

PETROLEUM DEVELOPMENT CORP Weld County CO

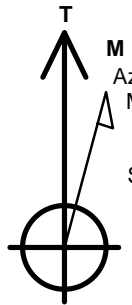
Well Name: **Bernhardt 60-443**

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	1367111.69	3188008.07	40.339160	-104.825550	
RKB - 15' WELL @ 4728.0ft (RKB - 15')						

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 1916'FSL & 1181'FWL,Sec.6	1.0	0.0	0.0	Point
BHL 2155'FNL & 2055'FWL, Sec.7	7185.0	-4047.4	881.1	Point



Azimuths to True North
 Magnetic North: 8.46°

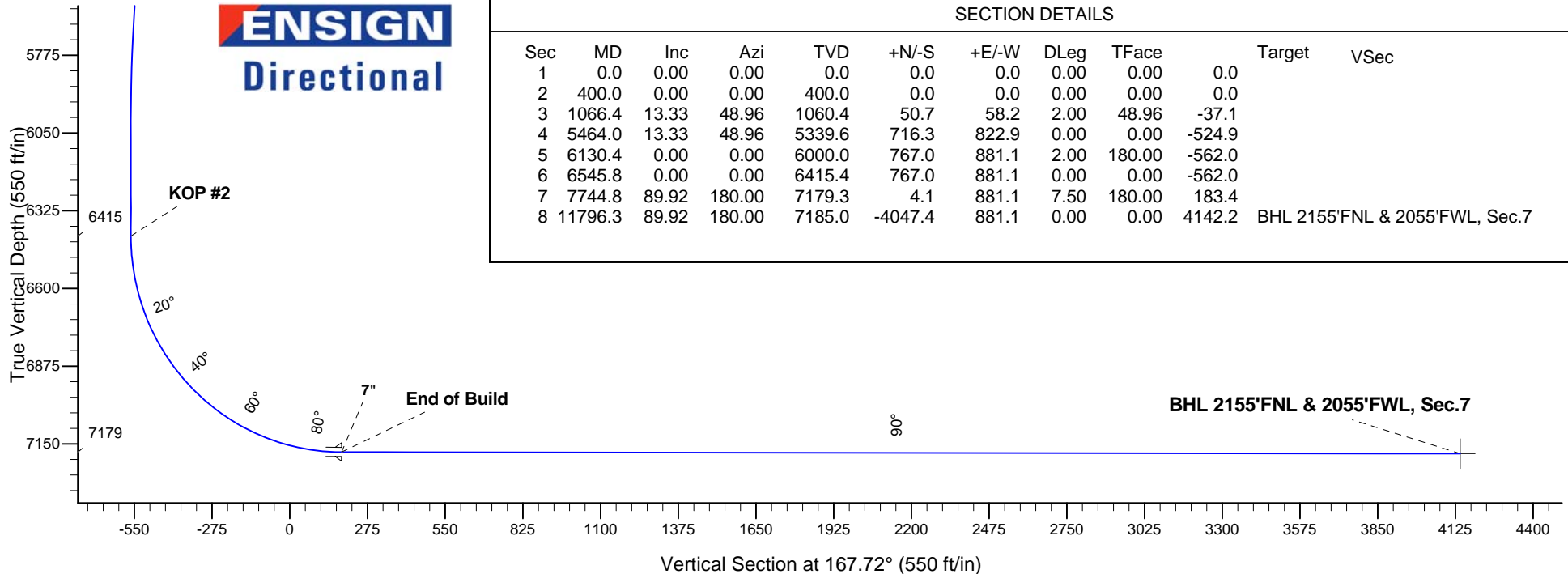
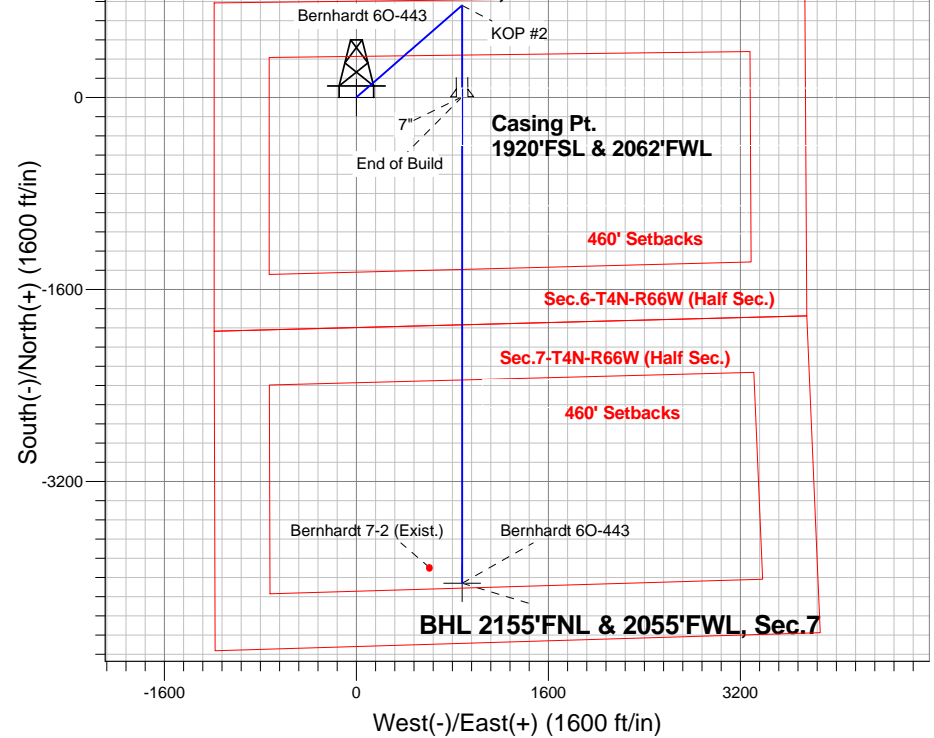
Magnetic Field
 Strength: 52754.8snT
 Dip Angle: 66.88°
 Date: 9/3/2014
 Model: IGRF2010

ANNOTATIONS

TVD	MD	Annotation
400.0	400.0	KOP #1
6415.4	6545.8	KOP #2
7179.3	7744.8	End of Build

Bernhardt 4N66W6K Pad Sec.6-T4N-R66W
 Bernhardt 60-443
 Plan #2 (9-3-14)
 10:07, September 11 2014

SHL 1916'FSL & 1181'FWL,Sec.6



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	400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.0	
3	1066.4	13.33	48.96	1060.4	50.7	58.2	2.00	48.96	-37.1	
4	5464.0	13.33	48.96	5339.6	716.3	822.9	0.00	0.00	-524.9	
5	6130.4	0.00	0.00	6000.0	767.0	881.1	2.00	180.00	-562.0	
6	6545.8	0.00	0.00	6415.4	767.0	881.1	0.00	0.00	-562.0	
7	7744.8	89.92	180.00	7179.3	4.1	881.1	7.50	180.00	183.4	
8	11796.3	89.92	180.00	7185.0	-4047.4	881.1	0.00	0.00	4142.2	BHL 2155'FNL & 2055'FWL, Sec.7



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.6-T4N-R66W

Bernhardt 4N66W6K Pad Sec.6-T4N-R66W

Bernhardt 6O-443

Wellbore #1

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

Standard Planning Report

11 September, 2014

Database:	Landmark	Local Co-ordinate Reference:	Well Bernhardt 6O-443
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 6O-443	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: From: Position Uncertainty:			Lat/Long 0.0 ft			Northing:		1,367,096.68 ft		Latitude:		40.339120	
						Easting:		3,187,949.64 ft		Longitude:		-104.825760	
						Slot Radius:		"		Grid Convergence:		0.44 °	

Well	Bernhardt 6O-443					
Well Position	+N/-S	14.6 ft	Northing:	1,367,111.69 ft	Latitude:	40.339160
	+E/-W	58.5 ft	Easting:	3,188,008.07 ft	Longitude:	-104.825550
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	167.72

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	
400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,066.4	13.33	48.96	1,060.4	50.7	58.2	2.00	2.00	0.00	48.96	
5,464.0	13.33	48.96	5,339.6	716.3	822.9	0.00	0.00	0.00	0.00	
6,130.4	0.00	0.00	6,000.0	767.0	881.1	2.00	-2.00	0.00	180.00	
6,545.8	0.00	0.00	6,415.4	767.0	881.1	0.00	0.00	0.00	0.00	
7,744.8	89.92	180.00	7,179.3	4.1	881.1	7.50	7.50	0.00	180.00	
11,796.3	89.92	180.00	7,185.0	-4,047.4	881.1	0.00	0.00	0.00	0.00	BHL 2155'FNL & 2C

Database:	Landmark	Local Co-ordinate Reference:	Well Bernhardt 6O-443
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 6O-443	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
KOP #1									
500.0	2.00	48.96	500.0	1.1	1.3	-0.8	2.00	2.00	0.00
600.0	4.00	48.96	599.8	4.6	5.3	-3.4	2.00	2.00	0.00
700.0	6.00	48.96	699.5	10.3	11.8	-7.6	2.00	2.00	0.00
800.0	8.00	48.96	798.7	18.3	21.0	-13.4	2.00	2.00	0.00
900.0	10.00	48.96	897.5	28.6	32.8	-20.9	2.00	2.00	0.00
1,000.0	12.00	48.96	995.6	41.1	47.2	-30.1	2.00	2.00	0.00
1,066.4	13.33	48.96	1,060.4	50.7	58.2	-37.1	2.00	2.00	0.00
1,100.0	13.33	48.96	1,093.1	55.7	64.0	-40.9	0.00	0.00	0.00
1,200.0	13.33	48.96	1,190.4	70.9	81.4	-51.9	0.00	0.00	0.00
1,300.0	13.33	48.96	1,287.7	86.0	98.8	-63.0	0.00	0.00	0.00
1,400.0	13.33	48.96	1,385.0	101.2	116.2	-74.1	0.00	0.00	0.00
1,500.0	13.33	48.96	1,482.3	116.3	133.6	-85.2	0.00	0.00	0.00
1,600.0	13.33	48.96	1,579.6	131.4	151.0	-96.3	0.00	0.00	0.00
1,700.0	13.33	48.96	1,676.9	146.6	168.4	-107.4	0.00	0.00	0.00
1,800.0	13.33	48.96	1,774.2	161.7	185.8	-118.5	0.00	0.00	0.00
1,900.0	13.33	48.96	1,871.6	176.8	203.1	-129.6	0.00	0.00	0.00
2,000.0	13.33	48.96	1,968.9	192.0	220.5	-140.7	0.00	0.00	0.00
2,100.0	13.33	48.96	2,066.2	207.1	237.9	-151.8	0.00	0.00	0.00
2,200.0	13.33	48.96	2,163.5	222.3	255.3	-162.9	0.00	0.00	0.00
2,300.0	13.33	48.96	2,260.8	237.4	272.7	-174.0	0.00	0.00	0.00
2,400.0	13.33	48.96	2,358.1	252.5	290.1	-185.0	0.00	0.00	0.00
2,500.0	13.33	48.96	2,455.4	267.7	307.5	-196.1	0.00	0.00	0.00
2,600.0	13.33	48.96	2,552.7	282.8	324.9	-207.2	0.00	0.00	0.00
2,700.0	13.33	48.96	2,650.0	297.9	342.3	-218.3	0.00	0.00	0.00
2,800.0	13.33	48.96	2,747.3	313.1	359.6	-229.4	0.00	0.00	0.00
2,900.0	13.33	48.96	2,844.6	328.2	377.0	-240.5	0.00	0.00	0.00
3,000.0	13.33	48.96	2,941.9	343.4	394.4	-251.6	0.00	0.00	0.00
3,100.0	13.33	48.96	3,039.2	358.5	411.8	-262.7	0.00	0.00	0.00
3,200.0	13.33	48.96	3,136.5	373.6	429.2	-273.8	0.00	0.00	0.00
3,300.0	13.33	48.96	3,233.8	388.8	446.6	-284.9	0.00	0.00	0.00
3,400.0	13.33	48.96	3,331.1	403.9	464.0	-296.0	0.00	0.00	0.00
3,500.0	13.33	48.96	3,428.5	419.0	481.4	-307.1	0.00	0.00	0.00
3,600.0	13.33	48.96	3,525.8	434.2	498.7	-318.2	0.00	0.00	0.00
3,700.0	13.33	48.96	3,623.1	449.3	516.1	-329.2	0.00	0.00	0.00
3,800.0	13.33	48.96	3,720.4	464.4	533.5	-340.3	0.00	0.00	0.00
3,900.0	13.33	48.96	3,817.7	479.6	550.9	-351.4	0.00	0.00	0.00
4,000.0	13.33	48.96	3,915.0	494.7	568.3	-362.5	0.00	0.00	0.00
4,100.0	13.33	48.96	4,012.3	509.9	585.7	-373.6	0.00	0.00	0.00
4,200.0	13.33	48.96	4,109.6	525.0	603.1	-384.7	0.00	0.00	0.00
4,300.0	13.33	48.96	4,206.9	540.1	620.5	-395.8	0.00	0.00	0.00
4,400.0	13.33	48.96	4,304.2	555.3	637.9	-406.9	0.00	0.00	0.00
4,500.0	13.33	48.96	4,401.5	570.4	655.2	-418.0	0.00	0.00	0.00
4,600.0	13.33	48.96	4,498.8	585.5	672.6	-429.1	0.00	0.00	0.00
4,700.0	13.33	48.96	4,596.1	600.7	690.0	-440.2	0.00	0.00	0.00
4,800.0	13.33	48.96	4,693.4	615.8	707.4	-451.3	0.00	0.00	0.00
4,900.0	13.33	48.96	4,790.7	631.0	724.8	-462.4	0.00	0.00	0.00
5,000.0	13.33	48.96	4,888.0	646.1	742.2	-473.4	0.00	0.00	0.00

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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 6O-443	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	13.33	48.96	4,985.4	661.2	759.6	-484.5	0.00	0.00	0.00
5,200.0	13.33	48.96	5,082.7	676.4	777.0	-495.6	0.00	0.00	0.00
5,300.0	13.33	48.96	5,180.0	691.5	794.3	-506.7	0.00	0.00	0.00
5,400.0	13.33	48.96	5,277.3	706.6	811.7	-517.8	0.00	0.00	0.00
5,464.0	13.33	48.96	5,339.6	716.3	822.9	-524.9	0.00	0.00	0.00
5,500.0	12.61	48.96	5,374.6	721.6	829.0	-528.8	2.00	-2.00	0.00
5,600.0	10.61	48.96	5,472.6	734.8	844.1	-538.5	2.00	-2.00	0.00
5,700.0	8.61	48.96	5,571.2	745.8	856.7	-546.5	2.00	-2.00	0.00
5,800.0	6.61	48.96	5,670.3	754.5	866.7	-552.9	2.00	-2.00	0.00
5,900.0	4.61	48.96	5,769.8	760.9	874.1	-557.6	2.00	-2.00	0.00
6,000.0	2.61	48.96	5,869.6	765.1	878.8	-560.6	2.00	-2.00	0.00
6,100.0	0.61	48.96	5,969.6	766.9	880.9	-562.0	2.00	-2.00	0.00
6,130.4	0.00	0.00	6,000.0	767.0	881.1	-562.0	2.00	-2.00	0.00
6,200.0	0.00	0.00	6,069.6	767.0	881.1	-562.0	0.00	0.00	0.00
6,300.0	0.00	0.00	6,169.6	767.0	881.1	-562.0	0.00	0.00	0.00
6,400.0	0.00	0.00	6,269.6	767.0	881.1	-562.0	0.00	0.00	0.00
6,500.0	0.00	0.00	6,369.6	767.0	881.1	-562.0	0.00	0.00	0.00
6,545.8	0.00	0.00	6,415.4	767.0	881.1	-562.0	0.00	0.00	0.00
KOP #2									
6,600.0	4.06	180.00	6,469.5	765.1	881.1	-560.2	7.49	7.49	0.00
6,700.0	11.56	180.00	6,568.5	751.5	881.1	-546.9	7.50	7.50	0.00
6,800.0	19.06	180.00	6,664.9	725.1	881.1	-521.1	7.50	7.50	0.00
6,900.0	26.56	180.00	6,757.0	686.4	881.1	-483.3	7.50	7.50	0.00
7,000.0	34.06	180.00	6,843.3	635.9	881.1	-434.0	7.50	7.50	0.00
7,100.0	41.56	180.00	6,922.2	574.7	881.1	-374.1	7.50	7.50	0.00
7,200.0	49.06	180.00	6,992.5	503.6	881.1	-304.7	7.50	7.50	0.00
7,300.0	56.56	180.00	7,052.9	424.0	881.1	-226.9	7.50	7.50	0.00
7,400.0	64.06	180.00	7,102.4	337.2	881.1	-142.1	7.50	7.50	0.00
7,500.0	71.56	180.00	7,140.1	244.7	881.1	-51.7	7.50	7.50	0.00
7,600.0	79.06	180.00	7,165.5	148.0	881.1	42.8	7.50	7.50	0.00
7,700.0	86.56	180.00	7,178.0	48.9	881.1	139.6	7.50	7.50	0.00
7,744.8	89.92	180.00	7,179.3	4.1	881.1	183.4	7.50	7.50	0.00
End of Build - 7"									
7,800.0	89.92	180.00	7,179.4	-51.1	881.1	237.3	0.00	0.00	0.00
7,900.0	89.92	180.00	7,179.6	-151.1	881.1	335.0	0.00	0.00	0.00
8,000.0	89.92	180.00	7,179.7	-251.1	881.1	432.8	0.00	0.00	0.00
8,100.0	89.92	180.00	7,179.8	-351.1	881.1	530.5	0.00	0.00	0.00
8,200.0	89.92	180.00	7,180.0	-451.1	881.1	628.2	0.00	0.00	0.00
8,300.0	89.92	180.00	7,180.1	-551.1	881.1	725.9	0.00	0.00	0.00
8,400.0	89.92	180.00	7,180.3	-651.1	881.1	823.6	0.00	0.00	0.00
8,500.0	89.92	180.00	7,180.4	-751.1	881.1	921.3	0.00	0.00	0.00
8,600.0	89.92	180.00	7,180.5	-851.1	881.1	1,019.0	0.00	0.00	0.00
8,700.0	89.92	180.00	7,180.7	-951.1	881.1	1,116.7	0.00	0.00	0.00
8,800.0	89.92	180.00	7,180.8	-1,051.1	881.1	1,214.5	0.00	0.00	0.00
8,900.0	89.92	180.00	7,181.0	-1,151.1	881.1	1,312.2	0.00	0.00	0.00
9,000.0	89.92	180.00	7,181.1	-1,251.1	881.1	1,409.9	0.00	0.00	0.00
9,100.0	89.92	180.00	7,181.2	-1,351.1	881.1	1,507.6	0.00	0.00	0.00
9,200.0	89.92	180.00	7,181.4	-1,451.1	881.1	1,605.3	0.00	0.00	0.00
9,300.0	89.92	180.00	7,181.5	-1,551.1	881.1	1,703.0	0.00	0.00	0.00
9,400.0	89.92	180.00	7,181.7	-1,651.1	881.1	1,800.7	0.00	0.00	0.00
9,500.0	89.92	180.00	7,181.8	-1,751.1	881.1	1,898.4	0.00	0.00	0.00
9,600.0	89.92	180.00	7,181.9	-1,851.1	881.1	1,996.1	0.00	0.00	0.00
9,700.0	89.92	180.00	7,182.1	-1,951.1	881.1	2,093.9	0.00	0.00	0.00

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Site:	Bernhardt 4N66W6K Pad Sec.6-T4N-R66W	North Reference:	True
Well:	Bernhardt 6O-443	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	89.92	180.00	7,182.2	-2,051.1	881.1	2,191.6	0.00	0.00	0.00
9,900.0	89.92	180.00	7,182.4	-2,151.1	881.1	2,289.3	0.00	0.00	0.00
10,000.0	89.92	180.00	7,182.5	-2,251.1	881.1	2,387.0	0.00	0.00	0.00
10,100.0	89.92	180.00	7,182.6	-2,351.1	881.1	2,484.7	0.00	0.00	0.00
10,200.0	89.92	180.00	7,182.8	-2,451.1	881.1	2,582.4	0.00	0.00	0.00
10,300.0	89.92	180.00	7,182.9	-2,551.1	881.1	2,680.1	0.00	0.00	0.00
10,400.0	89.92	180.00	7,183.1	-2,651.1	881.1	2,777.8	0.00	0.00	0.00
10,500.0	89.92	180.00	7,183.2	-2,751.1	881.1	2,875.5	0.00	0.00	0.00
10,600.0	89.92	180.00	7,183.3	-2,851.1	881.1	2,973.3	0.00	0.00	0.00
10,700.0	89.92	180.00	7,183.5	-2,951.1	881.1	3,071.0	0.00	0.00	0.00
10,800.0	89.92	180.00	7,183.6	-3,051.1	881.1	3,168.7	0.00	0.00	0.00
10,900.0	89.92	180.00	7,183.7	-3,151.1	881.1	3,266.4	0.00	0.00	0.00
11,000.0	89.92	180.00	7,183.9	-3,251.1	881.1	3,364.1	0.00	0.00	0.00
11,100.0	89.92	180.00	7,184.0	-3,351.1	881.1	3,461.8	0.00	0.00	0.00
11,200.0	89.92	180.00	7,184.2	-3,451.1	881.1	3,559.5	0.00	0.00	0.00
11,300.0	89.92	180.00	7,184.3	-3,551.1	881.1	3,657.2	0.00	0.00	0.00
11,400.0	89.92	180.00	7,184.4	-3,651.1	881.1	3,755.0	0.00	0.00	0.00
11,500.0	89.92	180.00	7,184.6	-3,751.1	881.1	3,852.7	0.00	0.00	0.00
11,600.0	89.92	180.00	7,184.7	-3,851.1	881.1	3,950.4	0.00	0.00	0.00
11,700.0	89.92	180.00	7,184.9	-3,951.1	881.1	4,048.1	0.00	0.00	0.00
11,796.3	89.92	180.00	7,185.0	-4,047.4	881.1	4,142.2	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									
BHL 2155'FNL & 2055'FSL	0.00	0.00	7,185.0	-4,047.4	881.1	1,363,071.25	3,188,919.86	40.328050	-104.822390
- plan hits target center									
- Point									
SHL 1916'FSL & 1181'FNL	0.00	0.00	1.0	0.0	0.0	1,367,111.70	3,188,008.07	40.339160	-104.825550
- plan hits target center									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
7,744.8	7,179.3	7"	7	7-1/2	

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	+E/-W (ft)	Comment
400.0	400.0	0.0	0.0	KOP #1
6,545.8	6,415.4	767.0	881.1	KOP #2
7,744.8	7,179.3	4.1	881.1	End of Build



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.6-T4N-R66W

Bernhardt 4N66W6K Pad Sec.6-T4N-R66W

Bernhardt 6O-443

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 6O-443
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 6O-443	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	11,796.3	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-323 - Wellbore #1 - Plan #2 (9-3-14)	400.0	400.0	28.8	27.2	18.313	CC, ES
Bernhardt 6K-323 - Wellbore #1 - Plan #2 (9-3-14)	11,796.3	11,666.7	340.7	181.2	2.135	SF
Bernhardt 6K-403 - Wellbore #1 - Plan #2 (9-3-14)	400.0	400.0	60.3	58.8	38.344	CC, ES
Bernhardt 6K-403 - Wellbore #1 - Plan #2 (9-3-14)	11,796.3	11,730.8	658.0	492.3	3.971	SF
Bernhardt 6O-243 - Wellbore #1 - Plan #2 (9-3-14)	200.0	200.0	29.9	29.3	44.406	CC, ES
Bernhardt 6O-243 - Wellbore #1 - Plan #2 (9-3-14)	11,796.3	11,699.1	367.2	211.4	2.357	SF
Existing Wells Sec.6-T4N-R66W						
Bernhardt 7-2 (Exist.) - Wellbore #1 - Wellbore #1	11,665.2	7,185.8	273.2	49.2	1.220	Level 2, CC, ES, SF

Offset Design		Bernhardt 4N66W6K Pad Sec.6-T4N-R66W - Bernhardt 6K-323 - 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	-104.65	-7.3	-27.9	28.8						
100.0	100.0	100.0	100.0	0.1	0.1	-104.65	-7.3	-27.9	28.8	28.6	0.22	128.194			
200.0	200.0	200.0	200.0	0.3	0.3	-104.65	-7.3	-27.9	28.8	28.1	0.67	42.731			
300.0	300.0	300.0	300.0	0.6	0.6	-104.65	-7.3	-27.9	28.8	27.7	1.12	25.639			
400.0	400.0	400.0	400.0	0.8	0.8	-104.65	-7.3	-27.9	28.8	27.2	1.57	18.313	CC, ES		
500.0	500.0	500.0	500.0	1.0	1.0	-155.06	-7.3	-27.9	30.4	28.4	2.02	15.036			
600.0	599.8	599.8	599.8	1.2	1.2	-158.62	-7.3	-27.9	35.2	32.7	2.47	14.259			
700.0	699.5	699.5	699.5	1.5	1.5	-162.76	-7.3	-27.9	43.4	40.5	2.92	14.880			
800.0	798.7	798.7	798.7	1.7	1.7	-166.46	-7.3	-27.9	55.2	51.8	3.37	16.378			
900.0	897.5	899.7	899.7	2.0	1.9	-168.88	-5.9	-26.8	68.9	65.1	3.82	18.062			
1,000.0	995.6	1,001.2	1,001.0	2.4	2.1	-169.99	-1.6	-23.6	82.9	78.7	4.26	19.466			
1,100.0	1,093.1	1,103.2	1,102.6	2.8	2.4	-170.33	5.5	-18.2	96.9	92.2	4.72	20.539			
1,200.0	1,190.4	1,206.0	1,204.6	3.2	2.6	-169.97	15.7	-10.6	108.3	103.1	5.20	20.821			
1,300.0	1,287.7	1,309.4	1,306.7	3.7	2.9	-168.98	28.8	-0.7	116.4	110.7	5.71	20.390			
1,400.0	1,385.0	1,412.3	1,407.7	4.2	3.3	-167.45	44.7	11.3	121.3	115.0	6.24	19.432			
1,500.0	1,482.3	1,512.2	1,505.4	4.6	3.6	-165.85	61.1	23.6	125.2	118.4	6.79	18.431			
1,600.0	1,579.6	1,612.0	1,603.2	5.1	4.0	-164.35	77.4	35.9	129.3	121.9	7.37	17.541			
1,700.0	1,676.9	1,711.9	1,700.9	5.6	4.4	-162.95	93.8	48.2	133.4	125.5	7.96	16.753			

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 6O-443
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 6O-443	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-323 - 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	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
1,800.0	1,774.2	1,811.8	1,798.6	6.0	4.8	-161.62	110.1	60.5	137.6	129.1	8.58	16.045			
1,900.0	1,871.6	1,911.6	1,896.4	6.5	5.2	-160.38	126.5	72.8	141.9	132.7	9.21	15.410			
2,000.0	1,968.9	2,011.5	1,994.1	7.0	5.6	-159.21	142.8	85.1	146.3	136.4	9.86	14.838			
2,100.0	2,066.2	2,111.3	2,091.9	7.5	6.0	-158.11	159.2	97.4	150.7	140.1	10.52	14.322			
2,200.0	2,163.5	2,211.2	2,189.6	8.0	6.4	-157.08	175.5	109.7	155.1	143.9	11.20	13.855			
2,300.0	2,260.8	2,311.1	2,287.4	8.4	6.8	-156.10	191.9	122.0	159.6	147.7	11.88	13.431			
2,400.0	2,358.1	2,410.9	2,385.1	8.9	7.2	-155.17	208.2	134.3	164.2	151.6	12.59	13.045			
2,500.0	2,455.4	2,510.8	2,482.8	9.4	7.7	-154.29	224.6	146.6	168.8	155.5	13.30	12.693			
2,600.0	2,552.7	2,610.7	2,580.6	9.9	8.1	-153.47	240.9	158.9	173.4	159.4	14.02	12.370			
2,700.0	2,650.0	2,710.5	2,678.3	10.4	8.5	-152.68	257.3	171.2	178.0	163.3	14.75	12.074			
2,800.0	2,747.3	2,810.4	2,776.1	10.9	8.9	-151.93	273.6	183.5	182.7	167.2	15.48	11.802			
2,900.0	2,844.6	2,910.2	2,873.8	11.4	9.4	-151.23	290.0	195.9	187.5	171.2	16.23	11.552			
3,000.0	2,941.9	3,010.1	2,971.6	11.8	9.8	-150.55	306.3	208.2	192.2	175.2	16.98	11.320			
3,100.0	3,039.2	3,110.0	3,069.3	12.3	10.2	-149.91	322.7	220.5	197.0	179.2	17.74	11.105			
3,200.0	3,136.5	3,209.8	3,167.0	12.8	10.7	-149.30	339.0	232.8	201.8	183.3	18.50	10.906			
3,300.0	3,233.8	3,309.7	3,264.8	13.3	11.1	-148.72	355.4	245.1	206.6	187.3	19.27	10.721			
3,400.0	3,331.1	3,409.6	3,362.5	13.8	11.5	-148.16	371.7	257.4	211.4	191.4	20.04	10.549			
3,500.0	3,428.5	3,509.4	3,460.3	14.3	12.0	-147.63	388.1	269.7	216.3	195.5	20.82	10.388			
3,600.0	3,525.8	3,609.3	3,558.0	14.8	12.4	-147.13	404.4	282.0	221.2	199.6	21.60	10.238			
3,700.0	3,623.1	3,709.1	3,655.8	15.3	12.9	-146.64	420.8	294.3	226.0	203.7	22.39	10.097			
3,800.0	3,720.4	3,809.0	3,753.5	15.8	13.3	-146.17	437.1	306.6	230.9	207.8	23.18	9.965			
3,900.0	3,817.7	3,908.9	3,851.2	16.2	13.7	-145.73	453.5	318.9	235.9	211.9	23.97	9.841			
4,000.0	3,915.0	4,008.7	3,949.0	16.7	14.2	-145.30	469.8	331.2	240.8	216.0	24.76	9.725			
4,100.0	4,012.3	4,108.6	4,046.7	17.2	14.6	-144.89	486.2	343.5	245.8	220.2	25.56	9.615			
4,200.0	4,109.6	4,208.5	4,144.5	17.7	15.0	-144.50	502.6	355.8	250.7	224.4	26.36	9.511			
4,300.0	4,206.9	4,308.3	4,242.2	18.2	15.5	-144.12	518.9	368.1	255.7	228.5	27.16	9.413			
4,400.0	4,304.2	4,408.2	4,340.0	18.7	15.9	-143.76	535.3	380.4	260.7	232.7	27.97	9.320			
4,500.0	4,401.5	4,508.0	4,437.7	19.2	16.4	-143.40	551.6	392.7	265.7	236.9	28.78	9.232			
4,600.0	4,498.8	4,607.9	4,535.5	19.7	16.8	-143.07	568.0	405.0	270.7	241.1	29.58	9.149			
4,700.0	4,596.1	4,707.8	4,633.2	20.2	17.2	-142.74	584.3	417.3	275.7	245.3	30.39	9.070			
4,800.0	4,693.4	4,807.6	4,730.9	20.6	17.7	-142.43	600.7	429.6	280.7	249.5	31.21	8.994			
4,900.0	4,790.7	4,907.5	4,828.7	21.1	18.1	-142.13	617.0	442.0	285.7	253.7	32.02	8.923			
5,000.0	4,888.0	5,007.3	4,926.4	21.6	18.6	-141.83	633.4	454.3	290.7	257.9	32.84	8.855			
5,100.0	4,985.4	5,107.2	5,024.2	22.1	19.0	-141.55	649.7	466.6	295.8	262.1	33.65	8.790			
5,200.0	5,082.7	5,207.1	5,121.9	22.6	19.4	-141.28	666.1	478.9	300.8	266.4	34.47	8.728			
5,300.0	5,180.0	5,306.9	5,219.7	23.1	19.9	-141.01	682.4	491.2	305.9	270.6	35.29	8.668			
5,400.0	5,277.3	5,406.8	5,317.4	23.6	20.3	-140.76	698.8	503.5	311.0	274.8	36.11	8.612			
5,500.0	5,374.6	5,504.4	5,413.0	24.1	20.8	-140.52	714.7	515.5	315.9	278.9	36.92	8.555			
5,600.0	5,472.6	5,600.0	5,506.8	24.4	21.1	-140.24	729.1	526.3	319.7	282.1	37.62	8.497			
5,700.0	5,571.2	5,693.4	5,599.1	24.7	21.4	-140.01	740.8	535.1	322.9	284.7	38.19	8.453			
5,800.0	5,670.3	5,786.9	5,691.8	25.0	21.6	-139.84	750.0	542.1	325.4	286.7	38.68	8.411			
5,900.0	5,769.8	5,880.3	5,784.9	25.2	21.8	-139.72	756.8	547.2	327.3	288.2	39.09	8.372			
6,000.0	5,869.6	5,973.8	5,878.1	25.3	22.0	-139.64	761.2	550.5	328.5	289.0	39.41	8.335			
6,100.0	5,969.6	6,067.2	5,971.5	25.5	22.1	-139.60	763.2	552.0	329.0	289.3	39.64	8.299			
6,200.0	6,069.6	6,165.2	6,069.6	25.6	22.2	-90.64	763.3	552.1	329.0	289.1	39.89	8.248			
6,300.0	6,169.6	6,265.2	6,169.6	25.7	22.4	-90.64	763.3	552.1	329.0	288.9	40.17	8.191			
6,400.0	6,269.6	6,365.2	6,269.6	25.8	22.5	-90.64	763.3	552.1	329.0	288.6	40.45	8.134			
6,451.4	6,320.9	6,416.6	6,320.9	25.9	22.6	-90.64	763.3	552.1	329.0	288.4	40.60	8.104			
6,500.0	6,369.6	6,465.0	6,369.4	25.9	22.6	-90.78	762.5	552.1	329.0	288.3	40.68	8.088			
6,600.0	6,469.5	6,563.5	6,467.2	26.0	22.6	87.67	751.8	552.1	329.3	288.9	40.35	8.160			
6,700.0	6,568.5	6,660.6	6,561.5	26.0	22.5	85.93	729.0	552.1	329.8	290.1	39.73	8.303			

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 6O-443
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 6O-443	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-323 - 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
6,800.0	6,664.9	6,756.6	6,651.2	25.9	22.3	84.27	84.27	694.9	552.1	330.7	291.7	38.92	8.495	
6,900.0	6,757.0	6,851.5	6,734.9	25.7	22.0	82.71	82.71	650.4	552.1	331.7	293.7	38.01	8.726	
7,000.0	6,843.3	6,945.5	6,811.7	25.4	21.7	81.29	81.29	596.4	552.1	332.9	295.8	37.06	8.982	
7,100.0	6,922.2	7,038.6	6,880.8	25.0	21.3	80.03	80.03	534.1	552.1	334.1	297.9	36.13	9.246	
7,200.0	6,992.5	7,130.9	6,941.3	24.7	20.9	78.92	78.92	464.4	552.1	335.3	300.0	35.30	9.499	
7,300.0	7,052.9	7,222.7	6,992.7	24.3	20.5	78.00	78.00	388.4	552.1	336.4	301.8	34.61	9.718	
7,400.0	7,102.4	7,313.9	7,034.3	23.9	20.2	77.27	77.27	307.2	552.1	337.3	303.2	34.14	9.880	
7,500.0	7,140.1	7,404.8	7,065.9	23.5	19.8	76.74	76.74	222.1	552.1	338.0	304.1	33.92	9.964	
7,600.0	7,165.5	7,495.5	7,087.2	23.1	19.5	76.41	76.41	134.0	552.1	338.5	304.5	34.00	9.956	
7,700.0	7,178.0	7,586.0	7,097.8	22.9	19.2	76.28	76.28	44.2	552.1	338.7	304.3	34.37	9.852	
7,800.0	7,179.4	7,681.3	7,099.1	22.7	18.9	76.28	76.28	-51.1	552.1	338.7	303.7	35.00	9.675	
7,900.0	7,179.6	7,781.3	7,099.0	22.7	18.9	76.25	76.25	-151.1	552.1	338.7	302.8	35.96	9.420	
8,000.0	7,179.7	7,881.3	7,099.0	22.9	19.8	76.22	76.22	-251.1	552.1	338.8	301.5	37.26	9.092	
8,100.0	7,179.8	7,981.3	7,098.9	23.4	20.8	76.18	76.18	-351.1	552.1	338.8	299.9	38.88	8.714	
8,200.0	7,180.0	8,081.3	7,098.9	24.2	21.9	76.15	76.15	-451.1	552.1	338.8	298.1	40.78	8.310	
8,300.0	7,180.1	8,181.3	7,098.8	25.2	23.1	76.12	76.12	-551.1	552.1	338.9	296.0	42.92	7.896	
8,400.0	7,180.3	8,281.3	7,098.8	26.3	24.4	76.09	76.09	-651.1	552.1	338.9	293.7	45.27	7.487	
8,500.0	7,180.4	8,381.3	7,098.7	27.5	25.7	76.06	76.06	-751.1	552.1	339.0	291.2	47.79	7.093	
8,600.0	7,180.5	8,481.3	7,098.7	28.8	27.1	76.03	76.03	-851.1	552.1	339.0	288.6	50.47	6.717	
8,700.0	7,180.7	8,581.3	7,098.6	30.2	28.6	75.99	75.99	-951.1	552.1	339.1	285.8	53.27	6.365	
8,800.0	7,180.8	8,681.3	7,098.6	31.6	30.1	75.96	75.96	-1,051.1	552.1	339.1	282.9	56.19	6.036	
8,900.0	7,181.0	8,781.3	7,098.5	33.1	31.6	75.93	75.93	-1,151.1	552.1	339.2	280.0	59.19	5.730	
9,000.0	7,181.1	8,881.3	7,098.5	34.6	33.2	75.90	75.90	-1,251.1	552.1	339.2	276.9	62.27	5.447	
9,100.0	7,181.2	8,981.3	7,098.4	36.1	34.8	75.87	75.87	-1,351.1	552.1	339.3	273.8	65.42	5.186	
9,200.0	7,181.4	9,081.3	7,098.4	37.7	36.4	75.84	75.84	-1,451.1	552.1	339.3	270.7	68.63	4.944	
9,300.0	7,181.5	9,181.3	7,098.3	39.3	38.1	75.81	75.81	-1,551.1	552.1	339.4	267.5	71.88	4.721	
9,400.0	7,181.7	9,281.3	7,098.2	41.0	39.8	75.77	75.77	-1,651.1	552.1	339.4	264.2	75.19	4.514	
9,500.0	7,181.8	9,381.3	7,098.2	42.6	41.5	75.74	75.74	-1,751.1	552.1	339.5	260.9	78.52	4.323	
9,600.0	7,181.9	9,481.3	7,098.1	44.3	43.2	75.71	75.71	-1,851.1	552.1	339.5	257.6	81.90	4.146	
9,700.0	7,182.1	9,581.3	7,098.1	46.0	45.0	75.68	75.68	-1,951.1	552.1	339.6	254.3	85.30	3.981	
9,800.0	7,182.2	9,681.3	7,098.0	47.7	46.7	75.65	75.65	-2,051.1	552.1	339.6	250.9	88.72	3.828	
9,900.0	7,182.4	9,781.3	7,098.0	49.4	48.5	75.62	75.62	-2,151.1	552.1	339.6	247.5	92.17	3.685	
10,000.0	7,182.5	9,881.3	7,097.9	51.2	50.2	75.59	75.59	-2,251.1	552.1	339.7	244.1	95.64	3.552	
10,100.0	7,182.6	9,981.3	7,097.9	52.9	52.0	75.55	75.55	-2,351.1	552.1	339.7	240.6	99.12	3.427	
10,200.0	7,182.8	10,081.3	7,097.8	54.7	53.8	75.52	75.52	-2,451.1	552.1	339.8	237.2	102.63	3.311	
10,300.0	7,182.9	10,181.3	7,097.8	56.5	55.6	75.49	75.49	-2,551.1	552.1	339.8	233.7	106.14	3.202	
10,400.0	7,183.1	10,281.3	7,097.7	58.2	57.4	75.46	75.46	-2,651.1	552.1	339.9	230.2	109.67	3.099	
10,500.0	7,183.2	10,381.3	7,097.7	60.0	59.2	75.43	75.43	-2,751.1	552.1	339.9	226.7	113.21	3.003	
10,600.0	7,183.3	10,481.3	7,097.6	61.8	61.1	75.40	75.40	-2,851.1	552.1	340.0	223.2	116.76	2.912	
10,700.0	7,183.5	10,581.2	7,097.6	63.6	62.9	75.37	75.37	-2,951.1	552.1	340.0	219.7	120.32	2.826	
10,800.0	7,183.6	10,681.2	7,097.5	65.4	64.7	75.34	75.34	-3,051.1	552.1	340.1	216.2	123.89	2.745	
10,900.0	7,183.7	10,781.2	7,097.5	67.2	66.6	75.30	75.30	-3,151.1	552.1	340.1	212.7	127.47	2.668	
11,000.0	7,183.9	10,881.2	7,097.4	69.1	68.4	75.27	75.27	-3,251.1	552.1	340.2	209.1	131.05	2.596	
11,100.0	7,184.0	10,981.2	7,097.4	70.9	70.3	75.24	75.24	-3,351.1	552.1	340.2	205.6	134.64	2.527	
11,200.0	7,184.2	11,081.2	7,097.3	72.7	72.1	75.21	75.21	-3,451.1	552.1	340.3	202.0	138.24	2.462	
11,300.0	7,184.3	11,181.2	7,097.3	74.6	74.0	75.18	75.18	-3,551.1	552.1	340.3	198.5	141.84	2.399	
11,400.0	7,184.4	11,281.2	7,097.2	76.4	75.8	75.15	75.15	-3,651.1	552.1	340.4	194.9	145.44	2.340	
11,500.0	7,184.6	11,381.2	7,097.1	78.2	77.7	75.12	75.12	-3,751.1	552.1	340.4	191.4	149.05	2.284	
11,600.0	7,184.7	11,481.2	7,097.1	80.1	79.5	75.09	75.09	-3,851.1	552.1	340.5	187.8	152.66	2.230	
11,700.0	7,184.9	11,581.2	7,097.0	81.9	81.4	75.05	75.05	-3,951.1	552.1	340.5	184.2	156.28	2.179	
11,753.7	7,184.9	11,634.9	7,097.0	82.9	82.4	75.04	75.04	-4,004.7	552.1	340.5	182.3	158.22	2.152	

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 6O-443
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 6O-443	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-323 - 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	
11,796.3	7,185.0	11,666.7	7,097.0	83.7	83.0	75.03	-4,036.5	552.1	340.7	181.2	159.57	2.135 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Bernhardt 6O-443
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 6O-443	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 (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	-103.98	-14.6	-58.5	60.3					
100.0	100.0	100.0	100.0	0.1	0.1	-103.98	-14.6	-58.5	60.3	60.1	0.22	268.407		
200.0	200.0	200.0	200.0	0.3	0.3	-103.98	-14.6	-58.5	60.3	59.7	0.67	89.469		
300.0	300.0	300.0	300.0	0.6	0.6	-103.98	-14.6	-58.5	60.3	59.2	1.12	53.681		
400.0	400.0	400.0	400.0	0.8	0.8	-103.98	-14.6	-58.5	60.3	58.8	1.57	38.344 CC, ES		
500.0	500.0	500.0	500.0	1.0	1.0	-153.66	-14.6	-58.5	61.9	59.9	2.02	30.624		
600.0	599.8	599.8	599.8	1.2	1.2	-155.62	-14.6	-58.5	66.6	64.2	2.47	26.988		
700.0	699.5	699.5	699.5	1.5	1.5	-158.32	-14.6	-58.5	74.6	71.7	2.92	25.572		
800.0	798.7	798.7	798.7	1.7	1.7	-161.24	-14.6	-58.5	86.1	82.7	3.37	25.536		
900.0	897.5	897.5	897.5	2.0	1.9	-164.01	-14.6	-58.5	101.0	97.2	3.82	26.418		
1,000.0	995.6	995.6	995.6	2.4	2.1	-166.44	-14.6	-58.5	119.5	115.2	4.28	27.936		
1,100.0	1,093.1	1,096.7	1,096.7	2.8	2.4	-168.13	-13.0	-58.0	140.1	135.4	4.74	29.582		
1,200.0	1,190.4	1,199.0	1,198.8	3.2	2.6	-168.65	-8.1	-56.2	158.9	153.7	5.21	30.514		
1,300.0	1,287.7	1,302.3	1,301.7	3.7	2.8	-168.27	0.4	-53.1	174.9	169.2	5.69	30.719		
1,400.0	1,385.0	1,406.3	1,405.0	4.2	3.1	-167.21	12.5	-48.7	188.3	182.1	6.21	30.339		
1,500.0	1,482.3	1,510.8	1,508.1	4.6	3.4	-165.55	28.1	-43.0	199.1	192.3	6.75	29.492		
1,600.0	1,579.6	1,610.7	1,606.4	5.1	3.7	-163.71	45.1	-36.8	208.4	201.1	7.32	28.472		
1,700.0	1,676.9	1,710.1	1,704.1	5.6	4.0	-162.04	62.0	-30.7	218.0	210.1	7.92	27.538		
1,800.0	1,774.2	1,809.4	1,801.8	6.0	4.3	-160.51	78.9	-24.6	227.7	219.2	8.53	26.684		
1,900.0	1,871.6	1,908.8	1,899.5	6.5	4.6	-159.10	95.8	-18.4	237.6	228.4	9.17	25.907		
2,000.0	1,968.9	2,008.1	1,997.2	7.0	5.0	-157.81	112.7	-12.3	247.6	237.7	9.82	25.197		
2,100.0	2,066.2	2,107.5	2,094.9	7.5	5.3	-156.62	129.6	-6.1	257.7	247.2	10.50	24.551		
2,200.0	2,163.5	2,206.8	2,192.6	8.0	5.7	-155.51	146.5	0.0	267.9	256.7	11.18	23.961		
2,300.0	2,260.8	2,306.2	2,290.3	8.4	6.1	-154.49	163.4	6.2	278.2	266.3	11.88	23.424		
2,400.0	2,358.1	2,405.5	2,388.1	8.9	6.4	-153.54	180.3	12.3	288.6	276.0	12.58	22.933		
2,500.0	2,455.4	2,504.9	2,485.8	9.4	6.8	-152.66	197.1	18.5	299.0	285.7	13.30	22.484		
2,600.0	2,552.7	2,604.2	2,583.5	9.9	7.2	-151.84	214.0	24.6	309.6	295.5	14.02	22.072		
2,700.0	2,650.0	2,703.6	2,681.2	10.4	7.6	-151.07	230.9	30.8	320.1	305.4	14.76	21.694		
2,800.0	2,747.3	2,802.9	2,778.9	10.9	8.0	-150.35	247.8	36.9	330.8	315.3	15.50	21.347		
2,900.0	2,844.6	2,902.3	2,876.6	11.4	8.3	-149.68	264.7	43.1	341.5	325.2	16.24	21.026		
3,000.0	2,941.9	3,001.6	2,974.3	11.8	8.7	-149.04	281.6	49.2	352.2	335.2	16.99	20.730		
3,100.0	3,039.2	3,101.0	3,072.0	12.3	9.1	-148.45	298.5	55.3	363.0	345.2	17.74	20.456		
3,200.0	3,136.5	3,200.3	3,169.7	12.8	9.5	-147.89	315.4	61.5	373.8	355.3	18.50	20.202		
3,300.0	3,233.8	3,299.7	3,267.4	13.3	9.9	-147.36	332.3	67.6	384.6	365.3	19.26	19.965		
3,400.0	3,331.1	3,399.0	3,365.1	13.8	10.3	-146.85	349.2	73.8	395.5	375.4	20.03	19.745		
3,500.0	3,428.5	3,498.4	3,462.9	14.3	10.7	-146.38	366.1	79.9	406.4	385.6	20.80	19.540		
3,600.0	3,525.8	3,597.7	3,560.6	14.8	11.1	-145.93	383.0	86.1	417.3	395.7	21.57	19.348		
3,700.0	3,623.1	3,697.1	3,658.3	15.3	11.4	-145.50	399.9	92.2	428.2	405.9	22.34	19.168		
3,800.0	3,720.4	3,796.4	3,756.0	15.8	11.8	-145.10	416.8	98.4	439.2	416.1	23.12	19.000		
3,900.0	3,817.7	3,895.8	3,853.7	16.2	12.2	-144.71	433.7	104.5	450.2	426.3	23.89	18.841		
4,000.0	3,915.0	3,995.1	3,951.4	16.7	12.6	-144.35	450.6	110.7	461.2	436.5	24.67	18.692		
4,100.0	4,012.3	4,094.5	4,049.1	17.2	13.0	-144.00	467.5	116.8	472.2	446.8	25.45	18.552		
4,200.0	4,109.6	4,193.8	4,146.8	17.7	13.4	-143.66	484.4	122.9	483.3	457.0	26.24	18.419		
4,300.0	4,206.9	4,293.2	4,244.5	18.2	13.8	-143.34	501.3	129.1	494.3	467.3	27.02	18.294		
4,400.0	4,304.2	4,392.5	4,342.2	18.7	14.2	-143.04	518.2	135.2	505.4	477.6	27.81	18.176		
4,500.0	4,401.5	4,491.9	4,439.9	19.2	14.6	-142.75	535.1	141.4	516.5	487.9	28.59	18.064		
4,600.0	4,498.8	4,591.2	4,537.7	19.7	15.0	-142.47	552.0	147.5	527.6	498.2	29.38	17.957		
4,700.0	4,596.1	4,690.6	4,635.4	20.2	15.4	-142.20	568.9	153.7	538.7	508.5	30.17	17.856		
4,800.0	4,693.4	4,789.9	4,733.1	20.6	15.8	-141.94	585.7	159.8	549.8	518.9	30.96	17.760		
4,900.0	4,790.7	4,889.3	4,830.8	21.1	16.2	-141.69	602.6	166.0	561.0	529.2	31.75	17.668		
5,000.0	4,888.0	4,988.6	4,928.5	21.6	16.6	-141.46	619.5	172.1	572.1	539.6	32.54	17.581		

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 6O-443
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 6O-443	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	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	4,985.4	5,088.0	5,026.2	22.1	16.9	-141.23		636.4	178.3	583.3	549.9	33.33	17.498	
5,200.0	5,082.7	5,187.3	5,123.9	22.6	17.3	-141.01		653.3	184.4	594.4	560.3	34.13	17.419	
5,300.0	5,180.0	5,286.7	5,221.6	23.1	17.7	-140.80		670.2	190.5	605.6	570.7	34.92	17.343	
5,400.0	5,277.3	5,386.0	5,319.3	23.6	18.1	-140.59		687.1	196.7	616.8	581.1	35.71	17.270	
5,500.0	5,374.6	5,485.4	5,417.1	24.1	18.5	-140.43		704.0	202.8	627.8	591.3	36.51	17.197	
5,600.0	5,472.6	5,582.3	5,512.4	24.4	18.9	-140.21		720.4	208.8	636.8	599.5	37.24	17.098	
5,700.0	5,571.2	5,674.5	5,603.5	24.7	19.2	-140.00		733.7	213.6	644.0	606.2	37.84	17.021	
5,800.0	5,670.3	5,766.8	5,695.1	25.0	19.4	-139.83		744.3	217.5	649.8	611.4	38.34	16.946	
5,900.0	5,769.8	5,859.1	5,787.1	25.2	19.6	-139.71		752.2	220.4	654.0	615.2	38.76	16.871	
6,000.0	5,869.6	5,951.6	5,879.4	25.3	19.8	-139.64		757.2	222.2	656.7	617.6	39.10	16.797	
6,100.0	5,969.6	6,044.1	5,971.8	25.5	19.9	-139.60		759.5	223.0	658.0	618.6	39.35	16.720	
6,200.0	6,069.6	6,141.8	6,069.6	25.6	20.0	-90.64		759.6	223.1	658.0	618.4	39.60	16.617	
6,300.0	6,169.6	6,241.8	6,169.6	25.7	20.2	-90.64		759.6	223.1	658.0	618.2	39.89	16.498	
6,400.0	6,269.6	6,341.8	6,269.6	25.8	20.3	-90.64		759.6	223.1	658.0	617.9	40.17	16.380	
6,500.0	6,369.6	6,441.8	6,369.6	25.9	20.5	-90.64		759.6	223.1	658.0	617.6	40.46	16.263	
6,600.0	6,469.5	6,541.3	6,469.0	26.0	20.6	89.36		757.7	223.1	658.0	617.4	40.69	16.171	
6,700.0	6,568.5	6,640.4	6,567.1	26.0	20.6	89.37		744.4	223.1	658.0	617.4	40.67	16.181	
6,800.0	6,664.9	6,739.4	6,662.6	25.9	20.5	89.39		718.5	223.1	658.0	617.6	40.40	16.290	
6,900.0	6,757.0	6,838.6	6,754.1	25.7	20.2	89.42		680.4	223.1	658.0	618.1	39.91	16.488	
7,000.0	6,843.3	6,937.7	6,839.9	25.4	19.9	89.47		630.8	223.1	658.0	618.8	39.26	16.761	
7,100.0	6,922.2	7,037.0	6,918.6	25.0	19.5	89.52		570.5	223.1	658.0	619.5	38.50	17.089	
7,200.0	6,992.5	7,136.3	6,988.8	24.7	19.1	89.58		500.4	223.1	658.0	620.3	37.72	17.443	
7,300.0	7,052.9	7,235.7	7,049.5	24.3	18.7	89.64		421.7	223.1	658.0	621.0	37.00	17.782	
7,400.0	7,102.4	7,335.2	7,099.5	23.9	18.4	89.72		335.8	223.1	658.0	621.6	36.43	18.061	
7,500.0	7,140.1	7,434.8	7,137.9	23.5	18.1	89.79		243.9	223.1	658.0	621.9	36.10	18.228	
7,600.0	7,165.5	7,534.6	7,164.0	23.1	17.9	89.87		147.7	223.1	658.0	621.9	36.07	18.244	
7,700.0	7,178.0	7,634.5	7,177.5	22.9	18.0	89.96		48.8	223.1	658.0	621.6	36.38	18.086	
7,768.1	7,180.7	7,702.5	7,179.4	22.7	18.1	89.88		-19.2	223.1	658.0	621.2	36.81	17.877	
7,800.0	7,179.4	7,734.4	7,179.4	22.7	18.3	90.00		-51.1	223.1	658.0	620.9	37.07	17.751	
7,900.0	7,179.6	7,834.4	7,179.5	22.7	18.8	90.00		-151.1	223.1	658.0	619.9	38.11	17.267	
8,000.0	7,179.7	7,934.4	7,179.7	22.9	19.5	90.00		-251.1	223.1	658.0	618.5	39.49	16.661	
8,100.0	7,179.8	8,034.4	7,179.8	23.4	20.4	90.00		-351.1	223.1	658.0	616.8	41.19	15.974	
8,200.0	7,180.0	8,134.4	7,180.0	24.2	21.5	90.00		-451.1	223.1	658.0	614.8	43.17	15.243	
8,300.0	7,180.1	8,234.4	7,180.1	25.2	22.6	90.00		-551.1	223.1	658.0	612.6	45.38	14.500	
8,400.0	7,180.3	8,334.4	7,180.2	26.3	23.9	90.00		-651.1	223.1	658.0	610.2	47.80	13.765	
8,500.0	7,180.4	8,434.4	7,180.4	27.5	25.2	90.00		-751.1	223.1	658.0	607.6	50.40	13.056	
8,600.0	7,180.5	8,534.4	7,180.5	28.8	26.6	90.00		-851.1	223.1	658.0	604.9	53.15	12.381	
8,700.0	7,180.7	8,634.4	7,180.7	30.2	28.1	90.00		-951.1	223.1	658.0	602.0	56.02	11.745	
8,800.0	7,180.8	8,734.4	7,180.8	31.6	29.6	90.00		-1,051.1	223.1	658.0	599.0	59.01	11.151	
8,900.0	7,181.0	8,834.4	7,180.9	33.1	31.1	90.00		-1,151.1	223.1	658.0	595.9	62.09	10.598	
9,000.0	7,181.1	8,934.4	7,181.1	34.6	32.7	90.00		-1,251.1	223.1	658.0	592.7	65.25	10.084	
9,100.0	7,181.2	9,034.4	7,181.2	36.1	34.3	90.00		-1,351.1	223.1	658.0	589.5	68.48	9.608	
9,200.0	7,181.4	9,134.4	7,181.3	37.7	36.0	90.00		-1,451.1	223.1	658.0	586.2	71.77	9.168	
9,300.0	7,181.5	9,234.4	7,181.5	39.3	37.7	90.00		-1,551.1	223.1	658.0	582.9	75.12	8.760	
9,400.0	7,181.7	9,334.4	7,181.6	41.0	39.4	90.00		-1,651.1	223.1	658.0	579.5	78.50	8.382	
9,500.0	7,181.8	9,434.4	7,181.8	42.6	41.1	90.00		-1,751.1	223.1	658.0	576.1	81.93	8.031	
9,600.0	7,181.9	9,534.4	7,181.9	44.3	42.8	90.00		-1,851.1	223.1	658.0	572.6	85.40	7.705	
9,700.0	7,182.1	9,634.4	7,182.0	46.0	44.6	90.00		-1,951.1	223.1	658.0	569.1	88.89	7.402	
9,800.0	7,182.2	9,734.4	7,182.2	47.7	46.4	90.00		-2,051.1	223.1	658.0	565.6	92.41	7.120	
9,900.0	7,182.4	9,834.4	7,182.3	49.4	48.1	90.00		-2,151.1	223.1	658.0	562.0	95.96	6.857	
10,000.0	7,182.5	9,934.4	7,182.5	51.2	49.9	90.00		-2,251.1	223.1	658.0	558.5	99.53	6.611	

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 6O-443
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 6O-443	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
10,100.0	7,182.6	10,034.4	7,182.6	52.9	51.7	90.00	-2,351.1	223.1	658.0	554.9	103.12	6.381	
10,200.0	7,182.8	10,134.4	7,182.7	54.7	53.5	90.00	-2,451.1	223.1	658.0	551.3	106.72	6.166	
10,300.0	7,182.9	10,234.4	7,182.9	56.5	55.3	90.00	-2,551.1	223.1	658.0	547.7	110.34	5.963	
10,400.0	7,183.1	10,334.4	7,183.0	58.2	57.1	90.00	-2,651.1	223.1	658.0	544.0	113.98	5.773	
10,500.0	7,183.2	10,434.4	7,183.2	60.0	59.0	90.00	-2,751.1	223.1	658.0	540.4	117.63	5.594	
10,600.0	7,183.3	10,534.4	7,183.3	61.8	60.8	90.00	-2,851.1	223.1	658.0	536.7	121.29	5.425	
10,700.0	7,183.5	10,634.4	7,183.4	63.6	62.6	90.00	-2,951.1	223.1	658.0	533.0	124.96	5.266	
10,800.0	7,183.6	10,734.4	7,183.6	65.4	64.5	90.00	-3,051.1	223.1	658.0	529.4	128.64	5.115	
10,900.0	7,183.7	10,834.4	7,183.7	67.2	66.3	90.00	-3,151.1	223.1	658.0	525.7	132.33	4.972	
11,000.0	7,183.9	10,934.4	7,183.9	69.1	68.2	90.00	-3,251.1	223.1	658.0	522.0	136.03	4.837	
11,100.0	7,184.0	11,034.4	7,184.0	70.9	70.0	90.00	-3,351.1	223.1	658.0	518.3	139.73	4.709	
11,200.0	7,184.2	11,134.4	7,184.1	72.7	71.9	90.00	-3,451.1	223.1	658.0	514.6	143.45	4.587	
11,300.0	7,184.3	11,234.4	7,184.3	74.6	73.7	90.00	-3,551.1	223.1	658.0	510.8	147.17	4.471	
11,400.0	7,184.4	11,334.4	7,184.4	76.4	75.6	90.00	-3,651.1	223.1	658.0	507.1	150.89	4.361	
11,500.0	7,184.6	11,434.4	7,184.6	78.2	77.5	90.00	-3,751.1	223.1	658.0	503.4	154.62	4.255	
11,600.0	7,184.7	11,534.4	7,184.7	80.1	79.3	90.00	-3,851.1	223.1	658.0	499.6	158.36	4.155	
11,700.0	7,184.9	11,634.4	7,184.8	81.9	81.2	90.00	-3,951.1	223.1	658.0	495.9	162.10	4.059	
11,796.3	7,185.0	11,730.8	7,185.0	83.7	83.0	90.00	-4,047.4	223.1	658.0	492.3	165.71	3.971 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Bernhardt 6O-443
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 6O-443	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 (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	68.59	10.9	27.9	29.9					
100.0	100.0	100.0	100.0	0.1	0.1	68.59	10.9	27.9	29.9	29.7	0.22	133.219		
200.0	200.0	200.0	200.0	0.3	0.3	68.59	10.9	27.9	29.9	29.3	0.67	44.406 CC, ES		
300.0	300.0	298.9	298.9	0.6	0.6	67.99	11.9	29.3	31.6	30.5	1.12	28.281		
400.0	400.0	397.7	397.5	0.8	0.8	66.51	14.6	33.6	36.7	35.2	1.57	23.377		
500.0	500.0	496.1	495.5	1.0	1.0	16.42	19.2	40.7	43.6	41.6	2.01	21.647		
600.0	599.8	594.2	593.0	1.2	1.3	16.15	25.5	50.7	50.5	48.0	2.46	20.531		
700.0	699.5	692.2	689.7	1.5	1.6	16.43	33.7	63.4	57.4	54.5	2.91	19.712		
800.0	798.7	789.8	785.7	1.7	2.0	17.09	43.6	78.8	64.4	61.0	3.38	19.051		
900.0	897.5	887.3	880.7	2.0	2.4	18.00	55.2	97.0	71.4	67.6	3.87	18.472		
1,000.0	995.6	984.6	974.8	2.4	2.9	19.09	68.6	117.8	78.5	74.1	4.38	17.934		
1,100.0	1,093.1	1,084.4	1,070.9	2.8	3.4	20.57	83.1	140.5	84.2	79.2	4.93	17.060		
1,200.0	1,190.4	1,184.2	1,167.0	3.2	3.9	22.08	97.7	163.2	89.2	83.7	5.53	16.131		
1,300.0	1,287.7	1,284.1	1,263.1	3.7	4.5	23.42	112.3	185.9	94.3	88.1	6.15	15.337		
1,400.0	1,385.0	1,383.9	1,359.3	4.2	5.0	24.62	126.8	208.7	99.4	92.6	6.78	14.647		
1,500.0	1,482.3	1,483.8	1,455.4	4.6	5.6	25.71	141.4	231.4	104.5	97.1	7.44	14.046		
1,600.0	1,579.6	1,583.6	1,551.5	5.1	6.1	26.69	156.0	254.1	109.7	101.6	8.11	13.522		
1,700.0	1,676.9	1,683.5	1,647.6	5.6	6.7	27.59	170.6	276.9	114.9	106.1	8.80	13.062		
1,800.0	1,774.2	1,783.3	1,743.8	6.0	7.3	28.40	185.1	299.6	120.2	110.7	9.50	12.655		
1,900.0	1,871.6	1,883.2	1,839.9	6.5	7.8	29.15	199.7	322.4	125.4	115.2	10.20	12.294		
2,000.0	1,968.9	1,983.0	1,936.0	7.0	8.4	29.84	214.3	345.1	130.7	119.8	10.92	11.971		
2,100.0	2,066.2	2,082.8	2,032.1	7.5	8.9	30.47	228.9	367.8	136.0	124.4	11.64	11.682		
2,200.0	2,163.5	2,182.7	2,128.3	8.0	9.5	31.06	243.4	390.6	141.3	129.0	12.38	11.421		
2,300.0	2,260.8	2,282.5	2,224.4	8.4	10.1	31.60	258.0	413.3	146.7	133.6	13.11	11.185		
2,400.0	2,358.1	2,382.4	2,320.5	8.9	10.6	32.11	272.6	436.0	152.0	138.2	13.86	10.970		
2,500.0	2,455.4	2,482.2	2,416.7	9.4	11.2	32.58	287.2	458.8	157.4	142.8	14.61	10.775		
2,600.0	2,552.7	2,582.1	2,512.8	9.9	11.8	33.02	301.7	481.5	162.7	147.4	15.36	10.596		
2,700.0	2,650.0	2,681.9	2,608.9	10.4	12.3	33.43	316.3	504.2	168.1	152.0	16.12	10.432		
2,800.0	2,747.3	2,781.8	2,705.0	10.9	12.9	33.82	330.9	527.0	173.5	156.6	16.88	10.281		
2,900.0	2,844.6	2,881.6	2,801.2	11.4	13.4	34.18	345.5	549.7	178.9	161.2	17.64	10.141		
3,000.0	2,941.9	2,981.5	2,897.3	11.8	14.0	34.53	360.0	572.4	184.3	165.9	18.41	10.012		
3,100.0	3,039.2	3,081.3	2,993.4	12.3	14.6	34.85	374.6	595.2	189.7	170.5	19.18	9.892		
3,200.0	3,136.5	3,181.2	3,089.5	12.8	15.1	35.15	389.2	617.9	195.1	175.1	19.95	9.780		
3,300.0	3,233.8	3,281.0	3,185.7	13.3	15.7	35.44	403.8	640.6	200.5	179.8	20.72	9.676		
3,400.0	3,331.1	3,380.9	3,281.8	13.8	16.3	35.71	418.3	663.4	205.9	184.4	21.50	9.578		
3,500.0	3,428.5	3,480.7	3,377.9	14.3	16.8	35.97	432.9	686.1	211.3	189.1	22.28	9.487		
3,600.0	3,525.8	3,580.6	3,474.1	14.8	17.4	36.22	447.5	708.8	216.8	193.7	23.06	9.401		
3,700.0	3,623.1	3,680.4	3,570.2	15.3	18.0	36.45	462.1	731.6	222.2	198.4	23.84	9.321		
3,800.0	3,720.4	3,780.3	3,666.3	15.8	18.5	36.68	476.6	754.3	227.6	203.0	24.62	9.245		
3,900.0	3,817.7	3,880.1	3,762.4	16.2	19.1	36.89	491.2	777.0	233.1	207.7	25.41	9.174		
4,000.0	3,915.0	3,980.0	3,858.6	16.7	19.7	37.09	505.8	799.8	238.5	212.3	26.19	9.106		
4,100.0	4,012.3	4,079.8	3,954.7	17.2	20.2	37.29	520.4	822.5	243.9	217.0	26.98	9.042		
4,200.0	4,109.6	4,179.7	4,050.8	17.7	20.8	37.47	534.9	845.2	249.4	221.6	27.77	8.982		
4,300.0	4,206.9	4,279.5	4,146.9	18.2	21.4	37.65	549.5	868.0	254.8	226.3	28.56	8.924		
4,400.0	4,304.2	4,379.4	4,243.1	18.7	21.9	37.82	564.1	890.7	260.3	230.9	29.35	8.870		
4,500.0	4,401.5	4,479.2	4,339.2	19.2	22.5	37.98	578.7	913.4	265.7	235.6	30.14	8.818		
4,600.0	4,498.8	4,579.1	4,435.3	19.7	23.0	38.14	593.2	936.2	271.2	240.3	30.93	8.769		
4,700.0	4,596.1	4,678.9	4,531.5	20.2	23.6	38.29	607.8	958.9	276.7	244.9	31.72	8.722		
4,800.0	4,693.4	4,778.8	4,627.6	20.6	24.2	38.43	622.4	981.6	282.1	249.6	32.51	8.677		
4,900.0	4,790.7	4,878.6	4,723.7	21.1	24.7	38.57	637.0	1,004.4	287.6	254.3	33.31	8.634		
5,000.0	4,888.0	4,978.5	4,819.8	21.6	25.3	38.71	651.5	1,027.1	293.0	258.9	34.10	8.593		

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 6O-443
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 6O-443	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	4,985.4	5,078.3	4,916.0	22.1	25.9	38.84		666.1	1,049.8	298.5	263.6	34.90	8.553	
5,200.0	5,082.7	5,178.2	5,012.1	22.6	26.4	38.96		680.7	1,072.6	304.0	268.3	35.69	8.516	
5,300.0	5,180.0	5,278.0	5,108.2	23.1	27.0	39.08		695.3	1,095.3	309.4	272.9	36.49	8.480	
5,400.0	5,277.3	5,377.8	5,204.3	23.6	27.6	39.20		709.8	1,118.0	314.9	277.6	37.29	8.445	
5,500.0	5,374.6	5,485.9	5,308.7	24.1	28.1	39.43		724.9	1,141.6	319.5	281.4	38.10	8.386	
5,600.0	5,472.6	5,596.4	5,416.5	24.4	28.5	39.72		738.2	1,162.3	323.1	284.3	38.79	8.329	
5,700.0	5,571.2	5,707.1	5,525.2	24.7	28.9	39.96		749.2	1,179.5	326.1	286.7	39.39	8.279	
5,800.0	5,670.3	5,817.8	5,634.7	25.0	29.2	40.15		758.0	1,193.2	328.4	288.5	39.88	8.234	
5,900.0	5,769.8	5,928.6	5,744.8	25.2	29.4	40.29		764.5	1,203.3	330.2	289.9	40.29	8.195	
6,000.0	5,869.6	6,039.4	5,855.4	25.3	29.6	40.37		768.7	1,209.8	331.3	290.7	40.60	8.160	
6,100.0	5,969.6	6,150.3	5,966.2	25.5	29.8	40.41		770.5	1,212.7	331.8	291.0	40.82	8.128	
6,200.0	6,069.6	6,253.6	6,069.6	25.6	29.9	89.37		770.6	1,212.9	331.8	290.8	41.05	8.083	
6,300.0	6,169.6	6,353.6	6,169.6	25.7	30.0	89.37		770.6	1,212.9	331.8	290.5	41.31	8.031	
6,400.0	6,269.6	6,453.6	6,269.6	25.8	30.1	89.37		770.6	1,212.9	331.8	290.2	41.58	7.979	
6,476.9	6,346.4	6,530.6	6,346.4	25.9	30.1	90.00		767.0	1,212.9	331.8	289.8	42.00	7.900	
6,500.0	6,369.6	6,553.6	6,369.2	25.9	30.1	90.45		764.4	1,212.9	331.8	289.6	42.21	7.860	
6,600.0	6,469.5	6,650.7	6,464.5	26.0	30.0	-86.64		745.9	1,212.9	332.4	289.0	43.42	7.655	
6,700.0	6,568.5	6,745.5	6,554.5	26.0	29.9	-83.60		716.4	1,212.9	333.9	289.5	44.40	7.521	
6,800.0	6,664.9	6,838.4	6,638.5	25.9	29.7	-80.72		676.9	1,212.9	336.3	291.4	44.95	7.482	
6,900.0	6,757.0	6,929.5	6,715.7	25.7	29.5	-78.04		628.5	1,212.9	339.3	294.3	45.01	7.538	
7,000.0	6,843.3	7,019.2	6,785.4	25.4	29.2	-75.60		572.2	1,212.9	342.8	298.2	44.59	7.686	
7,100.0	6,922.2	7,107.5	6,847.2	25.0	28.9	-73.43		509.2	1,212.9	346.4	302.7	43.74	7.919	
7,200.0	6,992.5	7,194.7	6,900.7	24.7	28.6	-71.54		440.4	1,212.9	350.0	307.4	42.57	8.223	
7,300.0	7,052.9	7,281.0	6,945.6	24.3	28.3	-69.95		366.7	1,212.9	353.4	312.2	41.23	8.572	
7,400.0	7,102.4	7,366.6	6,981.6	23.9	28.0	-68.66		289.2	1,212.9	356.3	316.4	39.92	8.925	
7,500.0	7,140.1	7,450.0	7,008.2	23.5	27.7	-67.70		210.1	1,212.9	358.7	319.9	38.87	9.228	
7,600.0	7,165.5	7,536.1	7,026.4	23.1	27.5	-67.02		126.0	1,212.9	360.4	322.2	38.28	9.415	
7,700.0	7,178.0	7,620.4	7,034.9	22.9	27.3	-66.66		42.2	1,212.9	361.4	323.1	38.29	9.439	
7,800.0	7,179.4	7,713.4	7,035.7	22.7	27.2	-66.57		-50.8	1,212.9	361.6	322.6	38.97	9.278	
7,900.0	7,179.6	7,813.4	7,035.5	22.7	27.3	-66.52		-150.8	1,212.9	361.7	321.7	40.05	9.031	
8,000.0	7,179.7	7,913.4	7,035.3	22.9	27.4	-66.48		-250.8	1,212.9	361.9	320.4	41.42	8.737	
8,100.0	7,179.8	8,013.4	7,035.1	23.4	27.7	-66.43		-350.8	1,212.9	362.0	319.0	43.03	8.412	
8,200.0	7,180.0	8,113.4	7,034.9	24.2	28.2	-66.38		-450.8	1,212.9	362.1	317.3	44.87	8.070	
8,300.0	7,180.1	8,213.4	7,034.7	25.2	28.8	-66.33		-550.8	1,212.9	362.3	315.3	46.91	7.722	
8,400.0	7,180.3	8,313.4	7,034.5	26.3	29.6	-66.28		-650.8	1,212.9	362.4	313.3	49.13	7.376	
8,500.0	7,180.4	8,413.4	7,034.3	27.5	30.6	-66.24		-750.8	1,212.9	362.5	311.0	51.49	7.040	
8,600.0	7,180.5	8,513.4	7,034.1	28.8	31.7	-66.19		-850.8	1,212.9	362.7	308.7	53.99	6.718	
8,700.0	7,180.7	8,613.4	7,033.9	30.2	32.8	-66.14		-950.8	1,212.9	362.8	306.2	56.59	6.411	
8,800.0	7,180.8	8,713.4	7,033.7	31.6	34.1	-66.09		-1,050.8	1,212.9	362.9	303.6	59.30	6.121	
8,900.0	7,181.0	8,813.4	7,033.5	33.1	35.4	-66.04		-1,150.8	1,212.9	363.1	301.0	62.09	5.848	
9,000.0	7,181.1	8,913.4	7,033.3	34.6	36.8	-66.00		-1,250.8	1,212.9	363.2	298.3	64.95	5.592	
9,100.0	7,181.2	9,013.4	7,033.2	36.1	38.2	-65.95		-1,350.8	1,212.9	363.3	295.5	67.87	5.353	
9,200.0	7,181.4	9,113.4	7,033.0	37.7	39.7	-65.90		-1,450.8	1,212.9	363.5	292.6	70.85	5.130	
9,300.0	7,181.5	9,213.4	7,032.8	39.3	41.2	-65.85		-1,550.8	1,212.9	363.6	289.7	73.88	4.921	
9,400.0	7,181.7	9,313.4	7,032.6	41.0	42.8	-65.81		-1,650.8	1,212.9	363.7	286.8	76.95	4.727	
9,500.0	7,181.8	9,413.4	7,032.4	42.6	44.4	-65.76		-1,750.8	1,212.9	363.9	283.8	80.06	4.545	
9,600.0	7,181.9	9,513.4	7,032.2	44.3	46.0	-65.71		-1,850.8	1,212.9	364.0	280.8	83.20	4.375	
9,700.0	7,182.1	9,613.4	7,032.0	46.0	47.6	-65.66		-1,950.8	1,212.9	364.1	277.8	86.37	4.216	
9,800.0	7,182.2	9,713.4	7,031.8	47.7	49.3	-65.62		-2,050.8	1,212.9	364.3	274.7	89.56	4.067	
9,900.0	7,182.4	9,813.4	7,031.6	49.4	50.9	-65.57		-2,150.8	1,212.9	364.4	271.6	92.78	3.928	
10,000.0	7,182.5	9,913.4	7,031.4	51.2	52.6	-65.52		-2,250.8	1,212.9	364.6	268.5	96.02	3.797	

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 6O-443
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 6O-443	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	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	
10,100.0	7,182.6	10,013.4	7,031.2	52.9	54.3	-65.47	-2,350.8	1,212.9	364.7	265.4	99.28	3.674		
10,200.0	7,182.8	10,113.4	7,031.0	54.7	56.0	-65.43	-2,450.8	1,212.9	364.8	262.3	102.55	3.558		
10,300.0	7,182.9	10,213.4	7,030.9	56.5	57.8	-65.38	-2,550.8	1,212.9	365.0	259.1	105.83	3.449		
10,400.0	7,183.1	10,313.4	7,030.7	58.2	59.5	-65.33	-2,650.8	1,212.9	365.1	256.0	109.13	3.346		
10,500.0	7,183.2	10,413.4	7,030.5	60.0	61.3	-65.28	-2,750.8	1,212.9	365.3	252.8	112.44	3.248		
10,600.0	7,183.3	10,513.4	7,030.3	61.8	63.0	-65.24	-2,850.8	1,212.9	365.4	249.6	115.76	3.156		
10,700.0	7,183.5	10,613.4	7,030.1	63.6	64.8	-65.19	-2,950.8	1,212.9	365.5	246.4	119.09	3.069		
10,800.0	7,183.6	10,713.4	7,029.9	65.4	66.6	-65.14	-3,050.8	1,212.9	365.7	243.2	122.43	2.987		
10,900.0	7,183.7	10,813.4	7,029.7	67.2	68.4	-65.09	-3,150.8	1,212.9	365.8	240.0	125.77	2.909		
11,000.0	7,183.9	10,913.4	7,029.5	69.1	70.2	-65.05	-3,250.8	1,212.9	365.9	236.8	129.12	2.834		
11,100.0	7,184.0	11,013.4	7,029.3	70.9	71.9	-65.00	-3,350.8	1,212.9	366.1	233.6	132.48	2.763		
11,200.0	7,184.2	11,113.4	7,029.1	72.7	73.8	-64.95	-3,450.8	1,212.9	366.2	230.4	135.84	2.696		
11,300.0	7,184.3	11,213.4	7,028.9	74.6	75.6	-64.91	-3,550.8	1,212.9	366.4	227.2	139.21	2.632		
11,400.0	7,184.4	11,313.4	7,028.7	76.4	77.4	-64.86	-3,650.8	1,212.9	366.5	223.9	142.58	2.571		
11,500.0	7,184.6	11,413.4	7,028.5	78.2	79.2	-64.81	-3,750.8	1,212.9	366.6	220.7	145.95	2.512		
11,600.0	7,184.7	11,513.4	7,028.4	80.1	81.0	-64.77	-3,850.8	1,212.9	366.8	217.5	149.33	2.456		
11,700.0	7,184.9	11,613.4	7,028.2	81.9	82.8	-64.72	-3,950.8	1,212.9	366.9	214.2	152.71	2.403		
11,751.7	7,184.9	11,665.1	7,028.1	82.9	83.8	-64.69	-4,002.5	1,212.9	367.0	212.5	154.46	2.376		
11,796.3	7,185.0	11,699.1	7,028.0	83.7	84.4	-64.68	-4,036.5	1,212.9	367.2	211.4	155.80	2.357 SF		

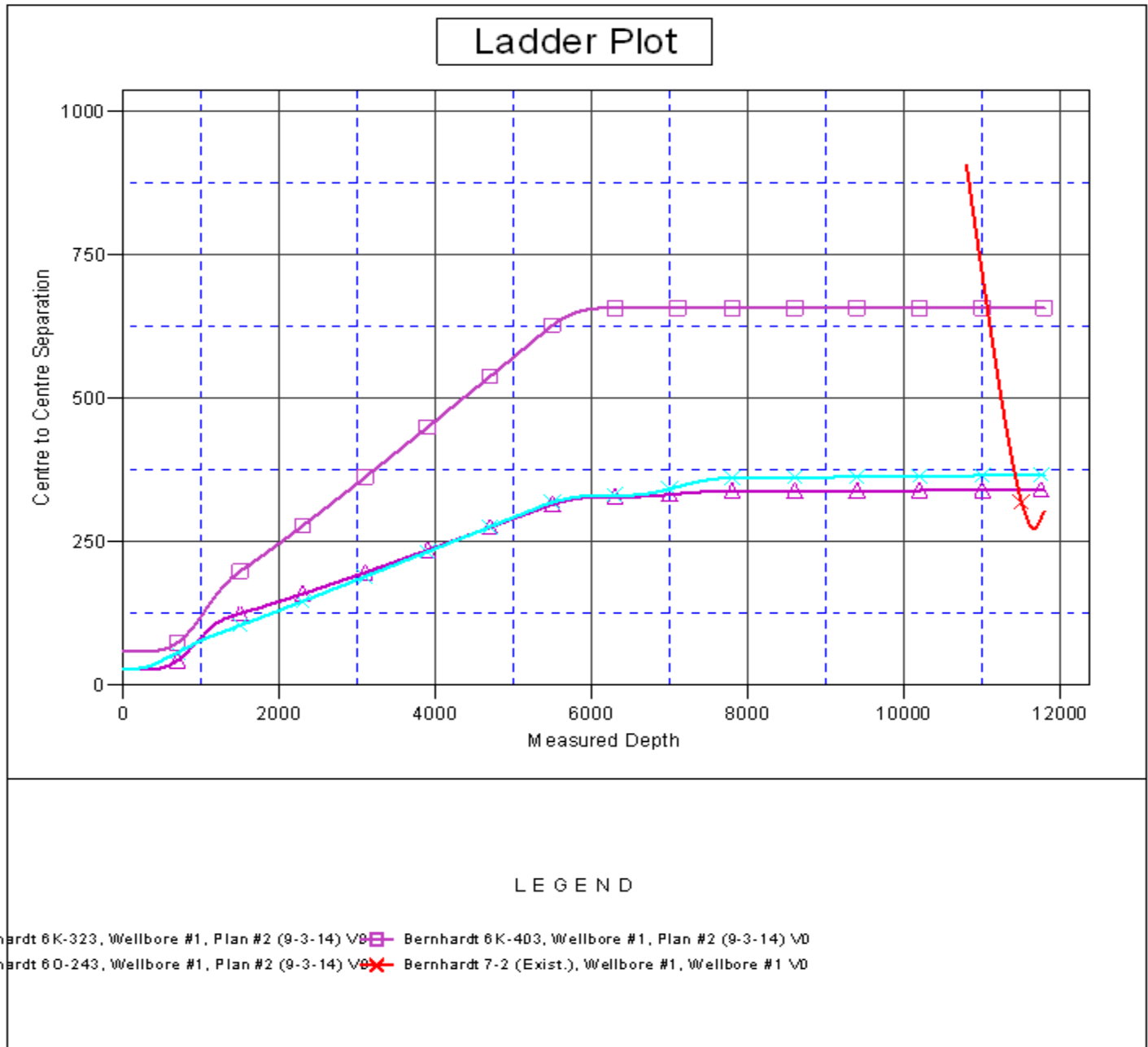
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Bernhardt 6O-443
Project:	SEC.6-T4N-R66W	TVD Reference:	WELL @ 4728.0ft (RKB - 15')
Reference Site:	Bernhardt 4N66W6K Pad Sec.6-T4N-R66W	MD Reference:	WELL @ 4728.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bernhardt 6O-443	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
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre +N/-S	+E/-W	Between Centres	Between Ellipses	Minimum Separation	Separation Factor	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
10,800.0	7,183.6	7,184.6	7,184.6	65.4	143.7	89.75	-3,916.3	607.8	907.3	699.4	207.94	4.364	
10,900.0	7,183.7	7,184.7	7,184.7	67.2	143.7	89.78	-3,916.3	607.8	812.5	602.8	209.78	3.873	
11,000.0	7,183.9	7,184.9	7,184.9	69.1	143.7	89.81	-3,916.3	607.8	719.1	507.5	211.63	3.398	
11,100.0	7,184.0	7,185.0	7,185.0	70.9	143.7	89.83	-3,916.3	607.8	627.8	414.3	213.49	2.941	
11,200.0	7,184.2	7,185.2	7,185.2	72.7	143.7	89.86	-3,916.3	607.8	539.5	324.2	215.35	2.505	
11,300.0	7,184.3	7,185.3	7,185.3	74.6	143.7	89.89	-3,916.3	607.8	456.1	238.9	217.21	2.100	
11,400.0	7,184.4	7,185.4	7,185.4	76.4	143.7	89.92	-3,916.3	607.8	380.8	161.7	219.08	1.738	
11,500.0	7,184.6	7,185.6	7,185.6	78.2	143.7	89.95	-3,916.3	607.8	319.3	98.4	220.94	1.445 Level 3	
11,600.0	7,184.7	7,185.7	7,185.7	80.1	143.7	89.98	-3,916.3	607.8	280.9	58.1	222.81	1.261 Level 3	
11,665.2	7,184.8	7,185.8	7,185.8	81.3	143.7	90.00	-3,916.3	607.8	273.2	49.2	224.04	1.220 Level 2, CC, ES, SF	
11,700.0	7,184.9	7,185.9	7,185.9	81.9	143.7	90.01	-3,916.3	607.8	275.5	50.8	224.69	1.226 Level 2	
11,796.3	7,185.0	7,186.0	7,186.0	83.7	143.7	90.04	-3,916.3	607.8	303.1	76.6	226.49	1.338 Level 3	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Bernhardt 6O-443
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 6O-443	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 6O-443
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.44°



Coordinates are relative to: Bernhardt 60-443
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.44°

