											
Site Position:						Northing:			1,367,096.68 ft			Latitude:			40.339120		
From:			Lat/Long			Easting:			3,187,949.64 ft			Longitude:			-104.825760		
Position Uncertainty:			0.0 ft			Slot Radius:			"			Grid Convergence:			0.44 °		

Well	Bernhardt 6K-323					
Well Position	+N/-S	7.3 ft	Northing:	1,367,104.19 ft	Latitude:	40.339140
	+E/-W	30.7 ft	Easting:	3,187,980.25 ft	Longitude:	-104.825650
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,713.0 ft

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

Design	Plan #2 (9-3-14)			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	171.81

Plan Sections										
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	
1,391.2	11.82	36.96	1,387.0	48.6	36.6	2.00	2.00	0.00	36.96	
5,504.4	11.82	36.96	5,413.0	722.0	543.4	0.00	0.00	0.00	0.00	
6,095.7	0.00	0.00	6,000.0	770.6	579.9	2.00	-2.00	0.00	180.00	
6,430.8	0.00	0.00	6,335.2	770.6	579.9	0.00	0.00	0.00	0.00	
7,631.2	90.03	180.00	7,099.1	6.3	579.9	7.50	7.50	0.00	180.00	
11,666.7	90.03	180.00	7,097.0	-4,029.2	579.9	0.00	0.00	0.00	0.00	BHL 2156'FNL & 17

Database:	Landmark	Local Co-ordinate Reference:	Well Bernhardt 6K-323
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4728.0ft (RKB - 15')
Project:	SEC.6-T4N-R66W	MD Reference:	WELL @ 4728.0ft (RKB - 15')
Site:	Bernhardt 4N66W6K Pad Sec.6-T4N-R66W	North Reference:	True
Well:	Bernhardt 6K-323	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	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
KOP #1									
900.0	2.00	36.96	900.0	1.4	1.0	-1.2	2.00	2.00	0.00
1,000.0	4.00	36.96	999.8	5.6	4.2	-4.9	2.00	2.00	0.00
1,100.0	6.00	36.96	1,099.5	12.5	9.4	-11.1	2.00	2.00	0.00
1,200.0	8.00	36.96	1,198.7	22.3	16.8	-19.7	2.00	2.00	0.00
1,300.0	10.00	36.96	1,297.5	34.8	26.2	-30.7	2.00	2.00	0.00
1,391.2	11.82	36.96	1,387.0	48.6	36.6	-42.9	2.00	2.00	0.00
1,400.0	11.82	36.96	1,395.6	50.0	37.6	-44.1	0.00	0.00	0.00
1,500.0	11.82	36.96	1,493.5	66.4	50.0	-58.6	0.00	0.00	0.00
1,600.0	11.82	36.96	1,591.4	82.8	62.3	-73.0	0.00	0.00	0.00
1,700.0	11.82	36.96	1,689.3	99.1	74.6	-87.5	0.00	0.00	0.00
1,800.0	11.82	36.96	1,787.1	115.5	86.9	-101.9	0.00	0.00	0.00
1,900.0	11.82	36.96	1,885.0	131.9	99.2	-116.4	0.00	0.00	0.00
2,000.0	11.82	36.96	1,982.9	148.2	111.6	-130.8	0.00	0.00	0.00
2,100.0	11.82	36.96	2,080.8	164.6	123.9	-145.3	0.00	0.00	0.00
2,200.0	11.82	36.96	2,178.6	181.0	136.2	-159.7	0.00	0.00	0.00
2,300.0	11.82	36.96	2,276.5	197.4	148.5	-174.2	0.00	0.00	0.00
2,400.0	11.82	36.96	2,374.4	213.7	160.9	-188.6	0.00	0.00	0.00
2,500.0	11.82	36.96	2,472.3	230.1	173.2	-203.1	0.00	0.00	0.00
2,600.0	11.82	36.96	2,570.2	246.5	185.5	-217.5	0.00	0.00	0.00
2,700.0	11.82	36.96	2,668.0	262.9	197.8	-232.0	0.00	0.00	0.00
2,800.0	11.82	36.96	2,765.9	279.2	210.1	-246.4	0.00	0.00	0.00
2,900.0	11.82	36.96	2,863.8	295.6	222.5	-260.9	0.00	0.00	0.00
3,000.0	11.82	36.96	2,961.7	312.0	234.8	-275.3	0.00	0.00	0.00
3,100.0	11.82	36.96	3,059.6	328.3	247.1	-289.8	0.00	0.00	0.00
3,200.0	11.82	36.96	3,157.4	344.7	259.4	-304.2	0.00	0.00	0.00
3,300.0	11.82	36.96	3,255.3	361.1	271.8	-318.7	0.00	0.00	0.00
3,400.0	11.82	36.96	3,353.2	377.5	284.1	-333.1	0.00	0.00	0.00
3,500.0	11.82	36.96	3,451.1	393.8	296.4	-347.6	0.00	0.00	0.00
3,600.0	11.82	36.96	3,548.9	410.2	308.7	-362.0	0.00	0.00	0.00
3,700.0	11.82	36.96	3,646.8	426.6	321.0	-376.5	0.00	0.00	0.00
3,800.0	11.82	36.96	3,744.7	443.0	333.4	-390.9	0.00	0.00	0.00
3,900.0	11.82	36.96	3,842.6	459.3	345.7	-405.4	0.00	0.00	0.00
4,000.0	11.82	36.96	3,940.5	475.7	358.0	-419.9	0.00	0.00	0.00
4,100.0	11.82	36.96	4,038.3	492.1	370.3	-434.3	0.00	0.00	0.00
4,200.0	11.82	36.96	4,136.2	508.5	382.7	-448.8	0.00	0.00	0.00
4,300.0	11.82	36.96	4,234.1	524.8	395.0	-463.2	0.00	0.00	0.00
4,400.0	11.82	36.96	4,332.0	541.2	407.3	-477.7	0.00	0.00	0.00
4,500.0	11.82	36.96	4,429.8	557.6	419.6	-492.1	0.00	0.00	0.00
4,600.0	11.82	36.96	4,527.7	573.9	431.9	-506.6	0.00	0.00	0.00
4,700.0	11.82	36.96	4,625.6	590.3	444.3	-521.0	0.00	0.00	0.00
4,800.0	11.82	36.96	4,723.5	606.7	456.6	-535.5	0.00	0.00	0.00
4,900.0	11.82	36.96	4,821.4	623.1	468.9	-549.9	0.00	0.00	0.00
5,000.0	11.82	36.96	4,919.2	639.4	481.2	-564.4	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Bernhardt 6K-323
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4728.0ft (RKB - 15')
Project:	SEC.6-T4N-R66W	MD Reference:	WELL @ 4728.0ft (RKB - 15')
Site:	Bernhardt 4N66W6K Pad Sec.6-T4N-R66W	North Reference:	True
Well:	Bernhardt 6K-323	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	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	11.82	36.96	5,017.1	655.8	493.6	-578.8	0.00	0.00	0.00
5,200.0	11.82	36.96	5,115.0	672.2	505.9	-593.3	0.00	0.00	0.00
5,300.0	11.82	36.96	5,212.9	688.6	518.2	-607.7	0.00	0.00	0.00
5,400.0	11.82	36.96	5,310.7	704.9	530.5	-622.2	0.00	0.00	0.00
5,500.0	11.82	36.96	5,408.6	721.3	542.8	-636.6	0.00	0.00	0.00
5,504.4	11.82	36.96	5,413.0	722.0	543.4	-637.2	0.00	0.00	0.00
5,600.0	9.91	36.96	5,506.8	736.4	554.2	-650.0	2.00	-2.00	0.00
5,700.0	7.91	36.96	5,605.6	748.8	563.5	-660.9	2.00	-2.00	0.00
5,800.0	5.91	36.96	5,704.9	758.4	570.8	-669.4	2.00	-2.00	0.00
5,900.0	3.91	36.96	5,804.5	765.3	575.9	-675.4	2.00	-2.00	0.00
6,000.0	1.91	36.96	5,904.4	769.3	579.0	-679.0	2.00	-2.00	0.00
6,095.7	0.00	0.00	6,000.0	770.6	579.9	-680.1	2.00	-2.00	0.00
6,100.0	0.00	0.00	6,004.3	770.6	579.9	-680.1	0.00	0.00	0.00
6,200.0	0.00	0.00	6,104.3	770.6	579.9	-680.1	0.00	0.00	0.00
6,300.0	0.00	0.00	6,204.3	770.6	579.9	-680.1	0.00	0.00	0.00
6,400.0	0.00	0.00	6,304.3	770.6	579.9	-680.1	0.00	0.00	0.00
6,430.8	0.00	0.00	6,335.1	770.6	579.9	-680.1	0.00	0.00	0.00
KOP #2									
6,500.0	5.19	180.00	6,404.2	767.5	579.9	-677.0	7.50	7.50	0.00
6,600.0	12.69	180.00	6,503.0	751.9	579.9	-661.7	7.50	7.50	0.00
6,700.0	20.19	180.00	6,598.8	723.7	579.9	-633.7	7.50	7.50	0.00
6,800.0	27.69	180.00	6,690.1	683.1	579.9	-593.5	7.50	7.50	0.00
6,900.0	35.19	180.00	6,775.4	631.0	579.9	-541.9	7.50	7.50	0.00
7,000.0	42.69	180.00	6,853.1	568.2	579.9	-479.8	7.50	7.50	0.00
7,100.0	50.19	180.00	6,922.0	495.8	579.9	-408.1	7.50	7.50	0.00
7,200.0	57.69	180.00	6,980.8	415.0	579.9	-328.2	7.50	7.50	0.00
7,300.0	65.19	180.00	7,028.6	327.2	579.9	-241.3	7.50	7.50	0.00
7,400.0	72.69	180.00	7,064.5	234.0	579.9	-149.0	7.50	7.50	0.00
7,500.0	80.19	180.00	7,087.9	136.8	579.9	-52.8	7.50	7.50	0.00
7,600.0	87.69	180.00	7,098.5	37.5	579.9	45.5	7.50	7.50	0.00
7,631.2	90.03	180.00	7,099.1	6.3	579.9	76.4	7.50	7.50	0.00
End of Build - 7"									
7,700.0	90.03	180.00	7,099.1	-62.5	579.9	144.5	0.00	0.00	0.00
7,800.0	90.03	180.00	7,099.0	-162.5	579.9	243.5	0.00	0.00	0.00
7,900.0	90.03	180.00	7,099.0	-262.5	579.9	342.5	0.00	0.00	0.00
8,000.0	90.03	180.00	7,098.9	-362.5	579.9	441.4	0.00	0.00	0.00
8,100.0	90.03	180.00	7,098.9	-462.5	579.9	540.4	0.00	0.00	0.00
8,200.0	90.03	180.00	7,098.8	-562.5	579.9	639.4	0.00	0.00	0.00
8,300.0	90.03	180.00	7,098.8	-662.5	579.9	738.4	0.00	0.00	0.00
8,400.0	90.03	180.00	7,098.7	-762.5	579.9	837.4	0.00	0.00	0.00
8,500.0	90.03	180.00	7,098.7	-862.5	579.9	936.3	0.00	0.00	0.00
8,600.0	90.03	180.00	7,098.6	-962.5	579.9	1,035.3	0.00	0.00	0.00
8,700.0	90.03	180.00	7,098.6	-1,062.5	579.9	1,134.3	0.00	0.00	0.00
8,800.0	90.03	180.00	7,098.5	-1,162.5	579.9	1,233.3	0.00	0.00	0.00
8,900.0	90.03	180.00	7,098.4	-1,262.5	579.9	1,332.3	0.00	0.00	0.00
9,000.0	90.03	180.00	7,098.4	-1,362.5	579.9	1,431.2	0.00	0.00	0.00
9,100.0	90.03	180.00	7,098.3	-1,462.5	579.9	1,530.2	0.00	0.00	0.00
9,200.0	90.03	180.00	7,098.3	-1,562.5	579.9	1,629.2	0.00	0.00	0.00
9,300.0	90.03	180.00	7,098.2	-1,662.5	579.9	1,728.2	0.00	0.00	0.00
9,400.0	90.03	180.00	7,098.2	-1,762.5	579.9	1,827.2	0.00	0.00	0.00
9,500.0	90.03	180.00	7,098.1	-1,862.5	579.9	1,926.1	0.00	0.00	0.00
9,600.0	90.03	180.00	7,098.1	-1,962.5	579.9	2,025.1	0.00	0.00	0.00
9,700.0	90.03	180.00	7,098.0	-2,062.5	579.9	2,124.1	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Bernhardt 6K-323
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4728.0ft (RKB - 15')
Project:	SEC.6-T4N-R66W	MD Reference:	WELL @ 4728.0ft (RKB - 15')
Site:	Bernhardt 4N66W6K Pad Sec.6-T4N-R66W	North Reference:	True
Well:	Bernhardt 6K-323	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	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	90.03	180.00	7,098.0	-2,162.5	579.9	2,223.1	0.00	0.00	0.00
9,900.0	90.03	180.00	7,097.9	-2,262.5	579.9	2,322.1	0.00	0.00	0.00
10,000.0	90.03	180.00	7,097.9	-2,362.5	579.9	2,421.0	0.00	0.00	0.00
10,100.0	90.03	180.00	7,097.8	-2,462.5	579.9	2,520.0	0.00	0.00	0.00
10,200.0	90.03	180.00	7,097.8	-2,562.5	579.9	2,619.0	0.00	0.00	0.00
10,300.0	90.03	180.00	7,097.7	-2,662.5	579.9	2,718.0	0.00	0.00	0.00
10,400.0	90.03	180.00	7,097.7	-2,762.5	579.9	2,817.0	0.00	0.00	0.00
10,500.0	90.03	180.00	7,097.6	-2,862.5	579.9	2,915.9	0.00	0.00	0.00
10,600.0	90.03	180.00	7,097.6	-2,962.5	579.9	3,014.9	0.00	0.00	0.00
10,700.0	90.03	180.00	7,097.5	-3,062.5	579.9	3,113.9	0.00	0.00	0.00
10,800.0	90.03	180.00	7,097.5	-3,162.5	579.9	3,212.9	0.00	0.00	0.00
10,900.0	90.03	180.00	7,097.4	-3,262.5	579.9	3,311.9	0.00	0.00	0.00
11,000.0	90.03	180.00	7,097.3	-3,362.5	579.9	3,410.8	0.00	0.00	0.00
11,100.0	90.03	180.00	7,097.3	-3,462.5	579.9	3,509.8	0.00	0.00	0.00
11,200.0	90.03	180.00	7,097.2	-3,562.5	579.9	3,608.8	0.00	0.00	0.00
11,300.0	90.03	180.00	7,097.2	-3,662.5	579.9	3,707.8	0.00	0.00	0.00
11,400.0	90.03	180.00	7,097.1	-3,762.5	579.9	3,806.8	0.00	0.00	0.00
11,500.0	90.03	180.00	7,097.1	-3,862.5	579.9	3,905.7	0.00	0.00	0.00
11,600.0	90.03	180.00	7,097.0	-3,962.5	579.9	4,004.7	0.00	0.00	0.00
11,666.7	90.03	180.00	7,097.0	-4,029.2	579.9	4,070.8	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 1909'FSL & 1152	0.00	0.00	1.0	0.0	0.0	1,367,104.20	3,187,980.25	40.339140	-104.825650
- plan hits target center									
- Point									
BHL 2156'FNL & 1725	0.00	0.00	7,097.0	-4,029.2	579.9	1,363,079.67	3,188,590.79	40.328080	-104.823570
- plan hits target center									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name		Casing Diameter (")	Hole Diameter (")
7,631.2	7,099.1	7"		7	7-1/2

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
800.0	800.0	0.0	0.0	KOP #1
6,430.8	6,335.1	770.6	579.9	KOP #2
7,631.2	7,099.1	6.3	579.9	End of Build



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.6-T4N-R66W

Bernhardt 4N66W6K Pad Sec.6-T4N-R66W

Bernhardt 6K-323

Wellbore #1

Plan #2 (9-3-14)

Anticollision Report

11 September, 2014



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Bernhardt 6K-323
Project:	SEC.6-T4N-R66W	TVD Reference:	WELL @ 4728.0ft (RKB - 15')
Reference Site:	Bernhardt 4N66W6K Pad Sec.6-T4N-R66W	MD Reference:	WELL @ 4728.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bernhardt 6K-323	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (9-3-14)	Offset TVD Reference:	Offset Datum

Reference	Plan #2 (9-3-14)
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria
Interpolation Method:	MD Interval 100.0ft
Depth Range:	Unlimited
Results Limited by:	Maximum center-center distance of 1,000.0ft
Warning Levels Evaluated at:	2.00 Sigma
Error Model:	ISCWSA
Scan Method:	Closest Approach 3D
Error Surface:	Elliptical Conic

Survey Tool Program		Date	9/11/2014		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	11,666.7	Plan #2 (9-3-14) (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						
Bernhardt 4N66W6K Pad Sec.6-T4N-R66W						
Bernhardt 6K-403 - Wellbore #1 - Plan #2 (9-3-14)	800.0	800.0	31.5	28.1	9.349	CC, ES
Bernhardt 6K-403 - Wellbore #1 - Plan #2 (9-3-14)	11,666.7	11,719.7	340.6	179.0	2.108	SF
Bernhardt 6O-243 - Wellbore #1 - Plan #2 (9-3-14)	200.0	200.0	58.7	58.0	86.986	CC, ES
Bernhardt 6O-243 - Wellbore #1 - Plan #2 (9-3-14)	11,666.7	11,699.0	664.4	499.3	4.024	SF
Bernhardt 6O-443 - Wellbore #1 - Plan #2 (9-3-14)	400.0	400.0	28.8	27.2	18.313	CC, ES
Bernhardt 6O-443 - Wellbore #1 - Plan #2 (9-3-14)	11,666.7	11,785.3	340.6	181.2	2.137	SF
Existing Wells Sec.6-T4N-R66W						
Bernhardt 7-2 (Exist.) - Wellbore #1 - Wellbore #1	11,546.5	7,098.1	55.8	-166.6	0.251	Level 1, CC, ES, SF

Offset Design		Bernhardt 4N66W6K Pad Sec.6-T4N-R66W - Bernhardt 6K-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			Distance								
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
0.0	0.0	0.0	0.0	0.0	0.0	-103.37	-7.3	-30.7	31.5						
100.0	100.0	100.0	100.0	0.1	0.1	-103.37	-7.3	-30.7	31.5	31.3	0.22	140.229			
200.0	200.0	200.0	200.0	0.3	0.3	-103.37	-7.3	-30.7	31.5	30.8	0.67	46.743			
300.0	300.0	300.0	300.0	0.6	0.6	-103.37	-7.3	-30.7	31.5	30.4	1.12	28.046			
400.0	400.0	400.0	400.0	0.8	0.8	-103.37	-7.3	-30.7	31.5	29.9	1.57	20.033			
500.0	500.0	500.0	500.0	1.0	1.0	-103.37	-7.3	-30.7	31.5	29.5	2.02	15.581			
600.0	600.0	600.0	600.0	1.2	1.2	-103.37	-7.3	-30.7	31.5	29.0	2.47	12.748			
700.0	700.0	700.0	700.0	1.5	1.5	-103.37	-7.3	-30.7	31.5	28.6	2.92	10.787			
800.0	800.0	800.0	800.0	1.7	1.7	-103.37	-7.3	-30.7	31.5	28.1	3.37	9.349	CC, ES		
900.0	900.0	900.0	900.0	1.9	1.9	-142.26	-7.3	-30.7	32.9	29.1	3.82	8.613			
1,000.0	999.8	999.8	999.8	2.1	2.1	-147.15	-7.3	-30.7	37.2	32.9	4.26	8.721			
1,100.0	1,099.5	1,100.5	1,100.5	2.4	2.4	-151.60	-5.6	-30.1	43.5	38.8	4.70	9.250			
1,200.0	1,198.7	1,201.5	1,201.3	2.6	2.6	-153.90	-0.6	-28.2	50.6	45.4	5.14	9.839			
1,300.0	1,297.5	1,302.6	1,302.0	2.9	2.8	-154.73	7.7	-25.2	58.2	52.7	5.58	10.430			
1,400.0	1,395.6	1,403.9	1,402.5	3.2	3.1	-154.59	19.4	-20.9	66.4	60.4	6.05	10.990			
1,500.0	1,493.5	1,505.4	1,502.8	3.6	3.3	-153.13	34.5	-15.5	73.4	66.8	6.56	11.186			
1,600.0	1,591.4	1,605.6	1,601.3	3.9	3.6	-150.77	51.5	-9.3	78.7	71.6	7.11	11.070			
1,700.0	1,689.3	1,705.4	1,699.4	4.3	4.0	-148.70	68.5	-3.1	84.2	76.5	7.69	10.939			

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Bernhardt 6K-323
Project:	SEC.6-T4N-R66W	TVD Reference:	WELL @ 4728.0ft (RKB - 15')
Reference Site:	Bernhardt 4N66W6K Pad Sec.6-T4N-R66W	MD Reference:	WELL @ 4728.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bernhardt 6K-323	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (9-3-14)	Offset TVD Reference:	Offset Datum

Offset Design Bernhardt 4N66W6K Pad Sec.6-T4N-R66W - Bernhardt 6K-403 - 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	
1,800.0	1,787.1	1,805.2	1,797.6	4.7	4.3	-146.88	85.4	3.1	89.7	81.4	8.30	10.802		
1,900.0	1,885.0	1,905.0	1,895.8	5.1	4.6	-145.28	102.4	9.2	95.3	86.4	8.94	10.665		
2,000.0	1,982.9	2,004.8	1,993.9	5.5	5.0	-143.85	119.4	15.4	101.0	91.4	9.59	10.531		
2,100.0	2,080.8	2,104.6	2,092.1	5.9	5.3	-142.58	136.4	21.6	106.7	96.5	10.26	10.402		
2,200.0	2,178.6	2,204.4	2,190.3	6.3	5.7	-141.44	153.3	27.8	112.5	101.6	10.95	10.280		
2,300.0	2,276.5	2,304.2	2,288.4	6.8	6.1	-140.41	170.3	33.9	118.4	106.7	11.64	10.164		
2,400.0	2,374.4	2,404.0	2,386.6	7.2	6.4	-139.47	187.3	40.1	124.2	111.9	12.35	10.056		
2,500.0	2,472.3	2,503.8	2,484.7	7.6	6.8	-138.63	204.3	46.3	130.1	117.0	13.07	9.954		
2,600.0	2,570.2	2,603.6	2,582.9	8.0	7.2	-137.85	221.2	52.5	136.0	122.2	13.80	9.860		
2,700.0	2,668.0	2,703.4	2,681.1	8.5	7.6	-137.14	238.2	58.6	142.0	127.4	14.53	9.771		
2,800.0	2,765.9	2,803.3	2,779.2	8.9	8.0	-136.49	255.2	64.8	147.9	132.7	15.27	9.689		
2,900.0	2,863.8	2,903.1	2,877.4	9.3	8.3	-135.88	272.2	71.0	153.9	137.9	16.01	9.613		
3,000.0	2,961.7	3,002.9	2,975.5	9.8	8.7	-135.32	289.1	77.2	159.9	143.1	16.76	9.541		
3,100.0	3,059.6	3,102.7	3,073.7	10.2	9.1	-134.81	306.1	83.3	165.9	148.4	17.51	9.475		
3,200.0	3,157.4	3,202.5	3,171.9	10.6	9.5	-134.33	323.1	89.5	171.9	153.6	18.26	9.412		
3,300.0	3,255.3	3,302.3	3,270.0	11.1	9.9	-133.88	340.0	95.7	177.9	158.9	19.02	9.354		
3,400.0	3,353.2	3,402.1	3,368.2	11.5	10.3	-133.46	357.0	101.8	184.0	164.2	19.78	9.299		
3,500.0	3,451.1	3,501.9	3,466.3	11.9	10.7	-133.07	374.0	108.0	190.0	169.5	20.55	9.248		
3,600.0	3,548.9	3,601.7	3,564.5	12.4	11.1	-132.70	391.0	114.2	196.1	174.8	21.31	9.200		
3,700.0	3,646.8	3,701.5	3,662.7	12.8	11.5	-132.35	407.9	120.4	202.2	180.1	22.08	9.155		
3,800.0	3,744.7	3,801.3	3,760.8	13.3	11.9	-132.02	424.9	126.5	208.2	185.4	22.85	9.112		
3,900.0	3,842.6	3,901.2	3,859.0	13.7	12.2	-131.72	441.9	132.7	214.3	190.7	23.62	9.072		
4,000.0	3,940.5	4,001.0	3,957.1	14.1	12.6	-131.43	458.9	138.9	220.4	196.0	24.40	9.034		
4,100.0	4,038.3	4,100.8	4,055.3	14.6	13.0	-131.15	475.8	145.1	226.5	201.3	25.17	8.998		
4,200.0	4,136.2	4,200.6	4,153.5	15.0	13.4	-130.89	492.8	151.2	232.6	206.6	25.95	8.964		
4,300.0	4,234.1	4,300.4	4,251.6	15.4	13.8	-130.64	509.8	157.4	238.7	212.0	26.72	8.932		
4,400.0	4,332.0	4,400.2	4,349.8	15.9	14.2	-130.41	526.8	163.6	244.8	217.3	27.50	8.901		
4,500.0	4,429.8	4,500.0	4,448.0	16.3	14.6	-130.19	543.7	169.8	250.9	222.6	28.28	8.872		
4,600.0	4,527.7	4,599.8	4,546.1	16.8	15.0	-129.97	560.7	175.9	257.0	227.9	29.06	8.844		
4,700.0	4,625.6	4,699.6	4,644.3	17.2	15.4	-129.77	577.7	182.1	263.1	233.3	29.84	8.818		
4,800.0	4,723.5	4,799.4	4,742.4	17.6	15.8	-129.58	594.7	188.3	269.2	238.6	30.62	8.793		
4,900.0	4,821.4	4,899.2	4,840.6	18.1	16.2	-129.39	611.6	194.5	275.4	244.0	31.40	8.769		
5,000.0	4,919.2	4,999.0	4,938.8	18.5	16.6	-129.21	628.6	200.6	281.5	249.3	32.18	8.746		
5,100.0	5,017.1	5,098.9	5,036.9	19.0	17.0	-129.04	645.6	206.8	287.6	254.6	32.97	8.724		
5,200.0	5,115.0	5,198.7	5,135.1	19.4	17.4	-128.88	662.5	213.0	293.7	260.0	33.75	8.703		
5,300.0	5,212.9	5,298.5	5,233.2	19.9	17.8	-128.73	679.5	219.2	299.9	265.3	34.53	8.683		
5,400.0	5,310.7	5,398.3	5,331.4	20.3	18.2	-128.58	696.5	225.3	306.0	270.7	35.32	8.664		
5,500.0	5,408.6	5,498.1	5,429.6	20.7	18.6	-128.43	713.5	231.5	312.1	276.0	36.10	8.646		
5,600.0	5,506.8	5,596.1	5,526.0	21.1	18.9	-128.22	729.8	237.4	317.4	280.6	36.85	8.614		
5,700.0	5,605.6	5,692.1	5,621.0	21.4	19.2	-127.99	743.2	242.3	321.6	284.2	37.43	8.593		
5,800.0	5,704.9	5,788.2	5,716.3	21.6	19.5	-127.82	753.7	246.1	324.9	287.0	37.93	8.566		
5,900.0	5,804.5	5,884.2	5,812.1	21.9	19.7	-127.70	761.1	248.8	327.2	288.9	38.34	8.534		
6,000.0	5,904.4	5,980.3	5,908.1	22.0	19.8	-127.63	765.5	250.4	328.6	289.9	38.67	8.496		
6,100.0	6,004.3	6,076.6	6,004.3	22.2	20.0	-90.64	766.9	250.9	329.0	290.1	38.93	8.452		
6,200.0	6,104.3	6,176.6	6,104.3	22.3	20.1	-90.64	766.9	250.9	329.0	289.8	39.22	8.390		
6,300.0	6,204.3	6,276.6	6,204.3	22.4	20.2	-90.64	766.9	250.9	329.0	289.5	39.51	8.328		
6,400.0	6,304.3	6,376.6	6,304.3	22.5	20.4	-90.64	766.9	250.9	329.0	289.2	39.80	8.266		
6,500.0	6,404.2	6,476.5	6,404.2	22.6	20.5	89.90	766.9	250.9	329.0	288.9	40.15	8.195		
6,505.9	6,410.1	6,482.4	6,410.1	22.6	20.5	90.00	766.9	250.9	329.0	288.8	40.17	8.190		
6,600.0	6,503.0	6,576.6	6,504.1	22.6	20.6	91.71	761.7	250.9	329.1	288.7	40.48	8.131		
6,700.0	6,598.8	6,678.0	6,603.8	22.5	20.5	93.51	743.3	250.9	329.6	289.1	40.52	8.136		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Bernhardt 6K-323
Project:	SEC.6-T4N-R66W	TVD Reference:	WELL @ 4728.0ft (RKB - 15')
Reference Site:	Bernhardt 4N66W6K Pad Sec.6-T4N-R66W	MD Reference:	WELL @ 4728.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bernhardt 6K-323	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (9-3-14)	Offset TVD Reference:	Offset Datum

Offset Design Bernhardt 4N66W6K Pad Sec.6-T4N-R66W - Bernhardt 6K-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			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
6,800.0	6,690.1	6,780.9	6,701.5	22.2	20.4	95.25	711.3	250.9	330.4	290.2	40.24	8.210	
6,900.0	6,775.4	6,885.3	6,795.3	21.9	20.1	96.91	665.7	250.9	331.4	291.7	39.69	8.351	
7,000.0	6,853.1	6,991.1	6,883.1	21.5	19.7	98.45	607.0	250.9	332.6	293.7	38.91	8.549	
7,100.0	6,922.0	7,098.2	6,963.0	21.1	19.3	99.83	535.7	250.9	333.9	295.9	37.99	8.790	
7,200.0	6,980.8	7,206.6	7,032.8	20.6	18.8	101.04	452.9	250.9	335.2	298.2	37.05	9.047	
7,300.0	7,028.6	7,316.1	7,090.7	20.2	18.4	102.04	360.1	250.9	336.4	300.2	36.25	9.282	
7,400.0	7,064.5	7,426.5	7,135.1	19.8	18.1	102.82	259.1	250.9	337.4	301.7	35.71	9.449	
7,500.0	7,087.9	7,537.6	7,164.6	19.4	17.9	103.37	152.1	250.9	338.2	302.6	35.58	9.505	
7,600.0	7,098.5	7,649.1	7,178.4	19.1	18.0	103.66	41.5	250.9	338.6	302.7	35.92	9.425	
7,700.0	7,099.1	7,753.0	7,179.4	18.8	18.4	103.72	-62.4	250.9	338.7	301.9	36.75	9.216	
7,800.0	7,099.0	7,853.0	7,179.6	19.1	18.9	103.75	-162.4	250.9	338.7	300.8	37.90	8.936	
7,900.0	7,099.0	7,953.0	7,179.7	20.0	19.7	103.79	-262.4	250.9	338.8	299.4	39.38	8.601	
8,000.0	7,098.9	8,053.0	7,179.8	21.0	20.6	103.82	-362.4	250.9	338.8	297.7	41.15	8.233	
8,100.0	7,098.9	8,153.0	7,180.0	22.1	21.7	103.85	-462.4	250.9	338.9	295.7	43.17	7.848	
8,200.0	7,098.8	8,253.0	7,180.1	23.3	22.9	103.88	-562.4	250.9	338.9	293.5	45.41	7.462	
8,300.0	7,098.8	8,353.0	7,180.3	24.6	24.1	103.91	-662.4	250.9	338.9	291.1	47.84	7.084	
8,400.0	7,098.7	8,453.0	7,180.4	26.0	25.5	103.94	-762.4	250.9	339.0	288.6	50.43	6.722	
8,500.0	7,098.7	8,553.0	7,180.5	27.4	26.9	103.98	-862.4	250.9	339.0	285.9	53.16	6.378	
8,600.0	7,098.6	8,653.0	7,180.7	28.8	28.3	104.01	-962.4	250.9	339.1	283.1	56.00	6.055	
8,700.0	7,098.6	8,753.0	7,180.8	30.4	29.9	104.04	-1,062.4	250.9	339.1	280.2	58.94	5.753	
8,800.0	7,098.5	8,853.0	7,181.0	31.9	31.4	104.07	-1,162.4	250.9	339.2	277.2	61.97	5.473	
8,900.0	7,098.4	8,953.0	7,181.1	33.5	33.0	104.10	-1,262.4	250.9	339.2	274.1	65.07	5.213	
9,000.0	7,098.4	9,053.0	7,181.2	35.1	34.7	104.13	-1,362.4	250.9	339.3	271.0	68.24	4.972	
9,100.0	7,098.3	9,153.0	7,181.4	36.8	36.3	104.16	-1,462.4	250.9	339.3	267.9	71.46	4.748	
9,200.0	7,098.3	9,253.0	7,181.5	38.4	38.0	104.20	-1,562.4	250.9	339.4	264.6	74.73	4.541	
9,300.0	7,098.2	9,353.0	7,181.7	40.1	39.7	104.23	-1,662.4	250.9	339.4	261.4	78.03	4.350	
9,400.0	7,098.2	9,453.0	7,181.8	41.8	41.4	104.26	-1,762.4	250.9	339.5	258.1	81.38	4.171	
9,500.0	7,098.1	9,553.0	7,181.9	43.5	43.2	104.29	-1,862.4	250.9	339.5	254.8	84.75	4.006	
9,600.0	7,098.1	9,653.0	7,182.1	45.3	44.9	104.32	-1,962.4	250.9	339.6	251.4	88.16	3.852	
9,700.0	7,098.0	9,753.0	7,182.2	47.0	46.7	104.35	-2,062.4	250.9	339.6	248.0	91.59	3.708	
9,800.0	7,098.0	9,853.0	7,182.4	48.8	48.5	104.38	-2,162.4	250.9	339.6	244.6	95.04	3.574	
9,900.0	7,097.9	9,953.0	7,182.5	50.6	50.2	104.42	-2,262.4	250.9	339.7	241.2	98.51	3.448	
10,000.0	7,097.9	10,053.0	7,182.6	52.4	52.0	104.45	-2,362.4	250.9	339.7	237.7	102.00	3.331	
10,100.0	7,097.8	10,153.0	7,182.8	54.2	53.9	104.48	-2,462.4	250.9	339.8	234.3	105.50	3.221	
10,200.0	7,097.8	10,253.0	7,182.9	56.0	55.7	104.51	-2,562.4	250.9	339.8	230.8	109.02	3.117	
10,300.0	7,097.7	10,353.0	7,183.1	57.8	57.5	104.54	-2,662.4	250.9	339.9	227.3	112.55	3.020	
10,400.0	7,097.7	10,453.0	7,183.2	59.6	59.3	104.57	-2,762.4	250.9	339.9	223.8	116.09	2.928	
10,500.0	7,097.6	10,553.0	7,183.3	61.4	61.1	104.60	-2,862.4	250.9	340.0	220.3	119.64	2.842	
10,600.0	7,097.6	10,653.0	7,183.5	63.2	63.0	104.63	-2,962.4	250.9	340.0	216.8	123.20	2.760	
10,700.0	7,097.5	10,753.0	7,183.6	65.1	64.8	104.67	-3,062.4	250.9	340.1	213.3	126.77	2.683	
10,800.0	7,097.5	10,853.0	7,183.7	66.9	66.7	104.70	-3,162.4	250.9	340.1	209.8	130.35	2.609	
10,900.0	7,097.4	10,953.0	7,183.9	68.8	68.5	104.73	-3,262.4	250.9	340.2	206.2	133.93	2.540	
11,000.0	7,097.3	11,053.0	7,184.0	70.6	70.4	104.76	-3,362.4	250.9	340.2	202.7	137.52	2.474	
11,100.0	7,097.3	11,153.0	7,184.2	72.4	72.2	104.79	-3,462.4	250.9	340.3	199.2	141.12	2.411	
11,200.0	7,097.2	11,253.0	7,184.3	74.3	74.1	104.82	-3,562.4	250.9	340.3	195.6	144.72	2.352	
11,300.0	7,097.2	11,353.0	7,184.4	76.2	76.0	104.85	-3,662.4	250.9	340.4	192.0	148.33	2.295	
11,400.0	7,097.1	11,453.0	7,184.6	78.0	77.8	104.88	-3,762.4	250.9	340.4	188.5	151.94	2.241	
11,500.0	7,097.1	11,553.0	7,184.7	79.9	79.7	104.92	-3,862.4	250.9	340.5	184.9	155.55	2.189	
11,600.0	7,097.0	11,653.0	7,184.9	81.7	81.6	104.95	-3,962.4	250.9	340.5	181.3	159.17	2.139	
11,666.7	7,097.0	11,719.7	7,185.0	83.0	82.8	104.97	-4,029.1	250.9	340.6	179.0	161.59	2.108 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Bernhardt 6K-323
Project:	SEC.6-T4N-R66W	TVD Reference:	WELL @ 4728.0ft (RKB - 15')
Reference Site:	Bernhardt 4N66W6K Pad Sec.6-T4N-R66W	MD Reference:	WELL @ 4728.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bernhardt 6K-323	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (9-3-14)	Offset TVD Reference:	Offset Datum

Offset Design Bernhardt 4N66W6K Pad Sec.6-T4N-R66W - Bernhardt 6O-243 - 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)			
0.0	0.0	0.0	0.0	0.0	0.0	71.91	18.2	55.8	58.7				
100.0	100.0	100.0	100.0	0.1	0.1	71.91	18.2	55.8	58.7	58.4	0.22	260.959	
200.0	200.0	200.0	200.0	0.3	0.3	71.91	18.2	55.8	58.7	58.0	0.67	86.986 CC, ES	
300.0	300.0	298.0	298.0	0.6	0.6	71.51	19.1	57.2	60.3	59.2	1.12	53.997	
400.0	400.0	395.8	395.7	0.8	0.8	70.43	21.8	61.4	65.3	63.7	1.57	41.644	
500.0	500.0	493.1	492.6	1.0	1.0	68.96	26.3	68.4	73.6	71.6	2.03	36.312	
600.0	600.0	589.8	588.6	1.2	1.3	67.39	32.5	78.0	85.3	82.8	2.50	34.153	
700.0	700.0	685.6	683.3	1.5	1.6	65.91	40.4	90.3	100.3	97.4	2.98	33.650	
800.0	800.0	780.3	776.3	1.7	2.0	64.63	49.8	105.1	118.7	115.2	3.48	34.068	
900.0	900.0	874.0	867.8	1.9	2.4	26.71	60.8	122.2	138.7	134.8	3.87	35.876	
1,000.0	999.8	967.2	958.0	2.1	2.8	26.38	73.3	141.7	158.9	154.6	4.33	36.715	
1,100.0	1,099.5	1,064.3	1,051.6	2.4	3.3	26.52	87.5	163.8	178.1	173.3	4.81	37.057	
1,200.0	1,198.7	1,163.0	1,146.5	2.6	3.8	27.09	101.9	186.3	194.4	189.1	5.30	36.707	
1,300.0	1,297.5	1,262.0	1,241.9	2.9	4.4	28.03	116.3	208.8	207.6	201.8	5.80	35.766	
1,400.0	1,395.6	1,361.4	1,337.5	3.2	4.9	29.32	130.8	231.4	217.9	211.5	6.34	34.365	
1,500.0	1,493.5	1,460.8	1,433.3	3.6	5.5	30.76	145.4	254.1	227.0	220.1	6.92	32.802	
1,600.0	1,591.4	1,560.2	1,529.0	3.9	6.0	32.09	159.9	276.7	236.3	228.7	7.52	31.411	
1,700.0	1,689.3	1,659.6	1,624.7	4.3	6.6	33.32	174.4	299.3	245.6	237.5	8.14	30.166	
1,800.0	1,787.1	1,759.1	1,720.4	4.7	7.1	34.45	188.9	322.0	255.1	246.3	8.78	29.049	
1,900.0	1,885.0	1,858.5	1,816.1	5.1	7.7	35.51	203.4	344.6	264.7	255.3	9.44	28.045	
2,000.0	1,982.9	1,957.9	1,911.9	5.5	8.2	36.49	217.9	367.2	274.4	264.2	10.11	27.139	
2,100.0	2,080.8	2,057.3	2,007.6	5.9	8.8	37.41	232.4	389.9	284.1	273.3	10.79	26.321	
2,200.0	2,178.6	2,156.8	2,103.3	6.3	9.4	38.26	246.9	412.5	293.9	282.4	11.49	25.579	
2,300.0	2,276.5	2,256.2	2,199.0	6.8	9.9	39.06	261.5	435.2	303.8	291.6	12.20	24.904	
2,400.0	2,374.4	2,355.6	2,294.7	7.2	10.5	39.81	276.0	457.8	313.7	300.8	12.91	24.290	
2,500.0	2,472.3	2,455.0	2,390.5	7.6	11.0	40.51	290.5	480.4	323.6	310.0	13.64	23.728	
2,600.0	2,570.2	2,554.5	2,486.2	8.0	11.6	41.17	305.0	503.1	333.7	319.3	14.37	23.213	
2,700.0	2,668.0	2,653.9	2,581.9	8.5	12.2	41.80	319.5	525.7	343.7	328.6	15.12	22.739	
2,800.0	2,765.9	2,753.3	2,677.6	8.9	12.7	42.38	334.0	548.4	353.8	337.9	15.86	22.303	
2,900.0	2,863.8	2,852.7	2,773.3	9.3	13.3	42.94	348.5	571.0	363.9	347.3	16.62	21.901	
3,000.0	2,961.7	2,952.2	2,869.1	9.8	13.8	43.46	363.1	593.6	374.1	356.7	17.38	21.529	
3,100.0	3,059.6	3,051.6	2,964.8	10.2	14.4	43.96	377.6	616.3	384.3	366.1	18.14	21.183	
3,200.0	3,157.4	3,151.0	3,060.5	10.6	15.0	44.43	392.1	638.9	394.5	375.6	18.91	20.862	
3,300.0	3,255.3	3,250.4	3,156.2	11.1	15.5	44.88	406.6	661.5	404.7	385.1	19.68	20.563	
3,400.0	3,353.2	3,349.9	3,251.9	11.5	16.1	45.30	421.1	684.2	415.0	394.6	20.46	20.284	
3,500.0	3,451.1	3,449.3	3,347.7	11.9	16.7	45.71	435.6	706.8	425.3	404.1	21.24	20.023	
3,600.0	3,548.9	3,548.7	3,443.4	12.4	17.2	46.09	450.1	729.5	435.6	413.6	22.02	19.778	
3,700.0	3,646.8	3,648.1	3,539.1	12.8	17.8	46.46	464.6	752.1	445.9	423.1	22.81	19.549	
3,800.0	3,744.7	3,747.6	3,634.8	13.3	18.3	46.81	479.2	774.7	456.3	432.7	23.60	19.333	
3,900.0	3,842.6	3,847.0	3,730.5	13.7	18.9	47.15	493.7	797.4	466.6	442.2	24.39	19.130	
4,000.0	3,940.5	3,946.4	3,826.3	14.1	19.5	47.47	508.2	820.0	477.0	451.8	25.19	18.938	
4,100.0	4,038.3	4,045.8	3,922.0	14.6	20.0	47.78	522.7	842.6	487.4	461.4	25.98	18.758	
4,200.0	4,136.2	4,145.3	4,017.7	15.0	20.6	48.07	537.2	865.3	497.8	471.0	26.78	18.587	
4,300.0	4,234.1	4,244.7	4,113.4	15.4	21.2	48.35	551.7	887.9	508.2	480.6	27.58	18.425	
4,400.0	4,332.0	4,344.1	4,209.1	15.9	21.7	48.62	566.2	910.6	518.6	490.2	28.38	18.271	
4,500.0	4,429.8	4,443.6	4,304.9	16.3	22.3	48.88	580.8	933.2	529.1	499.9	29.19	18.126	
4,600.0	4,527.7	4,543.0	4,400.6	16.8	22.8	49.13	595.3	955.8	539.5	509.5	29.99	17.987	
4,700.0	4,625.6	4,642.4	4,496.3	17.2	23.4	49.38	609.8	978.5	550.0	519.2	30.80	17.856	
4,800.0	4,723.5	4,741.8	4,592.0	17.6	24.0	49.61	624.3	1,001.1	560.4	528.8	31.61	17.730	
4,900.0	4,821.4	4,841.3	4,687.7	18.1	24.5	49.83	638.8	1,023.7	570.9	538.5	32.42	17.611	
5,000.0	4,919.2	4,940.7	4,783.5	18.5	25.1	50.05	653.3	1,046.4	581.4	548.2	33.23	17.497	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Bernhardt 6K-323
Project:	SEC.6-T4N-R66W	TVD Reference:	WELL @ 4728.0ft (RKB - 15')
Reference Site:	Bernhardt 4N66W6K Pad Sec.6-T4N-R66W	MD Reference:	WELL @ 4728.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bernhardt 6K-323	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (9-3-14)	Offset TVD Reference:	Offset Datum

Offset Design Bernhardt 4N66W6K Pad Sec.6-T4N-R66W - Bernhardt 6O-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	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	5,017.1	5,040.1	4,879.2	19.0	25.7	50.25	50.25	667.8	1,069.0	591.9	557.8	34.04	17.387	
5,200.0	5,115.0	5,139.5	4,974.9	19.4	26.2	50.45	50.45	682.3	1,091.7	602.4	567.5	34.85	17.283	
5,300.0	5,212.9	5,239.0	5,070.6	19.9	26.8	50.65	50.65	696.9	1,114.3	612.9	577.2	35.67	17.183	
5,400.0	5,310.7	5,338.4	5,166.3	20.3	27.3	50.83	50.83	711.4	1,136.9	623.4	586.9	36.48	17.088	
5,500.0	5,408.6	5,446.7	5,270.8	20.7	27.9	51.05	51.05	727.0	1,161.3	633.7	596.3	37.32	16.978	
5,600.0	5,506.8	5,569.7	5,390.4	21.1	28.4	51.47	51.47	742.5	1,185.5	641.9	603.8	38.13	16.836	
5,700.0	5,605.6	5,693.2	5,511.5	21.4	28.9	51.81	51.81	755.3	1,205.4	648.8	610.0	38.79	16.726	
5,800.0	5,704.9	5,816.9	5,633.9	21.6	29.2	52.07	52.07	765.2	1,221.0	654.1	614.7	39.34	16.627	
5,900.0	5,804.5	5,941.0	5,757.2	21.9	29.5	52.26	52.26	772.4	1,232.1	657.9	618.1	39.79	16.535	
6,000.0	5,904.4	6,065.2	5,881.1	22.0	29.7	52.37	52.37	776.6	1,238.7	660.1	620.0	40.13	16.448	
6,100.0	6,004.3	6,188.4	6,004.3	22.2	29.8	89.37	89.37	777.9	1,240.7	660.8	620.4	40.38	16.364	
6,200.0	6,104.3	6,288.4	6,104.3	22.3	29.9	89.37	89.37	777.9	1,240.7	660.8	620.2	40.65	16.255	
6,300.0	6,204.3	6,388.4	6,204.3	22.4	30.0	89.37	89.37	777.9	1,240.7	660.8	619.9	40.93	16.146	
6,400.0	6,304.3	6,488.7	6,304.6	22.5	30.1	89.43	89.43	777.2	1,240.7	660.8	619.6	41.21	16.034	
6,495.9	6,400.1	6,584.9	6,400.2	22.6	30.1	-90.05	-90.05	767.0	1,240.7	660.8	619.3	41.50	15.922	
6,500.0	6,404.2	6,588.8	6,404.1	22.6	30.1	-89.90	-89.90	766.4	1,240.7	660.8	619.2	41.56	15.901	
6,600.0	6,503.0	6,687.8	6,500.2	22.6	30.0	-89.19	-89.19	743.0	1,240.7	660.9	619.2	41.65	15.868	
6,700.0	6,598.8	6,785.7	6,591.5	22.5	29.8	-88.49	-88.49	707.8	1,240.7	661.0	619.5	41.48	15.937	
6,800.0	6,690.1	6,882.7	6,676.8	22.2	29.6	-87.82	-87.82	661.7	1,240.7	661.3	620.2	41.07	16.101	
6,900.0	6,775.4	6,978.8	6,754.8	21.9	29.3	-87.19	-87.19	605.8	1,240.7	661.6	621.1	40.47	16.348	
7,000.0	6,853.1	7,074.1	6,824.7	21.5	29.0	-86.61	-86.61	541.1	1,240.7	662.0	622.2	39.74	16.658	
7,100.0	6,922.0	7,168.7	6,885.6	21.1	28.7	-86.08	-86.08	468.8	1,240.7	662.3	623.4	38.95	17.004	
7,200.0	6,980.8	7,262.6	6,936.8	20.6	28.3	-85.62	-85.62	390.1	1,240.7	662.7	624.5	38.21	17.345	
7,300.0	7,028.6	7,356.1	6,977.7	20.2	28.0	-85.24	-85.24	306.2	1,240.7	663.1	625.5	37.60	17.633	
7,400.0	7,064.5	7,450.0	7,008.2	19.8	27.7	-84.92	-84.92	217.4	1,240.7	663.4	626.2	37.24	17.816	
7,500.0	7,087.9	7,541.7	7,027.2	19.4	27.5	-84.69	-84.69	127.7	1,240.7	663.6	626.4	37.19	17.845	
7,600.0	7,098.5	7,634.2	7,035.5	19.1	27.3	-84.55	-84.55	35.7	1,240.7	663.8	626.3	37.50	17.699	
7,700.0	7,099.1	7,732.3	7,035.6	18.8	27.2	-84.51	-84.51	-62.4	1,240.7	663.8	625.6	38.24	17.358	
7,800.0	7,099.0	7,832.3	7,035.4	19.1	27.3	-84.50	-84.50	-162.4	1,240.7	663.8	624.5	39.34	16.874	
7,900.0	7,099.0	7,932.3	7,035.2	20.0	27.4	-84.49	-84.49	-262.4	1,240.7	663.9	623.1	40.77	16.282	
8,000.0	7,098.9	8,032.3	7,035.0	21.0	27.8	-84.48	-84.48	-362.4	1,240.7	663.9	621.4	42.50	15.621	
8,100.0	7,098.9	8,132.3	7,034.8	22.1	28.3	-84.47	-84.47	-462.4	1,240.7	663.9	619.4	44.49	14.923	
8,200.0	7,098.8	8,232.3	7,034.7	23.3	29.0	-84.45	-84.45	-562.4	1,240.7	663.9	617.2	46.71	14.215	
8,300.0	7,098.8	8,332.3	7,034.5	24.6	29.8	-84.44	-84.44	-662.4	1,240.7	663.9	614.8	49.12	13.516	
8,400.0	7,098.7	8,432.3	7,034.3	26.0	30.8	-84.43	-84.43	-762.4	1,240.7	663.9	612.2	51.71	12.840	
8,500.0	7,098.7	8,532.3	7,034.1	27.4	31.9	-84.42	-84.42	-862.4	1,240.7	663.9	609.5	54.44	12.196	
8,600.0	7,098.6	8,632.3	7,033.9	28.8	33.1	-84.41	-84.41	-962.4	1,240.7	664.0	606.7	57.30	11.588	
8,700.0	7,098.6	8,732.3	7,033.7	30.4	34.3	-84.39	-84.39	-1,062.4	1,240.7	664.0	603.7	60.26	11.018	
8,800.0	7,098.5	8,832.3	7,033.5	31.9	35.7	-84.38	-84.38	-1,162.4	1,240.7	664.0	600.7	63.32	10.486	
8,900.0	7,098.4	8,932.3	7,033.3	33.5	37.1	-84.37	-84.37	-1,262.4	1,240.7	664.0	597.5	66.46	9.991	
9,000.0	7,098.4	9,032.3	7,033.1	35.1	38.5	-84.36	-84.36	-1,362.4	1,240.7	664.0	594.3	69.66	9.532	
9,100.0	7,098.3	9,132.3	7,032.9	36.8	40.0	-84.35	-84.35	-1,462.4	1,240.7	664.0	591.1	72.93	9.105	
9,200.0	7,098.3	9,232.3	7,032.7	38.4	41.5	-84.33	-84.33	-1,562.4	1,240.7	664.0	587.8	76.25	8.709	
9,300.0	7,098.2	9,332.3	7,032.5	40.1	43.1	-84.32	-84.32	-1,662.4	1,240.7	664.0	584.4	79.61	8.341	
9,400.0	7,098.2	9,432.3	7,032.4	41.8	44.7	-84.31	-84.31	-1,762.4	1,240.7	664.1	581.1	83.01	8.000	
9,500.0	7,098.1	9,532.3	7,032.2	43.5	46.3	-84.30	-84.30	-1,862.4	1,240.7	664.1	577.6	86.45	7.682	
9,600.0	7,098.1	9,632.3	7,032.0	45.3	47.9	-84.29	-84.29	-1,962.4	1,240.7	664.1	574.2	89.92	7.386	
9,700.0	7,098.0	9,732.3	7,031.8	47.0	49.6	-84.27	-84.27	-2,062.4	1,240.7	664.1	570.7	93.41	7.109	
9,800.0	7,098.0	9,832.3	7,031.6	48.8	51.3	-84.26	-84.26	-2,162.4	1,240.7	664.1	567.2	96.93	6.851	
9,900.0	7,097.9	9,932.3	7,031.4	50.6	53.0	-84.25	-84.25	-2,262.4	1,240.7	664.1	563.7	100.48	6.610	
10,000.0	7,097.9	10,032.3	7,031.2	52.4	54.7	-84.24	-84.24	-2,362.4	1,240.7	664.1	560.1	104.04	6.384	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Bernhardt 6K-323
Project:	SEC.6-T4N-R66W	TVD Reference:	WELL @ 4728.0ft (RKB - 15')
Reference Site:	Bernhardt 4N66W6K Pad Sec.6-T4N-R66W	MD Reference:	WELL @ 4728.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bernhardt 6K-323	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (9-3-14)	Offset TVD Reference:	Offset Datum

Offset Design Bernhardt 4N66W6K Pad Sec.6-T4N-R66W - Bernhardt 6O-243 - 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			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	7,097.8	10,132.3	7,031.0	54.2	56.4	-84.23	-2,462.4	1,240.7	664.2	556.5	107.62	6.171	
10,200.0	7,097.8	10,232.3	7,030.8	56.0	58.1	-84.21	-2,562.4	1,240.7	664.2	553.0	111.22	5.972	
10,300.0	7,097.7	10,332.3	7,030.6	57.8	59.8	-84.20	-2,662.4	1,240.7	664.2	549.4	114.83	5.784	
10,400.0	7,097.7	10,432.3	7,030.4	59.6	61.6	-84.19	-2,762.4	1,240.7	664.2	545.8	118.45	5.607	
10,500.0	7,097.6	10,532.3	7,030.2	61.4	63.4	-84.18	-2,862.4	1,240.7	664.2	542.1	122.09	5.441	
10,600.0	7,097.6	10,632.3	7,030.0	63.2	65.1	-84.17	-2,962.4	1,240.7	664.2	538.5	125.73	5.283	
10,700.0	7,097.5	10,732.3	7,029.9	65.1	66.9	-84.15	-3,062.4	1,240.7	664.2	534.9	129.39	5.134	
10,800.0	7,097.5	10,832.3	7,029.7	66.9	68.7	-84.14	-3,162.4	1,240.7	664.3	531.2	133.06	4.992	
10,900.0	7,097.4	10,932.3	7,029.5	68.8	70.5	-84.13	-3,262.4	1,240.7	664.3	527.5	136.73	4.858	
11,000.0	7,097.3	11,032.3	7,029.3	70.6	72.3	-84.12	-3,362.4	1,240.7	664.3	523.9	140.41	4.731	
11,100.0	7,097.3	11,132.3	7,029.1	72.4	74.1	-84.11	-3,462.4	1,240.7	664.3	520.2	144.10	4.610	
11,200.0	7,097.2	11,232.3	7,028.9	74.3	75.9	-84.09	-3,562.4	1,240.7	664.3	516.5	147.80	4.495	
11,300.0	7,097.2	11,332.3	7,028.7	76.2	77.7	-84.08	-3,662.4	1,240.7	664.3	512.8	151.50	4.385	
11,400.0	7,097.1	11,432.3	7,028.5	78.0	79.5	-84.07	-3,762.4	1,240.7	664.3	509.1	155.21	4.280	
11,500.0	7,097.1	11,532.3	7,028.3	79.9	81.4	-84.06	-3,862.4	1,240.7	664.4	505.4	158.92	4.180	
11,600.0	7,097.0	11,632.3	7,028.1	81.7	83.2	-84.05	-3,962.4	1,240.7	664.4	501.7	162.64	4.085	
11,666.7	7,097.0	11,699.0	7,028.0	83.0	84.4	-84.04	-4,029.1	1,240.7	664.4	499.3	165.12	4.024 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Bernhardt 6K-323
Project:	SEC.6-T4N-R66W	TVD Reference:	WELL @ 4728.0ft (RKB - 15')
Reference Site:	Bernhardt 4N66W6K Pad Sec.6-T4N-R66W	MD Reference:	WELL @ 4728.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bernhardt 6K-323	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (9-3-14)	Offset TVD Reference:	Offset Datum

Offset Design Bernhardt 4N66W6K Pad Sec.6-T4N-R66W - Bernhardt 6O-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 (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	Warning
0.0	0.0	0.0	0.0	0.0	0.0	75.35	7.3	27.9	28.8				
100.0	100.0	100.0	100.0	0.1	0.1	75.35	7.3	27.9	28.8	28.6	0.22	128.194	
200.0	200.0	200.0	200.0	0.3	0.3	75.35	7.3	27.9	28.8	28.1	0.67	42.731	
300.0	300.0	300.0	300.0	0.6	0.6	75.35	7.3	27.9	28.8	27.7	1.12	25.639	
400.0	400.0	400.0	400.0	0.8	0.8	75.35	7.3	27.9	28.8	27.2	1.57	18.313 CC, ES	
500.0	500.0	499.1	499.0	1.0	1.0	73.92	8.4	29.2	30.4	28.4	2.02	15.051	
600.0	600.0	597.9	597.7	1.2	1.2	70.38	11.8	33.0	35.1	32.7	2.47	14.245	
700.0	700.0	696.3	695.7	1.5	1.5	66.26	17.3	39.4	43.3	40.4	2.92	14.810	
800.0	800.0	793.9	792.7	1.7	1.7	62.58	25.0	48.3	54.9	51.5	3.39	16.206	
900.0	900.0	890.9	888.5	1.9	2.0	23.15	34.8	59.5	68.3	64.5	3.82	17.885	
1,000.0	999.8	987.5	983.4	2.1	2.4	21.97	46.7	73.2	82.0	77.7	4.27	19.193	
1,100.0	1,099.5	1,084.2	1,077.7	2.4	2.7	21.53	60.6	89.2	95.6	90.9	4.73	20.219	
1,200.0	1,198.7	1,183.5	1,174.4	2.6	3.2	21.76	75.7	106.4	107.2	102.0	5.20	20.618	
1,300.0	1,297.5	1,283.1	1,271.3	2.9	3.6	22.61	90.8	123.8	115.5	109.8	5.68	20.333	
1,400.0	1,395.6	1,383.0	1,368.4	3.2	4.1	24.02	105.9	141.1	120.7	114.5	6.19	19.503	
1,500.0	1,493.5	1,482.8	1,465.6	3.6	4.5	25.63	121.0	158.5	124.6	117.9	6.74	18.503	
1,600.0	1,591.4	1,582.7	1,562.8	3.9	5.0	27.14	136.1	175.8	128.7	121.4	7.31	17.603	
1,700.0	1,689.3	1,682.6	1,660.0	4.3	5.5	28.56	151.2	193.2	132.8	124.9	7.90	16.806	
1,800.0	1,787.1	1,782.4	1,757.1	4.7	6.0	29.90	166.3	210.6	137.0	128.5	8.51	16.093	
1,900.0	1,885.0	1,882.3	1,854.3	5.1	6.4	31.15	181.4	227.9	141.3	132.1	9.14	15.454	
2,000.0	1,982.9	1,982.1	1,951.5	5.5	6.9	32.33	196.6	245.3	145.6	135.8	9.79	14.878	
2,100.0	2,080.8	2,082.0	2,048.7	5.9	7.4	33.44	211.7	262.7	150.0	139.6	10.45	14.359	
2,200.0	2,178.6	2,181.9	2,145.8	6.3	7.9	34.49	226.8	280.0	154.5	143.3	11.12	13.889	
2,300.0	2,276.5	2,281.7	2,243.0	6.8	8.4	35.47	241.9	297.4	159.0	147.2	11.81	13.462	
2,400.0	2,374.4	2,381.6	2,340.2	7.2	8.8	36.41	257.0	314.8	163.5	151.0	12.51	13.073	
2,500.0	2,472.3	2,481.5	2,437.3	7.6	9.3	37.29	272.1	332.1	168.1	154.9	13.22	12.719	
2,600.0	2,570.2	2,581.3	2,534.5	8.0	9.8	38.13	287.3	349.5	172.7	158.8	13.93	12.394	
2,700.0	2,668.0	2,681.2	2,631.7	8.5	10.3	38.92	302.4	366.9	177.4	162.7	14.66	12.096	
2,800.0	2,765.9	2,781.0	2,728.9	8.9	10.8	39.67	317.5	384.2	182.0	166.6	15.40	11.823	
2,900.0	2,863.8	2,880.9	2,826.0	9.3	11.3	40.38	332.6	401.6	186.8	170.6	16.14	11.570	
3,000.0	2,961.7	2,980.8	2,923.2	9.8	11.8	41.06	347.7	418.9	191.5	174.6	16.89	11.337	
3,100.0	3,059.6	3,080.6	3,020.4	10.2	12.2	41.71	362.8	436.3	196.3	178.6	17.65	11.122	
3,200.0	3,157.4	3,180.5	3,117.5	10.6	12.7	42.32	378.0	453.7	201.1	182.7	18.41	10.921	
3,300.0	3,255.3	3,280.4	3,214.7	11.1	13.2	42.91	393.1	471.0	205.9	186.7	19.18	10.735	
3,400.0	3,353.2	3,380.2	3,311.9	11.5	13.7	43.47	408.2	488.4	210.7	190.8	19.95	10.562	
3,500.0	3,451.1	3,480.1	3,409.1	11.9	14.2	44.00	423.3	505.8	215.6	194.8	20.73	10.401	
3,600.0	3,548.9	3,579.9	3,506.2	12.4	14.7	44.51	438.4	523.1	220.4	198.9	21.51	10.249	
3,700.0	3,646.8	3,679.8	3,603.4	12.8	15.2	45.00	453.5	540.5	225.3	203.0	22.29	10.108	
3,800.0	3,744.7	3,779.7	3,700.6	13.3	15.7	45.47	468.7	557.9	230.2	207.1	23.08	9.975	
3,900.0	3,842.6	3,879.5	3,797.8	13.7	16.1	45.92	483.8	575.2	235.1	211.3	23.87	9.851	
4,000.0	3,940.5	3,979.4	3,894.9	14.1	16.6	46.35	498.9	592.6	240.1	215.4	24.67	9.733	
4,100.0	4,038.3	4,079.3	3,992.1	14.6	17.1	46.76	514.0	610.0	245.0	219.6	25.46	9.623	
4,200.0	4,136.2	4,179.1	4,089.3	15.0	17.6	47.15	529.1	627.3	250.0	223.7	26.26	9.519	
4,300.0	4,234.1	4,279.0	4,186.4	15.4	18.1	47.54	544.2	644.7	255.0	227.9	27.06	9.420	
4,400.0	4,332.0	4,378.8	4,283.6	15.9	18.6	47.90	559.4	662.0	259.9	232.1	27.87	9.327	
4,500.0	4,429.8	4,478.7	4,380.8	16.3	19.1	48.25	574.5	679.4	264.9	236.2	28.68	9.239	
4,600.0	4,527.7	4,578.6	4,478.0	16.8	19.6	48.59	589.6	696.8	269.9	240.4	29.48	9.155	
4,700.0	4,625.6	4,678.4	4,575.1	17.2	20.1	48.92	604.7	714.1	274.9	244.6	30.29	9.075	
4,800.0	4,723.5	4,778.3	4,672.3	17.6	20.5	49.24	619.8	731.5	279.9	248.8	31.11	9.000	
4,900.0	4,821.4	4,878.1	4,769.5	18.1	21.0	49.54	634.9	748.9	285.0	253.1	31.92	8.928	
5,000.0	4,919.2	4,978.0	4,866.7	18.5	21.5	49.83	650.1	766.2	290.0	257.3	32.73	8.860	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Bernhardt 6K-323
Project:	SEC.6-T4N-R66W	TVD Reference:	WELL @ 4728.0ft (RKB - 15')
Reference Site:	Bernhardt 4N66W6K Pad Sec.6-T4N-R66W	MD Reference:	WELL @ 4728.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bernhardt 6K-323	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (9-3-14)	Offset TVD Reference:	Offset Datum

Offset Design Bernhardt 4N66W6K Pad Sec.6-T4N-R66W - Bernhardt 6O-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	5,017.1	5,077.9	4,963.8	19.0	22.0	50.12	50.12	665.2	783.6	295.0	261.5	33.55	8.794	
5,200.0	5,115.0	5,177.7	5,061.0	19.4	22.5	50.39	50.39	680.3	801.0	300.1	265.7	34.37	8.732	
5,300.0	5,212.9	5,277.6	5,158.2	19.9	23.0	50.66	50.66	695.4	818.3	305.2	270.0	35.19	8.672	
5,400.0	5,310.7	5,377.5	5,255.3	20.3	23.5	50.91	50.91	710.5	835.7	310.2	274.2	36.01	8.616	
5,500.0	5,408.6	5,478.6	5,353.7	20.7	24.0	51.17	51.17	725.8	853.2	315.3	278.4	36.83	8.560	
5,600.0	5,506.8	5,587.8	5,460.6	21.1	24.4	51.55	51.55	740.6	870.3	319.5	281.9	37.57	8.502	
5,700.0	5,605.6	5,697.1	5,568.3	21.4	24.7	51.86	51.86	752.8	884.3	322.9	284.7	38.19	8.456	
5,800.0	5,704.9	5,806.6	5,676.8	21.6	25.0	52.10	52.10	762.3	895.1	325.6	286.9	38.71	8.412	
5,900.0	5,804.5	5,916.1	5,785.8	21.9	25.2	52.26	52.26	769.0	902.9	327.5	288.4	39.13	8.370	
6,000.0	5,904.4	6,025.6	5,895.2	22.0	25.4	52.36	52.36	773.0	907.5	328.7	289.2	39.47	8.328	
6,100.0	6,004.3	6,134.8	6,004.3	22.2	25.5	89.36	89.36	774.3	908.9	329.0	289.3	39.71	8.285	
6,200.0	6,104.3	6,234.8	6,104.3	22.3	25.6	89.36	89.36	774.3	908.9	329.0	289.0	39.99	8.228	
6,300.0	6,204.3	6,334.8	6,204.3	22.4	25.7	89.36	89.36	774.3	908.9	329.0	288.8	40.27	8.171	
6,400.0	6,304.3	6,434.8	6,304.3	22.5	25.8	89.36	89.36	774.3	908.9	329.0	288.5	40.55	8.114	
6,423.0	6,327.4	6,457.8	6,327.4	22.6	25.9	-90.68	-90.68	774.3	908.9	329.0	288.4	40.59	8.105	
6,500.0	6,404.2	6,534.7	6,404.2	22.6	26.0	-91.18	-91.18	774.3	908.9	329.1	288.4	40.63	8.099	
6,600.0	6,503.0	6,635.6	6,505.0	22.6	26.0	-92.97	-92.97	769.0	908.9	329.4	289.3	40.15	8.206	
6,700.0	6,598.8	6,738.1	6,605.6	22.5	26.0	-94.74	-94.74	750.2	908.9	330.1	290.7	39.44	8.372	
6,800.0	6,690.1	6,842.0	6,704.2	22.2	25.8	-96.43	-96.43	717.6	908.9	331.1	292.5	38.56	8.587	
6,900.0	6,775.4	6,947.4	6,798.7	21.9	25.6	-98.00	-98.00	671.2	908.9	332.3	294.7	37.58	8.841	
7,000.0	6,853.1	7,054.1	6,887.0	21.5	25.2	-99.44	-99.44	611.4	908.9	333.5	297.0	36.58	9.118	
7,100.0	6,922.0	7,162.1	6,967.0	21.1	24.8	-100.70	-100.70	538.9	908.9	334.8	299.2	35.63	9.397	
7,200.0	6,980.8	7,271.3	7,036.6	20.6	24.4	-101.77	-101.77	455.0	908.9	336.1	301.3	34.83	9.650	
7,300.0	7,028.6	7,381.4	7,094.1	20.2	23.9	-102.62	-102.62	361.1	908.9	337.2	302.9	34.25	9.845	
7,400.0	7,064.5	7,492.4	7,137.7	19.8	23.5	-103.23	-103.23	259.2	908.9	338.0	304.0	33.96	9.953	
7,500.0	7,087.9	7,603.8	7,166.2	19.4	23.1	-103.60	-103.60	151.6	908.9	338.5	304.5	34.02	9.950	
7,600.0	7,098.5	7,715.5	7,178.7	19.1	22.8	-103.72	-103.72	40.7	908.9	338.7	304.2	34.46	9.828	
7,634.3	7,099.6	7,752.9	7,179.4	19.0	22.8	-103.62	-103.62	3.3	908.9	338.5	303.8	34.70	9.755	
7,700.0	7,099.1	7,818.6	7,179.4	18.8	22.7	-103.73	-103.73	-62.4	908.9	338.7	303.5	35.16	9.633	
7,800.0	7,099.0	7,918.6	7,179.6	19.1	22.7	-103.76	-103.76	-162.4	908.9	338.7	302.5	36.17	9.364	
7,900.0	7,099.0	8,018.6	7,179.7	20.0	23.0	-103.79	-103.79	-262.4	908.9	338.8	301.2	37.54	9.025	
8,000.0	7,098.9	8,118.6	7,179.9	21.0	23.6	-103.82	-103.82	-362.4	908.9	338.8	299.6	39.21	8.641	
8,100.0	7,098.9	8,218.6	7,180.0	22.1	24.4	-103.85	-103.85	-462.4	908.9	338.9	297.7	41.16	8.233	
8,200.0	7,098.8	8,318.6	7,180.1	23.3	25.4	-103.89	-103.89	-562.4	908.9	338.9	295.6	43.34	7.820	
8,300.0	7,098.8	8,418.6	7,180.3	24.6	26.5	-103.92	-103.92	-662.4	908.9	339.0	293.2	45.72	7.413	
8,400.0	7,098.7	8,518.6	7,180.4	26.0	27.7	-103.95	-103.95	-762.4	908.9	339.0	290.7	48.28	7.022	
8,500.0	7,098.7	8,618.6	7,180.6	27.4	29.0	-103.98	-103.98	-862.4	908.9	339.0	288.1	50.98	6.651	
8,600.0	7,098.6	8,718.6	7,180.7	28.8	30.4	-104.01	-104.01	-962.4	908.9	339.1	285.3	53.80	6.302	
8,700.0	7,098.6	8,818.6	7,180.8	30.4	31.9	-104.04	-104.04	-1,062.4	908.9	339.1	282.4	56.73	5.978	
8,800.0	7,098.5	8,918.6	7,181.0	31.9	33.3	-104.07	-104.07	-1,162.4	908.9	339.2	279.4	59.75	5.676	
8,900.0	7,098.4	9,018.6	7,181.1	33.5	34.9	-104.11	-104.11	-1,262.4	908.9	339.2	276.4	62.85	5.398	
9,000.0	7,098.4	9,118.6	7,181.3	35.1	36.4	-104.14	-104.14	-1,362.4	908.9	339.3	273.3	66.01	5.140	
9,100.0	7,098.3	9,218.6	7,181.4	36.8	38.0	-104.17	-104.17	-1,462.4	908.9	339.3	270.1	69.23	4.902	
9,200.0	7,098.3	9,318.6	7,181.5	38.4	39.6	-104.20	-104.20	-1,562.4	908.9	339.4	266.9	72.49	4.682	
9,300.0	7,098.2	9,418.6	7,181.7	40.1	41.3	-104.23	-104.23	-1,662.4	908.9	339.4	263.6	75.80	4.478	
9,400.0	7,098.2	9,518.6	7,181.8	41.8	42.9	-104.26	-104.26	-1,762.4	908.9	339.5	260.3	79.14	4.289	
9,500.0	7,098.1	9,618.6	7,182.0	43.5	44.6	-104.29	-104.29	-1,862.4	908.9	339.5	257.0	82.52	4.114	
9,600.0	7,098.1	9,718.6	7,182.1	45.3	46.3	-104.33	-104.33	-1,962.4	908.9	339.6	253.6	85.93	3.952	
9,700.0	7,098.0	9,818.6	7,182.2	47.0	48.0	-104.36	-104.36	-2,062.4	908.9	339.6	250.3	89.36	3.801	
9,800.0	7,098.0	9,918.6	7,182.4	48.8	49.7	-104.39	-104.39	-2,162.4	908.9	339.7	246.8	92.81	3.660	
9,900.0	7,097.9	10,018.6	7,182.5	50.6	51.5	-104.42	-104.42	-2,262.4	908.9	339.7	243.4	96.28	3.528	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Bernhardt 6K-323
Project:	SEC.6-T4N-R66W	TVD Reference:	WELL @ 4728.0ft (RKB - 15')
Reference Site:	Bernhardt 4N66W6K Pad Sec.6-T4N-R66W	MD Reference:	WELL @ 4728.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bernhardt 6K-323	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (9-3-14)	Offset TVD Reference:	Offset Datum

Offset Design Bernhardt 4N66W6K Pad Sec.6-T4N-R66W - Bernhardt 6O-443 - 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 (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)					
10,000.0	7,097.9	10,118.6	7,182.7	52.4	53.2	-104.45	-2,362.4	908.9	339.8	240.0	99.77	3.405	
10,100.0	7,097.8	10,218.6	7,182.8	54.2	55.0	-104.48	-2,462.4	908.9	339.8	236.5	103.27	3.290	
10,200.0	7,097.8	10,318.6	7,182.9	56.0	56.8	-104.51	-2,562.4	908.9	339.8	233.1	106.79	3.182	
10,300.0	7,097.7	10,418.6	7,183.1	57.8	58.6	-104.54	-2,662.4	908.9	339.9	229.6	110.32	3.081	
10,400.0	7,097.7	10,518.6	7,183.2	59.6	60.4	-104.58	-2,762.4	908.9	339.9	226.1	113.87	2.985	
10,500.0	7,097.6	10,618.6	7,183.4	61.4	62.2	-104.61	-2,862.4	908.9	340.0	222.6	117.42	2.896	
10,600.0	7,097.6	10,718.6	7,183.5	63.2	64.0	-104.64	-2,962.4	908.9	340.0	219.1	120.98	2.811	
10,700.0	7,097.5	10,818.6	7,183.6	65.1	65.8	-104.67	-3,062.4	908.9	340.1	215.5	124.55	2.731	
10,800.0	7,097.5	10,918.6	7,183.8	66.9	67.6	-104.70	-3,162.4	908.9	340.1	212.0	128.13	2.655	
10,900.0	7,097.4	11,018.6	7,183.9	68.8	69.4	-104.73	-3,262.4	908.9	340.2	208.5	131.71	2.583	
11,000.0	7,097.3	11,118.6	7,184.1	70.6	71.2	-104.76	-3,362.4	908.9	340.2	204.9	135.30	2.515	
11,100.0	7,097.3	11,218.6	7,184.2	72.4	73.1	-104.80	-3,462.4	908.9	340.3	201.4	138.90	2.450	
11,200.0	7,097.2	11,318.6	7,184.3	74.3	74.9	-104.83	-3,562.4	908.9	340.3	197.8	142.50	2.388	
11,300.0	7,097.2	11,418.6	7,184.5	76.2	76.7	-104.86	-3,662.4	908.9	340.4	194.3	146.11	2.330	
11,400.0	7,097.1	11,518.6	7,184.6	78.0	78.6	-104.89	-3,762.4	908.9	340.4	190.7	149.72	2.274	
11,500.0	7,097.1	11,618.6	7,184.8	79.9	80.4	-104.92	-3,862.4	908.9	340.5	187.2	153.33	2.221	
11,600.0	7,097.0	11,718.6	7,184.9	81.7	82.3	-104.95	-3,962.4	908.9	340.5	183.6	156.95	2.170	
11,666.7	7,097.0	11,785.3	7,185.0	83.0	83.5	-104.97	-4,029.1	908.9	340.6	181.2	159.36	2.137 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Bernhardt 6K-323
Project:	SEC.6-T4N-R66W	TVD Reference:	WELL @ 4728.0ft (RKB - 15')
Reference Site:	Bernhardt 4N66W6K Pad Sec.6-T4N-R66W	MD Reference:	WELL @ 4728.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bernhardt 6K-323	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (9-3-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.6-T4N-R66W - Bernhardt 7-2 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7306-UNKNOWN													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis Reference	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,600.0	7,097.6	7,098.6	7,098.6	63.2	142.0		-90.51	-3,909.0	635.7	948.1	743.4	204.71	4.632	
10,700.0	7,097.5	7,098.5	7,098.5	65.1	142.0		-90.46	-3,909.0	635.7	848.3	641.8	206.55	4.107	
10,800.0	7,097.5	7,098.5	7,098.5	66.9	142.0		-90.40	-3,909.0	635.7	748.6	540.2	208.40	3.592	
10,900.0	7,097.4	7,098.4	7,098.4	68.8	142.0		-90.35	-3,909.0	635.7	648.9	438.6	210.26	3.086	
11,000.0	7,097.3	7,098.3	7,098.3	70.6	142.0		-90.29	-3,909.0	635.7	549.3	337.2	212.12	2.590	
11,100.0	7,097.3	7,098.3	7,098.3	72.4	142.0		-90.24	-3,909.0	635.7	450.0	236.0	213.98	2.103	
11,200.0	7,097.2	7,098.2	7,098.2	74.3	142.0		-90.19	-3,909.0	635.7	351.0	135.1	215.84	1.626	
11,300.0	7,097.2	7,098.2	7,098.2	76.2	142.0		-90.13	-3,909.0	635.7	252.7	35.0	217.71	1.161 Level 2	
11,400.0	7,097.1	7,098.1	7,098.1	78.0	142.0		-90.08	-3,909.0	635.7	156.8	-62.8	219.57	0.714 Level 1	
11,500.0	7,097.1	7,098.1	7,098.1	79.9	142.0		-90.03	-3,909.0	635.7	72.6	-148.8	221.45	0.328 Level 1	
11,546.5	7,097.1	7,098.1	7,098.1	80.7	142.0		-90.00	-3,909.0	635.7	55.8	-166.6	222.32	0.251 Level 1, CC, ES, SF	
11,600.0	7,097.0	7,098.0	7,098.0	81.7	142.0		-89.97	-3,909.0	635.7	77.3	-146.0	223.32	0.346 Level 1	
11,666.7	7,097.0	7,098.0	7,098.0	83.0	142.0		-89.94	-3,909.0	635.7	132.5	-92.1	224.57	0.590 Level 1	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Bernhardt 6K-323
Project:	SEC.6-T4N-R66W	TVD Reference:	WELL @ 4728.0ft (RKB - 15')
Reference Site:	Bernhardt 4N66W6K Pad Sec.6-T4N-R66W	MD Reference:	WELL @ 4728.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bernhardt 6K-323	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (9-3-14)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4728.0ft (RKB - 15')

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Bernhardt 6K-323

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.44°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Bernhardt 6K-323
Project:	SEC.6-T4N-R66W	TVD Reference:	WELL @ 4728.0ft (RKB - 15')
Reference Site:	Bernhardt 4N66W6K Pad Sec.6-T4N-R66W	MD Reference:	WELL @ 4728.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bernhardt 6K-323	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (9-3-14)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4728.0ft (RKB - 15')
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

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

