

# PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Dunn 71-321**

Surface Location: Dunn 5N64W7 Pad Sec.7-T5N-R64W

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

Ground Elevation: 4625.0

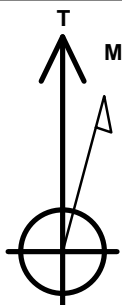
+N/-S +E/-W Northing Easting Latitude Longitude Slot

0.0 0.0 1392951.14 3251104.59 40.408548 -104.598272

Original Well Elev WELL @ 4638.0ft (Original Well Elev)

## WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 795'FSL & 981'FWL, Sec.7	1.0	0.0	0.0	Point
BHL 200'FNL & 368'FWL, Sec.6	6793.0	9480.6	-584.3	Point



Azimuths to True North  
Magnetic North: 8.20°

Magnetic Field  
Strength: 52705.7snT  
Dip Angle: 66.94°  
Date: 9/18/2015  
Model: IGRF2010

## ANNOTATIONS

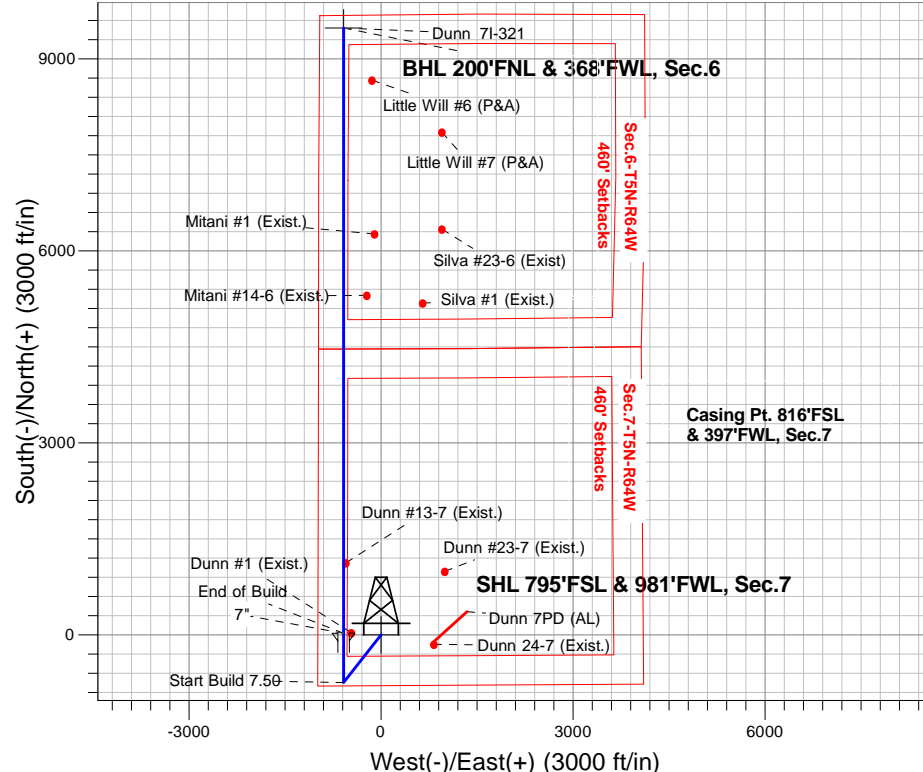
TVD	MD	Annotation
1600.0	1600.0	KOP - Start Build 1.50
5127.7	5236.6	Start Drop -2.00
5900.0	6018.6	Start 158.8 hold at 6018.6 MD
6058.8	6177.4	Start Build 7.50
6822.7	7379.8	End of Build
6793.0	16839.0	TD at 16839.0

Dunn 5N64W7 Pad Sec.7-T5N-R64W

Dunn 71-321

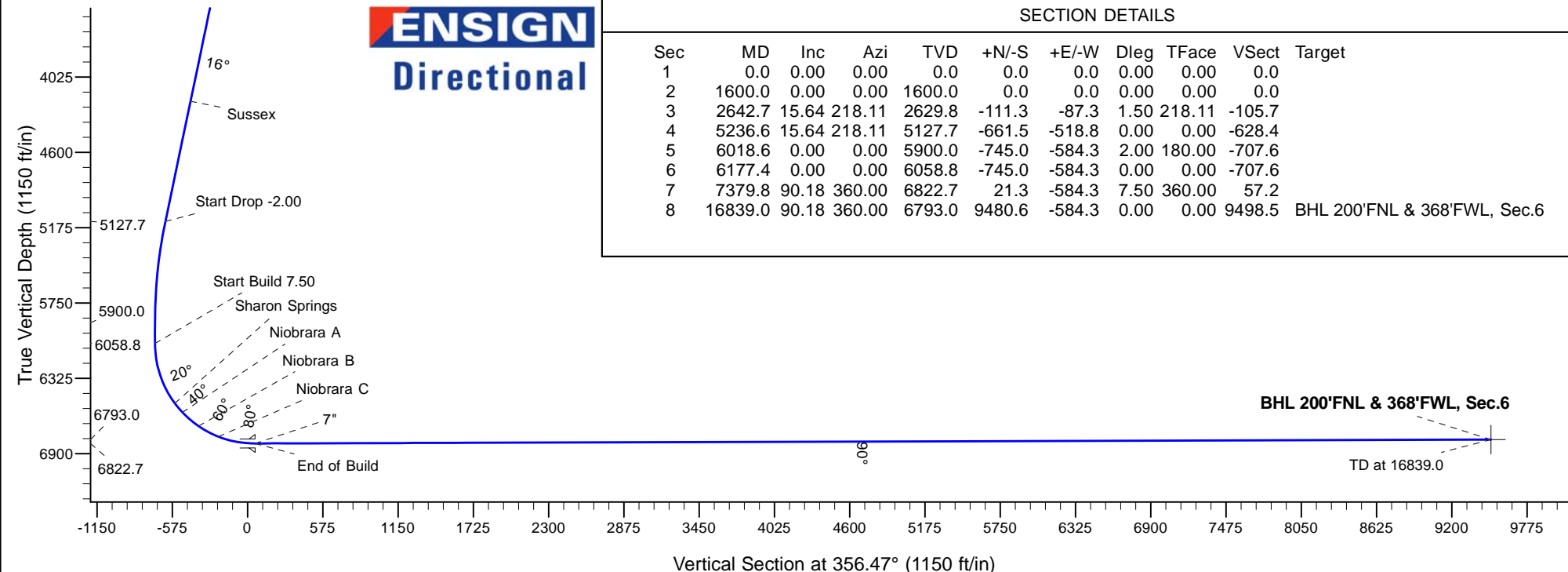
Plan #1 (9-10-15)

12:54, September 23 2015



## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1600.0	0.00	0.00	1600.0	0.0	0.0	0.00	0.00	0.0	
3	2642.7	15.64	218.11	2629.8	-111.3	-87.3	1.50	218.11	-105.7	
4	5236.6	15.64	218.11	5127.7	-661.5	-518.8	0.00	0.00	-628.4	
5	6018.6	0.00	0.00	5900.0	-745.0	-584.3	2.00	180.00	-707.6	
6	6177.4	0.00	0.00	6058.8	-745.0	-584.3	0.00	0.00	-707.6	
7	7379.8	90.18	360.00	6822.7	21.3	-584.3	7.50	360.00	57.2	
8	16839.0	90.18	360.00	6793.0	9480.6	-584.3	0.00	0.00	9498.5	BHL 200'FNL & 368'FWL, Sec.6





# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.7-T5N-R64W**

**Dunn 5N64W7 Pad Sec.7-T5N-R64W**

**Dunn 7I-321**

**Wellbore #1**

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

## **Standard Planning Report**

**23 September, 2015**

<b>Database:</b>	US_EDM	<b>Local Co-ordinate Reference:</b>	Well Dunn 71-321
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Project:</b>	SEC.7-T5N-R64W	<b>MD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Site:</b>	Dunn 5N64W7 Pad Sec.7-T5N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Dunn 71-321	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (9-10-15)		

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

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

<b>Well</b>	Dunn 71-321		
<b>Well Position</b>	<b>+N/-S</b>	-29.9 ft	<b>Northing:</b>
	<b>+E/-W</b>	-0.3 ft	<b>Easting:</b>
<b>Position Uncertainty</b>	0.0 ft	<b>Wellhead Elevation:</b>	0.0 ft
		<b>Latitude:</b>	40.408548
		<b>Longitude:</b>	-104.598272
		<b>Ground Level:</b>	4,625.0 ft

<b>Wellbore</b>	Wellbore #1		
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>
	IGRF2010	9/18/2015	8.20
			<b>Dip Angle (°)</b>
			66.94
			<b>Field Strength (nT)</b>
			52,706

<b>Design</b>	Plan #1 (9-10-15)		
<b>Audit Notes:</b>			
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>
			0.0
<b>Vertical Section:</b>	<b>Depth From (TVD)</b>	<b>+N/-S</b>	<b>+E/-W</b>
	(ft)	(ft)	(ft)
	0.0	0.0	0.0
			<b>Direction (°)</b>
			356.47

<b>Plan Sections</b>										
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>	<b>TFO (°)</b>	<b>Target</b>
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,642.7	15.64	218.11	2,629.8	-111.3	-87.3	1.50	1.50	0.00	218.11	
5,236.6	15.64	218.11	5,127.7	-661.5	-518.8	0.00	0.00	0.00	0.00	
6,018.6	0.00	0.00	5,900.0	-745.0	-584.3	2.00	-2.00	0.00	180.00	
6,177.4	0.00	0.00	6,058.8	-745.0	-584.3	0.00	0.00	0.00	0.00	
7,379.8	90.18	360.00	6,822.7	21.3	-584.3	7.50	7.50	0.00	360.00	
16,839.0	90.18	360.00	6,793.0	9,480.6	-584.3	0.00	0.00	0.00	0.00	BHL 200'FNL & 368'F

Database:	US_EDM	Local Co-ordinate Reference:	Well Dunn 71-321
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 71-321	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (9-10-15)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
1.0	0.00	0.00	1.0	0.0	0.0	0.0	0.00	0.00	0.00
SHL 795'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
KOP - Start Build 1.50									
1,700.0	1.50	218.11	1,700.0	-1.0	-0.8	-1.0	1.50	1.50	0.00
1,800.0	3.00	218.11	1,799.9	-4.1	-3.2	-3.9	1.50	1.50	0.00
1,900.0	4.50	218.11	1,899.7	-9.3	-7.3	-8.8	1.50	1.50	0.00
2,000.0	6.00	218.11	1,999.3	-16.5	-12.9	-15.6	1.50	1.50	0.00
2,100.0	7.50	218.11	2,098.6	-25.7	-20.2	-24.4	1.50	1.50	0.00
2,200.0	9.00	218.11	2,197.5	-37.0	-29.0	-35.1	1.50	1.50	0.00
2,300.0	10.50	218.11	2,296.1	-50.3	-39.5	-47.8	1.50	1.50	0.00
2,400.0	12.00	218.11	2,394.2	-65.7	-51.5	-62.4	1.50	1.50	0.00
2,500.0	13.50	218.11	2,491.7	-83.0	-65.1	-78.9	1.50	1.50	0.00
2,600.0	15.00	218.11	2,588.6	-102.4	-80.3	-97.3	1.50	1.50	0.00
2,642.7	15.64	218.11	2,629.8	-111.3	-87.3	-105.7	1.50	1.50	0.00
2,700.0	15.64	218.11	2,685.0	-123.4	-96.8	-117.3	0.00	0.00	0.00
2,800.0	15.64	218.11	2,781.3	-144.7	-113.5	-137.4	0.00	0.00	0.00
2,900.0	15.64	218.11	2,877.6	-165.9	-130.1	-157.6	0.00	0.00	0.00
3,000.0	15.64	218.11	2,973.9	-187.1	-146.7	-177.7	0.00	0.00	0.00
3,100.0	15.64	218.11	3,070.2	-208.3	-163.4	-197.9	0.00	0.00	0.00
3,200.0	15.64	218.11	3,166.5	-229.5	-180.0	-218.0	0.00	0.00	0.00
3,300.0	15.64	218.11	3,262.8	-250.7	-196.6	-238.2	0.00	0.00	0.00
3,400.0	15.64	218.11	3,359.1	-271.9	-213.3	-258.3	0.00	0.00	0.00
3,500.0	15.64	218.11	3,455.4	-293.1	-229.9	-278.4	0.00	0.00	0.00
3,536.0	15.64	218.11	3,490.0	-300.8	-235.9	-285.7	0.00	0.00	0.00
Parkman									
3,600.0	15.64	218.11	3,551.7	-314.4	-246.6	-298.6	0.00	0.00	0.00
3,700.0	15.64	218.11	3,648.0	-335.6	-263.2	-318.7	0.00	0.00	0.00
3,800.0	15.64	218.11	3,744.2	-356.8	-279.8	-338.9	0.00	0.00	0.00
3,900.0	15.64	218.11	3,840.5	-378.0	-296.5	-359.0	0.00	0.00	0.00
4,000.0	15.64	218.11	3,936.8	-399.2	-313.1	-379.2	0.00	0.00	0.00
4,100.0	15.64	218.11	4,033.1	-420.4	-329.7	-399.3	0.00	0.00	0.00
4,200.0	15.64	218.11	4,129.4	-441.6	-346.4	-419.5	0.00	0.00	0.00
4,283.7	15.64	218.11	4,210.0	-459.4	-360.3	-436.4	0.00	0.00	0.00
Sussex									
4,300.0	15.64	218.11	4,225.7	-462.9	-363.0	-439.6	0.00	0.00	0.00
4,400.0	15.64	218.11	4,322.0	-484.1	-379.7	-459.8	0.00	0.00	0.00

Database:	US_EDM	Local Co-ordinate Reference:	Well Dunn 71-321
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 71-321	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (9-10-15)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,500.0	15.64	218.11	4,418.3	-505.3	-396.3	-479.9	0.00	0.00	0.00
4,600.0	15.64	218.11	4,514.6	-526.5	-412.9	-500.1	0.00	0.00	0.00
4,700.0	15.64	218.11	4,610.9	-547.7	-429.6	-520.2	0.00	0.00	0.00
4,800.0	15.64	218.11	4,707.2	-568.9	-446.2	-540.4	0.00	0.00	0.00
4,900.0	15.64	218.11	4,803.5	-590.1	-462.8	-560.5	0.00	0.00	0.00
5,000.0	15.64	218.11	4,899.8	-611.3	-479.5	-580.7	0.00	0.00	0.00
5,100.0	15.64	218.11	4,996.1	-632.6	-496.1	-600.8	0.00	0.00	0.00
5,200.0	15.64	218.11	5,092.4	-653.8	-512.7	-621.0	0.00	0.00	0.00
5,236.6	15.64	218.11	5,127.7	-661.5	-518.8	-628.4	0.00	0.00	0.00
Start Drop -2.00									
5,300.0	14.37	218.11	5,188.9	-674.5	-529.0	-640.6	2.00	-2.00	0.00
5,400.0	12.37	218.11	5,286.2	-692.6	-543.2	-657.9	2.00	-2.00	0.00
5,500.0	10.37	218.11	5,384.2	-708.2	-555.4	-672.7	2.00	-2.00	0.00
5,600.0	8.37	218.11	5,482.9	-721.0	-565.5	-684.8	2.00	-2.00	0.00
5,700.0	6.37	218.11	5,582.0	-731.1	-573.4	-694.4	2.00	-2.00	0.00
5,800.0	4.37	218.11	5,681.6	-738.4	-579.2	-701.4	2.00	-2.00	0.00
5,900.0	2.37	218.11	5,781.4	-743.1	-582.8	-705.8	2.00	-2.00	0.00
6,000.0	0.37	218.11	5,881.4	-745.0	-584.3	-707.6	2.00	-2.00	0.00
6,018.6	0.00	218.11	5,900.0	-745.0	-584.3	-707.6	2.00	-2.00	0.00
Start 158.8 hold at 6018.6 MD									
6,100.0	0.00	0.00	5,981.4	-745.0	-584.3	-707.6	0.00	0.00	0.00
6,177.4	0.00	0.00	6,058.8	-745.0	-584.3	-707.6	0.00	0.00	0.00
Start Build 7.50									
6,200.0	1.70	360.00	6,081.4	-744.7	-584.3	-707.3	7.50	7.50	0.00
6,300.0	9.20	360.00	6,180.9	-735.2	-584.3	-697.8	7.50	7.50	0.00
6,400.0	16.70	360.00	6,278.2	-712.8	-584.3	-675.5	7.50	7.50	0.00
6,500.0	24.20	360.00	6,371.9	-677.9	-584.3	-640.7	7.50	7.50	0.00
6,600.0	31.70	360.00	6,460.2	-631.1	-584.3	-593.9	7.50	7.50	0.00
6,667.6	36.76	360.00	6,516.0	-593.1	-584.3	-556.0	7.50	7.50	0.00
Sharon Springs									
6,700.0	39.20	360.00	6,541.6	-573.1	-584.3	-536.1	7.50	7.50	0.00
6,757.9	43.54	360.00	6,585.0	-534.9	-584.3	-497.9	7.50	7.50	0.00
Niobrara A									
6,800.0	46.70	360.00	6,614.7	-505.0	-584.3	-468.1	7.50	7.50	0.00
6,900.0	54.20	360.00	6,678.3	-428.0	-584.3	-391.2	7.50	7.50	0.00
6,920.3	55.72	360.00	6,690.0	-411.4	-584.3	-374.6	7.50	7.50	0.00
Niobrara B									
7,000.0	61.70	360.00	6,731.4	-343.3	-584.3	-306.7	7.50	7.50	0.00
7,091.9	68.59	360.00	6,770.0	-259.9	-584.3	-223.5	7.50	7.50	0.00
Niobrara C									
7,100.0	69.20	360.00	6,772.9	-252.4	-584.3	-216.0	7.50	7.50	0.00
7,200.0	76.70	360.00	6,802.2	-156.9	-584.3	-120.6	7.50	7.50	0.00
7,300.0	84.20	360.00	6,818.8	-58.3	-584.3	-22.3	7.50	7.50	0.00
7,379.8	90.18	360.00	6,822.7	21.4	-584.3	57.3	7.50	7.50	0.00
End of Build - 7"									
7,400.0	90.18	360.00	6,822.7	41.6	-584.3	77.4	0.00	0.00	0.00
7,500.0	90.18	360.00	6,822.3	141.5	-584.3	177.2	0.00	0.00	0.00
7,600.0	90.18	360.00	6,822.0	241.5	-584.3	277.0	0.00	0.00	0.00
7,700.0	90.18	360.00	6,821.7	341.5	-584.3	376.8	0.00	0.00	0.00
7,800.0	90.18	360.00	6,821.4	441.5	-584.3	476.7	0.00	0.00	0.00
7,900.0	90.18	360.00	6,821.1	541.5	-584.3	576.5	0.00	0.00	0.00
8,000.0	90.18	360.00	6,820.8	641.5	-584.3	676.3	0.00	0.00	0.00

<b>Database:</b>	US_EDM	<b>Local Co-ordinate Reference:</b>	Well Dunn 71-321
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Project:</b>	SEC.7-T5N-R64W	<b>MD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Site:</b>	Dunn 5N64W7 Pad Sec.7-T5N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Dunn 71-321	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (9-10-15)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,100.0	90.18	360.00	6,820.5	741.5	-584.3	776.1	0.00	0.00	0.00
8,200.0	90.18	360.00	6,820.1	841.5	-584.3	875.9	0.00	0.00	0.00
8,300.0	90.18	360.00	6,819.8	941.5	-584.3	975.7	0.00	0.00	0.00
8,400.0	90.18	360.00	6,819.5	1,041.5	-584.3	1,075.5	0.00	0.00	0.00
8,500.0	90.18	360.00	6,819.2	1,141.5	-584.3	1,175.3	0.00	0.00	0.00
8,600.0	90.18	360.00	6,818.9	1,241.5	-584.3	1,275.1	0.00	0.00	0.00
8,700.0	90.18	360.00	6,818.6	1,341.5	-584.3	1,374.9	0.00	0.00	0.00
8,800.0	90.18	360.00	6,818.3	1,441.5	-584.3	1,474.8	0.00	0.00	0.00
8,900.0	90.18	360.00	6,817.9	1,541.5	-584.3	1,574.6	0.00	0.00	0.00
9,000.0	90.18	360.00	6,817.6	1,641.5	-584.3	1,674.4	0.00	0.00	0.00
9,100.0	90.18	360.00	6,817.3	1,741.5	-584.3	1,774.2	0.00	0.00	0.00
9,200.0	90.18	360.00	6,817.0	1,841.5	-584.3	1,874.0	0.00	0.00	0.00
9,300.0	90.18	360.00	6,816.7	1,941.5	-584.3	1,973.8	0.00	0.00	0.00
9,400.0	90.18	360.00	6,816.4	2,041.5	-584.3	2,073.6	0.00	0.00	0.00
9,500.0	90.18	360.00	6,816.1	2,141.5	-584.3	2,173.4	0.00	0.00	0.00
9,600.0	90.18	360.00	6,815.7	2,241.5	-584.3	2,273.2	0.00	0.00	0.00
9,700.0	90.18	360.00	6,815.4	2,341.5	-584.3	2,373.0	0.00	0.00	0.00
9,800.0	90.18	360.00	6,815.1	2,441.5	-584.3	2,472.9	0.00	0.00	0.00
9,900.0	90.18	360.00	6,814.8	2,541.5	-584.3	2,572.7	0.00	0.00	0.00
10,000.0	90.18	360.00	6,814.5	2,641.5	-584.3	2,672.5	0.00	0.00	0.00
10,100.0	90.18	360.00	6,814.2	2,741.5	-584.3	2,772.3	0.00	0.00	0.00
10,200.0	90.18	360.00	6,813.9	2,841.5	-584.3	2,872.1	0.00	0.00	0.00
10,300.0	90.18	360.00	6,813.5	2,941.5	-584.3	2,971.9	0.00	0.00	0.00
10,400.0	90.18	360.00	6,813.2	3,041.5	-584.3	3,071.7	0.00	0.00	0.00
10,500.0	90.18	360.00	6,812.9	3,141.5	-584.3	3,171.5	0.00	0.00	0.00
10,600.0	90.18	360.00	6,812.6	3,241.5	-584.3	3,271.3	0.00	0.00	0.00
10,700.0	90.18	360.00	6,812.3	3,341.5	-584.3	3,371.1	0.00	0.00	0.00
10,800.0	90.18	360.00	6,812.0	3,441.5	-584.3	3,471.0	0.00	0.00	0.00
10,900.0	90.18	360.00	6,811.7	3,541.5	-584.3	3,570.8	0.00	0.00	0.00
11,000.0	90.18	360.00	6,811.3	3,641.5	-584.3	3,670.6	0.00	0.00	0.00
11,100.0	90.18	360.00	6,811.0	3,741.5	-584.3	3,770.4	0.00	0.00	0.00
11,200.0	90.18	360.00	6,810.7	3,841.5	-584.3	3,870.2	0.00	0.00	0.00
11,300.0	90.18	360.00	6,810.4	3,941.5	-584.3	3,970.0	0.00	0.00	0.00
11,400.0	90.18	360.00	6,810.1	4,041.5	-584.3	4,069.8	0.00	0.00	0.00
11,500.0	90.18	360.00	6,809.8	4,141.5	-584.3	4,169.6	0.00	0.00	0.00
11,600.0	90.18	360.00	6,809.5	4,241.5	-584.3	4,269.4	0.00	0.00	0.00
11,700.0	90.18	360.00	6,809.1	4,341.5	-584.3	4,369.3	0.00	0.00	0.00
11,800.0	90.18	360.00	6,808.8	4,441.5	-584.3	4,469.1	0.00	0.00	0.00
11,900.0	90.18	360.00	6,808.5	4,541.5	-584.3	4,568.9	0.00	0.00	0.00
12,000.0	90.18	360.00	6,808.2	4,641.5	-584.3	4,668.7	0.00	0.00	0.00
12,100.0	90.18	360.00	6,807.9	4,741.5	-584.3	4,768.5	0.00	0.00	0.00
12,200.0	90.18	360.00	6,807.6	4,841.5	-584.3	4,868.3	0.00	0.00	0.00
12,300.0	90.18	360.00	6,807.3	4,941.5	-584.3	4,968.1	0.00	0.00	0.00
12,400.0	90.18	360.00	6,806.9	5,041.5	-584.3	5,067.9	0.00	0.00	0.00
12,500.0	90.18	360.00	6,806.6	5,141.5	-584.3	5,167.7	0.00	0.00	0.00
12,600.0	90.18	360.00	6,806.3	5,241.5	-584.3	5,267.5	0.00	0.00	0.00
12,700.0	90.18	360.00	6,806.0	5,341.5	-584.3	5,367.4	0.00	0.00	0.00
12,800.0	90.18	360.00	6,805.7	5,441.5	-584.3	5,467.2	0.00	0.00	0.00
12,900.0	90.18	360.00	6,805.4	5,541.5	-584.3	5,567.0	0.00	0.00	0.00
13,000.0	90.18	360.00	6,805.1	5,641.5	-584.3	5,666.8	0.00	0.00	0.00
13,100.0	90.18	360.00	6,804.7	5,741.5	-584.3	5,766.6	0.00	0.00	0.00
13,200.0	90.18	360.00	6,804.4	5,841.5	-584.3	5,866.4	0.00	0.00	0.00
13,300.0	90.18	360.00	6,804.1	5,941.5	-584.3	5,966.2	0.00	0.00	0.00

<b>Database:</b>	US_EDM	<b>Local Co-ordinate Reference:</b>	Well Dunn 71-321
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Project:</b>	SEC.7-T5N-R64W	<b>MD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Site:</b>	Dunn 5N64W7 Pad Sec.7-T5N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Dunn 71-321	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (9-10-15)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
13,400.0	90.18	360.00	6,803.8	6,041.5	-584.3	6,066.0	0.00	0.00	0.00
13,500.0	90.18	360.00	6,803.5	6,141.5	-584.3	6,165.8	0.00	0.00	0.00
13,600.0	90.18	360.00	6,803.2	6,241.5	-584.3	6,265.6	0.00	0.00	0.00
13,700.0	90.18	360.00	6,802.9	6,341.5	-584.3	6,365.5	0.00	0.00	0.00
13,800.0	90.18	360.00	6,802.5	6,441.5	-584.3	6,465.3	0.00	0.00	0.00
13,900.0	90.18	360.00	6,802.2	6,541.5	-584.3	6,565.1	0.00	0.00	0.00
14,000.0	90.18	360.00	6,801.9	6,641.5	-584.3	6,664.9	0.00	0.00	0.00
14,100.0	90.18	360.00	6,801.6	6,741.5	-584.3	6,764.7	0.00	0.00	0.00
14,200.0	90.18	360.00	6,801.3	6,841.5	-584.3	6,864.5	0.00	0.00	0.00
14,300.0	90.18	360.00	6,801.0	6,941.5	-584.3	6,964.3	0.00	0.00	0.00
14,400.0	90.18	360.00	6,800.7	7,041.5	-584.3	7,064.1	0.00	0.00	0.00
14,500.0	90.18	360.00	6,800.3	7,141.5	-584.3	7,163.9	0.00	0.00	0.00
14,600.0	90.18	360.00	6,800.0	7,241.5	-584.3	7,263.7	0.00	0.00	0.00
14,700.0	90.18	360.00	6,799.7	7,341.5	-584.3	7,363.6	0.00	0.00	0.00
14,800.0	90.18	360.00	6,799.4	7,441.5	-584.3	7,463.4	0.00	0.00	0.00
14,900.0	90.18	360.00	6,799.1	7,541.5	-584.3	7,563.2	0.00	0.00	0.00
15,000.0	90.18	360.00	6,798.8	7,641.5	-584.3	7,663.0	0.00	0.00	0.00
15,100.0	90.18	360.00	6,798.5	7,741.5	-584.3	7,762.8	0.00	0.00	0.00
15,200.0	90.18	360.00	6,798.1	7,841.5	-584.3	7,862.6	0.00	0.00	0.00
15,300.0	90.18	360.00	6,797.8	7,941.5	-584.3	7,962.4	0.00	0.00	0.00
15,400.0	90.18	360.00	6,797.5	8,041.5	-584.3	8,062.2	0.00	0.00	0.00
15,500.0	90.18	360.00	6,797.2	8,141.5	-584.3	8,162.0	0.00	0.00	0.00
15,600.0	90.18	360.00	6,796.9	8,241.5	-584.3	8,261.8	0.00	0.00	0.00
15,700.0	90.18	360.00	6,796.6	8,341.5	-584.3	8,361.7	0.00	0.00	0.00
15,800.0	90.18	360.00	6,796.3	8,441.5	-584.3	8,461.5	0.00	0.00	0.00
15,900.0	90.18	360.00	6,795.9	8,541.5	-584.3	8,561.3	0.00	0.00	0.00
16,000.0	90.18	360.00	6,795.6	8,641.5	-584.3	8,661.1	0.00	0.00	0.00
16,100.0	90.18	360.00	6,795.3	8,741.5	-584.3	8,760.9	0.00	0.00	0.00
16,200.0	90.18	360.00	6,795.0	8,841.5	-584.3	8,860.7	0.00	0.00	0.00
16,300.0	90.18	360.00	6,794.7	8,941.5	-584.3	8,960.5	0.00	0.00	0.00
16,400.0	90.18	360.00	6,794.4	9,041.5	-584.3	9,060.3	0.00	0.00	0.00
16,500.0	90.18	360.00	6,794.1	9,141.5	-584.3	9,160.1	0.00	0.00	0.00
16,600.0	90.18	360.00	6,793.8	9,241.5	-584.3	9,259.9	0.00	0.00	0.00
16,700.0	90.18	360.00	6,793.4	9,341.5	-584.3	9,359.8	0.00	0.00	0.00
16,800.0	90.18	360.00	6,793.1	9,441.5	-584.3	9,459.6	0.00	0.00	0.00
16,839.0	90.18	360.00	6,793.0	9,480.5	-584.3	9,498.5	0.00	0.00	0.00
TD at 16839.0 - BHL 200'FNL & 368'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 795'FSL & 981'FWL - plan hits target center - Point	0.00	0.00	1.0	0.0	0.0	1,392,951.15	3,251,104.60	40.408548	-104.598272
BHL 200'FNL & 368'FWL - plan hits target center - Point	0.00	0.00	6,793.0	9,480.6	-584.3	1,402,424.87	3,250,423.93	40.434571	-104.600371

<b>Database:</b>	US_EDM	<b>Local Co-ordinate Reference:</b>	Well Dunn 71-321
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Project:</b>	SEC.7-T5N-R64W	<b>MD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Site:</b>	Dunn 5N64W7 Pad Sec.7-T5N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Dunn 71-321	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (9-10-15)		

Casing Points				
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,379.8	6,822.7	7"	7	7-1/2

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,536.0	3,490.0	Parkman		0.00	
4,283.7	4,210.0	Sussex		0.00	
6,667.6	6,516.0	Sharon Springs		0.00	
6,757.9	6,585.0	Niobrara A		0.00	
6,920.3	6,690.0	Niobrara B		0.00	
7,091.9	6,770.0	Niobrara C		0.00	

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,600.0	1,600.0	0.0	0.0	KOP - Start Build 1.50
5,236.6	5,127.7	-111.3	-87.3	Start Drop -2.00
6,018.6	5,900.0	-661.5	-518.8	Start 158.8 hold at 6018.6 MD
6,177.4	6,058.8	-745.0	-584.3	Start Build 7.50
7,379.8	6,822.7	-745.0	-584.3	End of Build
16,839.0	6,793.0	21.3	-584.3	TD at 16839.0





# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.7-T5N-R64W**

**Dunn 5N64W7 Pad Sec.7-T5N-R64W**

**Dunn 7I-321**

**Wellbore #1**

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

## **Anticollision Report**

**23 September, 2015**



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Dunn 71-321
<b>Project:</b>	SEC.7-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Reference Site:</b>	Dunn 5N64W7 Pad Sec.7-T5N-R64W	<b>MD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Dunn 71-321	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

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

<b>Survey Tool Program</b>	<b>Date</b>	9/23/2015		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	16,839.0	Plan #1 (9-10-15) (Wellbore #1)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Dunn 5N64W7 Pad Sec.7-T5N-R64W						
Dunn 71-201 - Wellbore #1 - Plan #1 (9-8-15)	1,600.0	1,600.0	14.9	8.0	2.145	CC
Dunn 71-201 - Wellbore #1 - Plan #1 (9-8-15)	16,839.0	16,822.3	205.2	-148.8	0.580	Level 1, ES, SF
Dunn 71-221 - Wellbore #1 - Plan #1 (9-10-15)	1,500.0	1,500.0	15.3	8.8	2.348	CC
Dunn 71-221 - Wellbore #1 - Plan #1 (9-10-15)	16,839.0	16,731.1	238.5	-119.7	0.666	Level 1, ES, SF
Dunn 7L-201 - Wellbore #1 - Plan #1 (9-10-15)	1,400.0	1,400.0	30.2	24.2	4.982	CC, ES
Dunn 7L-201 - Wellbore #1 - Plan #1 (9-10-15)	1,500.0	1,499.2	31.5	25.0	4.849	SF
Dunn 7L-221 - Wellbore #1 - Plan #1 (9-10-15)	500.0	500.0	60.1	58.1	29.715	CC, ES
Dunn 7L-221 - Wellbore #1 - Plan #1 (9-10-15)	900.0	894.4	75.6	71.9	20.316	SF
Dunn 7L-301 - Wellbore #1 - Plan #1 (9-10-15)	1,200.0	1,200.0	45.2	40.0	8.739	CC, ES
Dunn 7L-301 - Wellbore #1 - Plan #1 (9-10-15)	1,400.0	1,397.9	49.5	43.5	8.260	SF
Dunn 7L-341 - Wellbore #1 - Plan #1 (9-10-15)	1,600.0	1,600.0	29.9	22.9	4.288	CC, ES
Dunn 7L-341 - Wellbore #1 - Plan #1 (9-10-15)	16,839.0	16,828.2	562.0	190.3	1.512	SF
Dunn 7Q-221 - Wellbore #1 - Plan #1 (9-11-15)	200.0	200.0	120.2	119.6	178.307	CC
Dunn 7Q-221 - Wellbore #1 - Plan #1 (9-11-15)	300.0	299.0	120.6	119.5	108.936	ES
Dunn 7Q-221 - Wellbore #1 - Plan #1 (9-11-15)	1,100.0	1,075.5	181.7	176.9	38.284	SF
Dunn 7Q-241 - Wellbore #1 - Plan #1 (9-11-15)	600.0	600.0	90.0	87.5	36.397	CC, ES
Dunn 7Q-241 - Wellbore #1 - Plan #1 (9-11-15)	1,200.0	1,189.1	118.0	113.0	23.328	SF
Dunn 7Q-301 - Wellbore #1 - Plan #1 (9-11-15)	400.0	400.0	105.3	103.7	66.923	CC, ES
Dunn 7Q-301 - Wellbore #1 - Plan #1 (9-11-15)	1,100.0	1,085.4	141.4	136.7	30.386	SF
Dunn 7Q-341 - Wellbore #1 - Plan #1 (9-11-15)	800.0	800.0	75.1	71.7	22.261	CC, ES
Dunn 7Q-341 - Wellbore #1 - Plan #1 (9-11-15)	1,200.0	1,194.5	87.7	82.7	17.340	SF
Dunn Pad Sec.7-T5N-R64W						
Dunn 24-7 (Exist.) - Wellbore #1 - Wellbore #1						Out of range
Dunn 7PD (AL) - Wellbore #1 - Design #1						Out of range
Existing Wells - Sec.7-T5N-R64W						
Dunn #1 (Exist.) - Wellbore #1 - Wellbore #1	7,390.9	6,809.7	119.5	-34.2	0.777	Level 1, CC, ES, SF
Dunn #13-7 (Exist.) - Wellbore #1 - Wellbore #1	8,482.0	6,804.2	36.5	-129.6	0.220	Level 1, CC, ES, SF
Dunn #23-7 (Exist.) - Wellbore #1 - Wellbore #1						Out of range
Little Will #6 (P&A) - Wellbore #1 - Wellbore #1	16,024.4	6,784.5	444.0	137.8	1.450	Level 3, CC, ES, SF
Little Will #7 (P&A) - Wellbore #1 - Wellbore #1						Out of range
Mitani #1 (Exist.) - Wellbore #1 - Wellbore #1	13,622.1	6,775.1	483.5	223.4	1.859	CC, ES, SF
Mitani #14-6 (Exist.) - Wellbore #1 - Wellbore #1	12,661.8	6,768.1	362.7	120.9	1.500	CC, ES, SF
Silva #1 (Exist.) - Wellbore #1 - Wellbore #1						Out of range
Silva #23-6 (Exist.) - Wellbore #1 - Wellbore #1						Out of range

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Dunn 71-321
<b>Project:</b>	SEC.7-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Reference Site:</b>	Dunn 5N64W7 Pad Sec.7-T5N-R64W	<b>MD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Dunn 71-321	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference													Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	1.07	14.9	0.3	14.9	14.9	0.00	N/A		
100.0	100.0	100.0	100.0	0.1	0.1	1.07	14.9	0.3	14.9	14.7	0.22	66.491		
200.0	200.0	200.0	200.0	0.3	0.3	1.07	14.9	0.3	14.9	14.3	0.67	22.162		
300.0	300.0	300.0	300.0	0.6	0.6	1.07	14.9	0.3	14.9	13.8	1.12	13.297		
400.0	400.0	400.0	400.0	0.8	0.8	1.07	14.9	0.3	14.9	13.4	1.57	9.498		
500.0	500.0	500.0	500.0	1.0	1.0	1.07	14.9	0.3	14.9	12.9	2.02	7.387		
600.0	600.0	600.0	600.0	1.2	1.2	1.07	14.9	0.3	14.9	12.5	2.47	6.044		
700.0	700.0	700.0	700.0	1.5	1.5	1.07	14.9	0.3	14.9	12.0	2.92	5.114		
800.0	800.0	800.0	800.0	1.7	1.7	1.07	14.9	0.3	14.9	11.6	3.37	4.432		
900.0	900.0	900.0	900.0	1.9	1.9	1.07	14.9	0.3	14.9	11.1	3.82	3.911		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	1.07	14.9	0.3	14.9	10.7	4.27	3.499		
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	1.07	14.9	0.3	14.9	10.2	4.72	3.166		
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	1.07	14.9	0.3	14.9	9.8	5.17	2.891		
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	1.07	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	1.07	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	1.07	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	1.07	14.9	0.3	14.9	8.0	6.97	2.145 CC		
1,700.0	1,700.0	1,700.0	1,700.0	3.7	3.7	145.77	14.9	0.3	16.0	8.6	7.39	2.166		
1,800.0	1,799.9	1,799.9	1,799.9	3.9	3.9	152.29	14.9	0.3	19.4	11.6	7.79	2.488		
1,900.0	1,899.7	1,900.3	1,900.2	4.0	4.1	157.70	14.0	-0.7	24.2	16.0	8.17	2.965		
2,000.0	1,999.3	2,000.7	2,000.6	4.2	4.3	160.66	11.3	-3.5	29.3	20.8	8.52	3.440		
2,100.0	2,098.6	2,101.3	2,101.0	4.5	4.5	162.19	6.6	-8.2	34.6	25.7	8.88	3.893		
2,200.0	2,197.5	2,202.1	2,201.4	4.7	4.7	162.83	0.2	-14.8	40.0	30.7	9.25	4.320		
2,300.0	2,296.1	2,303.0	2,301.5	5.0	4.9	162.90	-8.2	-23.4	45.5	35.8	9.63	4.721		
2,400.0	2,394.2	2,404.0	2,401.5	5.2	5.2	162.58	-18.4	-33.8	51.0	41.0	10.02	5.096		
2,500.0	2,491.7	2,505.1	2,501.1	5.6	5.4	161.98	-30.4	-46.1	56.7	46.3	10.42	5.444		
2,600.0	2,588.6	2,606.4	2,600.4	5.9	5.7	161.18	-44.3	-60.4	62.5	51.7	10.85	5.764		
2,642.7	2,629.8	2,649.6	2,642.6	6.1	5.8	160.79	-50.8	-67.0	65.0	54.0	11.04	5.890		
2,700.0	2,685.0	2,707.7	2,699.2	6.4	6.0	160.13	-60.1	-76.5	68.0	56.7	11.34	6.001		
2,800.0	2,781.3	2,809.3	2,797.6	6.8	6.4	158.30	-77.7	-94.5	71.4	59.5	11.90	6.005		
2,900.0	2,877.6	2,910.9	2,895.3	7.2	6.8	155.55	-92.2	-114.4	72.6	60.1	12.53	5.796		
3,000.0	2,973.9	3,012.4	2,992.1	7.7	7.3	151.69	-118.4	-136.2	71.8	58.5	13.28	5.408		
3,100.0	3,070.2	3,113.6	3,087.9	8.2	7.8	146.36	-141.4	-159.7	69.3	55.1	14.21	4.878		
3,200.0	3,166.5	3,214.4	3,182.3	8.7	8.4	139.01	-166.0	-184.9	65.6	50.2	15.39	4.263		
3,300.0	3,262.8	3,314.3	3,275.1	9.2	9.0	129.33	-191.9	-211.3	61.9	45.0	16.90	3.662		
3,400.0	3,359.1	3,413.6	3,367.2	9.7	9.6	118.59	-217.7	-237.8	60.0	41.5	18.57	3.232		
3,433.6	3,391.4	3,447.0	3,398.2	9.9	9.8	114.89	-226.4	-246.7	59.9	40.8	19.14	3.130		
3,500.0	3,455.4	3,512.9	3,459.4	10.2	10.3	107.59	-243.6	-264.2	60.4	40.2	20.22	2.987		
3,600.0	3,551.7	3,612.2	3,551.6	10.7	11.0	97.10	-269.5	-290.7	63.0	41.3	21.66	2.907		
3,700.0	3,648.0	3,711.6	3,643.8	11.3	11.6	87.71	-295.3	-317.1	67.4	44.6	22.82	2.956		
3,800.0	3,744.2	3,810.9	3,735.9	11.8	12.3	79.66	-321.2	-343.6	73.5	49.8	23.73	3.098		
3,900.0	3,840.5	3,910.2	3,828.1	12.3	13.0	72.93	-347.1	-370.1	80.8	56.3	24.47	3.302		
4,000.0	3,936.8	4,009.5	3,920.3	12.9	13.7	67.38	-372.9	-396.5	89.0	63.9	25.11	3.545		
4,100.0	4,033.1	4,108.8	4,012.4	13.4	14.5	62.79	-398.8	-423.0	97.9	72.2	25.69	3.811		
4,200.0	4,129.4	4,208.2	4,104.6	14.0	15.2	58.98	-424.6	-449.4	107.4	81.1	26.26	4.089		
4,300.0	4,225.7	4,307.5	4,196.8	14.5	15.9	55.80	-450.5	-475.9	117.2	90.4	26.82	4.369		
4,400.0	4,322.0	4,406.8	4,289.0	15.1	16.6	53.12	-476.4	-502.4	127.3	99.9	27.39	4.648		
4,500.0	4,418.3	4,506.1	4,381.1	15.6	17.4	50.83	-502.2	-528.8	137.7	109.7	27.97	4.923		
4,600.0	4,514.6	4,605.5	4,473.3	16.2	18.1	48.87	-528.1	-555.3	148.2	119.7	28.56	5.190		
4,700.0	4,610.9	4,704.8	4,565.5	16.7	18.8	47.16	-554.0	-581.7	158.9	129.8	29.17	5.449		

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Dunn 71-321
<b>Project:</b>	SEC.7-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Reference Site:</b>	Dunn 5N64W7 Pad Sec.7-T5N-R64W	<b>MD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Dunn 71-321	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
4,800.0	4,707.2	4,804.1	4,657.7	17.3	19.6	45.68	-579.8	-608.2	169.8	140.0	29.79	5.700		
4,900.0	4,803.5	4,904.4	4,750.8	17.8	20.3	44.37	-605.9	-634.9	180.6	150.2	30.41	5.941		
5,000.0	4,899.8	5,009.4	4,849.2	18.4	20.9	43.62	-631.5	-661.1	189.6	158.6	31.07	6.105		
5,100.0	4,996.1	5,114.9	4,949.3	18.9	21.4	43.60	-654.7	-684.8	195.7	163.8	31.89	6.137		
5,200.0	5,092.4	5,220.7	5,050.9	19.5	21.9	44.24	-675.4	-706.0	198.8	165.9	32.88	6.046		
5,236.6	5,127.7	5,259.5	5,088.3	19.7	22.0	44.65	-682.3	-713.0	199.2	165.9	33.28	5.985		
5,300.0	5,188.9	5,326.5	5,153.5	20.0	22.3	45.41	-693.4	-724.4	199.5	165.5	33.96	5.874		
5,400.0	5,286.2	5,432.2	5,256.8	20.4	22.7	46.55	-708.7	-740.1	199.7	164.7	34.91	5.719		
5,500.0	5,384.2	5,537.8	5,360.9	20.7	23.0	47.63	-721.4	-753.0	199.4	163.6	35.79	5.573		
5,600.0	5,482.9	5,643.3	5,465.4	21.0	23.3	48.64	-731.4	-763.2	198.8	162.2	36.57	5.436		
5,700.0	5,582.0	5,748.7	5,570.3	21.2	23.6	49.59	-738.6	-770.6	197.8	160.5	37.27	5.306		
5,800.0	5,681.6	5,853.9	5,675.3	21.5	23.8	50.49	-743.2	-775.3	196.3	158.4	37.89	5.181		
5,900.0	5,781.4	5,959.1	5,780.5	21.6	23.9	51.33	-745.0	-777.2	194.4	156.0	38.42	5.061		
6,000.0	5,881.4	6,060.0	5,881.4	21.8	24.0	51.86	-745.1	-777.2	193.0	154.2	38.79	4.975		
6,018.6	5,900.0	6,078.6	5,900.0	21.8	24.0	-90.02	-745.1	-777.2	192.9	154.1	38.83	4.969		
6,100.0	5,981.4	6,160.0	5,981.4	21.9	24.1	-90.02	-745.1	-777.2	192.9	153.9	39.04	4.942		
6,122.5	6,003.8	6,182.5	6,003.8	21.9	24.1	-89.94	-744.8	-777.2	192.9	153.8	39.12	4.932		
6,177.4	6,058.8	6,237.2	6,058.4	22.0	24.2	-88.93	-741.4	-777.2	193.0	153.5	39.51	4.884		
6,200.0	6,081.4	6,259.5	6,080.6	22.0	24.2	-88.28	-738.9	-777.2	193.0	153.3	39.72	4.859		
6,250.0	6,131.3	6,308.8	6,129.2	22.0	24.2	-86.85	-731.1	-777.2	193.2	153.1	40.13	4.815		
6,300.0	6,180.9	6,357.7	6,177.0	22.0	24.1	-85.44	-720.2	-777.2	193.6	153.1	40.46	4.784		
6,350.0	6,229.9	6,406.4	6,223.6	22.0	24.1	-84.06	-706.5	-777.2	194.0	153.3	40.69	4.768		
6,400.0	6,278.2	6,454.7	6,269.0	22.0	24.0	-82.72	-689.8	-777.2	194.5	153.7	40.82	4.766		
6,450.0	6,325.6	6,502.8	6,313.0	21.9	23.9	-81.41	-670.5	-777.2	195.1	154.3	40.84	4.778		
6,500.0	6,371.9	6,550.0	6,355.0	21.8	23.7	-80.17	-648.9	-777.2	195.8	155.1	40.77	4.804		
6,550.0	6,416.8	6,598.3	6,396.4	21.6	23.6	-78.95	-624.1	-777.2	196.6	156.0	40.59	4.844		
6,600.0	6,460.2	6,645.6	6,435.4	21.5	23.4	-77.79	-597.3	-777.2	197.4	157.1	40.31	4.898		
6,650.0	6,501.8	6,692.8	6,472.6	21.3	23.2	-76.70	-568.3	-777.2	198.3	158.3	39.94	4.964		
6,700.0	6,541.6	6,739.7	6,507.7	21.1	23.0	-75.67	-537.1	-777.2	199.2	159.7	39.50	5.042		
6,750.0	6,579.3	6,786.5	6,540.7	20.9	22.8	-74.71	-504.1	-777.2	200.0	161.1	38.99	5.131		
6,800.0	6,614.7	6,833.0	6,571.5	20.7	22.6	-73.81	-469.2	-777.2	200.9	162.5	38.42	5.229		
6,850.0	6,647.8	6,879.4	6,600.1	20.5	22.4	-72.98	-432.6	-777.2	201.8	164.0	37.83	5.335		
6,900.0	6,678.3	6,925.7	6,626.3	20.3	22.2	-72.23	-394.5	-777.2	202.6	165.4	37.22	5.445		
6,950.0	6,706.3	6,971.8	6,650.0	20.1	22.0	-71.55	-355.0	-777.2	203.4	166.8	36.61	5.556		
7,000.0	6,731.4	7,017.8	6,671.3	19.9	21.8	-70.94	-314.2	-777.2	204.1	168.1	36.04	5.665		
7,050.0	6,753.6	7,063.7	6,690.1	19.7	21.6	-70.40	-272.3	-777.2	204.8	169.3	35.52	5.766		
7,100.0	6,772.9	7,109.5	6,706.3	19.5	21.4	-69.94	-229.5	-777.2	205.4	170.3	35.08	5.856		
7,150.0	6,789.1	7,155.2	6,719.8	19.3	21.2	-69.56	-185.8	-777.2	205.9	171.2	34.73	5.929		
7,200.0	6,802.2	7,200.0	6,730.6	19.1	21.1	-69.25	-142.4	-777.2	206.3	171.8	34.50	5.980		
7,250.0	6,812.1	7,246.5	6,739.0	18.9	20.9	-69.02	-96.7	-777.2	206.6	172.2	34.40	6.007		
7,300.0	6,818.8	7,292.0	6,744.5	18.7	20.7	-68.86	-51.4	-777.2	206.9	172.4	34.45	6.005		
7,350.0	6,822.2	7,337.6	6,747.4	18.6	20.6	-68.78	-6.0	-777.2	207.0	172.3	34.64	5.975		
7,379.8	6,822.7	7,364.7	6,747.8	18.5	20.5	-68.77	21.1	-777.2	207.0	172.2	34.82	5.945		
7,400.0	6,822.7	7,384.9	6,747.7	18.4	20.5	-68.77	41.4	-777.2	207.0	172.0	34.99	5.915		
7,500.0	6,822.3	7,484.9	6,747.4	18.2	20.4	-68.78	141.4	-777.2	207.0	170.9	36.05	5.741		
7,600.0	6,822.0	7,584.9	6,747.2	18.9	20.5	-68.80	241.4	-777.2	206.9	169.5	37.43	5.529		
7,700.0	6,821.7	7,684.9	6,746.9	20.0	21.0	-68.81	341.4	-777.2	206.9	167.8	39.09	5.293		
7,800.0	6,821.4	7,784.9	6,746.7	21.1	21.9	-68.83	441.4	-777.2	206.9	165.9	41.01	5.045		
7,900.0	6,821.1	7,884.9	6,746.4	22.3	22.9	-68.84	541.4	-777.2	206.9	163.7	43.14	4.795		
8,000.0	6,820.8	7,984.9	6,746.1	23.6	24.1	-68.85	641.4	-777.2	206.9	161.4	45.47	4.550		
8,100.0	6,820.5	8,084.9	6,745.9	25.0	25.4	-68.87	741.4	-777.2	206.8	158.9	47.95	4.313		

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Dunn 71-321
<b>Project:</b>	SEC.7-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Reference Site:</b>	Dunn 5N64W7 Pad Sec.7-T5N-R64W	<b>MD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Dunn 71-321	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
8,200.0	6,820.1	8,184.9	6,745.6	26.4	26.7	-68.88	841.4	-777.2	206.8	156.2	50.58	4.089	
8,300.0	6,819.8	8,284.9	6,745.4	27.9	28.2	-68.89	941.4	-777.2	206.8	153.5	53.32	3.879	
8,400.0	6,819.5	8,384.9	6,745.1	29.5	29.6	-68.91	1,041.4	-777.2	206.8	150.6	56.16	3.682	
8,500.0	6,819.2	8,484.9	6,744.8	31.0	31.1	-68.92	1,141.4	-777.2	206.8	147.7	59.09	3.499	
8,600.0	6,818.9	8,584.9	6,744.6	32.6	32.7	-68.93	1,241.3	-777.2	206.8	144.7	62.09	3.330	
8,700.0	6,818.6	8,684.9	6,744.3	34.3	34.3	-68.95	1,341.3	-777.2	206.7	141.6	65.16	3.173	
8,800.0	6,818.3	8,784.9	6,744.0	35.9	35.9	-68.96	1,441.3	-777.2	206.7	138.4	68.28	3.028	
8,900.0	6,817.9	8,884.9	6,743.8	37.6	37.5	-68.97	1,541.3	-777.2	206.7	135.2	71.45	2.893	
9,000.0	6,817.6	8,984.9	6,743.5	39.3	39.2	-68.99	1,641.3	-777.2	206.7	132.0	74.66	2.768	
9,100.0	6,817.3	9,084.9	6,743.3	41.0	40.9	-69.00	1,741.3	-777.2	206.7	128.8	77.91	2.653	
9,200.0	6,817.0	9,184.9	6,743.0	42.8	42.6	-69.01	1,841.3	-777.2	206.6	125.5	81.19	2.545	
9,300.0	6,816.7	9,284.9	6,742.7	44.5	44.3	-69.03	1,941.3	-777.2	206.6	122.1	84.50	2.445	
9,400.0	6,816.4	9,384.9	6,742.5	46.3	46.1	-69.04	2,041.3	-777.2	206.6	118.8	87.83	2.352	
9,500.0	6,816.1	9,484.9	6,742.2	48.0	47.8	-69.05	2,141.3	-777.2	206.6	115.4	91.19	2.265	
9,600.0	6,815.7	9,584.9	6,741.9	49.8	49.6	-69.07	2,241.3	-777.2	206.6	112.0	94.57	2.184	
9,700.0	6,815.4	9,684.9	6,741.7	51.6	51.3	-69.08	2,341.3	-777.2	206.5	108.6	97.97	2.108	
9,800.0	6,815.1	9,784.9	6,741.4	53.4	53.1	-69.10	2,441.3	-777.2	206.5	105.1	101.38	2.037	
9,900.0	6,814.8	9,884.9	6,741.2	55.2	54.9	-69.11	2,541.3	-777.2	206.5	101.7	104.81	1.970	
10,000.0	6,814.5	9,984.9	6,740.9	57.1	56.7	-69.12	2,641.3	-777.2	206.5	98.2	108.25	1.907	
10,100.0	6,814.2	10,084.9	6,740.6	58.9	58.5	-69.14	2,741.3	-777.2	206.5	94.8	111.71	1.848	
10,200.0	6,813.9	10,184.9	6,740.4	60.7	60.3	-69.15	2,841.3	-777.2	206.4	91.3	115.17	1.793	
10,300.0	6,813.5	10,284.9	6,740.1	62.5	62.2	-69.16	2,941.3	-777.2	206.4	87.8	118.65	1.740	
10,400.0	6,813.2	10,384.9	6,739.9	64.4	64.0	-69.18	3,041.3	-777.2	206.4	84.3	122.14	1.690	
10,500.0	6,812.9	10,484.9	6,739.6	66.2	65.8	-69.19	3,141.3	-777.2	206.4	80.8	125.63	1.643	
10,600.0	6,812.6	10,584.9	6,739.3	68.1	67.6	-69.20	3,241.3	-777.2	206.4	77.2	129.14	1.598	
10,700.0	6,812.3	10,684.9	6,739.1	69.9	69.5	-69.22	3,341.3	-777.2	206.4	73.7	132.65	1.556	
10,800.0	6,812.0	10,784.9	6,738.8	71.8	71.3	-69.23	3,441.3	-777.2	206.3	70.2	136.17	1.515	
10,900.0	6,811.7	10,884.9	6,738.5	73.6	73.2	-69.24	3,541.3	-777.2	206.3	66.6	139.69	1.477	Level 3
11,000.0	6,811.3	10,984.9	6,738.3	75.5	75.0	-69.26	3,641.3	-777.2	206.3	63.1	143.22	1.440	Level 3
11,100.0	6,811.0	11,084.9	6,738.0	77.4	76.9	-69.27	3,741.3	-777.2	206.3	59.5	146.76	1.406	Level 3
11,200.0	6,810.7	11,184.9	6,737.8	79.2	78.7	-69.29	3,841.3	-777.2	206.3	56.0	150.30	1.372	Level 3
11,300.0	6,810.4	11,284.9	6,737.5	81.1	80.6	-69.30	3,941.3	-777.2	206.2	52.4	153.85	1.341	Level 3
11,400.0	6,810.1	11,384.9	6,737.2	83.0	82.5	-69.31	4,041.3	-777.2	206.2	48.8	157.40	1.310	Level 3
11,500.0	6,809.8	11,484.9	6,737.0	84.8	84.3	-69.33	4,141.3	-777.2	206.2	45.2	160.96	1.281	Level 3
11,600.0	6,809.5	11,584.9	6,736.7	86.7	86.2	-69.34	4,241.3	-777.2	206.2	41.7	164.52	1.253	Level 3
11,700.0	6,809.1	11,684.9	6,736.4	88.6	88.1	-69.35	4,341.3	-777.2	206.2	38.1	168.08	1.227	Level 2
11,800.0	6,808.8	11,784.9	6,736.2	90.5	89.9	-69.37	4,441.3	-777.2	206.1	34.5	171.65	1.201	Level 2
11,900.0	6,808.5	11,884.9	6,735.9	92.3	91.8	-69.38	4,541.3	-777.2	206.1	30.9	175.22	1.176	Level 2
12,000.0	6,808.2	11,984.9	6,735.7	94.2	93.7	-69.39	4,641.3	-777.2	206.1	27.3	178.80	1.153	Level 2
12,100.0	6,807.9	12,084.9	6,735.4	96.1	95.6	-69.41	4,741.3	-777.2	206.1	23.7	182.38	1.130	Level 2
12,200.0	6,807.6	12,184.9	6,735.1	98.0	97.4	-69.42	4,841.3	-777.2	206.1	20.1	185.96	1.108	Level 2
12,300.0	6,807.3	12,284.9	6,734.9	99.9	99.3	-69.44	4,941.3	-777.2	206.1	16.5	189.54	1.087	Level 2
12,400.0	6,806.9	12,384.9	6,734.6	101.8	101.2	-69.45	5,041.3	-777.2	206.0	12.9	193.13	1.067	Level 2
12,500.0	6,806.6	12,484.9	6,734.4	103.7	103.1	-69.46	5,141.3	-777.2	206.0	9.3	196.72	1.047	Level 2
12,600.0	6,806.3	12,584.9	6,734.1	105.5	105.0	-69.48	5,241.3	-777.2	206.0	5.7	200.31	1.028	Level 2
12,700.0	6,806.0	12,684.9	6,733.8	107.4	106.8	-69.49	5,341.3	-777.2	206.0	2.1	203.91	1.010	Level 2
12,800.0	6,805.7	12,784.9	6,733.6	109.3	108.7	-69.50	5,441.3	-777.2	206.0	-1.5	207.50	0.993	Level 1
12,900.0	6,805.4	12,884.9	6,733.3	111.2	110.6	-69.52	5,541.3	-777.2	205.9	-5.2	211.10	0.976	Level 1
13,000.0	6,805.1	12,984.9	6,733.0	113.1	112.5	-69.53	5,641.3	-777.2	205.9	-8.8	214.71	0.959	Level 1
13,100.0	6,804.7	13,084.9	6,732.8	115.0	114.4	-69.54	5,741.3	-777.2	205.9	-12.4	218.31	0.943	Level 1
13,200.0	6,804.4	13,184.9	6,732.5	116.9	116.3	-69.56	5,841.3	-777.2	205.9	-16.0	221.91	0.928	Level 1

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Dunn 71-321
<b>Project:</b>	SEC.7-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Reference Site:</b>	Dunn 5N64W7 Pad Sec.7-T5N-R64W	<b>MD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Dunn 71-321	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
13,300.0	6,804.1	13,284.9	6,732.3	118.8	118.2	-69.57	5,941.3	-777.2	205.9	-19.7	225.52	0.913	Level 1
13,400.0	6,803.8	13,384.9	6,732.0	120.7	120.1	-69.59	6,041.3	-777.2	205.9	-23.3	229.13	0.898	Level 1
13,500.0	6,803.5	13,484.9	6,731.7	122.6	122.0	-69.60	6,141.3	-777.2	205.8	-26.9	232.74	0.884	Level 1
13,600.0	6,803.2	13,584.9	6,731.5	124.5	123.9	-69.61	6,241.3	-777.2	205.8	-30.5	236.36	0.871	Level 1
13,700.0	6,802.9	13,684.9	6,731.2	126.4	125.8	-69.63	6,341.3	-777.2	205.8	-34.2	239.97	0.858	Level 1
13,800.0	6,802.5	13,784.9	6,731.0	128.3	127.7	-69.64	6,441.3	-777.2	205.8	-37.8	243.59	0.845	Level 1
13,900.0	6,802.2	13,884.9	6,730.7	130.2	129.6	-69.65	6,541.3	-777.2	205.8	-41.4	247.20	0.832	Level 1
14,000.0	6,801.9	13,984.9	6,730.4	132.1	131.4	-69.67	6,641.3	-777.2	205.7	-45.1	250.82	0.820	Level 1
14,100.0	6,801.6	14,084.9	6,730.2	134.0	133.3	-69.68	6,741.3	-777.2	205.7	-48.7	254.44	0.809	Level 1
14,200.0	6,801.3	14,184.9	6,729.9	135.9	135.2	-69.69	6,841.3	-777.2	205.7	-52.4	258.07	0.797	Level 1
14,300.0	6,801.0	14,284.9	6,729.6	137.8	137.1	-69.71	6,941.3	-777.2	205.7	-56.0	261.69	0.786	Level 1
14,400.0	6,800.7	14,384.9	6,729.4	139.7	139.0	-69.72	7,041.3	-777.2	205.7	-59.6	265.32	0.775	Level 1
14,500.0	6,800.3	14,484.9	6,729.1	141.6	140.9	-69.74	7,141.3	-777.2	205.7	-63.3	268.94	0.765	Level 1
14,600.0	6,800.0	14,584.9	6,728.9	143.5	142.8	-69.75	7,241.3	-777.2	205.6	-66.9	272.57	0.754	Level 1
14,700.0	6,799.7	14,684.9	6,728.6	145.4	144.7	-69.76	7,341.3	-777.2	205.6	-70.6	276.20	0.744	Level 1
14,800.0	6,799.4	14,784.9	6,728.3	147.3	146.6	-69.78	7,441.3	-777.2	205.6	-74.2	279.83	0.735	Level 1
14,900.0	6,799.1	14,884.9	6,728.1	149.2	148.6	-69.79	7,541.3	-777.2	205.6	-77.9	283.46	0.725	Level 1
15,000.0	6,798.8	14,984.9	6,727.8	151.1	150.5	-69.80	7,641.3	-777.2	205.6	-81.5	287.09	0.716	Level 1
15,100.0	6,798.5	15,084.9	6,727.5	153.0	152.4	-69.82	7,741.3	-777.2	205.5	-85.2	290.73	0.707	Level 1
15,200.0	6,798.1	15,184.9	6,727.3	154.9	154.3	-69.83	7,841.3	-777.2	205.5	-88.8	294.36	0.698	Level 1
15,300.0	6,797.8	15,284.9	6,727.0	156.8	156.2	-69.84	7,941.3	-777.2	205.5	-92.5	298.00	0.690	Level 1
15,400.0	6,797.5	15,384.9	6,726.8	158.8	158.1	-69.86	8,041.3	-777.2	205.5	-96.1	301.64	0.681	Level 1
15,500.0	6,797.2	15,484.9	6,726.5	160.7	160.0	-69.87	8,141.3	-777.2	205.5	-99.8	305.28	0.673	Level 1
15,600.0	6,796.9	15,584.9	6,726.2	162.6	161.9	-69.89	8,241.3	-777.2	205.5	-103.5	308.91	0.665	Level 1
15,700.0	6,796.6	15,684.9	6,726.0	164.5	163.8	-69.90	8,341.3	-777.2	205.4	-107.1	312.56	0.657	Level 1
15,800.0	6,796.3	15,784.9	6,725.7	166.4	165.7	-69.91	8,441.3	-777.2	205.4	-110.8	316.20	0.650	Level 1
15,900.0	6,795.9	15,884.9	6,725.5	168.3	167.6	-69.93	8,541.3	-777.2	205.4	-114.4	319.84	0.642	Level 1
16,000.0	6,795.6	15,984.9	6,725.2	170.2	169.5	-69.94	8,641.3	-777.2	205.4	-118.1	323.48	0.635	Level 1
16,100.0	6,795.3	16,084.9	6,724.9	172.1	171.4	-69.95	8,741.3	-777.2	205.4	-121.8	327.13	0.628	Level 1
16,200.0	6,795.0	16,184.9	6,724.7	174.0	173.3	-69.97	8,841.3	-777.2	205.3	-125.4	330.77	0.621	Level 1
16,300.0	6,794.7	16,284.9	6,724.4	175.9	175.2	-69.98	8,941.3	-777.2	205.3	-129.1	334.42	0.614	Level 1
16,400.0	6,794.4	16,384.9	6,724.1	177.8	177.1	-70.00	9,041.3	-777.2	205.3	-132.8	338.07	0.607	Level 1
16,500.0	6,794.1	16,484.9	6,723.9	179.8	179.0	-70.01	9,141.3	-777.2	205.3	-136.4	341.72	0.601	Level 1
16,600.0	6,793.8	16,584.9	6,723.6	181.7	180.9	-70.02	9,241.3	-777.2	205.3	-140.1	345.36	0.594	Level 1
16,700.0	6,793.4	16,684.9	6,723.4	183.6	182.9	-70.04	9,341.3	-777.2	205.3	-143.8	349.01	0.588	Level 1
16,800.0	6,793.1	16,784.9	6,723.1	185.5	184.8	-70.05	9,441.3	-777.2	205.2	-147.4	352.67	0.582	Level 1
16,831.0	6,793.0	16,815.9	6,723.0	186.1	185.4	-70.05	9,472.3	-777.2	205.2	-148.6	353.80	0.580	Level 1
16,839.0	6,793.0	16,822.3	6,723.0	186.2	185.5	-70.06	9,478.7	-777.2	205.2	-148.8	354.06	0.580	Level 1, ES, SF

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Dunn 71-321
<b>Project:</b>	SEC.7-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Reference Site:</b>	Dunn 5N64W7 Pad Sec.7-T5N-R64W	<b>MD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Dunn 71-321	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 7I-221 - Wellbore #1 - Plan #1 (9-10-15)		Offset Site Error:		0.0 ft
Survey Program: 0-MWD														Offset Well Error:		0.0 ft	
Reference		Offset		Semi Major Axis			Distance										
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	-178.96	-15.3	-0.3	15.3	15.3	0.00	N/A					
100.0	100.0	100.0	100.0	0.1	0.1	-178.96	-15.3	-0.3	15.3	15.1	0.22	68.093					
200.0	200.0	200.0	200.0	0.3	0.3	-178.96	-15.3	-0.3	15.3	14.6	0.67	22.696					
300.0	300.0	300.0	300.0	0.6	0.6	-178.96	-15.3	-0.3	15.3	14.2	1.12	13.618					
400.0	400.0	400.0	400.0	0.8	0.8	-178.96	-15.3	-0.3	15.3	13.7	1.57	9.727					
500.0	500.0	500.0	500.0	1.0	1.0	-178.96	-15.3	-0.3	15.3	13.3	2.02	7.565					
600.0	600.0	600.0	600.0	1.2	1.2	-178.96	-15.3	-0.3	15.3	12.8	2.47	6.190					
700.0	700.0	700.0	700.0	1.5	1.5	-178.96	-15.3	-0.3	15.3	12.4	2.92	5.238					
800.0	800.0	800.0	800.0	1.7	1.7	-178.96	-15.3	-0.3	15.3	11.9	3.37	4.539					
900.0	900.0	900.0	900.0	1.9	1.9	-178.96	-15.3	-0.3	15.3	11.5	3.82	4.005					
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-178.96	-15.3	-0.3	15.3	11.0	4.27	3.584					
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	-178.96	-15.3	-0.3	15.3	10.6	4.72	3.242					
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-178.96	-15.3	-0.3	15.3	10.1	5.17	2.960					
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-178.96	-15.3	-0.3	15.3	9.7	5.62	2.723					
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	-178.96	-15.3	-0.3	15.3	9.2	6.07	2.522					
1,500.0	1,500.0	1,500.0	1,500.0	3.3	3.3	-178.96	-15.3	-0.3	15.3	8.8	6.52	2.348 CC					
1,600.0	1,600.0	1,599.6	1,599.6	3.5	3.5	-177.05	-16.5	-0.8	16.5	9.6	6.94	2.377					
1,700.0	1,700.0	1,699.2	1,699.1	3.7	3.6	-32.81	-20.0	-2.6	19.0	11.7	7.31	2.603					
1,800.0	1,799.9	1,798.6	1,798.3	3.9	3.8	-32.33	-25.8	-5.4	21.8	14.2	7.67	2.847					
1,900.0	1,899.7	1,898.0	1,897.3	4.0	4.0	-33.10	-33.9	-9.4	24.9	16.8	8.03	3.095					
2,000.0	1,999.3	1,997.3	1,995.9	4.2	4.2	-34.69	-44.4	-14.4	28.1	19.7	8.41	3.345					
2,100.0	2,098.6	2,096.5	2,094.1	4.5	4.4	-36.81	-57.1	-20.7	31.7	22.9	8.81	3.599					
2,200.0	2,197.5	2,195.7	2,191.8	4.7	4.7	-39.25	-72.1	-28.0	35.6	26.3	9.23	3.854					
2,300.0	2,296.1	2,294.7	2,289.0	5.0	5.0	-41.84	-89.3	-36.4	39.8	30.1	9.68	4.108					
2,400.0	2,394.2	2,394.0	2,385.9	5.2	5.3	-44.59	-108.8	-45.9	44.2	34.1	10.19	4.344					
2,500.0	2,491.7	2,493.8	2,483.2	5.6	5.7	-48.76	-128.8	-55.6	47.5	36.7	10.77	4.412					
2,600.0	2,588.6	2,593.7	2,580.5	5.9	6.0	-54.78	-148.9	-65.4	49.5	38.0	11.48	4.310					
2,642.7	2,629.8	2,636.3	2,622.0	6.1	6.2	-57.96	-157.4	-69.6	50.0	38.2	11.82	4.230					
2,700.0	2,685.0	2,693.5	2,677.8	6.4	6.4	-62.43	-168.9	-75.2	50.9	38.5	12.33	4.124					
2,800.0	2,781.3	2,793.2	2,775.0	6.8	6.8	-69.80	-188.9	-85.0	53.0	39.8	13.27	3.996					
2,900.0	2,877.6	2,893.0	2,872.2	7.2	7.2	-76.50	-209.0	-94.7	56.0	41.8	14.24	3.933					
3,000.0	2,973.9	2,992.7	2,969.5	7.7	7.6	-82.45	-229.0	-104.5	59.7	44.4	15.22	3.920					
3,100.0	3,070.2	3,092.5	3,066.7	8.2	8.1	-87.66	-249.0	-114.3	63.9	47.7	16.19	3.945					
3,200.0	3,166.5	3,192.2	3,163.9	8.7	8.5	-92.20	-269.0	-124.0	68.6	51.4	17.15	3.999					
3,300.0	3,262.8	3,292.0	3,261.2	9.2	8.9	-96.13	-289.1	-133.8	73.6	55.6	18.09	4.071					
3,400.0	3,359.1	3,391.7	3,358.4	9.7	9.4	-99.55	-309.1	-143.6	79.0	60.0	19.02	4.155					
3,500.0	3,455.4	3,491.5	3,455.6	10.2	9.8	-102.52	-329.1	-153.3	84.6	64.7	19.93	4.247					
3,600.0	3,551.7	3,591.2	3,552.9	10.7	10.3	-105.12	-349.2	-163.1	90.4	69.6	20.82	4.343					
3,700.0	3,648.0	3,691.0	3,650.1	11.3	10.7	-107.40	-369.2	-172.9	96.4	74.7	21.71	4.440					
3,800.0	3,744.2	3,790.7	3,747.3	11.8	11.2	-109.42	-389.2	-182.6	102.5	79.9	22.59	4.538					
3,900.0	3,840.5	3,890.5	3,844.6	12.3	11.6	-111.20	-409.3	-192.4	108.7	85.3	23.47	4.634					
4,000.0	3,936.8	3,990.2	3,941.8	12.9	12.1	-112.79	-429.3	-202.2	115.0	90.7	24.34	4.727					
4,100.0	4,033.1	4,090.0	4,039.0	13.4	12.6	-114.22	-449.3	-211.9	121.4	96.2	25.20	4.819					
4,200.0	4,129.4	4,189.7	4,136.3	14.0	13.0	-115.50	-469.3	-221.7	127.9	101.8	26.07	4.907					
4,300.0	4,225.7	4,289.5	4,233.5	14.5	13.5	-116.66	-489.4	-231.5	134.4	107.5	26.93	4.992					
4,400.0	4,322.0	4,389.2	4,330.7	15.1	14.0	-117.71	-509.4	-241.2	141.0	113.2	27.79	5.074					
4,500.0	4,418.3	4,489.0	4,428.0	15.6	14.4	-118.66	-529.4	-251.0	147.6	118.9	28.64	5.153					
4,600.0	4,514.6	4,588.8	4,525.2	16.2	14.9	-119.54	-549.5	-260.8	154.2	124.7	29.50	5.228					
4,700.0	4,610.9	4,688.5	4,622.4	16.7	15.4	-120.34	-569.5	-270.5	160.9	130.6	30.36	5.301					
4,800.0	4,707.2	4,788.3	4,719.6	17.3	15.8	-121.08	-589.5	-280.3	167.6	136.4	31.21	5.370					
4,900.0	4,803.5	4,888.0	4,816.9	17.8	16.3	-121.76	-609.5	-290.1	174.4	142.3	32.07	5.437					

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



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Dunn 71-321
<b>Project:</b>	SEC.7-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Reference Site:</b>	Dunn 5N64W7 Pad Sec.7-T5N-R64W	<b>MD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Dunn 71-321	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 7I-221 - Wellbore #1 - Plan #1 (9-10-15)											Offset Site Error:		0.0 ft
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
5,000.0	4,899.8	4,987.8	4,914.1	18.4	16.8	-122.39	-629.6	-299.8	181.1	148.2	32.93	5.501			
5,100.0	4,996.1	5,087.5	5,011.3	18.9	17.3	-122.97	-649.6	-309.6	187.9	154.1	33.78	5.562			
5,200.0	5,092.4	5,187.3	5,108.6	19.5	17.7	-123.52	-669.6	-319.4	194.7	160.1	34.64	5.621			
5,236.6	5,127.7	5,223.8	5,144.2	19.7	17.9	-123.71	-677.0	-323.0	197.2	162.2	34.95	5.642			
5,300.0	5,188.9	5,285.8	5,204.7	20.0	18.2	-124.02	-689.1	-328.9	201.3	165.8	35.43	5.680			
5,400.0	5,286.2	5,383.0	5,300.1	20.4	18.5	-124.52	-705.8	-337.0	207.1	171.1	36.00	5.752			
5,500.0	5,384.2	5,480.1	5,396.0	20.7	18.7	-125.05	-719.6	-343.7	212.3	175.8	36.50	5.817			
5,600.0	5,482.9	5,577.1	5,492.2	21.0	19.0	-125.62	-730.4	-349.0	216.9	179.9	36.91	5.875			
5,700.0	5,582.0	5,674.0	5,588.7	21.2	19.2	-126.22	-738.3	-352.9	220.7	183.5	37.24	5.927			
5,800.0	5,681.6	5,770.8	5,685.4	21.5	19.4	-126.86	-743.2	-355.3	224.0	186.5	37.49	5.974			
5,900.0	5,781.4	5,867.5	5,782.0	21.6	19.5	-127.54	-745.3	-356.3	226.5	188.9	37.66	6.015			
6,000.0	5,881.4	5,966.9	5,881.4	21.8	19.6	-128.02	-745.3	-356.3	228.0	190.2	37.81	6.029			
6,018.6	5,900.0	5,985.5	5,900.0	21.8	19.7	90.08	-745.3	-356.3	228.0	190.2	37.85	6.024			
6,100.0	5,981.4	6,066.9	5,981.4	21.9	19.8	90.08	-745.3	-356.3	228.0	190.0	38.06	5.991			
6,125.6	6,007.0	6,092.5	6,007.0	21.9	19.8	89.99	-744.9	-356.3	228.0	189.9	38.11	5.984			
6,177.4	6,058.8	6,144.0	6,058.4	22.0	19.8	89.16	-741.6	-356.3	228.0	190.0	38.04	5.995			
6,200.0	6,081.4	6,166.4	6,080.7	22.0	19.8	88.61	-739.1	-356.3	228.1	190.1	37.96	6.009			
6,250.0	6,131.3	6,215.7	6,129.3	22.0	19.8	87.40	-731.3	-356.3	228.3	190.5	37.72	6.051			
6,300.0	6,180.9	6,264.6	6,177.0	22.0	19.8	86.20	-720.5	-356.3	228.5	191.1	37.42	6.107			
6,350.0	6,229.9	6,313.3	6,223.7	22.0	19.7	85.03	-706.7	-356.3	228.9	191.8	37.07	6.175			
6,400.0	6,278.2	6,361.6	6,269.1	22.0	19.6	83.89	-690.0	-356.3	229.3	192.7	36.66	6.255			
6,450.0	6,325.6	6,409.8	6,313.1	21.9	19.5	82.77	-670.7	-356.3	229.9	193.6	36.22	6.346			
6,500.0	6,371.9	6,457.6	6,355.6	21.8	19.4	81.70	-648.7	-356.3	230.5	194.7	35.74	6.447			
6,550.0	6,416.8	6,505.2	6,396.5	21.6	19.2	80.67	-624.3	-356.3	231.1	195.9	35.25	6.557			
6,600.0	6,460.2	6,552.6	6,435.5	21.5	19.0	79.68	-597.5	-356.3	231.8	197.1	34.73	6.674			
6,650.0	6,501.8	6,600.0	6,472.9	21.3	18.9	78.73	-568.3	-356.3	232.5	198.3	34.21	6.797			
6,700.0	6,541.6	6,646.7	6,507.8	21.1	18.7	77.85	-537.3	-356.3	233.3	199.6	33.70	6.922			
6,750.0	6,579.3	6,693.5	6,540.8	20.9	18.5	77.02	-504.2	-356.3	234.0	200.8	33.20	7.049			
6,800.0	6,614.7	6,740.0	6,571.7	20.7	18.3	76.24	-469.3	-356.3	234.8	202.1	32.73	7.174			
6,850.0	6,647.8	6,786.5	6,600.2	20.5	18.1	75.52	-432.7	-356.3	235.5	203.2	32.29	7.294			
6,900.0	6,678.3	6,832.7	6,626.4	20.3	18.0	74.86	-394.6	-356.3	236.2	204.3	31.90	7.405			
6,950.0	6,706.3	6,878.8	6,650.1	20.1	17.8	74.26	-355.0	-356.3	236.9	205.4	31.57	7.505			
7,000.0	6,731.4	6,924.9	6,671.4	19.9	17.7	73.73	-314.3	-356.3	237.6	206.3	31.30	7.590			
7,050.0	6,753.6	6,970.7	6,690.2	19.7	17.5	73.26	-272.4	-356.3	238.1	207.0	31.10	7.656			
7,100.0	6,772.9	7,016.5	6,706.3	19.5	17.4	72.85	-229.5	-356.3	238.6	207.6	30.99	7.701			
7,150.0	6,789.1	7,062.3	6,719.9	19.3	17.3	72.51	-185.9	-356.3	239.1	208.1	30.96	7.722			
7,200.0	6,802.2	7,107.9	6,730.8	19.1	17.2	72.24	-141.5	-356.3	239.4	208.4	31.03	7.717			
7,250.0	6,812.1	7,153.5	6,739.0	18.9	17.2	72.03	-96.7	-356.3	239.7	208.5	31.19	7.686			
7,300.0	6,818.8	7,200.0	6,744.6	18.7	17.2	71.89	-50.6	-356.3	239.9	208.5	31.44	7.629			
7,300.2	6,818.8	7,200.0	6,744.6	18.7	17.2	71.89	-50.6	-356.3	239.9	208.5	31.45	7.629			
7,350.0	6,822.2	7,244.6	6,747.4	18.6	17.3	71.82	-6.0	-356.3	240.0	208.2	31.79	7.549			
7,379.8	6,822.7	7,271.8	6,747.8	18.5	17.4	71.81	21.2	-356.3	240.0	208.0	32.04	7.490			
7,400.0	6,822.7	7,292.0	6,747.7	18.4	17.5	71.81	41.4	-356.3	240.0	207.8	32.22	7.450			
7,500.0	6,822.3	7,392.0	6,747.5	18.2	18.0	71.82	141.4	-356.3	240.0	206.7	33.30	7.207			
7,600.0	6,822.0	7,492.0	6,747.2	18.9	18.8	71.83	241.4	-356.3	240.0	205.2	34.74	6.908			
7,700.0	6,821.7	7,592.0	6,746.9	20.0	19.8	71.84	341.4	-356.3	240.0	203.5	36.49	6.576			
7,800.0	6,821.4	7,692.0	6,746.7	21.1	20.9	71.85	441.4	-356.3	240.0	201.4	38.52	6.230			
7,900.0	6,821.1	7,792.0	6,746.4	22.3	22.1	71.87	541.4	-356.3	239.9	199.2	40.78	5.884			
8,000.0	6,820.8	7,892.0	6,746.1	23.6	23.4	71.88	641.4	-356.3	239.9	196.7	43.23	5.550			
8,100.0	6,820.5	7,992.0	6,745.9	25.0	24.8	71.89	741.4	-356.3	239.9	194.1	45.85	5.232			
8,200.0	6,820.1	8,092.0	6,745.6	26.4	26.3	71.90	841.4	-356.3	239.9	191.3	48.61	4.935			

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



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Dunn 71-321
<b>Project:</b>	SEC.7-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Reference Site:</b>	Dunn 5N64W7 Pad Sec.7-T5N-R64W	<b>MD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Dunn 71-321	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 71-221 - Wellbore #1 - Plan #1 (9-10-15)												Offset Well Error:	0.0 ft
Survey Program: 0-MWD													
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
8,300.0	6,819.8	8,192.0	6,745.4	27.9	27.8	71.91	941.4	-356.3	239.9	188.4	51.48	4.659	
8,400.0	6,819.5	8,292.0	6,745.1	29.5	29.3	71.93	1,041.4	-356.3	239.9	185.4	54.45	4.405	
8,500.0	6,819.2	8,392.0	6,744.8	31.0	30.9	71.94	1,141.4	-356.3	239.8	182.3	57.51	4.171	
8,600.0	6,818.9	8,492.0	6,744.6	32.6	32.5	71.95	1,241.4	-356.3	239.8	179.2	60.63	3.955	
8,700.0	6,818.6	8,592.0	6,744.3	34.3	34.2	71.96	1,341.4	-356.3	239.8	176.0	63.82	3.758	
8,800.0	6,818.3	8,692.0	6,744.1	35.9	35.9	71.97	1,441.4	-356.3	239.8	172.7	67.05	3.576	
8,900.0	6,817.9	8,792.0	6,743.8	37.6	37.6	71.99	1,541.3	-356.3	239.8	169.4	70.33	3.409	
9,000.0	6,817.6	8,892.0	6,743.5	39.3	39.3	72.00	1,641.3	-356.3	239.8	166.1	73.65	3.255	
9,100.0	6,817.3	8,992.0	6,743.3	41.0	41.0	72.01	1,741.3	-356.3	239.7	162.7	77.01	3.113	
9,200.0	6,817.0	9,092.0	6,743.0	42.8	42.8	72.02	1,841.3	-356.3	239.7	159.3	80.39	2.982	
9,300.0	6,816.7	9,192.0	6,742.7	44.5	44.6	72.03	1,941.3	-356.3	239.7	155.9	83.80	2.860	
9,400.0	6,816.4	9,292.0	6,742.5	46.3	46.4	72.04	2,041.3	-356.3	239.7	152.5	87.23	2.748	
9,500.0	6,816.1	9,392.0	6,742.2	48.0	48.1	72.06	2,141.3	-356.3	239.7	149.0	90.68	2.643	
9,600.0	6,815.7	9,492.0	6,742.0	49.8	49.9	72.07	2,241.3	-356.3	239.7	145.5	94.15	2.545	
9,700.0	6,815.4	9,592.0	6,741.7	51.6	51.8	72.08	2,341.3	-356.3	239.6	142.0	97.64	2.454	
9,800.0	6,815.1	9,692.0	6,741.4	53.4	53.6	72.09	2,441.3	-356.3	239.6	138.5	101.14	2.369	
9,900.0	6,814.8	9,792.0	6,741.2	55.2	55.4	72.10	2,541.3	-356.3	239.6	134.9	104.66	2.289	
10,000.0	6,814.5	9,892.0	6,740.9	57.1	57.2	72.12	2,641.3	-356.3	239.6	131.4	108.18	2.215	
10,100.0	6,814.2	9,992.0	6,740.6	58.9	59.1	72.13	2,741.3	-356.3	239.6	127.8	111.72	2.144	
10,200.0	6,813.9	10,092.0	6,740.4	60.7	60.9	72.14	2,841.3	-356.3	239.6	124.3	115.27	2.078	
10,300.0	6,813.5	10,192.0	6,740.1	62.5	62.7	72.15	2,941.3	-356.3	239.5	120.7	118.83	2.016	
10,400.0	6,813.2	10,292.0	6,739.9	64.4	64.6	72.16	3,041.3	-356.3	239.5	117.1	122.39	1.957	
10,500.0	6,812.9	10,392.0	6,739.6	66.2	66.4	72.18	3,141.3	-356.3	239.5	113.5	125.97	1.901	
10,600.0	6,812.6	10,492.0	6,739.3	68.1	68.3	72.19	3,241.3	-356.3	239.5	109.9	129.55	1.849	
10,700.0	6,812.3	10,592.0	6,739.1	69.9	70.2	72.20	3,341.3	-356.3	239.5	106.3	133.13	1.799	
10,800.0	6,812.0	10,692.0	6,738.8	71.8	72.0	72.21	3,441.3	-356.3	239.5	102.7	136.72	1.751	
10,900.0	6,811.7	10,792.0	6,738.6	73.6	73.9	72.22	3,541.3	-356.3	239.4	99.1	140.32	1.706	
11,000.0	6,811.3	10,892.0	6,738.3	75.5	75.8	72.24	3,641.3	-356.3	239.4	95.5	143.93	1.664	
11,100.0	6,811.0	10,992.0	6,738.0	77.4	77.6	72.25	3,741.3	-356.3	239.4	91.9	147.53	1.623	
11,200.0	6,810.7	11,092.0	6,737.8	79.2	79.5	72.26	3,841.3	-356.3	239.4	88.2	151.15	1.584	
11,300.0	6,810.4	11,192.0	6,737.5	81.1	81.4	72.27	3,941.3	-356.3	239.4	84.6	154.76	1.547	
11,400.0	6,810.1	11,292.0	6,737.2	83.0	83.3	72.28	4,041.3	-356.3	239.4	81.0	158.38	1.511	
11,500.0	6,809.8	11,392.0	6,737.0	84.8	85.1	72.29	4,141.3	-356.3	239.3	77.3	162.01	1.477	Level 3
11,600.0	6,809.5	11,492.0	6,736.7	86.7	87.0	72.31	4,241.3	-356.3	239.3	73.7	165.64	1.445	Level 3
11,700.0	6,809.1	11,592.0	6,736.5	88.6	88.9	72.32	4,341.3	-356.3	239.3	70.0	169.27	1.414	Level 3
11,800.0	6,808.8	11,692.0	6,736.2	90.5	90.8	72.33	4,441.3	-356.3	239.3	66.4	172.90	1.384	Level 3
11,900.0	6,808.5	11,792.0	6,735.9	92.3	92.7	72.34	4,541.3	-356.3	239.3	62.7	176.54	1.355	Level 3
12,000.0	6,808.2	11,892.0	6,735.7	94.2	94.6	72.35	4,641.3	-356.3	239.3	59.1	180.18	1.328	Level 3
12,100.0	6,807.9	11,992.0	6,735.4	96.1	96.5	72.37	4,741.3	-356.3	239.2	55.4	183.83	1.301	Level 3
12,200.0	6,807.6	12,092.0	6,735.2	98.0	98.3	72.38	4,841.3	-356.3	239.2	51.8	187.47	1.276	Level 3
12,300.0	6,807.3	12,192.0	6,734.9	99.9	100.2	72.39	4,941.3	-356.3	239.2	48.1	191.12	1.252	Level 3
12,400.0	6,806.9	12,292.0	6,734.6	101.8	102.1	72.40	5,041.3	-356.3	239.2	44.4	194.77	1.228	Level 2
12,500.0	6,806.6	12,392.0	6,734.4	103.7	104.0	72.41	5,141.3	-356.3	239.2	40.8	198.42	1.205	Level 2
12,600.0	6,806.3	12,492.0	6,734.1	105.5	105.9	72.43	5,241.3	-356.3	239.2	37.1	202.08	1.184	Level 2
12,700.0	6,806.0	12,592.0	6,733.8	107.4	107.8	72.44	5,341.3	-356.3	239.2	33.4	205.74	1.162	Level 2
12,800.0	6,805.7	12,692.0	6,733.6	109.3	109.7	72.45	5,441.3	-356.3	239.1	29.7	209.39	1.142	Level 2
12,900.0	6,805.4	12,792.0	6,733.3	111.2	111.6	72.46	5,541.3	-356.3	239.1	26.1	213.06	1.122	Level 2
13,000.0	6,805.1	12,892.0	6,733.1	113.1	113.5	72.47	5,641.3	-356.3	239.1	22.4	216.72	1.103	Level 2
13,100.0	6,804.7	12,992.0	6,732.8	115.0	115.4	72.49	5,741.3	-356.3	239.1	18.7	220.38	1.085	Level 2
13,200.0	6,804.4	13,092.0	6,732.5	116.9	117.3	72.50	5,841.3	-356.3	239.1	15.0	224.05	1.067	Level 2
13,300.0	6,804.1	13,192.0	6,732.3	118.8	119.2	72.51	5,941.3	-356.3	239.1	11.3	227.72	1.050	Level 2

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Dunn 71-321
<b>Project:</b>	SEC.7-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Reference Site:</b>	Dunn 5N64W7 Pad Sec.7-T5N-R64W	<b>MD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Dunn 71-321	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance								Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
13,400.0	6,803.8	13,292.0	6,732.0	120.7	121.1	72.52	6,041.3	-356.3	239.0	7.7	231.38	1.033	Level 2	
13,500.0	6,803.5	13,392.0	6,731.7	122.6	123.0	72.53	6,141.3	-356.3	239.0	4.0	235.05	1.017	Level 2	
13,600.0	6,803.2	13,492.0	6,731.5	124.5	124.9	72.55	6,241.3	-356.3	239.0	0.3	238.73	1.001	Level 2	
13,700.0	6,802.9	13,592.0	6,731.2	126.4	126.8	72.56	6,341.3	-356.3	239.0	-3.4	242.40	0.986	Level 1	
13,800.0	6,802.5	13,692.0	6,731.0	128.3	128.7	72.57	6,441.3	-356.3	239.0	-7.1	246.07	0.971	Level 1	
13,900.0	6,802.2	13,792.0	6,730.7	130.2	130.6	72.58	6,541.3	-356.3	239.0	-10.8	249.75	0.957	Level 1	
14,000.0	6,801.9	13,892.0	6,730.4	132.1	132.5	72.59	6,641.3	-356.3	238.9	-14.5	253.43	0.943	Level 1	
14,100.0	6,801.6	13,992.0	6,730.2	134.0	134.4	72.61	6,741.3	-356.3	238.9	-18.2	257.11	0.929	Level 1	
14,200.0	6,801.3	14,092.0	6,729.9	135.9	136.3	72.62	6,841.3	-356.3	238.9	-21.9	260.79	0.916	Level 1	
14,300.0	6,801.0	14,192.0	6,729.7	137.8	138.2	72.63	6,941.3	-356.3	238.9	-25.6	264.47	0.903	Level 1	
14,400.0	6,800.7	14,292.0	6,729.4	139.7	140.1	72.64	7,041.3	-356.3	238.9	-29.3	268.15	0.891	Level 1	
14,500.0	6,800.3	14,392.0	6,729.1	141.6	142.0	72.65	7,141.3	-356.3	238.9	-33.0	271.83	0.879	Level 1	
14,600.0	6,800.0	14,492.0	6,728.9	143.5	143.9	72.67	7,241.3	-356.3	238.8	-36.7	275.52	0.867	Level 1	
14,700.0	6,799.7	14,592.0	6,728.6	145.4	145.9	72.68	7,341.3	-356.3	238.8	-40.4	279.20	0.855	Level 1	
14,800.0	6,799.4	14,692.0	6,728.3	147.3	147.8	72.69	7,441.3	-356.3	238.8	-44.1	282.89	0.844	Level 1	
14,900.0	6,799.1	14,792.0	6,728.1	149.2	149.7	72.70	7,541.3	-356.3	238.8	-47.8	286.57	0.833	Level 1	
15,000.0	6,798.8	14,892.0	6,727.8	151.1	151.6	72.71	7,641.3	-356.3	238.8	-51.5	290.26	0.823	Level 1	
15,100.0	6,798.5	14,992.0	6,727.6	153.0	153.5	72.72	7,741.3	-356.3	238.8	-55.2	293.95	0.812	Level 1	
15,200.0	6,798.1	15,092.0	6,727.3	154.9	155.4	72.74	7,841.3	-356.3	238.8	-58.9	297.64	0.802	Level 1	
15,300.0	6,797.8	15,192.0	6,727.0	156.8	157.3	72.75	7,941.3	-356.3	238.7	-62.6	301.33	0.792	Level 1	
15,400.0	6,797.5	15,292.0	6,726.8	158.8	159.2	72.76	8,041.3	-356.3	238.7	-66.3	305.02	0.783	Level 1	
15,500.0	6,797.2	15,392.0	6,726.5	160.7	161.1	72.77	8,141.3	-356.3	238.7	-70.0	308.72	0.773	Level 1	
15,600.0	6,796.9	15,492.0	6,726.2	162.6	163.0	72.78	8,241.3	-356.3	238.7	-73.7	312.41	0.764	Level 1	
15,700.0	6,796.6	15,592.0	6,726.0	164.5	164.9	72.80	8,341.3	-356.3	238.7	-77.4	316.10	0.755	Level 1	
15,800.0	6,796.3	15,692.0	6,725.7	166.4	166.9	72.81	8,441.3	-356.3	238.7	-81.1	319.80	0.746	Level 1	
15,900.0	6,795.9	15,792.0	6,725.5	168.3	168.8	72.82	8,541.3	-356.3	238.6	-84.9	323.49	0.738	Level 1	
16,000.0	6,795.6	15,892.0	6,725.2	170.2	170.7	72.83	8,641.3	-356.3	238.6	-88.6	327.19	0.729	Level 1	
16,100.0	6,795.3	15,992.0	6,724.9	172.1	172.6	72.84	8,741.3	-356.3	238.6	-92.3	330.89	0.721	Level 1	
16,200.0	6,795.0	16,092.0	6,724.7	174.0	174.5	72.86	8,841.3	-356.3	238.6	-96.0	334.59	0.713	Level 1	
16,300.0	6,794.7	16,192.0	6,724.4	175.9	176.4	72.87	8,941.3	-356.3	238.6	-99.7	338.29	0.705	Level 1	
16,400.0	6,794.4	16,292.0	6,724.2	177.8	178.3	72.88	9,041.3	-356.3	238.6	-103.4	341.99	0.698	Level 1	
16,500.0	6,794.1	16,392.0	6,723.9	179.8	180.2	72.89	9,141.3	-356.3	238.5	-107.1	345.69	0.690	Level 1	
16,600.0	6,793.8	16,492.0	6,723.6	181.7	182.1	72.90	9,241.3	-356.3	238.5	-110.9	349.39	0.683	Level 1	
16,700.0	6,793.4	16,592.0	6,723.4	183.6	184.1	72.92	9,341.3	-356.3	238.5	-114.6	353.09	0.676	Level 1	
16,800.0	6,793.1	16,692.0	6,723.1	185.5	186.0	72.93	9,441.3	-356.3	238.5	-118.3	356.79	0.668	Level 1	
16,839.0	6,793.0	16,731.1	6,723.0	186.2	186.7	72.93	9,480.4	-356.3	238.5	-119.7	358.24	0.666	Level 1, ES, SF	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Dunn 71-321
<b>Project:</b>	SEC.7-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Reference Site:</b>	Dunn 5N64W7 Pad Sec.7-T5N-R64W	<b>MD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Dunn 71-321	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 7L-201 - Wellbore #1 - Plan #1 (9-10-15)		Offset Site Error:		0.0 ft
Survey Program:				0-MWD									Offset Well Error:		0.0 ft		
Reference		Offset		Semi Major Axis			Distance							Warning			
Measured Depth	Vertical	Measured	Vertical	Reference	Offset	Highside	Offset Wellbore Centre		Between	Between	Minimum	Separation					
Depth	Depth	Depth	Depth	Reference	Offset	Toolface	+N/-S	+E/-W	Centres	Ellipses	Separation	Factor					
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)						
0.0	0.0	0.0	0.0	0.0	0.0	-179.47	-30.2	-0.3	30.2	30.2	0.00	N/A					
100.0	100.0	100.0	100.0	0.1	0.1	-179.47	-30.2	-0.3	30.2	30.0	0.22	134.531					
200.0	200.0	200.0	200.0	0.3	0.3	-179.47	-30.2	-0.3	30.2	29.6	0.67	44.841					
300.0	300.0	300.0	300.0	0.6	0.6	-179.47	-30.2	-0.3	30.2	29.1	1.12	26.904					
400.0	400.0	400.0	400.0	0.8	0.8	-179.47	-30.2	-0.3	30.2	28.7	1.57	19.217					
500.0	500.0	500.0	500.0	1.0	1.0	-179.47	-30.2	-0.3	30.2	28.2	2.02	14.947					
600.0	600.0	600.0	600.0	1.2	1.2	-179.47	-30.2	-0.3	30.2	27.8	2.47	12.229					
700.0	700.0	700.0	700.0	1.5	1.5	-179.47	-30.2	-0.3	30.2	27.3	2.92	10.348					
800.0	800.0	800.0	800.0	1.7	1.7	-179.47	-30.2	-0.3	30.2	26.9	3.37	8.968					
900.0	900.0	900.0	900.0	1.9	1.9	-179.47	-30.2	-0.3	30.2	26.4	3.82	7.913					
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-179.47	-30.2	-0.3	30.2	26.0	4.27	7.080					
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	-179.47	-30.2	-0.3	30.2	25.5	4.72	6.406					
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-179.47	-30.2	-0.3	30.2	25.1	5.17	5.849					
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-179.47	-30.2	-0.3	30.2	24.6	5.62	5.381					
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	-179.47	-30.2	-0.3	30.2	24.2	6.07	4.982 CC, ES					
1,500.0	1,500.0	1,499.2	1,499.2	3.3	3.2	179.75	-31.5	0.1	31.5	25.0	6.49	4.849 SF					
1,600.0	1,600.0	1,598.3	1,598.3	3.5	3.4	177.75	-35.1	1.4	35.2	28.3	6.89	5.108					
1,700.0	1,700.0	1,697.2	1,696.9	3.7	3.6	-44.07	-41.2	3.4	40.5	33.2	7.27	5.573					
1,800.0	1,799.9	1,795.8	1,795.1	3.9	3.8	-49.74	-49.6	6.3	46.8	39.1	7.63	6.131					
1,900.0	1,899.7	1,894.0	1,892.7	4.0	4.0	-56.32	-60.4	10.0	54.5	46.5	8.00	6.809					
2,000.0	1,999.3	1,991.8	1,989.5	4.2	4.2	-62.99	-73.6	14.4	64.1	55.7	8.39	7.638					
2,100.0	2,098.6	2,089.1	2,085.3	4.5	4.5	-69.22	-88.9	19.6	75.9	67.1	8.80	8.619					
2,200.0	2,197.5	2,186.2	2,180.7	4.7	4.8	-74.79	-106.5	25.6	90.0	80.7	9.25	9.724					
2,300.0	2,296.1	2,284.7	2,277.2	5.0	5.1	-80.07	-124.9	31.9	105.0	95.2	9.75	10.760					
2,400.0	2,394.2	2,382.9	2,373.5	5.2	5.4	-85.19	-143.4	38.1	120.4	110.1	10.31	11.679					
2,500.0	2,491.7	2,480.9	2,469.6	5.6	5.7	-90.14	-161.7	44.4	136.6	125.7	10.92	12.508					
2,600.0	2,588.6	2,578.6	2,565.3	5.9	6.1	-94.92	-180.0	50.6	153.9	142.4	11.60	13.275					
2,642.7	2,629.8	2,620.1	2,606.0	6.1	6.2	-96.90	-187.8	53.2	161.7	149.8	11.90	13.590					
2,700.0	2,685.0	2,675.9	2,660.7	6.4	6.5	-99.53	-198.3	56.8	172.6	160.2	12.32	14.002					
2,800.0	2,781.3	2,773.2	2,756.1	6.8	6.8	-103.40	-216.5	63.0	192.1	179.1	13.08	14.692					
2,900.0	2,877.6	2,870.5	2,851.5	7.2	7.2	-106.54	-234.7	69.1	212.4	198.6	13.85	15.338					
3,000.0	2,973.9	2,967.8	2,946.9	7.7	7.6	-109.14	-253.0	75.3	233.2	218.6	14.63	15.935					
3,100.0	3,070.2	3,065.2	3,042.3	8.2	8.0	-111.32	-271.2	81.5	254.4	238.9	15.43	16.485					
3,200.0	3,166.5	3,162.5	3,137.6	8.7	8.4	-113.16	-289.4	87.7	275.9	259.6	16.24	16.989					
3,300.0	3,262.8	3,259.8	3,233.0	9.2	8.8	-114.73	-307.7	93.9	297.6	280.5	17.05	17.452					
3,400.0	3,359.1	3,357.1	3,328.4	9.7	9.2	-116.09	-325.9	100.1	319.5	301.6	17.87	17.877					
3,500.0	3,455.4	3,454.4	3,423.8	10.2	9.6	-117.28	-344.1	106.3	341.5	322.8	18.70	18.267					
3,600.0	3,551.7	3,551.7	3,519.2	10.7	10.0	-118.32	-362.4	112.5	363.7	344.1	19.53	18.626					
3,700.0	3,648.0	3,649.0	3,614.6	11.3	10.4	-119.25	-380.6	118.7	385.9	365.6	20.36	18.957					
3,800.0	3,744.2	3,746.3	3,710.0	11.8	10.8	-120.07	-398.8	124.9	408.3	387.1	21.20	19.262					
3,900.0	3,840.5	3,843.6	3,805.3	12.3	11.2	-120.81	-417.1	131.0	430.7	408.7	22.04	19.545					
4,000.0	3,936.8	3,940.9	3,900.7	12.9	11.6	-121.47	-435.3	137.2	453.2	430.3	22.88	19.807					
4,100.0	4,033.1	4,038.3	3,996.1	13.4	12.0	-122.07	-453.5	143.4	475.8	452.0	23.73	20.051					
4,200.0	4,129.4	4,135.6	4,091.5	14.0	12.5	-122.62	-471.8	149.6	498.4	473.8	24.58	20.278					
4,300.0	4,225.7	4,232.9	4,186.9	14.5	12.9	-123.12	-490.0	155.8	521.0	495.6	25.43	20.489					
4,400.0	4,322.0	4,330.2	4,282.3	15.1	13.3	-123.58	-508.2	162.0	543.6	517.4	26.28	20.687					
4,500.0	4,418.3	4,427.5	4,377.7	15.6	13.7	-124.00	-526.5	168.2	566.3	539.2	27.13	20.872					
4,600.0	4,514.6	4,524.8	4,473.0	16.2	14.1	-124.39	-544.7	174.4	589.1	561.1	27.99	21.046					
4,700.0	4,610.9	4,622.1	4,568.4	16.7	14.5	-124.75	-562.9	180.6	611.8	583.0	28.85	21.209					
4,800.0	4,707.2	4,719.4	4,663.8	17.3	15.0	-125.09	-581.2	186.8	634.6	604.9	29.70	21.362					
4,900.0	4,803.5	4,816.7	4,759.2	17.8	15.4	-125.40	-599.4	192.9	657.3	626.8	30.56	21.507					

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Dunn 71-321
<b>Project:</b>	SEC.7-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Reference Site:</b>	Dunn 5N64W7 Pad Sec.7-T5N-R64W	<b>MD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Dunn 71-321	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b>												<b>Offset Site Error:</b>	0.0 ft
Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 7L-201 - Wellbore #1 - Plan #1 (9-10-15)												<b>Offset Well Error:</b>	0.0 ft
Survey Program: 0-MWD													
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,899.8	4,914.0	4,854.6	18.4	15.8	-125.69	-617.6	199.1	680.1	648.7	31.43	21.643	
5,100.0	4,996.1	5,011.4	4,950.0	18.9	16.2	-125.96	-635.9	205.3	703.0	670.7	32.29	21.772	
5,200.0	5,092.4	5,108.7	5,045.3	19.5	16.7	-126.22	-654.1	211.5	725.8	692.6	33.15	21.895	
5,236.6	5,127.7	5,144.3	5,080.3	19.7	16.8	-126.30	-660.8	213.8	734.2	700.7	33.47	21.938	
5,300.0	5,188.9	5,206.1	5,140.8	20.0	17.1	-126.64	-672.4	217.7	748.2	714.2	34.01	22.002	
5,400.0	5,286.2	5,304.3	5,237.1	20.4	17.5	-126.96	-690.8	224.0	768.8	734.0	34.79	22.097	
5,500.0	5,384.2	5,412.2	5,343.3	20.7	17.9	-127.16	-708.9	230.1	786.6	751.1	35.50	22.157	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Dunn 71-321
<b>Project:</b>	SEC.7-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Reference Site:</b>	Dunn 5N64W7 Pad Sec.7-T5N-R64W	<b>MD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Dunn 71-321	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
0.0	0.0	0.0	0.0	0.0	0.0	-179.47	-60.1	-0.6	60.1				
100.0	100.0	100.0	100.0	0.1	0.1	-179.47	-60.1	-0.6	60.1	59.9	0.22	267.459	
200.0	200.0	200.0	200.0	0.3	0.3	-179.47	-60.1	-0.6	60.1	59.4	0.67	89.147	
300.0	300.0	300.0	300.0	0.6	0.6	-179.47	-60.1	-0.6	60.1	59.0	1.12	53.488	
400.0	400.0	400.0	400.0	0.8	0.8	-179.47	-60.1	-0.6	60.1	58.5	1.57	38.205	
500.0	500.0	500.0	500.0	1.0	1.0	-179.47	-60.1	-0.6	60.1	58.1	2.02	29.715 CC, ES	
600.0	600.0	598.9	598.9	1.2	1.2	179.64	-61.0	0.4	61.0	58.5	2.45	24.913	
700.0	700.0	697.7	697.6	1.5	1.4	177.14	-63.6	3.2	63.7	60.9	2.86	22.252	
800.0	800.0	796.2	796.0	1.7	1.6	173.42	-67.9	7.8	68.5	65.2	3.29	20.828	
900.0	900.0	894.4	893.7	1.9	1.8	169.06	-74.0	14.3	75.6	71.9	3.72	20.316 SF	
1,000.0	1,000.0	992.0	990.6	2.1	2.1	164.56	-81.7	22.6	85.3	81.1	4.16	20.488	
1,100.0	1,100.0	1,089.0	1,086.6	2.4	2.4	160.32	-91.0	32.6	97.6	93.0	4.61	21.170	
1,200.0	1,200.0	1,185.2	1,181.5	2.6	2.7	156.55	-101.9	44.2	112.7	107.6	5.07	22.219	
1,300.0	1,300.0	1,280.5	1,275.1	2.8	3.0	153.30	-114.4	57.5	130.4	124.9	5.54	23.523	
1,400.0	1,400.0	1,377.0	1,369.4	3.0	3.4	150.56	-128.2	72.4	150.4	144.4	6.04	24.911	
1,500.0	1,500.0	1,474.7	1,464.9	3.3	3.8	148.42	-142.4	87.6	170.8	164.3	6.54	26.111	
1,600.0	1,600.0	1,572.5	1,560.4	3.5	4.3	146.73	-156.6	102.7	191.4	184.4	7.06	27.119	
1,700.0	1,700.0	1,670.2	1,655.9	3.7	4.7	-72.78	-170.8	117.9	211.8	204.4	7.37	28.722	
1,800.0	1,799.9	1,767.9	1,751.4	3.9	5.1	-74.52	-185.0	133.1	231.6	223.8	7.79	29.737	
1,900.0	1,899.7	1,865.5	1,846.7	4.0	5.6	-76.52	-199.2	148.3	251.1	242.9	8.21	30.583	
2,000.0	1,999.3	1,963.0	1,942.0	4.2	6.0	-78.74	-213.3	163.4	270.4	261.8	8.64	31.289	
2,100.0	2,098.6	2,060.2	2,037.0	4.5	6.5	-81.13	-227.4	178.5	289.8	280.7	9.09	31.870	
2,200.0	2,197.5	2,157.2	2,131.8	4.7	6.9	-83.65	-241.5	193.6	309.4	299.8	9.57	32.336	
2,300.0	2,296.1	2,253.8	2,226.2	5.0	7.4	-86.27	-255.5	208.6	329.5	319.4	10.08	32.694	
2,400.0	2,394.2	2,350.0	2,320.1	5.2	7.8	-88.96	-269.5	223.6	350.3	339.6	10.63	32.953	
2,500.0	2,491.7	2,445.7	2,413.7	5.6	8.3	-91.68	-283.4	238.4	372.0	360.8	11.23	33.125	
2,600.0	2,588.6	2,540.8	2,506.6	5.9	8.7	-94.42	-297.2	253.2	394.9	383.0	11.88	33.227	
2,642.7	2,629.8	2,581.3	2,546.1	6.1	8.9	-95.58	-303.1	259.5	405.0	392.8	12.18	33.255	
2,700.0	2,685.0	2,635.5	2,599.1	6.4	9.1	-97.29	-310.9	267.9	419.0	406.4	12.59	33.271	
2,800.0	2,781.3	2,730.1	2,691.5	6.8	9.6	-100.03	-324.7	282.6	444.2	430.9	13.34	33.294	
2,900.0	2,877.6	2,824.7	2,784.0	7.2	10.0	-102.48	-338.4	297.3	470.3	456.2	14.12	33.321	
3,000.0	2,973.9	2,919.3	2,876.4	7.7	10.5	-104.68	-352.1	312.0	497.2	482.3	14.91	33.353	
3,100.0	3,070.2	3,013.8	2,968.8	8.2	10.9	-106.66	-365.9	326.7	524.7	509.0	15.71	33.395	
3,200.0	3,166.5	3,108.4	3,061.2	8.7	11.4	-108.45	-379.6	341.4	552.7	536.2	16.53	33.446	
3,300.0	3,262.8	3,203.0	3,153.7	9.2	11.8	-110.07	-393.3	356.1	581.2	563.8	17.35	33.505	
3,400.0	3,359.1	3,297.6	3,246.1	9.7	12.2	-111.54	-407.1	370.8	610.1	591.9	18.17	33.571	
3,500.0	3,455.4	3,392.2	3,338.5	10.2	12.7	-112.87	-420.8	385.5	639.3	620.3	19.00	33.644	
3,600.0	3,551.7	3,486.8	3,431.0	10.7	13.1	-114.10	-434.5	400.2	668.8	649.0	19.83	33.722	
3,700.0	3,648.0	3,581.4	3,523.4	11.3	13.6	-115.22	-448.2	414.9	698.6	677.9	20.67	33.804	
3,800.0	3,744.2	3,676.0	3,615.8	11.8	14.0	-116.25	-462.0	429.6	728.6	707.1	21.50	33.889	
3,900.0	3,840.5	3,770.6	3,708.2	12.3	14.5	-117.20	-475.7	444.3	758.8	736.5	22.33	33.975	
4,000.0	3,936.8	3,865.2	3,800.7	12.9	14.9	-118.08	-489.4	459.0	789.2	766.0	23.17	34.063	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Dunn 71-321
<b>Project:</b>	SEC.7-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Reference Site:</b>	Dunn 5N64W7 Pad Sec.7-T5N-R64W	<b>MD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Dunn 71-321	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-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 CC, ES		
1,300.0	1,300.0	1,299.0	1,299.0	2.8	2.8	179.79	-46.2	0.2	46.2	40.7	5.59	8.271		
1,400.0	1,400.0	1,397.9	1,397.8	3.0	3.0	177.29	-49.4	2.3	49.5	43.5	5.99	8.260 SF		
1,500.0	1,500.0	1,496.5	1,496.2	3.3	3.1	173.81	-54.7	5.9	55.1	48.7	6.40	8.610		
1,600.0	1,600.0	1,594.8	1,594.1	3.5	3.3	169.99	-62.0	10.9	63.2	56.4	6.82	9.278		
1,700.0	1,700.0	1,692.5	1,691.1	3.7	3.6	-52.44	-71.4	17.3	73.2	65.9	7.22	10.137		
1,800.0	1,799.9	1,789.7	1,787.3	3.9	3.8	-57.57	-82.7	25.1	84.4	76.9	7.59	11.122		
1,900.0	1,899.7	1,886.1	1,882.5	4.0	4.1	-62.99	-95.9	34.1	97.6	89.6	7.98	12.229		
2,000.0	1,999.3	1,981.8	1,976.4	4.2	4.4	-68.29	-111.0	44.4	112.9	104.5	8.38	13.478		
2,100.0	2,098.6	2,079.3	2,071.8	4.5	4.7	-73.42	-127.6	55.8	129.9	121.1	8.80	14.751		
2,200.0	2,197.5	2,177.1	2,167.4	4.7	5.1	-78.27	-144.3	67.1	147.2	137.9	9.26	15.896		
2,300.0	2,296.1	2,274.5	2,262.8	5.0	5.4	-82.92	-160.9	78.5	165.1	155.3	9.76	16.919		
2,400.0	2,394.2	2,371.7	2,357.9	5.2	5.8	-87.38	-177.4	89.8	183.8	173.5	10.30	17.838		
2,500.0	2,491.7	2,468.5	2,452.6	5.6	6.2	-91.66	-193.9	101.1	203.6	192.7	10.90	18.671		
2,600.0	2,588.6	2,564.9	2,546.9	5.9	6.6	-95.76	-210.3	112.3	224.7	213.1	11.56	19.436		
2,642.7	2,629.8	2,605.9	2,587.0	6.1	6.7	-97.45	-217.3	117.1	234.2	222.3	11.86	19.748		
2,700.0	2,685.0	2,660.8	2,640.8	6.4	7.0	-99.76	-226.7	123.5	247.3	235.0	12.27	20.149		
2,800.0	2,781.3	2,756.7	2,734.6	6.8	7.4	-103.26	-243.0	134.6	270.9	257.9	13.01	20.818		
2,900.0	2,877.6	2,852.6	2,828.5	7.2	7.8	-106.21	-259.4	145.8	295.4	281.6	13.78	21.443		
3,000.0	2,973.9	2,948.6	2,922.3	7.7	8.2	-108.71	-275.7	157.0	320.5	306.0	14.55	22.023		
3,100.0	3,070.2	3,044.5	3,016.1	8.2	8.6	-110.84	-292.0	168.1	346.2	330.8	15.34	22.561		
3,200.0	3,166.5	3,140.4	3,110.0	8.7	9.0	-112.69	-308.4	179.3	372.2	356.0	16.14	23.057		
3,300.0	3,262.8	3,236.3	3,203.8	9.2	9.4	-114.29	-324.7	190.5	398.5	381.6	16.95	23.516		
3,400.0	3,359.1	3,332.2	3,297.6	9.7	9.9	-115.70	-341.1	201.6	425.1	407.3	17.76	23.940		
3,500.0	3,455.4	3,428.1	3,391.5	10.2	10.3	-116.94	-357.4	212.8	451.9	433.3	18.57	24.332		
3,600.0	3,551.7	3,524.0	3,485.3	10.7	10.7	-118.04	-373.7	224.0	478.9	459.5	19.39	24.695		
3,700.0	3,648.0	3,619.9	3,579.2	11.3	11.1	-119.03	-390.1	235.1	506.0	485.8	20.21	25.032		
3,800.0	3,744.2	3,715.8	3,673.0	11.8	11.6	-119.92	-406.4	246.3	533.3	512.2	21.04	25.345		
3,900.0	3,840.5	3,811.7	3,766.8	12.3	12.0	-120.72	-422.8	257.5	560.6	538.7	21.87	25.637		
4,000.0	3,936.8	3,907.6	3,860.7	12.9	12.4	-121.45	-439.1	268.6	588.1	565.4	22.70	25.908		
4,100.0	4,033.1	4,003.5	3,954.5	13.4	12.8	-122.11	-455.4	279.8	615.6	592.1	23.53	26.162		
4,200.0	4,129.4	4,099.4	4,048.3	14.0	13.3	-122.71	-471.8	291.0	643.2	618.8	24.36	26.400		
4,300.0	4,225.7	4,195.3	4,142.2	14.5	13.7	-123.27	-488.1	302.1	670.9	645.7	25.20	26.623		
4,400.0	4,322.0	4,291.2	4,236.0	15.1	14.1	-123.78	-504.5	313.3	698.6	672.5	26.03	26.832		
4,500.0	4,418.3	4,387.1	4,329.9	15.6	14.6	-124.25	-520.8	324.5	726.3	699.5	26.87	27.029		
4,600.0	4,514.6	4,483.0	4,423.7	16.2	15.0	-124.69	-537.1	335.6	754.1	726.4	27.71	27.214		
4,700.0	4,610.9	4,578.9	4,517.5	16.7	15.4	-125.10	-553.5	346.8	782.0	753.4	28.55	27.389		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Dunn 71-321
<b>Project:</b>	SEC.7-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Reference Site:</b>	Dunn 5N64W7 Pad Sec.7-T5N-R64W	<b>MD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Dunn 71-321	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	0.53	29.9	0.3	29.9	29.9	0.00	N/A		
100.0	100.0	100.0	100.0	0.1	0.1	0.53	29.9	0.3	29.9	29.7	0.22	132.928		
200.0	200.0	200.0	200.0	0.3	0.3	0.53	29.9	0.3	29.9	29.2	0.67	44.307		
300.0	300.0	300.0	300.0	0.6	0.6	0.53	29.9	0.3	29.9	28.8	1.12	26.584		
400.0	400.0	400.0	400.0	0.8	0.8	0.53	29.9	0.3	29.9	28.3	1.57	18.988		
500.0	500.0	500.0	500.0	1.0	1.0	0.53	29.9	0.3	29.9	27.9	2.02	14.769		
600.0	600.0	600.0	600.0	1.2	1.2	0.53	29.9	0.3	29.9	27.4	2.47	12.083		
700.0	700.0	700.0	700.0	1.5	1.5	0.53	29.9	0.3	29.9	27.0	2.92	10.224		
800.0	800.0	800.0	800.0	1.7	1.7	0.53	29.9	0.3	29.9	26.5	3.37	8.861		
900.0	900.0	900.0	900.0	1.9	1.9	0.53	29.9	0.3	29.9	26.1	3.82	7.819		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	0.53	29.9	0.3	29.9	25.6	4.27	6.996		
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	0.53	29.9	0.3	29.9	25.2	4.72	6.329		
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	0.53	29.9	0.3	29.9	24.7	5.17	5.779		
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	0.53	29.9	0.3	29.9	24.3	5.62	5.317		
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	0.53	29.9	0.3	29.9	23.8	6.07	4.923		
1,500.0	1,500.0	1,500.0	1,500.0	3.3	3.3	0.53	29.9	0.3	29.9	23.4	6.52	4.583		
1,600.0	1,600.0	1,600.0	1,600.0	3.5	3.5	0.53	29.9	0.3	29.9	22.9	6.97	4.288 CC, ES		
1,700.0	1,700.0	1,700.0	1,700.0	3.7	3.7	143.90	29.9	0.3	30.9	23.5	7.39	4.184		
1,800.0	1,799.9	1,799.9	1,799.9	3.9	3.9	147.75	29.9	0.3	34.2	26.4	7.79	4.387		
1,900.0	1,899.7	1,899.7	1,899.7	4.0	4.2	152.73	29.9	0.3	39.9	31.7	8.19	4.866		
2,000.0	1,999.3	1,999.3	1,999.3	4.2	4.4	157.67	29.9	0.3	48.2	39.6	8.59	5.609		
2,100.0	2,098.6	2,098.6	2,098.6	4.5	4.6	161.94	29.9	0.3	59.2	50.2	8.99	6.590		
2,200.0	2,197.5	2,197.5	2,197.5	4.7	4.8	165.38	29.9	0.3	73.0	63.6	9.38	7.784		
2,300.0	2,296.1	2,296.1	2,296.1	5.0	5.0	168.06	29.9	0.3	89.5	79.7	9.77	9.162		
2,400.0	2,394.2	2,394.2	2,394.2	5.2	5.3	170.14	29.9	0.3	108.7	98.5	10.16	10.701		
2,500.0	2,491.7	2,491.7	2,491.7	5.6	5.5	171.75	29.9	0.3	130.5	120.0	10.54	12.383		
2,600.0	2,588.6	2,591.8	2,591.8	5.9	5.7	173.26	28.8	0.2	154.0	143.1	10.90	14.132		
2,642.7	2,629.8	2,634.8	2,634.8	6.1	5.8	173.95	27.5	0.2	164.1	153.1	11.04	14.871		
2,700.0	2,685.0	2,692.7	2,692.6	6.4	5.9	174.91	25.0	0.1	177.5	166.2	11.26	15.763		
2,800.0	2,781.3	2,794.4	2,794.1	6.8	6.0	176.62	18.5	0.0	199.1	187.5	11.66	17.083		
2,900.0	2,877.6	2,896.9	2,896.2	7.2	6.2	178.41	9.3	-0.3	218.8	206.7	12.07	18.128		
3,000.0	2,973.9	3,000.1	2,998.7	7.7	6.4	-179.70	-2.8	-0.6	236.5	224.0	12.50	18.922		
3,100.0	3,070.2	3,103.8	3,101.3	8.2	6.6	-177.68	-17.7	-1.1	252.2	239.3	12.94	19.486		
3,200.0	3,166.5	3,207.8	3,203.8	8.7	6.9	-175.51	-35.5	-1.6	266.2	252.8	13.42	19.839		
3,300.0	3,262.8	3,312.1	3,305.9	9.2	7.1	-173.17	-56.1	-2.2	278.5	264.6	13.93	19.997		
3,400.0	3,359.1	3,416.3	3,407.6	9.7	7.4	-170.64	-79.5	-2.8	289.3	274.8	14.48	19.973		
3,500.0	3,455.4	3,520.5	3,508.4	10.2	7.7	-167.90	-105.6	-3.6	298.7	283.6	15.10	19.783		
3,600.0	3,551.7	3,624.5	3,608.3	10.7	8.1	-164.95	-134.4	-4.4	307.0	291.2	15.79	19.441		
3,700.0	3,648.0	3,728.0	3,706.9	11.3	8.5	-161.77	-165.7	-5.3	314.4	297.8	16.57	18.970		
3,800.0	3,744.2	3,826.7	3,800.5	11.8	9.0	-158.64	-197.2	-6.2	321.8	304.3	17.43	18.464		
3,900.0	3,840.5	3,924.9	3,893.6	12.3	9.4	-155.68	-228.4	-7.1	330.1	311.7	18.34	17.993		
4,000.0	3,936.8	4,023.0	3,986.6	12.9	9.9	-152.86	-259.7	-7.9	339.2	319.9	19.32	17.557		
4,100.0	4,033.1	4,121.2	4,079.7	13.4	10.4	-150.20	-291.0	-8.8	349.2	328.8	20.35	17.158		
4,200.0	4,129.4	4,219.4	4,172.8	14.0	10.9	-147.68	-322.2	-9.7	359.8	338.4	21.42	16.798		
4,300.0	4,225.7	4,317.6	4,265.8	14.5	11.4	-145.31	-353.5	-10.6	371.2	348.6	22.53	16.475		
4,400.0	4,322.0	4,415.8	4,358.9	15.1	12.0	-143.08	-384.8	-11.5	383.1	359.4	23.66	16.189		
4,500.0	4,418.3	4,514.0	4,452.0	15.6	12.5	-140.98	-416.0	-12.4	395.6	370.8	24.82	15.937		
4,600.0	4,514.6	4,612.2	4,545.0	16.2	13.0	-139.01	-447.3	-13.3	408.6	382.6	26.00	15.716		
4,700.0	4,610.9	4,710.3	4,638.1	16.7	13.6	-137.17	-478.6	-14.1	422.0	394.8	27.19	15.523		
4,800.0	4,707.2	4,808.5	4,731.2	17.3	14.2	-135.43	-509.9	-15.0	435.8	407.5	28.38	15.356		
4,900.0	4,803.5	4,906.7	4,824.2	17.8	14.7	-133.81	-541.1	-15.9	450.1	420.5	29.59	15.212		

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



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Dunn 71-321
<b>Project:</b>	SEC.7-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Reference Site:</b>	Dunn 5N64W7 Pad Sec.7-T5N-R64W	<b>MD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Dunn 71-321	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 7L-341 - Wellbore #1 - Plan #1 (9-10-15)		Offset Site Error:		0.0 ft
Survey Program: 0-MWD														Offset Well Error:		0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor					
							+N/-S (ft)	+E/-W (ft)									
5,000.0	4,899.8	5,004.9	4,917.3	18.4	15.3	-132.28	-572.4	-16.8	464.6	433.8	30.80	15.088					
5,100.0	4,996.1	5,102.7	5,010.1	18.9	15.9	-130.86	-603.4	-17.7	479.5	447.5	31.98	14.993					
5,200.0	5,092.4	5,200.0	5,103.0	19.5	16.3	-129.81	-632.1	-18.5	494.8	461.8	33.00	14.994					
5,236.6	5,127.7	5,235.4	5,137.1	19.7	16.4	-129.54	-641.7	-18.8	500.5	467.2	33.35	15.008					
5,300.0	5,188.9	5,297.2	5,196.8	20.0	16.7	-129.29	-657.5	-19.2	510.1	476.2	33.93	15.032					
5,400.0	5,286.2	5,395.1	5,292.2	20.4	17.1	-128.95	-679.9	-19.9	523.6	488.8	34.73	15.076					
5,500.0	5,384.2	5,493.5	5,388.6	20.7	17.4	-128.68	-699.1	-20.4	535.1	499.6	35.45	15.095					
5,600.0	5,482.9	5,592.2	5,486.0	21.0	17.7	-128.47	-715.1	-20.9	544.6	508.6	36.09	15.092					
5,700.0	5,582.0	5,691.1	5,584.2	21.2	18.0	-128.31	-727.7	-21.2	552.2	515.5	36.64	15.069					
5,800.0	5,681.6	5,790.3	5,682.9	21.5	18.3	-128.19	-736.9	-21.5	557.7	520.6	37.11	15.027					
5,900.0	5,781.4	5,889.7	5,782.1	21.6	18.5	-128.12	-742.7	-21.6	561.1	523.6	37.49	14.966					
6,000.0	5,881.4	5,989.1	5,881.5	21.8	18.6	-128.09	-745.1	-21.7	562.6	524.8	37.79	14.888					
6,018.6	5,900.0	6,007.6	5,900.0	21.8	18.6	90.01	-745.1	-21.7	562.6	524.8	37.84	14.869					
6,045.7	5,927.1	6,034.7	5,927.1	21.8	18.7	90.01	-745.1	-21.7	562.6	524.7	37.91	14.840					
6,100.0	5,981.4	6,089.0	5,981.4	21.9	18.8	90.01	-745.1	-21.7	562.6	524.5	38.06	14.783					
6,177.4	6,058.8	6,166.4	6,058.8	22.0	18.9	90.01	-745.1	-21.7	562.6	524.3	38.26	14.703					
6,200.0	6,081.4	6,189.0	6,081.4	22.0	18.9	90.01	-744.8	-21.7	562.6	524.3	38.31	14.683					
6,250.0	6,131.3	6,239.0	6,131.3	22.0	18.9	90.01	-741.7	-21.7	562.6	524.2	38.38	14.659					
6,300.0	6,180.9	6,289.0	6,180.9	22.0	18.9	90.01	-735.3	-21.7	562.6	524.2	38.37	14.660					
6,350.0	6,229.9	6,339.0	6,230.0	22.0	18.9	90.01	-725.7	-21.7	562.6	524.3	38.30	14.688					
6,400.0	6,278.2	6,389.0	6,278.3	22.0	18.8	90.01	-712.9	-21.7	562.6	524.4	38.16	14.742					
6,450.0	6,325.6	6,439.1	6,325.7	21.9	18.7	90.01	-697.0	-21.7	562.6	524.6	37.96	14.819					
6,500.0	6,371.9	6,489.1	6,371.9	21.8	18.6	90.01	-678.0	-21.7	562.6	524.9	37.71	14.919					
6,550.0	6,416.8	6,539.1	6,416.9	21.6	18.4	90.01	-656.0	-21.7	562.6	525.2	37.40	15.041					
6,600.0	6,460.2	6,589.1	6,460.2	21.5	18.2	90.01	-631.2	-21.7	562.6	525.5	37.06	15.181					
6,650.0	6,501.8	6,639.1	6,501.9	21.3	18.0	90.01	-603.5	-21.7	562.6	525.9	36.68	15.338					
6,700.0	6,541.6	6,689.1	6,541.6	21.1	17.8	90.01	-573.2	-21.7	562.6	526.3	36.27	15.509					
6,750.0	6,579.3	6,739.1	6,579.3	20.9	17.6	90.01	-540.3	-21.7	562.6	526.7	35.86	15.689					
6,800.0	6,614.7	6,789.1	6,614.8	20.7	17.4	90.01	-505.1	-21.7	562.6	527.1	35.44	15.875					
6,850.0	6,647.8	6,839.1	6,647.9	20.5	17.2	90.01	-467.6	-21.7	562.6	527.5	35.03	16.060					
6,900.0	6,678.3	6,889.1	6,678.4	20.3	17.0	90.01	-428.0	-21.7	562.6	527.9	34.64	16.240					
6,950.0	6,706.3	6,939.1	6,706.3	20.1	16.8	90.01	-386.5	-21.7	562.6	528.3	34.29	16.406					
7,000.0	6,731.4	6,989.2	6,731.5	19.9	16.7	90.01	-343.3	-21.7	562.6	528.6	33.99	16.553					
7,050.0	6,753.6	7,039.2	6,753.7	19.7	16.5	90.01	-298.5	-21.7	562.6	528.8	33.74	16.673					
7,100.0	6,772.9	7,089.2	6,773.0	19.5	16.4	90.01	-252.4	-21.7	562.6	529.0	33.57	16.760					
7,150.0	6,789.1	7,139.2	6,789.2	19.3	16.4	90.01	-205.1	-21.7	562.6	529.1	33.47	16.807					
7,200.0	6,802.2	7,189.2	6,802.3	19.1	16.4	90.00	-156.8	-21.7	562.6	529.1	33.47	16.810					
7,250.0	6,812.1	7,239.2	6,812.2	18.9	16.4	90.00	-107.8	-21.7	562.6	529.0	33.55	16.766					
7,300.0	6,818.8	7,289.2	6,818.8	18.7	16.5	90.00	-58.3	-21.8	562.6	528.8	33.74	16.675					
7,350.0	6,822.2	7,339.2	6,822.3	18.6	16.6	90.00	-8.4	-21.8	562.5	528.5	34.02	16.537					
7,379.8	6,822.7	7,369.0	6,822.7	18.5	16.7	90.00	21.4	-21.8	562.5	528.3	34.23	16.436					
7,400.0	6,822.7	7,389.2	6,822.7	18.4	16.8	90.00	41.6	-21.8	562.5	528.2	34.39	16.356					
7,500.0	6,822.3	7,489.2	6,822.4	18.2	17.3	90.00	141.6	-21.8	562.5	527.1	35.46	15.866					
7,600.0	6,822.0	7,589.2	6,822.0	18.9	18.1	90.00	241.6	-21.8	562.5	525.7	36.88	15.252					
7,700.0	6,821.7	7,689.2	6,821.7	20.0	18.9	90.00	341.6	-21.8	562.5	523.9	38.64	14.559					
7,800.0	6,821.4	7,789.2	6,821.4	21.1	20.0	90.00	441.6	-21.8	562.5	521.8	40.68	13.827					
7,900.0	6,821.1	7,889.2	6,821.1	22.3	21.1	90.00	541.6	-21.8	562.5	519.5	42.97	13.090					
8,000.0	6,820.8	7,989.2	6,820.8	23.6	22.4	90.00	641.6	-21.8	562.5	517.0	45.48	12.370					
8,100.0	6,820.5	8,089.2	6,820.5	25.0	23.7	90.00	741.6	-21.8	562.5	514.4	48.15	11.682					
8,200.0	6,820.1	8,189.2	6,820.2	26.4	25.2	90.00	841.6	-21.8	562.5	511.5	50.98	11.034					
8,300.0	6,819.8	8,289.2	6,819.8	27.9	26.6	90.00	941.6	-21.8	562.5	508.6	53.93	10.430					

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



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Dunn 71-321
<b>Project:</b>	SEC.7-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Reference Site:</b>	Dunn 5N64W7 Pad Sec.7-T5N-R64W	<b>MD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Dunn 71-321	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
8,400.0	6,819.5	8,389.2	6,819.5	29.5	28.2	90.00	1,041.6	-21.8	562.5	505.5	56.99	9.870	
8,500.0	6,819.2	8,489.2	6,819.2	31.0	29.8	90.00	1,141.6	-21.8	562.5	502.3	60.14	9.353	
8,600.0	6,818.9	8,589.2	6,818.9	32.6	31.4	90.00	1,241.6	-21.8	562.5	499.1	63.36	8.877	
8,700.0	6,818.6	8,689.2	6,818.6	34.3	33.0	90.00	1,341.6	-21.8	562.5	495.8	66.65	8.439	
8,800.0	6,818.3	8,789.2	6,818.3	35.9	34.7	90.00	1,441.6	-21.8	562.5	492.5	70.00	8.035	
8,900.0	6,817.9	8,889.2	6,818.0	37.6	36.4	90.00	1,541.6	-21.8	562.5	489.1	73.40	7.663	
9,000.0	6,817.6	8,989.2	6,817.6	39.3	38.1	90.00	1,641.6	-21.8	562.5	485.6	76.83	7.321	
9,100.0	6,817.3	9,089.2	6,817.3	41.0	39.9	90.00	1,741.6	-21.8	562.5	482.1	80.31	7.004	
9,200.0	6,817.0	9,189.2	6,817.0	42.8	41.6	90.00	1,841.6	-21.9	562.5	478.6	83.81	6.711	
9,300.0	6,816.7	9,289.2	6,816.7	44.5	43.4	90.00	1,941.6	-21.9	562.4	475.1	87.35	6.439	
9,400.0	6,816.4	9,389.2	6,816.4	46.3	45.2	90.00	2,041.6	-21.9	562.4	471.5	90.91	6.187	
9,500.0	6,816.1	9,489.2	6,816.1	48.0	47.0	90.00	2,141.6	-21.9	562.4	467.9	94.49	5.953	
9,600.0	6,815.7	9,589.2	6,815.8	49.8	48.8	90.00	2,241.6	-21.9	562.4	464.3	98.09	5.734	
9,700.0	6,815.4	9,689.2	6,815.4	51.6	50.6	90.00	2,341.6	-21.9	562.4	460.7	101.71	5.530	
9,800.0	6,815.1	9,789.2	6,815.1	53.4	52.4	90.00	2,441.6	-21.9	562.4	457.1	105.34	5.339	
9,900.0	6,814.8	9,889.2	6,814.8	55.2	54.3	90.00	2,541.6	-21.9	562.4	453.4	108.99	5.160	
10,000.0	6,814.5	9,989.2	6,814.5	57.1	56.1	90.00	2,641.6	-21.9	562.4	449.8	112.65	4.993	
10,100.0	6,814.2	10,089.2	6,814.2	58.9	57.9	90.00	2,741.6	-21.9	562.4	446.1	116.32	4.835	
10,200.0	6,813.9	10,189.2	6,813.9	60.7	59.8	90.00	2,841.6	-21.9	562.4	442.4	120.00	4.686	
10,300.0	6,813.5	10,289.2	6,813.6	62.5	61.6	90.00	2,941.6	-21.9	562.4	438.7	123.70	4.547	
10,400.0	6,813.2	10,389.2	6,813.2	64.4	63.5	90.00	3,041.6	-21.9	562.4	435.0	127.40	4.414	
10,500.0	6,812.9	10,489.2	6,812.9	66.2	65.3	90.00	3,141.6	-21.9	562.4	431.3	131.11	4.289	
10,600.0	6,812.6	10,589.2	6,812.6	68.1	67.2	90.00	3,241.6	-21.9	562.4	427.6	134.83	4.171	
10,700.0	6,812.3	10,689.2	6,812.3	69.9	69.1	90.00	3,341.6	-21.9	562.4	423.8	138.55	4.059	
10,800.0	6,812.0	10,789.2	6,812.0	71.8	70.9	90.00	3,441.6	-21.9	562.4	420.1	142.28	3.953	
10,900.0	6,811.7	10,889.2	6,811.7	73.6	72.8	90.00	3,541.6	-21.9	562.4	416.3	146.02	3.851	
11,000.0	6,811.3	10,989.2	6,811.4	75.5	74.7	90.00	3,641.6	-22.0	562.4	412.6	149.76	3.755	
11,100.0	6,811.0	11,089.2	6,811.0	77.4	76.5	90.00	3,741.6	-22.0	562.4	408.8	153.50	3.663	
11,200.0	6,810.7	11,189.2	6,810.7	79.2	78.4	90.00	3,841.6	-22.0	562.3	405.1	157.25	3.576	
11,300.0	6,810.4	11,289.2	6,810.4	81.1	80.3	90.00	3,941.6	-22.0	562.3	401.3	161.01	3.493	
11,400.0	6,810.1	11,389.2	6,810.1	83.0	82.2	90.00	4,041.6	-22.0	562.3	397.6	164.77	3.413	
11,500.0	6,809.8	11,489.2	6,809.8	84.8	84.1	90.00	4,141.6	-22.0	562.3	393.8	168.53	3.337	
11,600.0	6,809.5	11,589.2	6,809.5	86.7	85.9	90.00	4,241.6	-22.0	562.3	390.0	172.30	3.264	
11,700.0	6,809.1	11,689.2	6,809.2	88.6	87.8	90.00	4,341.6	-22.0	562.3	386.3	176.07	3.194	
11,800.0	6,808.8	11,789.2	6,808.8	90.5	89.7	90.00	4,441.6	-22.0	562.3	382.5	179.84	3.127	
11,900.0	6,808.5	11,889.2	6,808.5	92.3	91.6	90.00	4,541.6	-22.0	562.3	378.7	183.61	3.062	
12,000.0	6,808.2	11,989.2	6,808.2	94.2	93.5	90.00	4,641.6	-22.0	562.3	374.9	187.39	3.001	
12,100.0	6,807.9	12,089.2	6,807.9	96.1	95.4	90.00	4,741.6	-22.0	562.3	371.1	191.17	2.941	
12,200.0	6,807.6	12,189.2	6,807.6	98.0	97.3	90.00	4,841.6	-22.0	562.3	367.3	194.96	2.884	
12,300.0	6,807.3	12,289.2	6,807.3	99.9	99.2	90.00	4,941.6	-22.0	562.3	363.5	198.74	2.829	
12,400.0	6,806.9	12,389.2	6,807.0	101.8	101.1	90.00	5,041.6	-22.0	562.3	359.8	202.53	2.776	
12,500.0	6,806.6	12,489.2	6,806.6	103.7	103.0	90.00	5,141.6	-22.0	562.3	356.0	206.32	2.725	
12,600.0	6,806.3	12,589.2	6,806.3	105.5	104.9	90.00	5,241.6	-22.0	562.3	352.2	210.11	2.676	
12,700.0	6,806.0	12,689.2	6,806.0	107.4	106.8	90.00	5,341.6	-22.0	562.3	348.4	213.90	2.629	
12,800.0	6,805.7	12,789.2	6,805.7	109.3	108.7	90.00	5,441.6	-22.1	562.3	344.6	217.70	2.583	
12,900.0	6,805.4	12,889.2	6,805.4	111.2	110.6	90.00	5,541.6	-22.1	562.3	340.8	221.49	2.538	
13,000.0	6,805.1	12,989.2	6,805.1	113.1	112.5	90.00	5,641.6	-22.1	562.3	337.0	225.29	2.496	
13,100.0	6,804.7	13,089.2	6,804.8	115.0	114.4	90.00	5,741.6	-22.1	562.2	333.2	229.09	2.454	
13,200.0	6,804.4	13,189.2	6,804.5	116.9	116.3	90.00	5,841.6	-22.1	562.2	329.4	232.89	2.414	
13,300.0	6,804.1	13,289.2	6,804.1	118.8	118.2	90.00	5,941.6	-22.1	562.2	325.5	236.69	2.375	
13,400.0	6,803.8	13,389.2	6,803.8	120.7	120.1	90.00	6,041.6	-22.1	562.2	321.7	240.49	2.338	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Dunn 71-321
<b>Project:</b>	SEC.7-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Reference Site:</b>	Dunn 5N64W7 Pad Sec.7-T5N-R64W	<b>MD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Dunn 71-321	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 7L-341 - Wellbore #1 - Plan #1 (9-10-15)												Offset Well Error:	0.0 ft
Survey Program: 0-MWD													
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
13,500.0	6,803.5	13,489.2	6,803.5	122.6	122.0	90.00	6,141.6	-22.1	562.2	317.9	244.30	2.301	
13,600.0	6,803.2	13,589.2	6,803.2	124.5	123.9	90.00	6,241.6	-22.1	562.2	314.1	248.10	2.266	
13,700.0	6,802.9	13,689.2	6,802.9	126.4	125.8	90.00	6,341.5	-22.1	562.2	310.3	251.91	2.232	
13,800.0	6,802.5	13,789.2	6,802.6	128.3	127.7	90.00	6,441.5	-22.1	562.2	306.5	255.72	2.199	
13,900.0	6,802.2	13,889.2	6,802.3	130.2	129.6	90.00	6,541.5	-22.1	562.2	302.7	259.53	2.166	
14,000.0	6,801.9	13,989.2	6,801.9	132.1	131.5	90.00	6,641.5	-22.1	562.2	298.9	263.34	2.135	
14,100.0	6,801.6	14,089.2	6,801.6	134.0	133.4	90.00	6,741.5	-22.1	562.2	295.0	267.15	2.104	
14,200.0	6,801.3	14,189.2	6,801.3	135.9	135.3	90.00	6,841.5	-22.1	562.2	291.2	270.96	2.075	
14,300.0	6,801.0	14,289.2	6,801.0	137.8	137.2	90.00	6,941.5	-22.1	562.2	287.4	274.77	2.046	
14,400.0	6,800.7	14,389.2	6,800.7	139.7	139.1	90.00	7,041.5	-22.1	562.2	283.6	278.58	2.018	
14,500.0	6,800.3	14,489.2	6,800.4	141.6	141.0	90.00	7,141.5	-22.1	562.2	279.8	282.40	1.991	
14,600.0	6,800.0	14,589.2	6,800.1	143.5	142.9	90.00	7,241.5	-22.1	562.2	276.0	286.21	1.964	
14,700.0	6,799.7	14,689.2	6,799.7	145.4	144.8	90.00	7,341.5	-22.2	562.2	272.1	290.03	1.938	
14,800.0	6,799.4	14,789.2	6,799.4	147.3	146.7	90.00	7,441.5	-22.2	562.2	268.3	293.84	1.913	
14,900.0	6,799.1	14,889.2	6,799.1	149.2	148.7	90.00	7,541.5	-22.2	562.2	264.5	297.66	1.889	
15,000.0	6,798.8	14,989.2	6,798.8	151.1	150.6	90.00	7,641.5	-22.2	562.1	260.7	301.48	1.865	
15,100.0	6,798.5	15,089.2	6,798.5	153.0	152.5	90.00	7,741.5	-22.2	562.1	256.8	305.29	1.841	
15,200.0	6,798.1	15,189.2	6,798.2	154.9	154.4	90.00	7,841.5	-22.2	562.1	253.0	309.11	1.819	
15,300.0	6,797.8	15,289.2	6,797.9	156.8	156.3	90.00	7,941.5	-22.2	562.1	249.2	312.93	1.796	
15,400.0	6,797.5	15,389.2	6,797.5	158.8	158.2	90.00	8,041.5	-22.2	562.1	245.4	316.75	1.775	
15,500.0	6,797.2	15,489.2	6,797.2	160.7	160.1	90.00	8,141.5	-22.2	562.1	241.5	320.57	1.753	
15,600.0	6,796.9	15,589.2	6,796.9	162.6	162.0	90.00	8,241.5	-22.2	562.1	237.7	324.39	1.733	
15,700.0	6,796.6	15,689.2	6,796.6	164.5	163.9	90.00	8,341.5	-22.2	562.1	233.9	328.21	1.713	
15,800.0	6,796.3	15,789.2	6,796.3	166.4	165.8	90.00	8,441.5	-22.2	562.1	230.1	332.03	1.693	
15,900.0	6,795.9	15,889.2	6,796.0	168.3	167.8	90.00	8,541.5	-22.2	562.1	226.2	335.85	1.674	
16,000.0	6,795.6	15,989.2	6,795.7	170.2	169.7	90.00	8,641.5	-22.2	562.1	222.4	339.68	1.655	
16,100.0	6,795.3	16,089.2	6,795.3	172.1	171.6	90.00	8,741.5	-22.2	562.1	218.6	343.50	1.636	
16,200.0	6,795.0	16,189.2	6,795.0	174.0	173.5	90.00	8,841.5	-22.2	562.1	214.8	347.32	1.618	
16,300.0	6,794.7	16,289.2	6,794.7	175.9	175.4	90.00	8,941.5	-22.2	562.1	210.9	351.15	1.601	
16,400.0	6,794.4	16,389.2	6,794.4	177.8	177.3	90.00	9,041.5	-22.2	562.1	207.1	354.97	1.583	
16,500.0	6,794.1	16,489.2	6,794.1	179.8	179.2	90.00	9,141.5	-22.3	562.1	203.3	358.79	1.567	
16,600.0	6,793.8	16,589.2	6,793.8	181.7	181.1	90.00	9,241.5	-22.3	562.1	199.4	362.62	1.550	
16,700.0	6,793.4	16,689.2	6,793.5	183.6	183.1	90.00	9,341.5	-22.3	562.1	195.6	366.44	1.534	
16,800.0	6,793.1	16,789.2	6,793.1	185.5	185.0	90.00	9,441.5	-22.3	562.1	191.8	370.27	1.518	
16,839.0	6,793.0	16,828.2	6,793.0	186.2	185.7	90.00	9,480.6	-22.3	562.0	190.3	371.76	1.512 SF	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Dunn 71-321
<b>Project:</b>	SEC.7-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Reference Site:</b>	Dunn 5N64W7 Pad Sec.7-T5N-R64W	<b>MD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Dunn 71-321	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 7Q-221 - Wellbore #1 - Plan #1 (9-11-15)													Offset Well Error:	0.0 ft
Survey Program: 0-MWD														
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-179.47	-120.2	-1.1	120.2					
100.0	100.0	100.0	100.0	0.1	0.1	-179.47	-120.2	-1.1	120.2	120.0	0.22	534.954		
200.0	200.0	200.0	200.0	0.3	0.3	-179.47	-120.2	-1.1	120.2	119.6	0.67	178.307 CC		
300.0	300.0	299.0	299.0	0.6	0.5	179.95	-120.6	0.1	120.6	119.5	1.11	108.936 ES		
400.0	400.0	397.9	397.8	0.8	0.8	178.24	-121.9	3.7	122.0	120.4	1.54	79.032		
500.0	500.0	496.5	496.2	1.0	1.0	175.49	-123.9	9.8	124.4	122.4	1.99	62.495		
600.0	600.0	594.7	594.0	1.2	1.2	171.84	-126.8	18.2	128.2	125.8	2.44	52.465		
700.0	700.0	692.4	691.0	1.5	1.5	167.51	-130.4	28.9	133.9	131.0	2.90	46.146		
800.0	800.0	789.4	787.1	1.7	1.8	162.76	-134.9	41.8	141.8	138.4	3.36	42.194		
900.0	900.0	885.7	882.0	1.9	2.2	157.85	-140.0	57.0	152.2	148.4	3.82	39.860		
1,000.0	1,000.0	981.1	975.7	2.1	2.6	153.03	-145.9	74.2	165.5	161.2	4.28	38.668		
1,100.0	1,100.0	1,075.5	1,067.9	2.4	3.0	148.49	-152.4	93.5	181.7	176.9	4.74	38.284 SF		
1,200.0	1,200.0	1,168.9	1,158.5	2.6	3.4	144.33	-159.6	114.6	200.8	195.6	5.22	38.463		
1,300.0	1,300.0	1,261.1	1,247.5	2.8	3.9	140.60	-167.4	137.5	222.9	217.2	5.71	39.024		
1,400.0	1,400.0	1,352.0	1,334.6	3.0	4.4	137.32	-175.8	162.1	247.9	241.7	6.22	39.832		
1,500.0	1,500.0	1,441.6	1,419.9	3.3	5.0	134.46	-184.7	188.2	275.6	268.9	6.76	40.795		
1,600.0	1,600.0	1,529.9	1,503.2	3.5	5.6	131.97	-194.1	215.8	306.0	298.7	7.31	41.847		
1,700.0	1,700.0	1,616.5	1,584.2	3.7	6.2	-87.99	-203.9	244.7	338.8	330.9	7.91	42.844		
1,800.0	1,799.9	1,700.0	1,661.7	3.9	6.8	-89.81	-213.9	274.1	374.2	365.9	8.34	44.879		
1,900.0	1,899.7	1,783.9	1,738.9	4.0	7.5	-91.63	-224.6	305.3	412.2	403.4	8.77	46.980		
2,000.0	1,999.3	1,866.4	1,814.1	4.2	8.2	-93.38	-235.5	337.5	452.9	443.7	9.21	49.158		
2,100.0	2,098.6	1,955.0	1,894.6	4.5	9.0	-95.21	-247.5	372.6	495.0	485.4	9.67	51.206		
2,200.0	2,197.5	2,042.9	1,974.4	4.7	9.8	-96.92	-259.3	407.4	538.2	528.1	10.13	53.120		
2,300.0	2,296.1	2,130.1	2,053.6	5.0	10.5	-98.52	-271.1	441.9	582.4	571.8	10.61	54.876		
2,400.0	2,394.2	2,216.5	2,132.1	5.2	11.3	-100.01	-282.7	476.1	627.8	616.7	11.12	56.460		
2,500.0	2,491.7	2,302.1	2,209.8	5.6	12.1	-101.42	-294.2	509.9	674.3	662.7	11.65	57.864		
2,600.0	2,588.6	2,386.7	2,286.7	5.9	12.8	-102.73	-305.6	543.4	722.1	709.9	12.22	59.082		
2,642.7	2,629.8	2,422.6	2,319.3	6.1	13.2	-103.26	-310.5	557.6	742.9	730.5	12.48	59.546		
2,700.0	2,685.0	2,470.6	2,362.9	6.4	13.6	-104.40	-316.9	576.6	771.2	758.3	12.81	60.193		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Dunn 71-321
<b>Project:</b>	SEC.7-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Reference Site:</b>	Dunn 5N64W7 Pad Sec.7-T5N-R64W	<b>MD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Dunn 71-321	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-179.47	-90.0	-0.8	90.0					
100.0	100.0	100.0	100.0	0.1	0.1	-179.47	-90.0	-0.8	90.0	89.8	0.22	400.405		
200.0	200.0	200.0	200.0	0.3	0.3	-179.47	-90.0	-0.8	90.0	89.3	0.67	133.460		
300.0	300.0	300.0	300.0	0.6	0.6	-179.47	-90.0	-0.8	90.0	88.9	1.12	80.075		
400.0	400.0	400.0	400.0	0.8	0.8	-179.47	-90.0	-0.8	90.0	88.4	1.57	57.196		
500.0	500.0	500.0	500.0	1.0	1.0	-179.47	-90.0	-0.8	90.0	88.0	2.02	44.486		
600.0	600.0	600.0	600.0	1.2	1.2	-179.47	-90.0	-0.8	90.0	87.5	2.47	36.397 CC, ES		
700.0	700.0	698.9	698.9	1.5	1.4	179.80	-90.6	0.3	90.6	87.7	2.90	31.223		
800.0	800.0	797.8	797.7	1.7	1.6	177.68	-92.3	3.7	92.4	89.1	3.32	27.835		
900.0	900.0	896.3	896.0	1.9	1.8	174.35	-95.2	9.4	95.7	92.0	3.75	25.542		
1,000.0	1,000.0	994.5	993.8	2.1	2.1	170.08	-99.1	17.3	100.8	96.7	4.18	24.121		
1,100.0	1,100.0	1,092.1	1,090.7	2.4	2.3	165.26	-104.2	27.4	108.2	103.6	4.62	23.422		
1,200.0	1,200.0	1,189.1	1,186.8	2.6	2.6	160.24	-110.4	39.6	118.0	113.0	5.06	23.328 SF		
1,300.0	1,300.0	1,285.3	1,281.7	2.8	2.9	155.37	-117.6	53.9	130.6	125.1	5.51	23.730		
1,400.0	1,400.0	1,380.7	1,375.3	3.0	3.3	150.84	-125.8	70.2	146.1	140.2	5.96	24.524		
1,500.0	1,500.0	1,475.1	1,467.5	3.3	3.6	146.80	-134.9	88.3	164.5	158.1	6.42	25.610		
1,600.0	1,600.0	1,568.4	1,558.1	3.5	4.0	143.26	-144.9	108.2	185.7	178.8	6.90	26.904		
1,700.0	1,700.0	1,660.5	1,646.9	3.7	4.5	-77.88	-155.8	129.8	209.4	201.9	7.44	28.131		
1,800.0	1,799.9	1,751.1	1,733.7	3.9	5.0	-80.95	-167.5	152.9	235.4	227.6	7.86	29.965		
1,900.0	1,899.7	1,840.1	1,818.4	4.0	5.5	-83.95	-179.8	177.3	264.1	255.9	8.27	31.932		
2,000.0	1,999.3	1,929.0	1,902.4	4.2	6.1	-86.84	-193.0	203.5	295.6	286.9	8.69	34.000		
2,100.0	2,098.6	2,021.9	1,989.9	4.5	6.7	-89.67	-206.9	231.2	328.4	319.3	9.13	35.953		
2,200.0	2,197.5	2,114.2	2,076.9	4.7	7.3	-92.31	-220.9	258.8	362.2	352.6	9.59	37.770		
2,300.0	2,296.1	2,205.9	2,163.3	5.0	7.9	-94.76	-234.7	286.2	397.1	387.0	10.07	39.429		
2,400.0	2,394.2	2,297.0	2,249.2	5.2	8.5	-97.06	-248.4	313.5	433.1	422.6	10.58	40.921		
2,500.0	2,491.7	2,387.5	2,334.4	5.6	9.2	-99.22	-262.0	340.5	470.4	459.3	11.14	42.244		
2,600.0	2,588.6	2,477.2	2,419.0	5.9	9.8	-101.25	-275.5	367.3	509.0	497.3	11.73	43.405		
2,642.7	2,629.8	2,515.3	2,454.8	6.1	10.1	-102.08	-281.3	378.7	525.9	514.0	11.99	43.853		
2,700.0	2,685.0	2,566.3	2,502.9	6.4	10.4	-103.49	-289.0	393.9	549.0	536.6	12.36	44.400		
2,800.0	2,781.3	2,655.2	2,586.7	6.8	11.0	-105.69	-302.4	420.5	589.8	576.7	13.04	45.234		
2,900.0	2,877.6	2,744.2	2,670.6	7.2	11.7	-107.62	-315.8	447.1	631.2	617.5	13.74	45.937		
3,000.0	2,973.9	2,833.2	2,754.4	7.7	12.3	-109.32	-329.2	473.7	673.3	658.8	14.47	46.532		
3,100.0	3,070.2	2,922.1	2,838.2	8.2	12.9	-110.82	-342.6	500.3	715.7	700.5	15.22	47.039		
3,200.0	3,166.5	3,011.1	2,922.1	8.7	13.5	-112.17	-356.0	526.9	758.5	742.6	15.98	47.474		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Dunn 71-321
<b>Project:</b>	SEC.7-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Reference Site:</b>	Dunn 5N64W7 Pad Sec.7-T5N-R64W	<b>MD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Dunn 71-321	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-179.39	-105.3	-1.1	105.3					
100.0	100.0	100.0	100.0	0.1	0.1	-179.39	-105.3	-1.1	105.3	105.1	0.22	468.496		
200.0	200.0	200.0	200.0	0.3	0.3	-179.39	-105.3	-1.1	105.3	104.6	0.67	156.156		
300.0	300.0	300.0	300.0	0.6	0.6	-179.39	-105.3	-1.1	105.3	104.2	1.12	93.692		
400.0	400.0	400.0	400.0	0.8	0.8	-179.39	-105.3	-1.1	105.3	103.7	1.57	66.923 CC, ES		
500.0	500.0	499.0	499.0	1.0	1.0	179.96	-105.8	0.1	105.8	103.8	2.00	52.800		
600.0	600.0	597.8	597.7	1.2	1.2	178.07	-107.2	3.6	107.3	104.9	2.43	44.197		
700.0	700.0	696.4	696.1	1.5	1.4	175.05	-109.7	9.5	110.2	107.3	2.86	38.466		
800.0	800.0	794.5	793.8	1.7	1.6	171.11	-113.1	17.7	114.6	111.3	3.31	34.665		
900.0	900.0	892.2	890.8	1.9	1.9	166.52	-117.4	28.1	121.1	117.3	3.75	32.259		
1,000.0	1,000.0	989.2	986.8	2.1	2.2	161.60	-122.6	40.8	129.9	125.7	4.20	30.913		
1,100.0	1,100.0	1,085.4	1,081.8	2.4	2.5	156.66	-128.7	55.6	141.4	136.7	4.65	30.386 SF		
1,200.0	1,200.0	1,180.8	1,175.4	2.6	2.9	151.93	-135.7	72.4	155.7	150.6	5.11	30.484		
1,300.0	1,300.0	1,275.2	1,267.6	2.8	3.3	147.58	-143.5	91.1	173.0	167.4	5.57	31.044		
1,400.0	1,400.0	1,368.5	1,358.2	3.0	3.7	143.68	-152.0	111.7	193.2	187.2	6.05	31.933		
1,500.0	1,500.0	1,460.7	1,447.1	3.3	4.2	140.25	-161.2	134.1	216.3	209.7	6.55	33.044		
1,600.0	1,600.0	1,551.6	1,534.2	3.5	4.7	137.28	-171.2	158.1	242.1	235.0	7.06	34.294		
1,700.0	1,700.0	1,641.1	1,619.3	3.7	5.2	-83.22	-181.7	183.5	270.4	262.8	7.64	35.383		
1,800.0	1,799.9	1,728.8	1,702.2	3.9	5.8	-85.63	-192.8	210.3	301.2	293.2	8.07	37.341		
1,900.0	1,899.7	1,814.9	1,782.7	4.0	6.4	-87.96	-204.4	238.3	334.7	326.2	8.49	39.410		
2,000.0	1,999.3	1,906.8	1,868.5	4.2	7.1	-90.39	-217.1	269.0	369.9	361.0	8.93	41.427		
2,100.0	2,098.6	1,998.3	1,953.7	4.5	7.8	-92.66	-229.7	299.5	406.0	396.6	9.37	43.321		
2,200.0	2,197.5	2,089.1	2,038.4	4.7	8.4	-94.80	-242.3	329.9	443.0	433.2	9.83	45.074		
2,300.0	2,296.1	2,179.4	2,122.5	5.0	9.1	-96.81	-254.8	360.1	481.2	470.9	10.31	46.679		
2,400.0	2,394.2	2,268.9	2,206.0	5.2	9.8	-98.72	-267.1	390.0	520.5	509.7	10.82	48.126		
2,500.0	2,491.7	2,357.7	2,288.8	5.6	10.5	-100.51	-279.4	419.7	561.0	549.7	11.35	49.408		
2,600.0	2,588.6	2,445.6	2,370.8	5.9	11.1	-102.21	-291.6	449.0	602.9	590.9	11.93	50.526		
2,642.7	2,629.8	2,482.9	2,405.5	6.1	11.4	-102.90	-296.7	461.5	621.2	609.0	12.19	50.955		
2,700.0	2,685.0	2,532.9	2,452.1	6.4	11.8	-104.18	-303.7	478.2	646.0	633.5	12.55	51.496		
2,800.0	2,781.3	2,620.0	2,533.4	6.8	12.5	-106.19	-315.7	507.3	690.0	676.8	13.19	52.305		
2,900.0	2,877.6	2,707.2	2,614.6	7.2	13.1	-107.97	-327.8	536.5	734.6	720.7	13.87	52.969		
3,000.0	2,973.9	2,794.3	2,695.9	7.7	13.8	-109.56	-339.8	565.6	779.7	765.2	14.57	53.515		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Dunn 71-321
<b>Project:</b>	SEC.7-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Reference Site:</b>	Dunn 5N64W7 Pad Sec.7-T5N-R64W	<b>MD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Dunn 71-321	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-179.36	-179.36	-75.0	-0.8	75.1				
100.0	100.0	100.0	100.0	0.1	0.1	-179.36	-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	-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	-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	-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	-179.36	-75.0	-0.8	75.1	73.0	2.02	37.102	
600.0	600.0	600.0	600.0	1.2	1.2	-179.36	-179.36	-75.0	-0.8	75.1	72.6	2.47	30.356	
700.0	700.0	700.0	700.0	1.5	1.5	-179.36	-179.36	-75.0	-0.8	75.1	72.1	2.92	25.686	
800.0	800.0	800.0	800.0	1.7	1.7	-179.36	-179.36	-75.0	-0.8	75.1	71.7	3.37	22.261	CC, ES
900.0	900.0	899.0	898.9	1.9	1.9	179.81	179.81	-75.7	0.2	75.7	71.9	3.80	19.943	
1,000.0	1,000.0	997.8	997.7	2.1	2.1	177.44	177.44	-77.8	3.5	77.9	73.7	4.21	18.498	
1,100.0	1,100.0	1,096.3	1,096.0	2.4	2.3	173.78	173.78	-81.2	8.9	81.8	77.2	4.63	17.655	
1,200.0	1,200.0	1,194.5	1,193.8	2.6	2.5	169.24	169.24	-86.0	16.3	87.7	82.7	5.06	17.340	SF
1,300.0	1,300.0	1,292.1	1,290.8	2.8	2.7	164.30	164.30	-92.0	25.9	96.1	90.6	5.49	17.495	
1,400.0	1,400.0	1,389.1	1,386.8	3.0	3.0	159.37	159.37	-99.4	37.4	107.0	101.1	5.93	18.059	
1,500.0	1,500.0	1,485.4	1,481.7	3.3	3.3	154.76	154.76	-108.0	50.9	120.8	114.4	6.37	18.964	
1,600.0	1,600.0	1,580.7	1,575.3	3.5	3.6	150.63	150.63	-117.7	66.3	137.3	130.5	6.82	20.139	
1,700.0	1,700.0	1,675.1	1,667.5	3.7	4.0	-71.22	-71.22	-128.6	83.4	156.3	149.0	7.31	21.386	
1,800.0	1,799.9	1,768.2	1,757.9	3.9	4.4	-75.10	-75.10	-140.6	102.1	177.4	169.7	7.71	23.010	
1,900.0	1,899.7	1,860.0	1,846.5	4.0	4.8	-78.90	-78.90	-153.5	122.5	201.2	193.0	8.12	24.778	
2,000.0	1,999.3	1,952.4	1,935.1	4.2	5.3	-82.57	-82.57	-167.6	144.6	227.5	219.0	8.54	26.648	
2,100.0	2,098.6	2,047.2	2,025.8	4.5	5.8	-86.09	-86.09	-182.2	167.5	255.0	246.0	8.97	28.425	
2,200.0	2,197.5	2,141.6	2,116.2	4.7	6.3	-89.35	-89.35	-196.7	190.4	283.4	273.9	9.42	30.065	
2,300.0	2,296.1	2,235.5	2,206.2	5.0	6.9	-92.39	-92.39	-211.2	213.2	312.8	302.9	9.91	31.563	
2,400.0	2,394.2	2,328.9	2,295.6	5.2	7.4	-95.25	-95.25	-225.6	235.9	343.3	332.9	10.43	32.915	
2,500.0	2,491.7	2,421.7	2,384.5	5.6	7.9	-97.94	-97.94	-240.0	258.4	375.2	364.2	10.99	34.124	
2,600.0	2,588.6	2,513.8	2,472.8	5.9	8.5	-100.48	-100.48	-254.2	280.7	408.4	396.8	11.60	35.196	
2,642.7	2,629.8	2,552.9	2,510.2	6.1	8.7	-101.52	-101.52	-260.2	290.2	423.0	411.2	11.88	35.613	
2,700.0	2,685.0	2,605.3	2,560.4	6.4	9.0	-103.13	-103.13	-268.3	302.9	443.0	430.8	12.26	36.125	
2,800.0	2,781.3	2,696.8	2,648.0	6.8	9.6	-105.63	-105.63	-282.4	325.1	478.6	465.6	12.96	36.923	
2,900.0	2,877.6	2,788.3	2,735.7	7.2	10.1	-107.79	-107.79	-296.5	347.3	514.9	501.2	13.69	37.617	
3,000.0	2,973.9	2,879.7	2,823.3	7.7	10.6	-109.68	-109.68	-310.6	369.5	551.7	537.3	14.43	38.225	
3,100.0	3,070.2	2,971.2	2,910.9	8.2	11.2	-111.33	-111.33	-324.8	391.6	589.0	573.8	15.20	38.760	
3,200.0	3,166.5	3,062.7	2,998.5	8.7	11.7	-112.80	-112.80	-338.9	413.8	626.7	610.8	15.97	39.235	
3,300.0	3,262.8	3,154.2	3,086.1	9.2	12.3	-114.09	-114.09	-353.0	436.0	664.8	648.0	16.76	39.658	
3,400.0	3,359.1	3,245.6	3,173.7	9.7	12.9	-115.26	-115.26	-367.1	458.2	703.0	685.5	17.56	40.038	
3,500.0	3,455.4	3,337.1	3,261.3	10.2	13.4	-116.30	-116.30	-381.2	480.4	741.6	723.2	18.36	40.380	
3,600.0	3,551.7	3,428.6	3,348.9	10.7	14.0	-117.24	-117.24	-395.3	502.6	780.3	761.1	19.18	40.691	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Dunn 71-321
<b>Project:</b>	SEC.7-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Reference Site:</b>	Dunn 5N64W7 Pad Sec.7-T5N-R64W	<b>MD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Dunn 71-321	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells - Sec.7-T5N-R64W - Dunn #1 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 6990-UNKNOWN													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-86.01	32.4	-464.8	466.1					
100.0	100.0	87.0	87.0	0.1	1.7	-86.01	32.4	-464.8	465.9	464.1	1.85	251.526		
200.0	200.0	187.0	187.0	0.3	3.7	-86.01	32.4	-464.8	465.9	461.8	4.08	114.277		
300.0	300.0	287.0	287.0	0.6	5.7	-86.01	32.4	-464.8	465.9	459.6	6.30	73.934		
400.0	400.0	387.0	387.0	0.8	7.7	-86.01	32.4	-464.8	465.9	457.4	8.53	54.643		
500.0	500.0	487.0	487.0	1.0	9.7	-86.01	32.4	-464.8	465.9	455.2	10.75	43.336		
600.0	600.0	587.0	587.0	1.2	11.7	-86.01	32.4	-464.8	465.9	452.9	12.98	35.906		
700.0	700.0	687.0	687.0	1.5	13.7	-86.01	32.4	-464.8	465.9	450.7	15.20	30.651		
800.0	800.0	787.0	787.0	1.7	15.7	-86.01	32.4	-464.8	465.9	448.5	17.43	26.738		
900.0	900.0	887.0	887.0	1.9	17.7	-86.01	32.4	-464.8	465.9	446.3	19.65	23.711		
1,000.0	1,000.0	987.0	987.0	2.1	19.7	-86.01	32.4	-464.8	465.9	444.0	21.88	21.299		
1,100.0	1,100.0	1,087.0	1,087.0	2.4	21.7	-86.01	32.4	-464.8	465.9	441.8	24.10	19.333		
1,200.0	1,200.0	1,187.0	1,187.0	2.6	23.7	-86.01	32.4	-464.8	465.9	439.6	26.32	17.699		
1,300.0	1,300.0	1,287.0	1,287.0	2.8	25.7	-86.01	32.4	-464.8	465.9	437.4	28.55	16.320		
1,400.0	1,400.0	1,387.0	1,387.0	3.0	27.7	-86.01	32.4	-464.8	465.9	435.1	30.77	15.140		
1,500.0	1,500.0	1,487.0	1,487.0	3.3	29.7	-86.01	32.4	-464.8	465.9	432.9	33.00	14.119		
1,600.0	1,600.0	1,587.0	1,587.0	3.5	31.7	-86.01	32.4	-464.8	465.9	430.7	35.22	13.227		
1,700.0	1,700.0	1,687.0	1,687.0	3.7	33.7	56.03	32.4	-464.8	465.2	427.8	37.42	12.432		
1,800.0	1,799.9	1,786.9	1,786.9	3.9	35.7	56.46	32.4	-464.8	463.0	423.4	39.58	11.698		
1,900.0	1,899.7	1,886.7	1,886.7	4.0	37.7	57.18	32.4	-464.8	459.4	417.7	41.74	11.007		
2,000.0	1,999.3	1,986.3	1,986.3	4.2	39.7	58.21	32.4	-464.8	454.5	410.6	43.90	10.354		
2,100.0	2,098.6	2,085.6	2,085.6	4.5	41.7	59.56	32.4	-464.8	448.4	402.4	46.06	9.736		
2,200.0	2,197.5	2,184.5	2,184.5	4.7	43.7	61.25	32.4	-464.8	441.3	393.0	48.22	9.150		
2,300.0	2,296.1	2,283.1	2,283.1	5.0	45.7	63.29	32.4	-464.8	433.3	382.9	50.41	8.595		
2,400.0	2,394.2	2,381.2	2,381.2	5.2	47.6	65.72	32.4	-464.8	424.8	372.1	52.64	8.070		
2,500.0	2,491.7	2,478.7	2,478.7	5.6	49.6	68.56	32.4	-464.8	416.0	361.1	54.90	7.577		
2,600.0	2,588.6	2,575.6	2,575.6	5.9	51.5	71.82	32.4	-464.8	407.4	350.2	57.22	7.120		
2,642.7	2,629.8	2,616.8	2,616.8	6.1	52.3	73.34	32.4	-464.8	403.9	345.7	58.23	6.937		
2,700.0	2,685.0	2,672.0	2,672.0	6.4	53.4	75.39	32.4	-464.8	399.6	340.0	59.62	6.703		
2,800.0	2,781.3	2,768.3	2,768.3	6.8	55.4	79.05	32.4	-464.8	393.4	331.4	62.05	6.341		
2,900.0	2,877.6	2,864.6	2,864.6	7.2	57.3	82.81	32.4	-464.8	389.0	324.5	64.48	6.033		
3,000.0	2,973.9	2,960.9	2,960.9	7.7	59.2	86.63	32.4	-464.8	386.5	319.5	66.92	5.775		
3,087.4	3,058.1	3,045.1	3,045.1	8.1	60.9	90.00	32.4	-464.8	385.7	316.7	69.04	5.587		
3,100.0	3,070.2	3,057.2	3,057.2	8.2	61.1	90.48	32.4	-464.8	385.8	316.4	69.34	5.563		
3,200.0	3,166.5	3,153.5	3,153.5	8.7	63.1	94.33	32.4	-464.8	386.9	315.2	71.74	5.393		
3,300.0	3,262.8	3,249.8	3,249.8	9.2	65.0	98.14	32.4	-464.8	390.0	315.9	74.11	5.262		
3,400.0	3,359.1	3,346.1	3,346.1	9.7	66.9	101.88	32.4	-464.8	394.8	318.4	76.44	5.165		
3,500.0	3,455.4	3,442.3	3,442.3	10.2	68.8	105.52	32.4	-464.8	401.5	322.7	78.73	5.099		
3,600.0	3,551.7	3,538.6	3,538.6	10.7	70.8	109.03	32.4	-464.8	409.7	328.8	80.98	5.060		
3,700.0	3,648.0	3,634.9	3,634.9	11.3	72.7	112.41	32.4	-464.8	419.6	336.4	83.19	5.044		
3,800.0	3,744.2	3,731.2	3,731.2	11.8	74.6	115.62	32.4	-464.8	430.9	345.6	85.37	5.048		
3,900.0	3,840.5	3,827.5	3,827.5	12.3	76.6	118.67	32.4	-464.8	443.6	356.1	87.51	5.069		
4,000.0	3,936.8	3,923.8	3,923.8	12.9	78.5	121.56	32.4	-464.8	457.5	367.9	89.62	5.105		
4,100.0	4,033.1	4,020.1	4,020.1	13.4	80.4	124.27	32.4	-464.8	472.6	380.8	91.71	5.153		
4,200.0	4,129.4	4,116.4	4,116.4	14.0	82.3	126.83	32.4	-464.8	488.6	394.8	93.78	5.210		
4,300.0	4,225.7	4,212.7	4,212.7	14.5	84.3	129.22	32.4	-464.8	505.6	409.8	95.84	5.276		
4,400.0	4,322.0	4,309.0	4,309.0	15.1	86.2	131.46	32.4	-464.8	523.5	425.6	97.88	5.348		
4,500.0	4,418.3	4,405.3	4,405.3	15.6	88.1	133.55	32.4	-464.8	542.0	442.1	99.92	5.425		
4,600.0	4,514.6	4,501.6	4,501.6	16.2	90.0	135.51	32.4	-464.8	561.3	459.4	101.95	5.506		
4,700.0	4,610.9	4,597.9	4,597.9	16.7	92.0	137.34	32.4	-464.8	581.2	477.2	103.98	5.590		
4,800.0	4,707.2	4,694.2	4,694.2	17.3	93.9	139.06	32.4	-464.8	601.6	495.6	106.00	5.676		

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



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Dunn 71-321
<b>Project:</b>	SEC.7-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Reference Site:</b>	Dunn 5N64W7 Pad Sec.7-T5N-R64W	<b>MD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Dunn 71-321	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells - Sec.7-T5N-R64W - Dunn #1 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 6990-UNKNOWN													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
4,900.0	4,803.5	4,790.5	4,790.5	17.8	95.8	140.66	32.4	-464.8	622.6	514.5	108.03	5.763		
5,000.0	4,899.8	4,886.8	4,886.8	18.4	97.7	142.16	32.4	-464.8	643.9	533.9	110.06	5.851		
5,100.0	4,996.1	4,983.1	4,983.1	18.9	99.7	143.56	32.4	-464.8	665.7	553.6	112.08	5.939		
5,200.0	5,092.4	5,079.4	5,079.4	19.5	101.6	144.88	32.4	-464.8	687.9	573.8	114.11	6.028		
5,236.6	5,127.7	5,114.7	5,114.7	19.7	102.3	145.34	32.4	-464.8	696.1	581.2	114.86	6.060		
5,300.0	5,188.9	5,175.9	5,175.9	20.0	103.5	146.24	32.4	-464.8	709.8	593.3	116.52	6.092		
5,400.0	5,286.2	5,273.2	5,273.2	20.4	105.5	147.46	32.4	-464.8	729.3	610.2	119.10	6.123		
5,500.0	5,384.2	5,371.2	5,371.2	20.7	107.4	148.45	32.4	-464.8	746.1	624.4	121.67	6.132		
5,600.0	5,482.9	5,469.9	5,469.9	21.0	109.4	149.23	32.4	-464.8	760.1	635.9	124.20	6.120		
5,700.0	5,582.0	5,569.0	5,569.0	21.2	111.4	149.83	32.4	-464.8	771.2	644.5	126.66	6.088		
5,800.0	5,681.6	5,668.6	5,668.6	21.5	113.4	150.26	32.4	-464.8	779.3	650.3	129.04	6.039		
5,900.0	5,781.4	5,768.4	5,768.4	21.6	115.4	150.52	32.4	-464.8	784.4	653.1	131.33	5.973		
6,000.0	5,881.4	5,868.4	5,868.4	21.8	117.4	150.63	32.4	-464.8	786.5	653.0	133.50	5.891		
6,018.6	5,900.0	5,887.0	5,887.0	21.8	117.7	8.74	32.4	-464.8	786.6	652.7	133.89	5.875		
6,100.0	5,981.4	5,968.4	5,968.4	21.9	119.4	8.74	32.4	-464.8	786.6	650.9	135.65	5.799		
6,177.4	6,058.8	6,045.8	6,045.8	22.0	120.9	8.74	32.4	-464.8	786.6	649.2	137.32	5.728		
6,200.0	6,081.4	6,068.4	6,068.4	22.0	121.4	8.75	32.4	-464.8	786.2	648.5	137.69	5.710		
6,250.0	6,131.3	6,118.3	6,118.3	22.0	122.4	8.82	32.4	-464.8	783.1	645.1	138.08	5.672		
6,300.0	6,180.9	6,167.8	6,167.8	22.0	123.4	8.96	32.4	-464.8	776.8	639.0	137.86	5.635		
6,350.0	6,229.9	6,216.9	6,216.9	22.0	124.3	9.19	32.4	-464.8	767.4	630.4	137.02	5.601		
6,400.0	6,278.2	6,265.2	6,265.2	22.0	125.3	9.50	32.4	-464.8	754.7	619.2	135.55	5.568		
6,450.0	6,325.6	6,312.6	6,312.6	21.9	126.3	9.92	32.4	-464.8	739.0	605.6	133.47	5.537		
6,500.0	6,371.9	6,358.9	6,358.9	21.8	127.2	10.45	32.4	-464.8	720.3	589.5	130.78	5.508		
6,550.0	6,416.8	6,403.8	6,403.8	21.6	128.1	11.12	32.4	-464.8	698.6	571.1	127.52	5.479		
6,600.0	6,460.2	6,447.1	6,447.1	21.5	128.9	11.95	32.4	-464.8	674.2	550.4	123.72	5.449		
6,650.0	6,501.8	6,488.8	6,488.8	21.3	129.8	12.99	32.4	-464.8	647.0	527.5	119.44	5.417		
6,700.0	6,541.6	6,528.6	6,528.6	21.1	130.6	14.29	32.4	-464.8	617.2	502.4	114.81	5.376		
6,750.0	6,579.3	6,566.2	6,566.2	20.9	131.3	15.91	32.4	-464.8	585.0	475.0	109.99	5.319		
6,800.0	6,614.7	6,601.7	6,601.7	20.7	132.0	17.96	32.4	-464.8	550.6	445.3	105.26	5.231		
6,850.0	6,647.8	6,634.8	6,634.8	20.5	132.7	20.57	32.4	-464.8	514.0	413.0	101.08	5.086		
6,900.0	6,678.3	6,665.3	6,665.3	20.3	133.3	23.93	32.4	-464.8	475.7	377.5	98.17	4.845		
6,950.0	6,706.3	6,693.2	6,693.2	20.1	133.9	28.26	32.4	-464.8	435.6	338.1	97.58	4.464		
7,000.0	6,731.4	6,718.4	6,718.4	19.9	134.4	33.86	32.4	-464.8	394.3	293.7	100.56	3.921		
7,050.0	6,753.6	6,740.6	6,740.6	19.7	134.8	40.99	32.4	-464.8	351.9	243.9	107.98	3.259		
7,100.0	6,772.9	6,759.9	6,759.9	19.5	135.2	49.75	32.4	-464.8	308.9	189.5	119.38	2.587		
7,150.0	6,789.1	6,776.1	6,776.1	19.3	135.5	59.76	32.4	-464.8	265.9	133.6	132.30	2.010		
7,200.0	6,802.2	6,789.2	6,789.2	19.1	135.8	69.97	32.4	-464.8	223.9	80.6	143.21	1.563		
7,250.0	6,812.1	6,799.1	6,799.1	18.9	136.0	78.97	32.4	-464.8	184.3	34.4	149.88	1.230 Level 2		
7,300.0	6,818.8	6,805.8	6,805.8	18.7	136.1	85.61	32.4	-464.8	150.1	-2.7	152.72	0.983 Level 1		
7,350.0	6,822.2	6,809.2	6,809.2	18.6	136.2	89.30	32.4	-464.8	126.3	-27.2	153.53	0.823 Level 1		
7,379.8	6,822.7	6,809.7	6,809.7	18.5	136.2	90.02	32.4	-464.8	120.0	-33.7	153.69	0.781 Level 1		
7,390.9	6,822.7	6,809.7	6,809.7	18.4	136.2	90.00	32.4	-464.8	119.5	-34.2	153.73	0.777 Level 1, CC, ES, SF		
7,400.0	6,822.7	6,809.6	6,809.6	18.4	136.2	89.99	32.4	-464.8	119.9	-33.9	153.77	0.779 Level 1		
7,500.0	6,822.3	6,809.3	6,809.3	18.2	136.2	89.84	32.4	-464.8	161.8	7.6	154.29	1.049 Level 2		
7,600.0	6,822.0	6,809.0	6,809.0	18.9	136.2	89.69	32.4	-464.8	240.9	85.9	154.98	1.554		
7,700.0	6,821.7	6,808.7	6,808.7	20.0	136.2	89.53	32.4	-464.8	331.4	175.6	155.84	2.127		
7,800.0	6,821.4	6,808.4	6,808.4	21.1	136.2	89.38	32.4	-464.8	426.2	269.4	156.84	2.718		
7,900.0	6,821.1	6,808.1	6,808.1	22.3	136.2	89.23	32.4	-464.8	523.0	365.0	157.96	3.311		
8,000.0	6,820.8	6,807.8	6,807.8	23.6	136.2	89.08	32.4	-464.8	620.7	461.6	159.18	3.900		
8,100.0	6,820.5	6,807.4	6,807.4	25.0	136.1	88.93	32.4	-464.8	719.1	558.6	160.49	4.481		



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Dunn 71-321
<b>Project:</b>	SEC.7-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Reference Site:</b>	Dunn 5N64W7 Pad Sec.7-T5N-R64W	<b>MD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Dunn 71-321	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Existing Wells - Sec.7-T5N-R64W - Dunn #13-7 (Exist.) - Wellbore #1 - Wellbore #1										Offset Site Error:		0.0 ft
Survey Program:		71125-UNKNOWN										Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
7,700.0	6,821.7	6,806.7	6,806.7	20.0	136.1	93.85	1,123.5	-547.8	782.8	627.2	155.67	5.029		
7,800.0	6,821.4	6,806.4	6,806.4	21.1	136.1	93.36	1,123.5	-547.8	683.0	526.2	156.74	4.357		
7,900.0	6,821.1	6,806.1	6,806.1	22.3	136.1	92.86	1,123.5	-547.8	583.1	425.2	157.91	3.693		
8,000.0	6,820.8	6,805.8	6,805.8	23.6	136.1	92.37	1,123.5	-547.8	483.4	324.2	159.19	3.037		
8,100.0	6,820.5	6,805.4	6,805.4	25.0	136.1	91.88	1,123.5	-547.8	383.7	223.2	160.53	2.390		
8,200.0	6,820.1	6,805.1	6,805.1	26.4	136.1	91.39	1,123.5	-547.8	284.4	122.4	161.95	1.756		
8,300.0	6,819.8	6,804.8	6,804.8	27.9	136.1	90.90	1,123.5	-547.8	185.6	22.2	163.41	1.136	Level 2	
8,400.0	6,819.5	6,804.5	6,804.5	29.5	136.1	90.40	1,123.5	-547.8	89.8	-75.1	164.92	0.544	Level 1	
8,482.0	6,819.3	6,804.2	6,804.2	30.7	136.1	90.00	1,123.5	-547.8	36.5	-129.6	166.18	0.220	Level 1, CC, ES, SF	
8,500.0	6,819.2	6,804.2	6,804.2	31.0	136.1	89.91	1,123.5	-547.8	40.7	-125.7	166.46	0.245	Level 1	
8,600.0	6,818.9	6,803.9	6,803.9	32.6	136.1	89.42	1,123.5	-547.8	123.5	-44.5	168.03	0.735	Level 1	
8,700.0	6,818.6	6,803.6	6,803.6	34.3	136.1	88.93	1,123.5	-547.8	221.0	51.4	169.62	1.303	Level 3	
8,800.0	6,818.3	6,803.2	6,803.2	35.9	136.1	88.43	1,123.5	-547.8	320.1	148.9	171.23	1.869		
8,900.0	6,817.9	6,802.9	6,802.9	37.6	136.1	87.94	1,123.5	-547.8	419.6	246.8	172.85	2.428		
9,000.0	6,817.6	6,802.6	6,802.6	39.3	136.1	87.45	1,123.5	-547.8	519.3	344.8	174.47	2.976		
9,100.0	6,817.3	6,802.3	6,802.3	41.0	136.0	86.96	1,123.5	-547.8	619.1	443.0	176.11	3.515		
9,200.0	6,817.0	6,802.0	6,802.0	42.8	136.0	86.47	1,123.5	-547.8	718.9	541.2	177.75	4.045		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Dunn 71-321
<b>Project:</b>	SEC.7-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Reference Site:</b>	Dunn 5N64W7 Pad Sec.7-T5N-R64W	<b>MD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Dunn 71-321	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Existing Wells - Sec.7-T5N-R64W - Little Will #6 (P&A) - Wellbore #1 - Wellbore #1												<b>Offset Site Error:</b>	0.0 ft
Survey Program: 6998-UNKNOWN												<b>Offset Well Error:</b>	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
15,400.0	6,797.5	6,786.5	6,786.5	158.8	135.7	90.25	8,665.9	-140.3	766.2	471.9	294.28	2.604	
15,500.0	6,797.2	6,786.2	6,786.2	160.7	135.7	90.21	8,665.9	-140.3	687.1	391.0	296.18	2.320	
15,600.0	6,796.9	6,785.9	6,785.9	162.6	135.7	90.17	8,665.9	-140.3	614.2	316.1	298.09	2.061	
15,700.0	6,796.6	6,785.6	6,785.6	164.5	135.7	90.13	8,665.9	-140.3	549.9	249.9	299.99	1.833	
15,800.0	6,796.3	6,785.3	6,785.3	166.4	135.7	90.09	8,665.9	-140.3	497.5	195.6	301.89	1.648	
15,900.0	6,795.9	6,784.9	6,784.9	168.3	135.7	90.05	8,665.9	-140.3	461.1	157.3	303.80	1.518	
16,000.0	6,795.6	6,784.6	6,784.6	170.2	135.7	90.01	8,665.9	-140.3	444.7	139.0	305.70	1.455	Level 3
16,024.4	6,795.6	6,784.5	6,784.5	170.7	135.7	90.00	8,665.9	-140.3	444.0	137.8	306.16	1.450	Level 3, CC, ES, SF
16,100.0	6,795.3	6,784.3	6,784.3	172.1	135.7	89.97	8,665.9	-140.3	450.4	142.8	307.60	1.464	Level 3
16,200.0	6,795.0	6,784.0	6,784.0	174.0	135.7	89.93	8,665.9	-140.3	477.5	168.0	309.51	1.543	
16,300.0	6,794.7	6,783.7	6,783.7	175.9	135.7	89.89	8,665.9	-140.3	522.6	211.2	311.41	1.678	
16,400.0	6,794.4	6,783.4	6,783.4	177.8	135.7	89.85	8,665.9	-140.3	581.6	268.2	313.31	1.856	
16,500.0	6,794.1	6,783.1	6,783.1	179.8	135.7	89.81	8,665.9	-140.3	650.6	335.4	315.22	2.064	
16,600.0	6,793.8	6,782.7	6,782.7	181.7	135.7	89.77	8,665.9	-140.3	726.9	409.8	317.12	2.292	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Dunn 71-321
<b>Project:</b>	SEC.7-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Reference Site:</b>	Dunn 5N64W7 Pad Sec.7-T5N-R64W	<b>MD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Dunn 71-321	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells - Sec.7-T5N-R64W - Mitani #1 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7000-UNKNOWN													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						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		
13,000.0	6,805.1	6,777.1	6,777.1	113.1	135.5	90.23	6,263.6	-100.8	787.9	539.5	248.38	3.172		
13,100.0	6,804.7	6,776.7	6,776.7	115.0	135.5	90.19	6,263.6	-100.8	711.6	461.3	250.27	2.843		
13,200.0	6,804.4	6,776.4	6,776.4	116.9	135.5	90.16	6,263.6	-100.8	641.9	389.7	252.16	2.545		
13,300.0	6,804.1	6,776.1	6,776.1	118.8	135.5	90.12	6,263.6	-100.8	581.0	326.9	254.05	2.287		
13,400.0	6,803.8	6,775.8	6,775.8	120.7	135.5	90.08	6,263.6	-100.8	532.1	276.2	255.95	2.079		
13,500.0	6,803.5	6,775.5	6,775.5	122.6	135.5	90.05	6,263.6	-100.8	498.7	240.9	257.84	1.934		
13,600.0	6,803.2	6,775.2	6,775.2	124.5	135.5	90.01	6,263.6	-100.8	484.0	224.3	259.74	1.864		
13,622.1	6,803.1	6,775.1	6,775.1	124.9	135.5	90.00	6,263.6	-100.8	483.5	223.4	260.16	1.859	CC, ES, SF	
13,700.0	6,802.9	6,774.9	6,774.9	126.4	135.5	89.97	6,263.6	-100.8	489.8	228.1	261.63	1.872		
13,800.0	6,802.5	6,774.5	6,774.5	128.3	135.5	89.93	6,263.6	-100.8	515.2	251.7	263.53	1.955		
13,900.0	6,802.2	6,774.2	6,774.2	130.2	135.5	89.90	6,263.6	-100.8	557.7	292.3	265.42	2.101		
14,000.0	6,801.9	6,773.9	6,773.9	132.1	135.5	89.86	6,263.6	-100.8	613.7	346.4	267.32	2.296		
14,100.0	6,801.6	6,773.6	6,773.6	134.0	135.5	89.82	6,263.6	-100.8	679.8	410.6	269.22	2.525		
14,200.0	6,801.3	6,773.3	6,773.3	135.9	135.5	89.78	6,263.6	-100.8	753.5	482.4	271.11	2.779		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Dunn 71-321
<b>Project:</b>	SEC.7-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Reference Site:</b>	Dunn 5N64W7 Pad Sec.7-T5N-R64W	<b>MD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Dunn 71-321	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b>												<b>Offset Site Error:</b>	0.0 ft
Survey Program: 7032-UNKNOWN												<b>Offset Well Error:</b>	0.0 ft
Existing Wells - Sec.7-T5N-R64W - Mitani #14-6 (Exist.) - Wellbore #1 - Wellbore #1													
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
12,000.0	6,808.2	6,770.2	6,770.2	94.2	135.4	90.33	5,303.3	-221.6	754.6	525.3	229.30	3.291	
12,100.0	6,807.9	6,769.9	6,769.9	96.1	135.4	90.28	5,303.3	-221.6	668.7	437.5	231.19	2.892	
12,200.0	6,807.6	6,769.6	6,769.6	98.0	135.4	90.23	5,303.3	-221.6	587.2	354.1	233.07	2.519	
12,300.0	6,807.3	6,769.3	6,769.3	99.9	135.4	90.18	5,303.3	-221.6	512.3	277.3	234.95	2.180	
12,400.0	6,806.9	6,768.9	6,768.9	101.8	135.4	90.13	5,303.3	-221.6	447.3	210.4	236.84	1.889	
12,500.0	6,806.6	6,768.6	6,768.6	103.7	135.4	90.08	5,303.3	-221.6	397.1	158.4	238.72	1.664	
12,600.0	6,806.3	6,768.3	6,768.3	105.5	135.4	90.03	5,303.3	-221.6	367.9	127.3	240.61	1.529	
12,661.8	6,806.1	6,768.1	6,768.1	106.7	135.4	90.00	5,303.3	-221.6	362.7	120.9	241.78	1.500 CC, ES, SF	
12,700.0	6,806.0	6,768.0	6,768.0	107.4	135.4	89.98	5,303.3	-221.6	364.7	122.2	242.50	1.504	
12,800.0	6,805.7	6,767.7	6,767.7	109.3	135.4	89.93	5,303.3	-221.6	388.1	143.7	244.39	1.588	
12,900.0	6,805.4	6,767.4	6,767.4	111.2	135.3	89.88	5,303.3	-221.6	433.9	187.6	246.28	1.762	
13,000.0	6,805.1	6,767.1	6,767.1	113.1	135.3	89.83	5,303.3	-221.6	495.9	247.8	248.16	1.998	
13,100.0	6,804.7	6,766.7	6,766.7	115.0	135.3	89.78	5,303.3	-221.6	568.8	318.8	250.06	2.275	
13,200.0	6,804.4	6,766.4	6,766.4	116.9	135.3	89.73	5,303.3	-221.6	649.0	397.1	251.95	2.576	
13,300.0	6,804.1	6,766.1	6,766.1	118.8	135.3	89.68	5,303.3	-221.6	734.1	480.2	253.84	2.892	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Dunn 71-321
<b>Project:</b>	SEC.7-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Reference Site:</b>	Dunn 5N64W7 Pad Sec.7-T5N-R64W	<b>MD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Dunn 71-321	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

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

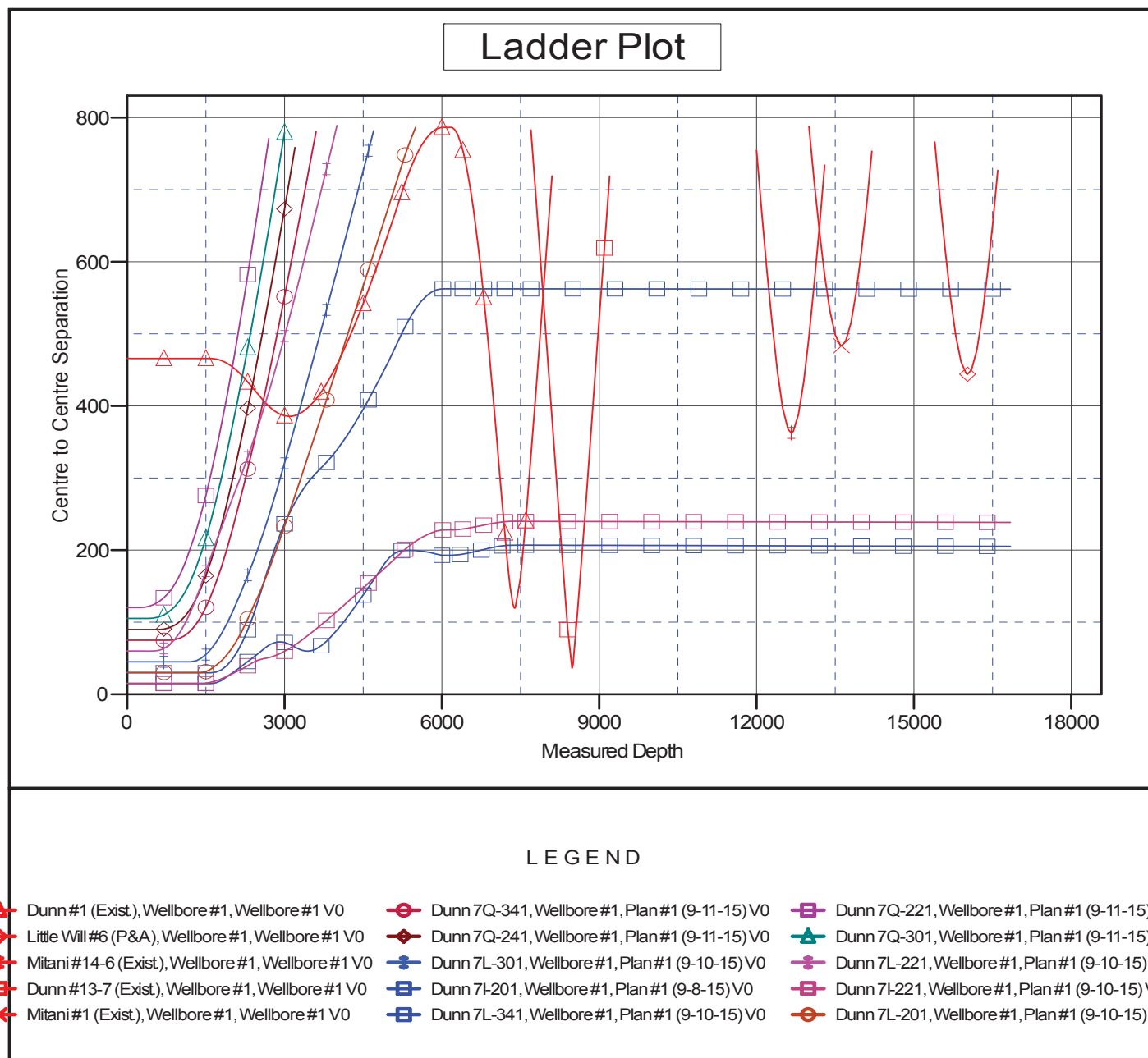
Offset Depths are relative to Offset Datum

Central Meridian is -105.500000

Coordinates are relative to: Dunn 71-321

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.58°



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Dunn 71-321
<b>Project:</b>	SEC.7-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Reference Site:</b>	Dunn 5N64W7 Pad Sec.7-T5N-R64W	<b>MD Reference:</b>	WELL @ 4638.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Dunn 71-321	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (9-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

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

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000

Coordinates are relative to: Dunn 71-321

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.58°

