

# PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Hankins 20M-323**

Surface Location: Hankins 5N67W20MR Pad Sec.20-T5N-R67W  
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

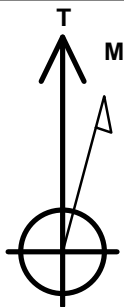
Ground Elevation: 4959.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1386229.26	3162703.96	40.392130	-104.915870	

RKB - 15' WELL @ 4974.0ft (RKB - 15')

## WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 90'FNL, 2362'FEL		0.0	0.0	Point
BHL 500'FSL, 2130'FEL	7040.0	-4696.0	200.6	Point



Azimuths to True North  
Magnetic North: 8.52°

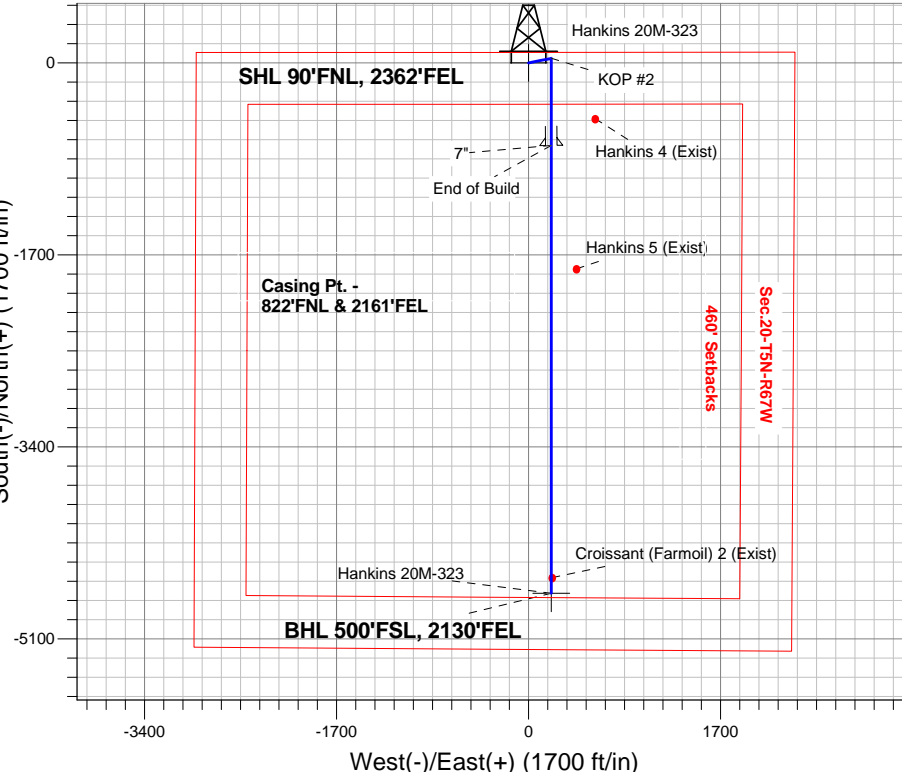
Magnetic Field  
Strength: 52777.4snT  
Dip Angle: 66.91°  
Date: 8/12/2014  
Model: IGRF2010

Hankins 5N67W20MR Pad Sec.20-T5N-R67W  
Hankins 20M-323  
Plan #1 (8-12-14)  
6:21, August 13 2014

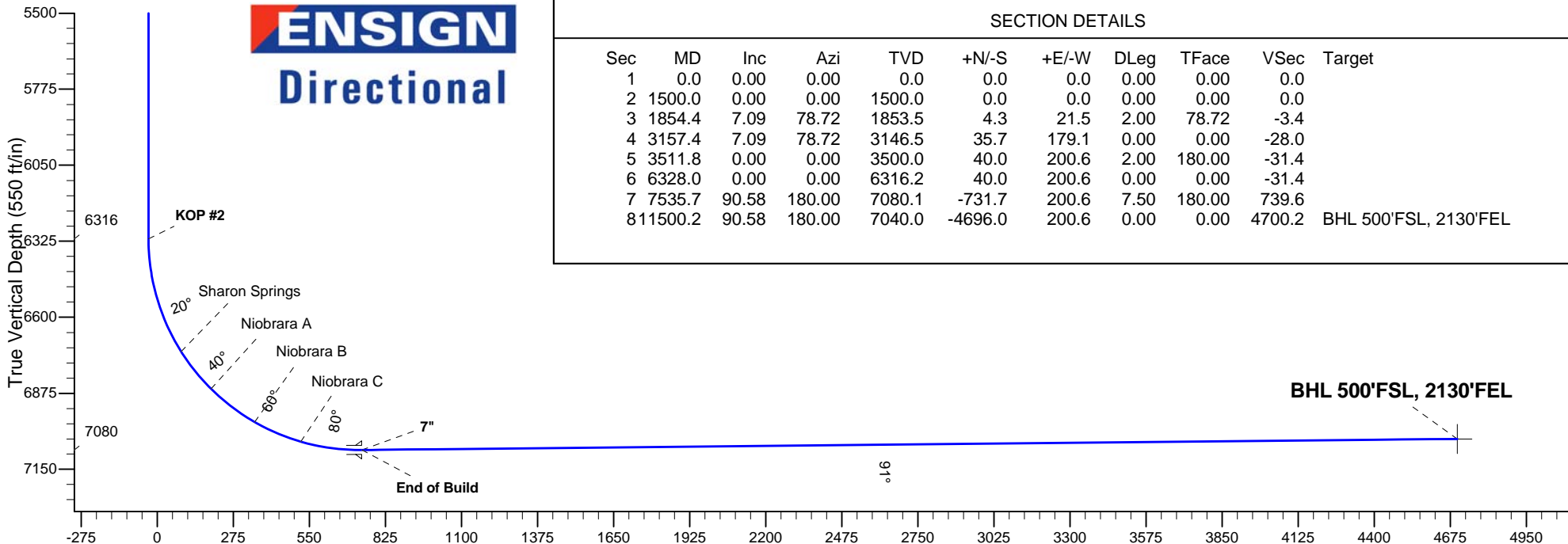
## ANNOTATIONS

TVD	MD	Annotation
1500.0	1500.0	KOP #1
6316.2	6328.0	KOP #2
7080.1	7535.7	End of Build

South(-)/North(+) (1700 ft/in)



**ENSIGN**  
Directional



## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1500.0	0.00	0.00	1500.0	0.0	0.0	0.00	0.00	0.0	
3	1854.4	7.09	78.72	1853.5	4.3	21.5	2.00	78.72	-3.4	
4	3157.4	7.09	78.72	3146.5	35.7	179.1	0.00	0.00	-28.0	
5	3511.8	0.00	0.00	3500.0	40.0	200.6	2.00	180.00	-31.4	
6	6328.0	0.00	0.00	6316.2	40.0	200.6	0.00	0.00	-31.4	
7	7535.7	90.58	180.00	7080.1	-731.7	200.6	7.50	180.00	739.6	
8	11500.2	90.58	180.00	7040.0	-4696.0	200.6	0.00	0.00	4700.2	BHL 500'FSL, 2130'FEL

Vertical Section at 177.55° (550 ft/in)



# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.20-T5N-R67W**

**Hankins 5N67W20MR Pad Sec.20-T5N-R67W**

**Hankins 20M-323**

**Wellbore #1**

**Plan: Plan #1 (8-12-14)**

## **Standard Planning Report**

**13 August, 2014**

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Hankins 20M-323
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Project:</b>	SEC.20-T5N-R67W	<b>MD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Site:</b>	Hankins 5N67W20MR Pad Sec.20-T5N-R67W	<b>North Reference:</b>	True
<b>Well:</b>	Hankins 20M-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (8-12-14)		

<b>Project</b>	SEC.20-T5N-R67W, Weld County, Colorado		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		Using Well Reference Point
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

Site						Hankins 5N67W20MR Pad Sec.20-T5N-R67W											
Site Position:						Northing:			1,386,228.87 ft			Latitude:			40.392130		
From:			Lat/Long			Easting:			3,162,642.69 ft			Longitude:			-104.916090		
Position Uncertainty:			0.0 ft			Slot Radius:			"			Grid Convergence:			0.38 °		

Well	Hankins 20M-323					
Well Position	+N-S	0.0 ft	Northing:	1,386,229.26 ft	Latitude:	40.392130
	+E-W	61.3 ft	Easting:	3,162,703.96 ft	Longitude:	-104.915870
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,959.0 ft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	8/12/2014	8.52	66.91	52,777

<b>Design</b>	Plan #1 (8-12-14)			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	177.55

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,854.4	7.09	78.72	1,853.5	4.3	21.5	2.00	2.00	0.00	78.72	
3,157.4	7.09	78.72	3,146.5	35.7	179.1	0.00	0.00	0.00	0.00	
3,511.8	0.00	0.00	3,500.0	40.0	200.6	2.00	-2.00	0.00	180.00	
6,328.0	0.00	0.00	6,316.2	40.0	200.6	0.00	0.00	0.00	0.00	
7,535.7	90.58	180.00	7,080.1	-731.7	200.6	7.50	7.50	0.00	180.00	
11,500.2	90.58	180.00	7,040.0	-4,696.0	200.6	0.00	0.00	0.00	0.00	BHL 500'FSL, 2130

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Hankins 20M-323
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Project:</b>	SEC.20-T5N-R67W	<b>MD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Site:</b>	Hankins 5N67W20MR Pad Sec.20-T5N-R67W	<b>North Reference:</b>	True
<b>Well:</b>	Hankins 20M-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (8-12-14)		

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
<b>SHL 90'FNL, 2362'FEL</b>									
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>KOP #1</b>									
1,600.0	2.00	78.72	1,600.0	0.3	1.7	-0.3	2.00	2.00	0.00
1,700.0	4.00	78.72	1,699.8	1.4	6.8	-1.1	2.00	2.00	0.00
1,800.0	6.00	78.72	1,799.5	3.1	15.4	-2.4	2.00	2.00	0.00
1,854.4	7.09	78.72	1,853.5	4.3	21.5	-3.4	2.00	2.00	0.00
1,900.0	7.09	78.72	1,898.7	5.4	27.0	-4.2	0.00	0.00	0.00
2,000.0	7.09	78.72	1,998.0	7.8	39.1	-6.1	0.00	0.00	0.00
2,100.0	7.09	78.72	2,097.2	10.2	51.2	-8.0	0.00	0.00	0.00
2,200.0	7.09	78.72	2,196.5	12.6	63.3	-9.9	0.00	0.00	0.00
2,300.0	7.09	78.72	2,295.7	15.0	75.4	-11.8	0.00	0.00	0.00
2,400.0	7.09	78.72	2,394.9	17.4	87.5	-13.7	0.00	0.00	0.00
2,500.0	7.09	78.72	2,494.2	19.9	99.6	-15.6	0.00	0.00	0.00
2,600.0	7.09	78.72	2,593.4	22.3	111.7	-17.5	0.00	0.00	0.00
2,700.0	7.09	78.72	2,692.6	24.7	123.8	-19.4	0.00	0.00	0.00
2,800.0	7.09	78.72	2,791.9	27.1	135.9	-21.3	0.00	0.00	0.00
2,900.0	7.09	78.72	2,891.1	29.5	148.0	-23.2	0.00	0.00	0.00
3,000.0	7.09	78.72	2,990.3	31.9	160.1	-25.1	0.00	0.00	0.00
3,100.0	7.09	78.72	3,089.6	34.3	172.2	-27.0	0.00	0.00	0.00
3,157.4	7.09	78.72	3,146.5	35.7	179.1	-28.0	0.00	0.00	0.00
3,200.0	6.24	78.72	3,188.9	36.7	184.0	-28.8	2.00	-2.00	0.00
3,300.0	4.24	78.72	3,288.4	38.5	192.9	-30.2	2.00	-2.00	0.00
3,400.0	2.24	78.72	3,388.3	39.6	198.5	-31.1	2.00	-2.00	0.00
3,500.0	0.24	78.72	3,488.2	40.0	200.6	-31.4	2.00	-2.00	0.00
3,505.8	0.12	78.72	3,494.0	40.0	200.6	-31.4	2.00	-2.00	0.00
<b>Parkman</b>									
3,511.8	0.00	0.00	3,500.0	40.0	200.6	-31.4	2.00	-2.00	0.00
3,600.0	0.00	0.00	3,588.2	40.0	200.6	-31.4	0.00	0.00	0.00
3,700.0	0.00	0.00	3,688.2	40.0	200.6	-31.4	0.00	0.00	0.00
3,800.0	0.00	0.00	3,788.2	40.0	200.6	-31.4	0.00	0.00	0.00
3,900.0	0.00	0.00	3,888.2	40.0	200.6	-31.4	0.00	0.00	0.00
4,000.0	0.00	0.00	3,988.2	40.0	200.6	-31.4	0.00	0.00	0.00
4,100.0	0.00	0.00	4,088.2	40.0	200.6	-31.4	0.00	0.00	0.00
4,103.8	0.00	0.00	4,092.0	40.0	200.6	-31.4	0.00	0.00	0.00
<b>Sussex</b>									

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<b>Project:</b>	SEC.20-T5N-R67W	<b>MD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Site:</b>	Hankins 5N67W20MR Pad	<b>North Reference:</b>	True
	Sec.20-T5N-R67W		
<b>Well:</b>	Hankins 20M-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (8-12-14)		

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)
4,200.0	0.00	0.00	4,188.2	40.0	200.6	-31.4	0.00	0.00	0.00
4,300.0	0.00	0.00	4,288.2	40.0	200.6	-31.4	0.00	0.00	0.00
4,400.0	0.00	0.00	4,388.2	40.0	200.6	-31.4	0.00	0.00	0.00
4,500.0	0.00	0.00	4,488.2	40.0	200.6	-31.4	0.00	0.00	0.00
4,561.8	0.00	0.00	4,550.0	40.0	200.6	-31.4	0.00	0.00	0.00
<b>Shannon</b>									
4,600.0	0.00	0.00	4,588.2	40.0	200.6	-31.4	0.00	0.00	0.00
4,700.0	0.00	0.00	4,688.2	40.0	200.6	-31.4	0.00	0.00	0.00
4,800.0	0.00	0.00	4,788.2	40.0	200.6	-31.4	0.00	0.00	0.00
4,900.0	0.00	0.00	4,888.2	40.0	200.6	-31.4	0.00	0.00	0.00
5,000.0	0.00	0.00	4,988.2	40.0	200.6	-31.4	0.00	0.00	0.00
5,100.0	0.00	0.00	5,088.2	40.0	200.6	-31.4	0.00	0.00	0.00
5,200.0	0.00	0.00	5,188.2	40.0	200.6	-31.4	0.00	0.00	0.00
5,300.0	0.00	0.00	5,288.2	40.0	200.6	-31.4	0.00	0.00	0.00
5,400.0	0.00	0.00	5,388.2	40.0	200.6	-31.4	0.00	0.00	0.00
5,500.0	0.00	0.00	5,488.2	40.0	200.6	-31.4	0.00	0.00	0.00
5,600.0	0.00	0.00	5,588.2	40.0	200.6	-31.4	0.00	0.00	0.00
5,700.0	0.00	0.00	5,688.2	40.0	200.6	-31.4	0.00	0.00	0.00
5,800.0	0.00	0.00	5,788.2	40.0	200.6	-31.4	0.00	0.00	0.00
5,900.0	0.00	0.00	5,888.2	40.0	200.6	-31.4	0.00	0.00	0.00
6,000.0	0.00	0.00	5,988.2	40.0	200.6	-31.4	0.00	0.00	0.00
6,100.0	0.00	0.00	6,088.2	40.0	200.6	-31.4	0.00	0.00	0.00
6,200.0	0.00	0.00	6,188.2	40.0	200.6	-31.4	0.00	0.00	0.00
6,300.0	0.00	0.00	6,288.2	40.0	200.6	-31.4	0.00	0.00	0.00
6,328.0	0.00	0.00	6,316.2	40.0	200.6	-31.4	0.00	0.00	0.00
<b>KOP #2</b>									
6,400.0	5.40	180.00	6,388.1	36.6	200.6	-28.0	7.50	7.50	0.00
6,500.0	12.90	180.00	6,486.8	20.7	200.6	-12.1	7.50	7.50	0.00
6,600.0	20.40	180.00	6,582.5	-7.9	200.6	16.5	7.50	7.50	0.00
6,700.0	27.90	180.00	6,673.7	-48.8	200.6	57.3	7.50	7.50	0.00
6,758.1	32.26	180.00	6,724.0	-77.9	200.6	86.4	7.50	7.50	0.00
<b>Sharon Springs</b>									
6,800.0	35.40	180.00	6,758.8	-101.2	200.6	109.7	7.50	7.50	0.00
6,900.0	42.90	180.00	6,836.3	-164.3	200.6	172.7	7.50	7.50	0.00
6,931.7	45.27	180.00	6,859.0	-186.4	200.6	194.7	7.50	7.50	0.00
<b>Niobrara A</b>									
7,000.0	50.40	180.00	6,904.9	-237.0	200.6	245.3	7.50	7.50	0.00
7,100.0	57.90	180.00	6,963.4	-318.0	200.6	326.3	7.50	7.50	0.00
7,130.4	60.18	180.00	6,979.0	-344.0	200.6	352.3	7.50	7.50	0.00
<b>Niobrara B</b>									
7,200.0	65.40	180.00	7,010.8	-405.9	200.6	414.1	7.50	7.50	0.00
7,300.0	72.90	180.00	7,046.4	-499.3	200.6	507.4	7.50	7.50	0.00
7,312.6	73.84	180.00	7,050.0	-511.4	200.6	519.5	7.50	7.50	0.00
<b>Niobrara C</b>									
7,400.0	80.40	180.00	7,069.5	-596.6	200.6	604.6	7.50	7.50	0.00
7,500.0	87.90	180.00	7,079.7	-696.0	200.6	703.9	7.50	7.50	0.00
7,535.7	90.58	180.00	7,080.1	-731.7	200.6	739.6	7.50	7.50	0.00
<b>End of Build - 7"</b>									
7,600.0	90.58	180.00	7,079.5	-796.0	200.6	803.8	0.00	0.00	0.00
7,700.0	90.58	180.00	7,078.5	-895.9	200.6	903.7	0.00	0.00	0.00
7,800.0	90.58	180.00	7,077.5	-995.9	200.6	1,003.6	0.00	0.00	0.00

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<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Project:</b>	SEC.20-T5N-R67W	<b>MD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Site:</b>	Hankins 5N67W20MR Pad Sec.20-T5N-R67W	<b>North Reference:</b>	True
<b>Well:</b>	Hankins 20M-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (8-12-14)		

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)
7,900.0	90.58	180.00	7,076.4	-1,095.9	200.6	1,103.5	0.00	0.00	0.00
8,000.0	90.58	180.00	7,075.4	-1,195.9	200.6	1,203.4	0.00	0.00	0.00
8,100.0	90.58	180.00	7,074.4	-1,295.9	200.6	1,303.3	0.00	0.00	0.00
8,200.0	90.58	180.00	7,073.4	-1,395.9	200.6	1,403.2	0.00	0.00	0.00
8,300.0	90.58	180.00	7,072.4	-1,495.9	200.6	1,503.1	0.00	0.00	0.00
8,400.0	90.58	180.00	7,071.4	-1,595.9	200.6	1,603.0	0.00	0.00	0.00
8,500.0	90.58	180.00	7,070.4	-1,695.9	200.6	1,702.9	0.00	0.00	0.00
8,600.0	90.58	180.00	7,069.4	-1,795.9	200.6	1,802.8	0.00	0.00	0.00
8,700.0	90.58	180.00	7,068.3	-1,895.9	200.6	1,902.7	0.00	0.00	0.00
8,800.0	90.58	180.00	7,067.3	-1,995.9	200.6	2,002.6	0.00	0.00	0.00
8,900.0	90.58	180.00	7,066.3	-2,095.9	200.6	2,102.5	0.00	0.00	0.00
9,000.0	90.58	180.00	7,065.3	-2,195.9	200.6	2,202.4	0.00	0.00	0.00
9,100.0	90.58	180.00	7,064.3	-2,295.9	200.6	2,302.3	0.00	0.00	0.00
9,200.0	90.58	180.00	7,063.3	-2,395.9	200.6	2,402.2	0.00	0.00	0.00
9,300.0	90.58	180.00	7,062.3	-2,495.9	200.6	2,502.2	0.00	0.00	0.00
9,400.0	90.58	180.00	7,061.3	-2,595.9	200.6	2,602.1	0.00	0.00	0.00
9,500.0	90.58	180.00	7,060.2	-2,695.9	200.6	2,702.0	0.00	0.00	0.00
9,600.0	90.58	180.00	7,059.2	-2,795.8	200.6	2,801.9	0.00	0.00	0.00
9,700.0	90.58	180.00	7,058.2	-2,895.8	200.6	2,901.8	0.00	0.00	0.00
9,800.0	90.58	180.00	7,057.2	-2,995.8	200.6	3,001.7	0.00	0.00	0.00
9,900.0	90.58	180.00	7,056.2	-3,095.8	200.6	3,101.6	0.00	0.00	0.00
10,000.0	90.58	180.00	7,055.2	-3,195.8	200.6	3,201.5	0.00	0.00	0.00
10,100.0	90.58	180.00	7,054.2	-3,295.8	200.6	3,301.4	0.00	0.00	0.00
10,200.0	90.58	180.00	7,053.2	-3,395.8	200.6	3,401.3	0.00	0.00	0.00
10,300.0	90.58	180.00	7,052.1	-3,495.8	200.6	3,501.2	0.00	0.00	0.00
10,400.0	90.58	180.00	7,051.1	-3,595.8	200.6	3,601.1	0.00	0.00	0.00
10,500.0	90.58	180.00	7,050.1	-3,695.8	200.6	3,701.0	0.00	0.00	0.00
10,600.0	90.58	180.00	7,049.1	-3,795.8	200.6	3,800.9	0.00	0.00	0.00
10,700.0	90.58	180.00	7,048.1	-3,895.8	200.6	3,900.8	0.00	0.00	0.00
10,800.0	90.58	180.00	7,047.1	-3,995.8	200.6	4,000.7	0.00	0.00	0.00
10,900.0	90.58	180.00	7,046.1	-4,095.8	200.6	4,100.6	0.00	0.00	0.00
11,000.0	90.58	180.00	7,045.1	-4,195.8	200.6	4,200.5	0.00	0.00	0.00
11,100.0	90.58	180.00	7,044.1	-4,295.8	200.6	4,300.4	0.00	0.00	0.00
11,200.0	90.58	180.00	7,043.0	-4,395.8	200.6	4,400.3	0.00	0.00	0.00
11,300.0	90.58	180.00	7,042.0	-4,495.8	200.6	4,500.2	0.00	0.00	0.00
11,400.0	90.58	180.00	7,041.0	-4,595.8	200.6	4,600.1	0.00	0.00	0.00
11,500.0	90.58	180.00	7,040.0	-4,695.8	200.6	4,700.0	0.00	0.00	0.00
11,500.2	90.58	180.00	7,040.0	-4,696.0	200.6	4,700.2	0.00	0.00	0.00
BHL 500'FSL, 2130'FEL									

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Hankins 20M-323
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Project:</b>	SEC.20-T5N-R67W	<b>MD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Site:</b>	Hankins 5N67W20MR Pad Sec.20-T5N-R67W	<b>North Reference:</b>	True
<b>Well:</b>	Hankins 20M-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (8-12-14)		

Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting		
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)	Latitude	Longitude
SHL 90'FNL, 2362'FE	0.00	0.00	1.0	0.0	0.0	1,386,229.27	3,162,703.96	40.392130	-104.915870
- plan hits target center									
- Point									
BHL 500'FSL, 2130'FI	0.00	0.00	7,040.0	-4,696.0	200.6	1,381,534.92	3,162,935.48	40.379240	-104.915150
- plan hits target center									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
7,535.7	7,080.1	7"	7	7-1/2	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,505.8	3,494.0	Parkman				
4,103.8	4,092.0	Sussex				
4,561.8	4,550.0	Shannon				
6,758.1	6,724.0	Sharon Springs				
6,931.7	6,859.0	Niobrara A				
7,130.4	6,979.0	Niobrara B				
7,312.6	7,050.0	Niobrara C				
	7,161.0	Ft. Hays				
	7,183.0	Codell				

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Comment
1,500.0	1,500.0	0.0	0.0	KOP #1
6,328.0	6,316.2	40.0	200.6	KOP #2
7,535.7	7,080.1	-731.7	200.6	End of Build



# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.20-T5N-R67W**

**Hankins 5N67W20MR Pad Sec.20-T5N-R67W**

**Hankins 20M-323**

**Wellbore #1**

**Plan #1 (8-12-14)**

## **Anticollision Report**

**13 August, 2014**



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Hankins 20M-323
<b>Project:</b>	SEC.20-T5N-R67W	<b>TVD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Reference Site:</b>	Hankins 5N67W20MR Pad Sec.20-T5N-R67W	<b>MD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Hankins 20M-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (8-12-14)	<b>Offset TVD Reference:</b>	Offset Datum

Reference	Plan #1 (8-12-14)		
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	8/13/2014		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	11,500.2	Plan #1 (8-12-14) (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.20-T5N-R67W						
Croissant (Farmoil) 2 (Exist) - Wellbore #1 - Wellbore #1	11,361.7	6,935.4	8.4	-218.9	0.037	Level 1, CC, ES, SF
Hankins 4 (Exist) - Wellbore #1 - Wellbore #1	7,295.9	7,012.2	389.9	232.0	2.469	CC
Hankins 4 (Exist) - Wellbore #1 - Wellbore #1	7,300.0	7,013.4	390.0	232.0	2.468	ES, SF
Hankins 5 (Exist) - Wellbore #1 - Wellbore #1	8,625.6	7,008.1	225.6	47.6	1.267	Level 3, CC, ES, SF
Hankins 5N67W20MR Pad Sec.20-T5N-R67W						
Hankins 20M-203 - Wellbore #1 - Plan #1 (8-12-14)	1,500.0	1,500.0	61.3	54.8	9.402	CC, ES
Hankins 20M-203 - Wellbore #1 - Plan #1 (8-12-14)	11,500.2	11,410.0	464.4	283.7	2.570	SF
Hankins 20M-423 - Wellbore #1 - Plan #1 (8-12-14)	1,500.0	1,500.0	30.6	24.1	4.701	CC, ES
Hankins 20M-423 - Wellbore #1 - Plan #1 (8-12-14)	11,500.2	11,573.5	264.4	102.9	1.637	SF
Hankins 20R-243 - Wellbore #1 - Plan #1 (8-12-14)	1,000.0	999.0	27.9	23.6	6.526	CC, ES
Hankins 20R-243 - Wellbore #1 - Plan #1 (8-12-14)	11,500.2	11,441.4	445.0	263.5	2.452	SF
Hankins 20R-303 - Wellbore #1 - Plan #1 (8-12-14)	500.0	498.0	89.1	87.1	44.162	CC, ES
Hankins 20R-303 - Wellbore #1 - Plan #1 (8-12-14)	11,500.2	11,598.2	972.3	789.3	5.312	SF
Hankins 20R-403 - Wellbore #1 - Plan #1 (8-12-14)	700.0	699.0	58.5	55.6	20.035	CC, ES
Hankins 20R-403 - Wellbore #1 - Plan #1 (8-12-14)	11,500.2	11,643.5	717.5	537.9	3.996	SF

<b>Offset Design</b>	Existing Wells Sec.20-T5N-R67W - Croissant (Farmoil) 2 (Exist) - Wellbore #1 - Wellbore #1											<b>Offset Site Error:</b>	0.0 ft
<b>Survey Program:</b>	7281-UNKNOWN											<b>Offset Well Error:</b>	0.0 ft
Reference	Vertical Depth (ft)	Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,400.0	7,051.1	6,945.1	6,945.1	70.5	138.9	-139.36	-4,557.5	209.0	961.8	821.6	140.17	6.861	
10,500.0	7,050.1	6,944.1	6,944.1	72.4	138.9	-136.23	-4,557.5	209.0	861.8	712.3	149.44	5.767	
10,600.0	7,049.1	6,943.1	6,943.1	74.3	138.9	-132.70	-4,557.5	209.0	761.8	602.4	159.40	4.779	
10,700.0	7,048.1	6,942.1	6,942.1	76.2	138.8	-128.71	-4,557.5	209.0	661.8	491.8	169.98	3.893	
10,800.0	7,047.1	6,941.1	6,941.1	78.1	138.8	-124.23	-4,557.5	209.0	561.8	380.8	180.98	3.104	
10,900.0	7,046.1	6,940.1	6,940.1	79.9	138.8	-119.22	-4,557.5	209.0	461.8	269.7	192.07	2.404	
11,000.0	7,045.1	6,939.1	6,939.1	81.8	138.8	-113.66	-4,557.5	209.0	361.8	159.1	202.75	1.785	
11,100.0	7,044.1	6,938.1	6,938.1	83.7	138.8	-107.59	-4,557.5	209.0	261.9	49.5	212.38	1.233	Level 2
11,200.0	7,043.0	6,937.0	6,937.0	85.6	138.7	-101.09	-4,557.5	209.0	162.0	-58.2	220.19	0.736	Level 1
11,300.0	7,042.0	6,936.0	6,936.0	87.5	138.7	-94.28	-4,557.5	209.0	62.3	-163.2	225.50	0.276	Level 1
11,361.7	7,041.4	6,935.4	6,935.4	88.7	138.7	-90.00	-4,557.5	209.0	8.4	-218.9	227.31	0.037	Level 1, CC, ES, SF

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Hankins 20M-323
<b>Project:</b>	SEC.20-T5N-R67W	<b>TVD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Reference Site:</b>	Hankins 5N67W20MR Pad Sec.20-T5N-R67W	<b>MD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Hankins 20M-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (8-12-14)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Existing Wells Sec.20-T5N-R67W - Croissant (Farmoil) 2 (Exist) - Wellbore #1 - Wellbore #1													<b>Offset Site Error:</b>	0.0 ft
Survey Program: 7281-UNKNOWN													<b>Offset Well Error:</b>	0.0 ft
Reference	Offset	Semi Major Axis		Distance										
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
11,400.0	7,041.0	6,935.0	6,935.0	89.4	138.7	-87.35	-4,557.5	209.0	39.1	-188.7	227.82	0.172	Level 1	
11,500.2	7,040.0	6,934.0	6,934.0	91.3	138.7	-80.48	-4,557.5	209.0	138.7	-88.3	227.03	0.611	Level 1	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Hankins 20M-323
<b>Project:</b>	SEC.20-T5N-R67W	<b>TVD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Reference Site:</b>	Hankins 5N67W20MR Pad Sec.20-T5N-R67W	<b>MD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Hankins 20M-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (8-12-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.20-T5N-R67W - Hankins 4 (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7359-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)	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	130.00	-495.5	590.5	771.6					
100.0	100.0	67.0	67.0	0.1	1.3	130.00	-495.5	590.5	770.9	769.4	1.45	530.680		
200.0	200.0	167.0	167.0	0.3	3.3	130.00	-495.5	590.5	770.9	767.2	3.68	209.623		
300.0	300.0	267.0	267.0	0.6	5.3	130.00	-495.5	590.5	770.9	765.0	5.90	130.607		
400.0	400.0	367.0	367.0	0.8	7.3	130.00	-495.5	590.5	770.9	762.7	8.13	94.853		
500.0	500.0	467.0	467.0	1.0	9.3	130.00	-495.5	590.5	770.9	760.5	10.35	74.467		
600.0	600.0	567.0	567.0	1.2	11.3	130.00	-495.5	590.5	770.9	758.3	12.58	61.294		
700.0	700.0	667.0	667.0	1.5	13.3	130.00	-495.5	590.5	770.9	756.1	14.80	52.081		
800.0	800.0	767.0	767.0	1.7	15.3	130.00	-495.5	590.5	770.9	753.8	17.03	45.275		
900.0	900.0	867.0	867.0	1.9	17.3	130.00	-495.5	590.5	770.9	751.6	19.25	40.043		
1,000.0	1,000.0	967.0	967.0	2.1	19.3	130.00	-495.5	590.5	770.9	749.4	21.48	35.895		
1,100.0	1,100.0	1,067.0	1,067.0	2.4	21.3	130.00	-495.5	590.5	770.9	747.2	23.70	32.525		
1,200.0	1,200.0	1,167.0	1,167.0	2.6	23.3	130.00	-495.5	590.5	770.9	744.9	25.92	29.734		
1,300.0	1,300.0	1,267.0	1,267.0	2.8	25.3	130.00	-495.5	590.5	770.9	742.7	28.15	27.384		
1,400.0	1,400.0	1,367.0	1,367.0	3.0	27.3	130.00	-495.5	590.5	770.9	740.5	30.37	25.378		
1,500.0	1,500.0	1,467.0	1,467.0	3.3	29.3	130.00	-495.5	590.5	770.9	738.3	32.60	23.646		
1,600.0	1,600.0	1,567.0	1,567.0	3.5	31.3	51.39	-495.5	590.5	769.8	735.0	34.80	22.117		
1,700.0	1,699.8	1,666.8	1,666.8	3.7	33.3	51.75	-495.5	590.5	766.5	729.5	36.98	20.727		
1,800.0	1,799.5	1,766.5	1,766.5	3.9	35.3	52.35	-495.5	590.5	761.1	722.0	39.14	19.446		
1,854.4	1,853.5	1,820.5	1,820.5	4.0	36.4	52.78	-495.5	590.5	757.4	717.0	40.31	18.789		
1,900.0	1,898.7	1,865.7	1,865.7	4.1	37.3	53.12	-495.5	590.5	753.9	712.6	41.32	18.248		
2,000.0	1,998.0	1,965.0	1,965.0	4.4	39.3	53.87	-495.5	590.5	746.6	703.0	43.53	17.150		
2,100.0	2,097.2	2,064.2	2,064.2	4.6	41.3	54.64	-495.5	590.5	739.3	693.6	45.76	16.158		
2,200.0	2,196.5	2,163.5	2,163.5	4.9	43.3	55.42	-495.5	590.5	732.2	684.2	47.99	15.258		
2,300.0	2,295.7	2,262.7	2,262.7	5.2	45.3	56.22	-495.5	590.5	725.2	675.0	50.23	14.439		
2,400.0	2,394.9	2,361.9	2,361.9	5.4	47.2	57.03	-495.5	590.5	718.4	666.0	52.47	13.692		
2,500.0	2,494.2	2,461.2	2,461.2	5.7	49.2	57.86	-495.5	590.5	711.7	657.0	54.72	13.006		
2,600.0	2,593.4	2,560.4	2,560.4	6.0	51.2	58.71	-495.5	590.5	705.2	648.2	56.98	12.377		
2,700.0	2,692.6	2,659.6	2,659.6	6.3	53.2	59.57	-495.5	590.5	698.9	639.6	59.24	11.797		
2,800.0	2,791.9	2,758.9	2,758.9	6.6	55.2	60.44	-495.5	590.5	692.7	631.1	61.51	11.261		
2,900.0	2,891.1	2,858.1	2,858.1	6.9	57.2	61.33	-495.5	590.5	686.6	622.8	63.78	10.765		
3,000.0	2,990.3	2,957.3	2,957.3	7.2	59.1	62.24	-495.5	590.5	680.7	614.7	66.06	10.305		
3,100.0	3,089.6	3,056.6	3,056.6	7.5	61.1	63.16	-495.5	590.5	675.1	606.7	68.34	9.878		
3,157.4	3,146.5	3,113.5	3,113.5	7.7	62.3	63.69	-495.5	590.5	671.9	602.2	69.65	9.647		
3,200.0	3,188.9	3,155.9	3,155.9	7.8	63.1	64.03	-495.5	590.5	669.7	599.0	70.63	9.482		
3,300.0	3,288.4	3,255.4	3,255.4	8.0	65.1	64.66	-495.5	590.5	665.7	592.8	72.89	9.133		
3,400.0	3,388.3	3,355.3	3,355.3	8.2	67.1	65.06	-495.5	590.5	663.3	588.2	75.12	8.830		
3,500.0	3,488.2	3,455.2	3,455.2	8.4	69.1	65.21	-495.5	590.5	662.4	585.1	77.31	8.568		
3,511.8	3,500.0	3,467.0	3,467.0	8.4	69.3	143.94	-495.5	590.5	662.4	584.8	77.57	8.540		
3,600.0	3,588.2	3,555.2	3,555.2	8.5	71.1	143.94	-495.5	590.5	662.4	582.9	79.49	8.333		
3,700.0	3,688.2	3,655.2	3,655.2	8.7	73.1	143.94	-495.5	590.5	662.4	580.7	81.69	8.108		
3,800.0	3,788.2	3,755.2	3,755.2	8.9	75.1	143.94	-495.5	590.5	662.4	578.5	83.90	7.895		
3,900.0	3,888.2	3,855.2	3,855.2	9.1	77.1	143.94	-495.5	590.5	662.4	576.3	86.10	7.693		
4,000.0	3,988.2	3,955.2	3,955.2	9.3	79.1	143.94	-495.5	590.5	662.4	574.1	88.30	7.501		
4,100.0	4,088.2	4,055.2	4,055.2	9.6	81.1	143.94	-495.5	590.5	662.4	571.9	90.51	7.319		
4,200.0	4,188.2	4,155.2	4,155.2	9.8	83.1	143.94	-495.5	590.5	662.4	569.7	92.71	7.144		
4,300.0	4,288.2	4,255.2	4,255.2	10.0	85.1	143.94	-495.5	590.5	662.4	567.5	94.92	6.978		
4,400.0	4,388.2	4,355.2	4,355.2	10.2	87.1	143.94	-495.5	590.5	662.4	565.3	97.13	6.820		
4,500.0	4,488.2	4,455.2	4,455.2	10.4	89.1	143.94	-495.5	590.5	662.4	563.1	99.34	6.668		
4,600.0	4,588.2	4,555.2	4,555.2	10.6	91.1	143.94	-495.5	590.5	662.4	560.9	101.55	6.523		
4,700.0	4,688.2	4,655.2	4,655.2	10.8	93.1	143.94	-495.5	590.5	662.4	558.6	103.76	6.384		

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Hankins 20M-323
<b>Project:</b>	SEC.20-T5N-R67W	<b>TVD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Reference Site:</b>	Hankins 5N67W20MR Pad Sec.20-T5N-R67W	<b>MD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Hankins 20M-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (8-12-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.20-T5N-R67W - Hankins 4 (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7359-UNKNOWN													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
4,800.0	4,788.2	4,755.2	4,755.2	11.0	95.1	143.94	-495.5	590.5	662.4	556.4	105.97	6.251		
4,900.0	4,888.2	4,855.2	4,855.2	11.2	97.1	143.94	-495.5	590.5	662.4	554.2	108.18	6.123		
5,000.0	4,988.2	4,955.2	4,955.2	11.4	99.1	143.94	-495.5	590.5	662.4	552.0	110.39	6.001		
5,100.0	5,088.2	5,055.2	5,055.2	11.6	101.1	143.94	-495.5	590.5	662.4	549.8	112.60	5.883		
5,200.0	5,188.2	5,155.2	5,155.2	11.8	103.1	143.94	-495.5	590.5	662.4	547.6	114.81	5.769		
5,300.0	5,288.2	5,255.2	5,255.2	12.0	105.1	143.94	-495.5	590.5	662.4	545.4	117.03	5.660		
5,400.0	5,388.2	5,355.2	5,355.2	12.3	107.1	143.94	-495.5	590.5	662.4	543.2	119.24	5.555		
5,500.0	5,488.2	5,455.2	5,455.2	12.5	109.1	143.94	-495.5	590.5	662.4	540.9	121.45	5.454		
5,600.0	5,588.2	5,555.2	5,555.2	12.7	111.1	143.94	-495.5	590.5	662.4	538.7	123.67	5.356		
5,700.0	5,688.2	5,655.2	5,655.2	12.9	113.1	143.94	-495.5	590.5	662.4	536.5	125.88	5.262		
5,800.0	5,788.2	5,755.2	5,755.2	13.1	115.1	143.94	-495.5	590.5	662.4	534.3	128.10	5.171		
5,900.0	5,888.2	5,855.2	5,855.2	13.3	117.1	143.94	-495.5	590.5	662.4	532.1	130.31	5.083		
6,000.0	5,988.2	5,955.2	5,955.2	13.5	119.1	143.94	-495.5	590.5	662.4	529.9	132.53	4.998		
6,100.0	6,088.2	6,055.2	6,055.2	13.8	121.1	143.94	-495.5	590.5	662.4	527.7	134.74	4.916		
6,200.0	6,188.2	6,155.2	6,155.2	14.0	123.1	143.94	-495.5	590.5	662.4	525.4	136.96	4.837		
6,300.0	6,288.2	6,255.2	6,255.2	14.2	125.1	143.94	-495.5	590.5	662.4	523.2	139.17	4.759		
6,328.0	6,316.2	6,283.2	6,283.2	14.2	125.7	143.94	-495.5	590.5	662.4	522.6	139.79	4.738		
6,350.0	6,338.2	6,305.2	6,305.2	14.3	126.1	-36.09	-495.5	590.5	662.1	521.9	140.24	4.721		
6,400.0	6,388.1	6,355.1	6,355.1	14.4	127.1	-36.36	-495.5	590.5	659.7	518.7	140.96	4.680		
6,450.0	6,437.7	6,404.7	6,404.7	14.5	128.1	-36.92	-495.5	590.5	654.6	513.3	141.29	4.633		
6,500.0	6,486.8	6,453.8	6,453.8	14.5	129.1	-37.78	-495.5	590.5	646.9	505.6	141.27	4.579		
6,550.0	6,535.1	6,502.1	6,502.1	14.6	130.0	-38.96	-495.5	590.5	636.8	495.8	140.94	4.518		
6,600.0	6,582.5	6,549.5	6,549.5	14.7	131.0	-40.48	-495.5	590.5	624.3	483.9	140.39	4.447		
6,650.0	6,628.8	6,595.8	6,595.8	14.8	131.9	-42.37	-495.5	590.5	609.6	469.9	139.75	4.362		
6,700.0	6,673.7	6,640.7	6,640.7	14.9	132.8	-44.65	-495.5	590.5	592.9	453.7	139.17	4.260		
6,750.0	6,717.1	6,684.1	6,684.1	15.0	133.7	-47.36	-495.5	590.5	574.5	435.6	138.84	4.137		
6,800.0	6,758.8	6,725.8	6,725.8	15.1	134.5	-50.51	-495.5	590.5	554.5	415.5	138.95	3.991		
6,850.0	6,798.6	6,765.6	6,765.6	15.2	135.3	-54.10	-495.5	590.5	533.4	393.7	139.67	3.819		
6,900.0	6,836.3	6,803.3	6,803.3	15.4	136.1	-58.12	-495.5	590.5	511.6	370.5	141.11	3.625		
6,950.0	6,871.8	6,838.8	6,838.8	15.6	136.8	-62.48	-495.5	590.5	489.5	346.3	143.25	3.417		
7,000.0	6,904.9	6,871.9	6,871.9	15.8	137.4	-67.10	-495.5	590.5	467.8	321.9	145.90	3.207		
7,050.0	6,935.5	6,902.5	6,902.5	16.0	138.0	-71.80	-495.5	590.5	447.2	298.4	148.78	3.006		
7,100.0	6,963.4	6,930.4	6,930.4	16.3	138.6	-76.41	-495.5	590.5	428.4	276.9	151.55	2.827		
7,150.0	6,988.6	6,955.6	6,955.6	16.7	139.1	-80.71	-495.5	590.5	412.4	258.5	153.92	2.679		
7,200.0	7,010.8	6,977.8	6,977.8	17.1	139.6	-84.54	-495.5	590.5	400.1	244.3	155.75	2.569		
7,250.0	7,030.1	6,997.1	6,997.1	17.5	139.9	-87.73	-495.5	590.5	392.4	235.3	157.06	2.498		
7,295.9	7,045.2	7,012.2	7,012.2	18.0	140.2	-90.00	-495.5	590.5	389.9	232.0	157.92	2.469 CC		
7,300.0	7,046.4	7,013.4	7,013.4	18.0	140.3	-90.17	-495.5	590.5	390.0	232.0	157.98	2.468 ES, SF		
7,350.0	7,059.5	7,026.5	7,026.5	18.5	140.5	-91.77	-495.5	590.5	393.4	234.7	158.70	2.479		
7,400.0	7,069.5	7,036.5	7,036.5	19.1	140.7	-92.48	-495.5	590.5	402.8	243.5	159.38	2.528		
7,450.0	7,076.2	7,043.2	7,043.2	19.7	140.9	-92.25	-495.5	590.5	418.0	257.9	160.12	2.611		
7,500.0	7,079.7	7,046.7	7,046.7	20.3	140.9	-91.08	-495.5	590.5	438.5	277.6	160.91	2.725		
7,535.7	7,080.1	7,047.1	7,047.1	20.7	140.9	-89.65	-495.5	590.5	455.9	294.5	161.41	2.825		
7,600.0	7,079.5	7,046.5	7,046.5	21.6	140.9	-89.55	-495.5	590.5	492.3	330.0	162.25	3.034		
7,700.0	7,078.5	7,045.5	7,045.5	22.9	140.9	-89.40	-495.5	590.5	559.0	395.4	163.63	3.416		
7,800.0	7,077.5	7,044.5	7,044.5	24.4	140.9	-89.26	-495.5	590.5	634.5	469.4	165.07	3.844		
7,900.0	7,076.4	7,043.4	7,043.4	25.9	140.9	-89.11	-495.5	590.5	716.0	549.4	166.57	4.298		
8,000.0	7,075.4	7,042.4	7,042.4	27.5	140.8	-88.96	-495.5	590.5	801.7	633.6	168.13	4.768		
8,100.0	7,074.4	7,041.4	7,041.4	29.1	140.8	-88.81	-495.5	590.5	890.4	720.7	169.72	5.246		
8,200.0	7,073.4	7,040.4	7,040.4	30.7	140.8	-88.66	-495.5	590.5	981.3	809.9	171.34	5.727		

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Hankins 20M-323
<b>Project:</b>	SEC.20-T5N-R67W	<b>TVD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Reference Site:</b>	Hankins 5N67W20MR Pad Sec.20-T5N-R67W	<b>MD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Hankins 20M-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (8-12-14)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Hankins 20M-323
<b>Project:</b>	SEC.20-T5N-R67W	<b>TVD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Reference Site:</b>	Hankins 5N67W20MR Pad Sec.20-T5N-R67W	<b>MD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Hankins 20M-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (8-12-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Existing Wells Sec.20-T5N-R67W - Hankins 5 (Exist) - Wellbore #1 - Wellbore #1											Offset Site Error:	0.0 ft
Survey Program: 7250-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		
7,700.0	7,078.5	7,017.5	7,017.5	22.9	140.3	-92.38	-1,821.5	426.2	952.7	789.8	162.90	5.848		
7,800.0	7,077.5	7,016.5	7,016.5	24.4	140.3	-92.12	-1,821.5	426.2	855.9	691.5	164.38	5.207		
7,900.0	7,076.4	7,015.4	7,015.4	25.9	140.3	-91.86	-1,821.5	426.2	759.9	594.0	165.92	4.580		
8,000.0	7,075.4	7,014.4	7,014.4	27.5	140.3	-91.61	-1,821.5	426.2	665.1	497.6	167.50	3.971		
8,100.0	7,074.4	7,013.4	7,013.4	29.1	140.3	-91.35	-1,821.5	426.2	572.0	402.9	169.12	3.382		
8,200.0	7,073.4	7,012.4	7,012.4	30.7	140.2	-91.09	-1,821.5	426.2	481.7	311.0	170.77	2.821		
8,300.0	7,072.4	7,011.4	7,011.4	32.4	140.2	-90.84	-1,821.5	426.2	396.2	223.7	172.45	2.297		
8,400.0	7,071.4	7,010.4	7,010.4	34.1	140.2	-90.58	-1,821.5	426.2	319.1	144.9	174.15	1.832		
8,500.0	7,070.4	7,009.4	7,009.4	35.8	140.2	-90.32	-1,821.5	426.2	258.2	82.4	175.87	1.468	Level 3	
8,600.0	7,069.4	7,008.4	7,008.4	37.6	140.2	-90.07	-1,821.5	426.2	227.1	49.5	177.60	1.279	Level 3	
8,625.6	7,069.1	7,008.1	7,008.1	38.0	140.2	-90.00	-1,821.5	426.2	225.6	47.6	178.05	1.267	Level 3, CC, ES, SF	
8,700.0	7,068.3	7,007.3	7,007.3	39.3	140.1	-89.81	-1,821.5	426.2	237.6	58.2	179.35	1.325	Level 3	
8,800.0	7,067.3	7,006.3	7,006.3	41.1	140.1	-89.55	-1,821.5	426.2	285.1	104.0	181.11	1.574		
8,900.0	7,066.3	7,005.3	7,005.3	42.9	140.1	-89.29	-1,821.5	426.2	355.2	172.3	182.87	1.942		
9,000.0	7,065.3	7,004.3	7,004.3	44.7	140.1	-89.04	-1,821.5	426.2	437.1	252.4	184.65	2.367		
9,100.0	7,064.3	7,003.3	7,003.3	46.5	140.1	-88.78	-1,821.5	426.2	525.3	338.8	186.43	2.817		
9,200.0	7,063.3	7,002.3	7,002.3	48.3	140.0	-88.52	-1,821.5	426.2	617.0	428.8	188.21	3.279		
9,300.0	7,062.3	7,001.3	7,001.3	50.1	140.0	-88.27	-1,821.5	426.2	711.1	521.1	190.00	3.743		
9,400.0	7,061.3	7,000.3	7,000.3	52.0	140.0	-88.01	-1,821.5	426.2	806.5	614.7	191.79	4.205		
9,500.0	7,060.2	6,999.2	6,999.2	53.8	140.0	-87.75	-1,821.5	426.2	902.9	709.4	193.58	4.665		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Hankins 20M-323
<b>Project:</b>	SEC.20-T5N-R67W	<b>TVD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Reference Site:</b>	Hankins 5N67W20MR Pad Sec.20-T5N-R67W	<b>MD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Hankins 20M-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (8-12-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Hankins 5N67W20MR Pad Sec.20-T5N-R67W - Hankins 20M-203 - Wellbore #1 - Plan #1 (8-12-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-89.99	0.0	-61.3	61.3					
100.0	100.0	100.0	100.0	0.1	0.1	-89.99	0.0	-61.3	61.3	61.1	0.22	272.648		
200.0	200.0	200.0	200.0	0.3	0.3	-89.99	0.0	-61.3	61.3	60.6	0.67	90.883		
300.0	300.0	300.0	300.0	0.6	0.6	-89.99	0.0	-61.3	61.3	60.2	1.12	54.530		
400.0	400.0	400.0	400.0	0.8	0.8	-89.99	0.0	-61.3	61.3	59.7	1.57	38.950		
500.0	500.0	500.0	500.0	1.0	1.0	-89.99	0.0	-61.3	61.3	59.3	2.02	30.294		
600.0	600.0	600.0	600.0	1.2	1.2	-89.99	0.0	-61.3	61.3	58.8	2.47	24.786		
700.0	700.0	700.0	700.0	1.5	1.5	-89.99	0.0	-61.3	61.3	58.4	2.92	20.973		
800.0	800.0	800.0	800.0	1.7	1.7	-89.99	0.0	-61.3	61.3	57.9	3.37	18.177		
900.0	900.0	900.0	900.0	1.9	1.9	-89.99	0.0	-61.3	61.3	57.5	3.82	16.038		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-89.99	0.0	-61.3	61.3	57.0	4.27	14.350		
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	-89.99	0.0	-61.3	61.3	56.6	4.72	12.983		
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-89.99	0.0	-61.3	61.3	56.1	5.17	11.854		
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-89.99	0.0	-61.3	61.3	55.7	5.62	10.906		
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	-89.99	0.0	-61.3	61.3	55.2	6.07	10.098		
1,500.0	1,500.0	1,500.0	1,500.0	3.3	3.3	-89.99	0.0	-61.3	61.3	54.8	6.52	9.402 CC, ES		
1,600.0	1,600.0	1,600.0	1,600.0	3.5	3.5	-169.02	0.0	-61.3	63.0	56.0	6.95	9.059		
1,700.0	1,699.8	1,699.8	1,699.8	3.7	3.7	-169.84	0.0	-61.3	68.1	60.8	7.37	9.242		
1,800.0	1,799.5	1,799.5	1,799.5	3.9	3.9	-170.96	0.0	-61.3	76.7	68.9	7.79	9.855		
1,854.4	1,853.5	1,853.5	1,853.5	4.0	4.1	-171.62	0.0	-61.3	82.9	74.9	8.01	10.347		
1,900.0	1,898.7	1,898.7	1,898.7	4.1	4.2	-172.15	0.0	-61.3	88.4	80.2	8.20	10.778		
2,000.0	1,998.0	1,998.0	1,998.0	4.4	4.4	-173.11	0.0	-61.3	100.7	92.0	8.64	11.654		
2,100.0	2,097.2	2,093.6	2,093.6	4.6	4.6	-173.61	0.3	-62.8	114.5	105.4	9.06	12.635		
2,200.0	2,196.5	2,188.3	2,188.2	4.9	4.8	-173.61	1.2	-67.3	131.4	121.9	9.47	13.871		
2,300.0	2,295.7	2,281.9	2,281.4	5.2	5.0	-173.27	2.8	-74.9	151.4	141.5	9.89	15.315		
2,400.0	2,394.9	2,375.6	2,374.5	5.4	5.2	-172.73	4.9	-85.3	174.4	164.1	10.31	16.920		
2,500.0	2,494.2	2,472.7	2,470.9	5.7	5.4	-172.24	7.2	-96.8	198.2	187.4	10.73	18.467		
2,600.0	2,593.4	2,569.8	2,567.3	6.0	5.7	-171.86	9.5	-108.4	221.9	210.8	11.16	19.892		
2,700.0	2,692.6	2,667.0	2,663.8	6.3	5.9	-171.55	11.9	-119.9	245.7	234.1	11.59	21.205		
2,800.0	2,791.9	2,764.1	2,760.2	6.6	6.2	-171.29	14.2	-131.5	269.5	257.5	12.02	22.420		
2,900.0	2,891.1	2,861.2	2,856.6	6.9	6.4	-171.08	16.5	-143.0	293.3	280.9	12.46	23.545		
3,000.0	2,990.3	2,958.3	2,953.0	7.2	6.7	-170.90	18.9	-154.6	317.1	304.2	12.90	24.589		
3,100.0	3,089.6	3,055.5	3,049.4	7.5	6.9	-170.74	21.2	-166.1	340.9	327.6	13.34	25.559		
3,157.4	3,146.5	3,111.2	3,104.7	7.7	7.1	-170.66	22.5	-172.7	354.6	341.0	13.59	26.086		
3,200.0	3,188.9	3,152.6	3,145.8	7.8	7.2	-170.63	23.5	-177.7	364.4	350.6	13.79	26.425		
3,300.0	3,288.4	3,250.5	3,242.9	8.0	7.5	-170.50	25.9	-189.3	385.1	370.9	14.23	27.061		
3,400.0	3,388.3	3,348.9	3,340.7	8.2	7.8	-170.29	28.3	-201.0	402.4	387.8	14.66	27.453		
3,500.0	3,488.2	3,447.9	3,438.9	8.4	8.0	-170.01	30.6	-212.8	416.4	401.3	15.07	27.624		
3,511.8	3,500.0	3,459.6	3,450.5	8.4	8.1	-91.25	30.9	-214.2	417.8	402.7	15.12	27.630		
3,600.0	3,588.2	3,547.2	3,537.5	8.5	8.3	-90.94	33.0	-224.6	428.3	412.8	15.50	27.637		
3,700.0	3,688.2	3,646.4	3,636.0	8.7	8.6	-90.60	35.4	-236.4	440.1	424.2	15.94	27.618		
3,800.0	3,788.2	3,760.8	3,749.7	8.9	8.9	-90.28	37.8	-248.4	450.6	434.2	16.38	27.503		
3,900.0	3,888.2	3,878.9	3,867.5	9.1	9.1	-90.08	39.4	-256.1	457.2	440.3	16.83	27.169		
4,000.0	3,988.2	3,997.5	3,986.0	9.3	9.4	-90.00	40.0	-259.1	459.7	442.4	17.27	26.622		
4,100.0	4,088.2	4,099.7	4,088.2	9.6	9.5	-90.00	40.0	-259.1	459.7	442.0	17.68	25.994		
4,200.0	4,188.2	4,199.7	4,188.2	9.8	9.8	-90.00	40.0	-259.1	459.7	441.6	18.12	25.372		
4,300.0	4,288.2	4,299.7	4,288.2	10.0	10.0	-90.00	40.0	-259.1	459.7	441.1	18.55	24.778		
4,400.0	4,388.2	4,399.7	4,388.2	10.2	10.2	-90.00	40.0	-259.1	459.7	440.7	18.99	24.210		
4,500.0	4,488.2	4,499.7	4,488.2	10.4	10.4	-90.00	40.0	-259.1	459.7	440.3	19.42	23.667		
4,600.0	4,588.2	4,599.7	4,588.2	10.6	10.6	-90.00	40.0	-259.1	459.7	439.8	19.86	23.147		
4,700.0	4,688.2	4,699.7	4,688.2	10.8	10.8	-90.00	40.0	-259.1	459.7	439.4	20.30	22.649		

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Hankins 20M-323
<b>Project:</b>	SEC.20-T5N-R67W	<b>TVD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Reference Site:</b>	Hankins 5N67W20MR Pad Sec.20-T5N-R67W	<b>MD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Hankins 20M-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (8-12-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Hankins 5N67W20MR Pad Sec.20-T5N-R67W - Hankins 20M-203 - Wellbore #1 - Plan #1 (8-12-14)										Offset Site Error:		0.0 ft	
Survey Program: 0-MWDD										Offset Well Error:		0.0 ft	
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,800.0	4,788.2	4,799.7	4,788.2	11.0	11.0	-90.00	40.0	-259.1	459.7	439.0	20.73	22.171	
4,900.0	4,888.2	4,899.7	4,888.2	11.2	11.2	-90.00	40.0	-259.1	459.7	438.5	21.17	21.712	
5,000.0	4,988.2	4,999.7	4,988.2	11.4	11.4	-90.00	40.0	-259.1	459.7	438.1	21.61	21.272	
5,100.0	5,088.2	5,099.7	5,088.2	11.6	11.6	-90.00	40.0	-259.1	459.7	437.6	22.05	20.848	
5,200.0	5,188.2	5,199.7	5,188.2	11.8	11.8	-90.00	40.0	-259.1	459.7	437.2	22.49	20.441	
5,300.0	5,288.2	5,299.7	5,288.2	12.0	12.0	-90.00	40.0	-259.1	459.7	436.8	22.93	20.049	
5,400.0	5,388.2	5,399.7	5,388.2	12.3	12.3	-90.00	40.0	-259.1	459.7	436.3	23.37	19.672	
5,500.0	5,488.2	5,499.7	5,488.2	12.5	12.5	-90.00	40.0	-259.1	459.7	435.9	23.81	19.308	
5,600.0	5,588.2	5,599.7	5,588.2	12.7	12.7	-90.00	40.0	-259.1	459.7	435.4	24.25	18.957	
5,700.0	5,688.2	5,699.7	5,688.2	12.9	12.9	-90.00	40.0	-259.1	459.7	435.0	24.69	18.618	
5,800.0	5,788.2	5,799.7	5,788.2	13.1	13.1	-90.00	40.0	-259.1	459.7	434.6	25.13	18.291	
5,900.0	5,888.2	5,899.7	5,888.2	13.3	13.3	-90.00	40.0	-259.1	459.7	434.1	25.57	17.975	
6,000.0	5,988.2	5,999.7	5,988.2	13.5	13.5	-90.00	40.0	-259.1	459.7	433.7	26.02	17.670	
6,100.0	6,088.2	6,099.7	6,088.2	13.8	13.8	-90.00	40.0	-259.1	459.7	433.2	26.46	17.375	
6,200.0	6,188.2	6,199.7	6,188.2	14.0	14.0	-90.00	40.0	-259.1	459.7	432.8	26.90	17.089	
6,247.5	6,235.7	6,247.2	6,235.7	14.1	14.1	-90.00	40.0	-259.1	459.7	432.6	27.11	16.957	
6,300.0	6,288.2	6,299.6	6,288.1	14.2	14.2	-90.27	37.8	-259.1	459.7	432.4	27.32	16.829	
6,328.0	6,316.2	6,327.3	6,315.7	14.2	14.2	-90.60	35.2	-259.1	459.7	432.3	27.42	16.763	
6,350.0	6,338.2	6,349.0	6,337.2	14.3	14.2	89.10	32.5	-259.1	459.7	432.2	27.50	16.716	
6,400.0	6,388.1	6,398.0	6,385.5	14.4	14.3	88.41	24.0	-259.1	459.9	432.2	27.67	16.622	
6,450.0	6,437.7	6,446.7	6,432.9	14.5	14.4	87.73	12.6	-259.1	460.1	432.2	27.82	16.534	
6,500.0	6,486.8	6,495.1	6,479.1	14.5	14.5	87.07	-1.7	-259.1	460.3	432.3	27.98	16.451	
6,550.0	6,535.1	6,543.2	6,524.0	14.6	14.6	86.41	-18.8	-259.1	460.6	432.5	28.14	16.369	
6,600.0	6,582.5	6,591.0	6,567.5	14.7	14.7	85.78	-38.5	-259.1	461.0	432.6	28.31	16.285	
6,650.0	6,628.8	6,638.4	6,609.4	14.8	14.7	85.17	-60.8	-259.1	461.3	432.9	28.49	16.195	
6,700.0	6,673.7	6,685.6	6,649.6	14.9	14.8	84.57	-85.5	-259.1	461.8	433.1	28.69	16.096	
6,750.0	6,717.1	6,732.6	6,688.0	15.0	14.9	84.00	-112.4	-259.1	462.2	433.3	28.92	15.984	
6,800.0	6,758.8	6,779.3	6,724.5	15.1	15.1	83.46	-141.6	-259.1	462.7	433.5	29.19	15.855	
6,850.0	6,798.6	6,825.8	6,759.0	15.2	15.2	82.95	-172.7	-259.1	463.2	433.7	29.49	15.705	
6,900.0	6,836.3	6,872.0	6,791.4	15.4	15.4	82.46	-205.7	-259.1	463.7	433.9	29.85	15.533	
6,950.0	6,871.8	6,918.1	6,821.6	15.6	15.6	82.01	-240.5	-259.1	464.2	434.0	30.27	15.337	
7,000.0	6,904.9	6,964.0	6,849.6	15.8	15.8	81.59	-276.9	-259.1	464.7	434.0	30.75	15.115	
7,050.0	6,935.5	7,009.7	6,875.2	16.0	16.1	81.20	-314.7	-259.1	465.2	433.9	31.29	14.867	
7,100.0	6,963.4	7,055.3	6,898.5	16.3	16.4	80.85	-353.9	-259.1	465.6	433.7	31.90	14.595	
7,150.0	6,988.6	7,100.0	6,919.0	16.7	16.8	80.54	-393.6	-259.1	466.1	433.5	32.58	14.303	
7,200.0	7,010.8	7,146.1	6,937.6	17.1	17.2	80.25	-435.8	-259.1	466.4	433.1	33.35	13.984	
7,250.0	7,030.1	7,191.3	6,953.4	17.5	17.6	80.01	-478.1	-259.1	466.8	432.6	34.19	13.652	
7,300.0	7,046.4	7,236.4	6,966.7	18.0	18.0	79.81	-521.3	-259.1	467.1	432.0	35.10	13.307	
7,350.0	7,059.5	7,281.5	6,977.4	18.5	18.5	79.65	-565.0	-259.1	467.3	431.2	36.07	12.954	
7,400.0	7,069.5	7,326.5	6,985.4	19.1	19.0	79.52	-609.3	-259.1	467.5	430.4	37.11	12.596	
7,450.0	7,076.2	7,371.5	6,990.9	19.7	19.6	79.44	-653.9	-259.1	467.6	429.4	38.21	12.237	
7,500.0	7,079.7	7,416.4	6,993.7	20.3	20.1	79.40	-698.8	-259.1	467.7	428.3	39.37	11.880	
7,535.7	7,080.1	7,448.9	6,994.0	20.7	20.5	79.39	-731.2	-259.1	467.7	427.5	40.22	11.628	
7,600.0	7,079.5	7,513.1	6,993.7	21.6	21.4	79.43	-795.5	-259.1	467.6	425.7	41.91	11.157	
7,700.0	7,078.5	7,613.1	6,993.2	22.9	22.8	79.49	-895.5	-259.1	467.5	422.9	44.67	10.465	
7,800.0	7,077.5	7,713.1	6,992.7	24.4	24.3	79.55	-995.5	-259.1	467.4	419.9	47.58	9.824	
7,900.0	7,076.4	7,813.1	6,992.2	25.9	25.8	79.62	-1,095.5	-259.1	467.3	416.7	50.60	9.235	
8,000.0	7,075.4	7,913.1	6,991.7	27.5	27.4	79.68	-1,195.5	-259.1	467.3	413.5	53.73	8.697	
8,100.0	7,074.4	8,013.1	6,991.2	29.1	29.0	79.74	-1,295.5	-259.1	467.2	410.2	56.93	8.205	
8,200.0	7,073.4	8,113.1	6,990.7	30.7	30.6	79.80	-1,395.5	-259.1	467.1	406.9	60.21	7.758	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Hankins 20M-323
<b>Project:</b>	SEC.20-T5N-R67W	<b>TVD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Reference Site:</b>	Hankins 5N67W20MR Pad Sec.20-T5N-R67W	<b>MD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Hankins 20M-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (8-12-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design										Hankins 5N67W20MR Pad Sec.20-T5N-R67W - Hankins 20M-203 - Wellbore #1 - Plan #1 (8-12-14)				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)					
8,300.0	7,072.4	8,213.1	6,990.2	32.4	32.3	79.86	-1,495.5	-259.1	467.0	403.4	63.54	7.349				
8,400.0	7,071.4	8,313.1	6,989.7	34.1	34.0	79.92	-1,595.5	-259.1	466.9	400.0	66.93	6.976				
8,500.0	7,070.4	8,413.1	6,989.2	35.8	35.7	79.98	-1,695.5	-259.1	466.8	396.4	70.36	6.635				
8,600.0	7,069.4	8,513.1	6,988.7	37.6	37.5	80.04	-1,795.5	-259.1	466.7	392.9	73.82	6.322				
8,700.0	7,068.3	8,613.1	6,988.2	39.3	39.2	80.10	-1,895.5	-259.1	466.6	389.3	77.32	6.035				
8,800.0	7,067.3	8,713.1	6,987.6	41.1	41.0	80.17	-1,995.5	-259.1	466.5	385.7	80.85	5.770				
8,900.0	7,066.3	8,813.1	6,987.1	42.9	42.8	80.23	-2,095.5	-259.1	466.5	382.1	84.40	5.526				
9,000.0	7,065.3	8,913.1	6,986.6	44.7	44.6	80.29	-2,195.5	-259.1	466.4	378.4	87.98	5.301				
9,100.0	7,064.3	9,013.1	6,986.1	46.5	46.4	80.35	-2,295.5	-259.1	466.3	374.7	91.57	5.092				
9,200.0	7,063.3	9,113.1	6,985.6	48.3	48.2	80.41	-2,395.5	-259.1	466.2	371.0	95.19	4.898				
9,300.0	7,062.3	9,213.1	6,985.1	50.1	50.1	80.47	-2,495.5	-259.1	466.1	367.3	98.81	4.717				
9,400.0	7,061.3	9,313.1	6,984.6	52.0	51.9	80.53	-2,595.5	-259.1	466.0	363.6	102.46	4.549				
9,500.0	7,060.2	9,413.1	6,984.1	53.8	53.7	80.60	-2,695.5	-259.1	466.0	359.8	106.11	4.391				
9,600.0	7,059.2	9,513.1	6,983.6	55.6	55.6	80.66	-2,795.5	-259.1	465.9	356.1	109.78	4.244				
9,700.0	7,058.2	9,613.1	6,983.1	57.5	57.4	80.72	-2,895.5	-259.1	465.8	352.3	113.46	4.105				
9,800.0	7,057.2	9,713.1	6,982.6	59.3	59.3	80.78	-2,995.5	-259.1	465.7	348.6	117.15	3.975				
9,900.0	7,056.2	9,813.1	6,982.1	61.2	61.1	80.84	-3,095.5	-259.1	465.6	344.8	120.84	3.853				
10,000.0	7,055.2	9,913.1	6,981.6	63.1	63.0	80.90	-3,195.5	-259.1	465.5	341.0	124.55	3.738				
10,100.0	7,054.2	10,013.1	6,981.1	64.9	64.9	80.96	-3,295.5	-259.1	465.5	337.2	128.26	3.629				
10,200.0	7,053.2	10,113.1	6,980.6	66.8	66.7	81.03	-3,395.5	-259.1	465.4	333.4	131.98	3.526				
10,300.0	7,052.1	10,213.1	6,980.1	68.7	68.6	81.09	-3,495.4	-259.1	465.3	329.6	135.70	3.429				
10,400.0	7,051.1	10,313.1	6,979.6	70.5	70.5	81.15	-3,595.4	-259.1	465.2	325.8	139.44	3.337				
10,500.0	7,050.1	10,413.1	6,979.0	72.4	72.4	81.21	-3,695.4	-259.1	465.2	322.0	143.17	3.249				
10,600.0	7,049.1	10,513.1	6,978.5	74.3	74.2	81.27	-3,795.4	-259.1	465.1	318.2	146.92	3.166				
10,700.0	7,048.1	10,613.1	6,978.0	76.2	76.1	81.33	-3,895.4	-259.1	465.0	314.3	150.66	3.086				
10,800.0	7,047.1	10,713.1	6,977.5	78.1	78.0	81.40	-3,995.4	-259.1	464.9	310.5	154.42	3.011				
10,900.0	7,046.1	10,813.1	6,977.0	79.9	79.9	81.46	-4,095.4	-259.1	464.8	306.7	158.17	2.939				
11,000.0	7,045.1	10,913.1	6,976.5	81.8	81.8	81.52	-4,195.4	-259.1	464.8	302.8	161.93	2.870				
11,100.0	7,044.1	11,013.1	6,976.0	83.7	83.7	81.58	-4,295.4	-259.1	464.7	299.0	165.70	2.804				
11,200.0	7,043.0	11,113.1	6,975.5	85.6	85.6	81.64	-4,395.4	-259.1	464.6	295.2	169.47	2.742				
11,300.0	7,042.0	11,213.1	6,975.0	87.5	87.5	81.70	-4,495.4	-259.1	464.6	291.3	173.24	2.682				
11,400.0	7,041.0	11,313.1	6,974.5	89.4	89.3	81.77	-4,595.4	-259.1	464.5	287.5	177.02	2.624				
11,470.6	7,040.3	11,383.7	6,974.1	90.7	90.7	81.81	-4,666.0	-259.1	464.4	284.7	179.68	2.585				
11,500.2	7,040.0	11,410.0	6,974.0	91.3	91.2	81.83	-4,692.3	-259.1	464.4	283.7	180.74	2.570 SF				

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Hankins 20M-323
<b>Project:</b>	SEC.20-T5N-R67W	<b>TVD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Reference Site:</b>	Hankins 5N67W20MR Pad Sec.20-T5N-R67W	<b>MD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Hankins 20M-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (8-12-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Hankins 5N67W20MR Pad Sec.20-T5N-R67W - Hankins 20M-423 - Wellbore #1 - Plan #1 (8-12-14)										Offset Site Error:		0.0 ft
Survey Program: 0-MWD												Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
0.0	0.0	0.0	0.0	0.0	0.0	-90.02	0.0	-30.6	30.6					
100.0	100.0	100.0	100.0	0.1	0.1	-90.02	0.0	-30.6	30.6	30.4	0.22	136.324		
200.0	200.0	200.0	200.0	0.3	0.3	-90.02	0.0	-30.6	30.6	30.0	0.67	45.441		
300.0	300.0	300.0	300.0	0.6	0.6	-90.02	0.0	-30.6	30.6	29.5	1.12	27.265		
400.0	400.0	400.0	400.0	0.8	0.8	-90.02	0.0	-30.6	30.6	29.1	1.57	19.475		
500.0	500.0	500.0	500.0	1.0	1.0	-90.02	0.0	-30.6	30.6	28.6	2.02	15.147		
600.0	600.0	600.0	600.0	1.2	1.2	-90.02	0.0	-30.6	30.6	28.2	2.47	12.393		
700.0	700.0	700.0	700.0	1.5	1.5	-90.02	0.0	-30.6	30.6	27.7	2.92	10.486		
800.0	800.0	800.0	800.0	1.7	1.7	-90.02	0.0	-30.6	30.6	27.3	3.37	9.088		
900.0	900.0	900.0	900.0	1.9	1.9	-90.02	0.0	-30.6	30.6	26.8	3.82	8.019		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-90.02	0.0	-30.6	30.6	26.4	4.27	7.175		
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	-90.02	0.0	-30.6	30.6	25.9	4.72	6.492		
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-90.02	0.0	-30.6	30.6	25.5	5.17	5.927		
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-90.02	0.0	-30.6	30.6	25.0	5.62	5.453		
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	-90.02	0.0	-30.6	30.6	24.6	6.07	5.049		
1,500.0	1,500.0	1,500.0	1,500.0	3.3	3.3	-90.02	0.0	-30.6	30.6	24.1	6.52	4.701 CC, ES		
1,600.0	1,600.0	1,600.0	1,600.0	3.5	3.5	-169.34	0.0	-30.6	32.4	25.4	6.95	4.653		
1,700.0	1,699.8	1,699.8	1,699.8	3.7	3.7	-170.80	0.0	-30.6	37.5	30.1	7.37	5.088		
1,800.0	1,799.5	1,799.5	1,799.5	3.9	3.9	-172.51	0.0	-30.6	46.1	38.3	7.79	5.925		
1,854.4	1,853.5	1,853.5	1,853.5	4.0	4.1	-173.38	0.0	-30.6	52.3	44.3	8.01	6.529		
1,900.0	1,898.7	1,898.7	1,898.7	4.1	4.2	-174.02	0.0	-30.6	57.9	49.7	8.20	7.055		
2,000.0	1,998.0	1,998.0	1,998.0	4.4	4.4	-175.07	0.0	-30.6	70.2	61.5	8.64	8.123		
2,100.0	2,097.2	2,097.2	2,097.2	4.6	4.6	-175.81	0.0	-30.6	82.5	73.4	9.07	9.087		
2,200.0	2,196.5	2,196.5	2,196.5	4.9	4.8	-176.35	0.0	-30.6	94.8	85.3	9.51	9.961		
2,300.0	2,295.7	2,295.7	2,295.7	5.2	5.0	-176.77	0.0	-30.6	107.1	97.1	9.96	10.757		
2,400.0	2,394.9	2,394.9	2,394.9	5.4	5.3	-177.11	0.0	-30.6	119.4	109.0	10.40	11.483		
2,500.0	2,494.2	2,494.2	2,494.2	5.7	5.5	-177.38	0.0	-30.6	131.7	120.9	10.84	12.148		
2,600.0	2,593.4	2,593.4	2,593.4	6.0	5.7	-177.60	0.0	-30.6	144.1	132.8	11.29	12.759		
2,700.0	2,692.6	2,692.6	2,692.6	6.3	5.9	-177.79	0.0	-30.6	156.4	144.7	11.74	13.322		
2,800.0	2,791.9	2,791.9	2,791.9	6.6	6.2	-177.95	0.0	-30.6	168.7	156.5	12.19	13.843		
2,900.0	2,891.1	2,891.1	2,891.1	6.9	6.4	-178.09	0.0	-30.6	181.0	168.4	12.64	14.326		
3,000.0	2,990.3	2,990.3	2,990.3	7.2	6.6	-178.21	0.0	-30.6	193.4	180.3	13.09	14.774		
3,100.0	3,089.6	3,089.6	3,089.6	7.5	6.8	-178.32	0.0	-30.6	205.7	192.2	13.54	15.192		
3,157.4	3,146.5	3,146.5	3,146.5	7.7	7.0	-178.38	0.0	-30.6	212.8	199.0	13.80	15.419		
3,200.0	3,188.9	3,188.9	3,188.9	7.8	7.1	-178.42	0.0	-30.6	217.7	203.7	14.00	15.552		
3,300.0	3,288.4	3,288.4	3,288.4	8.0	7.3	-178.48	0.0	-30.6	226.9	212.4	14.44	15.708		
3,400.0	3,388.3	3,388.3	3,388.3	8.2	7.5	-178.52	0.0	-30.6	232.5	217.6	14.87	15.637		
3,500.0	3,488.2	3,488.2	3,488.2	8.4	7.7	-178.54	0.0	-30.6	234.6	219.4	15.28	15.361		
3,511.8	3,500.0	3,500.0	3,500.0	8.4	7.8	-99.82	0.0	-30.6	234.7	219.4	15.32	15.316		
3,600.0	3,588.2	3,588.2	3,588.2	8.5	8.0	-99.82	0.0	-30.6	234.7	219.0	15.70	14.950		
3,700.0	3,688.2	3,688.2	3,688.2	8.7	8.2	-99.82	0.0	-30.6	234.7	218.5	16.14	14.543		
3,800.0	3,788.2	3,788.2	3,788.2	8.9	8.4	-99.82	0.0	-30.6	234.7	218.1	16.58	14.157		
3,900.0	3,888.2	3,888.2	3,888.2	9.1	8.6	-99.82	0.0	-30.6	234.7	217.7	17.02	13.790		
4,000.0	3,988.2	3,988.2	3,988.2	9.3	8.9	-99.82	0.0	-30.6	234.7	217.2	17.46	13.441		
4,100.0	4,088.2	4,090.0	4,090.0	9.6	9.1	-99.48	1.4	-30.5	234.3	216.4	17.90	13.090		
4,200.0	4,188.2	4,190.7	4,190.6	9.8	9.3	-98.45	5.7	-30.2	233.4	215.0	18.34	12.722		
4,300.0	4,288.2	4,290.6	4,290.3	10.0	9.5	-97.33	10.3	-29.9	232.4	213.6	18.78	12.373		
4,400.0	4,388.2	4,390.5	4,390.1	10.2	9.8	-96.22	14.9	-29.6	231.6	212.3	19.23	12.044		
4,500.0	4,488.2	4,490.3	4,489.9	10.4	10.0	-95.09	19.5	-29.3	230.8	211.1	19.67	11.733		
4,600.0	4,588.2	4,590.2	4,589.7	10.6	10.2	-93.96	24.1	-29.0	230.1	210.0	20.11	11.440		
4,700.0	4,688.2	4,690.1	4,689.5	10.8	10.4	-92.82	28.7	-28.6	229.5	209.0	20.56	11.163		

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Hankins 20M-323
<b>Project:</b>	SEC.20-T5N-R67W	<b>TVD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Reference Site:</b>	Hankins 5N67W20MR Pad Sec.20-T5N-R67W	<b>MD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Hankins 20M-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (8-12-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Hankins 5N67W20MR Pad Sec.20-T5N-R67W - Hankins 20M-423 - Wellbore #1 - Plan #1 (8-12-14)												Offset Site Error: 0.0 ft		
Survey Program: 0-MWDD												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		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
							+N/-S (ft)	+E/-W (ft)						
4,800.0	4,788.2	4,790.0	4,789.3	11.0	10.7	-91.67	33.3	-28.3	229.0	208.0	21.01	10.901		
4,900.0	4,888.2	4,889.8	4,888.9	11.2	10.9	-90.54	37.8	-28.0	228.6	207.2	21.45	10.658		
5,000.0	4,988.2	4,989.2	4,988.3	11.4	11.0	-90.01	40.0	-27.9	228.5	206.6	21.84	10.459		
5,037.8	5,026.0	5,026.9	5,026.0	11.5	11.1	-90.00	40.0	-27.9	228.5	206.5	22.00	10.386		
5,100.0	5,088.2	5,089.1	5,088.2	11.6	11.2	-90.00	40.0	-27.9	228.5	206.2	22.26	10.265		
5,200.0	5,188.2	5,189.1	5,188.2	11.8	11.5	-90.00	40.0	-27.9	228.5	205.8	22.70	10.065		
5,300.0	5,288.2	5,289.1	5,288.2	12.0	11.7	-90.00	40.0	-27.9	228.5	205.3	23.14	9.872		
5,400.0	5,388.2	5,389.1	5,388.2	12.3	11.9	-90.00	40.0	-27.9	228.5	204.9	23.58	9.686		
5,500.0	5,488.2	5,489.1	5,488.2	12.5	12.1	-90.00	40.0	-27.9	228.5	204.4	24.03	9.507		
5,600.0	5,588.2	5,589.1	5,588.2	12.7	12.4	-90.00	40.0	-27.9	228.5	204.0	24.47	9.335		
5,700.0	5,688.2	5,689.1	5,688.2	12.9	12.6	-90.00	40.0	-27.9	228.5	203.5	24.92	9.168		
5,800.0	5,788.2	5,789.1	5,788.2	13.1	12.8	-90.00	40.0	-27.9	228.5	203.1	25.36	8.907		
5,900.0	5,888.2	5,889.1	5,888.2	13.3	13.0	-90.00	40.0	-27.9	228.5	202.6	25.81	8.852		
6,000.0	5,988.2	5,989.1	5,988.2	13.5	13.3	-90.00	40.0	-27.9	228.5	202.2	26.25	8.702		
6,100.0	6,088.2	6,089.1	6,088.2	13.8	13.5	-90.00	40.0	-27.9	228.5	201.8	26.70	8.556		
6,200.0	6,188.2	6,189.1	6,188.2	14.0	13.7	-90.00	40.0	-27.9	228.5	201.3	27.14	8.416		
6,300.0	6,288.2	6,289.1	6,288.2	14.2	13.9	-90.00	40.0	-27.9	228.5	200.9	27.59	8.280		
6,328.0	6,316.2	6,317.1	6,316.2	14.2	14.0	-90.00	40.0	-27.9	228.5	200.7	27.72	8.243		
6,331.5	6,319.8	6,320.6	6,319.8	14.3	14.0	90.00	40.0	-27.9	228.5	200.7	27.73	8.238		
6,350.0	6,338.2	6,339.1	6,338.2	14.3	14.0	90.08	40.0	-27.9	228.5	200.6	27.81	8.215		
6,400.0	6,388.1	6,389.0	6,388.1	14.4	14.2	90.84	40.0	-27.9	228.5	200.5	28.01	8.158		
6,450.0	6,437.7	6,439.0	6,438.1	14.5	14.3	92.23	39.2	-27.9	228.6	200.4	28.20	8.109		
6,500.0	6,486.8	6,489.5	6,488.4	14.5	14.3	93.66	35.3	-27.9	228.9	200.6	28.36	8.072		
6,550.0	6,535.1	6,540.3	6,538.7	14.6	14.4	95.07	28.1	-27.9	229.4	200.8	28.51	8.044		
6,600.0	6,582.5	6,591.5	6,588.8	14.7	14.5	96.46	17.3	-27.9	229.9	201.3	28.66	8.022		
6,650.0	6,628.8	6,643.2	6,638.5	14.8	14.6	97.82	3.2	-27.9	230.6	201.8	28.81	8.005		
6,700.0	6,673.7	6,695.2	6,687.4	14.9	14.7	99.15	-14.4	-27.9	231.4	202.5	28.96	7.992		
6,750.0	6,717.1	6,747.7	6,735.4	15.0	14.8	100.43	-35.5	-27.9	232.3	203.2	29.11	7.981		
6,800.0	6,758.8	6,800.5	6,782.2	15.1	14.9	101.66	-60.1	-27.9	233.3	204.0	29.28	7.969		
6,850.0	6,798.6	6,853.7	6,827.5	15.2	15.0	102.83	-88.0	-27.9	234.4	204.9	29.47	7.953		
6,900.0	6,836.3	6,907.4	6,871.1	15.4	15.1	103.94	-119.3	-27.9	235.4	205.7	29.69	7.929		
6,950.0	6,871.8	6,961.3	6,912.6	15.6	15.3	104.98	-153.7	-27.9	236.6	206.6	29.96	7.895		
7,000.0	6,904.9	7,015.7	6,951.8	15.8	15.5	105.96	-191.3	-27.9	237.7	207.4	30.28	7.848		
7,050.0	6,935.5	7,070.4	6,988.5	16.0	15.7	106.85	-231.8	-27.9	238.8	208.1	30.67	7.785		
7,100.0	6,963.4	7,125.4	7,022.4	16.3	16.0	107.67	-275.1	-27.9	239.8	208.7	31.13	7.703		
7,150.0	6,988.6	7,180.7	7,053.3	16.7	16.4	108.40	-321.0	-27.9	240.8	209.1	31.68	7.601		
7,200.0	7,010.8	7,236.2	7,080.8	17.1	16.8	109.05	-369.3	-27.9	241.7	209.4	32.32	7.479		
7,250.0	7,030.1	7,292.0	7,104.9	17.5	17.2	109.61	-419.6	-27.9	242.6	209.5	33.06	7.336		
7,300.0	7,046.4	7,348.0	7,125.3	18.0	17.7	110.09	-471.7	-27.9	243.3	209.4	33.90	7.175		
7,350.0	7,059.5	7,404.2	7,141.9	18.5	18.3	110.47	-525.4	-27.9	243.9	209.0	34.85	6.997		
7,400.0	7,069.5	7,460.5	7,154.5	19.1	18.9	110.75	-580.3	-27.9	244.3	208.4	35.90	6.806		
7,450.0	7,076.2	7,517.0	7,163.1	19.7	19.5	110.95	-636.0	-27.9	244.6	207.6	37.04	6.604		
7,500.0	7,079.7	7,573.4	7,167.5	20.3	20.2	111.05	-692.3	-27.9	244.8	206.5	38.27	6.396		
7,535.7	7,080.1	7,612.7	7,168.2	20.7	20.7	111.07	-731.6	-27.9	244.8	205.6	39.18	6.248		
7,600.0	7,079.5	7,677.0	7,168.2	21.6	21.6	111.23	-795.8	-27.9	245.1	204.3	40.74	6.015		
7,700.0	7,078.5	7,777.0	7,168.4	22.9	22.9	111.48	-895.8	-27.9	245.5	202.2	43.29	5.671		
7,800.0	7,077.5	7,877.0	7,168.5	24.4	24.4	111.72	-995.8	-27.9	245.9	200.0	45.97	5.350		
7,900.0	7,076.4	7,977.0	7,168.6	25.9	25.9	111.97	-1,095.8	-27.9	246.3	197.6	48.75	5.053		
8,000.0	7,075.4	8,077.0	7,168.7	27.5	27.5	112.21	-1,195.8	-27.9	246.8	195.2	51.62	4.781		
8,100.0	7,074.4	8,176.9	7,168.9	29.1	29.1	112.46	-1,295.8	-27.9	247.2	192.6	54.56	4.531		

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Hankins 20M-323
<b>Project:</b>	SEC.20-T5N-R67W	<b>TVD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Reference Site:</b>	Hankins 5N67W20MR Pad Sec.20-T5N-R67W	<b>MD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Hankins 20M-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (8-12-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design										Hankins 5N67W20MR Pad Sec.20-T5N-R67W - Hankins 20M-423 - Wellbore #1 - Plan #1 (8-12-14)				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)					
8,200.0	7,073.4	8,276.9	7,169.0	30.7	30.7	112.70	-1,395.8	-27.9	247.6	190.1	57.55	4.303				
8,300.0	7,072.4	8,376.9	7,169.1	32.4	32.4	112.94	-1,495.8	-27.9	248.1	187.5	60.59	4.094				
8,400.0	7,071.4	8,476.9	7,169.2	34.1	34.1	113.18	-1,595.8	-27.9	248.5	184.8	63.67	3.903				
8,500.0	7,070.4	8,576.9	7,169.3	35.8	35.8	113.42	-1,695.8	-27.9	249.0	182.2	66.79	3.728				
8,600.0	7,069.4	8,676.9	7,169.5	37.6	37.5	113.66	-1,795.8	-27.9	249.4	179.5	69.92	3.567				
8,700.0	7,068.3	8,776.9	7,169.6	39.3	39.3	113.90	-1,895.8	-27.9	249.9	176.8	73.08	3.419				
8,800.0	7,067.3	8,876.9	7,169.7	41.1	41.1	114.14	-1,995.8	-27.9	250.3	174.1	76.26	3.283				
8,900.0	7,066.3	8,976.9	7,169.8	42.9	42.8	114.37	-2,095.8	-27.9	250.8	171.4	79.44	3.157				
9,000.0	7,065.3	9,076.9	7,169.9	44.7	44.6	114.61	-2,195.8	-27.9	251.3	168.6	82.64	3.041				
9,100.0	7,064.3	9,176.9	7,170.1	46.5	46.5	114.84	-2,295.7	-27.9	251.8	165.9	85.84	2.933				
9,200.0	7,063.3	9,276.9	7,170.2	48.3	48.3	115.08	-2,395.7	-27.9	252.2	163.2	89.05	2.832				
9,300.0	7,062.3	9,376.9	7,170.3	50.1	50.1	115.31	-2,495.7	-27.9	252.7	160.4	92.26	2.739				
9,400.0	7,061.3	9,476.9	7,170.4	52.0	51.9	115.54	-2,595.7	-27.9	253.2	157.7	95.48	2.652				
9,500.0	7,060.2	9,576.9	7,170.6	53.8	53.8	115.77	-2,695.7	-27.9	253.7	155.0	98.69	2.571				
9,600.0	7,059.2	9,676.8	7,170.7	55.6	55.6	116.00	-2,795.7	-27.9	254.2	152.3	101.90	2.494				
9,700.0	7,058.2	9,776.8	7,170.8	57.5	57.4	116.23	-2,895.7	-27.9	254.7	149.6	105.11	2.423				
9,800.0	7,057.2	9,876.8	7,170.9	59.3	59.3	116.46	-2,995.7	-27.9	255.2	146.9	108.32	2.356				
9,900.0	7,056.2	9,976.8	7,171.0	61.2	61.2	116.69	-3,095.7	-27.9	255.7	144.2	111.52	2.293				
10,000.0	7,055.2	10,076.8	7,171.2	63.1	63.0	116.92	-3,195.7	-27.9	256.2	141.5	114.72	2.233				
10,100.0	7,054.2	10,176.8	7,171.3	64.9	64.9	117.14	-3,295.7	-27.9	256.7	138.8	117.91	2.177				
10,200.0	7,053.2	10,276.8	7,171.4	66.8	66.7	117.37	-3,395.7	-27.9	257.2	136.1	121.10	2.124				
10,300.0	7,052.1	10,376.8	7,171.5	68.7	68.6	117.59	-3,495.7	-27.9	257.8	133.5	124.28	2.074				
10,400.0	7,051.1	10,476.8	7,171.7	70.5	70.5	117.81	-3,595.7	-27.9	258.3	130.8	127.45	2.027				
10,500.0	7,050.1	10,576.8	7,171.8	72.4	72.4	118.04	-3,695.7	-27.9	258.8	128.2	130.62	1.982				
10,600.0	7,049.1	10,676.8	7,171.9	74.3	74.2	118.26	-3,795.6	-27.9	259.4	125.6	133.78	1.939				
10,700.0	7,048.1	10,776.8	7,172.0	76.2	76.1	118.48	-3,895.6	-27.9	259.9	123.0	136.93	1.898				
10,800.0	7,047.1	10,876.8	7,172.1	78.1	78.0	118.70	-3,995.6	-27.9	260.4	120.4	140.07	1.859				
10,900.0	7,046.1	10,976.8	7,172.3	79.9	79.9	118.91	-4,095.6	-27.9	261.0	117.8	143.20	1.823				
11,000.0	7,045.1	11,076.8	7,172.4	81.8	81.8	119.13	-4,195.6	-27.9	261.5	115.2	146.32	1.787				
11,100.0	7,044.1	11,176.8	7,172.5	83.7	83.7	119.35	-4,295.6	-27.9	262.1	112.7	149.44	1.754				
11,200.0	7,043.0	11,276.7	7,172.6	85.6	85.5	119.56	-4,395.6	-27.9	262.7	110.1	152.54	1.722				
11,300.0	7,042.0	11,376.7	7,172.8	87.5	87.4	119.78	-4,495.6	-27.9	263.2	107.6	155.63	1.691				
11,400.0	7,041.0	11,476.7	7,172.9	89.4	89.3	119.99	-4,595.6	-27.9	263.8	105.1	158.72	1.662				
11,500.2	7,040.0	11,573.5	7,173.0	91.3	90.9	120.20	-4,692.3	-27.9	264.4	102.9	161.50	1.637 SF				

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Hankins 20M-323
<b>Project:</b>	SEC.20-T5N-R67W	<b>TVD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Reference Site:</b>	Hankins 5N67W20MR Pad Sec.20-T5N-R67W	<b>MD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Hankins 20M-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (8-12-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	90.03	0.0	27.9	27.9					
100.0	100.0	99.0	99.0	0.1	0.1	90.03	0.0	27.9	27.9	27.6	0.22	124.553		
200.0	200.0	199.0	199.0	0.3	0.3	90.03	0.0	27.9	27.9	27.2	0.67	41.448		
300.0	300.0	299.0	299.0	0.6	0.6	90.03	0.0	27.9	27.9	26.7	1.12	24.836		
400.0	400.0	399.0	399.0	0.8	0.8	90.03	0.0	27.9	27.9	26.3	1.57	17.730		
500.0	500.0	499.0	499.0	1.0	1.0	90.03	0.0	27.9	27.9	25.8	2.02	13.785		
600.0	600.0	599.0	599.0	1.2	1.2	90.03	0.0	27.9	27.9	25.4	2.47	11.277		
700.0	700.0	699.0	699.0	1.5	1.5	90.03	0.0	27.9	27.9	24.9	2.92	9.540		
800.0	800.0	799.0	799.0	1.7	1.7	90.03	0.0	27.9	27.9	24.5	3.37	8.268		
900.0	900.0	899.0	899.0	1.9	1.9	90.03	0.0	27.9	27.9	24.0	3.82	7.294		
1,000.0	1,000.0	999.0	999.0	2.1	2.1	90.03	0.0	27.9	27.9	23.6	4.27	6.526 CC, ES		
1,100.0	1,100.0	1,098.0	1,098.0	2.4	2.3	89.82	0.1	29.5	29.5	24.8	4.70	6.281		
1,200.0	1,200.0	1,196.8	1,196.6	2.6	2.5	89.30	0.4	34.6	34.7	29.5	5.13	6.755		
1,300.0	1,300.0	1,295.1	1,294.6	2.8	2.8	88.70	1.0	43.0	43.2	37.7	5.58	7.756		
1,400.0	1,400.0	1,393.0	1,391.7	3.0	3.0	88.18	1.7	54.7	55.2	49.1	6.04	9.143		
1,500.0	1,500.0	1,492.1	1,490.0	3.3	3.3	87.81	2.6	67.7	68.4	61.8	6.52	10.488		
1,600.0	1,600.0	1,591.4	1,588.5	3.5	3.5	9.00	3.4	80.8	79.8	73.0	6.86	11.636		
1,700.0	1,699.8	1,691.1	1,687.3	3.7	3.8	9.29	4.3	93.9	87.8	80.6	7.27	12.079		
1,800.0	1,799.5	1,791.0	1,786.3	3.9	4.1	9.89	5.1	107.0	92.4	84.8	7.69	12.027		
1,854.4	1,853.5	1,845.3	1,840.2	4.0	4.3	10.36	5.6	114.2	93.5	85.6	7.91	11.821		
1,900.0	1,898.7	1,891.0	1,885.4	4.1	4.4	10.80	6.0	120.2	94.0	85.9	8.11	11.588		
2,000.0	1,998.0	1,990.9	1,984.5	4.4	4.7	11.74	6.9	133.3	95.0	86.5	8.55	11.111		
2,100.0	2,097.2	2,090.9	2,083.6	4.6	5.0	12.66	7.7	146.4	96.1	87.1	9.00	10.679		
2,200.0	2,196.5	2,190.9	2,182.7	4.9	5.3	13.56	8.6	159.6	97.2	87.8	9.45	10.284		
2,300.0	2,295.7	2,290.9	2,281.8	5.2	5.6	14.44	9.4	172.7	98.4	88.4	9.91	9.924		
2,400.0	2,394.9	2,390.9	2,380.9	5.4	5.9	15.30	10.3	185.9	99.5	89.1	10.37	9.593		
2,500.0	2,494.2	2,490.8	2,480.0	5.7	6.3	16.14	11.2	199.0	100.7	89.8	10.84	9.289		
2,600.0	2,593.4	2,590.8	2,579.2	6.0	6.6	16.96	12.0	212.2	101.9	90.6	11.31	9.008		
2,700.0	2,692.6	2,690.8	2,678.3	6.3	6.9	17.76	12.9	225.3	103.1	91.3	11.78	8.748		
2,800.0	2,791.9	2,790.8	2,777.4	6.6	7.2	18.54	13.7	238.5	104.3	92.1	12.26	8.508		
2,900.0	2,891.1	2,890.8	2,876.5	6.9	7.5	19.30	14.6	251.6	105.6	92.8	12.74	8.284		
3,000.0	2,990.3	2,990.8	2,975.6	7.2	7.9	20.05	15.4	264.8	106.9	93.6	13.23	8.076		
3,100.0	3,089.6	3,090.7	3,074.7	7.5	8.2	20.78	16.3	277.9	108.1	94.4	13.72	7.882		
3,157.4	3,146.5	3,148.1	3,131.6	7.7	8.4	21.19	16.8	285.5	108.9	94.9	14.00	7.776		
3,200.0	3,188.9	3,190.7	3,173.8	7.8	8.5	21.43	17.2	291.1	109.7	95.5	14.21	7.722		
3,300.0	3,288.4	3,290.6	3,272.8	8.0	8.9	21.55	18.0	304.2	114.1	99.4	14.66	7.779		
3,400.0	3,388.3	3,390.3	3,371.7	8.2	9.2	21.07	18.9	317.3	121.6	106.6	15.08	8.064		
3,500.0	3,488.2	3,489.7	3,470.2	8.4	9.5	20.14	19.7	330.4	132.5	117.0	15.47	8.561		
3,511.8	3,500.0	3,501.4	3,481.8	8.4	9.5	98.73	19.8	331.9	134.0	118.4	15.52	8.633		
3,600.0	3,588.2	3,588.8	3,568.5	8.5	9.8	97.75	20.6	343.4	145.3	129.5	15.88	9.151		
3,700.0	3,688.2	3,688.0	3,666.7	8.7	10.2	96.80	21.4	356.4	158.3	142.0	16.32	9.701		
3,800.0	3,788.2	3,787.1	3,765.0	8.9	10.5	95.99	22.3	369.5	171.3	154.5	16.75	10.222		
3,900.0	3,888.2	3,886.2	3,863.3	9.1	10.8	95.30	23.1	382.5	184.3	167.1	17.20	10.716		
4,000.0	3,988.2	3,985.3	3,961.5	9.3	11.1	94.70	24.0	395.5	197.3	179.6	17.64	11.185		
4,100.0	4,088.2	4,084.5	4,059.8	9.6	11.5	94.17	24.8	408.6	210.3	192.2	18.08	11.631		
4,200.0	4,188.2	4,183.6	4,158.0	9.8	11.8	93.71	25.7	421.6	223.4	204.9	18.53	12.055		
4,300.0	4,288.2	4,282.7	4,256.3	10.0	12.1	93.29	26.5	434.6	236.5	217.5	18.98	12.458		
4,400.0	4,388.2	4,381.9	4,354.6	10.2	12.4	92.92	27.4	447.7	249.6	230.1	19.43	12.843		
4,500.0	4,488.2	4,481.0	4,452.8	10.4	12.8	92.59	28.2	460.7	262.6	242.8	19.88	13.210		
4,600.0	4,588.2	4,580.1	4,551.1	10.6	13.1	92.29	29.1	473.7	275.7	255.4	20.33	13.561		
4,700.0	4,688.2	4,679.2	4,649.4	10.8	13.4	92.01	29.9	486.8	288.9	268.1	20.79	13.896		

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Hankins 20M-323
<b>Project:</b>	SEC.20-T5N-R67W	<b>TVD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Reference Site:</b>	Hankins 5N67W20MR Pad Sec.20-T5N-R67W	<b>MD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Hankins 20M-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (8-12-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
4,800.0	4,788.2	4,778.4	4,747.6	11.0	13.8	91.76	30.8	499.8	302.0	280.7	21.24	14.217		
4,900.0	4,888.2	4,877.5	4,845.9	11.2	14.1	91.53	31.6	512.9	315.1	293.4	21.70	14.524		
5,000.0	4,988.2	4,976.6	4,944.2	11.4	14.4	91.32	32.5	525.9	328.2	306.1	22.15	14.818		
5,100.0	5,088.2	5,075.8	5,042.4	11.6	14.8	91.13	33.3	538.9	341.3	318.7	22.61	15.100		
5,200.0	5,188.2	5,174.9	5,140.7	11.8	15.1	90.95	34.2	552.0	354.5	331.4	23.06	15.371		
5,300.0	5,288.2	5,274.0	5,238.9	12.0	15.4	90.78	35.0	565.0	367.6	344.1	23.52	15.631		
5,400.0	5,388.2	5,373.1	5,337.2	12.3	15.7	90.62	35.9	578.0	380.7	356.8	23.97	15.881		
5,500.0	5,488.2	5,472.3	5,435.5	12.5	16.1	90.48	36.7	591.1	393.9	369.5	24.43	16.122		
5,600.0	5,588.2	5,571.4	5,533.7	12.7	16.4	90.34	37.6	604.1	407.0	382.1	24.89	16.353		
5,700.0	5,688.2	5,672.2	5,633.6	12.9	16.7	90.21	38.5	617.3	420.2	394.8	25.35	16.575		
5,800.0	5,788.2	5,788.9	5,749.7	13.1	17.0	90.10	39.3	629.9	430.9	405.1	25.80	16.704		
5,900.0	5,888.2	5,906.5	5,867.0	13.3	17.2	90.03	39.8	637.7	437.6	411.3	26.23	16.681		
6,000.0	5,988.2	6,024.5	5,984.9	13.5	17.4	90.00	40.0	640.8	440.2	413.5	26.66	16.510		
6,100.0	6,088.2	6,126.8	6,087.2	13.8	17.6	90.00	40.0	640.8	440.2	413.1	27.08	16.258		
6,200.0	6,188.2	6,226.8	6,187.2	14.0	17.7	90.00	40.0	640.8	440.2	412.7	27.49	16.011		
6,247.6	6,235.9	6,274.4	6,234.9	14.1	17.8	90.00	40.0	640.8	440.2	412.5	27.69	15.896		
6,300.0	6,288.2	6,326.7	6,287.1	14.2	17.9	90.28	37.9	640.8	440.2	412.3	27.91	15.775		
6,328.0	6,316.2	6,354.4	6,314.7	14.2	17.9	90.61	35.3	640.8	440.2	412.2	28.02	15.712		
6,350.0	6,338.2	6,376.1	6,336.2	14.3	18.0	-89.07	32.6	640.8	440.3	412.2	28.10	15.666		
6,400.0	6,388.1	6,425.2	6,384.6	14.4	18.0	-88.36	24.2	640.8	440.4	412.1	28.28	15.573		
6,450.0	6,437.7	6,473.9	6,431.9	14.5	18.1	-87.66	12.9	640.8	440.6	412.1	28.45	15.485		
6,500.0	6,486.8	6,522.3	6,478.2	14.5	18.2	-86.98	-1.4	640.8	440.8	412.2	28.62	15.404		
6,550.0	6,535.1	6,570.4	6,523.2	14.6	18.3	-86.30	-18.4	640.8	441.1	412.3	28.78	15.325		
6,600.0	6,582.5	6,618.2	6,566.7	14.7	18.3	-85.65	-38.1	640.8	441.5	412.5	28.96	15.247		
6,650.0	6,628.8	6,665.7	6,608.7	14.8	18.4	-85.02	-60.4	640.8	441.9	412.7	29.14	15.167		
6,700.0	6,673.7	6,713.0	6,649.0	14.9	18.5	-84.40	-85.0	640.8	442.3	413.0	29.33	15.080		
6,750.0	6,717.1	6,759.9	6,687.4	15.0	18.6	-83.82	-112.0	640.8	442.8	413.2	29.55	14.985		
6,800.0	6,758.8	6,806.7	6,724.0	15.1	18.7	-83.26	-141.1	640.8	443.3	413.5	29.80	14.875		
6,850.0	6,798.6	6,853.2	6,758.6	15.2	18.8	-82.73	-172.2	640.8	443.8	413.7	30.09	14.748		
6,900.0	6,836.3	6,900.0	6,791.3	15.4	19.0	-82.22	-205.6	640.8	444.3	413.9	30.43	14.599		
6,950.0	6,871.8	6,945.6	6,821.3	15.6	19.2	-81.76	-240.0	640.8	444.8	414.0	30.83	14.426		
7,000.0	6,904.9	6,991.6	6,849.3	15.8	19.4	-81.32	-276.4	640.8	445.3	414.0	31.30	14.227		
7,050.0	6,935.5	7,037.3	6,875.0	16.0	19.6	-80.92	-314.3	640.8	445.8	414.0	31.84	14.000		
7,100.0	6,963.4	7,083.0	6,898.3	16.3	19.8	-80.56	-353.5	640.8	446.3	413.8	32.46	13.746		
7,150.0	6,988.6	7,128.5	6,919.2	16.7	20.1	-80.24	-394.0	640.8	446.7	413.5	33.17	13.467		
7,200.0	7,010.8	7,173.8	6,937.5	17.1	20.4	-79.95	-435.4	640.8	447.1	413.1	33.96	13.165		
7,250.0	7,030.1	7,219.1	6,953.4	17.5	20.7	-79.70	-477.8	640.8	447.4	412.6	34.83	12.844		
7,300.0	7,046.4	7,264.3	6,966.7	18.0	21.1	-79.49	-521.0	640.8	447.7	411.9	35.79	12.508		
7,350.0	7,059.5	7,309.4	6,977.4	18.5	21.5	-79.33	-564.8	640.8	447.9	411.1	36.83	12.161		
7,400.0	7,069.5	7,354.5	6,985.4	19.1	22.0	-79.20	-609.2	640.8	448.1	410.2	37.95	11.809		
7,450.0	7,076.2	7,400.0	6,990.9	19.7	22.4	-79.11	-654.3	640.8	448.3	409.1	39.14	11.452		
7,500.0	7,079.7	7,444.5	6,993.7	20.3	22.9	-79.07	-698.8	640.8	448.3	407.9	40.38	11.102		
7,535.7	7,080.1	7,477.0	6,994.1	20.7	23.3	-79.07	-731.2	640.8	448.3	407.0	41.31	10.852		
7,600.0	7,079.5	7,541.3	6,993.8	21.6	24.0	-79.11	-795.5	640.8	448.3	405.3	43.00	10.425		
7,700.0	7,078.5	7,641.3	6,993.3	22.9	25.3	-79.17	-895.5	640.8	448.2	402.4	45.75	9.797		
7,800.0	7,077.5	7,741.3	6,992.7	24.4	26.6	-79.23	-995.5	640.8	448.1	399.4	48.64	9.213		
7,900.0	7,076.4	7,841.3	6,992.2	25.9	28.0	-79.30	-1,095.5	640.8	448.0	396.3	51.64	8.675		
8,000.0	7,075.4	7,941.3	6,991.7	27.5	29.5	-79.36	-1,195.5	640.8	447.9	393.1	54.75	8.181		
8,100.0	7,074.4	8,041.3	6,991.2	29.1	31.0	-79.42	-1,295.5	640.8	447.8	389.9	57.93	7.730		
8,200.0	7,073.4	8,141.3	6,990.7	30.7	32.6	-79.49	-1,395.5	640.8	447.7	386.5	61.19	7.317		

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Hankins 20M-323
<b>Project:</b>	SEC.20-T5N-R67W	<b>TVD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Reference Site:</b>	Hankins 5N67W20MR Pad Sec.20-T5N-R67W	<b>MD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Hankins 20M-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (8-12-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Hankins 5N67W20MR Pad Sec.20-T5N-R67W - Hankins 20R-243 - Wellbore #1 - Plan #1 (8-12-14)											Offset Site Error: 0.0 ft		
Survey Program: 0-MWD											Offset Well Error: 0.0 ft		
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
8,300.0	7,072.4	8,241.3	6,990.2	32.4	34.2	-79.55	-1,495.5	640.8	447.6	383.1	64.51	6.939	
8,400.0	7,071.4	8,341.3	6,989.7	34.1	35.8	-79.62	-1,595.5	640.8	447.5	379.7	67.88	6.593	
8,500.0	7,070.4	8,441.3	6,989.2	35.8	37.5	-79.68	-1,695.5	640.8	447.4	376.1	71.29	6.276	
8,600.0	7,069.4	8,541.3	6,988.7	37.6	39.1	-79.74	-1,795.5	640.8	447.3	372.6	74.74	5.985	
8,700.0	7,068.3	8,641.3	6,988.2	39.3	40.8	-79.81	-1,895.5	640.8	447.3	369.0	78.22	5.718	
8,800.0	7,067.3	8,741.3	6,987.7	41.1	42.6	-79.87	-1,995.5	640.8	447.2	365.4	81.74	5.471	
8,900.0	7,066.3	8,841.3	6,987.2	42.9	44.3	-79.93	-2,095.5	640.8	447.1	361.8	85.27	5.243	
9,000.0	7,065.3	8,941.3	6,986.7	44.7	46.1	-80.00	-2,195.5	640.8	447.0	358.2	88.84	5.032	
9,100.0	7,064.3	9,041.3	6,986.2	46.5	47.8	-80.06	-2,295.5	640.8	446.9	354.5	92.42	4.836	
9,200.0	7,063.3	9,141.3	6,985.7	48.3	49.6	-80.13	-2,395.5	640.8	446.8	350.8	96.02	4.653	
9,300.0	7,062.3	9,241.3	6,985.2	50.1	51.4	-80.19	-2,495.5	640.8	446.7	347.1	99.64	4.484	
9,400.0	7,061.3	9,341.3	6,984.6	52.0	53.2	-80.25	-2,595.5	640.8	446.6	343.4	103.27	4.325	
9,500.0	7,060.2	9,441.3	6,984.1	53.8	55.0	-80.32	-2,695.5	640.8	446.6	339.6	106.91	4.177	
9,600.0	7,059.2	9,541.2	6,983.6	55.6	56.8	-80.38	-2,795.5	640.8	446.5	335.9	110.57	4.038	
9,700.0	7,058.2	9,641.2	6,983.1	57.5	58.6	-80.45	-2,895.5	640.8	446.4	332.1	114.24	3.908	
9,800.0	7,057.2	9,741.2	6,982.6	59.3	60.4	-80.51	-2,995.5	640.8	446.3	328.4	117.92	3.785	
9,900.0	7,056.2	9,841.2	6,982.1	61.2	62.3	-80.57	-3,095.5	640.8	446.2	324.6	121.60	3.669	
10,000.0	7,055.2	9,941.2	6,981.6	63.1	64.1	-80.64	-3,195.5	640.8	446.1	320.8	125.30	3.561	
10,100.0	7,054.2	10,041.2	6,981.1	64.9	66.0	-80.70	-3,295.5	640.8	446.1	317.1	129.00	3.458	
10,200.0	7,053.2	10,141.2	6,980.6	66.8	67.8	-80.77	-3,395.5	640.8	446.0	313.3	132.72	3.360	
10,300.0	7,052.1	10,241.2	6,980.1	68.7	69.6	-80.83	-3,495.5	640.8	445.9	309.5	136.43	3.268	
10,400.0	7,051.1	10,341.2	6,979.6	70.5	71.5	-80.89	-3,595.5	640.8	445.8	305.7	140.16	3.181	
10,500.0	7,050.1	10,441.2	6,979.1	72.4	73.4	-80.96	-3,695.4	640.8	445.7	301.8	143.89	3.098	
10,600.0	7,049.1	10,541.2	6,978.6	74.3	75.2	-81.02	-3,795.4	640.8	445.7	298.0	147.62	3.019	
10,700.0	7,048.1	10,641.2	6,978.1	76.2	77.1	-81.09	-3,895.4	640.8	445.6	294.2	151.37	2.944	
10,800.0	7,047.1	10,741.2	6,977.6	78.1	78.9	-81.15	-3,995.4	640.8	445.5	290.4	155.11	2.872	
10,900.0	7,046.1	10,841.2	6,977.1	79.9	80.8	-81.22	-4,095.4	640.8	445.4	286.6	158.86	2.804	
11,000.0	7,045.1	10,941.2	6,976.6	81.8	82.7	-81.28	-4,195.4	640.8	445.3	282.7	162.62	2.739	
11,100.0	7,044.1	11,041.2	6,976.0	83.7	84.6	-81.34	-4,295.4	640.8	445.3	278.9	166.38	2.676	
11,200.0	7,043.0	11,141.2	6,975.5	85.6	86.4	-81.41	-4,395.4	640.8	445.2	275.0	170.14	2.617	
11,300.0	7,042.0	11,241.2	6,975.0	87.5	88.3	-81.47	-4,495.4	640.8	445.1	271.2	173.91	2.560	
11,400.0	7,041.0	11,341.2	6,974.5	89.4	90.2	-81.54	-4,595.4	640.8	445.0	267.4	177.68	2.505	
11,500.2	7,040.0	11,441.4	6,974.0	91.3	92.1	-81.60	-4,695.6	640.8	445.0	263.5	181.46	2.452 SF	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Hankins 20M-323
<b>Project:</b>	SEC.20-T5N-R67W	<b>TVD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Reference Site:</b>	Hankins 5N67W20MR Pad Sec.20-T5N-R67W	<b>MD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Hankins 20M-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (8-12-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Hankins 5N67W20MR Pad Sec.20-T5N-R67W - Hankins 20R-303 - Wellbore #1 - Plan #1 (8-12-14)											Offset Site Error: 0.0 ft	
Survey Program: 0-MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	90.00	0.0	89.1	89.2					
100.0	100.0	98.0	98.0	0.1	0.1	90.00	0.0	89.1	89.1	88.9	0.22	400.577		
200.0	200.0	198.0	198.0	0.3	0.3	90.00	0.0	89.1	89.1	88.5	0.67	133.080		
300.0	300.0	298.0	298.0	0.6	0.6	90.00	0.0	89.1	89.1	88.0	1.12	79.634		
400.0	400.0	398.0	398.0	0.8	0.8	90.00	0.0	89.1	89.1	87.6	1.57	56.816		
500.0	500.0	498.0	498.0	1.0	1.0	90.00	0.0	89.1	89.1	87.1	2.02	44.162 CC, ES		
600.0	600.0	595.0	595.0	1.2	1.2	89.96	0.1	90.7	90.8	88.3	2.45	37.041		
700.0	700.0	691.7	691.6	1.5	1.4	89.86	0.2	95.5	95.8	92.9	2.88	33.242		
800.0	800.0	788.0	787.6	1.7	1.6	89.70	0.5	103.6	104.1	100.8	3.33	31.286		
900.0	900.0	883.7	882.5	1.9	1.9	89.53	1.0	114.8	115.8	112.0	3.80	30.478		
1,000.0	1,000.0	978.5	976.3	2.1	2.2	89.34	1.5	129.0	130.8	126.5	4.30	30.393		
1,100.0	1,100.0	1,072.2	1,068.4	2.4	2.5	89.17	2.1	146.1	149.0	144.2	4.85	30.758		
1,200.0	1,200.0	1,168.6	1,162.7	2.6	2.9	89.02	2.8	166.0	169.7	164.3	5.43	31.238		
1,300.0	1,300.0	1,266.4	1,258.4	2.8	3.3	88.90	3.6	186.3	190.5	184.5	6.05	31.504		
1,400.0	1,400.0	1,364.2	1,354.0	3.0	3.7	88.80	4.3	206.6	211.3	204.6	6.67	31.659		
1,500.0	1,500.0	1,462.0	1,449.7	3.3	4.1	88.71	5.1	227.0	232.1	224.8	7.31	31.748		
1,600.0	1,600.0	1,560.2	1,545.7	3.5	4.5	9.93	5.8	247.4	251.2	244.3	6.95	36.169		
1,700.0	1,699.8	1,658.9	1,642.3	3.7	4.9	10.00	6.6	267.9	267.0	259.6	7.39	36.107		
1,800.0	1,799.5	1,758.1	1,739.3	3.9	5.4	10.21	7.4	288.6	279.3	271.5	7.84	35.608		
1,854.4	1,853.5	1,812.2	1,792.2	4.0	5.6	10.36	7.8	299.8	284.6	276.5	8.09	35.182		
1,900.0	1,898.7	1,857.7	1,836.7	4.1	5.8	10.52	8.1	309.3	288.6	280.3	8.30	34.759		
2,000.0	1,998.0	1,957.3	1,934.1	4.4	6.3	10.86	8.9	330.0	297.4	288.6	8.77	33.893		
2,100.0	2,097.2	2,056.9	2,031.5	4.6	6.7	11.17	9.7	350.7	306.2	297.0	9.25	33.100		
2,200.0	2,196.5	2,156.5	2,129.0	4.9	7.2	11.47	10.4	371.4	315.0	305.3	9.73	32.374		
2,300.0	2,295.7	2,256.1	2,226.4	5.2	7.6	11.75	11.2	392.1	323.8	313.6	10.21	31.706		
2,400.0	2,394.9	2,355.7	2,323.8	5.4	8.1	12.02	12.0	412.8	332.7	322.0	10.70	31.092		
2,500.0	2,494.2	2,455.3	2,421.2	5.7	8.5	12.27	12.7	433.5	341.5	330.3	11.19	30.523		
2,600.0	2,593.4	2,554.9	2,518.6	6.0	9.0	12.51	13.5	454.3	350.3	338.6	11.68	29.997		
2,700.0	2,692.6	2,654.5	2,616.0	6.3	9.4	12.74	14.2	475.0	359.2	347.0	12.17	29.509		
2,800.0	2,791.9	2,754.1	2,713.5	6.6	9.9	12.96	15.0	495.7	368.0	355.4	12.67	29.055		
2,900.0	2,891.1	2,853.7	2,810.9	6.9	10.3	13.17	15.8	516.4	376.9	363.7	13.16	28.631		
3,000.0	2,990.3	2,953.3	2,908.3	7.2	10.8	13.37	16.5	537.1	385.7	372.1	13.66	28.235		
3,100.0	3,089.6	3,052.9	3,005.7	7.5	11.2	13.55	17.3	557.8	394.6	380.4	14.16	27.865		
3,157.4	3,146.5	3,110.0	3,061.6	7.7	11.5	13.66	17.7	569.7	399.7	385.2	14.45	27.662		
3,200.0	3,188.9	3,152.4	3,103.1	7.8	11.7	13.74	18.1	578.5	403.8	389.1	14.66	27.552		
3,300.0	3,288.4	3,251.7	3,200.2	8.0	12.1	13.87	18.8	599.2	415.8	400.7	15.11	27.522		
3,400.0	3,388.3	3,350.5	3,296.9	8.2	12.6	13.89	19.6	619.7	431.1	415.6	15.53	27.752		
3,500.0	3,488.2	3,448.7	3,392.9	8.4	13.0	13.83	20.3	640.2	449.8	433.9	15.94	28.224		
3,511.8	3,500.0	3,460.2	3,404.2	8.4	13.1	92.54	20.4	642.5	452.2	436.2	15.98	28.295		
3,600.0	3,588.2	3,546.5	3,488.6	8.5	13.5	92.35	21.1	660.5	470.5	454.2	16.38	28.724		
3,700.0	3,688.2	3,644.4	3,584.3	8.7	13.9	92.17	21.8	680.8	491.3	474.4	16.85	29.159		
3,800.0	3,788.2	3,742.2	3,679.9	8.9	14.4	91.99	22.6	701.2	512.0	494.7	17.32	29.569		
3,900.0	3,888.2	3,840.0	3,775.6	9.1	14.8	91.83	23.3	721.5	532.8	515.0	17.79	29.956		
4,000.0	3,988.2	3,937.8	3,871.3	9.3	15.3	91.68	24.1	741.9	553.6	535.3	18.26	30.322		
4,100.0	4,088.2	4,035.6	3,966.9	9.6	15.7	91.55	24.8	762.2	574.3	555.6	18.73	30.669		
4,200.0	4,188.2	4,133.4	4,062.6	9.8	16.2	91.42	25.6	782.5	595.1	575.9	19.20	30.997		
4,300.0	4,288.2	4,231.2	4,158.3	10.0	16.6	91.30	26.3	802.9	615.9	596.2	19.67	31.309		
4,400.0	4,388.2	4,329.0	4,254.0	10.2	17.1	91.19	27.1	823.2	636.7	616.5	20.14	31.606		
4,500.0	4,488.2	4,426.8	4,349.6	10.4	17.5	91.08	27.8	843.6	657.4	636.8	20.62	31.888		
4,600.0	4,588.2	4,524.6	4,445.3	10.6	18.0	90.98	28.6	863.9	678.2	657.1	21.09	32.157		
4,700.0	4,688.2	4,622.5	4,541.0	10.8	18.4	90.89	29.4	884.3	699.0	677.4	21.57	32.413		

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Hankins 20M-323
<b>Project:</b>	SEC.20-T5N-R67W	<b>TVD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Reference Site:</b>	Hankins 5N67W20MR Pad Sec.20-T5N-R67W	<b>MD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Hankins 20M-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (8-12-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design										Hankins 5N67W20MR Pad Sec.20-T5N-R67W - Hankins 20R-303 - Wellbore #1 - Plan #1 (8-12-14)				Offset Site Error:		0.0 ft
Survey Program: 0-MWDD														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				
4,800.0	4,788.2	4,720.3	4,636.6	11.0	18.9	90.81	30.1	904.6	719.8	697.7	22.04	32.657				
4,900.0	4,888.2	4,818.1	4,732.3	11.2	19.3	90.72	30.9	924.9	740.6	718.1	22.52	32.891				
5,000.0	4,988.2	4,915.9	4,828.0	11.4	19.8	90.65	31.6	945.3	761.4	738.4	22.99	33.115				
5,100.0	5,088.2	5,013.7	4,923.6	11.6	20.2	90.57	32.4	965.6	782.1	758.7	23.47	33.329				
5,200.0	5,188.2	5,111.5	5,019.3	11.8	20.7	90.50	33.1	986.0	802.9	779.0	23.94	33.534				
5,300.0	5,288.2	5,209.3	5,115.0	12.0	21.1	90.44	33.9	1,006.3	823.7	799.3	24.42	33.730				
5,400.0	5,388.2	5,307.1	5,210.6	12.3	21.6	90.37	34.6	1,026.6	844.5	819.6	24.90	33.919				
5,500.0	5,488.2	5,404.9	5,306.3	12.5	22.0	90.31	35.4	1,047.0	865.3	839.9	25.38	34.100				
5,600.0	5,588.2	5,502.8	5,402.0	12.7	22.5	90.26	36.1	1,067.3	886.1	860.3	25.85	34.275				
5,700.0	5,688.2	5,600.6	5,497.7	12.9	22.9	90.20	36.9	1,087.7	906.9	880.6	26.33	34.442				
5,800.0	5,788.2	5,698.4	5,593.3	13.1	23.4	90.15	37.6	1,108.0	927.7	900.9	26.81	34.603				
5,900.0	5,888.2	5,839.2	5,731.6	13.3	23.9	90.09	38.6	1,134.4	946.5	919.2	27.35	34.604				
6,000.0	5,988.2	5,987.6	5,878.6	13.5	24.3	90.04	39.3	1,154.8	960.3	932.4	27.87	34.459				
6,100.0	6,088.2	6,137.7	6,028.2	13.8	24.6	90.01	39.8	1,167.8	968.9	940.6	28.36	34.164				
6,200.0	6,188.2	6,288.9	6,179.2	14.0	24.8	90.00	40.0	1,172.8	972.3	943.4	28.84	33.716				
6,300.0	6,288.2	6,395.9	6,286.2	14.2	24.9	90.00	40.0	1,172.9	972.3	943.1	29.24	33.251				
6,328.0	6,316.2	6,423.9	6,314.2	14.2	24.9	90.00	40.0	1,172.9	972.3	943.0	29.35	33.125				
6,350.0	6,338.2	6,445.9	6,336.2	14.3	25.0	-90.00	39.7	1,172.9	972.3	942.9	29.43	33.034				
6,400.0	6,388.1	6,495.9	6,386.1	14.4	25.0	-90.01	36.8	1,172.9	972.3	942.7	29.60	32.846				
6,450.0	6,437.7	6,545.9	6,435.8	14.5	25.1	-90.02	30.6	1,172.9	972.3	942.6	29.77	32.666				
6,500.0	6,486.8	6,596.0	6,484.9	14.5	25.1	-90.03	21.2	1,172.9	972.3	942.4	29.93	32.492				
6,550.0	6,535.1	6,646.0	6,533.3	14.6	25.2	-90.04	8.5	1,172.9	972.3	942.2	30.09	32.318				
6,600.0	6,582.5	6,696.0	6,580.8	14.7	25.2	-90.04	-7.2	1,172.9	972.3	942.1	30.25	32.140				
6,650.0	6,628.8	6,746.1	6,627.1	14.8	25.3	-90.05	-26.1	1,172.9	972.3	941.9	30.43	31.951				
6,700.0	6,673.7	6,796.2	6,672.2	14.9	25.3	-90.06	-47.9	1,172.9	972.3	941.7	30.63	31.745				
6,750.0	6,717.1	6,846.2	6,715.7	15.0	25.4	-90.06	-72.7	1,172.9	972.3	941.5	30.85	31.513				
6,800.0	6,758.8	6,896.3	6,757.5	15.1	25.5	-90.07	-100.3	1,172.9	972.3	941.2	31.12	31.249				
6,850.0	6,798.6	6,946.4	6,797.4	15.2	25.6	-90.08	-130.5	1,172.9	972.3	940.9	31.42	30.946				
6,900.0	6,836.3	6,996.5	6,835.2	15.4	25.6	-90.08	-163.3	1,172.9	972.3	940.5	31.78	30.598				
6,950.0	6,871.8	7,046.6	6,870.9	15.6	25.8	-90.09	-198.5	1,172.9	972.3	940.1	32.19	30.203				
7,000.0	6,904.9	7,096.7	6,904.1	15.8	25.9	-90.09	-236.0	1,172.9	972.3	939.6	32.68	29.756				
7,050.0	6,935.5	7,146.8	6,934.8	16.0	26.0	-90.10	-275.6	1,172.9	972.3	939.1	33.23	29.259				
7,100.0	6,963.4	7,196.9	6,962.9	16.3	26.2	-90.10	-317.1	1,172.9	972.3	938.5	33.86	28.713				
7,150.0	6,988.6	7,247.0	6,988.2	16.7	26.4	-90.11	-360.3	1,172.9	972.3	937.8	34.57	28.122				
7,200.0	7,010.8	7,297.1	7,010.6	17.1	26.6	-90.11	-405.2	1,172.9	972.3	937.0	35.37	27.493				
7,250.0	7,030.1	7,347.3	7,030.0	17.5	26.9	-90.11	-451.4	1,172.9	972.3	936.1	36.24	26.832				
7,300.0	7,046.4	7,397.4	7,046.3	18.0	27.1	-90.12	-498.7	1,172.9	972.3	935.1	37.19	26.148				
7,350.0	7,059.5	7,447.5	7,059.5	18.5	27.5	-90.12	-547.1	1,172.9	972.3	934.1	38.21	25.449				
7,400.0	7,069.5	7,497.6	7,069.5	19.1	27.8	-90.12	-596.2	1,172.9	972.3	933.0	39.30	24.744				
7,450.0	7,076.2	7,547.8	7,076.2	19.7	28.2	-90.12	-645.9	1,172.9	972.3	931.9	40.45	24.041				
7,500.0	7,079.7	7,597.9	7,079.7	20.3	28.6	-90.12	-695.9	1,172.9	972.3	930.7	41.65	23.346				
7,535.7	7,080.1	7,633.7	7,080.2	20.7	28.9	-90.12	-731.7	1,172.9	972.3	929.8	42.54	22.858				
7,600.0	7,079.5	7,698.0	7,079.6	21.6	29.5	-90.12	-796.0	1,172.9	972.3	928.1	44.20	21.999				
7,700.0	7,078.5	7,798.0	7,078.5	22.9	30.4	-90.12	-896.0	1,172.9	972.3	925.4	46.92	20.722				
7,800.0	7,077.5	7,898.0	7,077.5	24.4	31.5	-90.12	-996.0	1,172.9	972.3	922.5	49.80	19.526				
7,900.0	7,076.4	7,998.0	7,076.5	25.9	32.7	-90.12	-1,096.0	1,172.9	972.3	919.5	52.79	18.419				
8,000.0	7,075.4	8,098.0	7,075.5	27.5	33.9	-90.12	-1,196.0	1,172.9	972.3	916.4	55.89	17.397				
8,100.0	7,074.4	8,198.0	7,074.5	29.1	35.2	-90.12	-1,295.9	1,172.9	972.3	913.2	59.08	16.459				
8,200.0	7,073.4	8,298.0	7,073.5	30.7	36.6	-90.12	-1,395.9	1,172.9	972.3	910.0	62.34	15.598				
8,300.0	7,072.4	8,398.0	7,072.5	32.4	38.0	-90.12	-1,495.9	1,172.9	972.3	906.7	65.66	14.809				

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Hankins 20M-323
<b>Project:</b>	SEC.20-T5N-R67W	<b>TVD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Reference Site:</b>	Hankins 5N67W20MR Pad Sec.20-T5N-R67W	<b>MD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Hankins 20M-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (8-12-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
8,400.0	7,071.4	8,498.0	7,071.5	34.1	39.5	-90.12	-1,595.9	1,172.9	972.3	903.3	69.03	14.085		
8,500.0	7,070.4	8,598.0	7,070.4	35.8	41.0	-90.12	-1,695.9	1,172.9	972.3	899.9	72.46	13.419		
8,600.0	7,069.4	8,698.0	7,069.4	37.6	42.5	-90.12	-1,795.9	1,172.9	972.3	896.4	75.92	12.807		
8,700.0	7,068.3	8,798.0	7,068.4	39.3	44.1	-90.12	-1,895.9	1,172.9	972.3	892.9	79.42	12.243		
8,800.0	7,067.3	8,898.0	7,067.4	41.1	45.7	-90.12	-1,995.9	1,172.9	972.3	889.4	82.95	11.722		
8,900.0	7,066.3	8,998.0	7,066.4	42.9	47.3	-90.12	-2,095.9	1,172.9	972.3	885.8	86.50	11.241		
9,000.0	7,065.3	9,098.0	7,065.4	44.7	49.0	-90.12	-2,195.9	1,172.9	972.3	882.2	90.08	10.794		
9,100.0	7,064.3	9,198.0	7,064.4	46.5	50.6	-90.12	-2,295.9	1,172.9	972.3	878.6	93.68	10.379		
9,200.0	7,063.3	9,298.0	7,063.4	48.3	52.3	-90.12	-2,395.9	1,172.9	972.3	875.0	97.30	9.993		
9,300.0	7,062.3	9,398.0	7,062.3	50.1	54.0	-90.12	-2,495.9	1,172.9	972.3	871.4	100.93	9.634		
9,400.0	7,061.3	9,498.0	7,061.3	52.0	55.7	-90.12	-2,595.9	1,172.9	972.3	867.7	104.58	9.297		
9,500.0	7,060.2	9,598.0	7,060.3	53.8	57.4	-90.12	-2,695.9	1,172.9	972.3	864.1	108.24	8.983		
9,600.0	7,059.2	9,698.0	7,059.3	55.6	59.2	-90.12	-2,795.9	1,172.9	972.3	860.4	111.92	8.688		
9,700.0	7,058.2	9,798.0	7,058.3	57.5	60.9	-90.12	-2,895.9	1,172.9	972.3	856.7	115.60	8.411		
9,800.0	7,057.2	9,898.0	7,057.3	59.3	62.7	-90.12	-2,995.9	1,172.9	972.3	853.0	119.30	8.150		
9,900.0	7,056.2	9,998.0	7,056.3	61.2	64.5	-90.12	-3,095.9	1,172.9	972.3	849.3	123.00	7.905		
10,000.0	7,055.2	10,098.0	7,055.3	63.1	66.2	-90.12	-3,195.9	1,172.9	972.3	845.6	126.71	7.673		
10,100.0	7,054.2	10,198.0	7,054.2	64.9	68.0	-90.12	-3,295.8	1,172.9	972.3	841.9	130.43	7.455		
10,200.0	7,053.2	10,298.0	7,053.2	66.8	69.8	-90.12	-3,395.8	1,172.9	972.3	838.2	134.16	7.248		
10,300.0	7,052.1	10,398.0	7,052.2	68.7	71.6	-90.12	-3,495.8	1,172.9	972.3	834.4	137.89	7.051		
10,400.0	7,051.1	10,498.0	7,051.2	70.5	73.4	-90.12	-3,595.8	1,172.9	972.3	830.7	141.63	6.865		
10,500.0	7,050.1	10,598.0	7,050.2	72.4	75.2	-90.12	-3,695.8	1,172.9	972.3	826.9	145.38	6.688		
10,600.0	7,049.1	10,698.0	7,049.2	74.3	77.0	-90.12	-3,795.8	1,172.9	972.3	823.2	149.13	6.520		
10,700.0	7,048.1	10,798.0	7,048.2	76.2	78.9	-90.12	-3,895.8	1,172.9	972.3	819.4	152.88	6.360		
10,800.0	7,047.1	10,898.0	7,047.2	78.1	80.7	-90.12	-3,995.8	1,172.9	972.3	815.7	156.64	6.208		
10,900.0	7,046.1	10,998.0	7,046.1	79.9	82.5	-90.12	-4,095.8	1,172.9	972.3	811.9	160.40	6.062		
11,000.0	7,045.1	11,098.0	7,045.1	81.8	84.4	-90.12	-4,195.8	1,172.9	972.3	808.2	164.16	5.923		
11,100.0	7,044.1	11,198.0	7,044.1	83.7	86.2	-90.12	-4,295.8	1,172.9	972.3	804.4	167.93	5.790		
11,200.0	7,043.0	11,298.0	7,043.1	85.6	88.0	-90.12	-4,395.8	1,172.9	972.3	800.6	171.71	5.663		
11,300.0	7,042.0	11,398.0	7,042.1	87.5	89.9	-90.12	-4,495.8	1,172.9	972.3	796.8	175.48	5.541		
11,400.0	7,041.0	11,498.0	7,041.1	89.4	91.7	-90.12	-4,595.8	1,172.9	972.3	793.1	179.26	5.424		
11,500.2	7,040.0	11,598.2	7,040.1	91.3	93.6	-90.12	-4,696.0	1,172.9	972.3	789.3	183.05	5.312 SF		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Hankins 20M-323
<b>Project:</b>	SEC.20-T5N-R67W	<b>TVD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Reference Site:</b>	Hankins 5N67W20MR Pad Sec.20-T5N-R67W	<b>MD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Hankins 20M-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (8-12-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	90.00	0.0	58.5	58.5					
100.0	100.0	99.0	99.0	0.1	0.1	90.00	0.0	58.5	58.5	58.3	0.22	261.560		
200.0	200.0	199.0	199.0	0.3	0.3	90.00	0.0	58.5	58.5	57.8	0.67	87.042		
300.0	300.0	299.0	299.0	0.6	0.6	90.00	0.0	58.5	58.5	57.4	1.12	52.155		
400.0	400.0	399.0	399.0	0.8	0.8	90.00	0.0	58.5	58.5	56.9	1.57	37.232		
500.0	500.0	499.0	499.0	1.0	1.0	90.00	0.0	58.5	58.5	56.5	2.02	28.949		
600.0	600.0	599.0	599.0	1.2	1.2	90.00	0.0	58.5	58.5	56.0	2.47	23.681		
700.0	700.0	699.0	699.0	1.5	1.5	90.00	0.0	58.5	58.5	55.6	2.92	20.035 CC, ES		
800.0	800.0	797.0	797.0	1.7	1.7	89.93	0.1	60.1	60.2	56.8	3.35	17.944		
900.0	900.0	894.7	894.6	1.9	1.9	89.73	0.3	65.1	65.3	61.5	3.78	17.249		
1,000.0	1,000.0	992.0	991.5	2.1	2.1	89.46	0.7	73.3	73.7	69.5	4.23	17.441		
1,100.0	1,100.0	1,088.6	1,087.4	2.4	2.3	89.16	1.2	84.8	85.6	80.9	4.69	18.233		
1,200.0	1,200.0	1,184.9	1,182.6	2.6	2.6	88.89	1.9	99.3	100.7	95.5	5.19	19.412		
1,300.0	1,300.0	1,283.5	1,279.9	2.8	2.9	88.67	2.7	115.4	117.0	111.3	5.72	20.469		
1,400.0	1,400.0	1,382.2	1,377.3	3.0	3.2	88.50	3.4	131.5	133.3	127.1	6.26	21.300		
1,500.0	1,500.0	1,480.9	1,474.6	3.3	3.6	88.37	4.2	147.6	149.6	142.8	6.81	21.961		
1,600.0	1,600.0	1,579.8	1,572.2	3.5	3.9	9.59	5.0	163.7	164.2	157.3	6.88	23.868		
1,700.0	1,699.8	1,679.2	1,670.2	3.7	4.3	9.74	5.7	179.9	175.4	168.1	7.31	23.997		
1,800.0	1,799.5	1,778.8	1,768.6	3.9	4.6	10.07	6.5	196.1	183.2	175.5	7.74	23.661		
1,854.4	1,853.5	1,833.1	1,822.1	4.0	4.8	10.32	6.9	204.9	186.0	178.0	7.98	23.315		
1,900.0	1,898.7	1,878.7	1,867.1	4.1	5.0	10.56	7.3	212.4	187.9	179.7	8.18	22.962		
2,000.0	1,998.0	1,978.6	1,965.7	4.4	5.3	11.06	8.0	228.6	192.1	183.5	8.64	22.238		
2,100.0	2,097.2	2,078.5	2,064.2	4.6	5.7	11.55	8.8	244.9	196.4	187.3	9.10	21.578		
2,200.0	2,196.5	2,178.4	2,162.8	4.9	6.1	12.01	9.6	261.2	200.6	191.0	9.56	20.975		
2,300.0	2,295.7	2,278.3	2,261.4	5.2	6.4	12.45	10.3	277.5	204.9	194.8	10.03	20.421		
2,400.0	2,394.9	2,378.2	2,359.9	5.4	6.8	12.87	11.1	293.7	209.1	198.6	10.50	19.911		
2,500.0	2,494.2	2,478.1	2,458.5	5.7	7.2	13.28	11.9	310.0	213.4	202.4	10.98	19.441		
2,600.0	2,593.4	2,578.0	2,557.0	6.0	7.6	13.67	12.6	326.3	217.7	206.3	11.45	19.007		
2,700.0	2,692.6	2,677.9	2,655.6	6.3	7.9	14.05	13.4	342.6	222.0	210.1	11.93	18.603		
2,800.0	2,791.9	2,777.8	2,754.2	6.6	8.3	14.41	14.2	358.8	226.3	213.9	12.42	18.229		
2,900.0	2,891.1	2,877.7	2,852.7	6.9	8.7	14.76	14.9	375.1	230.6	217.7	12.90	17.880		
3,000.0	2,990.3	2,977.6	2,951.3	7.2	9.1	15.09	15.7	391.4	235.0	221.6	13.39	17.554		
3,100.0	3,089.6	3,077.5	3,049.8	7.5	9.4	15.42	16.5	407.7	239.3	225.4	13.87	17.249		
3,157.4	3,146.5	3,134.8	3,106.4	7.7	9.7	15.60	16.9	417.0	241.8	227.6	14.15	17.083		
3,200.0	3,188.9	3,177.4	3,148.4	7.8	9.8	15.72	17.3	423.9	243.9	229.6	14.36	16.989		
3,300.0	3,288.4	3,277.1	3,246.8	8.0	10.2	15.86	18.0	440.2	251.4	236.6	14.81	16.976		
3,400.0	3,388.3	3,376.5	3,344.8	8.2	10.6	15.80	18.8	456.4	262.2	247.0	15.23	17.210		
3,500.0	3,488.2	3,475.5	3,442.5	8.4	10.9	15.57	19.5	472.5	276.3	260.7	15.64	17.673		
3,511.8	3,500.0	3,487.1	3,454.0	8.4	11.0	94.25	19.6	474.4	278.2	262.5	15.68	17.742		
3,600.0	3,588.2	3,574.1	3,539.8	8.5	11.3	93.91	20.3	488.6	292.5	276.4	16.07	18.206		
3,700.0	3,688.2	3,672.8	3,637.2	8.7	11.7	93.56	21.1	504.6	308.7	292.2	16.52	18.688		
3,800.0	3,788.2	3,771.5	3,734.5	8.9	12.1	93.25	21.8	520.7	324.9	308.0	16.97	19.143		
3,900.0	3,888.2	3,870.1	3,831.9	9.1	12.4	92.97	22.6	536.8	341.2	323.7	17.43	19.573		
4,000.0	3,988.2	3,968.8	3,929.2	9.3	12.8	92.71	23.3	552.8	357.4	339.5	17.89	19.981		
4,100.0	4,088.2	4,067.4	4,026.5	9.6	13.2	92.47	24.1	568.9	373.6	355.3	18.34	20.368		
4,200.0	4,188.2	4,166.1	4,123.9	9.8	13.6	92.26	24.9	585.0	389.9	371.1	18.80	20.735		
4,300.0	4,288.2	4,264.8	4,221.2	10.0	14.0	92.06	25.6	601.1	406.1	386.9	19.26	21.084		
4,400.0	4,388.2	4,363.4	4,318.6	10.2	14.3	91.87	26.4	617.1	422.4	402.7	19.72	21.416		
4,500.0	4,488.2	4,462.1	4,415.9	10.4	14.7	91.70	27.1	633.2	438.6	418.5	20.18	21.733		
4,600.0	4,588.2	4,560.7	4,513.2	10.6	15.1	91.55	27.9	649.3	454.9	434.3	20.65	22.035		
4,700.0	4,688.2	4,659.4	4,610.6	10.8	15.5	91.40	28.7	665.4	471.2	450.1	21.11	22.323		

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Hankins 20M-323
<b>Project:</b>	SEC.20-T5N-R67W	<b>TVD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Reference Site:</b>	Hankins 5N67W20MR Pad Sec.20-T5N-R67W	<b>MD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Hankins 20M-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (8-12-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Hankins 5N67W20MR Pad Sec.20-T5N-R67W - Hankins 20R-403 - Wellbore #1 - Plan #1 (8-12-14)											Offset Site Error:		0.0 ft
Survey Program: 0-MWDD											Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,800.0	4,788.2	4,758.1	4,707.9	11.0	15.8	91.26	29.4	681.4	487.4	465.9	21.57	22.598	
4,900.0	4,888.2	4,856.7	4,805.3	11.2	16.2	91.13	30.2	697.5	503.7	481.7	22.03	22.862	
5,000.0	4,988.2	4,955.4	4,902.6	11.4	16.6	91.01	30.9	713.6	520.0	497.5	22.50	23.114	
5,100.0	5,088.2	5,054.1	5,000.0	11.6	17.0	90.90	31.7	729.6	536.3	513.3	22.96	23.356	
5,200.0	5,188.2	5,152.7	5,097.3	11.8	17.3	90.79	32.5	745.7	552.5	529.1	23.42	23.588	
5,300.0	5,288.2	5,251.4	5,194.6	12.0	17.7	90.69	33.2	761.8	568.8	544.9	23.89	23.810	
5,400.0	5,388.2	5,350.0	5,292.0	12.3	18.1	90.60	34.0	777.9	585.1	560.7	24.35	24.024	
5,500.0	5,488.2	5,448.7	5,389.3	12.5	18.5	90.51	34.7	793.9	601.4	576.6	24.82	24.230	
5,600.0	5,588.2	5,547.4	5,486.7	12.7	18.9	90.42	35.5	810.0	617.7	592.4	25.29	24.428	
5,700.0	5,688.2	5,646.0	5,584.0	12.9	19.2	90.34	36.2	826.1	633.9	608.2	25.75	24.618	
5,800.0	5,788.2	5,744.7	5,681.3	13.1	19.6	90.27	37.0	842.1	650.2	624.0	26.22	24.802	
5,900.0	5,888.2	5,843.3	5,778.7	13.3	20.0	90.19	37.8	858.2	666.5	639.8	26.68	24.978	
6,000.0	5,988.2	5,955.7	5,889.6	13.5	20.4	90.12	38.6	875.9	682.4	655.2	27.16	25.128	
6,100.0	6,088.2	6,086.3	6,019.3	13.8	20.7	90.05	39.3	891.7	694.4	666.8	27.63	25.133	
6,200.0	6,188.2	6,218.1	6,150.7	14.0	20.9	90.02	39.8	901.6	701.9	673.8	28.09	24.989	
6,300.0	6,288.2	6,350.6	6,283.1	14.2	21.1	90.00	40.0	905.4	704.8	676.3	28.54	24.696	
6,328.0	6,316.2	6,382.7	6,315.2	14.2	21.2	90.00	40.0	905.5	704.9	676.2	28.66	24.595	
6,330.5	6,318.7	6,385.2	6,317.7	14.2	21.2	-90.00	40.0	905.5	704.9	676.2	28.67	24.587	
6,350.0	6,338.2	6,404.7	6,337.2	14.3	21.2	-90.03	40.0	905.5	704.9	676.1	28.74	24.523	
6,400.0	6,388.1	6,454.6	6,387.1	14.4	21.3	-90.27	40.0	905.5	704.9	676.0	28.92	24.374	
6,450.0	6,437.7	6,504.6	6,437.1	14.5	21.3	-90.73	39.3	905.5	704.9	675.8	29.09	24.236	
6,500.0	6,486.8	6,555.1	6,487.4	14.5	21.4	-91.20	35.5	905.5	705.0	675.8	29.25	24.105	
6,550.0	6,535.1	6,605.9	6,537.7	14.6	21.5	-91.66	28.2	905.5	705.2	675.8	29.41	23.977	
6,600.0	6,582.5	6,657.2	6,587.8	14.7	21.5	-92.12	17.6	905.5	705.4	675.8	29.58	23.849	
6,650.0	6,628.8	6,708.8	6,637.5	14.8	21.6	-92.57	3.5	905.5	705.6	675.8	29.75	23.714	
6,700.0	6,673.7	6,760.9	6,686.5	14.9	21.6	-93.02	-14.1	905.5	705.9	675.9	29.95	23.568	
6,750.0	6,717.1	6,813.3	6,734.6	15.0	21.7	-93.45	-35.1	905.5	706.2	676.0	30.17	23.405	
6,800.0	6,758.8	6,866.2	6,781.4	15.1	21.8	-93.86	-59.6	905.5	706.5	676.1	30.42	23.221	
6,850.0	6,798.6	6,919.5	6,826.8	15.2	21.9	-94.26	-87.5	905.5	706.8	676.1	30.72	23.010	
6,900.0	6,836.3	6,973.1	6,870.4	15.4	22.0	-94.65	-118.7	905.5	707.2	676.2	31.06	22.769	
6,950.0	6,871.8	7,027.2	6,912.0	15.6	22.1	-95.01	-153.2	905.5	707.6	676.1	31.46	22.492	
7,000.0	6,904.9	7,081.5	6,951.3	15.8	22.2	-95.35	-190.8	905.5	708.0	676.1	31.92	22.179	
7,050.0	6,935.5	7,136.3	6,988.1	16.0	22.4	-95.67	-231.3	905.5	708.3	675.9	32.45	21.828	
7,100.0	6,963.4	7,191.3	7,022.0	16.3	22.6	-95.96	-274.6	905.5	708.7	675.7	33.05	21.441	
7,150.0	6,988.6	7,246.7	7,052.9	16.7	22.8	-96.22	-320.5	905.5	709.1	675.3	33.73	21.020	
7,200.0	7,010.8	7,302.3	7,080.6	17.1	23.1	-96.46	-368.8	905.5	709.4	674.9	34.49	20.566	
7,250.0	7,030.1	7,358.2	7,104.7	17.5	23.4	-96.66	-419.2	905.5	709.7	674.3	35.33	20.085	
7,300.0	7,046.4	7,414.3	7,125.2	18.0	23.7	-96.83	-471.4	905.5	709.9	673.7	36.25	19.583	
7,350.0	7,059.5	7,470.5	7,141.8	18.5	24.1	-96.97	-525.1	905.5	710.1	672.9	37.24	19.067	
7,400.0	7,069.5	7,526.9	7,154.5	19.1	24.5	-97.08	-580.1	905.5	710.3	672.0	38.31	18.542	
7,450.0	7,076.2	7,583.5	7,163.1	19.7	25.0	-97.15	-635.9	905.5	710.4	671.0	39.43	18.015	
7,500.0	7,079.7	7,640.0	7,167.5	20.3	25.6	-97.19	-692.3	905.5	710.5	669.8	40.62	17.492	
7,535.7	7,080.1	7,679.3	7,168.2	20.7	25.9	-97.20	-731.6	905.5	710.5	669.0	41.48	17.128	
7,600.0	7,079.5	7,743.6	7,168.2	21.6	26.6	-97.26	-795.8	905.5	710.6	667.4	43.14	16.473	
7,700.0	7,078.5	7,843.6	7,168.4	22.9	27.7	-97.35	-895.8	905.5	710.7	664.9	45.84	15.505	
7,800.0	7,077.5	7,943.6	7,168.5	24.4	28.9	-97.44	-995.8	905.5	710.8	662.2	48.68	14.601	
7,900.0	7,076.4	8,043.6	7,168.6	25.9	30.2	-97.53	-1,095.8	905.5	711.0	659.3	51.65	13.765	
8,000.0	7,075.4	8,143.6	7,168.7	27.5	31.6	-97.62	-1,195.8	905.5	711.1	656.4	54.72	12.995	
8,100.0	7,074.4	8,243.6	7,168.8	29.1	33.0	-97.71	-1,295.8	905.5	711.3	653.4	57.88	12.289	
8,200.0	7,073.4	8,343.6	7,169.0	30.7	34.5	-97.80	-1,395.8	905.5	711.4	650.3	61.11	11.643	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Hankins 20M-323
<b>Project:</b>	SEC.20-T5N-R67W	<b>TVD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Reference Site:</b>	Hankins 5N67W20MR Pad Sec.20-T5N-R67W	<b>MD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Hankins 20M-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (8-12-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Hankins 5N67W20MR Pad Sec.20-T5N-R67W - Hankins 20R-403 - Wellbore #1 - Plan #1 (8-12-14)											Offset Site Error: 0.0 ft		
Survey Program: 0-MWD											Offset Well Error: 0.0 ft		
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
8,300.0	7,072.4	8,443.5	7,169.1	32.4	36.0	-97.89	-1,495.8	905.5	711.6	647.2	64.40	11.050	
8,400.0	7,071.4	8,543.5	7,169.2	34.1	37.5	-97.98	-1,595.8	905.5	711.8	644.0	67.74	10.508	
8,500.0	7,070.4	8,643.5	7,169.3	35.8	39.1	-98.07	-1,695.8	905.5	711.9	640.8	71.12	10.010	
8,600.0	7,069.4	8,743.5	7,169.5	37.6	40.7	-98.16	-1,795.8	905.5	712.1	637.5	74.54	9.552	
8,700.0	7,068.3	8,843.5	7,169.6	39.3	42.4	-98.25	-1,895.8	905.5	712.2	634.2	78.00	9.131	
8,800.0	7,067.3	8,943.5	7,169.7	41.1	44.0	-98.34	-1,995.8	905.5	712.4	630.9	81.48	8.743	
8,900.0	7,066.3	9,043.5	7,169.8	42.9	45.7	-98.43	-2,095.8	905.5	712.6	627.6	84.99	8.384	
9,000.0	7,065.3	9,143.5	7,169.9	44.7	47.4	-98.52	-2,195.8	905.5	712.7	624.2	88.52	8.052	
9,100.0	7,064.3	9,243.5	7,170.1	46.5	49.1	-98.61	-2,295.7	905.5	712.9	620.8	92.07	7.743	
9,200.0	7,063.3	9,343.5	7,170.2	48.3	50.9	-98.70	-2,395.7	905.5	713.1	617.4	95.63	7.457	
9,300.0	7,062.3	9,443.5	7,170.3	50.1	52.6	-98.79	-2,495.7	905.5	713.2	614.0	99.21	7.189	
9,400.0	7,061.3	9,543.5	7,170.4	52.0	54.4	-98.88	-2,595.7	905.5	713.4	610.6	102.80	6.940	
9,500.0	7,060.2	9,643.5	7,170.6	53.8	56.1	-98.97	-2,695.7	905.5	713.6	607.2	106.40	6.707	
9,600.0	7,059.2	9,743.5	7,170.7	55.6	57.9	-99.06	-2,795.7	905.5	713.8	603.8	110.02	6.488	
9,700.0	7,058.2	9,843.5	7,170.8	57.5	59.7	-99.15	-2,895.7	905.5	714.0	600.3	113.64	6.283	
9,800.0	7,057.2	9,943.5	7,170.9	59.3	61.5	-99.24	-2,995.7	905.5	714.1	596.9	117.26	6.090	
9,900.0	7,056.2	10,043.4	7,171.0	61.2	63.3	-99.33	-3,095.7	905.5	714.3	593.4	120.90	5.908	
10,000.0	7,055.2	10,143.4	7,171.2	63.1	65.1	-99.42	-3,195.7	905.5	714.5	590.0	124.54	5.737	
10,100.0	7,054.2	10,243.4	7,171.3	64.9	66.9	-99.51	-3,295.7	905.5	714.7	586.5	128.19	5.575	
10,200.0	7,053.2	10,343.4	7,171.4	66.8	68.7	-99.60	-3,395.7	905.5	714.9	583.0	131.84	5.422	
10,300.0	7,052.1	10,443.4	7,171.5	68.7	70.6	-99.69	-3,495.7	905.5	715.1	579.6	135.50	5.277	
10,400.0	7,051.1	10,543.4	7,171.7	70.5	72.4	-99.78	-3,595.7	905.5	715.3	576.1	139.16	5.140	
10,500.0	7,050.1	10,643.4	7,171.8	72.4	74.2	-99.87	-3,695.7	905.5	715.5	572.6	142.82	5.010	
10,600.0	7,049.1	10,743.4	7,171.9	74.3	76.1	-99.96	-3,795.6	905.5	715.7	569.2	146.48	4.886	
10,700.0	7,048.1	10,843.4	7,172.0	76.2	77.9	-100.05	-3,895.6	905.5	715.8	565.7	150.15	4.768	
10,800.0	7,047.1	10,943.4	7,172.1	78.1	79.8	-100.14	-3,995.6	905.5	716.0	562.2	153.82	4.655	
10,900.0	7,046.1	11,043.4	7,172.3	79.9	81.6	-100.23	-4,095.6	905.5	716.2	558.8	157.49	4.548	
11,000.0	7,045.1	11,143.4	7,172.4	81.8	83.5	-100.32	-4,195.6	905.5	716.5	555.3	161.17	4.445	
11,100.0	7,044.1	11,243.4	7,172.5	83.7	85.3	-100.41	-4,295.6	905.5	716.7	551.8	164.84	4.348	
11,200.0	7,043.0	11,343.4	7,172.6	85.6	87.2	-100.50	-4,395.6	905.5	716.9	548.3	168.51	4.254	
11,300.0	7,042.0	11,443.4	7,172.8	87.5	89.0	-100.58	-4,495.6	905.5	717.1	544.9	172.19	4.164	
11,400.0	7,041.0	11,543.3	7,172.9	89.4	90.9	-100.67	-4,595.6	905.5	717.3	541.4	175.87	4.079	
11,500.2	7,040.0	11,643.5	7,173.0	91.3	92.8	-100.76	-4,695.8	905.5	717.5	537.9	179.55	3.996 SF	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Hankins 20M-323
<b>Project:</b>	SEC.20-T5N-R67W	<b>TVD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Reference Site:</b>	Hankins 5N67W20MR Pad Sec.20-T5N-R67W	<b>MD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Hankins 20M-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (8-12-14)	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4974.0ft (RKB - 15')

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Hankins 20M-323

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.38°



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Hankins 20M-323
<b>Project:</b>	SEC.20-T5N-R67W	<b>TVD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Reference Site:</b>	Hankins 5N67W20MR Pad Sec.20-T5N-R67W	<b>MD Reference:</b>	WELL @ 4974.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Hankins 20M-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (8-12-14)	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4974.0ft (RKB - 15')  
Offset Depths are relative to Offset Datum  
Central Meridian is -105.500000 °

Coordinates are relative to: Hankins 20M-323  
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