

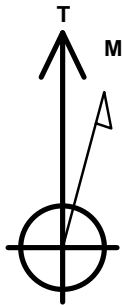
PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Dunn 7I-201**

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 1392966.08 3251104.72 40.408589 -104.598271
 Original Well Elev WELL @ 4638.0ft (Original Well Elev)

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 810'FSL & 981'FWL, Sec.7	1.0	0.0	0.0	Point
BHL 200'FNL & 175'FWL, Sec.6	6723.0	9463.8	-777.5	Point



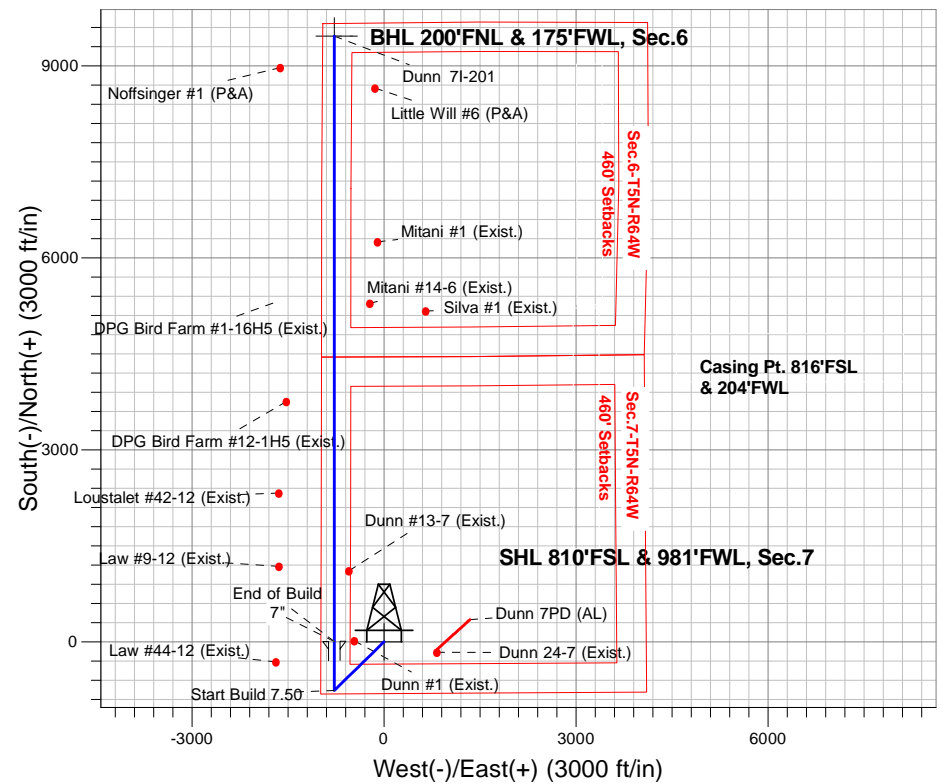
Azimuths to True North
 Magnetic North: 8.20°

Magnetic Field
 Strength: 52704.3snT
 Dip Angle: 66.94°
 Date: 9/23/2015
 Model: IGRF2010

ANNOTATIONS

TVD	MD	Annotation
1800.0	1800.0	KOP - Start Build 1.50
4732.7	4885.0	Start Drop -2.00
5800.0	5978.6	Start 183.8 hold at 5978.6 MD
5983.8	6162.5	Start Build 7.50
6747.8	7364.5	End of Build
6723.0	16822.3	TD at 16822.3

Dunn 5N64W7 Pad Sec.7-T5N-R64W
 Dunn 7I-201
 Plan #1 (9-8-15)
 11:35, September 23 2015

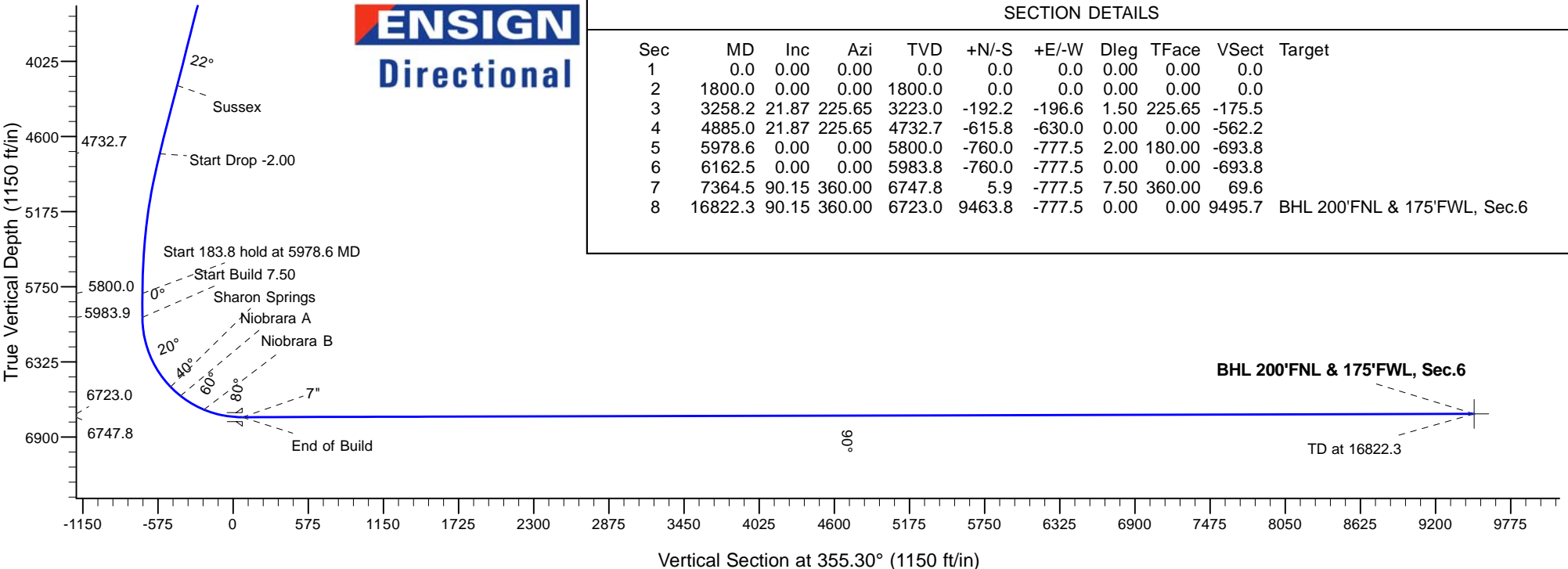


SECTION DETAILS

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	1800.0	0.00	0.00	1800.0	0.0	0.0	0.00	0.00	0.0	
3	3258.2	21.87	225.65	3223.0	-192.2	-196.6	1.50	225.65	-175.5	
4	4885.0	21.87	225.65	4732.7	-615.8	-630.0	0.00	0.00	-562.2	
5	5978.6	0.00	0.00	5800.0	-760.0	-777.5	2.00	180.00	-693.8	
6	6162.5	0.00	0.00	5983.8	-760.0	-777.5	0.00	0.00	-693.8	
7	7364.5	90.15	360.00	6747.8	5.9	-777.5	7.50	360.00	69.6	
8	16822.3	90.15	360.00	6723.0	9463.8	-777.5	0.00	0.00	9495.7	BHL 200'FNL & 175'FWL, Sec.6

BHL 200'FNL & 175'FWL, Sec.6

TD at 16822.3



Vertical Section at 355.30° (1150 ft/in)



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.7-T5N-R64W

Dunn 5N64W7 Pad Sec.7-T5N-R64W

Dunn 7I-201

Wellbore #1

Plan: Plan #1 (9-8-15)

Standard Planning Report

23 September, 2015



Database:	US_EDM	Local Co-ordinate Reference:	Well Dunn 71-201
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 71-201	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (9-8-15)		

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	Latitude:	40.408630
From:	Lat/Long	Easting:	3,251,104.57 usft	Longitude:	-104.598271
Position Uncertainty:	0.0 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.58 °

Well	Dunn 71-201					
Well Position	+N/-S	-14.9 ft	Northing:	1,392,966.08 usft	Latitude:	40.408589
	+E/-W	0.0 ft	Easting:	3,251,104.72 usft	Longitude:	-104.598271
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft	Ground Level:	4,625.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	9/23/2015	8.20	66.94	52,704

Design	Plan #1 (9-8-15)			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	355.30

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,258.2	21.87	225.65	3,223.0	-192.2	-196.6	1.50	1.50	0.00	225.65	
4,885.0	21.87	225.65	4,732.7	-615.8	-630.0	0.00	0.00	0.00	0.00	
5,978.6	0.00	0.00	5,800.0	-760.0	-777.5	2.00	-2.00	0.00	180.00	
6,162.5	0.00	0.00	5,983.8	-760.0	-777.5	0.00	0.00	0.00	0.00	
7,364.5	90.15	360.00	6,747.8	5.9	-777.5	7.50	7.50	0.00	360.00	
16,822.3	90.15	360.00	6,723.0	9,463.8	-777.5	0.00	0.00	0.00	0.00	BHL 200'FNL & 175'F

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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 71-201	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (9-8-15)		

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 810'FSL & 981'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	
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00	
KOP - Start Build 1.50										
1,900.0	1.50	225.65	1,900.0	-0.9	-0.9	-0.8	1.50	1.50	0.00	
2,000.0	3.00	225.65	1,999.9	-3.7	-3.7	-3.3	1.50	1.50	0.00	
2,100.0	4.50	225.65	2,099.7	-8.2	-8.4	-7.5	1.50	1.50	0.00	
2,200.0	6.00	225.65	2,199.3	-14.6	-15.0	-13.4	1.50	1.50	0.00	
2,300.0	7.50	225.65	2,298.6	-22.8	-23.4	-20.9	1.50	1.50	0.00	
2,400.0	9.00	225.65	2,397.5	-32.9	-33.6	-30.0	1.50	1.50	0.00	
2,500.0	10.50	225.65	2,496.1	-44.7	-45.7	-40.8	1.50	1.50	0.00	
2,600.0	12.00	225.65	2,594.2	-58.3	-59.7	-53.3	1.50	1.50	0.00	
2,700.0	13.50	225.65	2,691.7	-73.8	-75.5	-67.3	1.50	1.50	0.00	
2,800.0	15.00	225.65	2,788.6	-91.0	-93.1	-83.1	1.50	1.50	0.00	
2,900.0	16.50	225.65	2,884.9	-109.9	-112.5	-100.4	1.50	1.50	0.00	
3,000.0	18.00	225.65	2,980.4	-130.7	-133.7	-119.3	1.50	1.50	0.00	
3,100.0	19.50	225.65	3,075.0	-153.1	-156.7	-139.8	1.50	1.50	0.00	
3,200.0	21.00	225.65	3,168.9	-177.3	-181.4	-161.9	1.50	1.50	0.00	
3,258.2	21.87	225.65	3,223.0	-192.2	-196.6	-175.5	1.50	1.50	0.00	
3,300.0	21.87	225.65	3,261.8	-203.1	-207.8	-185.4	0.00	0.00	0.00	
3,400.0	21.87	225.65	3,354.6	-229.1	-234.4	-209.2	0.00	0.00	0.00	
3,500.0	21.87	225.65	3,447.4	-255.2	-261.1	-232.9	0.00	0.00	0.00	
3,545.9	21.87	225.65	3,490.0	-267.1	-273.3	-243.8	0.00	0.00	0.00	
Parkman										
3,600.0	21.87	225.65	3,540.2	-281.2	-287.7	-256.7	0.00	0.00	0.00	
3,700.0	21.87	225.65	3,633.0	-307.3	-314.3	-280.5	0.00	0.00	0.00	
3,800.0	21.87	225.65	3,725.8	-333.3	-341.0	-304.3	0.00	0.00	0.00	
3,900.0	21.87	225.65	3,818.6	-359.3	-367.6	-328.0	0.00	0.00	0.00	
4,000.0	21.87	225.65	3,911.4	-385.4	-394.3	-351.8	0.00	0.00	0.00	
4,100.0	21.87	225.65	4,004.2	-411.4	-420.9	-375.6	0.00	0.00	0.00	
4,200.0	21.87	225.65	4,097.0	-437.5	-447.5	-399.3	0.00	0.00	0.00	
4,300.0	21.87	225.65	4,189.8	-463.5	-474.2	-423.1	0.00	0.00	0.00	
4,321.7	21.87	225.65	4,210.0	-469.2	-480.0	-428.3	0.00	0.00	0.00	
Sussex										
4,400.0	21.87	225.65	4,282.6	-489.5	-500.8	-446.9	0.00	0.00	0.00	

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Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	North Reference:	True
Well:	Dunn 71-201	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (9-8-15)		

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	21.87	225.65	4,375.4	-515.6	-527.5	-470.7	0.00	0.00	0.00	
4,600.0	21.87	225.65	4,468.2	-541.6	-554.1	-494.4	0.00	0.00	0.00	
4,700.0	21.87	225.65	4,561.0	-567.7	-580.8	-518.2	0.00	0.00	0.00	
4,800.0	21.87	225.65	4,653.8	-593.7	-607.4	-542.0	0.00	0.00	0.00	
4,885.0	21.87	225.65	4,732.7	-615.8	-630.0	-562.2	0.00	0.00	0.00	
Start Drop -2.00										
4,900.0	21.57	225.65	4,746.7	-619.7	-634.0	-565.7	2.00	-2.00	0.00	
5,000.0	19.57	225.65	4,840.3	-644.3	-659.1	-588.2	2.00	-2.00	0.00	
5,100.0	17.57	225.65	4,935.1	-666.6	-681.9	-608.5	2.00	-2.00	0.00	
5,200.0	15.57	225.65	5,030.9	-686.5	-702.3	-626.7	2.00	-2.00	0.00	
5,300.0	13.57	225.65	5,127.7	-704.1	-720.3	-642.7	2.00	-2.00	0.00	
5,400.0	11.57	225.65	5,225.3	-719.3	-735.9	-656.6	2.00	-2.00	0.00	
5,500.0	9.57	225.65	5,323.6	-732.1	-749.0	-668.3	2.00	-2.00	0.00	
5,600.0	7.57	225.65	5,422.5	-742.5	-759.6	-677.8	2.00	-2.00	0.00	
5,700.0	5.57	225.65	5,521.8	-750.5	-767.8	-685.1	2.00	-2.00	0.00	
5,800.0	3.57	225.65	5,621.5	-756.1	-773.5	-690.2	2.00	-2.00	0.00	
5,900.0	1.57	225.65	5,721.4	-759.2	-776.7	-693.1	2.00	-2.00	0.00	
5,978.6	0.00	225.65	5,800.0	-760.0	-777.5	-693.8	2.00	-2.00	0.00	
Start 183.8 hold at 5978.6 MD										
6,000.0	0.00	0.00	5,821.4	-760.0	-777.5	-693.8	0.00	0.00	0.00	
6,100.0	0.00	0.00	5,921.4	-760.0	-777.5	-693.8	0.00	0.00	0.00	
6,162.5	0.00	0.00	5,983.9	-760.0	-777.5	-693.8	0.00	0.00	0.00	
Start Build 7.50										
6,200.0	2.82	360.00	6,021.3	-759.1	-777.5	-692.9	7.51	7.51	0.00	
6,300.0	10.32	360.00	6,120.6	-747.7	-777.5	-681.5	7.50	7.50	0.00	
6,400.0	17.82	360.00	6,217.6	-723.4	-777.5	-657.3	7.50	7.50	0.00	
6,500.0	25.32	360.00	6,310.5	-686.6	-777.5	-620.7	7.50	7.50	0.00	
6,600.0	32.82	360.00	6,397.8	-638.1	-777.5	-572.3	7.50	7.50	0.00	
6,700.0	40.32	360.00	6,478.1	-578.6	-777.5	-513.0	7.50	7.50	0.00	
6,751.2	44.16	360.00	6,516.0	-544.1	-777.5	-478.6	7.50	7.50	0.00	
Sharon Springs										
6,800.0	47.82	360.00	6,549.9	-509.1	-777.5	-443.7	7.50	7.50	0.00	
6,854.5	51.90	360.00	6,585.0	-467.4	-777.5	-402.2	7.50	7.50	0.00	
Niobrara A										
6,900.0	55.32	360.00	6,612.0	-430.8	-777.5	-365.7	7.50	7.50	0.00	
7,000.0	62.82	360.00	6,663.4	-345.1	-777.5	-280.2	7.50	7.50	0.00	
7,063.5	67.58	360.00	6,690.0	-287.5	-777.5	-222.8	7.50	7.50	0.00	
Niobrara B										
7,100.0	70.32	360.00	6,703.1	-253.4	-777.5	-188.9	7.50	7.50	0.00	
7,200.0	77.82	360.00	6,730.6	-157.3	-777.5	-93.1	7.50	7.50	0.00	
7,300.0	85.32	360.00	6,745.2	-58.4	-777.5	5.4	7.50	7.50	0.00	
7,364.5	90.15	360.00	6,747.8	6.0	-777.5	69.6	7.50	7.50	0.00	
End of Build - 7"										
7,400.0	90.15	360.00	6,747.7	41.5	-777.5	105.0	0.00	0.00	0.00	
7,500.0	90.15	360.00	6,747.4	141.5	-777.5	204.7	0.00	0.00	0.00	
7,600.0	90.15	360.00	6,747.1	241.5	-777.5	304.3	0.00	0.00	0.00	
7,700.0	90.15	360.00	6,746.9	341.5	-777.5	404.0	0.00	0.00	0.00	
7,800.0	90.15	360.00	6,746.6	441.5	-777.5	503.7	0.00	0.00	0.00	
7,900.0	90.15	360.00	6,746.4	541.5	-777.5	603.3	0.00	0.00	0.00	
8,000.0	90.15	360.00	6,746.1	641.5	-777.5	703.0	0.00	0.00	0.00	
8,100.0	90.15	360.00	6,745.8	741.5	-777.5	802.7	0.00	0.00	0.00	
8,200.0	90.15	360.00	6,745.6	841.5	-777.5	902.3	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 71-201	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (9-8-15)		

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)	
8,300.0	90.15	360.00	6,745.3	941.5	-777.5	1,002.0	0.00	0.00	0.00	
8,400.0	90.15	360.00	6,745.0	1,041.5	-777.5	1,101.6	0.00	0.00	0.00	
8,500.0	90.15	360.00	6,744.8	1,141.5	-777.5	1,201.3	0.00	0.00	0.00	
8,600.0	90.15	360.00	6,744.5	1,241.5	-777.5	1,301.0	0.00	0.00	0.00	
8,700.0	90.15	360.00	6,744.3	1,341.5	-777.5	1,400.6	0.00	0.00	0.00	
8,800.0	90.15	360.00	6,744.0	1,441.5	-777.5	1,500.3	0.00	0.00	0.00	
8,900.0	90.15	360.00	6,743.7	1,541.5	-777.5	1,600.0	0.00	0.00	0.00	
9,000.0	90.15	360.00	6,743.5	1,641.5	-777.5	1,699.6	0.00	0.00	0.00	
9,100.0	90.15	360.00	6,743.2	1,741.5	-777.5	1,799.3	0.00	0.00	0.00	
9,200.0	90.15	360.00	6,743.0	1,841.5	-777.5	1,899.0	0.00	0.00	0.00	
9,300.0	90.15	360.00	6,742.7	1,941.5	-777.5	1,998.6	0.00	0.00	0.00	
9,400.0	90.15	360.00	6,742.4	2,041.5	-777.5	2,098.3	0.00	0.00	0.00	
9,500.0	90.15	360.00	6,742.2	2,141.5	-777.5	2,198.0	0.00	0.00	0.00	
9,600.0	90.15	360.00	6,741.9	2,241.5	-777.5	2,297.6	0.00	0.00	0.00	
9,700.0	90.15	360.00	6,741.6	2,341.5	-777.5	2,397.3	0.00	0.00	0.00	
9,800.0	90.15	360.00	6,741.4	2,441.5	-777.5	2,496.9	0.00	0.00	0.00	
9,900.0	90.15	360.00	6,741.1	2,541.5	-777.5	2,596.6	0.00	0.00	0.00	
10,000.0	90.15	360.00	6,740.9	2,641.5	-777.5	2,696.3	0.00	0.00	0.00	
10,100.0	90.15	360.00	6,740.6	2,741.5	-777.5	2,795.9	0.00	0.00	0.00	
10,200.0	90.15	360.00	6,740.3	2,841.5	-777.5	2,895.6	0.00	0.00	0.00	
10,300.0	90.15	360.00	6,740.1	2,941.5	-777.5	2,995.3	0.00	0.00	0.00	
10,400.0	90.15	360.00	6,739.8	3,041.5	-777.5	3,094.9	0.00	0.00	0.00	
10,500.0	90.15	360.00	6,739.6	3,141.5	-777.5	3,194.6	0.00	0.00	0.00	
10,600.0	90.15	360.00	6,739.3	3,241.5	-777.5	3,294.3	0.00	0.00	0.00	
10,700.0	90.15	360.00	6,739.0	3,341.5	-777.5	3,393.9	0.00	0.00	0.00	
10,800.0	90.15	360.00	6,738.8	3,441.5	-777.5	3,493.6	0.00	0.00	0.00	
10,900.0	90.15	360.00	6,738.5	3,541.5	-777.5	3,593.2	0.00	0.00	0.00	
11,000.0	90.15	360.00	6,738.2	3,641.5	-777.5	3,692.9	0.00	0.00	0.00	
11,100.0	90.15	360.00	6,738.0	3,741.5	-777.5	3,792.6	0.00	0.00	0.00	
11,200.0	90.15	360.00	6,737.7	3,841.5	-777.5	3,892.2	0.00	0.00	0.00	
11,300.0	90.15	360.00	6,737.5	3,941.5	-777.5	3,991.9	0.00	0.00	0.00	
11,400.0	90.15	360.00	6,737.2	4,041.5	-777.5	4,091.6	0.00	0.00	0.00	
11,500.0	90.15	360.00	6,736.9	4,141.5	-777.5	4,191.2	0.00	0.00	0.00	
11,600.0	90.15	360.00	6,736.7	4,241.5	-777.5	4,290.9	0.00	0.00	0.00	
11,700.0	90.15	360.00	6,736.4	4,341.5	-777.5	4,390.6	0.00	0.00	0.00	
11,800.0	90.15	360.00	6,736.1	4,441.5	-777.5	4,490.2	0.00	0.00	0.00	
11,900.0	90.15	360.00	6,735.9	4,541.5	-777.5	4,589.9	0.00	0.00	0.00	
12,000.0	90.15	360.00	6,735.6	4,641.5	-777.5	4,689.5	0.00	0.00	0.00	
12,100.0	90.15	360.00	6,735.4	4,741.5	-777.5	4,789.2	0.00	0.00	0.00	
12,200.0	90.15	360.00	6,735.1	4,841.5	-777.5	4,888.9	0.00	0.00	0.00	
12,300.0	90.15	360.00	6,734.8	4,941.5	-777.5	4,988.5	0.00	0.00	0.00	
12,400.0	90.15	360.00	6,734.6	5,041.5	-777.5	5,088.2	0.00	0.00	0.00	
12,500.0	90.15	360.00	6,734.3	5,141.5	-777.5	5,187.9	0.00	0.00	0.00	
12,600.0	90.15	360.00	6,734.1	5,241.5	-777.5	5,287.5	0.00	0.00	0.00	
12,700.0	90.15	360.00	6,733.8	5,341.5	-777.5	5,387.2	0.00	0.00	0.00	
12,800.0	90.15	360.00	6,733.5	5,441.5	-777.5	5,486.9	0.00	0.00	0.00	
12,900.0	90.15	360.00	6,733.3	5,541.5	-777.5	5,586.5	0.00	0.00	0.00	
13,000.0	90.15	360.00	6,733.0	5,641.5	-777.5	5,686.2	0.00	0.00	0.00	
13,100.0	90.15	360.00	6,732.7	5,741.5	-777.5	5,785.8	0.00	0.00	0.00	
13,200.0	90.15	360.00	6,732.5	5,841.5	-777.5	5,885.5	0.00	0.00	0.00	
13,300.0	90.15	360.00	6,732.2	5,941.5	-777.5	5,985.2	0.00	0.00	0.00	
13,400.0	90.15	360.00	6,732.0	6,041.5	-777.5	6,084.8	0.00	0.00	0.00	
13,500.0	90.15	360.00	6,731.7	6,141.5	-777.5	6,184.5	0.00	0.00	0.00	

Database:	US_EDM	Local Co-ordinate Reference:	Well Dunn 71-201
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 71-201	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (9-8-15)		

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)	
13,600.0	90.15	360.00	6,731.4	6,241.5	-777.5	6,284.2	0.00	0.00	0.00	
13,700.0	90.15	360.00	6,731.2	6,341.5	-777.5	6,383.8	0.00	0.00	0.00	
13,800.0	90.15	360.00	6,730.9	6,441.5	-777.5	6,483.5	0.00	0.00	0.00	
13,900.0	90.15	360.00	6,730.7	6,541.5	-777.5	6,583.2	0.00	0.00	0.00	
14,000.0	90.15	360.00	6,730.4	6,641.5	-777.5	6,682.8	0.00	0.00	0.00	
14,100.0	90.15	360.00	6,730.1	6,741.5	-777.5	6,782.5	0.00	0.00	0.00	
14,200.0	90.15	360.00	6,729.9	6,841.5	-777.5	6,882.2	0.00	0.00	0.00	
14,300.0	90.15	360.00	6,729.6	6,941.5	-777.5	6,981.8	0.00	0.00	0.00	
14,400.0	90.15	360.00	6,729.3	7,041.5	-777.5	7,081.5	0.00	0.00	0.00	
14,500.0	90.15	360.00	6,729.1	7,141.5	-777.5	7,181.1	0.00	0.00	0.00	
14,600.0	90.15	360.00	6,728.8	7,241.5	-777.5	7,280.8	0.00	0.00	0.00	
14,700.0	90.15	360.00	6,728.6	7,341.5	-777.5	7,380.5	0.00	0.00	0.00	
14,800.0	90.15	360.00	6,728.3	7,441.5	-777.5	7,480.1	0.00	0.00	0.00	
14,900.0	90.15	360.00	6,728.0	7,541.5	-777.5	7,579.8	0.00	0.00	0.00	
15,000.0	90.15	360.00	6,727.8	7,641.5	-777.5	7,679.5	0.00	0.00	0.00	
15,100.0	90.15	360.00	6,727.5	7,741.5	-777.5	7,779.1	0.00	0.00	0.00	
15,200.0	90.15	360.00	6,727.2	7,841.5	-777.5	7,878.8	0.00	0.00	0.00	
15,300.0	90.15	360.00	6,727.0	7,941.5	-777.5	7,978.5	0.00	0.00	0.00	
15,400.0	90.15	360.00	6,726.7	8,041.5	-777.5	8,078.1	0.00	0.00	0.00	
15,500.0	90.15	360.00	6,726.5	8,141.5	-777.5	8,177.8	0.00	0.00	0.00	
15,600.0	90.15	360.00	6,726.2	8,241.5	-777.5	8,277.4	0.00	0.00	0.00	
15,700.0	90.15	360.00	6,725.9	8,341.5	-777.5	8,377.1	0.00	0.00	0.00	
15,800.0	90.15	360.00	6,725.7	8,441.5	-777.5	8,476.8	0.00	0.00	0.00	
15,900.0	90.15	360.00	6,725.4	8,541.5	-777.5	8,576.4	0.00	0.00	0.00	
16,000.0	90.15	360.00	6,725.2	8,641.5	-777.5	8,676.1	0.00	0.00	0.00	
16,100.0	90.15	360.00	6,724.9	8,741.5	-777.5	8,775.8	0.00	0.00	0.00	
16,200.0	90.15	360.00	6,724.6	8,841.5	-777.5	8,875.4	0.00	0.00	0.00	
16,300.0	90.15	360.00	6,724.4	8,941.5	-777.5	8,975.1	0.00	0.00	0.00	
16,400.0	90.15	360.00	6,724.1	9,041.5	-777.5	9,074.8	0.00	0.00	0.00	
16,500.0	90.15	360.00	6,723.8	9,141.5	-777.5	9,174.4	0.00	0.00	0.00	
16,600.0	90.15	360.00	6,723.6	9,241.5	-777.5	9,274.1	0.00	0.00	0.00	
16,700.0	90.15	360.00	6,723.3	9,341.5	-777.5	9,373.7	0.00	0.00	0.00	
16,800.0	90.15	360.00	6,723.1	9,441.5	-777.5	9,473.4	0.00	0.00	0.00	
16,822.3	90.15	360.00	6,723.0	9,463.8	-777.5	9,495.6	0.00	0.00	0.00	
TD at 16822.3 - BHL 200'FNL & 175'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 810'FSL & 981'FWL - plan hits target center - Point	0.00	0.00	1.0	0.0	0.0	1,392,966.09	3,251,104.72	40.408589	-104.598271	
BHL 200'FNL & 175'FWL - plan hits target center - Point	0.00	0.00	6,723.0	9,463.8	-777.5	1,402,421.09	3,250,231.05	40.434566	-104.601064	

Database:	US_EDM	Local Co-ordinate Reference:	Well Dunn 71-201
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 71-201	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (9-8-15)		

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
7,364.5	6,747.8	7"	7	7-1/2	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,545.9	3,490.0	Parkman		0.00	
4,321.7	4,210.0	Sussex		0.00	
6,751.2	6,516.0	Sharon Springs		0.00	
6,854.5	6,585.0	Niobrara A		0.00	
7,063.5	6,690.0	Niobrara B		0.00	

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
1,800.0	1,800.0	0.0	0.0	KOP - Start Build 1.50	
4,885.0	4,732.7	-192.2	-196.6	Start Drop -2.00	
5,978.6	5,800.0	-615.8	-630.0	Start 183.8 hold at 5978.6 MD	
6,162.5	5,983.8	-760.0	-777.5	Start Build 7.50	
7,364.5	6,747.8	-760.0	-777.5	End of Build	
16,822.3	6,723.0	5.9	-777.5	TD at 16822.3	



Directional

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.7-T5N-R64W

Dunn 5N64W7 Pad Sec.7-T5N-R64W

Dunn 7I-201

Wellbore #1

Plan #1 (9-8-15)

Anticollision Report

23 September, 2015



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 71-201
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 71-201	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 (9-8-15)	Offset TVD Reference:	Offset Datum

Reference	Plan #1 (9-8-15)		
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 1,000.0 ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date	9/23/2015		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	16,822.3	Plan #1 (9-8-15) (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 71-221 - Wellbore #1 - Plan #1 (9-10-15)	1,500.0	1,500.0	30.2	23.7	4.640	CC, ES
Dunn 71-221 - Wellbore #1 - Plan #1 (9-10-15)	16,822.3	16,729.4	420.9	49.2	1.132	Level 2, SF
Dunn 71-321 - Wellbore #1 - Plan #1 (9-10-15)	1,600.0	1,600.0	14.9	8.0	2.145	CC
Dunn 71-321 - Wellbore #1 - Plan #1 (9-10-15)	16,822.3	16,837.5	205.2	-148.8	0.580	Level 1, ES, SF
Dunn 7L-201 - Wellbore #1 - Plan #1 (9-10-15)	1,400.0	1,400.0	45.2	39.1	7.445	CC, ES
Dunn 7L-201 - Wellbore #1 - Plan #1 (9-10-15)	1,500.0	1,498.9	46.4	39.9	7.152	SF
Dunn 7L-221 - Wellbore #1 - Plan #1 (9-10-15)	500.0	500.0	75.1	73.0	37.102	CC, ES
Dunn 7L-221 - Wellbore #1 - Plan #1 (9-10-15)	1,000.0	990.7	99.6	95.5	23.938	SF
Dunn 7L-301 - Wellbore #1 - Plan #1 (9-10-15)	1,200.0	1,200.0	60.1	55.0	11.630	CC, ES
Dunn 7L-301 - Wellbore #1 - Plan #1 (9-10-15)	1,400.0	1,397.3	64.4	58.4	10.750	SF
Dunn 7L-341 - Wellbore #1 - Plan #1 (9-10-15)	1,800.0	1,800.0	14.9	7.1	1.898	CC, ES, SF
Dunn 7Q-221 - Wellbore #1 - Plan #1 (9-11-15)	200.0	200.0	135.2	134.5	200.468	CC
Dunn 7Q-221 - Wellbore #1 - Plan #1 (9-11-15)	300.0	298.9	135.6	134.5	122.451	ES
Dunn 7Q-221 - Wellbore #1 - Plan #1 (9-11-15)	1,200.0	1,167.8	212.7	207.5	40.619	SF
Dunn 7Q-241 - Wellbore #1 - Plan #1 (9-11-15)	600.0	600.0	104.9	102.5	42.441	CC, ES
Dunn 7Q-241 - Wellbore #1 - Plan #1 (9-11-15)	1,200.0	1,188.1	132.0	127.0	26.109	SF
Dunn 7Q-301 - Wellbore #1 - Plan #1 (9-11-15)	400.0	400.0	120.2	118.7	76.420	CC, ES
Dunn 7Q-301 - Wellbore #1 - Plan #1 (9-11-15)	1,200.0	1,179.7	168.8	163.7	33.034	SF
Dunn 7Q-341 - Wellbore #1 - Plan #1 (9-11-15)	800.0	800.0	90.0	86.6	26.693	CC, ES
Dunn 7Q-341 - Wellbore #1 - Plan #1 (9-11-15)	1,300.0	1,291.2	110.4	104.9	20.115	SF
Dunn Pad Sec.7-T5N-R64W						
Dunn 24-7 (Exist.) - Wellbore #1 - Wellbore #1	1,800.0	1,787.0	841.6	802.0	21.214	CC
Dunn 24-7 (Exist.) - Wellbore #1 - Wellbore #1	1,900.0	1,887.0	842.4	800.5	20.119	ES
Dunn 24-7 (Exist.) - Wellbore #1 - Wellbore #1	3,100.0	3,062.0	982.2	915.5	14.719	SF
Dunn 7PD (AL) - Wellbore #1 - Design #1	1,764.5	1,770.5	841.1	833.4	108.938	CC
Dunn 7PD (AL) - Wellbore #1 - Design #1	1,800.0	1,800.0	841.1	833.3	106.920	ES
Dunn 7PD (AL) - Wellbore #1 - Design #1	2,700.0	2,556.9	989.2	977.8	86.609	SF

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 71-201
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 71-201	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 (9-8-15)	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
Existing Wells - Sec.7-T5N-R64W						
DPG Bird Farm #12-1H5 (Exist.) - Wellbore #1 - Wellbore	11,112.1	6,701.9	749.2	538.6	3.557	CC, ES
DPG Bird Farm #12-1H5 (Exist.) - Wellbore #1 - Wellbore	11,200.0	6,701.7	754.3	542.1	3.554	SF
Dunn #1 (Exist.) - Wellbore #1 - Wellbore #1	7,376.0	6,734.7	312.4	160.5	2.057	CC, ES, SF
Dunn #13-7 (Exist.) - Wellbore #1 - Wellbore #1	8,467.1	6,729.9	229.5	65.6	1.400	Level 3, CC, ES, SF
Law #44-12 (Exist.) - Wellbore #1 - Wellbore #1	7,035.3	6,665.8	912.9	762.4	6.064	CC, ES
Law #44-12 (Exist.) - Wellbore #1 - Wellbore #1	7,050.0	6,671.7	913.0	762.4	6.063	SF
Law #9-12 (Exist.) - Wellbore #1 - Wellbore #1	8,536.8	6,710.7	863.5	698.9	5.246	CC, ES
Law #9-12 (Exist.) - Wellbore #1 - Wellbore #1	8,600.0	6,710.5	865.8	700.2	5.228	SF
Little Will #6 (P&A) - Wellbore #1 - Wellbore #1	16,009.5	6,714.1	636.9	333.1	2.096	CC, ES, SF
Loustalet #42-12 (Exist.) - Wellbore #1 - Wellbore #1	9,681.4	6,706.7	865.4	681.1	4.696	CC
Loustalet #42-12 (Exist.) - Wellbore #1 - Wellbore #1	9,700.0	6,706.6	865.6	681.0	4.689	ES
Loustalet #42-12 (Exist.) - Wellbore #1 - Wellbore #1	9,800.0	6,706.4	873.5	687.1	4.685	SF
Mitani #1 (Exist.) - Wellbore #1 - Wellbore #1	13,607.2	6,703.4	676.4	418.6	2.624	CC, ES, SF
Mitani #14-6 (Exist.) - Wellbore #1 - Wellbore #1	12,646.9	6,695.9	555.6	316.2	2.321	CC, ES, SF
Noffsinger #1 (P&A) - Wellbore #1 - Wellbore #1	16,330.2	6,720.3	844.4	534.2	2.723	CC, ES
Noffsinger #1 (P&A) - Wellbore #1 - Wellbore #1	16,400.0	6,720.1	847.2	535.8	2.720	SF
Silva #1 (Exist.) - Wellbore #1 - Wellbore #1						Out of range

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	-178.94	-30.2	-0.6	30.2	30.2	0.00	N/A			
100.0	100.0	100.0	100.0	0.1	0.1	-178.94	-30.2	-0.6	30.2	30.0	0.22	134.584			
200.0	200.0	200.0	200.0	0.3	0.3	-178.94	-30.2	-0.6	30.2	29.6	0.67	44.859			
300.0	300.0	300.0	300.0	0.6	0.6	-178.94	-30.2	-0.6	30.2	29.1	1.12	26.915			
400.0	400.0	400.0	400.0	0.8	0.8	-178.94	-30.2	-0.6	30.2	28.7	1.57	19.225			
500.0	500.0	500.0	500.0	1.0	1.0	-178.94	-30.2	-0.6	30.2	28.2	2.02	14.953			
600.0	600.0	600.0	600.0	1.2	1.2	-178.94	-30.2	-0.6	30.2	27.8	2.47	12.234			
700.0	700.0	700.0	700.0	1.5	1.5	-178.94	-30.2	-0.6	30.2	27.3	2.92	10.352			
800.0	800.0	800.0	800.0	1.7	1.7	-178.94	-30.2	-0.6	30.2	26.9	3.37	8.972			
900.0	900.0	900.0	900.0	1.9	1.9	-178.94	-30.2	-0.6	30.2	26.4	3.82	7.916			
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-178.94	-30.2	-0.6	30.2	26.0	4.27	7.083			
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	-178.94	-30.2	-0.6	30.2	25.5	4.72	6.408			
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-178.94	-30.2	-0.6	30.2	25.1	5.17	5.851			
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-178.94	-30.2	-0.6	30.2	24.6	5.62	5.383			
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	-178.94	-30.2	-0.6	30.2	24.2	6.07	4.984			
1,500.0	1,500.0	1,500.0	1,500.0	3.3	3.3	-178.94	-30.2	-0.6	30.2	23.7	6.52	4.640 CC, ES			
1,600.0	1,600.0	1,599.3	1,599.3	3.5	3.5	-177.95	-31.4	-1.1	31.4	24.5	6.94	4.530			
1,700.0	1,700.0	1,698.4	1,698.3	3.7	3.6	-175.39	-34.9	-2.8	35.0	27.7	7.34	4.774			
1,800.0	1,800.0	1,797.3	1,797.0	3.9	3.8	-172.12	-40.6	-5.6	41.1	33.4	7.74	5.312			
1,900.0	1,900.0	1,895.8	1,895.1	4.1	4.0	-35.36	-48.7	-9.5	48.8	40.6	8.13	5.998			
2,000.0	1,999.9	1,994.2	1,992.8	4.3	4.2	-34.41	-58.9	-14.6	56.8	48.3	8.49	6.683			
2,100.0	2,099.7	2,092.3	2,090.0	4.5	4.4	-34.40	-71.4	-20.6	65.1	56.2	8.87	7.341			
2,200.0	2,199.3	2,190.2	2,186.5	4.7	4.7	-35.01	-86.1	-27.8	73.8	64.5	9.26	7.971			
2,300.0	2,298.6	2,287.9	2,282.3	4.9	5.0	-36.02	-103.0	-36.0	82.8	73.1	9.66	8.572			
2,400.0	2,397.5	2,385.9	2,378.0	5.1	5.3	-37.32	-122.1	-45.3	92.1	82.0	10.08	9.134			
2,500.0	2,496.1	2,485.5	2,475.1	5.4	5.6	-39.21	-142.1	-55.1	100.1	89.5	10.53	9.498			

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 71-201
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 71-201	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 (9-8-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft		
Survey Program: 0-MWD													Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 71-221 - Wellbore #1 - Plan #1 (9-10-15)		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				
2,600.0	2,594.2	2,585.2	2,572.3	5.7	6.0	-41.74	-162.1	-64.9	106.2	95.1	11.03	9.624				
2,700.0	2,691.7	2,684.9	2,669.5	6.0	6.4	-44.93	-182.1	-74.6	110.6	99.0	11.59	9.545				
2,800.0	2,788.6	2,784.6	2,766.6	6.4	6.8	-48.86	-202.1	-84.4	113.7	101.4	12.23	9.293				
2,900.0	2,884.9	2,884.1	2,863.6	6.8	7.2	-53.59	-222.1	-94.1	115.6	102.7	12.98	8.908				
3,000.0	2,980.4	2,983.4	2,960.4	7.2	7.6	-59.20	-242.1	-103.9	117.0	103.2	13.87	8.436				
3,100.0	3,075.0	3,082.5	3,057.0	7.7	8.0	-65.73	-262.0	-113.6	118.4	103.5	14.92	7.939				
3,200.0	3,168.9	3,181.2	3,153.2	8.3	8.5	-73.16	-281.8	-123.2	120.6	104.5	16.11	7.485				
3,258.2	3,223.0	3,238.5	3,209.0	8.6	8.7	-77.84	-293.3	-128.8	122.5	105.7	16.85	7.269				
3,300.0	3,261.8	3,279.6	3,249.1	8.9	8.9	-81.25	-301.5	-132.9	124.4	107.0	17.39	7.150				
3,400.0	3,354.6	3,377.9	3,344.9	9.5	9.3	-88.95	-321.3	-142.5	130.5	111.9	18.64	7.002				
3,500.0	3,447.4	3,476.2	3,440.7	10.2	9.8	-95.86	-341.0	-152.1	138.9	119.1	19.80	7.012				
3,600.0	3,540.2	3,574.4	3,536.5	10.9	10.2	-101.93	-360.7	-161.7	149.0	128.1	20.87	7.140				
3,700.0	3,633.0	3,672.7	3,632.3	11.6	10.6	-107.19	-380.5	-171.4	160.6	138.8	21.86	7.349				
3,800.0	3,725.8	3,771.0	3,728.1	12.3	11.1	-111.73	-400.2	-181.0	173.4	150.7	22.78	7.614				
3,900.0	3,818.6	3,869.3	3,823.9	13.0	11.5	-115.62	-419.9	-190.6	187.2	163.5	23.65	7.914				
4,000.0	3,911.4	3,967.6	3,919.7	13.7	12.0	-118.98	-439.7	-200.2	201.7	177.2	24.49	8.235				
4,100.0	4,004.2	4,065.9	4,015.6	14.4	12.5	-121.89	-459.4	-209.9	216.7	191.4	25.30	8.567				
4,200.0	4,097.0	4,164.2	4,111.4	15.1	12.9	-124.42	-479.2	-219.5	232.3	206.2	26.10	8.901				
4,300.0	4,189.8	4,262.5	4,207.2	15.8	13.4	-126.62	-498.9	-229.1	248.2	221.3	26.88	9.234				
4,400.0	4,282.6	4,360.8	4,303.0	16.6	13.8	-128.57	-518.6	-238.7	264.5	236.8	27.66	9.562				
4,500.0	4,375.4	4,459.1	4,398.8	17.3	14.3	-130.28	-538.4	-248.4	281.0	252.6	28.44	9.882				
4,600.0	4,468.2	4,557.4	4,494.6	18.1	14.7	-131.81	-558.1	-258.0	297.8	268.5	29.21	10.193				
4,700.0	4,561.0	4,655.7	4,590.4	18.8	15.2	-133.17	-577.8	-267.6	314.7	284.7	29.99	10.495				
4,800.0	4,653.8	4,754.0	4,686.2	19.5	15.7	-134.40	-597.6	-277.2	331.8	301.0	30.76	10.786				
4,885.0	4,732.7	4,837.5	4,767.7	20.2	16.1	-135.34	-614.3	-285.4	346.4	315.0	31.42	11.025				
4,900.0	4,746.7	4,852.3	4,782.0	20.3	16.1	-135.53	-617.3	-286.9	349.0	317.4	31.53	11.067				
5,000.0	4,840.3	4,950.9	4,878.2	20.8	16.6	-136.51	-637.1	-296.5	364.7	332.4	32.26	11.304				
5,100.0	4,935.1	5,050.0	4,974.8	21.3	17.1	-137.02	-657.0	-306.2	377.9	344.9	33.05	11.435				
5,200.0	5,030.9	5,149.4	5,071.7	21.8	17.5	-137.12	-677.0	-315.9	388.6	354.7	33.89	11.467				
5,300.0	5,127.7	5,248.5	5,168.3	22.2	18.0	-136.85	-696.9	-325.6	396.8	362.0	34.77	11.411				
5,400.0	5,225.3	5,342.2	5,260.0	22.6	18.3	-136.50	-714.1	-334.0	403.4	367.8	35.52	11.355				
5,500.0	5,323.6	5,436.0	5,352.4	22.9	18.6	-136.21	-728.6	-341.1	408.9	372.7	36.16	11.307				
5,600.0	5,422.5	5,529.8	5,445.3	23.2	18.9	-135.99	-740.4	-346.9	413.4	376.7	36.72	11.259				
5,700.0	5,521.8	5,623.7	5,538.6	23.5	19.1	-135.82	-749.5	-351.3	416.9	379.7	37.19	11.210				
5,800.0	5,621.5	5,717.6	5,632.3	23.7	19.3	-135.70	-755.8	-354.4	419.3	381.7	37.57	11.161				
5,900.0	5,721.4	5,811.6	5,726.1	23.8	19.4	-135.64	-759.4	-356.1	420.6	382.8	37.86	11.109				
5,978.6	5,800.0	5,885.5	5,800.0	23.9	19.5	90.03	-760.2	-356.6	421.0	382.9	38.04	11.065				
5,985.8	5,807.1	5,892.6	5,807.1	23.9	19.6	90.03	-760.2	-356.6	421.0	382.9	38.06	11.060				
6,000.0	5,821.4	5,906.8	5,821.4	24.0	19.6	90.03	-760.2	-356.6	421.0	382.9	38.10	11.049				
6,100.0	5,921.4	6,006.8	5,921.4	24.1	19.7	90.03	-760.2	-356.6	421.0	382.6	38.35	10.976				
6,162.5	5,983.8	6,069.3	5,983.8	24.1	19.8	90.03	-760.2	-356.6	421.0	382.4	38.51	10.930				
6,200.0	6,021.3	6,106.8	6,021.4	24.2	19.8	90.03	-759.3	-356.6	421.0	382.4	38.59	10.909				
6,250.0	6,071.2	6,156.9	6,071.2	24.2	19.8	90.03	-755.2	-356.6	421.0	382.3	38.63	10.897				
6,300.0	6,120.6	6,206.9	6,120.7	24.2	19.8	90.03	-747.9	-356.6	421.0	382.4	38.61	10.904				
6,350.0	6,169.5	6,256.9	6,169.5	24.1	19.8	90.03	-737.3	-356.6	421.0	382.4	38.51	10.930				
6,400.0	6,217.6	6,306.9	6,217.6	24.1	19.7	90.03	-723.6	-356.6	421.0	382.6	38.36	10.975				
6,450.0	6,264.6	6,356.9	6,264.7	24.0	19.6	90.03	-706.7	-356.6	421.0	382.8	38.14	11.037				
6,500.0	6,310.5	6,406.9	6,310.6	23.9	19.5	90.03	-686.8	-356.6	421.0	383.1	37.87	11.115				
6,550.0	6,355.0	6,457.0	6,355.1	23.7	19.4	90.03	-664.0	-356.6	421.0	383.4	37.56	11.208				
6,600.0	6,397.8	6,507.0	6,397.9	23.6	19.2	90.03	-638.3	-356.6	421.0	383.8	37.20	11.315				
6,650.0	6,438.9	6,557.0	6,439.1	23.4	19.0	90.03	-609.8	-356.6	421.0	384.1	36.82	11.433				

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 71-201
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 71-201	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 (9-8-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft		
Survey Program: 0-MWD													Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 71-221 - Wellbore #1 - Plan #1 (9-10-15)		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				
6,700.0	6,478.1	6,607.0	6,478.2	23.2	18.8	90.03	-578.7	-356.6	421.0	384.5	36.41	11.561				
6,750.0	6,515.1	6,657.0	6,515.3	23.0	18.6	90.02	-545.1	-356.6	421.0	385.0	36.00	11.695				
6,800.0	6,549.9	6,707.0	6,550.0	22.8	18.4	90.02	-509.2	-356.6	421.0	385.4	35.58	11.831				
6,850.0	6,582.2	6,757.0	6,582.4	22.6	18.3	90.02	-471.0	-356.6	421.0	385.8	35.18	11.967				
6,900.0	6,612.0	6,807.0	6,612.1	22.3	18.1	90.02	-430.9	-356.6	421.0	386.2	34.80	12.096				
6,950.0	6,639.1	6,857.0	6,639.2	22.1	17.9	90.02	-388.8	-356.6	421.0	386.5	34.46	12.215				
7,000.0	6,663.4	6,907.1	6,663.5	21.9	17.7	90.02	-345.1	-356.6	421.0	386.8	34.17	12.318				
7,050.0	6,684.7	6,957.1	6,684.8	21.7	17.6	90.01	-299.9	-356.6	421.0	387.0	33.95	12.400				
7,100.0	6,703.1	7,007.1	6,703.2	21.4	17.4	90.01	-253.4	-356.6	421.0	387.2	33.80	12.456				
7,150.0	6,718.4	7,057.1	6,718.5	21.2	17.3	90.01	-205.8	-356.6	421.0	387.2	33.73	12.482				
7,200.0	6,730.6	7,107.1	6,730.6	21.1	17.2	90.01	-157.3	-356.6	421.0	387.2	33.74	12.475				
7,250.0	6,739.5	7,157.1	6,739.5	20.9	17.2	90.01	-108.1	-356.6	421.0	387.1	33.86	12.433				
7,300.0	6,745.2	7,207.1	6,745.2	20.7	17.2	90.00	-58.4	-356.6	421.0	386.9	34.07	12.356				
7,350.0	6,747.7	7,257.1	6,747.7	20.6	17.3	90.00	-8.5	-356.6	421.0	386.6	34.37	12.246				
7,364.5	6,747.8	7,271.6	6,747.8	20.5	17.4	90.00	5.9	-356.6	421.0	386.5	34.48	12.209				
7,400.0	6,747.7	7,307.1	6,747.7	20.5	17.5	90.00	41.5	-356.6	421.0	386.2	34.78	12.102				
7,500.0	6,747.4	7,407.1	6,747.4	20.4	18.1	90.00	141.5	-356.6	421.0	385.1	35.89	11.729				
7,600.0	6,747.1	7,507.1	6,747.2	20.6	18.9	90.00	241.5	-356.6	421.0	383.6	37.36	11.268				
7,700.0	6,746.9	7,607.1	6,746.9	21.2	19.9	90.00	341.5	-356.6	421.0	381.8	39.15	10.752				
7,800.0	6,746.6	7,707.1	6,746.6	22.0	21.1	90.00	441.5	-356.6	421.0	379.7	41.22	10.212				
7,900.0	6,746.4	7,807.1	6,746.4	23.1	22.3	90.00	541.5	-356.6	421.0	377.4	43.54	9.669				
8,000.0	6,746.1	7,907.1	6,746.1	24.3	23.6	90.00	641.5	-356.6	421.0	374.9	46.05	9.140				
8,100.0	6,745.8	8,007.1	6,745.8	25.6	25.0	90.00	741.5	-356.6	421.0	372.2	48.75	8.636				
8,200.0	6,745.6	8,107.1	6,745.6	26.9	26.5	90.00	841.5	-356.6	421.0	369.4	51.58	8.161				
8,300.0	6,745.3	8,207.1	6,745.3	28.4	28.0	90.00	941.5	-356.6	421.0	366.4	54.54	7.718				
8,400.0	6,745.0	8,307.1	6,745.1	29.8	29.6	90.00	1,041.5	-356.6	420.9	363.3	57.61	7.307				
8,500.0	6,744.8	8,407.1	6,744.8	31.4	31.2	90.00	1,141.5	-356.6	420.9	360.2	60.76	6.928				
8,600.0	6,744.5	8,507.1	6,744.5	32.9	32.8	90.00	1,241.5	-356.6	420.9	357.0	63.99	6.578				
8,700.0	6,744.3	8,607.1	6,744.3	34.5	34.4	90.00	1,341.5	-356.6	420.9	353.7	67.28	6.256				
8,800.0	6,744.0	8,707.1	6,744.0	36.1	36.1	90.00	1,441.5	-356.6	420.9	350.3	70.63	5.960				
8,900.0	6,743.7	8,807.1	6,743.8	37.8	37.8	90.00	1,541.5	-356.6	420.9	346.9	74.03	5.686				
9,000.0	6,743.5	8,907.1	6,743.5	39.5	39.6	90.00	1,641.5	-356.6	420.9	343.5	77.47	5.434				
9,100.0	6,743.2	9,007.1	6,743.2	41.2	41.3	90.00	1,741.5	-356.6	420.9	340.0	80.94	5.201				
9,200.0	6,743.0	9,107.1	6,743.0	42.9	43.1	90.00	1,841.5	-356.6	420.9	336.5	84.45	4.985				
9,300.0	6,742.7	9,207.1	6,742.7	44.6	44.8	90.00	1,941.5	-356.6	420.9	333.0	87.98	4.785				
9,400.0	6,742.4	9,307.1	6,742.4	46.3	46.6	90.00	2,041.5	-356.6	420.9	329.4	91.54	4.599				
9,500.0	6,742.2	9,407.1	6,742.2	48.1	48.4	90.00	2,141.5	-356.6	420.9	325.8	95.12	4.425				
9,600.0	6,741.9	9,507.1	6,741.9	49.8	50.2	90.00	2,241.5	-356.6	420.9	322.2	98.72	4.264				
9,700.0	6,741.6	9,607.1	6,741.7	51.6	52.0	90.00	2,341.5	-356.6	420.9	318.6	102.34	4.113				
9,800.0	6,741.4	9,707.1	6,741.4	53.4	53.8	90.00	2,441.5	-356.6	420.9	315.0	105.97	3.972				
9,900.0	6,741.1	9,807.1	6,741.1	55.2	55.7	90.00	2,541.5	-356.6	420.9	311.3	109.62	3.840				
10,000.0	6,740.9	9,907.1	6,740.9	57.0	57.5	90.00	2,641.5	-356.6	420.9	307.7	113.28	3.716				
10,100.0	6,740.6	10,007.1	6,740.6	58.8	59.3	90.00	2,741.5	-356.6	420.9	304.0	116.95	3.599				
10,200.0	6,740.3	10,107.1	6,740.3	60.6	61.2	90.00	2,841.5	-356.6	420.9	300.3	120.64	3.489				
10,300.0	6,740.1	10,207.1	6,740.1	62.4	63.0	90.00	2,941.5	-356.6	420.9	296.6	124.33	3.386				
10,400.0	6,739.8	10,307.1	6,739.8	64.3	64.9	90.00	3,041.5	-356.6	420.9	292.9	128.03	3.288				
10,500.0	6,739.6	10,407.1	6,739.6	66.1	66.7	90.00	3,141.5	-356.6	420.9	289.2	131.74	3.195				
10,600.0	6,739.3	10,507.1	6,739.3	67.9	68.6	90.00	3,241.5	-356.6	420.9	285.5	135.45	3.108				
10,700.0	6,739.0	10,607.1	6,739.0	69.8	70.4	90.00	3,341.5	-356.6	420.9	281.8	139.18	3.024				
10,800.0	6,738.8	10,707.1	6,738.8	71.6	72.3	90.00	3,441.5	-356.6	420.9	278.0	142.91	2.946				
10,900.0	6,738.5	10,807.1	6,738.5	73.5	74.2	90.00	3,541.5	-356.6	420.9	274.3	146.64	2.871				

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 71-201
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 71-201	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 (9-8-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft		
Survey Program: 0-MWD													Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 71-221 - Wellbore #1 - Plan #1 (9-10-15)		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				
11,000.0	6,738.2	10,907.1	6,738.3	75.3	76.0	90.00	3,641.5	-356.6	420.9	270.6	150.38	2.799				
11,100.0	6,738.0	11,007.1	6,738.0	77.2	77.9	90.00	3,741.5	-356.6	420.9	266.8	154.13	2.731				
11,200.0	6,737.7	11,107.1	6,737.7	79.0	79.8	90.00	3,841.5	-356.6	420.9	263.1	157.88	2.666				
11,300.0	6,737.5	11,207.1	6,737.5	80.9	81.7	90.00	3,941.5	-356.6	420.9	259.3	161.63	2.604				
11,400.0	6,737.2	11,307.1	6,737.2	82.7	83.5	90.00	4,041.5	-356.6	420.9	255.5	165.39	2.545				
11,500.0	6,736.9	11,407.1	6,736.9	84.6	85.4	90.00	4,141.5	-356.6	420.9	251.8	169.15	2.488				
11,600.0	6,736.7	11,507.1	6,736.7	86.5	87.3	90.00	4,241.5	-356.6	420.9	248.0	172.92	2.434				
11,700.0	6,736.4	11,607.1	6,736.4	88.3	89.2	90.00	4,341.5	-356.6	420.9	244.2	176.69	2.382				
11,800.0	6,736.1	11,707.1	6,736.2	90.2	91.1	90.00	4,441.5	-356.6	420.9	240.5	180.46	2.333				
11,900.0	6,735.9	11,807.1	6,735.9	92.1	93.0	90.00	4,541.5	-356.6	420.9	236.7	184.24	2.285				
12,000.0	6,735.6	11,907.1	6,735.6	94.0	94.8	90.00	4,641.5	-356.6	420.9	232.9	188.01	2.239				
12,100.0	6,735.4	12,007.1	6,735.4	95.8	96.7	90.00	4,741.5	-356.6	420.9	229.1	191.79	2.195				
12,200.0	6,735.1	12,107.1	6,735.1	97.7	98.6	90.00	4,841.5	-356.6	420.9	225.4	195.58	2.152				
12,300.0	6,734.8	12,207.1	6,734.8	99.6	100.5	90.00	4,941.5	-356.6	420.9	221.6	199.36	2.111				
12,400.0	6,734.6	12,307.1	6,734.6	101.5	102.4	90.00	5,041.5	-356.6	420.9	217.8	203.15	2.072				
12,500.0	6,734.3	12,407.1	6,734.3	103.4	104.3	90.00	5,141.5	-356.6	420.9	214.0	206.94	2.034				
12,600.0	6,734.1	12,507.1	6,734.1	105.2	106.2	90.00	5,241.5	-356.6	420.9	210.2	210.73	1.998				
12,700.0	6,733.8	12,607.1	6,733.8	107.1	108.1	90.00	5,341.5	-356.6	420.9	206.4	214.52	1.962				
12,800.0	6,733.5	12,707.1	6,733.5	109.0	110.0	90.00	5,441.5	-356.6	420.9	202.6	218.31	1.928				
12,900.0	6,733.3	12,807.1	6,733.3	110.9	111.9	90.00	5,541.5	-356.6	420.9	198.8	222.11	1.895				
13,000.0	6,733.0	12,907.1	6,733.0	112.8	113.8	90.00	5,641.5	-356.6	420.9	195.0	225.91	1.863				
13,100.0	6,732.7	13,007.1	6,732.8	114.7	115.7	90.00	5,741.5	-356.6	420.9	191.2	229.71	1.832				
13,200.0	6,732.5	13,107.1	6,732.5	116.6	117.6	90.00	5,841.5	-356.6	420.9	187.4	233.51	1.803				
13,300.0	6,732.2	13,207.1	6,732.2	118.5	119.5	90.00	5,941.5	-356.6	420.9	183.6	237.31	1.774				
13,400.0	6,732.0	13,307.1	6,732.0	120.4	121.4	90.00	6,041.5	-356.6	420.9	179.8	241.11	1.746				
13,500.0	6,731.7	13,407.1	6,731.7	122.3	123.3	90.00	6,141.5	-356.6	420.9	176.0	244.91	1.719				
13,600.0	6,731.4	13,507.1	6,731.4	124.2	125.2	90.00	6,241.5	-356.6	420.9	172.2	248.72	1.692				
13,700.0	6,731.2	13,607.1	6,731.2	126.0	127.1	90.00	6,341.5	-356.6	420.9	168.4	252.53	1.667				
13,800.0	6,730.9	13,707.1	6,730.9	127.9	129.0	90.00	6,441.5	-356.6	420.9	164.6	256.33	1.642				
13,900.0	6,730.7	13,807.1	6,730.7	129.8	130.9	90.00	6,541.5	-356.6	420.9	160.8	260.14	1.618				
14,000.0	6,730.4	13,907.1	6,730.4	131.7	132.8	90.00	6,641.5	-356.6	420.9	157.0	263.95	1.595				
14,100.0	6,730.1	14,007.1	6,730.1	133.6	134.7	90.00	6,741.5	-356.6	420.9	153.2	267.76	1.572				
14,200.0	6,729.9	14,107.1	6,729.9	135.5	136.6	90.00	6,841.5	-356.6	420.9	149.4	271.57	1.550				
14,300.0	6,729.6	14,207.1	6,729.6	137.4	138.5	90.00	6,941.5	-356.6	420.9	145.5	275.38	1.528				
14,400.0	6,729.3	14,307.1	6,729.4	139.3	140.4	90.00	7,041.5	-356.6	420.9	141.7	279.20	1.508				
14,500.0	6,729.1	14,407.1	6,729.1	141.2	142.3	90.00	7,141.5	-356.6	420.9	137.9	283.01	1.487	Level 3			
14,600.0	6,728.8	14,507.1	6,728.8	143.1	144.2	90.00	7,241.5	-356.6	420.9	134.1	286.82	1.468	Level 3			
14,700.0	6,728.6	14,607.1	6,728.6	145.0	146.1	90.00	7,341.5	-356.6	420.9	130.3	290.64	1.448	Level 3			
14,800.0	6,728.3	14,707.1	6,728.3	146.9	148.0	90.00	7,441.5	-356.6	420.9	126.5	294.45	1.429	Level 3			
14,900.0	6,728.0	14,807.1	6,728.0	148.8	150.0	90.00	7,541.5	-356.6	420.9	122.6	298.27	1.411	Level 3			
15,000.0	6,727.8	14,907.1	6,727.8	150.7	151.9	90.00	7,641.5	-356.6	420.9	118.8	302.09	1.393	Level 3			
15,100.0	6,727.5	15,007.1	6,727.5	152.6	153.8	90.00	7,741.5	-356.6	420.9	115.0	305.90	1.376	Level 3			
15,200.0	6,727.2	15,107.1	6,727.3	154.5	155.7	90.00	7,841.5	-356.6	420.9	111.2	309.72	1.359	Level 3			
15,300.0	6,727.0	15,207.1	6,727.0	156.5	157.6	90.00	7,941.5	-356.6	420.9	107.4	313.54	1.342	Level 3			
15,400.0	6,726.7	15,307.1	6,726.7	158.4	159.5	90.00	8,041.5	-356.6	420.9	103.6	317.36	1.326	Level 3			
15,500.0	6,726.5	15,407.1	6,726.5	160.3	161.4	90.00	8,141.5	-356.6	420.9	99.7	321.18	1.311	Level 3			
15,600.0	6,726.2	15,507.1	6,726.2	162.2	163.3	90.00	8,241.5	-356.6	420.9	95.9	325.00	1.295	Level 3			
15,700.0	6,725.9	15,607.1	6,725.9	164.1	165.2	90.00	8,341.5	-356.6	420.9	92.1	328.82	1.280	Level 3			
15,800.0	6,725.7	15,707.1	6,725.7	166.0	167.1	90.00	8,441.5	-356.6	420.9	88.3	332.64	1.265	Level 3			
15,900.0	6,725.4	15,807.1	6,725.4	167.9	169.0	90.00	8,541.5	-356.6	420.9	84.5	336.46	1.251	Level 3			
16,000.0	6,725.2	15,907.1	6,725.2	169.8	171.0	90.00	8,641.5	-356.6	420.9	80.6	340.29	1.237	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 71-201
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 71-201	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 (9-8-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft		
Survey Program: 0-MWD													Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 71-221 - Wellbore #1 - Plan #1 (9-10-15)		Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance			Separation Factor	Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)					
16,100.0	6,724.9	16,007.1	6,724.9	171.7	172.9	90.00	8,741.5	-356.6	420.9	76.8	344.11	1.223	Level 2			
16,200.0	6,724.6	16,107.1	6,724.6	173.6	174.8	90.00	8,841.5	-356.6	420.9	73.0	347.93	1.210	Level 2			
16,300.0	6,724.4	16,207.1	6,724.4	175.5	176.7	90.00	8,941.5	-356.6	420.9	69.2	351.75	1.197	Level 2			
16,400.0	6,724.1	16,307.1	6,724.1	177.4	178.6	90.00	9,041.5	-356.6	420.9	65.3	355.58	1.184	Level 2			
16,500.0	6,723.8	16,407.1	6,723.9	179.3	180.5	90.00	9,141.5	-356.6	420.9	61.5	359.40	1.171	Level 2			
16,600.0	6,723.6	16,507.1	6,723.6	181.2	182.4	90.00	9,241.5	-356.6	420.9	57.7	363.23	1.159	Level 2			
16,700.0	6,723.3	16,607.1	6,723.3	183.1	184.3	90.00	9,341.5	-356.6	420.9	53.9	367.05	1.147	Level 2			
16,800.0	6,723.1	16,707.1	6,723.1	185.1	186.3	90.00	9,441.5	-356.6	420.9	50.0	370.88	1.135	Level 2			
16,822.3	6,723.0	16,729.4	6,723.0	185.5	186.7	90.00	9,463.8	-356.6	420.9	49.2	371.73	1.132	Level 2, SF			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 71-201
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 71-201	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 (9-8-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft		
Survey Program: O-MWD													Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 71-321 - Wellbore #1 - Plan #1 (9-10-15)		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	-178.93	-14.9	-0.3	14.9	14.9	0.00	N/A				
100.0	100.0	100.0	100.0	0.1	0.1	-178.93	-14.9	-0.3	14.9	14.7	0.22	66.491				
200.0	200.0	200.0	200.0	0.3	0.3	-178.93	-14.9	-0.3	14.9	14.3	0.67	22.162				
300.0	300.0	300.0	300.0	0.6	0.6	-178.93	-14.9	-0.3	14.9	13.8	1.12	13.297				
400.0	400.0	400.0	400.0	0.8	0.8	-178.93	-14.9	-0.3	14.9	13.4	1.57	9.498				
500.0	500.0	500.0	500.0	1.0	1.0	-178.93	-14.9	-0.3	14.9	12.9	2.02	7.387				
600.0	600.0	600.0	600.0	1.2	1.2	-178.93	-14.9	-0.3	14.9	12.5	2.47	6.044				
700.0	700.0	700.0	700.0	1.5	1.5	-178.93	-14.9	-0.3	14.9	12.0	2.92	5.114				
800.0	800.0	800.0	800.0	1.7	1.7	-178.93	-14.9	-0.3	14.9	11.6	3.37	4.432				
900.0	900.0	900.0	900.0	1.9	1.9	-178.93	-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	-178.93	-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	-178.93	-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	-178.93	-14.9	-0.3	14.9	9.8	5.17	2.891				
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-178.93	-14.9	-0.3	14.9	9.3	5.62	2.659				
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	-178.93	-14.9	-0.3	14.9	8.9	6.07	2.462				
1,500.0	1,500.0	1,500.0	1,500.0	3.3	3.3	-178.93	-14.9	-0.3	14.9	8.4	6.52	2.293				
1,600.0	1,600.0	1,600.0	1,600.0	3.5	3.5	-178.93	-14.9	-0.3	14.9	8.0	6.97	2.145 CC				
1,700.0	1,700.0	1,699.7	1,699.7	3.7	3.7	-176.13	-16.0	-1.1	16.0	8.6	7.39	2.165				
1,800.0	1,800.0	1,799.2	1,799.1	3.9	3.9	-169.63	-19.0	-3.5	19.4	11.6	7.79	2.485				
1,900.0	1,900.0	1,898.5	1,898.2	4.1	4.0	-29.87	-24.1	-7.5	24.2	16.0	8.18	2.956				
2,000.0	1,999.9	1,997.8	1,997.0	4.3	4.2	-26.90	-31.2	-13.0	29.2	20.7	8.54	3.423				
2,100.0	2,099.7	2,096.8	2,095.4	4.5	4.5	-25.34	-40.3	-20.2	34.5	25.5	8.91	3.867				
2,200.0	2,199.3	2,195.8	2,193.4	4.7	4.7	-24.66	-51.4	-28.9	39.8	30.5	9.29	4.285				
2,300.0	2,298.6	2,294.6	2,290.8	4.9	4.9	-24.55	-64.5	-39.1	45.2	35.5	9.67	4.676				
2,400.0	2,397.5	2,393.2	2,387.6	5.1	5.2	-24.82	-79.5	-50.9	50.7	40.7	10.07	5.039				
2,500.0	2,496.1	2,491.8	2,483.7	5.4	5.5	-25.36	-96.5	-64.2	56.4	45.9	10.48	5.376				
2,600.0	2,594.2	2,590.2	2,579.1	5.7	5.9	-26.09	-115.4	-79.0	62.1	51.1	10.92	5.685				
2,700.0	2,691.7	2,689.2	2,674.5	6.0	6.3	-27.05	-136.1	-95.3	67.6	56.2	11.38	5.941				
2,800.0	2,788.6	2,789.1	2,770.8	6.4	6.7	-28.76	-157.3	-111.9	71.2	59.3	11.89	5.989				
2,900.0	2,884.9	2,889.0	2,867.0	6.8	7.2	-31.35	-178.5	-128.5	72.6	60.2	12.47	5.825				
3,000.0	2,980.4	2,988.9	2,963.2	7.2	7.7	-35.02	-199.7	-145.2	72.0	58.9	13.15	5.475				
3,100.0	3,075.0	3,088.7	3,059.3	7.7	8.1	-40.08	-220.8	-161.8	69.7	55.7	14.01	4.973				
3,200.0	3,168.9	3,188.3	3,155.2	8.3	8.6	-47.06	-242.0	-178.3	66.1	51.0	15.14	4.367				
3,258.2	3,223.0	3,246.1	3,210.9	8.6	8.9	-52.28	-254.2	-188.0	63.8	47.8	15.97	3.996				
3,300.0	3,261.8	3,287.6	3,250.9	8.9	9.1	-56.45	-263.0	-194.9	62.3	45.7	16.63	3.745				
3,400.0	3,354.6	3,387.0	3,346.5	9.5	9.6	-67.10	-284.1	-211.4	60.2	41.8	18.34	3.281				
3,447.0	3,398.2	3,433.6	3,391.4	9.8	9.9	-72.27	-294.0	-219.1	59.9	40.8	19.14	3.130				
3,500.0	3,447.4	3,486.3	3,442.1	10.2	10.2	-78.11	-305.2	-227.9	60.2	40.2	20.02	3.009				
3,600.0	3,540.2	3,585.6	3,537.8	10.9	10.7	-88.70	-326.2	-244.4	62.5	41.0	21.49	2.908				
3,700.0	3,633.0	3,684.9	3,633.4	11.6	11.2	-98.27	-347.3	-261.0	66.7	44.1	22.67	2.943				
3,800.0	3,725.8	3,784.2	3,729.1	12.3	11.7	-106.50	-368.4	-277.5	72.6	49.0	23.60	3.077				
3,900.0	3,818.6	3,883.6	3,824.7	13.0	12.3	-113.40	-389.5	-294.0	79.8	55.4	24.33	3.278				
4,000.0	3,911.4	3,982.9	3,920.4	13.7	12.8	-119.10	-410.5	-310.5	87.9	62.9	24.96	3.521				
4,100.0	4,004.2	4,082.2	4,016.0	14.4	13.3	-123.80	-431.6	-327.1	96.7	71.2	25.53	3.788				
4,200.0	4,097.0	4,181.5	4,111.7	15.1	13.9	-127.70	-452.7	-343.6	106.1	80.0	26.08	4.067				
4,300.0	4,189.8	4,280.9	4,207.3	15.8	14.4	-130.96	-473.7	-360.1	115.9	89.2	26.63	4.350				
4,400.0	4,282.6	4,380.2	4,302.9	16.6	15.0	-133.71	-494.8	-376.6	126.0	98.8	27.19	4.633				
4,500.0	4,375.4	4,479.5	4,398.6	17.3	15.5	-136.04	-515.9	-393.2	136.3	108.5	27.76	4.910				
4,600.0	4,468.2	4,578.8	4,494.2	18.1	16.0	-138.04	-536.9	-409.7	146.8	118.5	28.34	5.181				
4,700.0	4,561.0	4,678.1	4,589.9	18.8	16.6	-139.78	-558.0	-426.2	157.5	128.6	28.94	5.443				
4,800.0	4,653.8	4,777.5	4,685.5	19.5	17.1	-141.29	-579.1	-442.7	168.3	138.8	29.55	5.697				

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 71-201
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 71-201	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 (9-8-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft		
Survey Program: O-MWD													Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 71-321 - Wellbore #1 - Plan #1 (9-10-15)		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				
4,885.0	4,732.7	4,861.9	4,766.8	20.2	17.6	-142.43	-597.0	-456.8	177.6	147.5	30.08	5.905				
4,900.0	4,746.7	4,876.8	4,781.2	20.3	17.7	-142.63	-600.1	-459.3	179.2	149.0	30.17	5.940				
5,000.0	4,840.3	4,976.3	4,877.0	20.8	18.2	-143.51	-621.3	-475.8	188.4	157.5	30.85	6.107				
5,100.0	4,935.1	5,076.1	4,973.1	21.3	18.8	-143.68	-642.4	-492.4	194.8	163.1	31.67	6.150				
5,200.0	5,030.9	5,176.0	5,069.3	21.8	19.4	-143.22	-663.6	-509.0	198.4	165.7	32.63	6.079				
5,300.0	5,127.7	5,274.1	5,163.8	22.2	19.9	-142.21	-684.2	-525.2	199.4	165.7	33.69	5.918				
5,400.0	5,225.3	5,369.4	5,256.3	22.6	20.2	-141.16	-702.3	-539.4	199.7	165.0	34.63	5.765				
5,500.0	5,323.6	5,464.8	5,349.6	22.9	20.6	-140.17	-717.9	-551.6	199.6	164.1	35.48	5.624				
5,600.0	5,422.5	5,560.3	5,443.6	23.2	20.9	-139.23	-731.1	-562.0	199.1	162.8	36.26	5.491				
5,700.0	5,521.8	5,655.8	5,538.2	23.5	21.1	-138.33	-741.9	-570.4	198.3	161.3	36.95	5.366				
5,800.0	5,621.5	5,751.5	5,633.3	23.7	21.4	-137.48	-750.1	-576.9	197.1	159.5	37.56	5.246				
5,900.0	5,721.4	5,847.3	5,728.7	23.8	21.5	-136.66	-755.9	-581.4	195.5	157.4	38.09	5.132				
5,978.6	5,800.0	5,922.6	5,804.0	23.9	21.7	89.61	-758.7	-583.6	194.0	155.5	38.46	5.044				
6,000.0	5,821.4	5,943.1	5,824.5	24.0	21.7	89.75	-759.2	-584.0	193.6	155.0	38.56	5.021				
6,100.0	5,921.4	6,040.0	5,921.4	24.1	21.8	89.98	-759.9	-584.6	192.9	154.1	38.89	4.962				
6,162.5	5,983.8	6,102.4	5,983.8	24.1	21.9	89.98	-759.9	-584.6	192.9	153.9	39.05	4.941				
6,172.0	5,993.3	6,111.9	5,993.3	24.1	21.9	90.00	-759.9	-584.6	192.9	153.9	39.08	4.937				
6,200.0	6,021.3	6,140.0	6,021.3	24.2	21.9	90.26	-759.9	-584.6	192.9	153.7	39.22	4.920				
6,250.0	6,071.2	6,189.9	6,071.2	24.2	22.0	91.43	-759.8	-584.6	193.0	153.4	39.64	4.869				
6,300.0	6,120.6	6,240.1	6,121.4	24.2	22.0	92.88	-757.4	-584.6	193.2	153.1	40.06	4.822				
6,350.0	6,169.5	6,290.7	6,171.6	24.1	22.0	94.31	-751.6	-584.6	193.5	153.1	40.40	4.789				
6,400.0	6,217.6	6,341.6	6,221.7	24.1	22.0	95.73	-742.4	-584.6	193.9	153.3	40.63	4.772				
6,450.0	6,264.6	6,392.8	6,271.4	24.0	22.0	97.12	-729.8	-584.6	194.4	153.7	40.76	4.771				
6,500.0	6,310.5	6,444.4	6,320.4	23.9	21.9	98.47	-713.8	-584.6	195.1	154.3	40.77	4.785				
6,550.0	6,355.0	6,496.3	6,368.5	23.7	21.8	99.79	-694.3	-584.6	195.8	155.1	40.67	4.814				
6,600.0	6,397.8	6,548.5	6,415.5	23.6	21.6	101.05	-671.5	-584.6	196.6	156.2	40.46	4.860				
6,650.0	6,438.9	6,601.1	6,461.1	23.4	21.5	102.26	-645.4	-584.6	197.5	157.3	40.14	4.920				
6,700.0	6,478.1	6,654.0	6,505.1	23.2	21.3	103.42	-616.0	-584.6	198.4	158.7	39.72	4.995				
6,750.0	6,515.1	6,707.2	6,547.1	23.0	21.1	104.50	-583.5	-584.6	199.3	160.1	39.21	5.083				
6,800.0	6,549.9	6,760.7	6,587.0	22.8	20.9	105.52	-547.9	-584.6	200.3	161.6	38.64	5.183				
6,850.0	6,582.2	6,814.5	6,624.5	22.6	20.7	106.46	-509.3	-584.6	201.2	163.2	38.02	5.293				
6,900.0	6,612.0	6,868.5	6,659.4	22.3	20.4	107.33	-468.0	-584.6	202.1	164.8	37.37	5.409				
6,950.0	6,639.1	6,922.9	6,691.4	22.1	20.2	108.11	-424.2	-584.6	203.0	166.3	36.72	5.529				
7,000.0	6,663.4	6,977.4	6,720.4	21.9	20.0	108.81	-378.0	-584.6	203.9	167.7	36.10	5.646				
7,050.0	6,684.7	7,032.1	6,746.0	21.7	19.7	109.43	-329.6	-584.6	204.6	169.1	35.54	5.758				
7,100.0	6,703.1	7,087.1	6,768.2	21.4	19.5	109.95	-279.4	-584.6	205.3	170.2	35.06	5.856				
7,150.0	6,718.4	7,142.2	6,786.8	21.2	19.3	110.39	-227.5	-584.6	205.8	171.2	34.69	5.935				
7,200.0	6,730.6	7,197.4	6,801.6	21.1	19.1	110.74	-174.4	-584.6	206.3	171.9	34.45	5.989				
7,250.0	6,739.5	7,252.7	6,812.6	20.9	18.9	110.99	-120.1	-584.6	206.7	172.3	34.37	6.013				
7,300.0	6,745.2	7,308.1	6,819.6	20.7	18.7	111.16	-65.2	-584.6	206.9	172.4	34.46	6.004				
7,350.0	6,747.7	7,363.5	6,822.6	20.6	18.5	111.23	-9.9	-584.6	207.0	172.3	34.71	5.963				
7,364.5	6,747.8	7,379.5	6,822.7	20.5	18.5	111.23	6.2	-584.6	207.0	172.2	34.81	5.945				
7,400.0	6,747.7	7,415.1	6,822.6	20.5	18.4	111.23	41.7	-584.6	207.0	171.8	35.14	5.891				
7,500.0	6,747.4	7,515.1	6,822.3	20.4	18.2	111.21	141.7	-584.6	207.0	170.7	36.24	5.711				
7,600.0	6,747.1	7,615.1	6,822.0	20.6	19.1	111.20	241.7	-584.6	206.9	169.3	37.66	5.495				
7,700.0	6,746.9	7,715.1	6,821.7	21.2	20.1	111.19	341.7	-584.6	206.9	167.6	39.36	5.257				
7,800.0	6,746.6	7,815.1	6,821.3	22.0	21.3	111.17	441.7	-584.6	206.9	165.6	41.32	5.008				
7,900.0	6,746.4	7,915.1	6,821.0	23.1	22.5	111.16	541.7	-584.6	206.9	163.4	43.48	4.758				
8,000.0	6,746.1	8,015.1	6,820.7	24.3	23.8	111.15	641.7	-584.6	206.9	161.0	45.83	4.514				
8,100.0	6,745.8	8,115.1	6,820.4	25.6	25.2	111.13	741.7	-584.6	206.8	158.5	48.34	4.279				
8,200.0	6,745.6	8,215.1	6,820.1	26.9	26.7	111.12	841.7	-584.6	206.8	155.8	50.98	4.057				

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 71-201
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 71-201	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 (9-8-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft		
Survey Program: O-MWD													Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 71-321 - Wellbore #1 - Plan #1 (9-10-15)		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 Tooface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor				
8,300.0	6,745.3	8,315.1	6,819.8	28.4	28.2	111.11	941.7	-584.6	206.8	153.1	53.74	3.848				
8,400.0	6,745.0	8,415.1	6,819.5	29.8	29.7	111.09	1,041.7	-584.6	206.8	150.2	56.60	3.654				
8,500.0	6,744.8	8,515.1	6,819.2	31.4	31.3	111.08	1,141.7	-584.6	206.8	147.2	59.53	3.473				
8,600.0	6,744.5	8,615.1	6,818.8	32.9	32.9	111.06	1,241.7	-584.6	206.7	144.2	62.55	3.306				
8,700.0	6,744.3	8,715.1	6,818.5	34.5	34.5	111.05	1,341.7	-584.6	206.7	141.1	65.62	3.150				
8,800.0	6,744.0	8,815.1	6,818.2	36.1	36.2	111.04	1,441.7	-584.6	206.7	138.0	68.75	3.007				
8,900.0	6,743.7	8,915.1	6,817.9	37.8	37.9	111.02	1,541.7	-584.6	206.7	134.8	71.93	2.874				
9,000.0	6,743.5	9,015.1	6,817.6	39.5	39.6	111.01	1,641.7	-584.6	206.7	131.5	75.14	2.750				
9,100.0	6,743.2	9,115.1	6,817.3	41.2	41.3	111.00	1,741.7	-584.6	206.7	128.3	78.40	2.636				
9,200.0	6,743.0	9,215.1	6,817.0	42.9	43.0	110.98	1,841.7	-584.6	206.6	125.0	81.68	2.530				
9,300.0	6,742.7	9,315.1	6,816.6	44.6	44.8	110.97	1,941.7	-584.6	206.6	121.6	84.99	2.431				
9,400.0	6,742.4	9,415.1	6,816.3	46.3	46.5	110.96	2,041.7	-584.6	206.6	118.3	88.33	2.339				
9,500.0	6,742.2	9,515.1	6,816.0	48.1	48.3	110.94	2,141.7	-584.6	206.6	114.9	91.70	2.253				
9,600.0	6,741.9	9,615.1	6,815.7	49.8	50.1	110.93	2,241.7	-584.6	206.6	111.5	95.08	2.173				
9,700.0	6,741.6	9,715.1	6,815.4	51.6	51.9	110.92	2,341.7	-584.6	206.5	108.1	98.48	2.097				
9,800.0	6,741.4	9,815.1	6,815.1	53.4	53.7	110.90	2,441.7	-584.6	206.5	104.6	101.89	2.027				
9,900.0	6,741.1	9,915.1	6,814.8	55.2	55.5	110.89	2,541.7	-584.6	206.5	101.2	105.32	1.961				
10,000.0	6,740.9	10,015.1	6,814.4	57.0	57.3	110.88	2,641.7	-584.6	206.5	97.7	108.77	1.898				
10,100.0	6,740.6	10,115.1	6,814.1	58.8	59.1	110.86	2,741.7	-584.6	206.5	94.2	112.23	1.840				
10,200.0	6,740.3	10,215.1	6,813.8	60.6	61.0	110.85	2,841.7	-584.6	206.4	90.8	115.69	1.784				
10,300.0	6,740.1	10,315.1	6,813.5	62.4	62.8	110.83	2,941.7	-584.6	206.4	87.3	119.17	1.732				
10,400.0	6,739.8	10,415.1	6,813.2	64.3	64.7	110.82	3,041.7	-584.6	206.4	83.7	122.66	1.683				
10,500.0	6,739.6	10,515.1	6,812.9	66.1	66.5	110.81	3,141.7	-584.6	206.4	80.2	126.16	1.636				
10,600.0	6,739.3	10,615.1	6,812.6	67.9	68.3	110.79	3,241.7	-584.6	206.4	76.7	129.66	1.592				
10,700.0	6,739.0	10,715.1	6,812.2	69.8	70.2	110.78	3,341.7	-584.6	206.4	73.2	133.18	1.549				
10,800.0	6,738.8	10,815.1	6,811.9	71.6	72.1	110.77	3,441.7	-584.6	206.3	69.6	136.69	1.509				
10,900.0	6,738.5	10,915.1	6,811.6	73.5	73.9	110.75	3,541.7	-584.6	206.3	66.1	140.22	1.471 Level 3				
11,000.0	6,738.2	11,015.1	6,811.3	75.3	75.8	110.74	3,641.7	-584.6	206.3	62.5	143.75	1.435 Level 3				
11,100.0	6,738.0	11,115.1	6,811.0	77.2	77.6	110.73	3,741.7	-584.6	206.3	59.0	147.29	1.400 Level 3				
11,200.0	6,737.7	11,215.1	6,810.7	79.0	79.5	110.71	3,841.7	-584.6	206.3	55.4	150.83	1.367 Level 3				
11,300.0	6,737.5	11,315.1	6,810.4	80.9	81.4	110.70	3,941.7	-584.6	206.2	51.9	154.38	1.336 Level 3				
11,400.0	6,737.2	11,415.1	6,810.0	82.7	83.2	110.69	4,041.7	-584.6	206.2	48.3	157.93	1.306 Level 3				
11,500.0	6,736.9	11,515.1	6,809.7	84.6	85.1	110.67	4,141.7	-584.6	206.2	44.7	161.49	1.277 Level 3				
11,600.0	6,736.7	11,615.1	6,809.4	86.5	87.0	110.66	4,241.7	-584.6	206.2	41.1	165.05	1.249 Level 2				
11,700.0	6,736.4	11,715.1	6,809.1	88.3	88.9	110.64	4,341.7	-584.6	206.2	37.5	168.62	1.223 Level 2				
11,800.0	6,736.1	11,815.1	6,808.8	90.2	90.7	110.63	4,441.7	-584.6	206.1	34.0	172.19	1.197 Level 2				
11,900.0	6,735.9	11,915.1	6,808.5	92.1	92.6	110.62	4,541.7	-584.6	206.1	30.4	175.76	1.173 Level 2				
12,000.0	6,735.6	12,015.1	6,808.2	94.0	94.5	110.60	4,641.7	-584.6	206.1	26.8	179.33	1.149 Level 2				
12,100.0	6,735.4	12,115.1	6,807.8	95.8	96.4	110.59	4,741.7	-584.6	206.1	23.2	182.91	1.127 Level 2				
12,200.0	6,735.1	12,215.1	6,807.5	97.7	98.3	110.58	4,841.7	-584.6	206.1	19.6	186.50	1.105 Level 2				
12,300.0	6,734.8	12,315.1	6,807.2	99.6	100.2	110.56	4,941.7	-584.6	206.1	16.0	190.08	1.084 Level 2				
12,400.0	6,734.6	12,415.1	6,806.9	101.5	102.1	110.55	5,041.7	-584.6	206.0	12.4	193.67	1.064 Level 2				
12,500.0	6,734.3	12,515.1	6,806.6	103.4	103.9	110.54	5,141.7	-584.6	206.0	8.8	197.26	1.044 Level 2				
12,600.0	6,734.1	12,615.1	6,806.3	105.2	105.8	110.52	5,241.7	-584.6	206.0	5.1	200.85	1.026 Level 2				
12,700.0	6,733.8	12,715.1	6,806.0	107.1	107.7	110.51	5,341.7	-584.6	206.0	1.5	204.45	1.008 Level 2				
12,800.0	6,733.5	12,815.1	6,805.6	109.0	109.6	110.49	5,441.7	-584.6	206.0	-2.1	208.04	0.990 Level 1				
12,900.0	6,733.3	12,915.1	6,805.3	110.9	111.5	110.48	5,541.7	-584.6	205.9	-5.7	211.64	0.973 Level 1				
13,000.0	6,733.0	13,015.1	6,805.0	112.8	113.4	110.47	5,641.7	-584.6	205.9	-9.3	215.25	0.957 Level 1				
13,100.0	6,732.7	13,115.1	6,804.7	114.7	115.3	110.45	5,741.7	-584.6	205.9	-12.9	218.85	0.941 Level 1				
13,200.0	6,732.5	13,215.1	6,804.4	116.6	117.2	110.44	5,841.7	-584.6	205.9	-16.6	222.45	0.926 Level 1				
13,300.0	6,732.2	13,315.1	6,804.1	118.5	119.1	110.43	5,941.7	-584.6	205.9	-20.2	226.06	0.911 Level 1				

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 71-201
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 71-201	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 (9-8-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft		
Survey Program: 0-MWD													Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 71-321 - Wellbore #1 - Plan #1 (9-10-15)		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	Warning			
13,400.0	6,732.0	13,415.1	6,803.8	120.4	121.0	110.41	6,041.7	-584.6	205.9	-23.8	229.67	0.896	Level 1			
13,500.0	6,731.7	13,515.1	6,803.4	122.3	122.9	110.40	6,141.7	-584.6	205.8	-27.5	233.28	0.882	Level 1			
13,600.0	6,731.4	13,615.1	6,803.1	124.2	124.8	110.39	6,241.7	-584.6	205.8	-31.1	236.90	0.869	Level 1			
13,700.0	6,731.2	13,715.1	6,802.8	126.0	126.7	110.37	6,341.7	-584.6	205.8	-34.7	240.51	0.856	Level 1			
13,800.0	6,730.9	13,815.1	6,802.5	127.9	128.6	110.36	6,441.7	-584.6	205.8	-38.4	244.13	0.843	Level 1			
13,900.0	6,730.7	13,915.1	6,802.2	129.8	130.5	110.34	6,541.7	-584.6	205.8	-42.0	247.75	0.831	Level 1			
14,000.0	6,730.4	14,015.1	6,801.9	131.7	132.4	110.33	6,641.7	-584.6	205.7	-45.6	251.37	0.818	Level 1			
14,100.0	6,730.1	14,115.1	6,801.6	133.6	134.3	110.32	6,741.7	-584.6	205.7	-49.3	254.99	0.807	Level 1			
14,200.0	6,729.9	14,215.1	6,801.2	135.5	136.2	110.30	6,841.7	-584.6	205.7	-52.9	258.61	0.795	Level 1			
14,300.0	6,729.6	14,315.1	6,800.9	137.4	138.1	110.29	6,941.7	-584.6	205.7	-56.5	262.23	0.784	Level 1			
14,400.0	6,729.3	14,415.1	6,800.6	139.3	140.0	110.28	7,041.7	-584.6	205.7	-60.2	265.86	0.774	Level 1			
14,500.0	6,729.1	14,515.1	6,800.3	141.2	141.9	110.26	7,141.7	-584.6	205.6	-63.8	269.49	0.763	Level 1			
14,600.0	6,728.8	14,615.1	6,800.0	143.1	143.8	110.25	7,241.7	-584.6	205.6	-67.5	273.11	0.753	Level 1			
14,700.0	6,728.6	14,715.1	6,799.7	145.0	145.7	110.24	7,341.7	-584.6	205.6	-71.1	276.74	0.743	Level 1			
14,800.0	6,728.3	14,815.1	6,799.4	146.9	147.6	110.22	7,441.7	-584.6	205.6	-74.8	280.37	0.733	Level 1			
14,900.0	6,728.0	14,915.1	6,799.0	148.8	149.5	110.21	7,541.7	-584.6	205.6	-78.4	284.01	0.724	Level 1			
15,000.0	6,727.8	15,015.1	6,798.7	150.7	151.4	110.19	7,641.7	-584.6	205.6	-82.1	287.64	0.715	Level 1			
15,100.0	6,727.5	15,115.1	6,798.4	152.6	153.3	110.18	7,741.7	-584.6	205.5	-85.7	291.27	0.706	Level 1			
15,200.0	6,727.2	15,215.1	6,798.1	154.5	155.2	110.17	7,841.7	-584.6	205.5	-89.4	294.91	0.697	Level 1			
15,300.0	6,727.0	15,315.1	6,797.8	156.5	157.1	110.15	7,941.7	-584.6	205.5	-93.0	298.54	0.688	Level 1			
15,400.0	6,726.7	15,415.1	6,797.5	158.4	159.0	110.14	8,041.7	-584.6	205.5	-96.7	302.18	0.680	Level 1			
15,500.0	6,726.5	15,515.1	6,797.2	160.3	161.0	110.13	8,141.7	-584.6	205.5	-100.4	305.82	0.672	Level 1			
15,600.0	6,726.2	15,615.1	6,796.8	162.2	162.9	110.11	8,241.7	-584.6	205.4	-104.0	309.46	0.664	Level 1			
15,700.0	6,725.9	15,715.1	6,796.5	164.1	164.8	110.10	8,341.7	-584.6	205.4	-107.7	313.10	0.656	Level 1			
15,800.0	6,725.7	15,815.1	6,796.2	166.0	166.7	110.08	8,441.7	-584.6	205.4	-111.3	316.74	0.649	Level 1			
15,900.0	6,725.4	15,915.1	6,795.9	167.9	168.6	110.07	8,541.7	-584.6	205.4	-115.0	320.39	0.641	Level 1			
16,000.0	6,725.2	16,015.1	6,795.6	169.8	170.5	110.06	8,641.7	-584.6	205.4	-118.7	324.03	0.634	Level 1			
16,100.0	6,724.9	16,115.1	6,795.3	171.7	172.4	110.04	8,741.7	-584.6	205.4	-122.3	327.67	0.627	Level 1			
16,200.0	6,724.6	16,215.1	6,795.0	173.6	174.3	110.03	8,841.7	-584.6	205.3	-126.0	331.32	0.620	Level 1			
16,300.0	6,724.4	16,315.1	6,794.6	175.5	176.2	110.02	8,941.7	-584.6	205.3	-129.6	334.97	0.613	Level 1			
16,400.0	6,724.1	16,415.1	6,794.3	177.4	178.1	110.00	9,041.7	-584.6	205.3	-133.3	338.61	0.606	Level 1			
16,500.0	6,723.8	16,515.1	6,794.0	179.3	180.0	109.99	9,141.7	-584.6	205.3	-137.0	342.26	0.600	Level 1			
16,600.0	6,723.6	16,615.1	6,793.7	181.2	181.9	109.98	9,241.7	-584.6	205.3	-140.6	345.91	0.593	Level 1			
16,700.0	6,723.3	16,715.1	6,793.4	183.1	183.9	109.96	9,341.7	-584.6	205.2	-144.3	349.56	0.587	Level 1			
16,800.0	6,723.1	16,815.1	6,793.1	185.1	185.8	109.95	9,441.7	-584.6	205.2	-148.0	353.21	0.581	Level 1			
16,822.3	6,723.0	16,837.5	6,793.0	185.5	186.2	109.94	9,464.0	-584.6	205.2	-148.8	354.03	0.580	Level 1, ES, SF			

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 71-201
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 71-201	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 (9-8-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft		
Survey Program: O-MWD													Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 7L-201 - Wellbore #1 - Plan #1 (9-10-15)		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	-179.29	-45.2	-0.6	45.2							
100.0	100.0	100.0	100.0	0.1	0.1	-179.29	-45.2	-0.6	45.2	45.0	0.22	201.020				
200.0	200.0	200.0	200.0	0.3	0.3	-179.29	-45.2	-0.6	45.2	44.5	0.67	67.002				
300.0	300.0	300.0	300.0	0.6	0.6	-179.29	-45.2	-0.6	45.2	44.1	1.12	40.201				
400.0	400.0	400.0	400.0	0.8	0.8	-179.29	-45.2	-0.6	45.2	43.6	1.57	28.715				
500.0	500.0	500.0	500.0	1.0	1.0	-179.29	-45.2	-0.6	45.2	43.2	2.02	22.334				
600.0	600.0	600.0	600.0	1.2	1.2	-179.29	-45.2	-0.6	45.2	42.7	2.47	18.273				
700.0	700.0	700.0	700.0	1.5	1.5	-179.29	-45.2	-0.6	45.2	42.3	2.92	15.462				
800.0	800.0	800.0	800.0	1.7	1.7	-179.29	-45.2	-0.6	45.2	41.8	3.37	13.400				
900.0	900.0	900.0	900.0	1.9	1.9	-179.29	-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	-179.29	-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	-179.29	-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	-179.29	-45.2	-0.6	45.2	40.0	5.17	8.739				
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-179.29	-45.2	-0.6	45.2	39.6	5.62	8.040				
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	-179.29	-45.2	-0.6	45.2	39.1	6.07	7.445 CC, ES				
1,500.0	1,500.0	1,498.9	1,498.9	3.3	3.2	-179.82	-46.4	-0.1	46.4	39.9	6.49	7.152 SF				
1,600.0	1,600.0	1,597.6	1,597.5	3.5	3.4	178.76	-50.0	1.1	50.1	43.2	6.88	7.275				
1,700.0	1,700.0	1,696.1	1,695.8	3.7	3.6	176.80	-56.0	3.1	56.3	49.0	7.29	7.723				
1,800.0	1,800.0	1,794.2	1,793.5	3.9	3.8	174.70	-64.4	6.0	65.0	57.3	7.70	8.447				
1,900.0	1,900.0	1,891.8	1,890.5	4.1	4.0	-53.60	-75.1	9.6	75.5	67.5	8.09	9.340				
2,000.0	1,999.9	1,988.9	1,986.6	4.3	4.2	-57.17	-88.1	14.0	87.3	78.8	8.46	10.317				
2,100.0	2,099.7	2,085.4	2,081.8	4.5	4.5	-61.20	-103.3	19.2	100.6	91.7	8.84	11.373				
2,200.0	2,199.3	2,181.8	2,176.4	4.7	4.7	-65.35	-120.6	25.1	115.6	106.3	9.24	12.510				
2,300.0	2,298.6	2,280.2	2,272.8	4.9	5.1	-69.60	-139.1	31.3	131.0	121.3	9.66	13.558				
2,400.0	2,397.5	2,378.4	2,369.1	5.1	5.4	-73.86	-157.5	37.6	146.3	136.2	10.11	14.464				
2,500.0	2,496.1	2,476.5	2,465.2	5.4	5.7	-78.16	-175.8	43.8	161.8	151.1	10.61	15.250				
2,600.0	2,594.2	2,574.3	2,561.1	5.7	6.1	-82.46	-194.2	50.0	177.7	166.5	11.15	15.938				
2,700.0	2,691.7	2,671.8	2,656.6	6.0	6.4	-86.75	-212.4	56.2	194.4	182.7	11.75	16.548				
2,800.0	2,788.6	2,768.9	2,751.8	6.4	6.8	-90.99	-230.6	62.4	212.2	199.8	12.41	17.105				
2,900.0	2,884.9	2,865.5	2,846.6	6.8	7.2	-95.12	-248.7	68.5	231.3	218.2	13.12	17.629				
3,000.0	2,980.4	2,961.7	2,940.8	7.2	7.6	-99.13	-266.7	74.7	252.0	238.1	13.89	18.144				
3,100.0	3,075.0	3,057.2	3,034.5	7.7	7.9	-102.96	-284.7	80.7	274.4	259.7	14.70	18.668				
3,200.0	3,168.9	3,152.2	3,127.5	8.3	8.3	-106.61	-302.4	86.8	298.8	283.3	15.55	19.219				
3,258.2	3,223.0	3,207.1	3,181.4	8.6	8.6	-108.64	-312.7	90.3	314.0	297.9	16.05	19.557				
3,300.0	3,261.8	3,246.4	3,220.0	8.9	8.7	-110.18	-320.1	92.8	325.2	308.8	16.43	19.796				
3,400.0	3,354.6	3,340.6	3,312.2	9.5	9.1	-113.47	-337.7	98.8	353.0	335.7	17.33	20.371				
3,500.0	3,447.4	3,434.7	3,404.5	10.2	9.5	-116.30	-355.4	104.8	381.7	363.5	18.23	20.943				
3,600.0	3,540.2	3,528.9	3,496.8	10.9	9.9	-118.73	-373.0	110.7	411.2	392.1	19.12	21.501				
3,700.0	3,633.0	3,623.0	3,589.1	11.6	10.3	-120.85	-390.7	116.7	441.3	421.2	20.02	22.041				
3,800.0	3,725.8	3,717.2	3,681.4	12.3	10.7	-122.70	-408.3	122.7	471.8	450.9	20.92	22.559				
3,900.0	3,818.6	3,811.4	3,773.7	13.0	11.1	-124.33	-426.0	128.7	502.8	481.0	21.81	23.054				
4,000.0	3,911.4	3,905.5	3,866.0	13.7	11.5	-125.77	-443.6	134.7	534.1	511.4	22.70	23.525				
4,100.0	4,004.2	3,999.7	3,958.3	14.4	11.9	-127.05	-461.2	140.7	565.7	542.1	23.60	23.973				
4,200.0	4,097.0	4,093.8	4,050.6	15.1	12.3	-128.20	-478.9	146.7	597.5	573.0	24.49	24.398				
4,300.0	4,189.8	4,188.0	4,142.9	15.8	12.7	-129.23	-496.5	152.7	629.5	604.1	25.38	24.802				
4,400.0	4,282.6	4,282.1	4,235.1	16.6	13.1	-130.17	-514.2	158.7	661.7	635.4	26.27	25.184				
4,500.0	4,375.4	4,376.3	4,327.4	17.3	13.5	-131.02	-531.8	164.6	694.0	666.8	27.16	25.547				
4,600.0	4,468.2	4,470.4	4,419.7	18.1	13.9	-131.79	-549.4	170.6	726.4	698.4	28.06	25.891				
4,700.0	4,561.0	4,564.6	4,512.0	18.8	14.3	-132.50	-567.1	176.6	759.0	730.0	28.95	26.217				
4,800.0	4,653.8	4,658.7	4,604.3	19.5	14.7	-133.15	-584.7	182.6	791.6	761.8	29.84	26.527				
4,885.0	4,732.7	4,738.7	4,682.7	20.2	15.1	-133.66	-599.7	187.7	819.4	788.8	30.60	26.779				

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 71-201
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 71-201	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 (9-8-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft		
Survey Program: 0-MWD													Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 7L-201 - Wellbore #1 - Plan #1 (9-10-15)		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)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor				
4,900.0	4,746.7	4,752.9	4,696.6	20.3	15.1	-133.82	-602.4	188.6	824.3	793.6	30.74	26.819				
5,000.0	4,840.3	4,847.6	4,789.5	20.8	15.5	-134.73	-620.1	194.6	855.6	824.0	31.58	27.096				
5,100.0	4,935.1	4,943.3	4,883.2	21.3	15.9	-135.40	-638.1	200.7	884.6	852.2	32.41	27.290				
5,200.0	5,030.9	5,039.7	4,977.7	21.8	16.4	-135.86	-656.1	206.8	911.2	878.0	33.24	27.411				
5,300.0	5,127.7	5,136.7	5,072.8	22.2	16.8	-136.12	-674.3	213.0	935.4	901.4	34.06	27.466				
5,400.0	5,225.3	5,234.2	5,168.4	22.6	17.2	-136.19	-692.6	219.2	957.2	922.3	34.85	27.463				
5,500.0	5,323.6	5,335.8	5,268.1	22.9	17.6	-136.09	-711.4	225.6	976.4	940.8	35.62	27.415				
5,600.0	5,422.5	5,446.1	5,376.8	23.2	18.0	-135.95	-728.8	231.5	992.3	956.0	36.28	27.351				

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 71-201
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 71-201	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 (9-8-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft		
Survey Program: 0-MWD													Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 7L-221 - Wellbore #1 - Plan #1 (9-10-15)		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 Tooface (°)	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	-179.36	-75.0	-0.8	75.1							
100.0	100.0	100.0	100.0	0.1	0.1	-179.36	-75.0	-0.8	75.1	74.8	0.22	333.947				
200.0	200.0	200.0	200.0	0.3	0.3	-179.36	-75.0	-0.8	75.1	74.4	0.67	111.309				
300.0	300.0	300.0	300.0	0.6	0.6	-179.36	-75.0	-0.8	75.1	73.9	1.12	66.785				
400.0	400.0	400.0	400.0	0.8	0.8	-179.36	-75.0	-0.8	75.1	73.5	1.57	47.703				
500.0	500.0	500.0	500.0	1.0	1.0	-179.36	-75.0	-0.8	75.1	73.0	2.02	37.102	CC, ES			
600.0	600.0	598.7	598.7	1.2	1.2	179.93	-75.9	0.1	75.9	73.5	2.45	31.022				
700.0	700.0	697.2	697.1	1.5	1.4	177.90	-78.5	2.9	78.6	75.8	2.86	27.468				
800.0	800.0	795.5	795.2	1.7	1.6	174.82	-82.8	7.5	83.3	80.0	3.29	25.344				
900.0	900.0	893.4	892.7	1.9	1.8	171.08	-88.9	14.0	90.2	86.5	3.72	24.257				
1,000.0	1,000.0	990.7	989.4	2.1	2.1	167.07	-96.5	22.2	99.6	95.5	4.16	23.938	SF			
1,100.0	1,100.0	1,087.5	1,085.2	2.4	2.4	163.12	-105.8	32.1	111.6	107.0	4.61	24.193				
1,200.0	1,200.0	1,183.5	1,179.8	2.6	2.7	159.46	-116.7	43.7	126.2	121.1	5.08	24.865				
1,300.0	1,300.0	1,278.6	1,273.2	2.8	3.0	156.19	-129.0	56.9	143.6	138.0	5.56	25.829				
1,400.0	1,400.0	1,374.9	1,367.4	3.0	3.4	153.33	-142.9	71.8	163.2	157.1	6.06	26.912				
1,500.0	1,500.0	1,472.6	1,462.8	3.3	3.8	151.03	-157.1	86.9	183.3	176.7	6.58	27.840				
1,600.0	1,600.0	1,570.3	1,558.3	3.5	4.3	149.19	-171.2	102.1	203.7	196.6	7.12	28.607				
1,700.0	1,700.0	1,668.0	1,653.8	3.7	4.7	147.68	-185.4	117.3	224.2	216.6	7.67	29.244				
1,800.0	1,800.0	1,765.8	1,749.3	3.9	5.1	146.43	-199.6	132.5	244.9	236.7	8.22	29.778				
1,900.0	1,900.0	1,863.4	1,844.7	4.1	5.6	-80.26	-213.8	147.7	265.4	257.1	8.33	31.881				
2,000.0	1,999.9	1,961.0	1,940.1	4.3	6.0	-81.63	-228.0	162.8	285.7	277.0	8.75	32.671				
2,100.0	2,099.7	2,058.5	2,035.3	4.5	6.5	-83.26	-242.1	178.0	305.9	296.8	9.17	33.366				
2,200.0	2,199.3	2,155.7	2,130.3	4.7	6.9	-85.11	-256.2	193.1	326.2	316.6	9.60	33.982				
2,300.0	2,298.6	2,252.6	2,225.0	4.9	7.4	-87.14	-270.3	208.1	346.8	336.7	10.04	34.525				
2,400.0	2,397.5	2,349.2	2,319.3	5.1	7.8	-89.29	-284.3	223.2	367.8	357.3	10.51	34.998				
2,500.0	2,496.1	2,445.3	2,413.3	5.4	8.3	-91.54	-298.3	238.1	389.5	378.5	11.00	35.402				
2,600.0	2,594.2	2,540.9	2,506.7	5.7	8.7	-93.86	-312.1	253.0	412.1	400.5	11.53	35.738				
2,700.0	2,691.7	2,636.0	2,599.7	6.0	9.1	-96.21	-326.0	267.7	435.7	423.6	12.10	36.011				
2,800.0	2,788.6	2,730.5	2,692.0	6.4	9.6	-98.58	-339.7	282.4	460.6	447.9	12.71	36.231				
2,900.0	2,884.9	2,824.3	2,783.6	6.8	10.0	-100.93	-353.3	297.0	487.0	473.6	13.37	36.410				
3,000.0	2,980.4	2,917.3	2,874.5	7.2	10.5	-103.25	-366.8	311.4	514.9	500.8	14.08	36.563				
3,100.0	3,075.0	3,009.5	2,964.6	7.7	10.9	-105.52	-380.2	325.8	544.5	529.7	14.83	36.705				
3,200.0	3,168.9	3,100.9	3,053.8	8.3	11.3	-107.72	-393.4	340.0	576.0	560.4	15.63	36.854				
3,258.2	3,223.0	3,153.6	3,105.4	8.6	11.6	-108.97	-401.1	348.2	595.2	579.1	16.11	36.948				
3,300.0	3,261.8	3,191.3	3,142.3	8.9	11.7	-110.04	-406.6	354.0	609.3	592.9	16.47	36.988				
3,400.0	3,354.6	3,281.7	3,230.5	9.5	12.2	-112.42	-419.7	368.1	644.0	626.6	17.36	37.096				
3,500.0	3,447.4	3,372.0	3,318.8	10.2	12.6	-114.57	-432.8	382.1	679.5	661.3	18.26	37.223				
3,600.0	3,540.2	3,462.3	3,407.0	10.9	13.0	-116.52	-445.9	396.1	715.9	696.7	19.16	37.366				
3,700.0	3,633.0	3,552.6	3,495.3	11.6	13.4	-118.29	-459.0	410.2	752.9	732.9	20.06	37.525				
3,800.0	3,725.8	3,642.9	3,583.5	12.3	13.9	-119.91	-472.1	424.2	790.6	769.6	20.97	37.697				
3,900.0	3,818.6	3,733.3	3,671.8	13.0	14.3	-121.38	-485.2	438.2	828.7	806.9	21.88	37.878				
4,000.0	3,911.4	3,823.6	3,760.0	13.7	14.7	-122.72	-498.4	452.3	867.3	844.6	22.79	38.066				
4,100.0	4,004.2	3,913.9	3,848.3	14.4	15.2	-123.96	-511.5	466.3	906.3	882.6	23.69	38.260				
4,200.0	4,097.0	4,004.2	3,936.5	15.1	15.6	-125.09	-524.6	480.3	945.7	921.1	24.59	38.456				
4,300.0	4,189.8	4,094.5	4,024.8	15.8	16.0	-126.14	-537.7	494.4	985.3	959.8	25.49	38.655				

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 71-201
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 71-201	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 (9-8-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft		
Survey Program: O-MWD													Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 7L-301 - Wellbore #1 - Plan #1 (9-10-15)		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	-179.20	-60.1	-0.8	60.1							
100.0	100.0	100.0	100.0	0.1	0.1	-179.20	-60.1	-0.8	60.1	59.9	0.22	267.510				
200.0	200.0	200.0	200.0	0.3	0.3	-179.20	-60.1	-0.8	60.1	59.4	0.67	89.164				
300.0	300.0	300.0	300.0	0.6	0.6	-179.20	-60.1	-0.8	60.1	59.0	1.12	53.498				
400.0	400.0	400.0	400.0	0.8	0.8	-179.20	-60.1	-0.8	60.1	58.5	1.57	38.213				
500.0	500.0	500.0	500.0	1.0	1.0	-179.20	-60.1	-0.8	60.1	58.1	2.02	29.721				
600.0	600.0	600.0	600.0	1.2	1.2	-179.20	-60.1	-0.8	60.1	57.6	2.47	24.317				
700.0	700.0	700.0	700.0	1.5	1.5	-179.20	-60.1	-0.8	60.1	57.2	2.92	20.576				
800.0	800.0	800.0	800.0	1.7	1.7	-179.20	-60.1	-0.8	60.1	56.8	3.37	17.832				
900.0	900.0	900.0	900.0	1.9	1.9	-179.20	-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	-179.20	-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	-179.20	-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	-179.20	-60.1	-0.8	60.1	55.0	5.17	11.630	CC, ES			
1,300.0	1,300.0	1,298.7	1,298.7	2.8	2.8	-179.89	-61.2	-0.1	61.2	55.6	5.59	10.944				
1,400.0	1,400.0	1,397.3	1,397.2	3.0	3.0	178.19	-64.3	2.0	64.4	58.4	5.99	10.750	SF			
1,500.0	1,500.0	1,495.6	1,495.3	3.3	3.1	175.39	-69.6	5.6	69.9	63.5	6.40	10.928				
1,600.0	1,600.0	1,593.5	1,592.8	3.5	3.3	172.15	-76.8	10.6	77.9	71.1	6.81	11.433				
1,700.0	1,700.0	1,690.9	1,689.6	3.7	3.6	168.87	-86.1	16.9	88.4	81.2	7.23	12.219				
1,800.0	1,800.0	1,787.7	1,785.4	3.9	3.8	165.81	-97.4	24.6	101.5	93.8	7.66	13.242				
1,900.0	1,900.0	1,883.7	1,880.1	4.1	4.1	-62.92	-110.5	33.6	116.6	108.5	8.07	14.444				
2,000.0	1,999.9	1,978.9	1,973.6	4.3	4.4	-66.46	-125.5	43.8	133.4	124.9	8.46	15.768				
2,100.0	2,099.7	2,076.3	2,068.8	4.5	4.7	-70.24	-142.0	55.1	151.3	142.4	8.86	17.082				
2,200.0	2,199.3	2,174.1	2,164.5	4.7	5.0	-74.01	-158.7	66.5	169.1	159.9	9.26	18.254				
2,300.0	2,298.6	2,271.7	2,260.0	4.9	5.4	-77.79	-175.3	77.9	187.1	177.4	9.69	19.300				
2,400.0	2,397.5	2,369.0	2,355.2	5.1	5.8	-81.55	-191.9	89.2	205.4	195.2	10.15	20.241				
2,500.0	2,496.1	2,466.0	2,450.2	5.4	6.2	-85.29	-208.4	100.5	224.3	213.7	10.63	21.091				
2,600.0	2,594.2	2,562.7	2,544.8	5.7	6.6	-88.99	-224.9	111.8	244.1	232.9	11.16	21.862				
2,700.0	2,691.7	2,658.9	2,638.9	6.0	7.0	-92.61	-241.3	123.0	265.0	253.3	11.74	22.567				
2,800.0	2,788.6	2,754.6	2,732.6	6.4	7.4	-96.14	-257.6	134.1	287.3	274.9	12.37	23.219				
2,900.0	2,884.9	2,849.8	2,825.7	6.8	7.8	-99.56	-273.8	145.2	311.1	298.0	13.05	23.833				
3,000.0	2,980.4	2,944.3	2,918.1	7.2	8.2	-102.83	-289.9	156.2	336.6	322.8	13.78	24.426				
3,100.0	3,075.0	3,038.1	3,009.9	7.7	8.6	-105.95	-305.9	167.1	363.9	349.3	14.55	25.012				
3,200.0	3,168.9	3,131.1	3,101.0	8.3	9.0	-108.90	-321.8	178.0	393.2	377.9	15.36	25.605				
3,258.2	3,223.0	3,184.9	3,153.6	8.6	9.2	-110.54	-330.9	184.2	411.2	395.4	15.84	25.958				
3,300.0	3,261.8	3,223.4	3,191.3	8.9	9.4	-111.85	-337.5	188.7	424.5	408.3	16.21	26.196				
3,400.0	3,354.6	3,315.6	3,281.4	9.5	9.8	-114.69	-353.2	199.4	457.1	440.0	17.08	26.759				
3,500.0	3,447.4	3,407.7	3,371.6	10.2	10.2	-117.16	-368.9	210.2	490.6	472.7	17.97	27.310				
3,600.0	3,540.2	3,499.8	3,461.7	10.9	10.6	-119.32	-384.6	220.9	524.9	506.0	18.85	27.843				
3,700.0	3,633.0	3,592.0	3,551.9	11.6	11.0	-121.23	-400.3	231.6	559.7	540.0	19.74	28.357				
3,800.0	3,725.8	3,684.1	3,642.0	12.3	11.4	-122.92	-416.0	242.3	595.1	574.5	20.63	28.850				
3,900.0	3,818.6	3,776.3	3,732.2	13.0	11.8	-124.42	-431.7	253.1	630.8	609.3	21.51	29.322				
4,000.0	3,911.4	3,868.4	3,822.3	13.7	12.2	-125.77	-447.4	263.8	667.0	644.5	22.40	29.772				
4,100.0	4,004.2	3,960.5	3,912.5	14.4	12.6	-126.98	-463.1	274.5	703.4	680.1	23.29	30.201				
4,200.0	4,097.0	4,052.7	4,002.7	15.1	13.1	-128.07	-478.8	285.3	740.0	715.8	24.18	30.609				
4,300.0	4,189.8	4,144.8	4,092.8	15.8	13.5	-129.06	-494.5	296.0	776.9	751.8	25.06	30.997				
4,400.0	4,282.6	4,236.9	4,183.0	16.6	13.9	-129.96	-510.2	306.7	813.9	788.0	25.95	31.367				
4,500.0	4,375.4	4,329.1	4,273.1	17.3	14.3	-130.79	-525.9	317.4	851.1	824.3	26.83	31.719				
4,600.0	4,468.2	4,421.2	4,363.3	18.1	14.7	-131.55	-541.6	328.2	888.5	860.8	27.72	32.054				
4,700.0	4,561.0	4,513.4	4,453.4	18.8	15.1	-132.24	-557.3	338.9	926.0	897.4	28.60	32.372				
4,800.0	4,653.8	4,605.5	4,543.6	19.5	15.6	-132.88	-573.0	349.6	963.6	934.1	29.49	32.676				
4,885.0	4,732.7	4,683.8	4,620.2	20.2	15.9	-133.39	-586.3	358.7	995.6	965.4	30.24	32.923				

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 71-201
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 71-201	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 (9-8-15)	Offset TVD Reference:	Offset Datum

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 71-201
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 71-201	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 (9-8-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft		
Survey Program: 0-MWD													Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 7L-341 - Wellbore #1 - Plan #1 (9-10-15)		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	Warning			
0.0	0.0	0.0	0.0	0.0	0.0	0.00	14.9	0.0	14.9	14.9	0.00	N/A				
100.0	100.0	100.0	100.0	0.1	0.1	0.00	14.9	0.0	14.9	14.7	0.22	66.443				
200.0	200.0	200.0	200.0	0.3	0.3	0.00	14.9	0.0	14.9	14.3	0.67	22.146				
300.0	300.0	300.0	300.0	0.6	0.6	0.00	14.9	0.0	14.9	13.8	1.12	13.288				
400.0	400.0	400.0	400.0	0.8	0.8	0.00	14.9	0.0	14.9	13.4	1.57	9.491				
500.0	500.0	500.0	500.0	1.0	1.0	0.00	14.9	0.0	14.9	12.9	2.02	7.382				
600.0	600.0	600.0	600.0	1.2	1.2	0.00	14.9	0.0	14.9	12.5	2.47	6.040				
700.0	700.0	700.0	700.0	1.5	1.5	0.00	14.9	0.0	14.9	12.0	2.92	5.111				
800.0	800.0	800.0	800.0	1.7	1.7	0.00	14.9	0.0	14.9	11.6	3.37	4.429				
900.0	900.0	900.0	900.0	1.9	1.9	0.00	14.9	0.0	14.9	11.1	3.82	3.908				
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	0.00	14.9	0.0	14.9	10.7	4.27	3.497				
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	0.00	14.9	0.0	14.9	10.2	4.72	3.164				
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	0.00	14.9	0.0	14.9	9.8	5.17	2.889				
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	0.00	14.9	0.0	14.9	9.3	5.62	2.657				
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	0.00	14.9	0.0	14.9	8.9	6.07	2.461				
1,500.0	1,500.0	1,500.0	1,500.0	3.3	3.3	0.00	14.9	0.0	14.9	8.4	6.52	2.291				
1,600.0	1,600.0	1,600.0	1,600.0	3.5	3.5	0.00	14.9	0.0	14.9	8.0	6.97	2.143				
1,700.0	1,700.0	1,700.0	1,700.0	3.7	3.7	0.00	14.9	0.0	14.9	7.5	7.42	2.013				
1,800.0	1,800.0	1,800.0	1,800.0	3.9	3.9	0.00	14.9	0.0	14.9	7.1	7.87	1.898 CC, ES, SF				
1,900.0	1,900.0	1,900.0	1,900.0	4.1	4.2	137.72	14.9	0.0	15.9	7.6	8.29	1.915				
2,000.0	1,999.9	1,999.9	1,999.9	4.3	4.4	145.69	14.9	0.0	19.0	10.3	8.69	2.182				
2,100.0	2,099.7	2,099.7	2,099.7	4.5	4.6	154.25	14.9	0.0	24.6	15.6	9.09	2.711				
2,200.0	2,199.3	2,199.3	2,199.3	4.7	4.8	161.10	14.9	0.0	33.1	23.6	9.49	3.492				
2,300.0	2,298.6	2,298.6	2,298.6	4.9	5.1	165.97	14.9	0.0	44.4	34.5	9.88	4.497				
2,400.0	2,397.5	2,397.5	2,397.5	5.1	5.3	169.34	14.9	0.0	58.4	48.2	10.26	5.694				
2,500.0	2,496.1	2,496.1	2,496.1	5.4	5.5	171.69	14.9	0.0	75.2	64.5	10.65	7.060				
2,600.0	2,594.2	2,596.0	2,596.0	5.7	5.7	173.85	13.7	0.0	93.6	82.6	11.00	8.508				
2,700.0	2,691.7	2,696.2	2,696.1	6.0	5.9	176.28	9.9	-0.1	112.7	101.3	11.32	9.953				
2,800.0	2,788.6	2,796.5	2,796.2	6.4	6.0	178.81	3.4	-0.3	132.6	120.9	11.64	11.386				
2,900.0	2,884.9	2,896.8	2,896.1	6.8	6.2	-178.61	-5.6	-0.6	153.4	141.4	11.97	12.813				
3,000.0	2,980.4	2,997.1	2,995.7	7.2	6.4	-176.05	-17.4	-0.9	175.2	162.9	12.31	14.233				
3,100.0	3,075.0	3,097.3	3,094.9	7.7	6.6	-173.53	-31.7	-1.3	198.2	185.5	12.67	15.640				
3,200.0	3,168.9	3,197.4	3,193.6	8.3	6.8	-171.07	-48.5	-1.8	222.4	209.3	13.07	17.023				
3,258.2	3,223.0	3,255.6	3,250.7	8.6	7.0	-169.67	-59.5	-2.1	237.1	223.8	13.31	17.809				
3,300.0	3,261.8	3,297.5	3,291.7	8.9	7.1	-168.70	-68.0	-2.4	247.7	234.1	13.54	18.291				
3,400.0	3,354.6	3,397.7	3,389.5	9.5	7.4	-166.36	-90.0	-3.0	272.3	258.1	14.13	19.262				
3,500.0	3,447.4	3,498.3	3,486.9	10.2	7.7	-163.97	-114.7	-3.7	295.9	281.1	14.80	19.994				
3,600.0	3,540.2	3,598.9	3,583.8	10.9	8.0	-161.52	-142.0	-4.5	318.6	303.1	15.54	20.502				
3,700.0	3,633.0	3,699.5	3,679.9	11.6	8.4	-159.00	-171.8	-5.3	340.7	324.3	16.37	20.805				
3,800.0	3,725.8	3,797.5	3,772.9	12.3	8.8	-156.55	-202.8	-6.2	362.4	345.1	17.29	20.964				
3,900.0	3,818.6	3,894.0	3,864.3	13.0	9.3	-154.37	-233.5	-7.1	384.6	366.4	18.25	21.075				
4,000.0	3,911.4	3,990.5	3,955.8	13.7	9.7	-152.44	-264.3	-7.9	407.3	388.0	19.26	21.151				
4,100.0	4,004.2	4,087.0	4,047.3	14.4	10.2	-150.70	-295.0	-8.8	430.4	410.1	20.30	21.200				
4,200.0	4,097.0	4,183.5	4,138.8	15.1	10.7	-149.14	-325.7	-9.7	453.8	432.4	21.38	21.228				
4,300.0	4,189.8	4,280.0	4,230.2	15.8	11.2	-147.74	-356.5	-10.5	477.5	455.1	22.48	21.241				
4,400.0	4,282.6	4,376.5	4,321.7	16.6	11.7	-146.46	-387.2	-11.4	501.5	477.9	23.61	21.244				
4,500.0	4,375.4	4,473.0	4,413.2	17.3	12.3	-145.30	-417.9	-12.3	525.7	501.0	24.75	21.238				
4,600.0	4,468.2	4,569.5	4,504.6	18.1	12.8	-144.25	-448.7	-13.2	550.1	524.2	25.91	21.227				
4,700.0	4,561.0	4,666.0	4,596.1	18.8	13.4	-143.28	-479.4	-14.0	574.6	547.5	27.09	21.212				
4,800.0	4,653.8	4,762.5	4,687.6	19.5	13.9	-142.39	-510.1	-14.9	599.3	571.0	28.28	21.195				
4,885.0	4,732.7	4,844.5	4,765.3	20.2	14.4	-141.69	-536.3	-15.6	620.4	591.1	29.29	21.180				

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 71-201
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 71-201	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 (9-8-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft		
Survey Program: O-MWD													Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 7L-341 - Wellbore #1 - Plan #1 (9-10-15)		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	4,746.7	4,859.0	4,779.1	20.3	14.5	-141.61	-540.9	-15.8	624.1	594.6	29.48	21.173				
5,000.0	4,840.3	4,955.8	4,870.8	20.8	15.0	-141.02	-571.7	-16.6	647.3	616.6	30.65	21.119				
5,100.0	4,935.1	5,053.0	4,962.9	21.3	15.6	-140.28	-602.6	-17.5	668.0	636.2	31.83	20.988				
5,200.0	5,030.9	5,148.5	5,053.7	21.8	16.1	-139.47	-632.3	-18.4	686.5	653.6	32.89	20.870				
5,300.0	5,127.7	5,244.0	5,145.4	22.2	16.5	-138.76	-658.9	-19.1	702.9	669.0	33.84	20.772				
5,400.0	5,225.3	5,340.4	5,238.8	22.6	16.9	-138.14	-682.7	-19.8	717.1	682.4	34.70	20.666				
5,500.0	5,323.6	5,437.4	5,333.5	22.9	17.2	-137.59	-703.5	-20.4	729.2	693.7	35.48	20.552				
5,600.0	5,422.5	5,535.0	5,429.5	23.2	17.6	-137.11	-721.2	-20.9	739.1	702.9	36.18	20.430				
5,700.0	5,521.8	5,633.1	5,526.5	23.5	17.9	-136.69	-735.6	-21.3	746.7	709.9	36.78	20.301				
5,800.0	5,621.5	5,731.6	5,624.4	23.7	18.1	-136.32	-746.8	-21.6	752.0	714.7	37.29	20.163				
5,900.0	5,721.4	5,830.5	5,723.0	23.8	18.3	-136.00	-754.6	-21.8	754.9	717.2	37.71	20.017				
5,978.6	5,800.0	5,908.4	5,800.8	23.9	18.5	89.87	-758.3	-21.9	755.6	717.6	37.98	19.892				
6,000.0	5,821.4	5,929.6	5,822.0	24.0	18.5	89.92	-759.0	-22.0	755.6	717.5	38.05	19.856				
6,100.0	5,921.4	6,029.0	5,921.4	24.1	18.7	90.01	-760.1	-22.0	755.5	717.2	38.35	19.702				
6,162.5	5,983.8	6,091.4	5,983.8	24.1	18.8	90.01	-760.1	-22.0	755.5	717.0	38.51	19.617				
6,167.6	5,988.9	6,096.6	5,988.9	24.1	18.8	90.01	-760.1	-22.0	755.5	717.0	38.53	19.611				
6,200.0	6,021.3	6,129.0	6,021.3	24.2	18.8	90.07	-760.1	-22.0	755.5	716.9	38.62	19.565				
6,250.0	6,071.2	6,178.9	6,071.3	24.2	18.9	90.38	-760.0	-22.0	755.5	716.8	38.75	19.496				
6,300.0	6,120.6	6,229.1	6,121.4	24.2	18.9	90.75	-757.5	-22.0	755.6	716.7	38.84	19.455				
6,350.0	6,169.5	6,279.7	6,171.7	24.1	18.9	91.11	-751.7	-22.0	755.7	716.8	38.85	19.450				
6,400.0	6,217.6	6,330.6	6,221.7	24.1	18.9	91.48	-742.5	-22.0	755.8	717.0	38.79	19.483				
6,450.0	6,264.6	6,381.9	6,271.4	24.0	18.8	91.84	-729.9	-22.0	755.9	717.3	38.66	19.553				
6,500.0	6,310.5	6,433.5	6,320.4	23.9	18.7	92.19	-713.9	-22.0	756.1	717.6	38.46	19.659				
6,550.0	6,355.0	6,485.4	6,368.6	23.7	18.6	92.53	-694.4	-22.0	756.3	718.1	38.19	19.800				
6,600.0	6,397.8	6,537.6	6,415.6	23.6	18.4	92.87	-671.6	-22.0	756.5	718.6	37.87	19.975				
6,650.0	6,438.9	6,590.2	6,461.2	23.4	18.2	93.19	-645.5	-22.0	756.7	719.2	37.50	20.180				
6,700.0	6,478.1	6,643.1	6,505.1	23.2	18.0	93.49	-616.1	-22.0	756.9	719.8	37.08	20.413				
6,750.0	6,515.1	6,696.3	6,547.2	23.0	17.8	93.79	-583.5	-22.0	757.2	720.5	36.63	20.669				
6,800.0	6,549.9	6,749.8	6,587.1	22.8	17.6	94.06	-547.9	-22.0	757.4	721.3	36.17	20.942				
6,850.0	6,582.2	6,803.6	6,624.6	22.6	17.3	94.32	-509.4	-22.0	757.7	722.0	35.70	21.225				
6,900.0	6,612.0	6,857.7	6,659.5	22.3	17.1	94.56	-468.1	-22.0	757.9	722.7	35.24	21.510				
6,950.0	6,639.1	6,912.0	6,691.5	22.1	16.9	94.78	-424.2	-22.0	758.2	723.3	34.80	21.785				
7,000.0	6,663.4	6,966.6	6,720.5	21.9	16.7	94.98	-378.0	-22.0	758.4	724.0	34.41	22.039				
7,050.0	6,684.7	7,021.3	6,746.1	21.7	16.6	95.15	-329.6	-22.0	758.6	724.5	34.08	22.261				
7,100.0	6,703.1	7,076.3	6,768.3	21.4	16.5	95.30	-279.4	-22.0	758.7	724.9	33.82	22.436				
7,150.0	6,718.4	7,131.3	6,786.9	21.2	16.4	95.43	-227.5	-22.0	758.9	725.3	33.65	22.555				
7,200.0	6,730.6	7,186.6	6,801.7	21.1	16.4	95.53	-174.3	-22.0	759.0	725.4	33.58	22.606				
7,250.0	6,739.5	7,241.9	6,812.6	20.9	16.4	95.60	-120.1	-22.0	759.1	725.5	33.61	22.583				
7,300.0	6,745.2	7,297.3	6,819.6	20.7	16.5	95.65	-65.2	-22.0	759.2	725.4	33.77	22.483				
7,350.0	6,747.7	7,352.7	6,822.6	20.6	16.7	95.67	-9.8	-22.0	759.2	725.2	34.04	22.306				
7,364.5	6,747.8	7,368.8	6,822.7	20.5	16.7	95.67	6.2	-22.0	759.2	725.1	34.13	22.241				
7,400.0	6,747.7	7,404.3	6,822.6	20.5	16.9	95.67	41.8	-22.0	759.2	724.8	34.41	22.061				
7,500.0	6,747.4	7,504.3	6,822.3	20.4	17.4	95.66	141.8	-22.0	759.2	723.7	35.45	21.414				
7,600.0	6,747.1	7,604.3	6,822.0	20.6	18.2	95.66	241.8	-22.0	759.2	722.3	36.86	20.595				
7,700.0	6,746.9	7,704.3	6,821.7	21.2	19.1	95.65	341.8	-22.1	759.2	720.6	38.60	19.667				
7,800.0	6,746.6	7,804.3	6,821.4	22.0	20.1	95.65	441.8	-22.1	759.1	718.5	40.63	18.686				
7,900.0	6,746.4	7,904.3	6,821.1	23.1	21.3	95.65	541.8	-22.1	759.1	716.2	42.90	17.697				
8,000.0	6,746.1	8,004.3	6,820.7	24.3	22.6	95.64	641.8	-22.1	759.1	713.7	45.38	16.729				
8,100.0	6,745.8	8,104.3	6,820.4	25.6	23.9	95.64	741.8	-22.1	759.1	711.1	48.03	15.804				
8,200.0	6,745.6	8,204.3	6,820.1	26.9	25.4	95.64	841.8	-22.1	759.1	708.3	50.84	14.931				
8,300.0	6,745.3	8,304.3	6,819.8	28.4	26.9	95.63	941.8	-22.1	759.1	705.3	53.77	14.117				

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 71-201
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 71-201	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 (9-8-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft		
Survey Program: 0-MWD													Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 7L-341 - Wellbore #1 - Plan #1 (9-10-15)		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 Tooface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor				
8,400.0	6,745.0	8,404.3	6,819.5	29.8	28.4	95.63	1,041.8	-22.1	759.1	702.3	56.81	13.362				
8,500.0	6,744.8	8,504.3	6,819.2	31.4	30.0	95.62	1,141.8	-22.1	759.1	699.1	59.94	12.664				
8,600.0	6,744.5	8,604.3	6,818.9	32.9	31.6	95.62	1,241.8	-22.1	759.1	695.9	63.14	12.021				
8,700.0	6,744.3	8,704.3	6,818.5	34.5	33.3	95.62	1,341.8	-22.1	759.1	692.6	66.42	11.429				
8,800.0	6,744.0	8,804.3	6,818.2	36.1	35.0	95.61	1,441.8	-22.1	759.0	689.3	69.74	10.883				
8,900.0	6,743.7	8,904.3	6,817.9	37.8	36.7	95.61	1,541.8	-22.1	759.0	685.9	73.12	10.381				
9,000.0	6,743.5	9,004.3	6,817.6	39.5	38.4	95.60	1,641.8	-22.1	759.0	682.5	76.54	9.917				
9,100.0	6,743.2	9,104.3	6,817.3	41.2	40.1	95.60	1,741.8	-22.1	759.0	679.0	79.99	9.488				
9,200.0	6,743.0	9,204.3	6,817.0	42.9	41.9	95.60	1,841.8	-22.1	759.0	675.5	83.48	9.092				
9,300.0	6,742.7	9,304.3	6,816.7	44.6	43.7	95.59	1,941.8	-22.1	759.0	672.0	87.00	8.724				
9,400.0	6,742.4	9,404.3	6,816.3	46.3	45.5	95.59	2,041.8	-22.1	759.0	668.4	90.54	8.383				
9,500.0	6,742.2	9,504.3	6,816.0	48.1	47.3	95.58	2,141.8	-22.1	759.0	664.9	94.10	8.065				
9,600.0	6,741.9	9,604.3	6,815.7	49.8	49.1	95.58	2,241.7	-22.2	759.0	661.3	97.69	7.769				
9,700.0	6,741.6	9,704.3	6,815.4	51.6	50.9	95.58	2,341.7	-22.2	758.9	657.7	101.29	7.493				
9,800.0	6,741.4	9,804.3	6,815.1	53.4	52.7	95.57	2,441.7	-22.2	758.9	654.0	104.90	7.235				
9,900.0	6,741.1	9,904.3	6,814.8	55.2	54.5	95.57	2,541.7	-22.2	758.9	650.4	108.54	6.992				
10,000.0	6,740.9	10,004.3	6,814.5	57.0	56.4	95.57	2,641.7	-22.2	758.9	646.7	112.18	6.765				
10,100.0	6,740.6	10,104.3	6,814.1	58.8	58.2	95.56	2,741.7	-22.2	758.9	643.1	115.84	6.552				
10,200.0	6,740.3	10,204.3	6,813.8	60.6	60.1	95.56	2,841.7	-22.2	758.9	639.4	119.50	6.350				
10,300.0	6,740.1	10,304.3	6,813.5	62.4	61.9	95.55	2,941.7	-22.2	758.9	635.7	123.18	6.161				
10,400.0	6,739.8	10,404.3	6,813.2	64.3	63.8	95.55	3,041.7	-22.2	758.9	632.0	126.87	5.982				
10,500.0	6,739.6	10,504.3	6,812.9	66.1	65.6	95.55	3,141.7	-22.2	758.9	628.3	130.56	5.812				
10,600.0	6,739.3	10,604.3	6,812.6	67.9	67.5	95.54	3,241.7	-22.2	758.9	624.6	134.26	5.652				
10,700.0	6,739.0	10,704.3	6,812.3	69.8	69.3	95.54	3,341.7	-22.2	758.8	620.9	137.97	5.500				
10,800.0	6,738.8	10,804.3	6,811.9	71.6	71.2	95.53	3,441.7	-22.2	758.8	617.1	141.68	5.356				
10,900.0	6,738.5	10,904.3	6,811.6	73.5	73.1	95.53	3,541.7	-22.2	758.8	613.4	145.40	5.219				
11,000.0	6,738.2	11,004.3	6,811.3	75.3	75.0	95.53	3,641.7	-22.2	758.8	609.7	149.13	5.088				
11,100.0	6,738.0	11,104.3	6,811.0	77.2	76.8	95.52	3,741.7	-22.2	758.8	605.9	152.86	4.964				
11,200.0	6,737.7	11,204.3	6,810.7	79.0	78.7	95.52	3,841.7	-22.2	758.8	602.2	156.59	4.846				
11,300.0	6,737.5	11,304.3	6,810.4	80.9	80.6	95.51	3,941.7	-22.2	758.8	598.4	160.33	4.732				
11,400.0	6,737.2	11,404.3	6,810.1	82.7	82.5	95.51	4,041.7	-22.3	758.8	594.7	164.08	4.624				
11,500.0	6,736.9	11,504.3	6,809.7	84.6	84.3	95.51	4,141.7	-22.3	758.8	590.9	167.83	4.521				
11,600.0	6,736.7	11,604.3	6,809.4	86.5	86.2	95.50	4,241.7	-22.3	758.7	587.2	171.58	4.422				
11,700.0	6,736.4	11,704.3	6,809.1	88.3	88.1	95.50	4,341.7	-22.3	758.7	583.4	175.33	4.327				
11,800.0	6,736.1	11,804.3	6,808.8	90.2	90.0	95.49	4,441.7	-22.3	758.7	579.6	179.09	4.237				
11,900.0	6,735.9	11,904.3	6,808.5	92.1	91.9	95.49	4,541.7	-22.3	758.7	575.9	182.85	4.149				
12,000.0	6,735.6	12,004.3	6,808.2	94.0	93.8	95.49	4,641.7	-22.3	758.7	572.1	186.61	4.066				
12,100.0	6,735.4	12,104.3	6,807.9	95.8	95.7	95.48	4,741.7	-22.3	758.7	568.3	190.38	3.985				
12,200.0	6,735.1	12,204.3	6,807.5	97.7	97.6	95.48	4,841.7	-22.3	758.7	564.5	194.14	3.908				
12,300.0	6,734.8	12,304.3	6,807.2	99.6	99.5	95.48	4,941.7	-22.3	758.7	560.8	197.92	3.833				
12,400.0	6,734.6	12,404.3	6,806.9	101.5	101.4	95.47	5,041.7	-22.3	758.7	557.0	201.69	3.762				
12,500.0	6,734.3	12,504.3	6,806.6	103.4	103.3	95.47	5,141.7	-22.3	758.7	553.2	205.46	3.692				
12,600.0	6,734.1	12,604.3	6,806.3	105.2	105.2	95.46	5,241.7	-22.3	758.6	549.4	209.24	3.626				
12,700.0	6,733.8	12,704.3	6,806.0	107.1	107.0	95.46	5,341.7	-22.3	758.6	545.6	213.02	3.561				
12,800.0	6,733.5	12,804.3	6,805.7	109.0	108.9	95.46	5,441.7	-22.3	758.6	541.8	216.80	3.499				
12,900.0	6,733.3	12,904.3	6,805.3	110.9	110.8	95.45	5,541.7	-22.3	758.6	538.0	220.58	3.439				
13,000.0	6,733.0	13,004.3	6,805.0	112.8	112.7	95.45	5,641.7	-22.3	758.6	534.2	224.36	3.381				
13,100.0	6,732.7	13,104.3	6,804.7	114.7	114.6	95.44	5,741.7	-22.3	758.6	530.4	228.15	3.325				
13,200.0	6,732.5	13,204.3	6,804.4	116.6	116.5	95.44	5,841.7	-22.4	758.6	526.6	231.93	3.271				
13,300.0	6,732.2	13,304.3	6,804.1	118.5	118.5	95.44	5,941.7	-22.4	758.6	522.8	235.72	3.218				
13,400.0	6,732.0	13,404.3	6,803.8	120.4	120.4	95.43	6,041.7	-22.4	758.6	519.0	239.51	3.167				

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 71-201
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 71-201	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 (9-8-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft		
Survey Program: 0-MWD													Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 7L-341 - Wellbore #1 - Plan #1 (9-10-15)		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				
13,500.0	6,731.7	13,504.3	6,803.5	122.3	122.3	95.43	6,141.7	-22.4	758.5	515.2	243.30	3.118				
13,600.0	6,731.4	13,604.3	6,803.1	124.2	124.2	95.42	6,241.7	-22.4	758.5	511.4	247.09	3.070				
13,700.0	6,731.2	13,704.3	6,802.8	126.0	126.1	95.42	6,341.7	-22.4	758.5	507.6	250.89	3.023				
13,800.0	6,730.9	13,804.3	6,802.5	127.9	128.0	95.42	6,441.7	-22.4	758.5	503.8	254.68	2.978				
13,900.0	6,730.7	13,904.3	6,802.2	129.8	129.9	95.41	6,541.7	-22.4	758.5	500.0	258.47	2.935				
14,000.0	6,730.4	14,004.3	6,801.9	131.7	131.8	95.41	6,641.7	-22.4	758.5	496.2	262.27	2.892				
14,100.0	6,730.1	14,104.3	6,801.6	133.6	133.7	95.41	6,741.7	-22.4	758.5	492.4	266.07	2.851				
14,200.0	6,729.9	14,204.3	6,801.3	135.5	135.6	95.40	6,841.7	-22.4	758.5	488.6	269.86	2.811				
14,300.0	6,729.6	14,304.3	6,800.9	137.4	137.5	95.40	6,941.7	-22.4	758.5	484.8	273.66	2.772				
14,400.0	6,729.3	14,404.3	6,800.6	139.3	139.4	95.39	7,041.7	-22.4	758.5	481.0	277.46	2.734				
14,500.0	6,729.1	14,504.3	6,800.3	141.2	141.3	95.39	7,141.7	-22.4	758.4	477.2	281.26	2.697				
14,600.0	6,728.8	14,604.3	6,800.0	143.1	143.2	95.39	7,241.7	-22.4	758.4	473.4	285.06	2.661				
14,700.0	6,728.6	14,704.3	6,799.7	145.0	145.1	95.38	7,341.7	-22.4	758.4	469.6	288.86	2.626				
14,800.0	6,728.3	14,804.3	6,799.4	146.9	147.0	95.38	7,441.7	-22.4	758.4	465.7	292.67	2.591				
14,900.0	6,728.0	14,904.3	6,799.1	148.8	148.9	95.37	7,541.7	-22.4	758.4	461.9	296.47	2.558				
15,000.0	6,727.8	15,004.3	6,798.7	150.7	150.9	95.37	7,641.7	-22.4	758.4	458.1	300.27	2.526				
15,100.0	6,727.5	15,104.3	6,798.4	152.6	152.8	95.37	7,741.7	-22.5	758.4	454.3	304.08	2.494				
15,200.0	6,727.2	15,204.3	6,798.1	154.5	154.7	95.36	7,841.7	-22.5	758.4	450.5	307.88	2.463				
15,300.0	6,727.0	15,304.3	6,797.8	156.5	156.6	95.36	7,941.7	-22.5	758.4	446.7	311.69	2.433				
15,400.0	6,726.7	15,404.3	6,797.5	158.4	158.5	95.35	8,041.7	-22.5	758.4	442.9	315.49	2.404				
15,500.0	6,726.5	15,504.3	6,797.2	160.3	160.4	95.35	8,141.7	-22.5	758.3	439.0	319.30	2.375				
15,600.0	6,726.2	15,604.3	6,796.9	162.2	162.3	95.35	8,241.7	-22.5	758.3	435.2	323.11	2.347				
15,700.0	6,725.9	15,704.3	6,796.5	164.1	164.2	95.34	8,341.7	-22.5	758.3	431.4	326.92	2.320				
15,800.0	6,725.7	15,804.3	6,796.2	166.0	166.1	95.34	8,441.7	-22.5	758.3	427.6	330.72	2.293				
15,900.0	6,725.4	15,904.3	6,795.9	167.9	168.0	95.34	8,541.7	-22.5	758.3	423.8	334.53	2.267				
16,000.0	6,725.2	16,004.3	6,795.6	169.8	170.0	95.33	8,641.7	-22.5	758.3	419.9	338.34	2.241				
16,100.0	6,724.9	16,104.3	6,795.3	171.7	171.9	95.33	8,741.7	-22.5	758.3	416.1	342.15	2.216				
16,200.0	6,724.6	16,204.3	6,795.0	173.6	173.8	95.32	8,841.7	-22.5	758.3	412.3	345.96	2.192				
16,300.0	6,724.4	16,304.3	6,794.7	175.5	175.7	95.32	8,941.7	-22.5	758.3	408.5	349.77	2.168				
16,400.0	6,724.1	16,404.3	6,794.3	177.4	177.6	95.32	9,041.7	-22.5	758.3	404.7	353.58	2.144				
16,500.0	6,723.8	16,504.3	6,794.0	179.3	179.5	95.31	9,141.7	-22.5	758.2	400.8	357.40	2.122				
16,600.0	6,723.6	16,604.3	6,793.7	181.2	181.4	95.31	9,241.7	-22.5	758.2	397.0	361.21	2.099				
16,700.0	6,723.3	16,704.3	6,793.4	183.1	183.3	95.30	9,341.7	-22.5	758.2	393.2	365.02	2.077				
16,800.0	6,723.1	16,804.3	6,793.1	185.1	185.3	95.30	9,441.7	-22.5	758.2	389.4	368.83	2.056				
16,822.3	6,723.0	16,826.6	6,793.0	185.5	185.7	95.30	9,464.1	-22.5	758.2	388.5	369.69	2.051				

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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 71-201	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 (9-8-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft		
Survey Program: 0-MWD													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 (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	-179.41	-135.2	-1.4	135.2							
100.0	100.0	100.0	100.0	0.1	0.1	-179.41	-135.2	-1.4	135.2	134.9	0.22	601.442				
200.0	200.0	200.0	200.0	0.3	0.3	-179.41	-135.2	-1.4	135.2	134.5	0.67	200.468	CC			
300.0	300.0	298.9	298.9	0.6	0.5	-179.92	-135.6	-0.2	135.6	134.5	1.11	122.451	ES			
400.0	400.0	397.6	397.5	0.8	0.8	178.56	-136.8	3.4	136.9	135.3	1.54	88.728				
500.0	500.0	496.1	495.8	1.0	1.0	176.10	-138.9	9.5	139.2	137.3	1.99	70.023				
600.0	600.0	594.2	593.5	1.2	1.2	172.82	-141.7	17.8	143.0	140.5	2.44	58.588				
700.0	700.0	691.8	690.4	1.5	1.5	168.89	-145.4	28.5	148.4	145.5	2.90	51.262				
800.0	800.0	788.7	786.4	1.7	1.8	164.52	-149.8	41.5	156.0	152.6	3.35	46.526				
900.0	900.0	884.9	881.2	1.9	2.2	159.94	-154.9	56.6	166.0	162.2	3.81	43.543				
1,000.0	1,000.0	980.2	974.8	2.1	2.5	155.35	-160.8	73.8	178.7	174.4	4.28	41.789				
1,100.0	1,100.0	1,074.5	1,066.9	2.4	3.0	150.94	-167.3	93.0	194.2	189.5	4.75	40.902				
1,200.0	1,200.0	1,167.8	1,157.5	2.6	3.4	146.83	-174.5	114.0	212.7	207.5	5.24	40.619	SF			
1,300.0	1,300.0	1,259.9	1,246.4	2.8	3.9	143.09	-182.3	136.9	234.2	228.4	5.75	40.748				
1,400.0	1,400.0	1,350.7	1,333.4	3.0	4.4	139.73	-190.6	161.5	258.5	252.2	6.28	41.150				
1,500.0	1,500.0	1,440.3	1,418.6	3.3	5.0	136.77	-199.5	187.5	285.7	278.8	6.85	41.727				
1,600.0	1,600.0	1,528.4	1,501.8	3.5	5.6	134.16	-208.9	215.1	315.5	308.0	7.44	42.413				
1,700.0	1,700.0	1,615.1	1,582.9	3.7	6.2	131.88	-218.7	243.9	347.9	339.8	8.06	43.165				
1,800.0	1,800.0	1,700.0	1,661.7	3.9	6.8	129.89	-228.9	273.8	382.7	374.0	8.71	43.964				
1,900.0	1,900.0	1,783.7	1,738.7	4.1	7.5	-97.08	-239.5	305.0	420.1	411.2	8.94	46.983				
2,000.0	1,999.9	1,867.0	1,814.6	4.3	8.2	-98.45	-250.6	337.5	460.1	450.7	9.39	49.011				
2,100.0	2,099.7	1,956.4	1,895.9	4.5	9.0	-99.94	-262.6	372.9	501.6	491.8	9.84	50.967				
2,200.0	2,199.3	2,045.2	1,976.5	4.7	9.8	-101.37	-274.6	408.0	544.1	533.9	10.29	52.875				
2,300.0	2,298.6	2,133.2	2,056.4	4.9	10.6	-102.73	-286.4	442.8	587.7	577.0	10.74	54.715				
2,400.0	2,397.5	2,220.3	2,135.6	5.1	11.3	-104.04	-298.2	477.3	632.5	621.3	11.20	56.473				
2,500.0	2,496.1	2,306.7	2,214.0	5.4	12.1	-105.28	-309.8	511.5	678.5	666.8	11.67	58.134				
2,600.0	2,594.2	2,392.1	2,291.6	5.7	12.9	-106.46	-321.3	545.3	725.7	713.6	12.16	59.681				
2,700.0	2,691.7	2,476.5	2,368.3	6.0	13.6	-107.57	-332.7	578.7	774.3	761.6	12.67	61.101				
2,800.0	2,788.6	2,559.9	2,444.1	6.4	14.4	-108.61	-343.9	611.7	824.2	811.0	13.21	62.384				
2,900.0	2,884.9	2,642.2	2,518.8	6.8	15.1	-109.59	-355.0	644.3	875.6	861.8	13.78	63.525				
3,000.0	2,980.4	2,723.4	2,592.6	7.2	15.9	-110.51	-366.0	676.4	928.4	914.0	14.39	64.522				
3,100.0	3,075.0	2,803.3	2,665.2	7.7	16.6	-111.35	-376.7	708.0	982.7	967.7	15.03	65.377				

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 71-201
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 71-201	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 (9-8-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft		
Survey Program: 0-MWD													Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 7Q-241 - Wellbore #1 - Plan #1 (9-11-15)		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	-179.39	-104.9	-1.1	104.9							
100.0	100.0	100.0	100.0	0.1	0.1	-179.39	-104.9	-1.1	104.9	104.7	0.22	466.893				
200.0	200.0	200.0	200.0	0.3	0.3	-179.39	-104.9	-1.1	104.9	104.3	0.67	155.621				
300.0	300.0	300.0	300.0	0.6	0.6	-179.39	-104.9	-1.1	104.9	103.8	1.12	93.372				
400.0	400.0	400.0	400.0	0.8	0.8	-179.39	-104.9	-1.1	104.9	103.4	1.57	66.694				
500.0	500.0	500.0	500.0	1.0	1.0	-179.39	-104.9	-1.1	104.9	102.9	2.02	51.873				
600.0	600.0	600.0	600.0	1.2	1.2	-179.39	-104.9	-1.1	104.9	102.5	2.47	42.441	CC, ES			
700.0	700.0	698.8	698.8	1.5	1.4	179.99	-105.5	0.0	105.5	102.6	2.90	36.379				
800.0	800.0	797.4	797.3	1.7	1.6	178.16	-107.2	3.4	107.3	104.0	3.32	32.337				
900.0	900.0	895.8	895.5	1.9	1.8	175.27	-110.1	9.1	110.5	106.8	3.75	29.517				
1,000.0	1,000.0	993.8	993.1	2.1	2.1	171.52	-114.1	17.0	115.5	111.3	4.18	27.650				
1,100.0	1,100.0	1,091.3	1,089.9	2.4	2.3	167.20	-119.1	27.1	122.6	118.0	4.62	26.559				
1,200.0	1,200.0	1,188.1	1,185.8	2.6	2.6	162.61	-125.3	39.2	132.0	127.0	5.06	26.109	SF			
1,300.0	1,300.0	1,284.2	1,280.6	2.8	2.9	158.02	-132.4	53.5	144.1	138.6	5.50	26.184				
1,400.0	1,400.0	1,379.4	1,374.0	3.0	3.2	153.65	-140.6	69.7	159.0	153.1	5.96	26.672				
1,500.0	1,500.0	1,473.7	1,466.1	3.3	3.6	149.63	-149.7	87.7	176.8	170.4	6.44	27.474				
1,600.0	1,600.0	1,566.9	1,556.6	3.5	4.0	146.04	-159.7	107.6	197.4	190.5	6.93	28.498				
1,700.0	1,700.0	1,658.9	1,645.4	3.7	4.5	142.88	-170.6	129.1	220.8	213.3	7.44	29.669				
1,800.0	1,800.0	1,749.6	1,732.4	3.9	5.0	140.12	-182.2	152.2	246.9	238.9	7.98	30.928				
1,900.0	1,900.0	1,838.9	1,817.3	4.1	5.5	-87.72	-194.6	176.7	275.5	267.1	8.42	32.730				
2,000.0	1,999.9	1,928.3	1,901.7	4.3	6.1	-90.00	-207.8	203.0	306.7	297.8	8.84	34.692				
2,100.0	2,099.7	2,021.6	1,989.7	4.5	6.7	-92.34	-221.9	230.9	339.1	329.9	9.27	36.580				
2,200.0	2,199.3	2,114.5	2,077.1	4.7	7.3	-94.59	-235.8	258.6	372.4	362.7	9.70	38.395				
2,300.0	2,298.6	2,206.8	2,164.1	4.9	7.9	-96.73	-249.7	286.2	406.7	396.6	10.14	40.126				
2,400.0	2,397.5	2,298.5	2,250.5	5.1	8.6	-98.78	-263.6	313.6	442.0	431.5	10.58	41.765				
2,500.0	2,496.1	2,389.5	2,336.3	5.4	9.2	-100.75	-277.3	340.8	478.6	467.5	11.05	43.303				
2,600.0	2,594.2	2,479.8	2,421.4	5.7	9.8	-102.62	-290.9	367.8	516.4	504.9	11.54	44.732				
2,700.0	2,691.7	2,569.3	2,505.8	6.0	10.4	-104.40	-304.4	394.6	555.6	543.5	12.07	46.045				
2,800.0	2,788.6	2,658.0	2,589.3	6.4	11.1	-106.09	-317.7	421.1	596.2	583.6	12.62	47.239				
2,900.0	2,884.9	2,745.7	2,672.0	6.8	11.7	-107.70	-330.9	447.3	638.3	625.1	13.21	48.316				
3,000.0	2,980.4	2,832.5	2,753.8	7.2	12.3	-109.21	-344.0	473.2	682.0	668.2	13.84	49.279				
3,100.0	3,075.0	2,918.2	2,834.6	7.7	12.9	-110.63	-356.9	498.8	727.4	712.9	14.51	50.138				
3,200.0	3,168.9	3,002.9	2,914.4	8.3	13.5	-111.96	-369.7	524.1	774.3	759.1	15.21	50.902				
3,258.2	3,223.0	3,051.6	2,960.3	8.6	13.8	-112.70	-377.0	538.7	802.5	786.8	15.64	51.307				
3,300.0	3,261.8	3,086.5	2,993.1	8.9	14.1	-113.52	-382.3	549.1	822.9	807.0	15.96	51.557				
3,400.0	3,354.6	3,169.9	3,071.7	9.5	14.7	-115.34	-394.8	574.1	872.4	855.7	16.75	52.086				
3,500.0	3,447.4	3,253.3	3,150.3	10.2	15.3	-116.97	-407.4	599.0	922.6	905.0	17.56	52.534				
3,600.0	3,540.2	3,336.7	3,228.9	10.9	15.8	-118.45	-420.0	623.9	973.2	954.8	18.39	52.920				

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 71-201
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 71-201	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 (9-8-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft		
Survey Program: 0-MWD													Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 7Q-301 - Wellbore #1 - Plan #1 (9-11-15)		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	-179.34	-120.2	-1.4	120.2							
100.0	100.0	100.0	100.0	0.1	0.1	-179.34	-120.2	-1.4	120.2	120.0	0.22	534.985				
200.0	200.0	200.0	200.0	0.3	0.3	-179.34	-120.2	-1.4	120.2	119.6	0.67	178.317				
300.0	300.0	300.0	300.0	0.6	0.6	-179.34	-120.2	-1.4	120.2	119.1	1.12	106.989				
400.0	400.0	400.0	400.0	0.8	0.8	-179.34	-120.2	-1.4	120.2	118.7	1.57	76.420	CC, ES			
500.0	500.0	498.8	498.8	1.0	1.0	-179.90	-120.7	-0.2	120.7	118.7	2.00	60.267				
600.0	600.0	597.5	597.4	1.2	1.2	178.44	-122.2	3.3	122.3	119.8	2.43	50.357				
700.0	700.0	695.9	695.6	1.5	1.4	175.78	-124.6	9.2	125.0	122.2	2.86	43.681				
800.0	800.0	794.0	793.3	1.7	1.6	172.27	-128.0	17.4	129.3	126.0	3.30	39.155				
900.0	900.0	891.5	890.1	1.9	1.9	168.14	-132.3	27.8	135.5	131.8	3.75	36.160				
1,000.0	1,000.0	988.4	986.0	2.1	2.2	163.63	-137.5	40.4	144.0	139.8	4.20	34.312				
1,100.0	1,100.0	1,084.5	1,080.8	2.4	2.5	159.00	-143.6	55.1	155.0	150.4	4.65	33.339				
1,200.0	1,200.0	1,179.7	1,174.3	2.6	2.9	154.48	-150.6	71.9	168.8	163.7	5.11	33.034	SF			
1,300.0	1,300.0	1,274.0	1,266.4	2.8	3.3	150.22	-158.3	90.6	185.5	179.9	5.58	33.222				
1,400.0	1,400.0	1,367.2	1,356.9	3.0	3.7	146.32	-166.8	111.2	205.0	199.0	6.07	33.763				
1,500.0	1,500.0	1,459.3	1,445.7	3.3	4.2	142.83	-176.0	133.5	227.5	220.9	6.59	34.543				
1,600.0	1,600.0	1,550.1	1,532.8	3.5	4.7	139.75	-185.9	157.4	252.7	245.6	7.12	35.475				
1,700.0	1,700.0	1,639.5	1,617.9	3.7	5.2	137.06	-196.5	182.8	280.6	273.0	7.69	36.498				
1,800.0	1,800.0	1,727.6	1,701.1	3.9	5.8	134.71	-207.6	209.7	311.2	302.9	8.28	37.568				
1,900.0	1,900.0	1,814.1	1,782.1	4.1	6.4	-92.66	-219.2	237.7	344.3	335.6	8.65	39.792				
2,000.0	1,999.9	1,906.7	1,868.4	4.3	7.1	-94.57	-232.0	268.7	379.0	369.9	9.09	41.675				
2,100.0	2,099.7	1,998.8	1,954.2	4.5	7.8	-96.42	-244.7	299.5	414.6	405.0	9.53	43.496				
2,200.0	2,199.3	2,090.4	2,039.6	4.7	8.4	-98.22	-257.4	330.0	451.1	441.1	9.97	45.253				
2,300.0	2,298.6	2,181.3	2,124.3	4.9	9.1	-99.95	-270.0	360.4	488.6	478.2	10.41	46.944				
2,400.0	2,397.5	2,271.5	2,208.5	5.1	9.8	-101.63	-282.4	390.6	527.2	516.4	10.86	48.558				
2,500.0	2,496.1	2,361.0	2,291.9	5.4	10.5	-103.23	-294.8	420.5	567.1	555.8	11.32	50.083				
2,600.0	2,594.2	2,449.6	2,374.5	5.7	11.2	-104.77	-307.1	450.1	608.3	596.5	11.81	51.506				
2,700.0	2,691.7	2,537.4	2,456.4	6.0	11.8	-106.24	-319.2	479.4	650.8	638.5	12.32	52.816				
2,800.0	2,788.6	2,624.3	2,537.3	6.4	12.5	-107.63	-331.2	508.5	694.8	681.9	12.86	54.007				
2,900.0	2,884.9	2,710.1	2,617.4	6.8	13.2	-108.95	-343.1	537.2	740.2	726.8	13.44	55.077				
3,000.0	2,980.4	2,795.0	2,696.5	7.2	13.8	-110.20	-354.8	565.5	787.2	773.2	14.05	56.027				
3,100.0	3,075.0	2,878.7	2,774.5	7.7	14.5	-111.37	-366.4	593.5	835.8	821.1	14.70	56.863				
3,200.0	3,168.9	2,961.2	2,851.5	8.3	15.1	-112.46	-377.8	621.1	886.0	870.6	15.38	57.593				
3,258.2	3,223.0	3,008.7	2,895.7	8.6	15.5	-113.06	-384.4	636.9	915.9	900.1	15.80	57.974				
3,300.0	3,261.8	3,042.6	2,927.4	8.9	15.7	-113.82	-389.1	648.3	937.7	921.6	16.10	58.232				
3,400.0	3,354.6	3,123.8	3,003.1	9.5	16.4	-115.50	-400.3	675.4	990.3	973.4	16.85	58.769				

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 71-201
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 71-201	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 (9-8-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft		
Survey Program: 0-MWD													Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 7Q-341 - Wellbore #1 - Plan #1 (9-11-15)		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	-179.29	-90.0	-1.1	90.0							
100.0	100.0	100.0	100.0	0.1	0.1	-179.29	-90.0	-1.1	90.0	89.8	0.22	400.437				
200.0	200.0	200.0	200.0	0.3	0.3	-179.29	-90.0	-1.1	90.0	89.3	0.67	133.471				
300.0	300.0	300.0	300.0	0.6	0.6	-179.29	-90.0	-1.1	90.0	88.9	1.12	80.081				
400.0	400.0	400.0	400.0	0.8	0.8	-179.29	-90.0	-1.1	90.0	88.4	1.57	57.201				
500.0	500.0	500.0	500.0	1.0	1.0	-179.29	-90.0	-1.1	90.0	88.0	2.02	44.489				
600.0	600.0	600.0	600.0	1.2	1.2	-179.29	-90.0	-1.1	90.0	87.5	2.47	36.400				
700.0	700.0	700.0	700.0	1.5	1.5	-179.29	-90.0	-1.1	90.0	87.1	2.92	30.800				
800.0	800.0	800.0	800.0	1.7	1.7	-179.29	-90.0	-1.1	90.0	86.6	3.37	26.693 CC, ES				
900.0	900.0	898.8	898.7	1.9	1.9	-179.98	-90.7	0.0	90.7	86.9	3.80	23.880				
1,000.0	1,000.0	997.4	997.3	2.1	2.1	178.03	-92.7	3.2	92.8	88.6	4.21	22.044				
1,100.0	1,100.0	1,095.7	1,095.4	2.4	2.3	174.92	-96.1	8.5	96.6	92.0	4.63	20.863				
1,200.0	1,200.0	1,193.7	1,193.0	2.6	2.5	170.99	-100.9	16.0	102.4	97.3	5.06	20.243				
1,300.0	1,300.0	1,291.2	1,289.8	2.8	2.7	166.59	-106.9	25.5	110.4	104.9	5.49	20.115 SF				
1,400.0	1,400.0	1,388.0	1,385.6	3.0	3.0	162.06	-114.2	37.0	120.9	115.0	5.92	20.413				
1,500.0	1,500.0	1,484.0	1,480.4	3.3	3.3	157.67	-122.8	50.4	134.2	127.8	6.37	21.067				
1,600.0	1,600.0	1,579.2	1,573.8	3.5	3.6	153.62	-132.5	65.7	150.2	143.4	6.83	22.006				
1,700.0	1,700.0	1,673.4	1,665.8	3.7	4.0	150.00	-143.4	82.8	169.0	161.7	7.30	23.159				
1,800.0	1,800.0	1,766.6	1,756.3	3.9	4.4	146.83	-155.3	101.5	190.6	182.8	7.79	24.462				
1,900.0	1,900.0	1,858.5	1,845.0	4.1	4.8	-81.53	-168.2	121.8	214.7	206.4	8.25	26.031				
2,000.0	1,999.9	1,951.0	1,933.7	4.3	5.3	-84.39	-182.3	144.0	241.0	232.4	8.66	27.828				
2,100.0	2,099.7	2,046.2	2,024.9	4.5	5.8	-87.26	-197.0	167.0	268.3	259.3	9.08	29.555				
2,200.0	2,199.3	2,140.9	2,115.6	4.7	6.3	-90.02	-211.6	190.0	296.3	286.8	9.50	31.191				
2,300.0	2,298.6	2,235.3	2,206.0	4.9	6.9	-92.68	-226.2	212.9	325.1	315.2	9.93	32.740				
2,400.0	2,397.5	2,329.1	2,295.9	5.1	7.4	-95.23	-240.6	235.6	355.0	344.6	10.38	34.201				
2,500.0	2,496.1	2,422.4	2,385.2	5.4	7.9	-97.69	-255.0	258.3	385.9	375.1	10.85	35.570				
2,600.0	2,594.2	2,515.1	2,474.0	5.7	8.5	-100.05	-269.3	280.7	418.1	406.8	11.35	36.841				
2,700.0	2,691.7	2,607.0	2,562.1	6.0	9.0	-102.30	-283.5	303.0	451.7	439.9	11.88	38.012				
2,800.0	2,788.6	2,698.3	2,649.4	6.4	9.6	-104.45	-297.6	325.2	486.8	474.4	12.46	39.082				
2,900.0	2,884.9	2,788.7	2,736.0	6.8	10.1	-106.49	-311.5	347.1	523.4	510.4	13.07	40.057				
3,000.0	2,980.4	2,878.2	2,821.8	7.2	10.6	-108.42	-325.3	368.8	561.7	548.0	13.72	40.944				
3,100.0	3,075.0	2,966.8	2,906.6	7.7	11.2	-110.24	-339.0	390.3	601.7	587.3	14.41	41.754				
3,200.0	3,168.9	3,054.4	2,990.5	8.3	11.7	-111.96	-352.5	411.5	643.5	628.4	15.14	42.499				
3,258.2	3,223.0	3,104.9	3,038.9	8.6	12.0	-112.91	-360.3	423.8	668.6	653.1	15.58	42.908				
3,300.0	3,261.8	3,141.0	3,073.5	8.9	12.2	-113.83	-365.9	432.5	687.0	671.1	15.92	43.152				
3,400.0	3,354.6	3,227.4	3,156.3	9.5	12.7	-115.87	-379.2	453.5	731.5	714.8	16.74	43.692				
3,500.0	3,447.4	3,313.9	3,239.1	10.2	13.3	-117.69	-392.6	474.5	776.7	759.1	17.58	44.174				
3,600.0	3,540.2	3,400.3	3,321.9	10.9	13.8	-119.32	-405.9	495.4	822.5	804.1	18.44	44.611				
3,700.0	3,633.0	3,486.8	3,404.7	11.6	14.3	-120.78	-419.3	516.4	868.8	849.5	19.30	45.010				
3,800.0	3,725.8	3,573.2	3,487.5	12.3	14.8	-122.10	-432.6	537.3	915.5	895.3	20.18	45.377				
3,900.0	3,818.6	3,659.6	3,570.2	13.0	15.4	-123.30	-445.9	558.3	962.6	941.5	21.05	45.717				

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 71-201
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 71-201	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 (9-8-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft		
Survey Program: 7062-UNKNOWN													Dunn Pad Sec.7-T5N-R64W - Dunn 24-7 (Exist.) - Wellbore #1 - Wellbore #1		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	101.26	-164.3	825.4	841.7							
100.0	100.0	87.0	87.0	0.1	1.7	101.26	-164.3	825.4	841.6	839.8	1.85	454.351				
200.0	200.0	187.0	187.0	0.3	3.7	101.26	-164.3	825.4	841.6	837.6	4.08	206.427				
300.0	300.0	287.0	287.0	0.6	5.7	101.26	-164.3	825.4	841.6	835.3	6.30	133.552				
400.0	400.0	387.0	387.0	0.8	7.7	101.26	-164.3	825.4	841.6	833.1	8.53	98.706				
500.0	500.0	487.0	487.0	1.0	9.7	101.26	-164.3	825.4	841.6	830.9	10.75	78.281				
600.0	600.0	587.0	587.0	1.2	11.7	101.26	-164.3	825.4	841.6	828.7	12.98	64.860				
700.0	700.0	687.0	687.0	1.5	13.7	101.26	-164.3	825.4	841.6	826.4	15.20	55.367				
800.0	800.0	787.0	787.0	1.7	15.7	101.26	-164.3	825.4	841.6	824.2	17.43	48.298				
900.0	900.0	887.0	887.0	1.9	17.7	101.26	-164.3	825.4	841.6	822.0	19.65	42.830				
1,000.0	1,000.0	987.0	987.0	2.1	19.7	101.26	-164.3	825.4	841.6	819.8	21.88	38.474				
1,100.0	1,100.0	1,087.0	1,087.0	2.4	21.7	101.26	-164.3	825.4	841.6	817.5	24.10	34.922				
1,200.0	1,200.0	1,187.0	1,187.0	2.6	23.7	101.26	-164.3	825.4	841.6	815.3	26.32	31.971				
1,300.0	1,300.0	1,287.0	1,287.0	2.8	25.7	101.26	-164.3	825.4	841.6	813.1	28.55	29.480				
1,400.0	1,400.0	1,387.0	1,387.0	3.0	27.7	101.26	-164.3	825.4	841.6	810.9	30.77	27.349				
1,500.0	1,500.0	1,487.0	1,487.0	3.3	29.7	101.26	-164.3	825.4	841.6	808.6	33.00	25.505				
1,600.0	1,600.0	1,587.0	1,587.0	3.5	31.7	101.26	-164.3	825.4	841.6	806.4	35.22	23.894				
1,700.0	1,700.0	1,687.0	1,687.0	3.7	33.7	101.26	-164.3	825.4	841.6	804.2	37.45	22.474				
1,800.0	1,800.0	1,787.0	1,787.0	3.9	35.7	101.26	-164.3	825.4	841.6	802.0	39.67	21.214 CC				
1,900.0	1,900.0	1,887.0	1,887.0	4.1	37.7	-124.46	-164.3	825.4	842.4	800.5	41.87	20.119 ES				
2,000.0	1,999.9	1,986.9	1,986.9	4.3	39.7	-124.65	-164.3	825.4	844.6	800.6	44.03	19.182				
2,100.0	2,099.7	2,086.7	2,086.7	4.5	41.7	-124.97	-164.3	825.4	848.3	802.2	46.18	18.368				
2,200.0	2,199.3	2,186.3	2,186.3	4.7	43.7	-125.41	-164.3	825.4	853.6	805.3	48.33	17.663				
2,300.0	2,298.6	2,285.6	2,285.6	4.9	45.7	-125.96	-164.3	825.4	860.5	810.1	50.46	17.054				
2,400.0	2,397.5	2,384.5	2,384.5	5.1	47.7	-126.61	-164.3	825.4	869.1	816.5	52.58	16.530				
2,500.0	2,496.1	2,483.1	2,483.1	5.4	49.7	-127.37	-164.3	825.4	879.3	824.7	54.68	16.083				
2,600.0	2,594.2	2,581.2	2,581.2	5.7	51.6	-128.21	-164.3	825.4	891.4	834.7	56.76	15.706				
2,700.0	2,691.7	2,678.7	2,678.7	6.0	53.6	-129.13	-164.3	825.4	905.4	846.6	58.82	15.394				
2,800.0	2,788.6	2,775.6	2,775.6	6.4	55.5	-130.11	-164.3	825.4	921.4	860.6	60.85	15.143				
2,900.0	2,884.9	2,871.8	2,871.8	6.8	57.4	-131.14	-164.3	825.4	939.5	876.6	62.85	14.948				
3,000.0	2,980.4	2,967.3	2,967.3	7.2	59.3	-132.21	-164.3	825.4	959.7	894.9	64.81	14.808				
3,100.0	3,075.0	3,062.0	3,062.0	7.7	61.2	-133.31	-164.3	825.4	982.2	915.5	66.73	14.719 SF				

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 71-201
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 71-201	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 (9-8-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft		
Survey Program: 0-MWD													Dunn Pad Sec.7-T5N-R64W - Dunn 7PD (AL) - Wellbore #1 - Design #1		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	6.0	6.0	0.0	0.0	97.84	-114.8	833.2	841.1							
100.0	100.0	106.0	106.0	0.1	0.1	97.84	-114.8	833.2	841.1	840.9	0.24	3,530.761				
200.0	200.0	206.0	206.0	0.3	0.4	97.84	-114.8	833.2	841.1	840.4	0.69	1,222.969				
300.0	300.0	306.0	306.0	0.6	0.6	97.84	-114.8	833.2	841.1	840.0	1.14	739.569				
400.0	400.0	406.0	406.0	0.8	0.8	97.84	-114.8	833.2	841.1	839.5	1.59	530.055				
500.0	500.0	506.0	506.0	1.0	1.0	97.84	-114.8	833.2	841.1	839.1	2.04	413.043				
600.0	600.0	606.0	606.0	1.2	1.2	97.84	-114.8	833.2	841.1	838.6	2.49	338.351				
700.0	700.0	706.0	706.0	1.5	1.5	97.84	-114.8	833.2	841.1	838.2	2.94	286.536				
800.0	800.0	806.0	806.0	1.7	1.7	97.84	-114.8	833.2	841.1	837.7	3.38	248.483				
900.0	900.0	906.0	906.0	1.9	1.9	97.84	-114.8	833.2	841.1	837.3	3.83	219.352				
1,000.0	1,000.0	1,006.0	1,006.0	2.1	2.1	97.84	-114.8	833.2	841.1	836.8	4.28	196.335				
1,100.0	1,100.0	1,106.0	1,106.0	2.4	2.4	97.84	-114.8	833.2	841.1	836.4	4.73	177.689				
1,200.0	1,200.0	1,206.0	1,206.0	2.6	2.6	97.84	-114.8	833.2	841.1	835.9	5.18	162.278				
1,300.0	1,300.0	1,306.0	1,306.0	2.8	2.8	97.84	-114.8	833.2	841.1	835.5	5.63	149.327				
1,400.0	1,400.0	1,406.0	1,406.0	3.0	3.0	97.84	-114.8	833.2	841.1	835.0	6.08	138.290				
1,500.0	1,500.0	1,506.0	1,506.0	3.3	3.3	97.84	-114.8	833.2	841.1	834.6	6.53	128.773				
1,600.0	1,600.0	1,606.0	1,606.0	3.5	3.5	97.84	-114.8	833.2	841.1	834.1	6.98	120.481				
1,700.0	1,700.0	1,706.0	1,706.0	3.7	3.7	97.84	-114.8	833.2	841.1	833.7	7.43	113.192				
1,764.5	1,764.5	1,770.5	1,770.5	3.9	3.9	97.84	-114.8	833.2	841.1	833.4	7.72	108.938 CC				
1,800.0	1,800.0	1,800.0	1,800.0	3.9	3.9	97.84	-114.8	833.2	841.1	833.3	7.87	106.920 ES				
1,900.0	1,900.0	1,889.1	1,889.1	4.1	4.1	-127.92	-113.8	834.3	843.0	834.7	8.26	102.034				
2,000.0	1,999.9	1,972.7	1,972.6	4.3	4.3	-128.23	-111.3	837.1	848.3	839.7	8.62	98.426				
2,100.0	2,099.7	2,055.6	2,055.2	4.5	4.5	-128.72	-107.1	841.7	857.3	848.3	8.98	95.468				
2,200.0	2,199.3	2,137.2	2,136.5	4.7	4.7	-129.38	-101.5	847.9	870.0	860.6	9.35	93.080				
2,300.0	2,298.6	2,217.4	2,215.9	4.9	4.9	-130.18	-94.4	855.7	886.5	876.7	9.72	91.191				
2,400.0	2,397.5	2,300.0	2,297.5	5.1	5.1	-131.15	-85.6	865.5	906.9	896.8	10.12	89.659				
2,500.0	2,496.1	2,373.3	2,369.5	5.4	5.3	-132.08	-76.4	875.6	931.4	920.9	10.51	88.647				
2,600.0	2,594.2	2,465.6	2,460.0	5.7	5.6	-133.37	-64.2	889.1	959.1	948.1	10.96	87.522				
2,700.0	2,691.7	2,556.9	2,549.5	6.0	5.8	-134.65	-52.2	902.4	989.2	977.8	11.42	86.609 SF				

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 71-201
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 71-201	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 (9-8-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 7020-UNKNOWN Existing Wells - Sec.7-T5N-R64W - DPG Bird Farm #12-1H5 (Exist.) - Wellbore #1 - Wellbore #1													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)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
10,500.0	6,739.6	6,703.5	6,703.5	66.1	134.1	-90.12	3,753.6	-1,526.7	967.4	768.2	199.22	4.856		
10,600.0	6,739.3	6,703.3	6,703.3	67.9	134.1	-90.10	3,753.6	-1,526.7	907.5	706.4	201.07	4.513		
10,700.0	6,739.0	6,703.0	6,703.0	69.8	134.1	-90.08	3,753.6	-1,526.7	855.0	652.1	202.93	4.214		
10,800.0	6,738.8	6,702.8	6,702.8	71.6	134.1	-90.06	3,753.6	-1,526.7	811.6	606.8	204.79	3.963		
10,900.0	6,738.5	6,702.5	6,702.5	73.5	134.0	-90.04	3,753.6	-1,526.7	778.6	572.0	206.65	3.768		
11,000.0	6,738.2	6,702.2	6,702.2	75.3	134.0	-90.02	3,753.6	-1,526.7	757.5	549.0	208.51	3.633		
11,100.0	6,738.0	6,702.0	6,702.0	77.2	134.0	-90.00	3,753.6	-1,526.7	749.3	538.9	210.38	3.562		
11,112.1	6,737.9	6,701.9	6,701.9	77.4	134.0	-90.00	3,753.6	-1,526.7	749.2	538.6	210.61	3.557	CC, ES	
11,200.0	6,737.7	6,701.7	6,701.7	79.0	134.0	-89.98	3,753.6	-1,526.7	754.3	542.1	212.25	3.554	SF	
11,300.0	6,737.5	6,701.4	6,701.4	80.9	134.0	-89.96	3,753.6	-1,526.7	772.4	558.3	214.12	3.607		
11,400.0	6,737.2	6,701.2	6,701.2	82.7	134.0	-89.94	3,753.6	-1,526.7	802.6	586.6	216.00	3.716		
11,500.0	6,736.9	6,700.9	6,700.9	84.6	134.0	-89.92	3,753.6	-1,526.7	843.7	625.8	217.87	3.872		
11,600.0	6,736.7	6,700.7	6,700.7	86.5	134.0	-89.90	3,753.6	-1,526.7	894.1	674.3	219.75	4.069		
11,700.0	6,736.4	6,700.4	6,700.4	88.3	134.0	-89.88	3,753.6	-1,526.7	952.3	730.7	221.63	4.297		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 71-201
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 71-201	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 (9-8-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Existing Wells - Sec.7-T5N-R64W - Dunn #1 (Exist.) - Wellbore #1 - Wellbore #1													Offset Well Error:	0.0 ft	
Survey Program: 6990-UNKNOWN															
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	-87.85	17.5	-465.1	465.6						
100.0	100.0	87.0	87.0	0.1	1.7	-87.85	17.5	-465.1	465.4	463.5	1.85	251.244			
200.0	200.0	187.0	187.0	0.3	3.7	-87.85	17.5	-465.1	465.4	461.3	4.08	114.149			
300.0	300.0	287.0	287.0	0.6	5.7	-87.85	17.5	-465.1	465.4	459.1	6.30	73.851			
400.0	400.0	387.0	387.0	0.8	7.7	-87.85	17.5	-465.1	465.4	456.9	8.53	54.582			
500.0	500.0	487.0	487.0	1.0	9.7	-87.85	17.5	-465.1	465.4	454.6	10.75	43.287			
600.0	600.0	587.0	587.0	1.2	11.7	-87.85	17.5	-465.1	465.4	452.4	12.98	35.866			
700.0	700.0	687.0	687.0	1.5	13.7	-87.85	17.5	-465.1	465.4	450.2	15.20	30.617			
800.0	800.0	787.0	787.0	1.7	15.7	-87.85	17.5	-465.1	465.4	448.0	17.43	26.708			
900.0	900.0	887.0	887.0	1.9	17.7	-87.85	17.5	-465.1	465.4	445.8	19.65	23.684			
1,000.0	1,000.0	987.0	987.0	2.1	19.7	-87.85	17.5	-465.1	465.4	443.5	21.88	21.275			
1,100.0	1,100.0	1,087.0	1,087.0	2.4	21.7	-87.85	17.5	-465.1	465.4	441.3	24.10	19.311			
1,200.0	1,200.0	1,187.0	1,187.0	2.6	23.7	-87.85	17.5	-465.1	465.4	439.1	26.32	17.679			
1,300.0	1,300.0	1,287.0	1,287.0	2.8	25.7	-87.85	17.5	-465.1	465.4	436.9	28.55	16.302			
1,400.0	1,400.0	1,387.0	1,387.0	3.0	27.7	-87.85	17.5	-465.1	465.4	434.6	30.77	15.123			
1,500.0	1,500.0	1,487.0	1,487.0	3.3	29.7	-87.85	17.5	-465.1	465.4	432.4	33.00	14.103			
1,600.0	1,600.0	1,587.0	1,587.0	3.5	31.7	-87.85	17.5	-465.1	465.4	430.2	35.22	13.213			
1,700.0	1,700.0	1,687.0	1,687.0	3.7	33.7	-87.85	17.5	-465.1	465.4	428.0	37.45	12.428			
1,800.0	1,800.0	1,787.0	1,787.0	3.9	35.7	-87.85	17.5	-465.1	465.4	425.7	39.67	11.731			
1,900.0	1,900.0	1,887.0	1,887.0	4.1	37.7	46.63	17.5	-465.1	464.5	422.6	41.87	11.095			
2,000.0	1,999.9	1,986.9	1,986.9	4.3	39.7	47.01	17.5	-465.1	461.8	417.8	44.02	10.490			
2,100.0	2,099.7	2,086.7	2,086.7	4.5	41.7	47.66	17.5	-465.1	457.4	411.2	46.17	9.907			
2,200.0	2,199.3	2,186.3	2,186.3	4.7	43.7	48.58	17.5	-465.1	451.3	403.0	48.30	9.343			
2,300.0	2,298.6	2,285.6	2,285.6	4.9	45.7	49.81	17.5	-465.1	443.5	393.1	50.43	8.796			
2,400.0	2,397.5	2,384.5	2,384.5	5.1	47.7	51.35	17.5	-465.1	434.4	381.8	52.55	8.266			
2,500.0	2,496.1	2,483.1	2,483.1	5.4	49.7	53.25	17.5	-465.1	423.9	369.2	54.69	7.752			
2,600.0	2,594.2	2,581.2	2,581.2	5.7	51.6	55.53	17.5	-465.1	412.4	355.6	56.85	7.255			
2,700.0	2,691.7	2,678.7	2,678.7	6.0	53.6	58.25	17.5	-465.1	400.1	341.1	59.05	6.776			
2,800.0	2,788.6	2,775.6	2,775.6	6.4	55.5	61.44	17.5	-465.1	387.5	326.2	61.31	6.320			
2,900.0	2,884.9	2,871.8	2,871.8	6.8	57.4	65.15	17.5	-465.1	374.9	311.3	63.66	5.890			
3,000.0	2,980.4	2,967.3	2,967.3	7.2	59.3	69.40	17.5	-465.1	363.0	296.9	66.09	5.492			
3,100.0	3,075.0	3,062.0	3,062.0	7.7	61.2	74.21	17.5	-465.1	352.5	283.8	68.62	5.136			
3,200.0	3,168.9	3,155.9	3,155.9	8.3	63.1	79.55	17.5	-465.1	344.1	272.9	71.22	4.832			
3,258.2	3,223.0	3,210.0	3,210.0	8.6	64.2	82.89	17.5	-465.1	340.6	267.9	72.75	4.682			
3,300.0	3,261.8	3,248.8	3,248.8	8.9	65.0	85.31	17.5	-465.1	338.9	265.1	73.83	4.590			
3,380.0	3,336.1	3,323.1	3,323.1	9.4	66.5	90.00	17.5	-465.1	337.6	261.7	75.87	4.449			
3,400.0	3,354.6	3,341.6	3,341.6	9.5	66.8	91.17	17.5	-465.1	337.7	261.3	76.37	4.421			
3,500.0	3,447.4	3,434.4	3,434.4	10.2	68.7	97.00	17.5	-465.1	340.5	261.8	78.78	4.322			
3,600.0	3,540.2	3,527.2	3,527.2	10.9	70.5	102.69	17.5	-465.1	347.4	266.3	81.05	4.286			
3,700.0	3,633.0	3,620.0	3,620.0	11.6	72.4	108.14	17.5	-465.1	358.0	274.8	83.17	4.304			
3,800.0	3,725.8	3,712.8	3,712.8	12.3	74.3	113.27	17.5	-465.1	372.1	286.9	85.17	4.369			
3,900.0	3,818.6	3,805.6	3,805.6	13.0	76.1	118.04	17.5	-465.1	389.2	302.2	87.06	4.471			
4,000.0	3,911.4	3,898.4	3,898.4	13.7	78.0	122.41	17.5	-465.1	409.0	320.2	88.88	4.602			
4,100.0	4,004.2	3,991.2	3,991.2	14.4	79.8	126.40	17.5	-465.1	431.2	340.5	90.64	4.757			
4,200.0	4,097.0	4,084.0	4,084.0	15.1	81.7	130.02	17.5	-465.1	455.3	362.9	92.37	4.929			
4,300.0	4,189.8	4,176.8	4,176.8	15.8	83.5	133.29	17.5	-465.1	481.1	387.0	94.09	5.113			
4,400.0	4,282.6	4,269.6	4,269.6	16.6	85.4	136.25	17.5	-465.1	508.3	412.5	95.81	5.305			
4,500.0	4,375.4	4,362.4	4,362.4	17.3	87.2	138.92	17.5	-465.1	536.7	439.2	97.54	5.502			
4,600.0	4,468.2	4,455.2	4,455.2	18.1	89.1	141.33	17.5	-465.1	566.2	466.9	99.28	5.703			
4,700.0	4,561.0	4,548.0	4,548.0	18.8	91.0	143.51	17.5	-465.1	596.5	495.4	101.04	5.904			
4,800.0	4,653.8	4,640.8	4,640.8	19.5	92.8	145.49	17.5	-465.1	627.5	524.7	102.81	6.104			

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 71-201
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 71-201	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 (9-8-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Existing Wells - Sec.7-T5N-R64W - Dunn #1 (Exist.) - Wellbore #1 - Wellbore #1													Offset Well Error:	0.0 ft
Survey Program: 6990-UNKNOWN														
Reference				Offset			Semi Major Axis			Distance				
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Tooface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
4,885.0	4,732.7	4,719.7	4,719.7	20.2	94.4	147.02	17.5	-465.1	654.5	550.1	104.33	6.273		
4,900.0	4,746.7	4,733.7	4,733.7	20.3	94.7	147.34	17.5	-465.1	659.2	554.5	104.71	6.295		
5,000.0	4,840.3	4,827.3	4,827.3	20.8	96.5	149.21	17.5	-465.1	689.6	582.3	107.29	6.428		
5,100.0	4,935.1	4,922.1	4,922.1	21.3	98.4	150.78	17.5	-465.1	717.6	607.6	109.93	6.527		
5,200.0	5,030.9	5,017.9	5,017.9	21.8	100.4	152.09	17.5	-465.1	742.9	630.3	112.62	6.597		
5,300.0	5,127.7	5,114.7	5,114.7	22.2	102.3	153.18	17.5	-465.1	765.4	650.1	115.30	6.638		
5,400.0	5,225.3	5,212.3	5,212.3	22.6	104.2	154.07	17.5	-465.1	785.0	667.0	117.95	6.655		
5,500.0	5,323.6	5,310.6	5,310.6	22.9	106.2	154.78	17.5	-465.1	801.6	681.0	120.56	6.649		
5,600.0	5,422.5	5,409.5	5,409.5	23.2	108.2	155.34	17.5	-465.1	815.1	692.0	123.10	6.622		
5,700.0	5,521.8	5,508.8	5,508.8	23.5	110.2	155.76	17.5	-465.1	825.5	700.0	125.54	6.576		
5,800.0	5,621.5	5,608.5	5,608.5	23.7	112.2	156.05	17.5	-465.1	832.8	704.9	127.89	6.512		
5,900.0	5,721.4	5,708.4	5,708.4	23.8	114.2	156.20	17.5	-465.1	836.9	706.8	130.13	6.432		
5,978.6	5,800.0	5,787.0	5,787.0	23.9	115.7	21.89	17.5	-465.1	837.9	706.1	131.79	6.358		
6,000.0	5,821.4	5,808.4	5,808.4	24.0	116.2	21.89	17.5	-465.1	837.9	705.7	132.25	6.336		
6,100.0	5,921.4	5,908.4	5,908.4	24.1	118.2	21.89	17.5	-465.1	837.9	703.5	134.41	6.234		
6,162.5	5,983.8	5,970.8	5,970.8	24.1	119.4	21.89	17.5	-465.1	837.9	702.1	135.76	6.172		
6,200.0	6,021.3	6,008.3	6,008.3	24.2	120.2	21.94	17.5	-465.1	837.1	700.7	136.31	6.141		
6,250.0	6,071.2	6,058.2	6,058.2	24.2	121.2	22.15	17.5	-465.1	833.3	696.7	136.56	6.102		
6,300.0	6,120.6	6,107.6	6,107.6	24.2	122.2	22.54	17.5	-465.1	826.5	690.2	136.26	6.065		
6,350.0	6,169.5	6,156.5	6,156.5	24.1	123.1	23.12	17.5	-465.1	816.7	681.3	135.43	6.030		
6,400.0	6,217.6	6,204.5	6,204.5	24.1	124.1	23.89	17.5	-465.1	804.0	669.9	134.09	5.996		
6,450.0	6,264.6	6,251.6	6,251.6	24.0	125.0	24.89	17.5	-465.1	788.5	656.2	132.30	5.960		
6,500.0	6,310.5	6,297.5	6,297.5	23.9	125.9	26.15	17.5	-465.1	770.3	640.2	130.12	5.920		
6,550.0	6,355.0	6,341.9	6,341.9	23.7	126.8	27.69	17.5	-465.1	749.5	621.8	127.68	5.870		
6,600.0	6,397.8	6,384.8	6,384.8	23.6	127.7	29.56	17.5	-465.1	726.2	601.1	125.14	5.803		
6,650.0	6,438.9	6,425.9	6,425.9	23.4	128.5	31.81	17.5	-465.1	700.6	577.9	122.73	5.709		
6,700.0	6,478.1	6,465.1	6,465.1	23.2	129.3	34.51	17.5	-465.1	673.0	552.2	120.75	5.573		
6,750.0	6,515.1	6,502.1	6,502.1	23.0	130.0	37.71	17.5	-465.1	643.4	523.8	119.58	5.381		
6,800.0	6,549.9	6,536.9	6,536.9	22.8	130.7	41.47	17.5	-465.1	612.3	492.6	119.61	5.119		
6,850.0	6,582.2	6,569.2	6,569.2	22.6	131.4	45.82	17.5	-465.1	579.8	458.6	121.17	4.785		
6,900.0	6,612.0	6,599.0	6,599.0	22.3	132.0	50.77	17.5	-465.1	546.4	422.0	124.37	4.394		
6,950.0	6,639.1	6,626.1	6,626.1	22.1	132.5	56.24	17.5	-465.1	512.5	383.5	128.95	3.974		
7,000.0	6,663.4	6,650.4	6,650.4	21.9	133.0	62.07	17.5	-465.1	478.6	344.3	134.34	3.563		
7,050.0	6,684.7	6,671.7	6,671.7	21.7	133.4	68.00	17.5	-465.1	445.3	305.6	139.71	3.188		
7,100.0	6,703.1	6,690.1	6,690.1	21.4	133.8	73.72	17.5	-465.1	413.5	269.2	144.31	2.865		
7,150.0	6,718.4	6,705.4	6,705.4	21.2	134.1	78.90	17.5	-465.1	384.0	236.3	147.71	2.600		
7,200.0	6,730.6	6,717.5	6,717.5	21.1	134.4	83.27	17.5	-465.1	358.0	208.1	149.87	2.389		
7,250.0	6,739.5	6,726.5	6,726.5	20.9	134.5	86.63	17.5	-465.1	336.7	185.7	151.03	2.230		
7,300.0	6,745.2	6,732.2	6,732.2	20.7	134.6	88.86	17.5	-465.1	321.5	170.0	151.58	2.121		
7,350.0	6,747.7	6,734.7	6,734.7	20.6	134.7	89.92	17.5	-465.1	313.5	161.7	151.84	2.065		
7,364.5	6,747.8	6,734.8	6,734.8	20.5	134.7	90.01	17.5	-465.1	312.7	160.8	151.89	2.058		
7,376.0	6,747.7	6,734.7	6,734.7	20.5	134.7	90.00	17.5	-465.1	312.4	160.5	151.92	2.057	CC, ES, SF	
7,400.0	6,747.7	6,734.7	6,734.7	20.5	134.7	89.99	17.5	-465.1	313.4	161.4	152.00	2.062		
7,500.0	6,747.4	6,734.4	6,734.4	20.4	134.7	89.94	17.5	-465.1	336.2	183.7	152.47	2.205		
7,600.0	6,747.1	6,734.1	6,734.1	20.6	134.7	89.89	17.5	-465.1	384.4	231.3	153.12	2.511		
7,700.0	6,746.9	6,733.9	6,733.9	21.2	134.7	89.84	17.5	-465.1	450.1	296.2	153.95	2.924		
7,800.0	6,746.6	6,733.6	6,733.6	22.0	134.7	89.80	17.5	-465.1	526.7	371.8	154.92	3.400		
7,900.0	6,746.4	6,733.3	6,733.3	23.1	134.7	89.75	17.5	-465.1	610.1	454.1	156.02	3.910		
8,000.0	6,746.1	6,733.1	6,733.1	24.3	134.7	89.70	17.5	-465.1	697.9	540.6	157.22	4.439		
8,100.0	6,745.8	6,732.8	6,732.8	25.6	134.7	89.65	17.5	-465.1	788.5	630.0	158.53	4.974		
8,200.0	6,745.6	6,732.6	6,732.6	26.9	134.7	89.60	17.5	-465.1	881.2	721.3	159.91	5.511		

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 71-201
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 71-201	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 (9-8-15)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Existing Wells - Sec.7-T5N-R64W - Dunn #1 (Exist.) - Wellbore #1 - Wellbore #1												Offset Well Error:	0.0 ft
Survey Program: 6990-UNKNOWN													
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
8,300.0	6,745.3	6,732.3	6,732.3	28.4	134.6	89.56	17.5	-465.1	975.4	814.0	161.35	6.045	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 71-201
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 71-201	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 (9-8-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft		
Survey Program: 71125-UNKNOWN													Existing Wells - Sec.7-T5N-R64W - Dunn #13-7 (Exist.) - Wellbore #1 - Wellbore #1		Offset Well Error:	0.0 ft
Reference				Offset			Semi Major Axis			Distance				Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor				
7,500.0	6,747.4	6,732.4	6,732.4	20.4	134.6	90.63	1,108.6	-548.0	994.0	841.5	152.46	6.519				
7,600.0	6,747.1	6,732.1	6,732.1	20.6	134.6	90.57	1,108.6	-548.0	897.0	743.8	153.12	5.858				
7,700.0	6,746.9	6,731.9	6,731.9	21.2	134.6	90.50	1,108.6	-548.0	800.7	646.8	153.94	5.201				
7,800.0	6,746.6	6,731.6	6,731.6	22.0	134.6	90.44	1,108.6	-548.0	705.5	550.6	154.92	4.554				
7,900.0	6,746.4	6,731.3	6,731.3	23.1	134.6	90.37	1,108.6	-548.0	611.8	455.8	156.02	3.921				
8,000.0	6,746.1	6,731.1	6,731.1	24.3	134.6	90.31	1,108.6	-548.0	520.4	363.2	157.22	3.310				
8,100.0	6,745.8	6,730.8	6,730.8	25.6	134.6	90.24	1,108.6	-548.0	432.9	274.4	158.53	2.731				
8,200.0	6,745.6	6,730.6	6,730.6	26.9	134.6	90.17	1,108.6	-548.0	352.2	192.2	159.90	2.202				
8,300.0	6,745.3	6,730.3	6,730.3	28.4	134.6	90.11	1,108.6	-548.0	283.9	122.5	161.35	1.759				
8,400.0	6,745.0	6,730.0	6,730.0	29.8	134.6	90.04	1,108.6	-548.0	239.1	76.2	162.85	1.468	Level 3			
8,467.1	6,744.9	6,729.9	6,729.9	30.9	134.6	90.00	1,108.6	-548.0	229.5	65.6	163.89	1.400	Level 3, CC, ES, SF			
8,500.0	6,744.8	6,729.8	6,729.8	31.4	134.6	89.98	1,108.6	-548.0	231.8	67.4	164.40	1.410	Level 3			
8,600.0	6,744.5	6,729.5	6,729.5	32.9	134.6	89.91	1,108.6	-548.0	265.2	99.2	165.99	1.598				
8,700.0	6,744.3	6,729.3	6,729.3	34.5	134.6	89.85	1,108.6	-548.0	326.9	159.3	167.61	1.951				
8,800.0	6,744.0	6,729.0	6,729.0	36.1	134.6	89.78	1,108.6	-548.0	404.3	235.1	169.26	2.389				
8,900.0	6,743.7	6,728.7	6,728.7	37.8	134.6	89.72	1,108.6	-548.0	489.9	319.0	170.94	2.866				
9,000.0	6,743.5	6,728.5	6,728.5	39.5	134.6	89.65	1,108.6	-548.0	580.2	407.6	172.64	3.361				
9,100.0	6,743.2	6,728.2	6,728.2	41.2	134.6	89.59	1,108.6	-548.0	673.2	498.8	174.36	3.861				
9,200.0	6,743.0	6,727.9	6,727.9	42.9	134.6	89.52	1,108.6	-548.0	768.0	591.9	176.09	4.361				
9,300.0	6,742.7	6,727.7	6,727.7	44.6	134.6	89.46	1,108.6	-548.0	863.9	686.1	177.84	4.858				
9,400.0	6,742.4	6,727.4	6,727.4	46.3	134.5	89.39	1,108.6	-548.0	960.7	781.1	179.60	5.349				

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 71-201
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 71-201	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 (9-8-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 7090-UNKNOWN Existing Wells - Sec.7-T5N-R64W - Law #44-12 (Exist.) - Wellbore #1 - Wellbore #1													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)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
6,450.0	6,264.6	6,251.6	6,251.6	24.0	125.0	-68.17	-313.3	-1,690.4	994.0	847.8	146.19	6.799		
6,500.0	6,310.5	6,297.5	6,297.5	23.9	125.9	-69.71	-313.3	-1,690.4	986.3	839.8	146.50	6.732		
6,550.0	6,355.0	6,341.9	6,341.9	23.7	126.8	-71.45	-313.3	-1,690.4	977.9	831.1	146.82	6.661		
6,600.0	6,397.8	6,384.8	6,384.8	23.6	127.7	-73.35	-313.3	-1,690.4	969.0	821.8	147.18	6.584		
6,650.0	6,438.9	6,425.9	6,425.9	23.4	128.5	-75.39	-313.3	-1,690.4	959.8	812.2	147.59	6.503		
6,700.0	6,478.1	6,465.1	6,465.1	23.2	129.3	-77.51	-313.3	-1,690.4	950.7	802.6	148.05	6.422		
6,750.0	6,515.1	6,502.1	6,502.1	23.0	130.0	-79.66	-313.3	-1,690.4	941.9	793.3	148.53	6.341		
6,800.0	6,549.9	6,536.9	6,536.9	22.8	130.7	-81.80	-313.3	-1,690.4	933.7	784.7	149.02	6.266		
6,850.0	6,582.2	6,569.2	6,569.2	22.6	131.4	-83.87	-313.3	-1,690.4	926.4	777.0	149.47	6.198		
6,900.0	6,612.0	6,599.0	6,599.0	22.3	132.0	-85.81	-313.3	-1,690.4	920.5	770.6	149.86	6.142		
6,950.0	6,639.1	6,626.1	6,626.1	22.1	132.5	-87.57	-313.3	-1,690.4	916.0	765.9	150.17	6.100		
7,000.0	6,663.4	6,650.4	6,650.4	21.9	133.0	-89.09	-313.3	-1,690.4	913.5	763.1	150.41	6.073		
7,035.3	6,678.8	6,665.8	6,665.8	21.7	133.3	-90.00	-313.3	-1,690.4	912.9	762.4	150.55	6.064	CC, ES	
7,050.0	6,684.7	6,671.7	6,671.7	21.7	133.4	-90.33	-313.3	-1,690.4	913.0	762.4	150.59	6.063	SF	
7,100.0	6,703.1	6,690.1	6,690.1	21.4	133.8	-91.27	-313.3	-1,690.4	914.9	764.1	150.74	6.069		
7,150.0	6,718.4	6,705.4	6,705.4	21.2	134.1	-91.85	-313.3	-1,690.4	919.2	768.3	150.90	6.092		
7,200.0	6,730.6	6,717.5	6,717.5	21.1	134.4	-92.07	-313.3	-1,690.4	926.1	775.1	151.08	6.130		
7,250.0	6,739.5	6,726.5	6,726.5	20.9	134.5	-91.89	-313.3	-1,690.4	935.7	784.4	151.30	6.184		
7,300.0	6,745.2	6,732.2	6,732.2	20.7	134.6	-91.31	-313.3	-1,690.4	947.8	796.3	151.56	6.254		
7,350.0	6,747.7	6,734.7	6,734.7	20.6	134.7	-90.31	-313.3	-1,690.4	962.4	810.6	151.82	6.339		
7,364.5	6,747.8	6,734.8	6,734.8	20.5	134.7	-89.95	-313.3	-1,690.4	967.1	815.2	151.89	6.367		
7,400.0	6,747.7	6,734.7	6,734.7	20.5	134.7	-89.94	-313.3	-1,690.4	979.4	827.4	152.01	6.443		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 71-201
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 71-201	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 (9-8-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 7000-UNKNOWN Existing Wells - Sec.7-T5N-R64W - Law #9-12 (Exist.) - Wellbore #1 - Wellbore #1													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
8,100.0	6,745.8	6,711.8	6,711.8	25.6	134.2	-90.08	1,178.2	-1,641.0	967.7	809.6	158.13	6.120		
8,200.0	6,745.6	6,711.6	6,711.6	26.9	134.2	-90.06	1,178.2	-1,641.0	926.9	767.4	159.51	5.811		
8,300.0	6,745.3	6,711.3	6,711.3	28.4	134.2	-90.04	1,178.2	-1,641.0	895.4	734.4	160.96	5.563		
8,400.0	6,745.0	6,711.0	6,711.0	29.8	134.2	-90.02	1,178.2	-1,641.0	874.3	711.8	162.47	5.381		
8,500.0	6,744.8	6,710.8	6,710.8	31.4	134.2	-90.01	1,178.2	-1,641.0	864.3	700.3	164.02	5.270		
8,536.8	6,744.7	6,710.7	6,710.7	31.9	134.2	-90.00	1,178.2	-1,641.0	863.5	698.9	164.61	5.246	CC, ES	
8,600.0	6,744.5	6,710.5	6,710.5	32.9	134.2	-89.99	1,178.2	-1,641.0	865.8	700.2	165.61	5.228	SF	
8,700.0	6,744.3	6,710.3	6,710.3	34.5	134.2	-89.97	1,178.2	-1,641.0	878.8	711.6	167.24	5.255		
8,800.0	6,744.0	6,710.0	6,710.0	36.1	134.2	-89.95	1,178.2	-1,641.0	902.8	733.9	168.90	5.345		
8,900.0	6,743.7	6,709.7	6,709.7	37.8	134.2	-89.94	1,178.2	-1,641.0	936.8	766.2	170.58	5.492		
9,000.0	6,743.5	6,709.5	6,709.5	39.5	134.2	-89.92	1,178.2	-1,641.0	979.9	807.7	172.29	5.688		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 71-201
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 71-201	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 (9-8-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 6998-UNKNOWN Existing Wells - Sec.7-T5N-R64W - Little Will #6 (P&A) - Wellbore #1 - Wellbore #1													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		
15,300.0	6,727.0	6,716.0	6,716.0	156.5	134.3	90.17	8,651.0	-140.6	953.5	663.1	290.35	3.284		
15,400.0	6,726.7	6,715.7	6,715.7	158.4	134.3	90.14	8,651.0	-140.6	881.6	589.3	292.25	3.017		
15,500.0	6,726.5	6,715.5	6,715.5	160.3	134.3	90.12	8,651.0	-140.6	815.7	521.5	294.16	2.773		
15,600.0	6,726.2	6,715.2	6,715.2	162.2	134.3	90.10	8,651.0	-140.6	757.2	461.2	296.06	2.558		
15,700.0	6,725.9	6,714.9	6,714.9	164.1	134.3	90.07	8,651.0	-140.6	708.2	410.2	297.96	2.377		
15,800.0	6,725.7	6,714.7	6,714.7	166.0	134.3	90.05	8,651.0	-140.6	670.5	370.6	299.87	2.236		
15,900.0	6,725.4	6,714.4	6,714.4	167.9	134.3	90.03	8,651.0	-140.6	646.3	344.5	301.77	2.142		
16,000.0	6,725.2	6,714.1	6,714.1	169.8	134.3	90.00	8,651.0	-140.6	637.0	333.3	303.68	2.098		
16,009.5	6,725.1	6,714.1	6,714.1	170.0	134.3	90.00	8,651.0	-140.6	636.9	333.1	303.86	2.096	CC, ES, SF	
16,100.0	6,724.9	6,713.9	6,713.9	171.7	134.3	89.98	8,651.0	-140.6	643.3	337.7	305.58	2.105		
16,200.0	6,724.6	6,713.6	6,713.6	173.6	134.3	89.96	8,651.0	-140.6	664.8	357.3	307.49	2.162		
16,300.0	6,724.4	6,713.4	6,713.4	175.5	134.3	89.93	8,651.0	-140.6	700.0	390.6	309.39	2.263		
16,400.0	6,724.1	6,713.1	6,713.1	177.4	134.3	89.91	8,651.0	-140.6	747.1	435.8	311.30	2.400		
16,500.0	6,723.8	6,712.8	6,712.8	179.3	134.3	89.88	8,651.0	-140.6	803.9	490.7	313.20	2.567		
16,600.0	6,723.6	6,712.6	6,712.6	181.2	134.3	89.86	8,651.0	-140.6	868.5	553.4	315.11	2.756		
16,700.0	6,723.3	6,712.3	6,712.3	183.1	134.2	89.84	8,651.0	-140.6	939.4	622.4	317.01	2.963		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 71-201
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 71-201	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 (9-8-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 7160-UNKNOWN Existing Wells - Sec.7-T5N-R64W - Loustalet #42-12 (Exist.) - Wellbore #1 - Wellbore #1													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)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
9,200.0	6,743.0	6,707.9	6,707.9	42.9	134.2	-90.08	2,322.9	-1,642.9	990.3	814.6	175.72	5.636		
9,300.0	6,742.7	6,707.7	6,707.7	44.6	134.2	-90.07	2,322.9	-1,642.9	945.7	768.3	177.48	5.329		
9,400.0	6,742.4	6,707.4	6,707.4	46.3	134.1	-90.05	2,322.9	-1,642.9	910.0	730.8	179.24	5.077		
9,500.0	6,742.2	6,707.2	6,707.2	48.1	134.1	-90.03	2,322.9	-1,642.9	884.2	703.2	181.02	4.884		
9,600.0	6,741.9	6,706.9	6,706.9	49.8	134.1	-90.01	2,322.9	-1,642.9	869.2	686.4	182.82	4.755		
9,681.4	6,741.7	6,706.7	6,706.7	51.3	134.1	-90.00	2,322.9	-1,642.9	865.4	681.1	184.28	4.696 CC		
9,700.0	6,741.6	6,706.6	6,706.6	51.6	134.1	-90.00	2,322.9	-1,642.9	865.6	681.0	184.62	4.689 ES		
9,800.0	6,741.4	6,706.4	6,706.4	53.4	134.1	-89.98	2,322.9	-1,642.9	873.5	687.1	186.42	4.685 SF		
9,900.0	6,741.1	6,706.1	6,706.1	55.2	134.1	-89.96	2,322.9	-1,642.9	892.6	704.3	188.24	4.742		
10,000.0	6,740.9	6,705.9	6,705.9	57.0	134.1	-89.94	2,322.9	-1,642.9	922.2	732.1	190.06	4.852		
10,100.0	6,740.6	6,705.6	6,705.6	58.8	134.1	-89.93	2,322.9	-1,642.9	961.3	769.4	191.89	5.010		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 71-201
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 71-201	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 (9-8-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 7000-UNKNOWN Existing Wells - Sec.7-T5N-R64W - Mitani #1 (Exist.) - Wellbore #1 - Wellbore #1													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		
12,900.0	6,733.3	6,705.3	6,705.3	110.9	134.1	90.16	6,248.7	-101.1	978.7	734.2	244.43	4.004		
13,000.0	6,733.0	6,705.0	6,705.0	112.8	134.1	90.13	6,248.7	-101.1	909.0	662.7	246.32	3.690		
13,100.0	6,732.7	6,704.7	6,704.7	114.7	134.1	90.11	6,248.7	-101.1	845.5	597.3	248.21	3.406		
13,200.0	6,732.5	6,704.5	6,704.5	116.6	134.1	90.09	6,248.7	-101.1	789.6	539.5	250.11	3.157		
13,300.0	6,732.2	6,704.2	6,704.2	118.5	134.1	90.07	6,248.7	-101.1	743.0	491.0	252.00	2.948		
13,400.0	6,732.0	6,704.0	6,704.0	120.4	134.1	90.05	6,248.7	-101.1	707.5	453.6	253.89	2.787		
13,500.0	6,731.7	6,703.7	6,703.7	122.3	134.1	90.02	6,248.7	-101.1	684.9	429.1	255.79	2.678		
13,600.0	6,731.4	6,703.4	6,703.4	124.2	134.1	90.00	6,248.7	-101.1	676.5	418.8	257.69	2.625		
13,607.2	6,731.4	6,703.4	6,703.4	124.3	134.1	90.00	6,248.7	-101.1	676.4	418.6	257.82	2.624	CC, ES, SF	
13,700.0	6,731.2	6,703.2	6,703.2	126.0	134.1	89.98	6,248.7	-101.1	682.8	423.2	259.58	2.630		
13,800.0	6,730.9	6,702.9	6,702.9	127.9	134.1	89.96	6,248.7	-101.1	703.4	441.9	261.48	2.690		
13,900.0	6,730.7	6,702.6	6,702.6	129.8	134.1	89.94	6,248.7	-101.1	737.1	473.7	263.38	2.799		
14,000.0	6,730.4	6,702.4	6,702.4	131.7	134.0	89.91	6,248.7	-101.1	782.2	516.9	265.28	2.949		
14,100.0	6,730.1	6,702.1	6,702.1	133.6	134.0	89.89	6,248.7	-101.1	836.9	569.7	267.17	3.132		
14,200.0	6,729.9	6,701.9	6,701.9	135.5	134.0	89.87	6,248.7	-101.1	899.4	630.3	269.07	3.343		
14,300.0	6,729.6	6,701.6	6,701.6	137.4	134.0	89.85	6,248.7	-101.1	968.3	697.3	270.97	3.573		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 71-201
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 71-201	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 (9-8-15)	Offset TVD Reference:	Offset Datum

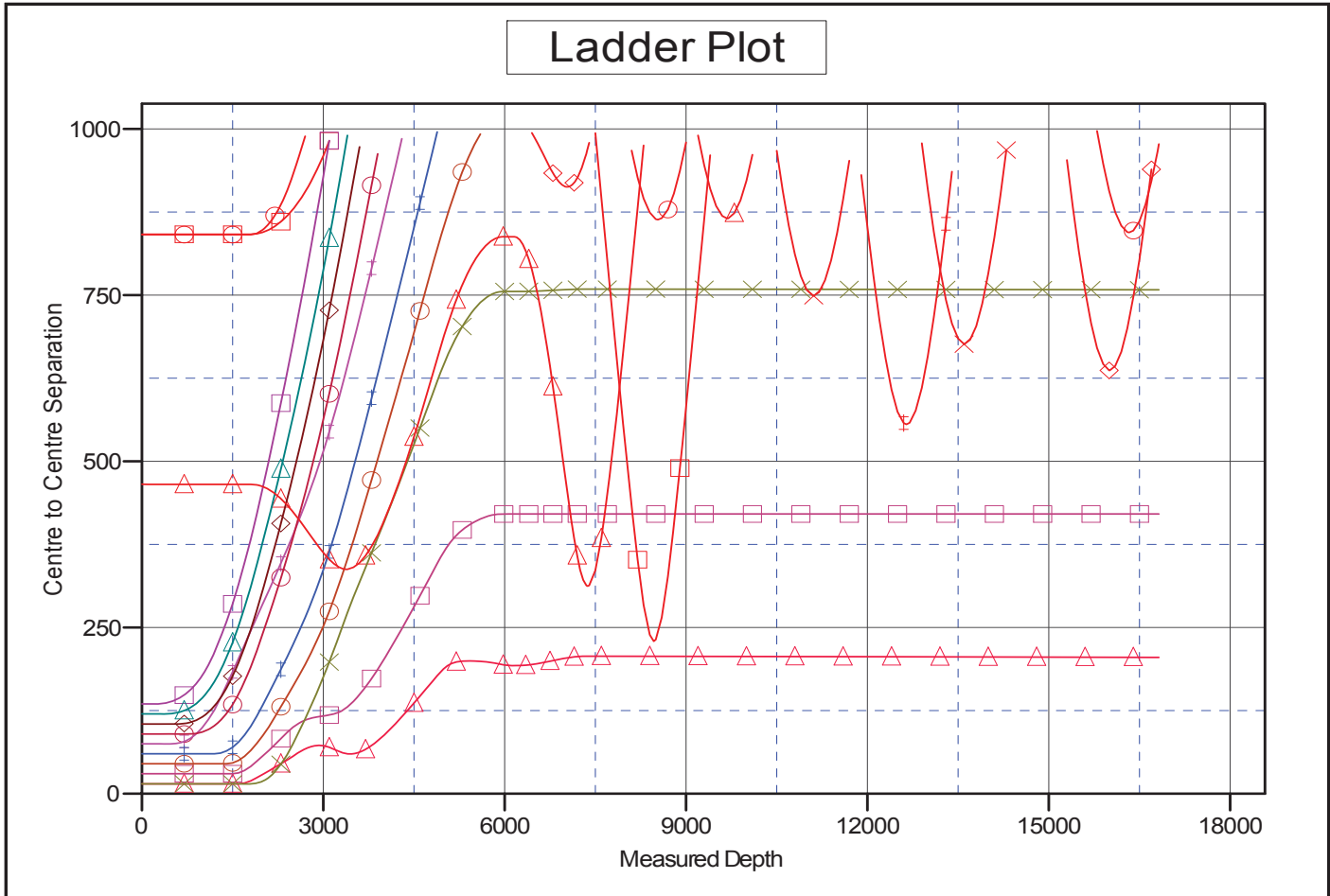
Offset Design													Offset Site Error:	0.0 ft		
Survey Program: 7032-UNKNOWN													Existing Wells - Sec.7-T5N-R64W - Mitani #14-6 (Exist.) - Wellbore #1 - Wellbore #1		Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							Warning			
Measured Depth (ft)	Vertical Depth (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				
11,900.0	6,735.9	6,697.9	6,697.9	92.1	134.0	90.20	5,288.4	-221.9	930.9	705.5	225.35	4.131				
12,000.0	6,735.6	6,697.6	6,697.6	94.0	134.0	90.17	5,288.4	-221.9	852.7	625.5	227.23	3.753				
12,100.0	6,735.4	6,697.4	6,697.4	95.8	133.9	90.15	5,288.4	-221.9	779.6	550.5	229.12	3.403				
12,200.0	6,735.1	6,697.1	6,697.1	97.7	133.9	90.12	5,288.4	-221.9	713.0	482.0	231.00	3.087				
12,300.0	6,734.8	6,696.8	6,696.8	99.6	133.9	90.09	5,288.4	-221.9	655.0	422.1	232.89	2.813				
12,400.0	6,734.6	6,696.6	6,696.6	101.5	133.9	90.07	5,288.4	-221.9	608.0	373.2	234.77	2.590				
12,500.0	6,734.3	6,696.3	6,696.3	103.4	133.9	90.04	5,288.4	-221.9	574.7	338.0	236.66	2.428				
12,600.0	6,734.1	6,696.0	6,696.0	105.2	133.9	90.01	5,288.4	-221.9	557.6	319.0	238.55	2.337				
12,646.9	6,733.9	6,695.9	6,695.9	106.1	133.9	90.00	5,288.4	-221.9	555.6	316.2	239.43	2.321	CC, ES, SF			
12,700.0	6,733.8	6,695.8	6,695.8	107.1	133.9	89.99	5,288.4	-221.9	558.1	317.7	240.44	2.321				
12,800.0	6,733.5	6,695.5	6,695.5	109.0	133.9	89.96	5,288.4	-221.9	576.3	334.0	242.33	2.378				
12,900.0	6,733.3	6,695.3	6,695.3	110.9	133.9	89.93	5,288.4	-221.9	610.5	366.3	244.22	2.500				
13,000.0	6,733.0	6,695.0	6,695.0	112.8	133.9	89.90	5,288.4	-221.9	658.3	412.2	246.11	2.675				
13,100.0	6,732.7	6,694.7	6,694.7	114.7	133.9	89.88	5,288.4	-221.9	716.9	468.9	248.00	2.891				
13,200.0	6,732.5	6,694.5	6,694.5	116.6	133.9	89.85	5,288.4	-221.9	784.0	534.1	249.89	3.137				
13,300.0	6,732.2	6,694.2	6,694.2	118.5	133.9	89.82	5,288.4	-221.9	857.5	605.7	251.79	3.405				
13,400.0	6,732.0	6,694.0	6,694.0	120.4	133.9	89.80	5,288.4	-221.9	935.9	682.2	253.68	3.689				

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 71-201
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 71-201	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 (9-8-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 7005-UNKNOWN Existing Wells - Sec.7-T5N-R64W - Noffsinger #1 (P&A) - Wellbore #1 - Wellbore #1													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		
15,800.0	6,725.7	6,721.7	6,721.7	166.0	134.4	-90.09	8,971.6	-1,621.9	997.0	697.0	300.00	3.323		
15,900.0	6,725.4	6,721.4	6,721.4	167.9	134.4	-90.08	8,971.6	-1,621.9	947.6	645.7	301.91	3.139		
16,000.0	6,725.2	6,721.1	6,721.1	169.8	134.4	-90.06	8,971.6	-1,621.9	906.6	602.8	303.81	2.984		
16,100.0	6,724.9	6,720.9	6,720.9	171.7	134.4	-90.04	8,971.6	-1,621.9	875.2	569.4	305.72	2.863		
16,200.0	6,724.6	6,720.6	6,720.6	173.6	134.4	-90.02	8,971.6	-1,621.9	854.3	546.7	307.63	2.777		
16,300.0	6,724.4	6,720.4	6,720.4	175.5	134.4	-90.01	8,971.6	-1,621.9	844.9	535.4	309.53	2.730		
16,330.2	6,724.3	6,720.3	6,720.3	176.1	134.4	-90.00	8,971.6	-1,621.9	844.4	534.2	310.11	2.723	CC, ES	
16,400.0	6,724.1	6,720.1	6,720.1	177.4	134.4	-89.99	8,971.6	-1,621.9	847.2	535.8	311.44	2.720	SF	
16,500.0	6,723.8	6,719.8	6,719.8	179.3	134.4	-89.97	8,971.6	-1,621.9	861.3	547.9	313.35	2.749		
16,600.0	6,723.6	6,719.6	6,719.6	181.2	134.4	-89.95	8,971.6	-1,621.9	886.4	571.2	315.26	2.812		
16,700.0	6,723.3	6,719.3	6,719.3	183.1	134.4	-89.93	8,971.6	-1,621.9	921.8	604.6	317.16	2.906		
16,800.0	6,723.1	6,719.0	6,719.0	185.1	134.4	-89.92	8,971.6	-1,621.9	966.3	647.2	319.07	3.028		
16,822.3	6,723.0	6,719.0	6,719.0	185.5	134.4	-89.91	8,971.6	-1,621.9	977.3	657.8	319.50	3.059		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 71-201
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 71-201	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 (9-8-15)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4638.0ft (Original Well Elev) Coordinates are relative to: Dunn 71-201
 Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
 Central Meridian is -105.500000 Grid Convergence at Surface is: 0.58°



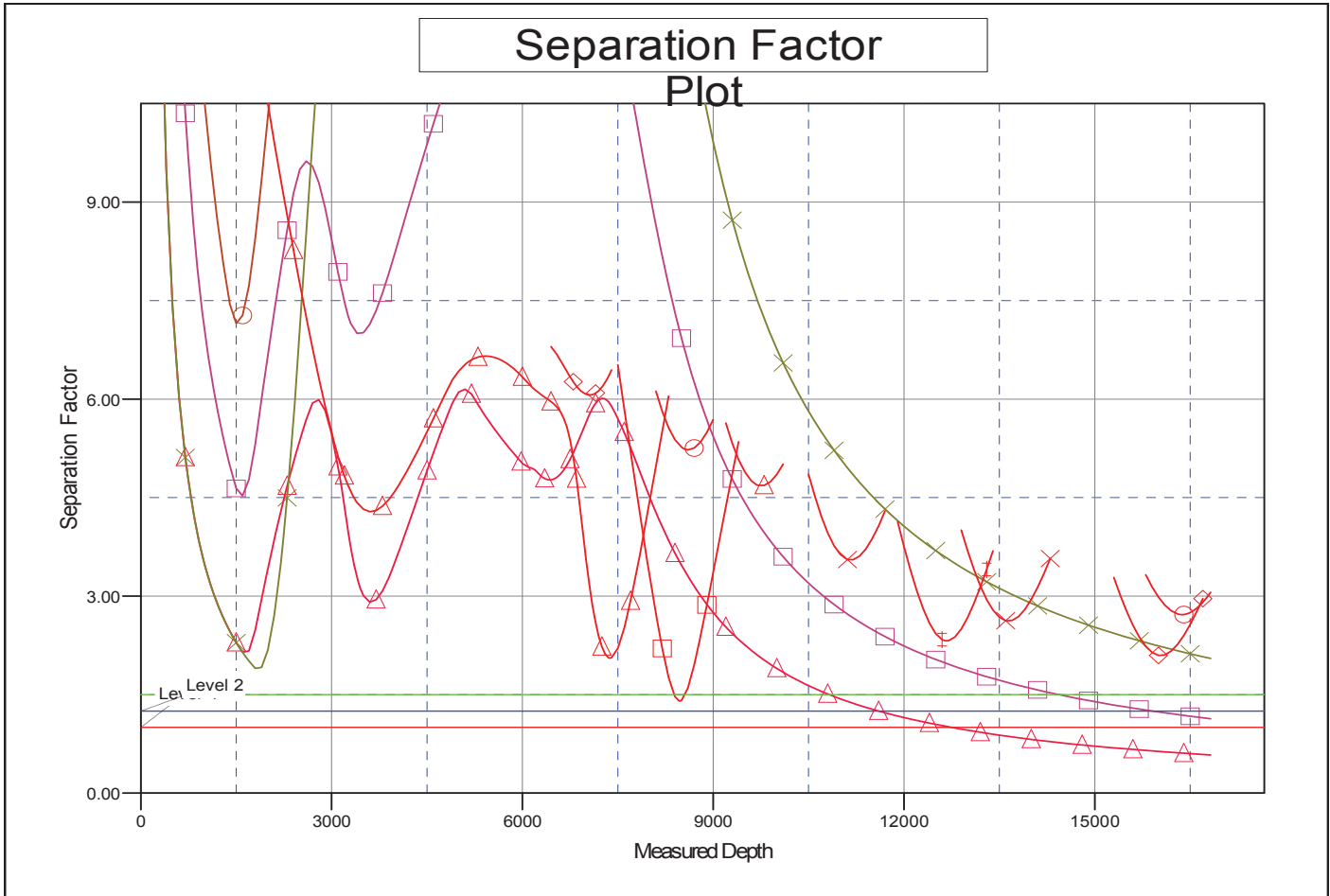
LEGEND

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|-----------------------------------|---|---|
| ist), Wellbore #1, Wellbore #1 V0 | ■ Dunn 7Q-221, Wellbore #1, Plan #1 (9-11-15) V0 | ✕ DPG Bird Farm #12-1H5 (Exist), Wellbore |
| L) Wellbore #1, Design #1 V0 | ◆ Dunn 7Q-241, Wellbore #1, Plan #1 (9-11-15) V0 | ▲ Loustalet #42-12 (Exist), Wellbore #1, Well |
| Wellbore #1, Plan #1 (9-10-15) V0 | ▲ Dunn 7Q-301, Wellbore #1, Plan #1 (9-11-15) V0 | ○ Law #9-12 (Exist), Wellbore #1, Wellbore # |
| Wellbore #1, Plan #1 (9-10-15) V0 | ○ Dunn 7Q-341, Wellbore #1, Plan #1 (9-11-15) V0 | □ Dunn #13-7 (Exist), Wellbore #1, Wellbore |
| Wellbore #1, Plan #1 (9-10-15) V0 | ○ Noffsinger #1 (P&A), Wellbore #1, Wellbore #1 V0 | ▲ Dunn #1 (Exist), Wellbore #1, Wellbore #1 |
| Wellbore #1, Plan #1 (9-10-15) V0 | ◆ Little Will #6 (P&A), Wellbore #1, Wellbore #1 V0 | ◆ Law #44-12 (Exist), Wellbore #1, Wellbore |
| Wellbore #1, Plan #1 (9-10-15) V0 | ✕ Mitani #1 (Exist), Wellbore #1, Wellbore #1 V0 | |
| Wellbore #1, Plan #1 (9-10-15) V0 | ✕ Mitani #14-6 (Exist), Wellbore #1, Wellbore #1 V0 | |

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 71-201
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 71-201	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 (9-8-15)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4638.0ft (Original Well Elev) Coordinates are relative to: Dunn 71-201
 Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
 Central Meridian is -105.500000 Grid Convergence at Surface is: 0.58°



LEGEND

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|-----------------------------------|---|---|
| ist), Wellbore #1, Wellbore #1 V0 | —■— Dunn 7Q-221, Wellbore #1, Plan #1 (9-11-15) V0 | —×— DPG Bird Farm #12-1H5 (Exist), Wellbore |
| L) Wellbore #1, Design #1 V0 | —◆— Dunn 7Q-241, Wellbore #1, Plan #1 (9-11-15) V0 | —▲— Loustalet #42-12 (Exist), Wellbore #1, Well |
| Wellbore #1, Plan #1 (9-10-15) V0 | —▲— Dunn 7Q-301, Wellbore #1, Plan #1 (9-11-15) V0 | —○— Law #9-12 (Exist), Wellbore #1, Wellbore # |
| Wellbore #1, Plan #1 (9-10-15) V0 | —○— Dunn 7Q-341, Wellbore #1, Plan #1 (9-11-15) V0 | —■— Dunn #13-7 (Exist), Wellbore #1, Wellbore |
| Wellbore #1, Plan #1 (9-10-15) V0 | —○— Noffsinger #1 (P&A), Wellbore #1, Wellbore #1 V0 | —▲— Dunn #1 (Exist), Wellbore #1, Wellbore #1 |
| Wellbore #1, Plan #1 (9-10-15) V0 | —◆— Little Will #6 (P&A), Wellbore #1, Wellbore #1 V0 | —◆— Law #44-12 (Exist), Wellbore #1, Wellbore |
| Wellbore #1, Plan #1 (9-10-15) V0 | —×— Mitani #1 (Exist), Wellbore #1, Wellbore #1 V0 | |
| Wellbore #1, Plan #1 (9-10-15) V0 | —×— Mitani #14-6 (Exist), Wellbore #1, Wellbore #1 V0 | |