

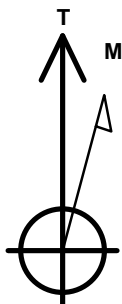
PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Dunn 7L-301**

Surface Location: Dunn 5N64W7 Pad Sec.7-T5N-R64W
 North American Datum 1983 , US State Plane 1983, Colorado Northern Zone
 Ground Elevation: 4625.0
 +N/-S +E/-W Northing Easting Latitude Longitude Slot
 0.0 0.0 1392905.96 3251104.50 40.408424 -104.598274
 Original Well Elev WELL @ 4638.0ft (Original Well Elev)

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 750'FSL & 980'FWL, Sec. 7	1.0	0.0	0.0	Point
BHL 200'FNL & 1428'FWL, Sec.6	6793.0	9536.3	476.3	Point



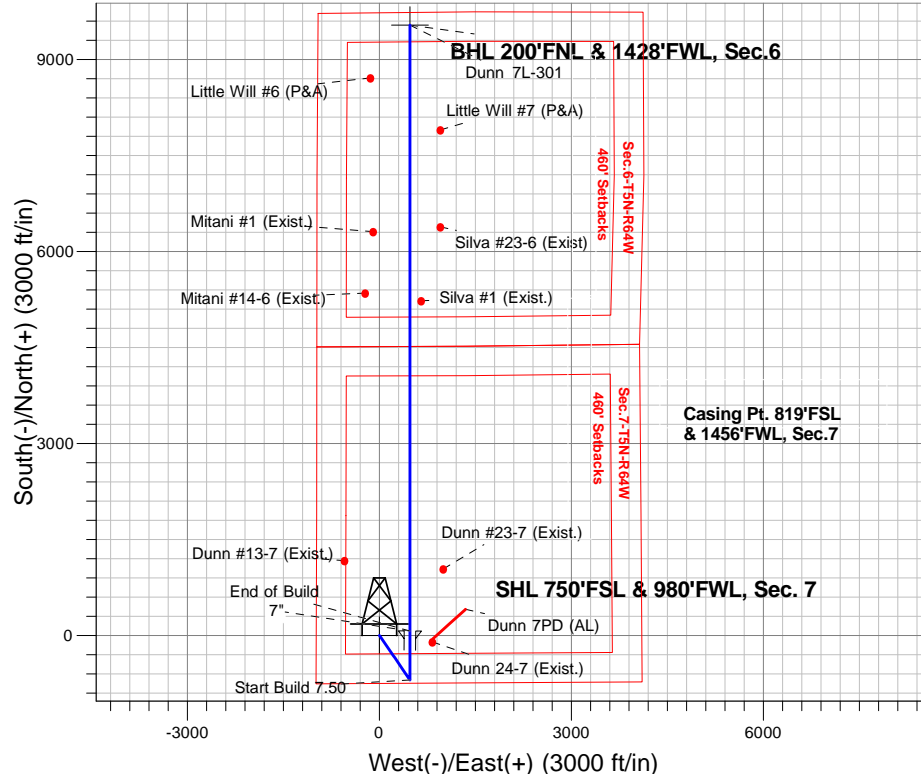
Azimuths to True North
 Magnetic North: 8.20°

Magnetic Field
 Strength: 52703.9snT
 Dip Angle: 66.93°
 Date: 9/24/2015
 Model: IGRF2010

ANNOTATIONS

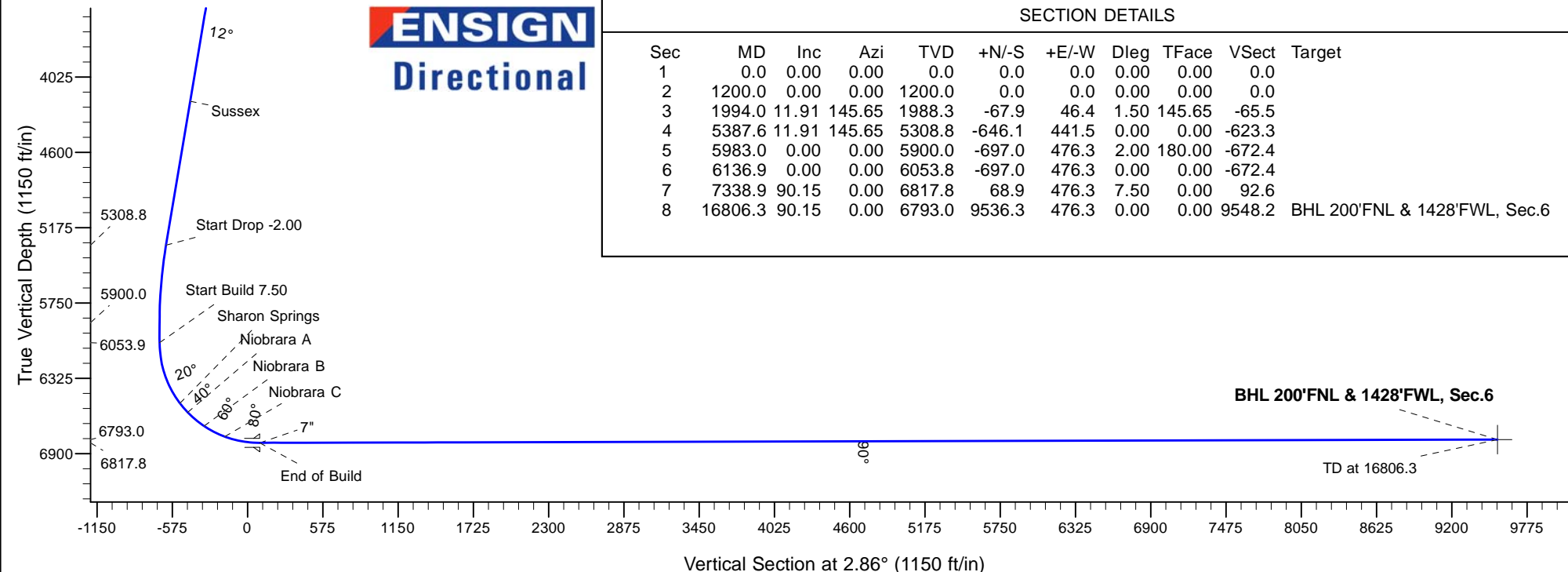
TVD	MD	Annotation
1200.0	1200.0	KOP - Start Build 1.50
5308.8	5387.6	Start Drop -2.00
5900.0	5983.0	Start 153.8 hold at 5983.0 MD
6053.9	6136.9	Start Build 7.50
6817.8	7338.9	End of Build
6793.0	16806.3	TD at 16806.3

Dunn 5N64W7 Pad Sec.7-T5N-R64W
 Dunn 7L-301
 Plan #1 (9-10-15)
 6:40, September 24 2015



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1200.0	0.00	0.00	1200.0	0.0	0.0	0.00	0.00	0.0	
3	1994.0	11.91	145.65	1988.3	-67.9	46.4	1.50	145.65	-65.5	
4	5387.6	11.91	145.65	5308.8	-646.1	441.5	0.00	0.00	-623.3	
5	5983.0	0.00	0.00	5900.0	-697.0	476.3	2.00	180.00	-672.4	
6	6136.9	0.00	0.00	6053.8	-697.0	476.3	0.00	0.00	-672.4	
7	7338.9	90.15	0.00	6817.8	68.9	476.3	7.50	0.00	92.6	
8	16806.3	90.15	0.00	6793.0	9536.3	476.3	0.00	0.00	9548.2	BHL 200'FNL & 1428'FWL, Sec.6





PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.7-T5N-R64W

Dunn 5N64W7 Pad Sec.7-T5N-R64W

Dunn 7L-301

Wellbore #1

Plan: Plan #1 (9-10-15)

Standard Planning Report

24 September, 2015

Database:	US_EDM	Local Co-ordinate Reference:	Well Dunn 7L-301
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Project:	SEC.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	North Reference:	True
Well:	Dunn 7L-301	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (9-10-15)		

Project	SEC.7-T5N-R64W, Weld County, Colorado		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site	Dunn 5N64W7 Pad Sec.7-T5N-R64W		
Site Position:		Northing:	1,392,981.02 usft
From:	Lat/Long	Easting:	3,251,104.57 usft
Position Uncertainty:	0.0 ft	Slot Radius:	13-3/16 "
		Latitude:	40.408630
		Longitude:	-104.598271
		Grid Convergence:	0.58 °

Well	Dunn 7L-301		
Well Position	+N/-S	-75.1 ft	Northing:
	+E/-W	-0.8 ft	Easting:
Position Uncertainty		0.0 ft	Wellhead Elevation:
			0.0 ft
			Latitude:
			40.408424
			Longitude:
			-104.598274
			Ground Level:
			4,625.0 ft

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2010	9/24/2015	8.20
			Dip Angle
			(°)
			66.93
			Field Strength
			(nT)
			52,704

Design	Plan #1 (9-10-15)		
Audit Notes:			
Version:	Phase:	PROTOTYPE	Tie On Depth:
			0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(ft)	(ft)	(ft)
	0.0	0.0	0.0
			Direction
			(°)
			2.86

Plan Sections										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Dogleg	Build	Turn	TFO	Target
Depth	(°)	(°)	Depth	(ft)	(ft)	Rate	Rate	Rate	(°)	
(ft)			(ft)			(°/100usft)	(°/100usft)	(°/100usft)		
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,994.0	11.91	145.65	1,988.3	-67.9	46.4	1.50	1.50	0.00	145.65	
5,387.6	11.91	145.65	5,308.8	-646.1	441.5	0.00	0.00	0.00	0.00	
5,983.0	0.00	0.00	5,900.0	-697.0	476.3	2.00	-2.00	0.00	180.00	
6,136.9	0.00	0.00	6,053.8	-697.0	476.3	0.00	0.00	0.00	0.00	
7,338.9	90.15	0.00	6,817.8	68.9	476.3	7.50	7.50	0.00	0.00	
16,806.3	90.15	0.00	6,793.0	9,536.3	476.3	0.00	0.00	0.00	0.00	BHL 200'FNL & 1428'

Database:	US_EDM	Local Co-ordinate Reference:	Well Dunn 7L-301
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Project:	SEC.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	North Reference:	True
Well:	Dunn 7L-301	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (9-10-15)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
1.0	0.00	0.00	1.0	0.0	0.0	0.0	0.00	0.00	0.00
SHL 750'FSL & 980'FWL, Sec. 7									
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
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
KOP - Start Build 1.50									
1,300.0	1.50	145.65	1,300.0	-1.1	0.7	-1.0	1.50	1.50	0.00
1,400.0	3.00	145.65	1,399.9	-4.3	3.0	-4.2	1.50	1.50	0.00
1,500.0	4.50	145.65	1,499.7	-9.7	6.6	-9.4	1.50	1.50	0.00
1,600.0	6.00	145.65	1,599.3	-17.3	11.8	-16.7	1.50	1.50	0.00
1,700.0	7.50	145.65	1,698.6	-27.0	18.4	-26.0	1.50	1.50	0.00
1,800.0	9.00	145.65	1,797.5	-38.8	26.5	-37.5	1.50	1.50	0.00
1,900.0	10.50	145.65	1,896.1	-52.8	36.1	-50.9	1.50	1.50	0.00
1,994.0	11.91	145.65	1,988.3	-67.9	46.4	-65.5	1.50	1.50	0.00
2,000.0	11.91	145.65	1,994.2	-68.9	47.1	-66.5	0.00	0.00	0.00
2,100.0	11.91	145.65	2,092.0	-85.9	58.7	-82.9	0.00	0.00	0.00
2,200.0	11.91	145.65	2,189.9	-103.0	70.4	-99.3	0.00	0.00	0.00
2,300.0	11.91	145.65	2,287.7	-120.0	82.0	-115.8	0.00	0.00	0.00
2,400.0	11.91	145.65	2,385.6	-137.1	93.7	-132.2	0.00	0.00	0.00
2,500.0	11.91	145.65	2,483.4	-154.1	105.3	-148.7	0.00	0.00	0.00
2,600.0	11.91	145.65	2,581.3	-171.1	117.0	-165.1	0.00	0.00	0.00
2,700.0	11.91	145.65	2,679.1	-188.2	128.6	-181.5	0.00	0.00	0.00
2,800.0	11.91	145.65	2,776.9	-205.2	140.2	-198.0	0.00	0.00	0.00
2,900.0	11.91	145.65	2,874.8	-222.3	151.9	-214.4	0.00	0.00	0.00
3,000.0	11.91	145.65	2,972.6	-239.3	163.5	-230.8	0.00	0.00	0.00
3,100.0	11.91	145.65	3,070.5	-256.3	175.2	-247.3	0.00	0.00	0.00
3,200.0	11.91	145.65	3,168.3	-273.4	186.8	-263.7	0.00	0.00	0.00
3,300.0	11.91	145.65	3,266.2	-290.4	198.5	-280.1	0.00	0.00	0.00
3,400.0	11.91	145.65	3,364.0	-307.4	210.1	-296.6	0.00	0.00	0.00
3,500.0	11.91	145.65	3,461.9	-324.5	221.7	-313.0	0.00	0.00	0.00
3,528.7	11.91	145.65	3,490.0	-329.4	225.1	-317.7	0.00	0.00	0.00
Parkman									
3,600.0	11.91	145.65	3,559.7	-341.5	233.4	-329.5	0.00	0.00	0.00
3,700.0	11.91	145.65	3,657.6	-358.6	245.0	-345.9	0.00	0.00	0.00
3,800.0	11.91	145.65	3,755.4	-375.6	256.7	-362.3	0.00	0.00	0.00
3,900.0	11.91	145.65	3,853.3	-392.6	268.3	-378.8	0.00	0.00	0.00
4,000.0	11.91	145.65	3,951.1	-409.7	280.0	-395.2	0.00	0.00	0.00
4,100.0	11.91	145.65	4,049.0	-426.7	291.6	-411.6	0.00	0.00	0.00
4,200.0	11.91	145.65	4,146.8	-443.7	303.2	-428.1	0.00	0.00	0.00
4,264.6	11.91	145.65	4,210.0	-454.8	310.8	-438.7	0.00	0.00	0.00
Sussex									
4,300.0	11.91	145.65	4,244.7	-460.8	314.9	-444.5	0.00	0.00	0.00
4,400.0	11.91	145.65	4,342.5	-477.8	326.5	-460.9	0.00	0.00	0.00

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Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	North Reference:	True
Well:	Dunn 7L-301	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (9-10-15)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,500.0	11.91	145.65	4,440.4	-494.9	338.2	-477.4	0.00	0.00	0.00
4,600.0	11.91	145.65	4,538.2	-511.9	349.8	-493.8	0.00	0.00	0.00
4,700.0	11.91	145.65	4,636.0	-528.9	361.5	-510.3	0.00	0.00	0.00
4,800.0	11.91	145.65	4,733.9	-546.0	373.1	-526.7	0.00	0.00	0.00
4,900.0	11.91	145.65	4,831.7	-563.0	384.7	-543.1	0.00	0.00	0.00
5,000.0	11.91	145.65	4,929.6	-580.1	396.4	-559.6	0.00	0.00	0.00
5,100.0	11.91	145.65	5,027.4	-597.1	408.0	-576.0	0.00	0.00	0.00
5,200.0	11.91	145.65	5,125.3	-614.1	419.7	-592.4	0.00	0.00	0.00
5,300.0	11.91	145.65	5,223.1	-631.2	431.3	-608.9	0.00	0.00	0.00
5,387.6	11.91	145.65	5,308.8	-646.1	441.5	-623.3	0.00	0.00	0.00
Start Drop -2.00									
5,400.0	11.66	145.65	5,321.0	-648.2	442.9	-625.3	2.01	-2.01	0.00
5,500.0	9.66	145.65	5,419.3	-663.5	453.4	-640.0	2.00	-2.00	0.00
5,600.0	7.66	145.65	5,518.1	-675.9	461.9	-652.0	2.00	-2.00	0.00
5,700.0	5.66	145.65	5,617.4	-685.5	468.4	-661.2	2.00	-2.00	0.00
5,800.0	3.66	145.65	5,717.1	-692.2	473.0	-667.7	2.00	-2.00	0.00
5,900.0	1.66	145.65	5,817.0	-696.0	475.6	-671.4	2.00	-2.00	0.00
5,983.0	0.00	145.65	5,900.0	-697.0	476.3	-672.4	2.00	-2.00	0.00
Start 153.8 hold at 5983.0 MD									
6,000.0	0.00	0.00	5,917.0	-697.0	476.3	-672.4	0.00	0.00	0.00
6,100.0	0.00	0.00	6,017.0	-697.0	476.3	-672.4	0.00	0.00	0.00
6,136.9	0.00	0.00	6,053.9	-697.0	476.3	-672.4	0.00	0.00	0.00
Start Build 7.50									
6,200.0	4.73	0.00	6,116.9	-694.4	476.3	-669.8	7.50	7.50	0.00
6,300.0	12.23	0.00	6,215.7	-679.6	476.3	-655.0	7.50	7.50	0.00
6,400.0	19.73	0.00	6,311.8	-652.1	476.3	-627.6	7.50	7.50	0.00
6,500.0	27.23	0.00	6,403.4	-612.3	476.3	-587.8	7.50	7.50	0.00
6,600.0	34.73	0.00	6,489.1	-560.9	476.3	-536.4	7.50	7.50	0.00
6,633.2	37.23	0.00	6,516.0	-541.4	476.3	-516.9	7.50	7.50	0.00
Sharon Springs									
6,700.0	42.23	0.00	6,567.3	-498.7	476.3	-474.3	7.50	7.50	0.00
6,724.2	44.05	0.00	6,585.0	-482.1	476.3	-457.8	7.50	7.50	0.00
Niobrara A									
6,800.0	49.73	0.00	6,636.8	-426.8	476.3	-402.5	7.50	7.50	0.00
6,888.6	56.38	0.00	6,690.0	-356.0	476.3	-331.8	7.50	7.50	0.00
Niobrara B									
6,900.0	57.23	0.00	6,696.2	-346.5	476.3	-322.3	7.50	7.50	0.00
7,000.0	64.73	0.00	6,744.7	-259.1	476.3	-235.0	7.50	7.50	0.00
7,065.2	69.63	0.00	6,770.0	-199.0	476.3	-175.0	7.50	7.50	0.00
Niobrara C									
7,100.0	72.23	0.00	6,781.4	-166.2	476.3	-142.2	7.50	7.50	0.00
7,200.0	79.73	0.00	6,805.6	-69.2	476.3	-45.4	7.50	7.50	0.00
7,300.0	87.23	0.00	6,816.9	30.1	476.3	53.8	7.50	7.50	0.00
7,338.9	90.15	0.00	6,817.8	69.0	476.3	92.6	7.50	7.50	0.00
End of Build - 7"									
7,400.0	90.15	0.00	6,817.6	130.1	476.3	153.7	0.00	0.00	0.00
7,500.0	90.15	0.00	6,817.4	230.1	476.3	253.5	0.00	0.00	0.00
7,600.0	90.15	0.00	6,817.1	330.1	476.3	353.4	0.00	0.00	0.00
7,700.0	90.15	0.00	6,816.8	430.1	476.3	453.3	0.00	0.00	0.00
7,800.0	90.15	0.00	6,816.6	530.1	476.3	553.2	0.00	0.00	0.00
7,900.0	90.15	0.00	6,816.3	630.1	476.3	653.0	0.00	0.00	0.00
8,000.0	90.15	0.00	6,816.1	730.1	476.3	752.9	0.00	0.00	0.00

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Project:	SEC.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	North Reference:	True
Well:	Dunn 7L-301	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (9-10-15)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,100.0	90.15	0.00	6,815.8	830.1	476.3	852.8	0.00	0.00	0.00
8,200.0	90.15	0.00	6,815.5	930.1	476.3	952.7	0.00	0.00	0.00
8,300.0	90.15	0.00	6,815.3	1,030.1	476.3	1,052.5	0.00	0.00	0.00
8,400.0	90.15	0.00	6,815.0	1,130.1	476.3	1,152.4	0.00	0.00	0.00
8,500.0	90.15	0.00	6,814.7	1,230.1	476.3	1,252.3	0.00	0.00	0.00
8,600.0	90.15	0.00	6,814.5	1,330.1	476.3	1,352.2	0.00	0.00	0.00
8,700.0	90.15	0.00	6,814.2	1,430.1	476.3	1,452.0	0.00	0.00	0.00
8,800.0	90.15	0.00	6,814.0	1,530.1	476.3	1,551.9	0.00	0.00	0.00
8,900.0	90.15	0.00	6,813.7	1,630.1	476.3	1,651.8	0.00	0.00	0.00
9,000.0	90.15	0.00	6,813.4	1,730.1	476.3	1,751.7	0.00	0.00	0.00
9,100.0	90.15	0.00	6,813.2	1,830.1	476.3	1,851.5	0.00	0.00	0.00
9,200.0	90.15	0.00	6,812.9	1,930.1	476.3	1,951.4	0.00	0.00	0.00
9,300.0	90.15	0.00	6,812.7	2,030.1	476.3	2,051.3	0.00	0.00	0.00
9,400.0	90.15	0.00	6,812.4	2,130.1	476.3	2,151.2	0.00	0.00	0.00
9,500.0	90.15	0.00	6,812.1	2,230.1	476.3	2,251.0	0.00	0.00	0.00
9,600.0	90.15	0.00	6,811.9	2,330.1	476.3	2,350.9	0.00	0.00	0.00
9,700.0	90.15	0.00	6,811.6	2,430.1	476.3	2,450.8	0.00	0.00	0.00
9,800.0	90.15	0.00	6,811.3	2,530.1	476.3	2,550.7	0.00	0.00	0.00
9,900.0	90.15	0.00	6,811.1	2,630.1	476.3	2,650.5	0.00	0.00	0.00
10,000.0	90.15	0.00	6,810.8	2,730.1	476.3	2,750.4	0.00	0.00	0.00
10,100.0	90.15	0.00	6,810.6	2,830.1	476.3	2,850.3	0.00	0.00	0.00
10,200.0	90.15	0.00	6,810.3	2,930.1	476.3	2,950.2	0.00	0.00	0.00
10,300.0	90.15	0.00	6,810.0	3,030.1	476.3	3,050.0	0.00	0.00	0.00
10,400.0	90.15	0.00	6,809.8	3,130.1	476.3	3,149.9	0.00	0.00	0.00
10,500.0	90.15	0.00	6,809.5	3,230.1	476.3	3,249.8	0.00	0.00	0.00
10,600.0	90.15	0.00	6,809.2	3,330.1	476.3	3,349.7	0.00	0.00	0.00
10,700.0	90.15	0.00	6,809.0	3,430.1	476.3	3,449.5	0.00	0.00	0.00
10,800.0	90.15	0.00	6,808.7	3,530.1	476.3	3,549.4	0.00	0.00	0.00
10,900.0	90.15	0.00	6,808.5	3,630.1	476.3	3,649.3	0.00	0.00	0.00
11,000.0	90.15	0.00	6,808.2	3,730.1	476.3	3,749.2	0.00	0.00	0.00
11,100.0	90.15	0.00	6,807.9	3,830.1	476.3	3,849.0	0.00	0.00	0.00
11,200.0	90.15	0.00	6,807.7	3,930.1	476.3	3,948.9	0.00	0.00	0.00
11,300.0	90.15	0.00	6,807.4	4,030.1	476.3	4,048.8	0.00	0.00	0.00
11,400.0	90.15	0.00	6,807.2	4,130.1	476.3	4,148.7	0.00	0.00	0.00
11,500.0	90.15	0.00	6,806.9	4,230.1	476.3	4,248.5	0.00	0.00	0.00
11,600.0	90.15	0.00	6,806.6	4,330.1	476.3	4,348.4	0.00	0.00	0.00
11,700.0	90.15	0.00	6,806.4	4,430.1	476.3	4,448.3	0.00	0.00	0.00
11,800.0	90.15	0.00	6,806.1	4,530.1	476.3	4,548.2	0.00	0.00	0.00
11,900.0	90.15	0.00	6,805.8	4,630.1	476.3	4,648.0	0.00	0.00	0.00
12,000.0	90.15	0.00	6,805.6	4,730.1	476.3	4,747.9	0.00	0.00	0.00
12,100.0	90.15	0.00	6,805.3	4,830.1	476.3	4,847.8	0.00	0.00	0.00
12,200.0	90.15	0.00	6,805.1	4,930.1	476.3	4,947.7	0.00	0.00	0.00
12,300.0	90.15	0.00	6,804.8	5,030.1	476.3	5,047.6	0.00	0.00	0.00
12,400.0	90.15	0.00	6,804.5	5,130.1	476.3	5,147.4	0.00	0.00	0.00
12,500.0	90.15	0.00	6,804.3	5,230.1	476.3	5,247.3	0.00	0.00	0.00
12,600.0	90.15	0.00	6,804.0	5,330.1	476.3	5,347.2	0.00	0.00	0.00
12,700.0	90.15	0.00	6,803.8	5,430.1	476.3	5,447.1	0.00	0.00	0.00
12,800.0	90.15	0.00	6,803.5	5,530.1	476.3	5,546.9	0.00	0.00	0.00
12,900.0	90.15	0.00	6,803.2	5,630.1	476.3	5,646.8	0.00	0.00	0.00
13,000.0	90.15	0.00	6,803.0	5,730.0	476.3	5,746.7	0.00	0.00	0.00
13,100.0	90.15	0.00	6,802.7	5,830.0	476.3	5,846.6	0.00	0.00	0.00
13,200.0	90.15	0.00	6,802.4	5,930.0	476.3	5,946.4	0.00	0.00	0.00
13,300.0	90.15	0.00	6,802.2	6,030.0	476.3	6,046.3	0.00	0.00	0.00

Database:	US_EDM	Local Co-ordinate Reference:	Well Dunn 7L-301
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Project:	SEC.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	North Reference:	True
Well:	Dunn 7L-301	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (9-10-15)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
13,400.0	90.15	0.00	6,801.9	6,130.0	476.3	6,146.2	0.00	0.00	0.00
13,500.0	90.15	0.00	6,801.7	6,230.0	476.3	6,246.1	0.00	0.00	0.00
13,600.0	90.15	0.00	6,801.4	6,330.0	476.3	6,345.9	0.00	0.00	0.00
13,700.0	90.15	0.00	6,801.1	6,430.0	476.3	6,445.8	0.00	0.00	0.00
13,800.0	90.15	0.00	6,800.9	6,530.0	476.3	6,545.7	0.00	0.00	0.00
13,900.0	90.15	0.00	6,800.6	6,630.0	476.3	6,645.6	0.00	0.00	0.00
14,000.0	90.15	0.00	6,800.3	6,730.0	476.3	6,745.4	0.00	0.00	0.00
14,100.0	90.15	0.00	6,800.1	6,830.0	476.3	6,845.3	0.00	0.00	0.00
14,200.0	90.15	0.00	6,799.8	6,930.0	476.3	6,945.2	0.00	0.00	0.00
14,300.0	90.15	0.00	6,799.6	7,030.0	476.3	7,045.1	0.00	0.00	0.00
14,400.0	90.15	0.00	6,799.3	7,130.0	476.3	7,144.9	0.00	0.00	0.00
14,500.0	90.15	0.00	6,799.0	7,230.0	476.3	7,244.8	0.00	0.00	0.00
14,600.0	90.15	0.00	6,798.8	7,330.0	476.3	7,344.7	0.00	0.00	0.00
14,700.0	90.15	0.00	6,798.5	7,430.0	476.3	7,444.6	0.00	0.00	0.00
14,800.0	90.15	0.00	6,798.3	7,530.0	476.3	7,544.4	0.00	0.00	0.00
14,900.0	90.15	0.00	6,798.0	7,630.0	476.3	7,644.3	0.00	0.00	0.00
15,000.0	90.15	0.00	6,797.7	7,730.0	476.3	7,744.2	0.00	0.00	0.00
15,100.0	90.15	0.00	6,797.5	7,830.0	476.3	7,844.1	0.00	0.00	0.00
15,200.0	90.15	0.00	6,797.2	7,930.0	476.3	7,943.9	0.00	0.00	0.00
15,300.0	90.15	0.00	6,796.9	8,030.0	476.3	8,043.8	0.00	0.00	0.00
15,400.0	90.15	0.00	6,796.7	8,130.0	476.3	8,143.7	0.00	0.00	0.00
15,500.0	90.15	0.00	6,796.4	8,230.0	476.3	8,243.6	0.00	0.00	0.00
15,600.0	90.15	0.00	6,796.2	8,330.0	476.3	8,343.4	0.00	0.00	0.00
15,700.0	90.15	0.00	6,795.9	8,430.0	476.3	8,443.3	0.00	0.00	0.00
15,800.0	90.15	0.00	6,795.6	8,530.0	476.3	8,543.2	0.00	0.00	0.00
15,900.0	90.15	0.00	6,795.4	8,630.0	476.3	8,643.1	0.00	0.00	0.00
16,000.0	90.15	0.00	6,795.1	8,730.0	476.3	8,742.9	0.00	0.00	0.00
16,100.0	90.15	0.00	6,794.8	8,830.0	476.3	8,842.8	0.00	0.00	0.00
16,200.0	90.15	0.00	6,794.6	8,930.0	476.3	8,942.7	0.00	0.00	0.00
16,300.0	90.15	0.00	6,794.3	9,030.0	476.3	9,042.6	0.00	0.00	0.00
16,400.0	90.15	0.00	6,794.1	9,130.0	476.3	9,142.4	0.00	0.00	0.00
16,500.0	90.15	0.00	6,793.8	9,230.0	476.3	9,242.3	0.00	0.00	0.00
16,600.0	90.15	0.00	6,793.5	9,330.0	476.3	9,342.2	0.00	0.00	0.00
16,700.0	90.15	0.00	6,793.3	9,430.0	476.3	9,442.1	0.00	0.00	0.00
16,800.0	90.15	0.00	6,793.0	9,530.0	476.3	9,541.9	0.00	0.00	0.00
16,806.3	90.15	0.00	6,793.0	9,536.3	476.3	9,548.2	0.00	0.00	0.00
TD at 16806.3 - BHL 200°FNL & 1428°FWL, Sec.6									

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
SHL 750°FSL & 980°FWL - plan hits target center - Point	0.00	0.00	1.0	0.0	0.0	1,392,905.97	3,251,104.50	40.408424	-104.598274
BHL 200°FNL & 1428°FW - plan hits target center - Point	0.00	0.00	6,793.0	9,536.3	476.3	1,402,446.21	3,251,483.79	40.434600	-104.596563

Database:	US_EDM	Local Co-ordinate Reference:	Well Dunn 7L-301
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Project:	SEC.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	North Reference:	True
Well:	Dunn 7L-301	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (9-10-15)		

Casing Points				
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,338.9	6,817.8	7"	7	7-1/2

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,528.7	3,490.0	Parkman		0.00	
4,264.6	4,210.0	Sussex		0.00	
6,633.2	6,516.0	Sharon Springs		0.00	
6,724.2	6,585.0	Niobrara A		0.00	
6,888.6	6,690.0	Niobrara B		0.00	
7,065.2	6,770.0	Niobrara C		0.00	

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,200.0	1,200.0	0.0	0.0	KOP - Start Build 1.50
5,387.6	5,308.8	-646.1	441.5	Start Drop -2.00
5,983.0	5,900.0	-697.0	476.3	Start 153.8 hold at 5983.0 MD
6,136.9	6,053.9	-697.0	476.3	Start Build 7.50
7,338.9	6,817.8	69.0	476.3	End of Build
16,806.3	6,793.0	9,536.3	476.3	TD at 16806.3



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.7-T5N-R64W

Dunn 5N64W7 Pad Sec.7-T5N-R64W

Dunn 7L-301

Wellbore #1

Plan #1 (9-10-15)

Anticollision Report

24 September, 2015



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7L-301
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-10-15)	Offset TVD Reference:	Offset Datum

Reference	Plan #1 (9-10-15)		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 800.0 ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date 9/24/2015			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	16,806.3	Plan #1 (9-10-15) (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						
Dunn 5N64W7 Pad Sec.7-T5N-R64W						
Dunn 7L-201 - Wellbore #1 - Plan #1 (9-8-15)	1,200.0	1,200.0	60.1	55.0	11.630	CC, ES
Dunn 7L-201 - Wellbore #1 - Plan #1 (9-8-15)	1,400.0	1,399.9	64.5	58.5	10.753	SF
Dunn 7L-221 - Wellbore #1 - Plan #1 (9-10-15)	1,200.0	1,200.0	29.9	24.7	5.779	CC, ES
Dunn 7L-221 - Wellbore #1 - Plan #1 (9-10-15)	1,300.0	1,300.0	31.0	25.4	5.535	SF
Dunn 7L-321 - Wellbore #1 - Plan #1 (9-10-15)	1,200.0	1,200.0	45.2	40.0	8.739	CC, ES
Dunn 7L-321 - Wellbore #1 - Plan #1 (9-10-15)	1,400.0	1,399.9	49.6	43.6	8.265	SF
Dunn 7L-201 - Wellbore #1 - Plan #1 (9-10-15)	1,200.0	1,200.0	14.9	9.8	2.891	CC
Dunn 7L-201 - Wellbore #1 - Plan #1 (9-10-15)	16,806.3	16,713.4	244.1	-117.0	0.676	Level 1, ES, SF
Dunn 7L-221 - Wellbore #1 - Plan #1 (9-10-15)	500.0	500.0	14.9	12.9	7.382	CC
Dunn 7L-221 - Wellbore #1 - Plan #1 (9-10-15)	16,806.3	16,743.4	261.7	-103.1	0.717	Level 1, ES, SF
Dunn 7L-341 - Wellbore #1 - Plan #1 (9-10-15)	1,200.0	1,200.0	75.1	69.9	14.518	CC, ES
Dunn 7L-341 - Wellbore #1 - Plan #1 (9-10-15)	16,806.3	16,834.0	498.0	124.7	1.334	Level 3, SF
Dunn 7Q-221 - Wellbore #1 - Plan #1 (9-11-15)	200.0	200.0	75.1	74.4	111.305	CC
Dunn 7Q-221 - Wellbore #1 - Plan #1 (9-11-15)	300.0	299.4	75.5	74.4	68.127	ES
Dunn 7Q-221 - Wellbore #1 - Plan #1 (9-11-15)	1,000.0	983.9	127.7	123.1	27.540	SF
Dunn 7Q-241 - Wellbore #1 - Plan #1 (9-11-15)	600.0	600.0	44.8	42.3	18.125	CC, ES
Dunn 7Q-241 - Wellbore #1 - Plan #1 (9-11-15)	1,000.0	996.5	57.2	53.0	13.577	SF
Dunn 7Q-301 - Wellbore #1 - Plan #1 (9-11-15)	400.0	400.0	60.1	58.5	38.208	CC, ES
Dunn 7Q-301 - Wellbore #1 - Plan #1 (9-11-15)	900.0	894.3	78.2	74.4	20.444	SF
Dunn 7Q-341 - Wellbore #1 - Plan #1 (9-11-15)	800.0	800.0	29.9	26.5	8.861	CC, ES
Dunn 7Q-341 - Wellbore #1 - Plan #1 (9-11-15)	16,806.3	16,882.2	566.2	190.9	1.509	SF
Dunn Pad Sec.7-T5N-R64W						
Dunn 24-7 (Exist.) - Wellbore #1 - Wellbore #1	7,164.3	6,785.4	350.0	196.9	2.286	CC, ES, SF
Dunn 7PD (AL) - Wellbore #1 - Design #1	2,248.2	2,164.3	782.6	772.8	79.316	CC, ES
Dunn 7PD (AL) - Wellbore #1 - Design #1	2,500.0	2,366.3	792.4	781.1	70.169	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7L-301
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-10-15)	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Existing Wells - Sec.7-T5N-R64W						
Dunn #13-7 (Exist.) - Wellbore #1 - Wellbore #1						Out of range
Dunn #23-7 (Exist.) - Wellbore #1 - Wellbore #1	8,305.3	6,800.2	519.0	353.8	3.142	CC, ES, SF
Little Will #6 (P&A) - Wellbore #1 - Wellbore #1	15,981.1	6,784.2	616.1	308.6	2.004	CC
Little Will #6 (P&A) - Wellbore #1 - Wellbore #1	16,000.0	6,784.1	616.3	308.5	2.002	ES, SF
Little Will #7 (P&A) - Wellbore #1 - Wellbore #1	15,168.7	6,782.3	475.3	183.4	1.628	CC, ES, SF
Mitani #1 (Exist.) - Wellbore #1 - Wellbore #1	13,578.8	6,773.4	576.5	315.1	2.205	CC
Mitani #1 (Exist.) - Wellbore #1 - Wellbore #1	13,600.0	6,773.4	576.9	315.1	2.204	ES, SF
Mitani #14-6 (Exist.) - Wellbore #1 - Wellbore #1	12,618.4	6,766.0	697.4	454.4	2.870	CC, ES, SF
Silva #1 (Exist.) - Wellbore #1 - Wellbore #1	12,497.8	6,765.3	173.8	-66.9	0.722	Level 1, CC
Silva #1 (Exist.) - Wellbore #1 - Wellbore #1	12,500.0	6,765.3	173.8	-66.9	0.722	Level 1, ES, SF
Silva #23-6 (Exist.) - Wellbore #1 - Wellbore #1	13,653.5	6,771.2	474.2	211.4	1.804	CC, ES, SF

Offset Design														Offset Site Error:	0.0 ft
Survey Program: 0-MWD														Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (ft)	Separation Factor	Warning				
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)				Between Centres (ft)	Between Ellipses (ft)		
0.0	0.0	0.0	0.0	0.0	0.0	0.80	60.1	0.8	60.1						
100.0	100.0	100.0	100.0	0.1	0.1	0.80	60.1	0.8	60.1	59.9	0.22	267.510			
200.0	200.0	200.0	200.0	0.3	0.3	0.80	60.1	0.8	60.1	59.4	0.67	89.164			
300.0	300.0	300.0	300.0	0.6	0.6	0.80	60.1	0.8	60.1	59.0	1.12	53.498			
400.0	400.0	400.0	400.0	0.8	0.8	0.80	60.1	0.8	60.1	58.5	1.57	38.213			
500.0	500.0	500.0	500.0	1.0	1.0	0.80	60.1	0.8	60.1	58.1	2.02	29.721			
600.0	600.0	600.0	600.0	1.2	1.2	0.80	60.1	0.8	60.1	57.6	2.47	24.317			
700.0	700.0	700.0	700.0	1.5	1.5	0.80	60.1	0.8	60.1	57.2	2.92	20.576			
800.0	800.0	800.0	800.0	1.7	1.7	0.80	60.1	0.8	60.1	56.8	3.37	17.832			
900.0	900.0	900.0	900.0	1.9	1.9	0.80	60.1	0.8	60.1	56.3	3.82	15.734			
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	0.80	60.1	0.8	60.1	55.9	4.27	14.078			
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	0.80	60.1	0.8	60.1	55.4	4.72	12.737			
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	0.80	60.1	0.8	60.1	55.0	5.17	11.630	CC, ES		
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-145.55	60.1	0.8	61.2	55.6	5.59	10.941			
1,400.0	1,399.9	1,399.9	1,399.9	3.0	3.0	-147.50	60.1	0.8	64.5	58.5	6.00	10.753	SF		
1,500.0	1,499.7	1,499.7	1,499.7	3.2	3.3	-150.33	60.1	0.8	70.1	63.7	6.40	10.944			
1,600.0	1,599.3	1,599.3	1,599.3	3.4	3.5	-153.60	60.1	0.8	78.2	71.4	6.81	11.472			
1,700.0	1,698.6	1,698.6	1,698.6	3.6	3.7	-156.90	60.1	0.8	88.9	81.6	7.22	12.298			
1,800.0	1,797.5	1,797.5	1,797.5	3.8	3.9	-159.98	60.1	0.8	102.2	94.6	7.64	13.387			
1,900.0	1,896.1	1,897.4	1,897.4	4.1	4.1	-163.30	59.2	-0.1	117.7	109.7	8.02	14.676			
1,994.0	1,988.3	1,991.0	1,990.9	4.4	4.3	-166.88	56.8	-2.6	134.0	125.6	8.36	16.019			
2,000.0	1,994.2	1,996.9	1,996.9	4.4	4.3	-167.12	56.6	-2.8	135.1	126.7	8.39	16.106			
2,100.0	2,092.0	2,096.1	2,095.8	4.8	4.5	-171.10	52.1	-7.4	153.1	144.3	8.78	17.439			
2,200.0	2,189.9	2,195.1	2,194.4	5.1	4.7	-175.06	45.8	-13.8	171.0	161.8	9.19	18.616			
2,300.0	2,287.7	2,293.8	2,292.4	5.5	4.9	-179.01	37.8	-22.0	189.1	179.5	9.62	19.665			
2,400.0	2,385.6	2,391.9	2,389.6	5.9	5.1	177.06	28.1	-31.9	207.5	197.5	10.07	20.604			
2,500.0	2,483.4	2,489.5	2,485.8	6.3	5.4	173.15	16.7	-43.5	226.6	216.0	10.57	21.447			
2,600.0	2,581.3	2,586.4	2,580.8	6.7	5.6	169.30	3.7	-56.8	246.5	235.4	11.10	22.204			
2,700.0	2,679.1	2,682.4	2,674.6	7.1	6.0	165.52	-10.8	-71.7	267.6	255.9	11.69	22.889			
2,800.0	2,776.9	2,777.5	2,766.8	7.5	6.3	161.85	-26.8	-88.1	289.9	277.6	12.33	23.513			
2,900.0	2,874.8	2,871.5	2,857.5	8.0	6.7	158.30	-44.3	-105.9	313.8	300.7	13.02	24.093			

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 Dunn 7L-301
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-10-15)	Offset TVD Reference:	Offset Datum

Offset Design Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 7L-201 - Wellbore #1 - Plan #1 (9-8-15)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (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
3,000.0	2,972.6	2,964.4	2,946.5	8.4	7.1	154.90	-63.0	-125.1	339.2	325.5	13.76	24.645	
3,100.0	3,070.5	3,056.1	3,033.6	8.8	7.5	151.66	-83.0	-145.5	366.4	351.9	14.55	25.186	
3,200.0	3,168.3	3,146.5	3,118.8	9.3	8.0	148.58	-104.1	-167.1	395.5	380.1	15.37	25.729	
3,300.0	3,266.2	3,235.5	3,201.9	9.7	8.5	145.67	-126.2	-189.8	426.4	410.2	16.22	26.291	
3,400.0	3,364.0	3,326.6	3,286.5	10.1	9.1	142.90	-149.9	-214.0	459.0	441.9	17.11	26.830	
3,500.0	3,461.9	3,418.7	3,372.0	10.6	9.7	140.44	-173.9	-238.6	492.6	474.6	18.01	27.356	
3,600.0	3,559.7	3,510.8	3,457.5	11.0	10.3	138.29	-197.9	-263.1	526.9	508.0	18.90	27.870	
3,700.0	3,657.6	3,603.0	3,543.0	11.5	10.9	136.40	-221.9	-287.7	561.7	541.9	19.80	28.369	
3,800.0	3,755.4	3,695.1	3,628.5	11.9	11.5	134.72	-245.9	-312.2	597.1	576.4	20.70	28.851	
3,900.0	3,853.3	3,787.3	3,714.0	12.4	12.2	133.23	-269.9	-336.8	632.9	611.3	21.59	29.314	
4,000.0	3,951.1	3,879.4	3,799.5	12.8	12.8	131.89	-293.9	-361.3	669.0	646.5	22.48	29.758	
4,100.0	4,049.0	3,971.5	3,885.0	13.3	13.5	130.69	-317.9	-385.8	705.4	682.1	23.37	30.184	
4,200.0	4,146.8	4,063.7	3,970.5	13.7	14.1	129.60	-341.8	-410.4	742.1	717.9	24.26	30.591	
4,300.0	4,244.7	4,155.8	4,056.0	14.2	14.8	128.62	-365.8	-434.9	779.0	753.8	25.15	30.980	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7L-301
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-10-15)	Offset TVD Reference:	Offset Datum

Offset Design													Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 7I-221 - Wellbore #1 - Plan #1 (9-10-15)		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 (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor					
0.0	0.0	0.0	0.0	0.0	0.0	0.53	29.9	0.3	29.9	29.9	0.00	N/A					
100.0	100.0	100.0	100.0	0.1	0.1	0.53	29.9	0.3	29.9	29.7	0.22	132.928					
200.0	200.0	200.0	200.0	0.3	0.3	0.53	29.9	0.3	29.9	29.2	0.67	44.307					
300.0	300.0	300.0	300.0	0.6	0.6	0.53	29.9	0.3	29.9	28.8	1.12	26.584					
400.0	400.0	400.0	400.0	0.8	0.8	0.53	29.9	0.3	29.9	28.3	1.57	18.988					
500.0	500.0	500.0	500.0	1.0	1.0	0.53	29.9	0.3	29.9	27.9	2.02	14.769					
600.0	600.0	600.0	600.0	1.2	1.2	0.53	29.9	0.3	29.9	27.4	2.47	12.083					
700.0	700.0	700.0	700.0	1.5	1.5	0.53	29.9	0.3	29.9	27.0	2.92	10.224					
800.0	800.0	800.0	800.0	1.7	1.7	0.53	29.9	0.3	29.9	26.5	3.37	8.861					
900.0	900.0	900.0	900.0	1.9	1.9	0.53	29.9	0.3	29.9	26.1	3.82	7.819					
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	0.53	29.9	0.3	29.9	25.6	4.27	6.996					
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	0.53	29.9	0.3	29.9	25.2	4.72	6.329					
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	0.53	29.9	0.3	29.9	24.7	5.17	5.779 CC, ES					
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-146.49	29.9	0.3	31.0	25.4	5.59	5.535 SF					
1,400.0	1,399.9	1,399.9	1,399.9	3.0	3.0	-150.09	29.9	0.3	34.3	28.3	6.00	5.721					
1,500.0	1,499.7	1,499.7	1,499.7	3.2	3.3	-154.72	29.9	0.3	40.1	33.7	6.40	6.264					
1,600.0	1,599.3	1,600.2	1,600.2	3.4	3.5	-160.34	28.7	-0.3	47.5	40.8	6.78	7.009					
1,700.0	1,698.6	1,700.7	1,700.6	3.6	3.6	-167.05	25.1	-2.0	56.0	48.9	7.14	7.847					
1,800.0	1,797.5	1,800.9	1,800.6	3.8	3.8	-174.06	19.2	-4.9	66.1	58.6	7.50	8.809					
1,900.0	1,896.1	1,900.8	1,900.0	4.1	4.0	179.14	11.0	-8.9	78.2	70.3	7.88	9.925					
1,994.0	1,988.3	1,994.3	1,992.9	4.4	4.2	173.23	1.2	-13.7	91.7	83.4	8.25	11.111					
2,000.0	1,994.2	2,000.3	1,998.8	4.4	4.2	172.88	0.5	-14.1	92.6	84.3	8.28	11.189					
2,100.0	2,092.0	2,099.5	2,097.0	4.8	4.5	167.18	-12.3	-20.3	108.1	99.4	8.74	12.371					
2,200.0	2,189.9	2,198.4	2,194.5	5.1	4.7	161.78	-27.3	-27.6	123.9	114.6	9.26	13.382					
2,300.0	2,287.7	2,296.9	2,291.1	5.5	5.0	156.60	-44.6	-36.0	140.1	130.3	9.84	14.247					
2,400.0	2,385.6	2,394.8	2,386.7	5.9	5.3	151.67	-63.8	-45.4	157.2	146.7	10.48	14.999					
2,500.0	2,483.4	2,492.5	2,481.9	6.3	5.7	147.54	-83.4	-54.9	175.2	164.0	11.17	15.687					
2,600.0	2,581.3	2,590.1	2,577.1	6.7	6.0	144.19	-103.0	-64.5	193.9	182.0	11.88	16.317					
2,700.0	2,679.1	2,687.8	2,672.2	7.1	6.4	141.44	-122.6	-74.1	213.1	200.5	12.62	16.890					
2,800.0	2,776.9	2,785.4	2,767.4	7.5	6.8	139.13	-142.2	-83.6	232.8	219.4	13.37	17.407					
2,900.0	2,874.8	2,883.1	2,862.6	8.0	7.2	137.19	-161.8	-93.2	252.7	238.6	14.14	17.875					
3,000.0	2,972.6	2,980.7	2,957.8	8.4	7.6	135.53	-181.4	-102.8	272.9	258.0	14.91	18.298					
3,100.0	3,070.5	3,078.4	3,053.0	8.8	8.0	134.10	-201.0	-112.3	293.3	277.6	15.70	18.681					
3,200.0	3,168.3	3,176.1	3,148.2	9.3	8.4	132.86	-220.6	-121.9	313.8	297.3	16.49	19.029					
3,300.0	3,266.2	3,273.7	3,243.4	9.7	8.9	131.76	-240.2	-131.4	334.5	317.2	17.29	19.346					
3,400.0	3,364.0	3,371.4	3,338.6	10.1	9.3	130.80	-259.8	-141.0	355.2	337.1	18.09	19.635					
3,500.0	3,461.9	3,469.0	3,433.8	10.6	9.7	129.94	-279.5	-150.6	376.1	357.2	18.90	19.899					
3,600.0	3,559.7	3,566.7	3,528.9	11.0	10.2	129.17	-299.1	-160.1	397.0	377.3	19.71	20.142					
3,700.0	3,657.6	3,664.3	3,624.1	11.5	10.6	128.48	-318.7	-169.7	418.0	397.5	20.52	20.365					
3,800.0	3,755.4	3,762.0	3,719.3	11.9	11.1	127.85	-338.3	-179.3	439.0	417.7	21.34	20.571					
3,900.0	3,853.3	3,859.6	3,814.5	12.4	11.5	127.29	-357.9	-188.8	460.1	437.9	22.16	20.762					
4,000.0	3,951.1	3,957.3	3,909.7	12.8	11.9	126.77	-377.5	-198.4	481.2	458.2	22.98	20.939					
4,100.0	4,049.0	4,055.0	4,004.9	13.3	12.4	126.29	-397.1	-207.9	502.4	478.6	23.81	21.103					
4,200.0	4,146.8	4,152.6	4,100.1	13.7	12.9	125.85	-416.7	-217.5	523.5	498.9	24.63	21.256					
4,300.0	4,244.7	4,250.3	4,195.3	14.2	13.3	125.45	-436.3	-227.1	544.8	519.3	25.46	21.398					
4,400.0	4,342.5	4,347.9	4,290.4	14.6	13.8	125.08	-455.9	-236.6	566.0	539.7	26.29	21.532					
4,500.0	4,440.4	4,445.6	4,385.6	15.1	14.2	124.73	-475.5	-246.2	587.2	560.1	27.12	21.657					
4,600.0	4,538.2	4,543.2	4,480.8	15.5	14.7	124.41	-495.1	-255.8	608.5	580.6	27.95	21.774					
4,700.0	4,636.0	4,640.9	4,576.0	16.0	15.1	124.11	-514.8	-265.3	629.8	601.0	28.78	21.884					
4,800.0	4,733.9	4,738.6	4,671.2	16.4	15.6	123.83	-534.4	-274.9	651.1	621.5	29.61	21.988					
4,900.0	4,831.7	4,836.2	4,766.4	16.9	16.1	123.57	-554.0	-284.4	672.4	642.0	30.45	22.086					

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 Dunn 7L-301
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-10-15)	Offset TVD Reference:	Offset Datum

Offset Design Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 7L-221 - Wellbore #1 - Plan #1 (9-10-15)												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 (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	
5,000.0	4,929.6	4,933.9	4,861.6	17.4	16.5	123.32	-573.6	-294.0	693.8	662.5	31.28	22.178	
5,100.0	5,027.4	5,031.5	4,956.8	17.8	17.0	123.09	-593.2	-303.6	715.1	683.0	32.12	22.266	
5,200.0	5,125.3	5,129.2	5,051.9	18.3	17.4	122.87	-612.8	-313.1	736.5	703.5	32.95	22.349	
5,300.0	5,223.1	5,226.8	5,147.1	18.7	17.9	122.67	-632.4	-322.7	757.8	724.0	33.79	22.428	
5,387.6	5,308.8	5,322.4	5,240.5	19.1	18.3	122.56	-650.5	-331.5	776.1	741.6	34.50	22.498	
5,400.0	5,321.0	5,336.3	5,254.2	19.2	18.3	122.60	-653.0	-332.7	778.6	744.0	34.59	22.510	
5,500.0	5,419.3	5,448.6	5,364.8	19.5	18.7	122.93	-670.2	-341.1	796.4	761.2	35.24	22.601	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7L-301
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-10-15)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	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	0.71	45.2	0.6	45.2				
100.0	100.0	100.0	100.0	0.1	0.1	0.71	45.2	0.6	45.2	45.0	0.22	201.020	
200.0	200.0	200.0	200.0	0.3	0.3	0.71	45.2	0.6	45.2	44.5	0.67	67.002	
300.0	300.0	300.0	300.0	0.6	0.6	0.71	45.2	0.6	45.2	44.1	1.12	40.201	
400.0	400.0	400.0	400.0	0.8	0.8	0.71	45.2	0.6	45.2	43.6	1.57	28.715	
500.0	500.0	500.0	500.0	1.0	1.0	0.71	45.2	0.6	45.2	43.2	2.02	22.334	
600.0	600.0	600.0	600.0	1.2	1.2	0.71	45.2	0.6	45.2	42.7	2.47	18.273	
700.0	700.0	700.0	700.0	1.5	1.5	0.71	45.2	0.6	45.2	42.3	2.92	15.462	
800.0	800.0	800.0	800.0	1.7	1.7	0.71	45.2	0.6	45.2	41.8	3.37	13.400	
900.0	900.0	900.0	900.0	1.9	1.9	0.71	45.2	0.6	45.2	41.4	3.82	11.824	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	0.71	45.2	0.6	45.2	40.9	4.27	10.579	
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	0.71	45.2	0.6	45.2	40.5	4.72	9.572	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	0.71	45.2	0.6	45.2	40.0	5.17	8.739 CC, ES	
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-145.87	45.2	0.6	46.3	40.7	5.59	8.270	
1,400.0	1,399.9	1,399.9	1,399.9	3.0	3.0	-148.39	45.2	0.6	49.6	43.6	6.00	8.265 SF	
1,500.0	1,499.7	1,499.7	1,499.7	3.2	3.3	-151.91	45.2	0.6	55.2	48.8	6.40	8.626	
1,600.0	1,599.3	1,599.3	1,599.3	3.4	3.5	-155.75	45.2	0.6	63.5	56.6	6.81	9.315	
1,700.0	1,698.6	1,699.7	1,699.7	3.6	3.7	-160.25	44.2	-0.2	73.6	66.4	7.20	10.219	
1,800.0	1,797.5	1,800.0	1,799.9	3.8	3.9	-165.63	41.1	-2.7	85.1	77.5	7.56	11.257	
1,900.0	1,896.1	1,899.8	1,899.5	4.1	4.0	-171.31	35.9	-6.7	98.6	90.6	7.92	12.440	
1,994.0	1,988.3	1,993.1	1,992.4	4.4	4.2	-176.58	29.3	-11.9	113.4	105.1	8.27	13.703	
2,000.0	1,994.2	1,999.1	1,998.4	4.4	4.2	-176.91	28.8	-12.3	114.4	106.1	8.30	13.786	
2,100.0	2,092.0	2,098.0	2,096.6	4.8	4.5	177.81	19.7	-19.4	131.5	122.8	8.72	15.073	
2,200.0	2,189.9	2,196.5	2,194.1	5.1	4.7	172.80	8.6	-28.1	148.9	139.7	9.18	16.217	
2,300.0	2,287.7	2,294.6	2,290.8	5.5	4.9	168.00	-4.4	-38.3	166.9	157.2	9.69	17.233	
2,400.0	2,385.6	2,392.1	2,386.4	5.9	5.2	163.40	-19.2	-49.9	185.8	175.5	10.24	18.138	
2,500.0	2,483.4	2,488.8	2,480.8	6.3	5.5	158.98	-35.8	-63.0	205.7	194.8	10.86	18.947	
2,600.0	2,581.3	2,584.8	2,573.9	6.7	5.9	154.76	-54.2	-77.3	226.9	215.4	11.53	19.685	
2,700.0	2,679.1	2,680.2	2,666.0	7.1	6.3	150.76	-74.1	-93.0	249.6	237.3	12.25	20.369	
2,800.0	2,776.9	2,776.1	2,758.3	7.5	6.7	147.32	-94.4	-108.9	273.3	260.3	13.01	21.006	
2,900.0	2,874.8	2,872.0	2,850.7	8.0	7.1	144.42	-114.8	-124.9	297.9	284.1	13.79	21.603	
3,000.0	2,972.6	2,967.9	2,943.0	8.4	7.6	141.96	-135.1	-140.8	323.1	308.5	14.58	22.160	
3,100.0	3,070.5	3,063.9	3,035.4	8.8	8.0	139.86	-155.5	-156.8	348.7	333.3	15.38	22.676	
3,200.0	3,168.3	3,159.8	3,127.7	9.3	8.5	138.04	-175.8	-172.7	374.8	358.6	16.19	23.155	
3,300.0	3,266.2	3,255.7	3,220.1	9.7	9.0	136.46	-196.1	-188.7	401.1	384.1	17.00	23.599	
3,400.0	3,364.0	3,351.6	3,312.4	10.1	9.5	135.07	-216.5	-204.7	427.7	409.9	17.81	24.010	
3,500.0	3,461.9	3,447.5	3,404.8	10.6	10.0	133.84	-236.8	-220.6	454.6	435.9	18.64	24.392	
3,600.0	3,559.7	3,543.4	3,497.1	11.0	10.5	132.75	-257.2	-236.6	481.6	462.1	19.46	24.746	
3,700.0	3,657.6	3,639.3	3,589.5	11.5	11.0	131.77	-277.5	-252.5	508.7	488.4	20.29	25.076	
3,800.0	3,755.4	3,735.2	3,681.8	11.9	11.5	130.90	-297.9	-268.5	536.0	514.8	21.11	25.383	
3,900.0	3,853.3	3,831.1	3,774.2	12.4	12.0	130.10	-318.2	-284.4	563.3	541.4	21.95	25.669	
4,000.0	3,951.1	3,927.0	3,866.5	12.8	12.5	129.38	-338.5	-300.4	590.8	568.0	22.78	25.936	
4,100.0	4,049.0	4,022.9	3,958.9	13.3	13.0	128.73	-358.9	-316.3	618.3	594.7	23.61	26.187	
4,200.0	4,146.8	4,118.8	4,051.2	13.7	13.5	128.13	-379.2	-332.3	645.9	621.5	24.45	26.421	
4,300.0	4,244.7	4,214.7	4,143.6	14.2	14.0	127.57	-399.6	-348.3	673.6	648.3	25.28	26.641	
4,400.0	4,342.5	4,310.6	4,235.9	14.6	14.6	127.07	-419.9	-364.2	701.3	675.2	26.12	26.848	
4,500.0	4,440.4	4,406.5	4,328.3	15.1	15.1	126.60	-440.3	-380.2	729.1	702.1	26.96	27.043	
4,600.0	4,538.2	4,502.4	4,420.6	15.5	15.6	126.16	-460.6	-396.1	756.9	729.1	27.80	27.227	
4,700.0	4,636.0	4,598.3	4,513.0	16.0	16.1	125.76	-481.0	-412.1	784.7	756.1	28.64	27.401	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7L-301
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-10-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	1.07	14.9	0.3	14.9	14.9	0.00	N/A		
100.0	100.0	100.0	100.0	0.1	0.1	1.07	14.9	0.3	14.9	14.7	0.22	66.491		
200.0	200.0	200.0	200.0	0.3	0.3	1.07	14.9	0.3	14.9	14.3	0.67	22.162		
300.0	300.0	300.0	300.0	0.6	0.6	1.07	14.9	0.3	14.9	13.8	1.12	13.297		
400.0	400.0	400.0	400.0	0.8	0.8	1.07	14.9	0.3	14.9	13.4	1.57	9.498		
500.0	500.0	500.0	500.0	1.0	1.0	1.07	14.9	0.3	14.9	12.9	2.02	7.387		
600.0	600.0	600.0	600.0	1.2	1.2	1.07	14.9	0.3	14.9	12.5	2.47	6.044		
700.0	700.0	700.0	700.0	1.5	1.5	1.07	14.9	0.3	14.9	12.0	2.92	5.114		
800.0	800.0	800.0	800.0	1.7	1.7	1.07	14.9	0.3	14.9	11.6	3.37	4.432		
900.0	900.0	900.0	900.0	1.9	1.9	1.07	14.9	0.3	14.9	11.1	3.82	3.911		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	1.07	14.9	0.3	14.9	10.7	4.27	3.499		
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	1.07	14.9	0.3	14.9	10.2	4.72	3.166		
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	1.07	14.9	0.3	14.9	9.8	5.17	2.891 CC		
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-147.29	14.9	0.3	16.0	10.4	5.59	2.866		
1,400.0	1,399.9	1,399.9	1,399.9	3.0	3.0	-153.53	14.9	0.3	19.4	13.5	6.00	3.244		
1,500.0	1,499.7	1,500.3	1,500.3	3.2	3.2	-159.87	13.7	0.7	24.2	17.8	6.37	3.792		
1,600.0	1,599.3	1,600.9	1,600.8	3.4	3.4	-165.51	9.9	2.0	29.0	22.2	6.73	4.306		
1,700.0	1,698.6	1,701.5	1,701.2	3.6	3.6	-170.73	3.7	4.1	33.9	26.9	7.09	4.788		
1,800.0	1,797.5	1,802.3	1,801.6	3.8	3.8	-175.64	-5.1	7.1	39.1	31.7	7.46	5.248		
1,900.0	1,896.1	1,903.2	1,901.7	4.1	4.0	179.69	-16.4	10.9	44.6	36.8	7.83	5.696		
1,994.0	1,988.3	1,998.1	1,995.6	4.4	4.2	175.53	-29.3	15.3	50.1	41.9	8.20	6.108		
2,000.0	1,994.2	2,004.1	2,001.6	4.4	4.2	175.26	-30.2	15.6	50.4	42.2	8.23	6.132		
2,100.0	2,092.0	2,105.2	2,101.2	4.8	4.5	170.83	-46.5	21.1	55.2	46.6	8.68	6.367		
2,200.0	2,189.9	2,205.8	2,199.9	5.1	4.8	166.04	-65.0	27.4	58.2	49.0	9.17	6.350		
2,300.0	2,287.7	2,305.7	2,297.8	5.5	5.1	161.57	-83.7	33.8	61.2	51.5	9.71	6.307		
2,400.0	2,385.6	2,405.5	2,395.7	5.9	5.5	157.53	-102.4	40.1	64.6	54.3	10.29	6.272		
2,500.0	2,483.4	2,505.4	2,493.5	6.3	5.8	153.91	-121.1	46.5	68.2	57.3	10.93	6.242		
2,600.0	2,581.3	2,605.2	2,591.4	6.7	6.2	150.66	-139.8	52.8	72.1	60.5	11.60	6.214		
2,700.0	2,679.1	2,705.0	2,689.3	7.1	6.6	147.76	-158.5	59.2	76.2	63.9	12.31	6.187		
2,800.0	2,776.9	2,804.9	2,787.1	7.5	6.9	145.15	-177.3	65.5	80.4	67.4	13.05	6.163		
2,900.0	2,874.8	2,904.7	2,885.0	8.0	7.3	142.81	-196.0	71.9	84.8	71.0	13.81	6.141		
3,000.0	2,972.6	3,004.6	2,982.9	8.4	7.7	140.71	-214.7	78.2	89.4	74.8	14.60	6.121		
3,100.0	3,070.5	3,104.4	3,080.8	8.8	8.1	138.81	-233.4	84.6	94.0	78.6	15.40	6.103		
3,200.0	3,168.3	3,204.3	3,178.6	9.3	8.5	137.09	-252.1	90.9	98.7	82.5	16.22	6.088		
3,300.0	3,266.2	3,304.1	3,276.5	9.7	8.9	135.53	-270.8	97.3	103.6	86.5	17.05	6.074		
3,400.0	3,364.0	3,404.0	3,374.4	10.1	9.4	134.11	-289.5	103.6	108.5	90.6	17.89	6.062		
3,500.0	3,461.9	3,503.8	3,472.2	10.6	9.8	132.81	-308.2	110.0	113.4	94.7	18.74	6.052		
3,600.0	3,559.7	3,603.7	3,570.1	11.0	10.2	131.62	-326.9	116.3	118.4	98.8	19.59	6.044		
3,700.0	3,657.6	3,703.5	3,668.0	11.5	10.6	130.53	-345.6	122.7	123.5	103.0	20.45	6.037		
3,800.0	3,755.4	3,803.4	3,765.9	11.9	11.0	129.53	-364.3	129.0	128.6	107.2	21.32	6.031		
3,900.0	3,853.3	3,903.2	3,863.7	12.4	11.5	128.60	-383.1	135.4	133.7	111.5	22.18	6.026		
4,000.0	3,951.1	4,003.0	3,961.6	12.8	11.9	127.74	-401.8	141.7	138.8	115.8	23.06	6.022		
4,100.0	4,049.0	4,102.9	4,059.5	13.3	12.3	126.94	-420.5	148.1	144.0	120.1	23.93	6.018		
4,200.0	4,146.8	4,202.7	4,157.3	13.7	12.7	126.20	-439.2	154.4	149.2	124.4	24.81	6.016		
4,300.0	4,244.7	4,302.6	4,255.2	14.2	13.2	125.50	-457.9	160.8	154.5	128.8	25.69	6.014		
4,400.0	4,342.5	4,402.4	4,353.1	14.6	13.6	124.86	-476.6	167.1	159.7	133.2	26.57	6.012		
4,500.0	4,440.4	4,502.3	4,451.0	15.1	14.0	124.25	-495.3	173.5	165.0	137.6	27.45	6.011		
4,600.0	4,538.2	4,602.1	4,548.8	15.5	14.5	123.68	-514.0	179.9	170.3	142.0	28.33	6.011		
4,700.0	4,636.0	4,702.0	4,646.7	16.0	14.9	123.15	-532.7	186.2	175.6	146.4	29.22	6.010		
4,800.0	4,733.9	4,801.8	4,744.6	16.4	15.3	122.65	-551.4	192.6	180.9	150.8	30.11	6.010		
4,900.0	4,831.7	4,901.7	4,842.4	16.9	15.8	122.17	-570.1	198.9	186.3	155.3	30.99	6.011		

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 Dunn 7L-301
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-10-15)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
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
5,000.0	4,929.6	5,001.5	4,940.3	17.4	16.2	121.73	-588.8	205.3	191.6	159.8	31.88	6.011	
5,100.0	5,027.4	5,101.4	5,038.2	17.8	16.6	121.30	-607.6	211.6	197.0	164.2	32.77	6.012	
5,200.0	5,125.3	5,201.2	5,136.1	18.3	17.1	120.90	-626.3	218.0	202.4	168.7	33.66	6.012	
5,300.0	5,223.1	5,300.2	5,233.1	18.7	17.5	120.53	-644.8	224.3	207.8	173.2	34.54	6.014	
5,387.6	5,308.8	5,386.8	5,318.2	19.1	17.8	120.55	-659.8	229.4	212.8	177.6	35.21	6.044	
5,400.0	5,321.0	5,399.0	5,330.2	19.2	17.9	120.62	-661.7	230.0	213.6	178.3	35.29	6.051	
5,500.0	5,419.3	5,496.8	5,427.0	19.5	18.1	121.16	-675.4	234.6	219.2	183.4	35.79	6.125	
5,600.0	5,518.1	5,594.6	5,524.2	19.8	18.3	121.74	-685.9	238.2	224.0	187.8	36.21	6.186	
5,700.0	5,617.4	5,692.3	5,621.5	20.0	18.5	122.36	-693.2	240.7	227.9	191.4	36.55	6.235	
5,800.0	5,717.1	5,789.9	5,719.1	20.2	18.7	123.03	-697.4	242.1	231.0	194.2	36.81	6.274	
5,900.0	5,817.0	5,887.8	5,817.0	20.4	18.9	123.73	-698.5	242.5	233.2	196.2	37.00	6.301	
5,983.0	5,900.0	5,970.9	5,900.0	20.5	19.0	-90.36	-698.5	242.5	233.8	196.7	37.18	6.290	
6,000.0	5,917.0	5,987.8	5,917.0	20.5	19.0	-90.36	-698.5	242.5	233.8	196.6	37.22	6.282	
6,100.0	6,017.0	6,087.9	6,017.0	20.6	19.1	-90.06	-697.2	242.5	233.8	196.4	37.42	6.249	
6,104.2	6,021.1	6,092.0	6,021.1	20.6	19.1	-90.00	-697.0	242.5	233.8	196.4	37.42	6.249	
6,136.9	6,053.8	6,124.6	6,053.6	20.7	19.1	-89.34	-694.3	242.5	233.9	196.5	37.37	6.257	
6,150.0	6,067.0	6,137.6	6,066.5	20.7	19.1	-89.00	-692.8	242.5	233.9	196.5	37.34	6.263	
6,200.0	6,116.9	6,186.9	6,115.2	20.7	19.1	-87.74	-685.3	242.5	234.0	196.8	37.17	6.296	
6,250.0	6,166.6	6,235.8	6,163.0	20.7	19.1	-86.50	-674.7	242.5	234.3	197.3	36.94	6.342	
6,300.0	6,215.7	6,284.5	6,209.7	20.7	19.0	-85.27	-661.2	242.5	234.6	198.0	36.65	6.402	
6,350.0	6,264.2	6,332.9	6,255.2	20.7	18.9	-84.07	-644.8	242.5	235.1	198.8	36.31	6.475	
6,400.0	6,311.8	6,381.0	6,299.3	20.6	18.8	-82.91	-625.7	242.5	235.7	199.7	35.93	6.559	
6,450.0	6,358.3	6,428.8	6,341.9	20.5	18.7	-81.78	-604.0	242.5	236.3	200.8	35.52	6.652	
6,500.0	6,403.4	6,476.3	6,382.8	20.4	18.5	-80.69	-579.8	242.5	237.0	201.9	35.08	6.755	
6,550.0	6,447.1	6,523.6	6,422.0	20.3	18.4	-79.65	-553.3	242.5	237.7	203.1	34.63	6.864	
6,600.0	6,489.1	6,570.6	6,459.2	20.1	18.2	-78.66	-524.5	242.5	238.5	204.4	34.18	6.979	
6,650.0	6,529.2	6,617.5	6,494.5	20.0	18.1	-77.72	-493.7	242.5	239.3	205.6	33.73	7.097	
6,700.0	6,567.3	6,664.1	6,527.6	19.8	17.9	-76.83	-460.9	242.5	240.2	206.9	33.29	7.215	
6,750.0	6,603.2	6,710.5	6,558.5	19.6	17.8	-76.01	-426.3	242.5	241.0	208.1	32.88	7.331	
6,800.0	6,636.8	6,756.8	6,587.2	19.4	17.6	-75.24	-390.0	242.5	241.8	209.3	32.50	7.441	
6,850.0	6,667.8	6,802.9	6,613.6	19.3	17.5	-74.54	-352.2	242.5	242.6	210.5	32.17	7.543	
6,900.0	6,696.2	6,850.0	6,638.1	19.1	17.4	-73.88	-312.0	242.5	243.4	211.5	31.89	7.633	
6,950.0	6,721.9	6,894.6	6,659.0	18.9	17.3	-73.32	-272.6	242.5	244.1	212.4	31.69	7.703	
7,000.0	6,744.7	6,940.3	6,678.0	18.8	17.2	-72.81	-231.0	242.5	244.8	213.2	31.56	7.756	
7,050.0	6,764.6	6,985.9	6,694.4	18.6	17.2	-72.37	-188.5	242.5	245.4	213.9	31.51	7.787	
7,100.0	6,781.4	7,031.4	6,708.3	18.5	17.2	-71.99	-145.2	242.5	245.9	214.3	31.55	7.793	
7,150.0	6,795.0	7,076.8	6,719.5	18.4	17.2	-71.68	-101.2	242.5	246.3	214.6	31.69	7.774	
7,200.0	6,805.6	7,122.1	6,728.0	18.3	17.3	-71.44	-56.6	242.5	246.7	214.8	31.91	7.729	
7,250.0	6,812.9	7,167.4	6,734.0	18.2	17.4	-71.27	-11.7	242.5	246.9	214.7	32.24	7.660	
7,300.0	6,816.9	7,212.7	6,737.2	18.2	17.5	-71.16	33.4	242.5	247.1	214.4	32.65	7.568	
7,338.9	6,817.8	7,248.1	6,737.9	18.3	17.7	-71.13	68.8	242.5	247.1	214.1	33.03	7.481	
7,400.0	6,817.6	7,309.3	6,737.8	18.5	18.0	-71.15	129.9	242.5	247.1	213.4	33.72	7.328	
7,500.0	6,817.4	7,409.3	6,737.6	19.1	18.7	-71.17	229.9	242.5	247.1	212.0	35.11	7.037	
7,600.0	6,817.1	7,509.3	6,737.5	20.0	19.6	-71.19	329.9	242.5	247.0	210.2	36.82	6.710	
7,700.0	6,816.8	7,609.3	6,737.3	21.1	20.7	-71.21	429.9	242.5	247.0	208.2	38.80	6.366	
7,800.0	6,816.6	7,709.3	6,737.1	22.3	21.8	-71.24	529.9	242.5	247.0	206.0	41.01	6.022	
7,900.0	6,816.3	7,809.3	6,737.0	23.6	23.1	-71.26	629.9	242.5	246.9	203.5	43.42	5.686	
8,000.0	6,816.1	7,909.3	6,736.8	24.9	24.5	-71.28	729.9	242.5	246.9	200.9	46.00	5.367	
8,100.0	6,815.8	8,009.3	6,736.7	26.4	25.9	-71.31	829.9	242.5	246.9	198.1	48.72	5.066	
8,200.0	6,815.5	8,109.3	6,736.5	27.9	27.4	-71.33	929.9	242.5	246.8	195.3	51.56	4.787	
8,300.0	6,815.3	8,209.3	6,736.4	29.4	28.9	-71.35	1,029.9	242.5	246.8	192.3	54.50	4.528	

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 Dunn 7L-301
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-10-15)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 7L-201 - Wellbore #1 - Plan #1 (9-10-15)													
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
8,400.0	6,815.0	8,309.3	6,736.2	31.0	30.5	-71.38	1,129.9	242.5	246.8	189.2	57.53	4.289	
8,500.0	6,814.7	8,409.3	6,736.0	32.6	32.1	-71.40	1,229.9	242.5	246.7	186.1	60.63	4.070	
8,600.0	6,814.5	8,509.3	6,735.9	34.2	33.7	-71.42	1,329.9	242.5	246.7	182.9	63.78	3.868	
8,700.0	6,814.2	8,609.3	6,735.7	35.9	35.4	-71.44	1,429.9	242.5	246.7	179.7	67.00	3.682	
8,800.0	6,814.0	8,709.3	6,735.6	37.6	37.1	-71.47	1,529.9	242.5	246.6	176.4	70.26	3.510	
8,900.0	6,813.7	8,809.3	6,735.4	39.3	38.8	-71.49	1,629.9	242.5	246.6	173.0	73.56	3.352	
9,000.0	6,813.4	8,909.3	6,735.3	41.0	40.6	-71.51	1,729.9	242.5	246.6	169.7	76.89	3.207	
9,100.0	6,813.2	9,009.3	6,735.1	42.7	42.3	-71.54	1,829.9	242.5	246.5	166.3	80.26	3.072	
9,200.0	6,812.9	9,109.3	6,734.9	44.5	44.1	-71.56	1,929.9	242.5	246.5	162.8	83.65	2.947	
9,300.0	6,812.7	9,209.3	6,734.8	46.3	45.9	-71.58	2,029.9	242.5	246.5	159.4	87.07	2.831	
9,400.0	6,812.4	9,309.3	6,734.6	48.0	47.6	-71.61	2,129.9	242.5	246.4	155.9	90.51	2.723	
9,500.0	6,812.1	9,409.3	6,734.5	49.8	49.4	-71.63	2,229.9	242.5	246.4	152.4	93.96	2.622	
9,600.0	6,811.9	9,509.3	6,734.3	51.6	51.2	-71.65	2,329.9	242.5	246.4	148.9	97.44	2.528	
9,700.0	6,811.6	9,609.3	6,734.2	53.4	53.1	-71.68	2,429.9	242.5	246.3	145.4	100.93	2.441	
9,800.0	6,811.3	9,709.3	6,734.0	55.3	54.9	-71.70	2,529.9	242.5	246.3	141.9	104.43	2.358	
9,900.0	6,811.1	9,809.3	6,733.8	57.1	56.7	-71.72	2,629.9	242.5	246.3	138.3	107.95	2.281	
10,000.0	6,810.8	9,909.3	6,733.7	58.9	58.5	-71.75	2,729.9	242.5	246.2	134.8	111.48	2.209	
10,100.0	6,810.6	10,009.3	6,733.5	60.7	60.4	-71.77	2,829.9	242.5	246.2	131.2	115.02	2.140	
10,200.0	6,810.3	10,109.2	6,733.4	62.6	62.2	-71.79	2,929.9	242.5	246.2	127.6	118.57	2.076	
10,300.0	6,810.0	10,209.2	6,733.2	64.4	64.1	-71.81	3,029.9	242.5	246.1	124.0	122.13	2.015	
10,400.0	6,809.8	10,309.2	6,733.1	66.3	65.9	-71.84	3,129.9	242.5	246.1	120.4	125.70	1.958	
10,500.0	6,809.5	10,409.2	6,732.9	68.1	67.8	-71.86	3,229.9	242.5	246.1	116.8	129.27	1.903	
10,600.0	6,809.2	10,509.2	6,732.7	70.0	69.6	-71.88	3,329.9	242.5	246.0	113.2	132.86	1.852	
10,700.0	6,809.0	10,609.2	6,732.6	71.8	71.5	-71.91	3,429.9	242.5	246.0	109.6	136.44	1.803	
10,800.0	6,808.7	10,709.2	6,732.4	73.7	73.4	-71.93	3,529.9	242.5	246.0	105.9	140.04	1.756	
10,900.0	6,808.5	10,809.2	6,732.3	75.5	75.2	-71.95	3,629.9	242.5	245.9	102.3	143.64	1.712	
11,000.0	6,808.2	10,909.2	6,732.1	77.4	77.1	-71.98	3,729.9	242.5	245.9	98.7	147.25	1.670	
11,100.0	6,807.9	11,009.2	6,732.0	79.3	79.0	-72.00	3,829.9	242.5	245.9	95.0	150.86	1.630	
11,200.0	6,807.7	11,109.2	6,731.8	81.2	80.9	-72.02	3,929.9	242.5	245.8	91.4	154.47	1.591	
11,300.0	6,807.4	11,209.2	6,731.6	83.0	82.7	-72.05	4,029.9	242.5	245.8	87.7	158.10	1.555	
11,400.0	6,807.2	11,309.2	6,731.5	84.9	84.6	-72.07	4,129.9	242.5	245.8	84.1	161.72	1.520	
11,500.0	6,806.9	11,409.2	6,731.3	86.8	86.5	-72.09	4,229.9	242.5	245.7	80.4	165.35	1.486 Level 3	
11,600.0	6,806.6	11,509.2	6,731.2	88.7	88.4	-72.12	4,329.9	242.5	245.7	76.7	168.98	1.454 Level 3	
11,700.0	6,806.4	11,609.2	6,731.0	90.5	90.3	-72.14	4,429.9	242.5	245.7	73.1	172.62	1.423 Level 3	
11,800.0	6,806.1	11,709.2	6,730.9	92.4	92.2	-72.16	4,529.9	242.5	245.6	69.4	176.26	1.394 Level 3	
11,900.0	6,805.8	11,809.2	6,730.7	94.3	94.0	-72.19	4,629.9	242.5	245.6	65.7	179.90	1.365 Level 3	
12,000.0	6,805.6	11,909.2	6,730.5	96.2	95.9	-72.21	4,729.9	242.5	245.6	62.0	183.55	1.338 Level 3	
12,100.0	6,805.3	12,009.2	6,730.4	98.1	97.8	-72.23	4,829.9	242.5	245.6	58.4	187.20	1.312 Level 3	
12,200.0	6,805.1	12,109.2	6,730.2	100.0	99.7	-72.26	4,929.9	242.5	245.5	54.7	190.85	1.286 Level 3	
12,300.0	6,804.8	12,209.2	6,730.1	101.9	101.6	-72.28	5,029.9	242.5	245.5	51.0	194.51	1.262 Level 3	
12,400.0	6,804.5	12,309.2	6,729.9	103.7	103.5	-72.30	5,129.9	242.5	245.5	47.3	198.17	1.239 Level 2	
12,500.0	6,804.3	12,409.2	6,729.8	105.6	105.4	-72.33	5,229.9	242.5	245.4	43.6	201.83	1.216 Level 2	
12,600.0	6,804.0	12,509.2	6,729.6	107.5	107.3	-72.35	5,329.9	242.5	245.4	39.9	205.49	1.194 Level 2	
12,700.0	6,803.8	12,609.2	6,729.4	109.4	109.2	-72.37	5,429.9	242.5	245.4	36.2	209.15	1.173 Level 2	
12,800.0	6,803.5	12,709.2	6,729.3	111.3	111.1	-72.40	5,529.9	242.5	245.3	32.5	212.82	1.153 Level 2	
12,900.0	6,803.2	12,809.2	6,729.1	113.2	113.0	-72.42	5,629.9	242.5	245.3	28.8	216.49	1.133 Level 2	
13,000.0	6,803.0	12,909.2	6,729.0	115.1	114.9	-72.44	5,729.9	242.5	245.3	25.1	220.16	1.114 Level 2	
13,100.0	6,802.7	13,009.2	6,728.8	117.0	116.8	-72.47	5,829.9	242.5	245.2	21.4	223.84	1.096 Level 2	
13,200.0	6,802.4	13,109.2	6,728.7	118.9	118.7	-72.49	5,929.9	242.5	245.2	17.7	227.51	1.078 Level 2	
13,300.0	6,802.2	13,209.2	6,728.5	120.8	120.6	-72.51	6,029.9	242.5	245.2	14.0	231.19	1.060 Level 2	
13,400.0	6,801.9	13,309.2	6,728.3	122.7	122.5	-72.54	6,129.9	242.5	245.1	10.3	234.87	1.044 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 Dunn 7L-301
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-10-15)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 7L-201 - Wellbore #1 - Plan #1 (9-10-15)												Offset Well Error:	0.0 ft
Survey Program: 0-MWD													
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
13,500.0	6,801.7	13,409.2	6,728.2	124.6	124.4	-72.56	6,229.9	242.5	245.1	6.6	238.55	1.027	Level 2
13,600.0	6,801.4	13,509.2	6,728.0	126.5	126.3	-72.58	6,329.9	242.5	245.1	2.8	242.24	1.012	Level 2
13,700.0	6,801.1	13,609.2	6,727.9	128.4	128.2	-72.61	6,429.9	242.5	245.0	-0.9	245.92	0.996	Level 1
13,800.0	6,800.9	13,709.2	6,727.7	130.3	130.1	-72.63	6,529.9	242.5	245.0	-4.6	249.61	0.982	Level 1
13,900.0	6,800.6	13,809.2	6,727.6	132.2	132.0	-72.65	6,629.9	242.5	245.0	-8.3	253.30	0.967	Level 1
14,000.0	6,800.3	13,909.2	6,727.4	134.1	133.9	-72.68	6,729.9	242.5	245.0	-12.0	256.99	0.953	Level 1
14,100.0	6,800.1	14,009.2	6,727.2	136.0	135.8	-72.70	6,829.9	242.5	244.9	-15.8	260.68	0.940	Level 1
14,200.0	6,799.8	14,109.2	6,727.1	137.9	137.7	-72.72	6,929.9	242.5	244.9	-19.5	264.37	0.926	Level 1
14,300.0	6,799.6	14,209.2	6,726.9	139.8	139.6	-72.75	7,029.9	242.5	244.9	-23.2	268.07	0.913	Level 1
14,400.0	6,799.3	14,309.2	6,726.8	141.7	141.5	-72.77	7,129.9	242.5	244.8	-26.9	271.77	0.901	Level 1
14,500.0	6,799.0	14,409.2	6,726.6	143.6	143.4	-72.79	7,229.9	242.5	244.8	-30.7	275.46	0.889	Level 1
14,600.0	6,798.8	14,509.2	6,726.5	145.5	145.3	-72.82	7,329.9	242.5	244.8	-34.4	279.16	0.877	Level 1
14,700.0	6,798.5	14,609.2	6,726.3	147.4	147.2	-72.84	7,429.9	242.5	244.7	-38.1	282.86	0.865	Level 1
14,800.0	6,798.3	14,709.2	6,726.1	149.3	149.1	-72.86	7,529.9	242.5	244.7	-41.9	286.57	0.854	Level 1
14,900.0	6,798.0	14,809.2	6,726.0	151.2	151.1	-72.89	7,629.9	242.5	244.7	-45.6	290.27	0.843	Level 1
15,000.0	6,797.7	14,909.2	6,725.8	153.2	153.0	-72.91	7,729.9	242.5	244.6	-49.3	293.97	0.832	Level 1
15,100.0	6,797.5	15,009.2	6,725.7	155.1	154.9	-72.93	7,829.9	242.5	244.6	-53.1	297.68	0.822	Level 1
15,200.0	6,797.2	15,109.2	6,725.5	157.0	156.8	-72.96	7,929.9	242.5	244.6	-56.8	301.39	0.812	Level 1
15,300.0	6,796.9	15,209.2	6,725.4	158.9	158.7	-72.98	8,029.9	242.5	244.5	-60.5	305.10	0.802	Level 1
15,400.0	6,796.7	15,309.2	6,725.2	160.8	160.6	-73.00	8,129.9	242.5	244.5	-64.3	308.81	0.792	Level 1
15,500.0	6,796.4	15,409.2	6,725.0	162.7	162.5	-73.03	8,229.9	242.5	244.5	-68.0	312.52	0.782	Level 1
15,600.0	6,796.2	15,509.2	6,724.9	164.6	164.4	-73.05	8,329.9	242.5	244.5	-71.8	316.23	0.773	Level 1
15,700.0	6,795.9	15,609.2	6,724.7	166.5	166.3	-73.07	8,429.9	242.5	244.4	-75.5	319.94	0.764	Level 1
15,800.0	6,795.6	15,709.2	6,724.6	168.4	168.2	-73.10	8,529.9	242.5	244.4	-79.3	323.66	0.755	Level 1
15,900.0	6,795.4	15,809.2	6,724.4	170.3	170.2	-73.12	8,629.9	242.5	244.4	-83.0	327.37	0.746	Level 1
16,000.0	6,795.1	15,909.2	6,724.3	172.2	172.1	-73.14	8,729.9	242.5	244.3	-86.8	331.09	0.738	Level 1
16,100.0	6,794.8	16,009.2	6,724.1	174.1	174.0	-73.17	8,829.9	242.5	244.3	-90.5	334.81	0.730	Level 1
16,200.0	6,794.6	16,109.2	6,723.9	176.1	175.9	-73.19	8,929.9	242.5	244.3	-94.3	338.53	0.722	Level 1
16,300.0	6,794.3	16,209.2	6,723.8	178.0	177.8	-73.21	9,029.9	242.5	244.2	-98.0	342.25	0.714	Level 1
16,400.0	6,794.1	16,309.2	6,723.6	179.9	179.7	-73.24	9,129.9	242.5	244.2	-101.8	345.97	0.706	Level 1
16,500.0	6,793.8	16,409.2	6,723.5	181.8	181.6	-73.26	9,229.9	242.5	244.2	-105.5	349.69	0.698	Level 1
16,600.0	6,793.5	16,509.2	6,723.3	183.7	183.5	-73.29	9,329.9	242.5	244.2	-109.3	353.42	0.691	Level 1
16,700.0	6,793.3	16,609.2	6,723.2	185.6	185.4	-73.31	9,429.9	242.5	244.1	-113.0	357.14	0.684	Level 1
16,777.1	6,793.1	16,686.3	6,723.0	187.1	186.9	-73.33	9,507.0	242.5	244.1	-115.9	360.01	0.678	Level 1
16,806.3	6,793.0	16,713.4	6,723.0	187.6	187.4	-73.33	9,534.1	242.5	244.1	-117.0	361.06	0.676	Level 1, ES, SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7L-301
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-10-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-180.00	-14.9	0.0	14.9	14.9	0.00	N/A		
100.0	100.0	100.0	100.0	0.1	0.1	-180.00	-14.9	0.0	14.9	14.7	0.22	66.443		
200.0	200.0	200.0	200.0	0.3	0.3	-180.00	-14.9	0.0	14.9	14.3	0.67	22.146		
300.0	300.0	300.0	300.0	0.6	0.6	-180.00	-14.9	0.0	14.9	13.8	1.12	13.288		
400.0	400.0	400.0	400.0	0.8	0.8	-180.00	-14.9	0.0	14.9	13.4	1.57	9.491		
500.0	500.0	500.0	500.0	1.0	1.0	-180.00	-14.9	0.0	14.9	12.9	2.02	7.382 CC		
600.0	600.0	599.7	599.7	1.2	1.2	176.56	-15.8	1.0	15.9	13.4	2.45	6.471		
700.0	700.0	699.3	699.2	1.5	1.4	168.39	-18.5	3.8	18.9	16.0	2.87	6.586		
800.0	800.0	798.6	798.3	1.7	1.6	159.58	-22.9	8.5	24.5	21.2	3.30	7.419		
900.0	900.0	897.5	896.8	1.9	1.8	152.53	-29.0	15.1	32.9	29.1	3.75	8.771		
1,000.0	1,000.0	995.9	994.5	2.1	2.1	147.51	-36.9	23.5	44.1	39.9	4.21	10.464		
1,100.0	1,100.0	1,093.6	1,091.2	2.4	2.4	144.04	-46.4	33.6	57.9	53.3	4.69	12.364		
1,200.0	1,200.0	1,190.5	1,186.8	2.6	2.7	141.62	-57.4	45.5	74.4	69.3	5.18	14.385		
1,300.0	1,300.0	1,286.8	1,281.3	2.8	3.1	-5.81	-70.1	59.0	92.2	86.7	5.50	16.777		
1,400.0	1,399.9	1,384.5	1,376.7	3.0	3.5	-7.28	-84.2	74.1	109.4	103.5	5.91	18.521		
1,500.0	1,499.7	1,483.4	1,473.3	3.2	3.9	-8.54	-98.5	89.5	124.2	117.9	6.33	19.638		
1,600.0	1,599.3	1,582.6	1,570.3	3.4	4.3	-9.71	-112.9	104.9	136.6	129.8	6.75	20.220		
1,700.0	1,698.6	1,682.0	1,667.5	3.6	4.8	-10.87	-127.3	120.3	146.4	139.2	7.19	20.349		
1,800.0	1,797.5	1,781.7	1,764.9	3.8	5.2	-12.09	-141.8	135.8	153.7	146.0	7.64	20.113		
1,900.0	1,896.1	1,881.5	1,862.4	4.1	5.7	-13.41	-156.3	151.3	158.5	150.4	8.10	19.572		
1,994.0	1,988.3	1,975.4	1,954.1	4.4	6.1	-14.81	-169.9	165.9	160.8	152.3	8.54	18.827		
2,000.0	1,994.2	1,981.4	1,960.0	4.4	6.1	-14.90	-170.8	166.8	160.9	152.3	8.57	18.771		
2,100.0	2,092.0	2,081.3	2,057.6	4.8	6.6	-16.47	-185.3	182.4	162.3	153.2	9.08	17.875		
2,200.0	2,189.9	2,181.2	2,155.2	5.1	7.0	-18.01	-199.8	197.9	163.8	154.2	9.60	17.055		
2,300.0	2,287.7	2,281.1	2,252.8	5.5	7.5	-19.52	-214.3	213.4	165.4	155.3	10.15	16.302		
2,400.0	2,385.6	2,381.0	2,350.4	5.9	8.0	-21.00	-228.8	228.9	167.2	156.5	10.71	15.607		
2,500.0	2,483.4	2,480.9	2,448.0	6.3	8.4	-22.45	-243.3	244.5	169.0	157.7	11.29	14.966		
2,600.0	2,581.3	2,580.7	2,545.6	6.7	8.9	-23.87	-257.8	260.0	171.0	159.1	11.90	14.373		
2,700.0	2,679.1	2,680.6	2,643.2	7.1	9.3	-25.26	-272.3	275.5	173.0	160.5	12.52	13.824		
2,800.0	2,776.9	2,780.5	2,740.8	7.5	9.8	-26.61	-286.8	291.0	175.2	162.0	13.16	13.314		
2,900.0	2,874.8	2,880.4	2,838.5	8.0	10.3	-27.92	-301.3	306.5	177.5	163.6	13.82	12.841		
3,000.0	2,972.6	2,980.3	2,936.1	8.4	10.8	-29.21	-315.8	322.1	179.8	165.3	14.50	12.401		
3,100.0	3,070.5	3,080.2	3,033.7	8.8	11.2	-30.46	-330.3	337.6	182.2	167.0	15.20	11.992		
3,200.0	3,168.3	3,180.1	3,131.3	9.3	11.7	-31.68	-344.8	353.1	184.8	168.8	15.91	11.611		
3,300.0	3,266.2	3,280.0	3,228.9	9.7	12.2	-32.86	-359.3	368.6	187.3	170.7	16.64	11.256		
3,400.0	3,364.0	3,379.9	3,326.5	10.1	12.6	-34.01	-373.8	384.1	190.0	172.6	17.39	10.926		
3,500.0	3,461.9	3,479.8	3,424.1	10.6	13.1	-35.13	-388.3	399.7	192.8	174.6	18.15	10.619		
3,600.0	3,559.7	3,579.7	3,521.7	11.0	13.6	-36.22	-402.8	415.2	195.6	176.7	18.93	10.332		
3,700.0	3,657.6	3,679.6	3,619.3	11.5	14.0	-37.27	-417.3	430.7	198.5	178.8	19.72	10.064		
3,800.0	3,755.4	3,779.5	3,716.9	11.9	14.5	-38.30	-431.8	446.2	201.4	180.9	20.53	9.814		
3,900.0	3,853.3	3,879.3	3,814.5	12.4	15.0	-39.29	-446.3	461.8	204.5	183.1	21.34	9.580		
4,000.0	3,951.1	3,979.2	3,912.1	12.8	15.5	-40.26	-460.8	477.3	207.5	185.4	22.17	9.362		
4,100.0	4,049.0	4,079.1	4,009.7	13.3	15.9	-41.19	-475.3	492.8	210.7	187.7	23.01	9.158		
4,200.0	4,146.8	4,179.0	4,107.4	13.7	16.4	-42.10	-489.8	508.3	213.9	190.0	23.85	8.966		
4,300.0	4,244.7	4,278.9	4,205.0	14.2	16.9	-42.99	-504.3	523.8	217.1	192.4	24.71	8.787		
4,400.0	4,342.5	4,378.8	4,302.6	14.6	17.3	-43.84	-518.8	539.4	220.4	194.8	25.57	8.619		
4,500.0	4,440.4	4,478.7	4,400.2	15.1	17.8	-44.67	-533.3	554.9	223.7	197.3	26.44	8.461		
4,600.0	4,538.2	4,578.6	4,497.8	15.5	18.3	-45.48	-547.8	570.4	227.1	199.8	27.32	8.313		
4,700.0	4,636.0	4,678.5	4,595.4	16.0	18.8	-46.26	-562.3	585.9	230.6	202.4	28.21	8.174		
4,800.0	4,733.9	4,778.4	4,693.0	16.4	19.2	-47.02	-576.8	601.5	234.0	204.9	29.10	8.043		
4,900.0	4,831.7	4,878.3	4,790.6	16.9	19.7	-47.76	-591.3	617.0	237.5	207.5	29.99	7.920		

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 Dunn 7L-301
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-10-15)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
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
5,000.0	4,929.6	4,978.2	4,888.2	17.4	20.2	-48.48	-605.8	632.5	241.1	210.2	30.90	7.804	
5,100.0	5,027.4	5,078.1	4,985.8	17.8	20.7	-49.17	-620.3	648.0	244.7	212.9	31.80	7.694	
5,200.0	5,125.3	5,177.9	5,083.4	18.3	21.1	-49.85	-634.8	663.5	248.3	215.6	32.71	7.591	
5,300.0	5,223.1	5,277.8	5,181.0	18.7	21.6	-50.50	-649.4	679.1	252.0	218.3	33.63	7.493	
5,387.6	5,308.8	5,371.1	5,272.4	19.1	21.9	-51.27	-662.1	692.7	254.3	219.9	34.42	7.389	
5,400.0	5,321.0	5,384.4	5,285.5	19.2	22.0	-51.41	-663.7	694.5	254.5	220.0	34.53	7.370	
5,500.0	5,419.3	5,491.7	5,391.3	19.5	22.3	-52.48	-675.5	707.1	255.5	220.2	35.31	7.236	
5,600.0	5,518.1	5,598.9	5,497.7	19.8	22.5	-53.45	-684.6	716.8	255.9	219.9	36.01	7.106	
5,700.0	5,617.4	5,706.0	5,604.4	20.0	22.7	-54.32	-691.0	723.6	256.6	219.0	36.62	6.979	
5,800.0	5,717.1	5,813.0	5,711.3	20.2	22.9	-55.09	-694.6	727.5	254.6	217.4	37.14	6.854	
5,900.0	5,817.0	5,918.7	5,817.0	20.4	23.0	-55.77	-695.5	728.5	252.9	215.3	37.58	6.729	
5,983.0	5,900.0	6,001.7	5,900.0	20.5	23.1	89.67	-695.5	728.5	252.2	214.4	37.83	6.666	
6,000.0	5,917.0	6,018.7	5,917.0	20.5	23.1	89.67	-695.5	728.5	252.2	214.3	37.88	6.659	
6,050.0	5,967.0	6,068.7	5,967.0	20.6	23.2	89.67	-695.5	728.5	252.2	214.2	38.00	6.637	
6,100.0	6,017.0	6,118.6	6,016.8	20.6	23.2	89.39	-694.3	728.5	252.2	214.0	38.18	6.606	
6,136.9	6,053.8	6,155.1	6,053.3	20.7	23.3	88.73	-691.4	728.5	252.3	213.8	38.41	6.568	
6,150.0	6,067.0	6,168.1	6,066.1	20.7	23.3	88.42	-689.9	728.5	252.3	213.8	38.50	6.553	
6,200.0	6,116.9	6,217.2	6,114.7	20.7	23.3	87.26	-682.5	728.5	252.5	213.7	38.81	6.506	
6,250.0	6,166.6	6,266.0	6,162.3	20.7	23.2	86.11	-671.9	728.5	252.8	213.7	39.05	6.474	
6,300.0	6,215.7	6,314.5	6,208.9	20.7	23.2	84.99	-658.5	728.5	253.2	214.0	39.21	6.457	
6,350.0	6,264.2	6,362.7	6,254.3	20.7	23.1	83.89	-642.2	728.5	253.6	214.4	39.29	6.455	
6,400.0	6,311.8	6,410.6	6,298.3	20.6	23.0	82.83	-623.3	728.5	254.2	214.9	39.30	6.468	
6,450.0	6,358.3	6,458.3	6,340.7	20.5	22.9	81.80	-601.7	728.5	254.8	215.6	39.23	6.495	
6,500.0	6,403.4	6,505.7	6,381.6	20.4	22.8	80.81	-577.7	728.5	255.5	216.4	39.09	6.536	
6,550.0	6,447.1	6,552.8	6,420.7	20.3	22.7	79.87	-551.3	728.5	256.2	217.3	38.88	6.590	
6,600.0	6,489.1	6,600.0	6,458.1	20.1	22.5	78.96	-522.5	728.5	257.0	218.4	38.61	6.655	
6,650.0	6,529.2	6,646.5	6,493.1	20.0	22.4	78.12	-492.0	728.5	257.7	219.5	38.29	6.731	
6,700.0	6,567.3	6,693.0	6,526.2	19.8	22.2	77.32	-459.4	728.5	258.5	220.6	37.93	6.815	
6,750.0	6,603.2	6,739.3	6,557.2	19.6	22.1	76.58	-424.9	728.5	259.3	221.7	37.55	6.905	
6,800.0	6,636.8	6,785.5	6,585.9	19.4	21.9	75.90	-388.8	728.5	260.1	222.9	37.15	6.999	
6,850.0	6,667.8	6,831.5	6,612.3	19.3	21.7	75.27	-351.2	728.5	260.8	224.0	36.76	7.093	
6,900.0	6,696.2	6,877.3	6,636.4	19.1	21.6	74.71	-312.1	728.5	261.5	225.1	36.40	7.184	
6,950.0	6,721.9	6,923.1	6,657.9	18.9	21.4	74.20	-271.8	728.5	262.1	226.0	36.07	7.267	
7,000.0	6,744.7	6,968.7	6,677.0	18.8	21.3	73.76	-230.4	728.5	262.7	226.9	35.80	7.339	
7,050.0	6,764.6	7,014.2	6,693.6	18.6	21.1	73.37	-188.0	728.5	263.2	227.6	35.60	7.394	
7,100.0	6,781.4	7,059.7	6,707.5	18.5	21.0	73.06	-144.7	728.5	263.6	228.2	35.49	7.429	
7,150.0	6,795.0	7,105.0	6,718.9	18.4	20.8	72.80	-100.8	728.5	264.0	228.5	35.48	7.441	
7,200.0	6,805.6	7,150.0	6,727.6	18.3	20.7	72.61	-56.7	728.5	264.3	228.7	35.58	7.428	
7,250.0	6,812.9	7,195.7	6,733.7	18.2	20.5	72.48	-11.4	728.5	264.5	228.7	35.80	7.388	
7,300.0	6,816.9	7,240.9	6,737.1	18.2	20.4	72.42	33.7	728.5	264.5	228.4	36.14	7.321	
7,338.9	6,817.8	7,276.9	6,737.9	18.3	20.3	72.42	69.6	728.5	264.6	228.1	36.48	7.252	
7,363.1	6,817.7	7,300.3	6,737.8	18.3	20.2	72.42	93.0	728.5	264.5	227.8	36.76	7.197	
7,400.0	6,817.6	7,337.2	6,737.8	18.5	20.1	72.43	129.9	728.5	264.5	227.3	37.23	7.106	
7,500.0	6,817.4	7,437.2	6,737.6	19.1	20.0	72.45	229.9	728.5	264.5	225.8	38.68	6.839	
7,600.0	6,817.1	7,537.2	6,737.5	20.0	20.7	72.48	329.9	728.5	264.5	224.1	40.41	6.544	
7,700.0	6,816.8	7,637.2	6,737.3	21.1	21.9	72.50	429.9	728.5	264.4	222.0	42.40	6.237	
7,800.0	6,816.6	7,737.2	6,737.2	22.3	23.1	72.52	529.9	728.5	264.4	219.8	44.61	5.927	
7,900.0	6,816.3	7,837.2	6,737.0	23.6	24.4	72.54	629.9	728.5	264.4	217.4	47.00	5.625	
8,000.0	6,816.1	7,937.2	6,736.8	24.9	25.8	72.56	729.9	728.5	264.3	214.8	49.55	5.334	
8,100.0	6,815.8	8,037.2	6,736.7	26.4	27.3	72.58	829.9	728.5	264.3	212.1	52.25	5.059	
8,200.0	6,815.5	8,137.2	6,736.5	27.9	28.7	72.61	929.9	728.5	264.3	209.2	55.05	4.800	

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Reference Well:	Dunn 7L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-10-15)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference				Offset				Semi Major Axis				Distance	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
8,300.0	6,815.3	8,237.2	6,736.4	29.4	30.3	72.63	1,029.9	728.5	264.3	206.3	57.96	4.559	
8,400.0	6,815.0	8,337.2	6,736.2	31.0	31.8	72.65	1,129.9	728.5	264.2	203.3	60.95	4.335	
8,500.0	6,814.7	8,437.2	6,736.1	32.6	33.4	72.67	1,229.9	728.5	264.2	200.2	64.02	4.126	
8,600.0	6,814.5	8,537.2	6,735.9	34.2	35.0	72.69	1,329.9	728.5	264.2	197.0	67.15	3.934	
8,700.0	6,814.2	8,637.2	6,735.7	35.9	36.7	72.71	1,429.9	728.5	264.1	193.8	70.34	3.755	
8,800.0	6,814.0	8,737.2	6,735.6	37.6	38.4	72.74	1,529.9	728.5	264.1	190.5	73.58	3.589	
8,900.0	6,813.7	8,837.2	6,735.4	39.3	40.0	72.76	1,629.9	728.5	264.1	187.2	76.86	3.436	
9,000.0	6,813.4	8,937.2	6,735.3	41.0	41.8	72.78	1,729.9	728.5	264.0	183.9	80.17	3.293	
9,100.0	6,813.2	9,037.2	6,735.1	42.7	43.5	72.80	1,829.9	728.5	264.0	180.5	83.52	3.161	
9,200.0	6,812.9	9,137.2	6,735.0	44.5	45.2	72.82	1,929.9	728.5	264.0	177.1	86.90	3.038	
9,300.0	6,812.7	9,237.2	6,734.8	46.3	47.0	72.84	2,029.9	728.5	263.9	173.6	90.30	2.923	
9,400.0	6,812.4	9,337.2	6,734.6	48.0	48.7	72.87	2,129.9	728.5	263.9	170.2	93.73	2.816	
9,500.0	6,812.1	9,437.2	6,734.5	49.8	50.5	72.89	2,229.9	728.5	263.9	166.7	97.18	2.715	
9,600.0	6,811.9	9,537.2	6,734.3	51.6	52.3	72.91	2,329.9	728.5	263.8	163.2	100.64	2.622	
9,700.0	6,811.6	9,637.2	6,734.2	53.4	54.1	72.93	2,429.9	728.5	263.8	159.7	104.13	2.534	
9,800.0	6,811.3	9,737.2	6,734.0	55.3	55.9	72.95	2,529.9	728.5	263.8	156.2	107.63	2.451	
9,900.0	6,811.1	9,837.2	6,733.9	57.1	57.7	72.97	2,629.9	728.5	263.8	152.6	111.14	2.373	
10,000.0	6,810.8	9,937.2	6,733.7	58.9	59.5	73.00	2,729.9	728.5	263.7	149.1	114.67	2.300	
10,100.0	6,810.6	10,037.2	6,733.5	60.7	61.3	73.02	2,829.9	728.5	263.7	145.5	118.21	2.231	
10,200.0	6,810.3	10,137.2	6,733.4	62.6	63.2	73.04	2,929.9	728.5	263.7	141.9	121.76	2.166	
10,300.0	6,810.0	10,237.2	6,733.2	64.4	65.0	73.06	3,029.9	728.5	263.6	138.3	125.31	2.104	
10,400.0	6,809.8	10,337.2	6,733.1	66.3	66.8	73.08	3,129.9	728.5	263.6	134.7	128.88	2.045	
10,500.0	6,809.5	10,437.2	6,732.9	68.1	68.7	73.11	3,229.9	728.5	263.6	131.1	132.46	1.990	
10,600.0	6,809.2	10,537.2	6,732.8	70.0	70.5	73.13	3,329.9	728.5	263.5	127.5	136.04	1.937	
10,700.0	6,809.0	10,637.2	6,732.6	71.8	72.4	73.15	3,429.9	728.5	263.5	123.9	139.63	1.887	
10,800.0	6,808.7	10,737.2	6,732.4	73.7	74.2	73.17	3,529.9	728.5	263.5	120.3	143.23	1.840	
10,900.0	6,808.5	10,837.2	6,732.3	75.5	76.1	73.19	3,629.9	728.5	263.5	116.6	146.84	1.794	
11,000.0	6,808.2	10,937.2	6,732.1	77.4	77.9	73.21	3,729.9	728.5	263.4	113.0	150.45	1.751	
11,100.0	6,807.9	11,037.2	6,732.0	79.3	79.8	73.24	3,829.9	728.5	263.4	109.3	154.07	1.710	
11,200.0	6,807.7	11,137.2	6,731.8	81.2	81.7	73.26	3,929.9	728.5	263.4	105.7	157.69	1.670	
11,300.0	6,807.4	11,237.2	6,731.7	83.0	83.5	73.28	4,029.9	728.5	263.3	102.0	161.31	1.632	
11,400.0	6,807.2	11,337.2	6,731.5	84.9	85.4	73.30	4,129.9	728.5	263.3	98.4	164.95	1.596	
11,500.0	6,806.9	11,437.2	6,731.3	86.8	87.3	73.32	4,229.9	728.5	263.3	94.7	168.58	1.562	
11,600.0	6,806.6	11,537.2	6,731.2	88.7	89.1	73.35	4,329.9	728.5	263.2	91.0	172.22	1.529	
11,700.0	6,806.4	11,637.2	6,731.0	90.5	91.0	73.37	4,429.9	728.5	263.2	87.4	175.86	1.497 Level 3	
11,800.0	6,806.1	11,737.2	6,730.9	92.4	92.9	73.39	4,529.9	728.5	263.2	83.7	179.51	1.466 Level 3	
11,900.0	6,805.8	11,837.2	6,730.7	94.3	94.8	73.41	4,629.9	728.5	263.2	80.0	183.16	1.437 Level 3	
12,000.0	6,805.6	11,937.2	6,730.6	96.2	96.6	73.43	4,729.9	728.5	263.1	76.3	186.82	1.408 Level 3	
12,100.0	6,805.3	12,037.2	6,730.4	98.1	98.5	73.45	4,829.9	728.5	263.1	72.6	190.48	1.381 Level 3	
12,200.0	6,805.1	12,137.2	6,730.2	100.0	100.4	73.48	4,929.9	728.5	263.1	68.9	194.14	1.355 Level 3	
12,300.0	6,804.8	12,237.2	6,730.1	101.9	102.3	73.50	5,029.9	728.5	263.0	65.2	197.80	1.330 Level 3	
12,400.0	6,804.5	12,337.2	6,729.9	103.7	104.2	73.52	5,129.9	728.5	263.0	61.5	201.47	1.305 Level 3	
12,500.0	6,804.3	12,437.2	6,729.8	105.6	106.1	73.54	5,229.9	728.5	263.0	57.8	205.14	1.282 Level 3	
12,600.0	6,804.0	12,537.2	6,729.6	107.5	107.9	73.56	5,329.9	728.5	262.9	54.1	208.81	1.259 Level 3	
12,700.0	6,803.8	12,637.2	6,729.5	109.4	109.8	73.59	5,429.9	728.5	262.9	50.4	212.49	1.237 Level 2	
12,800.0	6,803.5	12,737.2	6,729.3	111.3	111.7	73.61	5,529.9	728.5	262.9	46.7	216.16	1.216 Level 2	
12,900.0	6,803.2	12,837.2	6,729.1	113.2	113.6	73.63	5,629.9	728.5	262.9	43.0	219.84	1.196 Level 2	
13,000.0	6,803.0	12,937.2	6,729.0	115.1	115.5	73.65	5,729.9	728.5	262.8	39.3	223.52	1.176 Level 2	
13,100.0	6,802.7	13,037.2	6,728.8	117.0	117.4	73.67	5,829.9	728.5	262.8	35.6	227.21	1.157 Level 2	
13,200.0	6,802.4	13,137.2	6,728.7	118.9	119.3	73.70	5,929.9	728.5	262.8	31.9	230.89	1.138 Level 2	
13,300.0	6,802.2	13,237.2	6,728.5	120.8	121.2	73.72	6,029.9	728.5	262.7	28.2	234.58	1.120 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 Dunn 7L-301
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-10-15)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
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
13,400.0	6,801.9	13,337.2	6,728.4	122.7	123.1	73.74	6,129.9	728.5	262.7	24.4	238.27	1.103	Level 2
13,500.0	6,801.7	13,437.2	6,728.2	124.6	125.0	73.76	6,229.9	728.5	262.7	20.7	241.96	1.086	Level 2
13,600.0	6,801.4	13,537.2	6,728.0	126.5	126.9	73.78	6,329.9	728.5	262.7	17.0	245.66	1.069	Level 2
13,700.0	6,801.1	13,637.2	6,727.9	128.4	128.8	73.81	6,429.9	728.5	262.6	13.3	249.35	1.053	Level 2
13,800.0	6,800.9	13,737.2	6,727.7	130.3	130.7	73.83	6,529.9	728.5	262.6	9.5	253.05	1.038	Level 2
13,900.0	6,800.6	13,837.2	6,727.6	132.2	132.6	73.85	6,629.9	728.5	262.6	5.8	256.75	1.023	Level 2
14,000.0	6,800.3	13,937.2	6,727.4	134.1	134.5	73.87	6,729.9	728.5	262.5	2.1	260.45	1.008	Level 2
14,100.0	6,800.1	14,037.2	6,727.3	136.0	136.4	73.89	6,829.9	728.5	262.5	-1.6	264.15	0.994	Level 1
14,200.0	6,799.8	14,137.2	6,727.1	137.9	138.3	73.91	6,929.9	728.5	262.5	-5.4	267.86	0.980	Level 1
14,300.0	6,799.6	14,237.2	6,726.9	139.8	140.2	73.94	7,029.9	728.5	262.5	-9.1	271.56	0.966	Level 1
14,400.0	6,799.3	14,337.2	6,726.8	141.7	142.1	73.96	7,129.9	728.5	262.4	-12.8	275.27	0.953	Level 1
14,500.0	6,799.0	14,437.2	6,726.6	143.6	144.0	73.98	7,229.9	728.5	262.4	-16.6	278.98	0.941	Level 1
14,600.0	6,798.8	14,537.2	6,726.5	145.5	145.9	74.00	7,329.9	728.5	262.4	-20.3	282.69	0.928	Level 1
14,700.0	6,798.5	14,637.2	6,726.3	147.4	147.8	74.02	7,429.9	728.5	262.3	-24.1	286.40	0.916	Level 1
14,800.0	6,798.3	14,737.2	6,726.2	149.3	149.7	74.05	7,529.9	728.5	262.3	-27.8	290.11	0.904	Level 1
14,900.0	6,798.0	14,837.2	6,726.0	151.2	151.6	74.07	7,629.9	728.5	262.3	-31.5	293.83	0.893	Level 1
15,000.0	6,797.7	14,937.2	6,725.8	153.2	153.5	74.09	7,729.9	728.5	262.3	-35.3	297.54	0.881	Level 1
15,100.0	6,797.5	15,037.2	6,725.7	155.1	155.4	74.11	7,829.9	728.5	262.2	-39.0	301.26	0.870	Level 1
15,200.0	6,797.2	15,137.2	6,725.5	157.0	157.3	74.13	7,929.9	728.5	262.2	-42.8	304.98	0.860	Level 1
15,300.0	6,796.9	15,237.2	6,725.4	158.9	159.2	74.16	8,029.9	728.5	262.2	-46.5	308.70	0.849	Level 1
15,400.0	6,796.7	15,337.2	6,725.2	160.8	161.1	74.18	8,129.9	728.5	262.1	-50.3	312.42	0.839	Level 1
15,500.0	6,796.4	15,437.2	6,725.1	162.7	163.0	74.20	8,229.9	728.5	262.1	-54.0	316.14	0.829	Level 1
15,600.0	6,796.2	15,537.2	6,724.9	164.6	164.9	74.22	8,329.9	728.5	262.1	-57.8	319.86	0.819	Level 1
15,700.0	6,795.9	15,637.2	6,724.7	166.5	166.8	74.24	8,429.9	728.5	262.1	-61.5	323.59	0.810	Level 1
15,800.0	6,795.6	15,737.2	6,724.6	168.4	168.7	74.27	8,529.9	728.5	262.0	-65.3	327.31	0.801	Level 1
15,900.0	6,795.4	15,837.2	6,724.4	170.3	170.6	74.29	8,629.9	728.5	262.0	-69.0	331.04	0.791	Level 1
16,000.0	6,795.1	15,937.2	6,724.3	172.2	172.6	74.31	8,729.9	728.5	262.0	-72.8	334.76	0.783	Level 1
16,100.0	6,794.8	16,037.2	6,724.1	174.1	174.5	74.33	8,829.9	728.5	261.9	-76.6	338.49	0.774	Level 1
16,200.0	6,794.6	16,137.2	6,724.0	176.1	176.4	74.36	8,929.9	728.5	261.9	-80.3	342.22	0.765	Level 1
16,300.0	6,794.3	16,237.2	6,723.8	178.0	178.3	74.38	9,029.9	728.5	261.9	-84.1	345.95	0.757	Level 1
16,400.0	6,794.1	16,337.2	6,723.6	179.9	180.2	74.40	9,129.9	728.5	261.9	-87.8	349.68	0.749	Level 1
16,500.0	6,793.8	16,437.2	6,723.5	181.8	182.1	74.42	9,229.9	728.5	261.8	-91.6	353.42	0.741	Level 1
16,600.0	6,793.5	16,537.2	6,723.3	183.7	184.0	74.44	9,329.9	728.5	261.8	-95.3	357.15	0.733	Level 1
16,700.0	6,793.3	16,637.2	6,723.2	185.6	185.9	74.47	9,429.9	728.5	261.8	-99.1	360.89	0.725	Level 1
16,806.3	6,793.0	16,743.4	6,723.0	187.6	187.9	74.49	9,536.2	728.5	261.7	-103.1	364.85	0.717	Level 1, ES, SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7L-301
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-10-15)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
0.0	0.0	0.0	0.0	0.0	0.0	0.64	75.0	0.8	75.1				
100.0	100.0	100.0	100.0	0.1	0.1	0.64	75.0	0.8	75.1	74.8	0.22	333.947	
200.0	200.0	200.0	200.0	0.3	0.3	0.64	75.0	0.8	75.1	74.4	0.67	111.309	
300.0	300.0	300.0	300.0	0.6	0.6	0.64	75.0	0.8	75.1	73.9	1.12	66.785	
400.0	400.0	400.0	400.0	0.8	0.8	0.64	75.0	0.8	75.1	73.5	1.57	47.703	
500.0	500.0	500.0	500.0	1.0	1.0	0.64	75.0	0.8	75.1	73.0	2.02	37.102	
600.0	600.0	600.0	600.0	1.2	1.2	0.64	75.0	0.8	75.1	72.6	2.47	30.356	
700.0	700.0	700.0	700.0	1.5	1.5	0.64	75.0	0.8	75.1	72.1	2.92	25.686	
800.0	800.0	800.0	800.0	1.7	1.7	0.64	75.0	0.8	75.1	71.7	3.37	22.261	
900.0	900.0	900.0	900.0	1.9	1.9	0.64	75.0	0.8	75.1	71.2	3.82	19.642	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	0.64	75.0	0.8	75.1	70.8	4.27	17.575	
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	0.64	75.0	0.8	75.1	70.3	4.72	15.901	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	0.64	75.0	0.8	75.1	69.9	5.17	14.518 CC, ES	
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-145.57	75.0	0.8	76.1	70.5	5.59	13.611	
1,400.0	1,399.9	1,399.9	1,399.9	3.0	3.0	-147.15	75.0	0.8	79.4	73.4	6.00	13.242	
1,500.0	1,499.7	1,499.7	1,499.7	3.2	3.3	-149.49	75.0	0.8	85.0	78.6	6.40	13.269	
1,600.0	1,599.3	1,599.3	1,599.3	3.4	3.5	-152.30	75.0	0.8	93.0	86.2	6.81	13.644	
1,700.0	1,698.6	1,698.6	1,698.6	3.6	3.7	-155.25	75.0	0.8	103.5	96.3	7.23	14.326	
1,800.0	1,797.5	1,797.5	1,797.5	3.8	3.9	-158.12	75.0	0.8	116.7	109.1	7.64	15.281	
1,900.0	1,896.1	1,896.1	1,896.1	4.1	4.1	-160.77	75.0	0.8	132.6	124.6	8.05	16.473	
1,994.0	1,988.3	1,988.3	1,988.3	4.4	4.4	-162.98	75.0	0.8	150.0	141.6	8.44	17.783	
2,000.0	1,994.2	1,994.2	1,994.2	4.4	4.4	-163.12	75.0	0.8	151.2	142.7	8.46	17.869	
2,100.0	2,092.0	2,092.0	2,092.0	4.8	4.6	-165.13	75.0	0.8	171.1	162.2	8.90	19.227	
2,200.0	2,189.9	2,189.9	2,189.9	5.1	4.8	-166.71	75.0	0.8	191.1	181.8	9.34	20.464	
2,300.0	2,287.7	2,287.7	2,287.7	5.5	5.0	-168.00	75.0	0.8	211.3	201.5	9.78	21.594	
2,400.0	2,385.6	2,385.6	2,385.6	5.9	5.2	-169.06	75.0	0.8	231.5	221.3	10.23	22.626	
2,500.0	2,483.4	2,483.4	2,483.4	6.3	5.5	-169.95	75.0	0.8	251.8	241.2	10.68	23.571	
2,600.0	2,581.3	2,586.7	2,586.7	6.7	5.7	-170.84	74.1	0.8	271.4	260.3	11.12	24.397	
2,700.0	2,679.1	2,692.0	2,691.9	7.1	5.9	-171.89	70.2	0.7	288.6	277.1	11.54	25.017	
2,800.0	2,776.9	2,797.9	2,797.6	7.5	6.0	-173.08	63.4	0.5	303.5	291.6	11.95	25.395	
2,900.0	2,874.8	2,904.4	2,903.6	8.0	6.2	-174.43	53.7	0.2	316.2	303.8	12.38	25.547	
3,000.0	2,972.6	3,011.3	3,009.7	8.4	6.4	-175.95	40.9	-0.1	326.6	313.8	12.81	25.495	
3,100.0	3,070.5	3,118.3	3,115.6	8.8	6.7	-177.65	25.1	-0.6	334.9	321.6	13.26	25.260	
3,200.0	3,168.3	3,225.4	3,221.1	9.3	6.9	-179.55	6.4	-1.1	341.1	327.4	13.72	24.859	
3,300.0	3,266.2	3,332.4	3,325.8	9.7	7.2	-178.33	-15.3	-1.7	345.5	331.2	14.21	24.302	
3,400.0	3,364.0	3,439.1	3,429.7	10.1	7.5	-175.97	-39.8	-2.4	348.0	333.3	14.74	23.606	
3,500.0	3,461.9	3,545.3	3,532.3	10.6	7.8	-173.34	-67.0	-3.2	349.1	333.7	15.32	22.782	
3,600.0	3,559.7	3,650.9	3,633.6	11.0	8.2	-170.42	-97.0	-4.0	348.8	332.8	15.97	21.845	
3,700.0	3,657.6	3,754.7	3,732.3	11.5	8.7	-167.21	-129.1	-5.0	347.5	330.8	16.69	20.823	
3,800.0	3,755.4	3,852.8	3,825.3	11.9	9.1	-164.05	-160.3	-5.8	346.6	329.1	17.47	19.842	
3,828.3	3,783.1	3,880.6	3,851.6	12.1	9.2	-163.15	-169.1	-6.1	346.6	328.9	17.70	19.578	
3,900.0	3,853.3	3,950.9	3,918.2	12.4	9.6	-160.88	-191.5	-6.7	346.9	328.5	18.32	18.931	
4,000.0	3,951.1	4,048.9	4,011.2	12.8	10.0	-157.72	-222.8	-7.6	348.2	329.0	19.24	18.094	
4,100.0	4,049.0	4,147.0	4,104.1	13.3	10.5	-154.60	-254.0	-8.5	350.6	330.4	20.23	17.331	
4,200.0	4,146.8	4,245.1	4,197.1	13.7	11.0	-151.53	-285.2	-9.4	354.1	332.8	21.27	16.645	
4,300.0	4,244.7	4,343.1	4,290.0	14.2	11.6	-148.52	-316.5	-10.3	358.6	336.3	22.37	16.036	
4,400.0	4,342.5	4,441.2	4,383.0	14.6	12.1	-145.60	-347.7	-11.2	364.2	340.7	23.50	15.499	
4,500.0	4,440.4	4,539.3	4,476.0	15.1	12.6	-142.76	-378.9	-12.0	370.6	346.0	24.65	15.033	
4,600.0	4,538.2	4,637.4	4,568.9	15.5	13.2	-140.03	-410.2	-12.9	378.0	352.2	25.83	14.631	
4,700.0	4,636.0	4,735.4	4,661.9	16.0	13.7	-137.40	-441.4	-13.8	386.2	359.2	27.03	14.289	
4,800.0	4,733.9	4,833.5	4,754.8	16.4	14.3	-134.88	-472.6	-14.7	395.2	367.0	28.23	14.002	

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 Dunn 7L-301
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-10-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance								Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
4,900.0	4,831.7	4,931.6	4,847.8	16.9	14.9	132.48	-503.9	-15.6	405.0	375.6	29.43	13.762		
5,000.0	4,929.6	5,029.6	4,940.8	17.4	15.5	130.19	-535.1	-16.5	415.5	384.8	30.63	13.566		
5,100.0	5,027.4	5,127.4	5,033.5	17.8	16.0	128.08	-565.8	-17.4	426.6	394.8	31.75	13.436		
5,200.0	5,125.3	5,225.4	5,127.5	18.3	16.4	126.45	-593.9	-18.1	438.3	405.6	32.73	13.392		
5,300.0	5,223.1	5,324.2	5,223.0	18.7	16.8	125.32	-618.8	-18.9	450.3	416.7	33.64	13.389		
5,387.6	5,308.8	5,411.1	5,307.7	19.1	17.1	124.73	-638.1	-19.4	461.0	426.6	34.37	13.411		
5,400.0	5,321.0	5,423.4	5,319.8	19.2	17.2	124.70	-640.6	-19.5	462.5	428.0	34.47	13.417		
5,500.0	5,419.3	5,523.0	5,417.7	19.5	17.5	124.47	-659.1	-20.0	473.4	438.3	35.15	13.467		
5,600.0	5,518.1	5,623.0	5,516.5	19.8	17.8	124.29	-674.2	-20.4	482.3	446.6	35.76	13.489		
5,700.0	5,617.4	5,723.2	5,616.0	20.0	18.1	124.16	-685.8	-20.8	489.2	452.9	36.28	13.483		
5,800.0	5,717.1	5,823.6	5,716.1	20.2	18.3	124.07	-694.0	-21.0	494.0	457.3	36.72	13.453		
5,900.0	5,817.0	5,924.1	5,816.5	20.4	18.5	124.02	-698.7	-21.1	496.8	459.7	37.08	13.398		
5,983.0	5,900.0	6,007.6	5,900.0	20.5	18.6	-90.34	-700.0	-21.2	497.5	460.1	37.32	13.329		
6,000.0	5,917.0	6,024.6	5,917.0	20.5	18.7	-90.34	-700.0	-21.2	497.5	460.1	37.37	13.312		
6,100.0	6,017.0	6,124.6	6,017.0	20.6	18.8	-90.34	-700.0	-21.2	497.5	459.8	37.64	13.218		
6,136.9	6,053.8	6,161.5	6,053.8	20.7	18.9	-90.34	-700.0	-21.2	497.5	459.7	37.74	13.183		
6,150.0	6,067.0	6,174.6	6,067.0	20.7	18.9	-90.35	-699.9	-21.2	497.5	459.7	37.77	13.172		
6,200.0	6,116.9	6,224.8	6,117.2	20.7	18.9	-90.38	-697.7	-21.2	497.5	459.6	37.85	13.142		
6,250.0	6,166.6	6,275.1	6,167.1	20.7	18.9	-90.42	-692.2	-21.2	497.5	459.6	37.87	13.135		
6,300.0	6,215.7	6,325.3	6,216.5	20.7	18.9	-90.45	-683.5	-21.2	497.5	459.7	37.83	13.152		
6,350.0	6,264.2	6,375.6	6,265.3	20.7	18.8	-90.48	-671.5	-21.2	497.5	459.8	37.71	13.191		
6,400.0	6,311.8	6,425.8	6,313.3	20.6	18.7	-90.51	-656.3	-21.2	497.5	459.9	37.54	13.251		
6,450.0	6,358.3	6,476.1	6,360.1	20.5	18.6	-90.54	-638.0	-21.2	497.5	460.2	37.32	13.331		
6,500.0	6,403.4	6,526.5	6,405.7	20.4	18.5	-90.56	-616.7	-21.2	497.5	460.4	37.05	13.429		
6,550.0	6,447.1	6,576.8	6,449.7	20.3	18.3	-90.58	-592.4	-21.2	497.5	460.8	36.74	13.543		
6,600.0	6,489.1	6,627.1	6,492.1	20.1	18.1	-90.60	-565.2	-21.2	497.5	461.1	36.39	13.670		
6,650.0	6,529.2	6,677.5	6,532.6	20.0	17.9	-90.62	-535.3	-21.2	497.5	461.5	36.03	13.808		
6,700.0	6,567.3	6,727.8	6,571.0	19.8	17.7	-90.63	-502.8	-21.2	497.5	461.9	35.65	13.953		
6,750.0	6,603.2	6,778.2	6,607.2	19.6	17.5	-90.65	-467.8	-21.2	497.5	462.2	35.28	14.101		
6,800.0	6,636.8	6,828.6	6,641.1	19.4	17.2	-90.65	-430.5	-21.2	497.5	462.6	34.92	14.247		
6,850.0	6,667.8	6,878.9	6,672.4	19.3	17.0	-90.66	-391.1	-21.2	497.5	462.9	34.58	14.386		
6,900.0	6,696.2	6,929.3	6,701.1	19.1	16.8	-90.66	-349.6	-21.2	497.5	463.2	34.29	14.511		
6,950.0	6,721.9	6,979.7	6,726.9	18.9	16.7	-90.66	-306.4	-21.2	497.5	463.5	34.04	14.617		
7,000.0	6,744.7	7,030.1	6,749.9	18.8	16.5	-90.66	-261.6	-21.2	497.5	463.7	33.85	14.698		
7,050.0	6,764.6	7,080.5	6,769.8	18.6	16.4	-90.66	-215.3	-21.2	497.5	463.8	33.73	14.749		
7,100.0	6,781.4	7,130.8	6,786.7	18.5	16.4	-90.65	-167.9	-21.2	497.5	463.8	33.70	14.764		
7,150.0	6,795.0	7,181.2	6,800.4	18.4	16.4	-90.64	-119.4	-21.2	497.5	463.8	33.75	14.741		
7,200.0	6,805.6	7,231.6	6,810.9	18.3	16.4	-90.62	-70.2	-21.2	497.5	463.6	33.90	14.678		
7,250.0	6,812.9	7,281.9	6,818.1	18.2	16.5	-90.60	-20.3	-21.2	497.5	463.4	34.14	14.574		
7,300.0	6,816.9	7,332.2	6,822.0	18.2	16.6	-90.59	29.8	-21.2	497.5	463.1	34.47	14.432		
7,338.9	6,817.8	7,371.4	6,822.7	18.3	16.7	-90.57	68.9	-21.2	497.5	462.7	34.79	14.300		
7,400.0	6,817.6	7,432.5	6,822.5	18.5	17.0	-90.57	130.1	-21.2	497.5	462.1	35.44	14.038		
7,500.0	6,817.4	7,532.5	6,822.2	19.1	17.6	-90.56	230.1	-21.2	497.5	460.8	36.77	13.531		
7,600.0	6,817.1	7,632.5	6,821.9	20.0	18.4	-90.55	330.1	-21.2	497.5	459.1	38.44	12.944		
7,700.0	6,816.8	7,732.5	6,821.6	21.1	19.4	-90.55	430.1	-21.2	497.5	457.1	40.40	12.314		
7,800.0	6,816.6	7,832.5	6,821.3	22.3	20.5	-90.54	530.1	-21.2	497.6	454.9	42.63	11.672		
7,900.0	6,816.3	7,932.5	6,821.0	23.6	21.7	-90.54	630.1	-21.2	497.6	452.5	45.07	11.040		
8,000.0	6,816.1	8,032.5	6,820.7	24.9	23.0	-90.53	730.1	-21.2	497.6	449.9	47.70	10.432		
8,100.0	6,815.8	8,132.5	6,820.3	26.4	24.3	-90.52	830.1	-21.2	497.6	447.1	50.48	9.857		
8,200.0	6,815.5	8,232.5	6,820.0	27.9	25.8	-90.52	930.1	-21.2	497.6	444.2	53.39	9.319		
8,300.0	6,815.3	8,332.5	6,819.7	29.4	27.3	-90.51	1,030.1	-21.3	497.6	441.2	56.42	8.819		

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 Dunn 7L-301
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-10-15)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:		0.0 ft
Survey Program: 0-MWD												Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance					Warning		
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation		Separation Factor	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
8,400.0	6,815.0	8,432.5	6,819.4	31.0	28.9	-90.51	1,130.1	-21.3	497.6	438.0	59.54	8.357		
8,500.0	6,814.7	8,532.5	6,819.1	32.6	30.5	-90.50	1,230.1	-21.3	497.6	434.8	62.74	7.931		
8,600.0	6,814.5	8,632.5	6,818.8	34.2	32.1	-90.49	1,330.1	-21.3	497.6	431.6	66.01	7.538		
8,700.0	6,814.2	8,732.5	6,818.5	35.9	33.8	-90.49	1,430.1	-21.3	497.6	428.3	69.34	7.177		
8,800.0	6,814.0	8,832.5	6,818.1	37.6	35.4	-90.48	1,530.1	-21.3	497.6	424.9	72.72	6.843		
8,900.0	6,813.7	8,932.5	6,817.8	39.3	37.2	-90.47	1,630.0	-21.3	497.6	421.5	76.14	6.536		
9,000.0	6,813.4	9,032.5	6,817.5	41.0	38.9	-90.47	1,730.0	-21.3	497.6	418.0	79.60	6.252		
9,100.0	6,813.2	9,132.5	6,817.2	42.7	40.6	-90.46	1,830.0	-21.3	497.6	414.5	83.09	5.989		
9,200.0	6,812.9	9,232.5	6,816.9	44.5	42.4	-90.46	1,930.0	-21.3	497.6	411.0	86.62	5.745		
9,300.0	6,812.7	9,332.5	6,816.6	46.3	44.2	-90.45	2,030.0	-21.3	497.6	407.5	90.17	5.519		
9,400.0	6,812.4	9,432.5	6,816.3	48.0	46.0	-90.44	2,130.0	-21.3	497.6	403.9	93.74	5.309		
9,500.0	6,812.1	9,532.5	6,815.9	49.8	47.8	-90.44	2,230.0	-21.3	497.6	400.3	97.33	5.113		
9,600.0	6,811.9	9,632.5	6,815.6	51.6	49.6	-90.43	2,330.0	-21.3	497.6	396.7	100.94	4.930		
9,700.0	6,811.6	9,732.5	6,815.3	53.4	51.4	-90.43	2,430.0	-21.3	497.6	393.1	104.57	4.759		
9,800.0	6,811.3	9,832.5	6,815.0	55.3	53.2	-90.42	2,530.0	-21.3	497.7	389.4	108.21	4.599		
9,900.0	6,811.1	9,932.5	6,814.7	57.1	55.1	-90.41	2,630.0	-21.3	497.7	385.8	111.87	4.449		
10,000.0	6,810.8	10,032.5	6,814.4	58.9	56.9	-90.41	2,730.0	-21.3	497.7	382.1	115.54	4.307		
10,100.0	6,810.6	10,132.5	6,814.1	60.7	58.7	-90.40	2,830.0	-21.3	497.7	378.5	119.21	4.175		
10,200.0	6,810.3	10,232.5	6,813.7	62.6	60.6	-90.40	2,930.0	-21.4	497.7	374.8	122.90	4.049		
10,300.0	6,810.0	10,332.5	6,813.4	64.4	62.4	-90.39	3,030.0	-21.4	497.7	371.1	126.60	3.931		
10,400.0	6,809.8	10,432.5	6,813.1	66.3	64.3	-90.38	3,130.0	-21.4	497.7	367.4	130.31	3.819		
10,500.0	6,809.5	10,532.5	6,812.8	68.1	66.1	-90.38	3,230.0	-21.4	497.7	363.7	134.02	3.714		
10,600.0	6,809.2	10,632.5	6,812.5	70.0	68.0	-90.37	3,330.0	-21.4	497.7	360.0	137.74	3.613		
10,700.0	6,809.0	10,732.5	6,812.2	71.8	69.9	-90.37	3,430.0	-21.4	497.7	356.2	141.47	3.518		
10,800.0	6,808.7	10,832.5	6,811.9	73.7	71.7	-90.36	3,530.0	-21.4	497.7	352.5	145.20	3.428		
10,900.0	6,808.5	10,932.5	6,811.5	75.5	73.6	-90.35	3,630.0	-21.4	497.7	348.8	148.94	3.342		
11,000.0	6,808.2	11,032.5	6,811.2	77.4	75.5	-90.35	3,730.0	-21.4	497.7	345.0	152.68	3.260		
11,100.0	6,807.9	11,132.5	6,810.9	79.3	77.4	-90.34	3,830.0	-21.4	497.7	341.3	156.43	3.182		
11,200.0	6,807.7	11,232.5	6,810.6	81.2	79.2	-90.34	3,930.0	-21.4	497.7	337.5	160.18	3.107		
11,300.0	6,807.4	11,332.5	6,810.3	83.0	81.1	-90.33	4,030.0	-21.4	497.7	333.8	163.94	3.036		
11,400.0	6,807.2	11,432.5	6,810.0	84.9	83.0	-90.32	4,130.0	-21.4	497.7	330.0	167.70	2.968		
11,500.0	6,806.9	11,532.5	6,809.7	86.8	84.9	-90.32	4,230.0	-21.4	497.7	326.3	171.46	2.903		
11,600.0	6,806.6	11,632.5	6,809.3	88.7	86.8	-90.31	4,330.0	-21.4	497.7	322.5	175.23	2.840		
11,700.0	6,806.4	11,732.5	6,809.0	90.5	88.7	-90.31	4,430.0	-21.4	497.8	318.7	179.00	2.781		
11,800.0	6,806.1	11,832.5	6,808.7	92.4	90.5	-90.30	4,530.0	-21.4	497.8	315.0	182.78	2.723		
11,900.0	6,805.8	11,932.5	6,808.4	94.3	92.4	-90.29	4,630.0	-21.4	497.8	311.2	186.55	2.668		
12,000.0	6,805.6	12,032.5	6,808.1	96.2	94.3	-90.29	4,730.0	-21.5	497.8	307.4	190.33	2.615		
12,100.0	6,805.3	12,132.5	6,807.8	98.1	96.2	-90.28	4,830.0	-21.5	497.8	303.7	194.11	2.564		
12,200.0	6,805.1	12,232.5	6,807.5	100.0	98.1	-90.28	4,930.0	-21.5	497.8	299.9	197.90	2.515		
12,300.0	6,804.8	12,332.5	6,807.1	101.9	100.0	-90.27	5,030.0	-21.5	497.8	296.1	201.68	2.468		
12,400.0	6,804.5	12,432.5	6,806.8	103.7	101.9	-90.26	5,130.0	-21.5	497.8	292.3	205.47	2.423		
12,500.0	6,804.3	12,532.5	6,806.5	105.6	103.8	-90.26	5,230.0	-21.5	497.8	288.5	209.26	2.379		
12,600.0	6,804.0	12,632.5	6,806.2	107.5	105.7	-90.25	5,330.0	-21.5	497.8	284.7	213.05	2.337		
12,700.0	6,803.8	12,732.5	6,805.9	109.4	107.6	-90.25	5,430.0	-21.5	497.8	281.0	216.85	2.296		
12,800.0	6,803.5	12,832.5	6,805.6	111.3	109.5	-90.24	5,530.0	-21.5	497.8	277.2	220.64	2.256		
12,900.0	6,803.2	12,932.5	6,805.3	113.2	111.4	-90.23	5,630.0	-21.5	497.8	273.4	224.44	2.218		
13,000.0	6,803.0	13,032.5	6,804.9	115.1	113.3	-90.23	5,730.0	-21.5	497.8	269.6	228.24	2.181		
13,100.0	6,802.7	13,132.5	6,804.6	117.0	115.2	-90.22	5,830.0	-21.5	497.8	265.8	232.04	2.145		
13,200.0	6,802.4	13,232.5	6,804.3	118.9	117.1	-90.22	5,930.0	-21.5	497.8	262.0	235.84	2.111		
13,300.0	6,802.2	13,332.5	6,804.0	120.8	119.0	-90.21	6,030.0	-21.5	497.8	258.2	239.64	2.077		
13,400.0	6,801.9	13,432.5	6,803.7	122.7	120.9	-90.20	6,130.0	-21.5	497.8	254.4	243.44	2.045		

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 Dunn 7L-301
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-10-15)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 7L-341 - Wellbore #1 - Plan #1 (9-10-15)												Offset Well Error:	0.0 ft
Survey Program: 0-MWD													
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
13,500.0	6,801.7	13,532.5	6,803.4	124.6	122.8	-90.20	6,230.0	-21.5	497.8	250.6	247.25	2.014	
13,600.0	6,801.4	13,632.5	6,803.1	126.5	124.7	-90.19	6,330.0	-21.5	497.8	246.8	251.05	1.983	
13,700.0	6,801.1	13,732.5	6,802.7	128.4	126.6	-90.19	6,430.0	-21.5	497.9	243.0	254.86	1.953	
13,800.0	6,800.9	13,832.5	6,802.4	130.3	128.5	-90.18	6,530.0	-21.6	497.9	239.2	258.67	1.925	
13,900.0	6,800.6	13,932.5	6,802.1	132.2	130.4	-90.17	6,630.0	-21.6	497.9	235.4	262.48	1.897	
14,000.0	6,800.3	14,032.5	6,801.8	134.1	132.3	-90.17	6,730.0	-21.6	497.9	231.6	266.28	1.870	
14,100.0	6,800.1	14,132.5	6,801.5	136.0	134.2	-90.16	6,830.0	-21.6	497.9	227.8	270.10	1.843	
14,200.0	6,799.8	14,232.5	6,801.2	137.9	136.1	-90.16	6,930.0	-21.6	497.9	224.0	273.91	1.818	
14,300.0	6,799.6	14,332.5	6,800.9	139.8	138.0	-90.15	7,030.0	-21.6	497.9	220.2	277.72	1.793	
14,400.0	6,799.3	14,432.5	6,800.5	141.7	139.9	-90.14	7,130.0	-21.6	497.9	216.4	281.53	1.769	
14,500.0	6,799.0	14,532.5	6,800.2	143.6	141.8	-90.14	7,230.0	-21.6	497.9	212.6	285.35	1.745	
14,600.0	6,798.8	14,632.5	6,799.9	145.5	143.8	-90.13	7,330.0	-21.6	497.9	208.7	289.16	1.722	
14,700.0	6,798.5	14,732.5	6,799.6	147.4	145.7	-90.13	7,430.0	-21.6	497.9	204.9	292.98	1.699	
14,800.0	6,798.3	14,832.5	6,799.3	149.3	147.6	-90.12	7,530.0	-21.6	497.9	201.1	296.79	1.678	
14,900.0	6,798.0	14,932.5	6,799.0	151.2	149.5	-90.11	7,630.0	-21.6	497.9	197.3	300.61	1.656	
15,000.0	6,797.7	15,032.5	6,798.7	153.2	151.4	-90.11	7,730.0	-21.6	497.9	193.5	304.42	1.636	
15,100.0	6,797.5	15,132.5	6,798.3	155.1	153.3	-90.10	7,830.0	-21.6	497.9	189.7	308.24	1.615	
15,200.0	6,797.2	15,232.5	6,798.0	157.0	155.2	-90.10	7,930.0	-21.6	497.9	185.9	312.06	1.596	
15,300.0	6,796.9	15,332.5	6,797.7	158.9	157.1	-90.09	8,030.0	-21.6	497.9	182.1	315.88	1.576	
15,400.0	6,796.7	15,432.5	6,797.4	160.8	159.0	-90.08	8,130.0	-21.6	497.9	178.2	319.70	1.558	
15,500.0	6,796.4	15,532.5	6,797.1	162.7	160.9	-90.08	8,230.0	-21.6	498.0	174.4	323.52	1.539	
15,600.0	6,796.2	15,632.5	6,796.8	164.6	162.9	-90.07	8,330.0	-21.6	498.0	170.6	327.34	1.521	
15,700.0	6,795.9	15,732.5	6,796.5	166.5	164.8	-90.06	8,430.0	-21.7	498.0	166.8	331.16	1.504	
15,800.0	6,795.6	15,832.5	6,796.1	168.4	166.7	-90.06	8,530.0	-21.7	498.0	163.0	334.98	1.487 Level 3	
15,900.0	6,795.4	15,932.5	6,795.8	170.3	168.6	-90.05	8,630.0	-21.7	498.0	159.2	338.80	1.470 Level 3	
16,000.0	6,795.1	16,032.5	6,795.5	172.2	170.5	-90.05	8,730.0	-21.7	498.0	155.4	342.63	1.453 Level 3	
16,100.0	6,794.8	16,132.5	6,795.2	174.1	172.4	-90.04	8,830.0	-21.7	498.0	151.5	346.45	1.437 Level 3	
16,200.0	6,794.6	16,232.5	6,794.9	176.1	174.3	-90.03	8,930.0	-21.7	498.0	147.7	350.27	1.422 Level 3	
16,300.0	6,794.3	16,332.5	6,794.6	178.0	176.2	-90.03	9,030.0	-21.7	498.0	143.9	354.09	1.406 Level 3	
16,400.0	6,794.1	16,432.5	6,794.3	179.9	178.1	-90.02	9,130.0	-21.7	498.0	140.1	357.92	1.391 Level 3	
16,500.0	6,793.8	16,532.5	6,793.9	181.8	180.1	-90.02	9,230.0	-21.7	498.0	136.3	361.74	1.377 Level 3	
16,600.0	6,793.5	16,632.5	6,793.6	183.7	182.0	-90.01	9,330.0	-21.7	498.0	132.4	365.57	1.362 Level 3	
16,700.0	6,793.3	16,732.5	6,793.3	185.6	183.9	-90.00	9,430.0	-21.7	498.0	128.6	369.39	1.348 Level 3	
16,763.3	6,793.1	16,795.8	6,793.1	186.8	185.1	-90.00	9,493.3	-21.7	498.0	126.2	371.81	1.339 Level 3	
16,806.3	6,793.0	16,834.0	6,793.0	187.6	185.8	-90.00	9,531.5	-21.7	498.0	124.7	373.37	1.334 Level 3, SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7L-301
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-10-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:		0.0 ft
Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 7Q-221 - Wellbore #1 - Plan #1 (9-11-15)													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			
Depth (ft)	Depth (ft)	Depth (ft)	Depth (ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
0.0	0.0	0.0	0.0	0.0	0.0	-179.57	-75.0	-0.6	75.1						
100.0	100.0	100.0	100.0	0.1	0.1	-179.57	-75.0	-0.6	75.1	74.8	0.22	333.936			
200.0	200.0	200.0	200.0	0.3	0.3	-179.57	-75.0	-0.6	75.1	74.4	0.67	111.305 CC			
300.0	300.0	299.4	299.4	0.6	0.5	179.49	-75.5	0.7	75.5	74.4	1.11	68.127 ES			
400.0	400.0	398.6	398.5	0.8	0.8	176.77	-76.7	4.3	76.8	75.3	1.54	49.751			
500.0	500.0	497.5	497.2	1.0	1.0	172.47	-78.8	10.4	79.5	77.5	2.00	39.722			
600.0	600.0	596.1	595.4	1.2	1.2	166.99	-81.7	18.9	83.9	81.5	2.48	33.825			
700.0	700.0	694.1	692.8	1.5	1.5	160.84	-85.3	29.7	90.6	87.6	2.99	30.345			
800.0	800.0	791.5	789.2	1.7	1.8	154.56	-89.8	42.7	100.0	96.5	3.52	28.439			
900.0	900.0	888.1	884.4	1.9	2.2	148.61	-95.0	58.0	112.3	108.3	4.07	27.613			
1,000.0	1,000.0	983.9	978.4	2.1	2.6	143.26	-100.9	75.3	127.7	123.1	4.64	27.540 SF			
1,100.0	1,100.0	1,078.6	1,070.9	2.4	3.0	138.62	-107.5	94.7	146.2	140.9	5.22	27.986			
1,200.0	1,200.0	1,172.3	1,161.8	2.6	3.4	134.69	-114.7	116.0	167.5	161.7	5.82	28.784			
1,300.0	1,300.0	1,265.0	1,251.3	2.8	3.9	-14.26	-122.6	139.1	190.5	184.6	5.82	32.716			
1,400.0	1,399.9	1,357.1	1,339.5	3.0	4.5	-17.21	-131.1	164.1	213.7	207.5	6.25	34.199			
1,500.0	1,499.7	1,448.4	1,426.3	3.2	5.0	-19.90	-140.2	190.9	237.4	230.7	6.68	35.510			
1,600.0	1,599.3	1,539.0	1,511.8	3.4	5.6	-22.37	-149.9	219.4	261.4	254.3	7.13	36.679			
1,700.0	1,698.6	1,628.9	1,595.8	3.6	6.3	-24.67	-160.2	249.5	285.8	278.3	7.58	37.721			
1,800.0	1,797.5	1,718.1	1,678.4	3.8	7.0	-26.83	-171.0	281.3	310.7	302.7	8.04	38.636			
1,900.0	1,896.1	1,806.5	1,759.5	4.1	7.7	-28.86	-182.3	314.5	336.1	327.6	8.53	39.418			
1,994.0	1,988.3	1,892.7	1,838.0	4.4	8.4	-30.76	-193.9	348.5	360.2	351.2	9.02	39.938			
2,000.0	1,994.2	1,898.5	1,843.2	4.4	8.5	-30.90	-194.7	350.8	361.7	352.6	9.05	39.958			
2,100.0	2,092.0	1,994.3	1,930.2	4.8	9.3	-33.00	-207.6	388.7	387.1	377.5	9.62	40.226			
2,200.0	2,189.9	2,090.1	2,017.2	5.1	10.2	-34.85	-220.5	426.6	412.9	402.7	10.22	40.386			
2,300.0	2,287.7	2,185.9	2,104.3	5.5	11.0	-36.48	-233.4	464.5	439.1	428.2	10.85	40.455			
2,400.0	2,385.6	2,281.7	2,191.3	5.9	11.9	-37.92	-246.3	502.4	465.6	454.0	11.51	40.447			
2,500.0	2,483.4	2,377.4	2,278.3	6.3	12.8	-39.22	-259.2	540.3	492.3	480.1	12.19	40.379			
2,600.0	2,581.3	2,473.2	2,365.3	6.7	13.6	-40.38	-272.1	578.2	519.2	506.3	12.89	40.267			
2,700.0	2,679.1	2,569.0	2,452.3	7.1	14.5	-41.43	-285.0	616.1	546.3	532.7	13.62	40.121			
2,800.0	2,776.9	2,664.8	2,539.4	7.5	15.3	-42.38	-297.9	654.0	573.6	559.3	14.36	39.951			
2,900.0	2,874.8	2,760.6	2,626.4	8.0	16.2	-43.24	-310.9	691.9	601.0	585.9	15.11	39.766			
3,000.0	2,972.6	2,856.4	2,713.4	8.4	17.1	-44.03	-323.8	729.9	628.5	612.7	15.88	39.572			
3,100.0	3,070.5	2,952.2	2,800.4	8.8	17.9	-44.75	-336.7	767.8	656.2	639.5	16.67	39.372			
3,200.0	3,168.3	3,048.0	2,887.4	9.3	18.8	-45.42	-349.6	805.7	683.9	666.4	17.46	39.171			
3,300.0	3,266.2	3,143.8	2,974.4	9.7	19.7	-46.03	-362.5	843.6	711.7	693.4	18.26	38.971			
3,400.0	3,364.0	3,239.6	3,061.5	10.1	20.6	-46.60	-375.4	881.5	739.5	720.5	19.07	38.774			
3,500.0	3,461.9	3,335.3	3,148.5	10.6	21.4	-47.12	-388.3	919.4	767.5	747.6	19.89	38.582			
3,600.0	3,559.7	3,431.1	3,235.5	11.0	22.3	-47.61	-401.2	957.3	795.5	774.7	20.72	38.394			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7L-301
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-10-15)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 7Q-241 - Wellbore #1 - Plan #1 (9-11-15)												Offset Well Error:	0.0 ft
Survey Program: 0-MWD													
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
0.0	0.0	0.0	0.0	0.0	0.0	-179.64	-44.8	-0.3	44.8				
100.0	100.0	100.0	100.0	0.1	0.1	-179.64	-44.8	-0.3	44.8	44.6	0.22	199.387	
200.0	200.0	200.0	200.0	0.3	0.3	-179.64	-44.8	-0.3	44.8	44.1	0.67	66.458	
300.0	300.0	300.0	300.0	0.6	0.6	-179.64	-44.8	-0.3	44.8	43.7	1.12	39.874	
400.0	400.0	400.0	400.0	0.8	0.8	-179.64	-44.8	-0.3	44.8	43.2	1.57	28.482	
500.0	500.0	500.0	500.0	1.0	1.0	-179.64	-44.8	-0.3	44.8	42.8	2.02	22.152	
600.0	600.0	600.0	600.0	1.2	1.2	-179.64	-44.8	-0.3	44.8	42.3	2.47	18.125 CC, ES	
700.0	700.0	699.5	699.4	1.5	1.4	178.89	-45.4	0.9	45.4	42.5	2.90	15.648	
800.0	800.0	798.8	798.7	1.7	1.6	174.74	-47.1	4.3	47.4	44.0	3.32	14.256	
900.0	900.0	897.8	897.5	1.9	1.8	168.60	-50.0	10.1	51.1	47.3	3.76	13.601	
1,000.0	1,000.0	996.5	995.8	2.1	2.1	161.51	-54.1	18.1	57.2	53.0	4.21	13.577 SF	
1,100.0	1,100.0	1,094.6	1,093.2	2.4	2.3	154.47	-59.2	28.3	66.0	61.3	4.68	14.088	
1,200.0	1,200.0	1,192.1	1,189.7	2.6	2.6	148.17	-65.4	40.6	77.7	72.5	5.17	15.025	
1,300.0	1,300.0	1,289.0	1,285.3	2.8	2.9	-2.82	-72.7	55.1	91.1	85.6	5.52	16.489	
1,400.0	1,399.9	1,385.4	1,379.9	3.0	3.3	-7.41	-81.0	71.6	104.8	98.9	5.93	17.685	
1,500.0	1,499.7	1,481.4	1,473.6	3.2	3.7	-11.48	-90.4	90.1	119.0	112.6	6.34	18.769	
1,600.0	1,599.3	1,577.0	1,566.4	3.4	4.1	-15.17	-100.7	110.7	133.5	126.8	6.76	19.762	
1,700.0	1,698.6	1,672.0	1,658.0	3.6	4.6	-18.56	-112.1	133.2	148.5	141.3	7.18	20.678	
1,800.0	1,797.5	1,766.6	1,748.5	3.8	5.1	-21.72	-124.4	157.6	164.0	156.4	7.62	21.512	
1,900.0	1,896.1	1,860.6	1,837.8	4.1	5.6	-24.67	-137.6	183.8	180.0	171.9	8.09	22.257	
1,994.0	1,988.3	1,950.8	1,922.9	4.4	6.2	-27.35	-151.1	210.5	195.3	186.7	8.56	22.825	
2,000.0	1,994.2	1,956.7	1,928.5	4.4	6.3	-27.52	-152.0	212.3	196.2	187.6	8.59	22.849	
2,100.0	2,092.0	2,055.0	2,021.1	4.8	6.9	-30.24	-166.8	241.7	212.2	203.1	9.15	23.199	
2,200.0	2,189.9	2,153.2	2,113.7	5.1	7.6	-32.57	-181.6	271.0	228.6	218.8	9.74	23.469	
2,300.0	2,287.7	2,251.5	2,206.2	5.5	8.2	-34.59	-196.4	300.4	245.3	234.9	10.36	23.665	
2,400.0	2,385.6	2,349.7	2,298.8	5.9	8.9	-36.35	-211.2	329.8	262.2	251.2	11.02	23.799	
2,500.0	2,483.4	2,448.0	2,391.4	6.3	9.6	-37.89	-226.0	359.1	279.4	267.7	11.70	23.883	
2,600.0	2,581.3	2,546.2	2,484.0	6.7	10.3	-39.26	-240.8	388.5	296.7	284.3	12.40	23.927	
2,700.0	2,679.1	2,644.5	2,576.6	7.1	11.0	-40.48	-255.6	417.9	314.2	301.1	13.12	23.940	
2,800.0	2,776.9	2,742.7	2,669.2	7.5	11.6	-41.57	-270.4	447.2	331.8	317.9	13.87	23.931	
2,900.0	2,874.8	2,841.0	2,761.8	8.0	12.3	-42.55	-285.2	476.6	349.5	334.9	14.62	23.904	
3,000.0	2,972.6	2,939.2	2,854.3	8.4	13.0	-43.43	-300.0	505.9	367.3	351.9	15.39	23.865	
3,100.0	3,070.5	3,037.5	2,946.9	8.8	13.7	-44.24	-314.8	535.3	385.2	369.0	16.17	23.818	
3,200.0	3,168.3	3,135.7	3,039.5	9.3	14.4	-44.97	-329.6	564.7	403.2	386.2	16.96	23.764	
3,300.0	3,266.2	3,234.0	3,132.1	9.7	15.1	-45.64	-344.4	594.0	421.2	403.4	17.77	23.707	
3,400.0	3,364.0	3,332.2	3,224.7	10.1	15.8	-46.25	-359.2	623.4	439.2	420.6	18.57	23.647	
3,500.0	3,461.9	3,430.5	3,317.3	10.6	16.5	-46.82	-374.0	652.8	457.3	437.9	19.39	23.586	
3,600.0	3,559.7	3,528.7	3,409.9	11.0	17.2	-47.34	-388.8	682.1	475.5	455.2	20.21	23.525	
3,700.0	3,657.6	3,627.0	3,502.4	11.5	17.9	-47.83	-403.6	711.5	493.6	472.6	21.04	23.464	
3,800.0	3,755.4	3,725.2	3,595.0	11.9	18.6	-48.28	-418.4	740.9	511.8	490.0	21.87	23.404	
3,900.0	3,853.3	3,823.5	3,687.6	12.4	19.3	-48.70	-433.2	770.2	530.1	507.4	22.71	23.345	
4,000.0	3,951.1	3,921.7	3,780.2	12.8	20.0	-49.09	-448.0	799.6	548.3	524.8	23.55	23.287	
4,100.0	4,049.0	4,020.0	3,872.8	13.3	20.7	-49.45	-462.8	828.9	566.6	542.2	24.39	23.232	
4,200.0	4,146.8	4,118.2	3,965.4	13.7	21.4	-49.80	-477.6	858.3	584.9	559.7	25.24	23.177	
4,300.0	4,244.7	4,216.5	4,058.0	14.2	22.1	-50.12	-492.4	887.7	603.3	577.2	26.09	23.125	
4,400.0	4,342.5	4,314.7	4,150.5	14.6	22.8	-50.42	-507.2	917.0	621.6	594.7	26.94	23.074	
4,500.0	4,440.4	4,413.0	4,243.1	15.1	23.5	-50.71	-522.0	946.4	640.0	612.2	27.79	23.025	
4,600.0	4,538.2	4,511.2	4,335.7	15.5	24.2	-50.98	-536.8	975.8	658.3	629.7	28.65	22.978	
4,700.0	4,636.0	4,609.5	4,428.3	16.0	24.9	-51.24	-551.6	1,005.1	676.7	647.2	29.51	22.932	
4,800.0	4,733.9	4,707.7	4,520.9	16.4	25.6	-51.48	-566.3	1,034.5	695.1	664.8	30.37	22.888	
4,900.0	4,831.7	4,806.0	4,613.5	16.9	26.3	-51.71	-581.1	1,063.9	713.6	682.3	31.23	22.845	

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 Dunn 7L-301
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-10-15)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 7Q-241 - Wellbore #1 - Plan #1 (9-11-15)												Offset Well Error:	0.0 ft
Survey Program: 0-MWD													
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
5,000.0	4,929.6	4,904.2	4,706.1	17.4	27.0	-51.93	-595.9	1,093.2	732.0	699.9	32.10	22.804	
5,100.0	5,027.4	5,002.5	4,798.6	17.8	27.7	-52.13	-610.7	1,122.6	750.4	717.4	32.96	22.765	
5,200.0	5,125.3	5,117.9	4,907.6	18.3	28.5	-52.39	-627.8	1,156.3	768.3	734.4	33.88	22.678	
5,300.0	5,223.1	5,249.0	5,033.1	18.7	29.1	-52.83	-644.9	1,190.2	782.5	747.7	34.82	22.474	
5,387.6	5,308.8	5,364.7	5,145.2	19.1	29.6	-53.35	-657.8	1,215.9	791.6	755.9	35.66	22.194	
5,400.0	5,321.0	5,381.2	5,161.3	19.2	29.7	-53.45	-659.5	1,219.2	792.6	756.8	35.78	22.153	
5,500.0	5,419.3	5,514.0	5,291.4	19.5	30.1	-54.19	-671.4	1,243.0	799.9	763.3	36.57	21.870	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7L-301
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-10-15)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
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
0.0	0.0	0.0	0.0	0.0	0.0	-179.47	-60.1	-0.6	60.1				
100.0	100.0	100.0	100.0	0.1	0.1	-179.47	-60.1	-0.6	60.1	59.9	0.22	267.477	
200.0	200.0	200.0	200.0	0.3	0.3	-179.47	-60.1	-0.6	60.1	59.4	0.67	89.153	
300.0	300.0	300.0	300.0	0.6	0.6	-179.47	-60.1	-0.6	60.1	59.0	1.12	53.491	
400.0	400.0	400.0	400.0	0.8	0.8	-179.47	-60.1	-0.6	60.1	58.5	1.57	38.208 CC, ES	
500.0	500.0	499.4	499.4	1.0	1.0	179.40	-60.6	0.6	60.6	58.6	2.00	30.244	
600.0	600.0	598.7	598.6	1.2	1.2	176.12	-62.1	4.2	62.2	59.8	2.43	25.611	
700.0	700.0	697.6	697.3	1.5	1.4	171.06	-64.5	10.2	65.4	62.5	2.87	22.749	
800.0	800.0	796.2	795.5	1.7	1.7	164.84	-68.0	18.4	70.6	67.2	3.34	21.130	
900.0	900.0	894.3	892.9	1.9	1.9	158.18	-72.3	29.0	78.2	74.4	3.83	20.444 SF	
1,000.0	1,000.0	991.7	989.3	2.1	2.2	151.74	-77.6	41.7	88.7	84.4	4.34	20.471	
1,100.0	1,100.0	1,088.4	1,084.6	2.4	2.5	145.95	-83.8	56.6	102.3	97.4	4.86	21.028	
1,200.0	1,200.0	1,184.1	1,178.6	2.6	2.9	140.99	-90.8	73.5	118.8	113.4	5.41	21.969	
1,300.0	1,300.0	1,279.1	1,271.4	2.8	3.3	-8.86	-98.6	92.5	137.0	131.3	5.64	24.300	
1,400.0	1,399.9	1,373.6	1,363.0	3.0	3.7	-12.53	-107.3	113.5	155.5	149.4	6.05	25.685	
1,500.0	1,499.7	1,467.4	1,453.6	3.2	4.2	-15.83	-116.8	136.4	174.4	167.9	6.48	26.923	
1,600.0	1,599.3	1,560.6	1,542.8	3.4	4.8	-18.84	-127.0	161.1	193.7	186.8	6.91	28.046	
1,700.0	1,698.6	1,653.2	1,630.9	3.6	5.3	-21.63	-138.0	187.7	213.5	206.1	7.35	29.057	
1,800.0	1,797.5	1,745.2	1,717.6	3.8	5.9	-24.23	-149.8	216.1	233.7	225.9	7.80	29.961	
1,900.0	1,896.1	1,838.1	1,804.4	4.1	6.6	-26.72	-162.4	246.6	254.4	246.1	8.28	30.724	
1,994.0	1,988.3	1,929.6	1,889.7	4.4	7.3	-29.03	-175.0	277.1	272.9	264.1	8.76	31.133	
2,000.0	1,994.2	1,935.4	1,895.1	4.4	7.3	-29.19	-175.8	279.1	274.0	265.2	8.80	31.145	
2,100.0	2,092.0	2,032.9	1,986.0	4.8	8.0	-31.56	-189.3	311.7	293.1	283.7	9.36	31.312	
2,200.0	2,189.9	2,130.4	2,076.9	5.1	8.7	-33.64	-202.8	344.3	312.6	302.7	9.96	31.401	
2,300.0	2,287.7	2,227.8	2,167.8	5.5	9.5	-35.48	-216.3	376.8	332.5	321.9	10.58	31.423	
2,400.0	2,385.6	2,325.3	2,258.6	5.9	10.2	-37.11	-229.8	409.4	352.7	341.5	11.24	31.389	
2,500.0	2,483.4	2,422.8	2,349.5	6.3	11.0	-38.57	-243.3	442.0	373.1	361.2	11.92	31.311	
2,600.0	2,581.3	2,520.3	2,440.4	6.7	11.7	-39.87	-256.7	474.5	393.8	381.1	12.62	31.202	
2,700.0	2,679.1	2,617.7	2,531.2	7.1	12.5	-41.05	-270.2	507.1	414.6	401.2	13.34	31.070	
2,800.0	2,776.9	2,715.2	2,622.1	7.5	13.2	-42.11	-283.7	539.7	435.5	421.5	14.08	30.922	
2,900.0	2,874.8	2,812.7	2,713.0	8.0	14.0	-43.08	-297.2	572.3	456.6	441.8	14.84	30.765	
3,000.0	2,972.6	2,910.1	2,803.9	8.4	14.7	-43.96	-310.7	604.8	477.8	462.2	15.61	30.603	
3,100.0	3,070.5	3,007.6	2,894.7	8.8	15.5	-44.76	-324.1	637.4	499.2	482.8	16.40	30.440	
3,200.0	3,168.3	3,105.1	2,985.6	9.3	16.2	-45.50	-337.6	670.0	520.6	503.4	17.19	30.277	
3,300.0	3,266.2	3,202.6	3,076.5	9.7	17.0	-46.19	-351.1	702.6	542.0	524.0	18.00	30.116	
3,400.0	3,364.0	3,300.0	3,167.4	10.1	17.7	-46.82	-364.6	735.1	563.6	544.8	18.81	29.960	
3,500.0	3,461.9	3,397.5	3,258.2	10.6	18.5	-47.40	-378.1	767.7	585.2	565.5	19.63	29.807	
3,600.0	3,559.7	3,495.0	3,349.1	11.0	19.2	-47.94	-391.5	800.3	606.8	586.4	20.46	29.660	
3,700.0	3,657.6	3,592.4	3,440.0	11.5	20.0	-48.45	-405.0	832.9	628.5	607.2	21.29	29.518	
3,800.0	3,755.4	3,689.9	3,530.8	11.9	20.7	-48.92	-418.5	865.4	650.3	628.1	22.13	29.382	
3,900.0	3,853.3	3,787.4	3,621.7	12.4	21.5	-49.36	-432.0	898.0	672.1	649.1	22.98	29.251	
4,000.0	3,951.1	3,884.9	3,712.6	12.8	22.2	-49.77	-445.5	930.6	693.9	670.1	23.82	29.126	
4,100.0	4,049.0	3,982.3	3,803.5	13.3	23.0	-50.16	-458.9	963.2	715.7	691.1	24.68	29.005	
4,200.0	4,146.8	4,079.8	3,894.3	13.7	23.8	-50.52	-472.4	995.7	737.6	712.1	25.53	28.890	
4,300.0	4,244.7	4,177.3	3,985.2	14.2	24.5	-50.87	-485.9	1,028.3	759.5	733.1	26.39	28.780	
4,400.0	4,342.5	4,274.7	4,076.1	14.6	25.3	-51.19	-499.4	1,060.9	781.5	754.2	27.25	28.675	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7L-301
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-10-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 7Q-341 - Wellbore #1 - Plan #1 (9-11-15)													Offset Well Error:	0.0 ft
Survey Program: 0-MWD														
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-179.47	-29.9	-0.3	29.9	29.9	0.00	N/A		
100.0	100.0	100.0	100.0	0.1	0.1	-179.47	-29.9	-0.3	29.9	29.7	0.22	132.928		
200.0	200.0	200.0	200.0	0.3	0.3	-179.47	-29.9	-0.3	29.9	29.2	0.67	44.307		
300.0	300.0	300.0	300.0	0.6	0.6	-179.47	-29.9	-0.3	29.9	28.8	1.12	26.584		
400.0	400.0	400.0	400.0	0.8	0.8	-179.47	-29.9	-0.3	29.9	28.3	1.57	18.988		
500.0	500.0	500.0	500.0	1.0	1.0	-179.47	-29.9	-0.3	29.9	27.9	2.02	14.769		
600.0	600.0	600.0	600.0	1.2	1.2	-179.47	-29.9	-0.3	29.9	27.4	2.47	12.083		
700.0	700.0	700.0	700.0	1.5	1.5	-179.47	-29.9	-0.3	29.9	27.0	2.92	10.224		
800.0	800.0	800.0	800.0	1.7	1.7	-179.47	-29.9	-0.3	29.9	26.5	3.37	8.861	CC, ES	
900.0	900.0	899.6	899.6	1.9	1.9	178.47	-30.6	0.8	30.6	26.8	3.80	8.050		
1,000.0	1,000.0	999.0	998.9	2.1	2.1	172.85	-32.7	4.1	32.9	28.7	4.21	7.813		
1,100.0	1,100.0	1,098.2	1,097.9	2.4	2.3	165.21	-36.1	9.5	37.4	32.8	4.64	8.058		
1,200.0	1,200.0	1,196.9	1,196.2	2.6	2.5	157.32	-40.9	17.1	44.5	39.4	5.09	8.755		
1,300.0	1,300.0	1,295.3	1,293.9	2.8	2.7	4.83	-47.1	26.8	53.2	47.7	5.48	9.707		
1,400.0	1,399.9	1,393.4	1,391.0	3.0	3.0	-0.95	-54.6	38.5	62.2	56.3	5.87	10.595		
1,500.0	1,499.7	1,491.1	1,487.4	3.2	3.3	-6.02	-63.3	52.3	71.5	65.3	6.27	11.412		
1,600.0	1,599.3	1,588.6	1,583.0	3.4	3.7	-10.59	-73.4	68.2	81.2	74.5	6.67	12.174		
1,700.0	1,698.6	1,685.7	1,677.8	3.6	4.0	-14.78	-84.8	86.0	91.3	84.2	7.08	12.889		
1,800.0	1,797.5	1,782.5	1,771.7	3.8	4.4	-18.66	-97.3	105.7	101.8	94.3	7.51	13.560		
1,900.0	1,896.1	1,878.9	1,864.6	4.1	4.9	-22.28	-111.1	127.4	112.8	104.9	7.96	14.183		
1,994.0	1,988.3	1,971.0	1,952.9	4.4	5.4	-25.54	-125.3	149.6	123.3	114.9	8.41	14.655		
2,000.0	1,994.2	1,977.0	1,958.6	4.4	5.4	-25.75	-126.2	151.1	123.9	115.5	8.45	14.674		
2,100.0	2,092.0	2,076.2	2,053.6	4.8	6.0	-28.96	-141.5	175.1	134.6	125.6	8.99	14.961		
2,200.0	2,189.9	2,175.3	2,148.6	5.1	6.5	-31.69	-156.8	199.2	145.6	136.0	9.58	15.193		
2,300.0	2,287.7	2,274.5	2,243.6	5.5	7.1	-34.04	-172.1	223.2	156.8	146.6	10.20	15.373		
2,400.0	2,385.6	2,373.7	2,338.6	5.9	7.7	-36.07	-187.4	247.3	168.3	157.5	10.85	15.509		
2,500.0	2,483.4	2,472.8	2,433.5	6.3	8.2	-37.83	-202.7	271.3	180.0	168.5	11.53	15.608		
2,600.0	2,581.3	2,572.0	2,528.5	6.7	8.8	-39.39	-218.0	295.4	191.9	179.6	12.24	15.677		
2,700.0	2,679.1	2,671.2	2,623.5	7.1	9.4	-40.76	-233.3	319.4	203.8	190.9	12.96	15.723		
2,800.0	2,776.9	2,770.4	2,718.5	7.5	10.0	-41.98	-248.6	343.5	215.9	202.2	13.71	15.750		
2,900.0	2,874.8	2,869.5	2,813.5	8.0	10.6	-43.07	-263.9	367.5	228.0	213.6	14.47	15.764		
3,000.0	2,972.6	2,968.7	2,908.5	8.4	11.2	-44.05	-279.2	391.6	240.3	225.0	15.24	15.768		
3,100.0	3,070.5	3,067.9	3,003.5	8.8	11.8	-44.93	-294.5	415.6	252.5	236.5	16.02	15.764		
3,200.0	3,168.3	3,167.0	3,098.4	9.3	12.4	-45.73	-309.8	439.7	264.9	248.1	16.81	15.754		
3,300.0	3,266.2	3,266.2	3,193.4	9.7	13.0	-46.46	-325.1	463.7	277.3	259.6	17.62	15.739		
3,400.0	3,364.0	3,365.4	3,288.4	10.1	13.6	-47.13	-340.4	487.8	289.7	271.3	18.43	15.722		
3,500.0	3,461.9	3,464.6	3,383.4	10.6	14.2	-47.75	-355.7	511.8	302.1	282.9	19.24	15.703		
3,600.0	3,559.7	3,563.7	3,478.4	11.0	14.8	-48.31	-371.0	535.9	314.6	294.6	20.06	15.682		
3,700.0	3,657.6	3,662.9	3,573.4	11.5	15.4	-48.83	-386.3	559.9	327.1	306.3	20.89	15.660		
3,800.0	3,755.4	3,762.1	3,668.4	11.9	16.0	-49.32	-401.6	584.0	339.7	318.0	21.72	15.638		
3,900.0	3,853.3	3,861.2	3,763.3	12.4	16.6	-49.77	-416.9	608.0	352.3	329.7	22.56	15.615		
4,000.0	3,951.1	3,960.4	3,858.3	12.8	17.2	-50.18	-432.2	632.1	364.8	341.4	23.40	15.593		
4,100.0	4,049.0	4,059.6	3,953.3	13.3	17.8	-50.57	-447.5	656.1	377.4	353.2	24.24	15.571		
4,200.0	4,146.8	4,158.8	4,048.3	13.7	18.4	-50.94	-462.8	680.2	390.1	365.0	25.09	15.549		
4,300.0	4,244.7	4,257.9	4,143.3	14.2	19.0	-51.28	-478.1	704.2	402.7	376.8	25.93	15.527		
4,400.0	4,342.5	4,357.1	4,238.3	14.6	19.6	-51.60	-493.4	728.3	415.3	388.6	26.79	15.506		
4,500.0	4,440.4	4,456.3	4,333.3	15.1	20.2	-51.90	-508.7	752.3	428.0	400.4	27.64	15.486		
4,600.0	4,538.2	4,555.4	4,428.2	15.5	20.9	-52.19	-524.0	776.4	440.7	412.2	28.49	15.466		
4,700.0	4,636.0	4,654.6	4,523.2	16.0	21.5	-52.46	-539.3	800.4	453.4	424.0	29.35	15.446		
4,800.0	4,733.9	4,753.8	4,618.2	16.4	22.1	-52.71	-554.6	824.5	466.0	435.8	30.21	15.428		
4,900.0	4,831.7	4,852.9	4,713.2	16.9	22.7	-52.95	-569.9	848.5	478.7	447.7	31.07	15.409		

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 Dunn 7L-301
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-10-15)	Offset TVD Reference:	Offset Datum

Offset Design													Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 7Q-341 - Wellbore #1 - Plan #1 (9-11-15)		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 (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					
5,000.0	4,929.6	4,952.1	4,808.2	17.4	23.3	-53.18	-585.2	872.6	491.5	459.5	31.93	15.392					
5,100.0	5,027.4	5,051.3	4,903.2	17.8	23.9	-53.40	-600.5	896.6	504.2	471.4	32.79	15.375					
5,200.0	5,125.3	5,150.5	4,998.2	18.3	24.5	-53.60	-615.8	920.7	516.9	483.2	33.66	15.358					
5,300.0	5,223.1	5,252.9	5,096.3	18.7	25.1	-53.81	-631.6	945.5	529.6	495.0	34.53	15.338					
5,387.6	5,308.8	5,356.4	5,196.1	19.1	25.6	-54.15	-646.2	968.4	538.8	503.5	35.31	15.260					
5,400.0	5,321.0	5,371.1	5,210.4	19.2	25.7	-54.23	-648.2	971.5	540.0	504.5	35.42	15.246					
5,500.0	5,419.3	5,489.9	5,326.2	19.5	26.1	-54.80	-662.2	993.6	548.1	512.0	36.16	15.160					
5,600.0	5,518.1	5,609.0	5,443.4	19.8	26.5	-55.26	-673.7	1,011.6	554.8	518.0	36.79	15.079					
5,700.0	5,617.4	5,728.5	5,561.7	20.0	26.8	-55.61	-682.6	1,025.6	560.0	522.7	37.33	15.001					
5,800.0	5,717.1	5,848.1	5,680.8	20.2	27.0	-55.85	-688.9	1,035.4	563.6	525.9	37.77	14.924					
5,900.0	5,817.0	5,968.0	5,800.5	20.4	27.2	-55.98	-692.4	1,041.1	565.7	527.6	38.10	14.848					
5,983.0	5,900.0	6,067.5	5,900.0	20.5	27.3	89.63	-693.4	1,042.5	566.2	527.9	38.32	14.778					
6,000.0	5,917.0	6,084.5	5,917.0	20.5	27.4	89.63	-693.4	1,042.5	566.2	527.9	38.36	14.761					
6,100.0	6,017.0	6,184.5	6,017.0	20.6	27.4	89.63	-693.4	1,042.5	566.2	527.6	38.61	14.664					
6,122.7	6,039.6	6,207.2	6,039.6	20.6	27.5	89.63	-693.4	1,042.5	566.2	527.6	38.67	14.642					
6,136.9	6,053.8	6,221.4	6,053.8	20.7	27.5	89.63	-693.4	1,042.5	566.2	527.5	38.71	14.629					
6,150.0	6,067.0	6,234.4	6,066.9	20.7	27.5	89.62	-693.2	1,042.5	566.2	527.5	38.74	14.617					
6,200.0	6,116.9	6,284.2	6,116.5	20.7	27.5	89.59	-690.4	1,042.5	566.2	527.4	38.82	14.585					
6,250.0	6,166.6	6,333.9	6,165.9	20.7	27.5	89.56	-684.4	1,042.5	566.2	527.4	38.85	14.576					
6,300.0	6,215.7	6,383.6	6,214.7	20.7	27.5	89.53	-675.2	1,042.5	566.2	527.4	38.81	14.589					
6,350.0	6,264.2	6,433.3	6,262.9	20.7	27.5	89.51	-662.8	1,042.5	566.2	527.5	38.72	14.625					
6,400.0	6,311.8	6,483.0	6,310.1	20.6	27.4	89.48	-647.3	1,042.5	566.2	527.7	38.57	14.680					
6,450.0	6,358.3	6,532.6	6,356.1	20.5	27.4	89.46	-628.9	1,042.5	566.2	527.9	38.38	14.753					
6,500.0	6,403.4	6,582.3	6,400.9	20.4	27.3	89.44	-607.4	1,042.5	566.3	528.1	38.15	14.843					
6,550.0	6,447.1	6,631.9	6,444.2	20.3	27.2	89.43	-583.1	1,042.5	566.3	528.4	37.89	14.946					
6,600.0	6,489.1	6,681.5	6,485.8	20.1	27.1	89.41	-556.1	1,042.5	566.3	528.7	37.60	15.061					
6,650.0	6,529.2	6,731.2	6,525.6	20.0	26.9	89.40	-526.4	1,042.5	566.3	529.0	37.30	15.182					
6,700.0	6,567.3	6,780.8	6,563.3	19.8	26.8	89.39	-494.2	1,042.5	566.3	529.3	36.99	15.308					
6,750.0	6,603.2	6,830.4	6,598.9	19.6	26.7	89.38	-459.7	1,042.5	566.3	529.6	36.69	15.432					
6,800.0	6,636.8	6,880.0	6,632.1	19.4	26.5	89.38	-422.9	1,042.5	566.3	529.8	36.41	15.550					
6,850.0	6,667.8	6,929.6	6,662.9	19.3	26.4	89.38	-384.0	1,042.5	566.3	530.1	36.17	15.657					
6,900.0	6,696.2	6,979.2	6,691.1	19.1	26.2	89.38	-343.2	1,042.5	566.3	530.3	35.96	15.748					
6,950.0	6,721.9	7,028.8	6,716.6	18.9	26.1	89.38	-300.6	1,042.5	566.3	530.5	35.80	15.816					
7,000.0	6,744.7	7,078.4	6,739.3	18.8	25.9	89.39	-256.5	1,042.5	566.3	530.5	35.71	15.858					
7,050.0	6,764.6	7,128.0	6,759.0	18.6	25.8	89.40	-211.0	1,042.5	566.3	530.6	35.69	15.868					
7,100.0	6,781.4	7,177.6	6,775.8	18.5	25.6	89.41	-164.4	1,042.5	566.3	530.5	35.74	15.843					
7,150.0	6,795.0	7,227.3	6,789.5	18.4	25.5	89.42	-116.7	1,042.5	566.3	530.4	35.88	15.781					
7,200.0	6,805.6	7,276.9	6,800.1	18.3	25.4	89.44	-68.2	1,042.5	566.3	530.1	36.11	15.682					
7,250.0	6,812.9	7,326.5	6,807.6	18.2	25.3	89.46	-19.1	1,042.5	566.2	529.8	36.42	15.546					
7,300.0	6,816.9	7,376.2	6,811.8	18.2	25.1	89.48	30.4	1,042.5	566.2	529.4	36.83	15.376					
7,338.9	6,817.8	7,414.8	6,812.8	18.3	25.1	89.50	69.0	1,042.5	566.2	529.1	37.19	15.224					
7,365.0	6,817.7	7,441.0	6,812.8	18.3	25.0	89.50	95.1	1,042.5	566.2	528.7	37.50	15.102					
7,400.0	6,817.6	7,475.9	6,812.7	18.5	25.0	89.50	130.1	1,042.5	566.2	528.3	37.90	14.939					
7,500.0	6,817.4	7,575.9	6,812.5	19.1	24.9	89.51	230.1	1,042.5	566.2	526.9	39.32	14.400					
7,600.0	6,817.1	7,675.9	6,812.3	20.0	25.0	89.51	330.1	1,042.5	566.2	525.2	41.05	13.793					
7,700.0	6,816.8	7,775.9	6,812.1	21.1	25.4	89.52	430.1	1,042.5	566.2	523.2	43.05	13.152					
7,800.0	6,816.6	7,875.9	6,811.9	22.3	26.0	89.52	530.1	1,042.5	566.2	520.9	45.30	12.501					
7,900.0	6,816.3	7,975.9	6,811.7	23.6	26.9	89.53	630.1	1,042.5	566.2	518.5	47.74	11.861					
8,000.0	6,816.1	8,075.9	6,811.5	24.9	28.0	89.53	730.1	1,042.5	566.2	515.9	50.36	11.244					
8,100.0	6,815.8	8,175.9	6,811.2	26.4	29.2	89.54	830.1	1,042.5	566.2	513.1	53.13	10.658					
8,200.0	6,815.5	8,275.9	6,811.0	27.9	30.6	89.55	930.1	1,042.5	566.2	510.2	56.02	10.107					

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 Dunn 7L-301
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-10-15)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 7Q-341 - Wellbore #1 - Plan #1 (9-11-15)													
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
8,300.0	6,815.3	8,375.9	6,810.8	29.4	32.0	89.55	1,030.1	1,042.5	566.2	507.2	59.02	9.593	
8,400.0	6,815.0	8,475.9	6,810.6	31.0	33.5	89.56	1,130.1	1,042.5	566.2	504.1	62.12	9.115	
8,500.0	6,814.7	8,575.9	6,810.4	32.6	35.0	89.56	1,230.1	1,042.5	566.2	500.9	65.29	8.672	
8,600.0	6,814.5	8,675.9	6,810.2	34.2	36.5	89.57	1,330.1	1,042.5	566.2	497.7	68.54	8.262	
8,700.0	6,814.2	8,775.9	6,810.0	35.9	38.1	89.57	1,430.1	1,042.5	566.2	494.4	71.84	7.882	
8,800.0	6,814.0	8,875.9	6,809.8	37.6	39.7	89.58	1,530.1	1,042.5	566.2	491.0	75.19	7.531	
8,900.0	6,813.7	8,975.9	6,809.6	39.3	41.4	89.58	1,630.1	1,042.5	566.2	487.6	78.59	7.205	
9,000.0	6,813.4	9,075.9	6,809.4	41.0	43.0	89.59	1,730.1	1,042.5	566.2	484.2	82.03	6.903	
9,100.0	6,813.2	9,175.9	6,809.2	42.7	44.7	89.59	1,830.1	1,042.5	566.2	480.7	85.50	6.623	
9,200.0	6,812.9	9,275.9	6,808.9	44.5	46.4	89.60	1,930.1	1,042.5	566.2	477.2	89.00	6.362	
9,300.0	6,812.7	9,375.9	6,808.7	46.3	48.2	89.60	2,030.1	1,042.5	566.2	473.7	92.53	6.120	
9,400.0	6,812.4	9,475.9	6,808.5	48.0	49.9	89.61	2,130.1	1,042.5	566.2	470.2	96.08	5.893	
9,500.0	6,812.1	9,575.9	6,808.3	49.8	51.6	89.61	2,230.1	1,042.5	566.2	466.6	99.65	5.682	
9,600.0	6,811.9	9,675.9	6,808.1	51.6	53.4	89.62	2,330.1	1,042.5	566.2	463.0	103.25	5.484	
9,700.0	6,811.6	9,775.9	6,807.9	53.4	55.1	89.62	2,430.1	1,042.5	566.2	459.4	106.86	5.299	
9,800.0	6,811.3	9,875.9	6,807.7	55.3	56.9	89.63	2,530.1	1,042.5	566.2	455.8	110.48	5.125	
9,900.0	6,811.1	9,975.9	6,807.5	57.1	58.7	89.64	2,630.1	1,042.5	566.2	452.1	114.12	4.962	
10,000.0	6,810.8	10,075.9	6,807.3	58.9	60.5	89.64	2,730.1	1,042.5	566.2	448.5	117.78	4.808	
10,100.0	6,810.6	10,175.9	6,807.1	60.7	62.3	89.65	2,830.1	1,042.5	566.2	444.8	121.44	4.663	
10,200.0	6,810.3	10,275.9	6,806.8	62.6	64.1	89.65	2,930.1	1,042.5	566.2	441.1	125.11	4.526	
10,300.0	6,810.0	10,375.9	6,806.6	64.4	65.9	89.66	3,030.1	1,042.5	566.2	437.4	128.80	4.396	
10,400.0	6,809.8	10,475.9	6,806.4	66.3	67.7	89.66	3,130.1	1,042.5	566.2	433.7	132.49	4.274	
10,500.0	6,809.5	10,575.9	6,806.2	68.1	69.5	89.67	3,230.1	1,042.5	566.2	430.0	136.19	4.158	
10,600.0	6,809.2	10,675.9	6,806.0	70.0	71.4	89.67	3,330.1	1,042.5	566.2	426.3	139.90	4.047	
10,700.0	6,809.0	10,775.9	6,805.8	71.8	73.2	89.68	3,430.1	1,042.5	566.2	422.6	143.62	3.943	
10,800.0	6,808.7	10,875.9	6,805.6	73.7	75.0	89.68	3,530.1	1,042.5	566.2	418.9	147.34	3.843	
10,900.0	6,808.5	10,975.9	6,805.4	75.5	76.9	89.69	3,630.1	1,042.5	566.2	415.2	151.07	3.748	
11,000.0	6,808.2	11,075.9	6,805.2	77.4	78.7	89.69	3,730.1	1,042.5	566.2	411.4	154.80	3.658	
11,100.0	6,807.9	11,175.9	6,805.0	79.3	80.6	89.70	3,830.1	1,042.5	566.2	407.7	158.54	3.571	
11,200.0	6,807.7	11,275.9	6,804.8	81.2	82.4	89.70	3,930.1	1,042.5	566.2	403.9	162.29	3.489	
11,300.0	6,807.4	11,375.9	6,804.5	83.0	84.3	89.71	4,030.0	1,042.5	566.2	400.2	166.03	3.410	
11,400.0	6,807.2	11,475.9	6,804.3	84.9	86.1	89.71	4,130.0	1,042.5	566.2	396.4	169.79	3.335	
11,500.0	6,806.9	11,575.9	6,804.1	86.8	88.0	89.72	4,230.0	1,042.5	566.2	392.7	173.54	3.263	
11,600.0	6,806.6	11,675.9	6,803.9	88.7	89.8	89.73	4,330.0	1,042.5	566.2	388.9	177.30	3.194	
11,700.0	6,806.4	11,775.9	6,803.7	90.5	91.7	89.73	4,430.0	1,042.5	566.2	385.2	181.07	3.127	
11,800.0	6,806.1	11,875.9	6,803.5	92.4	93.6	89.74	4,530.0	1,042.5	566.2	381.4	184.83	3.063	
11,900.0	6,805.8	11,975.9	6,803.3	94.3	95.4	89.74	4,630.0	1,042.5	566.2	377.6	188.60	3.002	
12,000.0	6,805.6	12,075.9	6,803.1	96.2	97.3	89.75	4,730.0	1,042.5	566.2	373.9	192.37	2.943	
12,100.0	6,805.3	12,175.9	6,802.9	98.1	99.2	89.75	4,830.0	1,042.5	566.2	370.1	196.15	2.887	
12,200.0	6,805.1	12,275.9	6,802.7	100.0	101.0	89.76	4,930.0	1,042.5	566.2	366.3	199.93	2.832	
12,300.0	6,804.8	12,375.9	6,802.5	101.9	102.9	89.76	5,030.0	1,042.5	566.2	362.5	203.71	2.780	
12,400.0	6,804.5	12,475.9	6,802.2	103.7	104.8	89.77	5,130.0	1,042.5	566.2	358.7	207.49	2.729	
12,500.0	6,804.3	12,575.9	6,802.0	105.6	106.7	89.77	5,230.0	1,042.5	566.2	355.0	211.27	2.680	
12,600.0	6,804.0	12,675.9	6,801.8	107.5	108.5	89.78	5,330.0	1,042.5	566.2	351.2	215.06	2.633	
12,700.0	6,803.8	12,775.9	6,801.6	109.4	110.4	89.78	5,430.0	1,042.5	566.2	347.4	218.85	2.587	
12,800.0	6,803.5	12,875.9	6,801.4	111.3	112.3	89.79	5,530.0	1,042.5	566.2	343.6	222.64	2.543	
12,900.0	6,803.2	12,975.9	6,801.2	113.2	114.2	89.79	5,630.0	1,042.5	566.2	339.8	226.43	2.501	
13,000.0	6,803.0	13,075.9	6,801.0	115.1	116.1	89.80	5,730.0	1,042.5	566.2	336.0	230.22	2.459	
13,100.0	6,802.7	13,175.9	6,800.8	117.0	118.0	89.80	5,830.0	1,042.5	566.2	332.2	234.02	2.420	
13,200.0	6,802.4	13,275.9	6,800.6	118.9	119.8	89.81	5,930.0	1,042.5	566.2	328.4	237.81	2.381	
13,300.0	6,802.2	13,375.9	6,800.4	120.8	121.7	89.82	6,030.0	1,042.5	566.2	324.6	241.61	2.344	

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 Dunn 7L-301
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-10-15)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
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
13,400.0	6,801.9	13,475.9	6,800.1	122.7	123.6	89.82	6,130.0	1,042.5	566.2	320.8	245.41	2.307	
13,500.0	6,801.7	13,575.9	6,799.9	124.6	125.5	89.83	6,230.0	1,042.5	566.2	317.0	249.21	2.272	
13,600.0	6,801.4	13,675.9	6,799.7	126.5	127.4	89.83	6,330.0	1,042.5	566.2	313.2	253.01	2.238	
13,700.0	6,801.1	13,775.9	6,799.5	128.4	129.3	89.84	6,430.0	1,042.5	566.2	309.4	256.81	2.205	
13,800.0	6,800.9	13,875.9	6,799.3	130.3	131.2	89.84	6,530.0	1,042.5	566.2	305.6	260.62	2.173	
13,900.0	6,800.6	13,975.9	6,799.1	132.2	133.1	89.85	6,630.0	1,042.5	566.2	301.8	264.42	2.141	
14,000.0	6,800.3	14,075.9	6,798.9	134.1	135.0	89.85	6,730.0	1,042.5	566.2	298.0	268.23	2.111	
14,100.0	6,800.1	14,175.9	6,798.7	136.0	136.9	89.86	6,830.0	1,042.5	566.2	294.2	272.04	2.081	
14,200.0	6,799.8	14,275.9	6,798.5	137.9	138.8	89.86	6,930.0	1,042.5	566.2	290.4	275.84	2.053	
14,300.0	6,799.6	14,375.9	6,798.3	139.8	140.7	89.87	7,030.0	1,042.5	566.2	286.6	279.65	2.025	
14,400.0	6,799.3	14,475.9	6,798.1	141.7	142.5	89.87	7,130.0	1,042.5	566.2	282.8	283.46	1.998	
14,500.0	6,799.0	14,575.9	6,797.8	143.6	144.4	89.88	7,230.0	1,042.5	566.2	279.0	287.27	1.971	
14,600.0	6,798.8	14,675.9	6,797.6	145.5	146.3	89.88	7,330.0	1,042.5	566.2	275.1	291.08	1.945	
14,700.0	6,798.5	14,775.9	6,797.4	147.4	148.2	89.89	7,430.0	1,042.5	566.2	271.3	294.90	1.920	
14,800.0	6,798.3	14,875.9	6,797.2	149.3	150.1	89.89	7,530.0	1,042.5	566.2	267.5	298.71	1.896	
14,900.0	6,798.0	14,975.9	6,797.0	151.2	152.0	89.90	7,630.0	1,042.5	566.2	263.7	302.52	1.872	
15,000.0	6,797.7	15,075.9	6,796.8	153.2	153.9	89.91	7,730.0	1,042.5	566.2	259.9	306.34	1.848	
15,100.0	6,797.5	15,175.9	6,796.6	155.1	155.8	89.91	7,830.0	1,042.5	566.2	256.1	310.15	1.826	
15,200.0	6,797.2	15,275.9	6,796.4	157.0	157.7	89.92	7,930.0	1,042.5	566.2	252.3	313.97	1.803	
15,300.0	6,796.9	15,375.9	6,796.2	158.9	159.6	89.92	8,030.0	1,042.5	566.2	248.4	317.78	1.782	
15,400.0	6,796.7	15,475.9	6,796.0	160.8	161.5	89.93	8,130.0	1,042.5	566.2	244.6	321.60	1.761	
15,500.0	6,796.4	15,575.9	6,795.7	162.7	163.4	89.93	8,230.0	1,042.5	566.2	240.8	325.42	1.740	
15,600.0	6,796.2	15,675.9	6,795.5	164.6	165.3	89.94	8,330.0	1,042.5	566.2	237.0	329.23	1.720	
15,700.0	6,795.9	15,775.9	6,795.3	166.5	167.2	89.94	8,430.0	1,042.5	566.2	233.2	333.05	1.700	
15,800.0	6,795.6	15,875.9	6,795.1	168.4	169.1	89.95	8,530.0	1,042.5	566.2	229.4	336.87	1.681	
15,900.0	6,795.4	15,975.9	6,794.9	170.3	171.1	89.95	8,630.0	1,042.5	566.2	225.5	340.69	1.662	
16,000.0	6,795.1	16,075.9	6,794.7	172.2	173.0	89.96	8,730.0	1,042.5	566.2	221.7	344.51	1.644	
16,100.0	6,794.8	16,175.9	6,794.5	174.1	174.9	89.96	8,830.0	1,042.5	566.2	217.9	348.33	1.626	
16,200.0	6,794.6	16,275.9	6,794.3	176.1	176.8	89.97	8,930.0	1,042.5	566.2	214.1	352.15	1.608	
16,300.0	6,794.3	16,375.9	6,794.1	178.0	178.7	89.97	9,030.0	1,042.5	566.2	210.3	355.97	1.591	
16,400.0	6,794.1	16,475.9	6,793.9	179.9	180.6	89.98	9,130.0	1,042.5	566.2	206.4	359.79	1.574	
16,500.0	6,793.8	16,575.9	6,793.7	181.8	182.5	89.99	9,230.0	1,042.5	566.2	202.6	363.62	1.557	
16,600.0	6,793.5	16,675.9	6,793.4	183.7	184.4	89.99	9,330.0	1,042.5	566.2	198.8	367.44	1.541	
16,700.0	6,793.3	16,775.9	6,793.2	185.6	186.3	90.00	9,430.0	1,042.5	566.2	195.0	371.26	1.525	
16,759.6	6,793.1	16,835.5	6,793.1	186.8	187.4	90.00	9,489.6	1,042.5	566.2	192.7	373.54	1.516	
16,806.3	6,793.0	16,882.2	6,793.0	187.6	188.3	90.00	9,536.3	1,042.5	566.2	190.9	375.32	1.509 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7L-301
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-10-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 7062-UNKNOWN													Offset Well Error:	0.0 ft
Reference														
Offset														
Semi Major Axis														
Distance														
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
1,900.0	1,896.1	1,883.1	1,883.1	4.1	37.7	-52.40	-104.2	826.3	791.9	750.4	41.46	19.101		
1,994.0	1,988.3	1,975.3	1,975.3	4.4	39.5	-53.59	-104.2	826.3	780.7	737.2	43.50	17.948		
2,000.0	1,994.2	1,981.2	1,981.2	4.4	39.6	-53.66	-104.2	826.3	780.0	736.3	43.64	17.875		
2,100.0	2,092.0	2,079.0	2,079.0	4.8	41.6	-54.88	-104.2	826.3	767.8	721.8	45.91	16.724		
2,200.0	2,189.9	2,176.9	2,176.9	5.1	43.5	-56.14	-104.2	826.3	755.9	707.7	48.20	15.681		
2,300.0	2,287.7	2,274.7	2,274.7	5.5	45.5	-57.44	-104.2	826.3	744.4	693.9	50.52	14.735		
2,400.0	2,385.6	2,372.5	2,372.5	5.9	47.5	-58.78	-104.2	826.3	733.3	680.5	52.86	13.875		
2,500.0	2,483.4	2,470.4	2,470.4	6.3	49.4	-60.15	-104.2	826.3	722.7	667.5	55.21	13.091		
2,600.0	2,581.3	2,568.2	2,568.2	6.7	51.4	-61.57	-104.2	826.3	712.5	654.9	57.57	12.375		
2,700.0	2,679.1	2,666.1	2,666.1	7.1	53.3	-63.02	-104.2	826.3	702.7	642.8	59.95	11.721		
2,800.0	2,776.9	2,763.9	2,763.9	7.5	55.3	-64.52	-104.2	826.3	693.4	631.1	62.35	11.122		
2,900.0	2,874.8	2,861.8	2,861.8	8.0	57.2	-66.05	-104.2	826.3	684.7	619.9	64.75	10.573		
3,000.0	2,972.6	2,959.6	2,959.6	8.4	59.2	-67.62	-104.2	826.3	676.4	609.2	67.17	10.070		
3,100.0	3,070.5	3,057.5	3,057.5	8.8	61.1	-69.22	-104.2	826.3	668.6	599.1	69.59	9.608		
3,200.0	3,168.3	3,155.3	3,155.3	9.3	63.1	-70.86	-104.2	826.3	661.5	589.4	72.02	9.184		
3,300.0	3,266.2	3,253.2	3,253.2	9.7	65.1	-72.53	-104.2	826.3	654.9	580.4	74.46	8.795		
3,400.0	3,364.0	3,351.0	3,351.0	10.1	67.0	-74.24	-104.2	826.3	648.8	571.9	76.90	8.437		
3,500.0	3,461.9	3,448.9	3,448.9	10.6	69.0	-75.97	-104.2	826.3	643.4	564.1	79.35	8.109		
3,600.0	3,559.7	3,546.7	3,546.7	11.0	70.9	-77.73	-104.2	826.3	638.6	556.8	81.79	7.808		
3,700.0	3,657.6	3,644.6	3,644.6	11.5	72.9	-79.51	-104.2	826.3	634.5	550.2	84.24	7.532		
3,800.0	3,755.4	3,742.4	3,742.4	11.9	74.8	-81.32	-104.2	826.3	631.0	544.3	86.68	7.279		
3,900.0	3,853.3	3,840.3	3,840.3	12.4	76.8	-83.14	-104.2	826.3	628.1	539.0	89.12	7.048		
4,000.0	3,951.1	3,938.1	3,938.1	12.8	78.8	-84.98	-104.2	826.3	625.9	534.4	91.55	6.837		
4,100.0	4,049.0	4,036.0	4,036.0	13.3	80.7	-86.82	-104.2	826.3	624.4	530.4	93.98	6.644		
4,200.0	4,146.8	4,133.8	4,133.8	13.7	82.7	-88.67	-104.2	826.3	623.6	527.2	96.40	6.469		
4,271.4	4,216.7	4,203.7	4,203.7	14.0	84.1	-90.00	-104.2	826.3	623.4	525.3	98.12	6.353		
4,300.0	4,244.7	4,231.6	4,231.6	14.2	84.6	-90.53	-104.2	826.3	623.4	524.6	98.81	6.310		
4,400.0	4,342.5	4,329.5	4,329.5	14.6	86.6	-92.38	-104.2	826.3	624.0	522.8	101.21	6.165		
4,500.0	4,440.4	4,427.3	4,427.3	15.1	88.5	-94.23	-104.2	826.3	625.2	521.6	103.59	6.035		
4,600.0	4,538.2	4,525.2	4,525.2	15.5	90.5	-96.07	-104.2	826.3	627.1	521.1	105.96	5.918		
4,700.0	4,636.0	4,623.0	4,623.0	16.0	92.5	-97.90	-104.2	826.3	629.7	521.3	108.32	5.813		
4,800.0	4,733.9	4,720.9	4,720.9	16.4	94.4	-99.71	-104.2	826.3	632.9	522.2	110.66	5.719		
4,900.0	4,831.7	4,818.7	4,818.7	16.9	96.4	-101.51	-104.2	826.3	636.8	523.8	112.99	5.636		
5,000.0	4,929.6	4,916.6	4,916.6	17.4	98.3	-103.28	-104.2	826.3	641.3	526.0	115.30	5.562		
5,100.0	5,027.4	5,014.4	5,014.4	17.8	100.3	-105.02	-104.2	826.3	646.4	528.8	117.59	5.497		
5,200.0	5,125.3	5,112.3	5,112.3	18.3	102.2	-106.74	-104.2	826.3	652.2	532.3	119.87	5.441		
5,300.0	5,223.1	5,210.1	5,210.1	18.7	104.2	-108.43	-104.2	826.3	658.6	536.4	122.14	5.392		
5,387.6	5,308.8	5,295.8	5,295.8	19.1	105.9	-109.88	-104.2	826.3	664.6	540.5	124.10	5.355		
5,400.0	5,321.0	5,308.0	5,308.0	19.2	106.2	-110.09	-104.2	826.3	665.5	541.1	124.39	5.350		
5,500.0	5,419.3	5,406.2	5,406.2	19.5	108.1	-111.68	-104.2	826.3	672.2	545.6	126.60	5.309		
5,600.0	5,518.1	5,505.1	5,505.1	19.8	110.1	-112.95	-104.2	826.3	678.0	549.1	128.82	5.263		
5,700.0	5,617.4	5,604.4	5,604.4	20.0	112.1	-113.93	-104.2	826.3	682.6	551.6	131.02	5.210		
5,800.0	5,717.1	5,704.1	5,704.1	20.2	114.1	-114.61	-104.2	826.3	686.0	552.7	133.21	5.149		
5,900.0	5,817.0	5,804.0	5,804.0	20.4	116.1	-115.00	-104.2	826.3	687.9	552.5	135.37	5.082		
5,983.0	5,900.0	5,887.0	5,887.0	20.5	117.7	30.56	-104.2	826.3	688.4	551.3	137.14	5.020		
6,000.0	5,917.0	5,904.0	5,904.0	20.5	118.1	30.56	-104.2	826.3	688.4	550.9	137.51	5.006		
6,100.0	6,017.0	6,004.0	6,004.0	20.6	120.1	30.56	-104.2	826.3	688.4	548.8	139.63	4.930		
6,136.9	6,053.8	6,040.8	6,040.8	20.7	120.8	30.56	-104.2	826.3	688.4	548.0	140.42	4.903		
6,150.0	6,067.0	6,054.0	6,054.0	20.7	121.1	30.56	-104.2	826.3	688.3	547.6	140.67	4.893		
6,200.0	6,116.9	6,103.9	6,103.9	20.7	122.1	30.75	-104.2	826.3	686.2	544.8	141.37	4.854		
6,250.0	6,166.6	6,153.5	6,153.5	20.7	123.1	31.19	-104.2	826.3	681.2	539.6	141.63	4.810		

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 Dunn 7L-301
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-10-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 7062-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		
6,300.0	6,215.7	6,202.7	6,202.7	20.7	124.1	31.89	-104.2	826.3	673.5	532.1	141.47	4.761		
6,350.0	6,264.2	6,251.2	6,251.2	20.7	125.0	32.87	-104.2	826.3	663.1	522.2	140.93	4.705		
6,400.0	6,311.8	6,298.8	6,298.8	20.6	126.0	34.16	-104.2	826.3	650.2	510.1	140.08	4.641		
6,450.0	6,358.3	6,345.3	6,345.3	20.5	126.9	35.78	-104.2	826.3	634.7	495.7	139.01	4.566		
6,500.0	6,403.4	6,390.4	6,390.4	20.4	127.8	37.76	-104.2	826.3	617.0	479.1	137.86	4.475		
6,550.0	6,447.1	6,434.1	6,434.1	20.3	128.7	40.16	-104.2	826.3	597.1	460.3	136.80	4.365		
6,600.0	6,489.1	6,476.1	6,476.1	20.1	129.5	43.00	-104.2	826.3	575.4	439.3	136.04	4.229		
6,650.0	6,529.2	6,516.2	6,516.2	20.0	130.3	46.32	-104.2	826.3	552.0	416.2	135.80	4.065		
6,700.0	6,567.3	6,554.3	6,554.3	19.8	131.1	50.15	-104.2	826.3	527.4	391.1	136.29	3.869		
6,750.0	6,603.2	6,590.2	6,590.2	19.6	131.8	54.47	-104.2	826.3	501.9	364.2	137.62	3.647		
6,800.0	6,636.8	6,623.8	6,623.8	19.4	132.5	59.21	-104.2	826.3	476.0	336.2	139.76	3.406		
6,850.0	6,667.8	6,654.8	6,654.8	19.3	133.1	64.27	-104.2	826.3	450.4	307.9	142.49	3.161		
6,900.0	6,696.2	6,683.2	6,683.2	19.1	133.7	69.46	-104.2	826.3	425.7	280.3	145.41	2.927		
6,950.0	6,721.9	6,708.9	6,708.9	18.9	134.2	74.55	-104.2	826.3	402.8	254.7	148.12	2.719		
7,000.0	6,744.7	6,731.7	6,731.7	18.8	134.6	79.30	-104.2	826.3	382.7	232.5	150.27	2.547		
7,050.0	6,764.6	6,751.5	6,751.5	18.6	135.0	83.48	-104.2	826.3	366.6	214.8	151.74	2.416		
7,100.0	6,781.4	6,768.3	6,768.3	18.5	135.4	86.91	-104.2	826.3	355.4	202.8	152.59	2.329		
7,150.0	6,795.0	6,782.0	6,782.0	18.4	135.6	89.45	-104.2	826.3	350.2	197.2	153.02	2.289		
7,164.3	6,798.4	6,785.4	6,785.4	18.4	135.7	90.00	-104.2	826.3	350.0	196.9	153.10	2.286 CC, ES, SF		
7,200.0	6,805.6	6,792.5	6,792.5	18.3	135.9	91.02	-104.2	826.3	351.7	198.4	153.26	2.295		
7,250.0	6,812.9	6,799.8	6,799.8	18.2	136.0	91.57	-104.2	826.3	360.0	206.5	153.52	2.345		
7,300.0	6,816.9	6,803.9	6,803.9	18.2	136.1	91.06	-104.2	826.3	374.8	221.0	153.86	2.436		
7,338.9	6,817.8	6,804.8	6,804.8	18.3	136.1	89.93	-104.2	826.3	390.4	236.3	154.13	2.533		
7,400.0	6,817.6	6,804.6	6,804.6	18.5	136.1	89.90	-104.2	826.3	421.1	266.6	154.48	2.726		
7,500.0	6,817.4	6,804.4	6,804.4	19.1	136.1	89.86	-104.2	826.3	483.9	328.7	155.20	3.118		
7,600.0	6,817.1	6,804.1	6,804.1	20.0	136.1	89.81	-104.2	826.3	557.7	401.6	156.07	3.573		
7,700.0	6,816.8	6,803.8	6,803.8	21.1	136.1	89.77	-104.2	826.3	638.7	481.6	157.09	4.066		
7,800.0	6,816.6	6,803.6	6,803.6	22.3	136.1	89.73	-104.2	826.3	724.4	566.2	158.23	4.578		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7L-301
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-10-15)	Offset TVD Reference:	Offset Datum

Offset Design Dunn Pad Sec.7-T5N-R64W - Dunn 7PD (AL) - Wellbore #1 - Design #1												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
1,900.0	1,896.1	1,884.6	1,884.6	4.1	4.1	-55.84	-53.8	835.0	799.1	791.0	8.14	98.118	
1,994.0	1,988.3	1,960.8	1,960.7	4.4	4.3	-56.98	-51.6	837.4	791.9	783.3	8.57	92.383	
2,000.0	1,994.2	1,965.6	1,965.5	4.4	4.3	-57.05	-51.4	837.6	791.5	782.9	8.60	92.023	
2,100.0	2,092.0	2,046.1	2,045.8	4.8	4.5	-58.34	-47.6	841.9	785.8	776.8	9.09	86.420	
2,200.0	2,189.9	2,126.0	2,125.3	5.1	4.7	-59.73	-42.2	847.8	783.0	773.4	9.61	81.482	
2,248.2	2,237.0	2,164.3	2,163.3	5.3	4.7	-60.43	-39.1	851.2	782.6	772.8	9.87	79.316 CC, ES	
2,300.0	2,287.7	2,200.0	2,198.7	5.5	4.8	-61.11	-35.9	854.7	783.1	772.9	10.13	77.278	
2,400.0	2,385.6	2,283.8	2,281.5	5.9	5.0	-62.76	-27.3	864.3	786.2	775.4	10.70	73.440	
2,500.0	2,483.4	2,366.3	2,362.6	6.3	5.3	-64.46	-17.2	875.4	792.4	781.1	11.29	70.169 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7L-301
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-10-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells - Sec.7-T5N-R64W - Dunn #23-7 (Exist.) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 7275-UNKNOWN												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,700.0	6,816.8	6,801.8	6,801.8	21.1	136.0	90.17	1,035.4	995.3	797.3	640.3	157.04	5.077	
7,800.0	6,816.6	6,801.6	6,801.6	22.3	136.0	90.15	1,035.4	995.3	724.3	566.2	158.17	4.580	
7,900.0	6,816.3	6,801.3	6,801.3	23.6	136.0	90.12	1,035.4	995.3	658.5	499.1	159.41	4.131	
8,000.0	6,816.1	6,801.0	6,801.0	24.9	136.0	90.09	1,035.4	995.3	602.1	441.4	160.73	3.746	
8,100.0	6,815.8	6,800.8	6,800.8	26.4	136.0	90.06	1,035.4	995.3	558.1	396.0	162.13	3.442	
8,200.0	6,815.5	6,800.5	6,800.5	27.9	136.0	90.03	1,035.4	995.3	529.5	366.0	163.59	3.237	
8,300.0	6,815.3	6,800.3	6,800.3	29.4	136.0	90.00	1,035.4	995.3	519.0	353.9	165.11	3.143	
8,305.3	6,815.3	6,800.2	6,800.2	29.5	136.0	90.00	1,035.4	995.3	519.0	353.8	165.19	3.142	CC, ES, SF
8,400.0	6,815.0	6,800.0	6,800.0	31.0	136.0	89.97	1,035.4	995.3	527.5	360.9	166.67	3.165	
8,500.0	6,814.7	6,799.7	6,799.7	32.6	136.0	89.94	1,035.4	995.3	554.3	386.0	168.26	3.294	
8,600.0	6,814.5	6,799.5	6,799.5	34.2	136.0	89.91	1,035.4	995.3	596.8	426.9	169.89	3.513	
8,700.0	6,814.2	6,799.2	6,799.2	35.9	136.0	89.89	1,035.4	995.3	652.0	480.4	171.55	3.801	
8,800.0	6,814.0	6,799.0	6,799.0	37.6	136.0	89.86	1,035.4	995.3	717.0	543.7	173.24	4.139	
8,900.0	6,813.7	6,798.7	6,798.7	39.3	136.0	89.83	1,035.4	995.3	789.3	614.3	174.94	4.512	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7L-301
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-10-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells - Sec.7-T5N-R64W - Little Will #6 (P&A) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 6998-UNKNOWN													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
15,500.0	6,796.4	6,785.4	6,785.4	162.7	135.7	-90.12	8,711.1	-139.8	781.6	483.3	298.29	2.620		
15,600.0	6,796.2	6,785.1	6,785.1	164.6	135.7	-90.09	8,711.1	-139.8	724.4	424.2	300.19	2.413		
15,700.0	6,795.9	6,784.9	6,784.9	166.5	135.7	-90.07	8,711.1	-139.8	677.1	375.1	302.09	2.242		
15,800.0	6,795.6	6,784.6	6,784.6	168.4	135.7	-90.04	8,711.1	-139.8	642.1	338.1	304.00	2.112		
15,900.0	6,795.4	6,784.4	6,784.4	170.3	135.7	-90.02	8,711.1	-139.8	621.4	315.5	305.90	2.031		
15,981.1	6,795.2	6,784.2	6,784.2	171.9	135.7	-90.00	8,711.1	-139.8	616.1	308.6	307.45	2.004 CC		
16,000.0	6,795.1	6,784.1	6,784.1	172.2	135.7	-90.00	8,711.1	-139.8	616.3	308.5	307.81	2.002 ES, SF		
16,100.0	6,794.8	6,783.8	6,783.8	174.1	135.7	-89.97	8,711.1	-139.8	627.4	317.7	309.71	2.026		
16,200.0	6,794.6	6,783.6	6,783.6	176.1	135.7	-89.95	8,711.1	-139.8	653.8	342.2	311.62	2.098		
16,300.0	6,794.3	6,783.3	6,783.3	178.0	135.7	-89.92	8,711.1	-139.8	693.7	380.2	313.52	2.213		
16,400.0	6,794.1	6,783.1	6,783.1	179.9	135.7	-89.90	8,711.1	-139.8	745.0	429.6	315.43	2.362		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7L-301
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-10-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells - Sec.7-T5N-R64W - Little Will #7 (P&A) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7000-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)			
14,600.0	6,798.8	6,783.8	6,783.8	145.5	135.7	90.18	7,898.7	951.6	741.1	460.0	281.07	2.637		
14,700.0	6,798.5	6,783.5	6,783.5	147.4	135.7	90.15	7,898.7	951.6	667.5	384.5	282.97	2.359		
14,800.0	6,798.3	6,783.2	6,783.2	149.3	135.7	90.12	7,898.7	951.6	601.5	316.6	284.88	2.111		
14,900.0	6,798.0	6,783.0	6,783.0	151.2	135.7	90.08	7,898.7	951.6	545.9	259.2	286.78	1.904		
15,000.0	6,797.7	6,782.7	6,782.7	153.2	135.7	90.05	7,898.7	951.6	504.3	215.6	288.68	1.747		
15,100.0	6,797.5	6,782.5	6,782.5	155.1	135.6	90.02	7,898.7	951.6	480.2	189.6	290.59	1.652		
15,168.7	6,797.3	6,782.3	6,782.3	156.4	135.6	90.00	7,898.7	951.6	475.3	183.4	291.89	1.628	CC, ES, SF	
15,200.0	6,797.2	6,782.2	6,782.2	157.0	135.6	89.99	7,898.7	951.6	476.3	183.8	292.49	1.628		
15,300.0	6,796.9	6,781.9	6,781.9	158.9	135.6	89.96	7,898.7	951.6	493.1	198.7	294.40	1.675		
15,400.0	6,796.7	6,781.7	6,781.7	160.8	135.6	89.93	7,898.7	951.6	528.6	232.3	296.30	1.784		
15,500.0	6,796.4	6,781.4	6,781.4	162.7	135.6	89.90	7,898.7	951.6	579.4	281.2	298.21	1.943		
15,600.0	6,796.2	6,781.1	6,781.1	164.6	135.6	89.86	7,898.7	951.6	641.8	341.7	300.11	2.139		
15,700.0	6,795.9	6,780.9	6,780.9	166.5	135.6	89.83	7,898.7	951.6	712.9	410.9	302.02	2.360		
15,800.0	6,795.6	6,780.6	6,780.6	168.4	135.6	89.80	7,898.7	951.6	790.2	486.3	303.92	2.600		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7L-301
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-10-15)	Offset TVD Reference:	Offset Datum

Offset Design													Existing Wells - Sec.7-T5N-R64W - Mitani #1 (Exist.) - Wellbore #1 - Wellbore #1		Offset Site Error:		0.0 ft
Survey Program: 7000-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)	(ft)	(ft)	(ft)						
13,100.0	6,802.7	6,774.7	6,774.7	117.0	135.5	-90.12	6,308.8	-100.2	749.4	497.1	252.34	2.970					
13,200.0	6,802.4	6,774.4	6,774.4	118.9	135.5	-90.10	6,308.8	-100.2	689.8	435.6	254.24	2.713					
13,300.0	6,802.2	6,774.2	6,774.2	120.8	135.5	-90.07	6,308.8	-100.2	640.4	384.3	256.13	2.500					
13,400.0	6,801.9	6,773.9	6,773.9	122.7	135.5	-90.05	6,308.8	-100.2	603.6	345.6	258.03	2.339					
13,500.0	6,801.7	6,773.6	6,773.6	124.6	135.5	-90.02	6,308.8	-100.2	581.9	322.0	259.92	2.239					
13,578.8	6,801.4	6,773.4	6,773.4	126.1	135.5	-90.00	6,308.8	-100.2	576.5	315.1	261.42	2.205 CC					
13,600.0	6,801.4	6,773.4	6,773.4	126.5	135.5	-89.99	6,308.8	-100.2	576.9	315.1	261.82	2.204 ES, SF					
13,700.0	6,801.1	6,773.1	6,773.1	128.4	135.5	-89.97	6,308.8	-100.2	589.1	325.4	263.72	2.234					
13,800.0	6,800.9	6,772.9	6,772.9	130.3	135.5	-89.94	6,308.8	-100.2	617.5	351.9	265.61	2.325					
13,900.0	6,800.6	6,772.6	6,772.6	132.2	135.5	-89.92	6,308.8	-100.2	660.0	392.5	267.51	2.467					
14,000.0	6,800.3	6,772.3	6,772.3	134.1	135.4	-89.89	6,308.8	-100.2	714.0	444.6	269.41	2.650					
14,100.0	6,800.1	6,772.1	6,772.1	136.0	135.4	-89.86	6,308.8	-100.2	777.2	505.9	271.31	2.865					

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7L-301
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-10-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells - Sec.7-T5N-R64W - Mitani #14-6 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7032-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		
12,300.0	6,804.8	6,766.8	6,766.8	101.9	135.3	-90.07	5,348.5	-221.1	766.6	529.6	237.02	3.235		
12,400.0	6,804.5	6,766.5	6,766.5	103.7	135.3	-90.05	5,348.5	-221.1	730.8	491.9	238.90	3.059		
12,500.0	6,804.3	6,766.3	6,766.3	105.6	135.3	-90.03	5,348.5	-221.1	707.4	466.6	240.79	2.938		
12,600.0	6,804.0	6,766.0	6,766.0	107.5	135.3	-90.00	5,348.5	-221.1	697.6	454.9	242.68	2.875		
12,618.4	6,804.0	6,766.0	6,766.0	107.9	135.3	-90.00	5,348.5	-221.1	697.4	454.4	243.03	2.870 CC, ES, SF		
12,700.0	6,803.8	6,765.7	6,765.7	109.4	135.3	-89.98	5,348.5	-221.1	702.1	457.6	244.57	2.871		
12,800.0	6,803.5	6,765.5	6,765.5	111.3	135.3	-89.96	5,348.5	-221.1	720.6	474.2	246.46	2.924		
12,900.0	6,803.2	6,765.2	6,765.2	113.2	135.3	-89.94	5,348.5	-221.1	752.1	503.7	248.35	3.028		
13,000.0	6,803.0	6,765.0	6,765.0	115.1	135.3	-89.92	5,348.5	-221.1	794.9	544.7	250.24	3.177		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7L-301
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-10-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells - Sec.7-T5N-R64W - Silva #1 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 6976-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		
11,800.0	6,806.1	6,767.1	6,767.1	92.4	135.3	90.60	5,227.9	650.1	719.2	491.6	227.54	3.161		
11,900.0	6,805.8	6,766.8	6,766.8	94.3	135.3	90.52	5,227.9	650.1	622.6	393.2	229.43	2.714		
12,000.0	6,805.6	6,766.6	6,766.6	96.2	135.3	90.43	5,227.9	650.1	527.3	296.0	231.32	2.280		
12,100.0	6,805.3	6,766.3	6,766.3	98.1	135.3	90.34	5,227.9	650.1	434.2	200.9	233.21	1.862		
12,200.0	6,805.1	6,766.0	6,766.0	100.0	135.3	90.26	5,227.9	650.1	344.9	109.8	235.10	1.467 Level 3		
12,300.0	6,804.8	6,765.8	6,765.8	101.9	135.3	90.17	5,227.9	650.1	263.4	26.4	236.99	1.111 Level 2		
12,400.0	6,804.5	6,765.5	6,765.5	103.7	135.3	90.08	5,227.9	650.1	199.5	-39.4	238.88	0.835 Level 1		
12,497.8	6,804.3	6,765.3	6,765.3	105.6	135.3	90.00	5,227.9	650.1	173.8	-66.9	240.73	0.722 Level 1, CC		
12,500.0	6,804.3	6,765.3	6,765.3	105.6	135.3	90.00	5,227.9	650.1	173.8	-66.9	240.77	0.722 Level 1, ES, SF		
12,600.0	6,804.0	6,765.0	6,765.0	107.5	135.3	89.91	5,227.9	650.1	201.6	-41.0	242.66	0.831 Level 1		
12,700.0	6,803.8	6,764.7	6,764.7	109.4	135.3	89.83	5,227.9	650.1	266.6	22.1	244.55	1.090 Level 2		
12,800.0	6,803.5	6,764.5	6,764.5	111.3	135.3	89.74	5,227.9	650.1	348.6	102.1	246.45	1.414 Level 3		
12,900.0	6,803.2	6,764.2	6,764.2	113.2	135.3	89.65	5,227.9	650.1	438.1	189.8	248.34	1.764		
13,000.0	6,803.0	6,764.0	6,764.0	115.1	135.3	89.57	5,227.9	650.1	531.4	281.2	250.23	2.124		
13,100.0	6,802.7	6,763.7	6,763.7	117.0	135.3	89.48	5,227.9	650.1	626.7	374.6	252.13	2.486		
13,200.0	6,802.4	6,763.4	6,763.4	118.9	135.3	89.39	5,227.9	650.1	723.3	469.3	254.02	2.848		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7L-301
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-10-15)	Offset TVD Reference:	Offset Datum

Offset Design													Existing Wells - Sec.7-T5N-R64W - Silva #23-6 (Exist) - Wellbore #1 - Wellbore #1		Offset Site Error:		0.0 ft
Survey Program: 7100-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)						
13,100.0	6,802.7	6,772.7	6,772.7	117.0	135.5	90.18	6,383.5	950.5	728.8	476.5	252.30	2.889					
13,200.0	6,802.4	6,772.4	6,772.4	118.9	135.4	90.14	6,383.5	950.5	656.1	401.9	254.19	2.581					
13,300.0	6,802.2	6,772.2	6,772.2	120.8	135.4	90.11	6,383.5	950.5	591.4	335.4	256.09	2.310					
13,400.0	6,801.9	6,771.9	6,771.9	122.7	135.4	90.08	6,383.5	950.5	537.7	279.7	257.98	2.084					
13,500.0	6,801.7	6,771.6	6,771.6	124.6	135.4	90.05	6,383.5	950.5	498.4	238.5	259.88	1.918					
13,600.0	6,801.4	6,771.4	6,771.4	126.5	135.4	90.02	6,383.5	950.5	477.2	215.4	261.78	1.823					
13,653.5	6,801.3	6,771.2	6,771.2	127.5	135.4	90.00	6,383.5	950.5	474.2	211.4	262.79	1.804	CC, ES, SF				
13,700.0	6,801.1	6,771.1	6,771.1	128.4	135.4	89.99	6,383.5	950.5	476.5	212.8	263.68	1.807					
13,800.0	6,800.9	6,770.9	6,770.9	130.3	135.4	89.95	6,383.5	950.5	496.3	230.7	265.58	1.869					
13,900.0	6,800.6	6,770.6	6,770.6	132.2	135.4	89.92	6,383.5	950.5	534.5	267.0	267.48	1.998					
14,000.0	6,800.3	6,770.3	6,770.3	134.1	135.4	89.89	6,383.5	950.5	587.3	317.9	269.38	2.180					
14,100.0	6,800.1	6,770.1	6,770.1	136.0	135.4	89.86	6,383.5	950.5	651.3	380.1	271.28	2.401					
14,200.0	6,799.8	6,769.8	6,769.8	137.9	135.4	89.83	6,383.5	950.5	723.6	450.4	273.18	2.649					

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7L-301
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-10-15)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4638.0ft (Original Well Elev)

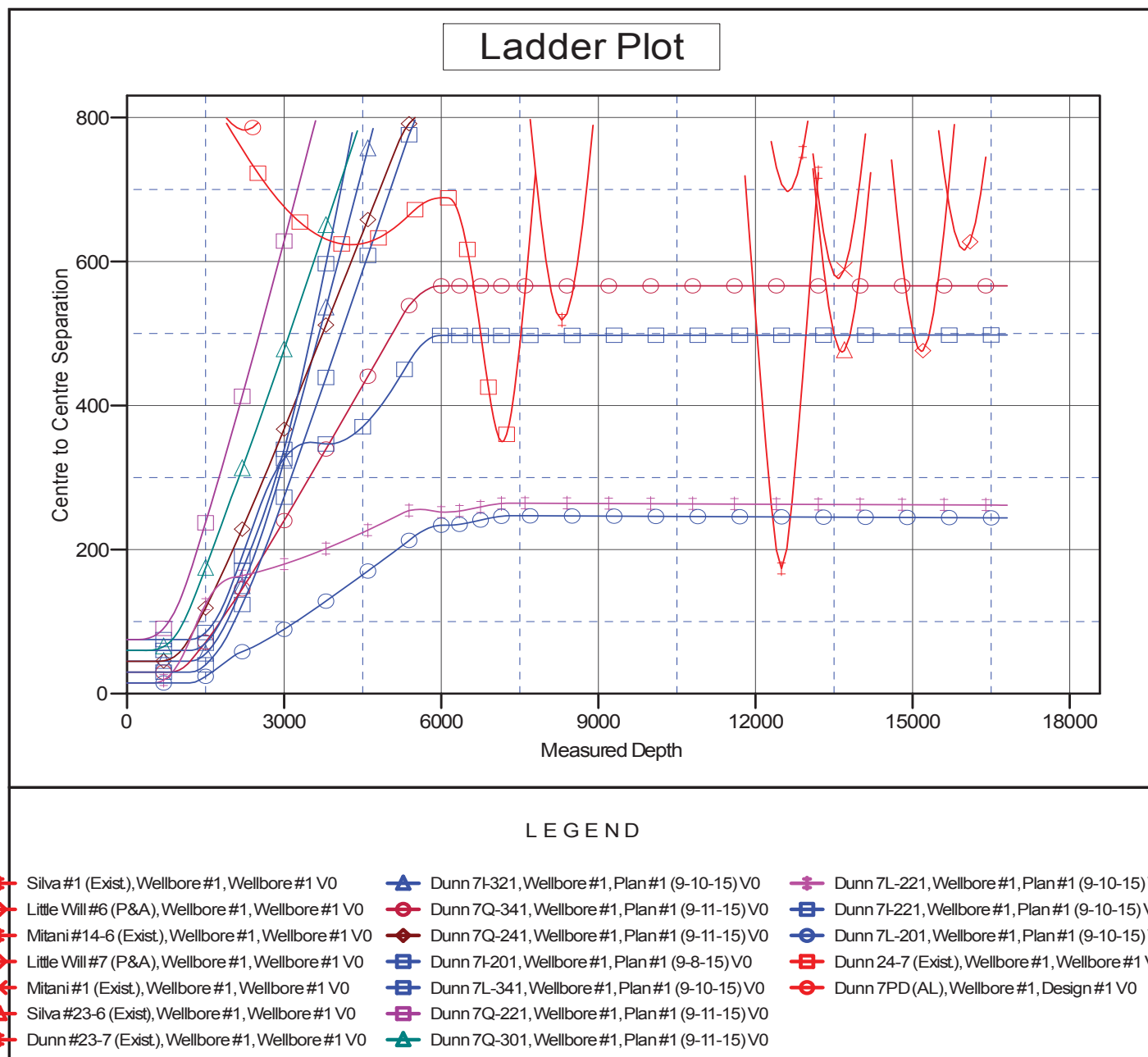
Offset Depths are relative to Offset Datum

Central Meridian is -105.500000

Coordinates are relative to: Dunn 7L-301

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 Dunn 7L-301
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-10-15)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4638.0ft (Original Well Elev)

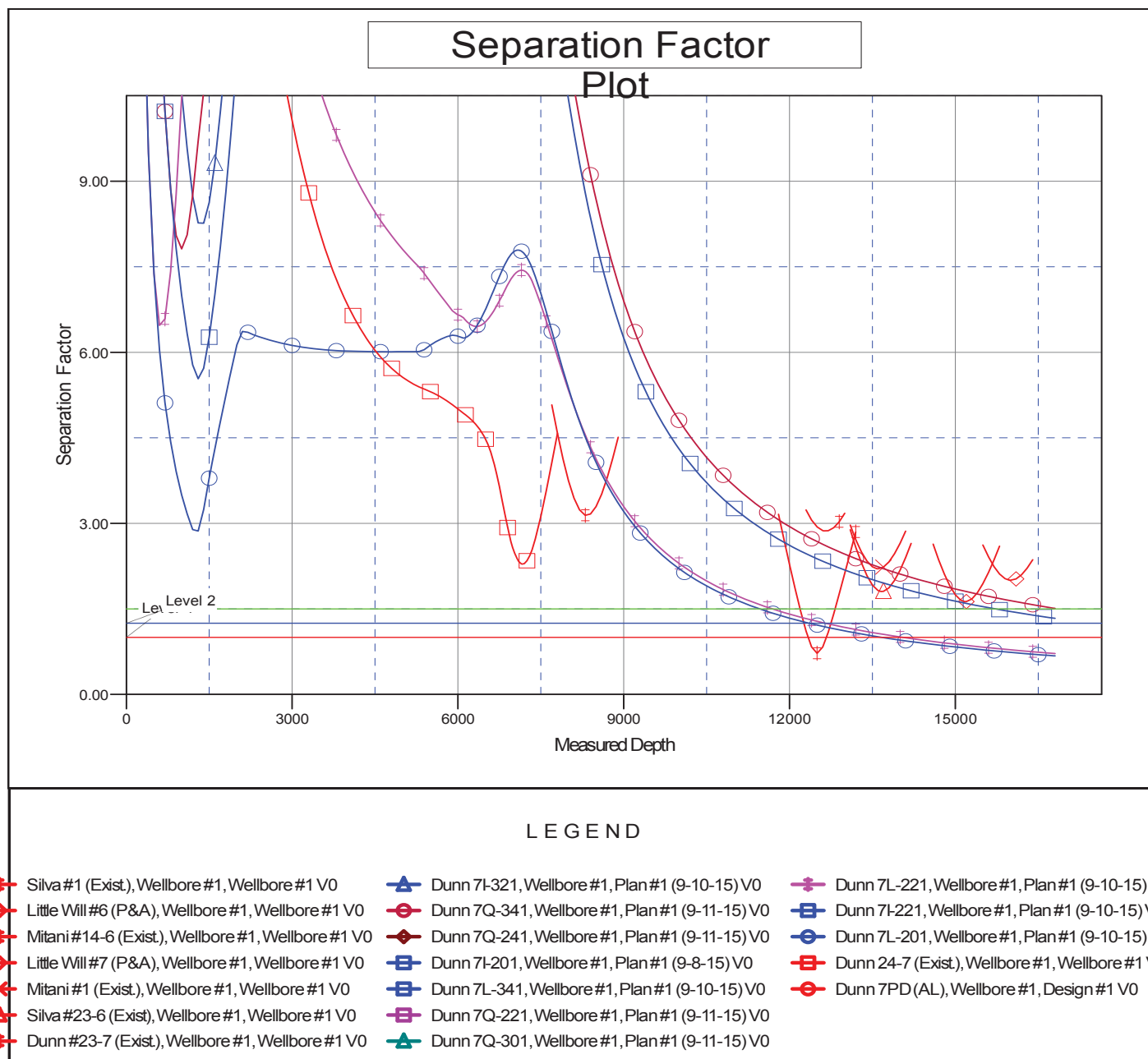
Offset Depths are relative to Offset Datum

Central Meridian is -105.500000

Coordinates are relative to: Dunn 7L-301

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.58°



LEGEND

- Silva #1 (Exist), Wellbore #1, Wellbore #1 V0
- Little Will #6 (P&A), Wellbore #1, Wellbore #1 V0
- Mitani #14-6 (Exist), Wellbore #1, Wellbore #1 V0
- Little Will #7 (P&A), Wellbore #1, Wellbore #1 V0
- Mitani #1 (Exist), Wellbore #1, Wellbore #1 V0
- Silva #23-6 (Exist), Wellbore #1, Wellbore #1 V0
- Dunn #23-7 (Exist), Wellbore #1, Wellbore #1 V0
- Dunn 7L-321, Wellbore #1, Plan #1 (9-10-15) V0
- Dunn 7Q-341, Wellbore #1, Plan #1 (9-11-15) V0
- Dunn 7L-221, Wellbore #1, Plan #1 (9-10-15) V0
- Dunn 7Q-241, Wellbore #1, Plan #1 (9-11-15) V0
- Dunn 7L-201, Wellbore #1, Plan #1 (9-10-15) V0
- Dunn 7L-341, Wellbore #1, Plan #1 (9-10-15) V0
- Dunn 7Q-221, Wellbore #1, Plan #1 (9-11-15) V0
- Dunn 7Q-301, Wellbore #1, Plan #1 (9-11-15) V0
- Dunn 24-7 (Exist), Wellbore #1, Wellbore #1 V0
- Dunn 7PD (AL), Wellbore #1, Design #1 V0