

PETROLEUM DEVELOPMENT CORP Weld County CO

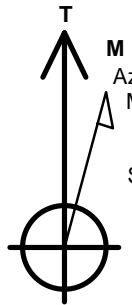
Well Name: **LDS 1U-304**

Surface Location: LDS 5N65W1U Pad Sec.1-T5N-R65W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
Ground Elevation: 4640.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1402168.58	3249616.70	40.433890	-104.603280	
RKB - 13' WELL @ 4653.0ft (RKB - 13')						

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
50' E/W Hardline (1U-304)	1.0	267.0	-3703.3	Rectangle (Sides: L6601.4 W100.0)
SHL 446'FNL & 432'FEL, Sec.1	1.0	0.0	0.0	Point
BHL 187'FNL & 2145'FEL, Sec.2	6763.0	267.0	-7004.0	Point



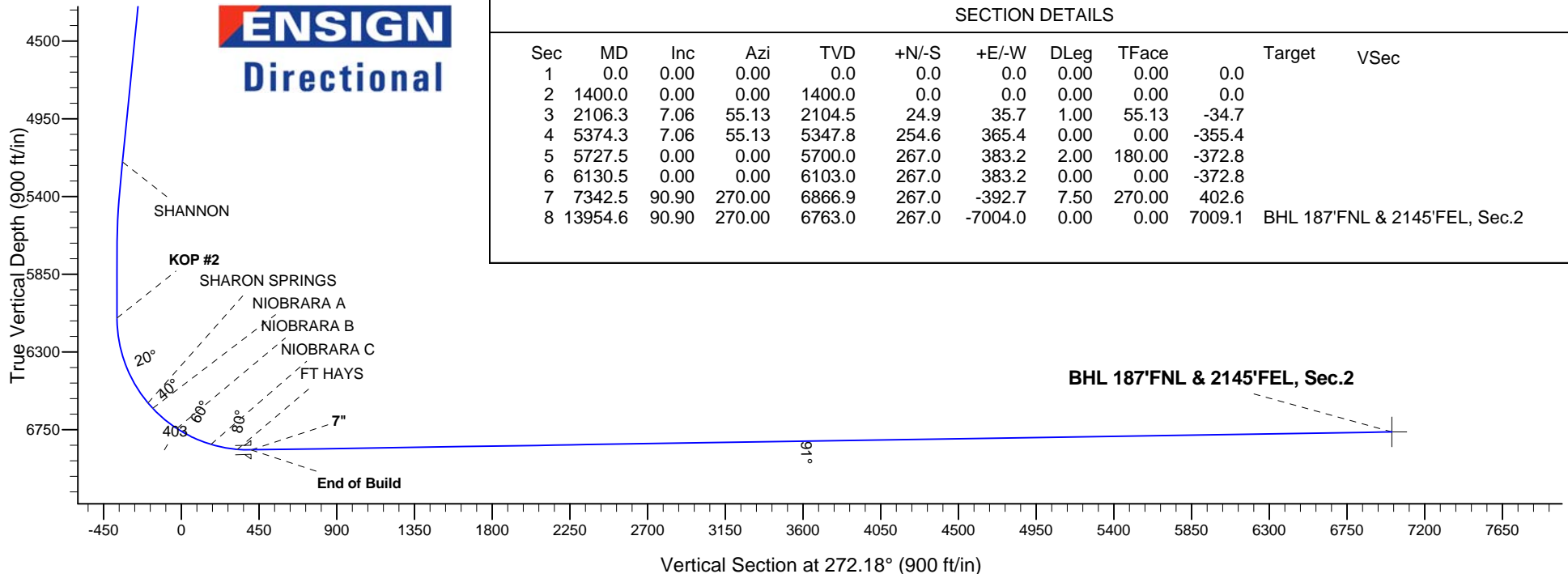
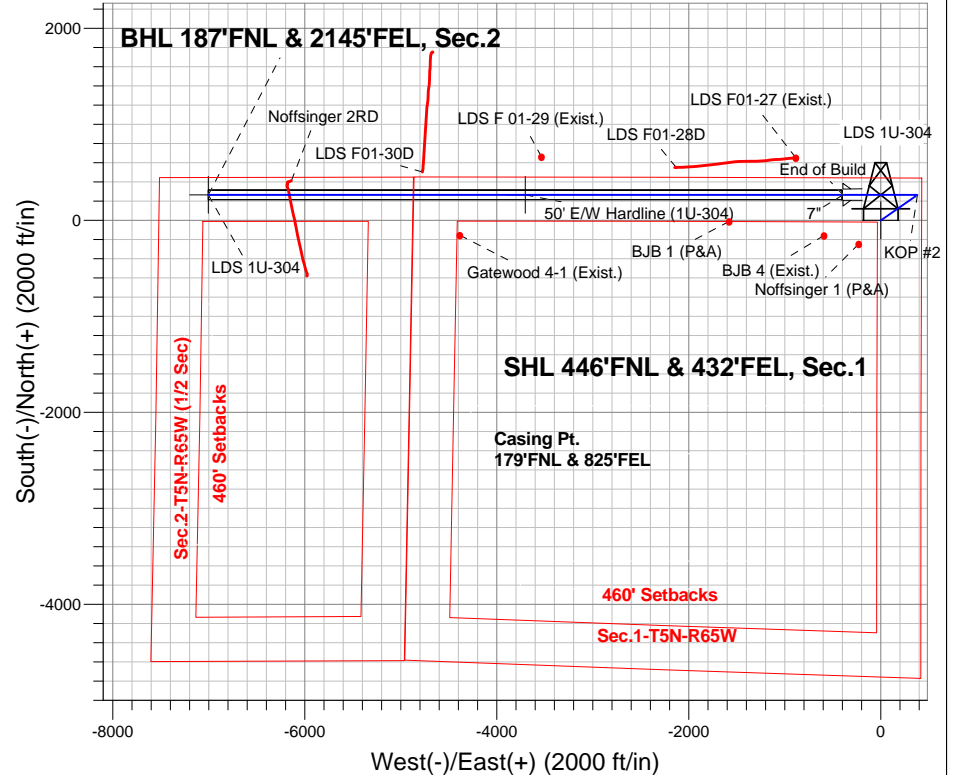
Azimuths to True North
Magnetic North: 8.26°

Magnetic Field
Strength: 52759.0snT
Dip Angle: 66.97°
Date: 4/30/2015
Model: IGRF2010

ANNOTATIONS

TVD	MD	Annotation
1400.0	1400.0	KOP #1
6103.0	6130.5	KOP #2
6866.9	7342.5	End of Build

LDS 5N65W1U Pad Sec.1-T5N-R65W
LDS 1U-304
Plan #2 (4-30-15)



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	Target	VSec
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1400.0	0.00	0.00	1400.0	0.0	0.0	0.00	0.00	0.0	
3	2106.3	7.06	55.13	2104.5	24.9	35.7	1.00	55.13	-34.7	
4	5374.3	7.06	55.13	5347.8	254.6	365.4	0.00	0.00	-355.4	
5	5727.5	0.00	0.00	5700.0	267.0	383.2	2.00	180.00	-372.8	
6	6130.5	0.00	0.00	6103.0	267.0	383.2	0.00	0.00	-372.8	
7	7342.5	90.90	270.00	6866.9	267.0	-392.7	7.50	270.00	402.6	
8	13954.6	90.90	270.00	6763.0	267.0	-7004.0	0.00	0.00	7009.1	BHL 187'FNL & 2145'FEL, Sec.2



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.1-T5N-R65W

LDS 5N65W1U Pad Sec.1-T5N-R65W

LDS 1U-304

Wellbore #1

Plan: Plan #2 (4-30-15)

Standard Planning Report

30 April, 2015

Database:	Landmark	Local Co-ordinate Reference:	Well LDS 1U-304
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4653.0ft (RKB - 13')
Project:	SEC.1-T5N-R65W	MD Reference:	WELL @ 4653.0ft (RKB - 13')
Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	North Reference:	True
Well:	LDS 1U-304	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (4-30-15)		

Project	SEC.1-T5N-R65W, Weld County, CO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site						LDS 5N65W1U Pad Sec.1-T5N-R65W											
Site Position:						Northing:			1,402,064.02 ft			Latitude:			40.433600		
From:			Lat/Long			Easting:			3,249,723.55 ft			Longitude:			-104.602900		
Position Uncertainty:			0.0 ft			Slot Radius:			"			Grid Convergence:			0.58 °		

Well	LDS 1U-304					
Well Position	+N/-S	105.6 ft	Northing:	1,402,168.58 ft	Latitude:	40.433890
	+E/-W	-105.8 ft	Easting:	3,249,616.70 ft	Longitude:	-104.603280
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,640.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/30/2015	8.26	66.97	52,759

Design	Plan #2 (4-30-15)			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	272.18

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,106.3	7.06	55.13	2,104.5	24.9	35.7	1.00	1.00	0.00	55.13	
5,374.3	7.06	55.13	5,347.8	254.6	365.4	0.00	0.00	0.00	0.00	
5,727.5	0.00	0.00	5,700.0	267.0	383.2	2.00	-2.00	0.00	180.00	
6,130.5	0.00	0.00	6,103.0	267.0	383.2	0.00	0.00	0.00	0.00	
7,342.5	90.90	270.00	6,866.9	267.0	-392.7	7.50	7.50	0.00	270.00	
13,954.6	90.90	270.00	6,763.0	267.0	-7,004.0	0.00	0.00	0.00	0.00	BHL 187°FNL & 214°

Database:	Landmark	Local Co-ordinate Reference:	Well LDS 1U-304
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4653.0ft (RKB - 13')
Project:	SEC.1-T5N-R65W	MD Reference:	WELL @ 4653.0ft (RKB - 13')
Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	North Reference:	True
Well:	LDS 1U-304	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (4-30-15)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
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
KOP #1									
1,500.0	1.00	55.13	1,500.0	0.5	0.7	-0.7	1.00	1.00	0.00
1,600.0	2.00	55.13	1,600.0	2.0	2.9	-2.8	1.00	1.00	0.00
1,700.0	3.00	55.13	1,699.9	4.5	6.4	-6.3	1.00	1.00	0.00
1,800.0	4.00	55.13	1,799.7	8.0	11.5	-11.1	1.00	1.00	0.00
1,900.0	5.00	55.13	1,899.4	12.5	17.9	-17.4	1.00	1.00	0.00
2,000.0	6.00	55.13	1,998.9	17.9	25.8	-25.1	1.00	1.00	0.00
2,100.0	7.00	55.13	2,098.3	24.4	35.0	-34.1	1.00	1.00	0.00
2,106.3	7.06	55.13	2,104.5	24.9	35.7	-34.7	1.00	1.00	0.00
2,200.0	7.06	55.13	2,197.5	31.4	45.1	-43.9	0.00	0.00	0.00
2,300.0	7.06	55.13	2,296.7	38.5	55.2	-53.7	0.00	0.00	0.00
2,400.0	7.06	55.13	2,396.0	45.5	65.3	-63.5	0.00	0.00	0.00
2,500.0	7.06	55.13	2,495.2	52.5	75.4	-73.3	0.00	0.00	0.00
2,600.0	7.06	55.13	2,594.5	59.6	85.5	-83.1	0.00	0.00	0.00
2,700.0	7.06	55.13	2,693.7	66.6	95.6	-93.0	0.00	0.00	0.00
2,800.0	7.06	55.13	2,792.9	73.6	105.7	-102.8	0.00	0.00	0.00
2,900.0	7.06	55.13	2,892.2	80.6	115.7	-112.6	0.00	0.00	0.00
3,000.0	7.06	55.13	2,991.4	87.7	125.8	-122.4	0.00	0.00	0.00
3,100.0	7.06	55.13	3,090.7	94.7	135.9	-132.2	0.00	0.00	0.00
3,200.0	7.06	55.13	3,189.9	101.7	146.0	-142.0	0.00	0.00	0.00
3,300.0	7.06	55.13	3,289.2	108.8	156.1	-151.8	0.00	0.00	0.00
3,400.0	7.06	55.13	3,388.4	115.8	166.2	-161.7	0.00	0.00	0.00
3,498.4	7.06	55.13	3,486.0	122.7	176.1	-171.3	0.00	0.00	0.00
PARKMAN									
3,500.0	7.06	55.13	3,487.6	122.8	176.3	-171.5	0.00	0.00	0.00
3,600.0	7.06	55.13	3,586.9	129.9	186.4	-181.3	0.00	0.00	0.00
3,700.0	7.06	55.13	3,686.1	136.9	196.5	-191.1	0.00	0.00	0.00
3,800.0	7.06	55.13	3,785.4	143.9	206.5	-200.9	0.00	0.00	0.00
3,900.0	7.06	55.13	3,884.6	150.9	216.6	-210.7	0.00	0.00	0.00
4,000.0	7.06	55.13	3,983.8	158.0	226.7	-220.5	0.00	0.00	0.00
4,100.0	7.06	55.13	4,083.1	165.0	236.8	-230.3	0.00	0.00	0.00
4,200.0	7.06	55.13	4,182.3	172.0	246.9	-240.2	0.00	0.00	0.00
4,262.1	7.06	55.13	4,244.0	176.4	253.2	-246.3	0.00	0.00	0.00
SUSSEX									
4,300.0	7.06	55.13	4,281.6	179.1	257.0	-250.0	0.00	0.00	0.00
4,400.0	7.06	55.13	4,380.8	186.1	267.1	-259.8	0.00	0.00	0.00
4,500.0	7.06	55.13	4,480.0	193.1	277.2	-269.6	0.00	0.00	0.00
4,600.0	7.06	55.13	4,579.3	200.1	287.2	-279.4	0.00	0.00	0.00

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Project:	SEC.1-T5N-R65W	MD Reference:	WELL @ 4653.0ft (RKB - 13')
Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	North Reference:	True
Well:	LDS 1U-304	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (4-30-15)		

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)
4,700.0	7.06	55.13	4,678.5	207.2	297.3	-289.2	0.00	0.00	0.00
4,800.0	7.06	55.13	4,777.8	214.2	307.4	-299.0	0.00	0.00	0.00
4,900.0	7.06	55.13	4,877.0	221.2	317.5	-308.9	0.00	0.00	0.00
5,000.0	7.06	55.13	4,976.3	228.3	327.6	-318.7	0.00	0.00	0.00
5,100.0	7.06	55.13	5,075.5	235.3	337.7	-328.5	0.00	0.00	0.00
5,200.0	7.06	55.13	5,174.7	242.3	347.8	-338.3	0.00	0.00	0.00
5,225.5	7.06	55.13	5,200.0	244.1	350.3	-340.8	0.00	0.00	0.00
SHANNON									
5,300.0	7.06	55.13	5,274.0	249.4	357.9	-348.1	0.00	0.00	0.00
5,374.3	7.06	55.13	5,347.8	254.6	365.4	-355.4	0.00	0.00	0.00
5,400.0	6.55	55.13	5,373.2	256.3	367.9	-357.8	2.00	-2.00	0.00
5,500.0	4.55	55.13	5,472.8	261.8	375.8	-365.5	2.00	-2.00	0.00
5,600.0	2.55	55.13	5,572.6	265.4	380.9	-370.5	2.00	-2.00	0.00
5,700.0	0.55	55.13	5,672.5	266.9	383.1	-372.6	2.00	-2.00	0.00
5,727.5	0.00	0.00	5,700.0	267.0	383.2	-372.8	2.00	-2.00	0.00
5,800.0	0.00	0.00	5,772.5	267.0	383.2	-372.8	0.00	0.00	0.00
5,900.0	0.00	0.00	5,872.5	267.0	383.2	-372.8	0.00	0.00	0.00
6,000.0	0.00	0.00	5,972.5	267.0	383.2	-372.8	0.00	0.00	0.00
6,100.0	0.00	0.00	6,072.5	267.0	383.2	-372.8	0.00	0.00	0.00
6,130.5	0.00	0.00	6,103.0	267.0	383.2	-372.8	0.00	0.00	0.00
KOP #2									
6,200.0	5.21	270.00	6,172.4	267.0	380.0	-369.6	7.50	7.50	0.00
6,300.0	12.71	270.00	6,271.1	267.0	364.5	-354.0	7.50	7.50	0.00
6,400.0	20.21	270.00	6,367.0	267.0	336.2	-325.7	7.50	7.50	0.00
6,500.0	27.71	270.00	6,458.3	267.0	295.6	-285.2	7.50	7.50	0.00
6,600.0	35.21	270.00	6,543.5	267.0	243.4	-233.1	7.50	7.50	0.00
6,665.0	40.09	270.00	6,595.0	267.0	203.7	-193.4	7.50	7.50	0.00
SHARON SPRINGS									
6,700.0	42.71	270.00	6,621.2	267.0	180.6	-170.3	7.50	7.50	0.00
6,706.5	43.20	270.00	6,626.0	267.0	176.1	-165.8	7.50	7.50	0.00
NIOBRARA A									
6,800.0	50.21	270.00	6,690.0	267.0	108.1	-97.9	7.50	7.50	0.00
6,889.2	56.90	270.00	6,743.0	267.0	36.4	-26.2	7.50	7.50	0.00
NIOBRARA B									
6,900.0	57.71	270.00	6,748.8	267.0	27.3	-17.1	7.50	7.50	0.00
7,000.0	65.21	270.00	6,796.6	267.0	-60.5	70.6	7.50	7.50	0.00
7,100.0	72.71	270.00	6,832.4	267.0	-153.7	163.8	7.50	7.50	0.00
7,108.8	73.37	270.00	6,835.0	267.0	-162.1	172.2	7.50	7.50	0.00
NIOBRARA C									
7,200.0	80.21	270.00	6,855.8	267.0	-250.9	260.9	7.50	7.50	0.00
7,263.3	84.96	270.00	6,864.0	267.0	-313.6	323.6	7.50	7.50	0.00
FT HAYS									
7,300.0	87.71	270.00	6,866.3	267.0	-350.3	360.2	7.50	7.50	0.00
7,342.5	90.90	270.00	6,866.9	267.0	-392.8	402.6	7.50	7.50	0.00
End of Build - 7"									
7,400.0	90.90	270.00	6,866.0	267.0	-450.2	460.1	0.00	0.00	0.00
7,500.0	90.90	270.00	6,864.4	267.0	-550.2	560.0	0.00	0.00	0.00
7,600.0	90.90	270.00	6,862.8	267.0	-650.2	659.9	0.00	0.00	0.00
7,700.0	90.90	270.00	6,861.2	267.0	-750.2	759.8	0.00	0.00	0.00
7,800.0	90.90	270.00	6,859.7	267.0	-850.2	859.8	0.00	0.00	0.00
7,900.0	90.90	270.00	6,858.1	267.0	-950.2	959.7	0.00	0.00	0.00
8,000.0	90.90	270.00	6,856.5	267.0	-1,050.2	1,059.6	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well LDS 1U-304
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Project:	SEC.1-T5N-R65W	MD Reference:	WELL @ 4653.0ft (RKB - 13')
Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	North Reference:	True
Well:	LDS 1U-304	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (4-30-15)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,100.0	90.90	270.00	6,855.0	267.0	-1,150.2	1,159.5	0.00	0.00	0.00
8,200.0	90.90	270.00	6,853.4	267.0	-1,250.1	1,259.4	0.00	0.00	0.00
8,300.0	90.90	270.00	6,851.8	267.0	-1,350.1	1,359.3	0.00	0.00	0.00
8,400.0	90.90	270.00	6,850.2	267.0	-1,450.1	1,459.2	0.00	0.00	0.00
8,500.0	90.90	270.00	6,848.7	267.0	-1,550.1	1,559.2	0.00	0.00	0.00
8,600.0	90.90	270.00	6,847.1	267.0	-1,650.1	1,659.1	0.00	0.00	0.00
8,700.0	90.90	270.00	6,845.5	267.0	-1,750.1	1,759.0	0.00	0.00	0.00
8,800.0	90.90	270.00	6,844.0	267.0	-1,850.1	1,858.9	0.00	0.00	0.00
8,900.0	90.90	270.00	6,842.4	267.0	-1,950.1	1,958.8	0.00	0.00	0.00
9,000.0	90.90	270.00	6,840.8	267.0	-2,050.1	2,058.7	0.00	0.00	0.00
9,100.0	90.90	270.00	6,839.3	267.0	-2,150.0	2,158.6	0.00	0.00	0.00
9,200.0	90.90	270.00	6,837.7	267.0	-2,250.0	2,258.6	0.00	0.00	0.00
9,300.0	90.90	270.00	6,836.1	267.0	-2,350.0	2,358.5	0.00	0.00	0.00
9,400.0	90.90	270.00	6,834.5	267.0	-2,450.0	2,458.4	0.00	0.00	0.00
9,500.0	90.90	270.00	6,833.0	267.0	-2,550.0	2,558.3	0.00	0.00	0.00
9,600.0	90.90	270.00	6,831.4	267.0	-2,650.0	2,658.2	0.00	0.00	0.00
9,700.0	90.90	270.00	6,829.8	267.0	-2,750.0	2,758.1	0.00	0.00	0.00
9,800.0	90.90	270.00	6,828.3	267.0	-2,850.0	2,858.1	0.00	0.00	0.00
9,900.0	90.90	270.00	6,826.7	267.0	-2,949.9	2,958.0	0.00	0.00	0.00
10,000.0	90.90	270.00	6,825.1	267.0	-3,049.9	3,057.9	0.00	0.00	0.00
10,100.0	90.90	270.00	6,823.5	267.0	-3,149.9	3,157.8	0.00	0.00	0.00
10,200.0	90.90	270.00	6,822.0	267.0	-3,249.9	3,257.7	0.00	0.00	0.00
10,300.0	90.90	270.00	6,820.4	267.0	-3,349.9	3,357.6	0.00	0.00	0.00
10,400.0	90.90	270.00	6,818.8	267.0	-3,449.9	3,457.5	0.00	0.00	0.00
10,500.0	90.90	270.00	6,817.3	267.0	-3,549.9	3,557.5	0.00	0.00	0.00
10,600.0	90.90	270.00	6,815.7	267.0	-3,649.9	3,657.4	0.00	0.00	0.00
10,700.0	90.90	270.00	6,814.1	267.0	-3,749.8	3,757.3	0.00	0.00	0.00
10,800.0	90.90	270.00	6,812.6	267.0	-3,849.8	3,857.2	0.00	0.00	0.00
10,900.0	90.90	270.00	6,811.0	267.0	-3,949.8	3,957.1	0.00	0.00	0.00
11,000.0	90.90	270.00	6,809.4	267.0	-4,049.8	4,057.0	0.00	0.00	0.00
11,100.0	90.90	270.00	6,807.8	267.0	-4,149.8	4,156.9	0.00	0.00	0.00
11,200.0	90.90	270.00	6,806.3	267.0	-4,249.8	4,256.9	0.00	0.00	0.00
11,300.0	90.90	270.00	6,804.7	267.0	-4,349.8	4,356.8	0.00	0.00	0.00
11,400.0	90.90	270.00	6,803.1	267.0	-4,449.8	4,456.7	0.00	0.00	0.00
11,500.0	90.90	270.00	6,801.6	267.0	-4,549.7	4,556.6	0.00	0.00	0.00
11,600.0	90.90	270.00	6,800.0	267.0	-4,649.7	4,656.5	0.00	0.00	0.00
11,700.0	90.90	270.00	6,798.4	267.0	-4,749.7	4,756.4	0.00	0.00	0.00
11,800.0	90.90	270.00	6,796.8	267.0	-4,849.7	4,856.4	0.00	0.00	0.00
11,900.0	90.90	270.00	6,795.3	267.0	-4,949.7	4,956.3	0.00	0.00	0.00
12,000.0	90.90	270.00	6,793.7	267.0	-5,049.7	5,056.2	0.00	0.00	0.00
12,100.0	90.90	270.00	6,792.1	267.0	-5,149.7	5,156.1	0.00	0.00	0.00
12,200.0	90.90	270.00	6,790.6	267.0	-5,249.7	5,256.0	0.00	0.00	0.00
12,300.0	90.90	270.00	6,789.0	267.0	-5,349.6	5,355.9	0.00	0.00	0.00
12,400.0	90.90	270.00	6,787.4	267.0	-5,449.6	5,455.8	0.00	0.00	0.00
12,500.0	90.90	270.00	6,785.8	267.0	-5,549.6	5,555.8	0.00	0.00	0.00
12,600.0	90.90	270.00	6,784.3	267.0	-5,649.6	5,655.7	0.00	0.00	0.00
12,700.0	90.90	270.00	6,782.7	267.0	-5,749.6	5,755.6	0.00	0.00	0.00
12,800.0	90.90	270.00	6,781.1	267.0	-5,849.6	5,855.5	0.00	0.00	0.00
12,900.0	90.90	270.00	6,779.6	267.0	-5,949.6	5,955.4	0.00	0.00	0.00
13,000.0	90.90	270.00	6,778.0	267.0	-6,049.6	6,055.3	0.00	0.00	0.00
13,100.0	90.90	270.00	6,776.4	267.0	-6,149.5	6,155.3	0.00	0.00	0.00
13,200.0	90.90	270.00	6,774.9	267.0	-6,249.5	6,255.2	0.00	0.00	0.00
13,300.0	90.90	270.00	6,773.3	267.0	-6,349.5	6,355.1	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well LDS 1U-304
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4653.0ft (RKB - 13')
Project:	SEC.1-T5N-R65W	MD Reference:	WELL @ 4653.0ft (RKB - 13')
Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	North Reference:	True
Well:	LDS 1U-304	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (4-30-15)		

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)
13,400.0	90.90	270.00	6,771.7	267.0	-6,449.5	6,455.0	0.00	0.00	0.00
13,500.0	90.90	270.00	6,770.1	267.0	-6,549.5	6,554.9	0.00	0.00	0.00
13,600.0	90.90	270.00	6,768.6	267.0	-6,649.5	6,654.8	0.00	0.00	0.00
13,700.0	90.90	270.00	6,767.0	267.0	-6,749.5	6,754.7	0.00	0.00	0.00
13,800.0	90.90	270.00	6,765.4	267.0	-6,849.5	6,854.7	0.00	0.00	0.00
13,900.0	90.90	270.00	6,763.9	267.0	-6,949.4	6,954.6	0.00	0.00	0.00
13,954.6	90.90	270.00	6,763.0	267.0	-7,004.0	7,009.1	0.00	0.00	0.00

Targets									
Target Name	- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude Longitude
SHL 446'FNL & 432'F	- plan hits target center	0.00	0.00	1.0	0.0	0.0	1,402,168.59	3,249,616.70	40.433890 -104.603280
- Point									
BHL 187'FNL & 2145'	- plan hits target center	0.00	0.00	6,763.0	267.0	-7,004.0	1,402,364.68	3,242,610.62	40.434620 -104.628440
- Point									
50' E/W Hardline (1U-	- plan misses target center by 3712.9ft at 1.0ft MD (1.0 TVD, 0.0 N, 0.0 E)	0.00	0.00	1.0	267.0	-3,703.3	1,402,398.10	3,245,911.04	40.434622 -104.616583
- Rectangle (sides W6,601.4 H100.0 D0.0)									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
7,342.5	6,866.9	7"	7	7-1/2	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,498.4	3,486.0	PARKMAN		0.00		
4,262.1	4,244.0	SUSSEX		0.00		
5,225.5	5,200.0	SHANNON		0.00		
6,665.0	6,595.0	SHARON SPRINGS		0.00		
6,706.5	6,626.0	NIOBRARA A		0.00		
6,889.2	6,743.0	NIOBRARA B		0.00		
7,108.8	6,835.0	NIOBRARA C		0.00		
7,263.3	6,864.0	FT HAYS		0.00		
	6,881.0	CODELL		0.00		

Database:	Landmark	Local Co-ordinate Reference:	Well LDS 1U-304
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4653.0ft (RKB - 13')
Project:	SEC.1-T5N-R65W	MD Reference:	WELL @ 4653.0ft (RKB - 13')
Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	North Reference:	True
Well:	LDS 1U-304	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (4-30-15)		

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,400.0	1,400.0	0.0	0.0	KOP #1
6,130.5	6,103.0	267.0	383.2	KOP #2
7,342.5	6,866.9	267.0	-392.8	End of Build



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.1-T5N-R65W

LDS 5N65W1U Pad Sec.1-T5N-R65W

LDS 1U-304

Wellbore #1

Plan #2 (4-30-15)

Anticollision Report

30 April, 2015



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1U-304
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4653.0ft (RKB - 13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4653.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1U-304	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (4-30-15)	Offset TVD Reference:	Offset Datum

Reference	Plan #2 (4-30-15)		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0ft	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	4/30/2015		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	13,954.6	Plan #2 (4-30-15) (Wellbore #1)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Separation Factor	Warning	
Existing Wells Sec.1-T5N-R65W						
BJB 1 (P&A) - Wellbore #1 - Wellbore #1	8,528.3	6,834.2	277.9	89.8	1.478	Level 3, CC, ES, SF
BJB 4 (Exist.) - Wellbore #1 - Wellbore #1	7,539.9	6,847.8	423.6	260.1	2.590	CC, ES, SF
Gatewood 4-1 (Exist.) - Wellbore #1 - Wellbore #1	11,334.8	6,792.1	419.6	155.2	1.587	CC, ES, SF
Noffsinger 1 (P&A) - Wellbore #1 - Wellbore #1	1,400.0	1,431.0	334.2	302.5	10.558	CC
Noffsinger 1 (P&A) - Wellbore #1 - Wellbore #1	1,500.0	1,531.0	335.1	301.2	9.893	ES
Noffsinger 1 (P&A) - Wellbore #1 - Wellbore #1	7,200.0	6,886.8	511.6	353.9	3.244	SF
Existing Wells Sec.36-T6N-R36W						
LDS F 01-29 (Exist.) - Wellbore #1 - Wellbore #1	10,485.5	6,809.5	396.3	155.2	1.644	CC
LDS F 01-29 (Exist.) - Wellbore #1 - Wellbore #1	10,500.0	6,809.3	396.6	155.1	1.642	ES, SF
LDS 5N65W1U Pad Sec.1-T5N-R65W						
LDS 1U-234 - Wellbore #1 - Plan #2 (4-30-15)	1,657.2	1,656.1	30.7	23.5	4.259	CC
LDS 1U-234 - Wellbore #1 - Plan #2 (4-30-15)	13,954.6	13,866.0	228.9	-169.2	0.575	Level 1, ES, SF
LDS 1V-204 - Wellbore #1 - Plan #2 (4-15-15)	200.0	197.0	149.6	148.9	224.063	CC, ES
LDS 1V-204 - Wellbore #1 - Plan #2 (4-15-15)	1,400.0	1,358.2	262.2	255.6	39.703	SF
LDS 1V-214 - Wellbore #1 - Plan #2 (4-30-15)	1,000.0	998.0	89.1	84.8	20.881	CC, ES
LDS 1V-214 - Wellbore #1 - Plan #2 (4-30-15)	13,954.6	13,870.9	747.7	344.9	1.856	SF
LDS 1V-304 - Wellbore #1 - Plan #2 (4-13-15)	400.0	398.0	120.3	118.7	76.672	CC, ES
LDS 1V-304 - Wellbore #1 - Plan #2 (4-13-15)	13,954.6	13,925.4	958.4	554.3	2.372	SF
LDS 1V-314 - Wellbore #1 - Plan #2 (4-30-15)	1,638.1	1,635.7	59.1	52.0	8.317	CC, ES
LDS 1V-314 - Wellbore #1 - Plan #2 (4-30-15)	13,954.6	13,949.0	558.3	155.0	1.384	Level 3, SF
LDS F01-28D Sec.36-T6N-R65W						
LDS F01-27 (Exist.) - Wellbore #1 - Wellbore #1	7,835.0	6,861.1	385.1	214.4	2.256	CC, ES, SF
LDS F01-28D - LDS F01-28D - LDS F01-28D	9,086.5	7,017.1	285.8	192.5	3.064	CC
LDS F01-28D - LDS F01-28D - LDS F01-28D	9,100.0	7,016.6	286.1	192.4	3.055	ES, SF
LDS F01-30D Sec.36-T6N-R65W						
LDS F01-30D - LDS F01-30D - LDS F01-30D	11,725.4	6,993.5	243.3	87.7	1.563	CC, ES, SF
Noffsinger Pad Sec.2-T5N-R65W						
Noffsinger 2RD - Wellbore #1 - Wellbore #1	13,105.5	6,915.0	139.8	-53.6	0.723	Level 1, CC, ES, SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1U-304
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4653.0ft (RKB - 13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4653.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1U-304	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (4-30-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.1-T5N-R65W - BJB 1 (P&A) - Wellbore #1 - Wellbore #1													Offset Site Error: 0.0 ft
Survey Program: 7040-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
7,600.0	6,862.8	6,848.8	6,848.8	28.0	137.0	-93.00	-10.9	-1,578.4	968.9	804.2	164.74	5.881	
7,700.0	6,861.2	6,847.2	6,847.2	30.3	136.9	-92.68	-10.9	-1,578.4	873.6	706.5	167.06	5.229	
7,800.0	6,859.7	6,845.7	6,845.7	32.7	136.9	-92.36	-10.9	-1,578.4	779.4	610.0	169.46	4.600	
7,900.0	6,858.1	6,844.1	6,844.1	35.2	136.9	-92.03	-10.9	-1,578.4	686.9	515.0	171.91	3.996	
8,000.0	6,856.5	6,842.5	6,842.5	37.7	136.9	-91.71	-10.9	-1,578.4	596.9	422.5	174.41	3.422	
8,100.0	6,855.0	6,841.0	6,841.0	40.2	136.8	-91.39	-10.9	-1,578.4	510.5	333.6	176.94	2.885	
8,200.0	6,853.4	6,839.4	6,839.4	42.8	136.8	-91.06	-10.9	-1,578.4	430.1	250.6	179.50	2.396	
8,300.0	6,851.8	6,837.8	6,837.8	45.4	136.8	-90.74	-10.9	-1,578.4	359.6	177.5	182.09	1.975	
8,400.0	6,850.2	6,836.2	6,836.2	48.0	136.7	-90.42	-10.9	-1,578.4	306.1	121.4	184.69	1.657	
8,500.0	6,848.7	6,834.7	6,834.7	50.7	136.7	-90.09	-10.9	-1,578.4	279.3	92.0	187.31	1.491 Level 3	
8,528.3	6,848.2	6,834.2	6,834.2	51.4	136.7	-90.00	-10.9	-1,578.4	277.9	89.8	188.05	1.478 Level 3, CC, ES, SF	
8,600.0	6,847.1	6,833.1	6,833.1	53.3	136.7	-89.77	-10.9	-1,578.4	287.0	97.0	189.94	1.511	
8,700.0	6,845.5	6,831.5	6,831.5	56.0	136.6	-89.44	-10.9	-1,578.4	326.6	134.0	192.57	1.696	
8,800.0	6,844.0	6,830.0	6,830.0	58.7	136.6	-89.12	-10.9	-1,578.4	388.6	193.4	195.21	1.991	
8,900.0	6,842.4	6,828.4	6,828.4	61.4	136.6	-88.80	-10.9	-1,578.4	464.0	266.2	197.86	2.345	
9,000.0	6,840.8	6,826.8	6,826.8	64.1	136.5	-88.47	-10.9	-1,578.4	547.4	346.9	200.51	2.730	
9,100.0	6,839.3	6,825.3	6,825.3	66.8	136.5	-88.15	-10.9	-1,578.4	635.6	432.4	203.16	3.128	
9,200.0	6,837.7	6,823.7	6,823.7	69.5	136.5	-87.83	-10.9	-1,578.4	726.8	521.0	205.81	3.532	
9,300.0	6,836.1	6,822.1	6,822.1	72.3	136.4	-87.50	-10.9	-1,578.4	820.1	611.6	208.45	3.934	
9,400.0	6,834.5	6,820.5	6,820.5	75.0	136.4	-87.18	-10.9	-1,578.4	914.8	703.7	211.10	4.333	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1U-304
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4653.0ft (RKB - 13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4653.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1U-304	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (4-30-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.1-T5N-R65W - BJB 4 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7064-UNKNOWN													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-104.86	-104.86	-156.6	-590.2	610.8				
100.0	100.0	84.0	84.0	0.1	1.7	-104.86	-104.86	-156.6	-590.2	610.6	608.8	1.79	340.631	
200.0	200.0	184.0	184.0	0.3	3.7	-104.86	-104.86	-156.6	-590.2	610.6	606.6	4.02	151.993	
300.0	300.0	284.0	284.0	0.6	5.7	-104.86	-104.86	-156.6	-590.2	610.6	604.4	6.24	97.821	
400.0	400.0	384.0	384.0	0.8	7.7	-104.86	-104.86	-156.6	-590.2	610.6	602.1	8.47	72.117	
500.0	500.0	484.0	484.0	1.0	9.7	-104.86	-104.86	-156.6	-590.2	610.6	599.9	10.69	57.111	
600.0	600.0	584.0	584.0	1.2	11.7	-104.86	-104.86	-156.6	-590.2	610.6	597.7	12.92	47.274	
700.0	700.0	684.0	684.0	1.5	13.7	-104.86	-104.86	-156.6	-590.2	610.6	595.5	15.14	40.328	
800.0	800.0	784.0	784.0	1.7	15.7	-104.86	-104.86	-156.6	-590.2	610.6	593.2	17.37	35.161	
900.0	900.0	884.0	884.0	1.9	17.7	-104.86	-104.86	-156.6	-590.2	610.6	591.0	19.59	31.168	
1,000.0	1,000.0	984.0	984.0	2.1	19.7	-104.86	-104.86	-156.6	-590.2	610.6	588.8	21.82	27.990	
1,100.0	1,100.0	1,084.0	1,084.0	2.4	21.7	-104.86	-104.86	-156.6	-590.2	610.6	586.6	24.04	25.399	
1,200.0	1,200.0	1,184.0	1,184.0	2.6	23.7	-104.86	-104.86	-156.6	-590.2	610.6	584.3	26.26	23.248	
1,300.0	1,300.0	1,284.0	1,284.0	2.8	25.7	-104.86	-104.86	-156.6	-590.2	610.6	582.1	28.49	21.433	
1,400.0	1,400.0	1,384.0	1,384.0	3.0	27.7	-104.86	-104.86	-156.6	-590.2	610.6	579.9	30.71	19.880	
1,500.0	1,500.0	1,484.0	1,484.0	3.3	29.7	-160.02	-160.02	-156.6	-590.2	611.4	578.5	32.93	18.568	
1,600.0	1,600.0	1,584.0	1,584.0	3.5	31.7	-160.10	-160.10	-156.6	-590.2	613.9	578.8	35.13	17.476	
1,700.0	1,699.9	1,683.9	1,683.9	3.7	33.7	-160.22	-160.22	-156.6	-590.2	618.0	580.7	37.31	16.562	
1,800.0	1,799.7	1,783.7	1,783.7	3.9	35.7	-160.39	-160.39	-156.6	-590.2	623.7	584.3	39.49	15.796	
1,900.0	1,899.4	1,883.4	1,883.4	4.1	37.7	-160.61	-160.61	-156.6	-590.2	631.1	589.5	41.64	15.156	
2,000.0	1,998.9	1,982.9	1,982.9	4.4	39.7	-160.86	-160.86	-156.6	-590.2	640.2	596.4	43.78	14.622	
2,100.0	2,098.3	2,082.3	2,082.3	4.6	41.6	-161.15	-161.15	-156.6	-590.2	650.9	605.0	45.90	14.180	
2,200.0	2,197.5	2,181.5	2,181.5	4.9	43.6	-161.49	-161.49	-156.6	-590.2	662.6	614.5	48.09	13.777	
2,300.0	2,296.7	2,280.7	2,280.7	5.1	45.6	-161.82	-161.82	-156.6	-590.2	674.2	623.9	50.29	13.407	
2,400.0	2,396.0	2,380.0	2,380.0	5.4	47.6	-162.14	-162.14	-156.6	-590.2	685.9	633.5	52.49	13.069	
2,500.0	2,495.2	2,479.2	2,479.2	5.7	49.6	-162.45	-162.45	-156.6	-590.2	697.7	643.0	54.69	12.757	
2,600.0	2,594.5	2,578.5	2,578.5	6.0	51.6	-162.75	-162.75	-156.6	-590.2	709.4	652.5	56.89	12.470	
2,700.0	2,693.7	2,677.7	2,677.7	6.3	53.6	-163.04	-163.04	-156.6	-590.2	721.2	662.1	59.09	12.204	
2,800.0	2,792.9	2,776.9	2,776.9	6.5	55.5	-163.32	-163.32	-156.6	-590.2	732.9	671.6	61.29	11.958	
2,900.0	2,892.2	2,876.2	2,876.2	6.8	57.5	-163.59	-163.59	-156.6	-590.2	744.7	681.2	63.50	11.728	
3,000.0	2,991.4	2,975.4	2,975.4	7.1	59.5	-163.86	-163.86	-156.6	-590.2	756.5	690.8	65.70	11.515	
3,100.0	3,090.7	3,074.7	3,074.7	7.4	61.5	-164.11	-164.11	-156.6	-590.2	768.4	700.5	67.91	11.315	
3,200.0	3,189.9	3,173.9	3,173.9	7.7	63.5	-164.36	-164.36	-156.6	-590.2	780.2	710.1	70.11	11.128	
3,300.0	3,289.2	3,273.2	3,273.2	8.0	65.5	-164.60	-164.60	-156.6	-590.2	792.1	719.7	72.32	10.952	
3,400.0	3,388.4	3,372.4	3,372.4	8.3	67.4	-164.83	-164.83	-156.6	-590.2	803.9	729.4	74.53	10.787	
3,500.0	3,487.6	3,471.6	3,471.6	8.6	69.4	-165.06	-165.06	-156.6	-590.2	815.8	739.1	76.73	10.632	
3,600.0	3,586.9	3,570.9	3,570.9	8.9	71.4	-165.28	-165.28	-156.6	-590.2	827.7	748.8	78.94	10.485	
3,700.0	3,686.1	3,670.1	3,670.1	9.2	73.4	-165.49	-165.49	-156.6	-590.2	839.6	758.5	81.15	10.347	
3,800.0	3,785.4	3,769.4	3,769.4	9.5	75.4	-165.70	-165.70	-156.6	-590.2	851.5	768.2	83.35	10.216	
3,900.0	3,884.6	3,868.6	3,868.6	9.8	77.4	-165.90	-165.90	-156.6	-590.2	863.4	777.9	85.56	10.092	
4,000.0	3,983.8	3,967.8	3,967.8	10.1	79.4	-166.09	-166.09	-156.6	-590.2	875.4	787.6	87.77	9.974	
4,100.0	4,083.1	4,067.1	4,067.1	10.5	81.3	-166.28	-166.28	-156.6	-590.2	887.3	797.3	89.98	9.862	
4,200.0	4,182.3	4,166.3	4,166.3	10.8	83.3	-166.47	-166.47	-156.6	-590.2	899.3	807.1	92.19	9.755	
4,300.0	4,281.6	4,265.6	4,265.6	11.1	85.3	-166.65	-166.65	-156.6	-590.2	911.2	816.9	94.39	9.654	
4,400.0	4,380.8	4,364.8	4,364.8	11.4	87.3	-166.83	-166.83	-156.6	-590.2	923.2	826.6	96.60	9.557	
4,500.0	4,480.0	4,464.0	4,464.0	11.7	89.3	-167.00	-167.00	-156.6	-590.2	935.2	836.4	98.81	9.465	
4,600.0	4,579.3	4,563.3	4,563.3	12.0	91.3	-167.17	-167.17	-156.6	-590.2	947.2	846.2	101.02	9.376	
4,700.0	4,678.5	4,662.5	4,662.5	12.3	93.3	-167.33	-167.33	-156.6	-590.2	959.2	856.0	103.23	9.292	
4,800.0	4,777.8	4,761.8	4,761.8	12.6	95.2	-167.49	-167.49	-156.6	-590.2	971.2	865.8	105.44	9.211	
4,900.0	4,877.0	4,861.0	4,861.0	12.9	97.2	-167.64	-167.64	-156.6	-590.2	983.2	875.6	107.64	9.134	
5,000.0	4,976.3	4,960.3	4,960.3	13.3	99.2	-167.80	-167.80	-156.6	-590.2	995.2	885.4	109.85	9.060	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1U-304
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4653.0ft (RKB - 13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4653.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1U-304	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (4-30-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.1-T5N-R65W - BJB 4 (Exist.) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 7064-UNKNOWN												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)					
6,500.0	6,458.3	6,442.3	6,442.3	16.0	128.8	-28.38	-156.6	-590.2	981.8	851.3	130.50	7.524	
6,600.0	6,543.5	6,527.5	6,527.5	15.9	130.6	-31.88	-156.6	-590.2	935.1	808.7	126.41	7.397	
6,700.0	6,621.2	6,605.2	6,605.2	15.9	132.1	-36.80	-156.6	-590.2	879.5	756.2	123.34	7.131	
6,800.0	6,690.0	6,674.0	6,674.0	16.0	133.5	-43.47	-156.6	-590.2	816.8	693.2	123.52	6.612	
6,900.0	6,748.8	6,732.8	6,732.8	16.4	134.7	-52.10	-156.6	-590.2	748.8	620.0	128.81	5.813	
7,000.0	6,796.6	6,780.6	6,780.6	17.2	135.6	-62.34	-156.6	-590.2	678.3	539.8	138.45	4.899	
7,100.0	6,832.4	6,816.4	6,816.4	18.4	136.3	-72.98	-156.6	-590.2	608.2	459.8	148.49	4.096	
7,200.0	6,855.8	6,839.8	6,839.8	20.0	136.8	-82.25	-156.6	-590.2	542.8	387.5	155.28	3.495	
7,300.0	6,866.3	6,850.3	6,850.3	21.7	137.0	-88.71	-156.6	-590.2	486.9	328.2	158.65	3.069	
7,400.0	6,866.0	6,850.0	6,850.0	23.7	137.0	-90.30	-156.6	-590.2	446.2	285.5	160.63	2.777	
7,500.0	6,864.4	6,848.4	6,848.4	25.8	137.0	-90.08	-156.6	-590.2	425.5	262.8	162.69	2.616	
7,539.9	6,863.8	6,847.8	6,847.8	26.7	137.0	-90.00	-156.6	-590.2	423.6	260.1	163.56	2.590 CC, ES, SF	
7,600.0	6,862.8	6,846.8	6,846.8	28.0	136.9	-89.87	-156.6	-590.2	427.9	263.0	164.87	2.595	
7,700.0	6,861.2	6,845.2	6,845.2	30.3	136.9	-89.66	-156.6	-590.2	452.9	285.7	167.15	2.709	
7,800.0	6,859.7	6,843.7	6,843.7	32.7	136.9	-89.45	-156.6	-590.2	497.1	327.6	169.51	2.933	
7,900.0	6,858.1	6,842.1	6,842.1	35.2	136.8	-89.24	-156.6	-590.2	555.9	384.0	171.92	3.234	
8,000.0	6,856.5	6,840.5	6,840.5	37.7	136.8	-89.02	-156.6	-590.2	625.4	451.0	174.38	3.586	
8,100.0	6,855.0	6,839.0	6,839.0	40.2	136.8	-88.81	-156.6	-590.2	702.2	525.3	176.88	3.970	
8,200.0	6,853.4	6,837.4	6,837.4	42.8	136.7	-88.60	-156.6	-590.2	784.2	604.8	179.41	4.371	
8,300.0	6,851.8	6,835.8	6,835.8	45.4	136.7	-88.39	-156.6	-590.2	870.1	688.1	181.96	4.782	
8,400.0	6,850.2	6,834.2	6,834.2	48.0	136.7	-88.17	-156.6	-590.2	958.6	774.1	184.53	5.195	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1U-304
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4653.0ft (RKB - 13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4653.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1U-304	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (4-30-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.1-T5N-R65W - Gatewood 4-1 (Exist.) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 7045-UNKNOWN												Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,500.0	6,817.3	6,805.3	6,805.3	105.4	136.1	-91.79	-152.6	-4,384.5	934.2	692.8	241.37	3.870	
10,600.0	6,815.7	6,803.7	6,803.7	108.2	136.1	-91.58	-152.6	-4,384.5	846.1	601.9	244.14	3.466	
10,700.0	6,814.1	6,802.1	6,802.1	110.9	136.0	-91.36	-152.6	-4,384.5	760.9	514.0	246.90	3.082	
10,800.0	6,812.6	6,800.6	6,800.6	113.7	136.0	-91.15	-152.6	-4,384.5	679.7	430.0	249.66	2.722	
10,900.0	6,811.0	6,799.0	6,799.0	116.5	136.0	-90.93	-152.6	-4,384.5	604.2	351.8	252.43	2.394	
11,000.0	6,809.4	6,797.4	6,797.4	119.3	135.9	-90.72	-152.6	-4,384.5	536.8	281.6	255.19	2.103	
11,100.0	6,807.8	6,795.8	6,795.8	122.1	135.9	-90.50	-152.6	-4,384.5	480.8	222.9	257.95	1.864	
11,200.0	6,806.3	6,794.3	6,794.3	124.8	135.9	-90.29	-152.6	-4,384.5	440.7	180.0	260.70	1.690	
11,300.0	6,804.7	6,792.7	6,792.7	127.6	135.9	-90.07	-152.6	-4,384.5	421.0	157.6	263.46	1.598	
11,334.8	6,804.1	6,792.1	6,792.1	128.6	135.8	-90.00	-152.6	-4,384.5	419.6	155.2	264.41	1.587	CC, ES, SF
11,400.0	6,803.1	6,791.1	6,791.1	130.4	135.8	-89.86	-152.6	-4,384.5	424.6	158.4	266.21	1.595	
11,500.0	6,801.6	6,789.6	6,789.6	133.2	135.8	-89.65	-152.6	-4,384.5	450.9	182.0	268.96	1.677	
11,600.0	6,800.0	6,788.0	6,788.0	136.0	135.8	-89.43	-152.6	-4,384.5	496.4	224.7	271.70	1.827	
11,700.0	6,798.4	6,786.4	6,786.4	138.8	135.7	-89.22	-152.6	-4,384.5	556.2	281.8	274.45	2.027	
11,800.0	6,796.8	6,784.8	6,784.8	141.6	135.7	-89.00	-152.6	-4,384.5	626.4	349.3	277.19	2.260	
11,900.0	6,795.3	6,783.3	6,783.3	144.4	135.7	-88.79	-152.6	-4,384.5	703.9	424.0	279.92	2.515	
12,000.0	6,793.7	6,781.7	6,781.7	147.1	135.6	-88.57	-152.6	-4,384.5	786.4	503.8	282.65	2.782	
12,100.0	6,792.1	6,780.1	6,780.1	149.9	135.6	-88.36	-152.6	-4,384.5	872.6	587.2	285.38	3.058	
12,200.0	6,790.6	6,778.6	6,778.6	152.7	135.6	-88.15	-152.6	-4,384.5	961.5	673.4	288.11	3.337	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1U-304
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4653.0ft (RKB - 13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4653.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1U-304	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (4-30-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.1-T5N-R65W - Noffsinger 1 (P&A) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7140-UNKNOWN													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	31.0	31.0	0.0	0.6	-136.92	-136.92	-244.1	-228.3	334.2	333.6	0.62	538.859	
100.0	100.0	131.0	131.0	0.1	2.6	-136.92	-136.92	-244.1	-228.3	334.2	331.5	2.73	122.302	
200.0	200.0	231.0	231.0	0.3	4.6	-136.92	-136.92	-244.1	-228.3	334.2	329.2	4.96	67.415	
300.0	300.0	331.0	331.0	0.6	6.6	-136.92	-136.92	-244.1	-228.3	334.2	327.0	7.18	46.532	
400.0	400.0	431.0	431.0	0.8	8.6	-136.92	-136.92	-244.1	-228.3	334.2	324.8	9.41	35.527	
500.0	500.0	531.0	531.0	1.0	10.6	-136.92	-136.92	-244.1	-228.3	334.2	322.6	11.63	28.732	
600.0	600.0	631.0	631.0	1.2	12.6	-136.92	-136.92	-244.1	-228.3	334.2	320.3	13.86	24.119	
700.0	700.0	731.0	731.0	1.5	14.6	-136.92	-136.92	-244.1	-228.3	334.2	318.1	16.08	20.782	
800.0	800.0	831.0	831.0	1.7	16.6	-136.92	-136.92	-244.1	-228.3	334.2	315.9	18.31	18.256	
900.0	900.0	931.0	931.0	1.9	18.6	-136.92	-136.92	-244.1	-228.3	334.2	313.7	20.53	16.278	
1,000.0	1,000.0	1,031.0	1,031.0	2.1	20.6	-136.92	-136.92	-244.1	-228.3	334.2	311.4	22.76	14.687	
1,100.0	1,100.0	1,131.0	1,131.0	2.4	22.6	-136.92	-136.92	-244.1	-228.3	334.2	309.2	24.98	13.379	
1,200.0	1,200.0	1,231.0	1,231.0	2.6	24.6	-136.92	-136.92	-244.1	-228.3	334.2	307.0	27.20	12.285	
1,300.0	1,300.0	1,331.0	1,331.0	2.8	26.6	-136.92	-136.92	-244.1	-228.3	334.2	304.8	29.43	11.356	
1,400.0	1,400.0	1,431.0	1,431.0	3.0	28.6	-136.92	-136.92	-244.1	-228.3	334.2	302.5	31.65	10.558 CC	
1,500.0	1,500.0	1,531.0	1,531.0	3.3	30.6	-136.92	-136.92	-244.1	-228.3	335.1	301.2	33.87	9.893 ES	
1,600.0	1,600.0	1,631.0	1,631.0	3.5	32.6	168.07	168.07	-244.1	-228.3	337.6	301.5	36.07	9.361	
1,700.0	1,699.9	1,730.9	1,730.9	3.7	34.6	168.21	168.21	-244.1	-228.3	341.9	303.6	38.25	8.938	
1,800.0	1,799.7	1,830.7	1,830.7	3.9	36.6	168.40	168.40	-244.1	-228.3	347.9	307.4	40.42	8.606	
1,900.0	1,899.4	1,930.4	1,930.4	4.1	38.6	168.64	168.64	-244.1	-228.3	355.6	313.0	42.58	8.351	
2,000.0	1,998.9	2,029.9	2,029.9	4.4	40.6	168.92	168.92	-244.1	-228.3	365.0	320.2	44.71	8.163	
2,100.0	2,098.3	2,129.3	2,129.3	4.6	42.6	169.23	169.23	-244.1	-228.3	376.1	329.2	46.82	8.032	
2,200.0	2,197.5	2,228.5	2,228.5	4.9	44.6	169.57	169.57	-244.1	-228.3	388.2	339.1	49.01	7.920	
2,300.0	2,296.7	2,327.7	2,327.7	5.1	46.6	169.89	169.89	-244.1	-228.3	400.3	349.1	51.21	7.816	
2,400.0	2,396.0	2,427.0	2,427.0	5.4	48.5	170.19	170.19	-244.1	-228.3	412.4	359.0	53.41	7.721	
2,500.0	2,495.2	2,526.2	2,526.2	5.7	50.5	170.47	170.47	-244.1	-228.3	424.5	368.9	55.61	7.634	
2,600.0	2,594.5	2,625.5	2,625.5	6.0	52.5	170.74	170.74	-244.1	-228.3	436.6	378.8	57.81	7.553	
2,700.0	2,693.7	2,724.7	2,724.7	6.3	54.5	170.99	170.99	-244.1	-228.3	448.8	388.8	60.01	7.478	
2,800.0	2,792.9	2,823.9	2,823.9	6.5	56.5	171.23	171.23	-244.1	-228.3	460.9	398.7	62.21	7.409	
2,900.0	2,892.2	2,923.2	2,923.2	6.8	58.5	171.46	171.46	-244.1	-228.3	473.1	408.7	64.41	7.344	
3,000.0	2,891.4	3,022.4	3,022.4	7.1	60.4	171.67	171.67	-244.1	-228.3	485.2	418.6	66.62	7.284	
3,100.0	3,090.7	3,121.7	3,121.7	7.4	62.4	171.88	171.88	-244.1	-228.3	497.4	428.6	68.82	7.228	
3,200.0	3,189.9	3,220.9	3,220.9	7.7	64.4	172.07	172.07	-244.1	-228.3	509.6	438.6	71.03	7.175	
3,300.0	3,289.2	3,320.2	3,320.2	8.0	66.4	172.26	172.26	-244.1	-228.3	521.8	448.5	73.23	7.125	
3,400.0	3,388.4	3,419.4	3,419.4	8.3	68.4	172.44	172.44	-244.1	-228.3	534.0	458.5	75.44	7.078	
3,500.0	3,487.6	3,518.6	3,518.6	8.6	70.4	172.61	172.61	-244.1	-228.3	546.2	468.5	77.64	7.034	
3,600.0	3,586.9	3,617.9	3,617.9	8.9	72.4	172.77	172.77	-244.1	-228.3	558.4	478.5	79.85	6.993	
3,700.0	3,686.1	3,717.1	3,717.1	9.2	74.3	172.92	172.92	-244.1	-228.3	570.6	488.5	82.05	6.953	
3,800.0	3,785.4	3,816.4	3,816.4	9.5	76.3	173.07	173.07	-244.1	-228.3	582.8	498.5	84.26	6.916	
3,900.0	3,884.6	3,915.6	3,915.6	9.8	78.3	173.21	173.21	-244.1	-228.3	595.0	508.5	86.47	6.881	
4,000.0	3,983.8	4,014.8	4,014.8	10.1	80.3	173.35	173.35	-244.1	-228.3	607.2	518.5	88.67	6.847	
4,100.0	4,083.1	4,114.1	4,114.1	10.5	82.3	173.48	173.48	-244.1	-228.3	619.4	528.5	90.88	6.815	
4,200.0	4,182.3	4,213.3	4,213.3	10.8	84.3	173.61	173.61	-244.1	-228.3	631.6	538.5	93.09	6.785	
4,300.0	4,281.6	4,312.6	4,312.6	11.1	86.3	173.73	173.73	-244.1	-228.3	643.8	548.5	95.30	6.756	
4,400.0	4,380.8	4,411.8	4,411.8	11.4	88.2	173.85	173.85	-244.1	-228.3	656.1	558.6	97.50	6.729	
4,500.0	4,480.0	4,511.0	4,511.0	11.7	90.2	173.96	173.96	-244.1	-228.3	668.3	568.6	99.71	6.702	
4,600.0	4,579.3	4,610.3	4,610.3	12.0	92.2	174.07	174.07	-244.1	-228.3	680.5	578.6	101.92	6.677	
4,700.0	4,678.5	4,709.5	4,709.5	12.3	94.2	174.18	174.18	-244.1	-228.3	692.8	588.6	104.13	6.653	
4,800.0	4,777.8	4,808.8	4,808.8	12.6	96.2	174.28	174.28	-244.1	-228.3	705.0	598.7	106.34	6.630	
4,900.0	4,877.0	4,908.0	4,908.0	12.9	98.2	174.38	174.38	-244.1	-228.3	717.2	608.7	108.54	6.608	
5,000.0	4,976.3	5,007.3	5,007.3	13.3	100.1	174.47	174.47	-244.1	-228.3	729.5	618.7	110.75	6.586	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1U-304
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4653.0ft (RKB - 13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4653.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1U-304	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (4-30-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.1-T5N-R65W - Noffsinger 1 (P&A) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7140-UNKNOWN													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,075.5	5,106.5	5,106.5	13.6	102.1	174.56		-244.1	-228.3	741.7	628.7	112.96	6.566	
5,200.0	5,174.7	5,205.7	5,205.7	13.9	104.1	174.65		-244.1	-228.3	753.9	638.8	115.17	6.546	
5,300.0	5,274.0	5,305.0	5,305.0	14.2	106.1	174.74		-244.1	-228.3	766.2	648.8	117.38	6.528	
5,400.0	5,373.2	5,404.2	5,404.2	14.5	108.1	174.82		-244.1	-228.3	778.3	658.6	119.70	6.502	
5,500.0	5,472.8	5,503.8	5,503.8	14.7	110.1	174.90		-244.1	-228.3	788.0	665.7	122.23	6.446	
5,600.0	5,572.6	5,603.6	5,603.6	14.9	112.1	174.95		-244.1	-228.3	794.1	669.5	124.63	6.372	
5,700.0	5,672.5	5,703.5	5,703.5	15.1	114.1	174.98		-244.1	-228.3	796.8	669.9	126.89	6.280	
5,800.0	5,772.5	5,803.5	5,803.5	15.3	116.1	-129.89		-244.1	-228.3	796.9	665.7	131.29	6.070	
5,900.0	5,872.5	5,903.5	5,903.5	15.4	118.1	-129.89		-244.1	-228.3	796.9	663.5	133.47	5.971	
6,000.0	5,972.5	6,003.5	6,003.5	15.6	120.1	-129.89		-244.1	-228.3	796.9	661.3	135.65	5.875	
6,100.0	6,072.5	6,103.5	6,103.5	15.8	122.1	-129.89		-244.1	-228.3	796.9	659.1	137.84	5.782	
6,200.0	6,172.4	6,203.4	6,203.4	16.0	124.1	-40.15		-244.1	-228.3	794.5	657.0	137.50	5.778	
6,300.0	6,271.1	6,302.1	6,302.1	16.0	126.0	-41.47		-244.1	-228.3	782.7	644.6	138.02	5.671	
6,400.0	6,367.0	6,398.0	6,398.0	16.0	128.0	-43.98		-244.1	-228.3	761.4	623.9	137.55	5.536	
6,500.0	6,458.3	6,489.3	6,489.3	16.0	129.8	-47.78		-244.1	-228.3	731.9	595.0	136.84	5.348	
6,600.0	6,543.5	6,574.5	6,574.5	15.9	131.5	-52.98		-244.1	-228.3	695.5	558.5	136.97	5.078	
6,700.0	6,621.2	6,652.2	6,652.2	15.9	133.0	-59.55		-244.1	-228.3	654.5	515.5	138.97	4.710	
6,800.0	6,690.0	6,721.0	6,721.0	16.0	134.4	-67.16		-244.1	-228.3	611.9	468.8	143.06	4.277	
6,900.0	6,748.8	6,779.8	6,779.8	16.4	135.6	-75.04		-244.1	-228.3	571.4	423.3	148.12	3.858	
7,000.0	6,796.6	6,827.6	6,827.6	17.2	136.6	-82.16		-244.1	-228.3	537.9	385.4	152.52	3.527	
7,100.0	6,832.4	6,863.4	6,863.4	18.4	137.3	-87.52		-244.1	-228.3	516.5	361.0	155.55	3.321	
7,177.0	6,851.6	6,882.6	6,882.6	19.6	137.7	-90.00		-244.1	-228.3	511.1	353.8	157.25	3.250	
7,200.0	6,855.8	6,886.8	6,886.8	20.0	137.7	-90.43		-244.1	-228.3	511.6	353.9	157.69	3.244 SF	
7,300.0	6,866.3	6,897.3	6,897.3	21.7	137.9	-90.55		-244.1	-228.3	525.4	365.8	159.65	3.291	
7,400.0	6,866.0	6,897.0	6,897.0	23.7	137.9	-89.61		-244.1	-228.3	557.2	395.6	161.56	3.449	
7,500.0	6,864.4	6,895.4	6,895.4	25.8	137.9	-89.43		-244.1	-228.3	604.0	440.4	163.61	3.692	
7,600.0	6,862.8	6,893.8	6,893.8	28.0	137.9	-89.26		-244.1	-228.3	662.8	497.0	165.79	3.998	
7,700.0	6,861.2	6,892.2	6,892.2	30.3	137.8	-89.08		-244.1	-228.3	730.5	562.4	168.06	4.347	
7,800.0	6,859.7	6,890.7	6,890.7	32.7	137.8	-88.91		-244.1	-228.3	805.0	634.6	170.41	4.724	
7,900.0	6,858.1	6,889.1	6,889.1	35.2	137.8	-88.73		-244.1	-228.3	884.5	711.7	172.82	5.118	
8,000.0	6,856.5	6,887.5	6,887.5	37.7	137.8	-88.55		-244.1	-228.3	967.8	792.6	175.28	5.522	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1U-304
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4653.0ft (RKB - 13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4653.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1U-304	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (4-30-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.36-T6N-R36W - LDS F 01-29 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7076-Reference													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Semi Major Axis 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	
9,600.0	6,831.4	6,823.4	6,823.4	80.5	136.5	92.01	663.3	-3,535.4	970.0	753.3	216.78	4.475		
9,700.0	6,829.8	6,821.8	6,821.8	83.3	136.4	91.78	663.3	-3,535.4	879.7	660.2	219.53	4.007		
9,800.0	6,828.3	6,820.3	6,820.3	86.0	136.4	91.56	663.3	-3,535.4	791.7	569.5	222.28	3.562		
9,900.0	6,826.7	6,818.7	6,818.7	88.8	136.4	91.33	663.3	-3,535.4	707.0	481.9	225.03	3.142		
10,000.0	6,825.1	6,817.1	6,817.1	91.5	136.3	91.10	663.3	-3,535.4	626.7	398.9	227.79	2.751		
10,100.0	6,823.5	6,815.5	6,815.5	94.3	136.3	90.88	663.3	-3,535.4	552.9	322.3	230.54	2.398		
10,200.0	6,822.0	6,814.0	6,814.0	97.1	136.3	90.65	663.3	-3,535.4	488.4	255.1	233.29	2.094		
10,300.0	6,820.4	6,812.4	6,812.4	99.8	136.2	90.42	663.3	-3,535.4	437.6	201.5	236.04	1.854		
10,400.0	6,818.8	6,810.8	6,810.8	102.6	136.2	90.19	663.3	-3,535.4	405.4	166.7	238.79	1.698		
10,485.5	6,817.5	6,809.5	6,809.5	105.0	136.2	90.00	663.3	-3,535.4	396.3	155.2	241.14	1.644 CC		
10,500.0	6,817.3	6,809.3	6,809.3	105.4	136.2	89.97	663.3	-3,535.4	396.6	155.1	241.54	1.642 ES, SF		
10,600.0	6,815.7	6,807.7	6,807.7	108.2	136.2	89.74	663.3	-3,535.4	412.5	168.3	244.28	1.689		
10,700.0	6,814.1	6,806.1	6,806.1	110.9	136.1	89.51	663.3	-3,535.4	450.6	203.6	247.03	1.824		
10,800.0	6,812.6	6,804.6	6,804.6	113.7	136.1	89.29	663.3	-3,535.4	505.9	256.2	249.77	2.026		
10,900.0	6,811.0	6,803.0	6,803.0	116.5	136.1	89.06	663.3	-3,535.4	573.5	321.0	252.51	2.271		
11,000.0	6,809.4	6,801.4	6,801.4	119.3	136.0	88.83	663.3	-3,535.4	649.4	394.2	255.24	2.544		
11,100.0	6,807.8	6,799.8	6,799.8	122.1	136.0	88.61	663.3	-3,535.4	731.2	473.2	257.98	2.834		
11,200.0	6,806.3	6,798.3	6,798.3	124.8	136.0	88.38	663.3	-3,535.4	817.0	556.3	260.71	3.134		
11,300.0	6,804.7	6,796.7	6,796.7	127.6	135.9	88.15	663.3	-3,535.4	905.7	642.3	263.43	3.438		
11,400.0	6,803.1	6,795.1	6,795.1	130.4	135.9	87.92	663.3	-3,535.4	996.6	730.4	266.15	3.744		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1U-304
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4653.0ft (RKB - 13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4653.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1U-304	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (4-30-15)	Offset TVD Reference:	Offset Datum

Offset Design LDS 5N65W1U Pad Sec.1-T5N-R65W - LDS 1U-234 - Wellbore #1 - Plan #2 (4-30-15)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	134.48		-21.9	22.3	31.2				
100.0	100.0	99.0	99.0	0.1	0.1	134.48		-21.9	22.3	31.2	31.0	0.22	139.558	
200.0	200.0	199.0	199.0	0.3	0.3	134.48		-21.9	22.3	31.2	30.5	0.67	46.442	
300.0	300.0	299.0	299.0	0.6	0.6	134.48		-21.9	22.3	31.2	30.1	1.12	27.828	
400.0	400.0	399.0	399.0	0.8	0.8	134.48		-21.9	22.3	31.2	29.6	1.57	19.866	
500.0	500.0	499.0	499.0	1.0	1.0	134.48		-21.9	22.3	31.2	29.2	2.02	15.446	
600.0	600.0	599.0	599.0	1.2	1.2	134.48		-21.9	22.3	31.2	28.7	2.47	12.635	
700.0	700.0	699.0	699.0	1.5	1.5	134.48		-21.9	22.3	31.2	28.3	2.92	10.690	
800.0	800.0	799.0	799.0	1.7	1.7	134.48		-21.9	22.3	31.2	27.8	3.37	9.264	
900.0	900.0	899.0	899.0	1.9	1.9	134.48		-21.9	22.3	31.2	27.4	3.82	8.173	
1,000.0	1,000.0	999.0	999.0	2.1	2.1	134.48		-21.9	22.3	31.2	26.9	4.27	7.312	
1,100.0	1,100.0	1,099.0	1,099.0	2.4	2.4	134.48		-21.9	22.3	31.2	26.5	4.72	6.616	
1,200.0	1,200.0	1,199.0	1,199.0	2.6	2.6	134.48		-21.9	22.3	31.2	26.0	5.17	6.040	
1,300.0	1,300.0	1,299.0	1,299.0	2.8	2.8	134.48		-21.9	22.3	31.2	25.6	5.62	5.557	
1,400.0	1,400.0	1,399.0	1,399.0	3.0	3.0	134.48		-21.9	22.3	31.2	25.1	6.07	5.145	
1,500.0	1,500.0	1,499.0	1,499.0	3.3	3.3	80.93		-21.9	22.3	31.1	24.6	6.51	4.772	
1,600.0	1,600.0	1,599.0	1,599.0	3.5	3.5	85.75		-21.9	22.3	30.8	23.8	6.95	4.426	
1,657.2	1,657.1	1,656.1	1,656.1	3.6	3.6	90.00		-21.9	22.3	30.7	23.5	7.20	4.259 CC	
1,700.0	1,699.9	1,698.9	1,698.9	3.7	3.7	93.88		-21.9	22.3	30.7	23.4	7.39	4.159	
1,800.0	1,799.7	1,798.7	1,798.7	3.9	3.9	104.91		-21.9	22.3	31.7	23.9	7.84	4.050	
1,900.0	1,899.4	1,898.4	1,898.4	4.1	4.2	117.50		-21.9	22.3	34.6	26.3	8.29	4.177	
2,000.0	1,998.9	1,997.9	1,997.9	4.4	4.4	129.71		-21.9	22.3	40.0	31.2	8.73	4.577	
2,100.0	2,098.3	2,097.3	2,097.3	4.6	4.6	140.08		-21.9	22.3	48.0	38.8	9.17	5.235	
2,200.0	2,197.5	2,196.5	2,196.5	4.9	4.8	147.88		-21.9	22.3	58.0	48.4	9.61	6.034	
2,300.0	2,296.7	2,295.7	2,295.7	5.1	5.0	153.33		-21.9	22.3	68.7	58.7	10.06	6.835	
2,400.0	2,396.0	2,395.0	2,395.0	5.4	5.3	157.28		-21.9	22.3	79.9	69.4	10.50	7.610	
2,500.0	2,495.2	2,494.2	2,494.2	5.7	5.5	160.26		-21.9	22.3	91.4	80.5	10.95	8.347	
2,600.0	2,594.5	2,594.7	2,594.7	6.0	5.7	162.29		-21.7	23.0	102.5	91.1	11.39	8.998	
2,700.0	2,693.7	2,695.6	2,695.6	6.3	5.9	163.34		-21.3	25.6	112.4	100.6	11.83	9.502	
2,800.0	2,792.9	2,796.8	2,796.7	6.5	6.1	163.67		-20.5	29.8	121.0	108.7	12.27	9.859	
2,900.0	2,892.2	2,898.2	2,897.9	6.8	6.3	163.42		-19.5	35.9	128.2	115.5	12.72	10.081	
3,000.0	2,991.4	2,999.7	2,999.1	7.1	6.6	162.69		-18.1	43.7	134.2	121.0	13.18	10.181	
3,100.0	3,090.7	3,101.4	3,100.3	7.4	6.8	161.52		-16.4	53.3	138.9	125.2	13.65	10.172	
3,200.0	3,189.9	3,203.0	3,201.3	7.7	7.0	159.92		-14.5	64.7	142.4	128.2	14.14	10.068	
3,300.0	3,289.2	3,304.0	3,301.3	8.0	7.3	157.93		-12.2	77.6	144.8	130.2	14.64	9.891	
3,400.0	3,388.4	3,403.8	3,400.3	8.3	7.5	155.93		-9.9	90.7	147.2	132.0	15.15	9.714	
3,500.0	3,487.6	3,503.6	3,499.2	8.6	7.8	154.00		-7.6	103.8	149.8	134.1	15.68	9.553	
3,600.0	3,586.9	3,603.5	3,598.2	8.9	8.0	152.13		-5.4	116.9	152.5	136.3	16.21	9.405	
3,700.0	3,686.1	3,703.3	3,697.1	9.2	8.3	150.34		-3.1	130.0	155.4	138.6	16.76	9.271	
3,800.0	3,785.4	3,803.2	3,796.1	9.5	8.6	148.61		-0.8	143.2	158.4	141.1	17.31	9.149	
3,900.0	3,884.6	3,903.0	3,895.1	9.8	8.9	146.94		1.5	156.3	161.6	143.7	17.88	9.037	
4,000.0	3,983.8	4,002.9	3,994.0	10.1	9.1	145.34		3.8	169.4	164.9	146.4	18.45	8.934	
4,100.0	4,083.1	4,102.7	4,093.0	10.5	9.4	143.81		6.1	182.5	168.3	149.3	19.04	8.841	
4,200.0	4,182.3	4,202.5	4,191.9	10.8	9.7	142.33		8.4	195.6	171.8	152.2	19.63	8.756	
4,300.0	4,281.6	4,302.4	4,290.9	11.1	10.0	140.92		10.6	208.7	175.5	155.3	20.22	8.678	
4,400.0	4,380.8	4,402.2	4,389.8	11.4	10.3	139.56		12.9	221.8	179.3	158.4	20.83	8.607	
4,500.0	4,480.0	4,502.1	4,488.8	11.7	10.6	138.27		15.2	234.9	183.1	161.7	21.43	8.542	
4,600.0	4,579.3	4,601.9	4,587.7	12.0	10.9	137.02		17.5	248.0	187.0	165.0	22.05	8.483	
4,700.0	4,678.5	4,701.7	4,686.7	12.3	11.2	135.83		19.8	261.1	191.1	168.4	22.67	8.430	
4,800.0	4,777.8	4,801.6	4,785.6	12.6	11.5	134.69		22.1	274.2	195.2	171.9	23.29	8.381	
4,900.0	4,877.0	4,901.4	4,884.6	12.9	11.8	133.59		24.4	287.3	199.4	175.4	23.91	8.336	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1U-304
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4653.0ft (RKB - 13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4653.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1U-304	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (4-30-15)	Offset TVD Reference:	Offset Datum

Offset Design LDS 5N65W1U Pad Sec.1-T5N-R65W - LDS 1U-234 - Wellbore #1 - Plan #2 (4-30-15)													Offset Site Error: 0.0 ft	
Survey Program: 0-MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
5,000.0	4,976.3	5,001.3	4,983.5	13.3	12.1	132.54	26.7	300.4	203.6	179.1	24.54	8.296		
5,100.0	5,075.5	5,101.1	5,082.5	13.6	12.4	131.53	28.9	313.5	207.9	182.7	25.17	8.259		
5,200.0	5,174.7	5,200.9	5,181.4	13.9	12.7	130.57	31.2	326.6	212.3	186.5	25.81	8.226		
5,300.0	5,274.0	5,300.8	5,280.4	14.2	13.1	129.64	33.5	339.7	216.7	190.3	26.44	8.196		
5,400.0	5,373.2	5,400.6	5,379.3	14.5	13.4	128.74	35.8	352.8	221.1	194.1	27.08	8.167		
5,500.0	5,472.8	5,499.4	5,477.3	14.7	13.7	127.58	38.0	365.2	224.2	196.6	27.63	8.115		
5,600.0	5,572.6	5,597.7	5,575.1	14.9	13.9	126.50	39.6	374.5	225.9	197.9	28.08	8.045		
5,700.0	5,672.5	5,696.1	5,673.4	15.1	14.1	125.55	40.6	380.4	226.3	197.9	28.48	7.947		
5,800.0	5,772.5	5,794.7	5,771.9	15.3	14.2	-179.96	41.1	383.0	225.9	199.6	26.34	8.579		
5,846.6	5,819.1	5,840.9	5,818.1	15.3	14.3	-179.99	41.1	383.2	225.9	199.4	26.51	8.521		
5,900.0	5,872.5	5,894.3	5,871.5	15.4	14.4	-179.99	41.1	383.2	225.9	199.2	26.73	8.453		
6,000.0	5,972.5	5,994.3	5,971.5	15.6	14.6	-179.99	41.1	383.2	225.9	198.8	27.14	8.325		
6,049.3	6,021.8	6,043.6	6,020.8	15.7	14.7	-179.99	41.1	383.2	225.9	198.6	27.34	8.263		
6,100.0	6,072.5	6,094.2	6,071.4	15.8	14.8	-179.55	41.1	381.4	225.9	198.4	27.55	8.200		
6,200.0	6,172.4	6,192.9	6,169.1	16.0	14.9	-87.03	41.1	368.5	226.2	196.1	30.08	7.520		
6,300.0	6,271.1	6,290.2	6,263.1	16.0	14.9	-84.43	41.1	343.5	227.0	196.9	30.07	7.550		
6,400.0	6,367.0	6,386.3	6,352.0	16.0	14.9	-81.95	41.1	307.3	228.2	198.2	29.96	7.615		
6,500.0	6,458.3	6,481.3	6,434.8	16.0	14.9	-79.65	41.1	260.8	229.7	199.8	29.85	7.695		
6,600.0	6,543.5	6,575.3	6,510.4	15.9	15.0	-77.54	41.1	205.0	231.4	201.6	29.82	7.760		
6,700.0	6,621.2	6,668.4	6,578.0	15.9	15.3	-75.67	41.1	141.0	233.2	203.2	30.00	7.775		
6,800.0	6,690.0	6,760.7	6,636.8	16.0	15.7	-74.05	41.1	70.0	235.0	204.5	30.51	7.703		
6,900.0	6,748.8	6,852.4	6,686.4	16.4	16.4	-72.69	41.1	-7.2	236.7	205.2	31.48	7.518		
7,000.0	6,796.6	6,943.6	6,726.1	17.2	17.4	-71.61	41.1	-89.2	238.1	205.1	33.00	7.215		
7,100.0	6,832.4	7,034.4	6,755.7	18.4	18.6	-70.81	41.1	-174.9	239.2	204.1	35.10	6.815		
7,200.0	6,855.8	7,124.9	6,774.9	20.0	20.1	-70.29	41.1	-263.3	240.0	202.2	37.74	6.359		
7,300.0	6,866.3	7,215.3	6,783.5	21.7	21.7	-70.06	41.1	-353.2	240.3	199.5	40.83	5.886		
7,400.0	6,866.0	7,311.6	6,783.4	23.7	23.6	-70.14	41.1	-449.5	240.2	195.7	44.45	5.404		
7,500.0	6,864.4	7,411.6	6,782.5	25.8	25.8	-70.30	41.1	-549.5	240.0	191.5	48.47	4.951		
7,600.0	6,862.8	7,511.6	6,781.6	28.0	28.0	-70.45	41.1	-649.5	239.7	187.0	52.73	4.546		
7,700.0	6,861.2	7,611.6	6,780.7	30.3	30.4	-70.60	41.1	-749.5	239.5	182.3	57.19	4.188		
7,800.0	6,859.7	7,711.6	6,779.8	32.7	32.8	-70.76	41.1	-849.5	239.3	177.5	61.79	3.872		
7,900.0	6,858.1	7,811.6	6,778.9	35.2	35.2	-70.91	41.1	-949.5	239.1	172.5	66.52	3.594		
8,000.0	6,856.5	7,911.5	6,778.0	37.7	37.8	-71.06	41.1	-1,049.5	238.8	167.5	71.35	3.348		
8,100.0	6,855.0	8,011.5	6,777.1	40.2	40.3	-71.22	41.1	-1,149.5	238.6	162.4	76.26	3.129		
8,200.0	6,853.4	8,111.5	6,776.2	42.8	42.9	-71.37	41.1	-1,249.5	238.4	157.2	81.24	2.935		
8,300.0	6,851.8	8,211.5	6,775.4	45.4	45.5	-71.53	41.1	-1,349.5	238.2	151.9	86.28	2.761		
8,400.0	6,850.2	8,311.5	6,774.5	48.0	48.2	-71.68	41.1	-1,449.5	238.0	146.6	91.37	2.604		
8,500.0	6,848.7	8,411.5	6,773.6	50.7	50.8	-71.84	41.1	-1,549.5	237.7	141.2	96.50	2.464		
8,600.0	6,847.1	8,511.5	6,772.7	53.3	53.5	-72.00	41.1	-1,649.4	237.5	135.9	101.67	2.336		
8,700.0	6,845.5	8,611.5	6,771.8	56.0	56.2	-72.15	41.1	-1,749.4	237.3	130.4	106.88	2.221		
8,800.0	6,844.0	8,711.5	6,770.9	58.7	58.9	-72.31	41.1	-1,849.4	237.1	125.0	112.12	2.115		
8,900.0	6,842.4	8,811.5	6,770.0	61.4	61.6	-72.47	41.1	-1,949.4	236.9	119.5	117.38	2.018		
9,000.0	6,840.8	8,911.5	6,769.1	64.1	64.3	-72.62	41.1	-2,049.4	236.7	114.0	122.67	1.930		
9,100.0	6,839.3	9,011.5	6,768.2	66.8	67.0	-72.78	41.1	-2,149.4	236.5	108.5	127.98	1.848		
9,200.0	6,837.7	9,111.5	6,767.3	69.5	69.8	-72.94	41.1	-2,249.4	236.3	103.0	133.32	1.772		
9,300.0	6,836.1	9,211.5	6,766.5	72.3	72.5	-73.10	41.1	-2,349.4	236.1	97.4	138.67	1.703		
9,400.0	6,834.5	9,311.5	6,765.6	75.0	75.3	-73.25	41.1	-2,449.4	235.9	91.9	144.04	1.638		
9,500.0	6,833.0	9,411.5	6,764.7	77.8	78.0	-73.41	41.1	-2,549.4	235.7	86.3	149.43	1.577		
9,600.0	6,831.4	9,511.5	6,763.8	80.5	80.8	-73.57	41.1	-2,649.4	235.5	80.7	154.83	1.521		
9,700.0	6,829.8	9,611.5	6,762.9	83.3	83.5	-73.73	41.1	-2,749.4	235.3	75.1	160.25	1.468 Level 3		
9,800.0	6,828.3	9,711.5	6,762.0	86.0	86.3	-73.89	41.1	-2,849.4	235.1	69.4	165.68	1.419 Level 3		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1U-304
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4653.0ft (RKB - 13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4653.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1U-304	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (4-30-15)	Offset TVD Reference:	Offset Datum

Offset Design LDS 5N65W1U Pad Sec.1-T5N-R65W - LDS 1U-234 - Wellbore #1 - Plan #2 (4-30-15)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	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
9,900.0	6,826.7	9,811.5	6,761.1	88.8	89.0	-74.05		41.1	-2,949.4	234.9	63.8	171.13	1.373	Level 3
10,000.0	6,825.1	9,911.5	6,760.2	91.5	91.8	-74.21		41.1	-3,049.4	234.8	58.2	176.59	1.329	Level 3
10,100.0	6,823.5	10,011.5	6,759.3	94.3	94.6	-74.37		41.1	-3,149.4	234.6	52.5	182.06	1.288	Level 3
10,200.0	6,822.0	10,111.5	6,758.4	97.1	97.3	-74.53		41.1	-3,249.3	234.4	46.8	187.54	1.250	Level 2
10,300.0	6,820.4	10,211.5	6,757.6	99.8	100.1	-74.69		41.1	-3,349.3	234.2	41.2	193.04	1.213	Level 2
10,400.0	6,818.8	10,311.5	6,756.7	102.6	102.9	-74.85		41.1	-3,449.3	234.0	35.5	198.54	1.179	Level 2
10,500.0	6,817.3	10,411.5	6,755.8	105.4	105.7	-75.01		41.1	-3,549.3	233.8	29.8	204.05	1.146	Level 2
10,600.0	6,815.7	10,511.5	6,754.9	108.2	108.4	-75.17		41.1	-3,649.3	233.7	24.1	209.58	1.115	Level 2
10,700.0	6,814.1	10,611.5	6,754.0	110.9	111.2	-75.33		41.1	-3,749.3	233.5	18.4	215.11	1.085	Level 2
10,800.0	6,812.6	10,711.5	6,753.1	113.7	114.0	-75.49		41.1	-3,849.3	233.3	12.7	220.65	1.057	Level 2
10,900.0	6,811.0	10,811.5	6,752.2	116.5	116.8	-75.66		41.1	-3,949.3	233.2	7.0	226.20	1.031	Level 2
11,000.0	6,809.4	10,911.5	6,751.3	119.3	119.6	-75.82		41.1	-4,049.3	233.0	1.2	231.76	1.005	Level 2
11,100.0	6,807.8	11,011.5	6,750.4	122.1	122.3	-75.98		41.1	-4,149.3	232.8	-4.5	237.33	0.981	Level 1
11,200.0	6,806.3	11,111.5	6,749.5	124.8	125.1	-76.14		41.1	-4,249.3	232.7	-10.2	242.91	0.958	Level 1
11,300.0	6,804.7	11,211.5	6,748.7	127.6	127.9	-76.31		41.1	-4,349.3	232.5	-16.0	248.49	0.936	Level 1
11,400.0	6,803.1	11,311.5	6,747.8	130.4	130.7	-76.47		41.1	-4,449.3	232.3	-21.7	254.08	0.914	Level 1
11,500.0	6,801.6	11,411.5	6,746.9	133.2	133.5	-76.63		41.1	-4,549.3	232.2	-27.5	259.68	0.894	Level 1
11,600.0	6,800.0	11,511.5	6,746.0	136.0	136.3	-76.80		41.1	-4,649.3	232.0	-33.3	265.28	0.875	Level 1
11,700.0	6,798.4	11,611.5	6,745.1	138.8	139.1	-76.96		41.1	-4,749.3	231.9	-39.0	270.89	0.856	Level 1
11,800.0	6,796.8	11,711.5	6,744.2	141.6	141.9	-77.12		41.1	-4,849.2	231.7	-44.8	276.51	0.838	Level 1
11,900.0	6,795.3	11,811.5	6,743.3	144.4	144.7	-77.29		41.1	-4,949.2	231.6	-50.6	282.13	0.821	Level 1
12,000.0	6,793.7	11,911.5	6,742.4	147.1	147.5	-77.45		41.1	-5,049.2	231.4	-56.4	287.76	0.804	Level 1
12,100.0	6,792.1	12,011.5	6,741.5	149.9	150.2	-77.62		41.1	-5,149.2	231.3	-62.1	293.40	0.788	Level 1
12,200.0	6,790.6	12,111.5	6,740.6	152.7	153.0	-77.78		41.1	-5,249.2	231.1	-67.9	299.04	0.773	Level 1
12,300.0	6,789.0	12,211.4	6,739.8	155.5	155.8	-77.95		41.1	-5,349.2	231.0	-73.7	304.69	0.758	Level 1
12,400.0	6,787.4	12,311.4	6,738.9	158.3	158.6	-78.11		41.1	-5,449.2	230.8	-79.5	310.34	0.744	Level 1
12,500.0	6,785.8	12,411.4	6,738.0	161.1	161.4	-78.28		41.1	-5,549.2	230.7	-85.3	316.00	0.730	Level 1
12,600.0	6,784.3	12,511.4	6,737.1	163.9	164.2	-78.44		41.1	-5,649.2	230.6	-91.1	321.66	0.717	Level 1
12,700.0	6,782.7	12,611.4	6,736.2	166.7	167.0	-78.61		41.1	-5,749.2	230.4	-96.9	327.33	0.704	Level 1
12,800.0	6,781.1	12,711.4	6,735.3	169.5	169.8	-78.77		41.1	-5,849.2	230.3	-102.7	333.00	0.692	Level 1
12,900.0	6,779.6	12,811.4	6,734.4	172.3	172.6	-78.94		41.1	-5,949.2	230.1	-108.5	338.67	0.680	Level 1
13,000.0	6,778.0	12,911.4	6,733.5	175.1	175.4	-79.11		41.1	-6,049.2	230.0	-114.3	344.35	0.668	Level 1
13,100.0	6,776.4	13,011.4	6,732.6	177.9	178.2	-79.27		41.1	-6,149.2	229.9	-120.1	350.04	0.657	Level 1
13,200.0	6,774.9	13,111.4	6,731.7	180.7	181.0	-79.44		41.1	-6,249.2	229.8	-126.0	355.73	0.646	Level 1
13,300.0	6,773.3	13,211.4	6,730.9	183.5	183.8	-79.61		41.1	-6,349.2	229.6	-131.8	361.42	0.635	Level 1
13,400.0	6,771.7	13,311.4	6,730.0	186.3	186.6	-79.77		41.1	-6,449.1	229.5	-137.6	367.11	0.625	Level 1
13,500.0	6,770.1	13,411.4	6,729.1	189.1	189.4	-79.94		41.1	-6,549.1	229.4	-143.4	372.81	0.615	Level 1
13,600.0	6,768.6	13,511.4	6,728.2	191.9	192.2	-80.11		41.1	-6,649.1	229.3	-149.2	378.51	0.606	Level 1
13,700.0	6,767.0	13,611.4	6,727.3	194.7	195.0	-80.28		41.1	-6,749.1	229.2	-155.1	384.22	0.596	Level 1
13,800.0	6,765.4	13,711.4	6,726.4	197.5	197.8	-80.44		41.1	-6,849.1	229.0	-160.9	389.93	0.587	Level 1
13,900.0	6,763.9	13,811.4	6,725.5	200.3	200.5	-80.61		41.1	-6,949.1	228.9	-166.6	395.52	0.579	Level 1
13,954.6	6,763.0	13,866.0	6,725.0	201.8	201.5	-80.70		41.1	-7,003.7	228.9	-169.2	398.10	0.575	Level 1, ES, SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1U-304
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4653.0ft (RKB - 13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4653.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1U-304	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (4-30-15)	Offset TVD Reference:	Offset Datum

Offset Design LDS 5N65W1U Pad Sec.1-T5N-R65W - LDS 1V-204 - Wellbore #1 - Plan #2 (4-15-15)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	134.95		-105.7	105.9	149.6				
100.0	100.0	97.0	97.0	0.1	0.1	134.95		-105.7	105.9	149.6	149.4	0.22	675.583	
200.0	200.0	197.0	197.0	0.3	0.3	134.95		-105.7	105.9	149.6	148.9	0.67	224.063 CC, ES	
300.0	300.0	294.8	294.8	0.6	0.5	135.08		-106.4	106.1	150.3	149.2	1.09	137.916	
400.0	400.0	392.5	392.4	0.8	0.7	135.50		-108.7	106.9	152.5	151.0	1.51	101.018	
500.0	500.0	490.0	489.9	1.0	0.9	136.18		-112.7	108.1	156.3	154.3	1.95	80.279	
600.0	600.0	587.4	587.1	1.2	1.2	137.08		-118.1	109.9	161.6	159.2	2.40	67.374	
700.0	700.0	684.6	684.0	1.5	1.4	138.15		-125.2	112.1	168.5	165.7	2.87	58.816	
800.0	800.0	781.5	780.5	1.7	1.7	139.34		-133.7	114.9	177.1	173.7	3.35	52.893	
900.0	900.0	878.0	876.4	1.9	1.9	140.61		-143.8	118.1	187.2	183.4	3.85	48.681	
1,000.0	1,000.0	974.2	971.8	2.1	2.2	141.90		-155.4	121.8	199.1	194.7	4.36	45.637	
1,100.0	1,100.0	1,069.9	1,066.6	2.4	2.6	143.20		-168.4	126.0	212.5	207.6	4.89	43.422	
1,200.0	1,200.0	1,165.2	1,160.6	2.6	2.9	144.46		-182.9	130.7	227.7	222.2	5.45	41.814	
1,300.0	1,300.0	1,259.9	1,253.9	2.8	3.2	145.67		-198.7	135.7	244.5	238.5	6.01	40.679	
1,400.0	1,400.0	1,358.2	1,350.5	3.0	3.6	146.81		-215.9	141.3	262.2	255.6	6.60	39.703 SF	
1,500.0	1,500.0	1,456.4	1,447.1	3.3	4.0	92.67		-233.1	146.8	280.0	273.5	6.52	42.923	
1,600.0	1,600.0	1,554.6	1,543.5	3.5	4.4	93.86		-250.3	152.3	298.1	291.1	6.98	42.697	
1,700.0	1,699.9	1,652.5	1,639.8	3.7	4.8	95.21		-267.4	157.8	316.4	309.0	7.44	42.541	
1,800.0	1,799.7	1,750.3	1,735.9	3.9	5.2	96.69		-284.6	163.3	335.1	327.2	7.90	42.448	
1,900.0	1,899.4	1,847.9	1,831.8	4.1	5.6	98.26		-301.6	168.8	354.4	346.0	8.36	42.408	
2,000.0	1,998.9	1,945.2	1,927.5	4.4	6.0	99.91		-318.7	174.2	374.2	365.4	8.82	42.411	
2,100.0	2,098.3	2,042.3	2,022.9	4.6	6.4	101.61		-335.6	179.7	394.7	385.4	9.30	42.447	
2,200.0	2,197.5	2,139.1	2,118.1	4.9	6.8	103.45		-352.6	185.1	415.8	406.0	9.78	42.499	
2,300.0	2,296.7	2,236.0	2,213.4	5.1	7.2	105.12		-369.5	190.6	437.3	427.1	10.28	42.543	
2,400.0	2,396.0	2,332.9	2,308.6	5.4	7.6	106.64		-386.5	196.0	459.2	448.4	10.78	42.580	
2,500.0	2,495.2	2,429.8	2,403.8	5.7	8.0	108.02		-403.5	201.5	481.3	470.0	11.29	42.612	
2,600.0	2,594.5	2,526.7	2,499.1	6.0	8.4	109.29		-420.4	206.9	503.6	491.8	11.81	42.639	
2,700.0	2,693.7	2,623.6	2,594.3	6.3	8.8	110.44		-437.4	212.3	526.2	513.9	12.33	42.662	
2,800.0	2,792.9	2,720.5	2,689.6	6.5	9.2	111.50		-454.3	217.8	549.0	536.1	12.86	42.682	
2,900.0	2,892.2	2,817.4	2,784.8	6.8	9.7	112.48		-471.3	223.2	571.9	558.5	13.39	42.700	
3,000.0	2,991.4	2,914.2	2,880.0	7.1	10.1	113.38		-488.2	228.7	595.0	581.0	13.93	42.715	
3,100.0	3,090.7	3,011.1	2,975.3	7.4	10.5	114.21		-505.2	234.1	618.2	603.7	14.47	42.729	
3,200.0	3,189.9	3,108.0	3,070.5	7.7	10.9	114.99		-522.1	239.6	641.5	626.5	15.01	42.741	
3,300.0	3,289.2	3,204.9	3,165.7	8.0	11.3	115.71		-539.1	245.0	664.9	649.4	15.55	42.752	
3,400.0	3,388.4	3,301.8	3,261.0	8.3	11.7	116.38		-556.0	250.4	688.4	672.3	16.10	42.762	
3,500.0	3,487.6	3,398.7	3,356.2	8.6	12.1	117.01		-573.0	255.9	712.0	695.4	16.65	42.771	
3,600.0	3,586.9	3,495.6	3,451.5	8.9	12.5	117.59		-589.9	261.3	735.7	718.5	17.20	42.779	
3,700.0	3,686.1	3,592.5	3,546.7	9.2	12.9	118.14		-606.9	266.8	759.4	741.7	17.75	42.787	
3,800.0	3,785.4	3,689.3	3,641.9	9.5	13.3	118.66		-623.8	272.2	783.3	765.0	18.30	42.795	
3,900.0	3,884.6	3,786.2	3,737.2	9.8	13.7	119.15		-640.8	277.7	807.1	788.3	18.86	42.802	
4,000.0	3,983.8	3,883.1	3,832.4	10.1	14.1	119.61		-657.8	283.1	831.0	811.6	19.41	42.808	
4,100.0	4,083.1	3,980.0	3,927.6	10.5	14.5	120.04		-674.7	288.5	855.0	835.0	19.97	42.814	
4,200.0	4,182.3	4,076.9	4,022.9	10.8	14.9	120.45		-691.7	294.0	879.0	858.5	20.53	42.820	
4,300.0	4,281.6	4,173.8	4,118.1	11.1	15.3	120.84		-708.6	299.4	903.1	882.0	21.09	42.826	
4,400.0	4,380.8	4,270.7	4,213.4	11.4	15.8	121.21		-725.6	304.9	927.1	905.5	21.65	42.831	
4,500.0	4,480.0	4,367.6	4,308.6	11.7	16.2	121.56		-742.5	310.3	951.3	929.1	22.21	42.837	
4,600.0	4,579.3	4,464.4	4,403.8	12.0	16.6	121.89		-759.5	315.8	975.4	952.6	22.77	42.842	
4,700.0	4,678.5	4,561.3	4,499.1	12.3	17.0	122.21		-776.4	321.2	999.6	976.3	23.33	42.847	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1U-304
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4653.0ft (RKB - 13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4653.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1U-304	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (4-30-15)	Offset TVD Reference:	Offset Datum

Offset Design LDS 5N65W1U Pad Sec.1-T5N-R65W - LDS 1V-214 - Wellbore #1 - Plan #2 (4-30-15)												Offset Site Error: 0.0 ft	
Survey Program: 0-MWD												Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis		Distance							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)		
0.0	0.0	0.0	0.0	0.0	0.0	134.05	-61.9	64.0	89.1				
100.0	100.0	98.0	98.0	0.1	0.1	134.05	-61.9	64.0	89.1	88.9	0.22	400.322	
200.0	200.0	198.0	198.0	0.3	0.3	134.05	-61.9	64.0	89.1	88.4	0.67	132.995	
300.0	300.0	298.0	298.0	0.6	0.6	134.05	-61.9	64.0	89.1	88.0	1.12	79.583	
400.0	400.0	398.0	398.0	0.8	0.8	134.05	-61.9	64.0	89.1	87.5	1.57	56.780	
500.0	500.0	498.0	498.0	1.0	1.0	134.05	-61.9	64.0	89.1	87.1	2.02	44.134	
600.0	600.0	598.0	598.0	1.2	1.2	134.05	-61.9	64.0	89.1	86.6	2.47	36.095	
700.0	700.0	698.0	698.0	1.5	1.5	134.05	-61.9	64.0	89.1	86.2	2.92	30.534	
800.0	800.0	798.0	798.0	1.7	1.7	134.05	-61.9	64.0	89.1	85.7	3.37	26.457	
900.0	900.0	898.0	898.0	1.9	1.9	134.05	-61.9	64.0	89.1	85.3	3.82	23.341	
1,000.0	1,000.0	998.0	998.0	2.1	2.1	134.05	-61.9	64.0	89.1	84.8	4.27	20.881 CC, ES	
1,100.0	1,100.0	1,096.5	1,096.5	2.4	2.3	134.13	-62.6	64.5	89.9	85.2	4.69	19.178	
1,200.0	1,200.0	1,194.9	1,194.9	2.6	2.5	134.36	-64.6	66.0	92.4	87.3	5.09	18.155	
1,300.0	1,300.0	1,293.2	1,293.1	2.8	2.7	134.73	-67.9	68.6	96.6	91.1	5.50	17.568	
1,400.0	1,400.0	1,391.4	1,391.1	3.0	2.9	135.20	-72.6	72.1	102.5	96.6	5.92	17.324	
1,500.0	1,500.0	1,489.3	1,488.7	3.3	3.1	80.95	-78.6	76.6	110.0	103.7	6.33	17.384	
1,600.0	1,600.0	1,586.9	1,585.8	3.5	3.3	82.61	-85.9	82.2	119.0	112.2	6.74	17.648	
1,700.0	1,699.9	1,684.1	1,682.4	3.7	3.6	84.80	-94.5	88.6	129.6	122.4	7.16	18.090	
1,800.0	1,799.7	1,782.4	1,780.0	3.9	3.8	87.36	-104.2	96.0	141.6	134.0	7.59	18.646	
1,900.0	1,899.4	1,881.3	1,878.2	4.1	4.1	90.16	-114.0	103.5	153.9	145.9	8.03	19.164	
2,000.0	1,998.9	1,980.1	1,976.2	4.4	4.3	93.11	-123.9	110.9	166.7	158.2	8.48	19.650	
2,100.0	2,098.3	2,078.7	2,074.0	4.6	4.6	96.16	-133.7	118.4	180.1	171.2	8.95	20.118	
2,200.0	2,197.5	2,177.3	2,171.8	4.9	4.9	99.18	-143.5	125.8	194.1	184.7	9.43	20.575	
2,300.0	2,296.7	2,275.8	2,269.5	5.1	5.2	101.80	-153.3	133.2	208.6	198.7	9.93	21.012	
2,400.0	2,396.0	2,374.3	2,367.3	5.4	5.5	104.08	-163.2	140.7	223.5	213.0	10.43	21.424	
2,500.0	2,495.2	2,472.8	2,465.0	5.7	5.8	106.07	-173.0	148.1	238.6	227.7	10.94	21.811	
2,600.0	2,594.5	2,571.4	2,562.8	6.0	6.1	107.82	-182.8	155.5	254.0	242.6	11.46	22.172	
2,700.0	2,693.7	2,669.9	2,660.5	6.3	6.4	109.38	-192.6	163.0	269.6	257.7	11.98	22.509	
2,800.0	2,792.9	2,768.4	2,758.3	6.5	6.7	110.76	-202.4	170.4	285.4	272.9	12.51	22.823	
2,900.0	2,892.2	2,866.9	2,856.0	6.8	7.0	112.00	-212.3	177.8	301.4	288.3	13.04	23.116	
3,000.0	2,991.4	2,965.5	2,953.8	7.1	7.3	113.11	-222.1	185.3	317.4	303.8	13.57	23.388	
3,100.0	3,090.7	3,064.0	3,051.5	7.4	7.6	114.12	-231.9	192.7	333.6	319.5	14.11	23.642	
3,200.0	3,189.9	3,162.5	3,149.3	7.7	8.0	115.03	-241.7	200.1	349.8	335.2	14.65	23.879	
3,300.0	3,289.2	3,261.0	3,247.0	8.0	8.3	115.86	-251.5	207.6	366.2	351.0	15.19	24.101	
3,400.0	3,388.4	3,359.6	3,344.8	8.3	8.6	116.62	-261.4	215.0	382.6	366.8	15.74	24.309	
3,500.0	3,487.6	3,458.1	3,442.6	8.6	8.9	117.32	-271.2	222.4	399.0	382.7	16.28	24.503	
3,600.0	3,586.9	3,556.6	3,540.3	8.9	9.2	117.97	-281.0	229.9	415.5	398.7	16.83	24.685	
3,700.0	3,686.1	3,655.1	3,638.1	9.2	9.5	118.56	-290.8	237.3	432.1	414.7	17.38	24.857	
3,800.0	3,785.4	3,753.6	3,735.8	9.5	9.9	119.11	-300.6	244.7	448.7	430.8	17.94	25.018	
3,900.0	3,884.6	3,852.2	3,833.6	9.8	10.2	119.62	-310.4	252.2	465.3	446.9	18.49	25.170	
4,000.0	3,983.8	3,950.7	3,931.3	10.1	10.5	120.10	-320.3	259.6	482.0	463.0	19.04	25.313	
4,100.0	4,083.1	4,049.2	4,029.1	10.5	10.8	120.54	-330.1	267.0	498.7	479.1	19.60	25.449	
4,200.0	4,182.3	4,147.7	4,126.8	10.8	11.1	120.96	-339.9	274.5	515.5	495.3	20.15	25.577	
4,300.0	4,281.6	4,246.3	4,224.6	11.1	11.5	121.35	-349.7	281.9	532.2	511.5	20.71	25.699	
4,400.0	4,380.8	4,344.8	4,322.3	11.4	11.8	121.71	-359.5	289.3	549.0	527.7	21.27	25.814	
4,500.0	4,480.0	4,443.3	4,420.1	11.7	12.1	122.06	-369.4	296.8	565.8	544.0	21.83	25.923	
4,600.0	4,579.3	4,541.8	4,517.8	12.0	12.4	122.38	-379.2	304.2	582.6	560.2	22.38	26.027	
4,700.0	4,678.5	4,640.4	4,615.6	12.3	12.7	122.69	-389.0	311.6	599.5	576.5	22.94	26.126	
4,800.0	4,777.8	4,738.9	4,713.3	12.6	13.1	122.97	-398.8	319.1	616.3	592.8	23.50	26.220	
4,900.0	4,877.0	4,837.4	4,811.1	12.9	13.4	123.25	-408.6	326.5	633.2	609.1	24.07	26.310	
5,000.0	4,976.3	4,935.9	4,908.8	13.3	13.7	123.51	-418.5	333.9	650.1	625.4	24.63	26.396	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1U-304
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4653.0ft (RKB - 13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4653.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1U-304	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (4-30-15)	Offset TVD Reference:	Offset Datum

Offset Design LDS 5N65W1U Pad Sec.1-T5N-R65W - LDS 1V-214 - Wellbore #1 - Plan #2 (4-30-15)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,075.5	5,034.5	5,006.6	13.6	14.0	123.75		-428.3	341.4	666.9	641.8	25.19	26.478	
5,200.0	5,174.7	5,133.0	5,104.3	13.9	14.4	123.99		-438.1	348.8	683.8	658.1	25.75	26.557	
5,300.0	5,274.0	5,231.5	5,202.1	14.2	14.7	124.21		-447.9	356.2	700.8	674.4	26.31	26.632	
5,400.0	5,373.2	5,330.0	5,299.8	14.5	15.0	124.49		-457.7	363.7	717.6	690.7	26.88	26.700	
5,500.0	5,472.8	5,443.2	5,412.2	14.7	15.3	124.81		-468.3	371.7	732.5	705.1	27.39	26.742	
5,600.0	5,572.6	5,568.4	5,537.0	14.9	15.6	125.00		-476.2	377.6	742.3	714.5	27.85	26.650	
5,700.0	5,672.5	5,694.3	5,662.8	15.1	15.8	125.08		-479.7	380.3	746.7	718.4	28.26	26.419	
5,800.0	5,772.5	5,802.0	5,770.5	15.3	16.0	-179.79		-479.9	380.4	746.9	718.3	28.59	26.124	
5,900.0	5,872.5	5,902.0	5,870.5	15.4	16.1	-179.79		-479.9	380.4	746.9	717.9	28.94	25.804	
6,000.0	5,972.5	6,002.0	5,970.5	15.6	16.2	-179.79		-479.9	380.4	746.9	717.6	29.30	25.490	
6,042.8	6,015.3	6,044.8	6,013.3	15.7	16.3	-179.79		-479.9	380.4	746.9	717.4	29.45	25.357	
6,100.0	6,072.5	6,101.7	6,070.2	15.8	16.4	-179.66		-479.9	378.7	746.9	717.2	29.66	25.185	
6,200.0	6,172.4	6,200.0	6,167.6	16.0	16.5	-88.89		-479.9	365.8	747.0	717.1	29.96	24.935	
6,300.0	6,271.1	6,297.0	6,261.3	16.0	16.5	-88.11		-479.9	341.0	747.3	717.2	30.07	24.854	
6,400.0	6,367.0	6,392.8	6,350.0	16.0	16.5	-87.36		-479.9	305.0	747.7	717.6	30.08	24.853	
6,500.0	6,458.3	6,487.5	6,432.6	16.0	16.5	-86.66		-479.9	258.8	748.2	718.1	30.08	24.869	
6,600.0	6,543.5	6,581.3	6,508.1	15.9	16.4	-86.01		-479.9	203.3	748.7	718.5	30.18	24.810	
6,700.0	6,621.2	6,674.2	6,575.6	15.9	16.4	-85.43		-479.9	139.6	749.3	718.8	30.50	24.567	
6,800.0	6,690.0	6,766.3	6,634.6	16.0	16.4	-84.93		-479.9	68.8	749.8	718.6	31.20	24.035	
6,900.0	6,748.8	6,857.9	6,684.2	16.4	16.4	-84.51		-479.9	-8.0	750.3	717.9	32.40	23.158	
7,000.0	6,796.6	6,950.0	6,724.6	17.2	17.1	-84.17		-479.9	-90.8	750.8	716.5	34.21	21.945	
7,100.0	6,832.4	7,039.6	6,754.0	18.4	18.3	-83.93		-479.9	-175.4	751.1	714.5	36.61	20.513	
7,200.0	6,855.8	7,130.1	6,773.4	20.0	19.9	-83.78		-479.9	-263.7	751.3	711.7	39.58	18.983	
7,300.0	6,866.3	7,220.4	6,782.3	21.7	21.6	-83.72		-479.9	-353.5	751.4	708.4	42.98	17.482	
7,400.0	6,866.0	7,316.4	6,782.3	23.7	23.5	-83.76		-479.9	-449.5	751.3	704.5	46.83	16.044	
7,500.0	6,864.4	7,416.4	6,781.5	25.8	25.7	-83.82		-479.9	-549.5	751.2	700.2	51.05	14.715	
7,600.0	6,862.8	7,516.4	6,780.6	28.0	28.0	-83.87		-479.9	-649.5	751.2	695.6	55.52	13.530	
7,700.0	6,861.2	7,616.4	6,779.7	30.3	30.3	-83.92		-479.9	-749.5	751.1	690.9	60.18	12.482	
7,800.0	6,859.7	7,716.4	6,778.8	32.7	32.8	-83.97		-479.9	-849.5	751.0	686.0	64.98	11.558	
7,900.0	6,858.1	7,816.4	6,778.0	35.2	35.3	-84.03		-479.9	-949.5	750.9	681.0	69.90	10.742	
8,000.0	6,856.5	7,916.4	6,777.1	37.7	37.8	-84.08		-479.9	-1,049.5	750.9	675.9	74.92	10.022	
8,100.0	6,855.0	8,016.4	6,776.2	40.2	40.4	-84.13		-479.9	-1,149.5	750.8	670.8	80.02	9.383	
8,200.0	6,853.4	8,116.4	6,775.3	42.8	43.0	-84.19		-479.9	-1,249.5	750.7	665.5	85.18	8.813	
8,300.0	6,851.8	8,216.4	6,774.5	45.4	45.6	-84.24		-479.9	-1,349.5	750.7	660.3	90.39	8.304	
8,400.0	6,850.2	8,316.4	6,773.6	48.0	48.2	-84.29		-479.9	-1,449.5	750.6	654.9	95.65	7.847	
8,500.0	6,848.7	8,416.4	6,772.7	50.7	50.9	-84.35		-479.9	-1,549.5	750.5	649.6	100.95	7.435	
8,600.0	6,847.1	8,516.4	6,771.9	53.3	53.6	-84.40		-479.9	-1,649.5	750.4	644.2	106.27	7.061	
8,700.0	6,845.5	8,616.4	6,771.0	56.0	56.2	-84.45		-479.9	-1,749.5	750.4	638.7	111.63	6.722	
8,800.0	6,844.0	8,716.4	6,770.1	58.7	58.9	-84.50		-479.9	-1,849.4	750.3	633.3	117.01	6.412	
8,900.0	6,842.4	8,816.4	6,769.2	61.4	61.7	-84.56		-479.9	-1,949.4	750.2	627.8	122.41	6.129	
9,000.0	6,840.8	8,916.4	6,768.4	64.1	64.4	-84.61		-479.9	-2,049.4	750.2	622.3	127.83	5.869	
9,100.0	6,839.3	9,016.4	6,767.5	66.8	67.1	-84.66		-479.9	-2,149.4	750.1	616.8	133.26	5.629	
9,200.0	6,837.7	9,116.4	6,766.6	69.5	69.8	-84.72		-479.9	-2,249.4	750.0	611.3	138.71	5.407	
9,300.0	6,836.1	9,216.4	6,765.7	72.3	72.6	-84.77		-479.9	-2,349.4	750.0	605.8	144.17	5.202	
9,400.0	6,834.5	9,316.4	6,764.9	75.0	75.3	-84.82		-479.9	-2,449.4	749.9	600.3	149.65	5.011	
9,500.0	6,833.0	9,416.4	6,764.0	77.8	78.1	-84.88		-479.9	-2,549.4	749.9	594.7	155.13	4.834	
9,600.0	6,831.4	9,516.4	6,763.1	80.5	80.8	-84.93		-479.9	-2,649.4	749.8	589.2	160.62	4.668	
9,700.0	6,829.8	9,616.4	6,762.3	83.3	83.6	-84.98		-479.9	-2,749.4	749.7	583.6	166.13	4.513	
9,800.0	6,828.3	9,716.4	6,761.4	86.0	86.3	-85.04		-479.9	-2,849.4	749.7	578.0	171.63	4.368	
9,900.0	6,826.7	9,816.4	6,760.5	88.8	89.1	-85.09		-479.9	-2,949.4	749.6	572.5	177.15	4.231	
10,000.0	6,825.1	9,916.4	6,759.6	91.5	91.9	-85.14		-479.9	-3,049.4	749.5	566.9	182.68	4.103	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1U-304
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4653.0ft (RKB - 13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4653.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1U-304	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (4-30-15)	Offset TVD Reference:	Offset Datum

Offset Design LDS 5N65W1U Pad Sec.1-T5N-R65W - LDS 1V-214 - Wellbore #1 - Plan #2 (4-30-15)													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	Offset		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
10,100.0	6,823.5	10,016.4	6,758.8	94.3	94.6	-85.19	-479.9	-3,149.4	749.5	561.3	188.20	3.982		
10,200.0	6,822.0	10,116.4	6,757.9	97.1	97.4	-85.25	-479.9	-3,249.4	749.4	555.7	193.74	3.868		
10,300.0	6,820.4	10,216.4	6,757.0	99.8	100.2	-85.30	-479.9	-3,349.4	749.4	550.1	199.28	3.760		
10,400.0	6,818.8	10,316.4	6,756.1	102.6	102.9	-85.35	-479.9	-3,449.3	749.3	544.5	204.82	3.658		
10,500.0	6,817.3	10,416.4	6,755.3	105.4	105.7	-85.41	-479.9	-3,549.3	749.3	538.9	210.37	3.562		
10,600.0	6,815.7	10,516.4	6,754.4	108.2	108.5	-85.46	-479.9	-3,649.3	749.2	533.3	215.93	3.470		
10,700.0	6,814.1	10,616.3	6,753.5	110.9	111.3	-85.51	-479.9	-3,749.3	749.1	527.7	221.48	3.382		
10,800.0	6,812.6	10,716.3	6,752.7	113.7	114.1	-85.57	-479.9	-3,849.3	749.1	522.0	227.04	3.299		
10,900.0	6,811.0	10,816.3	6,751.8	116.5	116.8	-85.62	-479.9	-3,949.3	749.0	516.4	232.61	3.220		
11,000.0	6,809.4	10,916.3	6,750.9	119.3	119.6	-85.67	-479.9	-4,049.3	749.0	510.8	238.17	3.145		
11,100.0	6,807.8	11,016.3	6,750.0	122.1	122.4	-85.73	-479.9	-4,149.3	748.9	505.2	243.74	3.073		
11,200.0	6,806.3	11,116.3	6,749.2	124.8	125.2	-85.78	-479.9	-4,249.3	748.9	499.6	249.32	3.004		
11,300.0	6,804.7	11,216.3	6,748.3	127.6	128.0	-85.83	-479.9	-4,349.3	748.8	493.9	254.89	2.938		
11,400.0	6,803.1	11,316.3	6,747.4	130.4	130.8	-85.89	-479.9	-4,449.3	748.8	488.3	260.47	2.875		
11,500.0	6,801.6	11,416.3	6,746.5	133.2	133.6	-85.94	-479.9	-4,549.3	748.7	482.7	266.05	2.814		
11,600.0	6,800.0	11,516.3	6,745.7	136.0	136.4	-85.99	-479.9	-4,649.3	748.7	477.0	271.63	2.756		
11,700.0	6,798.4	11,616.3	6,744.8	138.8	139.1	-86.05	-479.9	-4,749.3	748.6	471.4	277.22	2.700		
11,800.0	6,796.8	11,716.3	6,743.9	141.6	141.9	-86.10	-479.9	-4,849.3	748.6	465.8	282.80	2.647		
11,900.0	6,795.3	11,816.3	6,743.1	144.4	144.7	-86.15	-479.9	-4,949.3	748.5	460.1	288.39	2.595		
12,000.0	6,793.7	11,916.3	6,742.2	147.1	147.5	-86.21	-479.9	-5,049.2	748.5	454.5	293.98	2.546		
12,100.0	6,792.1	12,016.3	6,741.3	149.9	150.3	-86.26	-479.9	-5,149.2	748.4	448.9	299.57	2.498		
12,200.0	6,790.6	12,116.3	6,740.4	152.7	153.1	-86.31	-479.9	-5,249.2	748.4	443.2	305.17	2.452		
12,300.0	6,789.0	12,216.3	6,739.6	155.5	155.9	-86.37	-479.9	-5,349.2	748.3	437.6	310.76	2.408		
12,400.0	6,787.4	12,316.3	6,738.7	158.3	158.7	-86.42	-479.9	-5,449.2	748.3	431.9	316.36	2.365		
12,500.0	6,785.8	12,416.3	6,737.8	161.1	161.5	-86.47	-479.9	-5,549.2	748.2	426.3	321.96	2.324		
12,600.0	6,784.3	12,516.3	6,736.9	163.9	164.3	-86.53	-479.9	-5,649.2	748.2	420.6	327.56	2.284		
12,700.0	6,782.7	12,616.3	6,736.1	166.7	167.1	-86.58	-479.9	-5,749.2	748.2	415.0	333.16	2.246		
12,800.0	6,781.1	12,716.3	6,735.2	169.5	169.9	-86.63	-479.9	-5,849.2	748.1	409.4	338.76	2.208		
12,900.0	6,779.6	12,816.3	6,734.3	172.3	172.7	-86.69	-479.9	-5,949.2	748.1	403.7	344.36	2.172		
13,000.0	6,778.0	12,916.3	6,733.5	175.1	175.5	-86.74	-479.9	-6,049.2	748.0	398.1	349.97	2.137		
13,100.0	6,776.4	13,016.3	6,732.6	177.9	178.3	-86.79	-479.9	-6,149.2	748.0	392.4	355.57	2.104		
13,200.0	6,774.9	13,116.3	6,731.7	180.7	181.1	-86.85	-479.9	-6,249.2	748.0	386.8	361.18	2.071		
13,300.0	6,773.3	13,216.3	6,730.8	183.5	183.9	-86.90	-479.9	-6,349.2	747.9	381.1	366.78	2.039		
13,400.0	6,771.7	13,316.3	6,730.0	186.3	186.7	-86.95	-479.9	-6,449.2	747.9	375.5	372.39	2.008		
13,500.0	6,770.1	13,416.3	6,729.1	189.1	189.5	-87.01	-479.9	-6,549.2	747.8	369.8	378.00	1.978		
13,600.0	6,768.6	13,516.3	6,728.2	191.9	192.3	-87.06	-479.9	-6,649.1	747.8	364.2	383.61	1.949		
13,700.0	6,767.0	13,616.3	6,727.3	194.7	195.1	-87.11	-479.9	-6,749.1	747.8	358.6	389.22	1.921		
13,800.0	6,765.4	13,716.3	6,726.5	197.5	197.9	-87.17	-479.9	-6,849.1	747.7	352.9	394.83	1.894		
13,900.0	6,763.9	13,816.3	6,725.6	200.3	200.5	-87.22	-479.9	-6,949.1	747.7	347.4	400.28	1.868		
13,954.6	6,763.0	13,870.9	6,725.1	201.8	201.5	-87.25	-479.9	-7,003.7	747.7	344.9	402.80	1.856 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1U-304
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4653.0ft (RKB - 13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4653.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1U-304	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (4-30-15)	Offset TVD Reference:	Offset Datum

Offset Design LDS 5N65W1U Pad Sec.1-T5N-R65W - LDS 1V-304 - Wellbore #1 - Plan #2 (4-13-15)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	134.16		-83.8	86.3	120.3				
100.0	100.0	98.0	98.0	0.1	0.1	134.16		-83.8	86.3	120.3	120.1	0.22	540.567	
200.0	200.0	198.0	198.0	0.3	0.3	134.16		-83.8	86.3	120.3	119.6	0.67	179.588	
300.0	300.0	298.0	298.0	0.6	0.6	134.16		-83.8	86.3	120.3	119.2	1.12	107.464	
400.0	400.0	398.0	398.0	0.8	0.8	134.16		-83.8	86.3	120.3	118.7	1.57	76.672 CC, ES	
500.0	500.0	496.1	496.1	1.0	1.0	134.29		-84.5	86.6	121.1	119.1	1.99	60.846	
600.0	600.0	594.1	594.1	1.2	1.2	134.68		-86.8	87.7	123.4	121.0	2.40	51.446	
700.0	700.0	692.0	691.9	1.5	1.4	135.30		-90.5	89.5	127.5	124.6	2.82	45.139	
800.0	800.0	789.7	789.4	1.7	1.6	136.11		-95.7	92.1	133.1	129.8	3.26	40.806	
900.0	900.0	887.2	886.6	1.9	1.8	137.06		-102.4	95.3	140.4	136.7	3.71	37.799	
1,000.0	1,000.0	984.4	983.4	2.1	2.1	138.09		-110.6	99.3	149.3	145.2	4.18	35.716	
1,100.0	1,100.0	1,081.3	1,079.7	2.4	2.3	139.16		-120.2	103.9	160.0	155.3	4.66	34.294	
1,200.0	1,200.0	1,177.8	1,175.4	2.6	2.6	140.22		-131.2	109.3	172.3	167.1	5.16	33.358	
1,300.0	1,300.0	1,276.1	1,272.8	2.8	2.9	141.25		-143.5	115.2	185.8	180.1	5.68	32.690	
1,400.0	1,400.0	1,375.1	1,370.8	3.0	3.2	142.14		-155.9	121.2	199.4	193.2	6.21	32.101	
1,500.0	1,500.0	1,474.1	1,468.9	3.3	3.5	87.89		-168.3	127.2	213.0	206.6	6.38	33.366	
1,600.0	1,600.0	1,573.1	1,566.8	3.5	3.9	89.09		-180.7	133.2	226.6	219.8	6.83	33.188	
1,700.0	1,699.9	1,671.9	1,664.7	3.7	4.2	90.56		-193.1	139.2	240.4	233.1	7.28	33.040	
1,800.0	1,799.7	1,770.6	1,762.5	3.9	4.5	92.24		-205.5	145.2	254.4	246.6	7.73	32.925	
1,900.0	1,899.4	1,869.2	1,860.1	4.1	4.9	94.09		-217.9	151.2	268.7	260.5	8.18	32.842	
2,000.0	1,998.9	1,967.5	1,957.5	4.4	5.2	96.09		-230.2	157.1	283.5	274.9	8.65	32.792	
2,100.0	2,098.3	2,065.7	2,054.6	4.6	5.5	98.20		-242.5	163.1	298.9	289.8	9.12	32.771	
2,200.0	2,197.5	2,163.7	2,151.7	4.9	5.9	100.40		-254.8	169.0	314.9	305.3	9.61	32.773	
2,300.0	2,296.7	2,261.7	2,248.7	5.1	6.2	102.40		-267.1	175.0	331.4	321.3	10.11	32.783	
2,400.0	2,396.0	2,359.7	2,345.8	5.4	6.6	104.21		-279.3	180.9	348.2	337.5	10.61	32.801	
2,500.0	2,495.2	2,457.7	2,442.8	5.7	6.9	105.85		-291.6	186.9	365.2	354.1	11.13	32.824	
2,600.0	2,594.5	2,555.7	2,539.9	6.0	7.2	107.35		-303.9	192.8	382.6	371.0	11.65	32.851	
2,700.0	2,693.7	2,653.7	2,636.9	6.3	7.6	108.72		-316.2	198.8	400.2	388.0	12.17	32.881	
2,800.0	2,792.9	2,751.7	2,734.0	6.5	7.9	109.97		-328.5	204.7	418.0	405.3	12.70	32.913	
2,900.0	2,892.2	2,849.7	2,831.0	6.8	8.3	111.12		-340.8	210.6	436.0	422.8	13.23	32.947	
3,000.0	2,991.4	2,947.7	2,928.1	7.1	8.6	112.18		-353.0	216.6	454.1	440.4	13.77	32.982	
3,100.0	3,090.7	3,045.7	3,025.1	7.4	8.9	113.16		-365.3	222.5	472.4	458.1	14.31	33.017	
3,200.0	3,189.9	3,143.7	3,122.2	7.7	9.3	114.07		-377.6	228.5	490.8	476.0	14.85	33.053	
3,300.0	3,289.2	3,241.7	3,219.2	8.0	9.6	114.91		-389.9	234.4	509.3	493.9	15.39	33.089	
3,400.0	3,388.4	3,339.7	3,316.3	8.3	10.0	115.69		-402.2	240.4	527.9	512.0	15.94	33.125	
3,500.0	3,487.6	3,437.7	3,413.3	8.6	10.3	116.42		-414.5	246.3	546.6	530.1	16.48	33.161	
3,600.0	3,586.9	3,535.7	3,510.4	8.9	10.7	117.10		-426.7	252.2	565.4	548.4	17.03	33.196	
3,700.0	3,686.1	3,633.8	3,607.4	9.2	11.0	117.74		-439.0	258.2	584.3	566.7	17.58	33.231	
3,800.0	3,785.4	3,731.8	3,704.5	9.5	11.4	118.34		-451.3	264.1	603.2	585.0	18.13	33.266	
3,900.0	3,884.6	3,829.8	3,801.5	9.8	11.7	118.90		-463.6	270.1	622.2	603.5	18.68	33.299	
4,000.0	3,983.8	3,927.8	3,898.6	10.1	12.0	119.42		-475.9	276.0	641.2	621.9	19.24	33.332	
4,100.0	4,083.1	4,025.8	3,995.6	10.5	12.4	119.92		-488.2	282.0	660.3	640.5	19.79	33.365	
4,200.0	4,182.3	4,123.8	4,092.7	10.8	12.7	120.39		-500.4	287.9	679.4	659.1	20.34	33.396	
4,300.0	4,281.6	4,221.8	4,189.8	11.1	13.1	120.84		-512.7	293.9	698.6	677.7	20.90	33.427	
4,400.0	4,380.8	4,319.8	4,286.8	11.4	13.4	121.26		-525.0	299.8	717.8	696.3	21.45	33.457	
4,500.0	4,480.0	4,417.8	4,383.9	11.7	13.8	121.65		-537.3	305.7	737.0	715.0	22.01	33.487	
4,600.0	4,579.3	4,515.8	4,480.9	12.0	14.1	122.03		-549.6	311.7	756.3	733.7	22.57	33.516	
4,700.0	4,678.5	4,613.8	4,578.0	12.3	14.4	122.39		-561.9	317.6	775.6	752.5	23.12	33.544	
4,800.0	4,777.8	4,711.8	4,675.0	12.6	14.8	122.73		-574.1	323.6	794.9	771.2	23.68	33.571	
4,900.0	4,877.0	4,809.8	4,772.1	12.9	15.1	123.06		-586.4	329.5	814.3	790.0	24.24	33.598	
5,000.0	4,976.3	4,907.8	4,869.1	13.3	15.5	123.37		-598.7	335.5	833.7	808.9	24.79	33.624	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1U-304
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4653.0ft (RKB - 13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4653.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1U-304	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (4-30-15)	Offset TVD Reference:	Offset Datum

Offset Design LDS 5N65W1U Pad Sec.1-T5N-R65W - LDS 1V-304 - Wellbore #1 - Plan #2 (4-13-15)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,075.5	5,005.8	4,966.2	13.6	15.8	123.67		-611.0	341.4	853.1	827.7	25.35	33.649	
5,200.0	5,174.7	5,103.8	5,063.2	13.9	16.2	123.95		-623.3	347.3	872.5	846.6	25.91	33.673	
5,300.0	5,274.0	5,201.8	5,160.3	14.2	16.5	124.22		-635.6	353.3	891.9	865.5	26.47	33.697	
5,400.0	5,373.2	5,299.9	5,257.3	14.5	16.9	124.56		-647.8	359.2	911.3	884.3	27.03	33.713	
5,500.0	5,472.8	5,398.2	5,354.7	14.7	17.2	124.97		-660.2	365.2	929.3	901.8	27.55	33.729	
5,600.0	5,572.6	5,518.7	5,474.1	14.9	17.6	125.16		-674.4	372.1	944.8	916.7	28.07	33.663	
5,700.0	5,672.5	5,660.4	5,615.3	15.1	17.9	125.17		-685.8	377.6	954.3	925.8	28.52	33.459	
5,800.0	5,772.5	5,803.1	5,757.9	15.3	18.1	-179.81		-690.9	380.1	958.0	927.0	30.99	30.910	
5,900.0	5,872.5	5,915.8	5,870.5	15.4	18.2	-179.82		-691.2	380.2	958.2	926.8	31.35	30.560	
6,000.0	5,972.5	6,015.8	5,970.5	15.6	18.4	-179.82		-691.2	380.2	958.2	926.5	31.68	30.244	
6,062.6	6,035.2	6,078.4	6,033.2	15.7	18.4	-179.82		-691.2	380.2	958.2	926.3	31.89	30.048	
6,100.0	6,072.5	6,115.7	6,070.5	15.8	18.5	-179.82		-691.2	380.1	958.2	926.2	32.01	29.932	
6,200.0	6,172.4	6,214.9	6,169.3	16.0	18.6	-89.53		-691.2	372.3	958.2	927.9	30.31	31.618	
6,300.0	6,271.1	6,313.4	6,265.6	16.0	18.6	-89.22		-691.2	351.9	958.3	927.8	30.44	31.483	
6,400.0	6,367.0	6,411.3	6,357.9	16.0	18.6	-88.92		-691.2	319.5	958.3	927.9	30.47	31.457	
6,500.0	6,458.3	6,508.6	6,444.8	16.0	18.6	-88.64		-691.2	276.0	958.4	928.0	30.46	31.464	
6,600.0	6,543.5	6,605.4	6,525.1	15.9	18.6	-88.39		-691.2	222.0	958.5	928.0	30.53	31.394	
6,700.0	6,621.2	6,701.7	6,597.5	15.9	18.6	-88.16		-691.2	158.7	958.7	927.8	30.82	31.106	
6,800.0	6,690.0	6,797.5	6,661.2	16.0	18.5	-87.96		-691.2	87.1	958.8	927.3	31.49	30.452	
6,900.0	6,748.8	6,893.0	6,715.2	16.4	18.5	-87.80		-691.2	8.4	958.9	926.2	32.68	29.344	
7,000.0	6,796.6	6,988.3	6,758.9	17.2	18.6	-87.67		-691.2	-76.2	959.0	924.5	34.49	27.805	
7,100.0	6,832.4	7,083.3	6,791.6	18.4	19.1	-87.58		-691.2	-165.3	959.0	922.1	36.94	25.963	
7,200.0	6,855.8	7,178.2	6,813.1	20.0	20.4	-87.53		-691.2	-257.7	959.1	919.1	39.97	23.996	
7,300.0	6,866.3	7,273.1	6,822.9	21.7	22.1	-87.52		-691.2	-352.0	959.1	915.6	43.46	22.069	
7,400.0	6,866.0	7,371.1	6,823.1	23.7	24.1	-87.56		-691.2	-450.0	959.0	911.7	47.36	20.250	
7,500.0	6,864.4	7,471.1	6,822.5	25.8	26.3	-87.62		-691.2	-550.0	959.0	907.4	51.59	18.588	
7,600.0	6,862.8	7,571.1	6,821.9	28.0	28.5	-87.68		-691.2	-650.0	959.0	902.9	56.07	17.104	
7,700.0	6,861.2	7,671.1	6,821.3	30.3	30.9	-87.73		-691.2	-750.0	958.9	898.2	60.73	15.789	
7,800.0	6,859.7	7,771.1	6,820.7	32.7	33.3	-87.79		-691.2	-850.0	958.9	893.3	65.55	14.628	
7,900.0	6,858.1	7,871.1	6,820.1	35.2	35.7	-87.85		-691.2	-950.0	958.8	888.4	70.48	13.604	
8,000.0	6,856.5	7,971.1	6,819.5	37.7	38.3	-87.90		-691.2	-1,050.0	958.8	883.3	75.51	12.697	
8,100.0	6,855.0	8,071.1	6,818.9	40.2	40.8	-87.96		-691.2	-1,150.0	958.8	878.1	80.62	11.892	
8,200.0	6,853.4	8,171.1	6,818.3	42.8	43.4	-88.02		-691.2	-1,249.9	958.7	872.9	85.79	11.175	
8,300.0	6,851.8	8,271.0	6,817.6	45.4	46.0	-88.08		-691.2	-1,349.9	958.7	867.7	91.02	10.533	
8,400.0	6,850.2	8,371.0	6,817.0	48.0	48.6	-88.13		-691.2	-1,449.9	958.7	862.4	96.29	9.956	
8,500.0	6,848.7	8,471.0	6,816.4	50.7	51.3	-88.19		-691.2	-1,549.9	958.6	857.0	101.60	9.435	
8,600.0	6,847.1	8,571.0	6,815.8	53.3	54.0	-88.25		-691.2	-1,649.9	958.6	851.7	106.94	8.964	
8,700.0	6,845.5	8,671.0	6,815.2	56.0	56.6	-88.31		-691.2	-1,749.9	958.6	846.3	112.31	8.535	
8,800.0	6,844.0	8,771.0	6,814.6	58.7	59.3	-88.36		-691.2	-1,849.9	958.5	840.8	117.70	8.144	
8,900.0	6,842.4	8,871.0	6,814.0	61.4	62.0	-88.42		-691.2	-1,949.9	958.5	835.4	123.11	7.786	
9,000.0	6,840.8	8,971.0	6,813.4	64.1	64.7	-88.48		-691.2	-2,049.9	958.5	829.9	128.54	7.457	
9,100.0	6,839.3	9,071.0	6,812.8	66.8	67.5	-88.54		-691.2	-2,149.9	958.5	824.5	133.99	7.154	
9,200.0	6,837.7	9,171.0	6,812.1	69.5	70.2	-88.59		-691.2	-2,249.9	958.4	819.0	139.45	6.873	
9,300.0	6,836.1	9,271.0	6,811.5	72.3	72.9	-88.65		-691.2	-2,349.9	958.4	813.5	144.92	6.614	
9,400.0	6,834.5	9,371.0	6,810.9	75.0	75.6	-88.71		-691.2	-2,449.9	958.4	808.0	150.40	6.372	
9,500.0	6,833.0	9,471.0	6,810.3	77.8	78.4	-88.76		-691.2	-2,549.9	958.4	802.5	155.89	6.148	
9,600.0	6,831.4	9,571.0	6,809.7	80.5	81.1	-88.82		-691.2	-2,649.9	958.3	797.0	161.40	5.938	
9,700.0	6,829.8	9,671.0	6,809.1	83.3	83.9	-88.88		-691.2	-2,749.9	958.3	791.4	166.91	5.742	
9,800.0	6,828.3	9,771.0	6,808.5	86.0	86.6	-88.94		-691.2	-2,849.8	958.3	785.9	172.42	5.558	
9,900.0	6,826.7	9,871.0	6,807.9	88.8	89.4	-88.99		-691.2	-2,949.8	958.3	780.3	177.95	5.385	
10,000.0	6,825.1	9,971.0	6,807.3	91.5	92.2	-89.05		-691.2	-3,049.8	958.3	774.8	183.48	5.223	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1U-304
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4653.0ft (RKB - 13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4653.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1U-304	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (4-30-15)	Offset TVD Reference:	Offset Datum

Offset Design LDS 5N65W1U Pad Sec.1-T5N-R65W - LDS 1U-304 - Wellbore #1 - Plan #2 (4-13-15)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,100.0	6,823.5	10,071.0	6,806.6	94.3	94.9	-89.11	-89.11	-691.2	-3,149.8	958.3	769.2	189.01	5.070	
10,200.0	6,822.0	10,171.0	6,806.0	97.1	97.7	-89.17	-89.17	-691.2	-3,249.8	958.2	763.7	194.55	4.925	
10,300.0	6,820.4	10,271.0	6,805.4	99.8	100.5	-89.22	-89.22	-691.2	-3,349.8	958.2	758.1	200.10	4.789	
10,400.0	6,818.8	10,371.0	6,804.8	102.6	103.2	-89.28	-89.28	-691.2	-3,449.8	958.2	752.6	205.65	4.660	
10,500.0	6,817.3	10,470.9	6,804.2	105.4	106.0	-89.34	-89.34	-691.2	-3,549.8	958.2	747.0	211.20	4.537	
10,600.0	6,815.7	10,570.9	6,803.6	108.2	108.8	-89.40	-89.40	-691.2	-3,649.8	958.2	741.4	216.76	4.421	
10,700.0	6,814.1	10,670.9	6,803.0	110.9	111.6	-89.45	-89.45	-691.2	-3,749.8	958.2	735.9	222.31	4.310	
10,800.0	6,812.6	10,770.9	6,802.4	113.7	114.3	-89.51	-89.51	-691.2	-3,849.8	958.2	730.3	227.88	4.205	
10,900.0	6,811.0	10,870.9	6,801.8	116.5	117.1	-89.57	-89.57	-691.2	-3,949.8	958.2	724.7	233.44	4.105	
11,000.0	6,809.4	10,970.9	6,801.2	119.3	119.9	-89.63	-89.63	-691.2	-4,049.8	958.2	719.1	239.01	4.009	
11,100.0	6,807.8	11,070.9	6,800.5	122.1	122.7	-89.68	-89.68	-691.2	-4,149.8	958.2	713.6	244.58	3.918	
11,200.0	6,806.3	11,170.9	6,799.9	124.8	125.5	-89.74	-89.74	-691.2	-4,249.8	958.1	708.0	250.15	3.830	
11,300.0	6,804.7	11,270.9	6,799.3	127.6	128.3	-89.80	-89.80	-691.2	-4,349.7	958.1	702.4	255.72	3.747	
11,400.0	6,803.1	11,370.9	6,798.7	130.4	131.0	-89.86	-89.86	-691.2	-4,449.7	958.1	696.8	261.30	3.667	
11,500.0	6,801.6	11,470.9	6,798.1	133.2	133.8	-89.91	-89.91	-691.2	-4,549.7	958.1	691.3	266.88	3.590	
11,600.0	6,800.0	11,570.9	6,797.5	136.0	136.6	-89.97	-89.97	-691.2	-4,649.7	958.1	685.7	272.46	3.517	
11,700.0	6,798.4	11,670.9	6,796.9	138.8	139.4	-90.03	-90.03	-691.2	-4,749.7	958.1	680.1	278.04	3.446	
11,724.3	6,798.0	11,695.2	6,796.7	139.5	140.1	-90.04	-90.04	-691.2	-4,774.0	958.1	678.7	279.39	3.429	
11,800.0	6,796.8	11,770.9	6,796.3	141.6	142.2	-90.08	-90.08	-691.2	-4,849.7	958.1	674.5	283.62	3.378	
11,900.0	6,795.3	11,870.9	6,795.7	144.4	145.0	-90.14	-90.14	-691.2	-4,949.7	958.1	668.9	289.20	3.313	
12,000.0	6,793.7	11,970.9	6,795.0	147.1	147.8	-90.20	-90.20	-691.2	-5,049.7	958.1	663.4	294.79	3.250	
12,100.0	6,792.1	12,070.9	6,794.4	149.9	150.6	-90.26	-90.26	-691.2	-5,149.7	958.1	657.8	300.37	3.190	
12,200.0	6,790.6	12,170.9	6,793.8	152.7	153.4	-90.31	-90.31	-691.2	-5,249.7	958.1	652.2	305.96	3.132	
12,300.0	6,789.0	12,270.9	6,793.2	155.5	156.2	-90.37	-90.37	-691.2	-5,349.7	958.1	646.6	311.54	3.075	
12,400.0	6,787.4	12,370.9	6,792.6	158.3	158.9	-90.43	-90.43	-691.2	-5,449.7	958.2	641.0	317.13	3.021	
12,500.0	6,785.8	12,470.9	6,792.0	161.1	161.7	-90.49	-90.49	-691.2	-5,549.7	958.2	635.4	322.72	2.969	
12,600.0	6,784.3	12,570.9	6,791.4	163.9	164.5	-90.54	-90.54	-691.2	-5,649.7	958.2	629.9	328.31	2.919	
12,700.0	6,782.7	12,670.8	6,790.8	166.7	167.3	-90.60	-90.60	-691.2	-5,749.7	958.2	624.3	333.90	2.870	
12,800.0	6,781.1	12,770.8	6,790.2	169.5	170.1	-90.66	-90.66	-691.2	-5,849.7	958.2	618.7	339.49	2.822	
12,900.0	6,779.6	12,870.8	6,789.5	172.3	172.9	-90.72	-90.72	-691.2	-5,949.6	958.2	613.1	345.08	2.777	
13,000.0	6,778.0	12,970.8	6,788.9	175.1	175.7	-90.77	-90.77	-691.2	-6,049.6	958.2	607.5	350.67	2.733	
13,100.0	6,776.4	13,070.8	6,788.3	177.9	178.5	-90.83	-90.83	-691.2	-6,149.6	958.2	602.0	356.26	2.690	
13,200.0	6,774.9	13,170.8	6,787.7	180.7	181.3	-90.89	-90.89	-691.2	-6,249.6	958.2	596.4	361.85	2.648	
13,300.0	6,773.3	13,270.8	6,787.1	183.5	184.1	-90.95	-90.95	-691.2	-6,349.6	958.3	590.8	367.44	2.608	
13,400.0	6,771.7	13,370.8	6,786.5	186.3	186.9	-91.00	-91.00	-691.2	-6,449.6	958.3	585.2	373.03	2.569	
13,500.0	6,770.1	13,470.8	6,785.9	189.1	189.7	-91.06	-91.06	-691.2	-6,549.6	958.3	579.7	378.62	2.531	
13,600.0	6,768.6	13,570.8	6,785.3	191.9	192.5	-91.12	-91.12	-691.2	-6,649.6	958.3	574.1	384.22	2.494	
13,700.0	6,767.0	13,670.8	6,784.7	194.7	195.3	-91.18	-91.18	-691.2	-6,749.6	958.3	568.5	389.81	2.458	
13,800.0	6,765.4	13,770.8	6,784.0	197.5	198.1	-91.23	-91.23	-691.2	-6,849.6	958.3	562.9	395.40	2.424	
13,900.0	6,763.9	13,870.8	6,783.4	200.3	200.9	-91.29	-91.29	-691.2	-6,949.6	958.4	557.4	400.99	2.390	
13,954.6	6,763.0	13,925.4	6,783.1	201.8	202.4	-91.32	-91.32	-691.2	-7,004.2	958.4	554.3	404.04	2.372 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1U-304
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4653.0ft (RKB - 13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4653.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1U-304	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (4-30-15)	Offset TVD Reference:	Offset Datum

Offset Design LDS 5N65W1U Pad Sec.1-T5N-R65W - LDS 1V-314 - Wellbore #1 - Plan #2 (4-30-15)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	131.98	131.98	-40.1	44.5	60.0				
100.0	100.0	98.0	98.0	0.1	0.1	131.98	131.98	-40.1	44.5	59.9	59.7	0.22	269.269	
200.0	200.0	198.0	198.0	0.3	0.3	131.98	131.98	-40.1	44.5	59.9	59.2	0.67	89.457	
300.0	300.0	298.0	298.0	0.6	0.6	131.98	131.98	-40.1	44.5	59.9	58.8	1.12	53.530	
400.0	400.0	398.0	398.0	0.8	0.8	131.98	131.98	-40.1	44.5	59.9	58.3	1.57	38.192	
500.0	500.0	498.0	498.0	1.0	1.0	131.98	131.98	-40.1	44.5	59.9	57.9	2.02	29.686	
600.0	600.0	598.0	598.0	1.2	1.2	131.98	131.98	-40.1	44.5	59.9	57.5	2.47	24.279	
700.0	700.0	698.0	698.0	1.5	1.5	131.98	131.98	-40.1	44.5	59.9	57.0	2.92	20.538	
800.0	800.0	798.0	798.0	1.7	1.7	131.98	131.98	-40.1	44.5	59.9	56.6	3.37	17.796	
900.0	900.0	898.0	898.0	1.9	1.9	131.98	131.98	-40.1	44.5	59.9	56.1	3.82	15.700	
1,000.0	1,000.0	998.0	998.0	2.1	2.1	131.98	131.98	-40.1	44.5	59.9	55.7	4.27	14.045	
1,100.0	1,100.0	1,098.0	1,098.0	2.4	2.4	131.98	131.98	-40.1	44.5	59.9	55.2	4.72	12.706	
1,200.0	1,200.0	1,198.0	1,198.0	2.6	2.6	131.98	131.98	-40.1	44.5	59.9	54.8	5.17	11.601	
1,300.0	1,300.0	1,298.0	1,298.0	2.8	2.8	131.98	131.98	-40.1	44.5	59.9	54.3	5.61	10.672	
1,400.0	1,400.0	1,398.0	1,398.0	3.0	3.0	131.98	131.98	-40.1	44.5	59.9	53.9	6.06	9.881	
1,500.0	1,500.0	1,498.0	1,498.0	3.3	3.3	77.67	77.67	-40.1	44.5	59.7	53.2	6.51	9.178	
1,600.0	1,600.0	1,598.0	1,598.0	3.5	3.5	80.14	80.14	-40.1	44.5	59.2	52.3	6.95	8.526	
1,638.1	1,638.1	1,635.7	1,635.7	3.6	3.6	81.51	81.51	-40.1	44.6	59.1	52.0	7.11	8.317 CC, ES	
1,700.0	1,699.9	1,696.9	1,696.9	3.7	3.7	84.13	84.13	-40.6	45.2	59.4	52.1	7.36	8.072	
1,800.0	1,799.7	1,795.7	1,795.7	3.9	3.9	89.19	89.19	-42.1	47.2	61.6	53.8	7.77	7.925	
1,900.0	1,899.4	1,894.4	1,894.4	4.1	4.0	94.79	94.79	-44.6	50.6	65.8	57.7	8.18	8.047	
2,000.0	1,998.9	1,992.9	1,992.6	4.4	4.2	100.33	100.33	-48.1	55.3	72.5	63.9	8.61	8.421	
2,100.0	2,098.3	2,091.1	2,090.5	4.6	4.4	105.39	105.39	-52.6	61.4	81.7	72.6	9.05	9.018	
2,200.0	2,197.5	2,189.1	2,188.0	4.9	4.7	109.39	109.39	-58.2	68.8	93.0	83.5	9.51	9.775	
2,300.0	2,296.7	2,286.8	2,285.2	5.1	4.9	111.92	111.92	-64.6	77.5	105.9	96.0	9.98	10.612	
2,400.0	2,396.0	2,385.5	2,383.1	5.4	5.1	113.53	113.53	-71.9	87.2	119.9	109.5	10.47	11.459	
2,500.0	2,495.2	2,484.4	2,481.3	5.7	5.4	114.80	114.80	-79.2	97.0	134.0	123.1	10.96	12.229	
2,600.0	2,594.5	2,583.4	2,579.5	6.0	5.6	115.82	115.82	-86.5	106.8	148.2	136.7	11.46	12.927	
2,700.0	2,693.7	2,682.3	2,677.7	6.3	5.9	116.66	116.66	-93.8	116.6	162.4	150.4	11.97	13.560	
2,800.0	2,792.9	2,781.3	2,775.9	6.5	6.2	117.37	117.37	-101.1	126.4	176.6	164.1	12.49	14.136	
2,900.0	2,892.2	2,880.3	2,874.1	6.8	6.4	117.98	117.98	-108.4	136.2	190.8	177.8	13.02	14.660	
3,000.0	2,991.4	2,979.2	2,972.3	7.1	6.7	118.50	118.50	-115.7	146.0	205.1	191.6	13.55	15.139	
3,100.0	3,090.7	3,078.2	3,070.5	7.4	7.0	118.95	118.95	-123.0	155.8	219.4	205.3	14.08	15.578	
3,200.0	3,189.9	3,177.2	3,168.7	7.7	7.3	119.34	119.34	-130.3	165.6	233.7	219.0	14.62	15.980	
3,300.0	3,289.2	3,276.1	3,266.9	8.0	7.6	119.70	119.70	-137.6	175.4	248.0	232.8	15.17	16.351	
3,400.0	3,388.4	3,375.1	3,365.1	8.3	7.9	120.01	120.01	-144.9	185.2	262.3	246.5	15.71	16.692	
3,500.0	3,487.6	3,474.0	3,463.3	8.6	8.2	120.29	120.29	-152.2	195.0	276.6	260.3	16.26	17.007	
3,600.0	3,586.9	3,573.0	3,561.5	8.9	8.5	120.54	120.54	-159.5	204.8	290.9	274.1	16.81	17.300	
3,700.0	3,686.1	3,672.0	3,659.7	9.2	8.8	120.77	120.77	-166.8	214.6	305.2	287.8	17.37	17.571	
3,800.0	3,785.4	3,770.9	3,757.9	9.5	9.1	120.98	120.98	-174.1	224.4	319.5	301.6	17.93	17.823	
3,900.0	3,884.6	3,869.9	3,856.1	9.8	9.4	121.17	121.17	-181.4	234.2	333.9	315.4	18.49	18.059	
4,000.0	3,983.8	3,968.9	3,954.3	10.1	9.7	121.35	121.35	-188.7	244.0	348.2	329.2	19.05	18.278	
4,100.0	4,083.1	4,067.8	4,052.6	10.5	10.0	121.51	121.51	-196.0	253.8	362.5	342.9	19.61	18.484	
4,200.0	4,182.3	4,166.8	4,150.8	10.8	10.3	121.66	121.66	-203.3	263.6	376.9	356.7	20.18	18.677	
4,300.0	4,281.6	4,265.7	4,249.0	11.1	10.6	121.79	121.79	-210.6	273.4	391.2	370.5	20.75	18.858	
4,400.0	4,380.8	4,364.7	4,347.2	11.4	10.9	121.92	121.92	-217.9	283.2	405.6	384.2	21.31	19.028	
4,500.0	4,480.0	4,463.7	4,445.4	11.7	11.2	122.04	122.04	-225.2	293.0	419.9	398.0	21.88	19.188	
4,600.0	4,579.3	4,562.6	4,543.6	12.0	11.5	122.15	122.15	-232.5	302.7	434.3	411.8	22.45	19.339	
4,700.0	4,678.5	4,661.6	4,641.8	12.3	11.8	122.26	122.26	-239.8	312.5	448.6	425.6	23.03	19.482	
4,800.0	4,777.8	4,760.5	4,740.0	12.6	12.1	122.35	122.35	-247.1	322.3	463.0	439.4	23.60	19.617	
4,900.0	4,877.0	4,859.5	4,838.2	12.9	12.5	122.45	122.45	-254.4	332.1	477.3	453.1	24.17	19.745	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1U-304
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4653.0ft (RKB - 13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4653.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1U-304	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (4-30-15)	Offset TVD Reference:	Offset Datum

Offset Design LDS 5N65W1U Pad Sec.1-T5N-R65W - LDS 1V-314 - Wellbore #1 - Plan #2 (4-30-15)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,976.3	4,958.5	4,936.4	13.3	12.8	122.53		-261.7	341.9	491.7	466.9	24.75	19.867	
5,100.0	5,075.5	5,057.4	5,034.6	13.6	13.1	122.62		-269.0	351.7	506.0	480.7	25.32	19.982	
5,200.0	5,174.7	5,156.4	5,132.8	13.9	13.4	122.69		-276.3	361.5	520.4	494.5	25.90	20.092	
5,300.0	5,274.0	5,266.5	5,242.3	14.2	13.7	122.91		-283.5	371.1	533.8	507.4	26.46	20.177	
5,400.0	5,373.2	5,378.8	5,354.3	14.5	13.9	123.51		-288.2	377.5	544.9	517.9	26.98	20.193	
5,500.0	5,472.8	5,491.5	5,466.9	14.7	14.1	124.29		-290.3	380.3	552.2	524.8	27.43	20.134	
5,600.0	5,572.6	5,595.2	5,570.6	14.9	14.3	124.89		-290.4	380.4	555.8	528.0	27.81	19.984	
5,700.0	5,672.5	5,695.1	5,670.5	15.1	14.5	125.14		-290.4	380.4	557.4	529.2	28.17	19.788	
5,800.0	5,772.5	5,795.1	5,770.5	15.3	14.6	-179.72		-290.4	380.4	557.4	530.4	26.99	20.651	
5,900.0	5,872.5	5,895.1	5,870.5	15.4	14.8	-179.72		-290.4	380.4	557.4	530.1	27.38	20.360	
6,000.0	5,972.5	5,995.1	5,970.5	15.6	15.0	-179.72		-290.4	380.4	557.4	529.7	27.77	20.077	
6,100.0	6,072.5	6,095.1	6,070.5	15.8	15.2	-179.72		-290.4	380.4	557.4	529.3	28.15	19.800	
6,200.0	6,172.4	6,194.9	6,170.2	16.0	15.3	-89.74		-290.4	377.5	557.4	527.5	29.96	18.609	
6,300.0	6,271.1	6,294.6	6,268.6	16.0	15.4	-89.77		-290.4	362.3	557.4	527.3	30.11	18.516	
6,400.0	6,367.0	6,394.3	6,364.3	16.0	15.4	-89.81		-290.4	334.4	557.4	527.3	30.14	18.492	
6,500.0	6,458.3	6,494.1	6,455.6	16.0	15.4	-89.85		-290.4	294.2	557.4	527.3	30.14	18.496	
6,600.0	6,543.5	6,593.9	6,540.9	15.9	15.4	-89.89		-290.4	242.5	557.4	527.2	30.19	18.462	
6,700.0	6,621.2	6,693.8	6,618.8	15.9	15.4	-89.94		-290.4	180.1	557.4	527.0	30.45	18.304	
6,800.0	6,690.0	6,793.7	6,687.9	16.0	15.6	-89.98		-290.4	108.0	557.4	526.3	31.09	17.930	
6,900.0	6,748.8	6,893.8	6,747.1	16.4	16.0	-90.03		-290.4	27.5	557.4	525.2	32.26	17.281	
7,000.0	6,796.6	6,993.8	6,795.2	17.2	16.8	-90.07		-290.4	-60.2	557.4	523.4	34.07	16.362	
7,008.0	6,799.9	7,001.9	6,798.6	17.3	16.9	-90.08		-290.4	-67.5	557.4	523.2	34.25	16.274	
7,100.0	6,832.4	7,093.9	6,831.6	18.4	18.1	-90.12		-290.4	-153.4	557.4	520.9	36.55	15.251	
7,200.0	6,855.8	7,194.1	6,855.4	20.0	19.7	-90.16		-290.4	-250.6	557.4	517.8	39.64	14.061	
7,300.0	6,866.3	7,294.4	6,866.3	21.7	21.5	-90.20		-290.4	-350.2	557.4	514.2	43.22	12.897	
7,400.0	6,866.0	7,394.5	6,866.3	23.7	23.5	-90.24		-290.4	-450.3	557.4	510.3	47.15	11.823	
7,500.0	6,864.4	7,494.5	6,865.2	25.8	25.7	-90.29		-290.4	-550.3	557.4	506.1	51.38	10.849	
7,600.0	6,862.8	7,594.5	6,864.1	28.0	27.9	-90.34		-290.4	-650.3	557.4	501.6	55.86	9.980	
7,700.0	6,861.2	7,694.5	6,863.0	30.3	30.3	-90.38		-290.4	-750.3	557.4	496.9	60.52	9.210	
7,800.0	6,859.7	7,794.5	6,861.9	32.7	32.7	-90.43		-290.4	-850.2	557.4	492.1	65.34	8.531	
7,900.0	6,858.1	7,894.5	6,860.8	35.2	35.2	-90.48		-290.4	-950.2	557.4	487.2	70.28	7.932	
8,000.0	6,856.5	7,994.5	6,859.6	37.7	37.7	-90.52		-290.4	-1,050.2	557.4	482.1	75.31	7.402	
8,100.0	6,855.0	8,094.5	6,858.5	40.2	40.3	-90.57		-290.4	-1,150.2	557.5	477.0	80.42	6.932	
8,200.0	6,853.4	8,194.5	6,857.4	42.8	42.9	-90.62		-290.4	-1,250.2	557.5	471.9	85.59	6.513	
8,300.0	6,851.8	8,294.5	6,856.3	45.4	45.5	-90.66		-290.4	-1,350.2	557.5	466.6	90.82	6.138	
8,400.0	6,850.2	8,394.5	6,855.2	48.0	48.2	-90.71		-290.4	-1,450.2	557.5	461.4	96.09	5.801	
8,500.0	6,848.7	8,494.5	6,854.0	50.7	50.8	-90.76		-290.4	-1,550.2	557.5	456.1	101.40	5.498	
8,600.0	6,847.1	8,594.5	6,852.9	53.3	53.5	-90.80		-290.4	-1,650.2	557.5	450.7	106.74	5.223	
8,700.0	6,845.5	8,694.5	6,851.8	56.0	56.2	-90.85		-290.4	-1,750.2	557.5	445.4	112.11	4.973	
8,800.0	6,844.0	8,794.5	6,850.7	58.7	58.9	-90.90		-290.4	-1,850.2	557.5	440.0	117.50	4.745	
8,900.0	6,842.4	8,894.4	6,849.6	61.4	61.6	-90.94		-290.4	-1,950.2	557.5	434.6	122.91	4.536	
9,000.0	6,840.8	8,994.4	6,848.5	64.1	64.3	-90.99		-290.4	-2,050.2	557.5	429.2	128.34	4.344	
9,100.0	6,839.3	9,094.4	6,847.3	66.8	67.0	-91.04		-290.4	-2,150.2	557.5	423.7	133.78	4.167	
9,200.0	6,837.7	9,194.4	6,846.2	69.5	69.8	-91.08		-290.4	-2,250.1	557.5	418.3	139.24	4.004	
9,300.0	6,836.1	9,294.4	6,845.1	72.3	72.5	-91.13		-290.4	-2,350.1	557.5	412.8	144.71	3.853	
9,400.0	6,834.5	9,394.4	6,844.0	75.0	75.3	-91.18		-290.4	-2,450.1	557.5	407.3	150.19	3.712	
9,500.0	6,833.0	9,494.4	6,842.9	77.8	78.0	-91.22		-290.4	-2,550.1	557.5	401.9	155.67	3.581	
9,600.0	6,831.4	9,594.4	6,841.8	80.5	80.8	-91.27		-290.4	-2,650.1	557.6	396.4	161.17	3.459	
9,700.0	6,829.8	9,694.4	6,840.6	83.3	83.5	-91.32		-290.4	-2,750.1	557.6	390.9	166.68	3.345	
9,800.0	6,828.3	9,794.4	6,839.5	86.0	86.3	-91.36		-290.4	-2,850.1	557.6	385.4	172.19	3.238	
9,900.0	6,826.7	9,894.4	6,838.4	88.8	89.0	-91.41		-290.4	-2,950.1	557.6	379.9	177.71	3.138	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1U-304
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4653.0ft (RKB - 13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4653.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1U-304	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (4-30-15)	Offset TVD Reference:	Offset Datum

Offset Design LDS 5N65W1U Pad Sec.1-T5N-R65W - LDS 1V-314 - Wellbore #1 - Plan #2 (4-30-15)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,000.0	6,825.1	9,994.4	6,837.3	91.5	91.8	-91.46	-290.4	-3,050.1	557.6	374.4	183.23	3.043		
10,100.0	6,823.5	10,094.4	6,836.2	94.3	94.6	-91.50	-290.4	-3,150.1	557.6	368.8	188.76	2.954		
10,200.0	6,822.0	10,194.4	6,835.1	97.1	97.3	-91.55	-290.4	-3,250.1	557.6	363.3	194.30	2.870		
10,300.0	6,820.4	10,294.4	6,833.9	99.8	100.1	-91.60	-290.4	-3,350.1	557.6	357.8	199.83	2.790		
10,400.0	6,818.8	10,394.4	6,832.8	102.6	102.9	-91.64	-290.4	-3,450.1	557.6	352.3	205.38	2.715		
10,500.0	6,817.3	10,494.4	6,831.7	105.4	105.7	-91.69	-290.4	-3,550.0	557.7	346.7	210.92	2.644		
10,600.0	6,815.7	10,594.4	6,830.6	108.2	108.4	-91.74	-290.4	-3,650.0	557.7	341.2	216.47	2.576		
10,700.0	6,814.1	10,694.4	6,829.5	110.9	111.2	-91.78	-290.4	-3,750.0	557.7	335.7	222.02	2.512		
10,800.0	6,812.6	10,794.4	6,828.4	113.7	114.0	-91.83	-290.4	-3,850.0	557.7	330.1	227.58	2.451		
10,900.0	6,811.0	10,894.4	6,827.2	116.5	116.8	-91.88	-290.4	-3,950.0	557.7	324.6	233.13	2.392		
11,000.0	6,809.4	10,994.4	6,826.1	119.3	119.6	-91.92	-290.4	-4,050.0	557.7	319.0	238.69	2.337		
11,100.0	6,807.8	11,094.4	6,825.0	122.1	122.4	-91.97	-290.4	-4,150.0	557.7	313.5	244.25	2.283		
11,200.0	6,806.3	11,194.4	6,823.9	124.8	125.1	-92.02	-290.4	-4,250.0	557.7	307.9	249.81	2.233		
11,300.0	6,804.7	11,294.4	6,822.8	127.6	127.9	-92.06	-290.4	-4,350.0	557.8	302.4	255.38	2.184		
11,400.0	6,803.1	11,394.4	6,821.7	130.4	130.7	-92.11	-290.4	-4,450.0	557.8	296.8	260.94	2.138		
11,500.0	6,801.6	11,494.4	6,820.5	133.2	133.5	-92.16	-290.4	-4,550.0	557.8	291.3	266.51	2.093		
11,600.0	6,800.0	11,594.4	6,819.4	136.0	136.3	-92.20	-290.4	-4,650.0	557.8	285.7	272.08	2.050		
11,700.0	6,798.4	11,694.4	6,818.3	138.8	139.1	-92.25	-290.4	-4,750.0	557.8	280.2	277.65	2.009		
11,800.0	6,796.8	11,794.4	6,817.2	141.6	141.9	-92.30	-290.4	-4,850.0	557.8	274.6	283.22	1.970		
11,900.0	6,795.3	11,894.4	6,816.1	144.4	144.7	-92.34	-290.4	-4,949.9	557.9	269.1	288.79	1.932		
12,000.0	6,793.7	11,994.4	6,815.0	147.1	147.5	-92.39	-290.4	-5,049.9	557.9	263.5	294.36	1.895		
12,100.0	6,792.1	12,094.4	6,813.8	149.9	150.3	-92.44	-290.4	-5,149.9	557.9	258.0	299.94	1.860		
12,200.0	6,790.6	12,194.4	6,812.7	152.7	153.1	-92.48	-290.4	-5,249.9	557.9	252.4	305.51	1.826		
12,300.0	6,789.0	12,294.4	6,811.6	155.5	155.8	-92.53	-290.4	-5,349.9	557.9	246.9	311.09	1.794		
12,400.0	6,787.4	12,394.4	6,810.5	158.3	158.6	-92.58	-290.4	-5,449.9	558.0	241.3	316.66	1.762		
12,500.0	6,785.8	12,494.4	6,809.4	161.1	161.4	-92.62	-290.4	-5,549.9	558.0	235.7	322.24	1.732		
12,600.0	6,784.3	12,594.4	6,808.3	163.9	164.2	-92.67	-290.4	-5,649.9	558.0	230.2	327.81	1.702		
12,700.0	6,782.7	12,694.4	6,807.1	166.7	167.0	-92.71	-290.4	-5,749.9	558.0	224.6	333.39	1.674		
12,800.0	6,781.1	12,794.4	6,806.0	169.5	169.8	-92.76	-290.4	-5,849.9	558.0	219.1	338.97	1.646		
12,900.0	6,779.6	12,894.4	6,804.9	172.3	172.6	-92.81	-290.4	-5,949.9	558.1	213.5	344.54	1.620		
13,000.0	6,778.0	12,994.4	6,803.8	175.1	175.4	-92.85	-290.4	-6,049.9	558.1	208.0	350.12	1.594		
13,100.0	6,776.4	13,094.4	6,802.7	177.9	178.2	-92.90	-290.4	-6,149.9	558.1	202.4	355.70	1.569		
13,200.0	6,774.9	13,194.4	6,801.6	180.7	181.0	-92.95	-290.4	-6,249.9	558.1	196.9	361.27	1.545		
13,300.0	6,773.3	13,294.4	6,800.4	183.5	183.8	-92.99	-290.4	-6,349.8	558.2	191.3	366.85	1.521		
13,400.0	6,771.7	13,394.4	6,799.3	186.3	186.6	-93.04	-290.4	-6,449.8	558.2	185.7	372.43	1.499 Level 3		
13,500.0	6,770.1	13,494.4	6,798.2	189.1	189.4	-93.09	-290.4	-6,549.8	558.2	180.2	378.01	1.477 Level 3		
13,600.0	6,768.6	13,594.4	6,797.1	191.9	192.2	-93.13	-290.4	-6,649.8	558.2	174.6	383.58	1.455 Level 3		
13,700.0	6,767.0	13,694.4	6,796.0	194.7	195.0	-93.18	-290.4	-6,749.8	558.2	169.1	389.16	1.434 Level 3		
13,800.0	6,765.4	13,794.4	6,794.8	197.5	197.8	-93.23	-290.4	-6,849.8	558.3	163.5	394.74	1.414 Level 3		
13,900.0	6,763.9	13,894.4	6,793.7	200.3	200.6	-93.27	-290.4	-6,949.8	558.3	158.0	400.32	1.395 Level 3		
13,954.6	6,763.0	13,949.0	6,793.1	201.8	202.1	-93.30	-290.4	-7,004.4	558.3	155.0	403.36	1.384 Level 3, SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1U-304
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4653.0ft (RKB - 13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4653.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1U-304	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (4-30-15)	Offset TVD Reference:	Offset Datum

Offset Design LDS F01-28D Sec.36-T6N-R65W - LDS F01-27 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7049-Reference													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
6,900.0	6,748.8	6,750.8	6,750.8	16.4	135.0	38.31	652.1	-885.2	990.5	876.2	114.31	8.665		
7,000.0	6,796.6	6,798.6	6,798.6	17.2	136.0	48.08	652.1	-885.2	910.3	787.5	122.74	7.416		
7,100.0	6,832.4	6,834.4	6,834.4	18.4	136.7	60.56	652.1	-885.2	826.7	689.1	137.64	6.006		
7,200.0	6,855.8	6,857.8	6,857.8	20.0	137.2	74.36	652.1	-885.2	742.1	590.3	151.77	4.890		
7,300.0	6,866.3	6,868.3	6,868.3	21.7	137.4	86.83	652.1	-885.2	659.2	500.3	158.87	4.149		
7,400.0	6,866.0	6,868.0	6,868.0	23.7	137.4	91.02	652.1	-885.2	581.0	420.0	160.95	3.610		
7,500.0	6,864.4	6,866.4	6,866.4	25.8	137.3	90.78	652.1	-885.2	510.4	347.4	163.02	3.131		
7,600.0	6,862.8	6,864.8	6,864.8	28.0	137.3	90.55	652.1	-885.2	451.2	286.0	165.22	2.731		
7,700.0	6,861.2	6,863.2	6,863.2	30.3	137.3	90.32	652.1	-885.2	408.1	240.6	167.51	2.436		
7,800.0	6,859.7	6,861.7	6,861.7	32.7	137.2	90.08	652.1	-885.2	386.7	216.9	169.88	2.277		
7,835.0	6,859.1	6,861.1	6,861.1	33.6	137.2	90.00	652.1	-885.2	385.1	214.4	170.73	2.256 CC, ES, SF		
7,900.0	6,858.1	6,860.1	6,860.1	35.2	137.2	89.85	652.1	-885.2	390.6	218.3	172.31	2.267		
8,000.0	6,856.5	6,858.5	6,858.5	37.7	137.2	89.61	652.1	-885.2	419.0	244.2	174.78	2.397		
8,100.0	6,855.0	6,857.0	6,857.0	40.2	137.1	89.38	652.1	-885.2	467.5	290.2	177.29	2.637		
8,200.0	6,853.4	6,855.4	6,855.4	42.8	137.1	89.15	652.1	-885.2	530.6	350.7	179.83	2.950		
8,300.0	6,851.8	6,853.8	6,853.8	45.4	137.1	88.91	652.1	-885.2	603.7	421.3	182.40	3.310		
8,400.0	6,850.2	6,852.2	6,852.2	48.0	137.0	88.68	652.1	-885.2	683.7	498.7	184.98	3.696		
8,500.0	6,848.7	6,850.7	6,850.7	50.7	137.0	88.45	652.1	-885.2	768.4	580.8	187.58	4.096		
8,600.0	6,847.1	6,849.1	6,849.1	53.3	137.0	88.21	652.1	-885.2	856.4	666.2	190.20	4.503		
8,700.0	6,845.5	6,847.5	6,847.5	56.0	137.0	87.98	652.1	-885.2	946.7	753.9	192.82	4.910		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1U-304
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4653.0ft (RKB - 13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4653.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1U-304	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (4-30-15)	Offset TVD Reference:	Offset Datum

Offset Design LDS F01-28D Sec.36-T6N-R65W - LDS F01-28D - LDS F01-28D - LDS F01-28D													Offset Site Error:	0.0 ft
Survey Program: 612-Reference													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Semi Major Axis 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	
8,200.0	6,853.4	7,049.7	6,872.6	42.8	27.0	96.22	552.9	-2,135.8	930.8	861.6	69.18	13.455		
8,300.0	6,851.8	7,046.2	6,869.1	45.4	26.9	95.52	552.9	-2,135.8	836.2	764.4	71.85	11.638		
8,400.0	6,850.2	7,042.6	6,865.6	48.0	26.9	94.82	552.9	-2,135.9	743.1	668.6	74.55	9.968		
8,500.0	6,848.7	7,039.0	6,862.0	50.7	26.9	94.10	552.9	-2,136.0	652.0	574.7	77.27	8.438		
8,600.0	6,847.1	7,035.4	6,858.4	53.3	26.9	93.38	552.8	-2,136.1	563.9	483.9	79.99	7.049		
8,700.0	6,845.5	7,031.7	6,854.7	56.0	26.9	92.65	552.8	-2,136.2	480.4	397.7	82.72	5.808		
8,800.0	6,844.0	7,028.0	6,851.0	58.7	26.9	91.90	552.8	-2,136.2	404.5	319.0	85.46	4.733		
8,900.0	6,842.4	7,024.3	6,847.2	61.4	26.9	91.15	552.8	-2,136.3	341.1	253.0	88.19	3.868		
9,000.0	6,840.8	7,020.5	6,843.4	64.1	26.9	90.39	552.8	-2,136.4	298.5	207.6	90.92	3.283		
9,086.5	6,839.5	7,017.1	6,840.1	66.5	26.9	89.73	552.8	-2,136.5	285.8	192.5	93.28	3.064 CC		
9,100.0	6,839.3	7,016.6	6,839.6	66.8	26.9	89.62	552.8	-2,136.5	286.1	192.4	93.65	3.055 ES, SF		
9,200.0	6,837.7	7,012.7	6,835.7	69.5	26.9	88.84	552.7	-2,136.6	307.5	211.1	96.37	3.191		
9,300.0	6,836.1	7,008.8	6,831.8	72.3	26.9	88.06	552.7	-2,136.7	356.6	257.6	99.07	3.600		
9,400.0	6,834.5	7,004.8	6,827.8	75.0	26.9	87.26	552.7	-2,136.8	424.1	322.3	101.76	4.167		
9,500.0	6,833.0	7,000.8	6,823.8	77.8	26.9	86.46	552.7	-2,136.9	502.4	398.0	104.43	4.811		
9,600.0	6,831.4	6,996.9	6,819.8	80.5	26.9	85.67	552.7	-2,137.0	587.4	480.3	107.09	5.485		
9,700.0	6,829.8	6,993.1	6,816.1	83.3	26.9	84.92	552.6	-2,137.0	676.4	566.7	109.73	6.164		
9,800.0	6,828.3	6,989.4	6,812.3	86.0	26.9	84.18	552.6	-2,137.1	768.1	655.8	112.36	6.836		
9,900.0	6,826.7	6,985.7	6,808.7	88.8	26.9	83.46	552.6	-2,137.2	861.7	746.7	114.97	7.495		
10,000.0	6,825.1	6,982.1	6,805.1	91.5	26.9	82.74	552.6	-2,137.3	956.5	839.0	117.56	8.137		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1U-304
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4653.0ft (RKB - 13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4653.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1U-304	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (4-30-15)	Offset TVD Reference:	Offset Datum

Offset Design LDS F01-30D Sec.36-T6N-R65W - LDS F01-30D - LDS F01-30D - LDS F01-30D													Offset Site Error:	0.0 ft
Survey Program: 611-Reference													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
10,800.0	6,812.6	7,007.1	6,828.3	113.7	25.9	94.54	509.8	-4,775.2	956.7	827.1	129.63	7.380		
10,900.0	6,811.0	7,005.6	6,826.8	116.5	25.9	94.20	509.9	-4,775.2	860.4	728.0	132.45	6.496		
11,000.0	6,809.4	7,004.2	6,825.4	119.3	25.9	93.85	509.9	-4,775.2	765.0	629.8	135.26	5.656		
11,100.0	6,807.8	7,002.6	6,823.8	122.1	25.9	93.49	509.9	-4,775.2	671.0	532.9	138.07	4.860		
11,200.0	6,806.3	7,001.1	6,822.3	124.8	25.9	93.12	510.0	-4,775.2	578.9	438.0	140.88	4.109		
11,300.0	6,804.7	6,999.6	6,820.8	127.6	25.9	92.77	510.0	-4,775.2	490.0	346.3	143.69	3.410		
11,400.0	6,803.1	6,998.1	6,819.3	130.4	25.9	92.43	510.0	-4,775.2	406.2	259.7	146.49	2.773		
11,500.0	6,801.6	6,996.7	6,817.9	133.2	25.9	92.09	510.1	-4,775.2	331.6	182.3	149.29	2.221		
11,600.0	6,800.0	6,995.3	6,816.5	136.0	25.9	91.76	510.1	-4,775.2	273.7	121.6	152.09	1.799		
11,700.0	6,798.4	6,993.9	6,815.1	138.8	25.9	91.43	510.1	-4,775.2	244.6	89.7	154.89	1.579		
11,725.4	6,798.0	6,993.5	6,814.8	139.5	25.9	91.35	510.2	-4,775.2	243.3	87.7	155.60	1.563 CC, ES, SF		
11,800.0	6,796.8	6,992.5	6,813.8	141.6	25.8	91.12	510.2	-4,775.2	254.4	96.8	157.68	1.614		
11,900.0	6,795.3	6,991.2	6,812.5	144.4	25.8	90.81	510.2	-4,775.2	299.4	138.9	160.47	1.866		
12,000.0	6,793.7	6,989.9	6,811.2	147.1	25.8	90.51	510.2	-4,775.2	366.8	203.6	163.26	2.247		
12,100.0	6,792.1	6,988.7	6,809.9	149.9	25.8	90.21	510.3	-4,775.2	446.6	280.6	166.04	2.690		
12,200.0	6,790.6	6,987.5	6,808.7	152.7	25.8	89.92	510.3	-4,775.2	533.3	364.5	168.83	3.159		
12,300.0	6,789.0	6,986.3	6,807.5	155.5	25.8	89.64	510.3	-4,775.2	623.9	452.3	171.60	3.636		
12,400.0	6,787.4	6,985.1	6,806.3	158.3	25.8	89.36	510.4	-4,775.2	717.1	542.7	174.38	4.112		
12,500.0	6,785.8	6,983.9	6,805.2	161.1	25.8	89.09	510.4	-4,775.2	811.8	634.7	177.15	4.583		
12,600.0	6,784.3	6,982.8	6,804.0	163.9	25.8	88.83	510.4	-4,775.2	907.7	727.8	179.92	5.045		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1U-304
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4653.0ft (RKB - 13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4653.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1U-304	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (4-30-15)	Offset TVD Reference:	Offset Datum

Offset Design Noffsinger Pad Sec.2-T5N-R65W - Noffsinger 2RD - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 699-MWD												Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
12,200.0	6,790.6	6,985.4	6,849.4	152.7	22.4	114.94	408.8	-6,150.7	913.6	760.9	152.64	5.985	
12,300.0	6,789.0	6,977.7	6,841.7	155.5	22.4	112.38	408.6	-6,151.1	815.2	657.1	158.07	5.157	
12,400.0	6,787.4	6,970.0	6,834.0	158.3	22.4	109.71	408.4	-6,151.6	717.2	553.7	163.43	4.388	
12,500.0	6,785.8	6,962.3	6,826.3	161.1	22.4	106.92	408.1	-6,152.1	619.7	451.0	168.65	3.674	
12,600.0	6,784.3	6,954.5	6,818.6	163.9	22.4	104.03	407.9	-6,152.6	523.1	349.4	173.67	3.012	
12,700.0	6,782.7	6,946.7	6,810.8	166.7	22.4	101.04	407.7	-6,153.1	427.8	249.4	178.41	2.398	
12,800.0	6,781.1	6,938.8	6,803.0	169.5	22.4	97.94	407.4	-6,153.6	335.2	152.4	182.82	1.833	
12,900.0	6,779.6	6,930.9	6,795.1	172.3	22.3	94.78	407.2	-6,154.0	248.1	61.3	186.80	1.328	Level 3
13,000.0	6,778.0	6,923.1	6,787.3	175.1	22.3	91.61	407.0	-6,154.5	175.0	-15.3	190.29	0.920	Level 1
13,100.0	6,776.4	6,915.4	6,779.6	177.9	22.3	88.46	406.7	-6,155.0	139.9	-53.3	193.25	0.724	Level 1
13,105.5	6,776.3	6,915.0	6,779.2	178.0	22.3	88.29	406.7	-6,155.0	139.8	-53.6	193.40	0.723	Level 1, CC, ES, SF
13,200.0	6,774.9	6,907.7	6,771.9	180.7	22.3	85.34	406.5	-6,155.5	168.6	-27.1	195.68	0.861	Level 1
13,300.0	6,773.3	6,900.2	6,764.4	183.5	22.3	82.27	406.3	-6,155.9	239.0	41.4	197.58	1.210	Level 2
13,400.0	6,771.7	6,892.7	6,756.9	186.3	22.3	79.26	406.0	-6,156.4	325.2	126.2	198.96	1.634	
13,500.0	6,770.1	6,885.3	6,749.5	189.1	22.3	76.33	405.8	-6,156.8	417.4	217.6	199.84	2.089	
13,600.0	6,768.6	6,878.0	6,742.2	191.9	22.3	73.50	405.6	-6,157.3	512.5	312.2	200.27	2.559	
13,700.0	6,767.0	6,870.7	6,735.0	194.7	22.3	70.76	405.4	-6,157.7	609.0	408.7	200.29	3.041	
13,800.0	6,765.4	6,863.5	6,727.8	197.5	22.2	68.14	405.2	-6,158.1	706.4	506.5	199.95	3.533	
13,900.0	6,763.9	6,856.4	6,720.7	200.3	22.2	65.62	405.0	-6,158.5	804.4	605.1	199.29	4.036	
13,954.6	6,763.0	6,852.6	6,716.9	201.8	22.2	64.29	404.9	-6,158.8	858.1	659.3	198.82	4.316	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1U-304
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4653.0ft (RKB - 13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4653.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1U-304	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (4-30-15)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4653.0ft (RKB - 13')

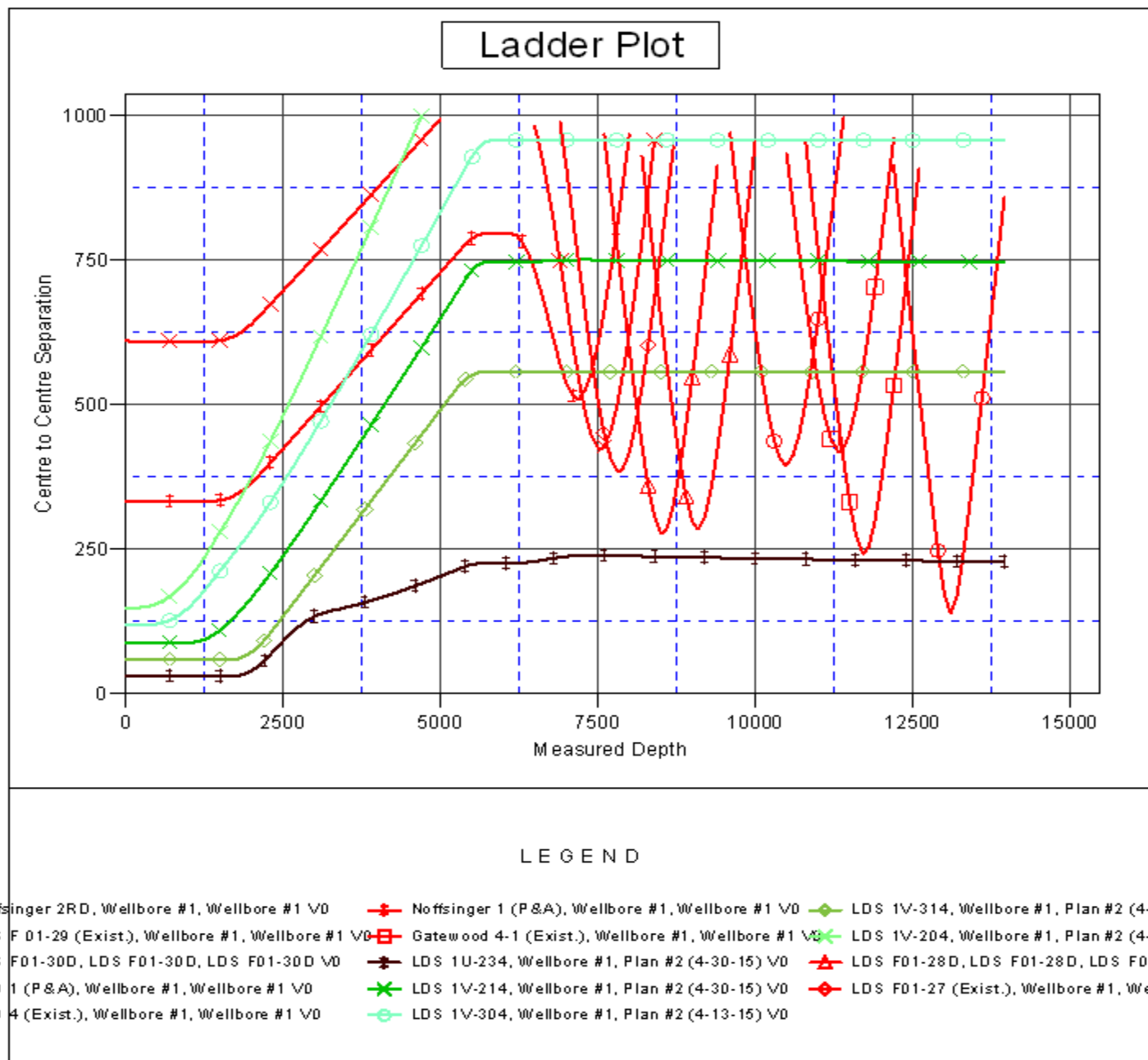
Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: LDS 1U-304

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.58°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1U-304
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4653.0ft (RKB - 13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4653.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1U-304	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (4-30-15)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4653.0ft (RKB - 13')

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: LDS 1U-304

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.58°

