

PETROLEUM DEVELOPMENT CORP Weld County CO

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

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

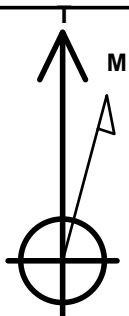
Ground Elevation: 4847.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1362857.55	3251620.30	40.325930	-104.597520	

RKB - 13' WELL @ 4862.0ft (RKB - 13')

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 2352'FSL & 1260'FWL, Sec.7	1.0	0.0	0.0	Point
BHL 2141'FNL & 332'FWL, Sec.18	7037.0	-4506.4	-942.6	Point



Azimuths to True North
Magnetic North: 8.34°

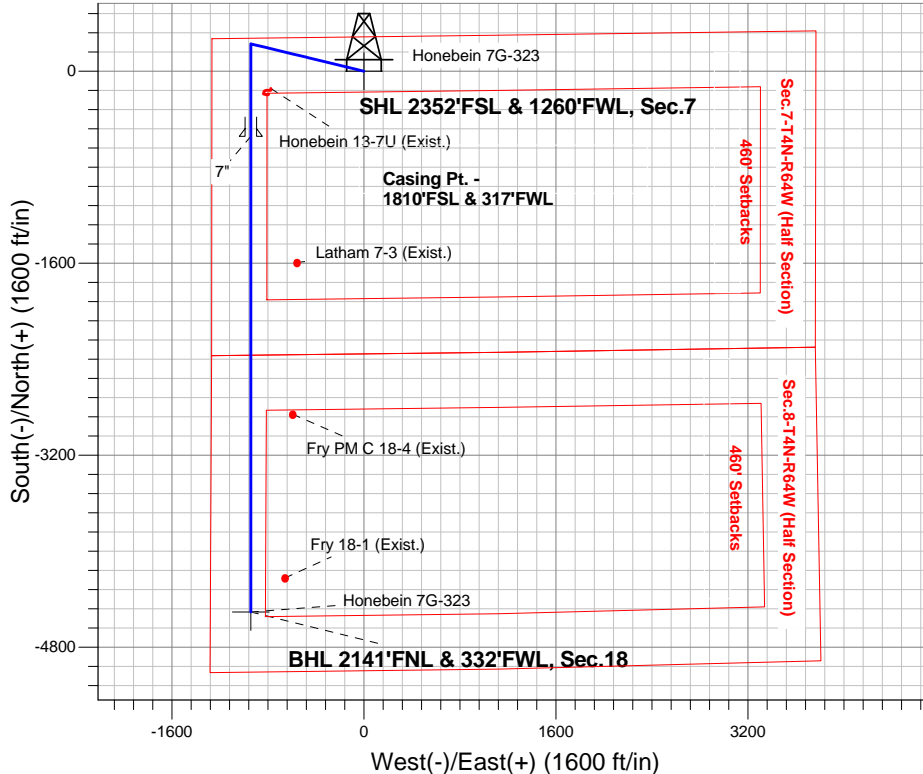
Magnetic Field
Strength: 52774.6srT
Dip Angle: 66.91°
Date: 8/20/2014
Model: IGRF2010

Honebein 4N64W7K Pad Sec.7-T4N-R64W
Honebein 7G-323
Plan #1 (8-15-14)
13:03, August 21 2014

ANNOTATIONS

TVD	MD	Annotation
400.0	400.0	KOP #1
6306.3	6391.8	KOP #2
7070.2	7598.2	End of Build

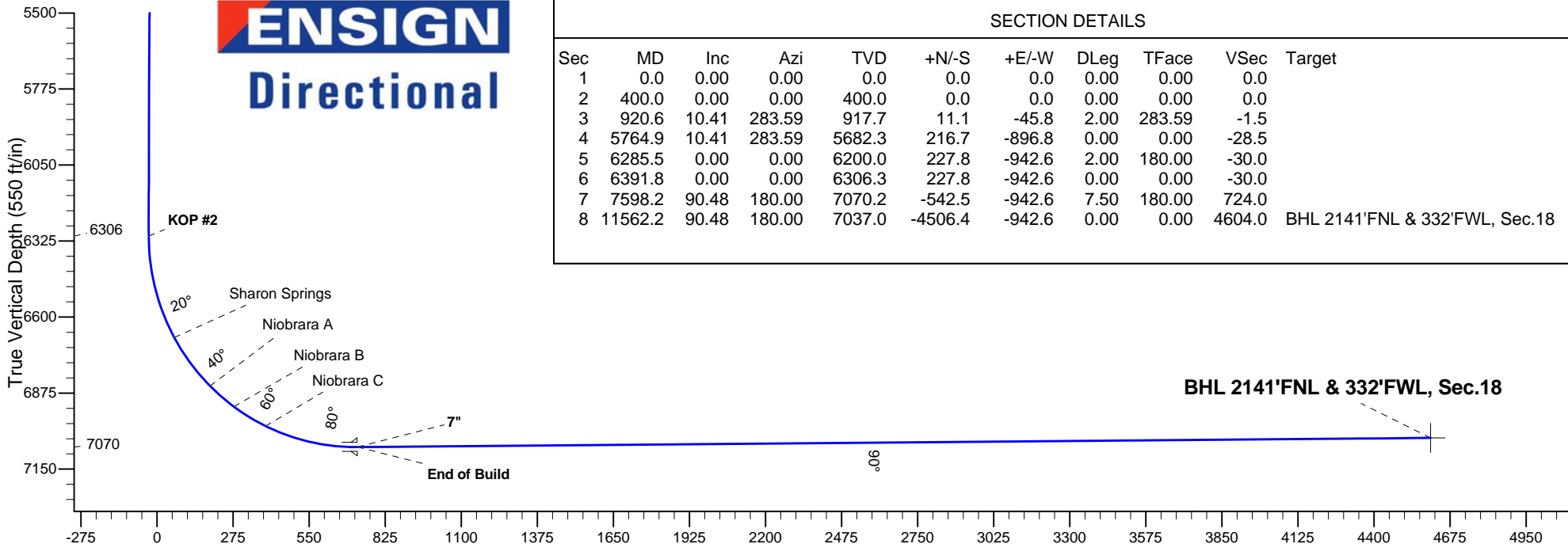
South(-)/North(+) (1600 ft/in)



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	400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.0	
3	920.6	10.41	283.59	917.7	11.1	-45.8	2.00	283.59	-1.5	
4	5764.9	10.41	283.59	5682.3	216.7	-896.8	0.00	0.00	-28.5	
5	6285.5	0.00	0.00	6200.0	227.8	-942.6	2.00	180.00	-30.0	
6	6391.8	0.00	0.00	6306.3	227.8	-942.6	0.00	0.00	-30.0	
7	7598.2	90.48	180.00	7070.2	-542.5	-942.6	7.50	180.00	724.0	
8	11562.2	90.48	180.00	7037.0	-4506.4	-942.6	0.00	0.00	4604.0	BHL 2141'FNL & 332'FWL, Sec.18



Vertical Section at 191.81° (550 ft/in)



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.7-T4N-R64W

Honebein 4N64W7K Pad Sec.7-T4N-R64W

Honebein 7G-323

Wellbore #1

Plan: Plan #1 (8-15-14)

Standard Planning Report

21 August, 2014

Database:	Landmark	Local Co-ordinate Reference:	Well Honebein 7G-323
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4862.0ft (RKB - 13')
Project:	SEC.7-T4N-R64W	MD Reference:	WELL @ 4862.0ft (RKB - 13')
Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	North Reference:	True
Well:	Honebein 7G-323	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (8-15-14)		

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			Latitude:			40.325930		
From:			Lat/Long			Easting:			3,251,589.63 ft			Longitude:			-104.597630		
Position Uncertainty:			0.0 ft			Slot Radius:			"			Grid Convergence:			0.58 °		

Well	Honebein 7G-323					
Well Position	+N/-S	0.0 ft	Northing:	1,362,857.55 ft	Latitude:	40.325930
	+E/-W	30.7 ft	Easting:	3,251,620.30 ft	Longitude:	-104.597520
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,847.0 ft

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 (8-15-14)			
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	191.81

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.00	0.00	
920.6	10.41	283.59	917.7	11.1	-45.8	2.00	2.00	0.00	283.59	
5,764.9	10.41	283.59	5,682.3	216.7	-896.8	0.00	0.00	0.00	0.00	
6,285.5	0.00	0.00	6,200.0	227.8	-942.6	2.00	-2.00	0.00	180.00	
6,391.8	0.00	0.00	6,306.3	227.8	-942.6	0.00	0.00	0.00	0.00	
7,598.2	90.48	180.00	7,070.2	-542.5	-942.6	7.50	7.50	0.00	180.00	
11,562.2	90.48	180.00	7,037.0	-4,506.4	-942.6	0.00	0.00	0.00	0.00	BHL 2141'FNL & 33

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Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4862.0ft (RKB - 13')
Project:	SEC.7-T4N-R64W	MD Reference:	WELL @ 4862.0ft (RKB - 13')
Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	North Reference:	True
Well:	Honebein 7G-323	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (8-15-14)		

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 & 1260'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
KOP #1									
500.0	2.00	283.59	500.0	0.4	-1.7	-0.1	2.00	2.00	0.00
600.0	4.00	283.59	599.8	1.6	-6.8	-0.2	2.00	2.00	0.00
700.0	6.00	283.59	699.5	3.7	-15.3	-0.5	2.00	2.00	0.00
800.0	8.00	283.59	798.7	6.5	-27.1	-0.9	2.00	2.00	0.00
900.0	10.00	283.59	897.5	10.2	-42.3	-1.3	2.00	2.00	0.00
920.6	10.41	283.59	917.7	11.1	-45.8	-1.5	2.00	2.00	0.00
1,000.0	10.41	283.59	995.8	14.5	-59.8	-1.9	0.00	0.00	0.00
1,100.0	10.41	283.59	1,094.2	18.7	-77.4	-2.5	0.00	0.00	0.00
1,200.0	10.41	283.59	1,192.5	22.9	-94.9	-3.0	0.00	0.00	0.00
1,300.0	10.41	283.59	1,290.9	27.2	-112.5	-3.6	0.00	0.00	0.00
1,400.0	10.41	283.59	1,389.2	31.4	-130.1	-4.1	0.00	0.00	0.00
1,500.0	10.41	283.59	1,487.6	35.7	-147.6	-4.7	0.00	0.00	0.00
1,600.0	10.41	283.59	1,586.0	39.9	-165.2	-5.3	0.00	0.00	0.00
1,700.0	10.41	283.59	1,684.3	44.2	-182.8	-5.8	0.00	0.00	0.00
1,800.0	10.41	283.59	1,782.7	48.4	-200.3	-6.4	0.00	0.00	0.00
1,900.0	10.41	283.59	1,881.0	52.7	-217.9	-6.9	0.00	0.00	0.00
2,000.0	10.41	283.59	1,979.4	56.9	-235.5	-7.5	0.00	0.00	0.00
2,100.0	10.41	283.59	2,077.7	61.1	-253.0	-8.0	0.00	0.00	0.00
2,200.0	10.41	283.59	2,176.1	65.4	-270.6	-8.6	0.00	0.00	0.00
2,300.0	10.41	283.59	2,274.4	69.6	-288.1	-9.2	0.00	0.00	0.00
2,400.0	10.41	283.59	2,372.8	73.9	-305.7	-9.7	0.00	0.00	0.00
2,500.0	10.41	283.59	2,471.1	78.1	-323.3	-10.3	0.00	0.00	0.00
2,600.0	10.41	283.59	2,569.5	82.4	-340.8	-10.8	0.00	0.00	0.00
2,700.0	10.41	283.59	2,667.8	86.6	-358.4	-11.4	0.00	0.00	0.00
2,800.0	10.41	283.59	2,766.2	90.9	-376.0	-12.0	0.00	0.00	0.00
2,900.0	10.41	283.59	2,864.6	95.1	-393.5	-12.5	0.00	0.00	0.00
3,000.0	10.41	283.59	2,962.9	99.4	-411.1	-13.1	0.00	0.00	0.00
3,100.0	10.41	283.59	3,061.3	103.6	-428.7	-13.6	0.00	0.00	0.00
3,200.0	10.41	283.59	3,159.6	107.8	-446.2	-14.2	0.00	0.00	0.00
3,300.0	10.41	283.59	3,258.0	112.1	-463.8	-14.8	0.00	0.00	0.00
3,400.0	10.41	283.59	3,356.3	116.3	-481.4	-15.3	0.00	0.00	0.00
3,500.0	10.41	283.59	3,454.7	120.6	-498.9	-15.9	0.00	0.00	0.00
3,600.0	10.41	283.59	3,553.0	124.8	-516.5	-16.4	0.00	0.00	0.00
3,700.0	10.41	283.59	3,651.4	129.1	-534.1	-17.0	0.00	0.00	0.00
3,773.8	10.41	283.59	3,724.0	132.2	-547.0	-17.4	0.00	0.00	0.00
Parkman									
3,800.0	10.41	283.59	3,749.7	133.3	-551.6	-17.5	0.00	0.00	0.00
3,900.0	10.41	283.59	3,848.1	137.6	-569.2	-18.1	0.00	0.00	0.00
4,000.0	10.41	283.59	3,946.4	141.8	-586.8	-18.7	0.00	0.00	0.00
4,100.0	10.41	283.59	4,044.8	146.0	-604.3	-19.2	0.00	0.00	0.00
4,200.0	10.41	283.59	4,143.2	150.3	-621.9	-19.8	0.00	0.00	0.00
4,300.0	10.41	283.59	4,241.5	154.5	-639.4	-20.3	0.00	0.00	0.00
4,400.0	10.41	283.59	4,339.9	158.8	-657.0	-20.9	0.00	0.00	0.00
4,500.0	10.41	283.59	4,438.2	163.0	-674.6	-21.5	0.00	0.00	0.00
4,512.0	10.41	283.59	4,450.0	163.5	-676.7	-21.5	0.00	0.00	0.00

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Project:	SEC.7-T4N-R64W	MD Reference:	WELL @ 4862.0ft (RKB - 13')
Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	North Reference:	True
Well:	Honebein 7G-323	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (8-15-14)		

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)
Sussex									
4,600.0	10.41	283.59	4,536.6	167.3	-692.1	-22.0	0.00	0.00	0.00
4,700.0	10.41	283.59	4,634.9	171.5	-709.7	-22.6	0.00	0.00	0.00
4,800.0	10.41	283.59	4,733.3	175.8	-727.3	-23.1	0.00	0.00	0.00
4,900.0	10.41	283.59	4,831.6	180.0	-744.8	-23.7	0.00	0.00	0.00
5,000.0	10.41	283.59	4,930.0	184.3	-762.4	-24.3	0.00	0.00	0.00
5,100.0	10.41	283.59	5,028.3	188.5	-780.0	-24.8	0.00	0.00	0.00
5,200.0	10.41	283.59	5,126.7	192.7	-797.5	-25.4	0.00	0.00	0.00
5,300.0	10.41	283.59	5,225.0	197.0	-815.1	-25.9	0.00	0.00	0.00
5,315.2	10.41	283.59	5,240.0	197.6	-817.8	-26.0	0.00	0.00	0.00
Shannon									
5,400.0	10.41	283.59	5,323.4	201.2	-832.7	-26.5	0.00	0.00	0.00
5,500.0	10.41	283.59	5,421.7	205.5	-850.2	-27.0	0.00	0.00	0.00
5,600.0	10.41	283.59	5,520.1	209.7	-867.8	-27.6	0.00	0.00	0.00
5,700.0	10.41	283.59	5,618.5	214.0	-885.4	-28.2	0.00	0.00	0.00
5,764.9	10.41	283.59	5,682.3	216.7	-896.8	-28.5	0.00	0.00	0.00
5,800.0	9.71	283.59	5,716.8	218.2	-902.7	-28.7	2.00	-2.00	0.00
5,900.0	7.71	283.59	5,815.7	221.7	-917.4	-29.2	2.00	-2.00	0.00
6,000.0	5.71	283.59	5,915.0	224.5	-928.8	-29.5	2.00	-2.00	0.00
6,100.0	3.71	283.59	6,014.7	226.4	-936.8	-29.8	2.00	-2.00	0.00
6,200.0	1.71	283.59	6,114.5	227.5	-941.4	-29.9	2.00	-2.00	0.00
6,285.5	0.00	0.00	6,200.0	227.8	-942.6	-30.0	2.00	-2.00	0.00
6,300.0	0.00	0.00	6,214.5	227.8	-942.6	-30.0	0.00	0.00	0.00
6,391.8	0.00	0.00	6,306.3	227.8	-942.6	-30.0	0.00	0.00	0.00
KOP #2									
6,400.0	0.62	180.00	6,314.5	227.8	-942.6	-29.9	7.53	7.53	0.00
6,500.0	8.12	180.00	6,414.2	220.1	-942.6	-22.5	7.50	7.50	0.00
6,600.0	15.62	180.00	6,512.0	199.6	-942.6	-2.4	7.50	7.50	0.00
6,700.0	23.12	180.00	6,606.2	166.5	-942.6	30.1	7.50	7.50	0.00
6,775.4	28.77	180.00	6,674.0	133.5	-942.6	62.3	7.50	7.50	0.00
Sharon Springs									
6,800.0	30.62	180.00	6,695.4	121.3	-942.6	74.3	7.50	7.50	0.00
6,900.0	38.12	180.00	6,777.9	64.9	-942.6	129.5	7.50	7.50	0.00
6,995.3	45.27	180.00	6,849.0	1.5	-942.6	191.5	7.50	7.50	0.00
Niobrara A									
7,000.0	45.62	180.00	6,852.3	-1.8	-942.6	194.8	7.50	7.50	0.00
7,100.0	53.12	180.00	6,917.3	-77.6	-942.6	269.0	7.50	7.50	0.00
7,111.2	53.96	180.00	6,924.0	-86.6	-942.6	277.8	7.50	7.50	0.00
Niobrara B									
7,200.0	60.62	180.00	6,972.0	-161.3	-942.6	350.9	7.50	7.50	0.00
7,247.6	64.19	180.00	6,994.0	-203.5	-942.6	392.2	7.50	7.50	0.00
Niobrara C									
7,300.0	68.12	180.00	7,015.2	-251.4	-942.6	439.1	7.50	7.50	0.00
7,400.0	75.62	180.00	7,046.3	-346.4	-942.6	532.0	7.50	7.50	0.00
7,500.0	83.12	180.00	7,064.7	-444.6	-942.6	628.2	7.50	7.50	0.00
7,598.2	90.48	180.00	7,070.2	-542.6	-942.6	724.1	7.50	7.50	0.00
End of Build - 7"									
7,600.0	90.48	180.00	7,070.2	-544.4	-942.6	725.8	0.00	0.00	0.00
7,700.0	90.48	180.00	7,069.4	-644.4	-942.6	823.7	0.00	0.00	0.00
7,800.0	90.48	180.00	7,068.5	-744.4	-942.6	921.6	0.00	0.00	0.00
7,900.0	90.48	180.00	7,067.7	-844.4	-942.6	1,019.5	0.00	0.00	0.00
8,000.0	90.48	180.00	7,066.8	-944.4	-942.6	1,117.3	0.00	0.00	0.00

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Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	North Reference:	True
Well:	Honebein 7G-323	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (8-15-14)		

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	90.48	180.00	7,066.0	-1,044.4	-942.6	1,215.2	0.00	0.00	0.00
8,200.0	90.48	180.00	7,065.2	-1,144.4	-942.6	1,313.1	0.00	0.00	0.00
8,300.0	90.48	180.00	7,064.3	-1,244.4	-942.6	1,411.0	0.00	0.00	0.00
8,400.0	90.48	180.00	7,063.5	-1,344.4	-942.6	1,508.9	0.00	0.00	0.00
8,500.0	90.48	180.00	7,062.7	-1,444.3	-942.6	1,606.7	0.00	0.00	0.00
8,600.0	90.48	180.00	7,061.8	-1,544.3	-942.6	1,704.6	0.00	0.00	0.00
8,700.0	90.48	180.00	7,061.0	-1,644.3	-942.6	1,802.5	0.00	0.00	0.00
8,800.0	90.48	180.00	7,060.1	-1,744.3	-942.6	1,900.4	0.00	0.00	0.00
8,900.0	90.48	180.00	7,059.3	-1,844.3	-942.6	1,998.3	0.00	0.00	0.00
9,000.0	90.48	180.00	7,058.5	-1,944.3	-942.6	2,096.1	0.00	0.00	0.00
9,100.0	90.48	180.00	7,057.6	-2,044.3	-942.6	2,194.0	0.00	0.00	0.00
9,200.0	90.48	180.00	7,056.8	-2,144.3	-942.6	2,291.9	0.00	0.00	0.00
9,300.0	90.48	180.00	7,056.0	-2,244.3	-942.6	2,389.8	0.00	0.00	0.00
9,400.0	90.48	180.00	7,055.1	-2,344.3	-942.6	2,487.6	0.00	0.00	0.00
9,500.0	90.48	180.00	7,054.3	-2,444.3	-942.6	2,585.5	0.00	0.00	0.00
9,600.0	90.48	180.00	7,053.4	-2,544.3	-942.6	2,683.4	0.00	0.00	0.00
9,700.0	90.48	180.00	7,052.6	-2,644.3	-942.6	2,781.3	0.00	0.00	0.00
9,800.0	90.48	180.00	7,051.8	-2,744.3	-942.6	2,879.2	0.00	0.00	0.00
9,900.0	90.48	180.00	7,050.9	-2,844.3	-942.6	2,977.0	0.00	0.00	0.00
10,000.0	90.48	180.00	7,050.1	-2,944.3	-942.6	3,074.9	0.00	0.00	0.00
10,100.0	90.48	180.00	7,049.2	-3,044.3	-942.6	3,172.8	0.00	0.00	0.00
10,200.0	90.48	180.00	7,048.4	-3,144.3	-942.6	3,270.7	0.00	0.00	0.00
10,300.0	90.48	180.00	7,047.6	-3,244.3	-942.6	3,368.5	0.00	0.00	0.00
10,400.0	90.48	180.00	7,046.7	-3,344.3	-942.6	3,466.4	0.00	0.00	0.00
10,500.0	90.48	180.00	7,045.9	-3,444.3	-942.6	3,564.3	0.00	0.00	0.00
10,600.0	90.48	180.00	7,045.1	-3,544.3	-942.6	3,662.2	0.00	0.00	0.00
10,700.0	90.48	180.00	7,044.2	-3,644.3	-942.6	3,760.1	0.00	0.00	0.00
10,800.0	90.48	180.00	7,043.4	-3,744.3	-942.6	3,857.9	0.00	0.00	0.00
10,900.0	90.48	180.00	7,042.5	-3,844.3	-942.6	3,955.8	0.00	0.00	0.00
11,000.0	90.48	180.00	7,041.7	-3,944.3	-942.6	4,053.7	0.00	0.00	0.00
11,100.0	90.48	180.00	7,040.9	-4,044.3	-942.6	4,151.6	0.00	0.00	0.00
11,200.0	90.48	180.00	7,040.0	-4,144.3	-942.6	4,249.5	0.00	0.00	0.00
11,300.0	90.48	180.00	7,039.2	-4,244.2	-942.6	4,347.3	0.00	0.00	0.00
11,400.0	90.48	180.00	7,038.4	-4,344.2	-942.6	4,445.2	0.00	0.00	0.00
11,500.0	90.48	180.00	7,037.5	-4,444.2	-942.6	4,543.1	0.00	0.00	0.00
11,562.2	90.48	180.00	7,037.0	-4,506.4	-942.6	4,604.0	0.00	0.00	0.00
BHL 2141'FNL & 332'FWL, Sec.18									

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
BHL 2141'FNL & 332'	0.00	0.00	7,037.0	-4,506.4	-942.6	1,358,341.95	3,250,723.65	40.313560	-104.600900
- plan hits target center									
- Point									
SHL 2352'FSL & 1260'	0.00	0.00	1.0	0.0	0.0	1,362,857.56	3,251,620.30	40.325930	-104.597520
- plan hits target center									
- Point									

Database:	Landmark	Local Co-ordinate Reference:	Well Honebein 7G-323
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4862.0ft (RKB - 13')
Project:	SEC.7-T4N-R64W	MD Reference:	WELL @ 4862.0ft (RKB - 13')
Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	North Reference:	True
Well:	Honebein 7G-323	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (8-15-14)		

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,598.2	7,070.2	7"	7	7-1/2

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,773.8	3,724.0	Parkman		0.00	
4,512.0	4,450.0	Sussex		0.00	
5,315.2	5,240.0	Shannon		0.00	
6,775.4	6,674.0	Sharon Springs		0.00	
6,995.3	6,849.0	Niobrara A		0.00	
7,111.2	6,924.0	Niobrara B		0.00	
7,247.6	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)	
400.0	400.0	0.0	0.0	KOP #1
6,391.8	6,306.3	227.8	-942.6	KOP #2
7,598.2	7,070.2	-542.6	-942.6	End of Build



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.7-T4N-R64W

Honebein 4N64W7K Pad Sec.7-T4N-R64W

Honebein 7G-323

Wellbore #1

Plan #1 (8-15-14)

Anticollision Report

21 August, 2014



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Honebein 7G-323
Project:	SEC.7-T4N-R64W	TVD Reference:	WELL @ 4862.0ft (RKB - 13')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	WELL @ 4862.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7G-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 (8-15-14)	Offset TVD Reference:	Offset Datum

Reference	Plan #1 (8-15-14)		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,000.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date	8/21/2014		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	11,562.2	Plan #1 (8-15-14) (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 18-1 (Exist.) - Wellbore #1 - Wellbore #1	11,278.1	6,972.4	284.5	61.6	1.276	Level 3, CC, ES, SF
Fry PM C 18-4 (Exist.) - Wellbore #1 - Wellbore #1	9,915.5	7,001.8	348.6	150.5	1.760	CC, ES, SF
Honebein 13-7U (Exist.) - Wellbore #1 - Wellbore #1	7,194.9	6,943.0	160.8	76.5	1.907	CC, ES
Honebein 13-7U (Exist.) - Wellbore #1 - Wellbore #1	7,200.0	6,945.5	160.8	76.5	1.907	SF
Latham 7-3 (Exist.) - Wellbore #1 - Wellbore #1	8,651.3	7,034.4	384.9	208.7	2.185	CC, ES, SF
Honebein 4N64W7K Pad Sec.7-T4N-R64W						
Honebein 7G-203 - Wellbore #1 - Plan #1 (8-14-14)	200.0	199.0	30.7	30.0	45.638	CC, ES
Honebein 7G-203 - Wellbore #1 - Plan #1 (8-14-14)	11,562.2	11,516.2	267.0	93.2	1.537	SF
Honebein 7K-223 - Wellbore #1 - Plan #1 (8-15-14)	400.0	403.0	89.2	87.6	56.468	CC, ES
Honebein 7K-223 - Wellbore #1 - Plan #1 (8-15-14)	900.0	900.5	131.9	128.1	34.695	SF
Honebein 7K-243 - Wellbore #1 - Plan #1 (8-15-15)	400.0	401.0	27.9	26.3	17.696	CC, ES
Honebein 7K-243 - Wellbore #1 - Plan #1 (8-15-15)	11,562.2	11,406.6	587.6	412.1	3.349	SF
Honebein 7K-323 - Wellbore #1 - Plan #1 (8-18-14)	400.0	404.0	119.9	118.3	75.770	CC, ES
Honebein 7K-323 - Wellbore #1 - Plan #1 (8-18-14)	1,000.0	999.8	180.3	176.0	42.348	SF
Honebein 7K-403 - Wellbore #1 - Plan #1 (8-15-14)	400.0	402.0	58.6	57.0	37.110	CC, ES
Honebein 7K-403 - Wellbore #1 - Plan #1 (8-15-14)	11,562.2	11,513.7	968.6	791.6	5.474	SF
Honebein 7O-243 - Wellbore #1 - Plan #1 (8-18-14)	400.0	405.0	147.8	146.2	93.259	CC, ES
Honebein 7O-243 - Wellbore #1 - Plan #1 (8-18-14)	920.6	915.3	196.2	192.4	50.548	SF

Offset Design		Existing Wells Sec. 7-T4N-R64W - Fry 18-1 (Exist.) - Wellbore #1 - Wellbore #1										Offset Site Error:		0.0 ft			
Survey Program: 7190-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					
10,400.0	7,046.7	6,979.7	6,979.7	68.6	139.6	-91.48	-4,222.3	-658.1	923.0	716.3	206.64	4.467					
10,500.0	7,045.9	6,978.9	6,978.9	70.4	139.6	-91.31	-4,222.3	-658.1	828.4	619.9	208.48	3.973					
10,600.0	7,045.1	6,978.1	6,978.1	72.2	139.6	-91.14	-4,222.3	-658.1	735.3	525.0	210.33	3.496					
10,700.0	7,044.2	6,977.2	6,977.2	74.1	139.5	-90.98	-4,222.3	-658.1	644.2	432.1	212.19	3.036					
10,800.0	7,043.4	6,976.4	6,976.4	75.9	139.5	-90.81	-4,222.3	-658.1	556.3	342.2	214.04	2.599					
10,900.0	7,042.5	6,975.5	6,975.5	77.7	139.5	-90.64	-4,222.3	-658.1	473.1	257.2	215.89	2.191					
11,000.0	7,041.7	6,974.7	6,974.7	79.6	139.5	-90.47	-4,222.3	-658.1	397.8	180.0	217.75	1.827					
11,100.0	7,040.9	6,973.9	6,973.9	81.4	139.5	-90.30	-4,222.3	-658.1	335.6	116.0	219.60	1.528					

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Honebein 7G-323
Project:	SEC.7-T4N-R64W	TVD Reference:	WELL @ 4862.0ft (RKB - 13')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	WELL @ 4862.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7G-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 (8-15-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec. 7-T4N-R64W - Fry 18-1 (Exist.) - Wellbore #1 - Wellbore #1												Offset Site Error: 0.0 ft	
Survey Program: 7190-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)		
11,200.0	7,040.0	6,973.0	6,973.0	83.3	139.5	-90.13	-4,222.3	-658.1	295.0	73.5	221.46	1.332	Level 3
11,278.1	7,039.4	6,972.4	6,972.4	84.7	139.4	-90.00	-4,222.3	-658.1	284.5	61.6	222.91	1.276	Level 3, CC, ES, SF
11,300.0	7,039.2	6,972.2	6,972.2	85.1	139.4	-89.96	-4,222.3	-658.1	285.3	62.0	223.31	1.278	Level 3
11,400.0	7,038.4	6,971.4	6,971.4	87.0	139.4	-89.79	-4,222.3	-658.1	309.5	84.3	225.17	1.374	Level 3
11,500.0	7,037.5	6,970.5	6,970.5	88.8	139.4	-89.63	-4,222.3	-658.1	360.8	133.8	227.03	1.589	
11,562.2	7,037.0	6,970.0	6,970.0	90.0	139.4	-89.52	-4,222.3	-658.1	402.1	173.9	228.18	1.762	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Honebein 7G-323
Project:	SEC.7-T4N-R64W	TVD Reference:	WELL @ 4862.0ft (RKB - 13')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	WELL @ 4862.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7G-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 (8-15-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec. 7-T4N-R64W - Fry PM C 18-4 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7250-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)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
9,000.0	7,058.5	7,009.5	7,009.5	44.0	140.2	-91.26	-2,859.8	-594.0	979.6	797.9	181.75	5.390		
9,100.0	7,057.6	7,008.6	7,008.6	45.6	140.2	-91.12	-2,859.8	-594.0	886.9	703.4	183.50	4.833		
9,200.0	7,056.8	7,007.8	7,007.8	47.3	140.2	-90.98	-2,859.8	-594.0	795.9	610.6	185.26	4.296		
9,300.0	7,056.0	7,007.0	7,007.0	49.0	140.1	-90.85	-2,859.8	-594.0	707.4	520.3	187.03	3.782		
9,400.0	7,055.1	7,006.1	7,006.1	50.8	140.1	-90.71	-2,859.8	-594.0	622.3	433.5	188.81	3.296		
9,500.0	7,054.3	7,005.3	7,005.3	52.5	140.1	-90.57	-2,859.8	-594.0	542.4	351.8	190.60	2.846		
9,600.0	7,053.4	7,004.4	7,004.4	54.2	140.1	-90.43	-2,859.8	-594.0	470.2	277.8	192.40	2.444		
9,700.0	7,052.6	7,003.6	7,003.6	56.0	140.1	-90.30	-2,859.8	-594.0	409.9	215.7	194.20	2.111		
9,800.0	7,051.8	7,002.8	7,002.8	57.8	140.1	-90.16	-2,859.8	-594.0	367.3	171.3	196.00	1.874		
9,900.0	7,050.9	7,001.9	7,001.9	59.6	140.0	-90.02	-2,859.8	-594.0	349.0	151.2	197.82	1.764		
9,915.5	7,050.8	7,001.8	7,001.8	59.8	140.0	-90.00	-2,859.8	-594.0	348.6	150.5	198.10	1.760 CC, ES, SF		
10,000.0	7,050.1	7,001.1	7,001.1	61.3	140.0	-89.88	-2,859.8	-594.0	358.7	159.1	199.63	1.797		
10,100.0	7,049.2	7,000.2	7,000.2	63.1	140.0	-89.75	-2,859.8	-594.0	394.4	193.0	201.45	1.958		
10,200.0	7,048.4	6,999.4	6,999.4	64.9	140.0	-89.61	-2,859.8	-594.0	450.0	246.7	203.28	2.214		
10,300.0	7,047.6	6,998.6	6,998.6	66.8	140.0	-89.47	-2,859.8	-594.0	519.0	313.9	205.10	2.531		
10,400.0	7,046.7	6,997.7	6,997.7	68.6	140.0	-89.33	-2,859.8	-594.0	596.9	389.9	206.93	2.884		
10,500.0	7,045.9	6,996.9	6,996.9	70.4	139.9	-89.20	-2,859.8	-594.0	680.6	471.8	208.76	3.260		
10,600.0	7,045.1	6,996.1	6,996.1	72.2	139.9	-89.06	-2,859.8	-594.0	768.1	557.6	210.59	3.648		
10,700.0	7,044.2	6,995.2	6,995.2	74.1	139.9	-88.92	-2,859.8	-594.0	858.4	646.0	212.43	4.041		
10,800.0	7,043.4	6,994.4	6,994.4	75.9	139.9	-88.78	-2,859.8	-594.0	950.7	736.4	214.27	4.437		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Honebein 7G-323
Project:	SEC.7-T4N-R64W	TVD Reference:	WELL @ 4862.0ft (RKB - 13')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	WELL @ 4862.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7G-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 (8-15-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec. 7-T4N-R64W - Honebein 13-7U (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 600-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)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-103.66	-103.66	-193.1	-794.7	818.1				
100.0	100.0	76.8	76.8	0.1	1.5	-103.65	-103.65	-193.0	-794.7	817.8	816.1	1.65	496.363	
200.0	200.0	176.4	176.4	0.3	3.5	-103.64	-103.64	-192.9	-794.8	817.8	814.0	3.87	211.557	
300.0	300.0	276.1	276.1	0.6	5.5	-103.63	-103.63	-192.7	-794.9	817.9	811.8	6.08	134.439	
400.0	400.0	375.8	375.8	0.8	7.5	-103.61	-103.61	-192.4	-795.1	818.1	809.8	8.30	98.534	
500.0	500.0	475.4	475.4	1.0	9.5	-27.23	-27.23	-192.1	-795.4	816.7	806.2	10.51	77.716	
600.0	599.8	575.0	575.0	1.2	11.5	-27.40	-27.40	-191.6	-795.7	812.2	799.5	12.70	63.979	
700.0	699.5	671.7	671.7	1.5	14.7	-27.71	-27.71	-191.1	-796.2	804.9	788.8	16.11	49.976	
800.0	798.7	768.9	768.9	1.7	18.0	-28.16	-28.16	-190.8	-797.0	794.8	775.3	19.56	40.634	
900.0	897.5	866.2	866.2	2.0	21.1	-28.80	-28.80	-190.8	-798.0	782.0	759.3	22.73	34.405	
920.6	917.7	886.1	886.1	2.1	21.7	-28.95	-28.95	-190.8	-798.2	779.0	755.6	23.36	33.341	
1,000.0	995.8	962.0	962.0	2.4	24.0	-29.43	-29.43	-190.8	-799.2	767.4	741.5	25.90	29.632	
1,100.0	1,094.2	1,059.6	1,059.5	2.8	26.7	-30.10	-30.10	-191.2	-800.6	753.2	724.4	28.81	26.144	
1,200.0	1,192.5	1,157.5	1,157.4	3.2	28.8	-30.83	-30.83	-192.1	-802.0	739.1	707.9	31.24	23.656	
1,300.0	1,290.9	1,255.7	1,255.6	3.5	30.9	-31.62	-31.62	-193.3	-803.3	725.3	691.7	33.61	21.581	
1,400.0	1,389.2	1,354.4	1,354.3	3.9	33.3	-32.44	-32.44	-194.5	-804.7	711.5	675.3	36.29	19.608	
1,500.0	1,487.6	1,454.7	1,454.6	4.3	36.0	-33.30	-33.30	-195.7	-806.0	697.9	658.6	39.29	17.762	
1,600.0	1,586.0	1,554.3	1,554.2	4.7	39.1	-34.18	-34.18	-196.6	-807.0	684.1	641.4	42.66	16.037	
1,700.0	1,684.3	1,652.1	1,652.0	5.1	42.3	-35.05	-35.05	-197.2	-808.2	670.5	624.2	46.22	14.506	
1,800.0	1,782.7	1,750.0	1,749.9	5.5	45.6	-35.93	-35.93	-197.5	-809.6	657.1	607.3	49.79	13.196	
1,900.0	1,881.0	1,848.0	1,847.9	5.9	48.9	-36.80	-36.80	-197.5	-811.2	644.0	590.6	53.38	12.064	
2,000.0	1,979.4	1,946.2	1,946.0	6.4	52.2	-37.68	-37.68	-197.2	-813.1	631.1	574.1	56.97	11.077	
2,100.0	2,077.7	2,044.6	2,044.4	6.8	55.7	-38.57	-38.57	-196.6	-815.1	618.5	557.7	60.81	10.170	
2,200.0	2,176.1	2,143.2	2,143.0	7.2	59.5	-39.49	-39.49	-196.0	-817.2	606.0	541.1	64.94	9.332	
2,300.0	2,274.4	2,241.9	2,241.7	7.6	63.3	-40.46	-40.46	-195.4	-819.3	593.7	524.6	69.07	8.595	
2,400.0	2,372.8	2,340.6	2,340.3	8.0	67.1	-41.46	-41.46	-194.8	-821.4	581.6	508.4	73.22	7.943	
2,500.0	2,471.1	2,439.2	2,438.9	8.4	70.8	-42.51	-42.51	-194.2	-823.6	569.7	492.3	77.37	7.363	
2,600.0	2,569.5	2,538.0	2,537.7	8.8	74.7	-43.61	-43.61	-193.7	-825.7	558.0	476.4	81.55	6.842	
2,700.0	2,667.8	2,637.0	2,636.7	9.2	78.5	-44.75	-44.75	-193.1	-827.8	546.4	460.7	85.74	6.373	
2,800.0	2,766.2	2,736.1	2,735.7	9.6	82.3	-45.93	-45.93	-192.5	-829.8	535.1	445.1	89.95	5.949	
2,900.0	2,864.6	2,835.1	2,834.7	10.0	86.1	-47.16	-47.16	-191.7	-831.9	523.9	429.7	94.17	5.563	
3,000.0	2,962.9	2,934.1	2,933.7	10.5	89.9	-48.44	-48.44	-190.9	-833.9	512.9	414.5	98.40	5.212	
3,100.0	3,061.3	3,033.9	3,033.5	10.9	92.6	-49.77	-49.77	-190.1	-835.9	502.1	400.6	101.51	4.946	
3,200.0	3,159.6	3,135.0	3,134.6	11.3	93.0	-51.23	-51.23	-189.2	-837.4	491.2	388.8	102.38	4.798	
3,300.0	3,258.0	3,236.0	3,235.5	11.7	93.4	-52.79	-52.79	-188.3	-838.3	480.1	376.8	103.26	4.649	
3,400.0	3,356.3	3,336.6	3,336.2	12.1	93.8	-54.49	-54.49	-187.5	-838.4	468.9	364.7	104.15	4.502	
3,500.0	3,454.7	3,437.1	3,436.6	12.5	94.1	-56.31	-56.31	-186.8	-838.0	457.6	352.6	105.06	4.356	
3,600.0	3,553.0	3,536.3	3,535.9	12.9	94.2	-58.26	-58.26	-186.0	-836.9	446.5	340.8	105.65	4.226	
3,700.0	3,651.4	3,634.0	3,633.5	13.3	93.7	-60.25	-60.25	-185.2	-836.0	435.9	330.2	105.68	4.124	
3,800.0	3,749.7	3,731.7	3,731.2	13.7	93.2	-62.31	-62.31	-184.4	-835.3	426.0	320.2	105.72	4.029	
3,900.0	3,848.1	3,829.5	3,829.0	14.2	92.7	-64.43	-64.43	-183.5	-834.9	416.8	311.0	105.77	3.940	
4,000.0	3,946.4	3,927.4	3,926.9	14.6	92.2	-66.61	-66.61	-182.5	-834.8	408.3	302.5	105.81	3.858	
4,100.0	4,044.8	4,025.9	4,025.4	15.0	92.3	-68.85	-68.85	-181.4	-834.8	400.5	294.0	106.44	3.762	
4,200.0	4,143.2	4,125.6	4,125.1	15.4	94.0	-71.19	-71.19	-180.1	-834.9	393.1	284.4	108.74	3.615	
4,300.0	4,241.5	4,225.3	4,224.8	15.8	95.8	-73.60	-73.60	-178.4	-834.9	386.1	275.1	111.03	3.478	
4,400.0	4,339.9	4,325.0	4,324.4	16.2	97.5	-76.08	-76.08	-176.4	-834.7	379.5	266.2	113.32	3.349	
4,500.0	4,438.2	4,424.6	4,424.1	16.6	99.3	-78.65	-78.65	-174.1	-834.5	373.2	257.6	115.60	3.229	
4,600.0	4,536.6	4,523.9	4,523.3	17.0	100.6	-81.28	-81.28	-171.5	-834.1	367.5	250.1	117.39	3.130	
4,700.0	4,634.9	4,621.9	4,621.3	17.5	100.3	-84.03	-84.03	-169.1	-833.2	362.4	244.8	117.68	3.080	
4,800.0	4,733.3	4,719.7	4,719.0	17.9	100.1	-86.93	-86.93	-167.0	-831.8	358.4	240.5	117.95	3.039	
4,900.0	4,831.6	4,817.2	4,816.5	18.3	99.9	-89.98	-89.98	-165.2	-829.9	355.6	237.4	118.19	3.008	

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 7G-323
Project:	SEC.7-T4N-R64W	TVD Reference:	WELL @ 4862.0ft (RKB - 13')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	WELL @ 4862.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7G-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 (8-15-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec. 7-T4N-R64W - Honebein 13-7U (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 600-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)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
5,000.0	4,930.0	4,914.5	4,913.8	18.7	99.7	-93.16	-163.6	-827.4	354.0	235.6	118.40	2.990		
5,065.8	4,994.7	4,978.4	4,977.6	19.0	99.6	-95.30	-162.8	-825.4	353.7	235.1	118.52	2.984		
5,100.0	5,028.3	5,011.6	5,010.8	19.1	99.3	-96.44	-162.4	-824.3	353.7	235.3	118.40	2.988		
5,200.0	5,126.7	5,109.0	5,108.1	19.5	97.7	-99.73	-161.4	-821.2	354.9	237.8	117.08	3.031		
5,300.0	5,225.0	5,206.4	5,205.5	19.9	96.0	-102.96	-160.4	-818.3	357.4	241.7	115.73	3.088		
5,400.0	5,323.4	5,304.0	5,303.0	20.4	94.4	-106.10	-159.5	-815.7	361.1	246.8	114.33	3.159		
5,500.0	5,421.7	5,401.6	5,400.6	20.8	92.7	-109.14	-158.7	-813.3	366.1	253.2	112.90	3.242		
5,600.0	5,520.1	5,499.3	5,498.3	21.2	91.1	-112.05	-158.0	-811.1	372.1	260.6	111.45	3.339		
5,700.0	5,618.5	5,596.5	5,595.5	21.6	89.1	-114.83	-157.5	-809.0	379.2	269.5	109.67	3.458		
5,764.9	5,682.3	5,659.6	5,658.6	21.9	87.8	-116.57	-157.3	-807.8	384.4	275.9	108.50	3.543		
5,800.0	5,716.8	5,693.8	5,692.7	22.0	87.2	-117.52	-157.2	-807.1	387.3	279.5	107.86	3.591		
5,900.0	5,815.7	5,791.5	5,790.4	22.3	85.2	-119.83	-157.1	-805.2	395.1	289.1	105.97	3.729		
6,000.0	5,915.0	5,889.8	5,888.7	22.5	83.2	-121.61	-157.2	-803.3	401.8	297.8	104.04	3.862		
6,100.0	6,014.7	5,988.5	5,987.4	22.7	81.2	-122.90	-157.6	-801.5	407.1	305.0	102.09	3.988		
6,200.0	6,114.5	6,088.2	6,087.1	22.8	79.0	-123.72	-158.1	-799.8	410.8	311.0	99.84	4.115		
6,285.5	6,200.0	6,173.7	6,172.6	23.0	77.0	-125.51	-158.5	-798.2	412.4	314.6	97.87	4.214		
6,300.0	6,214.5	6,188.3	6,187.1	23.0	76.7	-125.48	-158.6	-798.0	412.6	315.0	97.55	4.229		
6,391.8	6,306.3	6,280.1	6,279.0	23.1	74.5	-125.29	-159.0	-796.4	413.6	318.0	95.55	4.328		
6,400.0	6,314.5	6,288.4	6,287.2	23.1	74.4	-125.73	-159.0	-796.2	413.6	318.3	95.31	4.340		
6,450.0	6,364.5	6,338.3	6,337.2	23.1	73.2	-126.98	-159.3	-795.3	412.1	318.5	93.62	4.402		
6,500.0	6,414.2	6,388.1	6,386.9	23.2	72.1	-127.49	-159.5	-794.4	407.5	315.9	91.59	4.450		
6,550.0	6,463.4	6,437.4	6,436.2	23.2	70.9	-128.26	-159.7	-793.6	400.0	310.7	89.24	4.482		
6,600.0	6,512.0	6,486.1	6,484.9	23.2	69.8	-129.35	-159.9	-792.7	389.5	302.9	86.62	4.497		
6,650.0	6,559.6	6,533.9	6,532.7	23.3	69.3	-129.79	-160.1	-791.8	376.2	291.8	84.41	4.457		
6,700.0	6,606.2	6,580.7	6,579.5	23.3	69.1	-129.67	-160.2	-790.9	360.2	277.9	82.30	4.376		
6,750.0	6,651.5	6,626.1	6,624.9	23.3	68.9	-129.09	-160.3	-790.0	341.6	261.5	80.14	4.263		
6,800.0	6,695.4	6,670.0	6,668.8	23.3	68.7	-128.17	-160.3	-789.0	320.8	242.7	78.09	4.107		
6,850.0	6,737.5	6,712.2	6,711.0	23.3	68.5	-126.06	-160.3	-788.1	298.0	221.6	76.40	3.900		
6,900.0	6,777.9	6,752.6	6,751.3	23.3	68.4	-124.93	-160.3	-787.1	273.7	198.3	75.37	3.631		
6,950.0	6,816.2	6,790.8	6,789.5	23.3	68.2	-124.96	-160.2	-786.1	248.4	173.1	75.33	3.298		
7,000.0	6,852.3	6,826.8	6,825.5	23.4	68.0	-124.23	-160.1	-785.2	223.3	146.8	76.49	2.919		
7,050.0	6,886.1	6,860.4	6,859.1	23.4	67.9	-123.61	-160.0	-784.3	199.5	120.8	78.67	2.536		
7,100.0	6,917.3	6,891.4	6,890.2	23.4	67.7	-123.68	-159.9	-783.4	179.2	98.0	81.25	2.206		
7,150.0	6,946.0	6,919.8	6,918.5	23.5	67.6	-123.68	-159.8	-782.6	165.3	81.9	83.34	1.983		
7,194.9	6,969.5	6,943.0	6,941.7	23.6	67.5	-123.03	-159.6	-781.9	160.8	76.5	84.31	1.907 CC, ES		
7,200.0	6,972.0	6,945.5	6,944.1	23.6	67.5	-122.80	-159.6	-781.8	160.8	76.5	84.36	1.907 SF		
7,250.0	6,995.1	6,968.2	6,966.8	23.7	67.4	-122.40	-159.5	-781.2	168.0	83.6	84.37	1.991		
7,300.0	7,015.2	6,987.9	6,986.6	23.8	67.3	-121.18	-159.4	-780.5	186.5	102.6	83.85	2.224		
7,350.0	7,032.3	7,004.7	7,003.3	23.9	67.4	-120.02	-159.3	-780.0	214.1	130.5	83.53	2.563		
7,400.0	7,046.3	7,018.4	7,017.0	24.1	67.7	-119.92	-159.2	-779.6	248.3	164.4	83.94	2.958		
7,450.0	7,057.1	7,028.8	7,027.5	24.3	68.0	-119.77	-159.1	-779.3	287.1	202.2	84.94	3.381		
7,500.0	7,064.7	7,036.0	7,034.6	24.6	68.2	-119.44	-159.0	-779.1	329.1	242.7	86.41	3.809		
7,550.0	7,069.1	7,039.9	7,038.6	24.9	68.3	-119.77	-159.0	-779.0	373.3	285.5	87.75	4.254		
7,598.2	7,070.2	7,040.6	7,039.2	25.2	68.3	-119.09	-159.0	-779.0	417.1	329.2	87.88	4.746		
7,600.0	7,070.2	7,040.6	7,039.2	25.2	68.3	-119.08	-159.0	-779.0	418.8	330.9	87.89	4.764		
7,700.0	7,069.4	7,038.9	7,037.5	26.0	68.2	-118.49	-159.0	-779.0	512.3	423.4	88.88	5.764		
7,800.0	7,068.5	7,037.2	7,035.9	26.9	68.2	-118.91	-159.0	-779.0	607.8	517.9	89.97	6.756		
7,900.0	7,067.7	7,035.6	7,034.2	28.0	68.1	-118.34	-159.0	-779.1	704.6	613.5	91.13	7.732		
8,000.0	7,066.8	7,033.9	7,032.6	29.1	68.1	-118.77	-159.1	-779.1	802.2	709.8	92.37	8.685		
8,100.0	7,066.0	7,032.3	7,031.0	30.4	68.1	-118.21	-159.1	-779.2	900.3	806.7	93.66	9.612		
8,200.0	7,065.2	7,030.7	7,029.4	31.7	68.0	-117.66	-159.1	-779.2	998.8	903.8	95.00	10.514		

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 7G-323
Project:	SEC.7-T4N-R64W	TVD Reference:	WELL @ 4862.0ft (RKB - 13')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	WELL @ 4862.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7G-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 (8-15-14)	Offset TVD Reference:	Offset Datum

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Honebein 7G-323
Project:	SEC.7-T4N-R64W	TVD Reference:	WELL @ 4862.0ft (RKB - 13')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	WELL @ 4862.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7G-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 (8-15-14)	Offset TVD Reference:	Offset Datum

Offset Design		Existing Wells Sec. 7-T4N-R64W - Latham 7-3 (Exist.) - Wellbore #1 - Wellbore #1										Offset Site Error:		0.0 ft			
Survey Program: 7258-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)						
7,800.0	7,068.5	7,041.5	7,041.5	26.9	140.8	-91.06	-1,595.7	-557.7	934.3	771.0	163.28	5.722					
7,900.0	7,067.7	7,040.7	7,040.7	28.0	140.8	-90.94	-1,595.7	-557.7	844.2	679.6	164.59	5.129					
8,000.0	7,066.8	7,039.8	7,039.8	29.1	140.8	-90.81	-1,595.7	-557.7	756.5	590.6	165.98	4.558					
8,100.0	7,066.0	7,039.0	7,039.0	30.4	140.8	-90.69	-1,595.7	-557.7	672.4	505.0	167.43	4.016					
8,200.0	7,065.2	7,038.2	7,038.2	31.7	140.8	-90.56	-1,595.7	-557.7	593.2	424.2	168.93	3.511					
8,300.0	7,064.3	7,037.3	7,037.3	33.1	140.7	-90.44	-1,595.7	-557.7	521.1	350.7	170.48	3.057					
8,400.0	7,063.5	7,036.5	7,036.5	34.5	140.7	-90.31	-1,595.7	-557.7	459.7	287.6	172.06	2.672					
8,500.0	7,062.7	7,035.7	7,035.7	36.0	140.7	-90.19	-1,595.7	-557.7	413.6	239.9	173.68	2.381					
8,600.0	7,061.8	7,034.8	7,034.8	37.5	140.7	-90.06	-1,595.7	-557.7	388.3	213.0	175.33	2.215					
8,651.3	7,061.4	7,034.4	7,034.4	38.3	140.7	-90.00	-1,595.7	-557.7	384.9	208.7	176.19	2.185 CC, ES, SF					
8,700.0	7,061.0	7,034.0	7,034.0	39.1	140.7	-89.94	-1,595.7	-557.7	388.0	211.0	177.00	2.192					
8,800.0	7,060.1	7,033.1	7,033.1	40.7	140.7	-89.81	-1,595.7	-557.7	412.6	233.9	178.69	2.309					
8,900.0	7,059.3	7,032.3	7,032.3	42.3	140.6	-89.69	-1,595.7	-557.7	458.3	277.9	180.40	2.540					
9,000.0	7,058.5	7,031.5	7,031.5	44.0	140.6	-89.57	-1,595.7	-557.7	519.4	337.2	182.13	2.852					
9,100.0	7,057.6	7,030.6	7,030.6	45.6	140.6	-89.44	-1,595.7	-557.7	591.2	407.3	183.87	3.215					
9,200.0	7,056.8	7,029.8	7,029.8	47.3	140.6	-89.32	-1,595.7	-557.7	670.2	484.6	185.62	3.611					
9,300.0	7,056.0	7,029.0	7,029.0	49.0	140.6	-89.19	-1,595.7	-557.7	754.3	566.9	187.38	4.025					
9,400.0	7,055.1	7,028.1	7,028.1	50.8	140.6	-89.07	-1,595.7	-557.7	841.8	652.7	189.15	4.451					
9,500.0	7,054.3	7,027.3	7,027.3	52.5	140.5	-88.94	-1,595.7	-557.7	931.9	740.9	190.93	4.881					

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Honebein 7G-323
Project:	SEC.7-T4N-R64W	TVD Reference:	WELL @ 4862.0ft (RKB - 13')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	WELL @ 4862.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7G-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 (8-15-14)	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 (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	-90.01	0.0	-30.7	30.7					
100.0	100.0	99.0	99.0	0.1	0.1	-90.01	0.0	-30.7	30.7	30.4	0.22	137.142		
200.0	200.0	199.0	199.0	0.3	0.3	-90.01	0.0	-30.7	30.7	30.0	0.67	45.638 CC, ES		
300.0	300.0	297.9	297.9	0.6	0.6	-89.45	0.3	-32.3	32.3	31.2	1.11	29.082		
400.0	400.0	396.6	396.5	0.8	0.8	-88.05	1.3	-37.3	37.4	35.8	1.56	23.981		
500.0	500.0	495.0	494.5	1.0	1.0	-10.37	2.9	-45.6	44.2	42.2	1.99	22.151		
600.0	599.8	593.2	591.9	1.2	1.3	-9.62	5.1	-57.1	50.9	48.5	2.43	20.957		
700.0	699.5	691.1	688.7	1.5	1.6	-9.21	7.9	-71.9	57.6	54.8	2.88	20.036		
800.0	798.7	788.8	784.7	1.7	2.0	-9.03	11.4	-89.9	64.3	61.0	3.34	19.276		
900.0	897.5	887.5	881.0	2.0	2.4	-9.06	15.4	-110.9	70.5	66.7	3.81	18.494		
920.6	917.7	908.0	901.0	2.1	2.5	-9.12	16.2	-115.3	71.4	67.5	3.91	18.263		
1,000.0	995.8	987.4	978.5	2.4	2.9	-9.36	19.5	-132.5	74.7	70.4	4.31	17.341		
1,100.0	1,094.2	1,087.3	1,075.9	2.8	3.3	-9.63	23.7	-154.2	78.9	74.1	4.82	16.372		
1,200.0	1,192.5	1,187.2	1,173.4	3.2	3.8	-9.88	27.8	-175.8	83.1	77.7	5.33	15.568		
1,300.0	1,290.9	1,287.1	1,270.8	3.5	4.3	-10.10	32.0	-197.5	87.2	81.4	5.85	14.899		
1,400.0	1,389.2	1,387.1	1,368.3	3.9	4.8	-10.30	36.2	-219.1	91.4	85.0	6.38	14.324		
1,500.0	1,487.6	1,487.0	1,465.7	4.3	5.2	-10.49	40.3	-240.8	95.6	88.7	6.91	13.832		
1,600.0	1,586.0	1,586.9	1,563.2	4.7	5.7	-10.66	44.5	-262.4	99.7	92.3	7.44	13.405		
1,700.0	1,684.3	1,686.8	1,660.6	5.1	6.2	-10.81	48.6	-284.1	103.9	95.9	7.97	13.032		
1,800.0	1,782.7	1,786.7	1,758.1	5.5	6.7	-10.95	52.8	-305.7	108.1	99.6	8.51	12.704		
1,900.0	1,881.0	1,886.6	1,855.5	5.9	7.1	-11.09	56.9	-327.4	112.3	103.2	9.04	12.412		
2,000.0	1,979.4	1,986.5	1,953.0	6.4	7.6	-11.21	61.1	-349.0	116.4	106.9	9.58	12.151		
2,100.0	2,077.7	2,086.4	2,050.4	6.8	8.1	-11.33	65.2	-370.7	120.6	110.5	10.12	11.916		
2,200.0	2,176.1	2,186.4	2,147.9	7.2	8.6	-11.43	69.4	-392.3	124.8	114.1	10.66	11.704		
2,300.0	2,274.4	2,286.3	2,245.3	7.6	9.1	-11.53	73.5	-413.9	129.0	117.8	11.20	11.512		
2,400.0	2,372.8	2,386.2	2,342.8	8.0	9.6	-11.63	77.7	-435.6	133.1	121.4	11.74	11.337		
2,500.0	2,471.1	2,486.1	2,440.2	8.4	10.0	-11.72	81.8	-457.2	137.3	125.0	12.29	11.176		
2,600.0	2,569.5	2,586.0	2,537.7	8.8	10.5	-11.80	86.0	-478.9	141.5	128.7	12.83	11.029		
2,700.0	2,667.8	2,685.9	2,635.1	9.2	11.0	-11.88	90.2	-500.5	145.7	132.3	13.37	10.893		
2,800.0	2,766.2	2,785.8	2,732.6	9.6	11.5	-11.95	94.3	-522.2	149.9	135.9	13.92	10.768		
2,900.0	2,864.6	2,885.7	2,830.0	10.0	12.0	-12.02	98.5	-543.8	154.0	139.6	14.46	10.651		
3,000.0	2,962.9	2,985.7	2,927.5	10.5	12.5	-12.09	102.6	-565.5	158.2	143.2	15.01	10.543		
3,100.0	3,061.3	3,085.6	3,024.9	10.9	12.9	-12.15	106.8	-587.1	162.4	146.8	15.55	10.442		
3,200.0	3,159.6	3,185.5	3,122.4	11.3	13.4	-12.21	110.9	-608.8	166.6	150.5	16.10	10.348		
3,300.0	3,258.0	3,285.4	3,219.8	11.7	13.9	-12.26	115.1	-630.4	170.7	154.1	16.64	10.259		
3,400.0	3,356.3	3,385.3	3,317.3	12.1	14.4	-12.32	119.2	-652.1	174.9	157.7	17.19	10.177		
3,500.0	3,454.7	3,485.2	3,414.7	12.5	14.9	-12.37	123.4	-673.7	179.1	161.4	17.74	10.099		
3,600.0	3,553.0	3,585.1	3,512.2	12.9	15.4	-12.42	127.5	-695.4	183.3	165.0	18.28	10.025		
3,700.0	3,651.4	3,685.0	3,609.6	13.3	15.8	-12.47	131.7	-717.0	187.5	168.6	18.83	9.956		
3,800.0	3,749.7	3,785.0	3,707.1	13.7	16.3	-12.51	135.8	-738.7	191.6	172.3	19.38	9.891		
3,900.0	3,848.1	3,884.9	3,804.5	14.2	16.8	-12.55	140.0	-760.3	195.8	175.9	19.92	9.829		
4,000.0	3,946.4	3,984.8	3,902.0	14.6	17.3	-12.60	144.1	-782.0	200.0	179.5	20.47	9.770		
4,100.0	4,044.8	4,084.7	3,999.4	15.0	17.8	-12.63	148.3	-803.6	204.2	183.2	21.02	9.714		
4,200.0	4,143.2	4,184.6	4,096.9	15.4	18.3	-12.67	152.5	-825.3	208.4	186.8	21.57	9.661		
4,300.0	4,241.5	4,284.5	4,194.3	15.8	18.7	-12.71	156.6	-846.9	212.6	190.4	22.12	9.611		
4,400.0	4,339.9	4,384.4	4,291.8	16.2	19.2	-12.74	160.8	-868.6	216.7	194.1	22.66	9.563		
4,500.0	4,438.2	4,484.3	4,389.2	16.6	19.7	-12.78	164.9	-890.2	220.9	197.7	23.21	9.517		
4,600.0	4,536.6	4,584.3	4,486.7	17.0	20.2	-12.81	169.1	-911.9	225.1	201.3	23.76	9.473		
4,700.0	4,634.9	4,684.2	4,584.1	17.5	20.7	-12.84	173.2	-933.5	229.3	205.0	24.31	9.432		
4,800.0	4,733.3	4,784.1	4,681.6	17.9	21.2	-12.87	177.4	-955.2	233.5	208.6	24.86	9.392		
4,900.0	4,831.6	4,884.0	4,779.0	18.3	21.7	-12.90	181.5	-976.8	237.6	212.2	25.41	9.353		

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 7G-323
Project:	SEC.7-T4N-R64W	TVD Reference:	WELL @ 4862.0ft (RKB - 13')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	WELL @ 4862.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7G-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 (8-15-14)	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	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,930.0	4,983.9	4,876.5	18.7	22.1	-12.93	185.7	-998.4	241.8	215.9	25.96	9.317	
5,100.0	5,028.3	5,083.8	4,973.9	19.1	22.6	-12.96	189.8	-1,020.1	246.0	219.5	26.50	9.281	
5,200.0	5,126.7	5,183.7	5,071.4	19.5	23.1	-12.98	194.0	-1,041.7	250.2	223.1	27.05	9.248	
5,300.0	5,225.0	5,283.6	5,168.8	19.9	23.6	-13.01	198.1	-1,063.4	254.4	226.8	27.60	9.215	
5,400.0	5,323.4	5,383.6	5,266.3	20.4	24.1	-13.03	202.3	-1,085.0	258.5	230.4	28.15	9.184	
5,500.0	5,421.7	5,483.5	5,363.7	20.8	24.6	-13.06	206.5	-1,106.7	262.7	234.0	28.70	9.154	
5,600.0	5,520.1	5,583.4	5,461.2	21.2	25.0	-13.08	210.6	-1,128.3	266.9	237.7	29.25	9.125	
5,700.0	5,618.5	5,682.8	5,568.3	21.6	25.4	-13.17	214.8	-1,150.3	269.5	239.7	29.79	9.046	
5,764.9	5,682.3	5,764.3	5,638.7	21.9	25.6	-13.32	217.2	-1,162.5	269.1	239.0	30.14	8.929	
5,800.0	5,716.8	5,802.9	5,676.9	22.0	25.8	-13.42	218.3	-1,168.3	268.4	238.1	30.31	8.855	
5,900.0	5,815.7	5,913.0	5,786.0	22.3	26.0	-13.68	220.9	-1,182.2	266.3	235.6	30.75	8.661	
6,000.0	5,915.0	6,023.0	5,895.5	22.5	26.2	-13.91	222.8	-1,192.0	263.9	232.7	31.13	8.476	
6,100.0	6,014.7	6,132.8	6,005.2	22.7	26.4	-14.13	223.9	-1,197.6	261.0	229.6	31.44	8.301	
6,200.0	6,114.5	6,241.1	6,113.5	22.8	26.5	-14.33	224.2	-1,199.2	257.8	226.1	31.70	8.133	
6,285.5	6,200.0	6,326.6	6,199.0	23.0	26.6	-90.80	224.2	-1,199.2	256.6	224.7	31.87	8.051	
6,300.0	6,214.5	6,341.1	6,213.5	23.0	26.6	-90.80	224.2	-1,199.2	256.6	224.7	31.92	8.038	
6,302.8	6,217.4	6,344.0	6,216.4	23.0	26.6	-90.80	224.2	-1,199.2	256.6	224.7	31.93	8.036	
6,391.8	6,306.3	6,432.2	6,304.4	23.1	26.7	-91.79	219.8	-1,199.2	256.7	224.3	32.37	7.929	
6,400.0	6,314.5	6,440.3	6,312.5	23.1	26.7	88.01	218.9	-1,199.2	256.7	224.3	32.43	7.916	
6,450.0	6,364.5	6,489.3	6,360.9	23.1	26.8	86.83	211.5	-1,199.2	257.0	224.2	32.77	7.842	
6,500.0	6,414.2	6,537.9	6,408.4	23.2	26.8	85.67	201.2	-1,199.2	257.3	224.2	33.08	7.777	
6,550.0	6,463.4	6,586.2	6,454.9	23.2	26.8	84.53	187.9	-1,199.2	257.7	224.4	33.37	7.724	
6,600.0	6,512.0	6,634.3	6,500.1	23.2	26.8	83.42	171.9	-1,199.2	258.3	224.7	33.62	7.683	
6,650.0	6,559.6	6,682.0	6,544.0	23.3	26.8	82.34	153.1	-1,199.2	258.9	225.1	33.82	7.654	
6,700.0	6,606.2	6,729.5	6,586.4	23.3	26.8	81.31	131.8	-1,199.2	259.6	225.6	33.99	7.638	
6,750.0	6,651.5	6,776.7	6,627.2	23.3	26.8	80.31	108.0	-1,199.2	260.3	226.2	34.10	7.633	
6,800.0	6,695.4	6,823.7	6,666.3	23.3	26.8	79.36	81.9	-1,199.2	261.1	226.9	34.18	7.637	
6,850.0	6,737.5	6,870.4	6,703.4	23.3	26.8	78.46	53.6	-1,199.2	261.9	227.7	34.23	7.650	
6,900.0	6,777.9	6,916.9	6,738.7	23.3	26.9	77.62	23.2	-1,199.2	262.7	228.5	34.26	7.669	
6,950.0	6,816.2	6,963.2	6,771.8	23.3	26.9	76.82	-9.1	-1,199.2	263.5	229.3	34.25	7.694	
7,000.0	6,852.3	7,009.4	6,802.9	23.4	26.9	76.09	-43.2	-1,199.2	264.4	230.0	34.32	7.704	
7,050.0	6,886.1	7,055.3	6,831.7	23.4	26.9	75.41	-79.0	-1,199.2	265.1	230.8	34.36	7.717	
7,100.0	6,917.3	7,100.0	6,857.5	23.4	27.0	74.80	-115.4	-1,199.2	265.9	231.5	34.45	7.719	
7,150.0	6,946.0	7,146.8	6,882.3	23.5	27.0	74.23	-155.1	-1,199.2	266.6	232.0	34.61	7.703	
7,200.0	6,972.0	7,192.4	6,904.1	23.6	27.1	73.73	-195.1	-1,199.2	267.3	232.4	34.86	7.667	
7,250.0	6,995.1	7,237.8	6,923.4	23.7	27.2	73.30	-236.3	-1,199.2	267.9	232.7	35.21	7.608	
7,300.0	7,015.2	7,283.1	6,940.1	23.8	27.3	72.93	-278.4	-1,199.2	268.4	232.7	35.68	7.523	
7,350.0	7,032.3	7,328.4	6,954.4	23.9	27.4	72.63	-321.3	-1,199.2	268.8	232.6	36.27	7.412	
7,400.0	7,046.3	7,373.6	6,966.0	24.1	27.5	72.39	-365.0	-1,199.2	269.2	232.2	37.00	7.276	
7,450.0	7,057.1	7,418.8	6,975.0	24.3	27.7	72.21	-409.3	-1,199.2	269.4	231.6	37.86	7.117	
7,500.0	7,064.7	7,463.9	6,981.4	24.6	27.9	72.10	-453.9	-1,199.2	269.6	230.8	38.85	6.940	
7,550.0	7,069.1	7,509.0	6,985.1	24.9	28.1	72.06	-498.8	-1,199.2	269.7	229.7	39.97	6.748	
7,598.2	7,070.2	7,554.6	6,986.2	25.2	28.4	72.08	-544.4	-1,199.2	269.7	228.5	41.17	6.550	
7,600.0	7,070.2	7,554.6	6,986.2	25.2	28.4	72.08	-544.4	-1,199.2	269.6	228.5	41.19	6.547	
7,700.0	7,069.4	7,654.0	6,985.6	26.0	29.0	72.13	-643.9	-1,199.2	269.6	226.2	43.39	6.212	
7,800.0	7,068.5	7,754.0	6,985.0	26.9	29.7	72.17	-743.9	-1,199.2	269.5	223.7	45.79	5.886	
7,900.0	7,067.7	7,854.0	6,984.4	28.0	30.6	72.22	-843.9	-1,199.2	269.4	221.1	48.34	5.574	
8,000.0	7,066.8	7,954.0	6,983.8	29.1	31.6	72.26	-943.9	-1,199.2	269.4	218.3	51.03	5.278	
8,100.0	7,066.0	8,054.0	6,983.2	30.4	32.7	72.31	-1,043.9	-1,199.2	269.3	215.5	53.85	5.001	
8,200.0	7,065.2	8,154.0	6,982.6	31.7	33.9	72.36	-1,143.9	-1,199.2	269.2	212.5	56.76	4.743	
8,300.0	7,064.3	8,254.0	6,982.0	33.1	35.2	72.40	-1,243.9	-1,199.2	269.2	209.4	59.76	4.504	

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 7G-323
Project:	SEC.7-T4N-R64W	TVD Reference:	WELL @ 4862.0ft (RKB - 13')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	WELL @ 4862.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7G-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 (8-15-14)	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	
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)		
8,400.0	7,063.5	8,354.0	6,981.3	34.5	36.5	72.45	-1,343.9	-1,199.2	269.1	206.3	62.84	4.282	
8,500.0	7,062.7	8,454.0	6,980.7	36.0	37.9	72.49	-1,443.9	-1,199.2	269.0	203.0	65.98	4.077	
8,600.0	7,061.8	8,554.0	6,980.1	37.5	39.3	72.54	-1,543.9	-1,199.2	269.0	199.8	69.18	3.888	
8,700.0	7,061.0	8,654.0	6,979.5	39.1	40.8	72.59	-1,643.8	-1,199.2	268.9	196.5	72.42	3.713	
8,800.0	7,060.1	8,754.0	6,978.9	40.7	42.3	72.63	-1,743.8	-1,199.2	268.8	193.1	75.71	3.551	
8,900.0	7,059.3	8,854.0	6,978.3	42.3	43.9	72.68	-1,843.8	-1,199.2	268.8	189.7	79.03	3.400	
9,000.0	7,058.5	8,954.0	6,977.7	44.0	45.4	72.72	-1,943.8	-1,199.2	268.7	186.3	82.39	3.261	
9,100.0	7,057.6	9,054.0	6,977.1	45.6	47.1	72.77	-2,043.8	-1,199.2	268.6	182.8	85.78	3.131	
9,200.0	7,056.8	9,154.0	6,976.5	47.3	48.7	72.82	-2,143.8	-1,199.2	268.5	179.4	89.20	3.011	
9,300.0	7,056.0	9,254.0	6,975.8	49.0	50.3	72.86	-2,243.8	-1,199.2	268.5	175.8	92.64	2.898	
9,400.0	7,055.1	9,354.0	6,975.2	50.8	52.0	72.91	-2,343.8	-1,199.2	268.4	172.3	96.10	2.793	
9,500.0	7,054.3	9,454.0	6,974.6	52.5	53.7	72.96	-2,443.8	-1,199.2	268.3	168.8	99.57	2.695	
9,600.0	7,053.4	9,554.0	6,974.0	54.2	55.4	73.00	-2,543.8	-1,199.2	268.3	165.2	103.07	2.603	
9,700.0	7,052.6	9,654.0	6,973.4	56.0	57.1	73.05	-2,643.8	-1,199.2	268.2	161.6	106.58	2.516	
9,800.0	7,051.8	9,754.0	6,972.8	57.8	58.9	73.09	-2,743.8	-1,199.2	268.1	158.0	110.11	2.435	
9,900.0	7,050.9	9,854.0	6,972.2	59.6	60.6	73.14	-2,843.8	-1,199.2	268.1	154.4	113.65	2.359	
10,000.0	7,050.1	9,954.0	6,971.6	61.3	62.4	73.19	-2,943.8	-1,199.2	268.0	150.8	117.20	2.287	
10,100.0	7,049.2	10,054.0	6,971.0	63.1	64.2	73.23	-3,043.8	-1,199.2	268.0	147.2	120.77	2.219	
10,200.0	7,048.4	10,154.0	6,970.3	64.9	65.9	73.28	-3,143.8	-1,199.2	267.9	143.5	124.34	2.154	
10,300.0	7,047.6	10,254.0	6,969.7	66.8	67.7	73.33	-3,243.8	-1,199.2	267.8	139.9	127.92	2.094	
10,400.0	7,046.7	10,354.0	6,969.1	68.6	69.5	73.37	-3,343.8	-1,199.2	267.8	136.2	131.52	2.036	
10,500.0	7,045.9	10,454.0	6,968.5	70.4	71.3	73.42	-3,443.8	-1,199.2	267.7	132.6	135.12	1.981	
10,600.0	7,045.1	10,554.0	6,967.9	72.2	73.1	73.47	-3,543.8	-1,199.2	267.6	128.9	138.73	1.929	
10,700.0	7,044.2	10,654.0	6,967.3	74.1	74.9	73.51	-3,643.8	-1,199.2	267.6	125.2	142.34	1.880	
10,800.0	7,043.4	10,754.0	6,966.7	75.9	76.7	73.56	-3,743.8	-1,199.2	267.5	121.5	145.97	1.833	
10,900.0	7,042.5	10,854.0	6,966.1	77.7	78.5	73.61	-3,843.8	-1,199.2	267.4	117.8	149.60	1.788	
11,000.0	7,041.7	10,954.0	6,965.5	79.6	80.4	73.65	-3,943.8	-1,199.2	267.4	114.1	153.23	1.745	
11,100.0	7,040.9	11,054.0	6,964.8	81.4	82.2	73.70	-4,043.8	-1,199.2	267.3	110.4	156.88	1.704	
11,200.0	7,040.0	11,154.0	6,964.2	83.3	84.0	73.75	-4,143.8	-1,199.2	267.2	106.7	160.52	1.665	
11,300.0	7,039.2	11,254.0	6,963.6	85.1	85.9	73.79	-4,243.8	-1,199.2	267.2	103.0	164.18	1.627	
11,400.0	7,038.4	11,354.0	6,963.0	87.0	87.7	73.84	-4,343.8	-1,199.2	267.1	99.3	167.83	1.592	
11,500.0	7,037.5	11,454.0	6,962.4	88.8	89.6	73.89	-4,443.8	-1,199.2	267.1	95.6	171.50	1.557	
11,562.2	7,037.0	11,516.2	6,962.0	90.0	90.7	73.92	-4,506.0	-1,199.2	267.0	93.2	173.78	1.537 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Honebein 7G-323
Project:	SEC.7-T4N-R64W	TVD Reference:	WELL @ 4862.0ft (RKB - 13')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	WELL @ 4862.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7G-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 (8-15-14)	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						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)		
0.0	0.0	3.0	3.0	0.0	0.0	90.00	0.0	89.2	89.2	89.2	0.00	N/A	
100.0	100.0	103.0	103.0	0.1	0.1	90.00	0.0	89.2	89.2	89.0	0.23	385.405	
200.0	200.0	203.0	203.0	0.3	0.3	90.00	0.0	89.2	89.2	88.5	0.68	131.012	
300.0	300.0	303.0	303.0	0.6	0.6	90.00	0.0	89.2	89.2	88.1	1.13	78.920	
400.0	400.0	403.0	403.0	0.8	0.8	90.00	0.0	89.2	89.2	87.6	1.58	56.468 CC, ES	
500.0	500.0	503.0	503.0	1.0	1.0	166.66	0.0	89.2	90.9	88.9	2.02	44.946	
600.0	599.8	602.8	602.8	1.2	1.2	167.36	0.0	89.2	96.0	93.6	2.46	38.981	
700.0	699.5	702.5	702.5	1.5	1.5	168.37	0.0	89.2	104.5	101.6	2.91	35.955	
800.0	798.7	801.7	801.7	1.7	1.7	169.54	0.0	89.2	116.5	113.2	3.35	34.734	
900.0	897.5	900.5	900.5	2.0	1.9	170.72	0.0	89.2	131.9	128.1	3.80	34.695 SF	
920.6	917.7	920.7	920.7	2.1	2.0	170.96	0.0	89.2	135.5	131.6	3.89	34.798	
1,000.0	995.8	998.8	998.8	2.4	2.1	171.82	0.0	89.2	149.7	145.5	4.25	35.197	
1,100.0	1,094.2	1,097.2	1,097.2	2.8	2.4	172.70	0.0	89.2	167.6	162.9	4.71	35.588	
1,200.0	1,192.5	1,195.5	1,195.5	3.2	2.6	173.41	0.0	89.2	185.6	180.4	5.17	35.891	
1,300.0	1,290.9	1,293.9	1,293.9	3.5	2.8	173.99	0.0	89.2	203.5	197.9	5.63	36.131	
1,400.0	1,389.2	1,392.2	1,392.2	3.9	3.0	174.48	0.0	89.2	221.5	215.4	6.10	36.325	
1,500.0	1,487.6	1,490.6	1,490.6	4.3	3.2	174.90	0.0	89.2	239.5	233.0	6.56	36.485	
1,600.0	1,586.0	1,585.2	1,585.2	4.7	3.4	174.99	1.0	90.0	258.2	251.2	7.02	36.758	
1,700.0	1,684.3	1,678.8	1,678.7	5.1	3.7	174.51	4.4	92.7	278.4	270.9	7.48	37.210	
1,800.0	1,782.7	1,771.5	1,771.1	5.5	3.9	173.59	10.1	97.1	300.3	292.3	7.94	37.799	
1,900.0	1,881.0	1,865.3	1,864.3	5.9	4.1	172.34	18.1	103.4	323.7	315.3	8.42	38.461	
2,000.0	1,979.4	1,962.1	1,960.6	6.4	4.3	171.14	26.9	110.2	347.7	338.8	8.90	39.054	
2,100.0	2,077.7	2,059.0	2,056.8	6.8	4.6	170.09	35.6	117.1	371.7	362.3	9.39	39.572	
2,200.0	2,176.1	2,155.9	2,153.0	7.2	4.8	169.17	44.3	123.9	395.9	386.0	9.89	40.024	
2,300.0	2,274.4	2,252.7	2,249.2	7.6	5.1	168.35	53.1	130.7	420.2	409.8	10.40	40.417	
2,400.0	2,372.8	2,349.6	2,345.4	8.0	5.3	167.63	61.8	137.6	444.5	433.6	10.90	40.770	
2,500.0	2,471.1	2,446.4	2,441.6	8.4	5.6	166.98	70.5	144.4	468.9	457.5	11.41	41.082	
2,600.0	2,569.5	2,543.3	2,537.8	8.8	5.8	166.39	79.3	151.2	493.3	481.4	11.93	41.360	
2,700.0	2,667.8	2,640.1	2,634.1	9.2	6.1	165.86	88.0	158.1	517.8	505.3	12.44	41.610	
2,800.0	2,766.2	2,737.0	2,730.3	9.6	6.4	165.37	96.7	164.9	542.3	529.3	12.96	41.835	
2,900.0	2,864.6	2,833.8	2,826.5	10.0	6.7	164.93	105.5	171.7	566.8	553.4	13.48	42.040	
3,000.0	2,962.9	2,930.7	2,922.7	10.5	6.9	164.53	114.2	178.6	591.4	577.4	14.01	42.225	
3,100.0	3,061.3	3,027.5	3,018.9	10.9	7.2	164.15	122.9	185.4	616.0	601.5	14.53	42.395	
3,200.0	3,159.6	3,124.4	3,115.1	11.3	7.5	163.81	131.6	192.2	640.7	625.6	15.06	42.550	
3,300.0	3,258.0	3,221.2	3,211.3	11.7	7.8	163.49	140.4	199.0	665.3	649.7	15.58	42.693	
3,400.0	3,356.3	3,318.1	3,307.6	12.1	8.0	163.20	149.1	205.9	690.0	673.9	16.11	42.824	
3,500.0	3,454.7	3,414.9	3,403.8	12.5	8.3	162.92	157.8	212.7	714.6	698.0	16.64	42.946	
3,600.0	3,553.0	3,511.8	3,500.0	12.9	8.6	162.66	166.6	219.5	739.3	722.2	17.17	43.058	
3,700.0	3,651.4	3,608.6	3,596.2	13.3	8.9	162.42	175.3	226.4	764.1	746.4	17.70	43.163	
3,800.0	3,749.7	3,705.5	3,692.4	13.7	9.2	162.20	184.0	233.2	788.8	770.5	18.23	43.260	
3,900.0	3,848.1	3,802.3	3,788.6	14.2	9.5	161.99	192.8	240.0	813.5	794.7	18.77	43.351	
4,000.0	3,946.4	3,899.2	3,884.8	14.6	9.8	161.79	201.5	246.9	838.2	818.9	19.30	43.436	
4,100.0	4,044.8	3,996.0	3,981.1	15.0	10.0	161.60	210.2	253.7	863.0	843.2	19.83	43.515	
4,200.0	4,143.2	4,092.9	4,077.3	15.4	10.3	161.42	219.0	260.5	887.8	867.4	20.37	43.590	
4,300.0	4,241.5	4,190.1	4,173.9	15.8	10.6	161.25	227.7	267.4	912.5	891.6	20.90	43.659	
4,400.0	4,339.9	4,314.7	4,297.9	16.2	10.9	161.18	236.8	274.5	935.8	914.4	21.43	43.666	
4,500.0	4,438.2	4,440.9	4,424.0	16.6	11.1	161.35	241.6	278.2	956.2	934.3	21.93	43.608	
4,600.0	4,536.6	4,556.5	4,539.6	17.0	11.3	161.71	242.4	278.9	973.9	951.5	22.39	43.506	
4,700.0	4,634.9	4,654.9	4,637.9	17.5	11.5	162.04	242.4	278.9	991.1	968.3	22.83	43.406	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Honebein 7G-323
Project:	SEC.7-T4N-R64W	TVD Reference:	WELL @ 4862.0ft (RKB - 13')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	WELL @ 4862.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7G-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 (8-15-14)	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)	+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	90.00	0.0	27.9	27.9	27.9	0.00	N/A		
100.0	100.0	101.0	101.0	0.1	0.1	90.00	0.0	27.9	27.9	27.7	0.23	122.824		
200.0	200.0	201.0	201.0	0.3	0.3	90.00	0.0	27.9	27.9	27.2	0.68	41.213		
300.0	300.0	301.0	301.0	0.6	0.6	90.00	0.0	27.9	27.9	26.8	1.13	24.761		
400.0	400.0	401.0	401.0	0.8	0.8	90.00	0.0	27.9	27.9	26.3	1.58	17.696 CC, ES		
500.0	500.0	501.0	501.0	1.0	1.0	167.20	0.0	27.9	29.6	27.6	2.02	14.656		
600.0	599.8	600.8	600.8	1.2	1.2	169.10	0.0	27.9	34.7	32.2	2.46	14.114		
700.0	699.5	700.5	700.5	1.5	1.5	171.25	0.0	27.9	43.3	40.4	2.90	14.913		
800.0	798.7	799.7	799.7	1.7	1.7	173.14	0.0	27.9	55.4	52.0	3.35	16.532		
900.0	897.5	898.5	898.5	2.0	1.9	174.62	0.0	27.9	70.9	67.1	3.80	18.682		
920.6	917.7	918.7	918.7	2.1	2.0	174.88	0.0	27.9	74.6	70.7	3.89	19.173		
1,000.0	995.8	996.8	996.8	2.4	2.1	175.70	0.0	27.9	88.9	84.6	4.25	20.923		
1,100.0	1,094.2	1,098.6	1,098.6	2.8	2.4	176.11	0.9	26.4	105.4	100.7	4.70	22.425		
1,200.0	1,192.5	1,201.4	1,201.3	3.2	2.6	175.77	3.7	21.8	118.6	113.4	5.15	23.028		
1,300.0	1,290.9	1,305.1	1,304.5	3.5	2.8	174.86	8.4	14.0	128.5	122.9	5.61	22.891		
1,400.0	1,389.2	1,406.8	1,405.5	3.9	3.1	173.57	14.7	3.6	135.6	129.5	6.09	22.276		
1,500.0	1,487.6	1,506.6	1,504.5	4.3	3.3	172.36	21.1	-6.9	142.4	135.8	6.57	21.674		
1,600.0	1,586.0	1,606.3	1,603.5	4.7	3.6	171.26	27.5	-17.4	149.2	142.2	7.06	21.138		
1,700.0	1,684.3	1,706.0	1,702.4	5.1	3.9	170.26	33.9	-27.9	156.1	148.5	7.56	20.657		
1,800.0	1,782.7	1,805.8	1,801.4	5.5	4.2	169.34	40.2	-38.5	163.0	155.0	8.06	20.225		
1,900.0	1,881.0	1,905.5	1,900.4	5.9	4.4	168.50	46.6	-49.0	170.0	161.4	8.57	19.834		
2,000.0	1,979.4	2,005.2	1,999.3	6.4	4.7	167.72	53.0	-59.5	177.0	167.9	9.09	19.478		
2,100.0	2,077.7	2,104.9	2,098.3	6.8	5.0	167.01	59.4	-70.0	184.0	174.4	9.61	19.154		
2,200.0	2,176.1	2,204.7	2,197.3	7.2	5.3	166.34	65.8	-80.6	191.1	181.0	10.13	18.857		
2,300.0	2,274.4	2,304.4	2,296.2	7.6	5.6	165.72	72.2	-91.1	198.2	187.5	10.66	18.584		
2,400.0	2,372.8	2,404.1	2,395.2	8.0	5.9	165.15	78.5	-101.6	205.3	194.1	11.20	18.333		
2,500.0	2,471.1	2,503.8	2,494.2	8.4	6.3	164.61	84.9	-112.1	212.4	200.7	11.73	18.101		
2,600.0	2,569.5	2,603.6	2,593.1	8.8	6.6	164.11	91.3	-122.7	219.5	207.3	12.27	17.887		
2,700.0	2,667.8	2,703.3	2,692.1	9.2	6.9	163.64	97.7	-133.2	226.7	213.9	12.82	17.687		
2,800.0	2,766.2	2,803.0	2,791.0	9.6	7.2	163.20	104.1	-143.7	233.9	220.5	13.36	17.501		
2,900.0	2,864.6	2,902.8	2,890.0	10.0	7.5	162.79	110.5	-154.2	241.1	227.1	13.91	17.328		
3,000.0	2,962.9	3,002.5	2,989.0	10.5	7.8	162.40	116.8	-164.7	248.2	233.8	14.46	17.166		
3,100.0	3,061.3	3,102.2	3,087.9	10.9	8.1	162.03	123.2	-175.3	255.5	240.4	15.01	17.015		
3,200.0	3,159.6	3,201.9	3,186.9	11.3	8.4	161.68	129.6	-185.8	262.7	247.1	15.57	16.873		
3,300.0	3,258.0	3,301.7	3,285.9	11.7	8.7	161.35	136.0	-196.3	269.9	253.8	16.12	16.739		
3,400.0	3,356.3	3,401.4	3,384.8	12.1	9.1	161.04	142.4	-206.8	277.1	260.4	16.68	16.613		
3,500.0	3,454.7	3,501.1	3,483.8	12.5	9.4	160.74	148.8	-217.4	284.4	267.1	17.24	16.494		
3,600.0	3,553.0	3,600.8	3,582.8	12.9	9.7	160.46	155.1	-227.9	291.6	273.8	17.80	16.382		
3,700.0	3,651.4	3,700.6	3,681.7	13.3	10.0	160.19	161.5	-238.4	298.9	280.5	18.36	16.276		
3,800.0	3,749.7	3,800.3	3,780.7	13.7	10.3	159.94	167.9	-248.9	306.1	287.2	18.93	16.176		
3,900.0	3,848.1	3,900.0	3,879.7	14.2	10.6	159.70	174.3	-259.5	313.4	293.9	19.49	16.081		
4,000.0	3,946.4	3,999.7	3,978.6	14.6	11.0	159.46	180.7	-270.0	320.7	300.6	20.05	15.990		
4,100.0	4,044.8	4,099.5	4,077.6	15.0	11.3	159.24	187.1	-280.5	327.9	307.3	20.62	15.904		
4,200.0	4,143.2	4,199.2	4,176.5	15.4	11.6	159.03	193.4	-291.0	335.2	314.0	21.19	15.822		
4,300.0	4,241.5	4,298.9	4,275.5	15.8	11.9	158.83	199.8	-301.5	342.5	320.8	21.75	15.744		
4,400.0	4,339.9	4,398.7	4,374.5	16.2	12.2	158.63	206.2	-312.1	349.8	327.5	22.32	15.670		
4,500.0	4,438.2	4,498.4	4,473.4	16.6	12.5	158.44	212.6	-322.6	357.1	334.2	22.89	15.599		
4,600.0	4,536.6	4,598.1	4,572.4	17.0	12.9	158.26	219.0	-333.1	364.4	340.9	23.46	15.531		
4,700.0	4,634.9	4,695.5	4,669.1	17.5	13.2	158.10	225.2	-343.3	371.8	347.8	24.02	15.478		
4,800.0	4,733.3	4,785.9	4,759.1	17.9	13.4	158.16	229.8	-351.0	380.9	356.4	24.48	15.558		
4,900.0	4,831.6	4,875.8	4,848.7	18.3	13.5	158.48	233.0	-356.3	392.5	367.6	24.90	15.763		

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 7G-323
Project:	SEC.7-T4N-R64W	TVD Reference:	WELL @ 4862.0ft (RKB - 13')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	WELL @ 4862.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7G-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 (8-15-14)	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	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,930.0	4,965.1	4,937.9	18.7	13.7	159.02	234.8	-359.1	406.5	381.2	25.27	16.085	
5,100.0	5,028.3	5,056.5	5,029.3	19.1	13.8	159.78	235.1	-359.7	422.8	397.2	25.61	16.508	
5,200.0	5,126.7	5,154.9	5,127.7	19.5	14.0	160.59	235.1	-359.7	439.9	413.9	25.97	16.936	
5,300.0	5,225.0	5,253.2	5,226.0	19.9	14.2	161.34	235.1	-359.7	457.0	430.6	26.35	17.345	
5,400.0	5,323.4	5,351.6	5,324.4	20.4	14.4	162.04	235.1	-359.7	474.2	447.4	26.73	17.740	
5,500.0	5,421.7	5,449.9	5,422.7	20.8	14.5	162.69	235.1	-359.7	491.4	464.3	27.12	18.122	
5,600.0	5,520.1	5,548.3	5,521.1	21.2	14.7	163.29	235.1	-359.7	508.7	481.2	27.51	18.491	
5,700.0	5,618.5	5,646.6	5,619.5	21.6	14.9	163.86	235.1	-359.7	526.1	498.2	27.91	18.848	
5,764.9	5,682.3	5,710.5	5,683.3	21.9	15.0	164.21	235.1	-359.7	537.4	509.2	28.17	19.073	
5,800.0	5,716.8	5,745.0	5,717.8	22.0	15.1	164.41	235.1	-359.7	543.3	514.9	28.32	19.183	
5,900.0	5,815.7	5,843.9	5,816.7	22.3	15.2	164.91	235.1	-359.7	557.9	529.2	28.70	19.439	
6,000.0	5,915.0	5,943.2	5,916.0	22.5	15.4	165.27	235.1	-359.7	569.2	540.1	29.06	19.588	
6,100.0	6,014.7	6,042.8	6,015.7	22.7	15.6	165.52	235.1	-359.7	577.1	547.7	29.39	19.637	
6,200.0	6,114.5	6,142.7	6,115.5	22.8	15.8	165.66	235.1	-359.7	581.7	552.0	29.70	19.588	
6,285.5	6,200.0	6,228.2	6,201.0	23.0	16.0	89.28	235.1	-359.7	582.9	553.0	29.94	19.469	
6,300.0	6,214.5	6,242.8	6,215.6	23.0	16.0	89.29	235.1	-359.7	582.9	552.9	29.99	19.435	
6,391.8	6,306.3	6,334.9	6,307.4	23.1	16.1	89.91	228.7	-359.7	582.9	552.7	30.22	19.289	
6,399.2	6,313.7	6,342.2	6,314.7	23.1	16.1	-90.00	227.8	-359.7	582.9	552.7	30.23	19.282	
6,400.0	6,314.5	6,343.0	6,315.5	23.1	16.1	-89.99	227.6	-359.7	582.9	552.7	30.23	19.281	
6,450.0	6,364.5	6,392.4	6,364.1	23.1	16.1	-89.36	219.2	-359.7	582.9	552.6	30.29	19.247	
6,500.0	6,414.2	6,441.4	6,411.7	23.2	16.2	-88.74	207.7	-359.7	583.0	552.7	30.32	19.230	
6,550.0	6,463.4	6,490.0	6,458.1	23.2	16.2	-88.13	193.4	-359.7	583.2	552.9	30.33	19.226	
6,600.0	6,512.0	6,538.2	6,503.2	23.2	16.2	-87.53	176.2	-359.7	583.4	553.1	30.34	19.230	
6,650.0	6,559.6	6,586.0	6,546.8	23.3	16.2	-86.94	156.4	-359.7	583.7	553.4	30.34	19.237	
6,700.0	6,606.2	6,633.5	6,588.7	23.3	16.2	-86.36	134.1	-359.7	584.1	553.7	30.35	19.243	
6,750.0	6,651.5	6,680.7	6,628.9	23.3	16.3	-85.81	109.4	-359.7	584.5	554.1	30.38	19.242	
6,800.0	6,695.4	6,727.6	6,667.3	23.3	16.3	-85.27	82.4	-359.7	584.9	554.5	30.42	19.229	
6,850.0	6,737.5	6,774.2	6,703.7	23.3	16.3	-84.75	53.4	-359.7	585.4	554.9	30.49	19.201	
6,900.0	6,777.9	6,820.5	6,738.0	23.3	16.3	-84.25	22.3	-359.7	585.9	555.3	30.59	19.152	
6,950.0	6,816.2	6,866.6	6,770.3	23.3	16.3	-83.78	-10.5	-359.7	586.4	555.6	30.74	19.078	
7,000.0	6,852.3	6,912.4	6,800.3	23.4	16.3	-83.33	-45.1	-359.7	586.9	556.0	30.92	18.980	
7,050.0	6,886.1	6,958.0	6,828.2	23.4	16.4	-82.92	-81.3	-359.7	587.4	556.2	31.16	18.850	
7,100.0	6,917.3	7,003.4	6,853.6	23.4	16.5	-82.53	-118.8	-359.7	587.9	556.5	31.46	18.690	
7,150.0	6,946.0	7,050.0	6,877.4	23.5	16.6	-82.16	-158.9	-359.7	588.4	556.6	31.82	18.494	
7,200.0	6,972.0	7,093.7	6,897.5	23.6	16.7	-81.84	-197.6	-359.7	588.9	556.6	32.23	18.274	
7,250.0	6,995.1	7,138.6	6,915.7	23.7	16.9	-81.54	-238.7	-359.7	589.3	556.6	32.70	18.020	
7,300.0	7,015.2	7,183.3	6,931.5	23.8	17.2	-81.28	-280.5	-359.7	589.7	556.5	33.24	17.740	
7,350.0	7,032.3	7,228.0	6,944.8	23.9	17.5	-81.05	-323.1	-359.7	590.1	556.2	33.84	17.436	
7,400.0	7,046.3	7,272.5	6,955.5	24.1	17.8	-80.85	-366.4	-359.7	590.4	555.9	34.50	17.111	
7,450.0	7,057.1	7,317.0	6,963.7	24.3	18.2	-80.69	-410.1	-359.7	590.7	555.4	35.22	16.769	
7,500.0	7,064.7	7,361.4	6,969.3	24.6	18.6	-80.57	-454.1	-359.7	590.9	554.9	36.00	16.414	
7,550.0	7,069.1	7,405.7	6,972.4	24.9	19.1	-80.48	-498.3	-359.7	591.0	554.2	36.82	16.051	
7,598.2	7,070.2	7,449.7	6,973.0	25.2	19.5	-80.43	-542.3	-359.7	591.1	553.4	37.68	15.686	
7,600.0	7,070.2	7,451.6	6,973.0	25.2	19.6	-80.44	-544.2	-359.7	591.1	553.4	37.72	15.669	
7,700.0	7,069.4	7,551.6	6,972.7	26.0	20.7	-80.49	-644.2	-359.7	591.0	551.0	40.02	14.767	
7,800.0	7,068.5	7,651.6	6,972.5	26.9	22.0	-80.55	-744.2	-359.7	590.9	548.4	42.52	13.895	
7,900.0	7,067.7	7,751.5	6,972.3	28.0	23.4	-80.61	-844.2	-359.7	590.8	545.6	45.21	13.068	
8,000.0	7,066.8	7,851.5	6,972.1	29.1	24.8	-80.67	-944.2	-359.7	590.7	542.6	48.05	12.294	
8,100.0	7,066.0	7,951.5	6,971.8	30.4	26.3	-80.73	-1,044.2	-359.7	590.6	539.6	51.01	11.577	
8,200.0	7,065.2	8,051.5	6,971.6	31.7	27.8	-80.79	-1,144.1	-359.7	590.5	536.4	54.08	10.918	
8,300.0	7,064.3	8,151.5	6,971.4	33.1	29.4	-80.84	-1,244.1	-359.7	590.4	533.2	57.24	10.314	

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 7G-323
Project:	SEC.7-T4N-R64W	TVD Reference:	WELL @ 4862.0ft (RKB - 13')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	WELL @ 4862.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7G-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 (8-15-14)	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	
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	7,063.5	8,251.5	6,971.2	34.5	31.0	-80.90	-1,344.1	-359.7	590.3	529.8	60.48	9.760	
8,500.0	7,062.7	8,351.5	6,970.9	36.0	32.7	-80.96	-1,444.1	-359.7	590.2	526.4	63.78	9.254	
8,600.0	7,061.8	8,451.5	6,970.7	37.5	34.4	-81.02	-1,544.1	-359.7	590.1	523.0	67.14	8.790	
8,700.0	7,061.0	8,551.5	6,970.5	39.1	36.1	-81.08	-1,644.1	-359.7	590.0	519.5	70.54	8.364	
8,800.0	7,060.1	8,651.5	6,970.3	40.7	37.8	-81.14	-1,744.1	-359.7	589.9	515.9	73.98	7.974	
8,900.0	7,059.3	8,751.5	6,970.0	42.3	39.6	-81.20	-1,844.1	-359.7	589.8	512.4	77.46	7.614	
9,000.0	7,058.5	8,851.5	6,969.8	44.0	41.3	-81.25	-1,944.1	-359.7	589.7	508.8	80.97	7.283	
9,100.0	7,057.6	8,951.5	6,969.6	45.6	43.1	-81.31	-2,044.1	-359.7	589.6	505.1	84.51	6.977	
9,200.0	7,056.8	9,051.5	6,969.3	47.3	44.9	-81.37	-2,144.1	-359.7	589.5	501.5	88.07	6.694	
9,300.0	7,056.0	9,151.5	6,969.1	49.0	46.7	-81.43	-2,244.1	-359.7	589.4	497.8	91.65	6.431	
9,400.0	7,055.1	9,251.5	6,968.9	50.8	48.5	-81.49	-2,344.1	-359.7	589.4	494.1	95.25	6.187	
9,500.0	7,054.3	9,351.5	6,968.7	52.5	50.3	-81.55	-2,444.1	-359.7	589.3	490.4	98.87	5.960	
9,600.0	7,053.4	9,451.5	6,968.4	54.2	52.1	-81.61	-2,544.1	-359.7	589.2	486.7	102.51	5.748	
9,700.0	7,052.6	9,551.5	6,968.2	56.0	53.9	-81.67	-2,644.1	-359.7	589.1	482.9	106.16	5.549	
9,800.0	7,051.8	9,651.5	6,968.0	57.8	55.8	-81.72	-2,744.1	-359.7	589.0	479.2	109.82	5.363	
9,900.0	7,050.9	9,751.5	6,967.8	59.6	57.6	-81.78	-2,844.1	-359.7	588.9	475.4	113.49	5.189	
10,000.0	7,050.1	9,851.5	6,967.5	61.3	59.5	-81.84	-2,944.1	-359.7	588.8	471.6	117.17	5.025	
10,100.0	7,049.2	9,951.5	6,967.3	63.1	61.3	-81.90	-3,044.1	-359.7	588.7	467.9	120.87	4.871	
10,200.0	7,048.4	10,051.5	6,967.1	64.9	63.2	-81.96	-3,144.1	-359.7	588.6	464.1	124.57	4.726	
10,300.0	7,047.6	10,151.5	6,966.8	66.8	65.0	-82.02	-3,244.1	-359.7	588.6	460.3	128.28	4.588	
10,400.0	7,046.7	10,251.5	6,966.6	68.6	66.9	-82.08	-3,344.1	-359.7	588.5	456.5	131.99	4.458	
10,500.0	7,045.9	10,351.5	6,966.4	70.4	68.8	-82.14	-3,444.1	-359.7	588.4	452.7	135.72	4.335	
10,600.0	7,045.1	10,451.5	6,966.2	72.2	70.6	-82.20	-3,544.1	-359.7	588.3	448.9	139.45	4.219	
10,700.0	7,044.2	10,551.5	6,965.9	74.1	72.5	-82.25	-3,644.1	-359.8	588.2	445.0	143.19	4.108	
10,800.0	7,043.4	10,651.5	6,965.7	75.9	74.4	-82.31	-3,744.1	-359.8	588.1	441.2	146.93	4.003	
10,900.0	7,042.5	10,751.5	6,965.5	77.7	76.2	-82.37	-3,844.1	-359.8	588.1	437.4	150.67	3.903	
11,000.0	7,041.7	10,851.5	6,965.3	79.6	78.1	-82.43	-3,944.1	-359.8	588.0	433.6	154.43	3.807	
11,100.0	7,040.9	10,951.5	6,965.0	81.4	80.0	-82.49	-4,044.1	-359.8	587.9	429.7	158.18	3.717	
11,200.0	7,040.0	11,051.5	6,964.8	83.3	81.9	-82.55	-4,144.1	-359.8	587.8	425.9	161.94	3.630	
11,300.0	7,039.2	11,151.5	6,964.6	85.1	83.8	-82.61	-4,244.1	-359.8	587.7	422.0	165.71	3.547	
11,400.0	7,038.4	11,251.5	6,964.4	87.0	85.6	-82.67	-4,344.1	-359.8	587.7	418.2	169.48	3.467	
11,500.0	7,037.5	11,351.5	6,964.1	88.8	87.5	-82.73	-4,444.1	-359.8	587.6	414.3	173.25	3.391	
11,546.1	7,037.1	11,397.6	6,964.0	89.7	88.4	-82.75	-4,490.2	-359.8	587.5	412.6	174.99	3.358	
11,562.2	7,037.0	11,406.6	6,964.0	90.0	88.6	-82.76	-4,499.2	-359.8	587.6	412.1	175.46	3.349 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Honebein 7G-323
Project:	SEC.7-T4N-R64W	TVD Reference:	WELL @ 4862.0ft (RKB - 13')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	WELL @ 4862.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7G-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 (8-15-14)	Offset TVD Reference:	Offset Datum

Offset Design Honebein 4N64W7K Pad Sec.7-T4N-R64W - Honebein 7K-323 - 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	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	4.0	4.0	0.0	0.0	90.00	90.00	0.0	119.9	119.9	119.9	0.00	N/A	
100.0	100.0	104.0	104.0	0.1	0.1	90.00	90.00	0.0	119.9	119.9	119.7	0.23	512.908	
200.0	200.0	204.0	204.0	0.3	0.3	90.00	90.00	0.0	119.9	119.9	119.2	0.68	175.468	
300.0	300.0	304.0	304.0	0.6	0.6	90.00	90.00	0.0	119.9	119.9	118.8	1.13	105.838	
400.0	400.0	404.0	404.0	0.8	0.8	90.00	90.00	0.0	119.9	119.9	118.3	1.58	75.770 CC, ES	
500.0	500.0	504.0	504.0	1.0	1.0	166.60	166.60	0.0	119.9	121.6	119.6	2.03	60.041	
600.0	599.8	603.8	603.8	1.2	1.2	167.13	167.13	0.0	119.9	126.7	124.2	2.47	51.385	
700.0	699.5	703.5	703.5	1.5	1.5	167.92	167.92	0.0	119.9	135.2	132.3	2.91	46.462	
800.0	798.7	802.7	802.7	1.7	1.7	168.86	168.86	0.0	119.9	147.1	143.8	3.36	43.836	
900.0	897.5	901.5	901.5	2.0	1.9	169.87	169.87	0.0	119.9	162.5	158.7	3.81	42.712	
920.6	917.7	921.7	921.7	2.1	2.0	170.08	170.08	0.0	119.9	166.1	162.2	3.90	42.622	
1,000.0	995.8	999.8	999.8	2.4	2.1	170.87	170.87	0.0	119.9	180.3	176.0	4.26	42.348 SF	
1,100.0	1,094.2	1,092.6	1,092.5	2.8	2.3	171.44	171.44	0.6	121.3	199.5	194.8	4.70	42.457	
1,200.0	1,192.5	1,184.2	1,184.1	3.2	2.5	171.52	171.52	2.4	125.3	221.6	216.4	5.14	43.068	
1,300.0	1,290.9	1,274.7	1,274.2	3.5	2.7	171.26	171.26	5.3	131.9	246.3	240.7	5.59	44.042	
1,400.0	1,389.2	1,363.7	1,362.7	3.9	2.9	170.75	170.75	9.3	141.0	273.7	267.6	6.04	45.282	
1,500.0	1,487.6	1,457.8	1,456.0	4.3	3.2	170.12	170.12	14.3	152.4	302.9	296.4	6.51	46.538	
1,600.0	1,586.0	1,553.4	1,550.7	4.7	3.4	169.58	169.58	19.4	164.0	332.1	325.2	6.97	47.637	
1,700.0	1,684.3	1,648.9	1,645.4	5.1	3.7	169.14	169.14	24.6	175.6	361.4	354.0	7.44	48.567	
1,800.0	1,782.7	1,744.5	1,740.2	5.5	4.0	168.76	168.76	29.7	187.2	390.8	382.8	7.92	49.362	
1,900.0	1,881.0	1,840.1	1,834.9	5.9	4.3	168.43	168.43	34.8	198.8	420.1	411.7	8.40	50.038	
2,000.0	1,979.4	1,935.7	1,929.6	6.4	4.6	168.15	168.15	39.9	210.4	449.4	440.6	8.88	50.633	
2,100.0	2,077.7	2,031.2	2,024.4	6.8	4.9	167.90	167.90	45.0	222.0	478.8	469.4	9.36	51.152	
2,200.0	2,176.1	2,126.8	2,119.1	7.2	5.1	167.68	167.68	50.2	233.7	508.1	498.3	9.85	51.609	
2,300.0	2,274.4	2,222.4	2,213.8	7.6	5.4	167.48	167.48	55.3	245.3	537.5	527.2	10.33	52.014	
2,400.0	2,372.8	2,318.0	2,308.5	8.0	5.7	167.31	167.31	60.4	256.9	566.9	556.1	10.82	52.375	
2,500.0	2,471.1	2,413.5	2,403.3	8.4	6.0	167.15	167.15	65.5	268.5	596.3	584.9	11.31	52.699	
2,600.0	2,569.5	2,509.1	2,498.0	8.8	6.3	167.01	167.01	70.6	280.1	625.6	613.8	11.81	52.990	
2,700.0	2,667.8	2,604.7	2,592.7	9.2	6.7	166.88	166.88	75.8	291.7	655.0	642.7	12.30	53.253	
2,800.0	2,766.2	2,700.3	2,687.5	9.6	7.0	166.76	166.76	80.9	303.3	684.4	671.6	12.79	53.491	
2,900.0	2,864.6	2,795.8	2,782.2	10.0	7.3	166.65	166.65	86.0	315.0	713.8	700.5	13.29	53.709	
3,000.0	2,962.9	2,891.4	2,876.9	10.5	7.6	166.55	166.55	91.1	326.6	743.2	729.4	13.79	53.908	
3,100.0	3,061.3	2,987.0	2,971.7	10.9	7.9	166.45	166.45	96.2	338.2	772.6	758.3	14.28	54.090	
3,200.0	3,159.6	3,082.6	3,066.4	11.3	8.2	166.37	166.37	101.4	349.8	802.0	787.2	14.78	54.258	
3,300.0	3,258.0	3,178.1	3,161.1	11.7	8.5	166.29	166.29	106.5	361.4	831.4	816.1	15.28	54.413	
3,400.0	3,356.3	3,273.7	3,255.8	12.1	8.8	166.21	166.21	111.6	373.0	860.8	845.0	15.78	54.556	
3,500.0	3,454.7	3,369.3	3,350.6	12.5	9.1	166.14	166.14	116.7	384.6	890.2	873.9	16.28	54.689	
3,600.0	3,553.0	3,464.9	3,445.3	12.9	9.4	166.08	166.08	121.8	396.2	919.5	902.8	16.78	54.813	
3,700.0	3,651.4	3,560.5	3,540.0	13.3	9.8	166.01	166.01	127.0	407.9	948.9	931.7	17.28	54.928	
3,800.0	3,749.7	3,656.0	3,634.8	13.7	10.1	165.96	165.96	132.1	419.5	978.3	960.6	17.78	55.036	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Honebein 7G-323
Project:	SEC.7-T4N-R64W	TVD Reference:	WELL @ 4862.0ft (RKB - 13')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	WELL @ 4862.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7G-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 (8-15-14)	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	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	2.0	2.0	0.0	0.0	90.00	0.0	58.6	58.6	58.6	0.00	N/A	
100.0	100.0	102.0	102.0	0.1	0.1	90.00	0.0	58.6	58.6	58.3	0.23	255.401	
200.0	200.0	202.0	202.0	0.3	0.3	90.00	0.0	58.6	58.6	57.9	0.68	86.261	
300.0	300.0	302.0	302.0	0.6	0.6	90.00	0.0	58.6	58.6	57.4	1.13	51.894	
400.0	400.0	402.0	402.0	0.8	0.8	90.00	0.0	58.6	58.6	57.0	1.58	37.110 CC, ES	
500.0	500.0	502.0	502.0	1.0	1.0	166.79	0.0	58.6	60.3	58.2	2.02	29.817	
600.0	599.8	601.8	601.8	1.2	1.2	167.82	0.0	58.6	65.4	62.9	2.46	26.557	
700.0	699.5	701.5	701.5	1.5	1.5	169.21	0.0	58.6	73.9	71.0	2.91	25.435	
800.0	798.7	800.7	800.7	1.7	1.7	170.69	0.0	58.6	85.9	82.6	3.35	25.628	
900.0	897.5	899.5	899.5	2.0	1.9	172.08	0.0	58.6	101.4	97.6	3.80	26.681	
920.6	917.7	919.7	919.7	2.1	2.0	172.34	0.0	58.6	105.0	101.1	3.89	26.977	
1,000.0	995.8	997.8	997.8	2.4	2.1	173.26	0.0	58.6	119.2	115.0	4.25	28.051	
1,100.0	1,094.2	1,096.2	1,096.2	2.8	2.4	174.15	0.0	58.6	137.2	132.5	4.71	29.149	
1,200.0	1,192.5	1,194.5	1,194.5	3.2	2.6	174.83	0.0	58.6	155.2	150.0	5.17	30.037	
1,300.0	1,290.9	1,292.9	1,292.9	3.5	2.8	175.37	0.0	58.6	173.2	167.6	5.63	30.767	
1,400.0	1,389.2	1,391.2	1,391.2	3.9	3.0	175.80	0.0	58.6	191.2	185.1	6.09	31.377	
1,500.0	1,487.6	1,489.6	1,489.6	4.3	3.2	176.17	0.0	58.6	209.2	202.7	6.56	31.893	
1,600.0	1,586.0	1,588.0	1,588.0	4.7	3.5	176.47	0.0	58.6	227.3	220.2	7.03	32.336	
1,700.0	1,684.3	1,686.3	1,686.3	5.1	3.7	176.73	0.0	58.6	245.3	237.8	7.50	32.719	
1,800.0	1,782.7	1,784.7	1,784.7	5.5	3.9	176.96	0.0	58.6	263.4	255.4	7.97	33.054	
1,900.0	1,881.0	1,883.0	1,883.0	5.9	4.1	177.15	0.0	58.6	281.4	273.0	8.44	33.349	
2,000.0	1,979.4	1,981.4	1,981.4	6.4	4.3	177.32	0.0	58.6	299.5	290.5	8.91	33.610	
2,100.0	2,077.7	2,082.8	2,082.8	6.8	4.6	177.27	1.2	58.4	317.1	307.7	9.39	33.784	
2,200.0	2,176.1	2,185.2	2,185.1	7.2	4.8	176.64	5.9	57.7	333.7	323.8	9.87	33.820	
2,300.0	2,274.4	2,286.3	2,285.8	7.6	5.0	175.55	13.9	56.4	349.2	338.8	10.35	33.750	
2,400.0	2,372.8	2,384.8	2,384.0	8.0	5.3	174.46	22.4	55.1	364.6	353.8	10.83	33.665	
2,500.0	2,471.1	2,483.4	2,482.2	8.4	5.5	173.46	31.0	53.8	380.2	368.8	11.32	33.580	
2,600.0	2,569.5	2,582.0	2,580.4	8.8	5.7	172.54	39.5	52.5	395.8	384.0	11.82	33.494	
2,700.0	2,667.8	2,680.6	2,678.6	9.2	5.9	171.69	48.0	51.3	411.6	399.2	12.32	33.409	
2,800.0	2,766.2	2,779.1	2,776.8	9.6	6.2	170.90	56.6	50.0	427.4	414.6	12.83	33.324	
2,900.0	2,864.6	2,877.7	2,875.0	10.0	6.4	170.17	65.1	48.7	443.3	430.0	13.34	33.240	
3,000.0	2,962.9	2,976.3	2,973.2	10.5	6.7	169.49	73.6	47.4	459.3	445.4	13.85	33.158	
3,100.0	3,061.3	3,074.9	3,071.4	10.9	6.9	168.86	82.1	46.1	475.3	460.9	14.37	33.078	
3,200.0	3,159.6	3,173.4	3,169.6	11.3	7.2	168.26	90.7	44.8	491.4	476.5	14.89	32.999	
3,300.0	3,258.0	3,272.0	3,267.8	11.7	7.4	167.71	99.2	43.5	507.5	492.1	15.41	32.923	
3,400.0	3,356.3	3,370.6	3,366.0	12.1	7.7	167.19	107.7	42.2	523.7	507.7	15.94	32.849	
3,500.0	3,454.7	3,469.2	3,464.2	12.5	7.9	166.70	116.2	40.9	539.9	523.4	16.47	32.778	
3,600.0	3,553.0	3,567.7	3,562.4	12.9	8.2	166.23	124.8	39.6	556.1	539.1	17.00	32.708	
3,700.0	3,651.4	3,666.3	3,660.6	13.3	8.4	165.80	133.3	38.3	572.4	554.9	17.54	32.641	
3,800.0	3,749.7	3,764.9	3,758.8	13.7	8.7	165.39	141.8	37.0	588.7	570.6	18.07	32.577	
3,900.0	3,848.1	3,863.5	3,857.0	14.2	8.9	165.00	150.4	35.7	605.1	586.4	18.61	32.514	
4,000.0	3,946.4	3,962.0	3,955.2	14.6	9.2	164.63	158.9	34.4	621.4	602.3	19.15	32.454	
4,100.0	4,044.8	4,060.6	4,053.4	15.0	9.4	164.28	167.4	33.1	637.8	618.1	19.69	32.395	
4,200.0	4,143.2	4,159.2	4,151.6	15.4	9.7	163.94	175.9	31.8	654.2	634.0	20.23	32.339	
4,300.0	4,241.5	4,257.8	4,249.8	15.8	10.0	163.63	184.5	30.5	670.6	649.9	20.77	32.285	
4,400.0	4,339.9	4,356.3	4,347.9	16.2	10.2	163.33	193.0	29.2	687.1	665.8	21.32	32.232	
4,500.0	4,438.2	4,454.9	4,446.1	16.6	10.5	163.04	201.5	27.9	703.6	681.7	21.86	32.182	
4,600.0	4,536.6	4,553.5	4,544.3	17.0	10.7	162.77	210.0	26.6	720.1	697.6	22.41	32.133	
4,700.0	4,634.9	4,652.1	4,642.5	17.5	11.0	162.50	218.6	25.3	736.6	713.6	22.96	32.086	
4,800.0	4,733.3	4,750.6	4,740.7	17.9	11.3	162.25	227.1	24.0	753.1	729.6	23.50	32.041	
4,900.0	4,831.6	4,847.3	4,837.2	18.3	11.5	162.12	234.1	23.0	769.7	745.7	23.99	32.080	

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 7G-323
Project:	SEC.7-T4N-R64W	TVD Reference:	WELL @ 4862.0ft (RKB - 13')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	WELL @ 4862.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7G-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 (8-15-14)	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			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)			
5,000.0	4,930.0	4,943.7	4,933.5	18.7	11.7	162.23	237.9	22.4	786.6	762.2	24.43	32.193		
5,100.0	5,028.3	5,040.6	5,030.3	19.1	11.8	162.56	238.7	22.3	803.8	778.9	24.85	32.343		
5,200.0	5,126.7	5,138.9	5,128.7	19.5	12.0	162.94	238.7	22.3	821.1	795.8	25.29	32.472		
5,300.0	5,225.0	5,237.3	5,227.0	19.9	12.2	163.30	238.7	22.3	838.4	812.7	25.73	32.581		
5,400.0	5,323.4	5,335.7	5,325.4	20.4	12.4	163.65	238.7	22.3	855.7	829.6	26.18	32.685		
5,500.0	5,421.7	5,434.0	5,423.7	20.8	12.6	163.98	238.7	22.3	873.1	846.5	26.63	32.786		
5,600.0	5,520.1	5,532.4	5,522.1	21.2	12.8	164.30	238.7	22.3	890.5	863.4	27.08	32.884		
5,700.0	5,618.5	5,630.7	5,620.5	21.6	13.0	164.61	238.7	22.3	908.0	880.4	27.53	32.978		
5,764.9	5,682.3	5,694.6	5,684.3	21.9	13.2	164.80	238.7	22.3	919.3	891.5	27.83	33.038		
5,800.0	5,716.8	5,729.1	5,718.8	22.0	13.3	164.94	238.7	22.3	925.2	897.2	28.00	33.048		
5,900.0	5,815.7	5,828.0	5,817.7	22.3	13.5	165.25	238.7	22.3	939.8	911.4	28.44	33.049		
6,000.0	5,915.0	5,927.3	5,917.0	22.5	13.7	165.49	238.7	22.3	951.2	922.3	28.85	32.969		
6,100.0	6,014.7	6,026.9	6,016.7	22.7	13.9	165.65	238.7	22.3	959.1	929.9	29.23	32.814		
6,200.0	6,114.5	6,126.8	6,116.5	22.8	14.1	165.74	238.7	22.3	963.7	934.1	29.57	32.586		
6,285.5	6,200.0	6,212.3	6,202.0	23.0	14.3	89.35	238.7	22.3	964.9	935.1	29.85	32.329		
6,300.0	6,214.5	6,226.8	6,216.5	23.0	14.3	89.35	238.7	22.3	964.9	935.0	29.90	32.269		
6,391.8	6,306.3	6,318.6	6,308.3	23.1	14.5	89.35	238.7	22.3	964.9	934.7	30.26	31.886		
6,400.0	6,314.5	6,326.8	6,316.5	23.1	14.5	-90.65	238.7	22.3	964.9	934.6	30.29	31.853		
6,450.0	6,364.5	6,377.2	6,367.0	23.1	14.6	-90.74	238.1	22.3	964.9	934.5	30.46	31.676		
6,500.0	6,414.2	6,428.1	6,417.7	23.2	14.7	-90.85	234.3	22.3	965.0	934.4	30.60	31.538		
6,550.0	6,463.4	6,479.1	6,468.2	23.2	14.7	-90.95	227.2	22.3	965.0	934.3	30.70	31.432		
6,600.0	6,512.0	6,530.2	6,518.1	23.2	14.8	-91.04	216.6	22.3	965.0	934.2	30.78	31.352		
6,650.0	6,559.6	6,581.4	6,567.4	23.3	14.8	-91.13	202.8	22.3	965.1	934.2	30.84	31.295		
6,700.0	6,606.2	6,632.7	6,615.8	23.3	14.8	-91.22	185.6	22.3	965.1	934.2	30.88	31.253		
6,750.0	6,651.5	6,684.1	6,662.9	23.3	14.8	-91.30	165.2	22.3	965.1	934.2	30.92	31.218		
6,800.0	6,695.4	6,735.6	6,708.7	23.3	14.8	-91.38	141.6	22.3	965.1	934.2	30.95	31.182		
6,850.0	6,737.5	6,787.2	6,752.8	23.3	14.9	-91.45	114.9	22.3	965.2	934.2	31.00	31.134		
6,900.0	6,777.9	6,838.9	6,795.2	23.3	14.9	-91.51	85.2	22.3	965.2	934.1	31.07	31.064		
6,950.0	6,816.2	6,890.6	6,835.4	23.3	15.0	-91.57	52.7	22.3	965.2	934.0	31.18	30.960		
7,000.0	6,852.3	6,942.4	6,873.5	23.4	15.0	-91.62	17.6	22.3	965.2	933.9	31.33	30.813		
7,050.0	6,886.1	6,994.3	6,909.0	23.4	15.1	-91.66	-20.2	22.3	965.3	933.7	31.53	30.612		
7,100.0	6,917.3	7,046.2	6,942.0	23.4	15.2	-91.70	-60.2	22.3	965.3	933.5	31.80	30.351		
7,150.0	6,946.0	7,098.2	6,972.2	23.5	15.4	-91.72	-102.5	22.3	965.3	933.1	32.15	30.022		
7,200.0	6,972.0	7,150.2	6,999.5	23.6	15.6	-91.74	-146.8	22.3	965.3	932.7	32.59	29.624		
7,250.0	6,995.1	7,202.2	7,023.7	23.7	15.9	-91.76	-192.8	22.3	965.3	932.2	33.11	29.157		
7,300.0	7,015.2	7,254.2	7,044.7	23.8	16.2	-91.76	-240.3	22.3	965.3	931.6	33.72	28.626		
7,350.0	7,032.3	7,306.2	7,062.5	23.9	16.6	-91.76	-289.2	22.3	965.3	930.9	34.43	28.038		
7,400.0	7,046.3	7,358.2	7,076.8	24.1	17.0	-91.75	-339.2	22.3	965.3	930.1	35.23	27.403		
7,450.0	7,057.1	7,410.2	7,087.8	24.3	17.5	-91.73	-390.0	22.3	965.3	929.2	36.11	26.732		
7,500.0	7,064.7	7,462.2	7,095.2	24.6	18.0	-91.70	-441.4	22.3	965.3	928.2	37.08	26.036		
7,550.0	7,069.1	7,514.1	7,099.2	24.9	18.5	-91.67	-493.2	22.3	965.3	927.2	38.11	25.327		
7,587.2	7,070.2	7,552.4	7,099.9	25.1	18.9	-91.64	-531.5	22.3	965.3	926.3	38.93	24.797		
7,598.2	7,070.2	7,563.3	7,099.9	25.2	19.1	-91.65	-542.4	22.3	965.3	926.1	39.17	24.644		
7,600.0	7,070.2	7,565.1	7,100.0	25.2	19.1	-91.65	-544.2	22.3	965.3	926.1	39.21	24.619		
7,700.0	7,069.4	7,665.1	7,100.5	26.0	20.3	-91.73	-644.2	22.3	965.3	923.8	41.54	23.237		
7,800.0	7,068.5	7,765.1	7,101.1	26.9	21.6	-91.81	-744.2	22.3	965.4	921.3	44.08	21.901		
7,900.0	7,067.7	7,865.1	7,101.6	28.0	23.0	-91.90	-844.2	22.3	965.4	918.6	46.79	20.632		
8,000.0	7,066.8	7,965.1	7,102.2	29.1	24.4	-91.98	-944.2	22.3	965.4	915.8	49.65	19.443		
8,100.0	7,066.0	8,065.1	7,102.7	30.4	25.9	-92.06	-1,044.2	22.3	965.5	912.9	52.64	18.341		
8,200.0	7,065.2	8,165.1	7,103.3	31.7	27.5	-92.14	-1,144.1	22.3	965.6	909.8	55.73	17.325		
8,300.0	7,064.3	8,265.1	7,103.9	33.1	29.1	-92.23	-1,244.1	22.3	965.6	906.7	58.91	16.391		

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 7G-323
Project:	SEC.7-T4N-R64W	TVD Reference:	WELL @ 4862.0ft (RKB - 13')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	WELL @ 4862.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7G-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 (8-15-14)	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			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)		
8,400.0	7,063.5	8,365.0	7,104.4	34.5	30.7	-92.31	-1,344.1	22.3	965.7	903.5	62.16	15.534	
8,500.0	7,062.7	8,465.0	7,105.0	36.0	32.4	-92.39	-1,444.1	22.3	965.7	900.2	65.48	14.748	
8,600.0	7,061.8	8,565.0	7,105.5	37.5	34.1	-92.48	-1,544.1	22.3	965.8	896.9	68.85	14.027	
8,700.0	7,061.0	8,665.0	7,106.1	39.1	35.8	-92.56	-1,644.1	22.3	965.8	893.6	72.27	13.365	
8,800.0	7,060.1	8,765.0	7,106.7	40.7	37.6	-92.64	-1,744.1	22.3	965.9	890.2	75.72	12.756	
8,900.0	7,059.3	8,865.0	7,107.2	42.3	39.3	-92.72	-1,844.1	22.3	966.0	886.8	79.21	12.195	
9,000.0	7,058.5	8,965.0	7,107.8	44.0	41.1	-92.81	-1,944.1	22.3	966.0	883.3	82.73	11.677	
9,100.0	7,057.6	9,065.0	7,108.3	45.6	42.9	-92.89	-2,044.0	22.3	966.1	879.8	86.28	11.198	
9,200.0	7,056.8	9,165.0	7,108.9	47.3	44.7	-92.97	-2,144.0	22.3	966.2	876.3	89.85	10.753	
9,300.0	7,056.0	9,265.0	7,109.4	49.0	46.5	-93.05	-2,244.0	22.3	966.3	872.8	93.44	10.341	
9,400.0	7,055.1	9,365.0	7,110.0	50.8	48.3	-93.14	-2,344.0	22.3	966.3	869.3	97.05	9.957	
9,500.0	7,054.3	9,464.9	7,110.6	52.5	50.1	-93.22	-2,444.0	22.3	966.4	865.7	100.67	9.600	
9,600.0	7,053.4	9,564.9	7,111.1	54.2	52.0	-93.30	-2,544.0	22.3	966.5	862.2	104.31	9.266	
9,700.0	7,052.6	9,664.9	7,111.7	56.0	53.8	-93.39	-2,644.0	22.3	966.6	858.6	107.96	8.953	
9,800.0	7,051.8	9,764.9	7,112.2	57.8	55.7	-93.47	-2,744.0	22.3	966.7	855.0	111.62	8.660	
9,900.0	7,050.9	9,864.9	7,112.8	59.6	57.5	-93.55	-2,844.0	22.3	966.7	851.5	115.29	8.385	
10,000.0	7,050.1	9,964.9	7,113.4	61.3	59.4	-93.63	-2,943.9	22.3	966.8	847.9	118.98	8.126	
10,100.0	7,049.2	10,064.9	7,113.9	63.1	61.2	-93.72	-3,043.9	22.3	966.9	844.3	122.66	7.883	
10,200.0	7,048.4	10,164.9	7,114.5	64.9	63.1	-93.80	-3,143.9	22.3	967.0	840.7	126.36	7.653	
10,300.0	7,047.6	10,264.9	7,115.0	66.8	64.9	-93.88	-3,243.9	22.3	967.1	837.0	130.07	7.436	
10,400.0	7,046.7	10,364.9	7,115.6	68.6	66.8	-93.96	-3,343.9	22.3	967.2	833.4	133.78	7.230	
10,500.0	7,045.9	10,464.8	7,116.1	70.4	68.7	-94.05	-3,443.9	22.3	967.3	829.8	137.49	7.035	
10,600.0	7,045.1	10,564.8	7,116.7	72.2	70.5	-94.13	-3,543.9	22.3	967.4	826.2	141.21	6.851	
10,700.0	7,044.2	10,664.8	7,117.3	74.1	72.4	-94.21	-3,643.9	22.3	967.5	822.6	144.93	6.675	
10,800.0	7,043.4	10,764.8	7,117.8	75.9	74.3	-94.29	-3,743.9	22.3	967.6	819.0	148.66	6.509	
10,900.0	7,042.5	10,864.8	7,118.4	77.7	76.2	-94.38	-3,843.8	22.3	967.7	815.3	152.40	6.350	
11,000.0	7,041.7	10,964.8	7,118.9	79.6	78.1	-94.46	-3,943.8	22.3	967.8	811.7	156.13	6.199	
11,100.0	7,040.9	11,064.8	7,119.5	81.4	79.9	-94.54	-4,043.8	22.3	967.9	808.1	159.87	6.055	
11,200.0	7,040.0	11,164.8	7,120.1	83.3	81.8	-94.62	-4,143.8	22.3	968.1	804.4	163.61	5.917	
11,300.0	7,039.2	11,264.8	7,120.6	85.1	83.7	-94.70	-4,243.8	22.3	968.2	800.8	167.35	5.785	
11,400.0	7,038.4	11,364.8	7,121.2	87.0	85.6	-94.79	-4,343.8	22.3	968.3	797.2	171.10	5.659	
11,500.0	7,037.5	11,464.7	7,121.7	88.8	87.5	-94.87	-4,443.8	22.3	968.4	793.6	174.85	5.539	
11,525.7	7,037.3	11,490.4	7,121.9	89.3	88.0	-94.89	-4,469.5	22.3	968.4	792.6	175.81	5.508	
11,562.2	7,037.0	11,513.7	7,122.0	90.0	88.4	-94.91	-4,492.7	22.3	968.6	791.6	176.93	5.474 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Honebein 7G-323
Project:	SEC.7-T4N-R64W	TVD Reference:	WELL @ 4862.0ft (RKB - 13')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	WELL @ 4862.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7G-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 (8-15-14)	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	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	5.0	5.0	0.0	0.0	90.00	90.00	0.0	147.8	147.8	147.8	0.01	N/A	
100.0	100.0	105.0	105.0	0.1	0.1	90.00	90.00	0.0	147.8	147.8	147.5	0.24	626.168	
200.0	200.0	205.0	205.0	0.3	0.3	90.00	90.00	0.0	147.8	147.8	147.1	0.69	215.566	
300.0	300.0	305.0	305.0	0.6	0.6	90.00	90.00	0.0	147.8	147.8	146.6	1.14	130.193	
400.0	400.0	405.0	405.0	0.8	0.8	90.00	90.00	0.0	147.8	147.8	146.2	1.58	93.259 CC, ES	
500.0	500.0	505.0	505.0	1.0	1.0	166.56	166.56	0.0	147.8	149.5	147.4	2.03	73.728	
600.0	599.8	604.8	604.8	1.2	1.2	166.99	166.99	0.0	147.8	154.6	152.1	2.47	62.637	
700.0	699.5	704.5	704.5	1.5	1.5	167.64	167.64	0.0	147.8	163.1	160.2	2.91	55.999	
800.0	798.7	803.5	803.5	1.7	1.7	168.45	168.45	0.0	147.8	175.0	171.6	3.36	52.112	
900.0	897.5	896.4	896.4	2.0	1.9	169.10	169.10	0.5	149.3	192.0	188.2	3.79	50.615	
920.6	917.7	915.3	915.3	2.1	1.9	169.20	169.20	0.7	150.0	196.2	192.4	3.88	50.548 SF	
1,000.0	995.8	987.9	987.7	2.4	2.1	169.50	169.50	1.9	153.6	214.2	210.0	4.23	50.636	
1,100.0	1,094.2	1,078.0	1,077.6	2.8	2.3	169.57	169.57	4.1	160.6	239.4	234.7	4.67	51.233	
1,200.0	1,192.5	1,166.7	1,165.7	3.2	2.5	169.41	169.41	7.2	170.1	267.4	262.3	5.12	52.237	
1,300.0	1,290.9	1,253.8	1,251.9	3.5	2.7	169.09	169.09	11.0	181.9	298.1	292.5	5.57	53.523	
1,400.0	1,389.2	1,345.9	1,342.8	3.9	3.0	168.67	168.67	15.7	196.4	330.8	324.8	6.03	54.834	
1,500.0	1,487.6	1,440.3	1,435.9	4.3	3.3	168.31	168.31	20.5	211.3	363.7	357.2	6.50	55.982	
1,600.0	1,586.0	1,534.8	1,529.0	4.7	3.6	168.01	168.01	25.4	226.2	396.5	389.6	6.97	56.930	
1,700.0	1,684.3	1,629.2	1,622.1	5.1	3.9	167.76	167.76	30.2	241.1	429.4	422.0	7.44	57.736	
1,800.0	1,782.7	1,723.6	1,715.2	5.5	4.3	167.54	167.54	35.0	256.1	462.3	454.4	7.92	58.376	
1,900.0	1,881.0	1,818.1	1,808.3	5.9	4.6	167.36	167.36	39.8	271.0	495.2	486.8	8.40	58.949	
2,000.0	1,979.4	1,912.5	1,901.5	6.4	4.9	167.19	167.19	44.6	285.9	528.0	519.2	8.88	59.437	
2,100.0	2,077.7	2,006.9	1,994.6	6.8	5.3	167.05	167.05	49.5	300.8	560.9	551.6	9.37	59.859	
2,200.0	2,176.1	2,101.3	2,087.7	7.2	5.6	166.92	166.92	54.3	315.7	593.8	583.9	9.86	60.227	
2,300.0	2,274.4	2,195.8	2,180.8	7.6	6.0	166.80	166.80	59.1	330.7	626.7	616.3	10.35	60.549	
2,400.0	2,372.8	2,290.2	2,273.9	8.0	6.3	166.70	166.70	63.9	345.6	659.6	648.7	10.84	60.834	
2,500.0	2,471.1	2,384.6	2,367.1	8.4	6.7	166.60	166.60	68.8	360.5	692.5	681.1	11.34	61.087	
2,600.0	2,569.5	2,479.1	2,460.2	8.8	7.0	166.52	166.52	73.6	375.4	725.4	713.5	11.83	61.313	
2,700.0	2,667.8	2,573.5	2,553.3	9.2	7.4	166.44	166.44	78.4	390.3	758.3	745.9	12.33	61.516	
2,800.0	2,766.2	2,667.9	2,646.4	9.6	7.7	166.37	166.37	83.2	405.3	791.2	778.4	12.82	61.699	
2,900.0	2,864.6	2,762.4	2,739.5	10.0	8.1	166.30	166.30	88.1	420.2	824.1	810.8	13.32	61.864	
3,000.0	2,962.9	2,856.8	2,832.6	10.5	8.4	166.24	166.24	92.9	435.1	857.0	843.2	13.82	62.014	
3,100.0	3,061.3	2,951.2	2,925.8	10.9	8.8	166.18	166.18	97.7	450.0	889.9	875.6	14.32	62.151	
3,200.0	3,159.6	3,045.6	3,018.9	11.3	9.2	166.13	166.13	102.5	464.9	922.8	908.0	14.82	62.276	
3,300.0	3,258.0	3,140.1	3,112.0	11.7	9.5	166.08	166.08	107.3	479.9	955.7	940.4	15.32	62.390	
3,400.0	3,356.3	3,234.5	3,205.1	12.1	9.9	166.04	166.04	112.2	494.8	988.6	972.8	15.82	62.495	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Honebein 7G-323
Project:	SEC.7-T4N-R64W	TVD Reference:	WELL @ 4862.0ft (RKB - 13')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	WELL @ 4862.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7G-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 (8-15-14)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4862.0ft (RKB - 13')

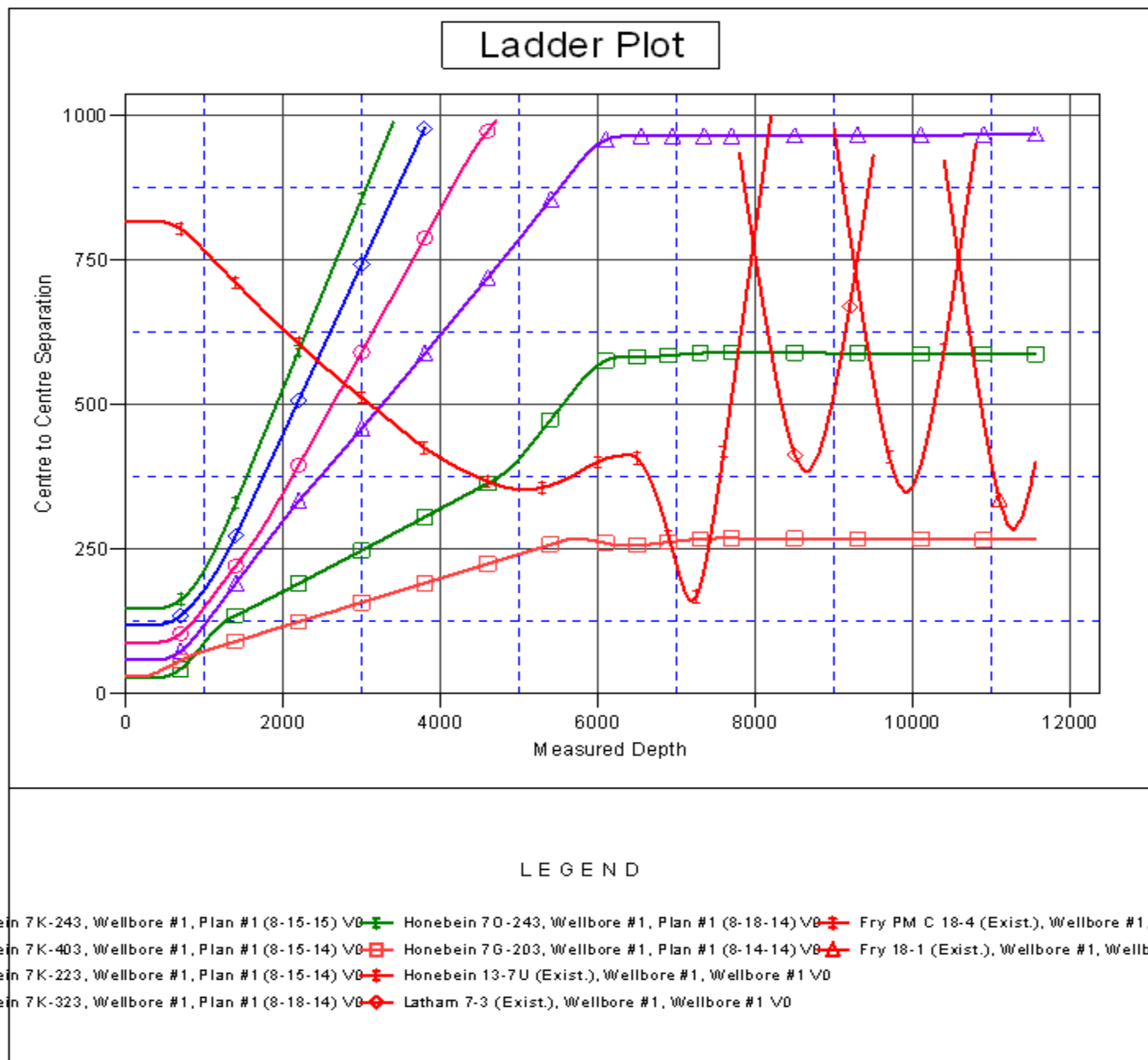
Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Honebein 7G-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 7G-323
Project:	SEC.7-T4N-R64W	TVD Reference:	WELL @ 4862.0ft (RKB - 13')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	WELL @ 4862.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7G-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 (8-15-14)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4862.0ft (RKB - 13')

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Honebein 7G-323

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.58°

