

PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: LDS 1V-314

Surface Location: LDS 5N65W1U Pad Sec.1-T5N-R65W

North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 4638.0

+N/-S

+E/-W

Northing

Easting

Latitude

Longitude

Slot

0.0

0.0

1402128.95

3249661.65

40.433780

-104.603120

RKB -13' WELL @ 4651.0ft (RKB -13')

WELLBORE TARGET DETAILS				
Name	TVD	+N/-S	+E/-W	Shape
50' E/W Hardline (1V-314)	1.0	-250.4	-3748.2	Rectangle (Sides: L6623.3 W100.0)
SHL 488'FNL & 389'FEL, Sec.1	1.0	0.0	0.0	Point
BHL 745'FNL & 2145'FEL, Sec.2	6793.0	-250.4	-7059.9	Point

T

M

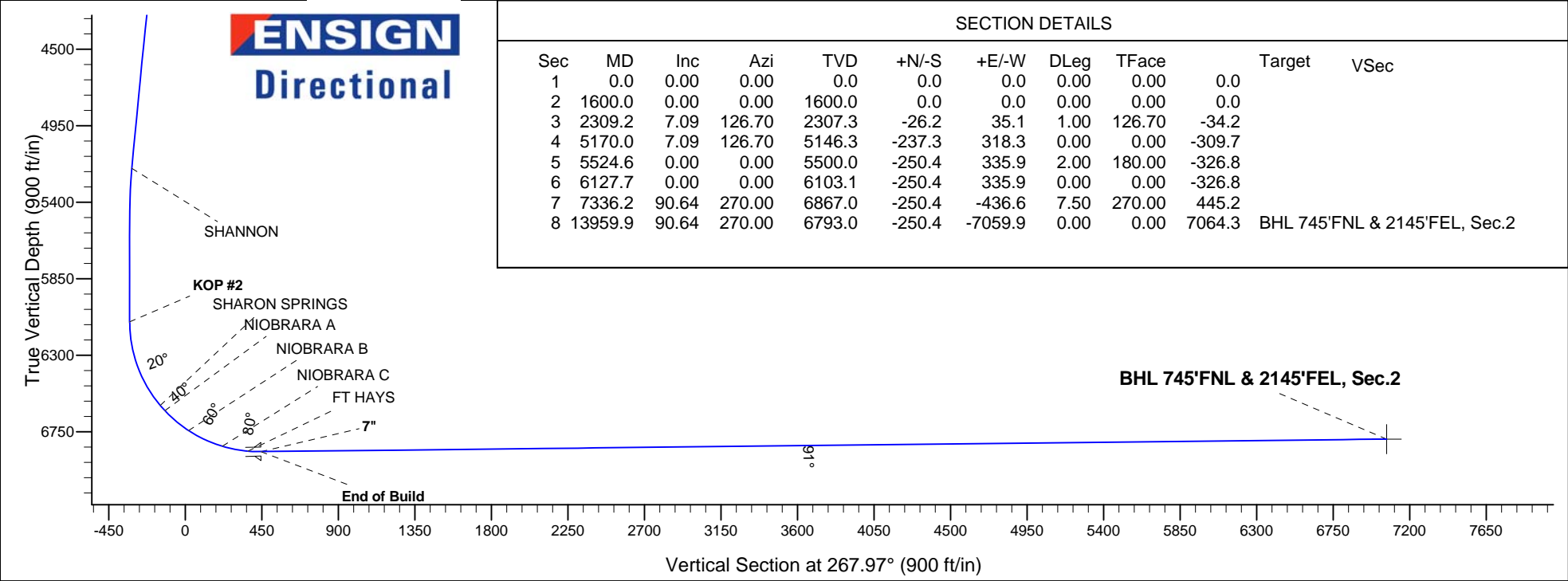
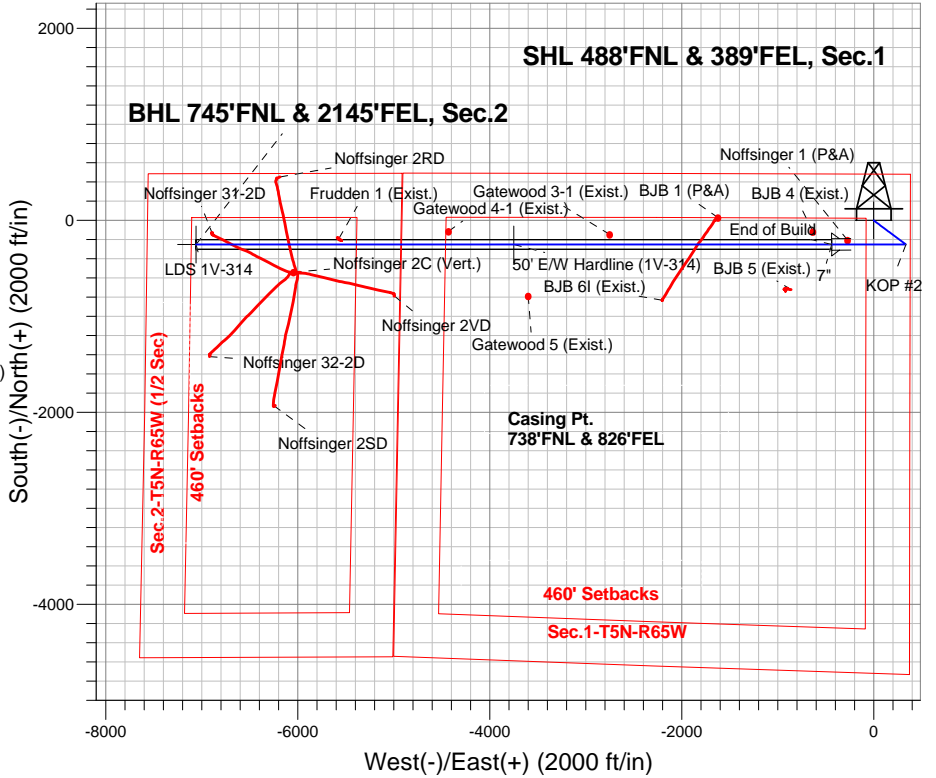
Azimuths to True North
Magnetic North: 8.26°

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

ANNOTATIONS

TVD	MD	Annotation
1600.0	1600.0	KOP #1
6103.1	6127.7	KOP #2
6867.0	7336.2	End of Build

LDS 5N65W1U Pad Sec.1-T5N-R65W
LDS 1V-314
Plan #2 (4-30-15)





PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.1-T5N-R65W

LDS 5N65W1U Pad Sec.1-T5N-R65W

LDS 1V-314

Wellbore #1

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

Standard Planning Report

30 April, 2015

Database:	Landmark	Local Co-ordinate Reference:	Well LDS 1V-314
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4651.0ft (RKB -13')
Project:	SEC.1-T5N-R65W	MD Reference:	WELL @ 4651.0ft (RKB -13')
Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	North Reference:	True
Well:	LDS 1V-314	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 1V-314					
Well Position	+N/-S	65.6 ft	Northing:	1,402,128.95 ft	Latitude:	40.433780
	+E/-W	-61.2 ft	Easting:	3,249,661.65 ft	Longitude:	-104.603120
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,638.0 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	267.97

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	
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,309.2	7.09	126.70	2,307.3	-26.2	35.1	1.00	1.00	0.00	126.70	
5,170.0	7.09	126.70	5,146.3	-237.3	318.3	0.00	0.00	0.00	0.00	
5,524.6	0.00	0.00	5,500.0	-250.4	335.9	2.00	-2.00	0.00	180.00	
6,127.7	0.00	0.00	6,103.1	-250.4	335.9	0.00	0.00	0.00	0.00	
7,336.2	90.64	270.00	6,867.0	-250.4	-436.6	7.50	7.50	0.00	270.00	
13,959.9	90.64	270.00	6,793.0	-250.4	-7,059.9	0.00	0.00	0.00	0.00	BHL 745'FNL & 214

Database:	Landmark	Local Co-ordinate Reference:	Well LDS 1V-314
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4651.0ft (RKB -13')
Project:	SEC.1-T5N-R65W	MD Reference:	WELL @ 4651.0ft (RKB -13')
Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	North Reference:	True
Well:	LDS 1V-314	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
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP #1									
1,700.0	1.00	126.70	1,700.0	-0.5	0.7	-0.7	1.00	1.00	0.00
1,800.0	2.00	126.70	1,800.0	-2.1	2.8	-2.7	1.00	1.00	0.00
1,900.0	3.00	126.70	1,899.9	-4.7	6.3	-6.1	1.00	1.00	0.00
2,000.0	4.00	126.70	1,999.7	-8.3	11.2	-10.9	1.00	1.00	0.00
2,100.0	5.00	126.70	2,099.4	-13.0	17.5	-17.0	1.00	1.00	0.00
2,200.0	6.00	126.70	2,198.9	-18.8	25.2	-24.5	1.00	1.00	0.00
2,300.0	7.00	126.70	2,298.3	-25.5	34.2	-33.3	1.00	1.00	0.00
2,309.2	7.09	126.70	2,307.3	-26.2	35.1	-34.2	1.00	1.00	0.00
2,400.0	7.09	126.70	2,397.5	-32.9	44.1	-42.9	0.00	0.00	0.00
2,500.0	7.09	126.70	2,496.7	-40.3	54.0	-52.6	0.00	0.00	0.00
2,600.0	7.09	126.70	2,596.0	-47.6	63.9	-62.2	0.00	0.00	0.00
2,700.0	7.09	126.70	2,695.2	-55.0	73.8	-71.8	0.00	0.00	0.00
2,800.0	7.09	126.70	2,794.4	-62.4	83.7	-81.5	0.00	0.00	0.00
2,900.0	7.09	126.70	2,893.7	-69.8	93.6	-91.1	0.00	0.00	0.00
3,000.0	7.09	126.70	2,992.9	-77.2	103.5	-100.7	0.00	0.00	0.00
3,100.0	7.09	126.70	3,092.1	-84.5	113.4	-110.4	0.00	0.00	0.00
3,200.0	7.09	126.70	3,191.4	-91.9	123.3	-120.0	0.00	0.00	0.00
3,300.0	7.09	126.70	3,290.6	-99.3	133.2	-129.6	0.00	0.00	0.00
3,400.0	7.09	126.70	3,389.8	-106.7	143.1	-139.3	0.00	0.00	0.00
3,496.9	7.09	126.70	3,486.0	-113.8	152.7	-148.6	0.00	0.00	0.00
PARKMAN									
3,500.0	7.09	126.70	3,489.1	-114.0	153.0	-148.9	0.00	0.00	0.00
3,600.0	7.09	126.70	3,588.3	-121.4	162.9	-158.5	0.00	0.00	0.00
3,700.0	7.09	126.70	3,687.6	-128.8	172.8	-168.1	0.00	0.00	0.00
3,800.0	7.09	126.70	3,786.8	-136.2	182.7	-177.8	0.00	0.00	0.00
3,900.0	7.09	126.70	3,886.0	-143.6	192.6	-187.4	0.00	0.00	0.00
4,000.0	7.09	126.70	3,985.3	-150.9	202.5	-197.0	0.00	0.00	0.00
4,100.0	7.09	126.70	4,084.5	-158.3	212.4	-206.7	0.00	0.00	0.00
4,200.0	7.09	126.70	4,183.7	-165.7	222.3	-216.3	0.00	0.00	0.00
4,260.7	7.09	126.70	4,244.0	-170.2	228.3	-222.1	0.00	0.00	0.00
SUSSEX									
4,300.0	7.09	126.70	4,283.0	-173.1	232.2	-225.9	0.00	0.00	0.00
4,400.0	7.09	126.70	4,382.2	-180.4	242.1	-235.6	0.00	0.00	0.00
4,500.0	7.09	126.70	4,481.4	-187.8	252.0	-245.2	0.00	0.00	0.00
4,600.0	7.09	126.70	4,580.7	-195.2	261.9	-254.8	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well LDS 1V-314
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4651.0ft (RKB -13')
Project:	SEC.1-T5N-R65W	MD Reference:	WELL @ 4651.0ft (RKB -13')
Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	North Reference:	True
Well:	LDS 1V-314	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	7.09	126.70	4,679.9	-202.6	271.8	-264.5	0.00	0.00	0.00
4,800.0	7.09	126.70	4,779.1	-210.0	281.7	-274.1	0.00	0.00	0.00
4,900.0	7.09	126.70	4,878.4	-217.3	291.6	-283.7	0.00	0.00	0.00
5,000.0	7.09	126.70	4,977.6	-224.7	301.5	-293.3	0.00	0.00	0.00
5,100.0	7.09	126.70	5,076.8	-232.1	311.4	-303.0	0.00	0.00	0.00
5,170.0	7.09	126.70	5,146.3	-237.3	318.3	-309.7	0.00	0.00	0.00
5,200.0	6.49	126.70	5,176.1	-239.4	321.2	-312.5	2.00	-2.00	0.00
5,224.0	6.01	126.70	5,200.0	-240.9	323.3	-314.5	2.00	-2.00	0.00
SHANNON									
5,300.0	4.49	126.70	5,275.6	-245.1	328.8	-320.0	2.00	-2.00	0.00
5,400.0	2.49	126.70	5,375.4	-248.7	333.7	-324.7	2.00	-2.00	0.00
5,500.0	0.49	126.70	5,475.4	-250.3	335.8	-326.7	2.00	-2.00	0.00
5,524.6	0.00	0.00	5,500.0	-250.4	335.9	-326.8	2.00	-2.00	0.00
5,600.0	0.00	0.00	5,575.4	-250.4	335.9	-326.8	0.00	0.00	0.00
5,700.0	0.00	0.00	5,675.4	-250.4	335.9	-326.8	0.00	0.00	0.00
5,800.0	0.00	0.00	5,775.4	-250.4	335.9	-326.8	0.00	0.00	0.00
5,900.0	0.00	0.00	5,875.4	-250.4	335.9	-326.8	0.00	0.00	0.00
6,000.0	0.00	0.00	5,975.4	-250.4	335.9	-326.8	0.00	0.00	0.00
6,100.0	0.00	0.00	6,075.4	-250.4	335.9	-326.8	0.00	0.00	0.00
6,127.7	0.00	0.00	6,103.1	-250.4	335.9	-326.8	0.00	0.00	0.00
KOP #2									
6,200.0	5.42	270.00	6,175.3	-250.4	332.5	-323.4	7.50	7.50	0.00
6,300.0	12.92	270.00	6,273.9	-250.4	316.5	-307.5	7.50	7.50	0.00
6,400.0	20.42	270.00	6,369.7	-250.4	287.9	-278.8	7.50	7.50	0.00
6,500.0	27.92	270.00	6,460.8	-250.4	247.0	-237.9	7.50	7.50	0.00
6,600.0	35.42	270.00	6,545.9	-250.4	194.5	-185.5	7.50	7.50	0.00
6,662.1	40.08	270.00	6,595.0	-250.4	156.5	-147.5	7.50	7.50	0.00
SHARON SPRINGS									
6,700.0	42.92	270.00	6,623.4	-250.4	131.4	-122.4	7.50	7.50	0.00
6,703.6	43.20	270.00	6,626.0	-250.4	128.9	-119.9	7.50	7.50	0.00
NIOBRARA A									
6,800.0	50.42	270.00	6,691.9	-250.4	58.7	-49.8	7.50	7.50	0.00
6,886.2	56.89	270.00	6,743.0	-250.4	-10.8	19.6	7.50	7.50	0.00
NIOBRARA B									
6,900.0	57.92	270.00	6,750.4	-250.4	-22.3	31.2	7.50	7.50	0.00
7,000.0	65.42	270.00	6,797.8	-250.4	-110.3	119.1	7.50	7.50	0.00
7,100.0	72.92	270.00	6,833.4	-250.4	-203.7	212.5	7.50	7.50	0.00
7,105.7	73.35	270.00	6,835.0	-250.4	-209.1	217.9	7.50	7.50	0.00
NIOBRARA C									
7,200.0	80.42	270.00	6,856.4	-250.4	-300.9	309.6	7.50	7.50	0.00
7,259.6	84.89	270.00	6,864.0	-250.4	-360.0	368.7	7.50	7.50	0.00
FT HAYS									
7,300.0	87.92	270.00	6,866.5	-250.4	-400.4	409.0	7.50	7.50	0.00
7,336.2	90.64	270.00	6,867.0	-250.4	-436.6	445.2	7.50	7.50	0.00
End of Build - 7"									
7,400.0	90.64	270.00	6,866.3	-250.4	-500.4	508.9	0.00	0.00	0.00
7,500.0	90.64	270.00	6,865.2	-250.4	-600.3	608.8	0.00	0.00	0.00
7,600.0	90.64	270.00	6,864.0	-250.4	-700.3	708.8	0.00	0.00	0.00
7,700.0	90.64	270.00	6,862.9	-250.4	-800.3	808.7	0.00	0.00	0.00
7,800.0	90.64	270.00	6,861.8	-250.4	-900.3	908.6	0.00	0.00	0.00
7,900.0	90.64	270.00	6,860.7	-250.4	-1,000.3	1,008.6	0.00	0.00	0.00
8,000.0	90.64	270.00	6,859.6	-250.4	-1,100.3	1,108.5	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well LDS 1V-314
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4651.0ft (RKB -13')
Project:	SEC.1-T5N-R65W	MD Reference:	WELL @ 4651.0ft (RKB -13')
Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	North Reference:	True
Well:	LDS 1V-314	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	90.64	270.00	6,858.5	-250.4	-1,200.3	1,208.4	0.00	0.00	0.00
8,200.0	90.64	270.00	6,857.3	-250.4	-1,300.3	1,308.4	0.00	0.00	0.00
8,300.0	90.64	270.00	6,856.2	-250.4	-1,400.3	1,408.3	0.00	0.00	0.00
8,400.0	90.64	270.00	6,855.1	-250.4	-1,500.3	1,508.2	0.00	0.00	0.00
8,500.0	90.64	270.00	6,854.0	-250.4	-1,600.3	1,608.1	0.00	0.00	0.00
8,600.0	90.64	270.00	6,852.9	-250.4	-1,700.3	1,708.1	0.00	0.00	0.00
8,700.0	90.64	270.00	6,851.8	-250.4	-1,800.3	1,808.0	0.00	0.00	0.00
8,800.0	90.64	270.00	6,850.6	-250.4	-1,900.3	1,907.9	0.00	0.00	0.00
8,900.0	90.64	270.00	6,849.5	-250.4	-2,000.3	2,007.9	0.00	0.00	0.00
9,000.0	90.64	270.00	6,848.4	-250.4	-2,100.3	2,107.8	0.00	0.00	0.00
9,100.0	90.64	270.00	6,847.3	-250.4	-2,200.2	2,207.7	0.00	0.00	0.00
9,200.0	90.64	270.00	6,846.2	-250.4	-2,300.2	2,307.7	0.00	0.00	0.00
9,300.0	90.64	270.00	6,845.1	-250.4	-2,400.2	2,407.6	0.00	0.00	0.00
9,400.0	90.64	270.00	6,843.9	-250.4	-2,500.2	2,507.5	0.00	0.00	0.00
9,500.0	90.64	270.00	6,842.8	-250.4	-2,600.2	2,607.5	0.00	0.00	0.00
9,600.0	90.64	270.00	6,841.7	-250.4	-2,700.2	2,707.4	0.00	0.00	0.00
9,700.0	90.64	270.00	6,840.6	-250.4	-2,800.2	2,807.3	0.00	0.00	0.00
9,800.0	90.64	270.00	6,839.5	-250.4	-2,900.2	2,907.3	0.00	0.00	0.00
9,900.0	90.64	270.00	6,838.3	-250.4	-3,000.2	3,007.2	0.00	0.00	0.00
10,000.0	90.64	270.00	6,837.2	-250.4	-3,100.2	3,107.1	0.00	0.00	0.00
10,100.0	90.64	270.00	6,836.1	-250.4	-3,200.2	3,207.0	0.00	0.00	0.00
10,200.0	90.64	270.00	6,835.0	-250.4	-3,300.2	3,307.0	0.00	0.00	0.00
10,300.0	90.64	270.00	6,833.9	-250.4	-3,400.2	3,406.9	0.00	0.00	0.00
10,400.0	90.64	270.00	6,832.8	-250.4	-3,500.2	3,506.8	0.00	0.00	0.00
10,500.0	90.64	270.00	6,831.6	-250.4	-3,600.2	3,606.8	0.00	0.00	0.00
10,600.0	90.64	270.00	6,830.5	-250.4	-3,700.2	3,706.7	0.00	0.00	0.00
10,700.0	90.64	270.00	6,829.4	-250.4	-3,800.1	3,806.6	0.00	0.00	0.00
10,800.0	90.64	270.00	6,828.3	-250.4	-3,900.1	3,906.6	0.00	0.00	0.00
10,900.0	90.64	270.00	6,827.2	-250.4	-4,000.1	4,006.5	0.00	0.00	0.00
11,000.0	90.64	270.00	6,826.1	-250.4	-4,100.1	4,106.4	0.00	0.00	0.00
11,100.0	90.64	270.00	6,824.9	-250.4	-4,200.1	4,206.4	0.00	0.00	0.00
11,200.0	90.64	270.00	6,823.8	-250.4	-4,300.1	4,306.3	0.00	0.00	0.00
11,300.0	90.64	270.00	6,822.7	-250.4	-4,400.1	4,406.2	0.00	0.00	0.00
11,400.0	90.64	270.00	6,821.6	-250.4	-4,500.1	4,506.1	0.00	0.00	0.00
11,500.0	90.64	270.00	6,820.5	-250.4	-4,600.1	4,606.1	0.00	0.00	0.00
11,600.0	90.64	270.00	6,819.4	-250.4	-4,700.1	4,706.0	0.00	0.00	0.00
11,700.0	90.64	270.00	6,818.2	-250.4	-4,800.1	4,805.9	0.00	0.00	0.00
11,800.0	90.64	270.00	6,817.1	-250.4	-4,900.1	4,905.9	0.00	0.00	0.00
11,900.0	90.64	270.00	6,816.0	-250.4	-5,000.1	5,005.8	0.00	0.00	0.00
12,000.0	90.64	270.00	6,814.9	-250.4	-5,100.1	5,105.7	0.00	0.00	0.00
12,100.0	90.64	270.00	6,813.8	-250.4	-5,200.1	5,205.7	0.00	0.00	0.00
12,200.0	90.64	270.00	6,812.7	-250.4	-5,300.1	5,305.6	0.00	0.00	0.00
12,300.0	90.64	270.00	6,811.5	-250.4	-5,400.0	5,405.5	0.00	0.00	0.00
12,400.0	90.64	270.00	6,810.4	-250.4	-5,500.0	5,505.5	0.00	0.00	0.00
12,500.0	90.64	270.00	6,809.3	-250.4	-5,600.0	5,605.4	0.00	0.00	0.00
12,600.0	90.64	270.00	6,808.2	-250.4	-5,700.0	5,705.3	0.00	0.00	0.00
12,700.0	90.64	270.00	6,807.1	-250.4	-5,800.0	5,805.2	0.00	0.00	0.00
12,800.0	90.64	270.00	6,806.0	-250.4	-5,900.0	5,905.2	0.00	0.00	0.00
12,900.0	90.64	270.00	6,804.8	-250.4	-6,000.0	6,005.1	0.00	0.00	0.00
13,000.0	90.64	270.00	6,803.7	-250.4	-6,100.0	6,105.0	0.00	0.00	0.00
13,100.0	90.64	270.00	6,802.6	-250.4	-6,200.0	6,205.0	0.00	0.00	0.00
13,200.0	90.64	270.00	6,801.5	-250.4	-6,300.0	6,304.9	0.00	0.00	0.00
13,300.0	90.64	270.00	6,800.4	-250.4	-6,400.0	6,404.8	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well LDS 1V-314
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4651.0ft (RKB -13')
Project:	SEC.1-T5N-R65W	MD Reference:	WELL @ 4651.0ft (RKB -13')
Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	North Reference:	True
Well:	LDS 1V-314	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	90.64	270.00	6,799.3	-250.4	-6,500.0	6,504.8	0.00	0.00	0.00
13,500.0	90.64	270.00	6,798.1	-250.4	-6,600.0	6,604.7	0.00	0.00	0.00
13,600.0	90.64	270.00	6,797.0	-250.4	-6,700.0	6,704.6	0.00	0.00	0.00
13,700.0	90.64	270.00	6,795.9	-250.4	-6,800.0	6,804.6	0.00	0.00	0.00
13,800.0	90.64	270.00	6,794.8	-250.4	-6,900.0	6,904.5	0.00	0.00	0.00
13,900.0	90.64	270.00	6,793.7	-250.4	-6,999.9	7,004.4	0.00	0.00	0.00
13,959.9	90.64	270.00	6,793.0	-250.4	-7,059.9	7,064.3	0.00	0.00	0.00

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
SHL 488'FNL & 389'F	0.00	0.00	1.0	0.0	0.0	1,402,128.97	3,249,661.65	40.433780	-104.603120
- plan hits target center									
- Point									
50' E/W Hardline (1V-	0.00	0.00	1.0	-250.4	-3,748.2	1,401,840.67	3,245,916.27	40.433092	-104.616584
- plan misses target center by 3756.6ft at 1.0ft MD (1.0 TVD, 0.0 N, 0.0 E)									
- Rectangle (sides W6,623.3 H100.0 D0.0)									
BHL 745'FNL & 2145'	0.00	0.00	6,793.0	-250.4	-7,059.9	1,401,807.22	3,242,604.96	40.433090	-104.628480
- plan hits target center									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
7,336.2	6,867.0	7"	7	7-1/2	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,496.9	3,486.0	PARKMAN		0.00		
4,260.7	4,244.0	SUSSEX		0.00		
5,224.0	5,200.0	SHANNON		0.00		
6,662.1	6,595.0	SHARON SPRINGS		0.00		
6,703.6	6,626.0	NIOBRARA A		0.00		
6,886.2	6,743.0	NIOBRARA B		0.00		
7,105.7	6,835.0	NIOBRARA C		0.00		
7,259.6	6,864.0	FT HAYS		0.00		
	6,881.0	CODELL		0.00		

Database:	Landmark	Local Co-ordinate Reference:	Well LDS 1V-314
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4651.0ft (RKB -13')
Project:	SEC.1-T5N-R65W	MD Reference:	WELL @ 4651.0ft (RKB -13')
Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	North Reference:	True
Well:	LDS 1V-314	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)	
1,600.0	1,600.0	0.0	0.0	KOP #1
6,127.7	6,103.1	-250.4	335.9	KOP #2
7,336.2	6,867.0	-250.4	-436.6	End of Build



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.1-T5N-R65W

LDS 5N65W1U Pad Sec.1-T5N-R65W

LDS 1V-314

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 1V-314
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4651.0ft (RKB -13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4651.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-314	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	13,959.9	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)	Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Existing Wells Sec.1-T5N-R65W						
BJB 1 (P&A) - Wellbore #1 - Wellbore #1	8,522.7	6,841.7	279.6	91.2	1.484	Level 3, CC, ES, SF
BJB 4 (Exist.) - Wellbore #1 - Wellbore #1	7,534.4	6,850.8	133.8	-29.8	0.818	Level 1, CC, ES, SF
BJB 5 (Exist.) - Wellbore #1 - Wellbore #1	7,765.0	6,853.0	470.0	425.3	10.517	CC, ES
BJB 5 (Exist.) - Wellbore #1 - Wellbore #1	7,900.0	6,849.5	489.0	441.0	10.183	SF
BJB 6I (Exist.) - Wellbore #1 - Wellbore #1	9,099.7	6,991.8	582.1	497.2	6.856	CC
BJB 6I (Exist.) - Wellbore #1 - Wellbore #1	9,100.0	6,991.8	582.1	497.2	6.855	ES
BJB 6I (Exist.) - Wellbore #1 - Wellbore #1	9,200.0	6,992.2	590.7	503.0	6.739	SF
Gatewood 3-1 (Exist.) - Wellbore #1 - Wellbore #1	9,650.2	6,825.1	104.8	-114.0	0.479	Level 1, CC, ES, SF
Gatewood 4-1 (Exist.) - Wellbore #1 - Wellbore #1	11,328.9	6,812.4	137.8	-127.3	0.520	Level 1, CC, ES, SF
Gatewood 5 (Exist.) - Wellbore #1 - Wellbore #1	10,499.4	6,819.7	536.3	294.1	2.215	CC
Gatewood 5 (Exist.) - Wellbore #1 - Wellbore #1	10,500.0	6,819.6	536.3	294.1	2.214	ES, SF
Noffsinger 1 (P&A) - Wellbore #1 - Wellbore #1	7,171.4	6,884.1	46.3	-110.7	0.295	Level 1, CC, ES, SF
Existing Wells Sec.2-T5N-R65W						
Frudden 1 (Exist.) - Wellbore #1 - Wellbore #1	12,473.9	6,807.2	67.6	-233.8	0.224	Level 1, CC, ES, SF
LDS 5N65W1U Pad Sec.1-T5N-R65W						
LDS 1U-234 - Wellbore #1 - Plan #2 (4-13-15)	1,600.0	1,601.0	28.8	21.8	4.128	CC
LDS 1U-234 - Wellbore #1 - Plan #2 (4-13-15)	13,959.9	13,869.2	338.7	-57.4	0.855	Level 1, ES, SF
LDS 1U-304 - Wellbore #1 - Plan #2 (4-13-15)	1,635.7	1,638.1	59.1	52.0	8.317	CC, ES
LDS 1U-304 - Wellbore #1 - Plan #2 (4-13-15)	13,959.9	13,954.6	558.4	154.8	1.383	Level 3, SF
LDS 1V-204 - Wellbore #1 - Plan #2 (4-15-15)	200.0	199.0	89.8	89.1	133.606	CC, ES
LDS 1V-204 - Wellbore #1 - Plan #2 (4-15-15)	13,959.9	13,908.5	673.8	270.2	1.670	SF
LDS 1V-214 - Wellbore #1 - Plan #2 (4-15-15)	1,000.0	1,000.0	29.3	25.0	6.856	CC
LDS 1V-214 - Wellbore #1 - Plan #2 (4-15-15)	13,959.9	13,881.9	201.3	-181.0	0.526	Level 1, ES, SF
LDS 1V-304 - Wellbore #1 - Plan #2 (4-13-15)	400.0	400.0	60.5	58.9	38.425	CC
LDS 1V-304 - Wellbore #1 - Plan #2 (4-13-15)	13,959.9	13,936.5	400.9	-4.2	0.990	Level 1, ES, SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1V-314
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4651.0ft (RKB -13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4651.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-314	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

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Noffsinger Pad Sec.2-T5N-R65W						
Noffsinger 2C (Vert.) - Wellbore #1 - Design #1	12,945.5	6,813.3	288.1	98.8	1.522	CC, ES, SF
Noffsinger 2RD - Wellbore #1 - Wellbore #1	13,099.1	6,926.4	697.8	504.1	3.603	CC
Noffsinger 2RD - Wellbore #1 - Wellbore #1	13,100.0	6,926.4	697.8	504.1	3.602	ES
Noffsinger 2RD - Wellbore #1 - Wellbore #1	13,200.0	6,919.2	705.0	508.6	3.589	SF
Noffsinger 2SD - Wellbore #1 - Wellbore #1						Out of range
Noffsinger 2VD - Wellbore #1 - Wellbore #1	11,895.1	6,957.4	537.7	370.1	3.209	CC
Noffsinger 2VD - Wellbore #1 - Wellbore #1	11,900.0	6,957.2	537.7	370.0	3.206	ES, SF
Noffsinger 31-2D - Wellbore #1 - Wellbore #1	13,791.2	6,913.4	102.1	-115.8	0.469	Level 1, CC, ES, SF
Noffsinger 32-2D - Wellbore #1 - Wellbore #1						Out of range

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
Reference Measured Depth (ft)	Vertical Depth (ft)	Offset Measured Depth (ft)	Vertical Depth (ft)	Semi Major Axis Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
7,600.0	6,864.0	6,852.0	6,852.0	28.1	137.0	92.11	29.2	-1,623.0	964.1	799.1	164.99	5.843		
7,700.0	6,862.9	6,850.9	6,850.9	30.4	137.0	91.88	29.2	-1,623.0	868.8	701.5	167.35	5.192		
7,800.0	6,861.8	6,849.8	6,849.8	32.9	137.0	91.65	29.2	-1,623.0	774.8	605.1	169.77	4.564		
7,900.0	6,860.7	6,848.7	6,848.7	35.3	137.0	91.43	29.2	-1,623.0	682.5	510.3	172.25	3.962		
8,000.0	6,859.6	6,847.6	6,847.6	37.9	137.0	91.20	29.2	-1,623.0	592.7	418.0	174.77	3.391		
8,100.0	6,858.5	6,846.5	6,846.5	40.4	136.9	90.97	29.2	-1,623.0	506.7	329.4	177.32	2.858		
8,200.0	6,857.3	6,845.3	6,845.3	43.0	136.9	90.74	29.2	-1,623.0	426.9	247.0	179.91	2.373		
8,300.0	6,856.2	6,844.2	6,844.2	45.7	136.9	90.51	29.2	-1,623.0	357.4	174.9	182.51	1.958		
8,400.0	6,855.1	6,843.1	6,843.1	48.3	136.9	90.28	29.2	-1,623.0	305.3	120.2	185.14	1.649		
8,500.0	6,854.0	6,842.0	6,842.0	51.0	136.8	90.05	29.2	-1,623.0	280.5	92.7	187.78	1.494	Level 3	
8,522.7	6,853.7	6,841.7	6,841.7	51.6	136.8	90.00	29.2	-1,623.0	279.6	91.2	188.38	1.484	Level 3, CC, ES, SF	
8,600.0	6,852.9	6,840.9	6,840.9	53.6	136.8	89.82	29.2	-1,623.0	290.0	99.6	190.43	1.523		
8,700.0	6,851.8	6,839.8	6,839.8	56.3	136.8	89.59	29.2	-1,623.0	331.0	137.9	193.09	1.714		
8,800.0	6,850.6	6,838.6	6,838.6	59.0	136.8	89.37	29.2	-1,623.0	393.8	198.0	195.76	2.011		
8,900.0	6,849.5	6,837.5	6,837.5	61.7	136.8	89.14	29.2	-1,623.0	469.6	271.1	198.44	2.366		
9,000.0	6,848.4	6,836.4	6,836.4	64.5	136.7	88.91	29.2	-1,623.0	553.1	352.0	201.12	2.750		
9,100.0	6,847.3	6,835.3	6,835.3	67.2	136.7	88.68	29.2	-1,623.0	641.4	437.6	203.81	3.147		
9,200.0	6,846.2	6,834.2	6,834.2	69.9	136.7	88.45	29.2	-1,623.0	732.7	526.2	206.49	3.548		
9,300.0	6,845.1	6,833.1	6,833.1	72.7	136.7	88.22	29.2	-1,623.0	826.0	616.8	209.18	3.949		
9,400.0	6,843.9	6,831.9	6,831.9	75.4	136.6	87.99	29.2	-1,623.0	920.7	708.8	211.88	4.346		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1V-314
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4651.0ft (RKB -13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4651.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-314	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	-100.41	-100.41	-116.6	-634.7	645.5				
100.0	100.0	86.0	86.0	0.1	1.7	-100.41	-100.41	-116.6	-634.7	645.3	643.5	1.83	352.143	
200.0	200.0	186.0	186.0	0.3	3.7	-100.41	-100.41	-116.6	-634.7	645.3	641.3	4.06	159.052	
300.0	300.0	286.0	286.0	0.6	5.7	-100.41	-100.41	-116.6	-634.7	645.3	639.0	6.28	102.725	
400.0	400.0	386.0	386.0	0.8	7.7	-100.41	-100.41	-116.6	-634.7	645.3	636.8	8.51	75.860	
500.0	500.0	486.0	486.0	1.0	9.7	-100.41	-100.41	-116.6	-634.7	645.3	634.6	10.73	60.133	
600.0	600.0	586.0	586.0	1.2	11.7	-100.41	-100.41	-116.6	-634.7	645.3	632.4	12.96	49.808	
700.0	700.0	686.0	686.0	1.5	13.7	-100.41	-100.41	-116.6	-634.7	645.3	630.1	15.18	42.509	
800.0	800.0	786.0	786.0	1.7	15.7	-100.41	-100.41	-116.6	-634.7	645.3	627.9	17.41	37.075	
900.0	900.0	886.0	886.0	1.9	17.7	-100.41	-100.41	-116.6	-634.7	645.3	625.7	19.63	32.874	
1,000.0	1,000.0	986.0	986.0	2.1	19.7	-100.41	-100.41	-116.6	-634.7	645.3	623.5	21.86	29.527	
1,100.0	1,100.0	1,086.0	1,086.0	2.4	21.7	-100.41	-100.41	-116.6	-634.7	645.3	621.3	24.08	26.799	
1,200.0	1,200.0	1,186.0	1,186.0	2.6	23.7	-100.41	-100.41	-116.6	-634.7	645.3	619.0	26.30	24.533	
1,300.0	1,300.0	1,286.0	1,286.0	2.8	25.7	-100.41	-100.41	-116.6	-634.7	645.3	616.8	28.53	22.620	
1,400.0	1,400.0	1,386.0	1,386.0	3.0	27.7	-100.41	-100.41	-116.6	-634.7	645.3	614.6	30.75	20.983	
1,500.0	1,500.0	1,486.0	1,486.0	3.3	29.7	-100.41	-100.41	-116.6	-634.7	645.3	612.4	32.98	19.568	
1,600.0	1,600.0	1,586.0	1,586.0	3.5	31.7	-100.41	-100.41	-116.6	-634.7	645.3	610.1	35.20	18.331	
1,700.0	1,700.0	1,686.0	1,686.0	3.7	33.7	132.95	132.95	-116.6	-634.7	645.9	608.5	37.40	17.269	
1,800.0	1,800.0	1,786.0	1,786.0	3.9	35.7	133.10	133.10	-116.6	-634.7	647.7	608.1	39.58	16.366	
1,900.0	1,899.9	1,885.9	1,885.9	4.1	37.7	133.36	133.36	-116.6	-634.7	650.7	609.0	41.75	15.587	
2,000.0	1,999.7	1,985.7	1,985.7	4.3	39.7	133.72	133.72	-116.6	-634.7	654.9	611.0	43.91	14.914	
2,100.0	2,099.4	2,085.4	2,085.4	4.5	41.7	134.17	134.17	-116.6	-634.7	660.4	614.3	46.07	14.333	
2,200.0	2,198.9	2,184.9	2,184.9	4.7	43.7	134.71	134.71	-116.6	-634.7	667.1	618.9	48.23	13.833	
2,300.0	2,298.3	2,284.3	2,284.3	4.9	45.7	135.34	135.34	-116.6	-634.7	675.1	624.8	50.37	13.403	
2,400.0	2,397.5	2,383.5	2,383.5	5.2	47.7	136.06	136.06	-116.6	-634.7	684.0	631.4	52.56	13.013	
2,500.0	2,496.7	2,482.7	2,482.7	5.4	49.7	136.76	136.76	-116.6	-634.7	693.0	638.2	54.76	12.654	
2,600.0	2,596.0	2,582.0	2,582.0	5.7	51.6	137.45	137.45	-116.6	-634.7	702.0	645.1	56.97	12.324	
2,700.0	2,695.2	2,681.2	2,681.2	5.9	53.6	138.12	138.12	-116.6	-634.7	711.2	652.0	59.17	12.019	
2,800.0	2,794.4	2,780.4	2,780.4	6.2	55.6	138.77	138.77	-116.6	-634.7	720.5	659.1	61.38	11.737	
2,900.0	2,893.7	2,879.7	2,879.7	6.5	57.6	139.41	139.41	-116.6	-634.7	729.8	666.2	63.60	11.476	
3,000.0	2,992.9	2,978.9	2,978.9	6.8	59.6	140.03	140.03	-116.6	-634.7	739.3	673.5	65.81	11.233	
3,100.0	3,092.1	3,078.1	3,078.1	7.1	61.6	140.64	140.64	-116.6	-634.7	748.8	680.8	68.03	11.008	
3,200.0	3,191.4	3,177.4	3,177.4	7.4	63.5	141.23	141.23	-116.6	-634.7	758.4	688.2	70.25	10.797	
3,300.0	3,290.6	3,276.6	3,276.6	7.6	65.5	141.80	141.80	-116.6	-634.7	768.1	695.7	72.46	10.600	
3,400.0	3,389.8	3,375.8	3,375.8	7.9	67.5	142.36	142.36	-116.6	-634.7	777.9	703.2	74.68	10.416	
3,500.0	3,489.1	3,475.1	3,475.1	8.2	69.5	142.91	142.91	-116.6	-634.7	787.7	710.8	76.90	10.244	
3,600.0	3,588.3	3,574.3	3,574.3	8.5	71.5	143.44	143.44	-116.6	-634.7	797.6	718.5	79.12	10.081	
3,700.0	3,687.6	3,673.6	3,673.6	8.8	73.5	143.96	143.96	-116.6	-634.7	807.6	726.3	81.34	9.929	
3,800.0	3,786.8	3,772.8	3,772.8	9.2	75.5	144.47	144.47	-116.6	-634.7	817.7	734.1	83.56	9.785	
3,900.0	3,886.0	3,872.0	3,872.0	9.5	77.4	144.96	144.96	-116.6	-634.7	827.8	742.0	85.78	9.650	
4,000.0	3,985.3	3,971.3	3,971.3	9.8	79.4	145.45	145.45	-116.6	-634.7	837.9	749.9	88.00	9.522	
4,100.0	4,084.5	4,070.5	4,070.5	10.1	81.4	145.92	145.92	-116.6	-634.7	848.2	757.9	90.22	9.401	
4,200.0	4,183.7	4,169.7	4,169.7	10.4	83.4	146.38	146.38	-116.6	-634.7	858.4	766.0	92.44	9.287	
4,300.0	4,283.0	4,269.0	4,269.0	10.7	85.4	146.83	146.83	-116.6	-634.7	868.8	774.1	94.66	9.178	
4,400.0	4,382.2	4,368.2	4,368.2	11.0	87.4	147.27	147.27	-116.6	-634.7	879.1	782.3	96.88	9.075	
4,500.0	4,481.4	4,467.4	4,467.4	11.3	89.3	147.70	147.70	-116.6	-634.7	889.6	790.5	99.09	8.977	
4,600.0	4,580.7	4,566.7	4,566.7	11.6	91.3	148.12	148.12	-116.6	-634.7	900.1	798.7	101.31	8.884	
4,700.0	4,679.9	4,665.9	4,665.9	12.0	93.3	148.53	148.53	-116.6	-634.7	910.6	807.1	103.53	8.795	
4,800.0	4,779.1	4,765.1	4,765.1	12.3	95.3	148.93	148.93	-116.6	-634.7	921.2	815.4	105.75	8.711	
4,900.0	4,878.4	4,864.4	4,864.4	12.6	97.3	149.32	149.32	-116.6	-634.7	931.8	823.8	107.97	8.630	
5,000.0	4,977.6	4,963.6	4,963.6	12.9	99.3	149.70	149.70	-116.6	-634.7	942.4	832.3	110.18	8.553	

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 1V-314
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4651.0ft (RKB -13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4651.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-314	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		Minimum Separation (ft)	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)				Between Centres (ft)	Between Ellipses (ft)
5,100.0	5,076.8	5,062.8	5,062.8	13.2	101.3	150.07	-116.6	-634.7	953.1	840.7	112.40	8.480	
5,200.0	5,176.1	5,162.1	5,162.1	13.5	103.2	150.47	-116.6	-634.7	963.7	849.0	114.71	8.402	
5,300.0	5,275.6	5,261.6	5,261.6	13.8	105.2	150.83	-116.6	-634.7	972.1	854.9	117.15	8.298	
5,400.0	5,375.4	5,361.4	5,361.4	14.0	107.2	151.05	-116.6	-634.7	977.4	857.9	119.49	8.180	
5,500.0	5,475.4	5,461.4	5,461.4	14.1	109.2	151.15	-116.6	-634.7	979.7	858.0	121.73	8.048	
5,600.0	5,575.4	5,561.4	5,561.4	14.3	111.2	-82.15	-116.6	-634.7	979.8	854.8	125.02	7.837	
5,700.0	5,675.4	5,661.4	5,661.4	14.5	113.2	-82.15	-116.6	-634.7	979.8	852.6	127.20	7.703	
5,800.0	5,775.4	5,761.4	5,761.4	14.6	115.2	-82.15	-116.6	-634.7	979.8	850.4	129.38	7.573	
5,900.0	5,875.4	5,861.4	5,861.4	14.8	117.2	-82.15	-116.6	-634.7	979.8	848.2	131.56	7.447	
6,000.0	5,975.4	5,961.4	5,961.4	15.0	119.2	-82.15	-116.6	-634.7	979.8	846.0	133.74	7.326	
6,100.0	6,075.4	6,061.4	6,061.4	15.2	121.2	-82.15	-116.6	-634.7	979.8	843.9	135.93	7.208	
6,200.0	6,175.3	6,161.3	6,161.3	15.3	123.2	7.91	-116.6	-634.7	976.4	840.0	136.40	7.159	
6,300.0	6,273.9	6,259.9	6,259.9	15.4	125.2	8.21	-116.6	-634.7	960.6	825.0	135.64	7.082	
6,400.0	6,369.7	6,355.7	6,355.7	15.4	127.1	8.80	-116.6	-634.7	932.2	799.7	132.51	7.035	
6,500.0	6,460.8	6,446.8	6,446.8	15.4	128.9	9.74	-116.6	-634.7	891.8	764.7	127.04	7.020	
6,600.0	6,545.9	6,531.9	6,531.9	15.4	130.6	11.20	-116.6	-634.7	839.9	720.5	119.46	7.031	
6,700.0	6,623.4	6,609.4	6,609.4	15.4	132.2	13.41	-116.6	-634.7	777.7	667.4	110.29	7.051	
6,800.0	6,691.9	6,677.9	6,677.9	15.6	133.6	16.85	-116.6	-634.7	706.2	605.4	100.80	7.006	
6,900.0	6,750.4	6,736.4	6,736.4	16.0	134.7	22.36	-116.6	-634.7	626.8	532.7	94.10	6.661	
7,000.0	6,797.8	6,783.8	6,783.8	16.9	135.7	31.53	-116.6	-634.7	541.2	444.2	96.97	5.581	
7,100.0	6,833.4	6,819.4	6,819.4	18.2	136.4	46.59	-116.6	-634.7	451.3	334.4	116.92	3.860	
7,200.0	6,856.4	6,842.4	6,842.4	19.8	136.8	67.46	-116.6	-634.7	359.6	214.5	145.05	2.479	
7,300.0	6,866.5	6,852.5	6,852.5	21.6	137.1	86.37	-116.6	-634.7	269.9	111.5	158.33	1.704	
7,400.0	6,866.3	6,852.3	6,852.3	23.6	137.0	90.64	-116.6	-634.7	189.6	28.9	160.67	1.180 Level 2	
7,500.0	6,865.2	6,851.2	6,851.2	25.8	137.0	90.16	-116.6	-634.7	138.1	-24.7	162.80	0.848 Level 1	
7,534.4	6,864.8	6,850.8	6,850.8	26.6	137.0	90.00	-116.6	-634.7	133.8	-29.8	163.57	0.818 Level 1, CC, ES, SF	
7,600.0	6,864.0	6,850.0	6,850.0	28.1	137.0	89.69	-116.6	-634.7	149.0	-16.0	165.04	0.903 Level 1	
7,700.0	6,862.9	6,848.9	6,848.9	30.4	137.0	89.21	-116.6	-634.7	212.9	45.5	167.35	1.272 Level 3	
7,800.0	6,861.8	6,847.8	6,847.8	32.9	137.0	88.73	-116.6	-634.7	297.4	127.7	169.73	1.752	
7,900.0	6,860.7	6,846.7	6,846.7	35.3	136.9	88.25	-116.6	-634.7	389.3	217.2	172.15	2.261	
8,000.0	6,859.6	6,845.6	6,845.6	37.9	136.9	87.77	-116.6	-634.7	484.4	309.8	174.61	2.774	
8,100.0	6,858.5	6,844.5	6,844.5	40.4	136.9	87.30	-116.6	-634.7	581.2	404.1	177.08	3.282	
8,200.0	6,857.3	6,843.3	6,843.3	43.0	136.9	86.82	-116.6	-634.7	678.9	499.3	179.58	3.781	
8,300.0	6,856.2	6,842.2	6,842.2	45.7	136.8	86.34	-116.6	-634.7	777.2	595.1	182.08	4.268	
8,400.0	6,855.1	6,841.1	6,841.1	48.3	136.8	85.87	-116.6	-634.7	875.9	691.3	184.59	4.745	
8,500.0	6,854.0	6,840.0	6,840.0	51.0	136.8	85.39	-116.6	-634.7	974.8	787.7	187.11	5.210	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1V-314
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4651.0ft (RKB -13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4651.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-314	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 5 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS													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	
6,900.0	6,750.4	6,753.9	6,752.3	16.0	12.5	-47.05	-720.4	-866.8	966.6	942.4	24.22	39.912		
7,000.0	6,797.8	6,800.0	6,798.4	16.9	12.6	-57.12	-720.4	-866.2	890.2	863.8	26.39	33.727		
7,100.0	6,833.4	6,834.1	6,832.5	18.2	12.7	-68.55	-720.4	-865.6	811.9	782.6	29.34	27.674		
7,200.0	6,856.4	6,855.7	6,854.1	19.8	12.7	-79.71	-720.4	-865.3	734.5	702.4	32.16	22.840		
7,300.0	6,866.5	6,864.3	6,862.7	21.6	12.7	-88.82	-720.4	-865.2	661.1	626.7	34.37	19.233		
7,400.0	6,866.3	6,862.6	6,861.0	23.6	12.7	-91.19	-720.4	-865.2	595.1	558.7	36.35	16.372		
7,500.0	6,865.2	6,860.0	6,858.4	25.8	12.7	-90.87	-720.4	-865.3	539.6	501.1	38.49	14.016		
7,600.0	6,864.0	6,857.3	6,855.7	28.1	12.7	-90.55	-720.4	-865.3	498.1	457.4	40.76	12.221		
7,700.0	6,862.9	6,854.7	6,853.1	30.4	12.7	-90.24	-720.4	-865.3	474.5	431.4	43.12	11.005		
7,765.0	6,862.2	6,853.0	6,851.4	32.0	12.7	-90.03	-720.4	-865.4	470.0	425.3	44.69	10.517 CC, ES		
7,800.0	6,861.8	6,852.1	6,850.5	32.9	12.7	-89.92	-720.4	-865.4	471.3	425.8	45.54	10.349		
7,900.0	6,860.7	6,849.5	6,847.9	35.3	12.7	-89.60	-720.4	-865.4	489.0	441.0	48.02	10.183 SF		
8,000.0	6,859.6	6,846.9	6,845.3	37.9	12.7	-89.28	-720.4	-865.5	525.5	474.9	50.55	10.395		
8,100.0	6,858.5	6,844.3	6,842.7	40.4	12.7	-88.96	-720.4	-865.5	577.1	524.0	53.11	10.867		
8,200.0	6,857.3	6,841.7	6,840.1	43.0	12.7	-88.64	-720.4	-865.5	640.3	584.6	55.69	11.497		
8,300.0	6,856.2	6,839.0	6,837.4	45.7	12.7	-88.32	-720.4	-865.6	712.0	653.7	58.31	12.211		
8,400.0	6,855.1	6,836.4	6,834.8	48.3	12.7	-88.01	-720.4	-865.6	789.8	728.9	60.94	12.962		
8,500.0	6,854.0	6,833.8	6,832.2	51.0	12.7	-87.69	-720.4	-865.7	872.2	808.6	63.58	13.718		
8,600.0	6,852.9	6,831.2	6,829.6	53.6	12.7	-87.37	-720.4	-865.7	957.9	891.7	66.24	14.462		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1V-314
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4651.0ft (RKB -13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4651.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-314	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 6I (Exist.) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 552-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
8,300.0	6,856.2	6,989.0	6,834.7	45.7	22.5	-89.75	-832.4	-2,199.9	989.1	925.7	63.38	15.605	
8,400.0	6,855.1	6,989.4	6,835.1	48.3	22.5	-89.78	-832.4	-2,199.9	910.1	844.1	66.03	13.784	
8,500.0	6,854.0	6,989.7	6,835.5	51.0	22.5	-89.82	-832.4	-2,199.9	835.7	767.0	68.69	12.167	
8,600.0	6,852.9	6,990.1	6,835.8	53.6	22.5	-89.85	-832.4	-2,199.9	767.1	695.8	71.37	10.749	
8,700.0	6,851.8	6,990.5	6,836.2	56.3	22.5	-89.89	-832.4	-2,199.9	706.1	632.0	74.05	9.535	
8,800.0	6,850.6	6,990.8	6,836.5	59.0	22.5	-89.92	-832.4	-2,199.9	654.7	577.9	76.75	8.530	
8,900.0	6,849.5	6,991.2	6,836.9	61.7	22.5	-89.96	-832.4	-2,199.9	615.4	535.9	79.47	7.744	
9,000.0	6,848.4	6,991.5	6,837.2	64.5	22.5	-89.99	-832.4	-2,199.9	590.6	508.4	82.18	7.186	
9,099.7	6,847.3	6,991.8	6,837.5	67.2	22.5	-90.03	-832.4	-2,199.9	582.1	497.2	84.90	6.856 CC	
9,100.0	6,847.3	6,991.8	6,837.6	67.2	22.5	-90.03	-832.4	-2,199.9	582.1	497.2	84.91	6.855 ES	
9,200.0	6,846.2	6,992.2	6,837.9	69.9	22.5	-90.06	-832.4	-2,199.9	590.7	503.0	87.64	6.739 SF	
9,300.0	6,845.1	6,992.5	6,838.2	72.7	22.5	-90.09	-832.4	-2,199.9	615.6	525.2	90.38	6.811	
9,400.0	6,843.9	6,992.9	6,838.6	75.4	22.5	-90.13	-832.4	-2,199.9	655.0	561.9	93.12	7.033	
9,500.0	6,842.8	6,993.2	6,838.9	78.2	22.5	-90.16	-832.4	-2,199.9	706.5	610.6	95.87	7.369	
9,600.0	6,841.7	6,993.5	6,839.2	80.9	22.5	-90.19	-832.4	-2,199.9	767.6	668.9	98.63	7.782	
9,700.0	6,840.6	6,993.9	6,839.6	83.7	22.5	-90.22	-832.4	-2,200.0	836.2	734.8	101.38	8.248	
9,800.0	6,839.5	6,994.2	6,839.9	86.4	22.5	-90.26	-832.4	-2,200.0	910.6	806.5	104.14	8.744	
9,900.0	6,838.3	6,994.5	6,840.2	89.2	22.5	-90.29	-832.4	-2,200.0	989.6	882.7	106.90	9.257	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1V-314
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4651.0ft (RKB -13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4651.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-314	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 3-1 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7060-UNKNOWN													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
8,700.0	6,851.8	6,835.8	6,835.8	56.3	136.7	95.78	95.78	-145.6	-2,750.4	955.9	763.8	192.11	4.976	
8,800.0	6,850.6	6,834.6	6,834.6	59.0	136.7	95.18	95.18	-145.6	-2,750.4	856.6	661.6	194.96	4.394	
8,900.0	6,849.5	6,833.5	6,833.5	61.7	136.7	94.57	94.57	-145.6	-2,750.4	757.5	559.7	197.81	3.829	
9,000.0	6,848.4	6,832.4	6,832.4	64.5	136.6	93.96	93.96	-145.6	-2,750.4	658.6	457.9	200.65	3.282	
9,100.0	6,847.3	6,831.3	6,831.3	67.2	136.6	93.36	93.36	-145.6	-2,750.4	560.1	356.6	203.47	2.753	
9,200.0	6,846.2	6,830.2	6,830.2	69.9	136.6	92.75	92.75	-145.6	-2,750.4	462.2	255.9	206.29	2.241	
9,300.0	6,845.1	6,829.1	6,829.1	72.7	136.6	92.14	92.14	-145.6	-2,750.4	365.5	156.5	209.09	1.748	
9,400.0	6,843.9	6,827.9	6,827.9	75.4	136.6	91.53	91.53	-145.6	-2,750.4	271.3	59.4	211.88	1.280 Level 3	
9,500.0	6,842.8	6,826.8	6,826.8	78.2	136.5	90.92	90.92	-145.6	-2,750.4	183.2	-31.5	214.64	0.853 Level 1	
9,600.0	6,841.7	6,825.7	6,825.7	80.9	136.5	90.31	90.31	-145.6	-2,750.4	116.2	-101.2	217.39	0.535 Level 1	
9,650.2	6,841.1	6,825.1	6,825.1	82.3	136.5	90.00	90.00	-145.6	-2,750.4	104.8	-114.0	218.77	0.479 Level 1, CC, ES, SF	
9,700.0	6,840.6	6,824.6	6,824.6	83.7	136.5	89.70	89.70	-145.6	-2,750.4	116.0	-104.1	220.13	0.527 Level 1	
9,800.0	6,839.5	6,823.5	6,823.5	86.4	136.5	89.09	89.09	-145.6	-2,750.4	182.8	-40.1	222.83	0.820 Level 1	
9,900.0	6,838.3	6,822.3	6,822.3	89.2	136.4	88.47	88.47	-145.6	-2,750.4	270.8	45.3	225.52	1.201 Level 2	
10,000.0	6,837.2	6,821.2	6,821.2	92.0	136.4	87.86	87.86	-145.6	-2,750.4	365.1	136.9	228.19	1.600	
10,100.0	6,836.1	6,820.1	6,820.1	94.7	136.4	87.26	87.26	-145.6	-2,750.4	461.8	231.0	230.83	2.001	
10,200.0	6,835.0	6,819.0	6,819.0	97.5	136.4	86.65	86.65	-145.6	-2,750.4	559.6	326.2	233.44	2.397	
10,300.0	6,833.9	6,817.9	6,817.9	100.3	136.4	86.04	86.04	-145.6	-2,750.4	658.1	422.1	236.03	2.788	
10,400.0	6,832.8	6,816.8	6,816.8	103.0	136.3	85.43	85.43	-145.6	-2,750.4	757.0	518.4	238.59	3.173	
10,500.0	6,831.6	6,815.6	6,815.6	105.8	136.3	84.82	84.82	-145.6	-2,750.4	856.2	615.0	241.12	3.551	
10,600.0	6,830.5	6,814.5	6,814.5	108.6	136.3	84.22	84.22	-145.6	-2,750.4	955.5	711.9	243.63	3.922	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1V-314
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4651.0ft (RKB -13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4651.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-314	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 (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	
10,400.0	6,832.8	6,822.8	6,822.8	103.0	136.5	94.31	-112.5	-4,429.1	939.1	700.2	238.85	3.932		
10,500.0	6,831.6	6,821.6	6,821.6	105.8	136.4	93.84	-112.5	-4,429.1	840.3	598.6	241.72	3.476		
10,600.0	6,830.5	6,820.5	6,820.5	108.6	136.4	93.38	-112.5	-4,429.1	741.9	497.3	244.59	3.033		
10,700.0	6,829.4	6,819.4	6,819.4	111.4	136.4	92.92	-112.5	-4,429.1	643.9	396.4	247.45	2.602		
10,800.0	6,828.3	6,818.3	6,818.3	114.2	136.4	92.45	-112.5	-4,429.1	546.6	296.3	250.29	2.184		
10,900.0	6,827.2	6,817.2	6,817.2	116.9	136.3	91.99	-112.5	-4,429.1	450.6	197.4	253.13	1.780		
11,000.0	6,826.1	6,816.1	6,816.1	119.7	136.3	91.53	-112.5	-4,429.1	356.7	100.7	255.95	1.394	Level 3	
11,100.0	6,824.9	6,814.9	6,814.9	122.5	136.3	91.06	-112.5	-4,429.1	267.2	8.5	258.75	1.033	Level 2	
11,200.0	6,823.8	6,813.8	6,813.8	125.3	136.3	90.60	-112.5	-4,429.1	188.8	-72.8	261.54	0.722	Level 1	
11,300.0	6,822.7	6,812.7	6,812.7	128.1	136.3	90.13	-112.5	-4,429.1	140.8	-123.5	264.32	0.533	Level 1	
11,328.9	6,822.4	6,812.4	6,812.4	128.9	136.2	90.00	-112.5	-4,429.1	137.8	-127.3	265.12	0.520	Level 1, CC, ES, SF	
11,400.0	6,821.6	6,811.6	6,811.6	130.9	136.2	89.67	-112.5	-4,429.1	155.0	-112.0	267.08	0.580	Level 1	
11,500.0	6,820.5	6,810.5	6,810.5	133.7	136.2	89.21	-112.5	-4,429.1	219.6	-50.2	269.82	0.814	Level 1	
11,600.0	6,819.4	6,809.4	6,809.4	136.5	136.2	88.74	-112.5	-4,429.1	304.0	31.5	272.55	1.116	Level 2	
11,700.0	6,818.2	6,808.2	6,808.2	139.2	136.2	88.28	-112.5	-4,429.1	395.8	120.5	275.26	1.438	Level 3	
11,800.0	6,817.1	6,807.1	6,807.1	142.0	136.1	87.81	-112.5	-4,429.1	490.7	212.8	277.95	1.766		
11,900.0	6,816.0	6,806.0	6,806.0	144.8	136.1	87.35	-112.5	-4,429.1	587.4	306.8	280.63	2.093		
12,000.0	6,814.9	6,804.9	6,804.9	147.6	136.1	86.89	-112.5	-4,429.1	685.0	401.7	283.28	2.418		
12,100.0	6,813.8	6,803.8	6,803.8	150.4	136.1	86.42	-112.5	-4,429.1	783.2	497.3	285.92	2.739		
12,200.0	6,812.7	6,802.7	6,802.7	153.2	136.1	85.96	-112.5	-4,429.1	881.8	593.3	288.54	3.056		
12,300.0	6,811.5	6,801.5	6,801.5	156.0	136.0	85.50	-112.5	-4,429.1	980.7	689.6	291.13	3.369		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1V-314
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4651.0ft (RKB -13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4651.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-314	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												Offset Site Error:	0.0 ft
Survey Program: 7123-UNKNOWN												Offset Well Error:	0.0 ft
Existing Wells Sec.1-T5N-R65W - Gatewood 5 (Exist.) - Wellbore #1 - Wellbore #1													
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
9,700.0	6,840.6	6,828.6	6,828.6	83.7	136.6	-90.95	-786.6	-3,599.6	962.6	742.5	220.17	4.372	
9,800.0	6,839.5	6,827.5	6,827.5	86.4	136.5	-90.83	-786.6	-3,599.6	881.3	658.4	222.92	3.954	
9,900.0	6,838.3	6,826.3	6,826.3	89.2	136.5	-90.72	-786.6	-3,599.6	804.3	578.6	225.67	3.564	
10,000.0	6,837.2	6,825.2	6,825.2	92.0	136.5	-90.60	-786.6	-3,599.6	732.8	504.4	228.42	3.208	
10,100.0	6,836.1	6,824.1	6,824.1	94.7	136.5	-90.48	-786.6	-3,599.6	668.7	437.5	231.17	2.893	
10,200.0	6,835.0	6,823.0	6,823.0	97.5	136.5	-90.36	-786.6	-3,599.6	614.2	380.3	233.92	2.626	
10,300.0	6,833.9	6,821.9	6,821.9	100.3	136.4	-90.24	-786.6	-3,599.6	572.2	335.5	236.68	2.418	
10,400.0	6,832.8	6,820.8	6,820.8	103.0	136.4	-90.12	-786.6	-3,599.6	545.4	306.0	239.43	2.278	
10,499.4	6,831.7	6,819.7	6,819.7	105.8	136.4	-90.00	-786.6	-3,599.6	536.3	294.1	242.17	2.215 CC	
10,500.0	6,831.6	6,819.6	6,819.6	105.8	136.4	-90.00	-786.6	-3,599.6	536.3	294.1	242.19	2.214 ES, SF	
10,600.0	6,830.5	6,818.5	6,818.5	108.6	136.4	-89.88	-786.6	-3,599.6	545.6	300.7	244.94	2.228	
10,700.0	6,829.4	6,817.4	6,817.4	111.4	136.3	-89.76	-786.6	-3,599.6	572.6	324.9	247.70	2.312	
10,800.0	6,828.3	6,816.3	6,816.3	114.2	136.3	-89.64	-786.6	-3,599.6	614.8	364.3	250.46	2.455	
10,900.0	6,827.2	6,815.2	6,815.2	116.9	136.3	-89.52	-786.6	-3,599.6	669.4	416.1	253.22	2.643	
11,000.0	6,826.1	6,814.1	6,814.1	119.7	136.3	-89.40	-786.6	-3,599.6	733.6	477.6	255.98	2.866	
11,100.0	6,824.9	6,812.9	6,812.9	122.5	136.3	-89.28	-786.6	-3,599.6	805.1	546.4	258.73	3.112	
11,200.0	6,823.8	6,811.8	6,811.8	125.3	136.2	-89.16	-786.6	-3,599.6	882.2	620.7	261.49	3.374	
11,300.0	6,822.7	6,810.7	6,810.7	128.1	136.2	-89.04	-786.6	-3,599.6	963.5	699.3	264.25	3.646	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1V-314
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4651.0ft (RKB -13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4651.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-314	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
Reference	Offset	Semi Major Axis		Distance		Minimum Separation		Warning					
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
0.0	0.0	33.0	33.0	0.0	0.7	-126.79	-204.0	-272.8	340.7	340.0	0.66	515.997	
100.0	100.0	133.0	133.0	0.1	2.7	-126.79	-204.0	-272.8	340.7	337.9	2.77	122.868	
200.0	200.0	233.0	233.0	0.3	4.7	-126.79	-204.0	-272.8	340.7	335.7	5.00	68.168	
300.0	300.0	333.0	333.0	0.6	6.7	-126.79	-204.0	-272.8	340.7	333.4	7.22	47.169	
400.0	400.0	433.0	433.0	0.8	8.7	-126.79	-204.0	-272.8	340.7	331.2	9.45	36.061	
500.0	500.0	533.0	533.0	1.0	10.7	-126.79	-204.0	-272.8	340.7	329.0	11.67	29.187	
600.0	600.0	633.0	633.0	1.2	12.7	-126.79	-204.0	-272.8	340.7	326.8	13.90	24.514	
700.0	700.0	733.0	733.0	1.5	14.7	-126.79	-204.0	-272.8	340.7	324.5	16.12	21.131	
800.0	800.0	833.0	833.0	1.7	16.7	-126.79	-204.0	-272.8	340.7	322.3	18.35	18.569	
900.0	900.0	933.0	933.0	1.9	18.7	-126.79	-204.0	-272.8	340.7	320.1	20.57	16.560	
1,000.0	1,000.0	1,033.0	1,033.0	2.1	20.7	-126.79	-204.0	-272.8	340.7	317.9	22.80	14.944	
1,100.0	1,100.0	1,133.0	1,133.0	2.4	22.7	-126.79	-204.0	-272.8	340.7	315.6	25.02	13.615	
1,200.0	1,200.0	1,233.0	1,233.0	2.6	24.7	-126.79	-204.0	-272.8	340.7	313.4	27.24	12.504	
1,300.0	1,300.0	1,333.0	1,333.0	2.8	26.7	-126.79	-204.0	-272.8	340.7	311.2	29.47	11.560	
1,400.0	1,400.0	1,433.0	1,433.0	3.0	28.7	-126.79	-204.0	-272.8	340.7	309.0	31.69	10.748	
1,500.0	1,500.0	1,533.0	1,533.0	3.3	30.7	-126.79	-204.0	-272.8	340.7	306.7	33.92	10.043	
1,600.0	1,600.0	1,633.0	1,633.0	3.5	32.7	-126.79	-204.0	-272.8	340.7	304.5	36.14	9.425	
1,700.0	1,700.0	1,733.0	1,733.0	3.7	34.7	106.65	-204.0	-272.8	340.9	302.6	38.35	8.891	
1,800.0	1,800.0	1,833.0	1,833.0	3.9	36.7	107.06	-204.0	-272.8	341.7	301.1	40.53	8.431	
1,900.0	1,899.9	1,932.9	1,932.9	4.1	38.7	107.75	-204.0	-272.8	343.0	300.3	42.71	8.030	
2,000.0	1,999.7	2,032.7	2,032.7	4.3	40.7	108.69	-204.0	-272.8	344.9	300.0	44.90	7.682	
2,100.0	2,099.4	2,132.4	2,132.4	4.5	42.6	109.89	-204.0	-272.8	347.5	300.4	47.09	7.380	
2,200.0	2,198.9	2,231.9	2,231.9	4.7	44.6	111.33	-204.0	-272.8	350.9	301.6	49.28	7.121	
2,300.0	2,298.3	2,331.3	2,331.3	4.9	46.6	112.98	-204.0	-272.8	355.2	303.7	51.47	6.901	
2,400.0	2,397.5	2,430.5	2,430.5	5.2	48.6	114.77	-204.0	-272.8	360.2	306.5	53.67	6.711	
2,500.0	2,496.7	2,529.7	2,529.7	5.4	50.6	116.52	-204.0	-272.8	365.6	309.7	55.89	6.541	
2,600.0	2,596.0	2,629.0	2,629.0	5.7	52.6	118.21	-204.0	-272.8	371.3	313.2	58.10	6.390	
2,700.0	2,695.2	2,728.2	2,728.2	5.9	54.6	119.85	-204.0	-272.8	377.3	317.0	60.33	6.255	
2,800.0	2,794.4	2,827.4	2,827.4	6.2	56.5	121.45	-204.0	-272.8	383.6	321.1	62.55	6.134	
2,900.0	2,893.7	2,926.7	2,926.7	6.5	58.5	122.98	-204.0	-272.8	390.3	325.5	64.77	6.025	
3,000.0	2,992.9	3,025.9	3,025.9	6.8	60.5	124.47	-204.0	-272.8	397.1	330.2	67.00	5.928	
3,100.0	3,092.1	3,125.1	3,125.1	7.1	62.5	125.91	-204.0	-272.8	404.3	335.1	69.22	5.841	
3,200.0	3,191.4	3,224.4	3,224.4	7.4	64.5	127.29	-204.0	-272.8	411.7	340.3	71.44	5.762	
3,300.0	3,290.6	3,323.6	3,323.6	7.6	66.5	128.63	-204.0	-272.8	419.3	345.7	73.67	5.692	
3,400.0	3,389.8	3,422.8	3,422.8	7.9	68.5	129.91	-204.0	-272.8	427.2	351.3	75.89	5.629	
3,500.0	3,489.1	3,522.1	3,522.1	8.2	70.4	131.16	-204.0	-272.8	435.2	357.1	78.11	5.572	
3,600.0	3,588.3	3,621.3	3,621.3	8.5	72.4	132.35	-204.0	-272.8	443.5	363.2	80.33	5.521	
3,700.0	3,687.6	3,720.6	3,720.6	8.8	74.4	133.50	-204.0	-272.8	451.9	369.4	82.55	5.474	
3,800.0	3,786.8	3,819.8	3,819.8	9.2	76.4	134.61	-204.0	-272.8	460.6	375.8	84.77	5.433	
3,900.0	3,886.0	3,919.0	3,919.0	9.5	78.4	135.68	-204.0	-272.8	469.3	382.4	86.99	5.395	
4,000.0	3,985.3	4,018.3	4,018.3	9.8	80.4	136.71	-204.0	-272.8	478.3	389.1	89.21	5.362	
4,100.0	4,084.5	4,117.5	4,117.5	10.1	82.3	137.70	-204.0	-272.8	487.4	396.0	91.42	5.331	
4,200.0	4,183.7	4,216.7	4,216.7	10.4	84.3	138.66	-204.0	-272.8	496.6	403.0	93.64	5.304	
4,300.0	4,283.0	4,316.0	4,316.0	10.7	86.3	139.58	-204.0	-272.8	506.0	410.1	95.85	5.279	
4,400.0	4,382.2	4,415.2	4,415.2	11.0	88.3	140.47	-204.0	-272.8	515.5	417.4	98.06	5.256	
4,500.0	4,481.4	4,514.4	4,514.4	11.3	90.3	141.32	-204.0	-272.8	525.1	424.8	100.27	5.236	
4,600.0	4,580.7	4,613.7	4,613.7	11.6	92.3	142.15	-204.0	-272.8	534.8	432.3	102.49	5.218	
4,700.0	4,679.9	4,712.9	4,712.9	12.0	94.3	142.94	-204.0	-272.8	544.6	439.9	104.70	5.202	
4,800.0	4,779.1	4,812.1	4,812.1	12.3	96.2	143.71	-204.0	-272.8	554.6	447.6	106.91	5.187	
4,900.0	4,878.4	4,911.4	4,911.4	12.6	98.2	144.45	-204.0	-272.8	564.6	455.5	109.12	5.174	
5,000.0	4,977.6	5,010.6	5,010.6	12.9	100.2	145.16	-204.0	-272.8	574.7	463.4	111.32	5.162	

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 1V-314
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4651.0ft (RKB -13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4651.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-314	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
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
5,100.0	5,076.8	5,109.8	5,109.8	13.2	102.2	145.85	-204.0	-272.8	584.9	471.4	113.53	5.152		
5,200.0	5,176.1	5,209.1	5,209.1	13.5	104.2	146.54	-204.0	-272.8	595.0	479.2	115.82	5.138		
5,300.0	5,275.6	5,308.6	5,308.6	13.8	106.2	147.13	-204.0	-272.8	603.1	484.8	118.23	5.101		
5,400.0	5,375.4	5,408.4	5,408.4	14.0	108.2	147.49	-204.0	-272.8	608.2	487.6	120.56	5.045		
5,500.0	5,475.4	5,508.4	5,508.4	14.1	110.2	147.65	-204.0	-272.8	610.4	487.6	122.80	4.971		
5,600.0	5,575.4	5,608.4	5,608.4	14.3	112.2	-85.65	-204.0	-272.8	610.5	484.6	125.85	4.851		
5,700.0	5,675.4	5,708.4	5,708.4	14.5	114.2	-85.65	-204.0	-272.8	610.5	482.4	128.03	4.768		
5,800.0	5,775.4	5,808.4	5,808.4	14.6	116.2	-85.65	-204.0	-272.8	610.5	480.3	130.21	4.688		
5,900.0	5,875.4	5,908.4	5,908.4	14.8	118.2	-85.65	-204.0	-272.8	610.5	478.1	132.39	4.611		
6,000.0	5,975.4	6,008.4	6,008.4	15.0	120.2	-85.65	-204.0	-272.8	610.5	475.9	134.57	4.536		
6,100.0	6,075.4	6,108.4	6,108.4	15.2	122.2	-85.65	-204.0	-272.8	610.5	473.7	136.76	4.464		
6,200.0	6,175.3	6,208.3	6,208.3	15.3	124.2	4.40	-204.0	-272.8	607.1	469.6	137.44	4.417		
6,300.0	6,273.9	6,306.9	6,306.9	15.4	126.1	4.61	-204.0	-272.8	591.2	454.6	136.63	4.327		
6,400.0	6,369.7	6,402.7	6,402.7	15.4	128.1	5.04	-204.0	-272.8	562.6	429.2	133.36	4.219		
6,500.0	6,460.8	6,493.8	6,493.8	15.4	129.9	5.76	-204.0	-272.8	521.8	394.2	127.66	4.088		
6,600.0	6,545.9	6,578.9	6,578.9	15.4	131.6	6.94	-204.0	-272.8	469.6	349.9	119.66	3.924		
6,700.0	6,623.4	6,656.4	6,656.4	15.4	133.1	8.90	-204.0	-272.8	406.8	297.1	109.74	3.707		
6,800.0	6,691.9	6,724.9	6,724.9	15.6	134.5	12.38	-204.0	-272.8	334.7	235.7	99.03	3.380		
6,900.0	6,750.4	6,783.4	6,783.4	16.0	135.7	19.21	-204.0	-272.8	254.7	163.2	91.53	2.783		
7,000.0	6,797.8	6,830.8	6,830.8	16.9	136.6	34.44	-204.0	-272.8	169.0	67.0	102.01	1.657		
7,100.0	6,833.4	6,866.4	6,866.4	18.2	137.3	66.35	-204.0	-272.8	83.2	-60.4	143.62	0.579 Level 1		
7,171.4	6,851.1	6,884.1	6,884.1	19.3	137.7	90.00	-204.0	-272.8	46.3	-110.7	157.02	0.295 Level 1, CC, ES, SF		
7,200.0	6,856.4	6,889.4	6,889.4	19.8	137.8	95.77	-204.0	-272.8	54.2	-102.7	156.87	0.346 Level 1		
7,300.0	6,866.5	6,899.5	6,899.5	21.6	138.0	95.70	-204.0	-272.8	135.7	-23.2	158.90	0.854 Level 1		
7,400.0	6,866.3	6,899.3	6,899.3	23.6	138.0	86.86	-204.0	-272.8	232.2	70.9	161.34	1.439 Level 3		
7,500.0	6,865.2	6,898.2	6,898.2	25.8	138.0	85.49	-204.0	-272.8	330.8	167.6	163.20	2.027		
7,600.0	6,864.0	6,897.0	6,897.0	28.1	137.9	84.12	-204.0	-272.8	430.0	265.0	165.07	2.605		
7,700.0	6,862.9	6,895.9	6,895.9	30.4	137.9	82.75	-204.0	-272.8	529.5	362.6	166.93	3.172		
7,800.0	6,861.8	6,894.8	6,894.8	32.9	137.9	81.40	-204.0	-272.8	629.2	460.5	168.76	3.728		
7,900.0	6,860.7	6,893.7	6,893.7	35.3	137.9	80.05	-204.0	-272.8	729.0	558.4	170.55	4.274		
8,000.0	6,859.6	6,892.6	6,892.6	37.9	137.9	78.72	-204.0	-272.8	828.8	656.5	172.27	4.811		
8,100.0	6,858.5	6,891.5	6,891.5	40.4	137.8	77.40	-204.0	-272.8	928.6	754.7	173.93	5.339		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1V-314
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4651.0ft (RKB -13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4651.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-314	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.2-T5N-R65W - Frudden 1 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 100-UNKNOWN													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
11,500.0	6,820.5	6,840.0	6,839.4	133.7	139.2	116.72	-183.2	-5,573.2	975.6	731.4	244.21	3.995		
11,600.0	6,819.4	6,836.8	6,836.2	136.5	139.4	114.49	-183.2	-5,573.2	876.0	624.6	251.33	3.485		
11,700.0	6,818.2	6,833.6	6,833.0	139.2	139.5	112.16	-183.2	-5,573.3	776.4	518.0	258.37	3.005		
11,800.0	6,817.1	6,830.3	6,829.7	142.0	139.6	109.72	-183.1	-5,573.4	676.9	411.6	265.27	2.552		
11,900.0	6,816.0	6,827.0	6,826.4	144.8	139.8	107.17	-183.1	-5,573.5	577.5	305.6	271.94	2.124		
12,000.0	6,814.9	6,823.6	6,823.0	147.6	139.9	104.52	-183.0	-5,573.5	478.4	200.1	278.29	1.719		
12,100.0	6,813.8	6,820.2	6,819.6	150.4	140.0	101.77	-183.0	-5,573.6	379.7	95.5	284.24	1.336	Level 3	
12,200.0	6,812.7	6,816.8	6,816.2	153.2	140.2	98.94	-182.9	-5,573.7	281.9	-7.8	289.69	0.973	Level 1	
12,300.0	6,811.5	6,813.3	6,812.7	156.0	140.3	96.03	-182.9	-5,573.8	186.5	-108.1	294.55	0.633	Level 1	
12,400.0	6,810.4	6,809.8	6,809.2	158.8	140.5	93.05	-182.8	-5,573.9	100.1	-198.6	298.73	0.335	Level 1	
12,473.9	6,809.6	6,807.2	6,806.6	160.9	140.6	90.81	-182.8	-5,573.9	67.6	-233.8	301.33	0.224	Level 1, CC, ES, SF	
12,500.0	6,809.3	6,806.2	6,805.6	161.6	140.6	90.02	-182.8	-5,574.0	72.4	-229.7	302.15	0.240	Level 1	
12,600.0	6,808.2	6,802.6	6,802.0	164.4	140.7	86.96	-182.7	-5,574.1	143.0	-161.8	304.75	0.469	Level 1	
12,700.0	6,807.1	6,798.9	6,798.3	167.2	140.9	83.89	-182.7	-5,574.1	235.8	-70.7	306.50	0.769	Level 1	
12,800.0	6,806.0	6,795.3	6,794.7	170.0	141.0	80.89	-182.6	-5,574.2	332.8	25.4	307.43	1.083	Level 2	
12,900.0	6,804.8	6,791.7	6,791.1	172.8	141.2	77.95	-182.6	-5,574.3	431.1	123.6	307.57	1.402	Level 3	
13,000.0	6,803.7	6,788.1	6,787.5	175.6	141.3	75.09	-182.5	-5,574.4	530.1	223.1	306.98	1.727		
13,100.0	6,802.6	6,784.5	6,783.9	178.4	141.5	72.31	-182.5	-5,574.5	629.3	323.6	305.73	2.058		
13,200.0	6,801.5	6,781.0	6,780.4	181.2	141.6	69.63	-182.4	-5,574.6	728.8	424.9	303.90	2.398		
13,300.0	6,800.4	6,777.4	6,776.8	184.0	141.7	67.06	-182.4	-5,574.7	828.3	526.8	301.56	2.747		
13,400.0	6,799.3	6,773.8	6,773.3	186.8	141.9	64.59	-182.3	-5,574.8	928.0	629.2	298.79	3.106		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1V-314
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4651.0ft (RKB -13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4651.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-314	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 (4-13-15)													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	1.0	1.0	0.0	0.0	-50.73	-50.73	18.2	-22.3	28.8	28.8	0.00	N/A	
100.0	100.0	101.0	101.0	0.1	0.1	-50.73	-50.73	18.2	-22.3	28.8	28.5	0.23	126.727	
200.0	200.0	201.0	201.0	0.3	0.3	-50.73	-50.73	18.2	-22.3	28.8	28.1	0.68	42.523	
300.0	300.0	301.0	301.0	0.6	0.6	-50.73	-50.73	18.2	-22.3	28.8	27.6	1.13	25.548	
400.0	400.0	401.0	401.0	0.8	0.8	-50.73	-50.73	18.2	-22.3	28.8	27.2	1.58	18.259	
500.0	500.0	501.0	501.0	1.0	1.0	-50.73	-50.73	18.2	-22.3	28.8	26.7	2.03	14.206	
600.0	600.0	601.0	601.0	1.2	1.2	-50.73	-50.73	18.2	-22.3	28.8	26.3	2.47	11.625	
700.0	700.0	701.0	701.0	1.5	1.5	-50.73	-50.73	18.2	-22.3	28.8	25.8	2.92	9.838	
800.0	800.0	801.0	801.0	1.7	1.7	-50.73	-50.73	18.2	-22.3	28.8	25.4	3.37	8.527	
900.0	900.0	901.0	901.0	1.9	1.9	-50.73	-50.73	18.2	-22.3	28.8	24.9	3.82	7.525	
1,000.0	1,000.0	1,001.0	1,001.0	2.1	2.1	-50.73	-50.73	18.2	-22.3	28.8	24.5	4.27	6.733	
1,100.0	1,100.0	1,101.0	1,101.0	2.4	2.4	-50.73	-50.73	18.2	-22.3	28.8	24.0	4.72	6.092	
1,200.0	1,200.0	1,201.0	1,201.0	2.6	2.6	-50.73	-50.73	18.2	-22.3	28.8	23.6	5.17	5.563	
1,300.0	1,300.0	1,301.0	1,301.0	2.8	2.8	-50.73	-50.73	18.2	-22.3	28.8	23.1	5.62	5.118	
1,400.0	1,400.0	1,401.0	1,401.0	3.0	3.0	-50.73	-50.73	18.2	-22.3	28.8	22.7	6.07	4.739	
1,500.0	1,500.0	1,501.0	1,501.0	3.3	3.3	-50.73	-50.73	18.2	-22.3	28.8	22.2	6.52	4.412	
1,600.0	1,600.0	1,601.0	1,601.0	3.5	3.5	-50.73	-50.73	18.2	-22.3	28.8	21.8	6.97	4.128 CC	
1,700.0	1,700.0	1,701.0	1,701.0	3.7	3.7	-177.50	-177.50	18.2	-22.3	29.6	22.2	7.40	4.008	
1,800.0	1,800.0	1,801.0	1,801.0	3.9	3.9	-177.70	-177.70	18.2	-22.3	32.3	24.5	7.80	4.135	
1,900.0	1,899.9	1,900.9	1,900.9	4.1	4.2	-177.97	-177.97	18.2	-22.3	36.6	28.4	8.21	4.461	
2,000.0	1,999.7	2,000.7	2,000.7	4.3	4.4	-178.26	-178.26	18.2	-22.3	42.7	34.1	8.62	4.958	
2,100.0	2,099.4	2,100.4	2,100.4	4.5	4.6	-178.53	-178.53	18.2	-22.3	50.6	41.5	9.02	5.603	
2,200.0	2,198.9	2,199.9	2,199.9	4.7	4.8	-178.76	-178.76	18.2	-22.3	60.1	50.7	9.43	6.375	
2,300.0	2,298.3	2,299.3	2,299.3	4.9	5.1	-178.96	-178.96	18.2	-22.3	71.5	61.6	9.84	7.260	
2,400.0	2,397.5	2,398.5	2,398.5	5.2	5.3	-179.11	-179.11	18.2	-22.3	83.8	73.5	10.27	8.161	
2,500.0	2,496.7	2,497.7	2,497.7	5.4	5.5	-179.22	-179.22	18.2	-22.3	96.1	85.4	10.70	8.986	
2,600.0	2,596.0	2,598.2	2,598.2	5.7	5.7	-178.98	-178.98	18.4	-21.4	107.9	96.8	11.12	9.704	
2,700.0	2,695.2	2,699.0	2,698.9	5.9	5.9	-178.15	-178.15	18.8	-18.9	118.5	107.0	11.54	10.274	
2,800.0	2,794.4	2,799.9	2,799.8	6.2	6.1	-176.86	-176.86	19.6	-14.5	128.0	116.1	11.96	10.706	
2,900.0	2,893.7	2,901.0	2,900.6	6.5	6.3	-175.16	-175.16	20.6	-8.5	136.5	124.1	12.39	11.018	
3,000.0	2,992.9	3,002.1	3,001.4	6.8	6.6	-173.10	-173.10	22.0	-0.6	144.0	131.2	12.83	11.227	
3,100.0	3,092.1	3,103.2	3,102.0	7.1	6.8	-170.69	-170.69	23.7	9.0	150.7	137.4	13.27	11.350	
3,200.0	3,191.4	3,204.2	3,202.4	7.4	7.0	-167.93	-167.93	25.6	20.3	156.6	142.9	13.74	11.402	
3,300.0	3,290.6	3,304.5	3,301.9	7.6	7.3	-164.90	-164.90	27.9	33.2	162.1	147.9	14.22	11.404	
3,400.0	3,389.8	3,404.0	3,400.5	7.9	7.5	-162.00	-162.00	30.2	46.2	167.9	153.2	14.71	11.413	
3,500.0	3,489.1	3,503.5	3,499.1	8.2	7.8	-159.30	-159.30	32.4	59.3	174.1	158.9	15.23	11.437	
3,600.0	3,588.3	3,603.0	3,597.7	8.5	8.0	-156.79	-156.79	34.7	72.3	180.7	165.0	15.75	11.473	
3,700.0	3,687.6	3,702.5	3,696.3	8.8	8.3	-154.46	-154.46	37.0	85.4	187.6	171.3	16.29	11.517	
3,800.0	3,786.8	3,802.0	3,794.9	9.2	8.6	-152.29	-152.29	39.3	98.4	194.8	177.9	16.84	11.568	
3,900.0	3,886.0	3,901.4	3,893.5	9.5	8.9	-150.28	-150.28	41.5	111.5	202.2	184.8	17.40	11.623	
4,000.0	3,985.3	4,000.9	3,992.1	9.8	9.1	-148.42	-148.42	43.8	124.6	209.9	191.9	17.96	11.683	
4,100.0	4,084.5	4,100.4	4,090.7	10.1	9.4	-146.68	-146.68	46.1	137.6	217.7	199.2	18.54	11.745	
4,200.0	4,183.7	4,199.9	4,189.3	10.4	9.7	-145.07	-145.07	48.4	150.7	225.8	206.7	19.12	11.808	
4,300.0	4,283.0	4,299.4	4,287.9	10.7	10.0	-143.57	-143.57	50.7	163.7	234.0	214.3	19.71	11.873	
4,400.0	4,382.2	4,398.8	4,386.5	11.0	10.3	-142.18	-142.18	52.9	176.8	242.4	222.1	20.30	11.938	
4,500.0	4,481.4	4,498.3	4,485.0	11.3	10.6	-140.87	-140.87	55.2	189.9	250.9	230.0	20.90	12.004	
4,600.0	4,580.7	4,597.8	4,583.6	11.6	10.9	-139.65	-139.65	57.5	202.9	259.5	238.0	21.50	12.069	
4,700.0	4,679.9	4,697.3	4,682.2	12.0	11.2	-138.52	-138.52	59.8	216.0	268.2	246.1	22.11	12.133	
4,800.0	4,779.1	4,796.8	4,780.8	12.3	11.5	-137.45	-137.45	62.0	229.0	277.1	254.3	22.72	12.197	
4,900.0	4,878.4	4,896.2	4,879.4	12.6	11.8	-136.45	-136.45	64.3	242.1	286.0	262.7	23.33	12.260	
5,000.0	4,977.6	4,995.7	4,978.0	12.9	12.1	-135.51	-135.51	66.6	255.2	295.0	271.0	23.94	12.322	

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 1V-314
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4651.0ft (RKB -13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4651.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-314	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 (4-13-15)													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
5,100.0	5,076.8	5,095.2	5,076.6	13.2	12.4	-134.62		68.9	268.2	304.1	279.5	24.56	12.382	
5,200.0	5,176.1	5,194.7	5,175.2	13.5	12.7	-133.81		71.2	281.3	313.1	287.9	25.17	12.437	
5,300.0	5,275.6	5,294.2	5,273.8	13.8	13.0	-132.76		73.4	294.3	320.4	294.6	25.76	12.437	
5,400.0	5,375.4	5,393.7	5,372.4	14.0	13.3	-131.29		75.7	307.4	325.5	299.2	26.34	12.359	
5,500.0	5,475.4	5,493.8	5,471.7	14.1	13.6	-129.44		77.9	320.0	328.6	301.7	26.88	12.225	
5,600.0	5,575.4	5,594.9	5,572.4	14.3	13.9	-1.08		79.6	329.7	330.0	304.7	25.31	13.042	
5,700.0	5,675.4	5,696.7	5,673.9	14.5	14.1	0.00		80.7	335.9	331.0	305.4	25.65	12.906	
5,800.0	5,775.4	5,798.7	5,775.9	14.6	14.3	0.45		81.1	338.5	331.5	305.5	26.01	12.744	
5,900.0	5,875.4	5,899.2	5,876.4	14.8	14.4	0.47		81.2	338.6	331.5	305.1	26.39	12.561	
6,000.0	5,975.4	5,999.2	5,976.4	15.0	14.6	0.47		81.2	338.6	331.5	304.7	26.79	12.373	
6,100.0	6,075.4	6,099.3	6,076.4	15.2	14.8	0.11		81.2	336.5	331.5	304.3	27.19	12.193	
6,108.5	6,083.9	6,107.7	6,084.9	15.2	14.8	90.00		81.2	335.9	331.5	302.3	29.24	11.339	
6,200.0	6,175.3	6,198.2	6,174.3	15.3	14.9	88.32		81.2	322.9	331.7	302.3	29.41	11.277	
6,300.0	6,273.9	6,295.7	6,268.3	15.4	14.9	86.48		81.2	297.2	332.2	302.7	29.47	11.273	
6,400.0	6,369.7	6,391.9	6,357.1	15.4	14.9	84.72		81.2	260.2	332.9	303.5	29.44	11.308	
6,500.0	6,460.8	6,487.0	6,439.6	15.4	14.9	83.06		81.2	213.1	334.0	304.6	29.42	11.350	
6,600.0	6,545.9	6,581.0	6,514.8	15.4	15.0	81.53		81.2	156.7	335.2	305.7	29.52	11.356	
6,700.0	6,623.4	6,674.2	6,581.9	15.4	15.3	80.15		81.2	92.3	336.5	306.6	29.85	11.272	
6,800.0	6,691.9	6,766.5	6,640.2	15.6	15.7	78.94		81.2	20.8	337.8	307.2	30.57	11.049	
6,900.0	6,750.4	6,858.1	6,689.1	16.0	16.5	77.91		81.2	-56.7	339.1	307.3	31.80	10.663	
7,000.0	6,797.8	6,950.0	6,728.5	16.9	17.4	77.07		81.2	-139.6	340.2	306.5	33.61	10.121	
7,100.0	6,833.4	7,039.8	6,757.1	18.2	18.7	76.44		81.2	-224.7	341.0	305.0	36.00	9.474	
7,200.0	6,856.4	7,130.2	6,775.7	19.8	20.2	76.01		81.2	-313.1	341.7	302.7	38.92	8.779	
7,300.0	6,866.5	7,220.3	6,783.6	21.6	21.8	75.79		81.2	-402.8	342.0	299.7	42.25	8.093	
7,400.0	6,866.3	7,317.1	6,783.3	23.6	23.8	75.79		81.2	-499.6	342.0	295.9	46.06	7.424	
7,500.0	6,865.2	7,417.1	6,782.4	25.8	25.9	75.83		81.2	-599.6	341.9	291.7	50.23	6.808	
7,600.0	6,864.0	7,517.1	6,781.5	28.1	28.1	75.86		81.2	-699.6	341.9	287.2	54.62	6.259	
7,700.0	6,862.9	7,617.1	6,780.7	30.4	30.5	75.90		81.2	-799.6	341.8	282.6	59.20	5.774	
7,800.0	6,861.8	7,717.1	6,779.8	32.9	32.9	75.94		81.2	-899.6	341.8	277.8	63.92	5.347	
7,900.0	6,860.7	7,817.1	6,778.9	35.3	35.4	75.97		81.2	-999.6	341.7	273.0	68.75	4.970	
8,000.0	6,859.6	7,917.1	6,778.0	37.9	37.9	76.01		81.2	-1,099.6	341.7	268.0	73.68	4.637	
8,100.0	6,858.5	8,017.1	6,777.1	40.4	40.5	76.05		81.2	-1,199.6	341.6	262.9	78.67	4.342	
8,200.0	6,857.3	8,117.1	6,776.2	43.0	43.1	76.08		81.2	-1,299.6	341.5	257.8	83.73	4.079	
8,300.0	6,856.2	8,217.1	6,775.3	45.7	45.7	76.12		81.2	-1,399.6	341.5	252.6	88.85	3.844	
8,400.0	6,855.1	8,317.1	6,774.4	48.3	48.3	76.16		81.2	-1,499.6	341.4	247.4	94.00	3.632	
8,500.0	6,854.0	8,417.1	6,773.5	51.0	51.0	76.19		81.2	-1,599.6	341.4	242.2	99.19	3.442	
8,600.0	6,852.9	8,517.1	6,772.6	53.6	53.7	76.23		81.2	-1,699.6	341.3	236.9	104.42	3.269	
8,700.0	6,851.8	8,617.1	6,771.7	56.3	56.3	76.27		81.2	-1,799.5	341.3	231.6	109.67	3.112	
8,800.0	6,850.6	8,717.1	6,770.9	59.0	59.0	76.31		81.2	-1,899.5	341.2	226.3	114.94	2.969	
8,900.0	6,849.5	8,817.1	6,770.0	61.7	61.8	76.34		81.2	-1,999.5	341.2	220.9	120.23	2.838	
9,000.0	6,848.4	8,917.1	6,769.1	64.5	64.5	76.38		81.2	-2,099.5	341.1	215.6	125.55	2.717	
9,100.0	6,847.3	9,017.1	6,768.2	67.2	67.2	76.42		81.2	-2,199.5	341.1	210.2	130.88	2.606	
9,200.0	6,846.2	9,117.1	6,767.3	69.9	69.9	76.45		81.2	-2,299.5	341.0	204.8	136.22	2.503	
9,300.0	6,845.1	9,217.1	6,766.4	72.7	72.7	76.49		81.2	-2,399.5	341.0	199.4	141.58	2.408	
9,400.0	6,843.9	9,317.1	6,765.5	75.4	75.4	76.53		81.2	-2,499.5	340.9	194.0	146.95	2.320	
9,500.0	6,842.8	9,417.1	6,764.6	78.2	78.2	76.57		81.2	-2,599.5	340.8	188.5	152.32	2.238	
9,600.0	6,841.7	9,517.1	6,763.7	80.9	80.9	76.60		81.2	-2,699.5	340.8	183.1	157.71	2.161	
9,700.0	6,840.6	9,617.1	6,762.8	83.7	83.7	76.64		81.2	-2,799.5	340.7	177.6	163.11	2.089	
9,800.0	6,839.5	9,717.1	6,762.0	86.4	86.4	76.68		81.2	-2,899.5	340.7	172.2	168.52	2.022	
9,900.0	6,838.3	9,817.1	6,761.1	89.2	89.2	76.71		81.2	-2,999.5	340.6	166.7	173.93	1.958	
10,000.0	6,837.2	9,917.1	6,760.2	92.0	91.9	76.75		81.2	-3,099.5	340.6	161.2	179.35	1.899	

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 1V-314
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4651.0ft (RKB -13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4651.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-314	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 (4-13-15)													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
10,100.0	6,836.1	10,017.1	6,759.3	94.7	94.7	76.79	76.79	81.2	-3,199.5	340.5	155.7	184.78	1.843	
10,200.0	6,835.0	10,117.1	6,758.4	97.5	97.5	76.83	76.83	81.2	-3,299.5	340.5	150.3	190.22	1.790	
10,300.0	6,833.9	10,217.1	6,757.5	100.3	100.3	76.86	76.86	81.2	-3,399.5	340.4	144.8	195.65	1.740	
10,400.0	6,832.8	10,317.1	6,756.6	103.0	103.0	76.90	76.90	81.2	-3,499.5	340.4	139.3	201.10	1.693	
10,500.0	6,831.6	10,417.1	6,755.7	105.8	105.8	76.94	76.94	81.2	-3,599.5	340.3	133.8	206.55	1.648	
10,600.0	6,830.5	10,517.1	6,754.8	108.6	108.6	76.97	76.97	81.2	-3,699.5	340.3	128.3	212.00	1.605	
10,700.0	6,829.4	10,617.1	6,753.9	111.4	111.4	77.01	77.01	81.2	-3,799.5	340.2	122.8	217.46	1.565	
10,800.0	6,828.3	10,717.1	6,753.1	114.2	114.1	77.05	77.05	81.2	-3,899.5	340.2	117.2	222.93	1.526	
10,900.0	6,827.2	10,817.1	6,752.2	116.9	116.9	77.09	77.09	81.2	-3,999.5	340.1	111.7	228.39	1.489 Level 3	
11,000.0	6,826.1	10,917.1	6,751.3	119.7	119.7	77.12	77.12	81.2	-4,099.5	340.1	106.2	233.87	1.454 Level 3	
11,100.0	6,824.9	11,017.1	6,750.4	122.5	122.5	77.16	77.16	81.2	-4,199.4	340.0	100.7	239.34	1.421 Level 3	
11,200.0	6,823.8	11,117.1	6,749.5	125.3	125.3	77.20	77.20	81.2	-4,299.4	340.0	95.1	244.82	1.389 Level 3	
11,300.0	6,822.7	11,217.1	6,748.6	128.1	128.1	77.23	77.23	81.2	-4,399.4	339.9	89.6	250.30	1.358 Level 3	
11,400.0	6,821.6	11,317.1	6,747.7	130.9	130.9	77.27	77.27	81.2	-4,499.4	339.9	84.1	255.79	1.329 Level 3	
11,500.0	6,820.5	11,417.1	6,746.8	133.7	133.7	77.31	77.31	81.2	-4,599.4	339.8	78.5	261.28	1.301 Level 3	
11,600.0	6,819.4	11,517.1	6,745.9	136.5	136.4	77.35	77.35	81.2	-4,699.4	339.8	73.0	266.77	1.274 Level 3	
11,700.0	6,818.2	11,617.1	6,745.0	139.2	139.2	77.38	77.38	81.2	-4,799.4	339.7	67.5	272.26	1.248 Level 2	
11,800.0	6,817.1	11,717.1	6,744.2	142.0	142.0	77.42	77.42	81.2	-4,899.4	339.7	61.9	277.76	1.223 Level 2	
11,900.0	6,816.0	11,817.1	6,743.3	144.8	144.8	77.46	77.46	81.2	-4,999.4	339.6	56.4	283.26	1.199 Level 2	
12,000.0	6,814.9	11,917.1	6,742.4	147.6	147.6	77.50	77.50	81.2	-5,099.4	339.6	50.8	288.76	1.176 Level 2	
12,100.0	6,813.8	12,017.1	6,741.5	150.4	150.4	77.53	77.53	81.2	-5,199.4	339.5	45.3	294.27	1.154 Level 2	
12,200.0	6,812.7	12,117.1	6,740.6	153.2	153.2	77.57	77.57	81.2	-5,299.4	339.5	39.7	299.78	1.132 Level 2	
12,300.0	6,811.5	12,217.1	6,739.7	156.0	156.0	77.61	77.61	81.2	-5,399.4	339.4	34.1	305.29	1.112 Level 2	
12,400.0	6,810.4	12,317.1	6,738.8	158.8	158.8	77.65	77.65	81.2	-5,499.4	339.4	28.6	310.80	1.092 Level 2	
12,500.0	6,809.3	12,417.1	6,737.9	161.6	161.6	77.68	77.68	81.2	-5,599.4	339.3	23.0	316.32	1.073 Level 2	
12,600.0	6,808.2	12,517.1	6,737.0	164.4	164.4	77.72	77.72	81.2	-5,699.4	339.3	17.4	321.83	1.054 Level 2	
12,700.0	6,807.1	12,617.1	6,736.1	167.2	167.2	77.76	77.76	81.2	-5,799.4	339.2	11.9	327.35	1.036 Level 2	
12,800.0	6,806.0	12,717.1	6,735.3	170.0	170.0	77.80	77.80	81.2	-5,899.4	339.2	6.3	332.87	1.019 Level 2	
12,900.0	6,804.8	12,817.1	6,734.4	172.8	172.8	77.83	77.83	81.2	-5,999.4	339.1	0.7	338.40	1.002 Level 2	
13,000.0	6,803.7	12,917.1	6,733.5	175.6	175.6	77.87	77.87	81.2	-6,099.4	339.1	-4.8	343.92	0.986 Level 1	
13,100.0	6,802.6	13,017.1	6,732.6	178.4	178.4	77.91	77.91	81.2	-6,199.4	339.0	-10.4	349.45	0.970 Level 1	
13,200.0	6,801.5	13,117.1	6,731.7	181.2	181.2	77.95	77.95	81.2	-6,299.4	339.0	-16.0	354.98	0.955 Level 1	
13,300.0	6,800.4	13,217.1	6,730.8	184.0	184.0	77.98	77.98	81.2	-6,399.4	338.9	-21.6	360.51	0.940 Level 1	
13,400.0	6,799.3	13,317.1	6,729.9	186.8	186.8	78.02	78.02	81.2	-6,499.4	338.9	-27.2	366.05	0.926 Level 1	
13,500.0	6,798.1	13,417.1	6,729.0	189.6	189.6	78.06	78.06	81.2	-6,599.3	338.9	-32.7	371.58	0.912 Level 1	
13,600.0	6,797.0	13,517.1	6,728.1	192.4	192.4	78.10	78.10	81.2	-6,699.3	338.8	-38.3	377.12	0.898 Level 1	
13,700.0	6,795.9	13,617.1	6,727.2	195.2	195.2	78.13	78.13	81.2	-6,799.3	338.8	-43.9	382.66	0.885 Level 1	
13,800.0	6,794.8	13,717.1	6,726.4	198.0	198.0	78.17	78.17	81.2	-6,899.3	338.7	-49.5	388.20	0.873 Level 1	
13,900.0	6,793.7	13,817.1	6,725.5	200.8	200.6	78.21	78.21	81.2	-6,999.3	338.7	-54.9	393.58	0.860 Level 1	
13,942.7	6,793.2	13,859.8	6,725.1	202.0	201.4	78.22	78.22	81.2	-7,042.0	338.6	-56.9	395.53	0.856 Level 1	
13,959.9	6,793.0	13,869.2	6,725.0	202.5	201.5	78.23	78.23	81.2	-7,051.4	338.7	-57.4	396.17	0.855 Level 1, ES, SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1V-314
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4651.0ft (RKB -13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4651.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-314	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
0.0	0.0	2.0	2.0	0.0	0.0	-48.02	-48.02	40.1	-44.5	59.9	59.9	0.00	N/A	
100.0	100.0	102.0	102.0	0.1	0.1	-48.02	-48.02	40.1	-44.5	59.9	59.7	0.23	261.354	
200.0	200.0	202.0	202.0	0.3	0.3	-48.02	-48.02	40.1	-44.5	59.9	59.2	0.68	88.272	
300.0	300.0	302.0	302.0	0.6	0.6	-48.02	-48.02	40.1	-44.5	59.9	58.8	1.13	53.104	
400.0	400.0	402.0	402.0	0.8	0.8	-48.02	-48.02	40.1	-44.5	59.9	58.3	1.58	37.975	
500.0	500.0	502.0	502.0	1.0	1.0	-48.02	-48.02	40.1	-44.5	59.9	57.9	2.03	29.554	
600.0	600.0	602.0	602.0	1.2	1.2	-48.02	-48.02	40.1	-44.5	59.9	57.4	2.48	24.191	
700.0	700.0	702.0	702.0	1.5	1.5	-48.02	-48.02	40.1	-44.5	59.9	57.0	2.93	20.475	
800.0	800.0	802.0	802.0	1.7	1.7	-48.02	-48.02	40.1	-44.5	59.9	56.5	3.38	17.748	
900.0	900.0	902.0	902.0	1.9	1.9	-48.02	-48.02	40.1	-44.5	59.9	56.1	3.83	15.663	
1,000.0	1,000.0	1,002.0	1,002.0	2.1	2.1	-48.02	-48.02	40.1	-44.5	59.9	55.6	4.28	14.016	
1,100.0	1,100.0	1,102.0	1,102.0	2.4	2.4	-48.02	-48.02	40.1	-44.5	59.9	55.2	4.72	12.682	
1,200.0	1,200.0	1,202.0	1,202.0	2.6	2.6	-48.02	-48.02	40.1	-44.5	59.9	54.7	5.17	11.580	
1,300.0	1,300.0	1,302.0	1,302.0	2.8	2.8	-48.02	-48.02	40.1	-44.5	59.9	54.3	5.62	10.655	
1,400.0	1,400.0	1,402.0	1,402.0	3.0	3.0	-48.02	-48.02	40.1	-44.5	59.9	53.8	6.07	9.866	
1,500.0	1,500.0	1,502.2	1,502.2	3.3	3.3	-47.17	-47.17	40.6	-43.8	59.7	53.2	6.52	9.163	
1,600.0	1,600.0	1,602.4	1,602.4	3.5	3.5	-44.65	-44.65	42.1	-41.6	59.2	52.3	6.96	8.510	
1,635.7	1,635.7	1,638.1	1,638.1	3.6	3.6	-170.05	-170.05	42.9	-40.5	59.1	52.0	7.11	8.317 CC, ES	
1,700.0	1,700.0	1,702.4	1,702.3	3.7	3.7	-167.29	-167.29	44.6	-38.0	59.5	52.1	7.37	8.064	
1,800.0	1,800.0	1,802.3	1,802.0	3.9	3.9	-162.13	-162.13	48.2	-33.0	61.7	53.9	7.78	7.928	
1,900.0	1,899.9	1,902.0	1,901.3	4.1	4.1	-156.44	-156.44	52.6	-26.5	66.1	57.9	8.19	8.065	
2,000.0	1,999.7	2,001.4	2,000.3	4.3	4.4	-150.80	-150.80	58.1	-18.7	72.9	64.2	8.62	8.456	
2,100.0	2,099.4	2,100.4	2,098.6	4.5	4.6	-145.66	-145.66	64.5	-9.5	82.1	73.1	9.06	9.070	
2,200.0	2,198.9	2,199.5	2,197.0	4.7	4.9	-141.66	-141.66	71.5	0.5	93.6	84.1	9.51	9.844	
2,300.0	2,298.3	2,298.6	2,295.3	4.9	5.1	-139.12	-139.12	78.4	10.5	106.8	96.8	9.98	10.700	
2,400.0	2,397.5	2,397.5	2,393.5	5.2	5.4	-137.53	-137.53	85.4	20.5	120.8	110.3	10.46	11.545	
2,500.0	2,496.7	2,496.5	2,491.7	5.4	5.7	-136.29	-136.29	92.4	30.5	134.9	123.9	10.96	12.310	
2,600.0	2,596.0	2,595.4	2,589.9	5.7	6.0	-135.28	-135.28	99.3	40.5	149.0	137.6	11.46	13.003	
2,700.0	2,695.2	2,694.4	2,688.2	5.9	6.2	-134.44	-134.44	106.3	50.5	163.2	151.3	11.98	13.631	
2,800.0	2,794.4	2,793.4	2,786.4	6.2	6.5	-133.74	-133.74	113.2	60.4	177.5	165.0	12.49	14.203	
2,900.0	2,893.7	2,892.3	2,884.6	6.5	6.8	-133.14	-133.14	120.2	70.4	191.7	178.7	13.02	14.723	
3,000.0	2,992.9	2,991.3	2,982.8	6.8	7.1	-132.63	-132.63	127.1	80.4	206.0	192.4	13.55	15.199	
3,100.0	3,092.1	3,090.2	3,081.0	7.1	7.4	-132.18	-132.18	134.1	90.4	220.2	206.2	14.09	15.634	
3,200.0	3,191.4	3,189.2	3,179.2	7.4	7.7	-131.78	-131.78	141.1	100.4	234.5	219.9	14.63	16.033	
3,300.0	3,290.6	3,288.2	3,277.4	7.6	8.0	-131.43	-131.43	148.0	110.4	248.8	233.7	15.17	16.401	
3,400.0	3,389.8	3,387.1	3,375.6	7.9	8.3	-131.12	-131.12	155.0	120.3	263.1	247.4	15.72	16.740	
3,500.0	3,489.1	3,486.1	3,473.8	8.2	8.6	-130.85	-130.85	161.9	130.3	277.4	261.2	16.27	17.053	
3,600.0	3,588.3	3,585.1	3,572.1	8.5	8.9	-130.59	-130.59	168.9	140.3	291.8	274.9	16.82	17.343	
3,700.0	3,687.6	3,684.0	3,670.3	8.8	9.2	-130.37	-130.37	175.8	150.3	306.1	288.7	17.38	17.612	
3,800.0	3,786.8	3,783.0	3,768.5	9.2	9.5	-130.16	-130.16	182.8	160.3	320.4	302.5	17.94	17.863	
3,900.0	3,886.0	3,881.9	3,866.7	9.5	9.8	-129.97	-129.97	189.8	170.3	334.7	316.2	18.50	18.096	
4,000.0	3,985.3	3,980.9	3,964.9	9.8	10.1	-129.80	-129.80	196.7	180.2	349.1	330.0	19.06	18.314	
4,100.0	4,084.5	4,079.9	4,063.1	10.1	10.4	-129.63	-129.63	203.7	190.2	363.4	343.8	19.62	18.518	
4,200.0	4,183.7	4,178.8	4,161.3	10.4	10.7	-129.49	-129.49	210.6	200.2	377.7	357.6	20.19	18.710	
4,300.0	4,283.0	4,277.8	4,259.5	10.7	11.0	-129.35	-129.35	217.6	210.2	392.1	371.3	20.76	18.889	
4,400.0	4,382.2	4,376.8	4,357.7	11.0	11.3	-129.22	-129.22	224.5	220.2	406.4	385.1	21.33	19.058	
4,500.0	4,481.4	4,475.7	4,456.0	11.3	11.6	-129.10	-129.10	231.5	230.2	420.8	398.9	21.90	19.218	
4,600.0	4,580.7	4,574.7	4,554.2	11.6	11.9	-128.99	-128.99	238.4	240.2	435.1	412.7	22.47	19.368	
4,700.0	4,679.9	4,673.6	4,652.4	12.0	12.2	-128.89	-128.89	245.4	250.1	449.5	426.4	23.04	19.510	
4,800.0	4,779.1	4,772.6	4,750.6	12.3	12.5	-128.79	-128.79	252.4	260.1	463.8	440.2	23.61	19.644	
4,900.0	4,878.4	4,871.6	4,848.8	12.6	12.9	-128.70	-128.70	259.3	270.1	478.2	454.0	24.19	19.771	

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 1V-314
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4651.0ft (RKB -13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4651.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-314	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)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,977.6	4,970.5	4,947.0	12.9	13.2	-128.61		266.3	280.1	492.5	467.8	24.76	19.892	
5,100.0	5,076.8	5,069.5	5,045.2	13.2	13.5	-128.53		273.2	290.1	506.9	481.5	25.34	20.006	
5,200.0	5,176.1	5,168.5	5,143.4	13.5	13.8	-128.51		280.2	300.1	521.1	495.2	25.91	20.110	
5,300.0	5,275.6	5,267.6	5,241.8	13.8	14.1	-128.40		287.2	310.1	533.8	507.3	26.46	20.176	
5,400.0	5,375.4	5,366.9	5,340.4	14.0	14.4	-127.98		294.1	320.1	544.3	517.3	26.97	20.180	
5,500.0	5,475.4	5,477.4	5,450.3	14.1	14.7	-127.31		300.8	329.7	551.8	524.4	27.41	20.130	
5,600.0	5,575.4	5,589.5	5,562.1	14.3	14.9	0.00		305.2	335.9	555.7	529.5	26.26	21.163	
5,700.0	5,675.4	5,702.0	5,674.6	14.5	15.1	0.27		307.0	338.6	557.4	530.7	26.64	20.921	
5,800.0	5,775.4	5,804.9	5,777.4	14.6	15.3	0.28		307.1	338.7	557.4	530.4	27.01	20.636	
5,900.0	5,875.4	5,904.9	5,877.4	14.8	15.4	0.28		307.1	338.7	557.4	530.0	27.40	20.347	
6,000.0	5,975.4	6,004.9	5,977.4	15.0	15.6	0.28		307.1	338.7	557.4	529.7	27.78	20.063	
6,100.0	6,075.4	6,104.9	6,077.4	15.2	15.8	0.28		307.1	338.7	557.4	529.3	28.17	19.786	
6,200.0	6,175.3	6,205.1	6,177.5	15.3	16.0	90.26		307.1	335.0	557.4	527.5	29.97	18.602	
6,300.0	6,273.9	6,305.5	6,276.4	15.4	16.0	90.23		307.1	318.7	557.4	527.3	30.11	18.513	
6,400.0	6,369.7	6,405.7	6,372.3	15.4	16.0	90.19		307.1	289.6	557.4	527.3	30.14	18.492	
6,500.0	6,460.8	6,505.9	6,463.5	15.4	16.0	90.15		307.1	248.2	557.4	527.3	30.14	18.496	
6,600.0	6,545.9	6,606.1	6,548.5	15.4	15.9	90.11		307.1	195.3	557.4	527.2	30.20	18.457	
6,700.0	6,623.4	6,706.2	6,625.8	15.4	15.9	90.06		307.1	131.8	557.4	527.0	30.48	18.288	
6,800.0	6,691.9	6,806.3	6,694.0	15.6	16.0	90.01		307.1	58.8	557.4	526.3	31.15	17.898	
6,900.0	6,750.4	6,906.2	6,752.2	16.0	16.5	89.97		307.1	-22.5	557.4	525.1	32.35	17.231	
7,000.0	6,797.8	7,006.2	6,799.1	16.9	17.3	89.92		307.1	-110.6	557.4	523.2	34.20	16.298	
7,001.9	6,798.6	7,008.1	6,799.9	16.9	17.3	89.92		307.1	-112.4	557.4	523.2	34.25	16.276	
7,100.0	6,833.4	7,106.0	6,834.2	18.2	18.5	89.88		307.1	-204.1	557.4	520.7	36.72	15.180	
7,200.0	6,856.4	7,205.9	6,856.8	19.8	20.1	89.84		307.1	-301.2	557.4	517.6	39.84	13.991	
7,300.0	6,866.5	7,305.6	6,866.5	21.6	21.8	89.80		307.1	-400.4	557.4	514.0	43.43	12.834	
7,400.0	6,866.3	7,405.5	6,865.9	23.6	23.8	89.75		307.1	-500.3	557.4	510.1	47.37	11.767	
7,500.0	6,865.2	7,505.5	6,864.3	25.8	25.9	89.71		307.1	-600.3	557.4	505.8	51.62	10.799	
7,600.0	6,864.0	7,605.5	6,862.7	28.1	28.1	89.66		307.1	-700.3	557.4	501.3	56.11	9.935	
7,700.0	6,862.9	7,705.5	6,861.2	30.4	30.4	89.61		307.1	-800.3	557.4	496.7	60.79	9.170	
7,800.0	6,861.8	7,805.5	6,859.6	32.9	32.8	89.57		307.1	-900.3	557.4	491.8	65.61	8.496	
7,900.0	6,860.7	7,905.5	6,858.0	35.3	35.3	89.52		307.1	-1,000.3	557.4	486.9	70.55	7.901	
8,000.0	6,859.6	8,005.5	6,856.4	37.9	37.8	89.47		307.1	-1,100.2	557.4	481.9	75.59	7.375	
8,100.0	6,858.5	8,105.5	6,854.9	40.4	40.3	89.43		307.1	-1,200.2	557.5	476.7	80.70	6.907	
8,200.0	6,857.3	8,205.5	6,853.3	43.0	42.9	89.38		307.1	-1,300.2	557.5	471.6	85.88	6.491	
8,300.0	6,856.2	8,305.5	6,851.7	45.7	45.5	89.33		307.1	-1,400.2	557.5	466.3	91.11	6.118	
8,400.0	6,855.1	8,405.5	6,850.2	48.3	48.2	89.29		307.1	-1,500.2	557.5	461.1	96.38	5.784	
8,500.0	6,854.0	8,505.5	6,848.6	51.0	50.8	89.24		307.1	-1,600.2	557.5	455.8	101.69	5.482	
8,600.0	6,852.9	8,605.5	6,847.0	53.6	53.5	89.19		307.1	-1,700.2	557.5	450.4	107.04	5.208	
8,700.0	6,851.8	8,705.5	6,845.4	56.3	56.1	89.15		307.1	-1,800.1	557.5	445.1	112.40	4.960	
8,800.0	6,850.6	8,805.5	6,843.9	59.0	58.8	89.10		307.1	-1,900.1	557.5	439.7	117.79	4.733	
8,900.0	6,849.5	8,905.5	6,842.3	61.7	61.5	89.05		307.1	-2,000.1	557.5	434.3	123.21	4.525	
9,000.0	6,848.4	9,005.5	6,840.7	64.5	64.3	89.01		307.1	-2,100.1	557.5	428.9	128.64	4.334	
9,100.0	6,847.3	9,105.5	6,839.2	67.2	67.0	88.96		307.1	-2,200.1	557.5	423.4	134.08	4.158	
9,200.0	6,846.2	9,205.5	6,837.6	69.9	69.7	88.91		307.1	-2,300.1	557.5	418.0	139.54	3.995	
9,300.0	6,845.1	9,305.5	6,836.0	72.7	72.4	88.87		307.1	-2,400.1	557.5	412.5	145.01	3.845	
9,400.0	6,843.9	9,405.5	6,834.5	75.4	75.2	88.82		307.1	-2,500.1	557.5	407.0	150.49	3.705	
9,500.0	6,842.8	9,505.5	6,832.9	78.2	77.9	88.77		307.1	-2,600.0	557.5	401.6	155.98	3.575	
9,600.0	6,841.7	9,605.5	6,831.3	80.9	80.7	88.73		307.1	-2,700.0	557.6	396.1	161.48	3.453	
9,700.0	6,840.6	9,705.5	6,829.7	83.7	83.4	88.68		307.1	-2,800.0	557.6	390.6	166.98	3.339	
9,800.0	6,839.5	9,805.5	6,828.2	86.4	86.2	88.63		307.1	-2,900.0	557.6	385.1	172.49	3.232	
9,900.0	6,838.3	9,905.5	6,826.6	89.2	88.9	88.59		307.1	-3,000.0	557.6	379.6	178.01	3.132	

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 1V-314
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4651.0ft (RKB -13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4651.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-314	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
10,000.0	6,837.2	10,005.5	6,825.0	92.0	91.7	88.54		307.1	-3,100.0	557.6	374.1	183.54	3.038	
10,100.0	6,836.1	10,105.5	6,823.5	94.7	94.4	88.49		307.1	-3,200.0	557.6	368.5	189.07	2.949	
10,200.0	6,835.0	10,205.5	6,821.9	97.5	97.2	88.45		307.1	-3,299.9	557.6	363.0	194.60	2.865	
10,300.0	6,833.9	10,305.5	6,820.3	100.3	100.0	88.40		307.1	-3,399.9	557.6	357.5	200.14	2.786	
10,400.0	6,832.8	10,405.5	6,818.7	103.0	102.8	88.35		307.1	-3,499.9	557.6	352.0	205.68	2.711	
10,500.0	6,831.6	10,505.5	6,817.2	105.8	105.5	88.31		307.1	-3,599.9	557.7	346.4	211.23	2.640	
10,600.0	6,830.5	10,605.5	6,815.6	108.6	108.3	88.26		307.1	-3,699.9	557.7	340.9	216.78	2.573	
10,700.0	6,829.4	10,705.5	6,814.0	111.4	111.1	88.21		307.1	-3,799.9	557.7	335.3	222.33	2.508	
10,800.0	6,828.3	10,805.5	6,812.5	114.2	113.9	88.17		307.1	-3,899.9	557.7	329.8	227.88	2.447	
10,900.0	6,827.2	10,905.5	6,810.9	116.9	116.6	88.12		307.1	-3,999.8	557.7	324.3	233.44	2.389	
11,000.0	6,826.1	11,005.5	6,809.3	119.7	119.4	88.07		307.1	-4,099.8	557.7	318.7	239.00	2.334	
11,100.0	6,824.9	11,105.5	6,807.8	122.5	122.2	88.03		307.1	-4,199.8	557.7	313.2	244.56	2.281	
11,200.0	6,823.8	11,205.5	6,806.2	125.3	125.0	87.98		307.1	-4,299.8	557.7	307.6	250.12	2.230	
11,300.0	6,822.7	11,305.5	6,804.6	128.1	127.8	87.93		307.1	-4,399.8	557.8	302.1	255.68	2.181	
11,400.0	6,821.6	11,405.5	6,803.0	130.9	130.6	87.89		307.1	-4,499.8	557.8	296.5	261.25	2.135	
11,500.0	6,820.5	11,505.5	6,801.5	133.7	133.3	87.84		307.1	-4,599.8	557.8	291.0	266.82	2.091	
11,600.0	6,819.4	11,605.5	6,799.9	136.5	136.1	87.79		307.0	-4,699.8	557.8	285.4	272.39	2.048	
11,700.0	6,818.2	11,705.5	6,798.3	139.2	138.9	87.75		307.0	-4,799.7	557.8	279.9	277.96	2.007	
11,800.0	6,817.1	11,805.5	6,796.8	142.0	141.7	87.70		307.0	-4,899.7	557.8	274.3	283.53	1.968	
11,900.0	6,816.0	11,905.5	6,795.2	144.8	144.5	87.66		307.0	-4,999.7	557.9	268.8	289.10	1.930	
12,000.0	6,814.9	12,005.5	6,793.6	147.6	147.3	87.61		307.0	-5,099.7	557.9	263.2	294.67	1.893	
12,100.0	6,813.8	12,105.5	6,792.0	150.4	150.1	87.56		307.0	-5,199.7	557.9	257.7	300.24	1.858	
12,200.0	6,812.7	12,205.5	6,790.5	153.2	152.9	87.52		307.0	-5,299.7	557.9	252.1	305.82	1.824	
12,300.0	6,811.5	12,305.5	6,788.9	156.0	155.7	87.47		307.0	-5,399.7	557.9	246.5	311.39	1.792	
12,400.0	6,810.4	12,405.5	6,787.3	158.8	158.5	87.42		307.0	-5,499.6	558.0	241.0	316.97	1.760	
12,500.0	6,809.3	12,505.5	6,785.8	161.6	161.3	87.38		307.0	-5,599.6	558.0	235.4	322.54	1.730	
12,600.0	6,808.2	12,605.5	6,784.2	164.4	164.1	87.33		307.0	-5,699.6	558.0	229.9	328.12	1.701	
12,700.0	6,807.1	12,705.5	6,782.6	167.2	166.9	87.28		307.0	-5,799.6	558.0	224.3	333.70	1.672	
12,800.0	6,806.0	12,805.5	6,781.0	170.0	169.7	87.24		307.0	-5,899.6	558.0	218.8	339.27	1.645	
12,900.0	6,804.8	12,905.5	6,779.5	172.8	172.4	87.19		307.0	-5,999.6	558.1	213.2	344.85	1.618	
13,000.0	6,803.7	13,005.5	6,777.9	175.6	175.2	87.14		307.0	-6,099.6	558.1	207.7	350.43	1.593	
13,100.0	6,802.6	13,105.5	6,776.3	178.4	178.0	87.10		307.0	-6,199.6	558.1	202.1	356.00	1.568	
13,200.0	6,801.5	13,205.5	6,774.8	181.2	180.8	87.05		307.0	-6,299.5	558.1	196.5	361.58	1.544	
13,300.0	6,800.4	13,305.5	6,773.2	184.0	183.6	87.00		307.0	-6,399.5	558.2	191.0	367.16	1.520	
13,400.0	6,799.3	13,405.5	6,771.6	186.8	186.4	86.96		307.0	-6,499.5	558.2	185.4	372.74	1.498 Level 3	
13,500.0	6,798.1	13,505.5	6,770.1	189.6	189.2	86.91		307.0	-6,599.5	558.2	179.9	378.31	1.475 Level 3	
13,600.0	6,797.0	13,605.5	6,768.5	192.4	192.0	86.86		307.0	-6,699.5	558.2	174.3	383.89	1.454 Level 3	
13,700.0	6,795.9	13,705.5	6,766.9	195.2	194.8	86.82		307.0	-6,799.5	558.2	168.8	389.47	1.433 Level 3	
13,800.0	6,794.8	13,805.5	6,765.3	198.0	197.6	86.77		307.0	-6,899.5	558.3	163.2	395.04	1.413 Level 3	
13,900.0	6,793.7	13,905.5	6,763.8	200.8	200.4	86.72		307.0	-6,999.4	558.3	157.7	400.62	1.394 Level 3	
13,929.5	6,793.3	13,934.9	6,763.3	201.6	201.3	86.71		307.0	-7,028.9	558.3	156.0	402.26	1.388 Level 3	
13,959.9	6,793.0	13,954.6	6,763.0	202.5	201.8	86.70		307.0	-7,048.6	558.4	154.8	403.66	1.383 Level 3, SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1V-314
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4651.0ft (RKB -13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4651.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-314	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	136.92	136.92	-65.6	61.3	89.8				
100.0	100.0	99.0	99.0	0.1	0.1	136.92	136.92	-65.6	61.3	89.8	89.6	0.22	401.484	
200.0	200.0	199.0	199.0	0.3	0.3	136.92	136.92	-65.6	61.3	89.8	89.1	0.67	133.606 CC, ES	
300.0	300.0	297.6	297.6	0.6	0.5	137.15	137.15	-66.4	61.6	90.6	89.5	1.10	82.614	
400.0	400.0	396.1	396.1	0.8	0.7	137.81	137.81	-68.8	62.3	92.9	91.4	1.52	61.169	
500.0	500.0	494.6	494.4	1.0	0.9	138.84	138.84	-72.8	63.6	96.8	94.8	1.95	49.529	
600.0	600.0	592.8	592.5	1.2	1.2	140.15	140.15	-78.4	65.4	102.3	99.9	2.40	42.652	
700.0	700.0	690.8	690.2	1.5	1.4	141.64	141.64	-85.6	67.7	109.5	106.7	2.85	38.400	
800.0	800.0	788.6	787.5	1.7	1.7	143.21	143.21	-94.3	70.6	118.4	115.1	3.31	35.727	
900.0	900.0	885.9	884.3	1.9	2.0	144.78	144.78	-104.6	73.9	128.9	125.1	3.78	34.067	
1,000.0	1,000.0	982.9	980.5	2.1	2.3	146.30	146.30	-116.4	77.6	141.2	136.9	4.27	33.084	
1,100.0	1,100.0	1,079.5	1,076.0	2.4	2.6	147.73	147.73	-129.7	81.9	155.1	150.4	4.76	32.569	
1,200.0	1,200.0	1,175.5	1,170.8	2.6	2.9	149.05	149.05	-144.5	86.6	170.8	165.5	5.27	32.384	
1,300.0	1,300.0	1,271.4	1,265.1	2.8	3.3	150.25	150.25	-160.7	91.8	188.1	182.3	5.80	32.430	
1,400.0	1,400.0	1,369.7	1,361.8	3.0	3.7	151.30	151.30	-177.9	97.4	206.2	199.8	6.35	32.483	
1,500.0	1,500.0	1,468.0	1,458.4	3.3	4.1	152.19	152.19	-195.1	102.9	224.3	217.4	6.90	32.505	
1,600.0	1,600.0	1,566.3	1,555.0	3.5	4.5	152.95	152.95	-212.3	108.4	242.4	234.9	7.46	32.505	
1,700.0	1,700.0	1,664.7	1,651.8	3.7	4.9	26.91	26.91	-229.5	113.9	259.8	252.3	7.44	34.898	
1,800.0	1,800.0	1,763.3	1,748.7	3.9	5.3	27.65	27.65	-246.8	119.5	275.7	267.8	7.87	35.016	
1,900.0	1,899.9	1,862.2	1,845.9	4.1	5.7	28.47	28.47	-264.1	125.0	290.1	281.8	8.31	34.924	
2,000.0	1,999.7	1,961.2	1,943.2	4.3	6.1	29.38	29.38	-281.4	130.6	303.1	294.4	8.75	34.659	
2,100.0	2,099.4	2,060.4	2,040.7	4.5	6.5	30.37	30.37	-298.7	136.2	314.7	305.5	9.19	34.247	
2,200.0	2,198.9	2,159.7	2,138.3	4.7	6.9	31.45	31.45	-316.1	141.7	324.9	315.3	9.64	33.709	
2,300.0	2,298.3	2,259.0	2,236.0	4.9	7.3	32.63	32.63	-333.5	147.3	333.8	323.7	10.09	33.061	
2,400.0	2,397.5	2,358.4	2,333.7	5.2	7.7	33.88	33.88	-350.9	152.9	341.9	331.3	10.56	32.365	
2,500.0	2,496.7	2,457.8	2,431.4	5.4	8.1	35.08	35.08	-368.3	158.5	350.2	339.2	11.04	31.715	
2,600.0	2,596.0	2,557.2	2,529.1	5.7	8.6	36.23	36.23	-385.7	164.1	358.6	347.1	11.53	31.110	
2,700.0	2,695.2	2,656.6	2,626.8	5.9	9.0	37.32	37.32	-403.1	169.7	367.2	355.2	12.02	30.544	
2,800.0	2,794.4	2,756.0	2,724.5	6.2	9.4	38.36	38.36	-420.5	175.2	375.9	363.4	12.53	30.015	
2,900.0	2,893.7	2,855.4	2,822.2	6.5	9.8	39.35	39.35	-437.8	180.8	384.8	371.7	13.03	29.518	
3,000.0	2,992.9	2,954.8	2,919.9	6.8	10.2	40.30	40.30	-455.2	186.4	393.7	380.1	13.55	29.051	
3,100.0	3,092.1	3,054.2	3,017.6	7.1	10.6	41.21	41.21	-472.6	192.0	402.7	388.7	14.08	28.612	
3,200.0	3,191.4	3,153.6	3,115.3	7.4	11.1	42.07	42.07	-490.0	197.6	411.9	397.3	14.61	28.198	
3,300.0	3,290.6	3,252.9	3,213.0	7.6	11.5	42.90	42.90	-507.4	203.2	421.1	406.0	15.14	27.807	
3,400.0	3,389.8	3,352.3	3,310.7	7.9	11.9	43.70	43.70	-524.8	208.7	430.4	414.7	15.69	27.438	
3,500.0	3,489.1	3,451.7	3,408.4	8.2	12.3	44.46	44.46	-542.2	214.3	439.8	423.6	16.24	27.089	
3,600.0	3,588.3	3,551.1	3,506.1	8.5	12.7	45.19	45.19	-559.6	219.9	449.3	432.5	16.79	26.759	
3,700.0	3,687.6	3,650.5	3,603.8	8.8	13.1	45.88	45.88	-577.0	225.5	458.8	441.4	17.35	26.446	
3,800.0	3,786.8	3,749.9	3,701.5	9.2	13.6	46.55	46.55	-594.4	231.1	468.4	450.5	17.91	26.149	
3,900.0	3,886.0	3,849.3	3,799.2	9.5	14.0	47.20	47.20	-611.8	236.7	478.0	459.6	18.48	25.867	
4,000.0	3,985.3	3,948.7	3,896.9	9.8	14.4	47.81	47.81	-629.2	242.2	487.8	468.7	19.05	25.599	
4,100.0	4,084.5	4,048.1	3,994.6	10.1	14.8	48.41	48.41	-646.5	247.8	497.5	477.9	19.63	25.345	
4,200.0	4,183.7	4,147.5	4,092.3	10.4	15.2	48.98	48.98	-663.9	253.4	507.3	487.1	20.21	25.102	
4,300.0	4,283.0	4,246.9	4,190.0	10.7	15.7	49.53	49.53	-681.3	259.0	517.2	496.4	20.80	24.872	
4,400.0	4,382.2	4,346.3	4,287.7	11.0	16.1	50.05	50.05	-698.7	264.6	527.1	505.7	21.38	24.652	
4,500.0	4,481.4	4,445.6	4,385.4	11.3	16.5	50.56	50.56	-716.1	270.2	537.1	515.1	21.97	24.442	
4,600.0	4,580.7	4,545.0	4,483.1	11.6	16.9	51.05	51.05	-733.5	275.7	547.1	524.5	22.57	24.242	
4,700.0	4,679.9	4,644.4	4,580.8	12.0	17.3	51.53	51.53	-750.9	281.3	557.1	533.9	23.16	24.051	
4,800.0	4,779.1	4,743.8	4,678.4	12.3	17.7	51.98	51.98	-768.3	286.9	567.2	543.4	23.76	23.868	
4,900.0	4,878.4	4,843.2	4,776.1	12.6	18.2	52.42	52.42	-785.7	292.5	577.3	552.9	24.37	23.693	
5,000.0	4,977.6	4,942.6	4,873.8	12.9	18.6	52.85	52.85	-803.1	298.1	587.4	562.5	24.97	23.525	

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 1V-314
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4651.0ft (RKB -13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4651.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-314	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)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,076.8	5,042.0	4,971.5	13.2	19.0	53.26		-820.5	303.7	597.6	572.0	25.58	23.365	
5,200.0	5,176.1	5,141.4	5,069.2	13.5	19.4	53.69		-837.9	309.2	607.9	581.7	26.17	23.224	
5,300.0	5,275.6	5,240.7	5,166.8	13.8	19.8	54.06		-855.2	314.8	619.7	593.0	26.69	23.220	
5,400.0	5,375.4	5,339.7	5,264.2	14.0	20.3	54.20		-872.5	320.4	633.6	606.5	27.15	23.336	
5,500.0	5,475.4	5,462.7	5,385.5	14.1	20.6	54.07		-892.0	326.6	647.9	620.3	27.56	23.505	
5,600.0	5,575.4	5,589.4	5,511.2	14.3	20.9	-179.60		-906.8	331.4	659.5	626.2	33.32	19.790	
5,700.0	5,675.4	5,717.3	5,638.7	14.5	21.2	-179.87		-916.3	334.4	667.0	633.2	33.76	19.754	
5,800.0	5,775.4	5,845.8	5,767.1	14.6	21.3	-179.99		-920.5	335.8	670.2	636.0	34.14	19.630	
5,900.0	5,875.4	5,953.1	5,874.4	14.8	21.5	-179.99		-920.7	335.8	670.3	635.9	34.45	19.456	
6,000.0	5,975.4	6,053.1	5,974.4	15.0	21.6	-179.99		-920.7	335.8	670.3	635.6	34.75	19.292	
6,039.9	6,015.3	6,093.0	6,014.3	15.1	21.6	-179.98		-920.7	335.7	670.3	635.5	34.86	19.228	
6,100.0	6,075.4	6,152.8	6,074.0	15.2	21.7	-179.67		-920.7	332.1	670.3	635.3	35.01	19.145	
6,200.0	6,175.3	6,250.7	6,170.5	15.3	21.7	-88.58		-920.7	316.2	670.5	640.4	30.11	22.271	
6,300.0	6,273.9	6,346.9	6,262.6	15.4	21.7	-87.48		-920.7	288.6	671.0	640.6	30.33	22.121	
6,400.0	6,369.7	6,441.7	6,349.3	15.4	21.7	-86.43		-920.7	250.4	671.6	641.2	30.46	22.051	
6,500.0	6,460.8	6,535.1	6,429.5	15.4	21.7	-85.44		-920.7	202.5	672.5	641.9	30.56	22.008	
6,600.0	6,545.9	6,627.4	6,502.3	15.4	21.7	-84.53		-920.7	146.0	673.4	642.7	30.73	21.916	
6,700.0	6,623.4	6,718.6	6,567.1	15.4	21.7	-83.71		-920.7	81.8	674.4	643.3	31.11	21.679	
6,800.0	6,691.9	6,809.0	6,623.3	15.6	21.7	-82.99		-920.7	11.2	675.4	643.5	31.85	21.205	
6,900.0	6,750.4	6,900.0	6,671.1	16.0	21.8	-82.38		-920.7	-66.2	676.3	643.2	33.11	20.428	
7,000.0	6,797.8	6,987.6	6,708.1	16.9	21.9	-81.90		-920.7	-145.6	677.1	642.1	34.94	19.377	
7,100.0	6,833.4	7,076.2	6,736.0	18.2	22.1	-81.54		-920.7	-229.6	677.7	640.3	37.40	18.121	
7,200.0	6,856.4	7,164.5	6,754.0	19.8	22.7	-81.31		-920.7	-316.0	678.1	637.7	40.41	16.780	
7,300.0	6,866.5	7,252.6	6,761.9	21.6	23.8	-81.20		-920.7	-403.7	678.3	634.4	43.88	15.459	
7,400.0	6,866.3	7,348.6	6,761.8	23.6	25.5	-81.23		-920.7	-499.8	678.3	630.5	47.80	14.189	
7,500.0	6,865.2	7,448.6	6,761.3	25.8	27.4	-81.27		-920.7	-599.8	678.2	626.1	52.04	13.031	
7,600.0	6,864.0	7,548.6	6,760.7	28.1	29.6	-81.32		-920.7	-699.7	678.1	621.6	56.51	11.999	
7,700.0	6,862.9	7,648.6	6,760.1	30.4	31.9	-81.36		-920.7	-799.7	678.0	616.8	61.17	11.085	
7,800.0	6,861.8	7,748.6	6,759.5	32.9	34.2	-81.41		-920.7	-899.7	677.9	612.0	65.96	10.278	
7,900.0	6,860.7	7,848.6	6,759.0	35.3	36.6	-81.45		-920.7	-999.7	677.8	607.0	70.87	9.565	
8,000.0	6,859.6	7,948.6	6,758.4	37.9	39.1	-81.50		-920.7	-1,099.7	677.8	601.9	75.87	8.933	
8,100.0	6,858.5	8,048.6	6,757.8	40.4	41.6	-81.55		-920.7	-1,199.7	677.7	596.7	80.94	8.372	
8,200.0	6,857.3	8,148.6	6,757.2	43.0	44.2	-81.59		-920.7	-1,299.7	677.6	591.5	86.08	7.872	
8,300.0	6,856.2	8,248.6	6,756.7	45.7	46.8	-81.64		-920.7	-1,399.7	677.5	586.3	91.27	7.423	
8,400.0	6,855.1	8,348.6	6,756.1	48.3	49.4	-81.68		-920.7	-1,499.7	677.4	580.9	96.50	7.020	
8,500.0	6,854.0	8,448.6	6,755.5	51.0	52.0	-81.73		-920.7	-1,599.7	677.4	575.6	101.77	6.656	
8,600.0	6,852.9	8,548.6	6,754.9	53.6	54.7	-81.77		-920.7	-1,699.7	677.3	570.2	107.07	6.325	
8,700.0	6,851.8	8,648.6	6,754.4	56.3	57.3	-81.82		-920.7	-1,799.7	677.2	564.8	112.40	6.025	
8,800.0	6,850.6	8,748.6	6,753.8	59.0	60.0	-81.86		-920.7	-1,899.7	677.1	559.4	117.76	5.750	
8,900.0	6,849.5	8,848.6	6,753.2	61.7	62.7	-81.91		-920.7	-1,999.7	677.1	553.9	123.13	5.499	
9,000.0	6,848.4	8,948.6	6,752.6	64.5	65.4	-81.95		-920.7	-2,099.7	677.0	548.5	128.52	5.268	
9,100.0	6,847.3	9,048.6	6,752.1	67.2	68.1	-82.00		-920.7	-2,199.7	676.9	543.0	133.93	5.054	
9,200.0	6,846.2	9,148.6	6,751.5	69.9	70.8	-82.04		-920.7	-2,299.7	676.8	537.5	139.35	4.857	
9,300.0	6,845.1	9,248.6	6,750.9	72.7	73.5	-82.09		-920.7	-2,399.7	676.8	532.0	144.79	4.674	
9,400.0	6,843.9	9,348.6	6,750.3	75.4	76.3	-82.13		-920.7	-2,499.7	676.7	526.5	150.23	4.504	
9,500.0	6,842.8	9,448.6	6,749.8	78.2	79.0	-82.18		-920.7	-2,599.7	676.6	520.9	155.69	4.346	
9,600.0	6,841.7	9,548.6	6,749.2	80.9	81.7	-82.23		-920.7	-2,699.7	676.5	515.4	161.16	4.198	
9,700.0	6,840.6	9,648.6	6,748.6	83.7	84.5	-82.27		-920.7	-2,799.7	676.5	509.8	166.64	4.060	
9,800.0	6,839.5	9,748.6	6,748.0	86.4	87.2	-82.32		-920.7	-2,899.7	676.4	504.3	172.12	3.930	
9,900.0	6,838.3	9,848.6	6,747.5	89.2	90.0	-82.36		-920.7	-2,999.7	676.3	498.7	177.61	3.808	
10,000.0	6,837.2	9,948.6	6,746.9	92.0	92.7	-82.41		-920.7	-3,099.7	676.3	493.1	183.11	3.693	

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 1V-314
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4651.0ft (RKB -13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4651.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-314	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
10,100.0	6,836.1	10,048.6	6,746.3	94.7	95.5	-82.45	-82.45	-920.7	-3,199.7	676.2	487.6	188.61	3.585	
10,200.0	6,835.0	10,148.6	6,745.7	97.5	98.3	-82.50	-82.50	-920.7	-3,299.7	676.1	482.0	194.13	3.483	
10,300.0	6,833.9	10,248.6	6,745.1	100.3	101.0	-82.54	-82.54	-920.7	-3,399.7	676.0	476.4	199.64	3.386	
10,400.0	6,832.8	10,348.6	6,744.6	103.0	103.8	-82.59	-82.59	-920.7	-3,499.7	676.0	470.8	205.16	3.295	
10,500.0	6,831.6	10,448.6	6,744.0	105.8	106.5	-82.63	-82.63	-920.7	-3,599.7	675.9	465.2	210.69	3.208	
10,600.0	6,830.5	10,548.6	6,743.4	108.6	109.3	-82.68	-82.68	-920.7	-3,699.7	675.8	459.6	216.22	3.126	
10,700.0	6,829.4	10,648.6	6,742.8	111.4	112.1	-82.73	-82.73	-920.7	-3,799.7	675.8	454.0	221.75	3.047	
10,800.0	6,828.3	10,748.6	6,742.3	114.2	114.9	-82.77	-82.77	-920.7	-3,899.6	675.7	448.4	227.29	2.973	
10,900.0	6,827.2	10,848.6	6,741.7	116.9	117.6	-82.82	-82.82	-920.7	-3,999.6	675.6	442.8	232.83	2.902	
11,000.0	6,826.1	10,948.6	6,741.1	119.7	120.4	-82.86	-82.86	-920.7	-4,099.6	675.6	437.2	238.38	2.834	
11,100.0	6,824.9	11,048.6	6,740.5	122.5	123.2	-82.91	-82.91	-920.7	-4,199.6	675.5	431.6	243.93	2.769	
11,200.0	6,823.8	11,148.6	6,740.0	125.3	126.0	-82.95	-82.95	-920.7	-4,299.6	675.4	425.9	249.48	2.707	
11,300.0	6,822.7	11,248.6	6,739.4	128.1	128.8	-83.00	-83.00	-920.7	-4,399.6	675.4	420.3	255.03	2.648	
11,400.0	6,821.6	11,348.6	6,738.8	130.9	131.5	-83.04	-83.04	-920.7	-4,499.6	675.3	414.7	260.59	2.591	
11,500.0	6,820.5	11,448.6	6,738.2	133.7	134.3	-83.09	-83.09	-920.7	-4,599.6	675.2	409.1	266.15	2.537	
11,600.0	6,819.4	11,548.6	6,737.7	136.5	137.1	-83.14	-83.14	-920.7	-4,699.6	675.2	403.4	271.71	2.485	
11,700.0	6,818.2	11,648.6	6,737.1	139.2	139.9	-83.18	-83.18	-920.7	-4,799.6	675.1	397.8	277.28	2.435	
11,800.0	6,817.1	11,748.6	6,736.5	142.0	142.7	-83.23	-83.23	-920.7	-4,899.6	675.0	392.2	282.85	2.387	
11,900.0	6,816.0	11,848.6	6,735.9	144.8	145.5	-83.27	-83.27	-920.7	-4,999.6	675.0	386.6	288.42	2.340	
12,000.0	6,814.9	11,948.6	6,735.4	147.6	148.3	-83.32	-83.32	-920.7	-5,099.6	674.9	380.9	293.99	2.296	
12,100.0	6,813.8	12,048.6	6,734.8	150.4	151.1	-83.36	-83.36	-920.7	-5,199.6	674.8	375.3	299.56	2.253	
12,200.0	6,812.7	12,148.6	6,734.2	153.2	153.8	-83.41	-83.41	-920.7	-5,299.6	674.8	369.6	305.14	2.211	
12,300.0	6,811.5	12,248.6	6,733.6	156.0	156.6	-83.45	-83.45	-920.7	-5,399.6	674.7	364.0	310.72	2.171	
12,400.0	6,810.4	12,348.6	6,733.1	158.8	159.4	-83.50	-83.50	-920.7	-5,499.6	674.7	358.4	316.30	2.133	
12,500.0	6,809.3	12,448.6	6,732.5	161.6	162.2	-83.55	-83.55	-920.7	-5,599.6	674.6	352.7	321.88	2.096	
12,600.0	6,808.2	12,548.6	6,731.9	164.4	165.0	-83.59	-83.59	-920.7	-5,699.6	674.5	347.1	327.46	2.060	
12,700.0	6,807.1	12,648.6	6,731.3	167.2	167.8	-83.64	-83.64	-920.7	-5,799.6	674.5	341.4	333.05	2.025	
12,800.0	6,806.0	12,748.6	6,730.7	170.0	170.6	-83.68	-83.68	-920.7	-5,899.6	674.4	335.8	338.64	1.992	
12,900.0	6,804.8	12,848.6	6,730.2	172.8	173.4	-83.73	-83.73	-920.7	-5,999.6	674.4	330.1	344.23	1.959	
13,000.0	6,803.7	12,948.6	6,729.6	175.6	176.2	-83.77	-83.77	-920.7	-6,099.6	674.3	324.5	349.82	1.928	
13,100.0	6,802.6	13,048.6	6,729.0	178.4	179.0	-83.82	-83.82	-920.7	-6,199.6	674.2	318.8	355.41	1.897	
13,200.0	6,801.5	13,148.6	6,728.4	181.2	181.8	-83.87	-83.87	-920.7	-6,299.6	674.2	313.2	361.00	1.868	
13,300.0	6,800.4	13,248.6	6,727.9	184.0	184.6	-83.91	-83.91	-920.7	-6,399.6	674.1	307.5	366.59	1.839	
13,400.0	6,799.3	13,348.6	6,727.3	186.8	187.4	-83.96	-83.96	-920.7	-6,499.6	674.1	301.9	372.19	1.811	
13,500.0	6,798.1	13,448.6	6,726.7	189.6	190.2	-84.00	-84.00	-920.7	-6,599.6	674.0	296.2	377.79	1.784	
13,600.0	6,797.0	13,548.6	6,726.1	192.4	193.0	-84.05	-84.05	-920.7	-6,699.6	674.0	290.6	383.39	1.758	
13,700.0	6,795.9	13,648.6	6,725.6	195.2	195.8	-84.09	-84.09	-920.7	-6,799.6	673.9	284.9	388.99	1.732	
13,800.0	6,794.8	13,748.6	6,725.0	198.0	198.6	-84.14	-84.14	-920.7	-6,899.6	673.8	279.3	394.59	1.708	
13,900.0	6,793.7	13,848.6	6,724.4	200.8	201.4	-84.19	-84.19	-920.7	-6,999.6	673.8	273.6	400.19	1.684	
13,959.9	6,793.0	13,908.5	6,724.1	202.5	203.0	-84.21	-84.21	-920.7	-7,059.5	673.8	270.2	403.55	1.670 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1V-314
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4651.0ft (RKB -13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4651.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-314	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 (4-15-15)													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)	+E/-W (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	138.28	138.28	-21.9	19.5	29.3				
100.0	100.0	100.0	100.0	0.1	0.1	138.28	138.28	-21.9	19.5	29.3	29.1	0.22	130.272	
200.0	200.0	200.0	200.0	0.3	0.3	138.28	138.28	-21.9	19.5	29.3	28.6	0.67	43.424	
300.0	300.0	300.0	300.0	0.6	0.6	138.28	138.28	-21.9	19.5	29.3	28.2	1.12	26.054	
400.0	400.0	400.0	400.0	0.8	0.8	138.28	138.28	-21.9	19.5	29.3	27.7	1.57	18.610	
500.0	500.0	500.0	500.0	1.0	1.0	138.28	138.28	-21.9	19.5	29.3	27.3	2.02	14.475	
600.0	600.0	600.0	600.0	1.2	1.2	138.28	138.28	-21.9	19.5	29.3	26.8	2.47	11.843	
700.0	700.0	700.0	700.0	1.5	1.5	138.28	138.28	-21.9	19.5	29.3	26.4	2.92	10.021	
800.0	800.0	800.0	800.0	1.7	1.7	138.28	138.28	-21.9	19.5	29.3	25.9	3.37	8.685	
900.0	900.0	900.0	900.0	1.9	1.9	138.28	138.28	-21.9	19.5	29.3	25.5	3.82	7.663	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	138.28	138.28	-21.9	19.5	29.3	25.0	4.27	6.856 CC	
1,100.0	1,100.0	1,099.5	1,099.5	2.4	2.3	138.41	138.41	-22.5	20.0	30.1	25.5	4.69	6.422	
1,200.0	1,200.0	1,198.9	1,198.9	2.6	2.5	138.76	138.76	-24.6	21.6	32.7	27.6	5.10	6.421	
1,300.0	1,300.0	1,298.2	1,298.1	2.8	2.7	139.24	139.24	-28.0	24.2	37.1	31.6	5.51	6.725	
1,400.0	1,400.0	1,397.3	1,397.0	3.0	2.9	139.75	139.75	-32.8	27.8	43.1	37.2	5.93	7.267	
1,500.0	1,500.0	1,496.2	1,495.6	3.3	3.1	140.22	140.22	-39.0	32.4	50.9	44.5	6.36	7.998	
1,600.0	1,600.0	1,594.8	1,593.7	3.5	3.3	140.64	140.64	-46.4	38.1	60.4	53.6	6.81	8.876	
1,700.0	1,700.0	1,693.1	1,691.5	3.7	3.6	14.43	14.43	-55.2	44.8	70.8	63.6	7.18	9.856	
1,800.0	1,800.0	1,792.3	1,789.9	3.9	3.8	15.14	15.14	-65.1	52.2	80.7	73.1	7.57	10.660	
1,900.0	1,899.9	1,892.0	1,888.7	4.1	4.1	15.99	15.99	-75.0	59.7	89.0	81.1	7.97	11.173	
2,000.0	1,999.7	1,991.7	1,987.7	4.3	4.4	17.00	17.00	-85.0	67.3	95.7	87.3	8.37	11.432	
2,100.0	2,099.4	2,091.6	2,086.8	4.5	4.7	18.18	18.18	-94.9	74.8	100.7	92.0	8.78	11.473	
2,200.0	2,198.9	2,191.5	2,185.9	4.7	5.0	19.57	19.57	-104.9	82.3	104.2	95.0	9.20	11.326	
2,300.0	2,298.3	2,291.4	2,285.1	4.9	5.3	21.21	21.21	-114.8	89.9	106.0	96.4	9.62	11.020	
2,400.0	2,397.5	2,391.4	2,384.2	5.2	5.6	23.01	23.01	-124.8	97.4	107.0	97.0	10.07	10.635	
2,500.0	2,496.7	2,491.3	2,483.4	5.4	5.9	24.78	24.78	-134.7	105.0	108.1	97.6	10.52	10.281	
2,600.0	2,596.0	2,591.3	2,582.5	5.7	6.2	26.51	26.51	-144.7	112.5	109.4	98.4	10.98	9.956	
2,700.0	2,695.2	2,691.2	2,681.7	5.9	6.5	28.20	28.20	-154.7	120.0	110.7	99.2	11.46	9.659	
2,800.0	2,794.4	2,791.1	2,780.8	6.2	6.8	29.85	29.85	-164.6	127.6	112.1	100.1	11.94	9.386	
2,900.0	2,893.7	2,891.1	2,880.0	6.5	7.1	31.45	31.45	-174.6	135.1	113.5	101.1	12.43	9.134	
3,000.0	2,992.9	2,991.0	2,979.1	6.8	7.4	33.02	33.02	-184.5	142.7	115.1	102.2	12.93	8.901	
3,100.0	3,092.1	3,090.9	3,078.3	7.1	7.7	34.54	34.54	-194.5	150.2	116.8	103.3	13.44	8.686	
3,200.0	3,191.4	3,190.9	3,177.5	7.4	8.0	36.02	36.02	-204.5	157.7	118.5	104.5	13.96	8.487	
3,300.0	3,290.6	3,290.8	3,276.6	7.6	8.4	37.45	37.45	-214.4	165.3	120.3	105.8	14.49	8.302	
3,400.0	3,389.8	3,390.8	3,375.8	7.9	8.7	38.84	38.84	-224.4	172.8	122.2	107.2	15.03	8.131	
3,500.0	3,489.1	3,490.7	3,474.9	8.2	9.0	40.19	40.19	-234.3	180.4	124.2	108.6	15.58	7.971	
3,600.0	3,588.3	3,590.6	3,574.1	8.5	9.3	41.50	41.50	-244.3	187.9	126.2	110.1	16.13	7.822	
3,700.0	3,687.6	3,690.6	3,673.2	8.8	9.6	42.76	42.76	-254.3	195.4	128.3	111.6	16.70	7.684	
3,800.0	3,786.8	3,790.5	3,772.4	9.2	10.0	43.98	43.98	-264.2	203.0	130.4	113.2	17.27	7.555	
3,900.0	3,886.0	3,890.5	3,871.5	9.5	10.3	45.17	45.17	-274.2	210.5	132.6	114.8	17.84	7.434	
4,000.0	3,985.3	3,990.4	3,970.7	9.8	10.6	46.31	46.31	-284.1	218.1	134.9	116.5	18.43	7.321	
4,100.0	4,084.5	4,090.3	4,069.8	10.1	10.9	47.42	47.42	-294.1	225.6	137.2	118.2	19.02	7.216	
4,200.0	4,183.7	4,190.3	4,169.0	10.4	11.3	48.48	48.48	-304.1	233.1	139.6	120.0	19.61	7.117	
4,300.0	4,283.0	4,290.2	4,268.2	10.7	11.6	49.52	49.52	-314.0	240.7	142.0	121.8	20.21	7.025	
4,400.0	4,382.2	4,390.1	4,367.3	11.0	11.9	50.51	50.51	-324.0	248.2	144.4	123.6	20.82	6.938	
4,500.0	4,481.4	4,490.1	4,466.5	11.3	12.2	51.48	51.48	-333.9	255.8	146.9	125.5	21.43	6.857	
4,600.0	4,580.7	4,590.0	4,565.6	11.6	12.6	52.41	52.41	-343.9	263.3	149.5	127.4	22.04	6.781	
4,700.0	4,679.9	4,690.0	4,664.8	12.0	12.9	53.31	53.31	-353.9	270.8	152.0	129.4	22.66	6.709	
4,800.0	4,779.1	4,789.9	4,763.9	12.3	13.2	54.18	54.18	-363.8	278.4	154.7	131.4	23.28	6.642	
4,900.0	4,878.4	4,889.8	4,863.1	12.6	13.6	55.02	55.02	-373.8	285.9	157.3	133.4	23.91	6.579	
5,000.0	4,977.6	4,989.8	4,962.2	12.9	13.9	55.84	55.84	-383.7	293.5	160.0	135.4	24.54	6.519	

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 1V-314
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4651.0ft (RKB -13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4651.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-314	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 (4-15-15)													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)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,076.8	5,089.7	5,061.4	13.2	14.2	56.62	56.62	-393.7	301.0	162.7	137.5	25.17	6.463	
5,200.0	5,176.1	5,189.7	5,160.6	13.5	14.5	57.35	57.35	-403.7	308.5	165.5	139.7	25.79	6.416	
5,300.0	5,275.6	5,289.6	5,259.7	13.8	14.9	57.36	57.36	-413.6	316.1	169.8	143.5	26.29	6.457	
5,400.0	5,375.4	5,390.2	5,359.5	14.0	15.2	56.44	56.44	-423.6	323.6	175.9	149.2	26.68	6.592	
5,500.0	5,475.4	5,494.9	5,463.7	14.1	15.4	55.11	55.11	-432.0	330.0	182.2	155.2	26.95	6.760	
5,600.0	5,575.4	5,600.0	5,568.6	14.3	15.6	-179.44	-179.44	-437.4	334.1	187.2	159.6	27.52	6.801	
5,700.0	5,675.4	5,705.5	5,674.0	14.5	15.8	-179.97	-179.97	-439.7	335.8	189.4	161.4	27.93	6.780	
5,800.0	5,775.4	5,806.9	5,775.4	14.6	16.0	-180.00	-180.00	-439.8	335.9	189.4	161.2	28.28	6.698	
5,900.0	5,875.4	5,906.9	5,875.4	14.8	16.1	-180.00	-180.00	-439.8	335.9	189.4	160.8	28.63	6.618	
6,000.0	5,975.4	6,006.9	5,975.4	15.0	16.3	-180.00	-180.00	-439.8	335.9	189.4	160.5	28.97	6.539	
6,047.9	6,023.3	6,054.7	6,023.3	15.1	16.3	-179.99	-179.99	-439.8	335.9	189.4	160.3	29.14	6.502	
6,100.0	6,075.4	6,106.8	6,075.2	15.2	16.4	-179.37	-179.37	-439.8	333.8	189.5	160.2	29.26	6.474	
6,200.0	6,175.3	6,205.3	6,172.8	15.3	16.5	-86.25	-86.25	-439.8	320.2	189.9	160.4	29.50	6.435	
6,300.0	6,273.9	6,302.5	6,266.5	15.4	16.5	-83.08	-83.08	-439.8	294.7	190.8	161.0	29.84	6.395	
6,400.0	6,369.7	6,398.4	6,355.0	15.4	16.5	-80.08	-80.08	-439.8	258.0	192.3	162.3	30.02	6.407	
6,500.0	6,460.8	6,493.2	6,437.4	15.4	16.5	-77.30	-77.30	-439.8	211.1	194.2	164.1	30.08	6.457	
6,600.0	6,545.9	6,587.0	6,512.5	15.4	16.4	-74.79	-74.79	-439.8	155.0	196.4	166.3	30.11	6.521	
6,700.0	6,623.4	6,679.9	6,579.6	15.4	16.4	-72.57	-72.57	-439.8	90.9	198.6	168.4	30.24	6.567	
6,800.0	6,691.9	6,772.1	6,637.9	15.6	16.4	-70.66	-70.66	-439.8	19.6	200.8	170.2	30.64	6.554	
6,900.0	6,750.4	6,863.5	6,687.0	16.0	16.4	-69.08	-69.08	-439.8	-57.5	202.8	171.4	31.46	6.447	
7,000.0	6,797.8	6,954.5	6,726.3	16.9	17.1	-67.83	-67.83	-439.8	-139.5	204.6	171.7	32.85	6.229	
7,100.0	6,833.4	7,045.1	6,755.4	18.2	18.4	-66.91	-66.91	-439.8	-225.2	206.0	171.1	34.87	5.907	
7,200.0	6,856.4	7,135.3	6,774.2	19.8	20.0	-66.32	-66.32	-439.8	-313.4	206.9	169.4	37.51	5.515	
7,300.0	6,866.5	7,225.5	6,782.5	21.6	21.7	-66.06	-66.06	-439.8	-403.1	207.3	166.6	40.69	5.094	
7,400.0	6,866.3	7,322.0	6,782.3	23.6	23.6	-66.09	-66.09	-439.8	-499.6	207.2	162.9	44.36	4.672	
7,500.0	6,865.2	7,422.0	6,781.4	25.8	25.8	-66.15	-66.15	-439.8	-599.6	207.1	158.8	48.32	4.287	
7,600.0	6,864.0	7,522.0	6,780.5	28.1	28.1	-66.21	-66.21	-439.8	-699.6	207.0	154.5	52.50	3.944	
7,700.0	6,862.9	7,622.0	6,779.7	30.4	30.5	-66.27	-66.27	-439.8	-799.6	206.9	150.1	56.85	3.640	
7,800.0	6,861.8	7,722.0	6,778.8	32.9	32.9	-66.33	-66.33	-439.8	-899.6	206.8	145.5	61.33	3.372	
7,900.0	6,860.7	7,822.0	6,777.9	35.3	35.4	-66.40	-66.40	-439.8	-999.6	206.7	140.8	65.93	3.136	
8,000.0	6,859.6	7,922.0	6,777.0	37.9	37.9	-66.46	-66.46	-439.8	-1,099.6	206.6	136.0	70.61	2.926	
8,100.0	6,858.5	8,022.0	6,776.2	40.4	40.5	-66.52	-66.52	-439.8	-1,199.6	206.5	131.2	75.37	2.741	
8,200.0	6,857.3	8,122.0	6,775.3	43.0	43.1	-66.58	-66.58	-439.8	-1,299.6	206.4	126.3	80.18	2.575	
8,300.0	6,856.2	8,222.0	6,774.4	45.7	45.7	-66.64	-66.64	-439.8	-1,399.6	206.3	121.3	85.05	2.426	
8,400.0	6,855.1	8,322.0	6,773.5	48.3	48.4	-66.71	-66.71	-439.8	-1,499.6	206.3	116.3	89.96	2.293	
8,500.0	6,854.0	8,422.0	6,772.7	51.0	51.0	-66.77	-66.77	-439.8	-1,599.6	206.2	111.2	94.91	2.172	
8,600.0	6,852.9	8,522.0	6,771.8	53.6	53.7	-66.83	-66.83	-439.8	-1,699.6	206.1	106.2	99.89	2.063	
8,700.0	6,851.8	8,622.0	6,770.9	56.3	56.4	-66.89	-66.89	-439.8	-1,799.6	206.0	101.1	104.90	1.963	
8,800.0	6,850.6	8,722.0	6,770.1	59.0	59.1	-66.96	-66.96	-439.8	-1,899.6	205.9	95.9	109.93	1.873	
8,900.0	6,849.5	8,822.0	6,769.2	61.7	61.8	-67.02	-67.02	-439.8	-1,999.6	205.8	90.8	114.99	1.789	
9,000.0	6,848.4	8,922.0	6,768.3	64.5	64.5	-67.08	-67.08	-439.8	-2,099.6	205.7	85.6	120.07	1.713	
9,100.0	6,847.3	9,022.0	6,767.4	67.2	67.3	-67.14	-67.14	-439.8	-2,199.5	205.6	80.4	125.16	1.643	
9,200.0	6,846.2	9,122.0	6,766.6	69.9	70.0	-67.21	-67.21	-439.8	-2,299.5	205.5	75.2	130.28	1.577	
9,300.0	6,845.1	9,222.0	6,765.7	72.7	72.7	-67.27	-67.27	-439.8	-2,399.5	205.4	70.0	135.40	1.517	
9,400.0	6,843.9	9,322.0	6,764.8	75.4	75.5	-67.33	-67.33	-439.8	-2,499.5	205.3	64.8	140.55	1.461 Level 3	
9,500.0	6,842.8	9,422.0	6,763.9	78.2	78.2	-67.40	-67.40	-439.8	-2,599.5	205.2	59.5	145.70	1.408 Level 3	
9,600.0	6,841.7	9,522.0	6,763.1	80.9	81.0	-67.46	-67.46	-439.8	-2,699.5	205.1	54.2	150.87	1.360 Level 3	
9,700.0	6,840.6	9,622.0	6,762.2	83.7	83.7	-67.52	-67.52	-439.8	-2,799.5	205.0	49.0	156.05	1.314 Level 3	
9,800.0	6,839.5	9,722.0	6,761.3	86.4	86.5	-67.59	-67.59	-439.8	-2,899.5	204.9	43.7	161.24	1.271 Level 3	
9,900.0	6,838.3	9,822.0	6,760.5	89.2	89.2	-67.65	-67.65	-439.8	-2,999.5	204.8	38.4	166.44	1.231 Level 2	
10,000.0	6,837.2	9,922.0	6,759.6	92.0	92.0	-67.71	-67.71	-439.8	-3,099.5	204.7	33.1	171.65	1.193 Level 2	

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 1V-314
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4651.0ft (RKB -13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4651.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-314	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 (4-15-15)												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	6,836.1	10,022.0	6,758.7	94.7	94.8	-67.78	-439.8	-3,199.5	204.6	27.8	176.87	1.157 Level 2	
10,200.0	6,835.0	10,122.0	6,757.8	97.5	97.6	-67.84	-439.8	-3,299.5	204.6	22.5	182.09	1.123 Level 2	
10,300.0	6,833.9	10,222.0	6,757.0	100.3	100.3	-67.90	-439.8	-3,399.5	204.5	17.1	187.33	1.091 Level 2	
10,400.0	6,832.8	10,322.0	6,756.1	103.0	103.1	-67.97	-439.8	-3,499.5	204.4	11.8	192.57	1.061 Level 2	
10,500.0	6,831.6	10,422.0	6,755.2	105.8	105.9	-68.03	-439.8	-3,599.5	204.3	6.5	197.82	1.033 Level 2	
10,600.0	6,830.5	10,522.0	6,754.4	108.6	108.7	-68.09	-439.8	-3,699.5	204.2	1.1	203.08	1.005 Level 2	
10,700.0	6,829.4	10,622.0	6,753.5	111.4	111.4	-68.16	-439.8	-3,799.5	204.1	-4.3	208.35	0.980 Level 1	
10,800.0	6,828.3	10,722.0	6,752.6	114.2	114.2	-68.22	-439.8	-3,899.5	204.0	-9.6	213.62	0.955 Level 1	
10,900.0	6,827.2	10,822.0	6,751.7	116.9	117.0	-68.28	-439.8	-3,999.5	203.9	-15.0	218.90	0.932 Level 1	
11,000.0	6,826.1	10,922.0	6,750.9	119.7	119.8	-68.35	-439.8	-4,099.5	203.8	-20.4	224.19	0.909 Level 1	
11,100.0	6,824.9	11,022.0	6,750.0	122.5	122.6	-68.41	-439.8	-4,199.5	203.7	-25.7	229.48	0.888 Level 1	
11,200.0	6,823.8	11,122.0	6,749.1	125.3	125.4	-68.48	-439.8	-4,299.5	203.6	-31.1	234.78	0.867 Level 1	
11,300.0	6,822.7	11,222.0	6,748.2	128.1	128.1	-68.54	-439.8	-4,399.5	203.6	-36.5	240.08	0.848 Level 1	
11,400.0	6,821.6	11,322.0	6,747.4	130.9	130.9	-68.60	-439.8	-4,499.5	203.5	-41.9	245.39	0.829 Level 1	
11,500.0	6,820.5	11,422.0	6,746.5	133.7	133.7	-68.67	-439.8	-4,599.5	203.4	-47.3	250.71	0.811 Level 1	
11,600.0	6,819.4	11,522.0	6,745.6	136.5	136.5	-68.73	-439.8	-4,699.4	203.3	-52.7	256.03	0.794 Level 1	
11,700.0	6,818.2	11,622.0	6,744.8	139.2	139.3	-68.80	-439.8	-4,799.4	203.2	-58.2	261.36	0.777 Level 1	
11,800.0	6,817.1	11,722.0	6,743.9	142.0	142.1	-68.86	-439.8	-4,899.4	203.1	-63.6	266.69	0.762 Level 1	
11,900.0	6,816.0	11,822.0	6,743.0	144.8	144.9	-68.92	-439.8	-4,999.4	203.0	-69.0	272.03	0.746 Level 1	
12,000.0	6,814.9	11,922.0	6,742.1	147.6	147.7	-68.99	-439.8	-5,099.4	202.9	-74.4	277.37	0.732 Level 1	
12,100.0	6,813.8	12,022.0	6,741.3	150.4	150.5	-69.05	-439.8	-5,199.4	202.8	-79.9	282.72	0.717 Level 1	
12,200.0	6,812.7	12,122.0	6,740.4	153.2	153.3	-69.12	-439.8	-5,299.4	202.8	-85.3	288.08	0.704 Level 1	
12,300.0	6,811.5	12,222.0	6,739.5	156.0	156.1	-69.18	-439.8	-5,399.4	202.7	-90.8	293.43	0.691 Level 1	
12,400.0	6,810.4	12,322.0	6,738.6	158.8	158.9	-69.25	-439.8	-5,499.4	202.6	-96.2	298.80	0.678 Level 1	
12,500.0	6,809.3	12,422.0	6,737.8	161.6	161.7	-69.31	-439.8	-5,599.4	202.5	-101.7	304.17	0.666 Level 1	
12,600.0	6,808.2	12,522.0	6,736.9	164.4	164.4	-69.38	-439.8	-5,699.4	202.4	-107.1	309.54	0.654 Level 1	
12,700.0	6,807.1	12,622.0	6,736.0	167.2	167.2	-69.44	-439.8	-5,799.4	202.3	-112.6	314.92	0.642 Level 1	
12,800.0	6,806.0	12,722.0	6,735.2	170.0	170.0	-69.51	-439.8	-5,899.4	202.2	-118.1	320.30	0.631 Level 1	
12,900.0	6,804.8	12,822.0	6,734.3	172.8	172.8	-69.57	-439.8	-5,999.4	202.2	-123.5	325.69	0.621 Level 1	
13,000.0	6,803.7	12,922.0	6,733.4	175.6	175.6	-69.64	-439.8	-6,099.4	202.1	-129.0	331.08	0.610 Level 1	
13,100.0	6,802.6	13,022.0	6,732.5	178.4	178.4	-69.70	-439.8	-6,199.4	202.0	-134.5	336.48	0.600 Level 1	
13,200.0	6,801.5	13,122.0	6,731.7	181.2	181.2	-69.77	-439.8	-6,299.4	201.9	-140.0	341.88	0.591 Level 1	
13,300.0	6,800.4	13,222.0	6,730.8	184.0	184.0	-69.83	-439.8	-6,399.4	201.8	-145.5	347.28	0.581 Level 1	
13,400.0	6,799.3	13,322.0	6,729.9	186.8	186.8	-69.90	-439.8	-6,499.4	201.7	-151.0	352.69	0.572 Level 1	
13,500.0	6,798.1	13,422.0	6,729.0	189.6	189.6	-69.96	-439.8	-6,599.4	201.6	-156.5	358.11	0.563 Level 1	
13,600.0	6,797.0	13,522.0	6,728.2	192.4	192.4	-70.03	-439.8	-6,699.4	201.6	-162.0	363.53	0.554 Level 1	
13,700.0	6,795.9	13,622.0	6,727.3	195.2	195.2	-70.09	-439.8	-6,799.4	201.5	-167.5	368.95	0.546 Level 1	
13,800.0	6,794.8	13,721.9	6,726.4	198.0	198.0	-70.16	-439.8	-6,899.4	201.4	-173.0	374.38	0.538 Level 1	
13,900.0	6,793.7	13,821.9	6,725.6	200.8	200.6	-70.22	-439.8	-6,999.4	201.3	-178.3	379.60	0.530 Level 1	
13,959.9	6,793.0	13,881.9	6,725.0	202.5	201.7	-70.26	-439.8	-7,059.3	201.3	-181.0	382.29	0.526 Level 1, ES, SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1V-314
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4651.0ft (RKB -13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4651.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-314	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
0.0	0.0	0.0	0.0	0.0	0.0	136.31	136.31	-43.7	41.8	60.5				
100.0	100.0	100.0	100.0	0.1	0.1	136.31	136.31	-43.7	41.8	60.5	60.2	0.22	268.973	
200.0	200.0	200.0	200.0	0.3	0.3	136.31	136.31	-43.7	41.8	60.5	59.8	0.67	89.658	
300.0	300.0	300.0	300.0	0.6	0.6	136.31	136.31	-43.7	41.8	60.5	59.3	1.12	53.795	
400.0	400.0	400.0	400.0	0.8	0.8	136.31	136.31	-43.7	41.8	60.5	58.9	1.57	38.425 CC	
500.0	500.0	499.0	499.0	1.0	1.0	136.56	136.56	-44.5	42.1	61.3	59.3	2.00	30.701	
600.0	600.0	597.9	597.9	1.2	1.2	137.26	137.26	-46.8	43.2	63.8	61.3	2.41	26.473	
700.0	700.0	696.8	696.6	1.5	1.4	138.31	138.31	-50.6	45.1	67.9	65.1	2.83	23.962	
800.0	800.0	795.4	795.1	1.7	1.6	139.57	139.57	-56.0	47.7	73.7	70.5	3.27	22.550	
900.0	900.0	893.8	893.2	1.9	1.8	140.94	140.94	-62.9	51.0	81.2	77.5	3.71	21.871	
1,000.0	1,000.0	991.9	990.9	2.1	2.1	142.29	142.29	-71.2	55.1	90.5	86.3	4.17	21.694	
1,100.0	1,100.0	1,089.7	1,088.0	2.4	2.3	143.57	143.57	-81.0	59.8	101.4	96.8	4.64	21.867	
1,200.0	1,200.0	1,187.1	1,184.6	2.6	2.6	144.74	144.74	-92.3	65.3	114.1	109.0	5.12	22.286	
1,300.0	1,300.0	1,285.8	1,282.4	2.8	2.9	145.76	145.76	-104.7	71.3	127.8	122.2	5.62	22.766	
1,400.0	1,400.0	1,384.8	1,380.5	3.0	3.3	146.58	146.58	-117.1	77.3	141.6	135.5	6.12	23.148	
1,500.0	1,500.0	1,483.9	1,478.5	3.3	3.6	147.26	147.26	-129.5	83.3	155.4	148.8	6.63	23.455	
1,600.0	1,600.0	1,582.9	1,576.6	3.5	3.9	147.83	147.83	-141.9	89.3	169.3	162.1	7.14	23.706	
1,700.0	1,700.0	1,682.0	1,674.7	3.7	4.2	21.66	21.66	-154.3	95.3	182.3	175.0	7.29	25.002	
1,800.0	1,800.0	1,781.3	1,773.1	3.9	4.6	22.32	22.32	-166.8	101.3	193.8	186.1	7.71	25.135	
1,900.0	1,899.9	1,880.8	1,871.6	4.1	4.9	23.10	23.10	-179.2	107.3	203.7	195.5	8.13	25.046	
2,000.0	1,999.7	1,980.4	1,970.2	4.3	5.3	24.00	24.00	-191.7	113.4	212.0	203.4	8.56	24.771	
2,100.0	2,099.4	2,080.1	2,068.9	4.5	5.6	25.02	25.02	-204.2	119.4	218.8	209.8	8.99	24.340	
2,200.0	2,198.9	2,179.8	2,167.7	4.7	5.9	26.18	26.18	-216.7	125.5	224.1	214.7	9.43	23.776	
2,300.0	2,298.3	2,279.6	2,266.5	4.9	6.3	27.50	27.50	-229.2	131.5	228.0	218.1	9.87	23.098	
2,400.0	2,397.5	2,379.4	2,365.3	5.2	6.6	28.90	28.90	-241.7	137.6	231.0	220.7	10.33	22.371	
2,500.0	2,496.7	2,479.2	2,464.2	5.4	7.0	30.27	30.27	-254.2	143.6	234.2	223.5	10.79	21.700	
2,600.0	2,596.0	2,579.0	2,563.0	5.7	7.3	31.60	31.60	-266.7	149.7	237.6	226.3	11.27	21.082	
2,700.0	2,695.2	2,678.8	2,661.8	5.9	7.7	32.90	32.90	-279.3	155.7	241.0	229.3	11.75	20.509	
2,800.0	2,794.4	2,778.6	2,760.6	6.2	8.0	34.16	34.16	-291.8	161.8	244.6	232.4	12.24	19.979	
2,900.0	2,893.7	2,878.4	2,859.4	6.5	8.4	35.38	35.38	-304.3	167.8	248.3	235.6	12.74	19.487	
3,000.0	2,992.9	2,978.2	2,958.3	6.8	8.7	36.56	36.56	-316.8	173.9	252.1	238.9	13.25	19.028	
3,100.0	3,092.1	3,078.0	3,057.1	7.1	9.1	37.71	37.71	-329.3	179.9	256.0	242.3	13.76	18.601	
3,200.0	3,191.4	3,177.8	3,155.9	7.4	9.4	38.83	38.83	-341.8	186.0	260.0	245.8	14.29	18.202	
3,300.0	3,290.6	3,277.6	3,254.7	7.6	9.8	39.91	39.91	-354.3	192.0	264.2	249.3	14.82	17.829	
3,400.0	3,389.8	3,377.4	3,353.6	7.9	10.1	40.95	40.95	-366.8	198.1	268.4	253.0	15.35	17.480	
3,500.0	3,489.1	3,477.2	3,452.4	8.2	10.5	41.97	41.97	-379.3	204.2	272.6	256.7	15.90	17.152	
3,600.0	3,588.3	3,576.9	3,551.2	8.5	10.8	42.95	42.95	-391.8	210.2	277.0	260.6	16.44	16.845	
3,700.0	3,687.6	3,676.7	3,650.0	8.8	11.2	43.90	43.90	-404.3	216.3	281.4	264.4	17.00	16.556	
3,800.0	3,786.8	3,776.5	3,748.8	9.2	11.5	44.82	44.82	-416.8	222.3	286.0	268.4	17.56	16.284	
3,900.0	3,886.0	3,876.3	3,847.7	9.5	11.9	45.72	45.72	-429.3	228.4	290.6	272.4	18.13	16.028	
4,000.0	3,985.3	3,976.1	3,946.5	9.8	12.2	46.58	46.58	-441.9	234.4	295.2	276.5	18.70	15.786	
4,100.0	4,084.5	4,075.9	4,045.3	10.1	12.6	47.42	47.42	-454.4	240.5	299.9	280.7	19.28	15.559	
4,200.0	4,183.7	4,175.7	4,144.1	10.4	12.9	48.23	48.23	-466.9	246.5	304.7	284.9	19.86	15.344	
4,300.0	4,283.0	4,275.5	4,242.9	10.7	13.3	49.02	49.02	-479.4	252.6	309.6	289.1	20.45	15.140	
4,400.0	4,382.2	4,375.3	4,341.8	11.0	13.6	49.78	49.78	-491.9	258.6	314.5	293.4	21.04	14.948	
4,500.0	4,481.4	4,475.1	4,440.6	11.3	14.0	50.52	50.52	-504.4	264.7	319.4	297.8	21.63	14.766	
4,600.0	4,580.7	4,574.9	4,539.4	11.6	14.3	51.24	51.24	-516.9	270.7	324.5	302.2	22.23	14.593	
4,700.0	4,679.9	4,674.7	4,638.2	12.0	14.7	51.93	51.93	-529.4	276.8	329.5	306.7	22.84	14.429	
4,800.0	4,779.1	4,774.5	4,737.1	12.3	15.0	52.60	52.60	-541.9	282.8	334.6	311.2	23.44	14.274	
4,900.0	4,878.4	4,874.3	4,835.9	12.6	15.4	53.26	53.26	-554.4	288.9	339.8	315.7	24.05	14.126	
5,000.0	4,977.6	4,974.1	4,934.7	12.9	15.7	53.89	53.89	-566.9	294.9	345.0	320.3	24.66	13.986	

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

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	
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)			
5,100.0	5,076.8	5,073.8	5,033.5	13.2	16.1	54.51	-579.4	301.0	350.2	324.9	25.28	13.853		
5,200.0	5,176.1	5,173.6	5,132.3	13.5	16.4	55.11	-591.9	307.0	355.6	329.7	25.89	13.735		
5,300.0	5,275.6	5,273.4	5,231.1	13.8	16.8	55.44	-604.4	313.1	362.4	336.0	26.40	13.729		
5,400.0	5,375.4	5,373.0	5,329.7	14.0	17.1	55.34	-616.9	319.1	371.3	344.5	26.84	13.832		
5,500.0	5,475.4	5,476.0	5,431.7	14.1	17.5	54.84	-629.7	325.3	382.1	354.8	27.22	14.038		
5,600.0	5,575.4	5,589.0	5,544.1	14.3	17.7	-179.23	-640.8	330.7	391.7	361.8	29.88	13.108		
5,700.0	5,675.4	5,702.8	5,657.6	14.5	17.9	-179.74	-647.9	334.1	397.9	367.6	30.32	13.124		
5,800.0	5,775.4	5,817.1	5,771.9	14.6	18.1	-179.96	-651.0	335.6	400.6	369.9	30.70	13.050		
5,900.0	5,875.4	5,920.6	5,875.4	14.8	18.2	-179.97	-651.1	335.7	400.7	369.7	31.03	12.913		
6,000.0	5,975.4	6,020.6	5,975.4	15.0	18.4	-179.97	-651.1	335.7	400.7	369.4	31.35	12.783		
6,061.8	6,037.2	6,082.5	6,037.2	15.1	18.4	-179.97	-651.1	335.7	400.7	369.2	31.55	12.703		
6,100.0	6,075.4	6,120.6	6,075.4	15.2	18.5	-179.94	-651.1	335.5	400.7	369.1	31.67	12.655		
6,200.0	6,175.3	6,220.1	6,174.5	15.3	18.6	-89.20	-651.1	327.0	400.8	371.2	29.62	13.530		
6,300.0	6,273.9	6,318.9	6,270.9	15.4	18.6	-88.41	-651.1	305.9	400.9	371.1	29.82	13.442		
6,400.0	6,369.7	6,417.0	6,363.1	15.4	18.6	-87.65	-651.1	272.8	401.1	371.2	29.92	13.405		
6,500.0	6,460.8	6,514.4	6,449.8	15.4	18.6	-86.93	-651.1	228.5	401.3	371.3	29.98	13.388		
6,600.0	6,545.9	6,611.3	6,529.8	15.4	18.6	-86.26	-651.1	173.8	401.6	371.5	30.10	13.341		
6,700.0	6,623.4	6,707.6	6,601.7	15.4	18.6	-85.66	-651.1	109.9	401.9	371.4	30.44	13.203		
6,800.0	6,691.9	6,803.5	6,664.9	15.6	18.5	-85.13	-651.1	37.8	402.2	371.0	31.16	12.909		
6,900.0	6,750.4	6,900.0	6,718.8	16.0	18.5	-84.68	-651.1	-42.1	402.5	370.1	32.41	12.418		
7,000.0	6,797.8	6,994.1	6,761.2	16.9	18.6	-84.32	-651.1	-126.1	402.7	368.4	34.28	11.746		
7,100.0	6,833.4	7,089.0	6,793.3	18.2	19.1	-84.05	-651.1	-215.4	402.9	366.1	36.81	10.945		
7,200.0	6,856.4	7,183.8	6,814.0	19.8	20.5	-83.88	-651.1	-307.7	403.0	363.1	39.92	10.095		
7,300.0	6,866.5	7,278.4	6,823.1	21.6	22.2	-83.81	-651.1	-401.9	403.1	359.6	43.50	9.266		
7,400.0	6,866.3	7,376.6	6,823.1	23.6	24.2	-83.85	-651.1	-500.1	403.1	355.6	47.47	8.490		
7,500.0	6,865.2	7,476.6	6,822.5	25.8	26.4	-83.92	-651.1	-600.1	403.0	351.2	51.75	7.787		
7,600.0	6,864.0	7,576.6	6,821.9	28.1	28.6	-83.99	-651.1	-700.1	402.9	346.7	56.26	7.162		
7,700.0	6,862.9	7,676.6	6,821.3	30.4	31.0	-84.07	-651.1	-800.1	402.9	341.9	60.96	6.610		
7,800.0	6,861.8	7,776.6	6,820.7	32.9	33.4	-84.14	-651.1	-900.1	402.8	337.1	65.79	6.123		
7,900.0	6,860.7	7,876.6	6,820.1	35.3	35.9	-84.21	-651.1	-1,000.1	402.8	332.1	70.74	5.694		
8,000.0	6,859.6	7,976.6	6,819.4	37.9	38.4	-84.28	-651.1	-1,100.1	402.7	327.0	75.78	5.315		
8,100.0	6,858.5	8,076.6	6,818.8	40.4	41.0	-84.35	-651.1	-1,200.1	402.7	321.8	80.89	4.978		
8,200.0	6,857.3	8,176.6	6,818.2	43.0	43.5	-84.42	-651.1	-1,300.1	402.6	316.6	86.07	4.678		
8,300.0	6,856.2	8,276.6	6,817.6	45.7	46.1	-84.50	-651.1	-1,400.1	402.6	311.3	91.29	4.410		
8,400.0	6,855.1	8,376.6	6,817.0	48.3	48.8	-84.57	-651.1	-1,500.1	402.5	306.0	96.56	4.169		
8,500.0	6,854.0	8,476.6	6,816.4	51.0	51.4	-84.64	-651.1	-1,600.1	402.5	300.6	101.87	3.951		
8,600.0	6,852.9	8,576.6	6,815.8	53.6	54.1	-84.71	-651.1	-1,700.1	402.4	295.2	107.21	3.754		
8,700.0	6,851.8	8,676.6	6,815.2	56.3	56.8	-84.78	-651.1	-1,800.0	402.4	289.8	112.57	3.575		
8,800.0	6,850.6	8,776.6	6,814.6	59.0	59.5	-84.86	-651.1	-1,900.0	402.4	284.4	117.96	3.411		
8,900.0	6,849.5	8,876.6	6,813.9	61.7	62.2	-84.93	-651.1	-2,000.0	402.3	278.9	123.37	3.261		
9,000.0	6,848.4	8,976.6	6,813.3	64.5	64.9	-85.00	-651.1	-2,100.0	402.3	273.5	128.80	3.123		
9,100.0	6,847.3	9,076.6	6,812.7	67.2	67.6	-85.07	-651.1	-2,200.0	402.2	268.0	134.24	2.996		
9,200.0	6,846.2	9,176.6	6,812.1	69.9	70.3	-85.14	-651.1	-2,300.0	402.2	262.5	139.70	2.879		
9,300.0	6,845.1	9,276.6	6,811.5	72.7	73.1	-85.21	-651.1	-2,400.0	402.1	257.0	145.17	2.770		
9,400.0	6,843.9	9,376.6	6,810.9	75.4	75.8	-85.29	-651.1	-2,500.0	402.1	251.4	150.65	2.669		
9,500.0	6,842.8	9,476.6	6,810.3	78.2	78.5	-85.36	-651.1	-2,600.0	402.1	245.9	156.14	2.575		
9,600.0	6,841.7	9,576.6	6,809.7	80.9	81.3	-85.43	-651.1	-2,700.0	402.0	240.4	161.64	2.487		
9,700.0	6,840.6	9,676.6	6,809.1	83.7	84.0	-85.50	-651.1	-2,800.0	402.0	234.8	167.15	2.405		
9,800.0	6,839.5	9,776.6	6,808.4	86.4	86.8	-85.57	-651.1	-2,900.0	401.9	229.3	172.67	2.328		
9,900.0	6,838.3	9,876.6	6,807.8	89.2	89.6	-85.65	-651.1	-3,000.0	401.9	223.7	178.19	2.255		
10,000.0	6,837.2	9,976.6	6,807.2	92.0	92.3	-85.72	-651.1	-3,100.0	401.9	218.1	183.72	2.187		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1V-314
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4651.0ft (RKB -13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4651.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-314	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
10,100.0	6,836.1	10,076.6	6,806.6	94.7	95.1	-85.79	-85.79	-651.1	-3,200.0	401.8	212.6	189.26	2.123	
10,200.0	6,835.0	10,176.6	6,806.0	97.5	97.9	-85.86	-85.86	-651.1	-3,300.0	401.8	207.0	194.80	2.063	
10,300.0	6,833.9	10,276.6	6,805.4	100.3	100.6	-85.93	-85.93	-651.1	-3,400.0	401.7	201.4	200.35	2.005	
10,400.0	6,832.8	10,376.6	6,804.8	103.0	103.4	-86.01	-86.01	-651.1	-3,500.0	401.7	195.8	205.90	1.951	
10,500.0	6,831.6	10,476.6	6,804.2	105.8	106.2	-86.08	-86.08	-651.1	-3,600.0	401.7	190.2	211.45	1.900	
10,600.0	6,830.5	10,576.6	6,803.6	108.6	108.9	-86.15	-86.15	-651.1	-3,700.0	401.6	184.6	217.01	1.851	
10,700.0	6,829.4	10,676.6	6,802.9	111.4	111.7	-86.22	-86.22	-651.1	-3,800.0	401.6	179.0	222.58	1.804	
10,800.0	6,828.3	10,776.6	6,802.3	114.2	114.5	-86.29	-86.29	-651.1	-3,900.0	401.6	173.4	228.14	1.760	
10,900.0	6,827.2	10,876.6	6,801.7	116.9	117.3	-86.37	-86.37	-651.1	-4,000.0	401.5	167.8	233.71	1.718	
11,000.0	6,826.1	10,976.6	6,801.1	119.7	120.1	-86.44	-86.44	-651.1	-4,100.0	401.5	162.2	239.29	1.678	
11,100.0	6,824.9	11,076.6	6,800.5	122.5	122.8	-86.51	-86.51	-651.1	-4,200.0	401.5	156.6	244.86	1.640	
11,200.0	6,823.8	11,176.6	6,799.9	125.3	125.6	-86.58	-86.58	-651.1	-4,300.0	401.4	151.0	250.44	1.603	
11,300.0	6,822.7	11,276.6	6,799.3	128.1	128.4	-86.65	-86.65	-651.1	-4,400.0	401.4	145.4	256.02	1.568	
11,400.0	6,821.6	11,376.6	6,798.7	130.9	131.2	-86.73	-86.73	-651.1	-4,500.0	401.4	139.8	261.61	1.534	
11,500.0	6,820.5	11,476.6	6,798.1	133.7	134.0	-86.80	-86.80	-651.1	-4,600.0	401.4	134.2	267.19	1.502	
11,600.0	6,819.4	11,576.6	6,797.5	136.5	136.8	-86.87	-86.87	-651.1	-4,700.0	401.3	128.6	272.78	1.471	Level 3
11,700.0	6,818.2	11,676.6	6,796.8	139.2	139.6	-86.94	-86.94	-651.1	-4,800.0	401.3	122.9	278.37	1.442	Level 3
11,800.0	6,817.1	11,776.6	6,796.2	142.0	142.4	-87.01	-87.01	-651.1	-4,899.9	401.3	117.3	283.96	1.413	Level 3
11,900.0	6,816.0	11,876.6	6,795.6	144.8	145.1	-87.09	-87.09	-651.1	-4,999.9	401.3	111.7	289.55	1.386	Level 3
12,000.0	6,814.9	11,976.6	6,795.0	147.6	147.9	-87.16	-87.16	-651.1	-5,099.9	401.2	106.1	295.15	1.359	Level 3
12,100.0	6,813.8	12,076.6	6,794.4	150.4	150.7	-87.23	-87.23	-651.1	-5,199.9	401.2	100.5	300.74	1.334	Level 3
12,200.0	6,812.7	12,176.6	6,793.8	153.2	153.5	-87.30	-87.30	-651.1	-5,299.9	401.2	94.8	306.34	1.310	Level 3
12,300.0	6,811.5	12,276.6	6,793.2	156.0	156.3	-87.38	-87.38	-651.1	-5,399.9	401.2	89.2	311.94	1.286	Level 3
12,400.0	6,810.4	12,376.6	6,792.6	158.8	159.1	-87.45	-87.45	-651.1	-5,499.9	401.1	83.6	317.54	1.263	Level 3
12,500.0	6,809.3	12,476.6	6,792.0	161.6	161.9	-87.52	-87.52	-651.1	-5,599.9	401.1	78.0	323.14	1.241	Level 2
12,600.0	6,808.2	12,576.6	6,791.3	164.4	164.7	-87.59	-87.59	-651.1	-5,699.9	401.1	72.3	328.75	1.220	Level 2
12,700.0	6,807.1	12,676.6	6,790.7	167.2	167.5	-87.66	-87.66	-651.1	-5,799.9	401.1	66.7	334.35	1.200	Level 2
12,800.0	6,806.0	12,776.6	6,790.1	170.0	170.3	-87.74	-87.74	-651.1	-5,899.9	401.0	61.1	339.95	1.180	Level 2
12,900.0	6,804.8	12,876.6	6,789.5	172.8	173.1	-87.81	-87.81	-651.1	-5,999.9	401.0	55.5	345.56	1.161	Level 2
13,000.0	6,803.7	12,976.6	6,788.9	175.6	175.9	-87.88	-87.88	-651.1	-6,099.9	401.0	49.8	351.17	1.142	Level 2
13,100.0	6,802.6	13,076.6	6,788.3	178.4	178.7	-87.95	-87.95	-651.1	-6,199.9	401.0	44.2	356.77	1.124	Level 2
13,200.0	6,801.5	13,176.6	6,787.7	181.2	181.5	-88.03	-88.03	-651.1	-6,299.9	401.0	38.6	362.38	1.106	Level 2
13,300.0	6,800.4	13,276.6	6,787.1	184.0	184.3	-88.10	-88.10	-651.1	-6,399.9	401.0	33.0	367.99	1.090	Level 2
13,400.0	6,799.3	13,376.6	6,786.5	186.8	187.1	-88.17	-88.17	-651.1	-6,499.9	400.9	27.3	373.60	1.073	Level 2
13,500.0	6,798.1	13,476.6	6,785.8	189.6	189.9	-88.24	-88.24	-651.1	-6,599.9	400.9	21.7	379.21	1.057	Level 2
13,600.0	6,797.0	13,576.6	6,785.2	192.4	192.7	-88.32	-88.32	-651.1	-6,699.9	400.9	16.1	384.82	1.042	Level 2
13,700.0	6,795.9	13,676.6	6,784.6	195.2	195.5	-88.39	-88.39	-651.1	-6,799.9	400.9	10.5	390.43	1.027	Level 2
13,800.0	6,794.8	13,776.6	6,784.0	198.0	198.3	-88.46	-88.46	-651.1	-6,899.9	400.9	4.8	396.04	1.012	Level 2
13,900.0	6,793.7	13,876.6	6,783.4	200.8	201.1	-88.53	-88.53	-651.1	-6,999.9	400.9	-0.8	401.65	0.998	Level 1
13,959.9	6,793.0	13,936.5	6,783.0	202.5	202.7	-88.58	-88.58	-651.1	-7,059.8	400.9	-4.2	405.01	0.990	Level 1, ES, SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1V-314
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4651.0ft (RKB -13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4651.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-314	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													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)				
12,000.0	6,814.9	6,823.9	6,823.9	147.6	15.2	-92.10	-538.4	-6,045.5	988.3	825.6	162.72	6.074	1.522 CC, ES, SF		
12,100.0	6,813.8	6,822.8	6,822.8	150.4	15.2	-91.88	-538.4	-6,045.5	893.2	727.6	165.53	5.396			
12,200.0	6,812.7	6,821.7	6,821.7	153.2	15.2	-91.66	-538.4	-6,045.5	799.2	630.8	168.34	4.747			
12,300.0	6,811.5	6,820.5	6,820.5	156.0	15.2	-91.43	-538.4	-6,045.5	706.8	535.7	171.15	4.130			
12,400.0	6,810.4	6,819.4	6,819.4	158.8	15.2	-91.21	-538.4	-6,045.5	616.9	442.9	173.96	3.546			
12,500.0	6,809.3	6,818.3	6,818.3	161.6	15.2	-90.99	-538.4	-6,045.5	530.5	353.7	176.76	3.001			
12,600.0	6,808.2	6,817.2	6,817.2	164.4	15.2	-90.77	-538.4	-6,045.5	449.8	270.3	179.57	2.505			
12,700.0	6,807.1	6,816.1	6,816.1	167.2	15.2	-90.55	-538.4	-6,045.5	378.5	196.1	182.37	2.075			
12,800.0	6,806.0	6,815.0	6,815.0	170.0	15.2	-90.32	-538.4	-6,045.5	322.7	137.6	185.17	1.743			
12,900.0	6,804.8	6,813.8	6,813.8	172.8	15.2	-90.10	-538.4	-6,045.5	291.7	103.7	187.97	1.552			
12,945.5	6,804.3	6,813.3	6,813.3	174.1	15.2	-90.00	-538.4	-6,045.5	288.1	98.8	189.24				
13,000.0	6,803.7	6,812.7	6,812.7	175.6	15.2	-89.88	-538.4	-6,045.5	293.2	102.4	190.77	1.537			
13,100.0	6,802.6	6,811.6	6,811.6	178.4	15.2	-89.66	-538.4	-6,045.5	326.9	133.3	193.56	1.689			
13,200.0	6,801.5	6,810.5	6,810.5	181.2	15.2	-89.43	-538.4	-6,045.5	384.4	188.0	196.35	1.958			
13,300.0	6,800.4	6,809.4	6,809.4	184.0	15.2	-89.21	-538.4	-6,045.5	456.8	257.7	199.14	2.294			
13,400.0	6,799.3	6,808.3	6,808.3	186.8	15.2	-88.99	-538.4	-6,045.5	538.1	336.2	201.93	2.665			
13,500.0	6,798.1	6,807.1	6,807.1	189.6	15.2	-88.77	-538.4	-6,045.5	624.9	420.1	204.71	3.052			
13,600.0	6,797.0	6,806.0	6,806.0	192.4	15.2	-88.55	-538.4	-6,045.5	715.1	507.6	207.49	3.446			
13,700.0	6,795.9	6,804.9	6,804.9	195.2	15.2	-88.32	-538.4	-6,045.5	807.6	597.3	210.27	3.841			
13,800.0	6,794.8	6,803.8	6,803.8	198.0	15.2	-88.10	-538.4	-6,045.5	901.7	688.7	213.04	4.233			
13,900.0	6,793.7	6,802.7	6,802.7	200.8	15.2	-87.88	-538.4	-6,045.5	997.0	781.2	215.81	4.620			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1V-314
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4651.0ft (RKB -13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4651.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-314	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
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)				
12,400.0	6,810.4	6,978.4	6,842.5	158.8	22.4	92.52	448.7	-6,195.6	986.4	812.4	174.00	5.669			
12,500.0	6,809.3	6,971.0	6,835.0	161.6	22.4	91.92	448.5	-6,196.1	918.7	741.8	176.87	5.194			
12,600.0	6,808.2	6,963.5	6,827.6	164.4	22.4	91.31	448.3	-6,196.6	857.1	677.4	179.72	4.769			
12,700.0	6,807.1	6,956.0	6,820.1	167.2	22.4	90.69	448.0	-6,197.0	803.3	620.8	182.56	4.400			
12,800.0	6,806.0	6,948.5	6,812.6	170.0	22.4	90.08	447.8	-6,197.5	758.9	573.5	185.38	4.094			
12,900.0	6,804.8	6,940.9	6,805.1	172.8	22.4	89.46	447.6	-6,198.0	725.5	537.3	188.18	3.855			
13,000.0	6,803.7	6,933.6	6,797.8	175.6	22.4	88.86	447.4	-6,198.4	704.8	513.8	190.96	3.691			
13,099.1	6,802.6	6,926.4	6,790.6	178.4	22.3	88.27	447.1	-6,198.9	697.8	504.1	193.70	3.603 CC			
13,100.0	6,802.6	6,926.4	6,790.5	178.4	22.3	88.27	447.1	-6,198.9	697.8	504.1	193.72	3.602 ES			
13,200.0	6,801.5	6,919.2	6,783.4	181.2	22.3	87.68	446.9	-6,199.3	705.0	508.6	196.46	3.589 SF			
13,300.0	6,800.4	6,912.1	6,776.3	184.0	22.3	87.10	446.7	-6,199.8	726.0	526.8	199.18	3.645			
13,400.0	6,799.3	6,905.1	6,769.3	186.8	22.3	86.52	446.5	-6,200.2	759.6	557.7	201.89	3.763			
13,500.0	6,798.1	6,898.1	6,762.3	189.6	22.3	85.95	446.3	-6,200.6	804.3	599.7	204.57	3.931			
13,600.0	6,797.0	6,891.2	6,755.4	192.4	22.3	85.39	446.1	-6,201.0	858.2	651.0	207.23	4.141			
13,700.0	6,795.9	6,884.4	6,748.6	195.2	22.3	84.83	445.9	-6,201.4	919.9	710.0	209.87	4.383			
13,800.0	6,794.8	6,877.6	6,741.9	198.0	22.3	84.28	445.7	-6,201.8	987.8	775.3	212.49	4.648			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1V-314
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4651.0ft (RKB -13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4651.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-314	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 2VD - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 700-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
11,100.0	6,824.9	6,982.2	6,848.4	122.5	23.3	-92.48	-788.1	-4,994.7	959.5	814.3	145.28	6.605		
11,200.0	6,823.8	6,979.1	6,845.3	125.3	23.3	-92.16	-788.1	-4,994.7	878.5	730.5	148.09	5.932		
11,300.0	6,822.7	6,976.1	6,842.2	128.1	23.3	-91.83	-788.1	-4,994.8	801.8	650.9	150.91	5.313		
11,400.0	6,821.6	6,973.0	6,839.1	130.9	23.3	-91.50	-788.1	-4,994.8	730.8	577.1	153.72	4.754		
11,500.0	6,820.5	6,969.9	6,836.0	133.7	23.3	-91.17	-788.1	-4,994.9	667.2	510.6	156.52	4.262		
11,600.0	6,819.4	6,966.7	6,832.9	136.5	23.3	-90.83	-788.1	-4,995.0	613.3	454.0	159.33	3.849		
11,700.0	6,818.2	6,963.6	6,829.8	139.2	23.3	-90.50	-788.1	-4,995.0	572.0	409.9	162.13	3.528		
11,800.0	6,817.1	6,960.4	6,826.6	142.0	23.3	-90.16	-788.1	-4,995.1	546.1	381.1	164.92	3.311		
11,895.1	6,816.1	6,957.4	6,823.6	144.7	23.3	-89.84	-788.1	-4,995.2	537.7	370.1	167.58	3.209 CC		
11,900.0	6,816.0	6,957.2	6,823.4	144.8	23.3	-89.82	-788.1	-4,995.2	537.7	370.0	167.71	3.206 ES, SF		
12,000.0	6,814.9	6,954.1	6,820.2	147.6	23.3	-89.48	-788.1	-4,995.2	547.9	377.3	170.50	3.213		
12,100.0	6,813.8	6,950.8	6,817.0	150.4	23.3	-89.14	-788.1	-4,995.3	575.4	402.1	173.28	3.321		
12,200.0	6,812.7	6,947.6	6,813.8	153.2	23.3	-88.80	-788.0	-4,995.4	618.1	442.0	176.06	3.511		
12,300.0	6,811.5	6,944.4	6,810.6	156.0	23.3	-88.45	-788.0	-4,995.4	673.0	494.2	178.83	3.763		
12,400.0	6,810.4	6,941.2	6,807.4	158.8	23.3	-88.12	-788.0	-4,995.5	737.4	555.8	181.59	4.061		
12,500.0	6,809.3	6,938.2	6,804.3	161.6	23.3	-87.79	-788.0	-4,995.6	809.1	624.8	184.35	4.389		
12,600.0	6,808.2	6,935.2	6,801.3	164.4	23.3	-87.48	-788.0	-4,995.6	886.3	699.2	187.10	4.737		
12,700.0	6,807.1	6,932.3	6,798.4	167.2	23.3	-87.16	-788.0	-4,995.7	967.6	777.8	189.85	5.097		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1V-314
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4651.0ft (RKB -13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4651.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-314	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 31-2D - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 700-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
12,800.0	6,806.0	6,954.3	6,847.2	170.0	21.3	113.18	-149.2	-6,889.9	995.5	819.6	175.94	5.658	
12,900.0	6,804.8	6,950.4	6,843.3	172.8	21.3	111.27	-149.2	-6,890.0	896.2	715.4	180.77	4.958	
13,000.0	6,803.7	6,946.4	6,839.3	175.6	21.3	109.28	-149.1	-6,890.1	797.0	611.5	185.55	4.295	
13,100.0	6,802.6	6,942.4	6,835.3	178.4	21.3	107.23	-149.0	-6,890.2	698.0	507.8	190.26	3.669	
13,200.0	6,801.5	6,938.4	6,831.3	181.2	21.3	105.10	-148.9	-6,890.4	599.4	404.5	194.86	3.076	
13,300.0	6,800.4	6,934.3	6,827.2	184.0	21.3	102.92	-148.8	-6,890.5	501.2	301.9	199.32	2.515	
13,400.0	6,799.3	6,930.1	6,823.0	186.8	21.3	100.67	-148.7	-6,890.6	403.9	200.3	203.60	1.984	
13,500.0	6,798.1	6,925.9	6,818.9	189.6	21.3	98.37	-148.6	-6,890.8	308.3	100.6	207.65	1.485 Level 3	
13,600.0	6,797.0	6,921.7	6,814.6	192.4	21.3	96.01	-148.5	-6,890.9	216.6	5.1	211.45	1.024 Level 2	
13,700.0	6,795.9	6,917.4	6,810.3	195.2	21.3	93.61	-148.4	-6,891.0	136.8	-78.1	214.95	0.636 Level 1	
13,791.2	6,794.9	6,913.4	6,806.4	197.7	21.3	91.39	-148.3	-6,891.2	102.1	-115.8	217.86	0.469 Level 1, CC, ES, SF	
13,800.0	6,794.8	6,913.0	6,806.0	198.0	21.3	91.18	-148.3	-6,891.2	102.5	-115.7	218.12	0.470 Level 1	
13,900.0	6,793.7	6,908.6	6,801.6	200.8	21.3	88.71	-148.2	-6,891.3	149.1	-71.8	220.93	0.675 Level 1	
13,959.9	6,793.0	6,906.0	6,798.9	202.5	21.3	87.23	-148.1	-6,891.4	197.1	-25.4	222.43	0.886 Level 1	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1V-314
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4651.0ft (RKB -13')
Reference Site:	LDS 5N65W1U Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4651.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-314	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 @ 4651.0ft (RKB -13')

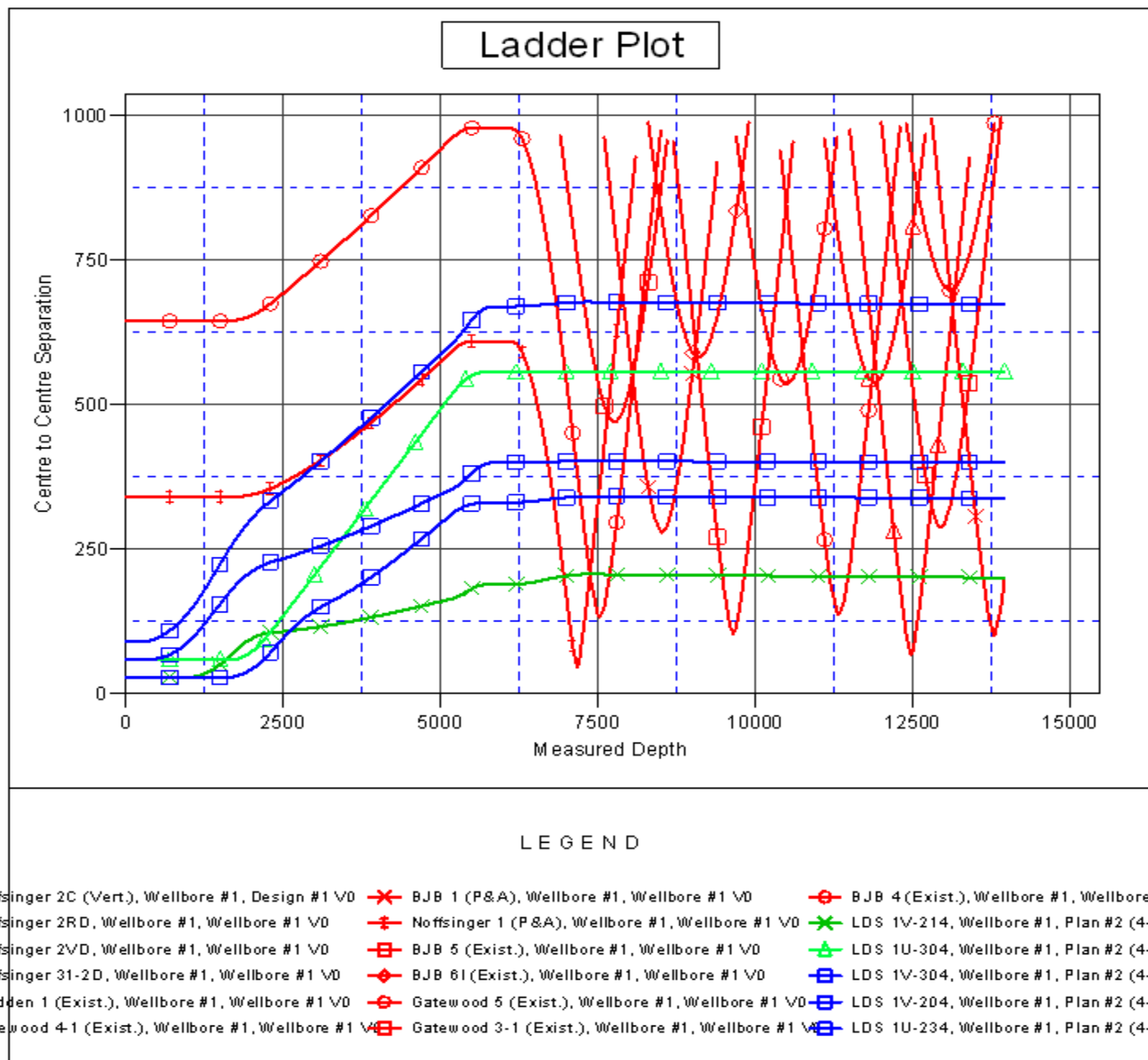
Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: LDS 1V-314

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.58°



Coordinates are relative to: LDS 1V-314
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.58°

