

PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **LDS 1V-234**

Surface Location: LDS 5N65W1W Pad Sec.1-T5N-R65W

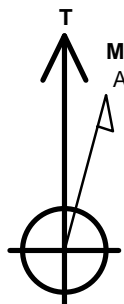
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 4613.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1400493.84	3249728.30	40.429290	-104.602940	
RKB - 13' WELL @ 4626.0ft (RKB - 13')						

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
50' E/W Hardline (1V-234)	1.0	281.6	-3808.1	Rectangle (Sides: L6643.4 W100.0)
SHL 2124'FNL & 332'FEL, Sec.1	1.0	0.0	0.0	Point
BHL 1850'FNL & 2144'FEL, Sec.2	6694.0	281.6	-7129.8	Point



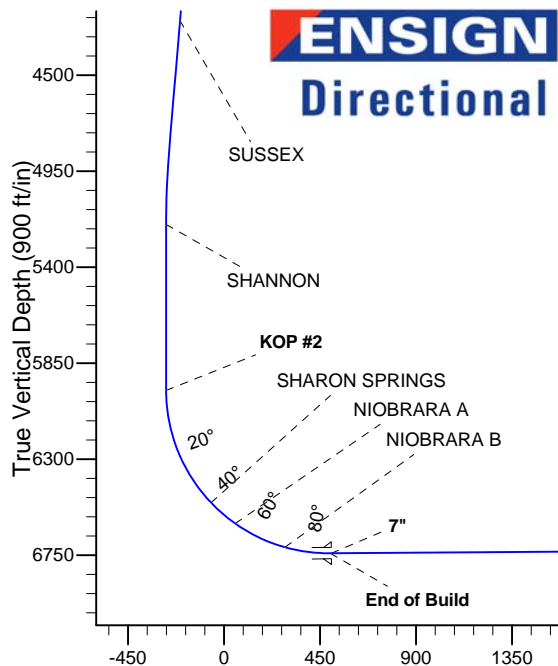
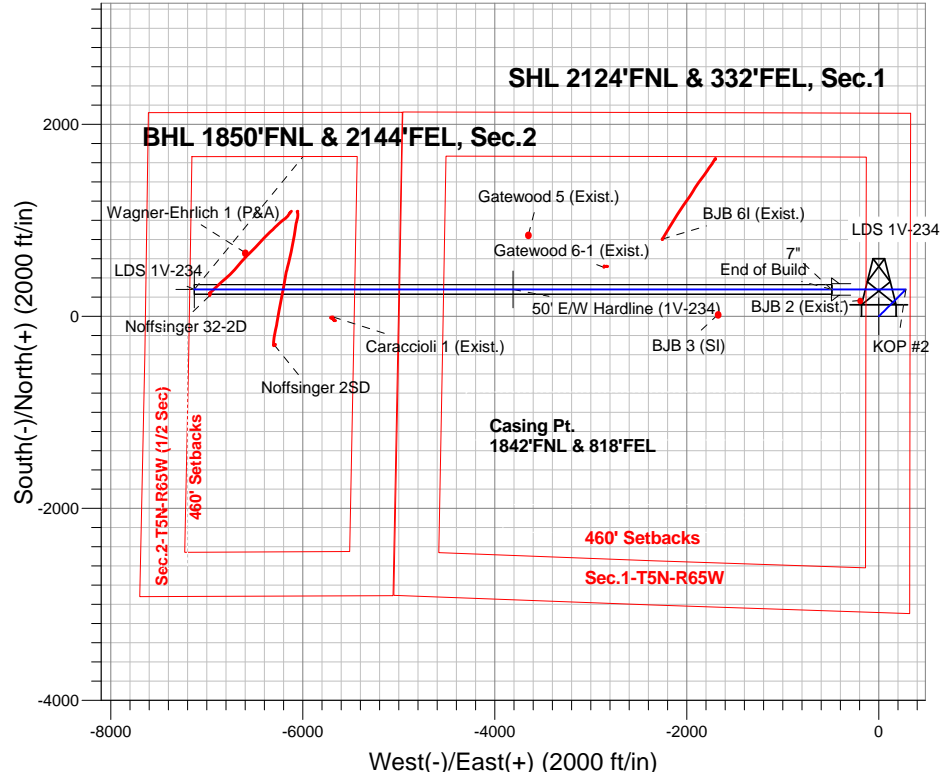
Azimuths to True North
Magnetic North: 8.26°

Magnetic Field
Strength: 52757.2snT
Dip Angle: 66.97°
Date: 4/29/2015
Model: IGRF2010

ANNOTATIONS

TVD	MD	Annotation
1400.0	1400.0	KOP #1
5977.7	6000.6	KOP #2
6741.5	7206.0	End of Build

LDS 5N65W1W Pad Sec.1-T5N-R65W
LDS 1V-234
Plan #2 (4-29-15)



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	Target	VSec
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1400.0	0.00	0.00	1400.0	0.0	0.0	0.00	0.00	0.0	
3	2094.2	6.94	45.15	2092.5	29.6	29.8	1.00	45.15	-28.6	
4	4875.8	6.94	45.15	4853.7	266.8	268.1	0.00	0.00	-257.4	
5	5222.9	0.00	0.00	5200.0	281.6	283.0	2.00	180.00	-271.7	
6	6000.6	0.00	0.00	5977.6	281.6	283.0	0.00	0.00	-271.7	
7	7206.0	90.41	270.00	6741.5	281.6	-486.4	7.50	270.00	497.1	
8	13849.6	90.41	270.00	6694.0	281.6	-7129.8	0.00	0.00	7135.3	BHL 1850'FNL & 2144'FEL, Sec.2

BHL 1850'FNL & 2144'FEL, Sec.2

Vertical Section at 272.26° (900 ft/in)



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.1-T5N-R65W

LDS 5N65W1W Pad Sec.1-T5N-R65W

LDS 1V-234

Wellbore #1

Plan: Plan #2 (4-29-15)

Standard Planning Report

30 April, 2015

Database:	Landmark	Local Co-ordinate Reference:	Well LDS 1V-234
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4626.0ft (RKB - 13')
Project:	SEC.1-T5N-R65W	MD Reference:	WELL @ 4626.0ft (RKB - 13')
Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	North Reference:	True
Well:	LDS 1V-234	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (4-29-15)		

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 5N65W1W Pad Sec.1-T5N-R65W											
Site Position:						Northing:			1,400,464.71 ft			Latitude:			40.429210		
From:			Lat/Long			Easting:			3,249,728.59ft			Longitude:			-104.602940		
Position Uncertainty:			0.0 ft			Slot Radius:			"			Grid Convergence:			0.58 °		

Well	LDS 1V-234					
Well Position	+N/-S	29.1 ft	Northing:	1,400,493.84 ft	Latitude:	40.429290
	+E/-W	0.0 ft	Easting:	3,249,728.30 ft	Longitude:	-104.602940
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,613.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/29/2015	8.26	66.97	52,757

Design	Plan #2 (4-29-15)			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	272.26

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,094.2	6.94	45.15	2,092.5	29.6	29.8	1.00	1.00	0.00	45.15	
4,875.8	6.94	45.15	4,853.7	266.8	268.1	0.00	0.00	0.00	0.00	
5,222.9	0.00	0.00	5,200.0	281.6	283.0	2.00	-2.00	0.00	180.00	
6,000.6	0.00	0.00	5,977.6	281.6	283.0	0.00	0.00	0.00	0.00	
7,206.0	90.41	270.00	6,741.5	281.6	-486.4	7.50	7.50	0.00	270.00	
13,849.6	90.41	270.00	6,694.0	281.6	-7,129.8	0.00	0.00	0.00	0.00	BHL 1850'FNL & 21

Database:	Landmark	Local Co-ordinate Reference:	Well LDS 1V-234
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4626.0ft (RKB - 13')
Project:	SEC.1-T5N-R65W	MD Reference:	WELL @ 4626.0ft (RKB - 13')
Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	North Reference:	True
Well:	LDS 1V-234	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (4-29-15)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N-S (ft)	+E-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP #1									
1,500.0	1.00	45.15	1,500.0	0.6	0.6	-0.6	1.00	1.00	0.00
1,600.0	2.00	45.15	1,600.0	2.5	2.5	-2.4	1.00	1.00	0.00
1,700.0	3.00	45.15	1,699.9	5.5	5.6	-5.3	1.00	1.00	0.00
1,800.0	4.00	45.15	1,799.7	9.8	9.9	-9.5	1.00	1.00	0.00
1,900.0	5.00	45.15	1,899.4	15.4	15.5	-14.8	1.00	1.00	0.00
2,000.0	6.00	45.15	1,998.9	22.1	22.3	-21.4	1.00	1.00	0.00
2,094.2	6.94	45.15	2,092.5	29.6	29.8	-28.6	1.00	1.00	0.00
2,100.0	6.94	45.15	2,098.3	30.1	30.3	-29.1	0.00	0.00	0.00
2,200.0	6.94	45.15	2,197.5	38.6	38.8	-37.3	0.00	0.00	0.00
2,300.0	6.94	45.15	2,296.8	47.2	47.4	-45.5	0.00	0.00	0.00
2,400.0	6.94	45.15	2,396.1	55.7	56.0	-53.7	0.00	0.00	0.00
2,500.0	6.94	45.15	2,495.3	64.2	64.5	-62.0	0.00	0.00	0.00
2,600.0	6.94	45.15	2,594.6	72.7	73.1	-70.2	0.00	0.00	0.00
2,700.0	6.94	45.15	2,693.9	81.3	81.7	-78.4	0.00	0.00	0.00
2,800.0	6.94	45.15	2,793.1	89.8	90.3	-86.6	0.00	0.00	0.00
2,900.0	6.94	45.15	2,892.4	98.3	98.8	-94.9	0.00	0.00	0.00
3,000.0	6.94	45.15	2,991.7	106.8	107.4	-103.1	0.00	0.00	0.00
3,100.0	6.94	45.15	3,090.9	115.4	116.0	-111.3	0.00	0.00	0.00
3,200.0	6.94	45.15	3,190.2	123.9	124.5	-119.5	0.00	0.00	0.00
3,300.0	6.94	45.15	3,289.5	132.4	133.1	-127.8	0.00	0.00	0.00
3,400.0	6.94	45.15	3,388.7	140.9	141.7	-136.0	0.00	0.00	0.00
3,498.0	6.94	45.15	3,486.0	149.3	150.1	-144.0	0.00	0.00	0.00
PARKMAN									
3,500.0	6.94	45.15	3,488.0	149.5	150.2	-144.2	0.00	0.00	0.00
3,600.0	6.94	45.15	3,587.3	158.0	158.8	-152.4	0.00	0.00	0.00
3,700.0	6.94	45.15	3,686.5	166.5	167.4	-160.7	0.00	0.00	0.00
3,800.0	6.94	45.15	3,785.8	175.0	175.9	-168.9	0.00	0.00	0.00
3,900.0	6.94	45.15	3,885.1	183.6	184.5	-177.1	0.00	0.00	0.00
4,000.0	6.94	45.15	3,984.3	192.1	193.1	-185.3	0.00	0.00	0.00
4,100.0	6.94	45.15	4,083.6	200.6	201.6	-193.6	0.00	0.00	0.00
4,200.0	6.94	45.15	4,182.9	209.1	210.2	-201.8	0.00	0.00	0.00
4,261.6	6.94	45.15	4,244.0	214.4	215.5	-206.9	0.00	0.00	0.00
SUSSEX									
4,300.0	6.94	45.15	4,282.1	217.7	218.8	-210.0	0.00	0.00	0.00
4,400.0	6.94	45.15	4,381.4	226.2	227.3	-218.2	0.00	0.00	0.00
4,500.0	6.94	45.15	4,480.7	234.7	235.9	-226.5	0.00	0.00	0.00
4,600.0	6.94	45.15	4,579.9	243.2	244.5	-234.7	0.00	0.00	0.00

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Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4626.0ft (RKB - 13')
Project:	SEC.1-T5N-R65W	MD Reference:	WELL @ 4626.0ft (RKB - 13')
Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	North Reference:	True
Well:	LDS 1V-234	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (4-29-15)		

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	6.94	45.15	4,679.2	251.8	253.0	-242.9	0.00	0.00	0.00
4,800.0	6.94	45.15	4,778.5	260.3	261.6	-251.1	0.00	0.00	0.00
4,875.8	6.94	45.15	4,853.7	266.8	268.1	-257.4	0.00	0.00	0.00
4,900.0	6.46	45.15	4,877.7	268.7	270.1	-259.3	2.00	-2.00	0.00
5,000.0	4.46	45.15	4,977.3	275.5	276.9	-265.8	2.00	-2.00	0.00
5,100.0	2.46	45.15	5,077.1	279.7	281.1	-269.9	2.00	-2.00	0.00
5,200.0	0.46	45.15	5,177.1	281.5	282.9	-271.6	2.00	-2.00	0.00
5,222.9	0.00	0.00	5,200.0	281.6	283.0	-271.7	2.00	-2.00	0.00
SHANNON									
5,300.0	0.00	0.00	5,277.1	281.6	283.0	-271.7	0.00	0.00	0.00
5,400.0	0.00	0.00	5,377.1	281.6	283.0	-271.7	0.00	0.00	0.00
5,500.0	0.00	0.00	5,477.1	281.6	283.0	-271.7	0.00	0.00	0.00
5,600.0	0.00	0.00	5,577.1	281.6	283.0	-271.7	0.00	0.00	0.00
5,700.0	0.00	0.00	5,677.1	281.6	283.0	-271.7	0.00	0.00	0.00
5,800.0	0.00	0.00	5,777.1	281.6	283.0	-271.7	0.00	0.00	0.00
5,900.0	0.00	0.00	5,877.1	281.6	283.0	-271.7	0.00	0.00	0.00
6,000.0	0.00	0.00	5,977.1	281.6	283.0	-271.7	0.00	0.00	0.00
6,000.6	0.00	0.00	5,977.7	281.6	283.0	-271.7	0.00	0.00	0.00
KOP #2									
6,100.0	7.46	270.00	6,076.8	281.6	276.5	-265.2	7.50	7.50	0.00
6,200.0	14.96	270.00	6,174.8	281.6	257.1	-245.8	7.50	7.50	0.00
6,300.0	22.46	270.00	6,269.5	281.6	225.1	-213.8	7.50	7.50	0.00
6,400.0	29.96	270.00	6,359.1	281.6	180.9	-169.7	7.50	7.50	0.00
6,500.0	37.46	270.00	6,442.2	281.6	125.5	-114.3	7.50	7.50	0.00
6,581.3	43.55	270.00	6,504.0	281.6	72.7	-61.5	7.50	7.50	0.00
SHARON SPRINGS									
6,600.0	44.96	270.00	6,517.4	281.6	59.6	-48.5	7.50	7.50	0.00
6,700.0	52.46	270.00	6,583.4	281.6	-15.4	26.5	7.50	7.50	0.00
6,731.4	54.82	270.00	6,602.0	281.6	-40.8	51.8	7.50	7.50	0.00
NIOBRARA A									
6,800.0	59.96	270.00	6,638.9	281.6	-98.5	109.5	7.50	7.50	0.00
6,900.0	67.46	270.00	6,683.2	281.6	-188.1	199.0	7.50	7.50	0.00
6,991.0	74.28	270.00	6,713.0	281.6	-274.0	284.9	7.50	7.50	0.00
NIOBRARA B									
7,000.0	74.96	270.00	6,715.4	281.6	-282.7	293.6	7.50	7.50	0.00
7,100.0	82.46	270.00	6,735.0	281.6	-380.7	391.5	7.50	7.50	0.00
7,200.0	89.96	270.00	6,741.6	281.6	-480.4	491.1	7.50	7.50	0.00
7,206.0	90.41	270.00	6,741.5	281.6	-486.4	497.1	7.50	7.50	0.00
End of Build - 7"									
7,300.0	90.41	270.00	6,740.9	281.6	-580.4	591.0	0.00	0.00	0.00
7,400.0	90.41	270.00	6,740.2	281.6	-680.4	691.0	0.00	0.00	0.00
7,500.0	90.41	270.00	6,739.4	281.6	-780.4	790.9	0.00	0.00	0.00
7,600.0	90.41	270.00	6,738.7	281.6	-880.4	890.8	0.00	0.00	0.00
7,700.0	90.41	270.00	6,738.0	281.6	-980.4	990.7	0.00	0.00	0.00
7,800.0	90.41	270.00	6,737.3	281.6	-1,080.4	1,090.6	0.00	0.00	0.00
7,900.0	90.41	270.00	6,736.6	281.6	-1,180.4	1,190.6	0.00	0.00	0.00
8,000.0	90.41	270.00	6,735.9	281.6	-1,280.4	1,290.5	0.00	0.00	0.00
8,100.0	90.41	270.00	6,735.1	281.6	-1,380.4	1,390.4	0.00	0.00	0.00
8,200.0	90.41	270.00	6,734.4	281.6	-1,480.4	1,490.3	0.00	0.00	0.00
8,300.0	90.41	270.00	6,733.7	281.6	-1,580.4	1,590.2	0.00	0.00	0.00
8,400.0	90.41	270.00	6,733.0	281.6	-1,680.4	1,690.2	0.00	0.00	0.00
8,500.0	90.41	270.00	6,732.3	281.6	-1,780.4	1,790.1	0.00	0.00	0.00

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Project:	SEC.1-T5N-R65W	MD Reference:	WELL @ 4626.0ft (RKB - 13')
Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	North Reference:	True
Well:	LDS 1V-234	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (4-29-15)		

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)
8,600.0	90.41	270.00	6,731.6	281.6	-1,880.4	1,890.0	0.00	0.00	0.00
8,700.0	90.41	270.00	6,730.8	281.6	-1,980.4	1,989.9	0.00	0.00	0.00
8,800.0	90.41	270.00	6,730.1	281.6	-2,080.3	2,089.8	0.00	0.00	0.00
8,900.0	90.41	270.00	6,729.4	281.6	-2,180.3	2,189.8	0.00	0.00	0.00
9,000.0	90.41	270.00	6,728.7	281.6	-2,280.3	2,289.7	0.00	0.00	0.00
9,100.0	90.41	270.00	6,728.0	281.6	-2,380.3	2,389.6	0.00	0.00	0.00
9,200.0	90.41	270.00	6,727.3	281.6	-2,480.3	2,489.5	0.00	0.00	0.00
9,300.0	90.41	270.00	6,726.6	281.6	-2,580.3	2,589.4	0.00	0.00	0.00
9,400.0	90.41	270.00	6,725.8	281.6	-2,680.3	2,689.4	0.00	0.00	0.00
9,500.0	90.41	270.00	6,725.1	281.6	-2,780.3	2,789.3	0.00	0.00	0.00
9,600.0	90.41	270.00	6,724.4	281.6	-2,880.3	2,889.2	0.00	0.00	0.00
9,700.0	90.41	270.00	6,723.7	281.6	-2,980.3	2,989.1	0.00	0.00	0.00
9,800.0	90.41	270.00	6,723.0	281.6	-3,080.3	3,089.0	0.00	0.00	0.00
9,900.0	90.41	270.00	6,722.3	281.6	-3,180.3	3,189.0	0.00	0.00	0.00
10,000.0	90.41	270.00	6,721.5	281.6	-3,280.3	3,288.9	0.00	0.00	0.00
10,100.0	90.41	270.00	6,720.8	281.6	-3,380.3	3,388.8	0.00	0.00	0.00
10,200.0	90.41	270.00	6,720.1	281.6	-3,480.3	3,488.7	0.00	0.00	0.00
10,300.0	90.41	270.00	6,719.4	281.6	-3,580.3	3,588.6	0.00	0.00	0.00
10,400.0	90.41	270.00	6,718.7	281.6	-3,680.3	3,688.6	0.00	0.00	0.00
10,500.0	90.41	270.00	6,718.0	281.6	-3,780.3	3,788.5	0.00	0.00	0.00
10,600.0	90.41	270.00	6,717.3	281.6	-3,880.3	3,888.4	0.00	0.00	0.00
10,700.0	90.41	270.00	6,716.5	281.6	-3,980.3	3,988.3	0.00	0.00	0.00
10,800.0	90.41	270.00	6,715.8	281.6	-4,080.3	4,088.2	0.00	0.00	0.00
10,900.0	90.41	270.00	6,715.1	281.6	-4,180.3	4,188.2	0.00	0.00	0.00
11,000.0	90.41	270.00	6,714.4	281.6	-4,280.3	4,288.1	0.00	0.00	0.00
11,100.0	90.41	270.00	6,713.7	281.6	-4,380.3	4,388.0	0.00	0.00	0.00
11,200.0	90.41	270.00	6,713.0	281.6	-4,480.3	4,487.9	0.00	0.00	0.00
11,300.0	90.41	270.00	6,712.2	281.6	-4,580.3	4,587.8	0.00	0.00	0.00
11,400.0	90.41	270.00	6,711.5	281.6	-4,680.3	4,687.7	0.00	0.00	0.00
11,500.0	90.41	270.00	6,710.8	281.6	-4,780.3	4,787.7	0.00	0.00	0.00
11,600.0	90.41	270.00	6,710.1	281.6	-4,880.3	4,887.6	0.00	0.00	0.00
11,700.0	90.41	270.00	6,709.4	281.6	-4,980.3	4,987.5	0.00	0.00	0.00
11,800.0	90.41	270.00	6,708.7	281.6	-5,080.3	5,087.4	0.00	0.00	0.00
11,900.0	90.41	270.00	6,708.0	281.6	-5,180.3	5,187.3	0.00	0.00	0.00
12,000.0	90.41	270.00	6,707.2	281.6	-5,280.3	5,287.3	0.00	0.00	0.00
12,100.0	90.41	270.00	6,706.5	281.6	-5,380.3	5,387.2	0.00	0.00	0.00
12,200.0	90.41	270.00	6,705.8	281.6	-5,480.3	5,487.1	0.00	0.00	0.00
12,300.0	90.41	270.00	6,705.1	281.6	-5,580.3	5,587.0	0.00	0.00	0.00
12,400.0	90.41	270.00	6,704.4	281.6	-5,680.3	5,686.9	0.00	0.00	0.00
12,500.0	90.41	270.00	6,703.7	281.6	-5,780.3	5,786.9	0.00	0.00	0.00
12,600.0	90.41	270.00	6,702.9	281.6	-5,880.3	5,886.8	0.00	0.00	0.00
12,700.0	90.41	270.00	6,702.2	281.6	-5,980.2	5,986.7	0.00	0.00	0.00
12,800.0	90.41	270.00	6,701.5	281.6	-6,080.2	6,086.6	0.00	0.00	0.00
12,900.0	90.41	270.00	6,700.8	281.6	-6,180.2	6,186.5	0.00	0.00	0.00
13,000.0	90.41	270.00	6,700.1	281.6	-6,280.2	6,286.5	0.00	0.00	0.00
13,100.0	90.41	270.00	6,699.4	281.6	-6,380.2	6,386.4	0.00	0.00	0.00
13,200.0	90.41	270.00	6,698.6	281.6	-6,480.2	6,486.3	0.00	0.00	0.00
13,300.0	90.41	270.00	6,697.9	281.6	-6,580.2	6,586.2	0.00	0.00	0.00
13,400.0	90.41	270.00	6,697.2	281.6	-6,680.2	6,686.1	0.00	0.00	0.00
13,500.0	90.41	270.00	6,696.5	281.6	-6,780.2	6,786.1	0.00	0.00	0.00
13,600.0	90.41	270.00	6,695.8	281.6	-6,880.2	6,886.0	0.00	0.00	0.00
13,700.0	90.41	270.00	6,695.1	281.6	-6,980.2	6,985.9	0.00	0.00	0.00
13,800.0	90.41	270.00	6,694.4	281.6	-7,080.2	7,085.8	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well LDS 1V-234
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4626.0ft (RKB - 13')
Project:	SEC.1-T5N-R65W	MD Reference:	WELL @ 4626.0ft (RKB - 13')
Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	North Reference:	True
Well:	LDS 1V-234	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (4-29-15)		

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)
13,849.6	90.41	270.00	6,694.0	281.6	-7,129.8	7,135.3	0.00	0.00	0.00

Targets									
Target Name	- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	
- Shape									Latitude Longitude
BHL 1850'FNL & 214'	- plan hits target center	0.00	0.00	6,694.0	281.6	-7,129.8	1,400,703.26	3,242,596.33	40.430060 -104.628550
- Point									
SHL 2124'FNL & 332'	- plan hits target center	0.00	0.00	1.0	0.0	0.0	1,400,493.85	3,249,728.30	40.429290 -104.602940
- Point									

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,498.0	3,486.0	PARKMAN		0.00		
4,261.6	4,244.0	SUSSEX		0.00		
5,222.9	5,200.0	SHANNON		0.00		
6,581.3	6,504.0	SHARON SPRINGS		0.00		
6,731.4	6,602.0	NIOBRARA A		0.00		
6,991.0	6,713.0	NIOBRARA B		0.00		
	6,772.0	NIOBRARA C		0.00		
	6,865.0	FT HAYS		0.00		
	6,887.0	CODELL		0.00		

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,400.0	1,400.0	0.0	0.0	KOP #1
6,000.6	5,977.6	29.6	29.8	KOP #2
7,206.0	6,741.5	266.8	268.1	End of Build



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.1-T5N-R65W

LDS 5N65W1W Pad Sec.1-T5N-R65W

LDS 1V-234

Wellbore #1

Plan #2 (4-29-15)

Anticollision Report

30 April, 2015



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1V-234
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4626.0ft (RKB - 13')
Reference Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4626.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-234	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 (4-29-15)	Offset TVD Reference:	Offset Datum

Reference	Plan #2 (4-29-15)
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria
Interpolation Method:	MD Interval 100.0ft
Depth Range:	Unlimited
Results Limited by:	Maximum center-center distance of 1,000.0ft
Warning Levels Evaluated at:	2.00 Sigma
Error Model:	ISCWSA
Scan Method:	Closest Approach 3D
Error Surface:	Elliptical Conic

Survey Tool Program		Date	4/30/2015		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	13,849.6	Plan #2 (4-29-15) (Wellbore #1)	MWD	MWD - Standard	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Existing Wells Sec.1-T5N-R65W						
BJB 2 (Exist.) - Wellbore #1 - Wellbore #1	6,904.3	6,672.8	114.0	-36.9	0.756	Level 1, CC, ES, SF
BJB 3 (SI) - Wellbore #1 - Wellbore #1	8,392.8	6,739.0	259.6	73.0	1.391	Level 3, CC
BJB 3 (SI) - Wellbore #1 - Wellbore #1	8,400.0	6,739.0	259.7	72.9	1.390	Level 3, ES, SF
BJB 6I (Exist.) - Wellbore #1 - Wellbore #1	8,968.4	6,899.0	521.8	436.7	6.136	CC, ES
BJB 6I (Exist.) - Wellbore #1 - Wellbore #1	9,100.0	6,899.3	538.1	449.5	6.071	SF
Gatewood 5 (Exist.) - Wellbore #1 - Wellbore #1	10,369.4	6,731.9	567.6	326.8	2.357	CC
Gatewood 5 (Exist.) - Wellbore #1 - Wellbore #1	10,400.0	6,731.7	568.4	326.8	2.353	ES, SF
Gatewood 6-1 (Exist.) - Wellbore #1 - Wellbore #1	9,581.9	6,736.9	231.0	39.5	1.206	Level 2, CC, ES, SF
Existing Wells Sec.2-T5N-R65W						
Caraccioli 1 (Exist.) - Wellbore #1 - Wellbore #1	12,411.3	6,724.4	287.2	110.3	1.624	CC, ES, SF
Wagner-Ehrlich 1 (P&A) - Wellbore #1 - Wellbore #1	13,317.7	6,717.8	382.4	59.6	1.185	Level 2, CC, ES, SF
LDS 5N65W1W Pad Sec.1-T5N-R65W						
LDS 1V-334 - Wellbore #1 - Plan #2 (4-15-15)	1,000.0	1,000.0	29.3	25.0	6.855	CC
LDS 1V-334 - Wellbore #1 - Plan #2 (4-15-15)	13,850.3	13,914.0	200.1	-186.0	0.518	Level 1, ES, SF
LDS 1W-314 - Wellbore #1 - Plan #2 (4-15-15)	1,400.0	1,400.0	29.1	23.1	4.803	CC
LDS 1W-314 - Wellbore #1 - Plan #2 (4-15-15)	13,850.3	13,905.4	225.5	-152.1	0.597	Level 1, ES, SF
LDS 1W-414 - Wellbore #1 - Plan #2 (4-16-15)	1,400.0	1,400.0	61.9	55.9	10.205	CC, ES
LDS 1W-414 - Wellbore #1 - Plan #2 (4-16-15)	13,850.3	13,978.2	543.0	153.7	1.395	Level 3, SF
Noffsinger Pad Sec.2-T5N-R65W						
Noffsinger 2SD - Wellbore #1 - Wellbore #1	13,004.6	6,984.5	573.4	377.1	2.921	CC, ES, SF
Noffsinger 32-2D - Wellbore #1 - Wellbore #1	13,683.6	6,892.6	52.3	-167.4	0.238	Level 1, CC, ES, SF

Offset Design		Existing Wells Sec.1-T5N-R65W - BJB 2 (Exist.) - Wellbore #1 - Wellbore #1											Offset Site Error:	0.0 ft	
Survey Program: 7050-UNKNOWN														Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance								
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(centres)	(ft)	(ft)				
0.0	0.0	0.0	0.0	0.0	0.0	-48.90	167.6	-192.1	255.2						
100.0	100.0	88.0	88.0	0.1	1.8	-48.90	167.6	-192.1	254.9	253.1	1.87	136.137			
200.0	200.0	188.0	188.0	0.3	3.8	-48.90	167.6	-192.1	254.9	250.8	4.10	62.218			
300.0	300.0	288.0	288.0	0.6	5.8	-48.90	167.6	-192.1	254.9	248.6	6.32	40.323			

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-234
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4626.0ft (RKB - 13')
Reference Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4626.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-234	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 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.1-T5N-R65W - BJB 2 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7050-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
400.0	400.0	388.0	388.0	0.8	7.8	-48.90		167.6	-192.1	254.9	246.4	8.55	29.827	
500.0	500.0	488.0	488.0	1.0	9.8	-48.90		167.6	-192.1	254.9	244.2	10.77	23.667	
600.0	600.0	588.0	588.0	1.2	11.8	-48.90		167.6	-192.1	254.9	241.9	13.00	19.615	
700.0	700.0	688.0	688.0	1.5	13.8	-48.90		167.6	-192.1	254.9	239.7	15.22	16.748	
800.0	800.0	788.0	788.0	1.7	15.8	-48.90		167.6	-192.1	254.9	237.5	17.45	14.612	
900.0	900.0	888.0	888.0	1.9	17.8	-48.90		167.6	-192.1	254.9	235.3	19.67	12.960	
1,000.0	1,000.0	988.0	988.0	2.1	19.8	-48.90		167.6	-192.1	254.9	233.0	21.90	11.643	
1,100.0	1,100.0	1,088.0	1,088.0	2.4	21.8	-48.90		167.6	-192.1	254.9	230.8	24.12	10.569	
1,200.0	1,200.0	1,188.0	1,188.0	2.6	23.8	-48.90		167.6	-192.1	254.9	228.6	26.34	9.677	
1,300.0	1,300.0	1,288.0	1,288.0	2.8	25.8	-48.90		167.6	-192.1	254.9	226.4	28.57	8.923	
1,400.0	1,400.0	1,388.0	1,388.0	3.0	27.8	-48.90		167.6	-192.1	254.9	224.1	30.79	8.278	
1,500.0	1,500.0	1,488.0	1,488.0	3.3	29.8	-94.24		167.6	-192.1	255.0	222.0	33.01	7.724	
1,600.0	1,600.0	1,588.0	1,588.0	3.5	31.8	-94.82		167.6	-192.1	255.2	220.0	35.23	7.244	
1,700.0	1,699.9	1,687.9	1,687.9	3.7	33.8	-95.79		167.6	-192.1	255.6	218.2	37.45	6.826	
1,800.0	1,799.7	1,787.7	1,787.7	3.9	35.8	-97.14		167.6	-192.1	256.3	216.6	39.67	6.461	
1,900.0	1,899.4	1,887.4	1,887.4	4.1	37.7	-98.86		167.6	-192.1	257.4	215.5	41.88	6.145	
2,000.0	1,998.9	1,986.9	1,986.9	4.4	39.7	-100.93		167.6	-192.1	259.0	214.9	44.11	5.873	
2,100.0	2,098.3	2,086.3	2,086.3	4.6	41.7	-103.33		167.6	-192.1	261.4	215.1	46.33	5.643	
2,200.0	2,197.5	2,185.5	2,185.5	4.9	43.7	-105.86		167.6	-192.1	264.5	215.9	48.55	5.448	
2,300.0	2,296.8	2,284.8	2,284.8	5.1	45.7	-108.33		167.6	-192.1	268.1	217.3	50.78	5.279	
2,400.0	2,396.1	2,384.1	2,384.1	5.4	47.7	-110.73		167.6	-192.1	272.1	219.1	53.02	5.133	
2,500.0	2,495.3	2,483.3	2,483.3	5.7	49.7	-113.05		167.6	-192.1	276.7	221.4	55.25	5.008	
2,600.0	2,594.6	2,582.6	2,582.6	6.0	51.7	-115.30		167.6	-192.1	281.7	224.2	57.48	4.900	
2,700.0	2,693.9	2,681.9	2,681.9	6.3	53.6	-117.47		167.6	-192.1	287.1	227.4	59.71	4.808	
2,800.0	2,793.1	2,781.1	2,781.1	6.5	55.6	-119.56		167.6	-192.1	292.9	230.9	61.94	4.728	
2,900.0	2,892.4	2,880.4	2,880.4	6.8	57.6	-121.56		167.6	-192.1	299.0	234.9	64.16	4.661	
3,000.0	2,991.7	2,979.7	2,979.7	7.1	59.6	-123.48		167.6	-192.1	305.6	239.2	66.39	4.603	
3,100.0	3,090.9	3,078.9	3,078.9	7.4	61.6	-125.32		167.6	-192.1	312.4	243.8	68.61	4.554	
3,200.0	3,190.2	3,178.2	3,178.2	7.7	63.6	-127.08		167.6	-192.1	319.6	248.8	70.83	4.512	
3,300.0	3,289.5	3,277.5	3,277.5	8.0	65.5	-128.77		167.6	-192.1	327.1	254.0	73.05	4.477	
3,400.0	3,388.7	3,376.7	3,376.7	8.3	67.5	-130.37		167.6	-192.1	334.8	259.5	75.27	4.448	
3,500.0	3,488.0	3,476.0	3,476.0	8.6	69.5	-131.90		167.6	-192.1	342.8	265.3	77.48	4.424	
3,600.0	3,587.3	3,575.3	3,575.3	8.9	71.5	-133.37		167.6	-192.1	351.0	271.3	79.70	4.404	
3,700.0	3,686.5	3,674.5	3,674.5	9.2	73.5	-134.76		167.6	-192.1	359.5	277.6	81.91	4.389	
3,800.0	3,785.8	3,773.8	3,773.8	9.5	75.5	-136.09		167.6	-192.1	368.1	284.0	84.12	4.376	
3,900.0	3,885.1	3,873.1	3,873.1	9.8	77.5	-137.36		167.6	-192.1	376.9	290.6	86.33	4.366	
4,000.0	3,984.3	3,972.3	3,972.3	10.1	79.4	-138.58		167.6	-192.1	385.9	297.4	88.54	4.359	
4,100.0	4,083.6	4,071.6	4,071.6	10.4	81.4	-139.73		167.6	-192.1	395.1	304.4	90.74	4.354	
4,200.0	4,182.9	4,170.9	4,170.9	10.7	83.4	-140.84		167.6	-192.1	404.4	311.5	92.95	4.351	
4,300.0	4,282.1	4,270.1	4,270.1	11.0	85.4	-141.89		167.6	-192.1	413.9	318.8	95.15	4.350	
4,400.0	4,381.4	4,369.4	4,369.4	11.3	87.4	-142.90		167.6	-192.1	423.5	326.2	97.36	4.350	
4,500.0	4,480.7	4,468.7	4,468.7	11.6	89.4	-143.86		167.6	-192.1	433.2	333.7	99.56	4.351	
4,600.0	4,579.9	4,567.9	4,567.9	11.9	91.4	-144.78		167.6	-192.1	443.1	341.3	101.77	4.354	
4,700.0	4,679.2	4,667.2	4,667.2	12.2	93.3	-145.66		167.6	-192.1	453.0	349.1	103.97	4.357	
4,800.0	4,778.5	4,766.5	4,766.5	12.6	95.3	-146.50		167.6	-192.1	463.1	356.9	106.17	4.362	
4,900.0	4,877.7	4,865.7	4,865.7	12.9	97.3	-147.32		167.6	-192.1	473.1	364.7	108.44	4.363	
5,000.0	4,977.3	4,965.3	4,965.3	13.1	99.3	-148.02		167.6	-192.1	481.2	370.4	110.84	4.342	
5,100.0	5,077.1	5,065.1	5,065.1	13.3	101.3	-148.45		167.6	-192.1	486.3	373.2	113.15	4.298	
5,200.0	5,177.1	5,165.1	5,165.1	13.4	103.3	-148.63		167.6	-192.1	488.5	373.1	115.37	4.234	
5,300.0	5,277.1	5,265.1	5,265.1	13.6	105.3	-103.49		167.6	-192.1	488.6	370.1	118.51	4.123	
5,400.0	5,377.1	5,365.1	5,365.1	13.8	107.3	-103.49		167.6	-192.1	488.6	367.9	120.70	4.048	

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-234
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4626.0ft (RKB - 13')
Reference Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4626.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-234	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 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.1-T5N-R65W - BJB 2 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7050-UNKNOWN													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,500.0	5,477.1	5,465.1	5,465.1	14.0	109.3	-103.49		167.6	-192.1	488.6	365.7	122.90	3.975	
5,600.0	5,577.1	5,565.1	5,565.1	14.2	111.3	-103.49		167.6	-192.1	488.6	363.5	125.09	3.906	
5,700.0	5,677.1	5,665.1	5,665.1	14.4	113.3	-103.49		167.6	-192.1	488.6	361.3	127.29	3.838	
5,800.0	5,777.1	5,765.1	5,765.1	14.6	115.3	-103.49		167.6	-192.1	488.6	359.1	129.49	3.773	
5,900.0	5,877.1	5,865.1	5,865.1	14.7	117.3	-103.49		167.6	-192.1	488.6	356.9	131.68	3.710	
6,000.0	5,977.1	5,965.1	5,965.1	14.9	119.3	-103.49		167.6	-192.1	488.6	354.7	133.88	3.649	
6,100.0	6,076.8	6,064.8	6,064.8	15.1	121.3	-13.78		167.6	-192.1	482.3	348.3	134.03	3.598	
6,200.0	6,174.8	6,162.8	6,162.8	15.2	123.3	-14.71		167.6	-192.1	463.4	330.6	132.86	3.488	
6,300.0	6,269.5	6,257.5	6,257.5	15.2	125.1	-16.47		167.6	-192.1	432.4	302.9	129.57	3.337	
6,400.0	6,359.1	6,347.1	6,347.1	15.2	126.9	-19.43		167.6	-192.1	390.0	265.4	124.61	3.130	
6,500.0	6,442.2	6,430.2	6,430.2	15.2	128.6	-24.33		167.6	-192.1	337.4	218.2	119.18	2.831	
6,600.0	6,517.4	6,505.4	6,505.4	15.2	130.1	-32.61		167.6	-192.1	276.3	159.8	116.53	2.371	
6,700.0	6,583.4	6,571.4	6,571.4	15.5	131.4	-46.64		167.6	-192.1	210.2	87.1	123.11	1.708	
6,800.0	6,638.9	6,626.9	6,626.9	16.2	132.5	-67.65		167.6	-192.1	147.5	7.1	140.35	1.051 Level 2	
6,900.0	6,683.2	6,671.2	6,671.2	17.4	133.4	-89.23		167.6	-192.1	114.0	-36.7	150.74	0.757 Level 1	
6,904.3	6,684.8	6,672.8	6,672.8	17.4	133.5	-90.00		167.6	-192.1	114.0	-36.9	150.85	0.756 Level 1, CC, ES, SF	
7,000.0	6,715.4	6,703.4	6,703.4	18.8	134.1	-101.66		167.6	-192.1	145.6	-4.5	150.07	0.970 Level 1	
7,100.0	6,735.0	6,723.0	6,723.0	20.5	134.5	-102.25		167.6	-192.1	220.4	68.7	151.69	1.453 Level 3	
7,200.0	6,741.6	6,729.6	6,729.6	22.5	134.6	-90.11		167.6	-192.1	310.0	153.0	156.98	1.975	
7,300.0	6,740.9	6,728.9	6,728.9	24.5	134.6	-88.60		167.6	-192.1	404.7	245.7	158.97	2.546	
7,400.0	6,740.2	6,728.2	6,728.2	26.8	134.6	-88.24		167.6	-192.1	501.4	340.3	161.13	3.112	
7,500.0	6,739.4	6,727.4	6,727.4	29.1	134.5	-87.88		167.6	-192.1	599.2	435.8	163.39	3.667	
7,600.0	6,738.7	6,726.7	6,726.7	31.5	134.5	-87.53		167.6	-192.1	697.7	531.9	165.72	4.210	
7,700.0	6,738.0	6,726.0	6,726.0	33.9	134.5	-87.17		167.6	-192.1	796.5	628.4	168.11	4.738	
7,800.0	6,737.3	6,725.3	6,725.3	36.4	134.5	-86.81		167.6	-192.1	895.6	725.0	170.54	5.251	
7,900.0	6,736.6	6,724.6	6,724.6	39.0	134.5	-86.45		167.6	-192.1	994.8	821.8	173.01	5.750	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1V-234
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4626.0ft (RKB - 13')
Reference Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4626.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-234	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 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design		Existing Wells Sec.1-T5N-R65W - BJB 3 (SI) - Wellbore #1 - Wellbore #1											Offset Site Error:		0.0 ft		
Survey Program: 7027-UNKNOWN														Offset Well Error:		0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning			
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor					
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)						
7,500.0	6,739.4	6,745.4	6,745.4	29.1	134.9	-91.41	21.9	-1,673.2	929.8	765.9	163.87	5.674					
7,600.0	6,738.7	6,744.7	6,744.7	31.5	134.9	-91.25	21.9	-1,673.2	834.2	668.0	166.25	5.018					
7,700.0	6,738.0	6,744.0	6,744.0	33.9	134.9	-91.09	21.9	-1,673.2	739.9	571.2	168.70	4.386					
7,800.0	6,737.3	6,743.3	6,743.3	36.4	134.9	-90.94	21.9	-1,673.2	647.2	476.0	171.20	3.780					
7,900.0	6,736.6	6,742.6	6,742.6	39.0	134.9	-90.78	21.9	-1,673.2	557.0	383.3	173.74	3.206					
8,000.0	6,735.9	6,741.9	6,741.9	41.5	134.8	-90.62	21.9	-1,673.2	470.9	294.6	176.32	2.671					
8,100.0	6,735.1	6,741.1	6,741.1	44.2	134.8	-90.46	21.9	-1,673.2	391.4	212.4	178.92	2.187					
8,200.0	6,734.4	6,740.4	6,740.4	46.8	134.8	-90.30	21.9	-1,673.2	323.4	141.9	181.54	1.782					
8,300.0	6,733.7	6,739.7	6,739.7	49.4	134.8	-90.15	21.9	-1,673.2	275.7	91.6	184.18	1.497	Level 3				
8,392.8	6,733.0	6,739.0	6,739.0	51.9	134.8	-90.00	21.9	-1,673.2	259.6	73.0	186.64	1.391	Level 3, CC				
8,400.0	6,733.0	6,739.0	6,739.0	52.1	134.8	-89.99	21.9	-1,673.2	259.7	72.9	186.83	1.390	Level 3, ES, SF				
8,500.0	6,732.3	6,738.3	6,738.3	54.8	134.8	-89.83	21.9	-1,673.2	280.9	91.4	189.50	1.482	Level 3				
8,600.0	6,731.6	6,737.6	6,737.6	57.5	134.8	-89.67	21.9	-1,673.2	332.2	140.0	192.17	1.728					
8,700.0	6,730.8	6,736.8	6,736.8	60.2	134.7	-89.51	21.9	-1,673.2	402.2	207.3	194.86	2.064					
8,800.0	6,730.1	6,736.1	6,736.1	62.9	134.7	-89.36	21.9	-1,673.2	482.9	285.3	197.55	2.444					
8,900.0	6,729.4	6,735.4	6,735.4	65.6	134.7	-89.20	21.9	-1,673.2	569.8	369.5	200.25	2.845					
9,000.0	6,728.7	6,734.7	6,734.7	68.4	134.7	-89.04	21.9	-1,673.2	660.3	457.4	202.96	3.254					
9,100.0	6,728.0	6,734.0	6,734.0	71.1	134.7	-88.88	21.9	-1,673.2	753.3	547.6	205.67	3.663					
9,200.0	6,727.3	6,733.3	6,733.3	73.8	134.7	-88.73	21.9	-1,673.2	847.9	639.5	208.38	4.069					
9,300.0	6,726.6	6,732.6	6,732.6	76.6	134.7	-88.57	21.9	-1,673.2	943.6	732.5	211.10	4.470					

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1V-234
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4626.0ft (RKB - 13')
Reference Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4626.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-234	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 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 552-MWD												Offset Well Error:	0.0 ft
Existing Wells Sec.1-T5N-R65W - BJB 6I (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
8,200.0	6,734.4	6,897.3	6,743.0	46.8	22.4	89.90	803.4	-2,248.8	928.8	864.5	64.31	14.443	
8,300.0	6,733.7	6,897.5	6,743.2	49.4	22.4	89.92	803.4	-2,248.8	848.0	781.0	66.97	12.663	
8,400.0	6,733.0	6,897.7	6,743.4	52.1	22.4	89.95	803.4	-2,248.8	771.6	702.0	69.64	11.080	
8,500.0	6,732.3	6,897.9	6,743.7	54.8	22.4	89.97	803.4	-2,248.8	701.2	628.9	72.32	9.696	
8,600.0	6,731.6	6,898.2	6,743.9	57.5	22.4	89.99	803.4	-2,248.8	638.7	563.7	75.02	8.515	
8,700.0	6,730.8	6,898.4	6,744.1	60.2	22.4	90.02	803.4	-2,248.8	586.8	509.1	77.73	7.549	
8,800.0	6,730.1	6,898.6	6,744.3	62.9	22.4	90.04	803.4	-2,248.8	548.3	467.9	80.44	6.816	
8,900.0	6,729.4	6,898.8	6,744.6	65.6	22.4	90.07	803.4	-2,248.8	526.3	443.1	83.17	6.328	
8,968.4	6,728.9	6,899.0	6,744.7	67.5	22.4	90.09	803.4	-2,248.8	521.8	436.7	85.04	6.136 CC, ES	
9,000.0	6,728.7	6,899.1	6,744.8	68.4	22.4	90.09	803.4	-2,248.8	522.7	436.8	85.90	6.086	
9,100.0	6,728.0	6,899.3	6,745.0	71.1	22.4	90.12	803.3	-2,248.8	538.1	449.5	88.64	6.071 SF	
9,200.0	6,727.3	6,899.6	6,745.3	73.8	22.4	90.15	803.3	-2,248.8	570.9	479.5	91.38	6.247	
9,300.0	6,726.6	6,899.8	6,745.5	76.6	22.4	90.18	803.3	-2,248.8	618.2	524.1	94.13	6.568	
9,400.0	6,725.8	6,900.1	6,745.8	79.3	22.4	90.20	803.3	-2,248.8	677.1	580.3	96.88	6.989	
9,500.0	6,725.1	6,900.3	6,746.0	82.1	22.4	90.23	803.3	-2,248.8	744.9	645.2	99.64	7.476	
9,600.0	6,724.4	6,900.6	6,746.3	84.8	22.4	90.26	803.3	-2,248.8	819.2	716.8	102.40	8.001	
9,700.0	6,723.7	6,900.9	6,746.6	87.6	22.4	90.29	803.3	-2,248.8	898.6	793.4	105.16	8.545	
9,800.0	6,723.0	6,901.1	6,746.9	90.4	22.4	90.32	803.3	-2,248.8	981.7	873.8	107.92	9.096	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1V-234
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4626.0ft (RKB - 13')
Reference Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4626.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-234	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 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.1-T5N-R65W - Gatewood 5 (Exist.) - Wellbore #1 - Wellbore #1												Offset Site Error: 0.0 ft	
Survey Program: 7123-UNKNOWN												Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance					Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)		Separation Factor
9,600.0	6,724.4	6,737.4	6,737.4	84.8	134.7	90.56	849.1	-3,649.7	956.1	736.5	219.53	4.355	
9,700.0	6,723.7	6,736.7	6,736.7	87.6	134.7	90.48	849.1	-3,649.7	877.6	655.3	222.28	3.948	
9,800.0	6,723.0	6,736.0	6,736.0	90.4	134.7	90.41	849.1	-3,649.7	803.9	578.9	225.04	3.573	
9,900.0	6,722.3	6,735.3	6,735.3	93.1	134.7	90.34	849.1	-3,649.7	736.5	508.7	227.79	3.233	
10,000.0	6,721.5	6,734.5	6,734.5	95.9	134.7	90.27	849.1	-3,649.7	677.2	446.6	230.55	2.937	
10,100.0	6,720.8	6,733.8	6,733.8	98.7	134.7	90.19	849.1	-3,649.7	628.3	394.9	233.31	2.693	
10,200.0	6,720.1	6,733.1	6,733.1	101.4	134.7	90.12	849.1	-3,649.7	592.3	356.2	236.07	2.509	
10,300.0	6,719.4	6,732.4	6,732.4	104.2	134.6	90.05	849.1	-3,649.7	571.8	333.0	238.84	2.394	
10,369.4	6,718.9	6,731.9	6,731.9	106.2	134.6	90.00	849.1	-3,649.7	567.6	326.8	240.76	2.357 CC	
10,400.0	6,718.7	6,731.7	6,731.7	107.0	134.6	89.98	849.1	-3,649.7	568.4	326.8	241.60	2.353 ES, SF	
10,500.0	6,718.0	6,731.0	6,731.0	109.8	134.6	89.91	849.1	-3,649.7	582.4	338.0	244.37	2.383	
10,600.0	6,717.3	6,730.3	6,730.3	112.6	134.6	89.83	849.1	-3,649.7	612.6	365.5	247.14	2.479	
10,700.0	6,716.5	6,729.5	6,729.5	115.3	134.6	89.76	849.1	-3,649.7	656.8	406.9	249.91	2.628	
10,800.0	6,715.8	6,728.8	6,728.8	118.1	134.6	89.69	849.1	-3,649.7	712.4	459.7	252.67	2.819	
10,900.0	6,715.1	6,728.1	6,728.1	120.9	134.6	89.62	849.1	-3,649.7	776.9	521.5	255.45	3.042	
11,000.0	6,714.4	6,727.4	6,727.4	123.7	134.5	89.54	849.1	-3,649.7	848.4	590.2	258.22	3.286	
11,100.0	6,713.7	6,726.7	6,726.7	126.5	134.5	89.47	849.1	-3,649.7	925.1	664.1	260.99	3.545	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1V-234
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4626.0ft (RKB - 13')
Reference Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4626.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-234	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 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.1-T5N-R65W - Gatewood 6-1 (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	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
8,700.0	6,730.8	6,742.2	6,741.7	60.2	107.3	91.78	91.78	512.5	-2,862.3	911.7	744.4	167.33	5.449	
8,800.0	6,730.1	6,741.6	6,741.1	62.9	107.3	91.64	91.64	512.6	-2,862.3	815.4	645.3	170.04	4.795	
8,900.0	6,729.4	6,741.0	6,740.5	65.6	107.3	91.49	91.49	512.6	-2,862.3	720.0	547.2	172.77	4.167	
9,000.0	6,728.7	6,740.4	6,740.0	68.4	107.2	91.34	91.34	512.6	-2,862.3	626.1	450.6	175.50	3.568	
9,100.0	6,728.0	6,739.8	6,739.4	71.1	107.2	91.20	91.20	512.6	-2,862.3	534.5	356.2	178.24	2.999	
9,200.0	6,727.3	6,739.2	6,738.8	73.8	107.2	91.05	91.05	512.6	-2,862.3	446.4	265.4	180.98	2.466	
9,300.0	6,726.6	6,738.6	6,738.2	76.6	107.2	90.90	90.90	512.6	-2,862.3	364.5	180.8	183.73	1.984	
9,400.0	6,725.8	6,738.0	6,737.6	79.3	107.2	90.75	90.75	512.6	-2,862.3	294.1	107.6	186.48	1.577	
9,500.0	6,725.1	6,737.4	6,737.0	82.1	107.2	90.61	90.61	512.6	-2,862.3	245.1	55.9	189.23	1.295 Level 3	
9,581.9	6,724.5	6,736.9	6,736.5	84.3	107.2	90.49	90.49	512.6	-2,862.3	231.0	39.5	191.49	1.206 Level 2, CC, ES, SF	
9,600.0	6,724.4	6,736.8	6,736.4	84.8	107.2	90.46	90.46	512.6	-2,862.3	231.7	39.7	191.99	1.207 Level 2	
9,700.0	6,723.7	6,736.2	6,735.8	87.6	107.2	90.31	90.31	512.6	-2,862.3	259.4	64.7	194.75	1.332 Level 3	
9,800.0	6,723.0	6,735.6	6,735.2	90.4	107.2	90.16	90.16	512.6	-2,862.3	317.7	120.2	197.51	1.608	
9,900.0	6,722.3	6,735.0	6,734.6	93.1	107.2	90.02	90.02	512.6	-2,862.3	393.1	192.8	200.27	1.963	
10,000.0	6,721.5	6,734.4	6,734.0	95.9	107.2	89.87	89.87	512.6	-2,862.3	477.6	274.6	203.03	2.353	
10,100.0	6,720.8	6,733.8	6,733.4	98.7	107.2	89.72	89.72	512.6	-2,862.3	567.2	361.4	205.79	2.756	
10,200.0	6,720.1	6,733.3	6,732.8	101.4	107.2	89.58	89.58	512.6	-2,862.3	659.8	451.2	208.56	3.164	
10,300.0	6,719.4	6,732.7	6,732.2	104.2	107.1	89.43	89.43	512.6	-2,862.3	754.3	543.0	211.32	3.569	
10,400.0	6,718.7	6,732.1	6,731.6	107.0	107.1	89.28	89.28	512.6	-2,862.3	850.0	635.9	214.09	3.970	
10,500.0	6,718.0	6,731.5	6,731.0	109.8	107.1	89.13	89.13	512.6	-2,862.3	946.7	729.8	216.85	4.365	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1V-234
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4626.0ft (RKB - 13')
Reference Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4626.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-234	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 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.2-T5N-R65W - Caraccioli 1 (Exist.) - Wellbore #1 - Wellbore #1												Offset Site Error: 0.0 ft	
Survey Program: 100-NS-GYRO-MS												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 +N/-S	Offset Wellbore Centre +E/-W	Between Centres	Between Ellipses		Minimum Separation	Separation Factor
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(ft)	(ft)		(ft)	
11,500.0	6,710.8	6,744.5	6,743.8	137.6	13.8	-94.28	-5.5	-5,691.2	955.2	804.2	151.08	6.323	1.624 CC, ES, SF
11,600.0	6,710.1	6,742.3	6,741.6	140.4	13.8	-93.84	-5.5	-5,691.3	860.4	706.5	153.93	5.590	
11,700.0	6,709.4	6,740.1	6,739.3	143.2	13.8	-93.40	-5.5	-5,691.3	766.9	610.1	156.78	4.892	
11,800.0	6,708.7	6,737.9	6,737.1	146.0	13.8	-92.95	-5.5	-5,691.3	675.2	515.6	159.62	4.230	
11,900.0	6,708.0	6,735.6	6,734.9	148.8	13.8	-92.51	-5.5	-5,691.4	586.3	423.8	162.46	3.609	
12,000.0	6,707.2	6,733.4	6,732.7	151.6	13.8	-92.07	-5.6	-5,691.4	501.5	336.3	165.29	3.034	
12,100.0	6,706.5	6,731.2	6,730.5	154.4	13.8	-91.63	-5.6	-5,691.5	423.5	255.3	168.11	2.519	1.624 CC, ES, SF
12,200.0	6,705.8	6,729.0	6,728.3	157.2	13.8	-91.19	-5.6	-5,691.5	356.5	185.6	170.92	2.086	
12,300.0	6,705.1	6,726.8	6,726.1	160.0	13.8	-90.75	-5.6	-5,691.5	308.0	134.2	173.73	1.773	
12,400.0	6,704.4	6,724.6	6,723.9	162.8	13.8	-90.31	-5.6	-5,691.6	287.4	110.9	176.53	1.628	
12,411.3	6,704.3	6,724.4	6,723.6	163.1	13.8	-90.26	-5.6	-5,691.6	287.2	110.3	176.84	1.624	
12,500.0	6,703.7	6,722.4	6,721.7	165.6	13.8	-89.87	-5.6	-5,691.6	300.5	121.2	179.32	1.676	
12,600.0	6,702.9	6,720.2	6,719.5	168.4	13.8	-89.44	-5.6	-5,691.6	343.6	161.5	182.09	1.887	1.624 CC, ES, SF
12,700.0	6,702.2	6,718.0	6,717.3	171.2	13.8	-89.00	-5.6	-5,691.7	407.1	222.3	184.86	2.202	
12,800.0	6,701.5	6,715.8	6,715.1	174.0	13.8	-88.57	-5.6	-5,691.7	483.2	295.6	187.62	2.575	
12,900.0	6,700.8	6,713.7	6,712.9	176.8	13.8	-88.13	-5.6	-5,691.7	566.7	376.3	190.37	2.977	
13,000.0	6,700.1	6,711.5	6,710.7	179.6	13.7	-87.70	-5.7	-5,691.8	654.9	461.8	193.11	3.391	
13,100.0	6,699.4	6,709.3	6,708.6	182.4	13.7	-87.26	-5.7	-5,691.8	746.0	550.2	195.84	3.809	
13,200.0	6,698.6	6,707.1	6,706.4	185.2	13.7	-86.83	-5.7	-5,691.8	839.2	640.6	198.55	4.226	1.624 CC, ES, SF
13,300.0	6,697.9	6,705.0	6,704.2	188.0	13.7	-86.40	-5.7	-5,691.9	933.7	732.5	201.25	4.640	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1V-234
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4626.0ft (RKB - 13')
Reference Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4626.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-234	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 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Existing Wells Sec.2-T5N-R65W - Wagner-Ehrlich 1 (P&A) - Wellbore #1 - Wellbore #1												Offset Well Error:	0.0 ft
Survey Program: 7030-UNKNOWN													
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
12,400.0	6,704.4	6,724.4	6,724.4	162.8	134.5	90.98	663.9	-6,597.9	994.2	697.0	297.19	3.345	
12,500.0	6,703.7	6,723.7	6,723.7	165.6	134.5	90.88	663.9	-6,597.9	902.7	602.7	299.99	3.009	
12,600.0	6,702.9	6,722.9	6,722.9	168.4	134.5	90.77	663.9	-6,597.9	813.2	510.4	302.78	2.686	
12,700.0	6,702.2	6,722.2	6,722.2	171.2	134.4	90.66	663.9	-6,597.9	726.5	420.9	305.57	2.377	
12,800.0	6,701.5	6,721.5	6,721.5	174.0	134.4	90.56	663.9	-6,597.9	643.6	335.2	308.36	2.087	
12,900.0	6,700.8	6,720.8	6,720.8	176.8	134.4	90.45	663.9	-6,597.9	566.3	255.1	311.15	1.820	
13,000.0	6,700.1	6,720.1	6,720.1	179.6	134.4	90.34	663.9	-6,597.9	497.1	183.2	313.94	1.583	
13,100.0	6,699.4	6,719.4	6,719.4	182.4	134.4	90.23	663.9	-6,597.9	440.0	123.3	316.73	1.389	Level 3
13,200.0	6,698.6	6,718.6	6,718.6	185.2	134.4	90.13	663.9	-6,597.9	400.1	80.6	319.52	1.252	Level 3
13,300.0	6,697.9	6,717.9	6,717.9	188.0	134.4	90.02	663.9	-6,597.9	382.8	60.5	322.31	1.188	Level 2
13,317.7	6,697.8	6,717.8	6,717.8	188.5	134.4	90.00	663.9	-6,597.9	382.4	59.6	322.80	1.185	Level 2, CC, ES, SF
13,400.0	6,697.2	6,717.2	6,717.2	190.8	134.3	89.91	663.9	-6,597.9	391.1	66.0	325.10	1.203	Level 2
13,500.0	6,696.5	6,716.5	6,716.5	193.6	134.3	89.80	663.9	-6,597.9	423.6	95.7	327.88	1.292	Level 3
13,600.0	6,695.8	6,715.8	6,715.8	196.4	134.3	89.70	663.9	-6,597.9	475.3	144.6	330.67	1.437	Level 3
13,700.0	6,695.1	6,715.1	6,715.1	199.2	134.3	89.59	663.9	-6,597.9	540.7	207.2	333.45	1.622	
13,800.0	6,694.4	6,714.4	6,714.4	202.0	134.3	89.48	663.9	-6,597.9	615.5	279.2	336.24	1.830	
13,850.3	6,694.0	6,714.0	6,714.0	203.4	134.3	89.43	663.9	-6,597.9	655.6	318.0	337.63	1.942	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1V-234
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4626.0ft (RKB - 13')
Reference Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4626.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-234	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 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design LDS 5N65W1W Pad Sec.1-T5N-R65W - LDS 1V-334 - 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
0.0	0.0	0.0	0.0	0.0	0.0	5.46	5.46	29.1	2.8	29.3				
100.0	100.0	100.0	100.0	0.1	0.1	5.46	5.46	29.1	2.8	29.3	29.0	0.22	130.241	
200.0	200.0	200.0	200.0	0.3	0.3	5.46	5.46	29.1	2.8	29.3	28.6	0.67	43.414	
300.0	300.0	300.0	300.0	0.6	0.6	5.46	5.46	29.1	2.8	29.3	28.1	1.12	26.048	
400.0	400.0	400.0	400.0	0.8	0.8	5.46	5.46	29.1	2.8	29.3	27.7	1.57	18.606	
500.0	500.0	500.0	500.0	1.0	1.0	5.46	5.46	29.1	2.8	29.3	27.3	2.02	14.471	
600.0	600.0	600.0	600.0	1.2	1.2	5.46	5.46	29.1	2.8	29.3	26.8	2.47	11.840	
700.0	700.0	700.0	700.0	1.5	1.5	5.46	5.46	29.1	2.8	29.3	26.4	2.92	10.019	
800.0	800.0	800.0	800.0	1.7	1.7	5.46	5.46	29.1	2.8	29.3	25.9	3.37	8.683	
900.0	900.0	900.0	900.0	1.9	1.9	5.46	5.46	29.1	2.8	29.3	25.5	3.82	7.661	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	5.46	5.46	29.1	2.8	29.3	25.0	4.27	6.855 CC	
1,100.0	1,100.0	1,099.5	1,099.5	2.4	2.4	6.21	6.21	29.9	3.3	30.0	25.3	4.72	6.371	
1,200.0	1,200.0	1,199.0	1,199.0	2.6	2.6	8.25	8.25	32.1	4.6	32.4	27.2	5.16	6.278	
1,300.0	1,300.0	1,298.4	1,298.2	2.8	2.8	11.06	11.06	35.7	7.0	36.4	30.8	5.61	6.490	
1,400.0	1,400.0	1,397.6	1,397.2	3.0	3.0	14.08	14.08	40.8	10.2	42.1	36.0	6.06	6.950	
1,500.0	1,500.0	1,496.6	1,495.9	3.3	3.3	-28.67	-28.67	47.2	14.4	48.8	42.3	6.50	7.505	
1,600.0	1,600.0	1,595.4	1,594.4	3.5	3.5	-27.21	-27.21	55.2	19.5	55.7	48.7	6.94	8.018	
1,700.0	1,699.9	1,694.2	1,692.5	3.7	3.7	-26.40	-26.40	64.5	25.4	62.7	55.3	7.38	8.486	
1,800.0	1,799.7	1,793.2	1,790.7	3.9	4.0	-26.06	-26.06	75.2	32.3	69.7	61.9	7.83	8.899	
1,900.0	1,899.4	1,893.1	1,889.7	4.1	4.3	-26.28	-26.28	86.4	39.4	75.5	67.3	8.28	9.120	
2,000.0	1,998.9	1,993.0	1,988.7	4.4	4.6	-27.04	-27.04	97.5	46.6	79.8	71.1	8.74	9.134	
2,100.0	2,098.3	2,092.9	2,087.7	4.6	4.9	-28.29	-28.29	108.6	53.7	82.6	73.4	9.21	8.972	
2,200.0	2,197.5	2,192.9	2,186.8	4.9	5.1	-29.72	-29.72	119.8	60.8	84.7	75.1	9.69	8.744	
2,300.0	2,296.8	2,292.8	2,285.9	5.1	5.4	-31.08	-31.08	130.9	68.0	86.9	76.7	10.18	8.537	
2,400.0	2,396.1	2,392.8	2,385.0	5.4	5.8	-32.38	-32.38	142.1	75.1	89.2	78.5	10.68	8.347	
2,500.0	2,495.3	2,492.7	2,484.0	5.7	6.1	-33.61	-33.61	153.2	82.2	91.4	80.2	11.19	8.173	
2,600.0	2,594.6	2,592.7	2,583.1	6.0	6.4	-34.78	-34.78	164.4	89.4	93.7	82.0	11.70	8.014	
2,700.0	2,693.9	2,692.6	2,682.2	6.3	6.7	-35.90	-35.90	175.5	96.5	96.1	83.9	12.22	7.866	
2,800.0	2,793.1	2,792.6	2,781.3	6.5	7.0	-36.96	-36.96	186.6	103.7	98.5	85.7	12.74	7.730	
2,900.0	2,892.4	2,892.5	2,880.3	6.8	7.3	-37.97	-37.97	197.8	110.8	100.9	87.6	13.27	7.603	
3,000.0	2,991.7	2,992.5	2,979.4	7.1	7.6	-38.93	-38.93	208.9	117.9	103.4	89.5	13.81	7.486	
3,100.0	3,090.9	3,092.5	3,078.5	7.4	7.9	-39.85	-39.85	220.1	125.1	105.8	91.5	14.35	7.377	
3,200.0	3,190.2	3,192.4	3,177.6	7.7	8.2	-40.73	-40.73	231.2	132.2	108.3	93.4	14.89	7.275	
3,300.0	3,289.5	3,292.4	3,276.6	8.0	8.6	-41.56	-41.56	242.4	139.3	110.9	95.4	15.44	7.179	
3,400.0	3,388.7	3,392.3	3,375.7	8.3	8.9	-42.36	-42.36	253.5	146.5	113.4	97.4	16.00	7.090	
3,500.0	3,488.0	3,492.3	3,474.8	8.6	9.2	-43.13	-43.13	264.6	153.6	116.0	99.4	16.55	7.006	
3,600.0	3,587.3	3,592.2	3,573.9	8.9	9.5	-43.86	-43.86	275.8	160.8	118.6	101.5	17.12	6.928	
3,700.0	3,686.5	3,692.2	3,672.9	9.2	9.8	-44.56	-44.56	286.9	167.9	121.2	103.5	17.68	6.854	
3,800.0	3,785.8	3,792.1	3,772.0	9.5	10.2	-45.22	-45.22	298.1	175.0	123.8	105.6	18.25	6.784	
3,900.0	3,885.1	3,892.1	3,871.1	9.8	10.5	-45.87	-45.87	309.2	182.2	126.4	107.6	18.82	6.718	
4,000.0	3,984.3	3,992.0	3,970.2	10.1	10.8	-46.48	-46.48	320.4	189.3	129.1	109.7	19.40	6.656	
4,100.0	4,083.6	4,092.0	4,069.3	10.4	11.1	-47.07	-47.07	331.5	196.4	131.8	111.8	19.97	6.598	
4,200.0	4,182.9	4,192.0	4,168.3	10.7	11.5	-47.64	-47.64	342.6	203.6	134.5	113.9	20.55	6.542	
4,300.0	4,282.1	4,291.9	4,267.4	11.0	11.8	-48.18	-48.18	353.8	210.7	137.2	116.0	21.13	6.490	
4,400.0	4,381.4	4,391.9	4,366.5	11.3	12.1	-48.71	-48.71	364.9	217.9	139.9	118.1	21.72	6.440	
4,500.0	4,480.7	4,491.8	4,465.6	11.6	12.4	-49.21	-49.21	376.1	225.0	142.6	120.3	22.31	6.393	
4,600.0	4,579.9	4,591.8	4,564.6	11.9	12.8	-49.70	-49.70	387.2	232.1	145.3	122.4	22.89	6.348	
4,700.0	4,679.2	4,691.7	4,663.7	12.2	13.1	-50.16	-50.16	398.4	239.3	148.1	124.6	23.48	6.305	
4,800.0	4,778.5	4,791.7	4,762.8	12.6	13.4	-50.61	-50.61	409.5	246.4	150.8	126.7	24.08	6.264	
4,900.0	4,877.7	4,891.6	4,861.9	12.9	13.7	-51.03	-51.03	420.7	253.5	153.6	129.0	24.66	6.230	
5,000.0	4,977.3	4,991.5	4,960.9	13.1	14.1	-50.78	-50.78	431.8	260.7	158.0	132.9	25.12	6.290	

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-234
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4626.0ft (RKB - 13')
Reference Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4626.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-234	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 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design LDS 5N65W1W Pad Sec.1-T5N-R65W - LDS 1V-334 - 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 (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
5,100.0	5,077.1	5,091.3	5,059.7	13.3	14.4	-49.65	442.9	267.8	164.7	139.2	25.49	6.460	
5,200.0	5,177.1	5,192.6	5,160.2	13.4	14.7	-47.79	454.0	274.9	173.5	147.7	25.76	6.735	
5,300.0	5,277.1	5,297.5	5,264.6	13.6	15.0	-0.77	462.8	280.6	181.7	155.0	26.74	6.796	
5,400.0	5,377.1	5,403.0	5,369.9	13.8	15.2	0.36	468.5	284.2	187.1	159.9	27.23	6.871	
5,500.0	5,477.1	5,508.9	5,475.7	14.0	15.3	0.83	470.9	285.7	189.4	161.7	27.64	6.852	
5,600.0	5,577.1	5,610.3	5,577.1	14.2	15.5	0.84	471.0	285.8	189.5	161.5	28.00	6.766	
5,700.0	5,677.1	5,710.3	5,677.1	14.4	15.7	0.84	471.0	285.8	189.5	161.1	28.38	6.675	
5,800.0	5,777.1	5,810.3	5,777.1	14.6	15.8	0.84	471.0	285.8	189.5	160.7	28.76	6.587	
5,900.0	5,877.1	5,910.3	5,877.1	14.7	16.0	0.84	471.0	285.8	189.5	160.3	29.15	6.500	
6,000.0	5,977.1	6,010.3	5,977.1	14.9	16.2	0.84	471.0	285.8	189.5	159.9	29.53	6.415	
6,100.0	6,076.8	6,110.5	6,077.2	15.1	16.4	92.43	471.0	284.6	189.6	160.8	28.83	6.576	
6,200.0	6,174.8	6,211.8	6,177.7	15.2	16.5	94.64	471.0	272.3	190.1	161.2	28.88	6.580	
6,300.0	6,269.5	6,314.0	6,276.6	15.2	16.5	96.77	471.0	246.5	190.8	161.9	28.87	6.608	
6,400.0	6,359.1	6,417.3	6,372.1	15.2	16.5	98.78	471.0	207.2	191.7	162.8	28.87	6.641	
6,500.0	6,442.2	6,521.6	6,462.2	15.2	16.5	100.62	471.0	155.0	192.7	163.8	28.98	6.652	
6,600.0	6,517.4	6,626.7	6,545.0	15.2	16.4	102.27	471.0	90.3	193.9	164.5	29.33	6.610	
6,700.0	6,583.4	6,732.6	6,618.7	15.5	16.4	103.69	471.0	14.3	195.0	164.9	30.08	6.482	
6,800.0	6,638.9	6,839.3	6,681.5	16.2	16.4	104.86	471.0	-71.7	196.0	164.6	31.37	6.248	
6,900.0	6,683.2	6,946.5	6,732.0	17.4	17.4	105.76	471.0	-166.3	196.8	163.5	33.30	5.911	
7,000.0	6,715.4	7,054.2	6,768.9	18.8	18.9	106.38	471.0	-267.3	197.5	161.6	35.89	5.502	
7,100.0	6,735.0	7,162.2	6,791.3	20.5	20.8	106.71	471.0	-372.8	197.8	158.7	39.07	5.062	
7,200.0	6,741.6	7,270.3	6,798.6	22.5	22.8	106.75	471.0	-480.6	197.8	155.1	42.73	4.630	
7,230.9	6,741.5	7,301.3	6,798.4	23.1	23.5	106.70	471.0	-511.6	197.8	153.8	43.95	4.500	
7,300.0	6,740.9	7,370.4	6,798.0	24.5	24.9	106.78	471.0	-580.7	197.9	151.2	46.69	4.237	
7,400.0	6,740.2	7,470.4	6,797.4	26.8	27.1	106.80	471.0	-680.7	197.9	147.0	50.91	3.887	
7,500.0	6,739.4	7,570.4	6,796.8	29.1	29.4	106.83	471.0	-780.7	197.9	142.6	55.32	3.577	
7,600.0	6,738.7	7,670.4	6,796.1	31.5	31.8	106.86	471.0	-880.7	197.9	138.0	59.90	3.305	
7,700.0	6,738.0	7,770.4	6,795.5	33.9	34.2	106.89	471.0	-980.7	198.0	133.4	64.60	3.065	
7,800.0	6,737.3	7,870.4	6,794.9	36.4	36.7	106.92	471.0	-1,080.7	198.0	128.6	69.39	2.853	
7,900.0	6,736.6	7,970.4	6,794.3	39.0	39.2	106.95	471.0	-1,180.7	198.0	123.8	74.27	2.667	
8,000.0	6,735.9	8,070.4	6,793.7	41.5	41.8	106.98	471.0	-1,280.7	198.1	118.9	79.21	2.501	
8,100.0	6,735.1	8,170.4	6,793.1	44.2	44.4	107.01	471.0	-1,380.7	198.1	113.9	84.20	2.353	
8,200.0	6,734.4	8,270.4	6,792.5	46.8	47.0	107.04	471.0	-1,480.7	198.1	108.9	89.24	2.220	
8,300.0	6,733.7	8,370.4	6,791.9	49.4	49.7	107.07	471.0	-1,580.7	198.2	103.9	94.31	2.101	
8,400.0	6,733.0	8,470.4	6,791.3	52.1	52.3	107.09	471.0	-1,680.7	198.2	98.8	99.41	1.994	
8,500.0	6,732.3	8,570.4	6,790.6	54.8	55.0	107.12	471.0	-1,780.7	198.2	93.7	104.54	1.896	
8,600.0	6,731.6	8,670.4	6,790.0	57.5	57.7	107.15	471.0	-1,880.7	198.3	88.6	109.68	1.807	
8,700.0	6,730.8	8,770.4	6,789.4	60.2	60.4	107.18	471.0	-1,980.7	198.3	83.4	114.85	1.726	
8,800.0	6,730.1	8,870.4	6,788.8	62.9	63.1	107.21	471.0	-2,080.7	198.3	78.3	120.04	1.652	
8,900.0	6,729.4	8,970.4	6,788.2	65.6	65.8	107.24	471.0	-2,180.7	198.3	73.1	125.23	1.584	
9,000.0	6,728.7	9,070.4	6,787.6	68.4	68.5	107.27	471.0	-2,280.7	198.4	67.9	130.44	1.521	
9,100.0	6,728.0	9,170.4	6,787.0	71.1	71.3	107.30	471.0	-2,380.7	198.4	62.7	135.66	1.463 Level 3	
9,200.0	6,727.3	9,270.4	6,786.4	73.8	74.0	107.33	471.0	-2,480.7	198.4	57.5	140.89	1.408 Level 3	
9,300.0	6,726.6	9,370.4	6,785.8	76.6	76.7	107.35	471.0	-2,580.7	198.5	52.3	146.13	1.358 Level 3	
9,400.0	6,725.8	9,470.4	6,785.1	79.3	79.5	107.38	471.0	-2,680.7	198.5	47.1	151.37	1.311 Level 3	
9,500.0	6,725.1	9,570.4	6,784.5	82.1	82.2	107.41	471.0	-2,780.7	198.5	41.9	156.62	1.268 Level 3	
9,600.0	6,724.4	9,670.4	6,783.9	84.8	85.0	107.44	471.0	-2,880.7	198.6	36.7	161.88	1.227 Level 2	
9,700.0	6,723.7	9,770.4	6,783.3	87.6	87.7	107.47	471.0	-2,980.7	198.6	31.5	167.14	1.188 Level 2	
9,800.0	6,723.0	9,870.4	6,782.7	90.4	90.5	107.50	471.0	-3,080.7	198.6	26.2	172.40	1.152 Level 2	
9,900.0	6,722.3	9,970.4	6,782.1	93.1	93.3	107.53	471.0	-3,180.7	198.7	21.0	177.67	1.118 Level 2	
10,000.0	6,721.5	10,070.4	6,781.5	95.9	96.0	107.56	471.0	-3,280.7	198.7	15.8	182.94	1.086 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-234
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4626.0ft (RKB - 13')
Reference Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4626.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-234	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 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design LDS 5N65W1W Pad Sec.1-T5N-R65W - LDS 1V-334 - 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			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)		
10,100.0	6,720.8	10,170.4	6,780.9	98.7	98.8	107.58	471.0	-3,380.7	198.7	10.5	188.21	1.056 Level 2	
10,200.0	6,720.1	10,270.4	6,780.3	101.4	101.6	107.61	471.0	-3,480.7	198.8	5.3	193.49	1.027 Level 2	
10,300.0	6,719.4	10,370.4	6,779.6	104.2	104.3	107.64	471.0	-3,580.7	198.8	0.0	198.76	1.000 Level 2	
10,400.0	6,718.7	10,470.4	6,779.0	107.0	107.1	107.67	471.0	-3,680.7	198.8	-5.2	204.04	0.974 Level 1	
10,500.0	6,718.0	10,570.4	6,778.4	109.8	109.9	107.70	471.0	-3,780.7	198.9	-10.5	209.32	0.950 Level 1	
10,600.0	6,717.3	10,670.4	6,777.8	112.6	112.7	107.73	471.0	-3,880.7	198.9	-15.7	214.61	0.927 Level 1	
10,700.0	6,716.5	10,770.4	6,777.2	115.3	115.5	107.76	471.0	-3,980.7	198.9	-21.0	219.89	0.905 Level 1	
10,800.0	6,715.8	10,870.4	6,776.6	118.1	118.2	107.79	471.0	-4,080.7	198.9	-26.2	225.17	0.884 Level 1	
10,900.0	6,715.1	10,970.4	6,776.0	120.9	121.0	107.81	471.0	-4,180.7	199.0	-31.5	230.46	0.863 Level 1	
11,000.0	6,714.4	11,070.4	6,775.4	123.7	123.8	107.84	471.0	-4,280.7	199.0	-36.7	235.74	0.844 Level 1	
11,100.0	6,713.7	11,170.4	6,774.8	126.5	126.6	107.87	471.0	-4,380.7	199.0	-42.0	241.03	0.826 Level 1	
11,200.0	6,713.0	11,270.4	6,774.1	129.3	129.4	107.90	471.0	-4,480.7	199.1	-47.2	246.31	0.808 Level 1	
11,300.0	6,712.2	11,370.4	6,773.5	132.1	132.2	107.93	471.0	-4,580.7	199.1	-52.5	251.60	0.791 Level 1	
11,400.0	6,711.5	11,470.4	6,772.9	134.9	135.0	107.96	471.0	-4,680.7	199.1	-57.7	256.88	0.775 Level 1	
11,500.0	6,710.8	11,570.4	6,772.3	137.6	137.7	107.99	471.0	-4,780.7	199.2	-63.0	262.17	0.760 Level 1	
11,600.0	6,710.1	11,670.4	6,771.7	140.4	140.5	108.02	471.0	-4,880.7	199.2	-68.2	267.46	0.745 Level 1	
11,700.0	6,709.4	11,770.4	6,771.1	143.2	143.3	108.04	471.0	-4,980.7	199.2	-73.5	272.74	0.731 Level 1	
11,800.0	6,708.7	11,870.4	6,770.5	146.0	146.1	108.07	471.0	-5,080.7	199.3	-78.8	278.02	0.717 Level 1	
11,900.0	6,708.0	11,970.4	6,769.9	148.8	148.9	108.10	471.0	-5,180.6	199.3	-84.0	283.31	0.703 Level 1	
12,000.0	6,707.2	12,070.4	6,769.3	151.6	151.7	108.13	471.0	-5,280.6	199.3	-89.3	288.59	0.691 Level 1	
12,100.0	6,706.5	12,170.4	6,768.7	154.4	154.5	108.16	471.0	-5,380.6	199.4	-94.5	293.88	0.678 Level 1	
12,200.0	6,705.8	12,270.4	6,768.0	157.2	157.3	108.19	471.0	-5,480.6	199.4	-99.8	299.16	0.667 Level 1	
12,300.0	6,705.1	12,370.4	6,767.4	160.0	160.1	108.22	471.0	-5,580.6	199.4	-105.0	304.44	0.655 Level 1	
12,400.0	6,704.4	12,470.4	6,766.8	162.8	162.9	108.24	471.0	-5,680.6	199.5	-110.3	309.72	0.644 Level 1	
12,500.0	6,703.7	12,570.4	6,766.2	165.6	165.7	108.27	471.0	-5,780.6	199.5	-115.5	315.00	0.633 Level 1	
12,600.0	6,702.9	12,670.4	6,765.6	168.4	168.5	108.30	471.0	-5,880.6	199.5	-120.7	320.28	0.623 Level 1	
12,700.0	6,702.2	12,770.4	6,765.0	171.2	171.3	108.33	471.0	-5,980.6	199.6	-126.0	325.56	0.613 Level 1	
12,800.0	6,701.5	12,870.4	6,764.4	174.0	174.1	108.36	471.0	-6,080.6	199.6	-131.2	330.84	0.603 Level 1	
12,900.0	6,700.8	12,970.4	6,763.8	176.8	176.9	108.39	471.0	-6,180.6	199.6	-136.5	336.11	0.594 Level 1	
13,000.0	6,700.1	13,070.4	6,763.2	179.6	179.7	108.42	471.0	-6,280.6	199.7	-141.7	341.39	0.585 Level 1	
13,100.0	6,699.4	13,170.4	6,762.5	182.4	182.5	108.44	471.0	-6,380.6	199.7	-147.0	346.66	0.576 Level 1	
13,200.0	6,698.6	13,270.4	6,761.9	185.2	185.3	108.47	471.0	-6,480.6	199.7	-152.2	351.93	0.568 Level 1	
13,300.0	6,697.9	13,370.4	6,761.3	188.0	188.1	108.50	471.0	-6,580.6	199.8	-157.4	357.21	0.559 Level 1	
13,400.0	6,697.2	13,470.4	6,760.7	190.8	190.9	108.53	471.0	-6,680.6	199.8	-162.7	362.48	0.551 Level 1	
13,500.0	6,696.5	13,570.4	6,760.1	193.6	193.7	108.56	471.0	-6,780.6	199.8	-167.9	367.75	0.543 Level 1	
13,600.0	6,695.8	13,670.4	6,759.5	196.4	196.5	108.59	471.0	-6,880.6	199.9	-173.1	373.02	0.536 Level 1	
13,700.0	6,695.1	13,770.4	6,758.9	199.2	199.3	108.61	471.0	-6,980.6	199.9	-178.4	378.28	0.528 Level 1	
13,800.0	6,694.4	13,870.4	6,758.3	202.0	202.1	108.64	471.0	-7,080.6	199.9	-183.6	383.55	0.521 Level 1	
13,825.1	6,694.2	13,895.5	6,758.1	202.7	202.8	108.65	471.0	-7,105.7	199.9	-184.9	384.87	0.520 Level 1	
13,850.3	6,694.0	13,914.0	6,758.0	203.4	203.3	108.66	471.0	-7,124.2	200.1	-186.0	386.02	0.518 Level 1, ES, SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1V-234
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4626.0ft (RKB - 13')
Reference Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4626.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-234	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 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design LDS 5N65W1W Pad Sec.1-T5N-R65W - LDS 1W-314 - 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			Distance							Warning
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
0.0	0.0	0.0	0.0	0.0	0.0	180.00	-29.1	0.0	29.1					
100.0	100.0	100.0	100.0	0.1	0.1	180.00	-29.1	0.0	29.1	28.9	0.22	129.669		
200.0	200.0	200.0	200.0	0.3	0.3	180.00	-29.1	0.0	29.1	28.5	0.67	43.223		
300.0	300.0	300.0	300.0	0.6	0.6	180.00	-29.1	0.0	29.1	28.0	1.12	25.934		
400.0	400.0	400.0	400.0	0.8	0.8	180.00	-29.1	0.0	29.1	27.6	1.57	18.524		
500.0	500.0	500.0	500.0	1.0	1.0	180.00	-29.1	0.0	29.1	27.1	2.02	14.408		
600.0	600.0	600.0	600.0	1.2	1.2	180.00	-29.1	0.0	29.1	26.7	2.47	11.788		
700.0	700.0	700.0	700.0	1.5	1.5	180.00	-29.1	0.0	29.1	26.2	2.92	9.975		
800.0	800.0	800.0	800.0	1.7	1.7	180.00	-29.1	0.0	29.1	25.8	3.37	8.645		
900.0	900.0	900.0	900.0	1.9	1.9	180.00	-29.1	0.0	29.1	25.3	3.82	7.628		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	180.00	-29.1	0.0	29.1	24.9	4.27	6.825		
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	180.00	-29.1	0.0	29.1	24.4	4.72	6.175		
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	180.00	-29.1	0.0	29.1	24.0	5.17	5.638		
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	180.00	-29.1	0.0	29.1	23.5	5.62	5.187		
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	180.00	-29.1	0.0	29.1	23.1	6.07	4.803 CC		
1,500.0	1,500.0	1,500.0	1,500.0	3.3	3.3	136.04	-29.1	0.0	29.8	23.3	6.51	4.570		
1,600.0	1,600.0	1,600.0	1,600.0	3.5	3.5	139.31	-29.1	0.0	31.7	24.7	6.96	4.558		
1,700.0	1,699.9	1,699.9	1,699.9	3.7	3.7	143.94	-29.1	0.0	35.1	27.7	7.40	4.749		
1,800.0	1,799.7	1,799.7	1,799.7	3.9	3.9	149.03	-29.1	0.0	40.2	32.4	7.84	5.132		
1,900.0	1,899.4	1,899.4	1,899.4	4.1	4.2	153.91	-29.1	0.0	47.1	38.9	8.28	5.694		
2,000.0	1,998.9	1,998.9	1,998.9	4.4	4.4	158.20	-29.1	0.0	55.9	47.2	8.72	6.414		
2,100.0	2,098.3	2,099.1	2,099.1	4.6	4.6	161.31	-28.9	0.8	65.9	56.8	9.14	7.210		
2,200.0	2,197.5	2,199.5	2,199.5	4.9	4.8	162.90	-28.0	3.3	75.5	66.0	9.58	7.886		
2,300.0	2,296.8	2,300.2	2,300.1	5.1	5.0	163.34	-26.5	7.4	83.9	73.8	10.02	8.369		
2,400.0	2,396.1	2,401.1	2,400.8	5.4	5.2	162.97	-24.3	13.2	90.9	80.4	10.47	8.681		
2,500.0	2,495.3	2,502.2	2,501.5	5.7	5.5	161.94	-21.6	20.7	96.6	85.7	10.93	8.840		
2,600.0	2,594.6	2,603.3	2,602.2	6.0	5.7	160.33	-18.3	29.8	101.1	89.7	11.40	8.869		
2,700.0	2,693.9	2,704.4	2,702.7	6.3	5.9	158.16	-14.3	40.6	104.4	92.5	11.88	8.788		
2,800.0	2,793.1	2,804.6	2,802.0	6.5	6.2	155.63	-10.0	52.5	107.1	94.7	12.38	8.647		
2,900.0	2,892.4	2,904.5	2,901.1	6.8	6.4	153.22	-5.7	64.5	109.9	97.0	12.89	8.521		
3,000.0	2,991.7	3,004.3	3,000.1	7.1	6.7	150.92	-1.3	76.4	112.9	99.4	13.42	8.412		
3,100.0	3,090.9	3,104.2	3,099.2	7.4	7.0	148.75	3.0	88.3	116.0	102.1	13.95	8.316		
3,200.0	3,190.2	3,204.0	3,198.2	7.7	7.2	146.70	7.3	100.2	119.3	104.8	14.49	8.232		
3,300.0	3,289.5	3,303.9	3,297.3	8.0	7.5	144.76	11.7	112.1	122.8	107.7	15.05	8.159		
3,400.0	3,388.7	3,403.8	3,396.3	8.3	7.8	142.93	16.0	124.1	126.4	110.8	15.61	8.095		
3,500.0	3,488.0	3,503.6	3,495.4	8.6	8.1	141.20	20.4	136.0	130.1	113.9	16.18	8.039		
3,600.0	3,587.3	3,603.5	3,594.4	8.9	8.4	139.57	24.7	147.9	133.9	117.2	16.76	7.990		
3,700.0	3,686.5	3,703.3	3,693.5	9.2	8.7	138.03	29.0	159.8	137.9	120.5	17.35	7.948		
3,800.0	3,785.8	3,803.2	3,792.5	9.5	9.0	136.57	33.4	171.7	141.9	123.9	17.94	7.910		
3,900.0	3,885.1	3,903.0	3,891.6	9.8	9.3	135.20	37.7	183.6	146.0	127.5	18.53	7.878		
4,000.0	3,984.3	4,002.9	3,990.6	10.1	9.6	133.90	42.1	195.6	150.2	131.0	19.13	7.850		
4,100.0	4,083.6	4,102.7	4,089.7	10.4	9.9	132.68	46.4	207.5	154.4	134.7	19.73	7.826		
4,200.0	4,182.9	4,202.6	4,188.7	10.7	10.2	131.52	50.7	219.4	158.8	138.4	20.34	7.805		
4,300.0	4,282.1	4,302.5	4,287.7	11.0	10.5	130.42	55.1	231.3	163.2	142.2	20.95	7.787		
4,400.0	4,381.4	4,402.3	4,386.8	11.3	10.8	129.38	59.4	243.2	167.6	146.0	21.56	7.772		
4,500.0	4,480.7	4,502.2	4,485.8	11.6	11.1	128.39	63.8	255.1	172.1	149.9	22.18	7.759		
4,600.0	4,579.9	4,601.4	4,584.3	11.9	11.4	127.59	67.9	266.6	176.7	154.0	22.77	7.762		
4,700.0	4,679.2	4,700.0	4,682.5	12.2	11.6	127.75	71.1	275.2	182.1	158.8	23.27	7.825		
4,800.0	4,778.5	4,798.1	4,780.4	12.6	11.8	128.90	73.1	280.7	188.2	164.5	23.71	7.939		
4,900.0	4,877.7	4,895.9	4,878.2	12.9	11.9	130.92	73.9	282.9	195.3	171.2	24.09	8.108		
5,000.0	4,977.3	4,995.0	4,977.3	13.1	12.1	133.02	73.9	283.0	201.6	177.3	24.39	8.267		

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-234
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4626.0ft (RKB - 13')
Reference Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4626.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-234	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 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design LDS 5N65W1W Pad Sec.1-T5N-R65W - LDS 1W-314 - 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	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	5,077.1	5,094.8	5,077.1	13.3	12.3	134.31	73.9	283.0	205.8	181.1	24.72	8.325	
5,200.0	5,177.1	5,194.8	5,177.1	13.4	12.5	134.84	73.9	283.0	207.6	182.5	25.06	8.285	
5,300.0	5,277.1	5,294.8	5,277.1	13.6	12.7	-180.00	73.9	283.0	207.7	183.4	24.30	8.547	
5,400.0	5,377.1	5,394.8	5,377.1	13.8	12.9	-180.00	73.9	283.0	207.7	183.0	24.71	8.405	
5,500.0	5,477.1	5,494.8	5,477.1	14.0	13.1	-180.00	73.9	283.0	207.7	182.5	25.12	8.267	
5,600.0	5,577.1	5,594.8	5,577.1	14.2	13.3	-180.00	73.9	283.0	207.7	182.1	25.53	8.133	
5,700.0	5,677.1	5,694.8	5,677.1	14.4	13.5	-180.00	73.9	283.0	207.7	181.7	25.95	8.003	
5,800.0	5,777.1	5,794.8	5,777.1	14.6	13.7	-180.00	73.9	283.0	207.7	181.3	26.36	7.877	
5,900.0	5,877.1	5,894.8	5,877.1	14.7	13.9	-180.00	73.9	283.0	207.7	180.9	26.78	7.755	
6,000.0	5,977.1	5,994.8	5,977.1	14.9	14.1	-180.00	73.9	283.0	207.7	180.5	27.20	7.635	
6,100.0	6,076.8	6,094.8	6,077.1	15.1	14.3	-91.50	73.9	282.0	207.7	179.1	28.66	7.249	
6,200.0	6,174.8	6,195.7	6,177.2	15.2	14.4	-93.65	73.9	270.2	208.1	179.1	28.94	7.190	
6,300.0	6,269.5	6,297.7	6,276.0	15.2	14.5	-95.73	73.9	244.9	208.7	179.6	29.11	7.169	
6,400.0	6,359.1	6,400.8	6,371.4	15.2	14.6	-97.71	73.9	206.3	209.6	180.3	29.23	7.170	
6,500.0	6,442.2	6,504.9	6,461.7	15.2	14.6	-99.55	73.9	154.6	210.6	181.2	29.39	7.166	
6,600.0	6,517.4	6,609.9	6,544.8	15.2	14.8	-101.22	73.9	90.5	211.7	182.0	29.75	7.116	
6,700.0	6,583.4	6,715.9	6,618.9	15.5	15.2	-102.68	73.9	14.9	212.9	182.4	30.50	6.980	
6,800.0	6,638.9	6,822.6	6,682.3	16.2	16.0	-103.90	73.9	-70.9	213.9	182.1	31.81	6.727	
6,900.0	6,683.2	6,930.1	6,733.5	17.4	17.1	-104.88	73.9	-165.3	214.9	181.1	33.79	6.358	
7,000.0	6,715.4	7,038.1	6,771.0	18.8	18.6	-105.59	73.9	-266.4	215.6	179.1	36.50	5.907	
7,100.0	6,735.0	7,146.4	6,794.0	20.5	20.4	-106.01	73.9	-372.2	216.0	176.2	39.86	5.421	
7,200.0	6,741.6	7,254.9	6,801.7	22.5	22.5	-106.16	73.9	-480.3	216.2	172.5	43.72	4.945	
7,300.0	6,740.9	7,355.1	6,801.4	24.5	24.6	-106.26	73.9	-580.6	216.3	168.6	47.72	4.533	
7,400.0	6,740.2	7,455.1	6,801.1	26.8	26.8	-106.37	73.9	-680.6	216.4	164.5	51.94	4.167	
7,500.0	6,739.4	7,555.1	6,800.8	29.1	29.1	-106.47	73.9	-780.6	216.6	160.2	56.36	3.842	
7,600.0	6,738.7	7,655.1	6,800.6	31.5	31.5	-106.58	73.9	-880.6	216.7	155.7	60.93	3.556	
7,700.0	6,738.0	7,755.1	6,800.3	33.9	34.0	-106.69	73.9	-980.6	216.8	151.2	65.62	3.304	
7,800.0	6,737.3	7,855.1	6,800.0	36.4	36.5	-106.79	73.9	-1,080.6	216.9	146.5	70.40	3.081	
7,900.0	6,736.6	7,955.1	6,799.7	39.0	39.0	-106.90	73.9	-1,180.6	217.0	141.8	75.25	2.884	
8,000.0	6,735.9	8,055.1	6,799.4	41.5	41.6	-107.00	73.9	-1,280.6	217.2	137.0	80.17	2.709	
8,100.0	6,735.1	8,155.1	6,799.1	44.2	44.2	-107.11	73.9	-1,380.6	217.3	132.1	85.14	2.552	
8,200.0	6,734.4	8,255.1	6,798.8	46.8	46.9	-107.22	73.9	-1,480.6	217.4	127.3	90.14	2.412	
8,300.0	6,733.7	8,355.1	6,798.5	49.4	49.5	-107.32	73.9	-1,580.6	217.5	122.4	95.18	2.286	
8,400.0	6,733.0	8,455.1	6,798.2	52.1	52.2	-107.43	73.9	-1,680.6	217.7	117.4	100.24	2.171	
8,500.0	6,732.3	8,555.1	6,797.9	54.8	54.9	-107.53	73.9	-1,780.6	217.8	112.5	105.32	2.068	
8,600.0	6,731.6	8,655.1	6,797.6	57.5	57.6	-107.64	73.9	-1,880.6	217.9	107.5	110.42	1.973	
8,700.0	6,730.8	8,755.1	6,797.3	60.2	60.3	-107.74	73.9	-1,980.5	218.0	102.5	115.54	1.887	
8,800.0	6,730.1	8,855.1	6,797.0	62.9	63.0	-107.85	73.9	-2,080.5	218.2	97.5	120.67	1.808	
8,900.0	6,729.4	8,955.1	6,796.7	65.6	65.7	-107.95	73.9	-2,180.5	218.3	92.5	125.80	1.735	
9,000.0	6,728.7	9,055.1	6,796.4	68.4	68.5	-108.05	73.9	-2,280.5	218.4	87.5	130.95	1.668	
9,100.0	6,728.0	9,155.1	6,796.1	71.1	71.2	-108.16	73.9	-2,380.5	218.5	82.4	136.10	1.606	
9,200.0	6,727.3	9,255.1	6,795.8	73.8	73.9	-108.26	73.9	-2,480.5	218.7	77.4	141.26	1.548	
9,300.0	6,726.6	9,355.1	6,795.5	76.6	76.7	-108.37	73.9	-2,580.5	218.8	72.4	146.41	1.494 Level 3	
9,400.0	6,725.8	9,455.1	6,795.2	79.3	79.4	-108.47	73.9	-2,680.5	218.9	67.4	151.58	1.444 Level 3	
9,500.0	6,725.1	9,555.1	6,794.9	82.1	82.2	-108.58	73.9	-2,780.5	219.1	62.3	156.74	1.398 Level 3	
9,600.0	6,724.4	9,655.1	6,794.6	84.8	85.0	-108.68	73.9	-2,880.5	219.2	57.3	161.90	1.354 Level 3	
9,700.0	6,723.7	9,755.1	6,794.3	87.6	87.7	-108.78	73.9	-2,980.5	219.3	52.3	167.07	1.313 Level 3	
9,800.0	6,723.0	9,855.1	6,794.0	90.4	90.5	-108.89	73.9	-3,080.5	219.5	47.3	172.23	1.274 Level 3	
9,900.0	6,722.3	9,955.1	6,793.7	93.1	93.2	-108.99	73.9	-3,180.5	219.6	42.2	177.39	1.238 Level 2	
10,000.0	6,721.5	10,055.1	6,793.4	95.9	96.0	-109.09	73.9	-3,280.5	219.8	37.2	182.55	1.204 Level 2	
10,100.0	6,720.8	10,155.1	6,793.1	98.7	98.8	-109.20	73.9	-3,380.5	219.9	32.2	187.71	1.171 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-234
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4626.0ft (RKB - 13')
Reference Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4626.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-234	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 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design LDS 5N65W1W Pad Sec.1-T5N-R65W - LDS 1W-314 - 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
10,200.0	6,720.1	10,255.1	6,792.8	101.4	101.6	-109.30		73.9	-3,480.5	220.0	27.2	192.86	1.141	Level 2
10,300.0	6,719.4	10,355.1	6,792.5	104.2	104.3	-109.40		73.9	-3,580.5	220.2	22.2	198.01	1.112	Level 2
10,400.0	6,718.7	10,455.1	6,792.2	107.0	107.1	-109.51		73.9	-3,680.5	220.3	17.1	203.16	1.084	Level 2
10,500.0	6,718.0	10,555.1	6,791.9	109.8	109.9	-109.61		73.9	-3,780.5	220.4	12.1	208.31	1.058	Level 2
10,600.0	6,717.3	10,655.1	6,791.6	112.6	112.7	-109.71		73.9	-3,880.5	220.6	7.1	213.45	1.033	Level 2
10,700.0	6,716.5	10,755.1	6,791.4	115.3	115.5	-109.81		73.9	-3,980.5	220.7	2.1	218.59	1.010	Level 2
10,800.0	6,715.8	10,855.1	6,791.1	118.1	118.2	-109.91		73.9	-4,080.5	220.9	-2.9	223.72	0.987	Level 1
10,900.0	6,715.1	10,955.1	6,790.8	120.9	121.0	-110.02		73.9	-4,180.5	221.0	-7.8	228.85	0.966	Level 1
11,000.0	6,714.4	11,055.1	6,790.5	123.7	123.8	-110.12		73.9	-4,280.5	221.2	-12.8	233.98	0.945	Level 1
11,100.0	6,713.7	11,155.1	6,790.2	126.5	126.6	-110.22		73.9	-4,380.5	221.3	-17.8	239.10	0.926	Level 1
11,200.0	6,713.0	11,255.1	6,789.9	129.3	129.4	-110.32		73.9	-4,480.5	221.4	-22.8	244.21	0.907	Level 1
11,300.0	6,712.2	11,355.1	6,789.6	132.1	132.2	-110.42		73.9	-4,580.5	221.6	-27.7	249.32	0.889	Level 1
11,400.0	6,711.5	11,455.1	6,789.3	134.9	135.0	-110.53		73.9	-4,680.5	221.7	-32.7	254.43	0.872	Level 1
11,500.0	6,710.8	11,555.1	6,789.0	137.6	137.8	-110.63		73.9	-4,780.5	221.9	-37.6	259.53	0.855	Level 1
11,600.0	6,710.1	11,655.1	6,788.7	140.4	140.6	-110.73		73.9	-4,880.5	222.0	-42.6	264.62	0.839	Level 1
11,700.0	6,709.4	11,755.1	6,788.4	143.2	143.4	-110.83		73.9	-4,980.5	222.2	-47.5	269.71	0.824	Level 1
11,800.0	6,708.7	11,855.1	6,788.1	146.0	146.1	-110.93		73.9	-5,080.5	222.3	-52.5	274.79	0.809	Level 1
11,900.0	6,708.0	11,955.1	6,787.8	148.8	148.9	-111.03		73.9	-5,180.5	222.5	-57.4	279.87	0.795	Level 1
12,000.0	6,707.2	12,055.1	6,787.5	151.6	151.7	-111.13		73.9	-5,280.5	222.6	-62.3	284.94	0.781	Level 1
12,100.0	6,706.5	12,155.1	6,787.2	154.4	154.5	-111.23		73.9	-5,380.5	222.8	-67.2	290.00	0.768	Level 1
12,200.0	6,705.8	12,255.1	6,786.9	157.2	157.3	-111.33		73.9	-5,480.5	222.9	-72.1	295.06	0.756	Level 1
12,300.0	6,705.1	12,355.1	6,786.6	160.0	160.1	-111.43		73.9	-5,580.5	223.1	-77.0	300.12	0.743	Level 1
12,400.0	6,704.4	12,455.1	6,786.3	162.8	162.9	-111.53		73.9	-5,680.5	223.2	-81.9	305.16	0.732	Level 1
12,500.0	6,703.7	12,555.1	6,786.0	165.6	165.7	-111.63		73.9	-5,780.5	223.4	-86.8	310.20	0.720	Level 1
12,600.0	6,702.9	12,655.1	6,785.7	168.4	168.5	-111.73		73.9	-5,880.5	223.6	-91.7	315.24	0.709	Level 1
12,700.0	6,702.2	12,755.1	6,785.4	171.2	171.3	-111.83		73.9	-5,980.5	223.7	-96.6	320.26	0.699	Level 1
12,800.0	6,701.5	12,855.1	6,785.1	174.0	174.1	-111.93		73.9	-6,080.5	223.9	-101.4	325.28	0.688	Level 1
12,900.0	6,700.8	12,955.1	6,784.8	176.8	176.9	-112.03		73.9	-6,180.5	224.0	-106.3	330.30	0.678	Level 1
13,000.0	6,700.1	13,055.1	6,784.5	179.6	179.7	-112.13		73.9	-6,280.5	224.2	-111.1	335.31	0.669	Level 1
13,100.0	6,699.4	13,155.1	6,784.2	182.4	182.5	-112.23		73.9	-6,380.5	224.3	-116.0	340.31	0.659	Level 1
13,200.0	6,698.6	13,255.1	6,783.9	185.2	185.3	-112.33		73.9	-6,480.5	224.5	-120.8	345.30	0.650	Level 1
13,300.0	6,697.9	13,355.1	6,783.6	188.0	188.1	-112.43		73.9	-6,580.5	224.7	-125.6	350.29	0.641	Level 1
13,400.0	6,697.2	13,455.1	6,783.3	190.8	190.9	-112.53		73.9	-6,680.5	224.8	-130.5	355.27	0.633	Level 1
13,500.0	6,696.5	13,555.1	6,783.0	193.6	193.7	-112.62		73.9	-6,780.5	225.0	-135.3	360.24	0.625	Level 1
13,600.0	6,695.8	13,655.1	6,782.7	196.4	196.5	-112.72		73.9	-6,880.5	225.1	-140.1	365.21	0.616	Level 1
13,700.0	6,695.1	13,755.1	6,782.5	199.2	199.3	-112.82		73.9	-6,980.5	225.3	-144.9	370.17	0.609	Level 1
13,800.0	6,694.4	13,855.1	6,782.2	202.0	202.1	-112.92		73.9	-7,080.5	225.5	-149.7	375.12	0.601	Level 1
13,850.3	6,694.0	13,905.4	6,782.0	203.4	203.5	-112.97		73.9	-7,130.8	225.5	-152.1	377.60	0.597	Level 1, ES, SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1V-234
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4626.0ft (RKB - 13')
Reference Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4626.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-234	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 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design LDS 5N65W1W Pad Sec.1-T5N-R65W - LDS 1W-414 - Wellbore #1 - Plan #2 (4-16-15)													Offset Site Error:	0.0 ft
Survey Program: 0-MWDD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	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	180.00	180.00	-61.9	0.0	61.9				
100.0	100.0	100.0	100.0	0.1	0.1	180.00	180.00	-61.9	0.0	61.9	61.7	0.22	275.528	
200.0	200.0	200.0	200.0	0.3	0.3	180.00	180.00	-61.9	0.0	61.9	61.3	0.67	91.843	
300.0	300.0	300.0	300.0	0.6	0.6	180.00	180.00	-61.9	0.0	61.9	60.8	1.12	55.106	
400.0	400.0	400.0	400.0	0.8	0.8	180.00	180.00	-61.9	0.0	61.9	60.4	1.57	39.361	
500.0	500.0	500.0	500.0	1.0	1.0	180.00	180.00	-61.9	0.0	61.9	59.9	2.02	30.614	
600.0	600.0	600.0	600.0	1.2	1.2	180.00	180.00	-61.9	0.0	61.9	59.5	2.47	25.048	
700.0	700.0	700.0	700.0	1.5	1.5	180.00	180.00	-61.9	0.0	61.9	59.0	2.92	21.194	
800.0	800.0	800.0	800.0	1.7	1.7	180.00	180.00	-61.9	0.0	61.9	58.6	3.37	18.369	
900.0	900.0	900.0	900.0	1.9	1.9	180.00	180.00	-61.9	0.0	61.9	58.1	3.82	16.208	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	180.00	180.00	-61.9	0.0	61.9	57.7	4.27	14.501	
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	180.00	180.00	-61.9	0.0	61.9	57.2	4.72	13.120	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	180.00	180.00	-61.9	0.0	61.9	56.8	5.17	11.979	
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	180.00	180.00	-61.9	0.0	61.9	56.3	5.62	11.021	
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	180.00	180.00	-61.9	0.0	61.9	55.9	6.07	10.205 CC, ES	
1,500.0	1,500.0	1,500.0	1,500.0	3.3	3.3	135.42	135.42	-61.9	0.0	62.5	56.0	6.51	9.602	
1,600.0	1,600.0	1,600.0	1,600.0	3.5	3.5	137.04	137.04	-61.9	0.0	64.4	57.5	6.96	9.264	
1,700.0	1,699.9	1,699.3	1,699.3	3.7	3.7	138.87	138.87	-62.4	0.7	68.1	60.7	7.38	9.232	
1,800.0	1,799.7	1,798.6	1,798.5	3.9	3.9	140.15	140.15	-63.7	2.9	73.9	66.1	7.78	9.500	
1,900.0	1,899.4	1,897.7	1,897.5	4.1	4.1	140.90	140.90	-66.0	6.6	81.9	73.7	8.19	9.992	
2,000.0	1,998.9	1,996.5	1,996.2	4.4	4.3	141.19	141.19	-69.1	11.7	91.9	83.3	8.61	10.669	
2,100.0	2,098.3	2,095.1	2,094.5	4.6	4.5	141.15	141.15	-73.1	18.2	104.0	95.0	9.05	11.498	
2,200.0	2,197.5	2,193.4	2,192.3	4.9	4.7	140.66	140.66	-78.0	26.2	117.4	107.9	9.50	12.364	
2,300.0	2,296.8	2,291.4	2,289.7	5.1	4.9	139.60	139.60	-83.7	35.5	131.6	121.7	9.97	13.206	
2,400.0	2,396.1	2,390.1	2,387.6	5.4	5.1	138.35	138.35	-90.1	45.9	146.4	135.9	10.45	14.007	
2,500.0	2,495.3	2,488.9	2,485.7	5.7	5.4	137.31	137.31	-96.5	56.3	161.2	150.3	10.94	14.730	
2,600.0	2,594.6	2,587.8	2,583.8	6.0	5.7	136.45	136.45	-102.9	66.7	176.1	164.6	11.45	15.383	
2,700.0	2,693.9	2,686.6	2,681.9	6.3	5.9	135.72	135.72	-109.3	77.1	191.0	179.0	11.96	15.974	
2,800.0	2,793.1	2,785.5	2,780.0	6.5	6.2	135.10	135.10	-115.7	87.5	205.9	193.4	12.47	16.511	
2,900.0	2,892.4	2,884.3	2,878.1	6.8	6.5	134.56	134.56	-122.1	97.9	220.9	207.9	12.99	16.999	
3,000.0	2,991.7	2,983.2	2,976.2	7.1	6.7	134.09	134.09	-128.5	108.3	235.8	222.3	13.52	17.445	
3,100.0	3,090.9	3,082.1	3,074.3	7.4	7.0	133.67	133.67	-134.9	118.7	250.8	236.7	14.05	17.853	
3,200.0	3,190.2	3,180.9	3,172.4	7.7	7.3	133.31	133.31	-141.3	129.1	265.8	251.2	14.58	18.226	
3,300.0	3,289.5	3,279.8	3,270.5	8.0	7.6	132.98	132.98	-147.7	139.6	280.8	265.7	15.12	18.570	
3,400.0	3,388.7	3,378.6	3,368.6	8.3	7.9	132.68	132.68	-154.0	150.0	295.8	280.1	15.66	18.887	
3,500.0	3,488.0	3,477.5	3,466.7	8.6	8.2	132.42	132.42	-160.4	160.4	310.8	294.6	16.20	19.180	
3,600.0	3,587.3	3,576.3	3,564.8	8.9	8.5	132.18	132.18	-166.8	170.8	325.8	309.1	16.75	19.451	
3,700.0	3,686.5	3,675.2	3,662.9	9.2	8.8	131.95	131.95	-173.2	181.2	340.8	323.5	17.30	19.703	
3,800.0	3,785.8	3,774.1	3,761.0	9.5	9.1	131.75	131.75	-179.6	191.6	355.9	338.0	17.85	19.937	
3,900.0	3,885.1	3,872.9	3,859.1	9.8	9.4	131.57	131.57	-186.0	202.0	370.9	352.5	18.40	20.155	
4,000.0	3,984.3	3,971.8	3,957.2	10.1	9.7	131.40	131.40	-192.4	212.4	385.9	367.0	18.96	20.359	
4,100.0	4,083.6	4,070.6	4,055.3	10.4	10.0	131.24	131.24	-198.8	222.8	401.0	381.5	19.51	20.550	
4,200.0	4,182.9	4,169.5	4,153.4	10.7	10.3	131.09	131.09	-205.2	233.2	416.0	396.0	20.07	20.729	
4,300.0	4,282.1	4,268.3	4,251.5	11.0	10.6	130.95	130.95	-211.6	243.7	431.1	410.4	20.63	20.896	
4,400.0	4,381.4	4,367.2	4,349.6	11.3	10.9	130.83	130.83	-218.0	254.1	446.1	424.9	21.19	21.054	
4,500.0	4,480.7	4,466.2	4,447.9	11.6	11.2	130.71	130.71	-224.4	264.5	461.2	439.4	21.75	21.203	
4,600.0	4,579.9	4,575.6	4,556.6	11.9	11.5	130.80	130.80	-230.3	274.2	475.1	452.8	22.28	21.320	
4,700.0	4,679.2	4,685.4	4,666.2	12.2	11.7	131.29	131.29	-234.1	280.3	486.8	464.0	22.79	21.361	
4,800.0	4,778.5	4,795.4	4,776.2	12.6	11.9	132.16	132.16	-235.7	282.9	496.5	473.2	23.27	21.330	
4,900.0	4,877.7	4,897.0	4,877.7	12.9	12.1	133.21	133.21	-235.8	283.0	504.7	480.9	23.73	21.265	
5,000.0	4,977.3	4,996.5	4,977.3	13.1	12.3	134.08	134.08	-235.8	283.0	511.2	487.1	24.14	21.178	

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-234
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4626.0ft (RKB - 13')
Reference Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4626.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-234	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 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design LDS 5N65W1W Pad Sec.1-T5N-R65W - LDS 1W-414 - Wellbore #1 - Plan #2 (4-16-15)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,077.1	5,096.3	5,077.1	13.3	12.5	134.62	-235.8	283.0	515.5	490.9	24.52	21.018	
5,200.0	5,177.1	5,196.3	5,177.1	13.4	12.7	134.85	-235.8	283.0	517.3	492.4	24.88	20.787	
5,300.0	5,277.1	5,296.3	5,277.1	13.6	12.8	-180.00	-235.8	283.0	517.3	492.9	24.44	21.168	
5,400.0	5,377.1	5,396.3	5,377.1	13.8	13.0	-180.00	-235.8	283.0	517.3	492.5	24.83	20.832	
5,500.0	5,477.1	5,496.3	5,477.1	14.0	13.2	-180.00	-235.8	283.0	517.3	492.1	25.23	20.504	
5,600.0	5,577.1	5,596.3	5,577.1	14.2	13.4	-180.00	-235.8	283.0	517.3	491.7	25.63	20.185	
5,700.0	5,677.1	5,696.3	5,677.1	14.4	13.6	-180.00	-235.8	283.0	517.3	491.3	26.03	19.874	
5,800.0	5,777.1	5,796.3	5,777.1	14.6	13.8	-180.00	-235.8	283.0	517.3	490.9	26.43	19.572	
5,900.0	5,877.1	5,896.3	5,877.1	14.7	14.0	-180.00	-235.8	283.0	517.3	490.5	26.84	19.278	
6,000.0	5,977.1	5,996.3	5,977.1	14.9	14.2	-180.00	-235.8	283.0	517.3	490.1	27.24	18.991	
6,028.1	6,005.1	6,024.3	6,005.1	15.0	14.2	-90.06	-235.8	283.0	517.3	489.2	28.12	18.400	
6,100.0	6,076.8	6,096.0	6,076.8	15.1	14.3	-90.71	-235.8	283.0	517.4	489.0	28.37	18.236	
6,200.0	6,174.8	6,196.2	6,176.8	15.2	14.5	-92.50	-235.8	280.0	517.8	489.2	28.64	18.083	
6,300.0	6,269.5	6,299.0	6,278.3	15.2	14.6	-94.35	-235.8	264.0	518.9	490.1	28.79	18.022	
6,400.0	6,359.1	6,404.2	6,379.0	15.2	14.7	-96.14	-235.8	233.7	520.4	491.5	28.89	18.014	
6,500.0	6,442.2	6,512.1	6,476.9	15.2	14.7	-97.83	-235.8	188.6	522.3	493.3	29.02	17.996	
6,600.0	6,517.4	6,622.5	6,569.5	15.2	14.8	-99.40	-235.8	128.6	524.5	495.2	29.34	17.875	
6,700.0	6,583.4	6,735.4	6,654.3	15.5	15.0	-100.79	-235.8	54.1	526.8	496.7	30.03	17.540	
6,800.0	6,638.9	6,850.7	6,728.5	16.2	15.5	-101.99	-235.8	-33.9	529.0	497.7	31.30	16.903	
6,900.0	6,683.2	6,967.9	6,789.5	17.4	16.6	-102.96	-235.8	-133.8	530.9	497.6	33.31	15.938	
7,000.0	6,715.4	7,086.8	6,835.1	18.8	18.1	-103.67	-235.8	-243.5	532.4	496.3	36.11	14.745	
7,100.0	6,735.0	7,206.9	6,863.3	20.5	20.1	-104.10	-235.8	-360.1	533.4	493.8	39.64	13.457	
7,200.0	6,741.6	7,327.6	6,872.9	22.5	22.4	-104.25	-235.8	-480.3	533.7	490.0	43.73	12.206	
7,300.0	6,740.9	7,428.0	6,872.7	24.5	24.5	-104.30	-235.8	-580.7	533.9	486.1	47.77	11.175	
7,400.0	6,740.2	7,528.0	6,872.5	26.8	26.7	-104.35	-235.8	-680.7	534.0	481.9	52.05	10.259	
7,500.0	6,739.4	7,628.0	6,872.3	29.1	29.0	-104.41	-235.8	-780.7	534.1	477.6	56.53	9.448	
7,600.0	6,738.7	7,728.0	6,872.1	31.5	31.4	-104.46	-235.8	-880.7	534.2	473.1	61.17	8.734	
7,700.0	6,738.0	7,827.9	6,871.9	33.9	33.9	-104.51	-235.8	-980.7	534.4	468.4	65.92	8.106	
7,800.0	6,737.3	7,927.9	6,871.7	36.4	36.4	-104.56	-235.8	-1,080.7	534.5	463.7	70.78	7.552	
7,900.0	6,736.6	8,027.9	6,871.5	39.0	39.0	-104.62	-235.8	-1,180.7	534.6	458.9	75.71	7.062	
8,000.0	6,735.9	8,127.9	6,871.3	41.5	41.6	-104.67	-235.8	-1,280.7	534.8	454.0	80.70	6.626	
8,100.0	6,735.1	8,227.9	6,871.1	44.2	44.2	-104.72	-235.8	-1,380.7	534.9	449.1	85.75	6.238	
8,200.0	6,734.4	8,327.9	6,870.8	46.8	46.8	-104.77	-235.8	-1,480.7	535.0	444.2	90.84	5.890	
8,300.0	6,733.7	8,427.9	6,870.6	49.4	49.5	-104.83	-235.8	-1,580.6	535.1	439.2	95.97	5.576	
8,400.0	6,733.0	8,527.9	6,870.4	52.1	52.1	-104.88	-235.8	-1,680.6	535.3	434.2	101.12	5.293	
8,500.0	6,732.3	8,627.9	6,870.2	54.8	54.8	-104.93	-235.8	-1,780.6	535.4	429.1	106.30	5.037	
8,600.0	6,731.6	8,727.9	6,870.0	57.5	57.5	-104.98	-235.8	-1,880.6	535.5	424.0	111.50	4.803	
8,700.0	6,730.8	8,827.9	6,869.8	60.2	60.2	-105.03	-235.8	-1,980.6	535.7	418.9	116.72	4.589	
8,800.0	6,730.1	8,927.9	6,869.6	62.9	62.9	-105.09	-235.8	-2,080.6	535.8	413.8	121.95	4.394	
8,900.0	6,729.4	9,027.9	6,869.4	65.6	65.7	-105.14	-235.8	-2,180.6	535.9	408.7	127.20	4.213	
9,000.0	6,728.7	9,127.9	6,869.2	68.4	68.4	-105.19	-235.8	-2,280.6	536.1	403.6	132.45	4.047	
9,100.0	6,728.0	9,227.9	6,869.0	71.1	71.1	-105.24	-235.8	-2,380.6	536.2	398.5	137.72	3.893	
9,200.0	6,727.3	9,327.9	6,868.8	73.8	73.9	-105.30	-235.8	-2,480.6	536.3	393.3	142.99	3.751	
9,300.0	6,726.6	9,427.9	6,868.5	76.6	76.6	-105.35	-235.8	-2,580.6	536.5	388.2	148.28	3.618	
9,400.0	6,725.8	9,527.9	6,868.3	79.3	79.4	-105.40	-235.8	-2,680.6	536.6	383.0	153.56	3.494	
9,500.0	6,725.1	9,627.9	6,868.1	82.1	82.1	-105.45	-235.8	-2,780.6	536.7	377.9	158.86	3.379	
9,600.0	6,724.4	9,727.9	6,867.9	84.8	84.9	-105.50	-235.8	-2,880.6	536.9	372.7	164.16	3.270	
9,700.0	6,723.7	9,827.9	6,867.7	87.6	87.7	-105.56	-235.8	-2,980.6	537.0	367.5	169.46	3.169	
9,800.0	6,723.0	9,927.9	6,867.5	90.4	90.4	-105.61	-235.8	-3,080.6	537.1	362.4	174.76	3.074	
9,900.0	6,722.3	10,027.9	6,867.3	93.1	93.2	-105.66	-235.8	-3,180.6	537.3	357.2	180.07	2.984	
10,000.0	6,721.5	10,127.9	6,867.1	95.9	96.0	-105.71	-235.8	-3,280.6	537.4	352.0	185.38	2.899	

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-234
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4626.0ft (RKB - 13')
Reference Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4626.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-234	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 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design LDS 5N65W1W Pad Sec.1-T5N-R65W - LDS 1W-414 - Wellbore #1 - Plan #2 (4-16-15)													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	6,720.8	10,227.9	6,866.9	98.7	98.7	-105.76	-235.8	-3,380.6	537.5	346.9	190.69	2.819		
10,200.0	6,720.1	10,327.9	6,866.7	101.4	101.5	-105.82	-235.8	-3,480.6	537.7	341.7	196.00	2.743		
10,300.0	6,719.4	10,427.9	6,866.5	104.2	104.3	-105.87	-235.8	-3,580.6	537.8	336.5	201.31	2.672		
10,400.0	6,718.7	10,527.9	6,866.2	107.0	107.1	-105.92	-235.8	-3,680.6	538.0	331.3	206.63	2.604		
10,500.0	6,718.0	10,627.9	6,866.0	109.8	109.8	-105.97	-235.8	-3,780.6	538.1	326.2	211.94	2.539		
10,600.0	6,717.3	10,727.9	6,865.8	112.6	112.6	-106.02	-235.8	-3,880.6	538.2	321.0	217.25	2.477		
10,700.0	6,716.5	10,827.9	6,865.6	115.3	115.4	-106.08	-235.8	-3,980.6	538.4	315.8	222.57	2.419		
10,800.0	6,715.8	10,927.9	6,865.4	118.1	118.2	-106.13	-235.8	-4,080.6	538.5	310.6	227.88	2.363		
10,900.0	6,715.1	11,027.9	6,865.2	120.9	121.0	-106.18	-235.8	-4,180.6	538.7	305.5	233.20	2.310		
11,000.0	6,714.4	11,127.9	6,865.0	123.7	123.8	-106.23	-235.8	-4,280.6	538.8	300.3	238.51	2.259		
11,100.0	6,713.7	11,227.9	6,864.8	126.5	126.6	-106.28	-235.8	-4,380.6	538.9	295.1	243.82	2.210		
11,200.0	6,713.0	11,327.9	6,864.6	129.3	129.3	-106.33	-235.8	-4,480.6	539.1	289.9	249.13	2.164		
11,300.0	6,712.2	11,427.9	6,864.4	132.1	132.1	-106.39	-235.8	-4,580.6	539.2	284.8	254.44	2.119		
11,400.0	6,711.5	11,527.9	6,864.1	134.9	134.9	-106.44	-235.8	-4,680.6	539.4	279.6	259.75	2.076		
11,500.0	6,710.8	11,627.9	6,863.9	137.6	137.7	-106.49	-235.8	-4,780.6	539.5	274.4	265.06	2.035		
11,600.0	6,710.1	11,727.9	6,863.7	140.4	140.5	-106.54	-235.8	-4,880.6	539.7	269.3	270.37	1.996		
11,700.0	6,709.4	11,827.9	6,863.5	143.2	143.3	-106.59	-235.8	-4,980.6	539.8	264.1	275.67	1.958		
11,800.0	6,708.7	11,927.9	6,863.3	146.0	146.1	-106.64	-235.8	-5,080.6	539.9	259.0	280.98	1.922		
11,900.0	6,708.0	12,027.9	6,863.1	148.8	148.9	-106.69	-235.8	-5,180.6	540.1	253.8	286.28	1.887		
12,000.0	6,707.2	12,127.9	6,862.9	151.6	151.7	-106.75	-235.8	-5,280.6	540.2	248.7	291.58	1.853		
12,100.0	6,706.5	12,227.9	6,862.7	154.4	154.5	-106.80	-235.8	-5,380.6	540.4	243.5	296.88	1.820		
12,200.0	6,705.8	12,327.9	6,862.5	157.2	157.3	-106.85	-235.8	-5,480.6	540.5	238.3	302.18	1.789		
12,300.0	6,705.1	12,427.9	6,862.3	160.0	160.1	-106.90	-235.8	-5,580.6	540.7	233.2	307.47	1.758		
12,400.0	6,704.4	12,527.9	6,862.1	162.8	162.9	-106.95	-235.8	-5,680.6	540.8	228.1	312.77	1.729		
12,500.0	6,703.7	12,627.9	6,861.8	165.6	165.7	-107.00	-235.8	-5,780.6	541.0	222.9	318.06	1.701		
12,600.0	6,702.9	12,727.9	6,861.6	168.4	168.5	-107.05	-235.8	-5,880.6	541.1	217.8	323.35	1.673		
12,700.0	6,702.2	12,827.9	6,861.4	171.2	171.3	-107.10	-235.8	-5,980.6	541.3	212.6	328.63	1.647		
12,800.0	6,701.5	12,927.9	6,861.2	174.0	174.1	-107.16	-235.8	-6,080.6	541.4	207.5	333.92	1.621		
12,900.0	6,700.8	13,027.9	6,861.0	176.8	176.9	-107.21	-235.8	-6,180.6	541.6	202.4	339.20	1.597		
13,000.0	6,700.1	13,127.9	6,860.8	179.6	179.7	-107.26	-235.8	-6,280.6	541.7	197.2	344.48	1.573		
13,100.0	6,699.4	13,227.9	6,860.6	182.4	182.5	-107.31	-235.8	-6,380.6	541.9	192.1	349.76	1.549		
13,200.0	6,698.6	13,327.9	6,860.4	185.2	185.3	-107.36	-235.8	-6,480.6	542.0	187.0	355.04	1.527		
13,300.0	6,697.9	13,427.9	6,860.2	188.0	188.1	-107.41	-235.8	-6,580.6	542.2	181.9	360.31	1.505		
13,400.0	6,697.2	13,527.9	6,860.0	190.8	190.9	-107.46	-235.8	-6,680.6	542.3	176.7	365.58	1.483 Level 3		
13,500.0	6,696.5	13,627.9	6,859.7	193.6	193.7	-107.51	-235.8	-6,780.6	542.5	171.6	370.85	1.463 Level 3		
13,600.0	6,695.8	13,727.9	6,859.5	196.4	196.5	-107.56	-235.8	-6,880.6	542.6	166.5	376.12	1.443 Level 3		
13,700.0	6,695.1	13,827.9	6,859.3	199.2	199.3	-107.62	-235.8	-6,980.6	542.8	161.4	381.38	1.423 Level 3		
13,800.0	6,694.4	13,927.9	6,859.1	202.0	202.1	-107.67	-235.8	-7,080.6	542.9	156.3	386.64	1.404 Level 3		
13,850.3	6,694.0	13,978.2	6,859.0	203.4	203.5	-107.69	-235.8	-7,130.9	543.0	153.7	389.28	1.395 Level 3, SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1V-234
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4626.0ft (RKB - 13')
Reference Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4626.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-234	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 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design Noffsinger Pad Sec.2-T5N-R65W - Noffsinger 2SD - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 761-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)					
12,200.0	6,705.8	6,981.0	6,741.7	157.2	28.2	-90.77	-291.8	-6,284.9	988.0	814.2	173.84	5.683	
12,300.0	6,705.1	6,981.3	6,742.1	160.0	28.2	-90.81	-291.8	-6,284.9	908.4	731.8	176.64	5.143	
12,400.0	6,704.4	6,981.7	6,742.5	162.8	28.2	-90.84	-291.8	-6,284.9	833.3	653.8	179.43	4.644	
12,500.0	6,703.7	6,982.1	6,742.9	165.6	28.2	-90.89	-291.8	-6,284.9	763.8	581.6	182.23	4.192	
12,600.0	6,702.9	6,982.5	6,743.3	168.4	28.2	-90.93	-291.8	-6,284.9	701.8	516.8	185.02	3.793	
12,700.0	6,702.2	6,983.0	6,743.8	171.2	28.2	-90.97	-291.8	-6,284.9	649.3	461.5	187.81	3.457	
12,800.0	6,701.5	6,983.5	6,744.2	174.0	28.2	-91.02	-291.8	-6,284.9	608.8	418.2	190.61	3.194	
12,900.0	6,700.8	6,983.9	6,744.7	176.8	28.2	-91.07	-291.8	-6,284.9	582.9	389.5	193.40	3.014	
13,000.0	6,700.1	6,984.5	6,745.2	179.6	28.2	-91.12	-291.8	-6,284.9	573.4	377.3	196.20	2.923	
13,004.6	6,700.0	6,984.5	6,745.3	179.7	28.2	-91.12	-291.8	-6,284.9	573.4	377.1	196.32	2.921	CC, ES, SF
13,100.0	6,699.4	6,985.0	6,745.8	182.4	28.2	-91.17	-291.7	-6,284.9	581.3	382.3	198.99	2.921	
13,200.0	6,698.6	6,985.6	6,746.4	185.2	28.2	-91.23	-291.7	-6,284.9	605.8	404.0	201.78	3.002	
13,300.0	6,697.9	6,986.2	6,747.0	188.0	28.2	-91.29	-291.7	-6,284.9	645.0	440.5	204.58	3.153	
13,400.0	6,697.2	6,986.8	6,747.6	190.8	28.2	-91.35	-291.7	-6,284.9	696.5	489.2	207.37	3.359	
13,500.0	6,696.5	6,987.5	6,748.3	193.6	28.2	-91.42	-291.7	-6,285.0	757.8	547.6	210.16	3.606	
13,600.0	6,695.8	6,988.2	6,749.0	196.4	28.2	-91.49	-291.7	-6,285.0	826.6	613.7	212.95	3.882	
13,700.0	6,695.1	6,989.0	6,749.8	199.2	28.2	-91.57	-291.7	-6,285.0	901.3	685.6	215.74	4.178	
13,800.0	6,694.4	6,989.8	6,750.6	202.0	28.2	-91.65	-291.7	-6,285.0	980.5	762.0	218.53	4.487	

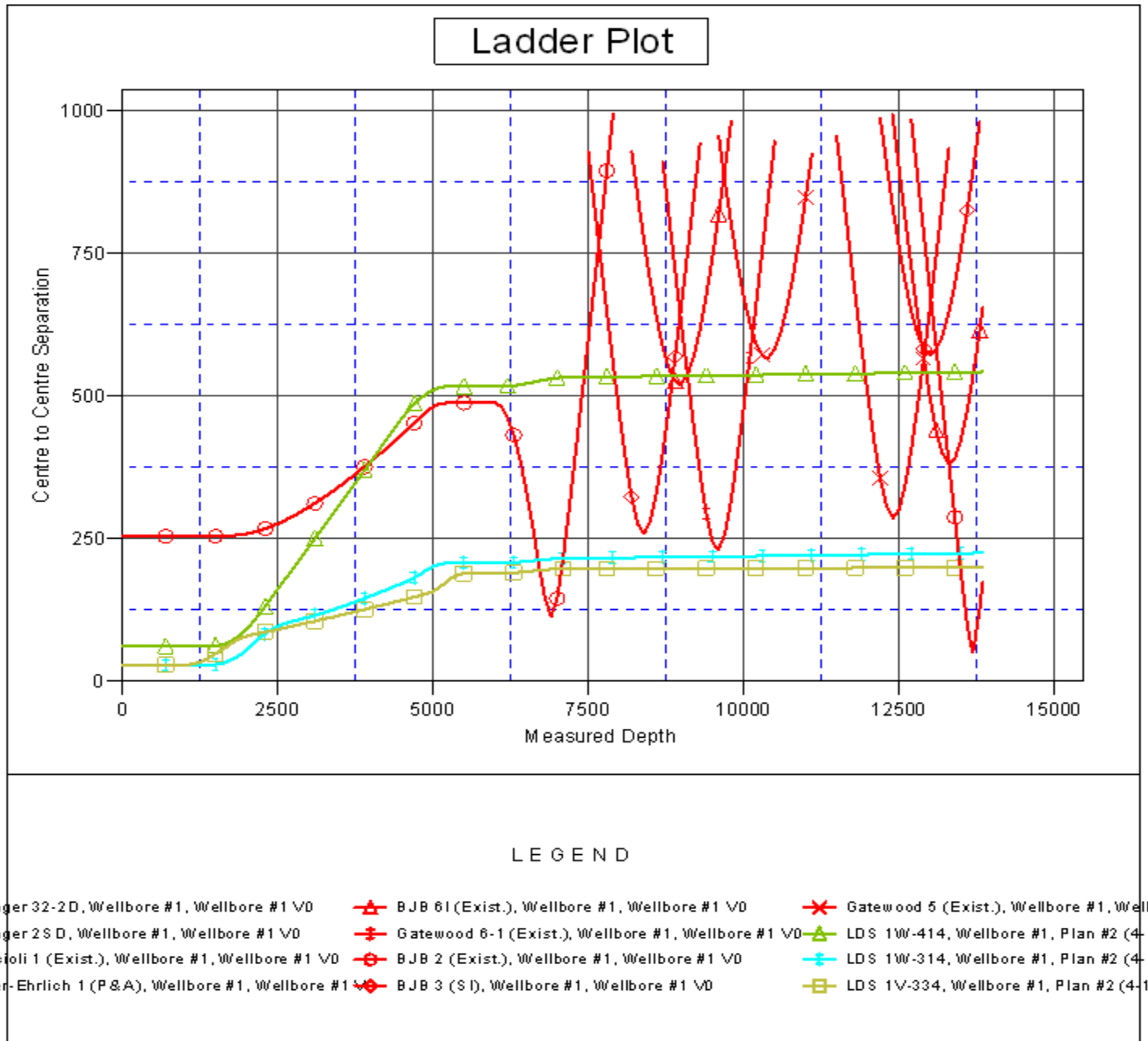
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1V-234
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4626.0ft (RKB - 13')
Reference Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4626.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-234	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 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design Noffsinger Pad Sec.2-T5N-R65W - Noffsinger 32-2D - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 668-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)			
12,700.0	6,702.2	6,893.1	6,728.0	171.2	25.7	-88.65	229.3	-6,963.8	985.0	792.7	192.27	5.123	
12,800.0	6,701.5	6,893.0	6,727.9	174.0	25.7	-88.60	229.3	-6,963.8	885.2	690.1	195.06	4.538	
12,900.0	6,700.8	6,893.0	6,727.9	176.8	25.7	-88.55	229.3	-6,963.8	785.4	587.5	197.85	3.969	
13,000.0	6,700.1	6,892.9	6,727.8	179.6	25.7	-88.49	229.3	-6,963.8	685.6	485.0	200.65	3.417	
13,100.0	6,699.4	6,892.9	6,727.8	182.4	25.7	-88.44	229.3	-6,963.8	586.0	382.5	203.44	2.880	
13,200.0	6,698.6	6,892.8	6,727.7	185.2	25.7	-88.38	229.3	-6,963.8	486.4	280.2	206.24	2.359	
13,300.0	6,697.9	6,892.8	6,727.7	188.0	25.7	-88.33	229.3	-6,963.8	387.2	178.1	209.03	1.852	
13,400.0	6,697.2	6,892.7	6,727.6	190.8	25.7	-88.27	229.3	-6,963.8	288.4	76.6	211.82	1.362 Level 3	
13,500.0	6,696.5	6,892.7	6,727.6	193.6	25.7	-88.21	229.3	-6,963.8	190.9	-23.7	214.62	0.890 Level 1	
13,600.0	6,695.8	6,892.6	6,727.5	196.4	25.7	-88.15	229.3	-6,963.8	98.6	-118.8	217.41	0.454 Level 1	
13,683.6	6,695.2	6,892.6	6,727.4	198.7	25.7	-88.10	229.3	-6,963.8	52.3	-167.4	219.75	0.238 Level 1, CC, ES, SF	
13,700.0	6,695.1	6,892.5	6,727.4	199.2	25.7	-88.09	229.3	-6,963.8	54.8	-165.4	220.20	0.249 Level 1	
13,800.0	6,694.4	6,892.5	6,727.4	202.0	25.7	-88.02	229.3	-6,963.8	127.6	-95.4	223.00	0.572 Level 1	
13,850.3	6,694.0	6,892.5	6,727.4	203.4	25.7	-87.99	229.3	-6,963.8	174.7	-49.7	224.39	0.779 Level 1	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1V-234
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4626.0ft (RKB - 13')
Reference Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4626.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-234	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 (4-29-15)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4626.0ft (RKB - 13')
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: LDS 1V-234
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.58°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well LDS 1V-234
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4626.0ft (RKB - 13')
Reference Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4626.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	LDS 1V-234	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 (4-29-15)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4626.0ft (RKB - 13')
 Offset Depths are relative to Offset Datum
 Central Meridian is -105.500000 °

Coordinates are relative to: LDS 1V-234
 Coordinate System is US State Plane 1983, Colorado Northern Zone
 Grid Convergence at Surface is: 0.58°

