

PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Honebein 70-243**

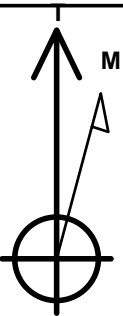
Surface Location: Honebein 4N64W7K Pad Sec.7-T4N-R64W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 4852.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1362859.06	3251768.07	40.325930	-104.596990	
RKB - 15' WELL @ 4867.0ft (RKB - 15')						

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 2352'FSL & 1410'FWL, SEC.7	1.0	0.0	0.0	Point
BHL 2141'FNL & 2193'FWL, SEC.18	6917.0	-4481.0	772.5	Point



Azimuths to True North
Magnetic North: 8.34°

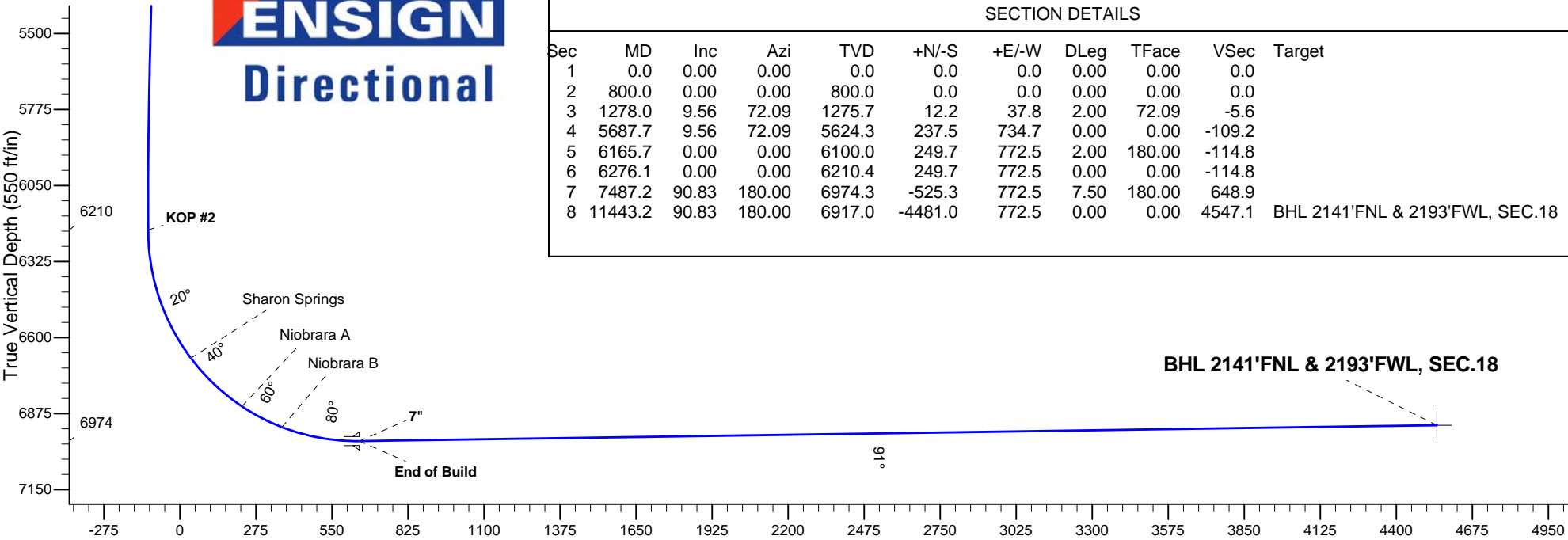
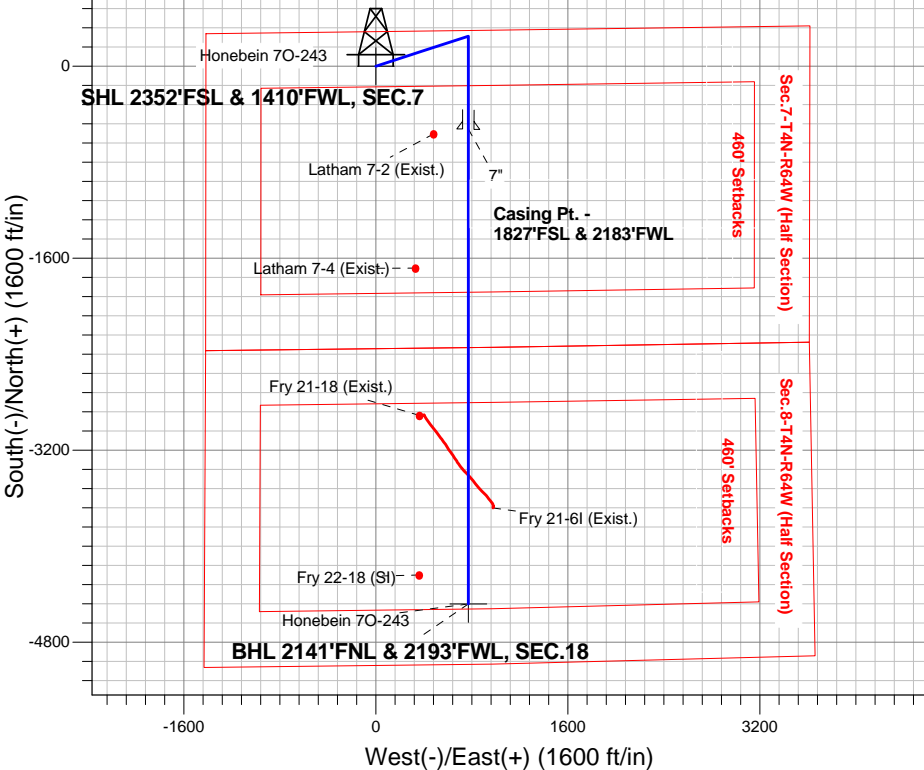
Magnetic Field
Strength: 52774.7nT
Dip Angle: 66.91°
Date: 8/20/2014
Model: IGRF2010

Honebein 4N64W7K Pad Sec.7-T4N-R64W
Honebein 70-243
Plan #1 (8-18-14)
15:04, August 21 2014

ANNOTATIONS

TVD	MD	Annotation
800.0	800.0	KOP #1
6210.4	6276.1	KOP #2
6974.3	7487.2	End of Build

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



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.0	
3	1278.0	9.56	72.09	1275.7	12.2	37.8	2.00	72.09	-5.6	
4	5687.7	9.56	72.09	5624.3	237.5	734.7	0.00	0.00	-109.2	
5	6165.7	0.00	0.00	6100.0	249.7	772.5	2.00	180.00	-114.8	
6	6276.1	0.00	0.00	6210.4	249.7	772.5	0.00	0.00	-114.8	
7	7487.2	90.83	180.00	6974.3	-525.3	772.5	7.50	180.00	648.9	
8	11443.2	90.83	180.00	6917.0	-4481.0	772.5	0.00	0.00	4547.1	BHL 2141'FNL & 2193'FWL, SEC.18

Vertical Section at 170.22° (550 ft/in)



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.7-T4N-R64W

Honebein 4N64W7K Pad Sec.7-T4N-R64W

Honebein 7O-243

Wellbore #1

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

Standard Planning Report

21 August, 2014

Database:	Landmark	Local Co-ordinate Reference:	Well Honebein 7O-243
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4867.0ft (RKB - 15')
Project:	SEC.7-T4N-R64W	MD Reference:	WELL @ 4867.0ft (RKB - 15')
Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	North Reference:	True
Well:	Honebein 7O-243	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (8-18-14)		

Project	SEC.7-T4N-R64W, Weld County, Colorado		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site						Honebein 4N64W7K Pad Sec.7-T4N-R64W					
Site Position:				Northing:		1,362,857.25 ft		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 7O-243					
Well Position	+N/-S	0.0 ft	Northing:	1,362,859.06 ft	Latitude:	40.325930
	+E/-W	178.4 ft	Easting:	3,251,768.07 ft	Longitude:	-104.596990
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,852.0 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 (8-18-14)			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	170.22

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,278.0	9.56	72.09	1,275.7	12.2	37.8	2.00	2.00	0.00	72.09	
5,687.7	9.56	72.09	5,624.3	237.5	734.7	0.00	0.00	0.00	0.00	
6,165.7	0.00	0.00	6,100.0	249.7	772.5	2.00	-2.00	0.00	180.00	
6,276.1	0.00	0.00	6,210.4	249.7	772.5	0.00	0.00	0.00	0.00	
7,487.2	90.83	180.00	6,974.3	-525.3	772.5	7.50	7.50	0.00	180.00	
11,443.2	90.83	180.00	6,917.0	-4,481.0	772.5	0.00	0.00	0.00	0.00	BHL 2141'FNL & 21

Database:	Landmark	Local Co-ordinate Reference:	Well Honebein 70-243
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4867.0ft (RKB - 15')
Project:	SEC.7-T4N-R64W	MD Reference:	WELL @ 4867.0ft (RKB - 15')
Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	North Reference:	True
Well:	Honebein 70-243	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (8-18-14)		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
1.0	0.00	0.00	1.0	0.0	0.0	0.0	0.00	0.00	0.00
SHL 2352'FSL & 1410'FWL, SEC.7									
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP #1									
900.0	2.00	72.09	900.0	0.5	1.7	-0.2	2.00	2.00	0.00
1,000.0	4.00	72.09	999.8	2.1	6.6	-1.0	2.00	2.00	0.00
1,100.0	6.00	72.09	1,099.5	4.8	14.9	-2.2	2.00	2.00	0.00
1,200.0	8.00	72.09	1,198.7	8.6	26.5	-3.9	2.00	2.00	0.00
1,278.0	9.56	72.09	1,275.7	12.2	37.8	-5.6	2.00	2.00	0.00
1,300.0	9.56	72.09	1,297.5	13.4	41.3	-6.1	0.00	0.00	0.00
1,400.0	9.56	72.09	1,396.1	18.5	57.1	-8.5	0.00	0.00	0.00
1,500.0	9.56	72.09	1,494.7	23.6	72.9	-10.8	0.00	0.00	0.00
1,600.0	9.56	72.09	1,593.3	28.7	88.7	-13.2	0.00	0.00	0.00
1,700.0	9.56	72.09	1,691.9	33.8	104.5	-15.5	0.00	0.00	0.00
1,800.0	9.56	72.09	1,790.5	38.9	120.3	-17.9	0.00	0.00	0.00
1,900.0	9.56	72.09	1,889.1	44.0	136.1	-20.2	0.00	0.00	0.00
2,000.0	9.56	72.09	1,987.8	49.1	151.9	-22.6	0.00	0.00	0.00
2,100.0	9.56	72.09	2,086.4	54.2	167.7	-24.9	0.00	0.00	0.00
2,200.0	9.56	72.09	2,185.0	59.3	183.5	-27.3	0.00	0.00	0.00
2,300.0	9.56	72.09	2,283.6	64.4	199.3	-29.6	0.00	0.00	0.00
2,400.0	9.56	72.09	2,382.2	69.5	215.1	-32.0	0.00	0.00	0.00
2,500.0	9.56	72.09	2,480.8	74.7	230.9	-34.3	0.00	0.00	0.00
2,600.0	9.56	72.09	2,579.4	79.8	246.8	-36.7	0.00	0.00	0.00
2,700.0	9.56	72.09	2,678.0	84.9	262.6	-39.0	0.00	0.00	0.00
2,800.0	9.56	72.09	2,776.7	90.0	278.4	-41.4	0.00	0.00	0.00
2,900.0	9.56	72.09	2,875.3	95.1	294.2	-43.7	0.00	0.00	0.00
3,000.0	9.56	72.09	2,973.9	100.2	310.0	-46.1	0.00	0.00	0.00
3,100.0	9.56	72.09	3,072.5	105.3	325.8	-48.4	0.00	0.00	0.00
3,200.0	9.56	72.09	3,171.1	110.4	341.6	-50.8	0.00	0.00	0.00
3,300.0	9.56	72.09	3,269.7	115.5	357.4	-53.1	0.00	0.00	0.00
3,400.0	9.56	72.09	3,368.3	120.6	373.2	-55.5	0.00	0.00	0.00
3,500.0	9.56	72.09	3,466.9	125.7	389.0	-57.8	0.00	0.00	0.00
3,600.0	9.56	72.09	3,565.5	130.8	404.8	-60.2	0.00	0.00	0.00
3,700.0	9.56	72.09	3,664.2	135.9	420.6	-62.5	0.00	0.00	0.00
3,760.7	9.56	72.09	3,724.0	139.0	430.2	-63.9	0.00	0.00	0.00
Parkman									
3,800.0	9.56	72.09	3,762.8	141.0	436.4	-64.9	0.00	0.00	0.00
3,900.0	9.56	72.09	3,861.4	146.2	452.2	-67.2	0.00	0.00	0.00
4,000.0	9.56	72.09	3,960.0	151.3	468.0	-69.6	0.00	0.00	0.00
4,100.0	9.56	72.09	4,058.6	156.4	483.8	-71.9	0.00	0.00	0.00
4,200.0	9.56	72.09	4,157.2	161.5	499.6	-74.3	0.00	0.00	0.00
4,300.0	9.56	72.09	4,255.8	166.6	515.4	-76.6	0.00	0.00	0.00
4,400.0	9.56	72.09	4,354.4	171.7	531.2	-79.0	0.00	0.00	0.00
4,496.9	9.56	72.09	4,450.0	176.6	546.5	-81.2	0.00	0.00	0.00
Sussex									

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Project:	SEC.7-T4N-R64W	MD Reference:	WELL @ 4867.0ft (RKB - 15')
Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	North Reference:	True
Well:	Honebein 70-243	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (8-18-14)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,500.0	9.56	72.09	4,453.0	176.8	547.0	-81.3	0.00	0.00	0.00
4,600.0	9.56	72.09	4,551.7	181.9	562.8	-83.7	0.00	0.00	0.00
4,700.0	9.56	72.09	4,650.3	187.0	578.6	-86.0	0.00	0.00	0.00
4,800.0	9.56	72.09	4,748.9	192.1	594.4	-88.4	0.00	0.00	0.00
4,900.0	9.56	72.09	4,847.5	197.2	610.2	-90.7	0.00	0.00	0.00
5,000.0	9.56	72.09	4,946.1	202.3	626.0	-93.1	0.00	0.00	0.00
5,100.0	9.56	72.09	5,044.7	207.4	641.8	-95.4	0.00	0.00	0.00
5,200.0	9.56	72.09	5,143.3	212.6	657.6	-97.7	0.00	0.00	0.00
5,298.0	9.56	72.09	5,240.0	217.6	673.1	-100.1	0.00	0.00	0.00
Shannon									
5,300.0	9.56	72.09	5,241.9	217.7	673.4	-100.1	0.00	0.00	0.00
5,400.0	9.56	72.09	5,340.6	222.8	689.2	-102.4	0.00	0.00	0.00
5,500.0	9.56	72.09	5,439.2	227.9	705.0	-104.8	0.00	0.00	0.00
5,600.0	9.56	72.09	5,537.8	233.0	720.8	-107.1	0.00	0.00	0.00
5,687.7	9.56	72.09	5,624.3	237.5	734.7	-109.2	0.00	0.00	0.00
5,700.0	9.31	72.09	5,636.4	238.1	736.6	-109.5	2.00	-2.00	0.00
5,800.0	7.31	72.09	5,735.3	242.5	750.3	-111.5	2.00	-2.00	0.00
5,900.0	5.31	72.09	5,834.7	245.9	760.8	-113.1	2.00	-2.00	0.00
6,000.0	3.31	72.09	5,934.4	248.2	767.9	-114.2	2.00	-2.00	0.00
6,100.0	1.31	72.09	6,034.3	249.5	771.8	-114.7	2.00	-2.00	0.00
6,165.7	0.00	0.00	6,100.0	249.7	772.5	-114.8	2.00	-2.00	0.00
6,200.0	0.00	0.00	6,134.3	249.7	772.5	-114.8	0.00	0.00	0.00
6,276.1	0.00	0.00	6,210.4	249.7	772.5	-114.8	0.00	0.00	0.00
KOP #2									
6,300.0	1.79	180.00	6,234.3	249.3	772.5	-114.5	7.50	7.50	0.00
6,400.0	9.29	180.00	6,333.8	239.7	772.5	-105.0	7.50	7.50	0.00
6,500.0	16.79	180.00	6,431.2	217.1	772.5	-82.7	7.50	7.50	0.00
6,600.0	24.29	180.00	6,524.7	182.1	772.5	-48.2	7.50	7.50	0.00
6,700.0	31.79	180.00	6,612.9	135.1	772.5	-1.9	7.50	7.50	0.00
6,774.2	37.36	180.00	6,674.0	93.0	772.5	39.6	7.50	7.50	0.00
Sharon Springs									
6,800.0	39.29	180.00	6,694.2	77.0	772.5	55.4	7.50	7.50	0.00
6,900.0	46.79	180.00	6,767.3	8.8	772.5	122.6	7.50	7.50	0.00
7,000.0	54.29	180.00	6,830.8	-68.4	772.5	198.6	7.50	7.50	0.00
7,032.2	56.71	180.00	6,849.0	-94.9	772.5	224.8	7.50	7.50	0.00
Niobrara A									
7,100.0	61.79	180.00	6,883.7	-153.2	772.5	282.2	7.50	7.50	0.00
7,197.1	69.07	180.00	6,924.0	-241.4	772.5	369.1	7.50	7.50	0.00
Niobrara B									
7,200.0	69.29	180.00	6,925.0	-244.1	772.5	371.8	7.50	7.50	0.00
7,300.0	76.79	180.00	6,954.2	-339.7	772.5	466.0	7.50	7.50	0.00
7,400.0	84.29	180.00	6,970.6	-438.3	772.5	563.1	7.50	7.50	0.00
7,487.2	90.83	180.00	6,974.3	-525.3	772.5	648.9	7.50	7.50	0.00
End of Build - 7"									
7,500.0	90.83	180.00	6,974.1	-538.1	772.5	661.6	0.00	0.00	0.00
7,600.0	90.83	180.00	6,972.7	-638.1	772.5	760.1	0.00	0.00	0.00
7,700.0	90.83	180.00	6,971.2	-738.1	772.5	858.6	0.00	0.00	0.00
7,800.0	90.83	180.00	6,969.8	-838.1	772.5	957.2	0.00	0.00	0.00
7,900.0	90.83	180.00	6,968.3	-938.1	772.5	1,055.7	0.00	0.00	0.00
8,000.0	90.83	180.00	6,966.9	-1,038.1	772.5	1,154.2	0.00	0.00	0.00
8,100.0	90.83	180.00	6,965.4	-1,138.1	772.5	1,252.8	0.00	0.00	0.00
8,200.0	90.83	180.00	6,964.0	-1,238.1	772.5	1,351.3	0.00	0.00	0.00

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Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4867.0ft (RKB - 15')
Project:	SEC.7-T4N-R64W	MD Reference:	WELL @ 4867.0ft (RKB - 15')
Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	North Reference:	True
Well:	Honebein 7O-243	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (8-18-14)		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,300.0	90.83	180.00	6,962.5	-1,338.1	772.5	1,449.8	0.00	0.00	0.00
8,400.0	90.83	180.00	6,961.1	-1,438.0	772.5	1,548.4	0.00	0.00	0.00
8,500.0	90.83	180.00	6,959.6	-1,538.0	772.5	1,646.9	0.00	0.00	0.00
8,600.0	90.83	180.00	6,958.2	-1,638.0	772.5	1,745.5	0.00	0.00	0.00
8,700.0	90.83	180.00	6,956.7	-1,738.0	772.5	1,844.0	0.00	0.00	0.00
8,800.0	90.83	180.00	6,955.3	-1,838.0	772.5	1,942.5	0.00	0.00	0.00
8,900.0	90.83	180.00	6,953.8	-1,938.0	772.5	2,041.1	0.00	0.00	0.00
9,000.0	90.83	180.00	6,952.4	-2,038.0	772.5	2,139.6	0.00	0.00	0.00
9,100.0	90.83	180.00	6,950.9	-2,138.0	772.5	2,238.1	0.00	0.00	0.00
9,200.0	90.83	180.00	6,949.5	-2,238.0	772.5	2,336.7	0.00	0.00	0.00
9,300.0	90.83	180.00	6,948.0	-2,338.0	772.5	2,435.2	0.00	0.00	0.00
9,400.0	90.83	180.00	6,946.6	-2,437.9	772.5	2,533.7	0.00	0.00	0.00
9,500.0	90.83	180.00	6,945.1	-2,537.9	772.5	2,632.3	0.00	0.00	0.00
9,600.0	90.83	180.00	6,943.7	-2,637.9	772.5	2,730.8	0.00	0.00	0.00
9,700.0	90.83	180.00	6,942.3	-2,737.9	772.5	2,829.3	0.00	0.00	0.00
9,800.0	90.83	180.00	6,940.8	-2,837.9	772.5	2,927.9	0.00	0.00	0.00
9,900.0	90.83	180.00	6,939.4	-2,937.9	772.5	3,026.4	0.00	0.00	0.00
10,000.0	90.83	180.00	6,937.9	-3,037.9	772.5	3,125.0	0.00	0.00	0.00
10,100.0	90.83	180.00	6,936.5	-3,137.9	772.5	3,223.5	0.00	0.00	0.00
10,200.0	90.83	180.00	6,935.0	-3,237.9	772.5	3,322.0	0.00	0.00	0.00
10,300.0	90.83	180.00	6,933.6	-3,337.8	772.5	3,420.6	0.00	0.00	0.00
10,400.0	90.83	180.00	6,932.1	-3,437.8	772.5	3,519.1	0.00	0.00	0.00
10,500.0	90.83	180.00	6,930.7	-3,537.8	772.5	3,617.6	0.00	0.00	0.00
10,600.0	90.83	180.00	6,929.2	-3,637.8	772.5	3,716.2	0.00	0.00	0.00
10,700.0	90.83	180.00	6,927.8	-3,737.8	772.5	3,814.7	0.00	0.00	0.00
10,800.0	90.83	180.00	6,926.3	-3,837.8	772.5	3,913.2	0.00	0.00	0.00
10,900.0	90.83	180.00	6,924.9	-3,937.8	772.5	4,011.8	0.00	0.00	0.00
11,000.0	90.83	180.00	6,923.4	-4,037.8	772.5	4,110.3	0.00	0.00	0.00
11,100.0	90.83	180.00	6,922.0	-4,137.8	772.5	4,208.9	0.00	0.00	0.00
11,200.0	90.83	180.00	6,920.5	-4,237.8	772.5	4,307.4	0.00	0.00	0.00
11,300.0	90.83	180.00	6,919.1	-4,337.7	772.5	4,405.9	0.00	0.00	0.00
11,400.0	90.83	180.00	6,917.6	-4,437.7	772.5	4,504.5	0.00	0.00	0.00
11,443.2	90.83	180.00	6,917.0	-4,481.0	772.5	4,547.1	0.00	0.00	0.00
BHL 2141'FNL & 2193'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 & 2193'FWL	0.00	0.00	6,917.0	-4,481.0	772.5	1,358,386.40	3,252,586.11	40.313630	-104.594220
- plan hits target center									
- Point									
SHL 2352'FSL & 1410'FWL	0.00	0.00	1.0	0.0	0.0	1,362,859.07	3,251,768.07	40.325930	-104.596990
- plan hits target center									
- Point									

Database:	Landmark	Local Co-ordinate Reference:	Well Honebein 7O-243
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4867.0ft (RKB - 15')
Project:	SEC.7-T4N-R64W	MD Reference:	WELL @ 4867.0ft (RKB - 15')
Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	North Reference:	True
Well:	Honebein 7O-243	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (8-18-14)		

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,487.2	6,974.3	7"	7	7-1/2

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,760.7	3,724.0	Parkman		0.00	
4,496.9	4,450.0	Sussex		0.00	
5,298.0	5,240.0	Shannon		0.00	
6,774.2	6,674.0	Sharon Springs		0.00	
7,032.2	6,849.0	Niobrara A		0.00	
7,197.1	6,924.0	Niobrara B		0.00	
	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)	
800.0	800.0	0.0	0.0	KOP #1
6,276.1	6,210.4	249.7	772.5	KOP #2
7,487.2	6,974.3	-525.3	772.5	End of Build



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.7-T4N-R64W

Honebein 4N64W7K Pad Sec.7-T4N-R64W

Honebein 7O-243

Wellbore #1

Plan #1 (8-18-14)

Anticollision Report

21 August, 2014



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Honebein 70-243
Project:	SEC.7-T4N-R64W	TVD Reference:	WELL @ 4867.0ft (RKB - 15')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	WELL @ 4867.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 70-243	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (8-18-14)	Offset TVD Reference:	Offset Datum

Reference	Plan #1 (8-18-14)		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	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	11,443.2	Plan #1 (8-18-14) (Wellbore #1)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Existing Wells Sec. 7-T4N-R64W						
Fry 21-18 (Exist.) - Wellbore #1 - Wellbore #1	9,872.9	6,910.7	407.2	210.2	2.067	CC, ES
Fry 21-18 (Exist.) - Wellbore #1 - Wellbore #1	9,900.0	6,910.4	408.1	210.6	2.066	SF
Fry 21-6I (Exist.) - Wellbore #1 - Wellbore #1	10,638.5	6,997.5	204.6	-92.6	0.688	Level 1, CC, ES, SF
Fry 22-18 (SI) - Wellbore #1 - Wellbore #1	11,202.8	6,883.5	410.0	188.6	1.852	CC, ES, SF
Latham 7-2 (Exist.) - Wellbore #1 - Wellbore #1	7,526.5	6,966.7	290.1	131.0	1.824	CC, ES, SF
Latham 7-4 (Exist.) - Wellbore #1 - Wellbore #1	8,645.1	6,941.5	440.7	265.1	2.511	CC, ES, SF
Honebein 4N64W7K Pad Sec.7-T4N-R64W						
Honebein 7G-203 - Wellbore #1 - Plan #1 (8-14-14)	200.0	194.0	178.4	177.8	270.045	CC, ES
Honebein 7G-203 - Wellbore #1 - Plan #1 (8-14-14)	800.0	752.8	235.2	231.6	66.521	SF
Honebein 7G-323 - Wellbore #1 - Plan #1 (8-15-14)	400.0	395.0	147.8	146.2	94.601	CC, ES
Honebein 7G-323 - Wellbore #1 - Plan #1 (8-15-14)	1,000.0	960.9	211.0	206.8	50.220	SF
Honebein 7K-223 - Wellbore #1 - Plan #1 (8-15-14)	800.0	798.0	58.6	55.2	17.390	CC, ES
Honebein 7K-223 - Wellbore #1 - Plan #1 (8-15-14)	11,443.2	11,387.2	641.4	465.1	3.638	SF
Honebein 7K-243 - Wellbore #1 - Plan #1 (8-15-15)	800.0	796.0	119.9	116.5	35.657	CC, ES
Honebein 7K-243 - Wellbore #1 - Plan #1 (8-15-15)	1,100.0	1,091.8	136.2	131.5	29.263	SF
Honebein 7K-323 - Wellbore #1 - Plan #1 (8-18-14)	800.0	799.0	27.9	24.5	8.276	CC, ES
Honebein 7K-323 - Wellbore #1 - Plan #1 (8-18-14)	11,443.2	11,459.9	274.8	102.9	1.598	SF
Honebein 7K-403 - Wellbore #1 - Plan #1 (8-15-14)	800.0	797.0	89.2	85.9	26.517	CC, ES
Honebein 7K-403 - Wellbore #1 - Plan #1 (8-15-14)	11,443.2	11,500.8	921.7	748.6	5.324	SF

Offset Design	Existing Wells Sec. 7-T4N-R64W - Fry 21-18 (Exist.) - Wellbore #1 - Wellbore #1											Offset Site Error:	0.0 ft
Survey Program:	7208-UNKNOWN											Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis			Distance								Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
9,000.0	6,952.4	6,923.4	6,923.4	44.6	138.5	91.78	-2,910.8	365.3	963.1	781.7	181.40	5.309	
9,100.0	6,950.9	6,921.9	6,921.9	46.3	138.4	91.57	-2,910.8	365.3	873.5	690.4	183.17	4.769	
9,200.0	6,949.5	6,920.5	6,920.5	48.0	138.4	91.37	-2,910.8	365.3	786.5	601.5	184.94	4.253	
9,300.0	6,948.0	6,919.0	6,919.0	49.8	138.4	91.17	-2,910.8	365.3	702.8	516.1	186.72	3.764	
9,400.0	6,946.6	6,917.6	6,917.6	51.6	138.4	90.96	-2,910.8	365.3	624.0	435.5	188.51	3.310	
9,500.0	6,945.1	6,916.1	6,916.1	53.3	138.3	90.76	-2,910.8	365.3	552.1	361.8	190.31	2.901	
9,600.0	6,943.7	6,914.7	6,914.7	55.1	138.3	90.56	-2,910.8	365.3	490.2	298.1	192.10	2.552	

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 7O-243
Project:	SEC.7-T4N-R64W	TVD Reference:	WELL @ 4867.0ft (RKB - 15')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	WELL @ 4867.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7O-243	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (8-18-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec. 7-T4N-R64W - Fry 21-18 (Exist.) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 7208-UNKNOWN												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)		
9,700.0	6,942.3	6,913.3	6,913.3	56.9	138.3	90.35	-2,910.8	365.3	442.4	248.5	193.91	2.281	2.067 CC, ES
9,800.0	6,940.8	6,911.8	6,911.8	58.7	138.2	90.15	-2,910.8	365.3	413.7	218.0	195.71	2.114	
9,872.9	6,939.7	6,910.7	6,910.7	60.0	138.2	90.00	-2,910.8	365.3	407.2	210.2	197.03		
9,900.0	6,939.4	6,910.4	6,910.4	60.5	138.2	89.94	-2,910.8	365.3	408.1	210.6	197.52	2.066 SF	
10,000.0	6,937.9	6,908.9	6,908.9	62.3	138.2	89.74	-2,910.8	365.3	426.6	227.2	199.33	2.140	
10,100.0	6,936.5	6,907.5	6,907.5	64.2	138.1	89.54	-2,910.8	365.3	466.2	265.1	201.14	2.318	
10,200.0	6,935.0	6,906.0	6,906.0	66.0	138.1	89.33	-2,910.8	365.3	522.3	319.3	202.95	2.573	
10,300.0	6,933.6	6,904.6	6,904.6	67.8	138.1	89.13	-2,910.8	365.3	590.1	385.3	204.77	2.882	
10,400.0	6,932.1	6,903.1	6,903.1	69.7	138.1	88.93	-2,910.8	365.3	666.0	459.4	206.58	3.224	
10,500.0	6,930.7	6,901.7	6,901.7	71.5	138.0	88.72	-2,910.8	365.3	747.6	539.2	208.40	3.587	
10,600.0	6,929.2	6,900.2	6,900.2	73.4	138.0	88.52	-2,910.8	365.3	833.3	623.1	210.21	3.964	
10,700.0	6,927.8	6,898.8	6,898.8	75.2	138.0	88.31	-2,910.8	365.3	921.8	709.8	212.03	4.348	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Honebein 70-243
Project:	SEC.7-T4N-R64W	TVD Reference:	WELL @ 4867.0ft (RKB - 15')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	WELL @ 4867.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 70-243	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (8-18-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec. 7-T4N-R64W - Fry 21-6l (Exist.) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 644-UNKNOWN												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
9,700.0	6,942.3	6,989.5	6,894.8	56.9	233.4	-88.37	-3,676.2	977.1	960.6	680.2	280.41	3.426	
9,800.0	6,940.8	6,990.3	6,895.7	58.7	233.4	-88.61	-3,676.2	977.1	863.1	580.9	282.20	3.059	
9,900.0	6,939.4	6,991.2	6,896.6	60.5	233.4	-88.86	-3,676.3	977.1	766.3	482.4	283.99	2.698	
10,000.0	6,937.9	6,992.1	6,897.5	62.3	233.4	-89.10	-3,676.3	977.1	670.5	384.7	285.78	2.346	
10,100.0	6,936.5	6,993.0	6,898.3	64.2	233.4	-89.35	-3,676.3	977.1	576.1	288.5	287.57	2.003	
10,200.0	6,935.0	6,993.8	6,899.2	66.0	233.5	-89.59	-3,676.3	977.1	483.9	194.5	289.36	1.672	
10,300.0	6,933.6	6,994.7	6,900.0	67.8	233.5	-89.83	-3,676.3	977.1	395.5	104.4	291.15	1.359	Level 3
10,400.0	6,932.1	6,995.5	6,900.9	69.7	233.5	-90.06	-3,676.4	977.1	314.2	21.3	292.94	1.073	Level 2
10,500.0	6,930.7	6,996.4	6,901.7	71.5	233.5	-90.30	-3,676.4	977.0	247.1	-47.7	294.72	0.838	Level 1
10,600.0	6,929.2	6,997.2	6,902.6	73.4	233.5	-90.53	-3,676.4	977.0	208.2	-88.4	296.51	0.702	Level 1
10,638.5	6,928.7	6,997.5	6,902.9	74.1	233.5	-90.62	-3,676.4	977.0	204.6	-92.6	297.20	0.688	Level 1, CC, ES, SF
10,700.0	6,927.8	6,998.0	6,903.4	75.2	233.5	-90.76	-3,676.4	977.0	213.6	-84.7	298.29	0.716	Level 1
10,800.0	6,926.3	6,998.8	6,904.2	77.1	233.6	-90.99	-3,676.4	977.0	260.6	-39.5	300.08	0.868	Level 1
10,900.0	6,924.9	6,999.7	6,905.0	78.9	233.6	-91.22	-3,676.5	977.0	331.9	30.1	301.86	1.100	Level 2
11,000.0	6,923.4	7,000.5	6,905.8	80.8	233.6	-91.45	-3,676.5	977.0	415.3	111.7	303.64	1.368	Level 3
11,100.0	6,922.0	7,001.3	6,906.6	82.6	233.6	-91.68	-3,676.5	977.0	504.7	199.3	305.41	1.653	
11,200.0	6,920.5	7,002.1	6,907.4	84.5	233.6	-91.90	-3,676.5	977.0	597.5	290.3	307.19	1.945	
11,300.0	6,919.1	7,002.9	6,908.2	86.4	233.6	-92.12	-3,676.5	977.0	692.3	383.4	308.96	2.241	
11,400.0	6,917.6	7,003.7	6,909.0	88.2	233.7	-92.34	-3,676.5	977.0	788.4	477.7	310.73	2.537	
11,443.2	6,917.0	7,004.0	6,909.4	89.0	233.7	-92.44	-3,676.6	977.0	830.2	518.7	311.49	2.665	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Honebein 70-243
Project:	SEC.7-T4N-R64W	TVD Reference:	WELL @ 4867.0ft (RKB - 15')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	WELL @ 4867.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 70-243	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (8-18-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec. 7-T4N-R64W - Fry 22-18 (SI) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7215-UNKNOWN													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
10,300.0	6,933.6	6,896.6	6,896.6	67.8	137.9	91.83	-4,240.5	362.5	991.4	786.8	204.66	4.844		
10,400.0	6,932.1	6,895.1	6,895.1	69.7	137.9	91.62	-4,240.5	362.5	901.3	694.8	206.51	4.365		
10,500.0	6,930.7	6,893.7	6,893.7	71.5	137.9	91.42	-4,240.5	362.5	813.5	605.2	208.35	3.905		
10,600.0	6,929.2	6,892.2	6,892.2	73.4	137.8	91.22	-4,240.5	362.5	728.9	518.7	210.20	3.468		
10,700.0	6,927.8	6,890.8	6,890.8	75.2	137.8	91.02	-4,240.5	362.5	648.7	436.6	212.05	3.059		
10,800.0	6,926.3	6,889.3	6,889.3	77.1	137.8	90.82	-4,240.5	362.5	574.7	360.8	213.90	2.687		
10,900.0	6,924.9	6,887.9	6,887.9	78.9	137.8	90.61	-4,240.5	362.5	509.6	293.9	215.75	2.362		
11,000.0	6,923.4	6,886.4	6,886.4	80.8	137.7	90.41	-4,240.5	362.5	457.4	239.8	217.59	2.102		
11,100.0	6,922.0	6,885.0	6,885.0	82.6	137.7	90.21	-4,240.5	362.5	422.6	203.2	219.44	1.926		
11,200.0	6,920.5	6,883.5	6,883.5	84.5	137.7	90.01	-4,240.5	362.5	410.0	188.7	221.29	1.853		
11,202.8	6,920.5	6,883.5	6,883.5	84.5	137.7	90.00	-4,240.5	362.5	410.0	188.6	221.34	1.852 CC, ES, SF		
11,300.0	6,919.1	6,882.1	6,882.1	86.4	137.6	89.80	-4,240.5	362.5	421.3	198.2	223.13	1.888		
11,400.0	6,917.6	6,880.6	6,880.6	88.2	137.6	89.60	-4,240.5	362.5	454.9	229.9	224.98	2.022		
11,443.2	6,917.0	6,880.0	6,880.0	89.0	137.6	89.51	-4,240.5	362.5	475.2	249.5	225.77	2.105		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Honebein 7O-243
Project:	SEC.7-T4N-R64W	TVD Reference:	WELL @ 4867.0ft (RKB - 15')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	WELL @ 4867.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7O-243	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (8-18-14)	Offset TVD Reference:	Offset Datum

Offset Design		Existing Wells Sec. 7-T4N-R64W - Latham 7-2 (Exist.) - Wellbore #1 - Wellbore #1											Offset Site Error:		0.0 ft	
Survey Program: 7281-UNKNOWN														Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth	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	0.0	0.0	0.0	0.0	139.49	-564.7	482.4	742.7							
100.0	100.0	93.0	93.0	0.1	1.9	139.49	-564.7	482.4	742.7	740.7	1.97	376.492				
200.0	200.0	193.0	193.0	0.3	3.9	139.49	-564.7	482.4	742.7	738.5	4.20	176.936				
300.0	300.0	293.0	293.0	0.6	5.9	139.49	-564.7	482.4	742.7	736.2	6.42	115.641				
400.0	400.0	393.0	393.0	0.8	7.9	139.49	-564.7	482.4	742.7	734.0	8.65	85.888				
500.0	500.0	493.0	493.0	1.0	9.9	139.49	-564.7	482.4	742.7	731.8	10.87	68.312				
600.0	600.0	593.0	593.0	1.2	11.9	139.49	-564.7	482.4	742.7	729.6	13.10	56.707				
700.0	700.0	693.0	693.0	1.5	13.9	139.49	-564.7	482.4	742.7	727.3	15.32	48.473				
800.0	800.0	793.0	793.0	1.7	15.9	139.49	-564.7	482.4	742.7	725.1	17.55	42.327				
900.0	900.0	893.0	893.0	1.9	17.9	67.54	-564.7	482.4	742.0	722.2	19.76	37.551				
1,000.0	999.8	992.8	992.8	2.1	19.9	67.95	-564.7	482.4	740.0	718.0	21.96	33.693				
1,100.0	1,099.5	1,092.5	1,092.5	2.3	21.8	68.64	-564.7	482.4	736.8	712.6	24.17	30.483				
1,200.0	1,198.7	1,191.7	1,191.7	2.6	23.8	69.60	-564.7	482.4	732.4	706.0	26.39	27.756				
1,278.0	1,275.7	1,268.7	1,268.7	2.8	25.4	70.55	-564.7	482.4	728.3	700.2	28.13	25.893				
1,300.0	1,297.5	1,290.5	1,290.5	2.9	25.8	70.82	-564.7	482.4	727.1	698.5	28.63	25.399				
1,400.0	1,396.1	1,389.1	1,389.1	3.2	27.8	72.05	-564.7	482.4	721.7	690.8	30.90	23.357				
1,500.0	1,494.7	1,487.7	1,487.7	3.5	29.8	73.29	-564.7	482.4	716.7	683.5	33.19	21.593				
1,600.0	1,593.3	1,586.3	1,586.3	3.8	31.7	74.56	-564.7	482.4	712.1	676.6	35.50	20.059				
1,700.0	1,691.9	1,684.9	1,684.9	4.2	33.7	75.84	-564.7	482.4	707.8	669.9	37.81	18.717				
1,800.0	1,790.5	1,783.5	1,783.5	4.5	35.7	77.13	-564.7	482.4	703.8	663.7	40.14	17.534				
1,900.0	1,889.1	1,882.1	1,882.1	4.9	37.6	78.44	-564.7	482.4	700.3	657.8	42.47	16.487				
2,000.0	1,987.8	1,980.8	1,980.8	5.3	39.6	79.76	-564.7	482.4	697.1	652.3	44.81	15.555				
2,100.0	2,086.4	2,079.4	2,079.4	5.6	41.6	81.09	-564.7	482.4	694.3	647.1	47.16	14.723				
2,200.0	2,185.0	2,178.0	2,178.0	6.0	43.6	82.43	-564.7	482.4	691.9	642.4	49.50	13.976				
2,300.0	2,283.6	2,276.6	2,276.6	6.4	45.5	83.78	-564.7	482.4	689.8	638.0	51.85	13.304				
2,400.0	2,382.2	2,375.2	2,375.2	6.7	47.5	85.13	-564.7	482.4	688.2	634.0	54.21	12.696				
2,500.0	2,480.8	2,473.8	2,473.8	7.1	49.5	86.49	-564.7	482.4	687.0	630.4	56.56	12.146				
2,600.0	2,579.4	2,572.4	2,572.4	7.5	51.4	87.86	-564.7	482.4	686.2	627.2	58.91	11.647				
2,700.0	2,678.0	2,671.0	2,671.0	7.8	53.4	89.23	-564.7	482.4	685.7	624.5	61.27	11.193				
2,756.6	2,733.8	2,726.8	2,726.8	8.1	54.5	90.00	-564.7	482.4	685.7	623.1	62.60	10.954				
2,800.0	2,776.7	2,769.7	2,769.7	8.2	55.4	90.59	-564.7	482.4	685.7	622.1	63.62	10.779				
2,900.0	2,875.3	2,868.3	2,868.3	8.6	57.4	91.96	-564.7	482.4	686.1	620.1	65.97	10.400				
3,000.0	2,973.9	2,966.9	2,966.9	9.0	59.3	93.33	-564.7	482.4	686.9	618.5	68.32	10.054				
3,100.0	3,072.5	3,065.5	3,065.5	9.4	61.3	94.69	-564.7	482.4	688.0	617.4	70.66	9.737				
3,200.0	3,171.1	3,164.1	3,164.1	9.7	63.3	96.05	-564.7	482.4	689.6	616.6	73.00	9.446				
3,300.0	3,269.7	3,262.7	3,262.7	10.1	65.3	97.39	-564.7	482.4	691.6	616.2	75.34	9.179				
3,400.0	3,368.3	3,361.3	3,361.3	10.5	67.2	98.74	-564.7	482.4	693.9	616.3	77.68	8.934				
3,500.0	3,466.9	3,459.9	3,459.9	10.9	69.2	100.07	-564.7	482.4	696.7	616.7	80.00	8.708				
3,600.0	3,565.5	3,558.5	3,558.5	11.3	71.2	101.39	-564.7	482.4	699.8	617.5	82.33	8.500				
3,700.0	3,664.2	3,657.2	3,657.2	11.6	73.1	102.70	-564.7	482.4	703.3	618.7	84.65	8.309				
3,800.0	3,762.8	3,755.8	3,755.8	12.0	75.1	103.99	-564.7	482.4	707.2	620.3	86.96	8.132				
3,900.0	3,861.4	3,854.4	3,854.4	12.4	77.1	105.27	-564.7	482.4	711.5	622.2	89.27	7.970				
4,000.0	3,960.0	3,953.0	3,953.0	12.8	79.1	106.54	-564.7	482.4	716.1	624.5	91.58	7.819				
4,100.0	4,058.6	4,051.6	4,051.6	13.2	81.0	107.79	-564.7	482.4	721.0	627.2	93.87	7.681				
4,200.0	4,157.2	4,150.2	4,150.2	13.6	83.0	109.02	-564.7	482.4	726.4	630.2	96.17	7.553				
4,300.0	4,255.8	4,248.8	4,248.8	13.9	85.0	110.23	-564.7	482.4	732.0	633.6	98.45	7.435				
4,400.0	4,354.4	4,347.4	4,347.4	14.3	86.9	111.43	-564.7	482.4	738.0	637.2	100.73	7.326				
4,500.0	4,453.0	4,446.0	4,446.0	14.7	88.9	112.61	-564.7	482.4	744.3	641.3	103.01	7.226				
4,600.0	4,551.7	4,544.7	4,544.7	15.1	90.9	113.76	-564.7	482.4	750.9	645.6	105.28	7.133				
4,700.0	4,650.3	4,643.3	4,643.3	15.5	92.9	114.90	-564.7	482.4	757.8	650.3	107.54	7.047				
4,800.0	4,748.9	4,741.9	4,741.9	15.9	94.8	116.01	-564.7	482.4	765.0	655.2	109.80	6.968				

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 70-243
Project:	SEC.7-T4N-R64W	TVD Reference:	WELL @ 4867.0ft (RKB - 15')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	WELL @ 4867.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 70-243	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (8-18-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec. 7-T4N-R64W - Latham 7-2 (Exist.) - Wellbore #1 - Wellbore #1												Offset Site Error: 0.0 ft	
Survey Program: 7281-UNKNOWN												Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
4,900.0	4,847.5	4,840.5	4,840.5	16.2	96.8	117.11	-564.7	482.4	772.5	660.5	112.05	6.895	
5,000.0	4,946.1	4,939.1	4,939.1	16.6	98.8	118.18	-564.7	482.4	780.3	666.0	114.29	6.827	
5,100.0	5,044.7	5,037.7	5,037.7	17.0	100.8	119.23	-564.7	482.4	788.4	671.9	116.54	6.765	
5,200.0	5,143.3	5,136.3	5,136.3	17.4	102.7	120.27	-564.7	482.4	796.7	678.0	118.77	6.708	
5,300.0	5,241.9	5,234.9	5,234.9	17.8	104.7	121.28	-564.7	482.4	805.3	684.3	121.00	6.655	
5,400.0	5,340.6	5,333.6	5,333.6	18.2	106.7	122.27	-564.7	482.4	814.1	690.9	123.23	6.607	
5,500.0	5,439.2	5,432.2	5,432.2	18.5	108.6	123.23	-564.7	482.4	823.2	697.8	125.46	6.562	
5,600.0	5,537.8	5,530.8	5,530.8	18.9	110.6	124.18	-564.7	482.4	832.5	704.9	127.67	6.521	
5,687.7	5,624.3	5,617.3	5,617.3	19.3	112.3	124.99	-564.7	482.4	840.9	711.3	129.62	6.487	
5,700.0	5,636.4	5,629.4	5,629.4	19.3	112.6	125.12	-564.7	482.4	842.0	712.1	129.91	6.482	
5,800.0	5,735.3	5,728.3	5,728.3	19.6	114.6	126.05	-564.7	482.4	850.5	718.3	132.22	6.433	
5,900.0	5,834.7	5,827.7	5,827.7	19.8	116.6	126.75	-564.7	482.4	857.1	722.6	134.50	6.372	
6,000.0	5,934.4	5,927.4	5,927.4	20.0	118.5	127.22	-564.7	482.4	861.6	724.9	136.73	6.301	
6,100.0	6,034.3	6,027.3	6,027.3	20.2	120.5	127.47	-564.7	482.4	864.0	725.1	138.91	6.220	
6,165.7	6,100.0	6,093.0	6,093.0	20.3	121.9	-160.39	-564.7	482.4	864.5	724.2	140.31	6.161	
6,200.0	6,134.3	6,127.3	6,127.3	20.3	122.5	-160.39	-564.7	482.4	864.5	723.5	141.05	6.129	
6,276.1	6,210.4	6,203.4	6,203.4	20.4	124.1	-160.39	-564.7	482.4	864.5	721.8	142.69	6.059	
6,300.0	6,234.3	6,227.3	6,227.3	20.4	124.5	19.63	-564.7	482.4	864.2	721.0	143.12	6.038	
6,350.0	6,284.2	6,277.2	6,277.2	20.5	125.5	19.77	-564.7	482.4	861.1	717.6	143.59	5.997	
6,400.0	6,333.8	6,326.8	6,326.8	20.5	126.5	20.08	-564.7	482.4	855.1	711.6	143.50	5.959	
6,450.0	6,382.8	6,375.8	6,375.8	20.6	127.5	20.54	-564.7	482.4	846.0	703.1	142.85	5.922	
6,500.0	6,431.2	6,424.2	6,424.2	20.6	128.5	21.19	-564.7	482.4	833.9	692.2	141.67	5.886	
6,550.0	6,478.5	6,471.5	6,471.5	20.6	129.4	22.03	-564.7	482.4	818.9	678.9	139.98	5.850	
6,600.0	6,524.7	6,517.7	6,517.7	20.6	130.4	23.09	-564.7	482.4	801.1	663.3	137.84	5.812	
6,650.0	6,569.6	6,562.6	6,562.6	20.6	131.3	24.40	-564.7	482.4	780.6	645.3	135.34	5.768	
6,700.0	6,612.9	6,605.9	6,605.9	20.6	132.1	26.00	-564.7	482.4	757.5	624.9	132.60	5.713	
6,750.0	6,654.5	6,647.5	6,647.5	20.6	133.0	27.95	-564.7	482.4	732.0	602.2	129.80	5.639	
6,800.0	6,694.2	6,687.2	6,687.2	20.6	133.7	30.29	-564.7	482.4	704.2	577.0	127.18	5.537	
6,850.0	6,731.9	6,724.9	6,724.9	20.6	134.5	33.11	-564.7	482.4	674.4	549.3	125.07	5.392	
6,900.0	6,767.3	6,760.3	6,760.3	20.6	135.2	36.46	-564.7	482.4	642.7	518.8	123.87	5.188	
6,950.0	6,800.3	6,793.3	6,793.3	20.7	135.9	40.43	-564.7	482.4	609.4	485.4	123.97	4.916	
7,000.0	6,830.8	6,823.8	6,823.8	20.7	136.5	45.04	-564.7	482.4	574.9	449.1	125.74	4.572	
7,050.0	6,858.6	6,851.6	6,851.6	20.8	137.0	50.32	-564.7	482.4	539.4	410.2	129.28	4.173	
7,100.0	6,883.7	6,876.7	6,876.7	20.9	137.5	56.16	-564.7	482.4	503.5	369.2	134.29	3.749	
7,150.0	6,905.8	6,898.8	6,898.8	21.0	138.0	62.38	-564.7	482.4	467.6	327.5	140.10	3.338	
7,200.0	6,925.0	6,918.0	6,918.0	21.2	138.4	68.66	-564.7	482.4	432.3	286.6	145.78	2.966	
7,250.0	6,941.2	6,934.2	6,934.2	21.3	138.7	74.64	-564.7	482.4	398.5	248.0	150.54	2.647	
7,300.0	6,954.2	6,947.2	6,947.2	21.6	138.9	79.95	-564.7	482.4	367.1	213.1	153.99	2.384	
7,350.0	6,964.0	6,957.0	6,957.0	21.9	139.1	84.31	-564.7	482.4	339.3	183.1	156.17	2.173	
7,400.0	6,970.6	6,963.6	6,963.6	22.2	139.3	87.52	-564.7	482.4	316.5	159.0	157.44	2.010	
7,450.0	6,973.9	6,966.9	6,966.9	22.5	139.3	89.48	-564.7	482.4	300.0	141.8	158.21	1.896	
7,487.2	6,974.3	6,967.3	6,967.3	22.8	139.3	90.11	-564.7	482.4	292.8	134.1	158.64	1.845	
7,500.0	6,974.1	6,967.1	6,967.1	22.9	139.3	90.08	-564.7	482.4	291.3	132.5	158.78	1.835	
7,526.5	6,973.7	6,966.7	6,966.7	23.2	139.3	90.00	-564.7	482.4	290.1	131.0	159.07	1.824 CC, ES, SF	
7,600.0	6,972.7	6,965.7	6,965.7	23.9	139.3	89.79	-564.7	482.4	299.3	139.4	159.89	1.872	
7,700.0	6,971.2	6,964.2	6,964.2	24.9	139.3	89.50	-564.7	482.4	338.0	176.9	161.10	2.098	
7,800.0	6,969.8	6,962.8	6,962.8	26.1	139.3	89.22	-564.7	482.4	398.7	236.3	162.40	2.455	
7,900.0	6,968.3	6,961.3	6,961.3	27.4	139.2	88.93	-564.7	482.4	472.9	309.1	163.77	2.888	
8,000.0	6,966.9	6,959.9	6,959.9	28.7	139.2	88.65	-564.7	482.4	555.2	390.0	165.20	3.361	
8,100.0	6,965.4	6,958.4	6,958.4	30.1	139.2	88.36	-564.7	482.4	642.6	475.9	166.67	3.856	
8,200.0	6,964.0	6,957.0	6,957.0	31.6	139.1	88.07	-564.7	482.4	733.2	565.0	168.19	4.359	

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 7O-243
Project:	SEC.7-T4N-R64W	TVD Reference:	WELL @ 4867.0ft (RKB - 15')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	WELL @ 4867.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7O-243	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (8-18-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec. 7-T4N-R64W - Latham 7-2 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7281-UNKNOWN													Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis		Distance										Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
8,300.0	6,962.5	6,955.5	6,955.5	33.1	139.1	87.79	-564.7	482.4	826.0	656.3	169.74	4.866		
8,400.0	6,961.1	6,954.1	6,954.1	34.6	139.1	87.50	-564.7	482.4	920.3	749.0	171.32	5.372		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Honebein 7O-243
Project:	SEC.7-T4N-R64W	TVD Reference:	WELL @ 4867.0ft (RKB - 15')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	WELL @ 4867.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7O-243	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (8-18-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec. 7-T4N-R64W - Latham 7-4 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7312-UNKNOWN													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	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	
7,800.0	6,969.8	6,953.8	6,953.8	26.1	139.1	91.59	-1,683.1	331.8	953.0	790.7	162.29	5.872		
7,900.0	6,968.3	6,952.3	6,952.3	27.4	139.0	91.40	-1,683.1	331.8	865.6	701.9	163.69	5.288		
8,000.0	6,966.9	6,950.9	6,950.9	28.7	139.0	91.21	-1,683.1	331.8	781.2	616.0	165.15	4.730		
8,100.0	6,965.4	6,949.4	6,949.4	30.1	139.0	91.03	-1,683.1	331.8	700.9	534.2	166.67	4.205		
8,200.0	6,964.0	6,948.0	6,948.0	31.6	139.0	90.84	-1,683.1	331.8	626.3	458.1	168.23	3.723		
8,300.0	6,962.5	6,946.5	6,946.5	33.1	138.9	90.65	-1,683.1	331.8	559.7	389.9	169.82	3.296		
8,400.0	6,961.1	6,945.1	6,945.1	34.6	138.9	90.46	-1,683.1	331.8	504.2	332.8	171.44	2.941		
8,500.0	6,959.6	6,943.6	6,943.6	36.2	138.9	90.27	-1,683.1	331.8	463.9	290.8	173.09	2.680		
8,600.0	6,958.2	6,942.2	6,942.2	37.9	138.8	90.08	-1,683.1	331.8	443.0	268.2	174.77	2.535		
8,645.1	6,957.5	6,941.5	6,941.5	38.6	138.8	90.00	-1,683.1	331.8	440.7	265.1	175.53	2.511	CC, ES, SF	
8,700.0	6,956.7	6,940.7	6,940.7	39.5	138.8	89.90	-1,683.1	331.8	444.1	267.6	176.46	2.517		
8,800.0	6,955.3	6,939.3	6,939.3	41.2	138.8	89.71	-1,683.1	331.8	467.1	288.9	178.16	2.622		
8,900.0	6,953.8	6,937.8	6,937.8	42.9	138.8	89.52	-1,683.1	331.8	509.1	329.2	179.88	2.830		
9,000.0	6,952.4	6,936.4	6,936.4	44.6	138.7	89.33	-1,683.1	331.8	565.8	384.2	181.61	3.115		
9,100.0	6,950.9	6,934.9	6,934.9	46.3	138.7	89.14	-1,683.1	331.8	633.3	450.0	183.36	3.454		
9,200.0	6,949.5	6,933.5	6,933.5	48.0	138.7	88.96	-1,683.1	331.8	708.6	523.5	185.11	3.828		
9,300.0	6,948.0	6,932.0	6,932.0	49.8	138.6	88.77	-1,683.1	331.8	789.3	602.5	186.86	4.224		
9,400.0	6,946.6	6,930.6	6,930.6	51.6	138.6	88.58	-1,683.1	331.8	874.1	685.4	188.63	4.634		
9,500.0	6,945.1	6,929.1	6,929.1	53.3	138.6	88.39	-1,683.1	331.8	961.7	771.3	190.40	5.051		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Honebein 7O-243
Project:	SEC.7-T4N-R64W	TVD Reference:	WELL @ 4867.0ft (RKB - 15')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	WELL @ 4867.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7O-243	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (8-18-14)	Offset TVD Reference:	Offset Datum

Offset Design Honebein 4N64W7K Pad Sec.7-T4N-R64W - Honebein 7G-203 - Wellbore #1 - Plan #1 (8-14-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-90.00	-90.00	0.0	-178.4	178.6				
100.0	100.0	94.0	94.0	0.1	0.1	-90.00	-90.00	0.0	-178.4	178.4	178.2	0.22	818.443	
200.0	200.0	194.0	194.0	0.3	0.3	-90.00	-90.00	0.0	-178.4	178.4	177.8	0.66	270.045 CC, ES	
300.0	300.0	288.6	288.5	0.6	0.5	-89.92	-89.92	0.3	-179.8	179.9	178.8	1.09	164.850	
400.0	400.0	382.6	382.4	0.8	0.7	-89.66	-89.66	1.1	-184.2	184.5	183.0	1.53	120.876	
500.0	500.0	476.2	475.8	1.0	1.0	-89.25	-89.25	2.5	-191.5	192.4	190.4	1.98	97.063	
600.0	600.0	569.2	568.2	1.2	1.2	-88.73	-88.73	4.5	-201.8	203.5	201.0	2.46	82.566	
700.0	700.0	661.5	659.5	1.5	1.5	-88.14	-88.14	7.0	-214.9	217.7	214.8	2.98	73.035	
800.0	800.0	752.8	749.4	1.7	1.9	-87.51	-87.51	10.0	-230.7	235.2	231.6	3.54	66.521 SF	
900.0	900.0	843.1	837.7	1.9	2.2	-158.95	-158.95	13.5	-249.0	257.3	253.5	3.79	67.795	
1,000.0	999.8	939.5	931.7	2.1	2.7	-158.52	-158.52	17.5	-269.9	283.9	279.6	4.25	66.817	
1,100.0	1,099.5	1,035.0	1,024.9	2.3	3.1	-158.36	-158.36	21.5	-290.6	313.6	308.9	4.69	66.795	
1,200.0	1,198.7	1,129.4	1,117.0	2.6	3.5	-158.38	-158.38	25.4	-311.1	346.4	341.3	5.14	67.417	
1,278.0	1,275.7	1,202.3	1,188.0	2.8	3.9	-158.48	-158.48	28.5	-326.9	374.1	368.6	5.48	68.235	
1,300.0	1,297.5	1,222.8	1,208.0	2.9	4.0	-158.58	-158.58	29.3	-331.3	382.2	376.6	5.58	68.475	
1,400.0	1,396.1	1,315.7	1,298.7	3.2	4.4	-158.99	-158.99	33.2	-351.4	418.9	412.9	6.05	69.302	
1,500.0	1,494.7	1,408.7	1,389.4	3.5	4.9	-159.34	-159.34	37.1	-371.6	455.7	449.2	6.51	69.957	
1,600.0	1,593.3	1,501.7	1,480.1	3.8	5.3	-159.63	-159.63	40.9	-391.7	492.4	485.5	6.99	70.460	
1,700.0	1,691.9	1,594.6	1,570.7	4.2	5.7	-159.88	-159.88	44.8	-411.9	529.2	521.7	7.47	70.851	
1,800.0	1,790.5	1,687.6	1,661.4	4.5	6.2	-160.10	-160.10	48.6	-432.0	566.0	558.0	7.95	71.159	
1,900.0	1,889.1	1,780.6	1,752.1	4.9	6.6	-160.29	-160.29	52.5	-452.2	602.8	594.3	8.44	71.404	
2,000.0	1,987.8	1,873.6	1,842.8	5.3	7.1	-160.46	-160.46	56.4	-472.3	639.6	630.6	8.93	71.600	
2,100.0	2,086.4	1,966.5	1,933.5	5.6	7.5	-160.61	-160.61	60.2	-492.4	676.4	666.9	9.43	71.758	
2,200.0	2,185.0	2,059.5	2,024.1	6.0	8.0	-160.75	-160.75	64.1	-512.6	713.2	703.2	9.92	71.887	
2,300.0	2,283.6	2,152.5	2,114.8	6.4	8.4	-160.87	-160.87	68.0	-532.7	750.0	739.6	10.42	71.992	
2,400.0	2,382.2	2,245.4	2,205.5	6.7	8.9	-160.98	-160.98	71.8	-552.9	786.8	775.9	10.92	72.077	
2,500.0	2,480.8	2,338.4	2,296.2	7.1	9.3	-161.08	-161.08	75.7	-573.0	823.6	812.2	11.42	72.148	
2,600.0	2,579.4	2,431.4	2,386.9	7.5	9.8	-161.17	-161.17	79.6	-593.2	860.4	848.5	11.92	72.205	
2,700.0	2,678.0	2,524.3	2,477.5	7.8	10.2	-161.26	-161.26	83.4	-613.3	897.2	884.8	12.42	72.252	
2,800.0	2,776.7	2,617.3	2,568.2	8.2	10.7	-161.34	-161.34	87.3	-633.5	934.0	921.1	12.92	72.291	
2,900.0	2,875.3	2,710.3	2,658.9	8.6	11.1	-161.41	-161.41	91.2	-653.6	970.8	957.4	13.42	72.322	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Honebein 7O-243
Project:	SEC.7-T4N-R64W	TVD Reference:	WELL @ 4867.0ft (RKB - 15')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	WELL @ 4867.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7O-243	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (8-18-14)	Offset TVD Reference:	Offset Datum

Offset Design Honebein 4N64W7K Pad Sec.7-T4N-R64W - Honebein 7G-323 - Wellbore #1 - Plan #1 (8-15-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-90.00	-90.00	0.0	-147.8	147.9				
100.0	100.0	95.0	95.0	0.1	0.1	-90.00	-90.00	0.0	-147.8	147.8	147.6	0.22	674.304	
200.0	200.0	195.0	195.0	0.3	0.3	-90.00	-90.00	0.0	-147.8	147.8	147.1	0.66	222.873	
300.0	300.0	295.0	295.0	0.6	0.6	-90.00	-90.00	0.0	-147.8	147.8	146.7	1.11	132.823	
400.0	400.0	395.0	395.0	0.8	0.8	-90.00	-90.00	0.0	-147.8	147.8	146.2	1.56	94.601 CC, ES	
500.0	500.0	490.4	490.4	1.0	1.0	-89.87	-89.87	0.3	-149.2	149.2	147.2	1.99	74.859	
600.0	600.0	585.4	585.3	1.2	1.2	-89.47	-89.47	1.4	-153.6	153.9	151.5	2.43	63.459	
700.0	700.0	680.0	679.6	1.5	1.4	-88.86	-88.86	3.2	-161.1	161.8	159.0	2.87	56.317	
800.0	800.0	774.0	772.9	1.7	1.7	-88.09	-88.09	5.7	-171.5	173.0	169.6	3.35	51.700	
900.0	900.0	866.9	864.9	1.9	1.9	-159.39	-159.39	8.9	-184.7	188.9	185.2	3.75	50.353	
1,000.0	999.8	960.9	957.3	2.1	2.3	-158.84	-158.84	12.8	-200.7	211.0	206.8	4.20	50.220 SF	
1,100.0	1,099.5	1,057.5	1,052.4	2.3	2.6	-158.62	-158.62	16.9	-217.7	236.7	232.1	4.64	51.013	
1,200.0	1,198.7	1,153.2	1,146.6	2.6	3.0	-158.66	-158.66	21.0	-234.5	265.5	260.5	5.08	52.303	
1,278.0	1,275.7	1,227.2	1,219.3	2.8	3.3	-158.82	-158.82	24.1	-247.5	290.2	284.8	5.42	53.567	
1,300.0	1,297.5	1,248.0	1,239.7	2.9	3.3	-158.93	-158.93	25.0	-251.1	297.4	291.9	5.52	53.920	
1,400.0	1,396.1	1,342.4	1,332.6	3.2	3.7	-159.37	-159.37	29.0	-267.7	330.2	324.3	5.97	55.344	
1,500.0	1,494.7	1,436.9	1,425.5	3.5	4.1	-159.72	-159.72	33.0	-284.3	363.1	356.7	6.43	56.436	
1,600.0	1,593.3	1,531.3	1,518.4	3.8	4.5	-160.02	-160.02	37.0	-300.9	396.0	389.1	6.90	57.375	
1,700.0	1,691.9	1,625.7	1,611.2	4.2	4.8	-160.28	-160.28	41.0	-317.5	428.8	421.4	7.37	58.149	
1,800.0	1,790.5	1,720.1	1,704.1	4.5	5.2	-160.49	-160.49	45.0	-334.1	461.7	453.8	7.85	58.798	
1,900.0	1,889.1	1,814.6	1,797.0	4.9	5.6	-160.68	-160.68	49.0	-350.7	494.6	486.2	8.33	59.348	
2,000.0	1,987.8	1,909.0	1,889.9	5.3	6.0	-160.85	-160.85	53.0	-367.2	527.4	518.6	8.82	59.819	
2,100.0	2,086.4	2,003.4	1,982.7	5.6	6.4	-160.99	-160.99	57.0	-383.8	560.3	551.0	9.30	60.226	
2,200.0	2,185.0	2,097.9	2,075.6	6.0	6.8	-161.12	-161.12	61.1	-400.4	593.2	583.4	9.79	60.580	
2,300.0	2,283.6	2,192.3	2,168.5	6.4	7.1	-161.24	-161.24	65.1	-417.0	626.1	615.8	10.28	60.889	
2,400.0	2,382.2	2,286.7	2,261.4	6.7	7.5	-161.34	-161.34	69.1	-433.6	659.0	648.2	10.77	61.162	
2,500.0	2,480.8	2,381.1	2,354.2	7.1	7.9	-161.44	-161.44	73.1	-450.2	691.9	680.6	11.27	61.404	
2,600.0	2,579.4	2,475.6	2,447.1	7.5	8.3	-161.52	-161.52	77.1	-466.8	724.8	713.0	11.76	61.620	
2,700.0	2,678.0	2,570.0	2,540.0	7.8	8.7	-161.60	-161.60	81.1	-483.4	757.7	745.4	12.26	61.813	
2,800.0	2,776.7	2,664.4	2,632.9	8.2	9.1	-161.67	-161.67	85.1	-499.9	790.6	777.8	12.75	61.987	
2,900.0	2,875.3	2,758.9	2,725.7	8.6	9.5	-161.74	-161.74	89.1	-516.5	823.5	810.2	13.25	62.144	
3,000.0	2,973.9	2,853.3	2,818.6	9.0	9.8	-161.80	-161.80	93.1	-533.1	856.4	842.6	13.75	62.286	
3,100.0	3,072.5	2,947.7	2,911.5	9.4	10.2	-161.86	-161.86	97.1	-549.7	889.3	875.0	14.25	62.415	
3,200.0	3,171.1	3,042.2	3,004.4	9.7	10.6	-161.91	-161.91	101.1	-566.3	922.2	907.4	14.75	62.534	
3,300.0	3,269.7	3,136.6	3,097.2	10.1	11.0	-161.96	-161.96	105.1	-582.9	955.1	939.8	15.25	62.642	
3,400.0	3,368.3	3,231.0	3,190.1	10.5	11.4	-162.00	-162.00	109.2	-599.5	988.0	972.2	15.75	62.741	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Honebein 7O-243
Project:	SEC.7-T4N-R64W	TVD Reference:	WELL @ 4867.0ft (RKB - 15')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	WELL @ 4867.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7O-243	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (8-18-14)	Offset TVD Reference:	Offset Datum

Offset Design Honebein 4N64W7K Pad Sec.7-T4N-R64W - Honebein 7K-223 - Wellbore #1 - Plan #1 (8-15-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWDD													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	-90.00	0.0	-58.6	58.6					
100.0	100.0	98.0	98.0	0.1	0.1	-90.00	0.0	-58.6	58.6	58.3	0.22	263.136		
200.0	200.0	198.0	198.0	0.3	0.3	-90.00	0.0	-58.6	58.6	57.9	0.67	87.419		
300.0	300.0	298.0	298.0	0.6	0.6	-90.00	0.0	-58.6	58.6	57.4	1.12	52.311		
400.0	400.0	398.0	398.0	0.8	0.8	-90.00	0.0	-58.6	58.6	57.0	1.57	37.322		
500.0	500.0	498.0	498.0	1.0	1.0	-90.00	0.0	-58.6	58.6	56.5	2.02	29.010		
600.0	600.0	598.0	598.0	1.2	1.2	-90.00	0.0	-58.6	58.6	56.1	2.47	23.726		
700.0	700.0	698.0	698.0	1.5	1.5	-90.00	0.0	-58.6	58.6	55.6	2.92	20.070		
800.0	800.0	798.0	798.0	1.7	1.7	-90.00	0.0	-58.6	58.6	55.2	3.37	17.390 CC, ES		
900.0	900.0	898.0	898.0	1.9	1.9	-162.59	0.0	-58.6	60.2	56.4	3.81	15.817		
1,000.0	999.8	997.8	997.8	2.1	2.1	-163.94	0.0	-58.6	65.2	61.0	4.24	15.389		
1,100.0	1,099.5	1,097.5	1,097.5	2.3	2.4	-165.77	0.0	-58.6	73.6	69.0	4.67	15.770		
1,200.0	1,198.7	1,196.7	1,196.7	2.6	2.6	-167.73	0.0	-58.6	85.5	80.4	5.10	16.767		
1,278.0	1,275.7	1,273.7	1,273.7	2.8	2.8	-169.17	0.0	-58.6	97.2	91.7	5.43	17.884		
1,300.0	1,297.5	1,295.5	1,295.5	2.9	2.8	-169.56	0.0	-58.6	100.8	95.2	5.53	18.220		
1,400.0	1,396.1	1,394.1	1,394.1	3.2	3.0	-171.03	0.0	-58.6	117.2	111.2	5.98	19.603		
1,500.0	1,494.7	1,492.7	1,492.7	3.5	3.2	-172.14	0.0	-58.6	133.6	127.2	6.43	20.791		
1,600.0	1,593.3	1,591.0	1,591.0	3.8	3.5	-172.64	1.2	-57.6	148.9	142.0	6.88	21.644		
1,700.0	1,691.9	1,689.4	1,689.3	4.2	3.7	-172.18	5.4	-54.3	161.6	154.3	7.34	22.024		
1,800.0	1,790.5	1,802.3	1,801.8	4.5	3.9	-170.94	12.6	-48.7	171.6	163.8	7.80	21.993		
1,900.0	1,889.1	1,903.0	1,901.8	4.9	4.2	-169.29	21.5	-41.7	179.9	171.6	8.28	21.730		
2,000.0	1,987.8	2,002.6	2,000.7	5.3	4.4	-167.78	30.5	-34.7	188.1	179.4	8.76	21.477		
2,100.0	2,086.4	2,102.1	2,099.6	5.6	4.7	-166.39	39.5	-27.7	196.6	187.3	9.25	21.240		
2,200.0	2,185.0	2,201.6	2,198.5	6.0	4.9	-165.12	48.5	-20.6	205.1	195.3	9.76	21.018		
2,300.0	2,283.6	2,301.2	2,297.4	6.4	5.2	-163.95	57.4	-13.6	213.7	203.4	10.27	20.809		
2,400.0	2,382.2	2,400.7	2,396.2	6.7	5.5	-162.88	66.4	-6.6	222.4	211.6	10.79	20.613		
2,500.0	2,480.8	2,500.3	2,495.1	7.1	5.7	-161.88	75.4	0.4	231.1	219.8	11.31	20.427		
2,600.0	2,579.4	2,599.8	2,594.0	7.5	6.0	-160.96	84.4	7.4	239.9	228.1	11.85	20.252		
2,700.0	2,678.0	2,699.3	2,692.9	7.8	6.3	-160.10	93.3	14.5	248.8	236.4	12.39	20.087		
2,800.0	2,776.7	2,798.9	2,791.8	8.2	6.6	-159.30	102.3	21.5	257.7	244.8	12.93	19.931		
2,900.0	2,875.3	2,898.4	2,890.7	8.6	6.8	-158.56	111.3	28.5	266.7	253.2	13.48	19.784		
3,000.0	2,973.9	2,997.9	2,989.5	9.0	7.1	-157.86	120.3	35.5	275.7	261.7	14.04	19.645		
3,100.0	3,072.5	3,097.5	3,088.4	9.4	7.4	-157.21	129.2	42.5	284.8	270.2	14.59	19.513		
3,200.0	3,171.1	3,197.0	3,187.3	9.7	7.7	-156.59	138.2	49.6	293.9	278.7	15.16	19.389		
3,300.0	3,269.7	3,296.6	3,286.2	10.1	8.0	-156.02	147.2	56.6	303.0	287.3	15.72	19.271		
3,400.0	3,368.3	3,396.1	3,385.1	10.5	8.3	-155.48	156.1	63.6	312.2	295.9	16.29	19.159		
3,500.0	3,466.9	3,495.6	3,484.0	10.9	8.6	-154.97	165.1	70.6	321.3	304.5	16.86	19.053		
3,600.0	3,565.5	3,595.2	3,582.8	11.3	8.9	-154.48	174.1	77.6	330.5	313.1	17.44	18.953		
3,700.0	3,664.2	3,694.7	3,681.7	11.6	9.1	-154.03	183.1	84.7	339.8	321.7	18.02	18.857		
3,800.0	3,762.8	3,794.3	3,780.6	12.0	9.4	-153.60	192.0	91.7	349.0	330.4	18.60	18.766		
3,900.0	3,861.4	3,893.8	3,879.5	12.4	9.7	-153.19	201.0	98.7	358.3	339.1	19.18	18.680		
4,000.0	3,960.0	3,993.3	3,978.4	12.8	10.0	-152.80	210.0	105.7	367.5	347.8	19.76	18.598		
4,100.0	4,058.6	4,092.9	4,077.3	13.2	10.3	-152.43	219.0	112.7	376.8	356.5	20.35	18.519		
4,200.0	4,157.2	4,192.2	4,175.9	13.6	10.6	-152.08	227.9	119.8	386.1	365.2	20.93	18.446		
4,300.0	4,255.8	4,285.6	4,268.9	13.9	10.8	-151.97	235.0	125.3	396.3	374.9	21.43	18.494		
4,400.0	4,354.4	4,378.7	4,361.8	14.3	11.0	-152.25	239.8	129.0	408.0	386.1	21.87	18.651		
4,500.0	4,453.0	4,471.3	4,454.3	14.7	11.2	-152.88	242.1	130.9	421.2	399.0	22.27	18.913		
4,600.0	4,551.7	4,566.6	4,549.7	15.1	11.3	-153.79	242.4	131.1	435.9	413.3	22.65	19.250		
4,700.0	4,650.3	4,665.2	4,648.3	15.5	11.5	-154.72	242.4	131.1	450.9	427.9	23.04	19.574		
4,800.0	4,748.9	4,763.8	4,746.9	15.9	11.7	-155.59	242.4	131.1	466.0	442.6	23.44	19.884		
4,900.0	4,847.5	4,862.4	4,845.5	16.2	11.9	-156.41	242.4	131.1	481.2	457.4	23.84	20.185		

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 7O-243
Project:	SEC.7-T4N-R64W	TVD Reference:	WELL @ 4867.0ft (RKB - 15')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	WELL @ 4867.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7O-243	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (8-18-14)	Offset TVD Reference:	Offset Datum

Offset Design Honebein 4N64W7K Pad Sec.7-T4N-R64W - Honebein 7K-223 - Wellbore #1 - Plan #1 (8-15-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,946.1	4,961.1	4,944.1	16.6	12.1	-157.17		242.4	131.1	496.5	472.3	24.25	20.476	
5,100.0	5,044.7	5,059.7	5,042.7	17.0	12.3	-157.89		242.4	131.1	511.9	487.2	24.66	20.758	
5,200.0	5,143.3	5,158.3	5,141.3	17.4	12.5	-158.57		242.4	131.1	527.3	502.3	25.07	21.031	
5,300.0	5,241.9	5,256.9	5,239.9	17.8	12.7	-159.21		242.4	131.1	542.9	517.4	25.49	21.296	
5,400.0	5,340.6	5,355.6	5,338.6	18.2	12.9	-159.81		242.4	131.1	558.5	532.5	25.91	21.552	
5,500.0	5,439.2	5,454.2	5,437.2	18.5	13.1	-160.39		242.4	131.1	574.1	547.8	26.34	21.799	
5,600.0	5,537.8	5,552.7	5,535.8	18.9	13.3	-160.93		242.4	131.1	589.8	563.0	26.76	22.039	
5,687.7	5,624.3	5,639.2	5,622.3	19.3	13.5	-161.38		242.4	131.1	603.6	576.5	27.14	22.243	
5,700.0	5,636.4	5,651.3	5,634.4	19.3	13.5	-161.45		242.4	131.1	605.5	578.3	27.19	22.268	
5,800.0	5,735.3	5,750.3	5,733.3	19.6	13.7	-161.96		242.4	131.1	619.2	591.6	27.61	22.431	
5,900.0	5,834.7	5,849.7	5,832.7	19.8	13.9	-162.34		242.4	131.1	629.7	601.7	28.00	22.491	
6,000.0	5,934.4	5,949.4	5,932.4	20.0	14.1	-162.58		242.4	131.1	636.9	608.5	28.37	22.453	
6,100.0	6,034.3	6,049.3	6,032.3	20.2	14.3	-162.72		242.4	131.1	640.7	612.0	28.70	22.322	
6,165.7	6,100.0	6,115.0	6,098.0	20.3	14.4	-90.65		242.4	131.1	641.5	612.5	28.92	22.184	
6,200.0	6,134.3	6,149.3	6,132.3	20.3	14.5	-90.65		242.4	131.1	641.5	612.4	29.05	22.083	
6,276.1	6,210.4	6,225.4	6,208.4	20.4	14.7	-90.65		242.4	131.1	641.5	612.1	29.35	21.856	
6,300.0	6,234.3	6,249.1	6,232.1	20.4	14.7	89.35		242.1	131.1	641.5	612.0	29.43	21.794	
6,350.0	6,284.2	6,298.6	6,281.6	20.5	14.8	89.37		239.1	131.1	641.5	611.9	29.57	21.693	
6,400.0	6,333.8	6,348.2	6,330.7	20.5	14.8	89.38		232.9	131.1	641.5	611.8	29.68	21.614	
6,450.0	6,382.8	6,397.7	6,379.4	20.6	14.9	89.40		223.5	131.1	641.5	611.7	29.76	21.556	
6,500.0	6,431.2	6,447.3	6,427.3	20.6	14.9	89.43		211.0	131.1	641.4	611.6	29.81	21.514	
6,550.0	6,478.5	6,496.9	6,474.4	20.6	14.9	89.45		195.4	131.1	641.4	611.6	29.85	21.486	
6,600.0	6,524.7	6,546.5	6,520.4	20.6	14.9	89.48		176.7	131.1	641.4	611.6	29.88	21.465	
6,650.0	6,569.6	6,596.1	6,565.0	20.6	14.9	89.51		155.1	131.1	641.4	611.5	29.91	21.446	
6,700.0	6,612.9	6,645.8	6,608.2	20.6	14.9	89.54		130.7	131.1	641.4	611.5	29.94	21.423	
6,750.0	6,654.5	6,695.5	6,649.8	20.6	15.0	89.57		103.4	131.1	641.4	611.4	29.99	21.389	
6,800.0	6,694.2	6,745.2	6,689.5	20.6	15.0	89.61		73.6	131.1	641.4	611.4	30.06	21.336	
6,850.0	6,731.9	6,794.9	6,727.2	20.6	15.0	89.64		41.1	131.1	641.4	611.3	30.17	21.258	
6,900.0	6,767.3	6,844.6	6,762.7	20.6	15.0	89.68		6.3	131.1	641.4	611.1	30.33	21.148	
6,950.0	6,800.3	6,894.4	6,795.9	20.7	15.0	89.72		-30.8	131.1	641.4	610.9	30.55	20.999	
7,000.0	6,830.8	6,944.2	6,826.6	20.7	15.1	89.76		-69.9	131.1	641.4	610.6	30.83	20.807	
7,050.0	6,858.6	6,994.1	6,854.7	20.8	15.3	89.80		-111.1	131.1	641.4	610.2	31.18	20.569	
7,100.0	6,883.7	7,043.9	6,880.2	20.9	15.5	89.85		-154.0	131.1	641.4	609.8	31.62	20.284	
7,150.0	6,905.8	7,093.8	6,902.7	21.0	15.8	89.89		-198.5	131.1	641.4	609.3	32.15	19.954	
7,200.0	6,925.0	7,143.8	6,922.3	21.2	16.1	89.93		-244.4	131.1	641.4	608.7	32.76	19.580	
7,250.0	6,941.2	7,193.7	6,938.9	21.3	16.5	89.98		-291.5	131.1	641.4	608.0	33.46	19.170	
7,288.0	6,951.3	7,231.7	6,949.5	21.5	16.8	90.01		-328.0	131.1	641.4	607.4	34.06	18.833	
7,300.0	6,954.2	7,243.7	6,952.4	21.6	16.9	90.02		-339.6	131.1	641.4	607.2	34.25	18.728	
7,350.0	6,964.0	7,293.8	6,962.7	21.9	17.3	90.07		-388.6	131.1	641.4	606.3	35.12	18.263	
7,400.0	6,970.6	7,343.8	6,969.8	22.2	17.8	90.11		-438.1	131.1	641.4	605.3	36.07	17.781	
7,450.0	6,973.9	7,393.9	6,973.7	22.5	18.3	90.15		-488.1	131.1	641.4	604.3	37.09	17.292	
7,487.2	6,974.3	7,431.2	6,974.4	22.8	18.7	90.18		-525.3	131.1	641.4	603.5	37.90	16.926	
7,500.0	6,974.1	7,444.0	6,974.2	22.9	18.9	90.19		-538.2	131.1	641.4	603.2	38.18	16.799	
7,600.0	6,972.7	7,544.0	6,972.8	23.9	20.1	90.19		-638.2	131.1	641.4	600.9	40.54	15.821	
7,700.0	6,971.2	7,644.0	6,971.3	24.9	21.4	90.19		-738.2	131.1	641.4	598.3	43.10	14.881	
7,800.0	6,969.8	7,744.0	6,969.9	26.1	22.8	90.19		-838.1	131.1	641.4	595.6	45.84	13.991	
7,900.0	6,968.3	7,844.0	6,968.4	27.4	24.2	90.19		-938.1	131.1	641.4	592.7	48.73	13.162	
8,000.0	6,966.9	7,944.0	6,967.0	28.7	25.7	90.19		-1,038.1	131.1	641.4	589.7	51.75	12.395	
8,100.0	6,965.4	8,044.0	6,965.5	30.1	27.3	90.19		-1,138.1	131.1	641.4	586.6	54.86	11.691	
8,200.0	6,964.0	8,144.0	6,964.1	31.6	28.9	90.19		-1,238.1	131.1	641.4	583.4	58.07	11.046	
8,300.0	6,962.5	8,244.0	6,962.6	33.1	30.6	90.19		-1,338.1	131.1	641.4	580.1	61.34	10.456	

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 7O-243
Project:	SEC.7-T4N-R64W	TVD Reference:	WELL @ 4867.0ft (RKB - 15')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	WELL @ 4867.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7O-243	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (8-18-14)	Offset TVD Reference:	Offset Datum

Offset Design Honebein 4N64W7K Pad Sec.7-T4N-R64W - Honebein 7K-223 - Wellbore #1 - Plan #1 (8-15-14)												Offset Site Error: 0.0 ft	
Survey Program: 0-MWD												Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (ft)	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)				Between Centres (ft)	Between Ellipses (ft)
8,400.0	6,961.1	8,344.0	6,961.2	34.6	32.3	90.19	-1,438.1	131.1	641.4	576.7	64.68	9.917	
8,500.0	6,959.6	8,444.0	6,959.7	36.2	34.0	90.19	-1,538.1	131.1	641.4	573.3	68.07	9.423	
8,600.0	6,958.2	8,544.0	6,958.3	37.9	35.7	90.19	-1,638.1	131.1	641.4	569.9	71.51	8.970	
8,700.0	6,956.7	8,644.0	6,956.8	39.5	37.4	90.19	-1,738.0	131.1	641.4	566.4	74.98	8.554	
8,800.0	6,955.3	8,744.0	6,955.4	41.2	39.2	90.19	-1,838.0	131.1	641.4	562.9	78.49	8.172	
8,900.0	6,953.8	8,844.0	6,953.9	42.9	41.0	90.19	-1,938.0	131.1	641.4	559.4	82.03	7.819	
9,000.0	6,952.4	8,944.0	6,952.5	44.6	42.7	90.19	-2,038.0	131.1	641.4	555.8	85.60	7.493	
9,100.0	6,950.9	9,044.0	6,951.0	46.3	44.5	90.19	-2,138.0	131.1	641.4	552.2	89.18	7.192	
9,200.0	6,949.5	9,144.0	6,949.6	48.0	46.3	90.19	-2,238.0	131.1	641.4	548.6	92.79	6.912	
9,300.0	6,948.0	9,244.0	6,948.2	49.8	48.2	90.19	-2,338.0	131.1	641.4	545.0	96.42	6.652	
9,400.0	6,946.6	9,344.0	6,946.7	51.6	50.0	90.19	-2,438.0	131.1	641.4	541.4	100.06	6.410	
9,500.0	6,945.1	9,444.0	6,945.3	53.3	51.8	90.19	-2,538.0	131.1	641.4	537.7	103.72	6.184	
9,600.0	6,943.7	9,544.0	6,943.8	55.1	53.7	90.19	-2,638.0	131.1	641.4	534.0	107.38	5.973	
9,700.0	6,942.3	9,644.0	6,942.4	56.9	55.5	90.19	-2,737.9	131.1	641.4	530.4	111.06	5.775	
9,800.0	6,940.8	9,744.0	6,940.9	58.7	57.3	90.19	-2,837.9	131.1	641.4	526.7	114.76	5.589	
9,900.0	6,939.4	9,844.0	6,939.5	60.5	59.2	90.19	-2,937.9	131.1	641.4	523.0	118.46	5.415	
10,000.0	6,937.9	9,944.0	6,938.0	62.3	61.0	90.19	-3,037.9	131.1	641.4	519.2	122.16	5.250	
10,100.0	6,936.5	10,044.0	6,936.6	64.2	62.9	90.19	-3,137.9	131.1	641.4	515.5	125.88	5.095	
10,200.0	6,935.0	10,144.0	6,935.1	66.0	64.8	90.19	-3,237.9	131.1	641.4	511.8	129.60	4.949	
10,300.0	6,933.6	10,244.0	6,933.7	67.8	66.6	90.19	-3,337.9	131.1	641.4	508.1	133.33	4.811	
10,400.0	6,932.1	10,344.0	6,932.2	69.7	68.5	90.19	-3,437.9	131.1	641.4	504.3	137.07	4.679	
10,500.0	6,930.7	10,444.0	6,930.8	71.5	70.4	90.19	-3,537.9	131.1	641.4	500.6	140.81	4.555	
10,600.0	6,929.2	10,544.0	6,929.3	73.4	72.3	90.19	-3,637.8	131.1	641.4	496.9	144.56	4.437	
10,700.0	6,927.8	10,644.0	6,927.9	75.2	74.1	90.19	-3,737.8	131.1	641.4	493.1	148.31	4.325	
10,800.0	6,926.3	10,744.0	6,926.4	77.1	76.0	90.19	-3,837.8	131.1	641.4	489.3	152.07	4.218	
10,900.0	6,924.9	10,844.0	6,925.0	78.9	77.9	90.19	-3,937.8	131.1	641.4	485.6	155.83	4.116	
11,000.0	6,923.4	10,944.0	6,923.5	80.8	79.8	90.19	-4,037.8	131.1	641.4	481.8	159.59	4.019	
11,100.0	6,922.0	11,044.0	6,922.1	82.6	81.7	90.19	-4,137.8	131.1	641.4	478.1	163.36	3.926	
11,200.0	6,920.5	11,144.0	6,920.6	84.5	83.5	90.19	-4,237.8	131.1	641.4	474.3	167.13	3.838	
11,300.0	6,919.1	11,244.0	6,919.2	86.4	85.4	90.19	-4,337.8	131.1	641.4	470.5	170.90	3.753	
11,400.0	6,917.6	11,344.0	6,917.7	88.2	87.3	90.19	-4,437.8	131.1	641.4	466.7	174.68	3.672	
11,443.2	6,917.0	11,387.2	6,917.1	89.0	88.1	90.19	-4,481.0	131.1	641.4	465.1	176.31	3.638 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Honebein 7O-243
Project:	SEC.7-T4N-R64W	TVD Reference:	WELL @ 4867.0ft (RKB - 15')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	WELL @ 4867.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7O-243	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (8-18-14)	Offset TVD Reference:	Offset Datum

Offset Design Honebein 4N64W7K Pad Sec.7-T4N-R64W - Honebein 7K-243 - Wellbore #1 - Plan #1 (8-15-15)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	-90.00	0.0	-119.9	120.0					
100.0	100.0	96.0	96.0	0.1	0.1	-90.00	0.0	-119.9	119.9	119.7	0.22	544.291		
200.0	200.0	196.0	196.0	0.3	0.3	-90.00	0.0	-119.9	119.9	119.2	0.67	180.211		
300.0	300.0	296.0	296.0	0.6	0.6	-90.00	0.0	-119.9	119.9	118.8	1.11	107.545		
400.0	400.0	396.0	396.0	0.8	0.8	-90.00	0.0	-119.9	119.9	118.3	1.56	76.641		
500.0	500.0	496.0	496.0	1.0	1.0	-90.00	0.0	-119.9	119.9	117.9	2.01	59.534		
600.0	600.0	596.0	596.0	1.2	1.2	-90.00	0.0	-119.9	119.9	117.4	2.46	48.670		
700.0	700.0	696.0	696.0	1.5	1.5	-90.00	0.0	-119.9	119.9	117.0	2.91	41.159		
800.0	800.0	796.0	796.0	1.7	1.7	-90.00	0.0	-119.9	119.9	116.5	3.36	35.657 CC, ES		
900.0	900.0	896.0	896.0	1.9	1.9	-162.33	0.0	-119.9	121.6	117.8	3.80	31.968		
1,000.0	999.8	995.8	995.8	2.1	2.1	-163.02	0.0	-119.9	126.6	122.3	4.23	29.889		
1,100.0	1,099.5	1,091.8	1,091.8	2.3	2.3	-163.67	0.8	-121.2	136.2	131.5	4.65	29.263 SF		
1,200.0	1,198.7	1,186.6	1,186.4	2.6	2.5	-163.87	3.1	-125.1	151.9	146.9	5.07	29.945		
1,278.0	1,275.7	1,259.4	1,259.0	2.8	2.7	-163.77	6.1	-129.9	168.4	163.0	5.40	31.162		
1,300.0	1,297.5	1,279.8	1,279.3	2.9	2.8	-163.74	7.1	-131.6	173.6	168.1	5.50	31.570		
1,400.0	1,396.1	1,372.5	1,371.5	3.2	3.0	-163.31	12.5	-140.5	198.8	192.9	5.94	33.462		
1,500.0	1,494.7	1,469.0	1,467.2	3.5	3.2	-162.82	18.7	-150.7	224.9	218.5	6.39	35.189		
1,600.0	1,593.3	1,565.5	1,563.0	3.8	3.5	-162.43	24.9	-160.9	251.0	244.2	6.85	36.656		
1,700.0	1,691.9	1,662.1	1,658.8	4.2	3.8	-162.12	31.0	-171.1	277.2	269.9	7.31	37.901		
1,800.0	1,790.5	1,758.6	1,754.6	4.5	4.0	-161.86	37.2	-181.3	303.3	295.5	7.78	38.968		
1,900.0	1,889.1	1,855.1	1,850.4	4.9	4.3	-161.64	43.4	-191.4	329.4	321.2	8.26	39.881		
2,000.0	1,987.8	1,951.6	1,946.1	5.3	4.6	-161.45	49.6	-201.6	355.6	346.8	8.74	40.686		
2,100.0	2,086.4	2,048.1	2,041.9	5.6	4.9	-161.29	55.8	-211.8	381.7	372.5	9.22	41.388		
2,200.0	2,185.0	2,144.6	2,137.7	6.0	5.2	-161.15	61.9	-222.0	407.9	398.2	9.71	42.006		
2,300.0	2,283.6	2,241.2	2,233.5	6.4	5.5	-161.02	68.1	-232.2	434.0	423.8	10.20	42.555		
2,400.0	2,382.2	2,337.7	2,329.2	6.7	5.7	-160.91	74.3	-242.4	460.2	449.5	10.69	43.044		
2,500.0	2,480.8	2,434.2	2,425.0	7.1	6.0	-160.82	80.5	-252.6	486.3	475.1	11.18	43.482		
2,600.0	2,579.4	2,530.7	2,520.8	7.5	6.3	-160.73	86.6	-262.7	512.5	500.8	11.68	43.877		
2,700.0	2,678.0	2,627.2	2,616.6	7.8	6.6	-160.65	92.8	-272.9	538.6	526.4	12.18	44.234		
2,800.0	2,776.7	2,723.7	2,712.4	8.2	6.9	-160.58	99.0	-283.1	564.8	552.1	12.67	44.558		
2,900.0	2,875.3	2,820.3	2,808.1	8.6	7.2	-160.51	105.2	-293.3	590.9	577.7	13.17	44.854		
3,000.0	2,973.9	2,916.8	2,903.9	9.0	7.5	-160.45	111.4	-303.5	617.1	603.4	13.67	45.125		
3,100.0	3,072.5	3,013.3	2,999.7	9.4	7.8	-160.40	117.5	-313.7	643.2	629.1	14.18	45.373		
3,200.0	3,171.1	3,109.8	3,095.5	9.7	8.1	-160.34	123.7	-323.8	669.4	654.7	14.68	45.602		
3,300.0	3,269.7	3,206.3	3,191.3	10.1	8.4	-160.30	129.9	-334.0	695.5	680.4	15.18	45.813		
3,400.0	3,368.3	3,302.8	3,287.0	10.5	8.8	-160.25	136.1	-344.2	721.7	706.0	15.69	46.008		
3,500.0	3,466.9	3,399.4	3,382.8	10.9	9.1	-160.21	142.2	-354.4	747.9	731.7	16.19	46.189		
3,600.0	3,565.5	3,495.9	3,478.6	11.3	9.4	-160.18	148.4	-364.6	774.0	757.3	16.70	46.358		
3,700.0	3,664.2	3,592.4	3,574.4	11.6	9.7	-160.14	154.6	-374.8	800.2	783.0	17.20	46.515		
3,800.0	3,762.8	3,688.9	3,670.2	12.0	10.0	-160.11	160.8	-385.0	826.3	808.6	17.71	46.662		
3,900.0	3,861.4	3,785.4	3,765.9	12.4	10.3	-160.08	167.0	-395.1	852.5	834.3	18.22	46.799		
4,000.0	3,960.0	3,881.9	3,861.7	12.8	10.6	-160.05	173.1	-405.3	878.6	859.9	18.72	46.928		
4,100.0	4,058.6	3,978.5	3,957.5	13.2	10.9	-160.02	179.3	-415.5	904.8	885.6	19.23	47.049		
4,200.0	4,157.2	4,075.0	4,053.3	13.6	11.2	-159.99	185.5	-425.7	931.0	911.2	19.74	47.163		
4,300.0	4,255.8	4,171.5	4,149.1	13.9	11.5	-159.97	191.7	-435.9	957.1	936.9	20.25	47.271		
4,400.0	4,354.4	4,268.0	4,244.8	14.3	11.8	-159.95	197.8	-446.1	983.3	962.5	20.76	47.372		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Honebein 7O-243
Project:	SEC.7-T4N-R64W	TVD Reference:	WELL @ 4867.0ft (RKB - 15')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	WELL @ 4867.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7O-243	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (8-18-14)	Offset TVD Reference:	Offset Datum

Offset Design Honebein 4N64W7K Pad Sec.7-T4N-R64W - Honebein 7K-323 - Wellbore #1 - Plan #1 (8-18-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
0.0	0.0	0.0	0.0	0.0	0.0	-90.02	0.0	-27.9	27.9					
100.0	100.0	99.0	99.0	0.1	0.1	-90.02	0.0	-27.9	27.9	27.7	0.22	124.674		
200.0	200.0	199.0	199.0	0.3	0.3	-90.02	0.0	-27.9	27.9	27.2	0.67	41.489		
300.0	300.0	299.0	299.0	0.6	0.6	-90.02	0.0	-27.9	27.9	26.8	1.12	24.860		
400.0	400.0	399.0	399.0	0.8	0.8	-90.02	0.0	-27.9	27.9	26.3	1.57	17.747		
500.0	500.0	499.0	499.0	1.0	1.0	-90.02	0.0	-27.9	27.9	25.9	2.02	13.799		
600.0	600.0	599.0	599.0	1.2	1.2	-90.02	0.0	-27.9	27.9	25.4	2.47	11.288		
700.0	700.0	699.0	699.0	1.5	1.5	-90.02	0.0	-27.9	27.9	25.0	2.92	9.550		
800.0	800.0	799.0	799.0	1.7	1.7	-90.02	0.0	-27.9	27.9	24.5	3.37	8.276 CC, ES		
900.0	900.0	899.0	899.0	1.9	1.9	-163.13	0.0	-27.9	29.5	25.7	3.81	7.757		
1,000.0	999.8	998.8	998.8	2.1	2.1	-165.62	0.0	-27.9	34.6	30.3	4.24	8.156		
1,100.0	1,099.5	1,099.8	1,099.8	2.3	2.4	-167.79	0.7	-26.3	41.5	36.8	4.66	8.889		
1,200.0	1,198.7	1,201.1	1,200.9	2.6	2.6	-168.91	2.8	-21.4	48.4	43.3	5.08	9.534		
1,278.0	1,275.7	1,280.2	1,279.8	2.8	2.7	-169.30	5.5	-15.4	53.9	48.5	5.40	9.969		
1,300.0	1,297.5	1,302.6	1,302.1	2.9	2.8	-169.35	6.4	-13.3	55.3	49.8	5.50	10.061		
1,400.0	1,396.1	1,404.0	1,402.7	3.2	3.1	-168.96	11.4	-1.9	60.0	54.0	5.95	10.088		
1,500.0	1,494.7	1,504.0	1,501.8	3.5	3.3	-168.35	16.8	10.2	63.6	57.2	6.40	9.935		
1,600.0	1,593.3	1,603.9	1,600.8	3.8	3.6	-167.81	22.1	22.3	67.2	60.4	6.87	9.791		
1,700.0	1,691.9	1,703.8	1,699.9	4.2	3.9	-167.32	27.5	34.5	70.9	63.6	7.34	9.657		
1,800.0	1,790.5	1,803.8	1,798.9	4.5	4.2	-166.88	32.8	46.6	74.5	66.7	7.82	9.532		
1,900.0	1,889.1	1,903.7	1,897.9	4.9	4.5	-166.48	38.2	58.8	78.2	69.9	8.30	9.417		
2,000.0	1,987.8	2,003.6	1,997.0	5.3	4.8	-166.12	43.6	70.9	81.9	73.1	8.79	9.309		
2,100.0	2,086.4	2,103.6	2,096.0	5.6	5.1	-165.78	48.9	83.1	85.5	76.2	9.29	9.209		
2,200.0	2,185.0	2,203.5	2,195.1	6.0	5.4	-165.48	54.3	95.2	89.2	79.4	9.78	9.116		
2,300.0	2,283.6	2,303.4	2,294.1	6.4	5.7	-165.20	59.6	107.3	92.9	82.6	10.28	9.030		
2,400.0	2,382.2	2,403.4	2,393.2	6.7	6.0	-164.94	65.0	119.5	96.5	85.7	10.79	8.949		
2,500.0	2,480.8	2,503.3	2,492.2	7.1	6.3	-164.69	70.3	131.6	100.2	88.9	11.29	8.874		
2,600.0	2,579.4	2,603.2	2,591.3	7.5	6.6	-164.47	75.7	143.8	103.9	92.1	11.80	8.804		
2,700.0	2,678.0	2,703.2	2,690.3	7.8	7.0	-164.26	81.0	155.9	107.5	95.2	12.31	8.738		
2,800.0	2,776.7	2,803.1	2,789.4	8.2	7.3	-164.07	86.4	168.1	111.2	98.4	12.82	8.677		
2,900.0	2,875.3	2,903.0	2,888.4	8.6	7.6	-163.89	91.7	180.2	114.9	101.6	13.33	8.619		
3,000.0	2,973.9	3,002.9	2,987.5	9.0	7.9	-163.71	97.1	192.3	118.6	104.7	13.84	8.565		
3,100.0	3,072.5	3,102.9	3,086.5	9.4	8.3	-163.55	102.4	204.5	122.2	107.9	14.36	8.513		
3,200.0	3,171.1	3,202.8	3,185.6	9.7	8.6	-163.40	107.8	216.6	125.9	111.0	14.87	8.465		
3,300.0	3,269.7	3,302.7	3,284.6	10.1	8.9	-163.26	113.1	228.8	129.6	114.2	15.39	8.420		
3,400.0	3,368.3	3,402.7	3,383.6	10.5	9.2	-163.12	118.5	240.9	133.3	117.4	15.91	8.377		
3,500.0	3,466.9	3,502.6	3,482.7	10.9	9.6	-163.00	123.9	253.0	137.0	120.5	16.43	8.336		
3,600.0	3,565.5	3,602.5	3,581.7	11.3	9.9	-162.88	129.2	265.2	140.6	123.7	16.95	8.297		
3,700.0	3,664.2	3,702.5	3,680.8	11.6	10.2	-162.76	134.6	277.3	144.3	126.9	17.47	8.261		
3,800.0	3,762.8	3,802.4	3,779.8	12.0	10.6	-162.65	139.9	289.5	148.0	130.0	17.99	8.226		
3,900.0	3,861.4	3,902.3	3,878.9	12.4	10.9	-162.55	145.3	301.6	151.7	133.2	18.52	8.193		
4,000.0	3,960.0	4,002.3	3,977.9	12.8	11.2	-162.45	150.6	313.8	155.4	136.3	19.04	8.161		
4,100.0	4,058.6	4,102.2	4,077.0	13.2	11.5	-162.35	156.0	325.9	159.1	139.5	19.56	8.131		
4,200.0	4,157.2	4,202.1	4,176.0	13.6	11.9	-162.26	161.3	338.0	162.7	142.7	20.09	8.102		
4,300.0	4,255.8	4,302.1	4,275.1	13.9	12.2	-162.18	166.7	350.2	166.4	145.8	20.61	8.075		
4,400.0	4,354.4	4,402.0	4,374.1	14.3	12.5	-162.10	172.0	362.3	170.1	149.0	21.14	8.049		
4,500.0	4,453.0	4,501.9	4,473.2	14.7	12.9	-162.02	177.4	374.5	173.8	152.1	21.66	8.024		
4,600.0	4,551.7	4,601.9	4,572.2	15.1	13.2	-161.94	182.7	386.6	177.5	155.3	22.19	7.999		
4,700.0	4,650.3	4,701.8	4,671.3	15.5	13.5	-161.87	188.1	398.7	181.2	158.5	22.71	7.976		
4,800.0	4,748.9	4,801.7	4,770.3	15.9	13.9	-161.80	193.5	410.9	184.9	161.6	23.24	7.954		
4,900.0	4,847.5	4,901.7	4,869.4	16.2	14.2	-161.73	198.8	423.0	188.5	164.8	23.77	7.933		

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 7O-243
Project:	SEC.7-T4N-R64W	TVD Reference:	WELL @ 4867.0ft (RKB - 15')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	WELL @ 4867.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7O-243	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (8-18-14)	Offset TVD Reference:	Offset Datum

Offset Design Honebein 4N64W7K Pad Sec.7-T4N-R64W - Honebein 7K-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	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	4,946.1	5,001.6	4,968.4	16.6	14.5	-161.67	204.2	435.2	192.2	167.9	24.29	7.913	
5,100.0	5,044.7	5,101.5	5,067.4	17.0	14.9	-161.61	209.5	447.3	195.9	171.1	24.82	7.893	
5,200.0	5,143.3	5,201.4	5,166.5	17.4	15.2	-161.55	214.9	459.5	199.6	174.3	25.35	7.874	
5,300.0	5,241.9	5,301.4	5,265.5	17.8	15.5	-161.49	220.2	471.6	203.3	177.4	25.88	7.856	
5,400.0	5,340.6	5,401.3	5,364.6	18.2	15.9	-161.43	225.6	483.7	207.0	180.6	26.41	7.838	
5,500.0	5,439.2	5,501.2	5,463.6	18.5	16.2	-161.38	230.9	495.9	210.7	183.7	26.94	7.821	
5,600.0	5,537.8	5,601.2	5,562.7	18.9	16.5	-161.33	236.3	508.0	214.4	186.9	27.46	7.805	
5,687.7	5,624.3	5,686.9	5,647.6	19.3	16.8	-161.30	240.8	518.3	217.7	189.8	27.91	7.800	
5,700.0	5,636.4	5,698.4	5,659.0	19.3	16.8	-161.31	241.4	519.6	218.3	190.3	27.97	7.804	
5,800.0	5,735.3	5,791.7	5,751.9	19.6	17.0	-161.43	245.2	528.4	222.7	194.3	28.38	7.846	
5,900.0	5,834.7	5,885.0	5,844.9	19.8	17.2	-161.59	247.9	534.4	226.7	198.0	28.73	7.891	
6,000.0	5,934.4	5,978.1	5,938.0	20.0	17.4	-161.81	249.3	537.6	230.4	201.4	29.02	7.938	
6,100.0	6,034.3	6,073.5	6,033.3	20.2	17.5	-162.05	249.6	538.2	233.6	204.3	29.28	7.977	
6,165.7	6,100.0	6,139.1	6,099.0	20.3	17.6	-90.03	249.6	538.2	234.3	204.8	29.46	7.954	
6,200.0	6,134.3	6,173.5	6,133.3	20.3	17.7	-90.03	249.6	538.2	234.3	204.7	29.58	7.919	
6,276.1	6,210.4	6,249.6	6,209.4	20.4	17.8	-90.03	249.6	538.2	234.3	204.4	29.87	7.843	
6,289.0	6,223.3	6,262.5	6,222.3	20.4	17.8	90.00	249.6	538.2	234.3	204.4	29.92	7.830	
6,300.0	6,234.3	6,273.5	6,233.3	20.4	17.8	90.06	249.6	538.2	234.3	204.3	29.97	7.818	
6,350.0	6,284.2	6,323.4	6,283.3	20.5	17.9	90.71	249.0	538.2	234.3	204.1	30.20	7.759	
6,400.0	6,333.8	6,373.5	6,333.2	20.5	18.0	91.42	245.5	538.2	234.4	204.0	30.40	7.710	
6,450.0	6,382.8	6,423.8	6,383.1	20.6	18.0	92.12	238.6	538.1	234.5	203.9	30.57	7.671	
6,500.0	6,431.2	6,474.3	6,432.5	20.6	18.1	92.82	228.5	538.1	234.7	204.0	30.71	7.643	
6,550.0	6,478.5	6,525.0	6,481.4	20.6	18.1	93.50	215.0	538.0	234.9	204.1	30.82	7.624	
6,600.0	6,524.7	6,575.9	6,529.4	20.6	18.1	94.17	198.3	537.9	235.2	204.3	30.89	7.614	
6,650.0	6,569.6	6,626.9	6,576.4	20.6	18.1	94.82	178.3	537.8	235.6	204.6	30.95	7.612	
6,700.0	6,612.9	6,678.2	6,622.1	20.6	18.1	95.45	155.1	537.6	236.0	205.0	30.99	7.615	
6,750.0	6,654.5	6,729.6	6,666.3	20.6	18.1	96.05	128.9	537.4	236.4	205.4	31.02	7.621	
6,800.0	6,694.2	6,781.3	6,708.8	20.6	18.1	96.63	99.6	537.2	236.8	205.8	31.05	7.627	
6,850.0	6,731.9	6,833.1	6,749.4	20.6	18.1	97.17	67.3	537.0	237.3	206.2	31.11	7.629	
6,900.0	6,767.3	6,885.0	6,787.8	20.6	18.1	97.68	32.3	536.8	237.8	206.6	31.19	7.625	
6,950.0	6,800.3	6,937.2	6,823.8	20.7	18.1	98.16	-5.3	536.6	238.4	207.0	31.32	7.610	
7,000.0	6,830.8	6,989.4	6,857.3	20.7	18.2	98.59	-45.5	536.3	238.9	207.4	31.53	7.577	
7,050.0	6,858.6	7,041.9	6,888.0	20.8	18.2	98.99	-87.9	536.0	239.4	207.6	31.79	7.531	
7,100.0	6,883.7	7,094.4	6,915.8	20.9	18.3	99.35	-132.5	535.7	240.0	207.8	32.15	7.463	
7,150.0	6,905.8	7,147.1	6,940.5	21.0	18.5	99.66	-179.0	535.4	240.5	207.9	32.62	7.372	
7,200.0	6,925.0	7,199.8	6,962.0	21.2	18.6	99.93	-227.2	535.1	241.0	207.8	33.19	7.260	
7,250.0	6,941.2	7,252.7	6,980.2	21.3	18.9	100.15	-276.8	534.8	241.5	207.6	33.89	7.126	
7,300.0	6,954.2	7,305.7	6,994.9	21.6	19.2	100.33	-327.6	534.5	242.0	207.3	34.69	6.974	
7,350.0	6,964.0	7,358.7	7,006.1	21.9	19.5	100.46	-379.4	534.1	242.4	206.8	35.62	6.806	
7,400.0	6,970.6	7,411.7	7,013.6	22.2	19.9	100.55	-431.9	533.8	242.8	206.2	36.64	6.626	
7,450.0	6,973.9	7,464.8	7,017.5	22.5	20.4	100.58	-484.9	533.5	243.2	205.4	37.77	6.439	
7,487.2	6,974.3	7,504.0	7,018.0	22.8	20.7	100.58	-524.1	533.2	243.4	204.8	38.65	6.298	
7,500.0	6,974.1	7,516.9	7,017.9	22.9	20.9	100.60	-536.9	533.1	243.5	204.6	38.94	6.254	
7,600.0	6,972.7	7,616.9	7,017.2	23.9	21.9	100.74	-636.9	532.5	244.3	203.1	41.24	5.924	
7,700.0	6,971.2	7,716.8	7,016.5	24.9	23.1	100.87	-736.9	531.8	245.1	201.3	43.74	5.603	
7,800.0	6,969.8	7,816.8	7,015.7	26.1	24.4	101.01	-836.9	531.2	245.8	199.4	46.42	5.296	
7,900.0	6,968.3	7,916.8	7,015.0	27.4	25.7	101.14	-936.9	530.5	246.6	197.4	49.23	5.009	
8,000.0	6,966.9	8,016.8	7,014.3	28.7	27.2	101.28	-1,036.9	529.9	247.4	195.2	52.17	4.742	
8,100.0	6,965.4	8,116.8	7,013.5	30.1	28.7	101.41	-1,136.9	529.2	248.2	193.0	55.20	4.495	
8,200.0	6,964.0	8,216.8	7,012.8	31.6	30.2	101.54	-1,236.9	528.6	248.9	190.6	58.32	4.268	
8,300.0	6,962.5	8,316.8	7,012.1	33.1	31.8	101.67	-1,336.8	527.9	249.7	188.2	61.51	4.060	

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 7O-243
Project:	SEC.7-T4N-R64W	TVD Reference:	WELL @ 4867.0ft (RKB - 15')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	WELL @ 4867.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7O-243	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (8-18-14)	Offset TVD Reference:	Offset Datum

Offset Design Honebein 4N64W7K Pad Sec.7-T4N-R64W - Honebein 7K-323 - Wellbore #1 - Plan #1 (8-18-14)												Offset Site Error: 0.0 ft	
Survey Program: 0-MWD												Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance						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	6,961.1	8,416.8	7,011.3	34.6	33.4	101.80	-1,436.8	527.3	250.5	185.7	64.75	3.868	
8,500.0	6,959.6	8,516.8	7,010.6	36.2	35.0	101.93	-1,536.8	526.6	251.3	183.2	68.05	3.693	
8,600.0	6,958.2	8,616.8	7,009.9	37.9	36.7	102.06	-1,636.8	526.0	252.1	180.7	71.39	3.531	
8,700.0	6,956.7	8,716.8	7,009.1	39.5	38.4	102.19	-1,736.8	525.4	252.8	178.1	74.76	3.382	
8,800.0	6,955.3	8,816.8	7,008.4	41.2	40.1	102.32	-1,836.8	524.7	253.6	175.5	78.17	3.245	
8,900.0	6,953.8	8,916.8	7,007.7	42.9	41.8	102.44	-1,936.8	524.1	254.4	172.8	81.60	3.118	
9,000.0	6,952.4	9,016.8	7,006.9	44.6	43.6	102.57	-2,036.8	523.4	255.2	170.2	85.05	3.000	
9,100.0	6,950.9	9,116.8	7,006.2	46.3	45.3	102.69	-2,136.8	522.8	256.0	167.5	88.53	2.892	
9,200.0	6,949.5	9,216.8	7,005.5	48.0	47.1	102.82	-2,236.8	522.1	256.8	164.8	92.02	2.790	
9,300.0	6,948.0	9,316.8	7,004.7	49.8	48.9	102.94	-2,336.8	521.5	257.6	162.0	95.53	2.696	
9,400.0	6,946.6	9,416.8	7,004.0	51.6	50.7	103.06	-2,436.7	520.8	258.4	159.3	99.05	2.608	
9,500.0	6,945.1	9,516.8	7,003.3	53.3	52.5	103.18	-2,536.7	520.2	259.2	156.6	102.58	2.526	
9,600.0	6,943.7	9,616.8	7,002.5	55.1	54.3	103.31	-2,636.7	519.5	260.0	153.8	106.12	2.450	
9,700.0	6,942.3	9,716.8	7,001.8	56.9	56.1	103.43	-2,736.7	518.9	260.7	151.1	109.67	2.378	
9,800.0	6,940.8	9,816.7	7,001.1	58.7	57.9	103.54	-2,836.7	518.2	261.5	148.3	113.23	2.310	
9,900.0	6,939.4	9,916.7	7,000.3	60.5	59.7	103.66	-2,936.7	517.6	262.3	145.5	116.79	2.246	
10,000.0	6,937.9	10,016.7	6,999.6	62.3	61.6	103.78	-3,036.7	516.9	263.1	142.8	120.36	2.186	
10,100.0	6,936.5	10,116.7	6,998.9	64.2	63.4	103.90	-3,136.7	516.3	263.9	140.0	123.94	2.130	
10,200.0	6,935.0	10,216.7	6,998.1	66.0	65.3	104.02	-3,236.7	515.6	264.7	137.2	127.51	2.076	
10,300.0	6,933.6	10,316.7	6,997.4	67.8	67.1	104.13	-3,336.7	515.0	265.5	134.4	131.09	2.026	
10,400.0	6,932.1	10,416.7	6,996.7	69.7	69.0	104.25	-3,436.6	514.3	266.3	131.7	134.68	1.978	
10,500.0	6,930.7	10,516.7	6,995.9	71.5	70.8	104.36	-3,536.6	513.7	267.1	128.9	138.27	1.932	
10,600.0	6,929.2	10,616.7	6,995.2	73.4	72.7	104.48	-3,636.6	513.1	268.0	126.1	141.85	1.889	
10,700.0	6,927.8	10,716.7	6,994.5	75.2	74.5	104.59	-3,736.6	512.4	268.8	123.3	145.44	1.848	
10,800.0	6,926.3	10,816.7	6,993.8	77.1	76.4	104.70	-3,836.6	511.8	269.6	120.5	149.03	1.809	
10,900.0	6,924.9	10,916.7	6,993.0	78.9	78.3	104.81	-3,936.6	511.1	270.4	117.7	152.63	1.771	
11,000.0	6,923.4	11,016.7	6,992.3	80.8	80.1	104.92	-4,036.6	510.5	271.2	115.0	156.22	1.736	
11,100.0	6,922.0	11,116.7	6,991.6	82.6	82.0	105.03	-4,136.6	509.8	272.0	112.2	159.81	1.702	
11,200.0	6,920.5	11,216.7	6,990.8	84.5	83.9	105.14	-4,236.6	509.2	272.8	109.4	163.40	1.670	
11,300.0	6,919.1	11,316.7	6,990.1	86.4	85.7	105.25	-4,336.6	508.5	273.6	106.6	167.00	1.638	
11,400.0	6,917.6	11,416.7	6,989.4	88.2	87.6	105.36	-4,436.6	507.9	274.4	103.9	170.53	1.609	
11,443.2	6,917.0	11,459.9	6,989.0	89.0	88.2	105.41	-4,479.8	507.6	274.8	102.9	171.93	1.598 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Honebein 7O-243
Project:	SEC.7-T4N-R64W	TVD Reference:	WELL @ 4867.0ft (RKB - 15')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	WELL @ 4867.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7O-243	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (8-18-14)	Offset TVD Reference:	Offset Datum

Offset Design Honebein 4N64W7K Pad Sec.7-T4N-R64W - Honebein 7K-403 - Wellbore #1 - Plan #1 (8-15-14)												Offset Site Error: 0.0 ft	
Survey Program: 0-MWD												Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			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	0.0	0.0	0.0	0.0	-90.00	0.0	-89.2	89.3				
100.0	100.0	97.0	97.0	0.1	0.1	-90.00	0.0	-89.2	89.2	89.0	0.22	403.001	
200.0	200.0	197.0	197.0	0.3	0.3	-90.00	0.0	-89.2	89.2	88.6	0.67	133.659	
300.0	300.0	297.0	297.0	0.6	0.6	-90.00	0.0	-89.2	89.2	88.1	1.12	79.873	
400.0	400.0	397.0	397.0	0.8	0.8	-90.00	0.0	-89.2	89.2	87.7	1.57	56.954	
500.0	500.0	497.0	497.0	1.0	1.0	-90.00	0.0	-89.2	89.2	87.2	2.02	44.255	
600.0	600.0	597.0	597.0	1.2	1.2	-90.00	0.0	-89.2	89.2	86.8	2.47	36.187	
700.0	700.0	697.0	697.0	1.5	1.5	-90.00	0.0	-89.2	89.2	86.3	2.92	30.607	
800.0	800.0	797.0	797.0	1.7	1.7	-90.00	0.0	-89.2	89.2	85.9	3.36	26.517 CC, ES	
900.0	900.0	897.0	897.0	1.9	1.9	-162.41	0.0	-89.2	90.9	87.1	3.80	23.888	
1,000.0	999.8	996.8	996.8	2.1	2.1	-163.33	0.0	-89.2	95.9	91.7	4.24	22.635	
1,100.0	1,099.5	1,096.5	1,096.5	2.3	2.4	-164.66	0.0	-89.2	104.3	99.6	4.67	22.338	
1,200.0	1,198.7	1,195.7	1,195.7	2.6	2.6	-166.19	0.0	-89.2	116.1	111.0	5.10	22.767	
1,278.0	1,275.7	1,272.7	1,272.7	2.8	2.7	-167.42	0.0	-89.2	127.7	122.2	5.43	23.500	
1,300.0	1,297.5	1,294.5	1,294.5	2.9	2.8	-167.76	0.0	-89.2	131.2	125.7	5.53	23.732	
1,400.0	1,396.1	1,393.1	1,393.1	3.2	3.0	-169.13	0.0	-89.2	147.5	141.5	5.98	24.687	
1,500.0	1,494.7	1,491.7	1,491.7	3.5	3.2	-170.22	0.0	-89.2	163.9	157.4	6.43	25.504	
1,600.0	1,593.3	1,590.3	1,590.3	3.8	3.5	-171.12	0.0	-89.2	180.3	173.4	6.88	26.209	
1,700.0	1,691.9	1,688.9	1,688.9	4.2	3.7	-171.87	0.0	-89.2	196.7	189.4	7.33	26.822	
1,800.0	1,790.5	1,787.5	1,787.5	4.5	3.9	-172.50	0.0	-89.2	213.1	205.4	7.79	27.360	
1,900.0	1,889.1	1,886.1	1,886.1	4.9	4.1	-173.04	0.0	-89.2	229.6	221.4	8.25	27.835	
2,000.0	1,987.8	1,984.8	1,984.8	5.3	4.3	-173.51	0.0	-89.2	246.1	237.4	8.71	28.258	
2,100.0	2,086.4	2,083.8	2,083.8	5.6	4.6	-173.65	1.2	-89.4	262.6	253.4	9.17	28.626	
2,200.0	2,185.0	2,182.9	2,182.7	6.0	4.8	-173.07	5.8	-90.1	278.8	269.2	9.64	28.936	
2,300.0	2,283.6	2,281.6	2,281.2	6.4	5.0	-171.92	13.5	-91.3	295.1	284.9	10.11	29.195	
2,400.0	2,382.2	2,380.1	2,379.3	6.7	5.2	-170.74	22.0	-92.6	311.4	300.8	10.58	29.420	
2,500.0	2,480.8	2,478.6	2,477.4	7.1	5.5	-169.68	30.6	-93.9	327.8	316.7	11.07	29.619	
2,600.0	2,579.4	2,577.0	2,575.4	7.5	5.7	-168.72	39.1	-95.2	344.3	332.8	11.56	29.796	
2,700.0	2,678.0	2,675.5	2,673.5	7.8	5.9	-167.84	47.6	-96.5	360.9	348.9	12.05	29.952	
2,800.0	2,776.7	2,774.0	2,771.6	8.2	6.2	-167.05	56.1	-97.8	377.6	365.1	12.55	30.092	
2,900.0	2,875.3	2,872.4	2,869.7	8.6	6.4	-166.32	64.6	-99.1	394.4	381.3	13.05	30.216	
3,000.0	2,973.9	2,970.9	2,967.8	9.0	6.7	-165.65	73.1	-100.3	411.2	397.6	13.56	30.327	
3,100.0	3,072.5	3,069.4	3,065.9	9.4	6.9	-165.03	81.7	-101.6	428.1	414.0	14.07	30.427	
3,200.0	3,171.1	3,167.8	3,164.0	9.7	7.2	-164.46	90.2	-102.9	445.0	430.4	14.58	30.516	
3,300.0	3,269.7	3,266.3	3,262.1	10.1	7.4	-163.94	98.7	-104.2	461.9	446.8	15.10	30.597	
3,400.0	3,368.3	3,364.8	3,360.2	10.5	7.7	-163.44	107.2	-105.5	478.9	463.3	15.62	30.669	
3,500.0	3,466.9	3,463.2	3,458.3	10.9	7.9	-162.99	115.7	-106.8	495.9	479.8	16.14	30.735	
3,600.0	3,565.5	3,561.7	3,556.3	11.3	8.2	-162.56	124.2	-108.1	513.0	496.3	16.66	30.795	
3,700.0	3,664.2	3,660.2	3,654.4	11.6	8.4	-162.16	132.8	-109.4	530.0	512.9	17.18	30.850	
3,800.0	3,762.8	3,758.6	3,752.5	12.0	8.7	-161.79	141.3	-110.7	547.1	529.4	17.71	30.899	
3,900.0	3,861.4	3,857.1	3,850.6	12.4	8.9	-161.44	149.8	-112.0	564.2	546.0	18.23	30.945	
4,000.0	3,960.0	3,955.6	3,948.7	12.8	9.2	-161.10	158.3	-113.3	581.4	562.6	18.76	30.986	
4,100.0	4,058.6	4,054.0	4,046.8	13.2	9.4	-160.79	166.8	-114.6	598.5	579.2	19.29	31.025	
4,200.0	4,157.2	4,152.5	4,144.9	13.6	9.7	-160.50	175.4	-115.9	615.7	595.9	19.82	31.060	
4,300.0	4,255.8	4,251.0	4,243.0	13.9	9.9	-160.22	183.9	-117.2	632.9	612.5	20.35	31.092	
4,400.0	4,354.4	4,349.4	4,341.1	14.3	10.2	-159.95	192.4	-118.5	650.1	629.2	20.89	31.122	
4,500.0	4,453.0	4,447.9	4,439.2	14.7	10.5	-159.70	200.9	-119.8	667.3	645.9	21.42	31.150	
4,600.0	4,551.7	4,546.4	4,537.2	15.1	10.7	-159.47	209.4	-121.1	684.5	662.5	21.96	31.176	
4,700.0	4,650.3	4,644.8	4,635.3	15.5	11.0	-159.24	217.9	-122.4	701.7	679.2	22.49	31.200	
4,800.0	4,748.9	4,743.3	4,733.4	15.9	11.2	-159.02	226.5	-123.7	719.0	695.9	23.03	31.222	
4,900.0	4,847.5	4,846.2	4,836.1	16.2	11.5	-158.91	234.1	-124.8	736.0	712.4	23.53	31.283	

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 7O-243
Project:	SEC.7-T4N-R64W	TVD Reference:	WELL @ 4867.0ft (RKB - 15')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	WELL @ 4867.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7O-243	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (8-18-14)	Offset TVD Reference:	Offset Datum

Offset Design Honebein 4N64W7K Pad Sec.7-T4N-R64W - Honebein 7K-403 - Wellbore #1 - Plan #1 (8-15-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,946.1	4,950.3	4,940.0	16.6	11.7	-159.08		238.1	-125.4	752.3	728.3	23.98	31.377	
5,100.0	5,044.7	5,052.0	5,041.7	17.0	11.8	-159.49		238.7	-125.5	767.9	743.5	24.40	31.471	
5,200.0	5,143.3	5,150.6	5,140.3	17.4	12.0	-159.92		238.7	-125.5	783.5	758.7	24.84	31.544	
5,300.0	5,241.9	5,249.2	5,238.9	17.8	12.2	-160.33		238.7	-125.5	799.2	773.9	25.29	31.602	
5,400.0	5,340.6	5,347.8	5,337.6	18.2	12.5	-160.72		238.7	-125.5	814.9	789.1	25.74	31.659	
5,500.0	5,439.2	5,446.4	5,436.2	18.5	12.7	-161.10		238.7	-125.5	830.6	804.4	26.19	31.714	
5,600.0	5,537.8	5,545.0	5,534.8	18.9	12.9	-161.46		238.7	-125.5	846.3	819.7	26.64	31.768	
5,687.7	5,624.3	5,631.5	5,621.3	19.3	13.0	-161.77		238.7	-125.5	860.2	833.1	27.04	31.815	
5,700.0	5,636.4	5,643.7	5,633.4	19.3	13.1	-161.82		238.7	-125.5	862.1	835.0	27.10	31.815	
5,800.0	5,735.3	5,742.6	5,732.3	19.6	13.3	-162.20		238.7	-125.5	875.9	848.3	27.55	31.793	
5,900.0	5,834.7	5,842.0	5,831.7	19.8	13.5	-162.48		238.7	-125.5	886.3	858.4	27.97	31.688	
6,000.0	5,934.4	5,941.7	5,931.4	20.0	13.7	-162.67		238.7	-125.5	893.5	865.2	28.36	31.504	
6,100.0	6,034.3	6,041.6	6,031.3	20.2	13.9	-162.77		238.7	-125.5	897.4	868.7	28.72	31.244	
6,165.7	6,100.0	6,107.3	6,097.0	20.3	14.1	-90.70		238.7	-125.5	898.1	869.1	28.94	31.029	
6,200.0	6,134.3	6,141.6	6,131.3	20.3	14.1	-90.70		238.7	-125.5	898.1	869.0	29.08	30.887	
6,276.1	6,210.4	6,217.7	6,207.4	20.4	14.3	-90.70		238.7	-125.5	898.1	868.7	29.38	30.568	
6,300.0	6,234.3	6,241.6	6,231.3	20.4	14.3	89.32		238.7	-125.5	898.1	868.6	29.47	30.472	
6,350.0	6,284.2	6,291.5	6,281.2	20.5	14.4	89.53		238.7	-125.5	898.1	868.4	29.66	30.280	
6,400.0	6,333.8	6,341.1	6,330.8	20.5	14.6	89.94		238.7	-125.5	898.0	868.2	29.84	30.093	
6,405.9	6,339.6	6,346.9	6,336.6	20.5	14.6	90.00		238.7	-125.5	898.0	868.2	29.86	30.072	
6,450.0	6,382.8	6,390.6	6,380.3	20.6	14.6	90.47		237.4	-125.5	898.1	868.1	29.99	29.945	
6,500.0	6,431.2	6,440.6	6,430.1	20.6	14.7	91.00		232.9	-125.5	898.2	868.1	30.11	29.830	
6,550.0	6,478.5	6,491.2	6,480.1	20.6	14.7	91.53		225.0	-125.5	898.4	868.2	30.20	29.745	
6,600.0	6,524.7	6,542.4	6,530.0	20.6	14.8	92.05		213.6	-125.5	898.6	868.3	30.27	29.685	
6,650.0	6,569.6	6,594.2	6,579.6	20.6	14.8	92.57		198.8	-125.5	899.0	868.6	30.32	29.646	
6,700.0	6,612.9	6,646.7	6,628.7	20.6	14.8	93.08		180.4	-125.5	899.4	869.0	30.36	29.619	
6,750.0	6,654.5	6,699.7	6,677.0	20.6	14.8	93.58		158.3	-125.5	899.8	869.4	30.40	29.597	
6,800.0	6,694.2	6,753.4	6,724.1	20.6	14.9	94.07		132.7	-125.5	900.4	869.9	30.45	29.569	
6,850.0	6,731.9	6,807.7	6,789.9	20.6	14.9	94.55		103.5	-125.5	900.9	870.4	30.52	29.523	
6,900.0	6,767.3	6,862.6	6,813.9	20.6	14.9	95.00		70.7	-125.5	901.5	870.9	30.62	29.445	
6,950.0	6,800.3	6,918.2	6,855.9	20.7	15.0	95.43		34.4	-125.5	902.1	871.4	30.76	29.324	
7,000.0	6,830.8	6,974.3	6,895.6	20.7	15.1	95.84		-5.3	-125.5	902.8	871.8	30.97	29.146	
7,050.0	6,858.6	7,031.1	6,932.7	20.8	15.2	96.23		-48.3	-125.5	903.4	872.2	31.26	28.900	
7,100.0	6,883.7	7,088.4	6,966.7	20.9	15.4	96.58		-94.4	-125.5	904.0	872.4	31.63	28.578	
7,150.0	6,905.8	7,146.2	6,997.5	21.0	15.6	96.91		-143.3	-125.5	904.6	872.5	32.11	28.175	
7,200.0	6,925.0	7,204.5	7,024.7	21.2	15.9	97.20		-194.9	-125.5	905.2	872.5	32.69	27.687	
7,250.0	6,941.2	7,263.3	7,048.1	21.3	16.3	97.46		-248.8	-125.5	905.7	872.3	33.40	27.120	
7,300.0	6,954.2	7,322.4	7,067.3	21.6	16.7	97.68		-304.7	-125.5	906.2	872.0	34.22	26.484	
7,350.0	6,964.0	7,381.9	7,082.2	21.9	17.2	97.86		-362.2	-125.5	906.6	871.4	35.15	25.794	
7,400.0	6,970.6	7,441.6	7,092.7	22.2	17.8	98.00		-421.1	-125.5	906.9	870.7	36.18	25.062	
7,450.0	6,973.9	7,501.6	7,098.5	22.5	18.4	98.10		-480.7	-125.5	907.1	869.7	37.32	24.305	
7,487.2	6,974.3	7,545.5	7,099.8	22.8	18.9	98.14		-524.6	-125.5	907.2	869.0	38.22	23.737	
7,500.0	6,974.1	7,558.3	7,099.9	22.9	19.0	98.16		-537.4	-125.5	907.2	868.7	38.50	23.563	
7,600.0	6,972.7	7,658.3	7,100.5	23.9	20.2	98.29		-637.4	-125.5	907.5	866.7	40.83	22.227	
7,700.0	6,971.2	7,758.3	7,101.0	24.9	21.5	98.41		-737.4	-125.5	907.8	864.4	43.35	20.938	
7,800.0	6,969.8	7,858.3	7,101.6	26.1	22.9	98.54		-837.4	-125.5	908.1	862.0	46.05	19.717	
7,900.0	6,968.3	7,958.3	7,102.1	27.4	24.3	98.66		-937.3	-125.5	908.4	859.5	48.90	18.576	
8,000.0	6,966.9	8,058.2	7,102.7	28.7	25.8	98.79		-1,037.3	-125.5	908.7	856.8	51.86	17.520	
8,100.0	6,965.4	8,158.2	7,103.3	30.1	27.4	98.91		-1,137.3	-125.5	909.0	854.1	54.93	16.548	
8,200.0	6,964.0	8,258.2	7,103.8	31.6	29.0	99.04		-1,237.3	-125.5	909.3	851.2	58.08	15.656	
8,300.0	6,962.5	8,358.2	7,104.4	33.1	30.6	99.16		-1,337.3	-125.5	909.6	848.3	61.30	14.839	

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

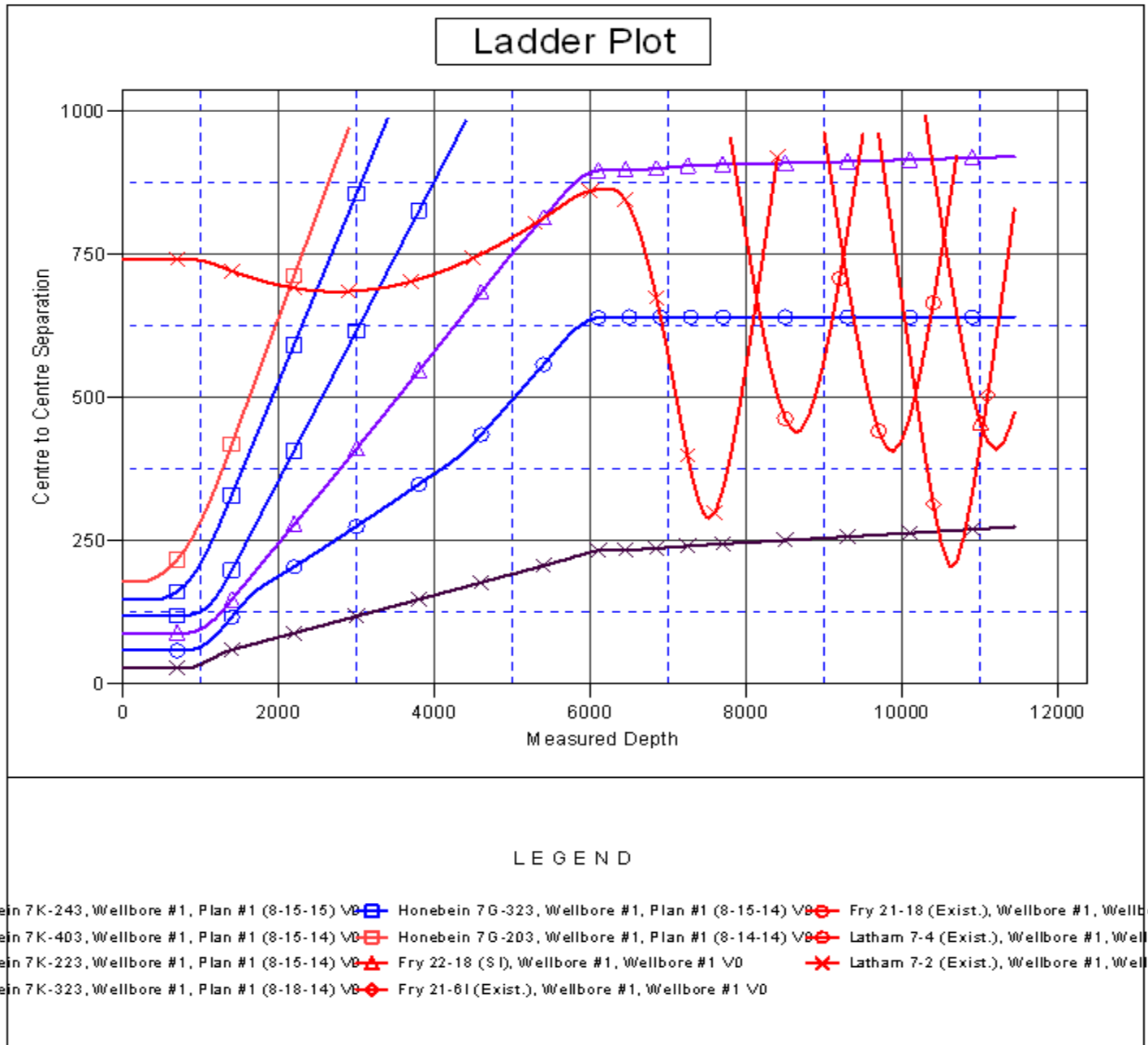
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Honebein 7O-243
Project:	SEC.7-T4N-R64W	TVD Reference:	WELL @ 4867.0ft (RKB - 15')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	WELL @ 4867.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7O-243	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (8-18-14)	Offset TVD Reference:	Offset Datum

Offset Design Honebein 4N64W7K Pad Sec.7-T4N-R64W - Honebein 7K-403 - Wellbore #1 - Plan #1 (8-15-14)												Offset Site Error: 0.0 ft		
Survey Program: 0-MWD												Offset Well Error: 0.0 ft		
Reference		Offset		Semi Major Axis			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	6,961.1	8,458.2	7,104.9	34.6	32.3	99.29	-1,437.2	-125.5	909.9	845.4	64.58	14.090		
8,500.0	6,959.6	8,558.1	7,105.5	36.2	34.0	99.41	-1,537.2	-125.5	910.3	842.3	67.91	13.404		
8,600.0	6,958.2	8,658.1	7,106.1	37.9	35.7	99.54	-1,637.2	-125.5	910.6	839.3	71.28	12.774		
8,700.0	6,956.7	8,758.1	7,106.6	39.5	37.5	99.66	-1,737.2	-125.5	910.9	836.2	74.69	12.196		
8,800.0	6,955.3	8,858.1	7,107.2	41.2	39.2	99.78	-1,837.1	-125.5	911.3	833.1	78.13	11.663		
8,900.0	6,953.8	8,958.1	7,107.7	42.9	41.0	99.91	-1,937.1	-125.5	911.6	830.0	81.60	11.171		
9,000.0	6,952.4	9,058.0	7,108.3	44.6	42.8	100.03	-2,037.1	-125.5	911.9	826.9	85.09	10.717		
9,100.0	6,950.9	9,158.0	7,108.8	46.3	44.6	100.16	-2,137.1	-125.5	912.3	823.7	88.61	10.296		
9,200.0	6,949.5	9,258.0	7,109.4	48.0	46.4	100.28	-2,237.1	-125.5	912.7	820.5	92.14	9.906		
9,300.0	6,948.0	9,358.0	7,110.0	49.8	48.2	100.40	-2,337.0	-125.5	913.0	817.3	95.68	9.542		
9,400.0	6,946.6	9,458.0	7,110.5	51.6	50.0	100.53	-2,437.0	-125.5	913.4	814.1	99.24	9.204		
9,500.0	6,945.1	9,557.9	7,111.1	53.3	51.9	100.65	-2,537.0	-125.5	913.7	810.9	102.81	8.888		
9,600.0	6,943.7	9,657.9	7,111.6	55.1	53.7	100.78	-2,637.0	-125.5	914.1	807.7	106.39	8.592		
9,700.0	6,942.3	9,757.9	7,112.2	56.9	55.5	100.90	-2,737.0	-125.5	914.5	804.5	109.98	8.315		
9,800.0	6,940.8	9,857.9	7,112.8	58.7	57.4	101.02	-2,836.9	-125.5	914.9	801.3	113.57	8.055		
9,900.0	6,939.4	9,957.9	7,113.3	60.5	59.2	101.15	-2,936.9	-125.5	915.3	798.1	117.17	7.811		
10,000.0	6,937.9	10,057.8	7,113.9	62.3	61.1	101.27	-3,036.9	-125.5	915.6	794.9	120.78	7.581		
10,100.0	6,936.5	10,157.8	7,114.4	64.2	62.9	101.39	-3,136.9	-125.5	916.0	791.6	124.39	7.364		
10,200.0	6,935.0	10,257.8	7,115.0	66.0	64.8	101.52	-3,236.8	-125.5	916.4	788.4	128.01	7.159		
10,300.0	6,933.6	10,357.8	7,115.5	67.8	66.7	101.64	-3,336.8	-125.5	916.8	785.2	131.63	6.965		
10,400.0	6,932.1	10,457.8	7,116.1	69.7	68.5	101.76	-3,436.8	-125.5	917.2	782.0	135.25	6.782		
10,500.0	6,930.7	10,557.7	7,116.7	71.5	70.4	101.88	-3,536.8	-125.5	917.7	778.8	138.88	6.608		
10,600.0	6,929.2	10,657.7	7,117.2	73.4	72.3	102.01	-3,636.8	-125.5	918.1	775.6	142.51	6.442		
10,700.0	6,927.8	10,757.7	7,117.8	75.2	74.2	102.13	-3,736.7	-125.5	918.5	772.4	146.14	6.285		
10,800.0	6,926.3	10,857.7	7,118.3	77.1	76.0	102.25	-3,836.7	-125.5	918.9	769.1	149.77	6.136		
10,900.0	6,924.9	10,957.7	7,118.9	78.9	77.9	102.37	-3,936.7	-125.5	919.3	765.9	153.40	5.993		
11,000.0	6,923.4	11,057.6	7,119.5	80.8	79.8	102.50	-4,036.7	-125.5	919.8	762.7	157.03	5.857		
11,100.0	6,922.0	11,157.6	7,120.0	82.6	81.7	102.62	-4,136.7	-125.5	920.2	759.5	160.66	5.728		
11,200.0	6,920.5	11,257.6	7,120.6	84.5	83.6	102.74	-4,236.6	-125.5	920.6	756.4	164.29	5.604		
11,300.0	6,919.1	11,357.6	7,121.1	86.4	85.5	102.86	-4,336.6	-125.5	921.1	753.2	167.92	5.485		
11,400.0	6,917.6	11,457.6	7,121.7	88.2	87.3	102.98	-4,436.6	-125.5	921.5	750.0	171.55	5.372		
11,443.2	6,917.0	11,500.8	7,121.9	89.0	88.2	103.04	-4,479.8	-125.5	921.7	748.6	173.12	5.324 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Honebein 7O-243
Project:	SEC.7-T4N-R64W	TVD Reference:	WELL @ 4867.0ft (RKB - 15')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	WELL @ 4867.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7O-243	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (8-18-14)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4867.0ft (RKB - 15')
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: Honebein 7O-243
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 7O-243
Project:	SEC.7-T4N-R64W	TVD Reference:	WELL @ 4867.0ft (RKB - 15')
Reference Site:	Honebein 4N64W7K Pad Sec.7-T4N-R64W	MD Reference:	WELL @ 4867.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Honebein 7O-243	Survey Calculation Method:	Minimum Curvature
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 Coordinate System is US State Plane 1983, Colorado Northern Zone
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