

PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Honebein 7K-323**

Surface Location: Honebein 4N64W7K Pad Sec.7-T4N-R64W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

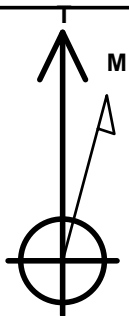
Ground Elevation: 4851.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1362858.76	3251740.19	40.325930	-104.597090	

RKB - 15' well @ 4866.0ft (RKB - 15')

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 2352'FSL & 1380'FWL, SEC.7	1.0	0.0	0.0	Point
BHL 2141'FNL & 1929'FWL, SEC.18	6989.0	-4484.6	535.4	Point



Azimuths to True North
Magnetic North: 8.34°

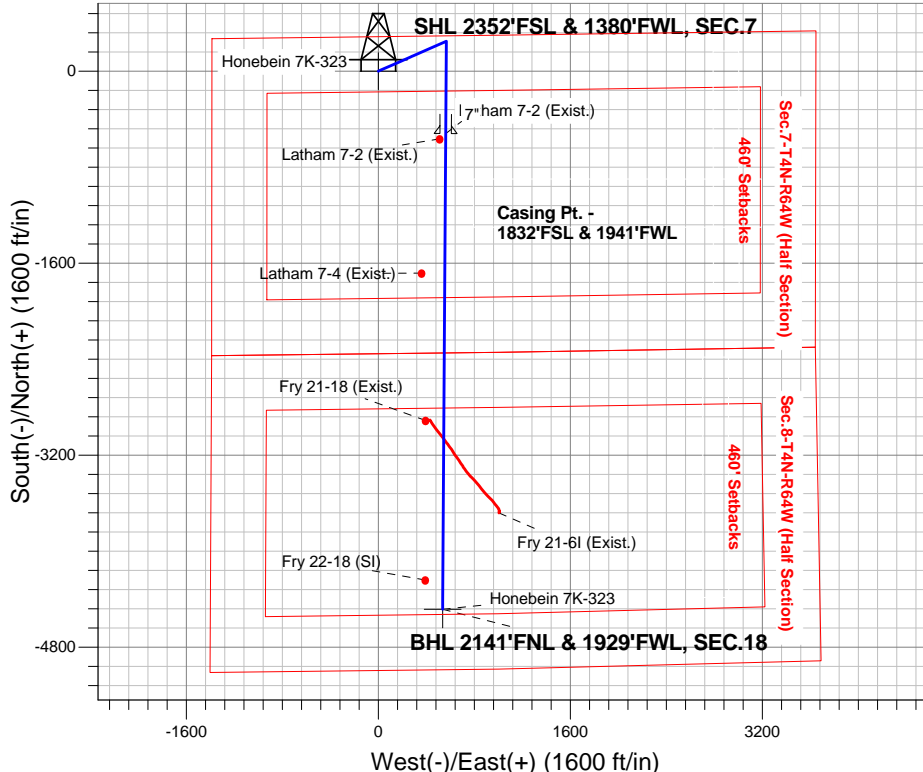
Magnetic Field
Strength: 52774.7nT
Dip Angle: 66.91°
Date: 8/20/2014
Model: IGRF2010

Honebein 4N64W7K Pad Sec.7-T4N-R64W
Honebein 7K-323
Plan #1 (8-18-14)
14:46, August 21 2014

ANNOTATIONS

TVD	MD	Annotation
1000.0	1000.0	KOP #1
6254.2	6294.3	KOP #2
7018.1	7499.9	End of Build

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

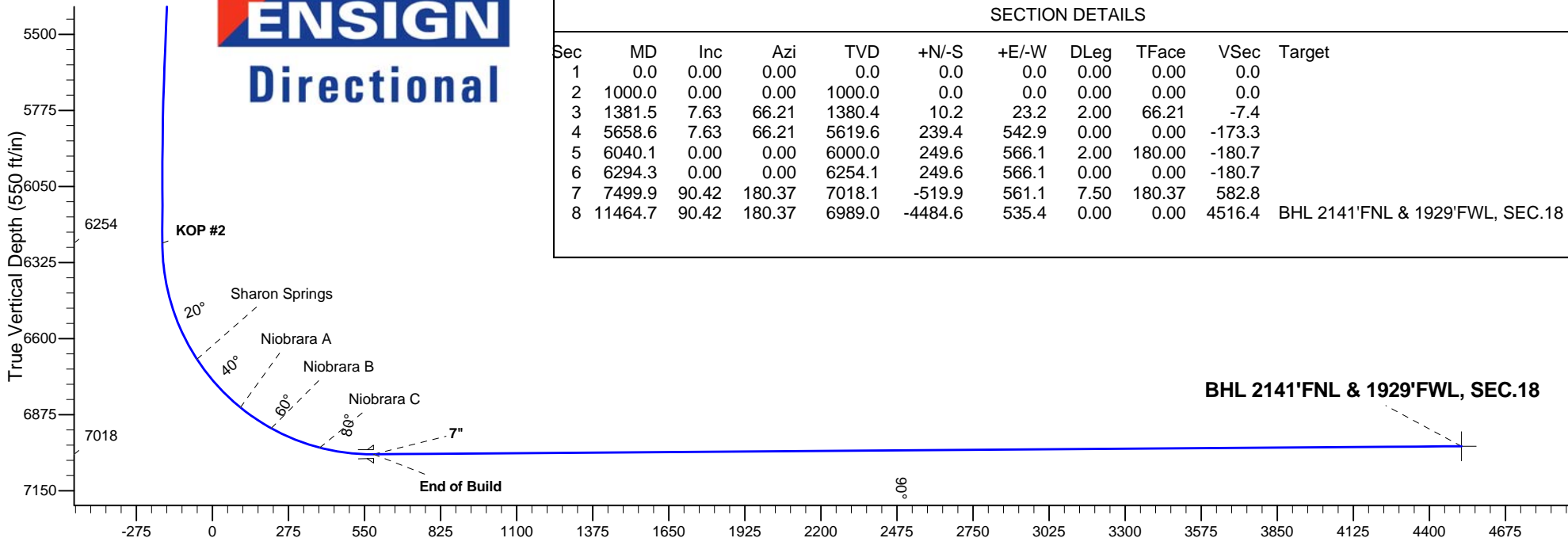


ENSIGN
Directional

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1000.0	0.00	0.00	1000.0	0.0	0.0	0.00	0.00	0.0	
3	1381.5	7.63	66.21	1380.4	10.2	23.2	2.00	66.21	-7.4	
4	5658.6	7.63	66.21	5619.6	239.4	542.9	0.00	0.00	-173.3	
5	6040.1	0.00	0.00	6000.0	249.6	566.1	2.00	180.00	-180.7	
6	6294.3	0.00	0.00	6254.1	249.6	566.1	0.00	0.00	-180.7	
7	7499.9	90.42	180.37	7018.1	-519.9	561.1	7.50	180.37	582.8	
8	11464.7	90.42	180.37	6989.0	-4484.6	535.4	0.00	0.00	4516.4	BHL 2141'FNL & 1929'FWL, SEC.18

BHL 2141'FNL & 1929'FWL, SEC.18



Vertical Section at 173.19° (550 ft/in)



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.7-T4N-R64W

Honebein 4N64W7K Pad Sec.7-T4N-R64W

Honebein 7K-323

Wellbore #1

Plan: Plan #1 (8-18-14)

Standard Planning Report

21 August, 2014

Database:	Landmark	Local Co-ordinate Reference:	Well Honebein 7K-323
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	well @ 4866.0ft (RKB - 15')
Project:	SEC.7-T4N-R64W	MD Reference:	well @ 4866.0ft (RKB - 15')
Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	North Reference:	True
Well:	Honebein 7K-323	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (8-18-14)		

Project	SEC.7-T4N-R64W, Weld County, Colorado		
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	Honebein 4N64W7K Pad Sec.7-T4N-R64W		
Site Position:		Northing:	1,362,857.25 ft
From:	Lat/Long	Easting:	3,251,589.63 ft
Position Uncertainty:	0.0 ft	Slot Radius:	"
		Latitude:	40.325930
		Longitude:	-104.597630
		Grid Convergence:	0.58 °

Well	Honebein 7K-323		
Well Position	+N/-S	0.0 ft	Northing:
	+E/-W	150.6 ft	Easting:
Position Uncertainty		0.0 ft	Wellhead Elevation:
			Latitude:
			Longitude:
			Ground Level:

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/20/2014	8.34	66.91	52,775

Design	Plan #1 (8-18-14)			
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	173.19

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	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,381.5	7.63	66.21	1,380.4	10.2	23.2	2.00	2.00	0.00	66.21	
5,658.6	7.63	66.21	5,619.6	239.4	542.9	0.00	0.00	0.00	0.00	
6,040.1	0.00	0.00	6,000.0	249.6	566.1	2.00	-2.00	0.00	180.00	
6,294.3	0.00	0.00	6,254.1	249.6	566.1	0.00	0.00	0.00	0.00	
7,499.9	90.42	180.37	7,018.1	-519.9	561.1	7.50	7.50	0.00	180.37	
11,464.7	90.42	180.37	6,989.0	-4,484.6	535.4	0.00	0.00	0.00	0.00	BHL 2141'FNL & 15

Database:	Landmark	Local Co-ordinate Reference:	Well Honebein 7K-323
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	well @ 4866.0ft (RKB - 15')
Project:	SEC.7-T4N-R64W	MD Reference:	well @ 4866.0ft (RKB - 15')
Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	North Reference:	True
Well:	Honebein 7K-323	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (8-18-14)		

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
1.0	0.00	0.00	1.0	0.0	0.0	0.0	0.00	0.00	0.00
SHL 2352'FSL & 1380'FWL, SEC.7									
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
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP #1									
1,100.0	2.00	66.21	1,100.0	0.7	1.6	-0.5	2.00	2.00	0.00
1,200.0	4.00	66.21	1,199.8	2.8	6.4	-2.0	2.00	2.00	0.00
1,300.0	6.00	66.21	1,299.5	6.3	14.4	-4.6	2.00	2.00	0.00
1,381.5	7.63	66.21	1,380.4	10.2	23.2	-7.4	2.00	2.00	0.00
1,400.0	7.63	66.21	1,398.7	11.2	25.5	-8.1	0.00	0.00	0.00
1,500.0	7.63	66.21	1,497.8	16.6	37.6	-12.0	0.00	0.00	0.00
1,600.0	7.63	66.21	1,596.9	21.9	49.8	-15.9	0.00	0.00	0.00
1,700.0	7.63	66.21	1,696.1	27.3	61.9	-19.8	0.00	0.00	0.00
1,800.0	7.63	66.21	1,795.2	32.7	74.1	-23.6	0.00	0.00	0.00
1,900.0	7.63	66.21	1,894.3	38.0	86.2	-27.5	0.00	0.00	0.00
2,000.0	7.63	66.21	1,993.4	43.4	98.4	-31.4	0.00	0.00	0.00
2,100.0	7.63	66.21	2,092.5	48.7	110.5	-35.3	0.00	0.00	0.00
2,200.0	7.63	66.21	2,191.6	54.1	122.7	-39.2	0.00	0.00	0.00
2,300.0	7.63	66.21	2,290.7	59.4	134.8	-43.0	0.00	0.00	0.00
2,400.0	7.63	66.21	2,389.9	64.8	147.0	-46.9	0.00	0.00	0.00
2,500.0	7.63	66.21	2,489.0	70.2	159.1	-50.8	0.00	0.00	0.00
2,600.0	7.63	66.21	2,588.1	75.5	171.3	-54.7	0.00	0.00	0.00
2,700.0	7.63	66.21	2,687.2	80.9	183.4	-58.6	0.00	0.00	0.00
2,800.0	7.63	66.21	2,786.3	86.2	195.6	-62.4	0.00	0.00	0.00
2,900.0	7.63	66.21	2,885.4	91.6	207.7	-66.3	0.00	0.00	0.00
3,000.0	7.63	66.21	2,984.5	96.9	219.9	-70.2	0.00	0.00	0.00
3,100.0	7.63	66.21	3,083.7	102.3	232.0	-74.1	0.00	0.00	0.00
3,200.0	7.63	66.21	3,182.8	107.7	244.2	-77.9	0.00	0.00	0.00
3,300.0	7.63	66.21	3,281.9	113.0	256.3	-81.8	0.00	0.00	0.00
3,400.0	7.63	66.21	3,381.0	118.4	268.5	-85.7	0.00	0.00	0.00
3,500.0	7.63	66.21	3,480.1	123.7	280.6	-89.6	0.00	0.00	0.00
3,600.0	7.63	66.21	3,579.2	129.1	292.8	-93.5	0.00	0.00	0.00
3,700.0	7.63	66.21	3,678.3	134.4	304.9	-97.3	0.00	0.00	0.00
3,746.1	7.63	66.21	3,724.0	136.9	310.5	-99.1	0.00	0.00	0.00
Parkman									
3,800.0	7.63	66.21	3,777.5	139.8	317.1	-101.2	0.00	0.00	0.00
3,900.0	7.63	66.21	3,876.6	145.2	329.2	-105.1	0.00	0.00	0.00
4,000.0	7.63	66.21	3,975.7	150.5	341.4	-109.0	0.00	0.00	0.00
4,100.0	7.63	66.21	4,074.8	155.9	353.5	-112.9	0.00	0.00	0.00
4,200.0	7.63	66.21	4,173.9	161.2	365.7	-116.7	0.00	0.00	0.00
4,300.0	7.63	66.21	4,273.0	166.6	377.8	-120.6	0.00	0.00	0.00
4,400.0	7.63	66.21	4,372.1	171.9	390.0	-124.5	0.00	0.00	0.00
4,478.6	7.63	66.21	4,450.0	176.1	399.5	-127.5	0.00	0.00	0.00
Sussex									

Database:	Landmark	Local Co-ordinate Reference:	Well Honebein 7K-323
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	well @ 4866.0ft (RKB - 15')
Project:	SEC.7-T4N-R64W	MD Reference:	well @ 4866.0ft (RKB - 15')
Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	North Reference:	True
Well:	Honebein 7K-323	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (8-18-14)		

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)
4,500.0	7.63	66.21	4,471.3	177.3	402.1	-128.4	0.00	0.00	0.00
4,600.0	7.63	66.21	4,570.4	182.7	414.3	-132.3	0.00	0.00	0.00
4,700.0	7.63	66.21	4,669.5	188.0	426.4	-136.1	0.00	0.00	0.00
4,800.0	7.63	66.21	4,768.6	193.4	438.6	-140.0	0.00	0.00	0.00
4,900.0	7.63	66.21	4,867.7	198.7	450.7	-143.9	0.00	0.00	0.00
5,000.0	7.63	66.21	4,966.8	204.1	462.9	-147.8	0.00	0.00	0.00
5,100.0	7.63	66.21	5,065.9	209.4	475.0	-151.6	0.00	0.00	0.00
5,200.0	7.63	66.21	5,165.1	214.8	487.2	-155.5	0.00	0.00	0.00
5,275.6	7.63	66.21	5,240.0	218.8	496.4	-158.5	0.00	0.00	0.00
Shannon									
5,300.0	7.63	66.21	5,264.2	220.2	499.3	-159.4	0.00	0.00	0.00
5,400.0	7.63	66.21	5,363.3	225.5	511.5	-163.3	0.00	0.00	0.00
5,500.0	7.63	66.21	5,462.4	230.9	523.6	-167.2	0.00	0.00	0.00
5,600.0	7.63	66.21	5,561.5	236.2	535.8	-171.0	0.00	0.00	0.00
5,658.6	7.63	66.21	5,619.6	239.4	542.9	-173.3	0.00	0.00	0.00
5,700.0	6.80	66.21	5,660.7	241.5	547.6	-174.8	2.00	-2.00	0.00
5,800.0	4.80	66.21	5,760.2	245.5	556.9	-177.8	2.00	-2.00	0.00
5,900.0	2.80	66.21	5,859.9	248.2	563.0	-179.7	2.00	-2.00	0.00
6,000.0	0.80	66.21	5,959.9	249.5	565.8	-180.6	2.00	-2.00	0.00
6,040.1	0.00	0.00	6,000.0	249.6	566.1	-180.7	2.00	-2.00	0.00
6,100.0	0.00	0.00	6,059.9	249.6	566.1	-180.7	0.00	0.00	0.00
6,200.0	0.00	0.00	6,159.9	249.6	566.1	-180.7	0.00	0.00	0.00
6,294.3	0.00	0.00	6,254.2	249.6	566.1	-180.7	0.00	0.00	0.00
KOP #2									
6,300.0	0.43	180.37	6,259.9	249.6	566.1	-180.7	7.54	7.54	0.00
6,400.0	7.93	180.37	6,359.5	242.3	566.1	-173.5	7.50	7.50	0.00
6,500.0	15.43	180.37	6,457.4	222.1	565.9	-153.4	7.50	7.50	0.00
6,600.0	22.93	180.37	6,551.8	189.2	565.7	-120.8	7.50	7.50	0.00
6,700.0	30.43	180.37	6,641.1	144.4	565.4	-76.3	7.50	7.50	0.00
6,738.8	33.34	180.37	6,674.0	123.9	565.3	-56.0	7.50	7.50	0.00
Sharon Springs									
6,800.0	37.93	180.37	6,723.7	88.2	565.1	-20.6	7.50	7.50	0.00
6,900.0	45.43	180.37	6,798.4	21.8	564.6	45.3	7.50	7.50	0.00
6,976.1	51.14	180.37	6,849.0	-35.0	564.3	101.7	7.50	7.50	0.00
Niobrara A									
7,000.0	52.93	180.37	6,863.7	-53.8	564.1	120.3	7.50	7.50	0.00
7,100.0	60.43	180.37	6,918.6	-137.3	563.6	203.2	7.50	7.50	0.00
7,111.1	61.26	180.37	6,924.0	-147.1	563.5	212.8	7.50	7.50	0.00
Niobrara B									
7,200.0	67.93	180.37	6,962.1	-227.3	563.0	292.4	7.50	7.50	0.00
7,300.0	75.43	180.37	6,993.5	-322.1	562.4	386.6	7.50	7.50	0.00
7,301.9	75.57	180.37	6,994.0	-324.0	562.4	388.4	7.50	7.50	0.00
Niobrara C									
7,400.0	82.93	180.37	7,012.3	-420.3	561.8	483.9	7.50	7.50	0.00
7,499.9	90.42	180.37	7,018.1	-520.0	561.1	582.8	7.50	7.50	0.00
End of Build - 7"									
7,500.0	90.42	180.37	7,018.1	-520.1	561.1	582.9	0.00	0.00	0.00
7,600.0	90.42	180.37	7,017.3	-620.1	560.5	682.1	0.00	0.00	0.00
7,700.0	90.42	180.37	7,016.6	-720.0	559.8	781.3	0.00	0.00	0.00
7,800.0	90.42	180.37	7,015.9	-820.0	559.2	880.6	0.00	0.00	0.00
7,900.0	90.42	180.37	7,015.1	-920.0	558.5	979.8	0.00	0.00	0.00
8,000.0	90.42	180.37	7,014.4	-1,020.0	557.9	1,079.0	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Honebein 7K-323
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	well @ 4866.0ft (RKB - 15')
Project:	SEC.7-T4N-R64W	MD Reference:	well @ 4866.0ft (RKB - 15')
Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	North Reference:	True
Well:	Honebein 7K-323	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (8-18-14)		

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)
8,100.0	90.42	180.37	7,013.7	-1,120.0	557.2	1,178.2	0.00	0.00	0.00
8,200.0	90.42	180.37	7,012.9	-1,220.0	556.6	1,277.4	0.00	0.00	0.00
8,300.0	90.42	180.37	7,012.2	-1,320.0	555.9	1,376.6	0.00	0.00	0.00
8,400.0	90.42	180.37	7,011.5	-1,420.0	555.3	1,475.8	0.00	0.00	0.00
8,500.0	90.42	180.37	7,010.7	-1,520.0	554.6	1,575.0	0.00	0.00	0.00
8,600.0	90.42	180.37	7,010.0	-1,620.0	554.0	1,674.3	0.00	0.00	0.00
8,700.0	90.42	180.37	7,009.3	-1,720.0	553.3	1,773.5	0.00	0.00	0.00
8,800.0	90.42	180.37	7,008.5	-1,820.0	552.7	1,872.7	0.00	0.00	0.00
8,900.0	90.42	180.37	7,007.8	-1,920.0	552.1	1,971.9	0.00	0.00	0.00
9,000.0	90.42	180.37	7,007.1	-2,020.0	551.4	2,071.1	0.00	0.00	0.00
9,100.0	90.42	180.37	7,006.3	-2,120.0	550.8	2,170.3	0.00	0.00	0.00
9,200.0	90.42	180.37	7,005.6	-2,220.0	550.1	2,269.5	0.00	0.00	0.00
9,300.0	90.42	180.37	7,004.9	-2,320.0	549.5	2,368.8	0.00	0.00	0.00
9,400.0	90.42	180.37	7,004.1	-2,420.0	548.8	2,468.0	0.00	0.00	0.00
9,500.0	90.42	180.37	7,003.4	-2,520.0	548.2	2,567.2	0.00	0.00	0.00
9,600.0	90.42	180.37	7,002.7	-2,620.0	547.5	2,666.4	0.00	0.00	0.00
9,700.0	90.42	180.37	7,001.9	-2,720.0	546.9	2,765.6	0.00	0.00	0.00
9,800.0	90.42	180.37	7,001.2	-2,819.9	546.2	2,864.8	0.00	0.00	0.00
9,900.0	90.42	180.37	7,000.5	-2,919.9	545.6	2,964.0	0.00	0.00	0.00
10,000.0	90.42	180.37	6,999.7	-3,019.9	544.9	3,063.2	0.00	0.00	0.00
10,100.0	90.42	180.37	6,999.0	-3,119.9	544.3	3,162.5	0.00	0.00	0.00
10,200.0	90.42	180.37	6,998.3	-3,219.9	543.6	3,261.7	0.00	0.00	0.00
10,300.0	90.42	180.37	6,997.5	-3,319.9	543.0	3,360.9	0.00	0.00	0.00
10,400.0	90.42	180.37	6,996.8	-3,419.9	542.3	3,460.1	0.00	0.00	0.00
10,500.0	90.42	180.37	6,996.1	-3,519.9	541.7	3,559.3	0.00	0.00	0.00
10,600.0	90.42	180.37	6,995.3	-3,619.9	541.0	3,658.5	0.00	0.00	0.00
10,700.0	90.42	180.37	6,994.6	-3,719.9	540.4	3,757.7	0.00	0.00	0.00
10,800.0	90.42	180.37	6,993.9	-3,819.9	539.7	3,857.0	0.00	0.00	0.00
10,900.0	90.42	180.37	6,993.1	-3,919.9	539.1	3,956.2	0.00	0.00	0.00
11,000.0	90.42	180.37	6,992.4	-4,019.9	538.5	4,055.4	0.00	0.00	0.00
11,100.0	90.42	180.37	6,991.7	-4,119.9	537.8	4,154.6	0.00	0.00	0.00
11,200.0	90.42	180.37	6,990.9	-4,219.9	537.2	4,253.8	0.00	0.00	0.00
11,300.0	90.42	180.37	6,990.2	-4,319.9	536.5	4,353.0	0.00	0.00	0.00
11,400.0	90.42	180.37	6,989.5	-4,419.9	535.9	4,452.2	0.00	0.00	0.00
11,464.7	90.42	180.37	6,989.0	-4,484.6	535.4	4,516.4	0.00	0.00	0.00
BHL 2141'FNL & 1929'FWL, SEC.18									

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N-S (ft)	+E-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
BHL 2141'FNL & 1929'FWL - hit/miss target - Shape - Point	0.00	0.00	6,989.0	-4,484.6	535.4	1,358,380.05	3,252,321.24	40.313620	-104.595170
SHL 2352'FSL & 1380'FWL - plan hits target center - Point	0.00	0.00	1.0	0.0	0.0	1,362,858.79	3,251,740.19	40.325930	-104.597090

Database:	Landmark	Local Co-ordinate Reference:	Well Honebein 7K-323
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	well @ 4866.0ft (RKB - 15')
Project:	SEC.7-T4N-R64W	MD Reference:	well @ 4866.0ft (RKB - 15')
Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	North Reference:	True
Well:	Honebein 7K-323	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (8-18-14)		

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,499.9	7,018.1	7"	7	7-1/2

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,746.1	3,724.0	Parkman		0.00	
4,478.6	4,450.0	Sussex		0.00	
5,275.6	5,240.0	Shannon		0.00	
6,738.8	6,674.0	Sharon Springs		0.00	
6,976.1	6,849.0	Niobrara A		0.00	
7,111.1	6,924.0	Niobrara B		0.00	
7,301.9	6,994.0	Niobrara C		0.00	
	7,094.0	Ft Hays		0.00	
	7,114.0	Codell		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,000.0	1,000.0	0.0	0.0	KOP #1
6,294.3	6,254.2	249.6	566.1	KOP #2
7,499.9	7,018.1	-520.0	561.1	End of Build



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.7-T4N-R64W

Honebein 4N64W7K Pad Sec.7-T4N-R64W

Honebein 7K-323

Wellbore #1

Plan #1 (8-18-14)

Anticollision Report

21 August, 2014



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Honebein 7K-323
Project:	SEC.7-T4N-R64W	TVD Reference:	well @ 4866.0ft (RKB - 15')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	well @ 4866.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7K-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 #1 (8-18-14)	Offset TVD Reference:	Offset Datum

Reference	Plan #1 (8-18-14)
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria
Interpolation Method:	Stations
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	8/21/2014		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	11,463.9	Plan #1 (8-18-14) (Wellbore #1)	MWD	MWD - Standard	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Existing Wells Sec. 7-T4N-R64W						
Fry 21-18 (Exist.) - Wellbore #1 - Wellbore #1	9,891.8	6,972.5	152.4	-45.7	0.769	Level 1, CC, ES, SF
Fry 21-6I (Exist.) - Wellbore #1 - Wellbore #1	10,654.9	7,064.3	463.8	165.2	1.554	CC, ES, SF
Fry 22-18 (SI) - Wellbore #1 - Wellbore #1	11,221.6	6,954.8	146.6	-76.0	0.659	Level 1, CC, ES, SF
Latham 7-2 (Exist.) - Wellbore #1 - Wellbore #1	7,544.9	7,011.7	50.6	-109.1	0.317	Level 1, CC, ES, SF
Latham 7-4 (Exist.) - Wellbore #1 - Wellbore #1	8,664.3	6,994.5	193.9	17.5	1.099	Level 2, CC, ES, SF
Honebein 4N64W7K Pad Sec.7-T4N-R64W						
Honebein 7G-203 - Wellbore #1 - Plan #1 (8-14-14)	200.0	195.0	150.6	149.9	227.078	CC, ES
Honebein 7G-203 - Wellbore #1 - Plan #1 (8-14-14)	1,000.0	948.0	250.6	245.9	52.457	SF
Honebein 7G-323 - Wellbore #1 - Plan #1 (8-15-14)	400.0	396.0	119.9	118.3	76.641	CC, ES
Honebein 7G-323 - Wellbore #1 - Plan #1 (8-15-14)	1,000.0	968.0	177.4	173.0	40.304	SF
Honebein 7K-223 - Wellbore #1 - Plan #1 (8-15-14)	1,000.0	999.0	30.7	26.4	7.186	CC, ES
Honebein 7K-223 - Wellbore #1 - Plan #1 (8-15-14)	11,464.7	11,389.8	383.1	210.2	2.215	SF
Honebein 7K-243 - Wellbore #1 - Plan #1 (8-15-15)	1,000.0	997.0	92.0	87.7	21.580	CC, ES
Honebein 7K-243 - Wellbore #1 - Plan #1 (8-15-15)	1,100.0	1,094.3	95.0	90.3	20.238	SF
Honebein 7K-403 - Wellbore #1 - Plan #1 (8-15-14)	1,000.0	998.0	61.3	57.1	14.379	CC, ES
Honebein 7K-403 - Wellbore #1 - Plan #1 (8-15-14)	11,464.7	11,504.8	647.3	474.1	3.737	SF
Honebein 7O-243 - Wellbore #1 - Plan #1 (8-18-14)	766.3	767.3	27.9	24.7	8.653	CC
Honebein 7O-243 - Wellbore #1 - Plan #1 (8-18-14)	800.0	801.0	27.9	24.5	8.265	ES
Honebein 7O-243 - Wellbore #1 - Plan #1 (8-18-14)	11,464.7	11,443.2	274.8	103.0	1.599	SF

Offset Design	Existing Wells Sec. 7-T4N-R64W - Fry 21-18 (Exist.) - Wellbore #1 - Wellbore #1											Offset Site Error:	0.0 ft
Survey Program:	7208-UNKNOWN											Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis			Distance								Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
9,000.0	7,007.1	6,979.1	6,979.1	43.3	139.6	92.46	-2,910.8	393.2	904.8	722.8	181.92	4.973	
9,100.0	7,006.3	6,978.3	6,978.3	45.0	139.6	92.18	-2,910.8	393.2	806.4	622.6	183.72	4.389	
9,200.0	7,005.6	6,977.6	6,977.6	46.8	139.6	91.91	-2,910.8	393.2	708.4	522.9	185.52	3.819	
9,300.0	7,004.9	6,976.9	6,976.9	48.6	139.5	91.63	-2,910.8	393.2	611.1	423.8	187.33	3.262	
9,400.0	7,004.1	6,976.1	6,976.1	50.4	139.5	91.35	-2,910.8	393.2	514.9	325.8	189.15	2.722	
9,500.0	7,003.4	6,975.4	6,975.4	52.2	139.5	91.08	-2,910.8	393.2	420.4	229.5	190.96	2.202	
9,600.0	7,002.7	6,974.7	6,974.7	54.0	139.5	90.80	-2,910.8	393.2	329.3	136.5	192.78	1.708	

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 Honebein 7K-323
Project:	SEC.7-T4N-R64W	TVD Reference:	well @ 4866.0ft (RKB - 15')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	well @ 4866.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7K-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 #1 (8-18-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec. 7-T4N-R64W - Fry 21-18 (Exist.) - Wellbore #1 - Wellbore #1												Offset Site Error:		0.0 ft	
Survey Program: 7208-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	Between Centres	Between Ellipses	Minimum Separation	Separation Factor				
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
9,700.0	7,001.9	6,973.9	6,973.9	55.8	139.5	90.53	-2,910.8	393.2	245.0	50.4	194.61	1.259	Level 3		
9,800.0	7,001.2	6,973.2	6,973.2	57.6	139.5	90.25	-2,910.8	393.2	178.0	-18.5	196.43	0.906	Level 1		
9,891.8	7,000.5	6,972.5	6,972.5	59.3	139.5	90.00	-2,910.8	393.2	152.4	-45.7	198.10	0.769	Level 1, CC, ES, SF		
9,900.0	7,000.5	6,972.5	6,972.5	59.4	139.4	89.98	-2,910.8	393.2	152.7	-45.6	198.25	0.770	Level 1		
10,000.0	6,999.7	6,971.7	6,971.7	61.3	139.4	89.70	-2,910.8	393.2	186.9	-13.2	200.08	0.934	Level 1		
10,100.0	6,999.0	6,971.0	6,971.0	63.1	139.4	89.43	-2,910.8	393.2	258.0	56.1	201.90	1.278	Level 3		
10,200.0	6,998.3	6,970.3	6,970.3	64.9	139.4	89.15	-2,910.8	393.2	343.8	140.1	203.72	1.688			
10,300.0	6,997.5	6,969.5	6,969.5	66.8	139.4	88.88	-2,910.8	393.2	435.7	230.1	205.54	2.120			
10,400.0	6,996.8	6,968.8	6,968.8	68.6	139.4	88.60	-2,910.8	393.2	530.5	323.1	207.36	2.558			
10,500.0	6,996.1	6,968.1	6,968.1	70.5	139.4	88.32	-2,910.8	393.2	627.0	417.8	209.18	2.997			
10,600.0	6,995.3	6,967.3	6,967.3	72.4	139.3	88.05	-2,910.8	393.2	724.4	513.4	211.00	3.433			
10,700.0	6,994.6	6,966.6	6,966.6	74.2	139.3	87.77	-2,910.8	393.2	822.4	609.6	212.81	3.864			
10,800.0	6,993.9	6,965.9	6,965.9	76.1	139.3	87.50	-2,910.8	393.2	920.8	706.2	214.62	4.291			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Honebein 7K-323
Project:	SEC.7-T4N-R64W	TVD Reference:	well @ 4866.0ft (RKB - 15')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	well @ 4866.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7K-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 #1 (8-18-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec. 7-T4N-R64W - Fry 21-6I (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 644-UNKNOWN													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)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
9,800.0	7,001.2	7,053.2	6,958.5	57.6	234.7	-88.84	-3,677.6	1,004.5	972.5	689.7	282.84	3.438		
9,900.0	7,000.5	7,054.5	6,959.8	59.4	234.7	-89.00	-3,677.6	1,004.5	885.9	601.3	284.67	3.112		
10,000.0	6,999.7	7,055.8	6,961.2	61.3	234.8	-89.16	-3,677.7	1,004.5	802.5	516.0	286.49	2.801		
10,100.0	6,999.0	7,057.1	6,962.5	63.1	234.8	-89.33	-3,677.7	1,004.5	723.2	434.8	288.32	2.508		
10,200.0	6,998.3	7,058.4	6,963.8	64.9	234.8	-89.49	-3,677.7	1,004.5	649.6	359.5	290.16	2.239		
10,300.0	6,997.5	7,059.7	6,965.1	66.8	234.8	-89.65	-3,677.8	1,004.5	584.0	292.0	291.99	2.000		
10,400.0	6,996.8	7,062.0	6,967.3	68.6	234.9	-89.93	-3,677.8	1,004.4	529.2	235.4	293.80	1.801		
10,500.0	6,996.1	7,062.0	6,967.3	70.5	234.9	-89.93	-3,677.8	1,004.4	488.9	193.3	295.67	1.654		
10,600.0	6,995.3	7,063.6	6,968.9	72.4	234.9	-90.12	-3,677.8	1,004.4	467.0	169.5	297.51	1.570		
10,654.9	6,994.9	7,064.3	6,969.7	73.4	235.0	-90.21	-3,677.8	1,004.4	463.8	165.2	298.52	1.554 CC, ES, SF		
10,700.0	6,994.6	7,064.9	6,970.2	74.2	235.0	-90.28	-3,677.9	1,004.4	465.9	166.6	299.36	1.556		
10,800.0	6,993.9	7,066.2	6,971.5	76.1	235.0	-90.44	-3,677.9	1,004.4	485.9	184.7	301.20	1.613		
10,900.0	6,993.1	7,067.4	6,972.8	77.9	235.0	-90.60	-3,677.9	1,004.4	524.5	221.5	303.05	1.731		
11,000.0	6,992.4	7,068.7	6,974.0	79.8	235.1	-90.75	-3,677.9	1,004.4	578.0	273.1	304.90	1.896		
11,100.0	6,991.7	7,069.9	6,975.3	81.7	235.1	-90.91	-3,678.0	1,004.4	642.8	336.0	306.74	2.095		
11,200.0	6,990.9	7,071.1	6,976.5	83.6	235.2	-91.06	-3,678.0	1,004.4	715.6	407.0	308.59	2.319		
11,300.0	6,990.2	7,072.4	6,977.7	85.4	235.2	-91.21	-3,678.0	1,004.4	794.4	484.0	310.44	2.559		
11,400.0	6,989.5	7,073.6	6,978.9	87.3	235.2	-91.36	-3,678.0	1,004.4	877.6	565.3	312.28	2.810		
11,464.7	6,989.0	7,074.3	6,979.7	88.3	235.2	-91.45	-3,678.1	1,004.4	933.1	619.9	313.24	2.979		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Honebein 7K-323
Project:	SEC.7-T4N-R64W	TVD Reference:	well @ 4866.0ft (RKB - 15')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	well @ 4866.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7K-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 #1 (8-18-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec. 7-T4N-R64W - Fry 22-18 (SI) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7215-UNKNOWN													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
10,300.0	6,997.5	6,961.5	6,961.5	66.8	139.2	92.64	-4,240.5	390.4	933.2	727.8	205.34	4.544		
10,400.0	6,996.8	6,960.8	6,960.8	68.6	139.2	92.35	-4,240.5	390.4	834.6	627.3	207.22	4.027		
10,500.0	6,996.1	6,960.1	6,960.1	70.5	139.2	92.07	-4,240.5	390.4	736.3	527.2	209.10	3.521		
10,600.0	6,995.3	6,959.3	6,959.3	72.4	139.2	91.78	-4,240.5	390.4	638.6	427.7	210.98	3.027		
10,700.0	6,994.6	6,958.6	6,958.6	74.2	139.2	91.49	-4,240.5	390.4	541.8	328.9	212.86	2.545		
10,800.0	6,993.9	6,957.9	6,957.9	76.1	139.2	91.21	-4,240.5	390.4	446.3	231.6	214.73	2.079		
10,900.0	6,993.1	6,957.1	6,957.1	77.9	139.1	90.92	-4,240.5	390.4	353.4	136.8	216.60	1.632		
11,000.0	6,992.4	6,956.4	6,956.4	79.8	139.1	90.63	-4,240.5	390.4	265.7	47.2	218.47	1.216 Level 2		
11,100.0	6,991.7	6,955.7	6,955.7	81.7	139.1	90.35	-4,240.5	390.4	190.5	-29.9	220.34	0.864 Level 1		
11,200.0	6,990.9	6,954.9	6,954.9	83.6	139.1	90.06	-4,240.5	390.4	148.2	-74.0	222.20	0.667 Level 1		
11,221.6	6,990.8	6,954.8	6,954.8	84.0	139.1	90.00	-4,240.5	390.4	146.6	-76.0	222.60	0.659 Level 1, CC, ES, SF		
11,300.0	6,990.2	6,954.2	6,954.2	85.4	139.1	89.78	-4,240.5	390.4	166.2	-57.8	224.06	0.742 Level 1		
11,400.0	6,989.5	6,953.5	6,953.5	87.3	139.1	89.49	-4,240.5	390.4	230.9	5.0	225.91	1.022 Level 2		
11,464.7	6,989.0	6,953.0	6,953.0	88.3	139.1	89.30	-4,240.5	390.4	283.9	57.0	226.88	1.251 Level 3		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Honebein 7K-323
Project:	SEC.7-T4N-R64W	TVD Reference:	well @ 4866.0ft (RKB - 15')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	well @ 4866.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7K-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 #1 (8-18-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec. 7-T4N-R64W - Latham 7-2 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7281-UNKNOWN													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	137.90	-564.7	510.3	761.1					
100.0	100.0	94.0	94.0	0.1	1.9	137.90	-564.7	510.3	761.1	759.1	1.99	381.948		
200.0	200.0	194.0	194.0	0.3	3.9	137.90	-564.7	510.3	761.1	756.8	4.22	180.460		
300.0	300.0	294.0	294.0	0.6	5.9	137.90	-564.7	510.3	761.1	754.6	6.44	118.139		
400.0	400.0	394.0	394.0	0.8	7.9	137.90	-564.7	510.3	761.1	752.4	8.67	87.813		
500.0	500.0	494.0	494.0	1.0	9.9	137.90	-564.7	510.3	761.1	750.2	10.89	69.876		
600.0	600.0	594.0	594.0	1.2	11.9	137.90	-564.7	510.3	761.1	747.9	13.12	58.024		
700.0	700.0	694.0	694.0	1.5	13.9	137.90	-564.7	510.3	761.1	745.7	15.34	49.609		
800.0	800.0	794.0	794.0	1.7	15.9	137.90	-564.7	510.3	761.1	743.5	17.57	43.326		
900.0	900.0	894.0	894.0	1.9	17.9	137.90	-564.7	510.3	761.1	741.3	19.79	38.456		
1,000.0	1,000.0	994.0	994.0	2.1	19.9	137.90	-564.7	510.3	761.1	739.0	22.02	34.569		
1,100.0	1,100.0	1,094.0	1,094.0	2.4	21.9	71.83	-564.7	510.3	760.5	736.3	24.23	31.387		
1,200.0	1,199.8	1,193.8	1,193.8	2.6	23.9	72.23	-564.7	510.3	758.9	732.5	26.44	28.707		
1,300.0	1,299.5	1,293.5	1,293.5	2.8	25.9	72.91	-564.7	510.3	756.3	727.6	28.64	26.402		
1,381.5	1,380.4	1,374.4	1,374.4	3.0	27.5	73.66	-564.7	510.3	753.5	723.0	30.45	24.744		
1,400.0	1,398.7	1,392.7	1,392.7	3.0	27.9	73.84	-564.7	510.3	752.8	721.9	30.86	24.391		
1,500.0	1,497.8	1,491.8	1,491.8	3.3	29.8	74.81	-564.7	510.3	749.2	716.1	33.11	22.629		
1,600.0	1,596.9	1,590.9	1,590.9	3.6	31.8	75.78	-564.7	510.3	745.8	710.4	35.36	21.090		
1,700.0	1,696.1	1,690.1	1,690.1	3.9	33.8	76.77	-564.7	510.3	742.6	705.0	37.63	19.736		
1,800.0	1,795.2	1,789.2	1,789.2	4.2	35.8	77.76	-564.7	510.3	739.6	699.7	39.90	18.538		
1,900.0	1,894.3	1,888.3	1,888.3	4.5	37.8	78.76	-564.7	510.3	736.9	694.7	42.18	17.471		
2,000.0	1,993.4	1,987.4	1,987.4	4.8	39.7	79.77	-564.7	510.3	734.4	690.0	44.47	16.516		
2,100.0	2,092.5	2,086.5	2,086.5	5.1	41.7	80.78	-564.7	510.3	732.2	685.4	46.76	15.658		
2,200.0	2,191.6	2,185.6	2,185.6	5.4	43.7	81.80	-564.7	510.3	730.1	681.1	49.05	14.884		
2,300.0	2,290.7	2,284.7	2,284.7	5.7	45.7	82.83	-564.7	510.3	728.3	677.0	51.35	14.183		
2,400.0	2,389.9	2,383.9	2,383.9	6.0	47.7	83.86	-564.7	510.3	726.8	673.1	53.65	13.546		
2,500.0	2,489.0	2,483.0	2,483.0	6.3	49.7	84.89	-564.7	510.3	725.5	669.5	55.96	12.964		
2,600.0	2,588.1	2,582.1	2,582.1	6.6	51.6	85.93	-564.7	510.3	724.4	666.1	58.26	12.433		
2,700.0	2,687.2	2,681.2	2,681.2	7.0	53.6	86.97	-564.7	510.3	723.6	663.0	60.57	11.946		
2,800.0	2,786.3	2,780.3	2,780.3	7.3	55.6	88.01	-564.7	510.3	723.0	660.1	62.88	11.498		
2,900.0	2,885.4	2,879.4	2,879.4	7.6	57.6	89.05	-564.7	510.3	722.6	657.4	65.19	11.085		
2,991.0	2,975.6	2,969.6	2,969.6	7.9	59.4	90.00	-564.7	510.3	722.5	655.2	67.29	10.738		
3,000.0	2,984.5	2,978.5	2,978.5	7.9	59.6	90.09	-564.7	510.3	722.5	655.0	67.50	10.705		
3,100.0	3,083.7	3,077.7	3,077.7	8.3	61.6	91.14	-564.7	510.3	722.7	652.9	69.81	10.353		
3,200.0	3,182.8	3,176.8	3,176.8	8.6	63.5	92.18	-564.7	510.3	723.1	650.9	72.11	10.027		
3,300.0	3,281.9	3,275.9	3,275.9	8.9	65.5	93.22	-564.7	510.3	723.7	649.3	74.42	9.724		
3,400.0	3,381.0	3,375.0	3,375.0	9.2	67.5	94.26	-564.7	510.3	724.6	647.8	76.73	9.443		
3,500.0	3,480.1	3,474.1	3,474.1	9.6	69.5	95.30	-564.7	510.3	725.7	646.6	79.04	9.182		
3,600.0	3,579.2	3,573.2	3,573.2	9.9	71.5	96.33	-564.7	510.3	727.0	645.7	81.34	8.938		
3,700.0	3,678.3	3,672.3	3,672.3	10.2	73.4	97.36	-564.7	510.3	728.6	645.0	83.64	8.711		
3,800.0	3,777.5	3,771.5	3,771.5	10.5	75.4	98.38	-564.7	510.3	730.5	644.5	85.95	8.499		
3,900.0	3,876.6	3,870.6	3,870.6	10.9	77.4	99.40	-564.7	510.3	732.5	644.3	88.25	8.301		
4,000.0	3,975.7	3,969.7	3,969.7	11.2	79.4	100.41	-564.7	510.3	734.8	644.3	90.54	8.116		
4,100.0	4,074.8	4,068.8	4,068.8	11.5	81.4	101.42	-564.7	510.3	737.4	644.5	92.84	7.943		
4,200.0	4,173.9	4,167.9	4,167.9	11.9	83.4	102.42	-564.7	510.3	740.2	645.0	95.13	7.780		
4,300.0	4,273.0	4,267.0	4,267.0	12.2	85.3	103.41	-564.7	510.3	743.1	645.7	97.42	7.628		
4,400.0	4,372.1	4,366.1	4,366.1	12.5	87.3	104.39	-564.7	510.3	746.4	646.6	99.71	7.485		
4,500.0	4,471.3	4,465.3	4,465.3	12.9	89.3	105.37	-564.7	510.3	749.8	647.8	102.00	7.351		
4,600.0	4,570.4	4,564.4	4,564.4	13.2	91.3	106.34	-564.7	510.3	753.5	649.2	104.28	7.225		
4,700.0	4,669.5	4,663.5	4,663.5	13.5	93.3	107.29	-564.7	510.3	757.3	650.8	106.56	7.107		
4,800.0	4,768.6	4,762.6	4,762.6	13.9	95.3	108.24	-564.7	510.3	761.4	652.6	108.84	6.996		

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 Honebein 7K-323
Project:	SEC.7-T4N-R64W	TVD Reference:	well @ 4866.0ft (RKB - 15')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	well @ 4866.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7K-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 #1 (8-18-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec. 7-T4N-R64W - Latham 7-2 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7281-UNKNOWN													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)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,900.0	4,867.7	4,861.7	4,861.7	14.2	97.2	109.17		-564.7	510.3	765.7	654.6	111.11	6.891	
5,000.0	4,966.8	4,960.8	4,960.8	14.5	99.2	110.10		-564.7	510.3	770.2	656.8	113.39	6.793	
5,100.0	5,065.9	5,059.9	5,059.9	14.9	101.2	111.01		-564.7	510.3	774.9	659.3	115.65	6.700	
5,200.0	5,165.1	5,159.1	5,159.1	15.2	103.2	111.92		-564.7	510.3	779.8	661.9	117.92	6.613	
5,300.0	5,264.2	5,258.2	5,258.2	15.5	105.2	112.81		-564.7	510.3	784.9	664.7	120.18	6.531	
5,400.0	5,363.3	5,357.3	5,357.3	15.8	107.1	113.69		-564.7	510.3	790.2	667.7	122.44	6.453	
5,500.0	5,462.4	5,456.4	5,456.4	16.2	109.1	114.56		-564.7	510.3	795.6	670.9	124.70	6.380	
5,600.0	5,561.5	5,555.5	5,555.5	16.5	111.1	115.42		-564.7	510.3	801.3	674.3	126.96	6.312	
5,658.6	5,619.6	5,613.6	5,613.6	16.7	112.3	115.92		-564.7	510.3	804.7	676.4	128.28	6.273	
5,700.0	5,660.7	5,654.7	5,654.7	16.8	113.1	116.29		-564.7	510.3	807.0	677.8	129.23	6.245	
5,800.0	5,760.2	5,754.2	5,754.2	17.1	115.1	117.01		-564.7	510.3	811.5	680.1	131.47	6.173	
5,900.0	5,859.9	5,853.9	5,853.9	17.3	117.1	117.47		-564.7	510.3	814.6	680.9	133.69	6.093	
6,000.0	5,959.9	5,953.9	5,953.9	17.4	119.1	117.70		-564.7	510.3	816.0	680.2	135.86	6.007	
6,040.1	6,000.0	5,994.0	5,994.0	17.5	119.9	-176.08		-564.7	510.3	816.2	679.4	136.73	5.969	
6,100.0	6,059.9	6,053.9	6,053.9	17.6	121.1	-176.08		-564.7	510.3	816.2	678.2	138.02	5.913	
6,200.0	6,159.9	6,153.9	6,153.9	17.7	123.1	-176.08		-564.7	510.3	816.2	676.0	140.19	5.822	
6,294.3	6,254.1	6,248.1	6,248.1	17.9	125.0	-176.08		-564.7	510.3	816.2	673.9	142.24	5.738	
6,300.0	6,259.9	6,253.9	6,253.9	17.9	125.1	3.55		-564.7	510.3	816.2	673.8	142.34	5.734	
6,350.0	6,309.8	6,303.8	6,303.8	18.0	126.1	3.57		-564.7	510.3	814.1	671.1	143.01	5.693	
6,400.0	6,359.5	6,353.5	6,353.5	18.0	127.1	3.62		-564.7	510.3	808.9	665.8	143.06	5.654	
6,450.0	6,408.8	6,402.8	6,402.8	18.0	128.1	3.70		-564.7	510.3	800.4	657.9	142.48	5.618	
6,500.0	6,457.4	6,451.4	6,451.4	18.1	129.0	3.81		-564.7	510.3	788.7	647.4	141.26	5.583	
6,550.0	6,505.1	6,499.1	6,499.1	18.1	130.0	3.97		-564.7	510.3	773.9	634.5	139.40	5.551	
6,600.0	6,551.8	6,545.8	6,545.8	18.1	130.9	4.16		-564.7	510.3	755.9	619.0	136.91	5.522	
6,650.0	6,597.2	6,591.2	6,591.2	18.1	131.8	4.41		-564.7	510.3	735.0	601.2	133.78	5.494	
6,700.0	6,641.1	6,635.1	6,635.1	18.1	132.7	4.73		-564.7	510.3	711.2	581.1	130.03	5.469	
6,750.0	6,683.3	6,677.3	6,677.3	18.1	133.5	5.12		-564.7	510.3	684.5	558.9	125.68	5.447	
6,800.0	6,723.7	6,717.7	6,717.7	18.1	134.4	5.60		-564.7	510.3	655.2	534.4	120.76	5.426	
6,850.0	6,762.1	6,756.1	6,756.1	18.1	135.1	6.22		-564.7	510.3	623.3	508.0	115.31	5.405	
6,900.0	6,798.4	6,792.4	6,792.4	18.1	135.8	7.00		-564.7	510.3	589.0	479.6	109.41	5.383	
6,950.0	6,832.3	6,826.3	6,826.3	18.2	136.5	8.00		-564.7	510.3	552.4	449.2	103.15	5.355	
7,000.0	6,863.7	6,857.7	6,857.7	18.2	137.2	9.32		-564.7	510.3	513.7	416.9	96.72	5.311	
7,050.0	6,892.5	6,886.5	6,886.5	18.3	137.7	11.07		-564.7	510.3	473.0	382.6	90.43	5.231	
7,100.0	6,918.6	6,912.6	6,912.6	18.3	138.3	13.47		-564.7	510.3	430.6	345.8	84.86	5.075	
7,150.0	6,941.8	6,935.8	6,935.8	18.5	138.7	16.85		-564.7	510.3	386.7	305.5	81.17	4.764	
7,200.0	6,962.1	6,956.1	6,956.1	18.6	139.1	21.73		-564.7	510.3	341.5	260.0	81.43	4.193	
7,250.0	6,979.4	6,973.4	6,973.4	18.9	139.5	28.95		-564.7	510.3	295.2	206.5	88.70	3.328	
7,300.0	6,993.5	6,987.5	6,987.5	19.1	139.8	39.61		-564.7	510.3	248.1	142.6	105.43	2.353	
7,350.0	7,004.5	6,998.5	6,998.5	19.4	140.0	54.22		-564.7	510.3	200.6	71.5	129.04	1.554	
7,400.0	7,012.3	7,006.3	7,006.3	19.8	140.1	70.60		-564.7	510.3	153.3	4.3	148.99	1.029 Level 2	
7,450.0	7,016.8	7,010.8	7,010.8	20.2	140.2	83.80		-564.7	510.3	107.5	-50.0	157.55	0.683 Level 1	
7,499.9	7,018.1	7,012.1	7,012.1	20.7	140.2	90.37		-564.7	510.3	67.7	-91.5	159.19	0.425 Level 1	
7,544.9	7,017.7	7,011.7	7,011.7	21.2	140.2	90.00		-564.7	510.3	50.6	-109.1	159.69	0.317 Level 1, CC, ES, SF	
7,600.0	7,017.3	7,011.3	7,011.3	21.7	140.2	89.54		-564.7	510.3	74.8	-85.5	160.29	0.466 Level 1	
7,700.0	7,016.6	7,010.6	7,010.6	22.9	140.2	88.71		-564.7	510.3	163.1	1.6	161.46	1.010 Level 2	
7,800.0	7,015.9	7,009.9	7,009.9	24.2	140.2	87.88		-564.7	510.3	260.0	97.3	162.70	1.598	
7,900.0	7,015.1	7,009.1	7,009.1	25.5	140.2	87.05		-564.7	510.3	358.6	194.7	163.97	2.187	
8,000.0	7,014.4	7,008.4	7,008.4	26.9	140.2	86.23		-564.7	510.3	457.9	292.6	165.28	2.770	
8,100.0	7,013.7	7,007.7	7,007.7	28.4	140.2	85.40		-564.7	510.3	557.3	390.7	166.60	3.345	
8,200.0	7,012.9	7,006.9	7,006.9	29.9	140.1	84.58		-564.7	510.3	657.0	489.1	167.94	3.912	
8,300.0	7,012.2	7,006.2	7,006.2	31.5	140.1	83.75		-564.7	510.3	756.7	587.5	169.27	4.470	

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 Honebein 7K-323
Project:	SEC.7-T4N-R64W	TVD Reference:	well @ 4866.0ft (RKB - 15')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	well @ 4866.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7K-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 #1 (8-18-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec. 7-T4N-R64W - Latham 7-2 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7281-UNKNOWN													Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis		Distance										Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
8,400.0	7,011.5	7,005.5	7,005.5	33.1	140.1	82.93	-564.7	510.3	856.5	685.9	170.60	5.021		
8,500.0	7,010.7	7,004.7	7,004.7	34.7	140.1	82.12	-564.7	510.3	956.4	784.5	171.93	5.563		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Honebein 7K-323
Project:	SEC.7-T4N-R64W	TVD Reference:	well @ 4866.0ft (RKB - 15')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	well @ 4866.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7K-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 #1 (8-18-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec. 7-T4N-R64W - Latham 7-4 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7312-UNKNOWN													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)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,700.0	7,016.6	7,001.6	7,001.6	22.9	140.0	92.09	92.09	-1,683.1	359.7	983.6	822.3	161.34	6.097	
7,800.0	7,015.9	7,000.9	7,000.9	24.2	140.0	91.87	91.87	-1,683.1	359.7	885.8	723.1	162.68	5.445	
7,900.0	7,015.1	7,000.1	7,000.1	25.5	140.0	91.66	91.66	-1,683.1	359.7	788.5	624.4	164.10	4.805	
8,000.0	7,014.4	6,999.4	6,999.4	26.9	140.0	91.44	91.44	-1,683.1	359.7	692.0	526.5	165.58	4.179	
8,100.0	7,013.7	6,998.7	6,998.7	28.4	140.0	91.22	91.22	-1,683.1	359.7	596.7	429.6	167.12	3.571	
8,200.0	7,012.9	6,997.9	6,997.9	29.9	140.0	91.01	91.01	-1,683.1	359.7	503.2	334.5	168.69	2.983	
8,300.0	7,012.2	6,997.2	6,997.2	31.5	139.9	90.79	90.79	-1,683.1	359.7	412.7	242.4	170.31	2.423	
8,400.0	7,011.5	6,996.5	6,996.5	33.1	139.9	90.57	90.57	-1,683.1	359.7	327.8	155.9	171.95	1.906	
8,500.0	7,010.7	6,995.7	6,995.7	34.7	139.9	90.36	90.36	-1,683.1	359.7	254.2	80.5	173.62	1.464 Level 3	
8,600.0	7,010.0	6,995.0	6,995.0	36.4	139.9	90.14	90.14	-1,683.1	359.7	204.3	29.0	175.31	1.165 Level 2	
8,664.3	7,009.5	6,994.5	6,994.5	37.5	139.9	90.00	90.00	-1,683.1	359.7	193.9	17.5	176.41	1.099 Level 2, CC, ES, SF	
8,700.0	7,009.3	6,994.3	6,994.3	38.1	139.9	89.92	89.92	-1,683.1	359.7	197.1	20.1	177.02	1.114 Level 2	
8,800.0	7,008.5	6,993.5	6,993.5	39.8	139.9	89.71	89.71	-1,683.1	359.7	236.6	57.9	178.74	1.324 Level 3	
8,900.0	7,007.8	6,992.8	6,992.8	41.5	139.9	89.49	89.49	-1,683.1	359.7	305.2	124.7	180.47	1.691	
9,000.0	7,007.1	6,992.1	6,992.1	43.3	139.8	89.27	89.27	-1,683.1	359.7	387.6	205.4	182.22	2.127	
9,100.0	7,006.3	6,991.3	6,991.3	45.0	139.8	89.06	89.06	-1,683.1	359.7	476.8	292.9	183.98	2.592	
9,200.0	7,005.6	6,990.6	6,990.6	46.8	139.8	88.84	88.84	-1,683.1	359.7	569.6	383.9	185.74	3.067	
9,300.0	7,004.9	6,989.9	6,989.9	48.6	139.8	88.62	88.62	-1,683.1	359.7	664.5	477.0	187.51	3.544	
9,400.0	7,004.1	6,989.1	6,989.1	50.4	139.8	88.41	88.41	-1,683.1	359.7	760.8	571.5	189.29	4.019	
9,500.0	7,003.4	6,988.4	6,988.4	52.2	139.8	88.19	88.19	-1,683.1	359.7	857.8	666.8	191.07	4.490	
9,600.0	7,002.7	6,987.7	6,987.7	54.0	139.8	87.97	87.97	-1,683.1	359.7	955.5	762.7	192.85	4.955	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Honebein 7K-323
Project:	SEC.7-T4N-R64W	TVD Reference:	well @ 4866.0ft (RKB - 15')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	well @ 4866.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7K-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 #1 (8-18-14)	Offset TVD Reference:	Offset Datum

Offset Design Honebein 4N64W7K Pad Sec.7-T4N-R64W - Honebein 7G-203 - Wellbore #1 - Plan #1 (8-14-14)													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)	+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	-90.00	-90.00	0.0	-150.6	150.6				
100.0	100.0	95.0	95.0	0.1	0.1	-90.00	-90.00	0.0	-150.6	150.6	150.3	0.22	687.027	
200.0	200.0	195.0	195.0	0.3	0.3	-90.00	-90.00	0.0	-150.6	150.6	149.9	0.66	227.078 CC, ES	
300.0	300.0	290.3	290.3	0.6	0.5	-89.90	-89.90	0.3	-152.0	152.0	150.9	1.09	138.853	
400.0	400.0	385.2	385.0	0.8	0.7	-89.59	-89.59	1.1	-156.4	156.8	155.2	1.53	102.308	
500.0	500.0	479.6	479.2	1.0	1.0	-89.10	-89.10	2.6	-164.0	164.7	162.7	1.99	82.793	
600.0	600.0	573.5	572.4	1.2	1.2	-88.49	-88.49	4.6	-174.4	176.0	173.5	2.47	71.142	
700.0	700.0	666.5	664.5	1.5	1.5	-87.82	-87.82	7.1	-187.8	190.4	187.4	2.99	63.653	
800.0	800.0	758.6	755.1	1.7	1.9	-87.13	-87.13	10.2	-203.9	208.0	204.5	3.54	58.682	
900.0	900.0	850.5	844.9	1.9	2.3	-86.44	-86.44	13.9	-222.8	228.7	224.6	4.13	55.322	
1,000.0	1,000.0	948.0	940.1	2.1	2.7	-85.80	-85.80	17.9	-243.9	250.6	245.9	4.78	52.457 SF	
1,100.0	1,100.0	1,045.2	1,034.9	2.4	3.1	-151.42	-151.42	22.0	-264.9	274.1	269.3	4.74	57.834	
1,200.0	1,199.8	1,141.7	1,128.9	2.6	3.6	-151.19	-151.19	26.0	-285.8	300.5	295.3	5.19	57.901	
1,300.0	1,299.5	1,237.3	1,222.2	2.8	4.0	-151.22	-151.22	29.9	-306.6	329.8	324.2	5.64	58.528	
1,381.5	1,380.4	1,314.5	1,297.5	3.0	4.4	-151.39	-151.39	33.1	-323.3	355.9	349.9	6.00	59.343	
1,400.0	1,398.7	1,331.9	1,314.4	3.0	4.5	-151.50	-151.50	33.9	-327.1	362.0	355.9	6.08	59.522	
1,500.0	1,497.8	1,426.1	1,406.4	3.3	4.9	-152.04	-152.04	37.8	-347.5	395.2	388.7	6.54	60.391	
1,600.0	1,596.9	1,520.4	1,498.3	3.6	5.4	-152.50	-152.50	41.7	-367.9	428.5	421.5	7.01	61.085	
1,700.0	1,696.1	1,614.7	1,590.3	3.9	5.8	-152.89	-152.89	45.6	-388.3	461.7	454.3	7.49	61.648	
1,800.0	1,795.2	1,708.9	1,682.2	4.2	6.3	-153.23	-153.23	49.5	-408.8	495.0	487.1	7.97	62.109	
1,900.0	1,894.3	1,803.2	1,774.1	4.5	6.7	-153.53	-153.53	53.5	-429.2	528.3	519.9	8.45	62.491	
2,000.0	1,993.4	1,897.4	1,866.1	4.8	7.2	-153.79	-153.79	57.4	-449.6	561.6	552.7	8.94	62.811	
2,100.0	2,092.5	1,991.7	1,958.0	5.1	7.7	-154.02	-154.02	61.3	-470.0	594.9	585.5	9.43	63.081	
2,200.0	2,191.6	2,086.0	2,050.0	5.4	8.1	-154.23	-154.23	65.2	-490.4	628.3	618.3	9.92	63.311	
2,300.0	2,290.7	2,180.2	2,141.9	5.7	8.6	-154.42	-154.42	69.1	-510.9	661.6	651.2	10.42	63.508	
2,400.0	2,389.9	2,274.5	2,233.8	6.0	9.0	-154.58	-154.58	73.1	-531.3	694.9	684.0	10.91	63.678	
2,500.0	2,489.0	2,368.8	2,325.8	6.3	9.5	-154.74	-154.74	77.0	-551.7	728.2	716.8	11.41	63.826	
2,600.0	2,588.1	2,463.0	2,417.7	6.6	9.9	-154.88	-154.88	80.9	-572.1	761.6	749.7	11.91	63.955	
2,700.0	2,687.2	2,557.3	2,509.7	7.0	10.4	-155.00	-155.00	84.8	-592.6	794.9	782.5	12.41	64.068	
2,800.0	2,786.3	2,651.5	2,601.6	7.3	10.8	-155.12	-155.12	88.7	-613.0	828.3	815.4	12.91	64.167	
2,900.0	2,885.4	2,745.8	2,693.5	7.6	11.3	-155.23	-155.23	92.6	-633.4	861.6	848.2	13.41	64.256	
3,000.0	2,984.5	2,840.1	2,785.5	7.9	11.8	-155.33	-155.33	96.6	-653.8	895.0	881.1	13.91	64.334	
3,100.0	3,083.7	2,934.3	2,877.4	8.3	12.2	-155.43	-155.43	100.5	-674.3	928.3	913.9	14.41	64.404	
3,200.0	3,182.8	3,028.6	2,969.3	8.6	12.7	-155.51	-155.51	104.4	-694.7	961.7	946.8	14.92	64.466	
3,300.0	3,281.9	3,122.8	3,061.3	8.9	13.1	-155.59	-155.59	108.3	-715.1	995.1	979.6	15.42	64.522	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Honebein 7K-323
Project:	SEC.7-T4N-R64W	TVD Reference:	well @ 4866.0ft (RKB - 15')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	well @ 4866.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7K-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 #1 (8-18-14)	Offset TVD Reference:	Offset Datum

Offset Design Honebein 4N64W7K Pad Sec.7-T4N-R64W - Honebein 7G-323 - Wellbore #1 - Plan #1 (8-15-14)													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)	+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	-90.00	-90.00	0.0	-119.9	120.0				
100.0	100.0	96.0	96.0	0.1	0.1	-90.00	-90.00	0.0	-119.9	119.9	119.7	0.22	544.291	
200.0	200.0	196.0	196.0	0.3	0.3	-90.00	-90.00	0.0	-119.9	119.9	119.2	0.67	180.211	
300.0	300.0	296.0	296.0	0.6	0.6	-90.00	-90.00	0.0	-119.9	119.9	118.8	1.11	107.545	
400.0	400.0	396.0	396.0	0.8	0.8	-90.00	-90.00	0.0	-119.9	119.9	118.3	1.56	76.641 CC, ES	
500.0	500.0	492.2	492.2	1.0	1.0	-89.83	-89.83	0.4	-121.3	121.4	119.4	2.00	60.779	
600.0	600.0	588.1	587.9	1.2	1.2	-89.34	-89.34	1.5	-125.9	126.2	123.7	2.43	51.895	
700.0	700.0	683.5	683.0	1.5	1.4	-88.58	-88.58	3.3	-133.5	134.2	131.3	2.88	46.576	
800.0	800.0	778.3	777.2	1.7	1.7	-87.67	-87.67	5.9	-144.1	145.5	142.1	3.35	43.364	
900.0	900.0	872.3	870.1	1.9	2.0	-86.68	-86.68	9.1	-157.7	160.0	156.2	3.86	41.461	
1,000.0	1,000.0	968.0	964.3	2.1	2.3	-85.70	-85.70	13.1	-174.1	177.4	173.0	4.40	40.304 SF	
1,100.0	1,100.0	1,066.1	1,060.8	2.4	2.6	-151.11	-151.11	17.3	-191.3	196.8	192.1	4.68	42.084	
1,200.0	1,199.8	1,163.5	1,156.7	2.6	3.0	-150.85	-150.85	21.4	-208.4	219.1	214.0	5.12	42.823	
1,300.0	1,299.5	1,260.3	1,251.8	2.8	3.4	-150.97	-150.97	25.5	-225.4	244.5	238.9	5.56	43.996	
1,381.5	1,380.4	1,338.5	1,328.8	3.0	3.7	-151.27	-151.27	28.8	-239.2	267.3	261.4	5.91	45.218	
1,400.0	1,398.7	1,356.1	1,346.1	3.0	3.8	-151.41	-151.41	29.6	-242.3	272.7	266.7	5.99	45.490	
1,500.0	1,497.8	1,451.7	1,440.1	3.3	4.1	-152.06	-152.06	33.6	-259.0	302.0	295.5	6.45	46.792	
1,600.0	1,596.9	1,547.3	1,534.1	3.6	4.5	-152.60	-152.60	37.7	-275.8	331.2	324.3	6.91	47.904	
1,700.0	1,696.1	1,642.9	1,628.1	3.9	4.9	-153.04	-153.04	41.7	-292.6	360.5	353.1	7.38	48.838	
1,800.0	1,795.2	1,738.4	1,722.1	4.2	5.3	-153.43	-153.43	45.8	-309.4	389.8	382.0	7.85	49.632	
1,900.0	1,894.3	1,834.0	1,816.1	4.5	5.7	-153.75	-153.75	49.9	-326.2	419.2	410.9	8.33	50.314	
2,000.0	1,993.4	1,929.6	1,910.1	4.8	6.1	-154.04	-154.04	53.9	-343.0	448.5	439.7	8.81	50.906	
2,100.0	2,092.5	2,025.2	2,004.1	5.1	6.5	-154.29	-154.29	58.0	-359.8	477.9	468.6	9.29	51.422	
2,200.0	2,191.6	2,120.7	2,098.1	5.4	6.8	-154.51	-154.51	62.0	-376.6	507.2	497.5	9.78	51.876	
2,300.0	2,290.7	2,216.3	2,192.1	5.7	7.2	-154.71	-154.71	66.1	-393.3	536.6	526.3	10.26	52.278	
2,400.0	2,389.9	2,311.9	2,286.1	6.0	7.6	-154.88	-154.88	70.1	-410.1	566.0	555.2	10.75	52.635	
2,500.0	2,489.0	2,407.5	2,380.1	6.3	8.0	-155.04	-155.04	74.2	-426.9	595.3	584.1	11.24	52.955	
2,600.0	2,588.1	2,503.0	2,474.1	6.6	8.4	-155.18	-155.18	78.3	-443.7	624.7	613.0	11.73	53.243	
2,700.0	2,687.2	2,598.6	2,568.1	7.0	8.8	-155.32	-155.32	82.3	-460.5	654.1	641.9	12.23	53.503	
2,800.0	2,786.3	2,694.2	2,662.1	7.3	9.2	-155.44	-155.44	86.4	-477.3	683.5	670.8	12.72	53.739	
2,900.0	2,885.4	2,789.8	2,756.1	7.6	9.6	-155.55	-155.55	90.4	-494.1	712.9	699.7	13.21	53.954	
3,000.0	2,984.5	2,885.4	2,850.1	7.9	10.0	-155.65	-155.65	94.5	-510.9	742.3	728.6	13.71	54.150	
3,100.0	3,083.7	2,980.9	2,944.1	8.3	10.4	-155.74	-155.74	98.5	-527.6	771.7	757.5	14.20	54.330	
3,200.0	3,182.8	3,076.5	3,038.2	8.6	10.8	-155.83	-155.83	102.6	-544.4	801.1	786.4	14.70	54.495	
3,300.0	3,281.9	3,172.1	3,132.2	8.9	11.2	-155.91	-155.91	106.7	-561.2	830.4	815.2	15.20	54.648	
3,400.0	3,381.0	3,267.7	3,226.2	9.2	11.6	-155.98	-155.98	110.7	-578.0	859.8	844.1	15.69	54.789	
3,500.0	3,480.1	3,363.2	3,320.2	9.6	11.9	-156.05	-156.05	114.8	-594.8	889.2	873.0	16.19	54.920	
3,600.0	3,579.2	3,458.8	3,414.2	9.9	12.3	-156.12	-156.12	118.8	-611.6	918.6	901.9	16.69	55.041	
3,700.0	3,678.3	3,554.4	3,508.2	10.2	12.7	-156.18	-156.18	122.9	-628.4	948.0	930.8	17.19	55.155	
3,800.0	3,777.5	3,650.0	3,602.2	10.5	13.1	-156.24	-156.24	127.0	-645.2	977.4	959.7	17.69	55.260	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Honebein 7K-323
Project:	SEC.7-T4N-R64W	TVD Reference:	well @ 4866.0ft (RKB - 15')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	well @ 4866.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7K-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 #1 (8-18-14)	Offset TVD Reference:	Offset Datum

Offset Design Honebein 4N64W7K Pad Sec.7-T4N-R64W - Honebein 7K-223 - Wellbore #1 - Plan #1 (8-15-14)													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
0.0	0.0	0.0	0.0	0.0	0.0	-89.98	-89.98	0.0	-30.7	30.7				
100.0	100.0	99.0	99.0	0.1	0.1	-89.98	-89.98	0.0	-30.7	30.7	30.4	0.22	137.142	
200.0	200.0	199.0	199.0	0.3	0.3	-89.98	-89.98	0.0	-30.7	30.7	30.0	0.67	45.638	
300.0	300.0	299.0	299.0	0.6	0.6	-89.98	-89.98	0.0	-30.7	30.7	29.5	1.12	27.346	
400.0	400.0	399.0	399.0	0.8	0.8	-89.98	-89.98	0.0	-30.7	30.7	29.1	1.57	19.522	
500.0	500.0	499.0	499.0	1.0	1.0	-89.98	-89.98	0.0	-30.7	30.7	28.7	2.02	15.179	
600.0	600.0	599.0	599.0	1.2	1.2	-89.98	-89.98	0.0	-30.7	30.7	28.2	2.47	12.416	
700.0	700.0	699.0	699.0	1.5	1.5	-89.98	-89.98	0.0	-30.7	30.7	27.8	2.92	10.505	
800.0	800.0	799.0	799.0	1.7	1.7	-89.98	-89.98	0.0	-30.7	30.7	27.3	3.37	9.103	
900.0	900.0	899.0	899.0	1.9	1.9	-89.98	-89.98	0.0	-30.7	30.7	26.9	3.82	8.032	
1,000.0	1,000.0	999.0	999.0	2.1	2.1	-89.98	-89.98	0.0	-30.7	30.7	26.4	4.27	7.186 CC, ES	
1,100.0	1,100.0	1,099.0	1,099.0	2.4	2.4	-157.43	-157.43	0.0	-30.7	32.3	27.6	4.71	6.855	
1,200.0	1,199.8	1,198.8	1,198.8	2.6	2.6	-160.49	-160.49	0.0	-30.7	37.2	32.0	5.14	7.231	
1,300.0	1,299.5	1,298.5	1,298.5	2.8	2.8	-164.12	-164.12	0.0	-30.7	45.5	39.9	5.57	8.167	
1,381.5	1,380.4	1,379.4	1,379.4	3.0	3.0	-166.84	-166.84	0.0	-30.7	54.8	48.9	5.91	9.274	
1,400.0	1,398.7	1,397.7	1,397.7	3.0	3.0	-167.40	-167.40	0.0	-30.7	57.2	51.2	5.99	9.547	
1,500.0	1,497.8	1,496.8	1,496.8	3.3	3.3	-169.76	-169.76	0.0	-30.7	70.3	63.8	6.44	10.918	
1,600.0	1,596.9	1,598.2	1,598.2	3.6	3.5	-170.71	-170.71	1.3	-29.6	82.1	75.2	6.88	11.929	
1,700.0	1,696.1	1,700.2	1,700.1	3.9	3.7	-170.05	-170.05	5.5	-26.4	91.1	83.7	7.32	12.434	
1,800.0	1,795.2	1,802.6	1,802.0	4.2	3.9	-168.17	-168.17	12.6	-20.8	97.3	89.5	7.78	12.513	
1,900.0	1,894.3	1,903.1	1,901.9	4.5	4.2	-165.59	-165.59	21.6	-13.8	101.7	93.5	8.24	12.349	
2,000.0	1,993.4	2,002.9	2,001.0	4.8	4.4	-163.20	-163.20	30.5	-6.8	106.3	97.6	8.71	12.198	
2,100.0	2,092.5	2,102.7	2,100.2	5.1	4.7	-161.00	-161.00	39.5	0.3	111.0	101.8	9.20	12.066	
2,200.0	2,191.6	2,202.5	2,199.3	5.4	4.9	-158.99	-158.99	48.5	7.3	115.8	106.1	9.69	11.949	
2,300.0	2,290.7	2,302.3	2,298.5	5.7	5.2	-157.14	-157.14	57.5	14.3	120.8	110.6	10.20	11.844	
2,400.0	2,389.9	2,402.1	2,397.6	6.0	5.5	-155.44	-155.44	66.5	21.4	125.9	115.2	10.72	11.749	
2,500.0	2,489.0	2,501.9	2,496.8	6.3	5.7	-153.87	-153.87	75.5	28.4	131.1	119.9	11.24	11.663	
2,600.0	2,588.1	2,601.7	2,595.9	6.6	6.0	-152.42	-152.42	84.5	35.5	136.4	124.6	11.77	11.584	
2,700.0	2,687.2	2,701.5	2,695.1	7.0	6.3	-151.09	-151.09	93.5	42.5	141.8	129.4	12.31	11.512	
2,800.0	2,786.3	2,801.3	2,794.2	7.3	6.6	-149.85	-149.85	102.5	49.5	147.2	134.3	12.86	11.445	
2,900.0	2,885.4	2,901.1	2,893.3	7.6	6.8	-148.69	-148.69	111.5	56.6	152.7	139.3	13.41	11.383	
3,000.0	2,984.5	3,000.9	2,992.5	7.9	7.1	-147.62	-147.62	120.5	63.6	158.3	144.3	13.97	11.326	
3,100.0	3,083.7	3,100.7	3,091.6	8.3	7.4	-146.63	-146.63	129.5	70.7	163.9	149.3	14.54	11.273	
3,200.0	3,182.8	3,200.5	3,190.8	8.6	7.7	-145.69	-145.69	138.5	77.7	169.5	154.4	15.11	11.224	
3,300.0	3,281.9	3,300.3	3,289.9	8.9	8.0	-144.82	-144.82	147.5	84.7	175.2	159.6	15.68	11.178	
3,400.0	3,381.0	3,400.1	3,389.1	9.2	8.3	-144.01	-144.01	156.5	91.8	181.0	164.7	16.25	11.136	
3,500.0	3,480.1	3,499.9	3,488.2	9.6	8.6	-143.24	-143.24	165.5	98.8	186.8	169.9	16.83	11.096	
3,600.0	3,579.2	3,599.7	3,587.4	9.9	8.9	-142.52	-142.52	174.5	105.9	192.6	175.2	17.41	11.059	
3,700.0	3,678.3	3,699.5	3,686.5	10.2	9.2	-141.84	-141.84	183.5	112.9	198.4	180.4	18.00	11.024	
3,800.0	3,777.5	3,799.3	3,785.7	10.5	9.5	-141.20	-141.20	192.5	119.9	204.3	185.7	18.58	10.991	
3,900.0	3,876.6	3,899.1	3,884.8	10.9	9.7	-140.60	-140.60	201.5	127.0	210.2	191.0	19.17	10.960	
4,000.0	3,975.7	3,998.9	3,984.0	11.2	10.0	-140.03	-140.03	210.5	134.0	216.1	196.3	19.76	10.932	
4,100.0	4,074.8	4,098.8	4,083.1	11.5	10.3	-139.49	-139.49	219.5	141.0	222.0	201.6	20.36	10.904	
4,200.0	4,173.9	4,198.3	4,182.0	11.9	10.6	-138.98	-138.98	228.5	148.1	227.9	207.0	20.95	10.881	
4,300.0	4,273.0	4,295.2	4,278.5	12.2	10.9	-138.97	-138.97	235.7	153.7	234.6	213.2	21.44	10.942	
4,400.0	4,372.1	4,392.0	4,375.1	12.5	11.0	-139.67	-139.67	240.3	157.3	242.5	220.7	21.87	11.088	
4,500.0	4,471.3	4,488.2	4,471.2	12.9	11.2	-141.02	-141.02	242.3	158.9	251.8	229.5	22.24	11.320	
4,600.0	4,570.4	4,586.3	4,569.4	13.2	11.4	-142.79	-142.79	242.4	159.0	262.2	239.6	22.58	11.612	
4,700.0	4,669.5	4,685.4	4,668.5	13.5	11.6	-144.47	-144.47	242.4	159.0	272.9	250.0	22.94	11.897	
4,800.0	4,768.6	4,784.6	4,767.6	13.9	11.8	-146.02	-146.02	242.4	159.0	283.9	260.6	23.31	12.179	
4,900.0	4,867.7	4,883.7	4,866.7	14.2	12.0	-147.46	-147.46	242.4	159.0	295.0	271.3	23.68	12.457	

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 Honebein 7K-323
Project:	SEC.7-T4N-R64W	TVD Reference:	well @ 4866.0ft (RKB - 15')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	well @ 4866.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7K-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 #1 (8-18-14)	Offset TVD Reference:	Offset Datum

Offset Design Honebein 4N64W7K Pad Sec.7-T4N-R64W - Honebein 7K-223 - Wellbore #1 - Plan #1 (8-15-14)													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
5,000.0	4,966.8	4,982.8	4,965.8	14.5	12.1	-148.79		242.4	159.0	306.3	282.2	24.06	12.731	
5,100.0	5,065.9	5,081.9	5,064.9	14.9	12.3	-150.03		242.4	159.0	317.8	293.3	24.44	13.000	
5,200.0	5,165.1	5,181.0	5,164.1	15.2	12.5	-151.18		242.4	159.0	329.4	304.5	24.83	13.264	
5,300.0	5,264.2	5,280.1	5,263.2	15.5	12.7	-152.26		242.4	159.0	341.1	315.9	25.22	13.522	
5,400.0	5,363.3	5,379.2	5,362.3	15.8	12.9	-153.26		242.4	159.0	352.9	327.3	25.62	13.774	
5,500.0	5,462.4	5,478.4	5,461.4	16.2	13.1	-154.20		242.4	159.0	364.8	338.8	26.02	14.020	
5,600.0	5,561.5	5,577.5	5,560.5	16.5	13.3	-155.07		242.4	159.0	376.9	350.4	26.43	14.260	
5,658.6	5,619.6	5,635.5	5,618.6	16.7	13.4	-155.56		242.4	159.0	383.9	357.3	26.67	14.398	
5,700.0	5,660.7	5,676.6	5,659.7	16.8	13.5	-155.92		242.4	159.0	388.7	361.8	26.84	14.483	
5,800.0	5,760.2	5,776.1	5,759.2	17.1	13.7	-156.58		242.4	159.0	397.9	370.7	27.22	14.620	
5,900.0	5,859.9	5,875.9	5,858.9	17.3	13.9	-157.01		242.4	159.0	404.0	376.5	27.58	14.648	
6,000.0	5,959.9	5,975.8	5,958.9	17.4	14.1	-157.20		242.4	159.0	406.9	379.0	27.93	14.571	
6,040.1	6,000.0	6,016.0	5,999.0	17.5	14.2	-91.01		242.4	159.0	407.2	379.2	28.04	14.522	
6,100.0	6,059.9	6,075.8	6,058.9	17.6	14.3	-91.01		242.4	159.0	407.2	378.9	28.27	14.401	
6,200.0	6,159.9	6,175.8	6,158.9	17.7	14.6	-91.01		242.4	159.0	407.2	378.5	28.68	14.198	
6,240.0	6,199.8	6,215.8	6,198.8	17.8	14.6	-91.01		242.4	159.0	407.2	378.4	28.84	14.119	
6,294.3	6,254.1	6,269.6	6,252.7	17.9	14.7	-91.18		241.2	159.0	407.2	378.2	29.03	14.028	
6,300.0	6,259.9	6,275.3	6,258.3	17.9	14.7	88.41		240.9	159.0	407.2	378.2	29.07	14.010	
6,350.0	6,309.8	6,324.6	6,307.4	18.0	14.8	88.02		236.2	159.0	407.3	378.1	29.18	13.959	
6,400.0	6,359.5	6,373.7	6,355.8	18.0	14.8	87.65		228.4	159.0	407.3	378.1	29.26	13.921	
6,450.0	6,408.8	6,422.6	6,403.6	18.0	14.9	87.29		217.6	159.0	407.4	378.1	29.32	13.896	
6,500.0	6,457.4	6,471.4	6,450.3	18.1	14.9	86.93		203.8	159.0	407.4	378.1	29.35	13.880	
6,550.0	6,505.1	6,520.1	6,496.0	18.1	14.9	86.59		187.0	159.0	407.4	378.1	29.38	13.870	
6,600.0	6,551.8	6,568.5	6,540.4	18.1	14.9	86.27		167.5	159.0	407.5	378.1	29.39	13.863	
6,650.0	6,597.2	6,616.9	6,583.3	18.1	14.9	85.96		145.2	159.0	407.5	378.1	29.41	13.856	
6,700.0	6,641.1	6,665.1	6,624.6	18.1	15.0	85.67		120.4	159.0	407.5	378.0	29.43	13.843	
6,750.0	6,683.3	6,713.2	6,664.2	18.1	15.0	85.40		93.1	159.0	407.4	378.0	29.48	13.822	
6,800.0	6,723.7	6,761.2	6,701.9	18.1	15.0	85.14		63.4	159.0	407.4	377.8	29.55	13.787	
6,850.0	6,762.1	6,809.1	6,737.5	18.1	15.0	84.91		31.5	159.0	407.3	377.7	29.65	13.735	
6,900.0	6,798.4	6,856.9	6,771.1	18.1	15.0	84.69		-2.6	159.0	407.2	377.4	29.81	13.663	
6,950.0	6,832.3	6,904.5	6,802.3	18.2	15.0	84.50		-38.6	159.0	407.1	377.1	30.01	13.566	
7,000.0	6,863.7	6,952.2	6,831.3	18.2	15.1	84.33		-76.4	159.0	407.0	376.7	30.28	13.442	
7,050.0	6,892.5	7,000.0	6,857.9	18.3	15.3	84.18		-116.1	159.0	406.9	376.2	30.61	13.290	
7,100.0	6,918.6	7,047.2	6,881.7	18.3	15.5	84.06		-156.8	159.0	406.7	375.7	31.02	13.110	
7,150.0	6,941.8	7,094.6	6,903.0	18.5	15.8	83.96		-199.2	159.0	406.5	375.0	31.51	12.901	
7,200.0	6,962.1	7,142.0	6,921.7	18.6	16.1	83.88		-242.7	159.0	406.3	374.2	32.07	12.667	
7,250.0	6,979.4	7,189.4	6,937.6	18.9	16.4	83.83		-287.3	159.0	406.0	373.3	32.72	12.410	
7,300.0	6,993.5	7,236.7	6,950.7	19.1	16.8	83.80		-332.8	159.0	405.7	372.3	33.44	12.134	
7,350.0	7,004.5	7,284.0	6,961.0	19.4	17.2	83.80		-379.0	159.0	405.4	371.2	34.24	11.843	
7,400.0	7,012.3	7,331.3	6,968.4	19.8	17.7	83.82		-425.7	159.0	405.1	370.0	35.10	11.540	
7,450.0	7,016.8	7,378.7	6,972.8	20.2	18.2	83.87		-472.8	159.0	404.8	368.7	36.04	11.231	
7,499.9	7,018.1	7,425.9	6,974.4	20.7	18.7	83.94		-520.0	159.0	404.4	367.4	37.03	10.920	
7,600.0	7,017.3	7,525.3	6,973.0	21.7	19.9	83.85		-619.4	159.0	403.8	364.5	39.32	10.270	
7,700.0	7,016.6	7,625.3	6,971.6	22.9	21.1	83.74		-719.4	159.0	403.3	361.4	41.83	9.641	
7,800.0	7,015.9	7,725.3	6,970.2	24.2	22.5	83.63		-819.4	159.0	402.7	358.2	44.52	9.046	
7,900.0	7,015.1	7,825.3	6,968.7	25.5	24.0	83.52		-919.4	159.0	402.1	354.8	47.36	8.491	
8,000.0	7,014.4	7,925.3	6,967.3	26.9	25.5	83.40		-1,019.4	159.0	401.6	351.2	50.33	7.979	
8,100.0	7,013.7	8,025.3	6,965.8	28.4	27.0	83.29		-1,119.4	159.0	401.0	347.6	53.40	7.509	
8,200.0	7,012.9	8,125.3	6,964.4	29.9	28.6	83.18		-1,219.3	159.0	400.5	343.9	56.56	7.080	
8,300.0	7,012.2	8,225.3	6,962.9	31.5	30.3	83.07		-1,319.3	159.0	399.9	340.1	59.80	6.688	
8,400.0	7,011.5	8,325.3	6,961.5	33.1	31.9	82.95		-1,419.3	159.0	399.3	336.3	63.09	6.330	

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 Honebein 7K-323
Project:	SEC.7-T4N-R64W	TVD Reference:	well @ 4866.0ft (RKB - 15')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	well @ 4866.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7K-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 #1 (8-18-14)	Offset TVD Reference:	Offset Datum

Offset Design Honebein 4N64W7K Pad Sec.7-T4N-R64W - Honebein 7K-223 - Wellbore #1 - Plan #1 (8-15-14)												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)		
8,500.0	7,010.7	8,425.3	6,960.0	34.7	33.6	82.84	-1,519.3	159.0	398.8	332.4	66.44	6.002	
8,600.0	7,010.0	8,525.2	6,958.6	36.4	35.4	82.73	-1,619.3	159.0	398.2	328.4	69.83	5.703	
8,700.0	7,009.3	8,625.2	6,957.1	38.1	37.1	82.61	-1,719.3	159.0	397.7	324.4	73.26	5.429	
8,800.0	7,008.5	8,725.2	6,955.7	39.8	38.8	82.50	-1,819.2	159.0	397.1	320.4	76.72	5.177	
8,900.0	7,007.8	8,825.2	6,954.2	41.5	40.6	82.38	-1,919.2	159.0	396.6	316.4	80.21	4.944	
9,000.0	7,007.1	8,925.2	6,952.8	43.3	42.4	82.27	-2,019.2	159.0	396.0	312.3	83.72	4.730	
9,100.0	7,006.3	9,025.2	6,951.3	45.0	44.2	82.15	-2,119.2	159.0	395.5	308.2	87.25	4.533	
9,200.0	7,005.6	9,125.2	6,949.9	46.8	46.0	82.04	-2,219.2	159.0	395.0	304.1	90.81	4.349	
9,300.0	7,004.9	9,225.2	6,948.4	48.6	47.8	81.92	-2,319.2	159.0	394.4	300.0	94.37	4.179	
9,400.0	7,004.1	9,325.2	6,947.0	50.4	49.6	81.80	-2,419.2	159.0	393.9	295.9	97.96	4.021	
9,500.0	7,003.4	9,425.2	6,945.5	52.2	51.5	81.69	-2,519.1	159.0	393.3	291.8	101.55	3.873	
9,600.0	7,002.7	9,525.2	6,944.1	54.0	53.3	81.57	-2,619.1	159.0	392.8	287.6	105.15	3.735	
9,700.0	7,001.9	9,625.2	6,942.6	55.8	55.1	81.45	-2,719.1	159.0	392.3	283.5	108.77	3.606	
9,800.0	7,001.2	9,725.2	6,941.2	57.6	57.0	81.34	-2,819.1	159.0	391.7	279.3	112.39	3.486	
9,900.0	7,000.5	9,825.2	6,939.7	59.4	58.8	81.22	-2,919.1	159.0	391.2	275.2	116.01	3.372	
10,000.0	6,999.7	9,925.2	6,938.3	61.3	60.7	81.10	-3,019.1	159.0	390.7	271.0	119.65	3.265	
10,100.0	6,999.0	10,025.2	6,936.8	63.1	62.6	80.98	-3,119.0	159.0	390.1	266.9	123.29	3.164	
10,200.0	6,998.3	10,125.2	6,935.4	64.9	64.4	80.86	-3,219.0	159.0	389.6	262.7	126.93	3.070	
10,300.0	6,997.5	10,225.2	6,933.9	66.8	66.3	80.74	-3,319.0	159.0	389.1	258.5	130.58	2.980	
10,400.0	6,996.8	10,325.2	6,932.5	68.6	68.2	80.62	-3,419.0	159.0	388.6	254.3	134.23	2.895	
10,500.0	6,996.1	10,425.2	6,931.0	70.5	70.0	80.50	-3,519.0	159.0	388.0	250.2	137.88	2.814	
10,600.0	6,995.3	10,525.2	6,929.6	72.4	71.9	80.38	-3,619.0	159.0	387.5	246.0	141.54	2.738	
10,700.0	6,994.6	10,625.1	6,928.1	74.2	73.8	80.26	-3,719.0	159.0	387.0	241.8	145.19	2.665	
10,800.0	6,993.9	10,725.1	6,926.7	76.1	75.7	80.14	-3,818.9	159.0	386.5	237.6	148.85	2.597	
10,900.0	6,993.1	10,825.1	6,925.2	77.9	77.5	80.02	-3,918.9	159.0	386.0	233.5	152.51	2.531	
11,000.0	6,992.4	10,925.1	6,923.8	79.8	79.4	79.90	-4,018.9	159.0	385.5	229.3	156.17	2.468	
11,100.0	6,991.7	11,025.1	6,922.4	81.7	81.3	79.78	-4,118.9	159.0	385.0	225.1	159.83	2.409	
11,200.0	6,990.9	11,125.1	6,920.9	83.6	83.2	79.66	-4,218.9	159.0	384.4	221.0	163.49	2.351	
11,300.0	6,990.2	11,225.1	6,919.5	85.4	85.1	79.53	-4,318.9	159.0	383.9	216.8	167.15	2.297	
11,400.0	6,989.5	11,325.1	6,918.0	87.3	87.0	79.41	-4,418.9	159.0	383.4	212.6	170.81	2.245	
11,464.7	6,989.0	11,389.8	6,917.1	88.3	88.2	79.33	-4,483.6	159.0	383.1	210.2	172.95	2.215 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Honebein 7K-323
Project:	SEC.7-T4N-R64W	TVD Reference:	well @ 4866.0ft (RKB - 15')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	well @ 4866.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7K-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 #1 (8-18-14)	Offset TVD Reference:	Offset Datum

Offset Design Honebein 4N64W7K Pad Sec.7-T4N-R64W - Honebein 7K-243 - Wellbore #1 - Plan #1 (8-15-15)													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	-89.99	0.0	-92.0	92.1					
100.0	100.0	97.0	97.0	0.1	0.1	-89.99	0.0	-92.0	92.0	91.8	0.22	415.595		
200.0	200.0	197.0	197.0	0.3	0.3	-89.99	0.0	-92.0	92.0	91.3	0.67	137.836		
300.0	300.0	297.0	297.0	0.6	0.6	-89.99	0.0	-92.0	92.0	90.9	1.12	82.369		
400.0	400.0	397.0	397.0	0.8	0.8	-89.99	0.0	-92.0	92.0	90.4	1.57	58.733		
500.0	500.0	497.0	497.0	1.0	1.0	-89.99	0.0	-92.0	92.0	90.0	2.02	45.638		
600.0	600.0	597.0	597.0	1.2	1.2	-89.99	0.0	-92.0	92.0	89.5	2.47	37.317		
700.0	700.0	697.0	697.0	1.5	1.5	-89.99	0.0	-92.0	92.0	89.1	2.92	31.563		
800.0	800.0	797.0	797.0	1.7	1.7	-89.99	0.0	-92.0	92.0	88.6	3.36	27.346		
900.0	900.0	897.0	897.0	1.9	1.9	-89.99	0.0	-92.0	92.0	88.2	3.81	24.123		
1,000.0	1,000.0	997.0	997.0	2.1	2.1	-89.99	0.0	-92.0	92.0	87.7	4.26	21.580 CC, ES		
1,100.0	1,100.0	1,094.3	1,094.3	2.4	2.3	-156.10	0.8	-93.3	95.0	90.3	4.69	20.238 SF		
1,200.0	1,199.8	1,191.0	1,190.9	2.6	2.6	-155.79	3.3	-97.5	104.0	98.9	5.11	20.347		
1,300.0	1,299.5	1,286.7	1,286.2	2.8	2.8	-155.34	7.4	-104.3	119.1	113.5	5.53	21.516		
1,381.5	1,380.4	1,363.9	1,363.0	3.0	3.0	-154.93	12.0	-111.7	135.7	129.9	5.88	23.070		
1,400.0	1,398.7	1,381.9	1,380.8	3.0	3.0	-154.88	13.1	-113.6	139.9	133.9	5.96	23.455		
1,500.0	1,497.8	1,479.3	1,477.5	3.3	3.3	-154.68	19.4	-123.9	162.5	156.1	6.41	25.366		
1,600.0	1,596.9	1,576.7	1,574.1	3.6	3.5	-154.52	25.6	-134.2	185.0	178.2	6.85	26.999		
1,700.0	1,696.1	1,674.2	1,670.8	3.9	3.8	-154.40	31.8	-144.5	207.6	200.3	7.31	28.402		
1,800.0	1,795.2	1,771.6	1,767.5	4.2	4.1	-154.30	38.1	-154.8	230.2	222.4	7.77	29.615		
1,900.0	1,894.3	1,869.0	1,864.2	4.5	4.3	-154.22	44.3	-165.0	252.8	244.5	8.24	30.668		
2,000.0	1,993.4	1,966.4	1,960.8	4.8	4.6	-154.15	50.5	-175.3	275.4	266.6	8.71	31.597		
2,100.0	2,092.5	2,063.8	2,057.5	5.1	4.9	-154.09	56.8	-185.6	297.9	288.7	9.19	32.415		
2,200.0	2,191.6	2,161.3	2,154.2	5.4	5.2	-154.04	63.0	-195.9	320.5	310.8	9.67	33.141		
2,300.0	2,290.7	2,258.7	2,250.9	5.7	5.5	-154.00	69.2	-206.2	343.1	332.9	10.15	33.789		
2,400.0	2,389.9	2,356.1	2,347.5	6.0	5.8	-153.96	75.5	-216.4	365.7	355.0	10.64	34.370		
2,500.0	2,489.0	2,453.5	2,444.2	6.3	6.1	-153.93	81.7	-226.7	388.2	377.1	11.13	34.894		
2,600.0	2,588.1	2,550.9	2,540.9	6.6	6.4	-153.90	87.9	-237.0	410.8	399.2	11.62	35.368		
2,700.0	2,687.2	2,648.3	2,637.5	7.0	6.7	-153.87	94.2	-247.3	433.4	421.3	12.11	35.799		
2,800.0	2,786.3	2,745.8	2,734.2	7.3	7.0	-153.85	100.4	-257.6	456.0	443.4	12.60	36.193		
2,900.0	2,885.4	2,843.2	2,830.9	7.6	7.3	-153.83	106.7	-267.8	478.6	465.5	13.09	36.553		
3,000.0	2,984.5	2,940.6	2,927.6	7.9	7.6	-153.81	112.9	-278.1	501.1	487.6	13.59	36.884		
3,100.0	3,083.7	3,038.0	3,024.2	8.3	7.9	-153.79	119.1	-288.4	523.7	509.6	14.08	37.189		
3,200.0	3,182.8	3,135.4	3,120.9	8.6	8.2	-153.77	125.4	-298.7	546.3	531.7	14.58	37.471		
3,300.0	3,281.9	3,232.8	3,217.6	8.9	8.5	-153.76	131.6	-308.9	568.9	553.8	15.08	37.732		
3,400.0	3,381.0	3,330.3	3,314.3	9.2	8.8	-153.74	137.8	-319.2	591.5	575.9	15.58	37.974		
3,500.0	3,480.1	3,427.7	3,410.9	9.6	9.1	-153.73	144.1	-329.5	614.0	598.0	16.07	38.200		
3,600.0	3,579.2	3,525.1	3,507.6	9.9	9.5	-153.72	150.3	-339.8	636.6	620.0	16.57	38.411		
3,700.0	3,678.3	3,622.5	3,604.3	10.2	9.8	-153.71	156.5	-350.1	659.2	642.1	17.07	38.608		
3,800.0	3,777.5	3,719.9	3,700.9	10.5	10.1	-153.70	162.8	-360.3	681.8	664.2	17.57	38.793		
3,900.0	3,876.6	3,817.3	3,797.6	10.9	10.4	-153.69	169.0	-370.6	704.4	686.3	18.08	38.966		
4,000.0	3,975.7	3,914.8	3,894.3	11.2	10.7	-153.68	175.2	-380.9	726.9	708.4	18.58	39.129		
4,100.0	4,074.8	4,012.2	3,991.0	11.5	11.0	-153.67	181.5	-391.2	749.5	730.4	19.08	39.283		
4,200.0	4,173.9	4,109.6	4,087.6	11.9	11.3	-153.66	187.7	-401.5	772.1	752.5	19.58	39.427		
4,300.0	4,273.0	4,207.0	4,184.3	12.2	11.6	-153.65	193.9	-411.7	794.7	774.6	20.09	39.564		
4,400.0	4,372.1	4,304.4	4,281.0	12.5	11.9	-153.65	200.2	-422.0	817.3	796.7	20.59	39.694		
4,500.0	4,471.3	4,401.9	4,377.7	12.9	12.2	-153.64	206.4	-432.3	839.8	818.7	21.09	39.816		
4,600.0	4,570.4	4,499.3	4,474.3	13.2	12.6	-153.63	212.6	-442.6	862.4	840.8	21.60	39.933		
4,700.0	4,669.5	4,596.7	4,571.0	13.5	12.9	-153.63	218.9	-452.9	885.0	862.9	22.10	40.043		
4,800.0	4,768.6	4,702.3	4,675.8	13.9	13.2	-153.62	225.6	-463.9	907.5	884.9	22.62	40.122		
4,900.0	4,867.7	4,838.4	4,811.4	14.2	13.5	-153.76	231.9	-474.3	927.1	904.0	23.14	40.071		

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 Honebein 7K-323
Project:	SEC.7-T4N-R64W	TVD Reference:	well @ 4866.0ft (RKB - 15')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	well @ 4866.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7K-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 #1 (8-18-14)	Offset TVD Reference:	Offset Datum

Offset Design Honebein 4N64W7K Pad Sec.7-T4N-R64W - Honebein 7K-243 - Wellbore #1 - Plan #1 (8-15-15)												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)	Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning
Reference	Offset	Reference	Offset	(ft)	(ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
5,000.0	4,966.8	4,976.5	4,949.3	14.5	13.7	-154.08	234.9	-479.2	942.7	919.1	23.64	39.880	
5,100.0	5,065.9	5,090.1	5,062.9	14.9	13.9	-154.47	235.1	-479.6	955.0	930.9	24.09	39.635	
5,200.0	5,165.1	5,189.2	5,162.1	15.2	14.1	-154.81	235.1	-479.6	967.0	942.4	24.54	39.399	
5,300.0	5,264.2	5,288.3	5,261.2	15.5	14.2	-155.14	235.1	-479.6	979.0	954.0	24.99	39.170	
5,400.0	5,363.3	5,387.5	5,360.3	15.8	14.4	-155.46	235.1	-479.6	991.1	965.7	25.45	38.951	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Honebein 7K-323
Project:	SEC.7-T4N-R64W	TVD Reference:	well @ 4866.0ft (RKB - 15')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	well @ 4866.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7K-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 #1 (8-18-14)	Offset TVD Reference:	Offset Datum

Offset Design Honebein 4N64W7K Pad Sec.7-T4N-R64W - Honebein 7K-403 - Wellbore #1 - Plan #1 (8-15-14)													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)	+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	-89.99	0.0	-61.3	61.4					
100.0	100.0	98.0	98.0	0.1	0.1	-89.99	0.0	-61.3	61.3	61.1	0.22	275.666		
200.0	200.0	198.0	198.0	0.3	0.3	-89.99	0.0	-61.3	61.3	60.7	0.67	91.582		
300.0	300.0	298.0	298.0	0.6	0.6	-89.99	0.0	-61.3	61.3	60.2	1.12	54.802		
400.0	400.0	398.0	398.0	0.8	0.8	-89.99	0.0	-61.3	61.3	59.8	1.57	39.100		
500.0	500.0	498.0	498.0	1.0	1.0	-89.99	0.0	-61.3	61.3	59.3	2.02	30.391		
600.0	600.0	598.0	598.0	1.2	1.2	-89.99	0.0	-61.3	61.3	58.9	2.47	24.856		
700.0	700.0	698.0	698.0	1.5	1.5	-89.99	0.0	-61.3	61.3	58.4	2.92	21.026		
800.0	800.0	798.0	798.0	1.7	1.7	-89.99	0.0	-61.3	61.3	58.0	3.37	18.219		
900.0	900.0	898.0	898.0	1.9	1.9	-89.99	0.0	-61.3	61.3	57.5	3.82	16.073		
1,000.0	1,000.0	998.0	998.0	2.1	2.1	-89.99	0.0	-61.3	61.3	57.1	4.27	14.379 CC, ES		
1,100.0	1,100.0	1,098.0	1,098.0	2.4	2.4	-156.82	0.0	-61.3	62.9	58.2	4.71	13.374		
1,200.0	1,199.8	1,197.8	1,197.8	2.6	2.6	-158.53	0.0	-61.3	67.8	62.6	5.14	13.195		
1,300.0	1,299.5	1,297.5	1,297.5	2.8	2.8	-160.88	0.0	-61.3	76.0	70.4	5.57	13.648		
1,381.5	1,380.4	1,378.4	1,378.4	3.0	3.0	-162.96	0.0	-61.3	85.2	79.3	5.91	14.403		
1,400.0	1,398.7	1,396.7	1,396.7	3.0	3.0	-163.43	0.0	-61.3	87.5	81.5	5.99	14.601		
1,500.0	1,497.8	1,495.8	1,495.8	3.3	3.2	-165.59	0.0	-61.3	100.3	93.9	6.44	15.591		
1,600.0	1,596.9	1,594.9	1,594.9	3.6	3.5	-167.26	0.0	-61.3	113.2	106.4	6.88	16.462		
1,700.0	1,696.1	1,694.1	1,694.1	3.9	3.7	-168.59	0.0	-61.3	126.2	118.9	7.33	17.231		
1,800.0	1,795.2	1,793.2	1,793.2	4.2	3.9	-169.67	0.0	-61.3	139.3	131.5	7.77	17.914		
1,900.0	1,894.3	1,892.3	1,892.3	4.5	4.1	-170.57	0.0	-61.3	152.4	144.1	8.23	18.524		
2,000.0	1,993.4	1,991.4	1,991.4	4.8	4.4	-171.32	0.0	-61.3	165.5	156.8	8.68	19.071		
2,100.0	2,092.5	2,091.2	2,091.2	5.1	4.6	-171.50	1.4	-61.6	178.4	169.3	9.13	19.542		
2,200.0	2,191.6	2,191.1	2,190.9	5.4	4.8	-170.62	6.3	-62.3	191.0	181.4	9.59	19.924		
2,300.0	2,290.7	2,290.5	2,290.0	5.7	5.0	-168.94	14.3	-63.5	203.4	193.3	10.05	20.238		
2,400.0	2,389.9	2,389.6	2,388.7	6.0	5.3	-167.30	22.9	-64.8	215.9	205.4	10.52	20.522		
2,500.0	2,489.0	2,488.6	2,487.4	6.3	5.5	-165.85	31.4	-66.1	228.5	217.5	11.00	20.783		
2,600.0	2,588.1	2,587.6	2,586.0	6.6	5.7	-164.54	40.0	-67.4	241.3	229.8	11.48	21.024		
2,700.0	2,687.2	2,686.7	2,684.7	7.0	6.0	-163.36	48.6	-68.7	254.2	242.2	11.97	21.245		
2,800.0	2,786.3	2,785.7	2,783.3	7.3	6.2	-162.30	57.1	-70.0	267.2	254.7	12.46	21.448		
2,900.0	2,885.4	2,884.7	2,882.0	7.6	6.4	-161.34	65.7	-71.3	280.2	267.3	12.95	21.635		
3,000.0	2,984.5	2,983.8	2,980.6	7.9	6.7	-160.46	74.3	-72.6	293.4	279.9	13.45	21.808		
3,100.0	3,083.7	3,082.8	3,079.3	8.3	6.9	-159.66	82.8	-73.9	306.6	292.6	13.96	21.967		
3,200.0	3,182.8	3,181.9	3,178.0	8.6	7.2	-158.93	91.4	-75.2	319.8	305.4	14.46	22.115		
3,300.0	3,281.9	3,280.9	3,276.6	8.9	7.4	-158.25	100.0	-76.5	333.1	318.2	14.97	22.252		
3,400.0	3,381.0	3,379.9	3,375.3	9.2	7.7	-157.62	108.5	-77.8	346.5	331.0	15.48	22.379		
3,500.0	3,480.1	3,479.0	3,473.9	9.6	7.9	-157.04	117.1	-79.1	359.8	343.9	15.99	22.497		
3,600.0	3,579.2	3,578.0	3,572.6	9.9	8.2	-156.51	125.7	-80.5	373.3	356.7	16.51	22.608		
3,700.0	3,678.3	3,677.0	3,671.3	10.2	8.5	-156.01	134.2	-81.8	386.7	369.7	17.03	22.711		
3,800.0	3,777.5	3,776.1	3,769.9	10.5	8.7	-155.54	142.8	-83.1	400.2	382.6	17.55	22.807		
3,900.0	3,876.6	3,875.1	3,868.6	10.9	9.0	-155.11	151.4	-84.4	413.7	395.6	18.07	22.898		
4,000.0	3,975.7	3,974.2	3,967.2	11.2	9.2	-154.70	159.9	-85.7	427.2	408.6	18.59	22.983		
4,100.0	4,074.8	4,073.2	4,065.9	11.5	9.5	-154.31	168.5	-87.0	440.7	421.6	19.11	23.062		
4,200.0	4,173.9	4,172.2	4,164.5	11.9	9.7	-153.95	177.1	-88.3	454.3	434.6	19.63	23.138		
4,300.0	4,273.0	4,271.3	4,263.2	12.2	10.0	-153.61	185.6	-89.6	467.8	447.7	20.16	23.208		
4,400.0	4,372.1	4,370.3	4,361.9	12.5	10.3	-153.29	194.2	-90.9	481.4	460.7	20.68	23.275		
4,500.0	4,471.3	4,469.3	4,460.5	12.9	10.5	-152.99	202.8	-92.2	495.0	473.8	21.21	23.339		
4,600.0	4,570.4	4,568.4	4,559.2	13.2	10.8	-152.70	211.3	-93.5	508.6	486.9	21.74	23.399		
4,700.0	4,669.5	4,667.4	4,657.8	13.5	11.0	-152.43	219.9	-94.8	522.3	500.0	22.27	23.456		
4,800.0	4,768.6	4,766.8	4,756.8	13.9	11.3	-152.17	228.5	-96.1	535.9	513.1	22.79	23.511		
4,900.0	4,867.7	4,870.1	4,859.9	14.2	11.5	-152.14	235.3	-97.1	549.1	525.8	23.27	23.601		

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 Honebein 7K-323
Project:	SEC.7-T4N-R64W	TVD Reference:	well @ 4866.0ft (RKB - 15')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	well @ 4866.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7K-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 #1 (8-18-14)	Offset TVD Reference:	Offset Datum

Offset Design Honebein 4N64W7K Pad Sec.7-T4N-R64W - Honebein 7K-403 - Wellbore #1 - Plan #1 (8-15-14)													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
5,000.0	4,966.8	4,973.6	4,963.3	14.5	11.7	-152.48		238.5	-97.6	561.5	537.8	23.70	23.695	
5,100.0	5,065.9	5,074.2	5,063.9	14.9	11.9	-153.08		238.7	-97.6	573.4	549.3	24.12	23.777	
5,200.0	5,165.1	5,173.3	5,163.1	15.2	12.1	-153.66		238.7	-97.6	585.3	560.7	24.55	23.839	
5,300.0	5,264.2	5,272.4	5,262.2	15.5	12.3	-154.23		238.7	-97.6	597.2	572.3	24.99	23.895	
5,400.0	5,363.3	5,371.5	5,361.3	15.8	12.5	-154.77		238.7	-97.6	609.3	583.8	25.44	23.952	
5,500.0	5,462.4	5,470.7	5,460.4	16.2	12.7	-155.29		238.7	-97.6	621.3	595.4	25.88	24.007	
5,600.0	5,561.5	5,569.8	5,559.5	16.5	12.9	-155.79		238.7	-97.6	633.4	607.1	26.32	24.063	
5,658.6	5,619.6	5,627.8	5,617.6	16.7	13.0	-156.08		238.7	-97.6	640.5	613.9	26.58	24.095	
5,700.0	5,660.7	5,668.9	5,658.7	16.8	13.1	-156.30		238.7	-97.6	645.3	618.5	26.77	24.101	
5,800.0	5,760.2	5,768.4	5,758.2	17.1	13.3	-156.73		238.7	-97.6	654.6	627.4	27.20	24.068	
5,900.0	5,859.9	5,868.2	5,857.9	17.3	13.5	-157.01		238.7	-97.6	660.7	633.1	27.59	23.944	
6,000.0	5,959.9	5,968.1	5,957.9	17.4	13.8	-157.14		238.7	-97.6	663.6	635.6	27.96	23.732	
6,040.1	6,000.0	6,008.3	5,998.0	17.5	13.8	-90.94		238.7	-97.6	663.8	635.7	28.09	23.635	
6,100.0	6,059.9	6,068.1	6,057.9	17.6	14.0	-90.94		238.7	-97.6	663.8	635.5	28.32	23.438	
6,200.0	6,159.9	6,168.1	6,157.9	17.7	14.2	-90.94		238.7	-97.6	663.8	635.1	28.73	23.107	
6,294.3	6,254.1	6,262.4	6,252.1	17.9	14.4	-90.94		238.7	-97.6	663.8	634.7	29.11	22.801	
6,300.0	6,259.9	6,268.1	6,257.9	17.9	14.4	88.69		238.7	-97.6	663.8	634.7	29.15	22.772	
6,350.0	6,309.8	6,318.1	6,307.8	18.0	14.5	88.87		238.7	-97.6	663.8	634.4	29.34	22.624	
6,400.0	6,359.5	6,367.7	6,357.4	18.0	14.6	89.30		238.4	-97.6	663.7	634.2	29.51	22.490	
6,450.0	6,408.8	6,417.3	6,406.9	18.0	14.7	89.78		235.4	-97.6	663.6	634.0	29.64	22.387	
6,500.0	6,457.4	6,467.3	6,456.5	18.1	14.7	90.26		229.1	-97.6	663.6	633.9	29.75	22.306	
6,550.0	6,505.1	6,517.6	6,505.9	18.1	14.8	90.74		219.5	-97.6	663.6	633.8	29.83	22.246	
6,552.9	6,507.8	6,520.5	6,508.8	18.1	14.8	90.76		218.9	-97.6	663.6	633.8	29.83	22.244	
6,600.0	6,551.8	6,568.4	6,555.0	18.1	14.8	91.22		206.6	-97.6	663.6	633.7	29.89	22.203	
6,650.0	6,597.2	6,619.5	6,603.4	18.1	14.8	91.69		190.3	-97.6	663.6	633.7	29.93	22.172	
6,700.0	6,641.1	6,670.9	6,651.0	18.1	14.8	92.16		170.7	-97.6	663.7	633.7	29.97	22.148	
6,750.0	6,683.3	6,722.8	6,697.5	18.1	14.8	92.63		147.7	-97.6	663.8	633.8	30.00	22.124	
6,800.0	6,723.7	6,775.1	6,742.6	18.1	14.9	93.08		121.4	-97.6	663.9	633.8	30.05	22.092	
6,850.0	6,762.1	6,827.7	6,786.2	18.1	14.9	93.52		91.9	-97.6	664.0	633.8	30.12	22.044	
6,900.0	6,798.4	6,880.7	6,827.9	18.1	14.9	93.95		59.2	-97.6	664.1	633.8	30.22	21.972	
6,950.0	6,832.3	6,934.1	6,867.5	18.2	15.0	94.36		23.4	-97.6	664.2	633.8	30.37	21.866	
7,000.0	6,863.7	6,987.8	6,904.7	18.2	15.1	94.75		-15.3	-97.6	664.3	633.7	30.59	21.719	
7,050.0	6,892.5	7,041.9	6,939.3	18.3	15.2	95.12		-56.8	-97.6	664.4	633.5	30.87	21.523	
7,100.0	6,918.6	7,096.3	6,971.1	18.3	15.4	95.47		-100.9	-97.6	664.5	633.2	31.23	21.274	
7,150.0	6,941.8	7,151.0	6,999.9	18.5	15.7	95.79		-147.4	-97.6	664.5	632.9	31.69	20.968	
7,200.0	6,962.1	7,205.9	7,025.3	18.6	15.9	96.09		-196.2	-97.6	664.6	632.3	32.26	20.604	
7,250.0	6,979.4	7,261.2	7,047.3	18.9	16.3	96.36		-246.8	-97.6	664.6	631.7	32.92	20.188	
7,300.0	6,993.5	7,316.7	7,065.6	19.1	16.7	96.60		-299.2	-97.6	664.6	630.9	33.69	19.726	
7,350.0	7,004.5	7,372.4	7,080.2	19.4	17.1	96.81		-352.9	-97.6	664.5	630.0	34.56	19.226	
7,400.0	7,012.3	7,428.2	7,090.8	19.8	17.7	96.99		-407.8	-97.6	664.4	628.9	35.54	18.697	
7,450.0	7,016.8	7,484.2	7,097.3	20.2	18.2	97.14		-463.4	-97.6	664.3	627.7	36.60	18.151	
7,499.9	7,018.1	7,540.2	7,099.8	20.7	18.8	97.25		-519.3	-97.6	664.1	626.3	37.73	17.598	
7,600.0	7,017.3	7,640.5	7,100.4	21.7	20.0	97.37		-619.6	-97.6	663.6	623.5	40.04	16.572	
7,700.0	7,016.6	7,740.5	7,100.9	22.9	21.2	97.48		-719.6	-97.6	663.1	620.6	42.54	15.586	
7,800.0	7,015.9	7,840.5	7,101.5	24.2	22.6	97.60		-819.6	-97.6	662.6	617.4	45.23	14.650	
7,900.0	7,015.1	7,940.5	7,102.0	25.5	24.1	97.72		-919.5	-97.6	662.2	614.1	48.06	13.777	
8,000.0	7,014.4	8,040.5	7,102.6	26.9	25.6	97.84		-1,019.5	-97.6	661.7	610.7	51.02	12.968	
8,100.0	7,013.7	8,140.5	7,103.2	28.4	27.1	97.96		-1,119.5	-97.6	661.2	607.1	54.09	12.225	
8,200.0	7,012.9	8,240.4	7,103.7	29.9	28.7	98.08		-1,219.5	-97.6	660.8	603.5	57.24	11.544	
8,300.0	7,012.2	8,340.4	7,104.3	31.5	30.3	98.19		-1,319.5	-97.6	660.3	599.8	60.46	10.921	
8,400.0	7,011.5	8,440.4	7,104.8	33.1	32.0	98.31		-1,419.5	-97.6	659.8	596.1	63.74	10.351	

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 Honebein 7K-323
Project:	SEC.7-T4N-R64W	TVD Reference:	well @ 4866.0ft (RKB - 15')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	well @ 4866.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7K-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 #1 (8-18-14)	Offset TVD Reference:	Offset Datum

Offset Design Honebein 4N64W7K Pad Sec.7-T4N-R64W - Honebein 7K-403 - Wellbore #1 - Plan #1 (8-15-14)												Offset Site Error: 0.0 ft	
Survey Program: 0-MWD												Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		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)				Between Centres (ft)	Between Ellipses (ft)
8,500.0	7,010.7	8,540.4	7,105.4	34.7	33.7	98.43	-1,519.5	-97.6	659.4	592.3	67.08	9.830	
8,600.0	7,010.0	8,640.4	7,106.0	36.4	35.4	98.55	-1,619.5	-97.6	658.9	588.5	70.46	9.352	
8,700.0	7,009.3	8,740.4	7,106.5	38.1	37.2	98.67	-1,719.5	-97.6	658.5	584.6	73.88	8.913	
8,800.0	7,008.5	8,840.4	7,107.1	39.8	38.9	98.79	-1,819.4	-97.6	658.0	580.7	77.33	8.510	
8,900.0	7,007.8	8,940.4	7,107.6	41.5	40.7	98.91	-1,919.4	-97.6	657.6	576.8	80.80	8.138	
9,000.0	7,007.1	9,040.4	7,108.2	43.3	42.5	99.03	-2,019.4	-97.6	657.2	572.9	84.31	7.795	
9,100.0	7,006.3	9,140.3	7,108.7	45.0	44.3	99.15	-2,119.4	-97.6	656.7	568.9	87.83	7.477	
9,200.0	7,005.6	9,240.3	7,109.3	46.8	46.1	99.27	-2,219.4	-97.6	656.3	564.9	91.37	7.183	
9,300.0	7,004.9	9,340.3	7,109.9	48.6	47.9	99.39	-2,319.4	-97.6	655.9	560.9	94.93	6.909	
9,400.0	7,004.1	9,440.3	7,110.4	50.4	49.7	99.51	-2,419.4	-97.6	655.4	556.9	98.49	6.655	
9,500.0	7,003.4	9,540.3	7,111.0	52.2	51.5	99.63	-2,519.4	-97.6	655.0	552.9	102.08	6.417	
9,600.0	7,002.7	9,640.3	7,111.5	54.0	53.4	99.75	-2,619.3	-97.6	654.6	548.9	105.67	6.195	
9,700.0	7,001.9	9,740.3	7,112.1	55.8	55.2	99.87	-2,719.3	-97.6	654.2	544.9	109.27	5.987	
9,800.0	7,001.2	9,840.3	7,112.7	57.6	57.0	100.00	-2,819.3	-97.6	653.8	540.9	112.88	5.792	
9,900.0	7,000.5	9,940.3	7,113.2	59.4	58.9	100.12	-2,919.3	-97.6	653.3	536.9	116.49	5.608	
10,000.0	6,999.7	10,040.3	7,113.8	61.3	60.8	100.24	-3,019.3	-97.6	652.9	532.8	120.11	5.436	
10,100.0	6,999.0	10,140.2	7,114.3	63.1	62.6	100.36	-3,119.3	-97.6	652.5	528.8	123.74	5.273	
10,200.0	6,998.3	10,240.2	7,114.9	64.9	64.5	100.48	-3,219.3	-97.6	652.1	524.8	127.37	5.120	
10,300.0	6,997.5	10,340.2	7,115.5	66.8	66.3	100.60	-3,319.3	-97.6	651.7	520.7	131.00	4.975	
10,400.0	6,996.8	10,440.2	7,116.0	68.6	68.2	100.73	-3,419.2	-97.6	651.3	516.7	134.64	4.838	
10,500.0	6,996.1	10,540.2	7,116.6	70.5	70.1	100.85	-3,519.2	-97.6	650.9	512.6	138.28	4.707	
10,600.0	6,995.3	10,640.2	7,117.1	72.4	72.0	100.97	-3,619.2	-97.6	650.5	508.6	141.92	4.584	
10,700.0	6,994.6	10,740.2	7,117.7	74.2	73.8	101.09	-3,719.2	-97.6	650.1	504.6	145.56	4.466	
10,800.0	6,993.9	10,840.2	7,118.2	76.1	75.7	101.22	-3,819.2	-97.6	649.8	500.6	149.21	4.355	
10,900.0	6,993.1	10,940.2	7,118.8	77.9	77.6	101.34	-3,919.2	-97.6	649.4	496.5	152.85	4.248	
11,000.0	6,992.4	11,040.2	7,119.4	79.8	79.5	101.46	-4,019.2	-97.6	649.0	492.5	156.50	4.147	
11,100.0	6,991.7	11,140.1	7,119.9	81.7	81.4	101.59	-4,119.2	-97.6	648.6	488.5	160.14	4.050	
11,200.0	6,990.9	11,240.1	7,120.5	83.6	83.2	101.71	-4,219.2	-97.6	648.2	484.5	163.79	3.958	
11,300.0	6,990.2	11,340.1	7,121.0	85.4	85.1	101.83	-4,319.1	-97.6	647.9	480.4	167.43	3.869	
11,400.0	6,989.5	11,440.1	7,121.6	87.3	87.0	101.96	-4,419.1	-97.6	647.5	476.4	171.08	3.785	
11,464.7	6,989.0	11,504.8	7,122.0	88.3	88.2	102.04	-4,483.8	-97.6	647.3	474.1	173.20	3.737 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Honebein 7K-323
Project:	SEC.7-T4N-R64W	TVD Reference:	well @ 4866.0ft (RKB - 15')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	well @ 4866.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7K-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 #1 (8-18-14)	Offset TVD Reference:	Offset Datum

Offset Design Honebein 4N64W7K Pad Sec.7-T4N-R64W - Honebein 7O-243 - Wellbore #1 - Plan #1 (8-18-14)													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	1.0	1.0	0.0	0.0	89.98	0.0	27.9	27.9	27.9	0.00	N/A		
100.0	100.0	101.0	101.0	0.1	0.1	89.98	0.0	27.9	27.9	27.7	0.23	122.824		
200.0	200.0	201.0	201.0	0.3	0.3	89.98	0.0	27.9	27.9	27.2	0.68	41.213		
300.0	300.0	301.0	301.0	0.6	0.6	89.98	0.0	27.9	27.9	26.8	1.13	24.761		
400.0	400.0	401.0	401.0	0.8	0.8	89.98	0.0	27.9	27.9	26.3	1.58	17.696		
500.0	500.0	501.0	501.0	1.0	1.0	89.98	0.0	27.9	27.9	25.9	2.03	13.768		
600.0	600.0	601.0	601.0	1.2	1.2	89.98	0.0	27.9	27.9	25.4	2.47	11.267		
700.0	700.0	701.0	701.0	1.5	1.5	89.98	0.0	27.9	27.9	25.0	2.92	9.535		
766.3	766.3	767.3	767.3	1.6	1.6	89.98	0.0	27.9	27.9	24.7	3.22	8.653 CC		
800.0	800.0	801.0	801.0	1.7	1.7	89.98	0.0	27.9	27.9	24.5	3.37	8.265 ES		
900.0	900.0	900.0	900.0	1.9	1.9	88.94	0.5	29.5	29.6	25.8	3.81	7.755		
1,000.0	1,000.0	998.8	998.7	2.1	2.1	86.46	2.1	34.4	34.6	30.3	4.25	8.139		
1,100.0	1,100.0	1,097.3	1,096.8	2.4	2.3	18.10	4.7	42.6	41.4	36.7	4.67	8.855		
1,200.0	1,199.8	1,195.6	1,194.3	2.6	2.6	16.97	8.4	53.8	48.2	43.1	5.09	9.472		
1,300.0	1,299.5	1,293.9	1,291.5	2.8	2.9	16.48	13.1	68.3	55.0	49.5	5.51	9.985		
1,381.5	1,380.4	1,375.3	1,371.8	3.0	3.1	16.70	17.2	81.1	59.1	53.3	5.86	10.084		
1,400.0	1,398.7	1,393.8	1,390.0	3.0	3.2	16.82	18.2	84.0	59.8	53.8	5.95	10.056		
1,500.0	1,497.8	1,493.7	1,488.5	3.3	3.5	17.43	23.3	99.8	63.4	57.0	6.40	9.907		
1,600.0	1,596.9	1,593.6	1,587.1	3.6	3.8	17.98	28.4	115.6	67.1	60.2	6.87	9.766		
1,700.0	1,696.1	1,693.6	1,685.6	3.9	4.2	18.47	33.5	131.4	70.7	63.4	7.34	9.634		
1,800.0	1,795.2	1,793.5	1,784.1	4.2	4.5	18.92	38.6	147.2	74.4	66.5	7.82	9.511		
1,900.0	1,894.3	1,893.4	1,882.7	4.5	4.9	19.32	43.7	163.0	78.0	69.7	8.30	9.397		
2,000.0	1,993.4	1,993.4	1,981.2	4.8	5.2	19.68	48.8	178.8	81.7	72.9	8.79	9.291		
2,100.0	2,092.5	2,093.3	2,079.8	5.1	5.6	20.02	53.9	194.6	85.3	76.0	9.28	9.192		
2,200.0	2,191.6	2,193.2	2,178.3	5.4	6.0	20.32	59.0	210.4	89.0	79.2	9.78	9.100		
2,300.0	2,290.7	2,293.2	2,276.9	5.7	6.3	20.61	64.1	226.2	92.7	82.4	10.28	9.015		
2,400.0	2,389.9	2,393.1	2,375.4	6.0	6.7	20.87	69.2	241.9	96.3	85.5	10.78	8.935		
2,500.0	2,489.0	2,493.0	2,474.0	6.3	7.1	21.11	74.3	257.7	100.0	88.7	11.29	8.861		
2,600.0	2,588.1	2,593.0	2,572.5	6.6	7.4	21.33	79.4	273.5	103.7	91.9	11.79	8.791		
2,700.0	2,687.2	2,692.9	2,671.0	7.0	7.8	21.54	84.5	289.3	107.3	95.0	12.30	8.726		
2,800.0	2,786.3	2,792.8	2,769.6	7.3	8.2	21.74	89.6	305.1	111.0	98.2	12.81	8.665		
2,900.0	2,885.4	2,892.8	2,868.1	7.6	8.6	21.92	94.7	320.9	114.7	101.4	13.32	8.608		
3,000.0	2,984.5	2,992.7	2,966.7	7.9	9.0	22.09	99.8	336.7	118.4	104.5	13.84	8.554		
3,100.0	3,083.7	3,092.6	3,065.2	8.3	9.3	22.25	104.9	352.5	122.1	107.7	14.35	8.504		
3,200.0	3,182.8	3,192.6	3,163.8	8.6	9.7	22.41	110.0	368.3	125.7	110.9	14.87	8.456		
3,300.0	3,281.9	3,292.5	3,262.3	8.9	10.1	22.55	115.1	384.1	129.4	114.0	15.39	8.411		
3,400.0	3,381.0	3,392.4	3,360.8	9.2	10.5	22.68	120.2	399.8	133.1	117.2	15.90	8.368		
3,500.0	3,480.1	3,492.4	3,459.4	9.6	10.9	22.81	125.3	415.6	136.8	120.3	16.42	8.328		
3,600.0	3,579.2	3,592.3	3,557.9	9.9	11.2	22.93	130.4	431.4	140.5	123.5	16.94	8.289		
3,700.0	3,678.3	3,692.2	3,656.5	10.2	11.6	23.05	135.6	447.2	144.1	126.7	17.46	8.253		
3,800.0	3,777.5	3,792.1	3,755.0	10.5	12.0	23.16	140.7	463.0	147.8	129.8	17.99	8.218		
3,900.0	3,876.6	3,892.1	3,853.6	10.9	12.4	23.26	145.8	478.8	151.5	133.0	18.51	8.185		
4,000.0	3,975.7	3,992.0	3,952.1	11.2	12.8	23.36	150.9	494.6	155.2	136.2	19.03	8.154		
4,100.0	4,074.8	4,091.9	4,050.7	11.5	13.1	23.46	156.0	510.4	158.9	139.3	19.55	8.124		
4,200.0	4,173.9	4,191.9	4,149.2	11.9	13.5	23.55	161.1	526.2	162.6	142.5	20.08	8.096		
4,300.0	4,273.0	4,291.8	4,247.7	12.2	13.9	23.63	166.2	542.0	166.2	145.6	20.60	8.069		
4,400.0	4,372.1	4,391.7	4,346.3	12.5	14.3	23.71	171.3	557.8	169.9	148.8	21.13	8.042		
4,500.0	4,471.3	4,491.7	4,444.8	12.9	14.7	23.79	176.4	573.5	173.6	152.0	21.65	8.018		
4,600.0	4,570.4	4,591.6	4,543.4	13.2	15.1	23.87	181.5	589.3	177.3	155.1	22.18	7.994		
4,700.0	4,669.5	4,691.5	4,641.9	13.5	15.4	23.94	186.6	605.1	181.0	158.3	22.71	7.971		
4,800.0	4,768.6	4,791.5	4,740.5	13.9	15.8	24.01	191.7	620.9	184.7	161.4	23.23	7.949		

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 Honebein 7K-323
Project:	SEC.7-T4N-R64W	TVD Reference:	well @ 4866.0ft (RKB - 15')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	well @ 4866.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7K-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 #1 (8-18-14)	Offset TVD Reference:	Offset Datum

Offset Design Honebein 4N64W7K Pad Sec.7-T4N-R64W - Honebein 7O-243 - Wellbore #1 - Plan #1 (8-18-14)												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
4,900.0	4,867.7	4,891.4	4,839.0	14.2	16.2	24.08	196.8	636.7	188.4	164.6	23.76	7.928	
5,000.0	4,966.8	4,991.3	4,937.6	14.5	16.6	24.14	201.9	652.5	192.0	167.8	24.29	7.907	
5,100.0	5,065.9	5,091.3	5,036.1	14.9	17.0	24.21	207.0	668.3	195.7	170.9	24.81	7.888	
5,200.0	5,165.1	5,191.2	5,134.6	15.2	17.4	24.26	212.1	684.1	199.4	174.1	25.34	7.869	
5,300.0	5,264.2	5,291.1	5,233.2	15.5	17.7	24.32	217.2	699.9	203.1	177.2	25.87	7.851	
5,400.0	5,363.3	5,391.1	5,331.7	15.8	18.1	24.38	222.3	715.7	206.8	180.4	26.40	7.833	
5,500.0	5,462.4	5,491.0	5,430.3	16.2	18.5	24.43	227.4	731.4	210.5	183.6	26.93	7.817	
5,600.0	5,561.5	5,590.9	5,528.8	16.5	18.9	24.48	232.5	747.2	214.2	186.7	27.46	7.800	
5,658.6	5,619.6	5,649.5	5,586.6	16.7	19.1	24.51	235.5	756.5	216.3	188.6	27.77	7.791	
5,700.0	5,660.7	5,691.1	5,627.6	16.8	19.3	24.52	237.6	763.1	218.1	190.2	27.97	7.798	
5,800.0	5,760.2	5,798.8	5,734.2	17.1	19.6	24.42	242.5	778.1	222.8	194.5	28.38	7.853	
5,900.0	5,859.9	5,906.8	5,841.5	17.3	19.8	24.25	246.1	789.3	227.1	198.4	28.72	7.908	
6,000.0	5,959.9	6,014.9	5,949.3	17.4	20.0	24.03	248.5	796.6	231.1	202.0	29.01	7.965	
6,040.1	6,000.0	6,058.4	5,992.7	17.5	20.1	90.13	249.1	798.5	232.5	203.5	29.07	8.000	
6,100.0	6,059.9	6,123.2	6,057.6	17.6	20.2	90.00	249.6	800.1	234.0	204.7	29.27	7.994	
6,200.0	6,159.9	6,226.5	6,160.9	17.7	20.3	89.97	249.7	800.4	234.3	204.6	29.64	7.904	
6,259.2	6,219.1	6,285.7	6,220.1	17.8	20.4	89.99	249.6	800.4	234.3	204.4	29.87	7.844	
6,294.3	6,254.1	6,320.8	6,255.1	17.9	20.5	90.29	248.4	800.4	234.3	204.3	30.02	7.804	
6,300.0	6,259.9	6,326.5	6,260.8	17.9	20.5	-90.00	248.0	800.4	234.3	204.2	30.09	7.786	
6,350.0	6,309.8	6,376.2	6,310.2	18.0	20.5	-89.29	243.2	800.4	234.3	204.0	30.30	7.733	
6,400.0	6,359.5	6,425.7	6,359.1	18.0	20.6	-88.58	235.1	800.4	234.4	204.0	30.49	7.689	
6,450.0	6,408.8	6,475.1	6,407.2	18.0	20.6	-87.88	223.9	800.4	234.6	204.0	30.64	7.656	
6,500.0	6,457.4	6,524.2	6,454.2	18.1	20.6	-87.19	209.8	800.4	234.8	204.1	30.77	7.633	
6,550.0	6,505.1	6,573.2	6,500.2	18.1	20.6	-86.52	192.6	800.4	235.1	204.2	30.86	7.618	
6,600.0	6,551.8	6,622.1	6,544.7	18.1	20.6	-85.86	172.7	800.4	235.4	204.5	30.93	7.611	
6,650.0	6,597.2	6,670.8	6,587.8	18.1	20.6	-85.23	150.0	800.4	235.7	204.8	30.98	7.611	
6,700.0	6,641.1	6,719.3	6,629.2	18.1	20.6	-84.62	124.7	800.4	236.1	205.1	31.01	7.614	
6,750.0	6,683.3	6,767.7	6,668.8	18.1	20.6	-84.03	96.9	800.4	236.6	205.5	31.04	7.620	
6,800.0	6,723.7	6,815.9	6,706.4	18.1	20.6	-83.47	66.8	800.4	237.0	205.9	31.08	7.625	
6,850.0	6,762.1	6,864.0	6,742.0	18.1	20.6	-82.94	34.4	800.4	237.5	206.3	31.14	7.626	
6,900.0	6,798.4	6,912.0	6,775.4	18.1	20.7	-82.44	0.0	800.4	238.0	206.7	31.22	7.622	
6,950.0	6,832.3	6,959.9	6,806.5	18.2	20.7	-81.98	-36.4	800.4	238.5	207.1	31.37	7.601	
7,000.0	6,863.7	7,007.6	6,835.2	18.2	20.7	-81.55	-74.6	800.4	239.0	207.4	31.56	7.572	
7,050.0	6,892.5	7,055.3	6,861.4	18.3	20.8	-81.16	-114.4	800.4	239.5	207.7	31.83	7.525	
7,100.0	6,918.6	7,102.9	6,885.0	18.3	20.9	-80.80	-155.7	800.4	240.0	207.8	32.17	7.460	
7,150.0	6,941.8	7,150.0	6,905.8	18.5	21.0	-80.49	-197.9	800.4	240.5	207.9	32.61	7.376	
7,200.0	6,962.1	7,197.8	6,924.3	18.6	21.1	-80.21	-242.1	800.4	241.0	207.8	33.15	7.270	
7,250.0	6,979.4	7,245.2	6,939.8	18.9	21.3	-79.97	-286.9	800.4	241.4	207.7	33.79	7.146	
7,300.0	6,993.5	7,292.6	6,952.4	19.1	21.5	-79.78	-332.5	800.4	241.9	207.4	34.53	7.004	
7,350.0	7,004.5	7,339.9	6,962.3	19.4	21.8	-79.62	-378.7	800.4	242.3	206.9	35.38	6.849	
7,400.0	7,012.3	7,387.1	6,969.2	19.8	22.1	-79.51	-425.5	800.4	242.7	206.4	36.33	6.681	
7,450.0	7,016.8	7,434.4	6,973.2	20.2	22.4	-79.44	-472.5	800.4	243.1	205.7	37.36	6.506	
7,499.9	7,018.1	7,481.5	6,974.4	20.7	22.8	-79.42	-519.6	800.4	243.4	204.9	38.47	6.327	
7,600.0	7,017.3	7,581.3	6,972.9	21.7	23.7	-79.28	-619.4	800.4	244.2	203.4	40.73	5.995	
7,700.0	7,016.6	7,681.3	6,971.5	22.9	24.7	-79.15	-719.4	800.4	244.9	201.7	43.19	5.671	
7,800.0	7,015.9	7,781.3	6,970.0	24.2	25.9	-79.01	-819.4	800.4	245.7	199.9	45.83	5.362	
7,900.0	7,015.1	7,881.3	6,968.6	25.5	27.1	-78.88	-919.4	800.4	246.5	197.9	48.62	5.070	
8,000.0	7,014.4	7,981.3	6,967.1	26.9	28.5	-78.74	-1,019.3	800.4	247.3	195.7	51.53	4.799	
8,100.0	7,013.7	8,081.2	6,965.7	28.4	29.8	-78.61	-1,119.3	800.4	248.0	193.5	54.54	4.548	
8,200.0	7,012.9	8,181.2	6,964.3	29.9	31.3	-78.48	-1,219.3	800.4	248.8	191.2	57.64	4.317	
8,300.0	7,012.2	8,281.2	6,962.8	31.5	32.8	-78.35	-1,319.3	800.4	249.6	188.8	60.81	4.104	

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 Honebein 7K-323
Project:	SEC.7-T4N-R64W	TVD Reference:	well @ 4866.0ft (RKB - 15')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	well @ 4866.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7K-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 #1 (8-18-14)	Offset TVD Reference:	Offset Datum

Offset Design Honebein 4N64W7K Pad Sec.7-T4N-R64W - Honebein 7O-243 - Wellbore #1 - Plan #1 (8-18-14)												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)		
8,400.0	7,011.5	8,381.2	6,961.4	33.1	34.4	-78.22	-1,419.3	800.4	250.4	186.3	64.04	3.909	
8,500.0	7,010.7	8,481.2	6,959.9	34.7	35.9	-78.09	-1,519.3	800.4	251.1	183.8	67.33	3.730	
8,600.0	7,010.0	8,581.2	6,958.5	36.4	37.5	-77.96	-1,619.2	800.4	251.9	181.3	70.65	3.566	
8,700.0	7,009.3	8,681.2	6,957.0	38.1	39.2	-77.83	-1,719.2	800.4	252.7	178.7	74.02	3.414	
8,800.0	7,008.5	8,781.2	6,955.6	39.8	40.9	-77.70	-1,819.2	800.4	253.5	176.1	77.42	3.274	
8,900.0	7,007.8	8,881.2	6,954.1	41.5	42.5	-77.58	-1,919.2	800.4	254.3	173.4	80.84	3.145	
9,000.0	7,007.1	8,981.2	6,952.7	43.3	44.3	-77.45	-2,019.2	800.4	255.1	170.8	84.29	3.026	
9,100.0	7,006.3	9,081.2	6,951.2	45.0	46.0	-77.33	-2,119.2	800.4	255.9	168.1	87.76	2.915	
9,200.0	7,005.6	9,181.2	6,949.8	46.8	47.7	-77.20	-2,219.2	800.4	256.6	165.4	91.25	2.812	
9,300.0	7,004.9	9,281.2	6,948.3	48.6	49.5	-77.08	-2,319.1	800.4	257.4	162.7	94.75	2.717	
9,400.0	7,004.1	9,381.2	6,946.9	50.4	51.2	-76.96	-2,419.1	800.4	258.2	160.0	98.27	2.628	
9,500.0	7,003.4	9,481.2	6,945.4	52.2	53.0	-76.83	-2,519.1	800.4	259.0	157.2	101.80	2.544	
9,600.0	7,002.7	9,581.2	6,944.0	54.0	54.8	-76.71	-2,619.1	800.4	259.8	154.5	105.34	2.466	
9,700.0	7,001.9	9,681.2	6,942.5	55.8	56.6	-76.59	-2,719.1	800.4	260.6	151.7	108.89	2.393	
9,800.0	7,001.2	9,781.2	6,941.1	57.6	58.4	-76.47	-2,819.1	800.4	261.4	149.0	112.44	2.325	
9,900.0	7,000.5	9,881.2	6,939.6	59.4	60.2	-76.35	-2,919.0	800.4	262.2	146.2	116.00	2.260	
10,000.0	6,999.7	9,981.2	6,938.2	61.3	62.0	-76.24	-3,019.0	800.4	263.0	143.4	119.57	2.200	
10,100.0	6,999.0	10,081.2	6,936.7	63.1	63.8	-76.12	-3,119.0	800.4	263.8	140.7	123.14	2.142	
10,200.0	6,998.3	10,181.1	6,935.3	64.9	65.7	-76.00	-3,219.0	800.4	264.6	137.9	126.72	2.088	
10,300.0	6,997.5	10,281.1	6,933.8	66.8	67.5	-75.88	-3,319.0	800.4	265.4	135.1	130.30	2.037	
10,400.0	6,996.8	10,381.1	6,932.4	68.6	69.3	-75.77	-3,419.0	800.4	266.2	132.3	133.88	1.988	
10,500.0	6,996.1	10,481.1	6,930.9	70.5	71.2	-75.65	-3,519.0	800.4	267.0	129.5	137.47	1.942	
10,600.0	6,995.3	10,581.1	6,929.5	72.4	73.0	-75.54	-3,618.9	800.4	267.8	126.8	141.05	1.899	
10,700.0	6,994.6	10,681.1	6,928.0	74.2	74.9	-75.43	-3,718.9	800.4	268.6	124.0	144.64	1.857	
10,800.0	6,993.9	10,781.1	6,926.6	76.1	76.7	-75.31	-3,818.9	800.4	269.4	121.2	148.23	1.818	
10,900.0	6,993.1	10,881.1	6,925.1	77.9	78.6	-75.20	-3,918.9	800.4	270.2	118.4	151.83	1.780	
11,000.0	6,992.4	10,981.1	6,923.7	79.8	80.4	-75.09	-4,018.9	800.4	271.0	115.6	155.42	1.744	
11,100.0	6,991.7	11,081.1	6,922.2	81.7	82.3	-74.98	-4,118.9	800.4	271.9	112.8	159.01	1.710	
11,200.0	6,990.9	11,181.1	6,920.8	83.6	84.1	-74.87	-4,218.9	800.4	272.7	110.1	162.60	1.677	
11,300.0	6,990.2	11,281.1	6,919.3	85.4	86.0	-74.76	-4,318.8	800.4	273.5	107.3	166.19	1.646	
11,400.0	6,989.5	11,381.1	6,917.9	87.3	87.9	-74.65	-4,418.8	800.4	274.3	104.5	169.79	1.615	
11,464.7	6,989.0	11,443.2	6,917.0	88.3	89.0	-74.59	-4,480.9	800.4	274.8	103.0	171.83	1.599 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Honebein 7K-323
Project:	SEC.7-T4N-R64W	TVD Reference:	well @ 4866.0ft (RKB - 15')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	well @ 4866.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7K-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 #1 (8-18-14)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to well @ 4866.0ft (RKB - 15')

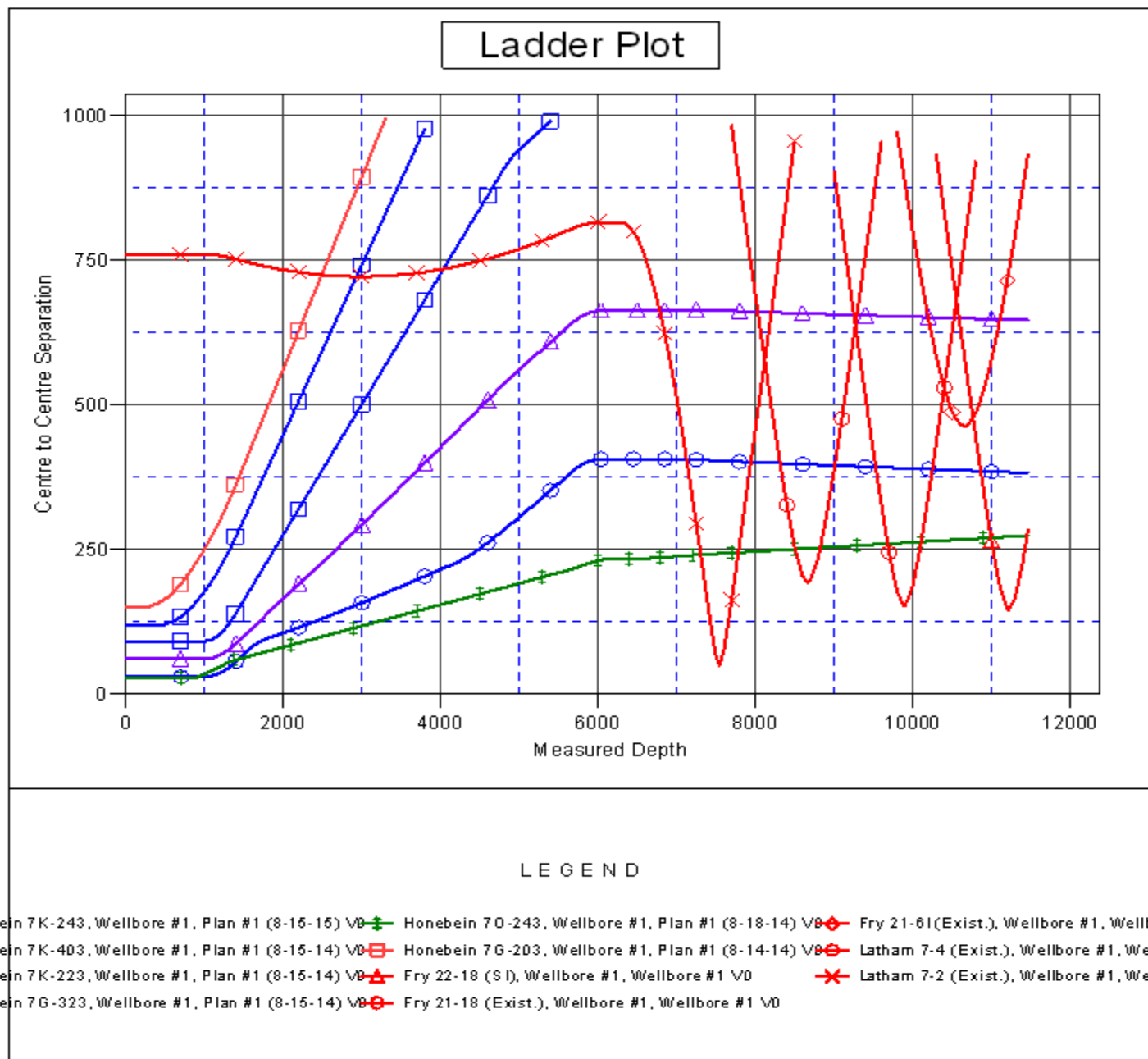
Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Honebein 7K-323

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.58°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Honebein 7K-323
Project:	SEC.7-T4N-R64W	TVD Reference:	well @ 4866.0ft (RKB - 15')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	well @ 4866.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7K-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 #1 (8-18-14)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to well @ 4866.0ft (RKB - 15')

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Honebein 7K-323

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.58°

