

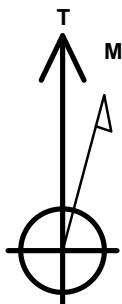
PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Dunn 7Q-341**

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 1392876.09 3251104.52 40.408342 -104.598275
 Original Well Elev WELL @ 4638.0ft (Original Well Elev)

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 720'FSL & 980'FWL, Sec.7	1.0	0.0	0.0	Point
BHL 200'FNL & 1994'FWL, Sec.6	6793.0	9572.0	1042.8	Point



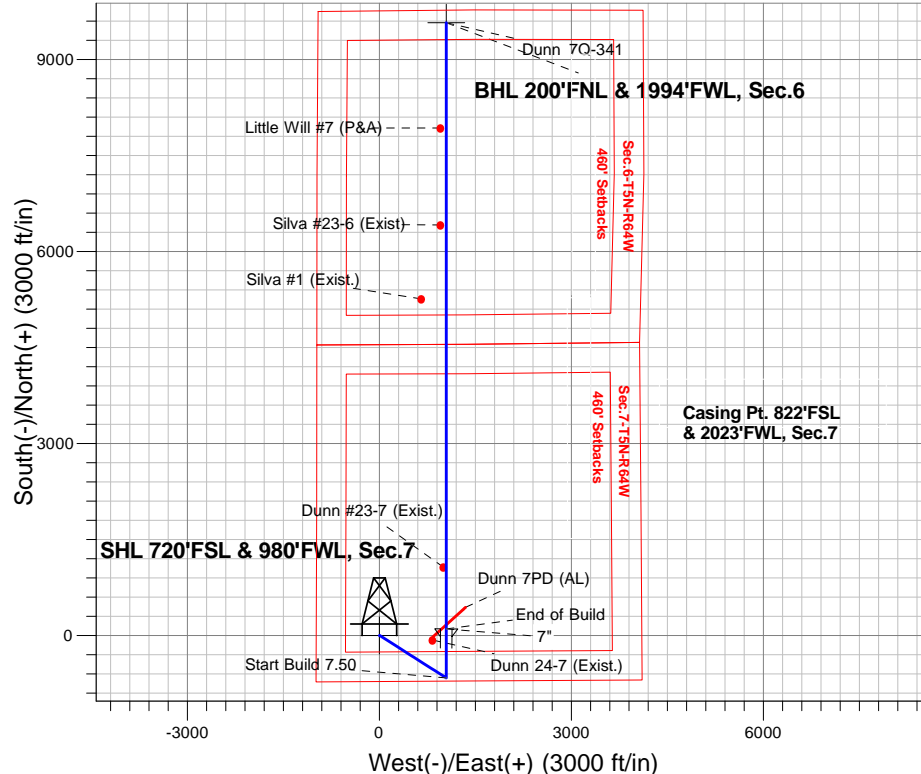
Azimuths to True North
 Magnetic North: 8.20°

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

ANNOTATIONS

TVD	MD	Annotation
800.0	800.0	KOP - Start Build 1.50
5076.5	5232.3	Start Drop -2.00
5900.0	6067.5	Start 148.9 hold at 6067.5 MD
6048.9	6216.4	Start Build 7.50
6812.8	7418.0	End of Build
6793.0	16888.0	TD at 16888.0

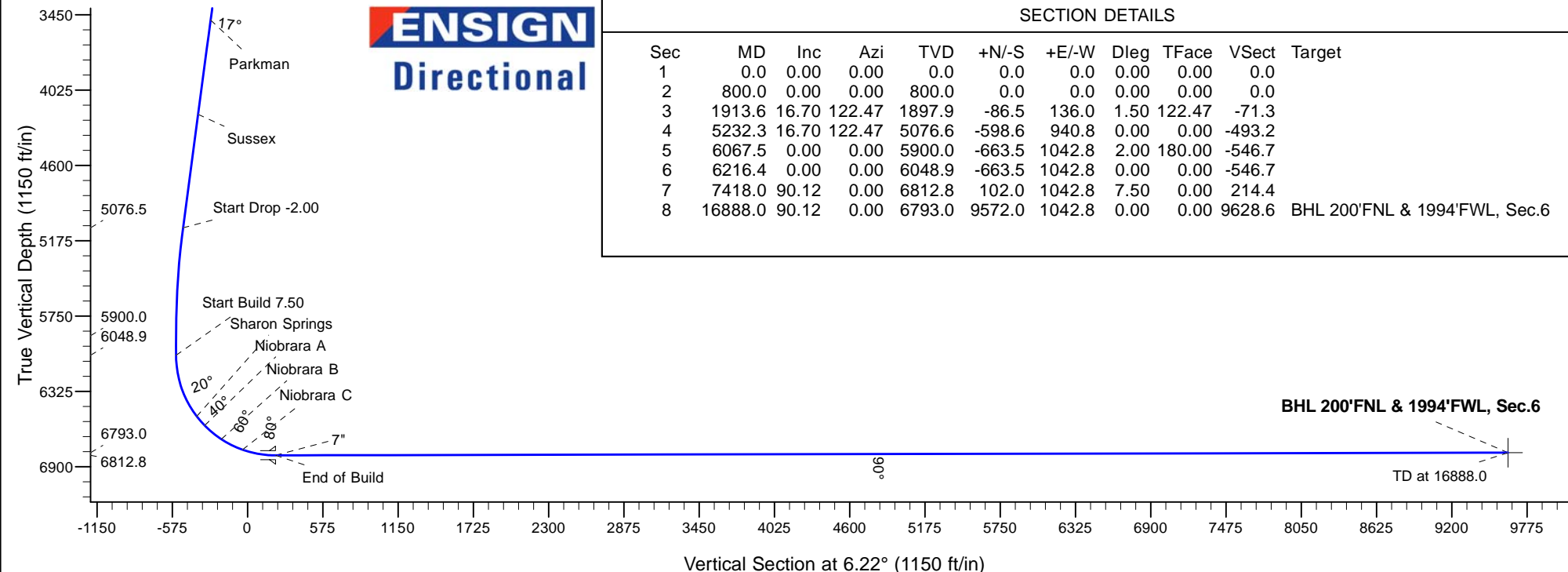
Dunn 5N64W7 Pad Sec.7-T5N-R64W
 Dunn 7Q-341
 Plan #1 (9-11-15)
 7:42, September 24 2015



ENSIGN
 Directional

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.0	
3	1913.6	16.70	122.47	1897.9	-86.5	136.0	1.50	122.47	-71.3	
4	5232.3	16.70	122.47	5076.6	-598.6	940.8	0.00	0.00	-493.2	
5	6067.5	0.00	0.00	5900.0	-663.5	1042.8	2.00	180.00	-546.7	
6	6216.4	0.00	0.00	6048.9	-663.5	1042.8	0.00	0.00	-546.7	
7	7418.0	90.12	0.00	6812.8	102.0	1042.8	7.50	0.00	214.4	
8	16888.0	90.12	0.00	6793.0	9572.0	1042.8	0.00	0.00	9628.6	BHL 200'FNL & 1994'FWL, Sec.6





PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.7-T5N-R64W

Dunn 5N64W7 Pad Sec.7-T5N-R64W

Dunn 7Q-341

Wellbore #1

Plan: Plan #1 (9-11-15)

Standard Planning Report

24 September, 2015

Database:	US_EDM	Local Co-ordinate Reference:	Well Dunn 7Q-341
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 7Q-341	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (9-11-15)		

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

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

Well	Dunn 7Q-341		
Well Position	+N/-S	-104.9 ft	Northing:
	+E/-W	-1.1 ft	Easting:
Position Uncertainty		0.0 ft	Wellhead Elevation:
			0.0 ft
			Latitude:
			40.408342
			Longitude:
			-104.598275
			Ground Level:
			4,625.0 ft

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

Design	Plan #1 (9-11-15)		
Audit Notes:			
Version:	Phase:	PROTOTYPE	Tie On Depth:
			0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(ft)	(ft)	(ft)
	0.0	0.0	0.0
			Direction
			(°)
			6.22

Plan Sections										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Dogleg	Build	Turn	TFO	Target
Depth	(°)	(°)	Depth	(ft)	(ft)	Rate	Rate	Rate	(°)	
(ft)			(ft)			(°/100usft)	(°/100usft)	(°/100usft)		
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,913.6	16.70	122.47	1,897.9	-86.5	136.0	1.50	1.50	0.00	122.47	
5,232.3	16.70	122.47	5,076.6	-598.6	940.8	0.00	0.00	0.00	0.00	
6,067.5	0.00	0.00	5,900.0	-663.5	1,042.8	2.00	-2.00	0.00	180.00	
6,216.4	0.00	0.00	6,048.9	-663.5	1,042.8	0.00	0.00	0.00	0.00	
7,418.0	90.12	0.00	6,812.8	102.0	1,042.8	7.50	7.50	0.00	0.00	
16,888.0	90.12	0.00	6,793.0	9,572.0	1,042.8	0.00	0.00	0.00	0.00	BHL 200'FNL & 1994'

Database:	US_EDM	Local Co-ordinate Reference:	Well Dunn 7Q-341
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 7Q-341	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (9-11-15)		

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 720'FSL & 980'FWL, Sec.7									
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP - Start Build 1.50									
900.0	1.50	122.47	900.0	-0.7	1.1	-0.6	1.50	1.50	0.00
1,000.0	3.00	122.47	999.9	-2.8	4.4	-2.3	1.50	1.50	0.00
1,100.0	4.50	122.47	1,099.7	-6.3	9.9	-5.2	1.50	1.50	0.00
1,200.0	6.00	122.47	1,199.3	-11.2	17.7	-9.3	1.50	1.50	0.00
1,300.0	7.50	122.47	1,298.6	-17.5	27.6	-14.5	1.50	1.50	0.00
1,400.0	9.00	122.47	1,397.5	-25.2	39.7	-20.8	1.50	1.50	0.00
1,500.0	10.50	122.47	1,496.1	-34.3	54.0	-28.3	1.50	1.50	0.00
1,600.0	12.00	122.47	1,594.2	-44.8	70.4	-36.9	1.50	1.50	0.00
1,700.0	13.50	122.47	1,691.7	-56.7	89.0	-46.7	1.50	1.50	0.00
1,800.0	15.00	122.47	1,788.6	-69.9	109.8	-57.6	1.50	1.50	0.00
1,900.0	16.50	122.47	1,884.9	-84.4	132.7	-69.6	1.50	1.50	0.00
1,913.6	16.70	122.47	1,897.9	-86.5	136.0	-71.3	1.50	1.50	0.00
2,000.0	16.70	122.47	1,980.6	-99.9	156.9	-82.3	0.00	0.00	0.00
2,100.0	16.70	122.47	2,076.4	-115.3	181.2	-95.0	0.00	0.00	0.00
2,200.0	16.70	122.47	2,172.2	-130.7	205.4	-107.7	0.00	0.00	0.00
2,300.0	16.70	122.47	2,268.0	-146.1	229.7	-120.4	0.00	0.00	0.00
2,400.0	16.70	122.47	2,363.8	-161.6	253.9	-133.1	0.00	0.00	0.00
2,500.0	16.70	122.47	2,459.5	-177.0	278.2	-145.8	0.00	0.00	0.00
2,600.0	16.70	122.47	2,555.3	-192.4	302.4	-158.5	0.00	0.00	0.00
2,700.0	16.70	122.47	2,651.1	-207.9	326.7	-171.3	0.00	0.00	0.00
2,800.0	16.70	122.47	2,746.9	-223.3	351.0	-184.0	0.00	0.00	0.00
2,900.0	16.70	122.47	2,842.7	-238.7	375.2	-196.7	0.00	0.00	0.00
3,000.0	16.70	122.47	2,938.4	-254.2	399.5	-209.4	0.00	0.00	0.00
3,100.0	16.70	122.47	3,034.2	-269.6	423.7	-222.1	0.00	0.00	0.00
3,200.0	16.70	122.47	3,130.0	-285.0	448.0	-234.8	0.00	0.00	0.00
3,300.0	16.70	122.47	3,225.8	-300.4	472.2	-247.5	0.00	0.00	0.00
3,400.0	16.70	122.47	3,321.6	-315.9	496.5	-260.3	0.00	0.00	0.00
3,500.0	16.70	122.47	3,417.3	-331.3	520.7	-273.0	0.00	0.00	0.00
3,575.9	16.70	122.47	3,490.0	-343.0	539.1	-282.6	0.00	0.00	0.00
Parkman									
3,600.0	16.70	122.47	3,513.1	-346.7	545.0	-285.7	0.00	0.00	0.00
3,700.0	16.70	122.47	3,608.9	-362.2	569.2	-298.4	0.00	0.00	0.00
3,800.0	16.70	122.47	3,704.7	-377.6	593.5	-311.1	0.00	0.00	0.00
3,900.0	16.70	122.47	3,800.5	-393.0	617.7	-323.8	0.00	0.00	0.00
4,000.0	16.70	122.47	3,896.2	-408.5	642.0	-336.5	0.00	0.00	0.00
4,100.0	16.70	122.47	3,992.0	-423.9	666.2	-349.2	0.00	0.00	0.00
4,200.0	16.70	122.47	4,087.8	-439.3	690.5	-362.0	0.00	0.00	0.00
4,300.0	16.70	122.47	4,183.6	-454.7	714.7	-374.7	0.00	0.00	0.00
4,327.6	16.70	122.47	4,210.0	-459.0	721.4	-378.2	0.00	0.00	0.00
Sussex									
4,400.0	16.70	122.47	4,279.4	-470.2	739.0	-387.4	0.00	0.00	0.00

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Project:	SEC.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	North Reference:	True
Well:	Dunn 7Q-341	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (9-11-15)		

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	16.70	122.47	4,375.1	-485.6	763.2	-400.1	0.00	0.00	0.00
4,600.0	16.70	122.47	4,470.9	-501.0	787.5	-412.8	0.00	0.00	0.00
4,700.0	16.70	122.47	4,566.7	-516.5	811.7	-425.5	0.00	0.00	0.00
4,800.0	16.70	122.47	4,662.5	-531.9	836.0	-438.2	0.00	0.00	0.00
4,900.0	16.70	122.47	4,758.3	-547.3	860.2	-450.9	0.00	0.00	0.00
5,000.0	16.70	122.47	4,854.0	-562.8	884.5	-463.7	0.00	0.00	0.00
5,100.0	16.70	122.47	4,949.8	-578.2	908.7	-476.4	0.00	0.00	0.00
5,200.0	16.70	122.47	5,045.6	-593.6	933.0	-489.1	0.00	0.00	0.00
5,232.3	16.70	122.47	5,076.5	-598.6	940.8	-493.2	0.00	0.00	0.00
Start Drop -2.00									
5,300.0	15.35	122.47	5,141.6	-608.6	956.6	-501.5	2.00	-2.00	0.00
5,400.0	13.35	122.47	5,238.5	-621.9	977.5	-512.4	2.00	-2.00	0.00
5,500.0	11.35	122.47	5,336.2	-633.4	995.5	-521.9	2.00	-2.00	0.00
5,600.0	9.35	122.47	5,434.5	-643.1	1,010.7	-529.8	2.00	-2.00	0.00
5,700.0	7.35	122.47	5,533.5	-650.9	1,022.9	-536.2	2.00	-2.00	0.00
5,800.0	5.35	122.47	5,632.8	-656.8	1,032.3	-541.1	2.00	-2.00	0.00
5,900.0	3.35	122.47	5,732.6	-660.9	1,038.7	-544.5	2.00	-2.00	0.00
6,000.0	1.35	122.47	5,832.5	-663.1	1,042.1	-546.3	2.00	-2.00	0.00
6,067.5	0.00	122.47	5,900.0	-663.5	1,042.8	-546.7	2.00	-2.00	0.00
Start 148.9 hold at 6067.5 MD									
6,100.0	0.00	0.00	5,932.5	-663.5	1,042.8	-546.7	0.00	0.00	0.00
6,200.0	0.00	0.00	6,032.5	-663.5	1,042.8	-546.7	0.00	0.00	0.00
6,216.4	0.00	0.00	6,048.9	-663.5	1,042.8	-546.7	0.00	0.00	0.00
Start Build 7.50									
6,300.0	6.27	0.00	6,132.3	-658.9	1,042.8	-542.1	7.50	7.50	0.00
6,400.0	13.77	0.00	6,230.7	-641.6	1,042.8	-524.8	7.50	7.50	0.00
6,500.0	21.27	0.00	6,326.0	-611.5	1,042.8	-494.9	7.50	7.50	0.00
6,600.0	28.77	0.00	6,416.5	-569.2	1,042.8	-452.9	7.50	7.50	0.00
6,700.0	36.27	0.00	6,500.8	-515.5	1,042.8	-399.5	7.50	7.50	0.00
6,719.0	37.69	0.00	6,516.0	-504.1	1,042.8	-388.2	7.50	7.50	0.00
Sharon Springs									
6,800.0	43.77	0.00	6,577.3	-451.2	1,042.8	-335.6	7.50	7.50	0.00
6,810.7	44.57	0.00	6,585.0	-443.8	1,042.8	-328.2	7.50	7.50	0.00
Niobrara A									
6,900.0	51.27	0.00	6,644.8	-377.5	1,042.8	-262.4	7.50	7.50	0.00
6,977.2	57.06	0.00	6,690.0	-315.0	1,042.8	-200.2	7.50	7.50	0.00
Niobrara B									
7,000.0	58.77	0.00	6,702.1	-295.7	1,042.8	-181.0	7.50	7.50	0.00
7,100.0	66.27	0.00	6,748.2	-207.0	1,042.8	-92.9	7.50	7.50	0.00
7,159.4	70.72	0.00	6,770.0	-151.8	1,042.8	-37.9	7.50	7.50	0.00
Niobrara C									
7,200.0	73.77	0.00	6,782.4	-113.1	1,042.8	0.5	7.50	7.50	0.00
7,300.0	81.27	0.00	6,804.0	-15.5	1,042.8	97.5	7.50	7.50	0.00
7,400.0	88.77	0.00	6,812.7	84.0	1,042.8	196.5	7.50	7.50	0.00
7,418.0	90.12	0.00	6,812.8	102.0	1,042.8	214.4	7.50	7.50	0.00
End of Build - 7"									
7,500.0	90.12	0.00	6,812.7	184.0	1,042.8	295.9	0.00	0.00	0.00
7,600.0	90.12	0.00	6,812.5	284.0	1,042.8	395.3	0.00	0.00	0.00
7,700.0	90.12	0.00	6,812.2	384.0	1,042.8	494.7	0.00	0.00	0.00
7,800.0	90.12	0.00	6,812.0	484.0	1,042.8	594.1	0.00	0.00	0.00
7,900.0	90.12	0.00	6,811.8	584.0	1,042.8	693.5	0.00	0.00	0.00
8,000.0	90.12	0.00	6,811.6	684.0	1,042.8	792.9	0.00	0.00	0.00

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Project:	SEC.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	North Reference:	True
Well:	Dunn 7Q-341	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (9-11-15)		

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	90.12	0.00	6,811.4	784.0	1,042.8	892.3	0.00	0.00	0.00
8,200.0	90.12	0.00	6,811.2	884.0	1,042.8	991.7	0.00	0.00	0.00
8,300.0	90.12	0.00	6,811.0	984.0	1,042.8	1,091.2	0.00	0.00	0.00
8,400.0	90.12	0.00	6,810.8	1,084.0	1,042.8	1,190.6	0.00	0.00	0.00
8,500.0	90.12	0.00	6,810.6	1,184.0	1,042.8	1,290.0	0.00	0.00	0.00
8,600.0	90.12	0.00	6,810.4	1,284.0	1,042.8	1,389.4	0.00	0.00	0.00
8,700.0	90.12	0.00	6,810.1	1,384.0	1,042.8	1,488.8	0.00	0.00	0.00
8,800.0	90.12	0.00	6,809.9	1,484.0	1,042.8	1,588.2	0.00	0.00	0.00
8,900.0	90.12	0.00	6,809.7	1,584.0	1,042.8	1,687.6	0.00	0.00	0.00
9,000.0	90.12	0.00	6,809.5	1,684.0	1,042.8	1,787.0	0.00	0.00	0.00
9,100.0	90.12	0.00	6,809.3	1,784.0	1,042.8	1,886.5	0.00	0.00	0.00
9,200.0	90.12	0.00	6,809.1	1,884.0	1,042.8	1,985.9	0.00	0.00	0.00
9,300.0	90.12	0.00	6,808.9	1,984.0	1,042.8	2,085.3	0.00	0.00	0.00
9,400.0	90.12	0.00	6,808.7	2,084.0	1,042.8	2,184.7	0.00	0.00	0.00
9,500.0	90.12	0.00	6,808.5	2,184.0	1,042.8	2,284.1	0.00	0.00	0.00
9,600.0	90.12	0.00	6,808.3	2,284.0	1,042.8	2,383.5	0.00	0.00	0.00
9,700.0	90.12	0.00	6,808.1	2,384.0	1,042.8	2,482.9	0.00	0.00	0.00
9,800.0	90.12	0.00	6,807.8	2,484.0	1,042.8	2,582.3	0.00	0.00	0.00
9,900.0	90.12	0.00	6,807.6	2,584.0	1,042.8	2,681.7	0.00	0.00	0.00
10,000.0	90.12	0.00	6,807.4	2,684.0	1,042.8	2,781.2	0.00	0.00	0.00
10,100.0	90.12	0.00	6,807.2	2,784.0	1,042.8	2,880.6	0.00	0.00	0.00
10,200.0	90.12	0.00	6,807.0	2,884.0	1,042.8	2,980.0	0.00	0.00	0.00
10,300.0	90.12	0.00	6,806.8	2,984.0	1,042.8	3,079.4	0.00	0.00	0.00
10,400.0	90.12	0.00	6,806.6	3,084.0	1,042.8	3,178.8	0.00	0.00	0.00
10,500.0	90.12	0.00	6,806.4	3,184.0	1,042.8	3,278.2	0.00	0.00	0.00
10,600.0	90.12	0.00	6,806.2	3,284.0	1,042.8	3,377.6	0.00	0.00	0.00
10,700.0	90.12	0.00	6,806.0	3,384.0	1,042.8	3,477.0	0.00	0.00	0.00
10,800.0	90.12	0.00	6,805.8	3,484.0	1,042.8	3,576.5	0.00	0.00	0.00
10,900.0	90.12	0.00	6,805.5	3,584.0	1,042.8	3,675.9	0.00	0.00	0.00
11,000.0	90.12	0.00	6,805.3	3,684.0	1,042.8	3,775.3	0.00	0.00	0.00
11,100.0	90.12	0.00	6,805.1	3,784.0	1,042.8	3,874.7	0.00	0.00	0.00
11,200.0	90.12	0.00	6,804.9	3,884.0	1,042.8	3,974.1	0.00	0.00	0.00
11,300.0	90.12	0.00	6,804.7	3,984.0	1,042.8	4,073.5	0.00	0.00	0.00
11,400.0	90.12	0.00	6,804.5	4,084.0	1,042.8	4,172.9	0.00	0.00	0.00
11,500.0	90.12	0.00	6,804.3	4,184.0	1,042.8	4,272.3	0.00	0.00	0.00
11,600.0	90.12	0.00	6,804.1	4,284.0	1,042.8	4,371.7	0.00	0.00	0.00
11,700.0	90.12	0.00	6,803.9	4,384.0	1,042.8	4,471.2	0.00	0.00	0.00
11,800.0	90.12	0.00	6,803.7	4,484.0	1,042.8	4,570.6	0.00	0.00	0.00
11,900.0	90.12	0.00	6,803.4	4,584.0	1,042.8	4,670.0	0.00	0.00	0.00
12,000.0	90.12	0.00	6,803.2	4,684.0	1,042.8	4,769.4	0.00	0.00	0.00
12,100.0	90.12	0.00	6,803.0	4,784.0	1,042.8	4,868.8	0.00	0.00	0.00
12,200.0	90.12	0.00	6,802.8	4,884.0	1,042.8	4,968.2	0.00	0.00	0.00
12,300.0	90.12	0.00	6,802.6	4,984.0	1,042.8	5,067.6	0.00	0.00	0.00
12,400.0	90.12	0.00	6,802.4	5,084.0	1,042.8	5,167.0	0.00	0.00	0.00
12,500.0	90.12	0.00	6,802.2	5,184.0	1,042.8	5,266.4	0.00	0.00	0.00
12,600.0	90.12	0.00	6,802.0	5,284.0	1,042.8	5,365.9	0.00	0.00	0.00
12,700.0	90.12	0.00	6,801.8	5,384.0	1,042.8	5,465.3	0.00	0.00	0.00
12,800.0	90.12	0.00	6,801.6	5,484.0	1,042.8	5,564.7	0.00	0.00	0.00
12,900.0	90.12	0.00	6,801.4	5,584.0	1,042.8	5,664.1	0.00	0.00	0.00
13,000.0	90.12	0.00	6,801.1	5,684.0	1,042.8	5,763.5	0.00	0.00	0.00
13,100.0	90.12	0.00	6,800.9	5,784.0	1,042.8	5,862.9	0.00	0.00	0.00
13,200.0	90.12	0.00	6,800.7	5,884.0	1,042.8	5,962.3	0.00	0.00	0.00
13,300.0	90.12	0.00	6,800.5	5,984.0	1,042.8	6,061.7	0.00	0.00	0.00

Database:	US_EDM	Local Co-ordinate Reference:	Well Dunn 7Q-341
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 7Q-341	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (9-11-15)		

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	90.12	0.00	6,800.3	6,084.0	1,042.8	6,161.2	0.00	0.00	0.00	
13,500.0	90.12	0.00	6,800.1	6,184.0	1,042.8	6,260.6	0.00	0.00	0.00	
13,600.0	90.12	0.00	6,799.9	6,284.0	1,042.8	6,360.0	0.00	0.00	0.00	
13,700.0	90.12	0.00	6,799.7	6,384.0	1,042.8	6,459.4	0.00	0.00	0.00	
13,800.0	90.12	0.00	6,799.5	6,484.0	1,042.8	6,558.8	0.00	0.00	0.00	
13,900.0	90.12	0.00	6,799.3	6,584.0	1,042.8	6,658.2	0.00	0.00	0.00	
14,000.0	90.12	0.00	6,799.0	6,684.0	1,042.8	6,757.6	0.00	0.00	0.00	
14,100.0	90.12	0.00	6,798.8	6,784.0	1,042.8	6,857.0	0.00	0.00	0.00	
14,200.0	90.12	0.00	6,798.6	6,884.0	1,042.8	6,956.4	0.00	0.00	0.00	
14,300.0	90.12	0.00	6,798.4	6,984.0	1,042.8	7,055.9	0.00	0.00	0.00	
14,400.0	90.12	0.00	6,798.2	7,084.0	1,042.8	7,155.3	0.00	0.00	0.00	
14,500.0	90.12	0.00	6,798.0	7,184.0	1,042.8	7,254.7	0.00	0.00	0.00	
14,600.0	90.12	0.00	6,797.8	7,284.0	1,042.8	7,354.1	0.00	0.00	0.00	
14,700.0	90.12	0.00	6,797.6	7,384.0	1,042.8	7,453.5	0.00	0.00	0.00	
14,800.0	90.12	0.00	6,797.4	7,484.0	1,042.8	7,552.9	0.00	0.00	0.00	
14,900.0	90.12	0.00	6,797.2	7,584.0	1,042.8	7,652.3	0.00	0.00	0.00	
15,000.0	90.12	0.00	6,797.0	7,684.0	1,042.8	7,751.7	0.00	0.00	0.00	
15,100.0	90.12	0.00	6,796.7	7,784.0	1,042.8	7,851.1	0.00	0.00	0.00	
15,200.0	90.12	0.00	6,796.5	7,884.0	1,042.8	7,950.6	0.00	0.00	0.00	
15,300.0	90.12	0.00	6,796.3	7,984.0	1,042.8	8,050.0	0.00	0.00	0.00	
15,400.0	90.12	0.00	6,796.1	8,084.0	1,042.8	8,149.4	0.00	0.00	0.00	
15,500.0	90.12	0.00	6,795.9	8,184.0	1,042.8	8,248.8	0.00	0.00	0.00	
15,600.0	90.12	0.00	6,795.7	8,284.0	1,042.8	8,348.2	0.00	0.00	0.00	
15,700.0	90.12	0.00	6,795.5	8,384.0	1,042.8	8,447.6	0.00	0.00	0.00	
15,800.0	90.12	0.00	6,795.3	8,484.0	1,042.8	8,547.0	0.00	0.00	0.00	
15,900.0	90.12	0.00	6,795.1	8,584.0	1,042.8	8,646.4	0.00	0.00	0.00	
16,000.0	90.12	0.00	6,794.9	8,684.0	1,042.8	8,745.9	0.00	0.00	0.00	
16,100.0	90.12	0.00	6,794.7	8,784.0	1,042.8	8,845.3	0.00	0.00	0.00	
16,200.0	90.12	0.00	6,794.4	8,884.0	1,042.8	8,944.7	0.00	0.00	0.00	
16,300.0	90.12	0.00	6,794.2	8,984.0	1,042.8	9,044.1	0.00	0.00	0.00	
16,400.0	90.12	0.00	6,794.0	9,084.0	1,042.8	9,143.5	0.00	0.00	0.00	
16,500.0	90.12	0.00	6,793.8	9,184.0	1,042.8	9,242.9	0.00	0.00	0.00	
16,600.0	90.12	0.00	6,793.6	9,284.0	1,042.8	9,342.3	0.00	0.00	0.00	
16,700.0	90.12	0.00	6,793.4	9,384.0	1,042.8	9,441.7	0.00	0.00	0.00	
16,800.0	90.12	0.00	6,793.2	9,484.0	1,042.8	9,541.1	0.00	0.00	0.00	
16,888.0	90.12	0.00	6,793.0	9,572.0	1,042.8	9,628.6	0.00	0.00	0.00	
TD at 16888.0 - BHL 200'FNL & 1994'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 720'FSL & 980'FWL - plan hits target center - Point	0.00	0.00	1.0	0.0	0.0	1,392,876.10	3,251,104.52	40.408342	-104.598275	
BHL 200'FNL & 1994'FW - plan hits target center - Point	0.00	0.00	6,793.0	9,572.0	1,042.8	1,402,457.81	3,252,049.91	40.434616	-104.594529	

Database:	US_EDM	Local Co-ordinate Reference:	Well Dunn 7Q-341
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 7Q-341	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (9-11-15)		

Casing Points				
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,418.0	6,812.8	7"	7	7-1/2

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,575.9	3,490.0	Parkman		0.00	
4,327.6	4,210.0	Sussex		0.00	
6,719.0	6,516.0	Sharon Springs		0.00	
6,810.7	6,585.0	Niobrara A		0.00	
6,977.2	6,690.0	Niobrara B		0.00	
7,159.4	6,770.0	Niobrara C		0.00	

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
800.0	800.0	0.0	0.0	KOP - Start Build 1.50
5,232.3	5,076.5	-598.6	940.8	Start Drop -2.00
6,067.5	5,900.0	-663.5	1,042.8	Start 148.9 hold at 6067.5 MD
6,216.4	6,048.9	-663.5	1,042.8	Start Build 7.50
7,418.0	6,812.8	102.0	1,042.8	End of Build
16,888.0	6,793.0	9,572.0	1,042.8	TD at 16888.0



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.7-T5N-R64W

Dunn 5N64W7 Pad Sec.7-T5N-R64W

Dunn 7Q-341

Wellbore #1

Plan #1 (9-11-15)

Anticollision Report

24 September, 2015



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7Q-341
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7Q-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-11-15)	Offset TVD Reference:	Offset Datum

Reference	Plan #1 (9-11-15)		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 800.0 ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date 9/24/2015			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	16,888.0	Plan #1 (9-11-15) (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 7I-201 - Wellbore #1 - Plan #1 (9-8-15)	800.0	800.0	90.0	86.6	26.693	CC, ES
Dunn 7I-201 - Wellbore #1 - Plan #1 (9-8-15)	1,300.0	1,298.6	110.7	105.2	20.040	SF
Dunn 7I-221 - Wellbore #1 - Plan #1 (9-10-15)	800.0	800.0	59.7	56.4	17.722	CC, ES
Dunn 7I-221 - Wellbore #1 - Plan #1 (9-10-15)	1,100.0	1,099.7	66.7	62.1	14.370	SF
Dunn 7I-321 - Wellbore #1 - Plan #1 (9-10-15)	800.0	800.0	75.1	71.7	22.261	CC, ES
Dunn 7I-321 - Wellbore #1 - Plan #1 (9-10-15)	1,200.0	1,199.3	87.9	82.8	17.304	SF
Dunn 7L-201 - Wellbore #1 - Plan #1 (9-10-15)	800.0	800.0	44.8	41.4	13.293	CC, ES
Dunn 7L-201 - Wellbore #1 - Plan #1 (9-10-15)	1,100.0	1,099.7	52.0	47.3	11.196	SF
Dunn 7L-221 - Wellbore #1 - Plan #1 (9-10-15)	800.0	800.0	14.9	11.6	4.432	CC
Dunn 7L-221 - Wellbore #1 - Plan #1 (9-10-15)	16,888.0	16,759.2	321.7	-45.1	0.877	Level 1, ES, SF
Dunn 7L-301 - Wellbore #1 - Plan #1 (9-10-15)	800.0	800.0	29.9	26.5	8.861	CC, ES
Dunn 7L-301 - Wellbore #1 - Plan #1 (9-10-15)	16,888.0	16,806.3	566.3	190.8	1.508	SF
Dunn 7L-341 - Wellbore #1 - Plan #1 (9-10-15)	800.0	800.0	104.9	101.6	31.122	CC, ES
Dunn 7L-341 - Wellbore #1 - Plan #1 (9-10-15)	1,300.0	1,298.6	125.3	119.8	22.665	SF
Dunn 7Q-221 - Wellbore #1 - Plan #1 (9-11-15)	200.0	200.0	45.2	44.5	66.999	CC
Dunn 7Q-221 - Wellbore #1 - Plan #1 (9-11-15)	300.0	299.6	45.6	44.5	41.145	ES
Dunn 7Q-221 - Wellbore #1 - Plan #1 (9-11-15)	16,888.0	17,007.0	761.8	385.7	2.026	SF
Dunn 7Q-241 - Wellbore #1 - Plan #1 (9-11-15)	600.0	600.0	14.9	12.5	6.041	CC
Dunn 7Q-241 - Wellbore #1 - Plan #1 (9-11-15)	16,888.0	16,869.3	251.0	-114.6	0.687	Level 1, ES, SF
Dunn 7Q-301 - Wellbore #1 - Plan #1 (9-11-15)	400.0	400.0	30.2	28.7	19.220	CC, ES
Dunn 7Q-301 - Wellbore #1 - Plan #1 (9-11-15)	16,888.0	16,997.4	479.9	103.6	1.275	Level 3, SF
Dunn Pad Sec.7-T5N-R64W						
Dunn 24-7 (Exist.) - Wellbore #1 - Wellbore #1	7,240.1	6,779.6	216.3	62.2	1.404	Level 3, CC, ES, SF
Dunn 7PD (AL) - Wellbore #1 - Design #1	7,752.3	6,882.6	301.3	262.3	7.715	CC, ES, SF
Existing Wells - Sec.7-T5N-R64W						
Dunn #23-7 (Exist.) - Wellbore #1 - Wellbore #1	8,381.3	6,795.8	47.3	-118.6	0.285	Level 1, CC, ES, SF
Little Will #7 (P&A) - Wellbore #1 - Wellbore #1	15,244.6	6,781.4	91.0	-201.2	0.311	Level 1, CC, ES, SF
Silva #1 (Exist.) - Wellbore #1 - Wellbore #1	12,573.8	6,763.0	392.4	151.4	1.628	CC, ES, SF
Silva #23-6 (Exist.) - Wellbore #1 - Wellbore #1	13,729.4	6,769.6	92.0	-171.0	0.350	Level 1, CC, ES, SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7Q-341
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7Q-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-11-15)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
0.0	0.0	0.0	0.0	0.0	0.0	0.71	90.0	1.1	90.0				
100.0	100.0	100.0	100.0	0.1	0.1	0.71	90.0	1.1	90.0	89.8	0.22	400.437	
200.0	200.0	200.0	200.0	0.3	0.3	0.71	90.0	1.1	90.0	89.3	0.67	133.471	
300.0	300.0	300.0	300.0	0.6	0.6	0.71	90.0	1.1	90.0	88.9	1.12	80.081	
400.0	400.0	400.0	400.0	0.8	0.8	0.71	90.0	1.1	90.0	88.4	1.57	57.201	
500.0	500.0	500.0	500.0	1.0	1.0	0.71	90.0	1.1	90.0	88.0	2.02	44.489	
600.0	600.0	600.0	600.0	1.2	1.2	0.71	90.0	1.1	90.0	87.5	2.47	36.400	
700.0	700.0	700.0	700.0	1.5	1.5	0.71	90.0	1.1	90.0	87.1	2.92	30.800	
800.0	800.0	800.0	800.0	1.7	1.7	0.71	90.0	1.1	90.0	86.6	3.37	26.693 CC, ES	
900.0	900.0	900.0	900.0	1.9	1.9	-122.45	90.0	1.1	90.7	86.9	3.80	23.863	
1,000.0	999.9	999.9	999.9	2.1	2.1	-124.47	90.0	1.1	92.9	88.6	4.22	22.020	
1,100.0	1,099.7	1,099.7	1,099.7	2.3	2.4	-127.61	90.0	1.1	96.7	92.1	4.64	20.825	
1,200.0	1,199.3	1,199.3	1,199.3	2.5	2.6	-131.59	90.0	1.1	102.6	97.5	5.08	20.186	
1,300.0	1,298.6	1,298.6	1,298.6	2.8	2.8	-136.04	90.0	1.1	110.7	105.2	5.53	20.040 SF	
1,400.0	1,397.5	1,397.5	1,397.5	3.0	3.0	-140.62	90.0	1.1	121.5	115.5	5.98	20.336	
1,500.0	1,496.1	1,496.1	1,496.1	3.3	3.3	-145.04	90.0	1.1	135.1	128.7	6.43	21.022	
1,600.0	1,594.2	1,594.2	1,594.2	3.7	3.5	-149.12	90.0	1.1	151.6	144.7	6.88	22.046	
1,700.0	1,691.7	1,691.7	1,691.7	4.1	3.7	-152.77	90.0	1.1	171.0	163.7	7.32	23.354	
1,800.0	1,788.6	1,788.6	1,788.6	4.5	3.9	-155.95	90.0	1.1	193.3	185.5	7.76	24.900	
1,900.0	1,884.9	1,885.5	1,885.5	5.0	4.1	-158.97	89.3	0.4	218.4	210.2	8.18	26.700	
1,913.6	1,897.9	1,898.6	1,898.6	5.1	4.1	-159.39	89.1	0.2	222.0	213.8	8.23	26.960	
2,000.0	1,980.6	1,981.5	1,981.5	5.6	4.3	-162.16	87.0	-2.0	245.3	236.7	8.59	28.556	
2,100.0	2,076.4	2,077.0	2,076.8	6.1	4.5	-165.24	83.0	-6.1	272.7	263.7	9.00	30.301	
2,200.0	2,172.2	2,171.8	2,171.2	6.7	4.6	-168.21	77.3	-11.8	300.8	291.4	9.42	31.946	
2,300.0	2,268.0	2,265.9	2,264.7	7.2	4.8	-171.08	70.2	-19.2	329.7	319.9	9.84	33.496	
2,400.0	2,363.8	2,359.0	2,357.0	7.8	5.0	-173.84	61.4	-28.1	359.6	349.3	10.29	34.947	
2,500.0	2,459.5	2,451.2	2,448.0	8.4	5.3	-176.50	51.3	-38.5	390.6	379.8	10.76	36.294	
2,600.0	2,555.3	2,542.3	2,537.6	9.0	5.5	-179.06	39.7	-50.3	422.7	411.4	11.26	37.535	
2,700.0	2,651.1	2,632.2	2,625.7	9.6	5.8	178.48	26.9	-63.5	456.0	444.2	11.80	38.656	
2,800.0	2,746.9	2,720.9	2,712.1	10.2	6.1	176.12	12.8	-77.9	490.8	478.4	12.37	39.680	
2,900.0	2,842.7	2,808.4	2,796.7	10.8	6.4	173.87	-2.5	-93.5	526.9	513.9	12.98	40.598	
3,000.0	2,938.4	2,894.4	2,879.5	11.4	6.8	171.72	-18.9	-110.2	564.5	550.8	13.63	41.421	
3,100.0	3,034.2	2,979.1	2,960.4	12.0	7.1	169.67	-36.2	-128.0	603.6	589.2	14.32	42.156	
3,200.0	3,130.0	3,062.3	3,039.4	12.6	7.5	167.72	-54.5	-146.7	644.2	629.1	15.04	42.826	
3,300.0	3,225.8	3,144.0	3,116.4	13.2	8.0	165.87	-73.6	-166.2	686.3	670.5	15.80	43.446	
3,400.0	3,321.6	3,224.1	3,191.3	13.8	8.4	164.11	-93.4	-186.5	730.0	713.4	16.58	44.035	
3,500.0	3,417.3	3,307.4	3,268.7	14.4	8.9	162.37	-115.0	-208.6	775.1	757.7	17.41	44.518	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7Q-341
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7Q-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-11-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	0.53	59.7	0.6	59.7					
100.0	100.0	100.0	100.0	0.1	0.1	0.53	59.7	0.6	59.7	59.5	0.22	265.856		
200.0	200.0	200.0	200.0	0.3	0.3	0.53	59.7	0.6	59.7	59.1	0.67	88.613		
300.0	300.0	300.0	300.0	0.6	0.6	0.53	59.7	0.6	59.7	58.6	1.12	53.167		
400.0	400.0	400.0	400.0	0.8	0.8	0.53	59.7	0.6	59.7	58.2	1.57	37.976		
500.0	500.0	500.0	500.0	1.0	1.0	0.53	59.7	0.6	59.7	57.7	2.02	29.537		
600.0	600.0	600.0	600.0	1.2	1.2	0.53	59.7	0.6	59.7	57.3	2.47	24.167		
700.0	700.0	700.0	700.0	1.5	1.5	0.53	59.7	0.6	59.7	56.8	2.92	20.449		
800.0	800.0	800.0	800.0	1.7	1.7	0.53	59.7	0.6	59.7	56.4	3.37	17.722 CC, ES		
900.0	900.0	900.0	900.0	1.9	1.9	-122.98	59.7	0.6	60.5	56.7	3.80	15.906		
1,000.0	999.9	999.9	999.9	2.1	2.1	-125.96	59.7	0.6	62.7	58.5	4.22	14.863		
1,100.0	1,099.7	1,099.7	1,099.7	2.3	2.4	-130.46	59.7	0.6	66.7	62.1	4.64	14.370 SF		
1,200.0	1,199.3	1,199.3	1,199.3	2.5	2.6	-135.85	59.7	0.6	73.0	67.9	5.08	14.376		
1,300.0	1,298.6	1,298.6	1,298.6	2.8	2.8	-141.49	59.7	0.6	81.9	76.4	5.52	14.836		
1,400.0	1,397.5	1,397.5	1,397.5	3.0	3.0	-146.86	59.7	0.6	93.6	87.6	5.96	15.698		
1,500.0	1,496.1	1,496.1	1,496.1	3.3	3.3	-151.65	59.7	0.6	108.2	101.8	6.40	16.904		
1,600.0	1,594.2	1,595.7	1,595.7	3.7	3.4	-156.29	58.7	0.0	125.2	118.3	6.81	18.376		
1,700.0	1,691.7	1,694.9	1,694.8	4.1	3.6	-161.08	55.3	-1.6	144.1	136.9	7.19	20.039		
1,800.0	1,788.6	1,793.3	1,793.0	4.5	3.8	-165.80	49.6	-4.4	165.3	157.8	7.57	21.848		
1,900.0	1,884.9	1,890.8	1,890.2	5.0	4.0	-170.30	41.8	-8.2	189.3	181.3	7.95	23.803		
1,913.6	1,897.9	1,904.1	1,903.3	5.1	4.0	-170.89	40.6	-8.8	192.7	184.7	8.00	24.080		
2,000.0	1,980.6	1,987.6	1,986.3	5.6	4.2	-174.52	31.8	-13.1	215.1	206.7	8.38	25.672		
2,100.0	2,076.4	2,083.9	2,081.6	6.1	4.4	-178.41	19.7	-19.0	241.5	232.6	8.84	27.306		
2,200.0	2,172.2	2,179.6	2,176.0	6.7	4.7	177.96	5.6	-25.9	268.5	259.1	9.35	28.715		
2,300.0	2,268.0	2,274.6	2,269.3	7.2	4.9	174.54	-10.6	-33.7	296.3	286.4	9.91	29.905		
2,400.0	2,363.8	2,368.8	2,361.4	7.8	5.2	171.30	-28.7	-42.6	324.9	314.4	10.52	30.895		
2,500.0	2,459.5	2,462.9	2,453.1	8.4	5.6	168.42	-47.6	-51.8	354.5	343.3	11.18	31.713		
2,600.0	2,555.3	2,557.0	2,544.8	9.0	5.9	165.97	-66.5	-61.0	384.8	372.9	11.87	32.409		
2,700.0	2,651.1	2,651.1	2,636.5	9.6	6.3	163.88	-85.3	-70.2	415.6	403.0	12.59	33.004		
2,800.0	2,746.9	2,745.2	2,728.2	10.2	6.6	162.07	-104.2	-79.4	446.9	433.6	13.34	33.514		
2,900.0	2,842.7	2,839.2	2,819.9	10.8	7.0	160.50	-123.1	-88.6	478.6	464.5	14.09	33.954		
3,000.0	2,938.4	2,933.3	2,911.6	11.4	7.4	159.12	-142.0	-97.8	510.5	495.6	14.87	34.337		
3,100.0	3,034.2	3,027.4	3,003.3	12.0	7.8	157.90	-160.9	-107.1	542.6	527.0	15.65	34.672		
3,200.0	3,130.0	3,121.5	3,095.0	12.6	8.2	156.82	-179.8	-116.3	575.0	558.6	16.44	34.967		
3,300.0	3,225.8	3,215.6	3,186.7	13.2	8.6	155.85	-198.7	-125.5	607.5	590.3	17.25	35.229		
3,400.0	3,321.6	3,309.7	3,278.4	13.8	9.0	154.98	-217.6	-134.7	640.2	622.2	18.05	35.463		
3,500.0	3,417.3	3,403.7	3,370.1	14.4	9.4	154.19	-236.5	-143.9	673.0	654.1	18.87	35.673		
3,600.0	3,513.1	3,497.8	3,461.8	15.0	9.9	153.48	-255.4	-153.1	705.9	686.2	19.68	35.862		
3,700.0	3,608.9	3,591.9	3,553.5	15.6	10.3	152.82	-274.3	-162.3	738.9	718.4	20.51	36.033		
3,800.0	3,704.7	3,686.0	3,645.2	16.2	10.7	152.23	-293.1	-171.5	771.9	750.6	21.33	36.189		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7Q-341
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7Q-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-11-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	0.64	75.0	0.8	75.1					
100.0	100.0	100.0	100.0	0.1	0.1	0.64	75.0	0.8	75.1	74.8	0.22	333.947		
200.0	200.0	200.0	200.0	0.3	0.3	0.64	75.0	0.8	75.1	74.4	0.67	111.309		
300.0	300.0	300.0	300.0	0.6	0.6	0.64	75.0	0.8	75.1	73.9	1.12	66.785		
400.0	400.0	400.0	400.0	0.8	0.8	0.64	75.0	0.8	75.1	73.5	1.57	47.703		
500.0	500.0	500.0	500.0	1.0	1.0	0.64	75.0	0.8	75.1	73.0	2.02	37.102		
600.0	600.0	600.0	600.0	1.2	1.2	0.64	75.0	0.8	75.1	72.6	2.47	30.356		
700.0	700.0	700.0	700.0	1.5	1.5	0.64	75.0	0.8	75.1	72.1	2.92	25.686		
800.0	800.0	800.0	800.0	1.7	1.7	0.64	75.0	0.8	75.1	71.7	3.37	22.261 CC, ES		
900.0	900.0	900.0	900.0	1.9	1.9	-122.66	75.0	0.8	75.8	72.0	3.80	19.931		
1,000.0	999.9	999.9	999.9	2.1	2.1	-125.06	75.0	0.8	77.9	73.7	4.22	18.482		
1,100.0	1,099.7	1,099.7	1,099.7	2.3	2.4	-128.76	75.0	0.8	81.9	77.2	4.64	17.631		
1,200.0	1,199.3	1,199.3	1,199.3	2.5	2.6	-133.34	75.0	0.8	87.9	82.8	5.08	17.304 SF		
1,300.0	1,298.6	1,298.6	1,298.6	2.8	2.8	-138.33	75.0	0.8	96.4	90.9	5.52	17.450		
1,400.0	1,397.5	1,397.5	1,397.5	3.0	3.0	-143.30	75.0	0.8	107.6	101.6	5.97	18.019		
1,500.0	1,496.1	1,496.1	1,496.1	3.3	3.3	-147.94	75.0	0.8	121.6	115.2	6.41	18.958		
1,600.0	1,594.2	1,594.2	1,594.2	3.7	3.5	-152.09	75.0	0.8	138.6	131.7	6.86	20.210		
1,700.0	1,691.7	1,692.9	1,692.9	4.1	3.7	-156.12	74.2	0.1	158.2	150.9	7.27	21.748		
1,800.0	1,788.6	1,790.8	1,790.7	4.5	3.8	-160.31	71.3	-2.1	180.2	172.5	7.66	23.531		
1,900.0	1,884.9	1,887.6	1,887.4	5.0	4.0	-164.45	66.5	-5.8	204.9	196.9	8.03	25.506		
1,913.6	1,897.9	1,900.8	1,900.4	5.1	4.1	-165.01	65.7	-6.5	208.5	200.5	8.09	25.791		
2,000.0	1,980.6	1,983.5	1,982.9	5.6	4.2	-168.46	59.9	-11.0	231.8	223.4	8.44	27.459		
2,100.0	2,076.4	2,078.7	2,077.5	6.1	4.4	-172.17	51.5	-17.7	259.5	250.6	8.87	29.252		
2,200.0	2,172.2	2,173.3	2,171.1	6.7	4.6	-175.62	41.3	-25.7	288.1	278.8	9.33	30.891		
2,300.0	2,268.0	2,266.9	2,263.5	7.2	4.9	-178.87	29.4	-35.0	317.6	307.8	9.81	32.370		
2,400.0	2,363.8	2,359.6	2,354.6	7.8	5.1	178.07	15.8	-45.6	348.3	337.9	10.34	33.690		
2,500.0	2,459.5	2,451.3	2,444.3	8.4	5.4	175.17	0.7	-57.5	380.1	369.2	10.91	34.841		
2,600.0	2,555.3	2,541.9	2,532.4	9.0	5.7	172.43	-15.9	-70.5	413.2	401.7	11.52	35.862		
2,700.0	2,651.1	2,631.3	2,618.8	9.6	6.1	169.84	-33.8	-84.6	447.7	435.5	12.18	36.750		
2,800.0	2,746.9	2,722.4	2,706.5	10.2	6.5	167.40	-53.1	-99.7	483.4	470.5	12.90	37.479		
2,900.0	2,842.7	2,813.8	2,794.6	10.8	6.9	165.28	-72.5	-114.9	519.8	506.1	13.64	38.109		
3,000.0	2,938.4	2,905.3	2,882.7	11.4	7.3	163.42	-91.9	-130.1	556.7	542.3	14.40	38.658		
3,100.0	3,034.2	2,996.8	2,970.8	12.0	7.7	161.80	-111.4	-145.4	594.0	578.9	15.18	39.139		
3,200.0	3,130.0	3,088.2	3,058.9	12.6	8.1	160.36	-130.8	-160.6	631.8	615.8	15.97	39.564		
3,300.0	3,225.8	3,179.7	3,146.9	13.2	8.6	159.08	-150.2	-175.8	669.9	653.1	16.77	39.944		
3,400.0	3,321.6	3,271.2	3,235.0	13.8	9.1	157.93	-169.6	-191.0	708.2	690.6	17.58	40.285		
3,500.0	3,417.3	3,362.7	3,323.1	14.4	9.5	156.91	-189.0	-206.2	746.7	728.3	18.39	40.594		
3,600.0	3,513.1	3,454.1	3,411.2	15.0	10.0	155.98	-208.4	-221.4	785.4	766.2	19.22	40.875		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7Q-341
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7Q-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-11-15)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 7L-201 - Wellbore #1 - Plan #1 (9-10-15)												Offset Well Error:	0.0 ft
Survey Program: 0-MWD													
Reference				Offset			Semi Major Axis		Distance				
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	0.71	44.8	0.6	44.8				
100.0	100.0	100.0	100.0	0.1	0.1	0.71	44.8	0.6	44.8	44.6	0.22	199.417	
200.0	200.0	200.0	200.0	0.3	0.3	0.71	44.8	0.6	44.8	44.1	0.67	66.468	
300.0	300.0	300.0	300.0	0.6	0.6	0.71	44.8	0.6	44.8	43.7	1.12	39.880	
400.0	400.0	400.0	400.0	0.8	0.8	0.71	44.8	0.6	44.8	43.2	1.57	28.486	
500.0	500.0	500.0	500.0	1.0	1.0	0.71	44.8	0.6	44.8	42.8	2.02	22.156	
600.0	600.0	600.0	600.0	1.2	1.2	0.71	44.8	0.6	44.8	42.3	2.47	18.127	
700.0	700.0	700.0	700.0	1.5	1.5	0.71	44.8	0.6	44.8	41.9	2.92	15.338	
800.0	800.0	800.0	800.0	1.7	1.7	0.71	44.8	0.6	44.8	41.4	3.37	13.293 CC, ES	
900.0	900.0	900.0	900.0	1.9	1.9	-123.15	44.8	0.6	45.5	41.7	3.80	11.977	
1,000.0	999.9	999.9	999.9	2.1	2.1	-127.06	44.8	0.6	47.8	43.6	4.22	11.330	
1,100.0	1,099.7	1,099.7	1,099.7	2.3	2.4	-132.77	44.8	0.6	52.0	47.3	4.64	11.196 SF	
1,200.0	1,199.3	1,199.3	1,199.3	2.5	2.6	-139.28	44.8	0.6	58.6	53.5	5.08	11.543	
1,300.0	1,298.6	1,298.6	1,298.6	2.8	2.8	-145.66	44.8	0.6	68.0	62.4	5.51	12.326	
1,400.0	1,397.5	1,397.5	1,397.5	3.0	3.0	-151.35	44.8	0.6	80.2	74.3	5.95	13.487	
1,500.0	1,496.1	1,498.4	1,498.4	3.3	3.2	-156.43	43.6	1.0	94.3	87.9	6.36	14.828	
1,600.0	1,594.2	1,599.6	1,599.5	3.7	3.4	-161.11	39.9	2.2	108.9	102.1	6.74	16.154	
1,700.0	1,691.7	1,700.9	1,700.6	4.1	3.6	-165.50	33.6	4.4	124.1	117.0	7.12	17.423	
1,800.0	1,788.6	1,802.3	1,801.6	4.5	3.8	-169.64	24.8	7.4	140.1	132.6	7.51	18.652	
1,900.0	1,884.9	1,903.8	1,902.3	5.0	4.0	-173.56	13.4	11.2	157.0	149.1	7.91	19.845	
1,913.6	1,897.9	1,917.6	1,916.0	5.1	4.0	-174.08	11.7	11.8	159.3	151.4	7.97	20.002	
2,000.0	1,980.6	2,005.5	2,002.9	5.6	4.2	-177.29	-0.5	15.9	173.9	165.5	8.36	20.799	
2,100.0	2,076.4	2,107.5	2,103.5	6.1	4.5	179.14	-17.1	21.6	189.4	180.5	8.85	21.387	
2,200.0	2,172.2	2,207.9	2,201.9	6.7	4.8	175.73	-35.5	27.8	203.7	194.3	9.39	21.682	
2,300.0	2,268.0	2,306.2	2,298.3	7.2	5.1	172.76	-53.9	34.1	218.4	208.4	9.98	21.890	
2,400.0	2,363.8	2,404.5	2,394.7	7.8	5.5	170.17	-72.4	40.3	233.5	222.9	10.60	22.035	
2,500.0	2,459.5	2,502.8	2,491.1	8.4	5.8	167.90	-90.8	46.6	249.1	237.9	11.26	22.129	
2,600.0	2,555.3	2,601.2	2,587.4	9.0	6.2	165.89	-109.2	52.8	265.1	253.1	11.95	22.182	
2,700.0	2,651.1	2,699.5	2,683.8	9.6	6.5	164.11	-127.6	59.1	281.3	268.6	12.67	22.202	
2,800.0	2,746.9	2,797.8	2,780.2	10.2	6.9	162.53	-146.1	65.4	297.7	284.3	13.41	22.198	
2,900.0	2,842.7	2,896.1	2,876.6	10.8	7.3	161.11	-164.5	71.6	314.4	300.2	14.18	22.177	
3,000.0	2,938.4	2,994.4	2,972.9	11.4	7.7	159.84	-182.9	77.9	331.2	316.2	14.96	22.144	
3,100.0	3,034.2	3,092.8	3,069.3	12.0	8.1	158.69	-201.3	84.1	348.2	332.4	15.75	22.102	
3,200.0	3,130.0	3,191.1	3,165.7	12.6	8.5	157.64	-219.7	90.4	365.2	348.7	16.56	22.056	
3,300.0	3,225.8	3,289.4	3,262.1	13.2	8.9	156.69	-238.2	96.6	382.4	365.1	17.38	22.005	
3,400.0	3,321.6	3,387.7	3,358.4	13.8	9.3	155.82	-256.6	102.9	399.7	381.5	18.21	21.953	
3,500.0	3,417.3	3,486.0	3,454.8	14.4	9.7	155.02	-275.0	109.1	417.1	398.0	19.04	21.901	
3,600.0	3,513.1	3,584.4	3,551.2	15.0	10.1	154.29	-293.4	115.4	434.5	414.6	19.89	21.849	
3,700.0	3,608.9	3,682.7	3,647.6	15.6	10.5	153.61	-311.9	121.6	452.0	431.3	20.74	21.798	
3,800.0	3,704.7	3,781.0	3,743.9	16.2	10.9	152.98	-330.3	127.9	469.6	448.0	21.59	21.748	
3,900.0	3,800.5	3,879.3	3,840.3	16.8	11.4	152.40	-348.7	134.2	487.2	464.8	22.45	21.700	
4,000.0	3,896.2	3,977.6	3,936.7	17.5	11.8	151.86	-367.1	140.4	504.9	481.6	23.32	21.653	
4,100.0	3,992.0	4,076.0	4,033.1	18.1	12.2	151.35	-385.5	146.7	522.6	498.4	24.18	21.608	
4,200.0	4,087.8	4,174.3	4,129.4	18.7	12.6	150.88	-404.0	152.9	540.3	515.3	25.06	21.565	
4,300.0	4,183.6	4,272.6	4,225.8	19.3	13.0	150.44	-422.4	159.2	558.1	532.2	25.93	21.523	
4,400.0	4,279.4	4,370.9	4,322.2	19.9	13.5	150.03	-440.8	165.4	575.9	549.1	26.81	21.483	
4,500.0	4,375.1	4,469.2	4,418.6	20.5	13.9	149.64	-459.2	171.7	593.7	566.0	27.69	21.445	
4,600.0	4,470.9	4,567.6	4,514.9	21.1	14.3	149.27	-477.7	177.9	611.6	583.0	28.57	21.409	
4,700.0	4,566.7	4,665.9	4,611.3	21.7	14.7	148.92	-496.1	184.2	629.4	600.0	29.45	21.374	
4,800.0	4,662.5	4,764.2	4,707.7	22.4	15.2	148.60	-514.5	190.4	647.3	617.0	30.33	21.341	
4,900.0	4,758.3	4,862.5	4,804.1	23.0	15.6	148.29	-532.9	196.7	665.3	634.0	31.22	21.309	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7Q-341
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7Q-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-11-15)	Offset TVD Reference:	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 (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	4,854.0	4,960.8	4,900.5	23.6	16.0	147.99	-551.4	202.9	683.2	651.1	32.11	21.278	
5,100.0	4,949.8	5,059.2	4,996.8	24.2	16.4	147.71	-569.8	209.2	701.1	668.2	33.00	21.249	
5,200.0	5,045.6	5,157.5	5,093.2	24.8	16.9	147.45	-588.2	215.5	719.1	685.2	33.89	21.221	
5,232.3	5,076.6	5,189.2	5,124.3	25.0	17.0	147.37	-594.2	217.5	724.9	690.7	34.17	21.212	
5,300.0	5,141.6	5,255.9	5,189.7	25.4	17.3	147.29	-606.6	221.7	736.4	701.6	34.78	21.172	
5,400.0	5,238.5	5,350.4	5,282.4	25.8	17.7	147.09	-623.9	227.6	751.2	715.6	35.57	21.118	
5,500.0	5,336.2	5,441.8	5,372.5	26.1	18.0	146.95	-638.2	232.4	764.0	727.8	36.22	21.093	
5,600.0	5,434.5	5,533.3	5,463.2	26.5	18.2	146.88	-649.8	236.4	774.9	738.1	36.75	21.083	
5,700.0	5,533.5	5,625.1	5,554.5	26.7	18.4	146.86	-658.6	239.4	783.9	746.7	37.20	21.073	
5,800.0	5,632.8	5,716.9	5,646.1	27.0	18.6	146.90	-664.7	241.4	791.0	753.5	37.55	21.063	
5,900.0	5,732.6	5,808.8	5,738.0	27.1	18.7	146.99	-667.9	242.5	796.2	758.4	37.82	21.052	
6,000.0	5,832.5	5,903.3	5,832.5	27.3	18.9	147.13	-668.6	242.7	799.4	761.4	38.01	21.032	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7Q-341
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7Q-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-11-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	1.07	14.9	0.3	14.9	14.9	0.00	N/A		
100.0	100.0	100.0	100.0	0.1	0.1	1.07	14.9	0.3	14.9	14.7	0.22	66.491		
200.0	200.0	200.0	200.0	0.3	0.3	1.07	14.9	0.3	14.9	14.3	0.67	22.162		
300.0	300.0	300.0	300.0	0.6	0.6	1.07	14.9	0.3	14.9	13.8	1.12	13.297		
400.0	400.0	400.0	400.0	0.8	0.8	1.07	14.9	0.3	14.9	13.4	1.57	9.498		
500.0	500.0	500.0	500.0	1.0	1.0	1.07	14.9	0.3	14.9	12.9	2.02	7.387		
600.0	600.0	600.0	600.0	1.2	1.2	1.07	14.9	0.3	14.9	12.5	2.47	6.044		
700.0	700.0	700.0	700.0	1.5	1.5	1.07	14.9	0.3	14.9	12.0	2.92	5.114		
800.0	800.0	800.0	800.0	1.7	1.7	1.07	14.9	0.3	14.9	11.6	3.37	4.432 CC		
900.0	900.0	900.0	900.0	1.9	1.9	-125.48	14.9	0.3	15.7	11.9	3.80	4.122		
1,000.0	999.9	999.9	999.9	2.1	2.1	-135.55	14.9	0.3	18.2	14.0	4.22	4.322		
1,100.0	1,099.7	1,100.2	1,100.2	2.3	2.3	-145.57	14.0	1.2	22.1	17.5	4.62	4.797		
1,200.0	1,199.3	1,200.7	1,200.6	2.5	2.5	-153.40	11.3	4.1	26.4	21.3	5.00	5.266		
1,300.0	1,298.6	1,301.3	1,301.0	2.8	2.7	-159.88	6.8	9.0	30.8	25.4	5.40	5.700		
1,400.0	1,397.5	1,402.0	1,401.2	3.0	2.9	-165.46	0.5	15.7	35.4	29.6	5.80	6.101		
1,500.0	1,496.1	1,502.8	1,501.4	3.3	3.2	-170.41	-7.6	24.4	40.2	34.0	6.20	6.475		
1,600.0	1,594.2	1,603.8	1,601.2	3.7	3.4	-174.91	-17.6	35.1	45.2	38.6	6.62	6.826		
1,700.0	1,691.7	1,704.8	1,700.8	4.1	3.7	-179.04	-29.3	47.7	50.4	43.4	7.05	7.151		
1,800.0	1,788.6	1,806.0	1,800.0	4.5	4.1	177.12	-42.9	62.2	55.9	48.4	7.51	7.447		
1,900.0	1,884.9	1,907.3	1,898.7	5.0	4.5	173.52	-58.3	78.6	61.7	53.7	8.00	7.708		
1,913.6	1,897.9	1,921.1	1,912.2	5.1	4.5	173.05	-60.5	81.0	62.5	54.4	8.07	7.740		
2,000.0	1,980.6	2,007.5	1,996.0	5.6	4.9	170.23	-74.8	96.4	67.3	58.8	8.57	7.859		
2,100.0	2,076.4	2,107.3	2,092.8	6.1	5.3	167.44	-91.4	114.1	73.1	63.9	9.18	7.959		
2,200.0	2,172.2	2,207.1	2,189.6	6.7	5.8	165.06	-108.0	131.9	79.0	69.1	9.84	8.028		
2,300.0	2,268.0	2,306.8	2,286.4	7.2	6.2	163.01	-124.6	149.6	85.0	74.4	10.53	8.072		
2,400.0	2,363.8	2,406.6	2,383.1	7.8	6.7	161.24	-141.1	167.3	91.1	79.8	11.25	8.098		
2,500.0	2,459.5	2,506.4	2,479.9	8.4	7.2	159.69	-157.7	185.1	97.3	85.3	12.00	8.108		
2,600.0	2,555.3	2,606.2	2,576.7	9.0	7.7	158.32	-174.3	202.8	103.5	90.7	12.77	8.107		
2,700.0	2,651.1	2,706.0	2,673.5	9.6	8.2	157.11	-190.8	220.5	109.8	96.3	13.56	8.099		
2,800.0	2,746.9	2,805.7	2,770.3	10.2	8.7	156.04	-207.4	238.3	116.2	101.8	14.36	8.086		
2,900.0	2,842.7	2,905.5	2,867.0	10.8	9.2	155.07	-224.0	256.0	122.5	107.3	15.19	8.069		
3,000.0	2,938.4	3,005.3	2,963.8	11.4	9.7	154.20	-240.6	273.8	128.9	112.9	16.02	8.049		
3,100.0	3,034.2	3,105.1	3,060.6	12.0	10.2	153.41	-257.1	291.5	135.4	118.5	16.86	8.029		
3,200.0	3,130.0	3,204.8	3,157.4	12.6	10.7	152.70	-273.7	309.2	141.8	124.1	17.71	8.007		
3,300.0	3,225.8	3,304.6	3,254.1	13.2	11.2	152.04	-290.3	327.0	148.3	129.7	18.57	7.985		
3,400.0	3,321.6	3,404.4	3,350.9	13.8	11.7	151.45	-306.9	344.7	154.8	135.4	19.44	7.963		
3,500.0	3,417.3	3,504.2	3,447.7	14.4	12.3	150.90	-323.4	362.5	161.3	141.0	20.31	7.942		
3,600.0	3,513.1	3,603.9	3,544.5	15.0	12.8	150.39	-340.0	380.2	167.8	146.7	21.19	7.920		
3,700.0	3,608.9	3,703.7	3,641.3	15.6	13.3	149.92	-356.6	397.9	174.4	152.3	22.07	7.900		
3,800.0	3,704.7	3,803.5	3,738.0	16.2	13.8	149.48	-373.1	415.7	180.9	158.0	22.96	7.880		
3,900.0	3,800.5	3,903.3	3,834.8	16.8	14.3	149.08	-389.7	433.4	187.5	163.6	23.85	7.861		
4,000.0	3,896.2	4,003.0	3,931.6	17.5	14.9	148.70	-406.3	451.2	194.1	169.3	24.74	7.843		
4,100.0	3,992.0	4,102.8	4,028.4	18.1	15.4	148.35	-422.9	468.9	200.6	175.0	25.64	7.825		
4,200.0	4,087.8	4,202.6	4,125.1	18.7	15.9	148.02	-439.4	486.6	207.2	180.7	26.54	7.808		
4,300.0	4,183.6	4,302.4	4,221.9	19.3	16.4	147.71	-456.0	504.4	213.8	186.4	27.44	7.791		
4,400.0	4,279.4	4,402.2	4,318.7	19.9	16.9	147.41	-472.6	522.1	220.4	192.1	28.34	7.776		
4,500.0	4,375.1	4,501.9	4,415.5	20.5	17.5	147.14	-489.2	539.9	227.0	197.8	29.25	7.761		
4,600.0	4,470.9	4,601.7	4,512.3	21.1	18.0	146.88	-505.7	557.6	233.6	203.5	30.16	7.746		
4,700.0	4,566.7	4,701.5	4,609.0	21.7	18.5	146.64	-522.3	575.3	240.2	209.2	31.07	7.732		
4,800.0	4,662.5	4,801.3	4,705.8	22.4	19.0	146.40	-538.9	593.1	246.8	214.9	31.98	7.719		
4,900.0	4,758.3	4,901.0	4,802.6	23.0	19.6	146.18	-555.4	610.8	253.4	220.6	32.89	7.707		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7Q-341
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7Q-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-11-15)	Offset TVD Reference:	Offset Datum

Offset Design													Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 7L-221 - Wellbore #1 - Plan #1 (9-10-15)		Offset Site Error:		0.0 ft
Survey Program: 0-MWD													Offset Well Error:		0.0 ft		
Reference		Offset		Semi Major Axis			Distance							Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor					
5,000.0	4,854.0	5,000.8	4,899.4	23.6	20.1	145.98	-572.0	628.6	260.1	226.3	33.80	7.694					
5,100.0	4,949.8	5,100.6	4,996.1	24.2	20.6	145.78	-588.6	646.3	266.7	232.0	34.71	7.683					
5,200.0	5,045.6	5,200.4	5,092.9	24.8	21.1	145.59	-605.2	664.0	273.3	237.7	35.63	7.671					
5,232.3	5,076.6	5,231.2	5,122.9	25.0	21.3	145.54	-610.2	669.5	275.5	239.6	35.90	7.674					
5,300.0	5,141.6	5,294.4	5,184.4	25.4	21.6	145.56	-620.0	679.9	280.2	243.8	36.41	7.697					
5,400.0	5,238.5	5,387.6	5,275.8	25.8	21.9	145.64	-632.6	693.4	286.7	249.7	36.98	7.753					
5,500.0	5,336.2	5,480.7	5,367.6	26.1	22.1	145.76	-643.3	704.8	292.6	255.1	37.46	7.810					
5,600.0	5,434.5	5,573.8	5,459.8	26.5	22.4	145.93	-651.8	714.0	297.9	260.1	37.86	7.869					
5,700.0	5,533.5	5,666.7	5,552.2	26.7	22.6	146.15	-658.3	720.9	302.7	264.5	38.17	7.931					
5,800.0	5,632.8	5,759.5	5,644.8	27.0	22.8	146.41	-662.8	725.7	306.9	268.5	38.38	7.995					
5,900.0	5,732.6	5,852.3	5,737.4	27.1	22.9	146.72	-665.2	728.3	310.5	272.0	38.51	8.061					
6,000.0	5,832.5	5,947.3	5,832.5	27.3	23.0	147.05	-665.7	728.8	313.4	274.8	38.58	8.123					
6,067.5	5,900.0	6,014.8	5,900.0	27.3	23.1	-90.39	-665.7	728.8	314.0	275.4	38.65	8.124					
6,100.0	5,932.5	6,047.3	5,932.5	27.4	23.1	-90.39	-665.7	728.8	314.0	275.3	38.74	8.107					
6,198.9	6,031.3	6,146.2	6,031.3	27.5	23.2	-90.00	-663.5	728.8	314.0	275.2	38.82	8.089					
6,200.0	6,032.5	6,147.3	6,032.5	27.5	23.2	-89.98	-663.4	728.8	314.0	275.2	38.82	8.090					
6,216.4	6,048.9	6,163.7	6,048.7	27.5	23.2	-89.72	-662.0	728.8	314.0	275.3	38.75	8.104					
6,250.0	6,082.4	6,196.9	6,081.8	27.5	23.2	-89.13	-658.0	728.8	314.1	275.5	38.57	8.142					
6,300.0	6,132.3	6,246.2	6,130.3	27.5	23.2	-88.25	-649.5	728.8	314.2	275.9	38.26	8.211					
6,350.0	6,181.8	6,295.2	6,177.9	27.5	23.2	-87.38	-637.9	728.8	314.4	276.5	37.90	8.294					
6,400.0	6,230.7	6,343.9	6,224.4	27.5	23.1	-86.52	-623.4	728.8	314.6	277.1	37.50	8.390					
6,450.0	6,278.8	6,392.4	6,269.6	27.5	23.0	-85.68	-606.1	728.8	314.9	277.9	37.07	8.495					
6,500.0	6,326.0	6,440.5	6,313.4	27.4	22.9	-84.86	-586.1	728.8	315.3	278.7	36.62	8.610					
6,550.0	6,372.0	6,488.4	6,355.6	27.3	22.8	-84.07	-563.5	728.8	315.7	279.6	36.16	8.730					
6,600.0	6,416.5	6,536.1	6,396.1	27.2	22.7	-83.31	-538.4	728.8	316.2	280.5	35.71	8.856					
6,650.0	6,459.6	6,583.5	6,434.8	27.1	22.6	-82.58	-511.0	728.8	316.7	281.4	35.26	8.983					
6,700.0	6,500.8	6,630.7	6,471.5	27.0	22.4	-81.88	-481.4	728.8	317.2	282.4	34.83	9.109					
6,750.0	6,540.1	6,677.6	6,506.2	26.9	22.3	-81.21	-449.7	728.8	317.8	283.4	34.42	9.232					
6,800.0	6,577.3	6,724.4	6,538.8	26.8	22.1	-80.59	-416.1	728.8	318.3	284.3	34.06	9.348					
6,850.0	6,612.3	6,771.0	6,569.1	26.6	22.0	-80.00	-380.7	728.8	318.9	285.2	33.73	9.454					
6,900.0	6,644.8	6,817.5	6,597.1	26.5	21.8	-79.45	-343.7	728.8	319.4	286.0	33.46	9.547					
6,950.0	6,674.8	6,863.8	6,622.7	26.3	21.6	-78.95	-305.1	728.8	320.0	286.7	33.24	9.625					
7,000.0	6,702.1	6,909.9	6,645.8	26.2	21.5	-78.50	-265.2	728.8	320.5	287.4	33.09	9.684					
7,050.0	6,726.6	6,955.9	6,666.5	26.0	21.3	-78.09	-224.1	728.8	321.0	287.9	33.01	9.722					
7,100.0	6,748.2	7,000.0	6,684.0	25.9	21.2	-77.74	-183.6	728.8	321.4	288.4	33.01	9.737					
7,150.0	6,766.8	7,047.6	6,700.1	25.7	21.0	-77.41	-138.8	728.8	321.8	288.7	33.08	9.728					
7,200.0	6,782.4	7,093.4	6,713.0	25.6	20.9	-77.15	-95.0	728.8	322.1	288.9	33.23	9.692					
7,250.0	6,794.8	7,139.0	6,723.3	25.4	20.7	-76.93	-50.5	728.8	322.4	288.9	33.47	9.633					
7,300.0	6,804.0	7,184.6	6,730.8	25.3	20.6	-76.76	-5.5	728.8	322.6	288.8	33.78	9.550					
7,350.0	6,809.9	7,230.2	6,735.6	25.2	20.4	-76.65	39.8	728.8	322.8	288.6	34.17	9.445					
7,400.0	6,812.7	7,275.7	6,737.8	25.1	20.3	-76.58	85.3	728.8	322.8	288.2	34.64	9.321					
7,418.0	6,812.8	7,292.4	6,737.9	25.1	20.3	-76.57	101.9	728.8	322.9	288.0	34.82	9.272					
7,500.0	6,812.7	7,374.4	6,737.7	25.0	20.1	-76.58	183.9	728.8	322.8	287.1	35.75	9.030					
7,600.0	6,812.5	7,474.4	6,737.6	24.9	20.0	-76.59	283.9	728.8	322.8	285.6	37.18	8.682					
7,700.0	6,812.2	7,574.4	6,737.4	25.1	20.9	-76.60	383.9	728.8	322.8	283.9	38.93	8.293					
7,800.0	6,812.0	7,674.4	6,737.3	25.5	22.0	-76.61	483.9	728.8	322.8	281.9	40.94	7.885					
7,900.0	6,811.8	7,774.4	6,737.1	26.2	23.3	-76.62	583.9	728.8	322.8	279.6	43.19	7.474					
8,000.0	6,811.6	7,874.4	6,737.0	27.1	24.6	-76.63	683.9	728.8	322.8	277.2	45.63	7.074					
8,100.0	6,811.4	7,974.4	6,736.8	28.3	26.0	-76.64	783.9	728.8	322.8	274.5	48.24	6.690					
8,200.0	6,811.2	8,074.4	6,736.6	29.5	27.5	-76.64	883.9	728.8	322.8	271.8	51.00	6.328					
8,300.0	6,811.0	8,174.4	6,736.5	30.9	29.0	-76.65	983.9	728.8	322.7	268.9	53.88	5.990					

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7Q-341
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7Q-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-11-15)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 7L-221 - Wellbore #1 - Plan #1 (9-10-15)													
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
8,400.0	6,810.8	8,274.4	6,736.3	32.3	30.5	-76.66	1,083.9	728.8	322.7	265.9	56.86	5.676	
8,500.0	6,810.6	8,374.4	6,736.2	33.8	32.1	-76.67	1,183.9	728.8	322.7	262.8	59.93	5.385	
8,600.0	6,810.4	8,474.4	6,736.0	35.3	33.7	-76.68	1,283.9	728.8	322.7	259.6	63.07	5.117	
8,700.0	6,810.1	8,574.4	6,735.9	36.9	35.3	-76.69	1,383.9	728.8	322.7	256.4	66.27	4.869	
8,800.0	6,809.9	8,674.4	6,735.7	38.5	37.0	-76.70	1,483.9	728.8	322.7	253.2	69.53	4.641	
8,900.0	6,809.7	8,774.4	6,735.5	40.1	38.6	-76.71	1,583.9	728.8	322.7	249.8	72.84	4.430	
9,000.0	6,809.5	8,874.4	6,735.4	41.8	40.3	-76.72	1,683.9	728.8	322.7	246.5	76.19	4.235	
9,100.0	6,809.3	8,974.4	6,735.2	43.5	42.1	-76.73	1,783.9	728.8	322.6	243.1	79.58	4.054	
9,200.0	6,809.1	9,074.4	6,735.1	45.1	43.8	-76.73	1,883.9	728.8	322.6	239.6	83.00	3.887	
9,300.0	6,808.9	9,174.4	6,734.9	46.8	45.5	-76.74	1,983.9	728.8	322.6	236.2	86.45	3.732	
9,400.0	6,808.7	9,274.4	6,734.8	48.6	47.3	-76.75	2,083.9	728.8	322.6	232.7	89.92	3.588	
9,500.0	6,808.5	9,374.4	6,734.6	50.3	49.1	-76.76	2,183.9	728.8	322.6	229.2	93.41	3.453	
9,600.0	6,808.3	9,474.4	6,734.4	52.0	50.8	-76.77	2,283.9	728.8	322.6	225.7	96.93	3.328	
9,700.0	6,808.1	9,574.4	6,734.3	53.8	52.6	-76.78	2,383.9	728.8	322.6	222.1	100.46	3.211	
9,800.0	6,807.8	9,674.4	6,734.1	55.6	54.4	-76.79	2,483.9	728.8	322.6	218.6	104.01	3.101	
9,900.0	6,807.6	9,774.4	6,734.0	57.3	56.2	-76.80	2,583.9	728.8	322.5	215.0	107.57	2.999	
10,000.0	6,807.4	9,874.4	6,733.8	59.1	58.0	-76.81	2,683.9	728.8	322.5	211.4	111.15	2.902	
10,100.0	6,807.2	9,974.4	6,733.7	60.9	59.9	-76.82	2,783.9	728.8	322.5	207.8	114.73	2.811	
10,200.0	6,807.0	10,074.4	6,733.5	62.7	61.7	-76.83	2,883.9	728.8	322.5	204.2	118.33	2.726	
10,300.0	6,806.8	10,174.4	6,733.3	64.5	63.5	-76.83	2,983.9	728.8	322.5	200.6	121.94	2.645	
10,400.0	6,806.6	10,274.4	6,733.2	66.3	65.3	-76.84	3,083.9	728.8	322.5	196.9	125.56	2.568	
10,500.0	6,806.4	10,374.4	6,733.0	68.2	67.2	-76.85	3,183.9	728.8	322.5	193.3	129.18	2.496	
10,600.0	6,806.2	10,474.4	6,732.9	70.0	69.0	-76.86	3,283.9	728.8	322.5	189.6	132.82	2.428	
10,700.0	6,806.0	10,574.4	6,732.7	71.8	70.9	-76.87	3,383.9	728.8	322.5	186.0	136.46	2.363	
10,800.0	6,805.8	10,674.4	6,732.6	73.6	72.7	-76.88	3,483.9	728.8	322.4	182.3	140.10	2.301	
10,900.0	6,805.5	10,774.4	6,732.4	75.5	74.6	-76.89	3,583.9	728.8	322.4	178.7	143.76	2.243	
11,000.0	6,805.3	10,874.4	6,732.2	77.3	76.4	-76.90	3,683.9	728.8	322.4	175.0	147.41	2.187	
11,100.0	6,805.1	10,974.4	6,732.1	79.2	78.3	-76.91	3,783.9	728.8	322.4	171.3	151.08	2.134	
11,200.0	6,804.9	11,074.4	6,731.9	81.0	80.2	-76.92	3,883.9	728.8	322.4	167.6	154.75	2.083	
11,300.0	6,804.7	11,174.4	6,731.8	82.9	82.0	-76.93	3,983.9	728.8	322.4	164.0	158.42	2.035	
11,400.0	6,804.5	11,274.4	6,731.6	84.7	83.9	-76.93	4,083.9	728.8	322.4	160.3	162.10	1.989	
11,500.0	6,804.3	11,374.4	6,731.5	86.6	85.8	-76.94	4,183.9	728.8	322.4	156.6	165.78	1.945	
11,600.0	6,804.1	11,474.4	6,731.3	88.4	87.6	-76.95	4,283.9	728.8	322.3	152.9	169.46	1.902	
11,700.0	6,803.9	11,574.4	6,731.1	90.3	89.5	-76.96	4,383.9	728.8	322.3	149.2	173.15	1.862	
11,800.0	6,803.7	11,674.4	6,731.0	92.1	91.4	-76.97	4,483.9	728.8	322.3	145.5	176.84	1.823	
11,900.0	6,803.4	11,774.4	6,730.8	94.0	93.3	-76.98	4,583.9	728.8	322.3	141.8	180.54	1.785	
12,000.0	6,803.2	11,874.4	6,730.7	95.9	95.1	-76.99	4,683.9	728.8	322.3	138.1	184.24	1.749	
12,100.0	6,803.0	11,974.4	6,730.5	97.7	97.0	-77.00	4,783.9	728.8	322.3	134.3	187.94	1.715	
12,200.0	6,802.8	12,074.4	6,730.4	99.6	98.9	-77.01	4,883.9	728.8	322.3	130.6	191.64	1.682	
12,300.0	6,802.6	12,174.4	6,730.2	101.5	100.8	-77.02	4,983.9	728.8	322.3	126.9	195.35	1.650	
12,400.0	6,802.4	12,274.4	6,730.0	103.4	102.7	-77.02	5,083.9	728.8	322.2	123.2	199.06	1.619	
12,500.0	6,802.2	12,374.4	6,729.9	105.2	104.6	-77.03	5,183.9	728.8	322.2	119.5	202.77	1.589	
12,600.0	6,802.0	12,474.4	6,729.7	107.1	106.4	-77.04	5,283.9	728.8	322.2	115.7	206.48	1.561	
12,700.0	6,801.8	12,574.4	6,729.6	109.0	108.3	-77.05	5,383.9	728.8	322.2	112.0	210.19	1.533	
12,800.0	6,801.6	12,674.4	6,729.4	110.9	110.2	-77.06	5,483.9	728.8	322.2	108.3	213.91	1.506	
12,900.0	6,801.4	12,774.4	6,729.3	112.8	112.1	-77.07	5,583.9	728.8	322.2	104.6	217.63	1.480 Level 3	
13,000.0	6,801.1	12,874.4	6,729.1	114.6	114.0	-77.08	5,683.9	728.8	322.2	100.8	221.35	1.456 Level 3	
13,100.0	6,800.9	12,974.4	6,728.9	116.5	115.9	-77.09	5,783.9	728.8	322.2	97.1	225.07	1.431 Level 3	
13,200.0	6,800.7	13,074.4	6,728.8	118.4	117.8	-77.10	5,883.9	728.8	322.2	93.4	228.80	1.408 Level 3	
13,300.0	6,800.5	13,174.4	6,728.6	120.3	119.7	-77.11	5,983.9	728.8	322.1	89.6	232.52	1.385 Level 3	
13,400.0	6,800.3	13,274.4	6,728.5	122.2	121.6	-77.12	6,083.9	728.8	322.1	85.9	236.25	1.364 Level 3	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7Q-341
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7Q-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-11-15)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 7L-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
13,500.0	6,800.1	13,374.4	6,728.3	124.1	123.5	-77.12	6,183.9	728.8	322.1	82.1	239.98	1.342	Level 3
13,600.0	6,799.9	13,474.4	6,728.2	126.0	125.4	-77.13	6,283.9	728.8	322.1	78.4	243.71	1.322	Level 3
13,700.0	6,799.7	13,574.4	6,728.0	127.9	127.3	-77.14	6,383.9	728.8	322.1	74.7	247.44	1.302	Level 3
13,800.0	6,799.5	13,674.4	6,727.8	129.7	129.2	-77.15	6,483.9	728.8	322.1	70.9	251.17	1.282	Level 3
13,900.0	6,799.3	13,774.4	6,727.7	131.6	131.1	-77.16	6,583.9	728.8	322.1	67.2	254.90	1.264	Level 3
14,000.0	6,799.0	13,874.4	6,727.5	133.5	133.0	-77.17	6,683.9	728.8	322.1	63.4	258.64	1.245	Level 2
14,100.0	6,798.8	13,974.4	6,727.4	135.4	134.9	-77.18	6,783.9	728.8	322.0	59.7	262.37	1.227	Level 2
14,200.0	6,798.6	14,074.4	6,727.2	137.3	136.8	-77.19	6,883.9	728.8	322.0	55.9	266.11	1.210	Level 2
14,300.0	6,798.4	14,174.4	6,727.1	139.2	138.7	-77.20	6,983.9	728.8	322.0	52.2	269.85	1.193	Level 2
14,400.0	6,798.2	14,274.4	6,726.9	141.1	140.6	-77.21	7,083.9	728.8	322.0	48.4	273.59	1.177	Level 2
14,500.0	6,798.0	14,374.4	6,726.7	143.0	142.5	-77.22	7,183.9	728.8	322.0	44.7	277.33	1.161	Level 2
14,600.0	6,797.8	14,474.4	6,726.6	144.9	144.4	-77.22	7,283.9	728.8	322.0	40.9	281.07	1.146	Level 2
14,700.0	6,797.6	14,574.4	6,726.4	146.8	146.3	-77.23	7,383.9	728.8	322.0	37.2	284.81	1.130	Level 2
14,800.0	6,797.4	14,674.4	6,726.3	148.7	148.2	-77.24	7,483.9	728.8	322.0	33.4	288.55	1.116	Level 2
14,900.0	6,797.2	14,774.4	6,726.1	150.6	150.1	-77.25	7,583.9	728.8	322.0	29.7	292.30	1.101	Level 2
15,000.0	6,797.0	14,874.4	6,726.0	152.5	152.0	-77.26	7,683.9	728.8	321.9	25.9	296.04	1.087	Level 2
15,100.0	6,796.7	14,974.4	6,725.8	154.4	153.9	-77.27	7,783.9	728.8	321.9	22.1	299.79	1.074	Level 2
15,200.0	6,796.5	15,074.4	6,725.6	156.3	155.8	-77.28	7,883.9	728.8	321.9	18.4	303.53	1.061	Level 2
15,300.0	6,796.3	15,174.4	6,725.5	158.2	157.7	-77.29	7,983.9	728.8	321.9	14.6	307.28	1.048	Level 2
15,400.0	6,796.1	15,274.4	6,725.3	160.1	159.6	-77.30	8,083.9	728.8	321.9	10.9	311.03	1.035	Level 2
15,500.0	6,795.9	15,374.4	6,725.2	162.0	161.5	-77.31	8,183.9	728.8	321.9	7.1	314.78	1.023	Level 2
15,600.0	6,795.7	15,474.4	6,725.0	163.9	163.4	-77.32	8,283.9	728.8	321.9	3.3	318.53	1.010	Level 2
15,700.0	6,795.5	15,574.4	6,724.9	165.8	165.3	-77.32	8,383.9	728.8	321.9	-0.4	322.28	0.999	Level 1
15,800.0	6,795.3	15,674.4	6,724.7	167.7	167.2	-77.33	8,483.9	728.8	321.8	-4.2	326.03	0.987	Level 1
15,900.0	6,795.1	15,774.4	6,724.5	169.6	169.1	-77.34	8,583.9	728.8	321.8	-7.9	329.78	0.976	Level 1
16,000.0	6,794.9	15,874.4	6,724.4	171.5	171.0	-77.35	8,683.9	728.8	321.8	-11.7	333.53	0.965	Level 1
16,100.0	6,794.7	15,974.4	6,724.2	173.4	172.9	-77.36	8,783.9	728.8	321.8	-15.5	337.29	0.954	Level 1
16,200.0	6,794.4	16,074.4	6,724.1	175.3	174.9	-77.37	8,883.9	728.8	321.8	-19.2	341.04	0.944	Level 1
16,300.0	6,794.2	16,174.4	6,723.9	177.2	176.8	-77.38	8,983.9	728.8	321.8	-23.0	344.79	0.933	Level 1
16,400.0	6,794.0	16,274.4	6,723.8	179.1	178.7	-77.39	9,083.9	728.8	321.8	-26.8	348.55	0.923	Level 1
16,500.0	6,793.8	16,374.4	6,723.6	181.0	180.6	-77.40	9,183.9	728.8	321.8	-30.5	352.30	0.913	Level 1
16,600.0	6,793.6	16,474.4	6,723.4	182.9	182.5	-77.41	9,283.9	728.8	321.8	-34.3	356.06	0.904	Level 1
16,700.0	6,793.4	16,574.4	6,723.3	184.8	184.4	-77.42	9,383.9	728.8	321.7	-38.1	359.82	0.894	Level 1
16,800.0	6,793.2	16,674.4	6,723.1	186.7	186.3	-77.42	9,483.9	728.8	321.7	-41.8	363.57	0.885	Level 1
16,863.2	6,793.1	16,737.5	6,723.0	188.0	187.5	-77.43	9,547.0	728.8	321.7	-44.2	365.95	0.879	Level 1
16,888.0	6,793.0	16,759.2	6,723.0	188.4	187.9	-77.43	9,568.7	728.8	321.7	-45.1	366.82	0.877	Level 1, ES, SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7Q-341
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7Q-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-11-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	0.53	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 CC, ES		
900.0	900.0	900.0	900.0	1.9	1.9	-124.01	29.9	0.3	30.6	26.8	3.80	8.048		
1,000.0	999.9	999.9	999.9	2.1	2.1	-129.64	29.9	0.3	32.9	28.7	4.22	7.812		
1,100.0	1,099.7	1,099.7	1,099.7	2.3	2.4	-137.32	29.9	0.3	37.5	32.8	4.64	8.069		
1,200.0	1,199.3	1,199.3	1,199.3	2.5	2.6	-145.23	29.9	0.3	44.6	39.6	5.07	8.797		
1,300.0	1,298.6	1,300.0	1,300.0	2.8	2.8	-152.17	28.8	1.0	53.4	47.9	5.48	9.748		
1,400.0	1,397.5	1,400.9	1,400.8	3.0	3.0	-158.06	25.5	3.3	62.6	56.7	5.87	10.666		
1,500.0	1,496.1	1,502.1	1,501.7	3.3	3.2	-163.26	20.0	7.0	72.0	65.8	6.25	11.519		
1,600.0	1,594.2	1,603.4	1,602.6	3.7	3.4	-167.98	12.3	12.3	81.9	75.3	6.65	12.322		
1,700.0	1,691.7	1,704.9	1,703.4	4.1	3.6	-172.34	2.4	19.1	92.3	85.2	7.05	13.085		
1,800.0	1,788.6	1,806.6	1,804.0	4.5	3.8	-176.40	-9.8	27.4	103.1	95.7	7.47	13.806		
1,900.0	1,884.9	1,908.3	1,904.3	5.0	4.1	-179.78	-24.2	37.2	114.6	106.6	7.91	14.479		
1,913.6	1,897.9	1,922.2	1,917.9	5.1	4.2	-179.28	-26.3	38.7	116.2	108.2	7.98	14.564		
2,000.0	1,980.6	2,009.9	2,003.8	5.6	4.5	-176.19	-40.7	48.5	125.7	117.2	8.42	14.924		
2,100.0	2,076.4	2,109.1	2,100.9	6.1	4.8	-173.06	-57.6	60.1	136.4	127.4	8.97	15.200		
2,200.0	2,172.2	2,208.2	2,197.9	6.7	5.2	-170.40	-74.5	71.6	147.4	137.8	9.56	15.415		
2,300.0	2,268.0	2,307.4	2,295.0	7.2	5.5	-168.11	-91.4	83.2	158.7	148.5	10.19	15.577		
2,400.0	2,363.8	2,406.6	2,392.0	7.8	5.9	-166.13	-108.3	94.7	170.3	159.4	10.85	15.695		
2,500.0	2,459.5	2,505.7	2,489.0	8.4	6.3	-164.40	-125.2	106.3	182.0	170.4	11.53	15.777		
2,600.0	2,555.3	2,604.9	2,586.1	9.0	6.7	-162.88	-142.1	117.8	193.8	181.6	12.24	15.831		
2,700.0	2,651.1	2,704.1	2,683.1	9.6	7.1	-161.54	-159.0	129.3	205.8	192.8	12.97	15.863		
2,800.0	2,746.9	2,803.3	2,780.1	10.2	7.6	-160.34	-175.9	140.9	217.9	204.2	13.72	15.878		
2,900.0	2,842.7	2,902.4	2,877.2	10.8	8.0	-159.27	-192.8	152.4	230.0	215.6	14.49	15.881		
3,000.0	2,938.4	3,001.6	2,974.2	11.4	8.4	-158.31	-209.7	164.0	242.3	227.0	15.26	15.875		
3,100.0	3,034.2	3,100.8	3,071.2	12.0	8.8	-157.44	-226.6	175.5	254.6	238.5	16.05	15.862		
3,200.0	3,130.0	3,199.9	3,168.3	12.6	9.3	-156.65	-243.5	187.1	266.9	250.1	16.85	15.844		
3,300.0	3,225.8	3,299.1	3,265.3	13.2	9.7	-155.93	-260.4	198.6	279.3	261.7	17.65	15.823		
3,400.0	3,321.6	3,398.3	3,362.4	13.8	10.1	-155.27	-277.3	210.2	291.7	273.3	18.46	15.800		
3,500.0	3,417.3	3,497.5	3,459.4	14.4	10.6	-154.66	-294.2	221.7	304.2	284.9	19.28	15.775		
3,600.0	3,513.1	3,596.6	3,556.4	15.0	11.0	-154.10	-311.1	233.3	316.7	296.6	20.11	15.749		
3,700.0	3,608.9	3,695.8	3,653.5	15.6	11.5	-153.59	-328.0	244.8	329.2	308.3	20.94	15.723		
3,800.0	3,704.7	3,795.0	3,750.5	16.2	11.9	-153.11	-344.9	256.4	341.8	320.0	21.77	15.697		
3,900.0	3,800.5	3,894.1	3,847.5	16.8	12.3	-152.67	-361.8	267.9	354.3	331.7	22.61	15.671		
4,000.0	3,896.2	3,993.3	3,944.6	17.5	12.8	-152.25	-378.7	279.5	366.9	343.5	23.45	15.645		
4,100.0	3,992.0	4,092.5	4,041.6	18.1	13.2	-151.87	-395.6	291.0	379.5	355.2	24.30	15.620		
4,200.0	4,087.8	4,191.7	4,138.6	18.7	13.7	-151.51	-412.5	302.6	392.2	367.0	25.15	15.595		
4,300.0	4,183.6	4,290.8	4,235.7	19.3	14.1	-151.17	-429.4	314.1	404.8	378.8	26.00	15.571		
4,400.0	4,279.4	4,390.0	4,332.7	19.9	14.6	-150.85	-446.2	325.6	417.4	390.6	26.85	15.548		
4,500.0	4,375.1	4,489.2	4,429.8	20.5	15.0	-150.55	-463.1	337.2	430.1	402.4	27.70	15.525		
4,600.0	4,470.9	4,588.3	4,526.8	21.1	15.5	-150.27	-480.0	348.7	442.8	414.2	28.56	15.503		
4,700.0	4,566.7	4,687.5	4,623.8	21.7	15.9	-150.00	-496.9	360.3	455.5	426.0	29.42	15.482		
4,800.0	4,662.5	4,786.7	4,720.9	22.4	16.4	-149.75	-513.8	371.8	468.1	437.9	30.28	15.462		
4,900.0	4,758.3	4,885.8	4,817.9	23.0	16.8	-149.51	-530.7	383.4	480.8	449.7	31.14	15.442		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7Q-341
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7Q-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-11-15)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 7L-301 - 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
5,000.0	4,854.0	4,985.0	4,914.9	23.6	17.3	149.29	-547.6	394.9	493.6	461.5	32.00	15.423	
5,100.0	4,949.8	5,084.2	5,012.0	24.2	17.7	149.07	-564.5	406.5	506.3	473.4	32.87	15.404	
5,200.0	5,045.6	5,183.4	5,109.0	24.8	18.2	148.87	-581.4	418.0	519.0	485.3	33.73	15.386	
5,232.3	5,076.6	5,215.4	5,140.4	25.0	18.3	148.80	-586.9	421.8	523.1	489.1	34.01	15.381	
5,300.0	5,141.6	5,282.6	5,206.1	25.4	18.6	148.71	-598.3	429.6	531.0	496.4	34.60	15.347	
5,400.0	5,238.5	5,382.1	5,303.5	25.8	19.1	148.39	-615.3	441.2	540.3	504.8	35.45	15.242	
5,500.0	5,336.2	5,472.4	5,392.1	26.1	19.4	148.04	-629.7	451.0	547.4	511.3	36.13	15.150	
5,600.0	5,434.5	5,562.3	5,480.7	26.5	19.7	147.75	-641.7	459.2	553.4	516.7	36.72	15.072	
5,700.0	5,533.5	5,652.2	5,569.9	26.7	19.9	147.52	-651.4	465.8	558.3	521.1	37.22	15.000	
5,800.0	5,632.8	5,742.2	5,659.4	27.0	20.1	147.35	-658.8	470.9	562.0	524.4	37.63	14.935	
5,900.0	5,732.6	5,832.2	5,749.2	27.1	20.3	147.24	-663.8	474.3	564.6	526.6	37.95	14.875	
6,000.0	5,832.5	5,922.2	5,839.2	27.3	20.4	147.18	-666.6	476.2	566.0	527.8	38.19	14.819	
6,067.5	5,900.0	5,983.0	5,900.0	27.3	20.5	-90.37	-667.1	476.6	566.2	527.9	38.32	14.778	
6,078.4	5,910.8	5,993.9	5,910.8	27.3	20.5	-90.37	-667.1	476.6	566.2	527.9	38.34	14.767	
6,100.0	5,932.5	6,015.5	5,932.5	27.4	20.5	-90.37	-667.1	476.6	566.2	527.8	38.40	14.746	
6,200.0	6,032.5	6,115.5	6,032.5	27.5	20.6	-90.37	-667.1	476.6	566.2	527.6	38.65	14.649	
6,216.4	6,048.9	6,131.9	6,048.9	27.5	20.7	-90.37	-667.1	476.6	566.2	527.5	38.69	14.634	
6,250.0	6,082.4	6,165.6	6,082.6	27.5	20.7	-90.39	-666.6	476.6	566.2	527.5	38.77	14.605	
6,300.0	6,132.3	6,215.9	6,132.7	27.5	20.7	-90.42	-663.0	476.6	566.2	527.4	38.84	14.579	
6,350.0	6,181.8	6,266.2	6,182.5	27.5	20.7	-90.45	-656.2	476.6	566.2	527.4	38.84	14.578	
6,400.0	6,230.7	6,316.5	6,231.8	27.5	20.7	-90.47	-646.1	476.6	566.2	527.5	38.79	14.599	
6,450.0	6,278.8	6,366.8	6,280.3	27.5	20.6	-90.50	-632.8	476.6	566.2	527.6	38.68	14.641	
6,500.0	6,326.0	6,417.1	6,327.8	27.4	20.6	-90.52	-616.3	476.6	566.2	527.7	38.51	14.703	
6,550.0	6,372.0	6,467.5	6,374.2	27.3	20.5	-90.54	-596.7	476.6	566.2	527.9	38.30	14.783	
6,600.0	6,416.5	6,517.8	6,419.2	27.2	20.3	-90.56	-574.1	476.6	566.3	528.2	38.06	14.878	
6,650.0	6,459.6	6,568.2	6,462.6	27.1	20.2	-90.58	-548.6	476.6	566.3	528.5	37.78	14.987	
6,700.0	6,500.8	6,618.6	6,504.3	27.0	20.1	-90.59	-520.2	476.6	566.3	528.8	37.49	15.105	
6,750.0	6,540.1	6,669.0	6,543.9	26.9	19.9	-90.60	-489.2	476.6	566.3	529.1	37.18	15.230	
6,800.0	6,577.3	6,719.4	6,581.5	26.8	19.7	-90.61	-455.6	476.6	566.3	529.4	36.87	15.356	
6,850.0	6,612.3	6,769.8	6,616.8	26.6	19.5	-90.62	-419.6	476.6	566.3	529.7	36.58	15.480	
6,900.0	6,644.8	6,820.2	6,649.6	26.5	19.4	-90.62	-381.4	476.6	566.3	529.9	36.31	15.595	
6,950.0	6,674.8	6,870.6	6,679.8	26.3	19.2	-90.62	-341.1	476.6	566.3	530.2	36.07	15.697	
7,000.0	6,702.1	6,921.0	6,707.3	26.2	19.0	-90.62	-298.8	476.6	566.3	530.4	35.89	15.780	
7,050.0	6,726.6	6,971.4	6,732.0	26.0	18.9	-90.61	-254.9	476.6	566.3	530.5	35.75	15.838	
7,100.0	6,748.2	7,021.8	6,753.7	25.9	18.7	-90.61	-209.4	476.6	566.3	530.6	35.69	15.866	
7,150.0	6,766.8	7,072.2	6,772.4	25.7	18.6	-90.60	-162.6	476.6	566.3	530.6	35.70	15.861	
7,200.0	6,782.4	7,122.6	6,787.9	25.6	18.4	-90.58	-114.7	476.6	566.3	530.5	35.80	15.819	
7,250.0	6,794.8	7,172.9	6,800.3	25.4	18.3	-90.57	-65.9	476.6	566.3	530.3	35.98	15.740	
7,300.0	6,804.0	7,223.3	6,809.4	25.3	18.3	-90.55	-16.3	476.6	566.3	530.0	36.25	15.623	
7,350.0	6,809.9	7,273.6	6,815.2	25.2	18.2	-90.53	33.7	476.6	566.2	529.6	36.60	15.469	
7,400.0	6,812.7	7,324.0	6,817.7	25.1	18.3	-90.51	83.9	476.6	566.2	529.2	37.05	15.284	
7,418.0	6,812.8	7,342.1	6,817.8	25.1	18.3	-90.50	102.1	476.6	566.2	529.0	37.23	15.210	
7,500.0	6,812.7	7,424.1	6,817.6	25.0	18.6	-90.50	184.0	476.6	566.2	528.0	38.22	14.816	
7,600.0	6,812.5	7,524.1	6,817.3	24.9	19.3	-90.49	284.0	476.6	566.2	526.5	39.71	14.259	
7,700.0	6,812.2	7,624.1	6,817.0	25.1	20.3	-90.49	384.0	476.6	566.2	524.7	41.51	13.641	
7,800.0	6,812.0	7,724.1	6,816.8	25.5	21.4	-90.48	484.0	476.6	566.2	522.7	43.57	12.995	
7,900.0	6,811.8	7,824.1	6,816.5	26.2	22.6	-90.47	584.0	476.6	566.2	520.4	45.87	12.346	
8,000.0	6,811.6	7,924.1	6,816.3	27.1	23.9	-90.47	684.0	476.6	566.2	517.9	48.36	11.710	
8,100.0	6,811.4	8,024.1	6,816.0	28.3	25.3	-90.46	784.0	476.6	566.2	515.2	51.01	11.100	
8,200.0	6,811.2	8,124.1	6,815.7	29.5	26.7	-90.46	884.0	476.6	566.2	512.4	53.81	10.522	
8,300.0	6,811.0	8,224.1	6,815.5	30.9	28.2	-90.45	984.0	476.6	566.2	509.5	56.74	9.980	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7Q-341
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7Q-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-11-15)	Offset TVD Reference:	Offset Datum

Offset Design		Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 7L-301 - 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 Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre	Between Centres	Between Ellipses	Minimum Separation	Separation Factor				
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
8,400.0	6,810.8	8,324.1	6,815.2	32.3	29.8	-90.45	1,084.0	476.6	566.2	506.5	59.76	9.475			
8,500.0	6,810.6	8,424.1	6,814.9	33.8	31.4	-90.44	1,184.0	476.6	566.2	503.4	62.88	9.006			
8,600.0	6,810.4	8,524.1	6,814.7	35.3	33.0	-90.44	1,284.0	476.6	566.2	500.2	66.07	8.570			
8,700.0	6,810.1	8,624.1	6,814.4	36.9	34.6	-90.43	1,384.0	476.6	566.2	496.9	69.33	8.168			
8,800.0	6,809.9	8,724.1	6,814.2	38.5	36.3	-90.43	1,484.0	476.6	566.2	493.6	72.64	7.795			
8,900.0	6,809.7	8,824.1	6,813.9	40.1	38.0	-90.42	1,584.0	476.6	566.2	490.2	76.01	7.450			
9,000.0	6,809.5	8,924.1	6,813.6	41.8	39.7	-90.42	1,684.0	476.6	566.2	486.8	79.41	7.130			
9,100.0	6,809.3	9,024.1	6,813.4	43.5	41.4	-90.41	1,784.0	476.6	566.2	483.4	82.86	6.834			
9,200.0	6,809.1	9,124.1	6,813.1	45.1	43.2	-90.41	1,884.0	476.6	566.2	479.9	86.34	6.558			
9,300.0	6,808.9	9,224.1	6,812.8	46.8	44.9	-90.40	1,984.0	476.6	566.2	476.4	89.85	6.302			
9,400.0	6,808.7	9,324.1	6,812.6	48.6	46.7	-90.40	2,084.0	476.6	566.2	472.9	93.38	6.064			
9,500.0	6,808.5	9,424.1	6,812.3	50.3	48.5	-90.39	2,184.0	476.6	566.2	469.3	96.94	5.841			
9,600.0	6,808.3	9,524.1	6,812.1	52.0	50.3	-90.38	2,284.0	476.6	566.2	465.7	100.52	5.633			
9,700.0	6,808.1	9,624.1	6,811.8	53.8	52.1	-90.38	2,384.0	476.6	566.2	462.1	104.11	5.439			
9,800.0	6,807.8	9,724.1	6,811.5	55.6	53.9	-90.37	2,484.0	476.6	566.2	458.5	107.73	5.256			
9,900.0	6,807.6	9,824.1	6,811.3	57.3	55.7	-90.37	2,584.0	476.6	566.2	454.9	111.36	5.085			
10,000.0	6,807.4	9,924.1	6,811.0	59.1	57.5	-90.36	2,684.0	476.6	566.2	451.2	115.00	4.924			
10,100.0	6,807.2	10,024.1	6,810.8	60.9	59.3	-90.36	2,784.0	476.6	566.2	447.6	118.66	4.772			
10,200.0	6,807.0	10,124.1	6,810.5	62.7	61.2	-90.35	2,884.0	476.6	566.2	443.9	122.32	4.629			
10,300.0	6,806.8	10,224.1	6,810.2	64.5	63.0	-90.35	2,984.0	476.6	566.2	440.2	126.00	4.494			
10,400.0	6,806.6	10,324.1	6,810.0	66.3	64.9	-90.34	3,084.0	476.6	566.2	436.5	129.69	4.366			
10,500.0	6,806.4	10,424.1	6,809.7	68.2	66.7	-90.34	3,184.0	476.6	566.2	432.9	133.38	4.245			
10,600.0	6,806.2	10,524.1	6,809.4	70.0	68.6	-90.33	3,284.0	476.6	566.2	429.1	137.09	4.131			
10,700.0	6,806.0	10,624.1	6,809.2	71.8	70.4	-90.33	3,384.0	476.6	566.2	425.4	140.80	4.022			
10,800.0	6,805.8	10,724.1	6,808.9	73.6	72.3	-90.32	3,484.0	476.6	566.2	421.7	144.51	3.918			
10,900.0	6,805.5	10,824.1	6,808.7	75.5	74.1	-90.32	3,584.0	476.6	566.2	418.0	148.24	3.820			
11,000.0	6,805.3	10,924.1	6,808.4	77.3	76.0	-90.31	3,684.0	476.6	566.2	414.3	151.97	3.726			
11,100.0	6,805.1	11,024.1	6,808.1	79.2	77.9	-90.31	3,784.0	476.6	566.2	410.5	155.70	3.637			
11,200.0	6,804.9	11,124.1	6,807.9	81.0	79.7	-90.30	3,884.0	476.6	566.2	406.8	159.44	3.551			
11,300.0	6,804.7	11,224.1	6,807.6	82.9	81.6	-90.29	3,984.0	476.6	566.2	403.0	163.19	3.470			
11,400.0	6,804.5	11,324.1	6,807.4	84.7	83.5	-90.29	4,084.0	476.6	566.2	399.3	166.94	3.392			
11,500.0	6,804.3	11,424.1	6,807.1	86.6	85.4	-90.28	4,184.0	476.6	566.2	395.5	170.69	3.317			
11,600.0	6,804.1	11,524.1	6,806.8	88.4	87.2	-90.28	4,284.0	476.6	566.2	391.8	174.45	3.246			
11,700.0	6,803.9	11,624.1	6,806.6	90.3	89.1	-90.27	4,384.0	476.6	566.2	388.0	178.21	3.177			
11,800.0	6,803.7	11,724.1	6,806.3	92.1	91.0	-90.27	4,484.0	476.6	566.2	384.3	181.97	3.112			
11,900.0	6,803.4	11,824.1	6,806.0	94.0	92.9	-90.26	4,584.0	476.6	566.2	380.5	185.74	3.049			
12,000.0	6,803.2	11,924.1	6,805.8	95.9	94.8	-90.26	4,684.0	476.6	566.2	376.7	189.51	2.988			
12,100.0	6,803.0	12,024.1	6,805.5	97.7	96.6	-90.25	4,784.0	476.6	566.2	372.9	193.28	2.930			
12,200.0	6,802.8	12,124.1	6,805.3	99.6	98.5	-90.25	4,884.0	476.6	566.2	369.2	197.06	2.873			
12,300.0	6,802.6	12,224.1	6,805.0	101.5	100.4	-90.24	4,984.0	476.6	566.2	365.4	200.84	2.819			
12,400.0	6,802.4	12,324.1	6,804.7	103.4	102.3	-90.24	5,084.0	476.6	566.2	361.6	204.62	2.767			
12,500.0	6,802.2	12,424.1	6,804.5	105.2	104.2	-90.23	5,184.0	476.6	566.2	357.8	208.40	2.717			
12,600.0	6,802.0	12,524.1	6,804.2	107.1	106.1	-90.23	5,284.0	476.6	566.2	354.0	212.18	2.669			
12,700.0	6,801.8	12,624.1	6,803.9	109.0	108.0	-90.22	5,384.0	476.6	566.2	350.3	215.97	2.622			
12,800.0	6,801.6	12,724.1	6,803.7	110.9	109.9	-90.22	5,484.0	476.6	566.2	346.5	219.76	2.577			
12,900.0	6,801.4	12,824.1	6,803.4	112.8	111.8	-90.21	5,584.0	476.6	566.2	342.7	223.55	2.533			
13,000.0	6,801.1	12,924.1	6,803.2	114.6	113.7	-90.20	5,684.0	476.6	566.2	338.9	227.34	2.491			
13,100.0	6,800.9	13,024.1	6,802.9	116.5	115.6	-90.20	5,784.0	476.6	566.2	335.1	231.13	2.450			
13,200.0	6,800.7	13,124.1	6,802.6	118.4	117.5	-90.19	5,884.0	476.6	566.2	331.3	234.93	2.410			
13,300.0	6,800.5	13,224.1	6,802.4	120.3	119.4	-90.19	5,984.0	476.6	566.2	327.5	238.73	2.372			
13,400.0	6,800.3	13,324.1	6,802.1	122.2	121.3	-90.18	6,084.0	476.6	566.2	323.7	242.52	2.335			

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7Q-341
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7Q-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-11-15)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
13,500.0	6,800.1	13,424.1	6,801.9	124.1	123.2	-90.18	6,184.0	476.6	566.2	319.9	246.32	2.299	
13,600.0	6,799.9	13,524.1	6,801.6	126.0	125.1	-90.17	6,284.0	476.6	566.2	316.1	250.12	2.264	
13,700.0	6,799.7	13,624.1	6,801.3	127.9	127.0	-90.17	6,384.0	476.6	566.2	312.3	253.93	2.230	
13,800.0	6,799.5	13,724.1	6,801.1	129.7	128.9	-90.16	6,484.0	476.6	566.2	308.5	257.73	2.197	
13,900.0	6,799.3	13,824.1	6,800.8	131.6	130.8	-90.16	6,584.0	476.6	566.2	304.7	261.53	2.165	
14,000.0	6,799.0	13,924.1	6,800.5	133.5	132.7	-90.15	6,684.0	476.6	566.2	300.9	265.34	2.134	
14,100.0	6,798.8	14,024.1	6,800.3	135.4	134.6	-90.15	6,784.0	476.6	566.2	297.1	269.14	2.104	
14,200.0	6,798.6	14,124.1	6,800.0	137.3	136.5	-90.14	6,884.0	476.6	566.2	293.3	272.95	2.074	
14,300.0	6,798.4	14,224.1	6,799.8	139.2	138.4	-90.14	6,984.0	476.6	566.2	289.5	276.76	2.046	
14,400.0	6,798.2	14,324.1	6,799.5	141.1	140.3	-90.13	7,084.0	476.6	566.2	285.7	280.57	2.018	
14,500.0	6,798.0	14,424.1	6,799.2	143.0	142.2	-90.12	7,184.0	476.6	566.2	281.8	284.38	1.991	
14,600.0	6,797.8	14,524.1	6,799.0	144.9	144.1	-90.12	7,284.0	476.6	566.2	278.0	288.19	1.965	
14,700.0	6,797.6	14,624.1	6,798.7	146.8	146.0	-90.11	7,384.0	476.6	566.2	274.2	292.00	1.939	
14,800.0	6,797.4	14,724.1	6,798.5	148.7	147.9	-90.11	7,484.0	476.6	566.2	270.4	295.81	1.914	
14,900.0	6,797.2	14,824.1	6,798.2	150.6	149.8	-90.10	7,584.0	476.6	566.2	266.6	299.63	1.890	
15,000.0	6,797.0	14,924.1	6,797.9	152.5	151.7	-90.10	7,684.0	476.6	566.2	262.8	303.44	1.866	
15,100.0	6,796.7	15,024.1	6,797.7	154.4	153.6	-90.09	7,784.0	476.6	566.2	259.0	307.25	1.843	
15,200.0	6,796.5	15,124.1	6,797.4	156.3	155.5	-90.09	7,884.0	476.6	566.2	255.2	311.07	1.820	
15,300.0	6,796.3	15,224.1	6,797.1	158.2	157.4	-90.08	7,984.0	476.6	566.2	251.3	314.88	1.798	
15,400.0	6,796.1	15,324.1	6,796.9	160.1	159.3	-90.08	8,084.0	476.6	566.2	247.5	318.70	1.777	
15,500.0	6,795.9	15,424.1	6,796.6	162.0	161.2	-90.07	8,184.0	476.6	566.2	243.7	322.52	1.756	
15,600.0	6,795.7	15,524.1	6,796.4	163.9	163.2	-90.07	8,284.0	476.6	566.2	239.9	326.33	1.735	
15,700.0	6,795.5	15,624.1	6,796.1	165.8	165.1	-90.06	8,384.0	476.6	566.2	236.1	330.15	1.715	
15,800.0	6,795.3	15,724.1	6,795.8	167.7	167.0	-90.06	8,484.0	476.6	566.2	232.3	333.97	1.695	
15,900.0	6,795.1	15,824.1	6,795.6	169.6	168.9	-90.05	8,584.0	476.6	566.2	228.4	337.79	1.676	
16,000.0	6,794.9	15,924.1	6,795.3	171.5	170.8	-90.05	8,684.0	476.6	566.2	224.6	341.61	1.658	
16,100.0	6,794.7	16,024.1	6,795.0	173.4	172.7	-90.04	8,784.0	476.6	566.2	220.8	345.43	1.639	
16,200.0	6,794.4	16,124.1	6,794.8	175.3	174.6	-90.03	8,884.0	476.6	566.2	217.0	349.25	1.621	
16,300.0	6,794.2	16,224.1	6,794.5	177.2	176.5	-90.03	8,984.0	476.6	566.2	213.2	353.07	1.604	
16,400.0	6,794.0	16,324.1	6,794.3	179.1	178.4	-90.02	9,084.0	476.6	566.2	209.3	356.89	1.587	
16,500.0	6,793.8	16,424.1	6,794.0	181.0	180.3	-90.02	9,184.0	476.6	566.2	205.5	360.71	1.570	
16,600.0	6,793.6	16,524.1	6,793.7	182.9	182.3	-90.01	9,284.0	476.6	566.2	201.7	364.53	1.553	
16,700.0	6,793.4	16,624.1	6,793.5	184.8	184.2	-90.01	9,384.0	476.6	566.2	197.9	368.36	1.537	
16,800.0	6,793.2	16,724.1	6,793.2	186.7	186.1	-90.00	9,484.0	476.6	566.2	194.0	372.18	1.521	
16,851.0	6,793.1	16,775.1	6,793.1	187.7	187.0	-90.00	9,535.0	476.6	566.2	192.1	374.13	1.513	
16,888.0	6,793.0	16,806.3	6,793.0	188.4	187.6	-90.00	9,566.2	476.6	566.3	190.8	375.43	1.508 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7Q-341
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7Q-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-11-15)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	0.61	104.9	1.1	104.9				
100.0	100.0	100.0	100.0	0.1	0.1	0.61	104.9	1.1	104.9	104.7	0.22	466.875	
200.0	200.0	200.0	200.0	0.3	0.3	0.61	104.9	1.1	104.9	104.3	0.67	155.615	
300.0	300.0	300.0	300.0	0.6	0.6	0.61	104.9	1.1	104.9	103.8	1.12	93.368	
400.0	400.0	400.0	400.0	0.8	0.8	0.61	104.9	1.1	104.9	103.4	1.57	66.691	
500.0	500.0	500.0	500.0	1.0	1.0	0.61	104.9	1.1	104.9	102.9	2.02	51.871	
600.0	600.0	600.0	600.0	1.2	1.2	0.61	104.9	1.1	104.9	102.5	2.47	42.440	
700.0	700.0	700.0	700.0	1.5	1.5	0.61	104.9	1.1	104.9	102.0	2.92	35.910	
800.0	800.0	800.0	800.0	1.7	1.7	0.61	104.9	1.1	104.9	101.6	3.37	31.122 CC, ES	
900.0	900.0	900.0	900.0	1.9	1.9	-122.45	104.9	1.1	105.6	101.8	3.80	27.792	
1,000.0	999.9	999.9	999.9	2.1	2.1	-124.19	104.9	1.1	107.8	103.6	4.22	25.559	
1,100.0	1,099.7	1,099.7	1,099.7	2.3	2.4	-126.92	104.9	1.1	111.6	106.9	4.64	24.029	
1,200.0	1,199.3	1,199.3	1,199.3	2.5	2.6	-130.42	104.9	1.1	117.3	112.2	5.08	23.089	
1,300.0	1,298.6	1,298.6	1,298.6	2.8	2.8	-134.41	104.9	1.1	125.3	119.8	5.53	22.665 SF	
1,400.0	1,397.5	1,397.5	1,397.5	3.0	3.0	-138.62	104.9	1.1	135.8	129.8	5.98	22.701	
1,500.0	1,496.1	1,496.1	1,496.1	3.3	3.3	-142.78	104.9	1.1	148.9	142.5	6.44	23.145	
1,600.0	1,594.2	1,594.2	1,594.2	3.7	3.5	-146.73	104.9	1.1	165.0	158.1	6.89	23.946	
1,700.0	1,691.7	1,691.7	1,691.7	4.1	3.7	-150.34	104.9	1.1	184.0	176.6	7.34	25.054	
1,800.0	1,788.6	1,788.6	1,788.6	4.5	3.9	-153.56	104.9	1.1	205.8	198.0	7.79	26.421	
1,900.0	1,884.9	1,884.9	1,884.9	5.0	4.1	-156.39	104.9	1.1	230.6	222.4	8.23	28.004	
1,913.6	1,897.9	1,897.9	1,897.9	5.1	4.2	-156.75	104.9	1.1	234.2	225.9	8.29	28.235	
2,000.0	1,980.6	1,980.6	1,980.6	5.6	4.3	-158.92	104.9	1.1	257.3	248.6	8.70	29.583	
2,100.0	2,076.4	2,076.4	2,076.4	6.1	4.6	-160.99	104.9	1.1	284.5	275.3	9.17	31.029	
2,200.0	2,172.2	2,172.2	2,172.2	6.7	4.8	-162.71	104.9	1.1	311.9	302.3	9.64	32.357	
2,300.0	2,268.0	2,268.0	2,268.0	7.2	5.0	-164.15	104.9	1.1	339.5	329.4	10.11	33.574	
2,400.0	2,363.8	2,363.8	2,363.8	7.8	5.2	-165.37	104.9	1.1	367.3	356.8	10.59	34.690	
2,500.0	2,459.5	2,459.5	2,459.5	8.4	5.4	-166.42	104.9	1.1	395.3	384.2	11.07	35.715	
2,600.0	2,555.3	2,555.8	2,559.8	9.0	5.6	-167.42	104.5	1.1	423.1	411.5	11.54	36.665	
2,700.0	2,651.1	2,664.0	2,664.0	9.6	5.8	-168.57	101.4	1.0	449.3	437.3	11.98	37.504	
2,800.0	2,746.9	2,768.9	2,768.7	10.2	6.0	-169.86	95.5	0.8	474.0	461.6	12.41	38.186	
2,900.0	2,842.7	2,874.2	2,873.6	10.8	6.2	-171.29	86.6	0.6	497.1	484.3	12.85	38.691	
3,000.0	2,938.4	2,979.8	2,978.5	11.4	6.4	-172.83	74.8	0.3	518.8	505.6	13.29	39.030	
3,100.0	3,034.2	3,085.6	3,083.3	12.0	6.6	-174.50	60.1	-0.2	539.2	525.5	13.75	39.208	
3,200.0	3,130.0	3,191.4	3,187.6	12.6	6.8	-176.29	42.6	-0.7	558.5	544.2	14.24	39.227	
3,300.0	3,225.8	3,297.0	3,291.2	13.2	7.1	-178.18	22.1	-1.2	576.6	561.9	14.75	39.088	
3,400.0	3,321.6	3,402.3	3,393.9	13.8	7.4	-179.81	-1.1	-1.9	593.9	578.5	15.31	38.786	
3,500.0	3,417.3	3,507.1	3,495.4	14.4	7.7	-177.70	-27.0	-2.6	610.4	594.5	15.93	38.324	
3,600.0	3,513.1	3,611.2	3,595.6	15.0	8.1	-175.49	-55.5	-3.4	626.4	609.8	16.61	37.708	
3,700.0	3,608.9	3,714.6	3,694.3	15.6	8.5	-173.18	-86.5	-4.3	642.0	624.7	17.37	36.955	
3,800.0	3,704.7	3,811.8	3,786.4	16.2	8.9	-170.98	-117.4	-5.2	657.9	639.7	18.19	36.169	
3,900.0	3,800.5	3,907.3	3,876.9	16.8	9.3	-168.90	-147.8	-6.1	674.6	655.5	19.05	35.408	
4,000.0	3,896.2	4,002.8	3,967.4	17.5	9.8	-166.92	-178.2	-6.9	692.2	672.2	19.96	34.671	
4,100.0	3,992.0	4,098.3	4,057.9	18.1	10.3	-165.04	-208.6	-7.8	710.6	689.7	20.92	33.964	
4,200.0	4,087.8	4,193.7	4,148.4	18.7	10.8	-163.25	-239.0	-8.6	729.8	707.8	21.92	33.294	
4,300.0	4,183.6	4,289.2	4,238.9	19.3	11.3	-161.55	-269.4	-9.5	749.6	726.7	22.95	32.665	
4,400.0	4,279.4	4,384.7	4,329.5	19.9	11.8	-159.93	-299.8	-10.4	770.1	746.1	24.01	32.080	
4,500.0	4,375.1	4,480.2	4,420.0	20.5	12.3	-158.39	-330.2	-11.2	791.2	766.1	25.09	31.537	

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Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7Q-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-11-15)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-179.65	-45.2	-0.3	45.2				
100.0	100.0	100.0	100.0	0.1	0.1	-179.65	-45.2	-0.3	45.2	45.0	0.22	201.008	
200.0	200.0	200.0	200.0	0.3	0.3	-179.65	-45.2	-0.3	45.2	44.5	0.67	66.999 CC	
300.0	300.0	299.6	299.6	0.6	0.5	178.81	-45.6	1.0	45.6	44.5	1.11	41.145 ES	
400.0	400.0	399.1	399.0	0.8	0.8	174.35	-46.8	4.6	47.1	45.5	1.55	30.458	
500.0	500.0	498.3	498.0	1.0	1.0	167.62	-48.9	10.7	50.1	48.1	2.00	25.037	
600.0	600.0	597.1	596.4	1.2	1.2	159.63	-51.8	19.2	55.4	52.9	2.48	22.320	
700.0	700.0	695.3	694.0	1.5	1.5	151.55	-55.5	30.1	63.4	60.4	2.99	21.211	
800.0	800.0	793.0	790.6	1.7	1.8	144.24	-60.0	43.2	74.5	71.0	3.53	21.113	
900.0	900.0	890.0	886.3	1.9	2.2	15.78	-65.2	58.6	87.5	83.6	3.86	22.677	
1,000.0	999.9	986.7	981.1	2.1	2.6	11.08	-71.2	76.1	100.9	96.6	4.29	23.501	
1,100.0	1,099.7	1,083.0	1,075.1	2.3	3.0	7.22	-77.9	95.9	114.5	109.8	4.74	24.187	
1,200.0	1,199.3	1,178.8	1,168.2	2.5	3.5	3.97	-85.4	117.8	128.4	123.2	5.19	24.754	
1,300.0	1,298.6	1,274.4	1,260.3	2.8	4.0	1.14	-93.6	141.8	142.5	136.8	5.65	25.219	
1,400.0	1,397.5	1,369.5	1,351.3	3.0	4.5	-1.37	-102.4	167.9	156.6	150.5	6.12	25.608	
1,500.0	1,496.1	1,464.3	1,441.3	3.3	5.1	-3.63	-112.0	196.0	170.9	164.3	6.60	25.900	
1,600.0	1,594.2	1,558.6	1,530.2	3.7	5.8	-5.70	-122.2	226.0	185.2	178.1	7.09	26.114	
1,700.0	1,691.7	1,652.6	1,617.9	4.1	6.5	-7.62	-133.1	258.1	199.7	192.1	7.61	26.254	
1,800.0	1,788.6	1,746.3	1,704.4	4.5	7.2	-9.41	-144.7	292.0	214.2	206.0	8.14	26.315	
1,900.0	1,884.9	1,839.6	1,789.7	5.0	8.0	-11.10	-156.9	327.7	228.8	220.1	8.70	26.296	
1,913.6	1,897.9	1,852.5	1,801.5	5.1	8.1	-11.33	-158.6	332.9	230.8	222.0	8.78	26.284	
2,000.0	1,980.6	1,937.8	1,878.9	5.6	8.8	-12.79	-170.1	366.6	243.4	234.1	9.33	26.098	
2,100.0	2,076.4	2,036.5	1,968.5	6.1	9.7	-14.29	-183.4	405.6	258.2	248.2	9.98	25.864	
2,200.0	2,172.2	2,135.1	2,058.2	6.7	10.6	-15.63	-196.7	444.7	273.1	262.5	10.66	25.612	
2,300.0	2,268.0	2,233.8	2,147.8	7.2	11.5	-16.84	-210.0	483.8	288.2	276.8	11.37	25.348	
2,400.0	2,363.8	2,332.5	2,237.5	7.8	12.4	-17.92	-223.3	522.8	303.4	291.3	12.10	25.079	
2,500.0	2,459.5	2,431.2	2,327.1	8.4	13.2	-18.90	-236.6	561.9	318.7	305.8	12.85	24.808	
2,600.0	2,555.3	2,529.9	2,416.8	9.0	14.1	-19.79	-249.9	600.9	334.0	320.4	13.61	24.541	
2,700.0	2,651.1	2,628.6	2,506.4	9.6	15.0	-20.60	-263.2	640.0	349.5	335.1	14.39	24.280	
2,800.0	2,746.9	2,727.2	2,596.1	10.2	15.9	-21.35	-276.5	679.0	365.0	349.8	15.19	24.027	
2,900.0	2,842.7	2,825.9	2,685.7	10.8	16.8	-22.03	-289.8	718.1	380.5	364.5	16.00	23.783	
3,000.0	2,938.4	2,924.6	2,775.4	11.4	17.7	-22.66	-303.1	757.1	396.1	379.3	16.82	23.549	
3,100.0	3,034.2	3,023.3	2,865.0	12.0	18.6	-23.24	-316.4	796.2	411.8	394.1	17.65	23.325	
3,200.0	3,130.0	3,122.0	2,954.7	12.6	19.5	-23.78	-329.7	835.2	427.5	409.0	18.50	23.111	
3,300.0	3,225.8	3,220.7	3,044.3	13.2	20.4	-24.28	-343.0	874.3	443.2	423.8	19.35	22.907	
3,400.0	3,321.6	3,319.4	3,134.0	13.8	21.3	-24.75	-356.3	913.3	458.9	438.7	20.21	22.714	
3,500.0	3,417.3	3,418.0	3,223.6	14.4	22.2	-25.18	-369.6	952.4	474.7	453.7	21.07	22.530	
3,600.0	3,513.1	3,516.7	3,313.3	15.0	23.1	-25.59	-382.9	991.5	490.5	468.6	21.94	22.355	
3,700.0	3,608.9	3,615.4	3,402.9	15.6	24.0	-25.97	-396.2	1,030.5	506.4	483.5	22.82	22.189	
3,800.0	3,704.7	3,714.1	3,492.5	16.2	24.9	-26.33	-409.5	1,069.6	522.2	498.5	23.70	22.031	
3,900.0	3,800.5	3,812.8	3,582.2	16.8	25.8	-26.67	-422.8	1,108.6	538.1	513.5	24.59	21.881	
4,000.0	3,896.2	3,911.5	3,671.8	17.5	26.7	-26.99	-436.1	1,147.7	554.0	528.5	25.48	21.738	
4,100.0	3,992.0	4,010.2	3,761.5	18.1	27.6	-27.29	-449.4	1,186.7	569.9	543.5	26.38	21.603	
4,200.0	4,087.8	4,108.8	3,851.1	18.7	28.5	-27.57	-462.7	1,225.8	585.8	558.5	27.28	21.474	
4,300.0	4,183.6	4,207.5	3,940.8	19.3	29.4	-27.84	-476.0	1,264.8	601.7	573.5	28.18	21.351	
4,400.0	4,279.4	4,306.2	4,030.4	19.9	30.3	-28.10	-489.3	1,303.9	617.6	588.5	29.09	21.234	
4,500.0	4,375.1	4,404.9	4,120.1	20.5	31.2	-28.34	-502.6	1,342.9	633.6	603.6	30.00	21.122	
4,600.0	4,470.9	4,503.6	4,209.7	21.1	32.1	-28.57	-515.9	1,382.0	649.5	618.6	30.91	21.016	
4,700.0	4,566.7	4,602.3	4,299.4	21.7	33.0	-28.79	-529.2	1,421.1	665.5	633.7	31.82	20.914	
4,800.0	4,662.5	4,700.9	4,389.0	22.4	33.9	-29.00	-542.5	1,460.1	681.5	648.8	32.74	20.817	
4,900.0	4,758.3	4,799.6	4,478.7	23.0	34.8	-29.20	-555.8	1,499.2	697.5	663.8	33.66	20.724	

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

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Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7Q-341	Survey Calculation Method:	Minimum Curvature
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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		
5,000.0	4,854.0	4,898.3	4,568.3	23.6	35.7	-29.39	-569.1	1,538.2	713.5	678.9	34.58	20.635		
5,100.0	4,949.8	5,016.7	4,676.3	24.2	36.6	-29.63	-584.7	1,584.1	728.7	693.1	35.57	20.484		
5,200.0	5,045.6	5,148.3	4,798.5	24.8	37.5	-30.02	-600.4	1,630.3	739.8	703.2	36.61	20.207		
5,232.3	5,076.6	5,191.0	4,838.6	25.0	37.7	-30.17	-605.1	1,644.1	742.5	705.5	36.96	20.089		
5,300.0	5,141.6	5,280.7	4,923.6	25.4	38.2	-30.53	-614.4	1,671.4	747.3	709.7	37.61	19.870		
5,400.0	5,238.5	5,413.6	5,051.0	25.8	38.9	-31.03	-626.6	1,707.1	753.3	714.9	38.44	19.594		
5,500.0	5,336.2	5,546.8	5,180.4	26.1	39.4	-31.46	-636.8	1,737.2	757.9	718.7	39.17	19.348		
5,600.0	5,434.5	5,680.3	5,311.4	26.5	39.9	-31.84	-645.1	1,761.7	761.0	721.2	39.79	19.125		
5,700.0	5,533.5	5,814.0	5,443.5	26.7	40.2	-32.17	-651.5	1,780.3	762.7	722.4	40.30	18.926		
5,800.0	5,632.8	5,947.7	5,576.5	27.0	40.5	-32.44	-655.9	1,793.1	762.9	722.2	40.70	18.747		
5,900.0	5,732.6	6,081.3	5,709.9	27.1	40.7	-32.66	-658.2	1,800.1	761.7	720.7	40.99	18.585		
6,000.0	5,832.5	6,203.9	5,832.5	27.3	40.8	-32.81	-658.7	1,801.4	759.3	718.1	41.16	18.448		
6,067.5	5,900.0	6,271.4	5,900.0	27.3	40.8	89.64	-658.7	1,801.4	758.6	717.4	41.19	18.416		
6,100.0	5,932.5	6,303.8	5,932.5	27.4	40.8	89.64	-658.7	1,801.4	758.6	717.3	41.27	18.382		
6,130.0	5,962.4	6,333.8	5,962.4	27.4	40.8	89.64	-658.7	1,801.4	758.6	717.3	41.34	18.350		
6,200.0	6,032.5	6,403.3	6,031.8	27.5	40.9	89.44	-656.1	1,801.4	758.6	717.0	41.59	18.240		
6,216.4	6,048.9	6,419.5	6,048.0	27.5	40.9	89.33	-654.6	1,801.4	758.6	717.0	41.68	18.203		
6,250.0	6,082.4	6,452.4	6,080.6	27.5	40.9	89.07	-650.5	1,801.4	758.7	716.8	41.87	18.122		
6,300.0	6,132.3	6,501.2	6,128.6	27.5	40.9	88.68	-641.8	1,801.4	758.8	716.7	42.10	18.025		
6,350.0	6,181.8	6,550.0	6,176.0	27.5	40.9	88.31	-630.1	1,801.4	758.9	716.6	42.27	17.954		
6,400.0	6,230.7	6,597.9	6,221.6	27.5	40.8	87.94	-615.7	1,801.4	759.1	716.7	42.38	17.911		
6,450.0	6,278.8	6,645.8	6,266.3	27.5	40.8	87.58	-598.4	1,801.4	759.3	716.8	42.43	17.893		
6,500.0	6,326.0	6,693.4	6,309.6	27.4	40.8	87.23	-578.5	1,801.4	759.5	717.0	42.43	17.900		
6,550.0	6,372.0	6,740.8	6,351.3	27.3	40.7	86.90	-556.1	1,801.4	759.7	717.3	42.37	17.930		
6,600.0	6,416.5	6,787.9	6,391.4	27.2	40.6	86.58	-531.3	1,801.4	759.9	717.7	42.26	17.982		
6,650.0	6,459.6	6,834.8	6,429.6	27.1	40.6	86.27	-504.2	1,801.4	760.2	718.1	42.11	18.053		
6,700.0	6,500.8	6,881.5	6,466.0	27.0	40.5	85.98	-474.9	1,801.4	760.5	718.5	41.92	18.140		
6,750.0	6,540.1	6,928.0	6,500.4	26.9	40.4	85.70	-443.6	1,801.4	760.7	719.0	41.71	18.240		
6,800.0	6,577.3	6,974.3	6,532.7	26.8	40.3	85.45	-410.4	1,801.4	761.0	719.5	41.47	18.349		
6,850.0	6,612.8	7,020.5	6,562.8	26.6	40.2	85.21	-375.4	1,801.4	761.3	720.0	41.23	18.463		
6,900.0	6,644.8	7,066.5	6,590.6	26.5	40.2	84.99	-338.8	1,801.4	761.5	720.5	41.00	18.576		
6,950.0	6,674.8	7,112.3	6,616.1	26.3	40.1	84.79	-300.7	1,801.4	761.7	721.0	40.78	18.681		
7,000.0	6,702.1	7,158.1	6,639.2	26.2	40.0	84.61	-261.3	1,801.4	762.0	721.4	40.58	18.775		
7,050.0	6,726.6	7,203.7	6,659.9	26.0	39.9	84.45	-220.6	1,801.4	762.2	721.7	40.44	18.849		
7,100.0	6,748.2	7,250.0	6,678.4	25.9	39.8	84.31	-178.2	1,801.4	762.3	722.0	40.34	18.897		
7,150.0	6,766.8	7,294.6	6,693.7	25.7	39.7	84.20	-136.3	1,801.4	762.5	722.2	40.31	18.914		
7,200.0	6,782.4	7,340.0	6,706.8	25.6	39.7	84.11	-92.8	1,801.4	762.6	722.3	40.36	18.895		
7,250.0	6,794.8	7,385.3	6,717.2	25.4	39.6	84.04	-48.7	1,801.4	762.7	722.2	40.49	18.837		
7,300.0	6,804.0	7,430.6	6,725.0	25.3	39.5	84.00	-4.1	1,801.4	762.8	722.1	40.70	18.739		
7,350.0	6,809.9	7,475.9	6,730.2	25.2	39.5	83.98	40.8	1,801.4	762.8	721.8	41.01	18.601		
7,400.0	6,812.7	7,521.1	6,732.7	25.1	39.4	83.98	86.0	1,801.4	762.8	721.4	41.40	18.426		
7,418.0	6,812.8	7,537.4	6,732.9	25.1	39.4	83.99	102.4	1,801.4	762.8	721.2	41.56	18.354		
7,459.2	6,812.7	7,578.2	6,732.9	25.0	39.4	83.99	143.2	1,801.4	762.8	720.7	42.04	18.143		
7,500.0	6,812.7	7,619.0	6,732.8	25.0	39.4	83.99	183.9	1,801.4	762.8	720.2	42.55	17.928		
7,600.0	6,812.5	7,719.0	6,732.7	24.9	39.3	84.00	283.9	1,801.4	762.8	718.7	44.02	17.329		
7,700.0	6,812.2	7,819.0	6,732.6	25.1	39.4	84.01	383.9	1,801.4	762.8	717.0	45.76	16.668		
7,800.0	6,812.0	7,919.0	6,732.5	25.5	39.5	84.02	483.9	1,801.4	762.7	715.0	47.75	15.974		
7,900.0	6,811.8	8,019.0	6,732.4	26.2	39.7	84.02	583.9	1,801.4	762.7	712.8	49.95	15.270		
8,000.0	6,811.6	8,119.0	6,732.3	27.1	39.9	84.03	683.9	1,801.4	762.7	710.4	52.34	14.573		
8,100.0	6,811.4	8,219.0	6,732.2	28.3	40.3	84.04	783.9	1,801.4	762.7	707.8	54.89	13.895		
8,200.0	6,811.2	8,319.0	6,732.1	29.5	40.8	84.05	883.9	1,801.4	762.7	705.1	57.58	13.245		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7Q-341
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7Q-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-11-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance								Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
8,300.0	6,811.0	8,419.0	6,732.0	30.9	41.4	84.06	983.9	1,801.4	762.7	702.3	60.40	12.628		
8,400.0	6,810.8	8,519.0	6,731.9	32.3	42.1	84.06	1,083.9	1,801.4	762.7	699.4	63.32	12.045		
8,500.0	6,810.6	8,619.0	6,731.8	33.8	42.9	84.07	1,183.9	1,801.4	762.7	696.3	66.33	11.498		
8,600.0	6,810.4	8,719.0	6,731.7	35.3	43.8	84.08	1,283.9	1,801.4	762.7	693.2	69.42	10.986		
8,700.0	6,810.1	8,819.0	6,731.6	36.9	44.8	84.09	1,383.9	1,801.4	762.6	690.1	72.58	10.507		
8,800.0	6,809.9	8,919.0	6,731.5	38.5	45.9	84.09	1,483.9	1,801.4	762.6	686.8	75.81	10.060		
8,900.0	6,809.7	9,019.0	6,731.4	40.1	47.1	84.10	1,583.9	1,801.4	762.6	683.5	79.08	9.643		
9,000.0	6,809.5	9,119.0	6,731.3	41.8	48.4	84.11	1,683.9	1,801.4	762.6	680.2	82.41	9.254		
9,100.0	6,809.3	9,219.0	6,731.2	43.5	49.7	84.12	1,783.9	1,801.4	762.6	676.8	85.77	8.891		
9,200.0	6,809.1	9,319.0	6,731.1	45.1	51.1	84.13	1,883.9	1,801.4	762.6	673.4	89.17	8.552		
9,300.0	6,808.9	9,419.0	6,730.9	46.8	52.6	84.13	1,983.9	1,801.4	762.6	670.0	92.61	8.234		
9,400.0	6,808.7	9,519.0	6,730.8	48.6	54.1	84.14	2,083.9	1,801.4	762.6	666.5	96.07	7.937		
9,500.0	6,808.5	9,619.0	6,730.7	50.3	55.6	84.15	2,183.9	1,801.4	762.6	663.0	99.56	7.659		
9,600.0	6,808.3	9,719.0	6,730.6	52.0	57.2	84.16	2,283.9	1,801.4	762.5	659.5	103.08	7.398		
9,700.0	6,808.1	9,819.0	6,730.5	53.8	58.7	84.16	2,383.9	1,801.4	762.5	655.9	106.62	7.152		
9,800.0	6,807.8	9,919.0	6,730.4	55.6	60.4	84.17	2,483.9	1,801.4	762.5	652.4	110.17	6.921		
9,900.0	6,807.6	10,019.0	6,730.3	57.3	62.0	84.18	2,583.9	1,801.4	762.5	648.8	113.74	6.704		
10,000.0	6,807.4	10,119.0	6,730.2	59.1	63.6	84.19	2,683.9	1,801.4	762.5	645.2	117.33	6.499		
10,100.0	6,807.2	10,219.0	6,730.1	60.9	65.3	84.20	2,783.9	1,801.4	762.5	641.6	120.94	6.305		
10,200.0	6,807.0	10,319.0	6,730.0	62.7	67.0	84.20	2,883.9	1,801.4	762.5	637.9	124.55	6.122		
10,300.0	6,806.8	10,419.0	6,729.9	64.5	68.7	84.21	2,983.9	1,801.4	762.5	634.3	128.18	5.948		
10,400.0	6,806.6	10,519.0	6,729.8	66.3	70.4	84.22	3,083.9	1,801.4	762.5	630.6	131.82	5.784		
10,500.0	6,806.4	10,619.0	6,729.7	68.2	72.1	84.23	3,183.9	1,801.4	762.5	627.0	135.47	5.628		
10,600.0	6,806.2	10,719.0	6,729.6	70.0	73.9	84.24	3,283.9	1,801.4	762.4	623.3	139.13	5.480		
10,700.0	6,806.0	10,819.0	6,729.5	71.8	75.6	84.24	3,383.9	1,801.4	762.4	619.6	142.80	5.339		
10,800.0	6,805.8	10,919.0	6,729.4	73.6	77.4	84.25	3,483.9	1,801.4	762.4	615.9	146.48	5.205		
10,900.0	6,805.5	11,019.0	6,729.3	75.5	79.1	84.26	3,583.9	1,801.4	762.4	612.2	150.16	5.077		
11,000.0	6,805.3	11,119.0	6,729.2	77.3	80.9	84.27	3,683.9	1,801.4	762.4	608.5	153.85	4.955		
11,100.0	6,805.1	11,219.0	6,729.1	79.2	82.7	84.27	3,783.9	1,801.4	762.4	604.8	157.55	4.839		
11,200.0	6,804.9	11,319.0	6,729.0	81.0	84.4	84.28	3,883.9	1,801.4	762.4	601.1	161.25	4.728		
11,300.0	6,804.7	11,419.0	6,728.9	82.9	86.2	84.29	3,983.9	1,801.4	762.4	597.4	164.96	4.621		
11,400.0	6,804.5	11,519.0	6,728.8	84.7	88.0	84.30	4,083.9	1,801.4	762.4	593.7	168.68	4.520		
11,500.0	6,804.3	11,619.0	6,728.6	86.6	89.8	84.31	4,183.9	1,801.4	762.3	589.9	172.40	4.422		
11,600.0	6,804.1	11,719.0	6,728.5	88.4	91.6	84.31	4,283.9	1,801.4	762.3	586.2	176.12	4.328		
11,700.0	6,803.9	11,819.0	6,728.4	90.3	93.4	84.32	4,383.9	1,801.4	762.3	582.5	179.85	4.239		
11,800.0	6,803.7	11,919.0	6,728.3	92.1	95.3	84.33	4,483.9	1,801.4	762.3	578.7	183.58	4.152		
11,900.0	6,803.4	12,019.0	6,728.2	94.0	97.1	84.34	4,583.9	1,801.4	762.3	575.0	187.32	4.070		
12,000.0	6,803.2	12,119.0	6,728.1	95.9	98.9	84.35	4,683.9	1,801.4	762.3	571.2	191.06	3.990		
12,100.0	6,803.0	12,219.0	6,728.0	97.7	100.7	84.35	4,783.9	1,801.4	762.3	567.5	194.80	3.913		
12,200.0	6,802.8	12,319.0	6,727.9	99.6	102.6	84.36	4,883.9	1,801.4	762.3	563.7	198.55	3.839		
12,300.0	6,802.6	12,419.0	6,727.8	101.5	104.4	84.37	4,983.9	1,801.4	762.3	560.0	202.30	3.768		
12,400.0	6,802.4	12,519.0	6,727.7	103.4	106.2	84.38	5,083.9	1,801.4	762.3	556.2	206.05	3.699		
12,500.0	6,802.2	12,619.0	6,727.6	105.2	108.1	84.38	5,183.9	1,801.4	762.2	552.4	209.81	3.633		
12,600.0	6,802.0	12,719.0	6,727.5	107.1	109.9	84.39	5,283.9	1,801.4	762.2	548.7	213.57	3.569		
12,700.0	6,801.8	12,819.0	6,727.4	109.0	111.7	84.40	5,383.9	1,801.4	762.2	544.9	217.33	3.507		
12,800.0	6,801.6	12,919.0	6,727.3	110.9	113.6	84.41	5,483.9	1,801.4	762.2	541.1	221.09	3.448		
12,900.0	6,801.4	13,019.0	6,727.2	112.8	115.4	84.42	5,583.9	1,801.4	762.2	537.3	224.85	3.390		
13,000.0	6,801.1	13,119.0	6,727.1	114.6	117.3	84.42	5,683.9	1,801.4	762.2	533.6	228.62	3.334		
13,100.0	6,800.9	13,219.0	6,727.0	116.5	119.1	84.43	5,783.9	1,801.4	762.2	529.8	232.39	3.280		
13,200.0	6,800.7	13,319.0	6,726.9	118.4	121.0	84.44	5,883.9	1,801.4	762.2	526.0	236.16	3.227		
13,300.0	6,800.5	13,419.0	6,726.8	120.3	122.9	84.45	5,983.9	1,801.4	762.2	522.2	239.94	3.177		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7Q-341
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7Q-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-11-15)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 7Q-221 - Wellbore #1 - Plan #1 (9-11-15)												Offset Well Error:	0.0 ft
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
13,400.0	6,800.3	13,519.0	6,726.7	122.2	124.7	84.45	6,083.9	1,801.4	762.2	518.4	243.71	3.127	
13,500.0	6,800.1	13,619.0	6,726.6	124.1	126.6	84.46	6,183.9	1,801.4	762.1	514.7	247.49	3.080	
13,600.0	6,799.9	13,719.0	6,726.4	126.0	128.4	84.47	6,283.9	1,801.4	762.1	510.9	251.27	3.033	
13,700.0	6,799.7	13,819.0	6,726.3	127.9	130.3	84.48	6,383.9	1,801.4	762.1	507.1	255.05	2.988	
13,800.0	6,799.5	13,919.0	6,726.2	129.7	132.2	84.49	6,483.9	1,801.4	762.1	503.3	258.83	2.944	
13,900.0	6,799.3	14,019.0	6,726.1	131.6	134.0	84.49	6,583.9	1,801.4	762.1	499.5	262.61	2.902	
14,000.0	6,799.0	14,119.0	6,726.0	133.5	135.9	84.50	6,683.9	1,801.4	762.1	495.7	266.39	2.861	
14,100.0	6,798.8	14,219.0	6,725.9	135.4	137.8	84.51	6,783.9	1,801.4	762.1	491.9	270.18	2.821	
14,200.0	6,798.6	14,319.0	6,725.8	137.3	139.6	84.52	6,883.9	1,801.4	762.1	488.1	273.97	2.782	
14,300.0	6,798.4	14,419.0	6,725.7	139.2	141.5	84.53	6,983.9	1,801.4	762.1	484.3	277.75	2.744	
14,400.0	6,798.2	14,519.0	6,725.6	141.1	143.4	84.53	7,083.9	1,801.4	762.1	480.5	281.54	2.707	
14,500.0	6,798.0	14,619.0	6,725.5	143.0	145.3	84.54	7,183.9	1,801.4	762.0	476.7	285.33	2.671	
14,600.0	6,797.8	14,719.0	6,725.4	144.9	147.1	84.55	7,283.9	1,801.4	762.0	472.9	289.12	2.636	
14,700.0	6,797.6	14,819.0	6,725.3	146.8	149.0	84.56	7,383.9	1,801.4	762.0	469.1	292.92	2.601	
14,800.0	6,797.4	14,919.0	6,725.2	148.7	150.9	84.56	7,483.9	1,801.4	762.0	465.3	296.71	2.568	
14,900.0	6,797.2	15,019.0	6,725.1	150.6	152.8	84.57	7,583.9	1,801.4	762.0	461.5	300.50	2.536	
15,000.0	6,797.0	15,119.0	6,725.0	152.5	154.7	84.58	7,683.9	1,801.4	762.0	457.7	304.30	2.504	
15,100.0	6,796.7	15,219.0	6,724.9	154.4	156.5	84.59	7,783.9	1,801.4	762.0	453.9	308.10	2.473	
15,200.0	6,796.5	15,319.0	6,724.8	156.3	158.4	84.60	7,883.9	1,801.4	762.0	450.1	311.89	2.443	
15,300.0	6,796.3	15,419.0	6,724.7	158.2	160.3	84.60	7,983.9	1,801.4	762.0	446.3	315.69	2.414	
15,400.0	6,796.1	15,519.0	6,724.6	160.1	162.2	84.61	8,083.9	1,801.4	762.0	442.5	319.49	2.385	
15,500.0	6,795.9	15,619.0	6,724.5	162.0	164.1	84.62	8,183.9	1,801.4	761.9	438.7	323.29	2.357	
15,600.0	6,795.7	15,719.0	6,724.4	163.9	166.0	84.63	8,283.9	1,801.4	761.9	434.8	327.09	2.329	
15,700.0	6,795.5	15,819.0	6,724.2	165.8	167.9	84.63	8,383.9	1,801.4	761.9	431.0	330.89	2.303	
15,800.0	6,795.3	15,919.0	6,724.1	167.7	169.7	84.64	8,483.9	1,801.4	761.9	427.2	334.69	2.276	
15,900.0	6,795.1	16,019.0	6,724.0	169.6	171.6	84.65	8,583.9	1,801.4	761.9	423.4	338.49	2.251	
16,000.0	6,794.9	16,119.0	6,723.9	171.5	173.5	84.66	8,683.9	1,801.4	761.9	419.6	342.30	2.226	
16,100.0	6,794.7	16,219.0	6,723.8	173.4	175.4	84.67	8,783.9	1,801.4	761.9	415.8	346.10	2.201	
16,200.0	6,794.4	16,319.0	6,723.7	175.3	177.3	84.67	8,883.9	1,801.4	761.9	412.0	349.91	2.177	
16,300.0	6,794.2	16,419.0	6,723.6	177.2	179.2	84.68	8,983.9	1,801.4	761.9	408.2	353.71	2.154	
16,400.0	6,794.0	16,519.0	6,723.5	179.1	181.1	84.69	9,083.9	1,801.4	761.9	404.3	357.52	2.131	
16,500.0	6,793.8	16,619.0	6,723.4	181.0	183.0	84.70	9,183.9	1,801.4	761.8	400.5	361.32	2.108	
16,600.0	6,793.6	16,719.0	6,723.3	182.9	184.9	84.71	9,283.9	1,801.4	761.8	396.7	365.13	2.086	
16,700.0	6,793.4	16,819.0	6,723.2	184.8	186.8	84.71	9,383.9	1,801.4	761.8	392.9	368.94	2.065	
16,800.0	6,793.2	16,919.0	6,723.1	186.7	188.6	84.72	9,483.9	1,801.4	761.8	389.1	372.75	2.044	
16,888.0	6,793.0	17,007.0	6,723.0	188.4	190.3	84.73	9,571.9	1,801.4	761.8	385.7	376.10	2.026 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7Q-341
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7Q-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-11-15)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 7Q-241 - Wellbore #1 - Plan #1 (9-11-15)												Offset Well Error:	0.0 ft
Survey Program: 0-MWD													
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	180.00	-14.9	0.0	14.9	14.9	0.00	N/A	
100.0	100.0	100.0	100.0	0.1	0.1	180.00	-14.9	0.0	14.9	14.7	0.22	66.461	
200.0	200.0	200.0	200.0	0.3	0.3	180.00	-14.9	0.0	14.9	14.3	0.67	22.152	
300.0	300.0	300.0	300.0	0.6	0.6	180.00	-14.9	0.0	14.9	13.8	1.12	13.291	
400.0	400.0	400.0	400.0	0.8	0.8	180.00	-14.9	0.0	14.9	13.4	1.57	9.494	
500.0	500.0	500.0	500.0	1.0	1.0	180.00	-14.9	0.0	14.9	12.9	2.02	7.384	
600.0	600.0	600.0	600.0	1.2	1.2	180.00	-14.9	0.0	14.9	12.5	2.47	6.041 CC	
700.0	700.0	699.8	699.8	1.5	1.4	175.71	-15.5	1.2	15.6	12.7	2.90	5.365	
800.0	800.0	799.5	799.4	1.7	1.6	164.94	-17.3	4.6	17.9	14.6	3.32	5.389	
900.0	900.0	899.0	898.6	1.9	1.8	31.90	-20.2	10.4	21.7	17.9	3.73	5.803	
1,000.0	999.9	998.3	997.6	2.1	2.1	24.13	-24.3	18.5	25.8	21.7	4.13	6.240	
1,100.0	1,099.7	1,097.5	1,096.1	2.3	2.3	18.14	-29.5	28.9	30.2	25.6	4.55	6.634	
1,200.0	1,199.3	1,196.6	1,194.2	2.5	2.6	13.30	-35.9	41.5	34.7	29.7	4.97	6.980	
1,300.0	1,298.6	1,295.5	1,291.7	2.8	2.9	9.25	-43.4	56.4	39.3	33.9	5.40	7.282	
1,400.0	1,397.5	1,394.3	1,388.6	3.0	3.3	5.75	-52.0	73.5	44.0	38.2	5.83	7.545	
1,500.0	1,496.1	1,493.0	1,484.9	3.3	3.7	2.64	-61.7	92.8	48.8	42.5	6.28	7.773	
1,600.0	1,594.2	1,591.5	1,580.4	3.7	4.2	-0.16	-72.5	114.3	53.7	46.9	6.74	7.967	
1,700.0	1,691.7	1,690.0	1,675.2	4.1	4.7	-2.73	-84.5	137.9	58.6	51.4	7.21	8.130	
1,800.0	1,788.6	1,788.2	1,769.2	4.5	5.2	-5.12	-97.4	163.7	63.6	55.9	7.70	8.257	
1,900.0	1,884.9	1,886.4	1,862.2	5.0	5.8	-7.35	-111.5	191.6	68.7	60.4	8.22	8.350	
1,913.6	1,897.9	1,899.7	1,874.8	5.1	5.9	-7.65	-113.5	195.6	69.4	61.1	8.30	8.360	
2,000.0	1,980.6	1,985.9	1,956.0	5.6	6.4	-9.43	-126.5	221.3	73.9	65.1	8.80	8.393	
2,100.0	2,076.4	2,085.7	2,050.0	6.1	7.1	-11.24	-141.5	251.1	79.2	69.8	9.42	8.411	
2,200.0	2,172.2	2,185.5	2,144.1	6.7	7.8	-12.82	-156.6	281.0	84.6	74.6	10.06	8.411	
2,300.0	2,268.0	2,285.4	2,238.2	7.2	8.5	-14.21	-171.6	310.8	90.1	79.4	10.73	8.397	
2,400.0	2,363.8	2,385.2	2,332.3	7.8	9.2	-15.44	-186.6	340.6	95.6	84.2	11.42	8.372	
2,500.0	2,459.5	2,485.0	2,426.3	8.4	9.8	-16.53	-201.7	370.5	101.1	89.0	12.13	8.340	
2,600.0	2,555.3	2,584.9	2,520.4	9.0	10.5	-17.51	-216.7	400.3	106.7	93.9	12.85	8.302	
2,700.0	2,651.1	2,684.7	2,614.5	9.6	11.2	-18.40	-231.7	430.2	112.3	98.7	13.60	8.260	
2,800.0	2,746.9	2,784.5	2,708.6	10.2	11.9	-19.20	-246.8	460.0	117.9	103.6	14.35	8.217	
2,900.0	2,842.7	2,884.3	2,802.6	10.8	12.6	-19.92	-261.8	489.8	123.6	108.5	15.12	8.172	
3,000.0	2,938.4	2,984.2	2,896.7	11.4	13.3	-20.59	-276.9	519.7	129.3	113.4	15.90	8.128	
3,100.0	3,034.2	3,084.0	2,990.8	12.0	14.1	-21.19	-291.9	549.5	134.9	118.2	16.69	8.083	
3,200.0	3,130.0	3,183.8	3,084.8	12.6	14.8	-21.75	-306.9	579.3	140.6	123.1	17.49	8.040	
3,300.0	3,225.8	3,283.7	3,178.9	13.2	15.5	-22.27	-322.0	609.2	146.3	128.0	18.30	7.997	
3,400.0	3,321.6	3,383.5	3,273.0	13.8	16.2	-22.74	-337.0	639.0	152.1	133.0	19.11	7.956	
3,500.0	3,417.3	3,483.3	3,367.1	14.4	16.9	-23.19	-352.0	668.8	157.8	137.9	19.93	7.916	
3,600.0	3,513.1	3,583.1	3,461.1	15.0	17.6	-23.60	-367.1	698.7	163.5	142.8	20.76	7.878	
3,700.0	3,608.9	3,683.0	3,555.2	15.6	18.3	-23.98	-382.1	728.5	169.3	147.7	21.59	7.841	
3,800.0	3,704.7	3,782.8	3,649.3	16.2	19.0	-24.34	-397.2	758.3	175.0	152.6	22.42	7.806	
3,900.0	3,800.5	3,882.6	3,743.3	16.8	19.7	-24.67	-412.2	788.2	180.8	157.5	23.26	7.772	
4,000.0	3,896.2	3,982.5	3,837.4	17.5	20.4	-24.98	-427.2	818.0	186.6	162.5	24.10	7.740	
4,100.0	3,992.0	4,082.3	3,931.5	18.1	21.2	-25.28	-442.3	847.8	192.3	167.4	24.95	7.708	
4,200.0	4,087.8	4,182.1	4,025.6	18.7	21.9	-25.56	-457.3	877.7	198.1	172.3	25.80	7.679	
4,300.0	4,183.6	4,281.9	4,119.6	19.3	22.6	-25.82	-472.3	907.5	203.9	177.2	26.65	7.650	
4,400.0	4,279.4	4,381.8	4,213.7	19.9	23.3	-26.07	-487.4	937.3	209.7	182.2	27.51	7.623	
4,500.0	4,375.1	4,481.6	4,307.8	20.5	24.0	-26.30	-502.4	967.2	215.5	187.1	28.36	7.597	
4,600.0	4,470.9	4,581.4	4,401.8	21.1	24.7	-26.52	-517.4	997.0	221.2	192.0	29.22	7.572	
4,700.0	4,566.7	4,681.3	4,495.9	21.7	25.4	-26.74	-532.5	1,026.8	227.0	197.0	30.08	7.547	
4,800.0	4,662.5	4,781.1	4,590.0	22.4	26.2	-26.94	-547.5	1,056.7	232.8	201.9	30.94	7.524	
4,900.0	4,758.3	4,880.9	4,684.1	23.0	26.9	-27.13	-562.6	1,086.5	238.6	206.8	31.81	7.502	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7Q-341
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7Q-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-11-15)	Offset TVD Reference:	Offset Datum

Offset Design		Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 7Q-241 - Wellbore #1 - Plan #1 (9-11-15)											Offset Site Error:		0.0 ft
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
5,000.0	4,854.0	4,980.7	4,778.1	23.6	27.6	-27.31	-577.6	1,116.4	244.4	211.8	32.67	7.481			
5,100.0	4,949.8	5,083.5	4,875.0	24.2	28.3	-27.51	-593.0	1,146.9	250.1	216.5	33.55	7.454			
5,200.0	5,045.6	5,192.2	4,978.6	24.8	28.9	-27.98	-607.9	1,176.5	253.0	218.5	34.48	7.336			
5,232.3	5,076.6	5,227.4	5,012.4	25.0	29.0	-28.21	-612.3	1,185.3	253.1	218.3	34.81	7.273			
5,300.0	5,141.6	5,301.1	5,083.4	25.4	29.3	-28.71	-621.0	1,202.6	253.1	217.6	35.46	7.137			
5,400.0	5,238.5	5,409.8	5,189.2	25.8	29.8	-29.42	-632.4	1,225.1	252.6	216.3	36.31	6.957			
5,500.0	5,336.2	5,518.5	5,295.8	26.1	30.1	-30.08	-641.9	1,244.0	251.8	214.7	37.09	6.790			
5,600.0	5,434.5	5,627.1	5,403.1	26.5	30.4	-30.69	-649.6	1,259.2	250.6	212.8	37.77	6.634			
5,700.0	5,533.5	5,735.6	5,510.8	26.7	30.7	-31.27	-655.4	1,270.8	248.9	210.6	38.37	6.488			
5,800.0	5,632.8	5,844.0	5,618.8	27.0	30.9	-31.80	-659.5	1,278.8	246.9	208.0	38.89	6.349			
5,900.0	5,732.6	5,952.3	5,727.0	27.1	31.0	-32.30	-661.6	1,283.1	244.4	205.1	39.31	6.218			
6,000.0	5,832.5	6,057.8	5,832.5	27.3	31.1	-32.72	-662.0	1,283.9	241.8	202.1	39.65	6.097			
6,067.5	5,900.0	6,125.3	5,900.0	27.3	31.2	89.65	-662.0	1,283.9	241.1	201.3	39.76	6.063			
6,100.0	5,932.5	6,157.8	5,932.5	27.4	31.2	89.65	-662.0	1,283.9	241.1	201.2	39.84	6.051			
6,138.6	5,971.1	6,196.4	5,971.1	27.4	31.2	89.65	-662.0	1,283.9	241.1	201.1	39.94	6.036			
6,200.0	6,032.5	6,257.6	6,032.2	27.5	31.3	89.12	-659.8	1,283.9	241.1	200.8	40.31	5.981			
6,216.4	6,048.9	6,273.8	6,048.4	27.5	31.3	88.79	-658.4	1,283.9	241.1	200.6	40.50	5.955			
6,250.0	6,082.4	6,307.0	6,081.3	27.5	31.3	88.02	-654.5	1,283.9	241.2	200.3	40.90	5.897			
6,300.0	6,132.3	6,356.0	6,129.6	27.5	31.3	86.88	-646.0	1,283.9	241.4	200.0	41.46	5.824			
6,350.0	6,181.8	6,404.8	6,177.0	27.5	31.3	85.76	-634.6	1,283.9	241.7	199.8	41.94	5.765			
6,400.0	6,230.7	6,453.3	6,223.3	27.5	31.2	84.67	-620.2	1,283.9	242.1	199.8	42.33	5.720			
6,450.0	6,278.8	6,501.5	6,268.4	27.5	31.2	83.60	-603.0	1,283.9	242.6	200.0	42.64	5.690			
6,500.0	6,326.0	6,550.0	6,312.5	27.4	31.1	82.55	-582.9	1,283.9	243.1	200.3	42.85	5.674			
6,550.0	6,372.0	6,597.2	6,354.1	27.3	31.0	81.57	-560.7	1,283.9	243.7	200.8	42.96	5.673			
6,600.0	6,416.5	6,644.7	6,394.5	27.2	30.9	80.61	-535.8	1,283.9	244.4	201.4	42.98	5.686			
6,650.0	6,459.6	6,691.9	6,433.1	27.1	30.8	79.70	-508.6	1,283.9	245.0	202.2	42.90	5.713			
6,700.0	6,500.8	6,739.0	6,469.8	27.0	30.7	78.84	-479.2	1,283.9	245.8	203.0	42.73	5.752			
6,750.0	6,540.1	6,785.8	6,504.5	26.9	30.6	78.02	-447.7	1,283.9	246.5	204.0	42.48	5.803			
6,800.0	6,577.3	6,832.4	6,537.1	26.8	30.5	77.26	-414.3	1,283.9	247.2	205.0	42.16	5.863			
6,850.0	6,612.3	6,878.9	6,567.4	26.6	30.4	76.55	-379.1	1,283.9	247.9	206.1	41.79	5.932			
6,900.0	6,644.8	6,925.2	6,595.5	26.5	30.3	75.90	-342.3	1,283.9	248.6	207.2	41.38	6.007			
6,950.0	6,674.8	6,971.4	6,621.2	26.3	30.2	75.30	-303.9	1,283.9	249.3	208.3	40.96	6.085			
7,000.0	6,702.1	7,017.5	6,644.4	26.2	30.0	74.77	-264.2	1,283.9	249.9	209.3	40.55	6.162			
7,050.0	6,726.6	7,063.4	6,665.2	26.0	29.9	74.30	-223.2	1,283.9	250.4	210.3	40.16	6.236			
7,100.0	6,748.2	7,109.3	6,683.5	25.9	29.8	73.88	-181.2	1,283.9	251.0	211.1	39.83	6.301			
7,150.0	6,766.8	7,155.0	6,699.2	25.7	29.7	73.53	-138.2	1,283.9	251.4	211.8	39.57	6.353			
7,200.0	6,782.4	7,200.0	6,712.0	25.6	29.6	73.25	-95.1	1,283.9	251.8	212.4	39.40	6.390			
7,250.0	6,794.8	7,246.3	6,722.6	25.4	29.5	73.02	-50.0	1,283.9	252.1	212.7	39.35	6.406			
7,300.0	6,804.0	7,291.9	6,730.3	25.3	29.4	72.86	-5.1	1,283.9	252.3	212.9	39.42	6.399			
7,350.0	6,809.9	7,337.4	6,735.4	25.2	29.3	72.76	40.1	1,283.9	252.4	212.8	39.63	6.369			
7,400.0	6,812.7	7,383.0	6,737.7	25.1	29.2	72.73	85.6	1,283.9	252.5	212.5	39.98	6.315			
7,418.0	6,812.8	7,400.5	6,737.9	25.1	29.2	72.73	103.1	1,283.9	252.5	212.3	40.14	6.290			
7,447.2	6,812.8	7,428.4	6,737.8	25.0	29.2	72.73	131.1	1,283.9	252.5	212.0	40.50	6.234			
7,500.0	6,812.7	7,481.3	6,737.8	25.0	29.1	72.74	183.9	1,283.9	252.4	211.3	41.16	6.133			
7,600.0	6,812.5	7,581.3	6,737.6	24.9	29.1	72.75	283.9	1,283.9	252.4	209.8	42.67	5.916			
7,700.0	6,812.2	7,681.3	6,737.4	25.1	29.2	72.76	383.9	1,283.9	252.4	208.0	44.43	5.681			
7,800.0	6,812.0	7,781.3	6,737.3	25.5	29.4	72.77	483.9	1,283.9	252.4	206.0	46.42	5.437			
7,900.0	6,811.8	7,881.3	6,737.1	26.2	29.8	72.78	583.9	1,283.9	252.4	203.8	48.61	5.192			
8,000.0	6,811.6	7,981.3	6,737.0	27.1	30.4	72.79	683.9	1,283.9	252.4	201.4	50.98	4.950			
8,100.0	6,811.4	8,081.3	6,736.8	28.3	31.2	72.81	783.9	1,283.9	252.4	198.9	53.50	4.717			
8,200.0	6,811.2	8,181.3	6,736.7	29.5	32.2	72.82	883.9	1,283.9	252.3	196.2	56.14	4.495			

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7Q-341
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7Q-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-11-15)	Offset TVD Reference:	Offset Datum

Offset Design		Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 7Q-241 - Wellbore #1 - Plan #1 (9-11-15)											Offset Site Error:		0.0 ft
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis		Distance							Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
8,300.0	6,811.0	8,281.3	6,736.5	30.9	33.3	72.83	983.9	1,283.9	252.3	193.4	58.90	4.284			
8,400.0	6,810.8	8,381.3	6,736.3	32.3	34.5	72.84	1,083.9	1,283.9	252.3	190.5	61.76	4.085			
8,500.0	6,810.6	8,481.3	6,736.2	33.8	35.8	72.85	1,183.9	1,283.9	252.3	187.6	64.71	3.899			
8,600.0	6,810.4	8,581.3	6,736.0	35.3	37.2	72.86	1,283.9	1,283.9	252.3	184.6	67.73	3.725			
8,700.0	6,810.1	8,681.3	6,735.9	36.9	38.7	72.87	1,383.9	1,283.9	252.3	181.5	70.81	3.563			
8,800.0	6,809.9	8,781.3	6,735.7	38.5	40.2	72.89	1,483.9	1,283.9	252.2	178.3	73.95	3.411			
8,900.0	6,809.7	8,881.3	6,735.6	40.1	41.7	72.90	1,583.9	1,283.9	252.2	175.1	77.14	3.270			
9,000.0	6,809.5	8,981.3	6,735.4	41.8	43.3	72.91	1,683.9	1,283.9	252.2	171.8	80.37	3.138			
9,100.0	6,809.3	9,081.3	6,735.2	43.5	44.9	72.92	1,783.9	1,283.9	252.2	168.6	83.65	3.015			
9,200.0	6,809.1	9,181.3	6,735.1	45.1	46.5	72.93	1,883.9	1,283.9	252.2	165.2	86.95	2.900			
9,300.0	6,808.9	9,281.3	6,734.9	46.8	48.2	72.94	1,983.9	1,283.9	252.2	161.9	90.29	2.793			
9,400.0	6,808.7	9,381.3	6,734.8	48.6	49.9	72.95	2,083.9	1,283.9	252.2	158.5	93.66	2.692			
9,500.0	6,808.5	9,481.3	6,734.6	50.3	51.6	72.97	2,183.9	1,283.9	252.1	155.1	97.05	2.598			
9,600.0	6,808.3	9,581.3	6,734.5	52.0	53.3	72.98	2,283.9	1,283.9	252.1	151.7	100.46	2.510			
9,700.0	6,808.1	9,681.3	6,734.3	53.8	55.0	72.99	2,383.9	1,283.9	252.1	148.2	103.89	2.427			
9,800.0	6,807.8	9,781.3	6,734.1	55.6	56.7	73.00	2,483.9	1,283.9	252.1	144.7	107.34	2.348			
9,900.0	6,807.6	9,881.3	6,734.0	57.3	58.5	73.01	2,583.9	1,283.9	252.1	141.3	110.81	2.275			
10,000.0	6,807.4	9,981.3	6,733.8	59.1	60.2	73.02	2,683.9	1,283.9	252.1	137.8	114.29	2.205			
10,100.0	6,807.2	10,081.3	6,733.7	60.9	62.0	73.03	2,783.9	1,283.9	252.0	134.3	117.79	2.140			
10,200.0	6,807.0	10,181.3	6,733.5	62.7	63.8	73.04	2,883.9	1,283.9	252.0	130.7	121.30	2.078			
10,300.0	6,806.8	10,281.3	6,733.4	64.5	65.6	73.06	2,983.9	1,283.9	252.0	127.2	124.82	2.019			
10,400.0	6,806.6	10,381.3	6,733.2	66.3	67.4	73.07	3,083.9	1,283.9	252.0	123.6	128.35	1.963			
10,500.0	6,806.4	10,481.3	6,733.0	68.2	69.2	73.08	3,183.9	1,283.9	252.0	120.1	131.89	1.911			
10,600.0	6,806.2	10,581.3	6,732.9	70.0	71.0	73.09	3,283.9	1,283.9	252.0	116.5	135.44	1.860			
10,700.0	6,806.0	10,681.3	6,732.7	71.8	72.8	73.10	3,383.9	1,283.9	252.0	113.0	139.00	1.813			
10,800.0	6,805.8	10,781.3	6,732.6	73.6	74.6	73.11	3,483.9	1,283.9	251.9	109.4	142.57	1.767			
10,900.0	6,805.5	10,881.3	6,732.4	75.5	76.4	73.12	3,583.9	1,283.9	251.9	105.8	146.14	1.724			
11,000.0	6,805.3	10,981.3	6,732.3	77.3	78.2	73.14	3,683.9	1,283.9	251.9	102.2	149.72	1.683			
11,100.0	6,805.1	11,081.3	6,732.1	79.2	80.1	73.15	3,783.9	1,283.9	251.9	98.6	153.31	1.643			
11,200.0	6,804.9	11,181.3	6,731.9	81.0	81.9	73.16	3,883.9	1,283.9	251.9	95.0	156.90	1.605			
11,300.0	6,804.7	11,281.3	6,731.8	82.9	83.7	73.17	3,983.9	1,283.9	251.9	91.4	160.50	1.569			
11,400.0	6,804.5	11,381.3	6,731.6	84.7	85.6	73.18	4,083.9	1,283.9	251.8	87.7	164.11	1.535			
11,500.0	6,804.3	11,481.3	6,731.5	86.6	87.4	73.19	4,183.9	1,283.9	251.8	84.1	167.71	1.502			
11,600.0	6,804.1	11,581.3	6,731.3	88.4	89.2	73.20	4,283.9	1,283.9	251.8	80.5	171.33	1.470	Level 3		
11,700.0	6,803.9	11,681.3	6,731.2	90.3	91.1	73.22	4,383.9	1,283.9	251.8	76.9	174.95	1.439	Level 3		
11,800.0	6,803.7	11,781.3	6,731.0	92.1	92.9	73.23	4,483.9	1,283.9	251.8	73.2	178.57	1.410	Level 3		
11,900.0	6,803.4	11,881.3	6,730.8	94.0	94.8	73.24	4,583.9	1,283.9	251.8	69.6	182.19	1.382	Level 3		
12,000.0	6,803.2	11,981.3	6,730.7	95.9	96.7	73.25	4,683.9	1,283.9	251.8	65.9	185.82	1.355	Level 3		
12,100.0	6,803.0	12,081.3	6,730.5	97.7	98.5	73.26	4,783.9	1,283.9	251.7	62.3	189.46	1.329	Level 3		
12,200.0	6,802.8	12,181.3	6,730.4	99.6	100.4	73.27	4,883.9	1,283.9	251.7	58.6	193.09	1.304	Level 3		
12,300.0	6,802.6	12,281.3	6,730.2	101.5	102.2	73.28	4,983.9	1,283.9	251.7	55.0	196.73	1.279	Level 3		
12,400.0	6,802.4	12,381.3	6,730.1	103.4	104.1	73.30	5,083.9	1,283.9	251.7	51.3	200.37	1.256	Level 3		
12,500.0	6,802.2	12,481.3	6,729.9	105.2	106.0	73.31	5,183.9	1,283.9	251.7	47.7	204.02	1.234	Level 2		
12,600.0	6,802.0	12,581.3	6,729.7	107.1	107.8	73.32	5,283.9	1,283.9	251.7	44.0	207.67	1.212	Level 2		
12,700.0	6,801.8	12,681.3	6,729.6	109.0	109.7	73.33	5,383.9	1,283.9	251.7	40.3	211.32	1.191	Level 2		
12,800.0	6,801.6	12,781.3	6,729.4	110.9	111.6	73.34	5,483.9	1,283.9	251.6	36.7	214.97	1.171	Level 2		
12,900.0	6,801.4	12,881.3	6,729.3	112.8	113.5	73.35	5,583.9	1,283.9	251.6	33.0	218.63	1.151	Level 2		
13,000.0	6,801.1	12,981.3	6,729.1	114.6	115.3	73.36	5,683.9	1,283.9	251.6	29.3	222.28	1.132	Level 2		
13,100.0	6,800.9	13,081.3	6,729.0	116.5	117.2	73.38	5,783.9	1,283.9	251.6	25.6	225.94	1.114	Level 2		
13,200.0	6,800.7	13,181.3	6,728.8	118.4	119.1	73.39	5,883.9	1,283.9	251.6	22.0	229.61	1.096	Level 2		
13,300.0	6,800.5	13,281.3	6,728.6	120.3	121.0	73.40	5,983.9	1,283.9	251.6	18.3	233.27	1.078	Level 2		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7Q-341
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7Q-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-11-15)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
13,400.0	6,800.3	13,381.3	6,728.5	122.2	122.8	73.41	6,083.9	1,283.9	251.5	14.6	236.94	1.062	Level 2
13,500.0	6,800.1	13,481.3	6,728.3	124.1	124.7	73.42	6,183.9	1,283.9	251.5	10.9	240.60	1.045	Level 2
13,600.0	6,799.9	13,581.3	6,728.2	126.0	126.6	73.43	6,283.9	1,283.9	251.5	7.2	244.27	1.030	Level 2
13,700.0	6,799.7	13,681.3	6,728.0	127.9	128.5	73.44	6,383.9	1,283.9	251.5	3.6	247.94	1.014	Level 2
13,800.0	6,799.5	13,781.3	6,727.9	129.7	130.4	73.46	6,483.9	1,283.9	251.5	-0.1	251.62	0.999	Level 1
13,900.0	6,799.3	13,881.3	6,727.7	131.6	132.3	73.47	6,583.9	1,283.9	251.5	-3.8	255.29	0.985	Level 1
14,000.0	6,799.0	13,981.3	6,727.5	133.5	134.2	73.48	6,683.9	1,283.9	251.5	-7.5	258.97	0.971	Level 1
14,100.0	6,798.8	14,081.3	6,727.4	135.4	136.0	73.49	6,783.9	1,283.9	251.4	-11.2	262.65	0.957	Level 1
14,200.0	6,798.6	14,181.3	6,727.2	137.3	137.9	73.50	6,883.9	1,283.9	251.4	-14.9	266.33	0.944	Level 1
14,300.0	6,798.4	14,281.3	6,727.1	139.2	139.8	73.51	6,983.9	1,283.9	251.4	-18.6	270.01	0.931	Level 1
14,400.0	6,798.2	14,381.3	6,726.9	141.1	141.7	73.52	7,083.9	1,283.9	251.4	-22.3	273.69	0.919	Level 1
14,500.0	6,798.0	14,481.3	6,726.8	143.0	143.6	73.54	7,183.9	1,283.9	251.4	-26.0	277.37	0.906	Level 1
14,600.0	6,797.8	14,581.3	6,726.6	144.9	145.5	73.55	7,283.9	1,283.9	251.4	-29.7	281.06	0.894	Level 1
14,700.0	6,797.6	14,681.3	6,726.4	146.8	147.4	73.56	7,383.9	1,283.9	251.4	-33.4	284.74	0.883	Level 1
14,800.0	6,797.4	14,781.3	6,726.3	148.7	149.3	73.57	7,483.9	1,283.9	251.3	-37.1	288.43	0.871	Level 1
14,900.0	6,797.2	14,881.3	6,726.1	150.6	151.2	73.58	7,583.9	1,283.9	251.3	-40.8	292.12	0.860	Level 1
15,000.0	6,797.0	14,981.3	6,726.0	152.5	153.1	73.59	7,683.9	1,283.9	251.3	-44.5	295.81	0.850	Level 1
15,100.0	6,796.7	15,081.3	6,725.8	154.4	155.0	73.60	7,783.9	1,283.9	251.3	-48.2	299.50	0.839	Level 1
15,200.0	6,796.5	15,181.3	6,725.7	156.3	156.9	73.62	7,883.9	1,283.9	251.3	-51.9	303.19	0.829	Level 1
15,300.0	6,796.3	15,281.3	6,725.5	158.2	158.7	73.63	7,983.9	1,283.9	251.3	-55.6	306.88	0.819	Level 1
15,400.0	6,796.1	15,381.3	6,725.3	160.1	160.6	73.64	8,083.9	1,283.9	251.3	-59.3	310.58	0.809	Level 1
15,500.0	6,795.9	15,481.3	6,725.2	162.0	162.5	73.65	8,183.9	1,283.9	251.2	-63.0	314.27	0.799	Level 1
15,600.0	6,795.7	15,581.3	6,725.0	163.9	164.4	73.66	8,283.9	1,283.9	251.2	-66.7	317.97	0.790	Level 1
15,700.0	6,795.5	15,681.3	6,724.9	165.8	166.3	73.67	8,383.9	1,283.9	251.2	-70.5	321.67	0.781	Level 1
15,800.0	6,795.3	15,781.3	6,724.7	167.7	168.2	73.68	8,483.9	1,283.9	251.2	-74.2	325.36	0.772	Level 1
15,900.0	6,795.1	15,881.3	6,724.6	169.6	170.1	73.70	8,583.9	1,283.9	251.2	-77.9	329.06	0.763	Level 1
16,000.0	6,794.9	15,981.3	6,724.4	171.5	172.0	73.71	8,683.9	1,283.9	251.2	-81.6	332.76	0.755	Level 1
16,100.0	6,794.7	16,081.3	6,724.2	173.4	173.9	73.72	8,783.9	1,283.9	251.1	-85.3	336.46	0.746	Level 1
16,200.0	6,794.4	16,181.3	6,724.1	175.3	175.8	73.73	8,883.9	1,283.9	251.1	-89.0	340.17	0.738	Level 1
16,300.0	6,794.2	16,281.3	6,723.9	177.2	177.7	73.74	8,983.9	1,283.9	251.1	-92.7	343.87	0.730	Level 1
16,400.0	6,794.0	16,381.3	6,723.8	179.1	179.6	73.75	9,083.9	1,283.9	251.1	-96.5	347.57	0.722	Level 1
16,500.0	6,793.8	16,481.3	6,723.6	181.0	181.5	73.76	9,183.9	1,283.9	251.1	-100.2	351.28	0.715	Level 1
16,600.0	6,793.6	16,581.3	6,723.5	182.9	183.4	73.78	9,283.9	1,283.9	251.1	-103.9	354.98	0.707	Level 1
16,700.0	6,793.4	16,681.3	6,723.3	184.8	185.3	73.79	9,383.9	1,283.9	251.1	-107.6	358.69	0.700	Level 1
16,800.0	6,793.2	16,781.3	6,723.1	186.7	187.2	73.80	9,483.9	1,283.9	251.0	-111.3	362.39	0.693	Level 1
16,888.0	6,793.0	16,869.3	6,723.0	188.4	188.9	73.81	9,571.9	1,283.9	251.0	-114.6	365.66	0.687	Level 1, ES, SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7Q-341
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7Q-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-11-15)	Offset TVD Reference:	Offset Datum

Offset Design		Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 7Q-301 - Wellbore #1 - Plan #1 (9-11-15)											Offset Site Error:		0.0 ft
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
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	134.549			
200.0	200.0	200.0	200.0	0.3	0.3	-179.47	-30.2	-0.3	30.2	29.6	0.67	44.847			
300.0	300.0	300.0	300.0	0.6	0.6	-179.47	-30.2	-0.3	30.2	29.1	1.12	26.908			
400.0	400.0	400.0	400.0	0.8	0.8	-179.47	-30.2	-0.3	30.2	28.7	1.57	19.220	CC, ES		
500.0	500.0	499.7	499.7	1.0	1.0	178.28	-30.7	0.9	30.8	28.7	2.00	15.340			
600.0	600.0	599.2	599.1	1.2	1.2	172.01	-32.2	4.5	32.6	30.1	2.43	13.388			
700.0	700.0	698.5	698.2	1.5	1.4	163.17	-34.7	10.5	36.3	33.4	2.88	12.622			
800.0	800.0	797.4	796.7	1.7	1.7	153.75	-38.1	18.8	42.6	39.3	3.34	12.763			
900.0	900.0	895.9	894.5	1.9	1.9	23.38	-42.5	29.4	50.8	47.1	3.75	13.538			
1,000.0	999.9	994.1	991.7	2.1	2.2	17.36	-47.9	42.3	59.5	55.3	4.17	14.247			
1,100.0	1,099.7	1,092.1	1,088.3	2.3	2.6	12.57	-54.1	57.5	68.4	63.8	4.60	14.861			
1,200.0	1,199.3	1,189.8	1,184.2	2.5	2.9	8.60	-61.3	74.9	77.6	72.5	5.04	15.386			
1,300.0	1,298.6	1,287.2	1,279.2	2.8	3.3	5.22	-69.5	94.5	86.9	81.4	5.49	15.834			
1,400.0	1,397.5	1,384.4	1,373.5	3.0	3.8	2.27	-78.5	116.3	96.3	90.4	5.94	16.212			
1,500.0	1,496.1	1,481.3	1,466.9	3.3	4.3	-0.38	-88.4	140.2	105.9	99.5	6.41	16.527			
1,600.0	1,594.2	1,577.9	1,559.4	3.7	4.9	-2.78	-99.1	166.2	115.5	108.6	6.88	16.786			
1,700.0	1,691.7	1,674.3	1,650.8	4.1	5.5	-5.00	-110.8	194.3	125.2	117.9	7.37	16.982			
1,800.0	1,788.6	1,770.4	1,741.2	4.5	6.1	-7.06	-123.2	224.5	135.0	127.2	7.89	17.118			
1,900.0	1,884.9	1,868.3	1,832.6	5.0	6.8	-9.03	-136.7	257.0	144.6	136.1	8.44	17.139			
1,913.6	1,897.9	1,881.9	1,845.2	5.1	6.9	-9.30	-138.6	261.5	145.7	137.2	8.51	17.119			
2,000.0	1,980.6	1,967.9	1,925.4	5.6	7.5	-10.91	-150.5	290.2	152.9	143.9	9.04	16.921			
2,100.0	2,076.4	2,067.4	2,018.2	6.1	8.3	-12.61	-164.2	323.5	161.4	151.7	9.67	16.689			
2,200.0	2,172.2	2,166.9	2,111.0	6.7	9.0	-14.13	-178.0	356.7	169.9	159.6	10.33	16.454			
2,300.0	2,268.0	2,266.5	2,203.8	7.2	9.8	-15.51	-191.8	390.0	178.6	167.6	11.01	16.219			
2,400.0	2,363.8	2,366.0	2,296.6	7.8	10.5	-16.76	-205.5	423.3	187.4	175.7	11.72	15.987			
2,500.0	2,459.5	2,465.5	2,389.3	8.4	11.3	-17.89	-219.3	456.5	196.3	183.8	12.45	15.759			
2,600.0	2,555.3	2,565.1	2,482.1	9.0	12.1	-18.93	-233.1	489.8	205.2	192.0	13.21	15.538			
2,700.0	2,651.1	2,664.6	2,574.9	9.6	12.8	-19.88	-246.8	523.1	214.2	200.2	13.98	15.325			
2,800.0	2,746.9	2,764.1	2,667.7	10.2	13.6	-20.76	-260.6	556.3	223.2	208.5	14.76	15.121			
2,900.0	2,842.7	2,863.7	2,760.5	10.8	14.3	-21.56	-274.4	589.6	232.3	216.8	15.56	14.927			
3,000.0	2,938.4	2,963.2	2,853.3	11.4	15.1	-22.31	-288.1	622.9	241.5	225.1	16.38	14.742			
3,100.0	3,034.2	3,062.7	2,946.1	12.0	15.9	-23.00	-301.9	656.1	250.6	233.4	17.21	14.566			
3,200.0	3,130.0	3,162.3	3,038.9	12.6	16.6	-23.64	-315.7	689.4	259.8	241.8	18.05	14.400			
3,300.0	3,225.8	3,261.8	3,131.7	13.2	17.4	-24.24	-329.4	722.6	269.1	250.2	18.89	14.242			
3,400.0	3,321.6	3,361.3	3,224.5	13.8	18.2	-24.80	-343.2	755.9	278.3	258.6	19.75	14.093			
3,500.0	3,417.3	3,460.9	3,317.3	14.4	19.0	-25.32	-357.0	789.2	287.6	267.0	20.62	13.952			
3,600.0	3,513.1	3,560.4	3,410.1	15.0	19.7	-25.81	-370.7	822.4	296.9	275.5	21.49	13.819			
3,700.0	3,608.9	3,659.9	3,502.9	15.6	20.5	-26.27	-384.5	855.7	306.3	283.9	22.37	13.693			
3,800.0	3,704.7	3,759.5	3,595.7	16.2	21.3	-26.70	-398.2	889.0	315.6	292.4	23.25	13.574			
3,900.0	3,800.5	3,859.0	3,688.5	16.8	22.0	-27.11	-412.0	922.2	325.0	300.9	24.14	13.462			
4,000.0	3,896.2	3,958.5	3,781.3	17.5	22.8	-27.49	-425.8	955.5	334.4	309.3	25.04	13.355			
4,100.0	3,992.0	4,058.1	3,874.1	18.1	23.6	-27.86	-439.5	988.7	343.8	317.8	25.94	13.254			
4,200.0	4,087.8	4,157.6	3,966.9	18.7	24.4	-28.20	-453.3	1,022.0	353.2	326.3	26.84	13.158			
4,300.0	4,183.6	4,257.1	4,059.7	19.3	25.1	-28.53	-467.1	1,055.3	362.6	334.9	27.75	13.067			
4,400.0	4,279.4	4,356.7	4,152.5	19.9	25.9	-28.84	-480.8	1,088.5	372.0	343.4	28.66	12.980			
4,500.0	4,375.1	4,456.2	4,245.3	20.5	26.7	-29.13	-494.6	1,121.8	381.5	351.9	29.58	12.898			
4,600.0	4,470.9	4,555.8	4,338.1	21.1	27.5	-29.41	-508.4	1,155.1	390.9	360.4	30.49	12.820			
4,700.0	4,566.7	4,655.3	4,430.9	21.7	28.2	-29.68	-522.1	1,188.3	400.4	369.0	31.42	12.745			
4,800.0	4,662.5	4,754.8	4,523.7	22.4	29.0	-29.94	-535.9	1,221.6	409.9	377.5	32.34	12.674			
4,900.0	4,758.3	4,854.4	4,616.5	23.0	29.8	-30.18	-549.7	1,254.9	419.3	386.1	33.26	12.607			

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7Q-341
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7Q-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-11-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,000.0	4,854.0	4,953.9	4,709.3	23.6	30.6	-30.41	-563.4	1,288.1	428.8	394.6	34.19	12.542		
5,100.0	4,949.8	5,053.4	4,802.1	24.2	31.3	-30.64	-577.2	1,321.4	438.3	403.2	35.12	12.480		
5,200.0	5,045.6	5,158.6	4,900.2	24.8	32.1	-30.87	-591.7	1,356.3	447.6	411.5	36.07	12.410		
5,232.3	5,076.6	5,196.3	4,935.6	25.0	32.4	-30.99	-596.6	1,368.2	450.1	413.7	36.40	12.365		
5,300.0	5,141.6	5,275.4	5,010.5	25.4	32.8	-31.28	-606.4	1,391.9	454.6	417.6	37.01	12.285		
5,400.0	5,238.5	5,392.6	5,122.6	25.8	33.4	-31.67	-619.4	1,423.4	460.7	423.0	37.79	12.193		
5,500.0	5,336.2	5,510.0	5,236.2	26.1	33.9	-31.99	-630.7	1,450.7	466.0	427.6	38.47	12.115		
5,600.0	5,434.5	5,627.7	5,351.2	26.5	34.3	-32.26	-640.3	1,473.7	470.5	431.4	39.04	12.050		
5,700.0	5,533.5	5,745.6	5,467.4	26.7	34.7	-32.48	-648.0	1,492.4	474.1	434.6	39.52	11.996		
5,800.0	5,632.8	5,863.6	5,584.4	27.0	34.9	-32.64	-653.9	1,506.6	476.8	436.9	39.90	11.952		
5,900.0	5,732.6	5,981.8	5,702.1	27.1	35.2	-32.75	-657.9	1,516.4	478.7	438.5	40.17	11.917		
6,000.0	5,832.5	6,100.0	5,820.1	27.3	35.3	-32.81	-660.1	1,521.7	479.7	439.4	40.35	11.891		
6,067.5	5,900.0	6,179.9	5,900.0	27.3	35.4	89.65	-660.5	1,522.7	479.9	439.5	40.42	11.874		
6,100.0	5,932.5	6,212.4	5,932.5	27.4	35.4	89.65	-660.5	1,522.7	479.9	439.4	40.50	11.851		
6,200.0	6,032.5	6,312.4	6,032.5	27.5	35.5	89.65	-660.5	1,522.7	479.9	439.2	40.74	11.781		
6,216.4	6,048.9	6,328.8	6,048.9	27.5	35.5	89.65	-660.5	1,522.7	479.9	439.2	40.78	11.769		
6,250.0	6,082.4	6,362.2	6,082.3	27.5	35.5	89.65	-659.8	1,522.7	479.9	439.1	40.85	11.750		
6,300.0	6,132.3	6,412.0	6,132.0	27.5	35.5	89.65	-656.0	1,522.7	479.9	439.0	40.90	11.735		
6,350.0	6,181.8	6,461.8	6,181.3	27.5	35.5	89.65	-649.0	1,522.7	479.9	439.0	40.89	11.737		
6,400.0	6,230.7	6,511.7	6,230.0	27.5	35.5	89.66	-638.8	1,522.7	479.9	439.1	40.83	11.754		
6,450.0	6,278.8	6,561.5	6,278.0	27.5	35.5	89.66	-625.4	1,522.7	479.9	439.2	40.72	11.787		
6,500.0	6,326.0	6,611.3	6,325.0	27.4	35.5	89.67	-608.9	1,522.7	479.9	439.4	40.56	11.833		
6,550.0	6,372.0	6,661.1	6,370.8	27.3	35.4	89.68	-589.4	1,522.7	479.9	439.6	40.36	11.891		
6,600.0	6,416.5	6,710.9	6,415.3	27.2	35.3	89.69	-566.9	1,522.7	479.9	439.8	40.13	11.960		
6,650.0	6,459.6	6,760.8	6,458.2	27.1	35.3	89.70	-541.6	1,522.7	479.9	440.1	39.87	12.037		
6,700.0	6,500.8	6,810.6	6,499.4	27.0	35.2	89.71	-513.6	1,522.7	479.9	440.3	39.60	12.120		
6,750.0	6,540.1	6,860.5	6,538.7	26.9	35.1	89.73	-482.9	1,522.7	479.9	440.6	39.32	12.206		
6,800.0	6,577.3	6,910.3	6,575.9	26.8	35.0	89.74	-449.7	1,522.7	479.9	440.9	39.04	12.292		
6,850.0	6,612.3	6,960.2	6,610.8	26.6	34.9	89.76	-414.1	1,522.7	479.9	441.1	38.78	12.375		
6,900.0	6,644.8	7,010.0	6,643.4	26.5	34.8	89.78	-376.4	1,522.7	479.9	441.4	38.55	12.451		
6,950.0	6,674.8	7,059.9	6,673.4	26.3	34.7	89.80	-336.6	1,522.7	479.9	441.6	38.35	12.516		
7,000.0	6,702.1	7,109.8	6,700.8	26.2	34.6	89.82	-294.9	1,522.7	479.9	441.7	38.19	12.566		
7,050.0	6,726.6	7,159.7	6,725.4	26.0	34.4	89.84	-251.5	1,522.7	479.9	441.8	38.09	12.598		
7,100.0	6,748.2	7,209.6	6,747.1	25.9	34.3	89.86	-206.5	1,522.7	479.9	441.9	38.06	12.610		
7,150.0	6,766.8	7,259.6	6,765.9	25.7	34.2	89.88	-160.3	1,522.7	479.9	441.8	38.10	12.597		
7,200.0	6,782.4	7,309.5	6,781.6	25.6	34.1	89.90	-112.9	1,522.7	479.9	441.7	38.21	12.560		
7,250.0	6,794.8	7,359.5	6,794.2	25.4	34.0	89.92	-64.5	1,522.7	479.9	441.5	38.41	12.496		
7,300.0	6,804.0	7,409.4	6,803.5	25.3	33.9	89.95	-15.5	1,522.7	479.9	441.2	38.69	12.406		
7,350.0	6,809.9	7,459.4	6,809.7	25.2	33.9	89.97	34.1	1,522.7	479.9	440.9	39.05	12.291		
7,400.0	6,812.7	7,509.4	6,812.6	25.1	33.8	89.99	84.0	1,522.7	479.9	440.4	39.49	12.154		
7,416.8	6,812.8	7,526.2	6,812.8	25.1	33.8	90.00	100.8	1,522.7	479.9	440.3	39.65	12.103		
7,418.0	6,812.8	7,527.4	6,812.8	25.1	33.8	90.00	102.0	1,522.7	479.9	440.3	39.66	12.100		
7,500.0	6,812.7	7,609.4	6,812.7	25.0	33.7	90.00	184.0	1,522.7	479.9	439.3	40.62	11.814		
7,600.0	6,812.5	7,709.4	6,812.5	24.9	33.7	90.00	284.0	1,522.7	479.9	437.8	42.08	11.406		
7,700.0	6,812.2	7,809.4	6,812.3	25.1	33.8	90.00	384.0	1,522.7	479.9	436.1	43.82	10.952		
7,800.0	6,812.0	7,909.4	6,812.0	25.5	33.9	90.00	484.0	1,522.7	479.9	434.1	45.82	10.474		
7,900.0	6,811.8	8,009.4	6,811.8	26.2	34.2	90.00	584.0	1,522.7	479.9	431.9	48.05	9.989		
8,000.0	6,811.6	8,109.4	6,811.6	27.1	34.6	90.00	684.0	1,522.7	479.9	429.5	50.47	9.510		
8,100.0	6,811.4	8,209.4	6,811.4	28.3	35.1	90.00	784.0	1,522.7	479.9	426.9	53.05	9.046		
8,200.0	6,811.2	8,309.4	6,811.2	29.5	35.8	90.00	884.0	1,522.7	479.9	424.1	55.79	8.603		
8,300.0	6,811.0	8,409.4	6,811.0	30.9	36.7	90.00	984.0	1,522.7	479.9	421.3	58.64	8.184		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7Q-341
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7Q-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-11-15)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 7Q-301 - Wellbore #1 - Plan #1 (9-11-15)												Offset Well Error:	0.0 ft
Survey Program: 0-MWD													
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
8,400.0	6,810.8	8,509.4	6,810.8	32.3	37.6	90.00	1,084.0	1,522.7	479.9	418.3	61.61	7.790	
8,500.0	6,810.6	8,609.4	6,810.6	33.8	38.7	90.00	1,184.0	1,522.7	479.9	415.3	64.66	7.422	
8,600.0	6,810.4	8,709.4	6,810.4	35.3	39.9	90.00	1,284.0	1,522.7	479.9	412.1	67.80	7.079	
8,700.0	6,810.1	8,809.4	6,810.2	36.9	41.2	90.00	1,384.0	1,522.7	479.9	408.9	71.00	6.759	
8,800.0	6,809.9	8,909.4	6,809.9	38.5	42.5	90.00	1,484.0	1,522.7	479.9	405.7	74.27	6.462	
8,900.0	6,809.7	9,009.4	6,809.7	40.1	44.0	90.00	1,584.0	1,522.7	479.9	402.3	77.59	6.186	
9,000.0	6,809.5	9,109.4	6,809.5	41.8	45.4	90.00	1,684.0	1,522.7	479.9	399.0	80.95	5.928	
9,100.0	6,809.3	9,209.4	6,809.3	43.5	46.9	90.00	1,784.0	1,522.7	479.9	395.6	84.36	5.689	
9,200.0	6,809.1	9,309.4	6,809.1	45.1	48.5	90.00	1,884.0	1,522.7	479.9	392.1	87.80	5.466	
9,300.0	6,808.9	9,409.4	6,808.9	46.8	50.1	90.00	1,984.0	1,522.7	479.9	388.7	91.27	5.258	
9,400.0	6,808.7	9,509.4	6,808.7	48.6	51.7	90.00	2,084.0	1,522.7	479.9	385.2	94.77	5.064	
9,500.0	6,808.5	9,609.4	6,808.5	50.3	53.3	90.00	2,184.0	1,522.7	479.9	381.6	98.30	4.882	
9,600.0	6,808.3	9,709.4	6,808.3	52.0	55.0	90.00	2,284.0	1,522.7	479.9	378.1	101.85	4.712	
9,700.0	6,808.1	9,809.4	6,808.1	53.8	56.6	90.00	2,384.0	1,522.7	479.9	374.5	105.42	4.552	
9,800.0	6,807.8	9,909.4	6,807.9	55.6	58.3	90.00	2,484.0	1,522.7	479.9	370.9	109.01	4.403	
9,900.0	6,807.6	10,009.4	6,807.6	57.3	60.0	90.00	2,584.0	1,522.7	479.9	367.3	112.61	4.262	
10,000.0	6,807.4	10,109.4	6,807.4	59.1	61.7	90.00	2,684.0	1,522.7	479.9	363.7	116.23	4.129	
10,100.0	6,807.2	10,209.4	6,807.2	60.9	63.5	90.00	2,784.0	1,522.7	479.9	360.1	119.87	4.004	
10,200.0	6,807.0	10,309.4	6,807.0	62.7	65.2	90.00	2,884.0	1,522.7	479.9	356.4	123.52	3.886	
10,300.0	6,806.8	10,409.4	6,806.8	64.5	66.9	90.00	2,984.0	1,522.7	479.9	352.8	127.17	3.774	
10,400.0	6,806.6	10,509.4	6,806.6	66.3	68.7	90.00	3,084.0	1,522.7	479.9	349.1	130.84	3.668	
10,500.0	6,806.4	10,609.4	6,806.4	68.2	70.5	90.00	3,184.0	1,522.7	479.9	345.4	134.52	3.568	
10,600.0	6,806.2	10,709.4	6,806.2	70.0	72.2	90.00	3,284.0	1,522.7	479.9	341.7	138.21	3.473	
10,700.0	6,806.0	10,809.4	6,806.0	71.8	74.0	90.00	3,384.0	1,522.7	479.9	338.0	141.90	3.382	
10,800.0	6,805.8	10,909.4	6,805.8	73.6	75.8	90.00	3,484.0	1,522.7	479.9	334.3	145.61	3.296	
10,900.0	6,805.5	11,009.4	6,805.6	75.5	77.6	90.00	3,584.0	1,522.7	479.9	330.6	149.32	3.214	
11,000.0	6,805.3	11,109.4	6,805.3	77.3	79.4	90.00	3,684.0	1,522.7	479.9	326.9	153.03	3.136	
11,100.0	6,805.1	11,209.4	6,805.1	79.2	81.2	90.00	3,784.0	1,522.7	479.9	323.2	156.75	3.062	
11,200.0	6,804.9	11,309.4	6,804.9	81.0	83.0	90.00	3,884.0	1,522.7	479.9	319.4	160.48	2.991	
11,300.0	6,804.7	11,409.4	6,804.7	82.9	84.8	90.00	3,984.0	1,522.7	479.9	315.7	164.21	2.923	
11,400.0	6,804.5	11,509.4	6,804.5	84.7	86.7	90.00	4,084.0	1,522.7	479.9	312.0	167.95	2.858	
11,500.0	6,804.3	11,609.4	6,804.3	86.6	88.5	90.00	4,184.0	1,522.7	479.9	308.2	171.70	2.795	
11,600.0	6,804.1	11,709.4	6,804.1	88.4	90.3	90.00	4,284.0	1,522.7	479.9	304.5	175.44	2.736	
11,700.0	6,803.9	11,809.4	6,803.9	90.3	92.1	90.00	4,384.0	1,522.7	479.9	300.7	179.19	2.678	
11,800.0	6,803.7	11,909.4	6,803.7	92.1	94.0	90.00	4,484.0	1,522.7	479.9	297.0	182.95	2.623	
11,900.0	6,803.4	12,009.4	6,803.5	94.0	95.8	90.00	4,584.0	1,522.7	479.9	293.2	186.71	2.570	
12,000.0	6,803.2	12,109.4	6,803.2	95.9	97.7	90.00	4,684.0	1,522.7	479.9	289.5	190.47	2.520	
12,100.0	6,803.0	12,209.4	6,803.0	97.7	99.5	90.00	4,784.0	1,522.7	479.9	285.7	194.23	2.471	
12,200.0	6,802.8	12,309.4	6,802.8	99.6	101.4	90.00	4,884.0	1,522.7	479.9	281.9	198.00	2.424	
12,300.0	6,802.6	12,409.4	6,802.6	101.5	103.2	90.00	4,984.0	1,522.7	479.9	278.2	201.77	2.379	
12,400.0	6,802.4	12,509.4	6,802.4	103.4	105.1	90.00	5,084.0	1,522.7	479.9	274.4	205.54	2.335	
12,500.0	6,802.2	12,609.4	6,802.2	105.2	106.9	90.00	5,184.0	1,522.7	479.9	270.6	209.32	2.293	
12,600.0	6,802.0	12,709.4	6,802.0	107.1	108.8	90.00	5,284.0	1,522.7	479.9	266.8	213.10	2.252	
12,700.0	6,801.8	12,809.4	6,801.8	109.0	110.6	90.00	5,384.0	1,522.7	479.9	263.1	216.88	2.213	
12,800.0	6,801.6	12,909.4	6,801.6	110.9	112.5	90.00	5,484.0	1,522.7	479.9	259.3	220.66	2.175	
12,900.0	6,801.4	13,009.4	6,801.4	112.8	114.4	90.00	5,584.0	1,522.7	479.9	255.5	224.44	2.138	
13,000.0	6,801.1	13,109.4	6,801.2	114.6	116.2	90.00	5,684.0	1,522.7	479.9	251.7	228.23	2.103	
13,100.0	6,800.9	13,209.4	6,800.9	116.5	118.1	90.00	5,784.0	1,522.7	479.9	247.9	232.02	2.069	
13,200.0	6,800.7	13,309.4	6,800.7	118.4	120.0	90.00	5,884.0	1,522.7	479.9	244.1	235.81	2.035	
13,300.0	6,800.5	13,409.4	6,800.5	120.3	121.8	90.00	5,984.0	1,522.7	479.9	240.3	239.60	2.003	
13,400.0	6,800.3	13,509.4	6,800.3	122.2	123.7	90.00	6,084.0	1,522.7	479.9	236.5	243.39	1.972	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7Q-341
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7Q-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-11-15)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Dunn 5N64W7 Pad Sec.7-T5N-R64W - Dunn 7Q-301 - Wellbore #1 - Plan #1 (9-11-15)												Offset Well Error:	0.0 ft
Survey Program: 0-MWD													
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
13,500.0	6,800.1	13,609.4	6,800.1	124.1	125.6	90.00	6,184.0	1,522.7	479.9	232.7	247.18	1.942	
13,600.0	6,799.9	13,709.4	6,799.9	126.0	127.4	90.00	6,284.0	1,522.7	479.9	228.9	250.98	1.912	
13,700.0	6,799.7	13,809.4	6,799.7	127.9	129.3	90.00	6,384.0	1,522.7	479.9	225.2	254.78	1.884	
13,800.0	6,799.5	13,909.4	6,799.5	129.7	131.2	90.00	6,484.0	1,522.7	479.9	221.4	258.57	1.856	
13,900.0	6,799.3	14,009.4	6,799.3	131.6	133.1	90.00	6,584.0	1,522.7	479.9	217.6	262.37	1.829	
14,000.0	6,799.0	14,109.4	6,799.1	133.5	134.9	90.00	6,684.0	1,522.7	479.9	213.8	266.17	1.803	
14,100.0	6,798.8	14,209.4	6,798.8	135.4	136.8	90.00	6,784.0	1,522.7	479.9	209.9	269.98	1.778	
14,200.0	6,798.6	14,309.4	6,798.6	137.3	138.7	90.00	6,884.0	1,522.7	479.9	206.1	273.78	1.753	
14,300.0	6,798.4	14,409.4	6,798.4	139.2	140.6	90.00	6,984.0	1,522.7	479.9	202.3	277.58	1.729	
14,400.0	6,798.2	14,509.4	6,798.2	141.1	142.5	90.00	7,084.0	1,522.7	479.9	198.5	281.39	1.706	
14,500.0	6,798.0	14,609.4	6,798.0	143.0	144.4	90.00	7,184.0	1,522.7	479.9	194.7	285.19	1.683	
14,600.0	6,797.8	14,709.4	6,797.8	144.9	146.2	90.00	7,284.0	1,522.7	479.9	190.9	289.00	1.661	
14,700.0	6,797.6	14,809.4	6,797.6	146.8	148.1	90.00	7,384.0	1,522.7	479.9	187.1	292.81	1.639	
14,800.0	6,797.4	14,909.4	6,797.4	148.7	150.0	90.00	7,484.0	1,522.7	479.9	183.3	296.62	1.618	
14,900.0	6,797.2	15,009.4	6,797.2	150.6	151.9	90.00	7,584.0	1,522.7	479.9	179.5	300.43	1.597	
15,000.0	6,797.0	15,109.4	6,797.0	152.5	153.8	90.00	7,684.0	1,522.7	479.9	175.7	304.24	1.577	
15,100.0	6,796.7	15,209.4	6,796.8	154.4	155.7	90.00	7,784.0	1,522.7	479.9	171.9	308.05	1.558	
15,200.0	6,796.5	15,309.4	6,796.5	156.3	157.6	90.00	7,884.0	1,522.7	479.9	168.1	311.86	1.539	
15,300.0	6,796.3	15,409.4	6,796.3	158.2	159.5	90.00	7,984.0	1,522.7	479.9	164.3	315.67	1.520	
15,400.0	6,796.1	15,509.4	6,796.1	160.1	161.3	90.00	8,084.0	1,522.7	479.9	160.4	319.49	1.502	
15,500.0	6,795.9	15,609.4	6,795.9	162.0	163.2	90.00	8,184.0	1,522.7	479.9	156.6	323.30	1.484	Level 3
15,600.0	6,795.7	15,709.4	6,795.7	163.9	165.1	90.00	8,284.0	1,522.7	479.9	152.8	327.12	1.467	Level 3
15,700.0	6,795.5	15,809.4	6,795.5	165.8	167.0	90.00	8,384.0	1,522.7	479.9	149.0	330.93	1.450	Level 3
15,800.0	6,795.3	15,909.4	6,795.3	167.7	168.9	90.00	8,484.0	1,522.7	479.9	145.2	334.75	1.434	Level 3
15,900.0	6,795.1	16,009.4	6,795.1	169.6	170.8	90.00	8,584.0	1,522.7	479.9	141.4	338.56	1.418	Level 3
16,000.0	6,794.9	16,109.4	6,794.9	171.5	172.7	90.00	8,684.0	1,522.7	479.9	137.5	342.38	1.402	Level 3
16,100.0	6,794.7	16,209.4	6,794.7	173.4	174.6	90.00	8,784.0	1,522.7	479.9	133.7	346.20	1.386	Level 3
16,200.0	6,794.4	16,309.4	6,794.5	175.3	176.5	90.00	8,884.0	1,522.7	479.9	129.9	350.02	1.371	Level 3
16,300.0	6,794.2	16,409.4	6,794.2	177.2	178.4	90.00	8,984.0	1,522.7	479.9	126.1	353.83	1.356	Level 3
16,400.0	6,794.0	16,509.4	6,794.0	179.1	180.3	90.00	9,084.0	1,522.7	479.9	122.3	357.65	1.342	Level 3
16,500.0	6,793.8	16,609.4	6,793.8	181.0	182.2	90.00	9,184.0	1,522.7	479.9	118.5	361.47	1.328	Level 3
16,600.0	6,793.6	16,709.4	6,793.6	182.9	184.1	90.00	9,284.0	1,522.7	479.9	114.6	365.29	1.314	Level 3
16,700.0	6,793.4	16,809.4	6,793.4	184.8	186.0	90.00	9,384.0	1,522.7	479.9	110.8	369.11	1.300	Level 3
16,800.0	6,793.2	16,909.4	6,793.2	186.7	187.9	90.00	9,484.0	1,522.7	479.9	107.0	372.93	1.287	Level 3
16,888.0	6,793.0	16,997.4	6,793.0	188.4	189.6	90.00	9,572.0	1,522.7	479.9	103.6	376.30	1.275	Level 3, SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7Q-341
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7Q-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-11-15)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Dunn Pad Sec.7-T5N-R64W - Dunn 24-7 (Exist.) - Wellbore #1 - Wellbore #1												Offset Well Error:	0.0 ft
Survey Program: 7062-UNKNOWN													
Reference				Offset			Semi Major Axis			Distance			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
1,400.0	1,397.5	1,384.5	1,384.5	3.0	27.7	-29.20	-74.3	826.6	788.4	758.1	30.35	25.973	
1,500.0	1,496.1	1,483.1	1,483.1	3.3	29.7	-29.92	-74.3	826.6	773.6	741.2	32.45	23.837	
1,600.0	1,594.2	1,581.2	1,581.2	3.7	31.6	-30.79	-74.3	826.6	756.7	722.2	34.54	21.907	
1,700.0	1,691.7	1,678.7	1,678.7	4.1	33.6	-31.81	-74.3	826.6	737.7	701.1	36.62	20.146	
1,800.0	1,788.6	1,775.6	1,775.6	4.5	35.5	-33.01	-74.3	826.6	716.8	678.1	38.69	18.525	
1,900.0	1,884.9	1,871.8	1,871.8	5.0	37.4	-34.42	-74.3	826.6	693.9	653.1	40.77	17.019	
1,913.6	1,897.9	1,884.9	1,884.9	5.1	37.7	-34.63	-74.3	826.6	690.7	649.6	41.06	16.822	
2,000.0	1,980.6	1,967.6	1,967.6	5.6	39.4	-35.82	-74.3	826.6	670.1	627.1	43.04	15.569	
2,100.0	2,076.4	2,063.4	2,063.4	6.1	41.3	-37.28	-74.3	826.6	646.7	601.3	45.37	14.254	
2,200.0	2,172.2	2,159.2	2,159.2	6.7	43.2	-38.86	-74.3	826.6	623.7	575.9	47.73	13.066	
2,300.0	2,268.0	2,255.0	2,255.0	7.2	45.1	-40.55	-74.3	826.6	601.2	551.0	50.13	11.992	
2,400.0	2,363.8	2,350.8	2,350.8	7.8	47.0	-42.36	-74.3	826.6	579.2	526.6	52.57	11.018	
2,500.0	2,459.5	2,446.5	2,446.5	8.4	48.9	-44.31	-74.3	826.6	557.9	502.8	55.05	10.135	
2,600.0	2,555.3	2,542.3	2,542.3	9.0	50.8	-46.40	-74.3	826.6	537.3	479.7	57.57	9.333	
2,700.0	2,651.1	2,638.1	2,638.1	9.6	52.8	-48.65	-74.3	826.6	517.4	457.3	60.13	8.604	
2,800.0	2,746.9	2,733.9	2,733.9	10.2	54.7	-51.07	-74.3	826.6	498.4	435.7	62.74	7.944	
2,900.0	2,842.7	2,829.7	2,829.7	10.8	56.6	-53.67	-74.3	826.6	480.4	415.0	65.38	7.347	
3,000.0	2,938.4	2,925.4	2,925.4	11.4	58.5	-56.45	-74.3	826.6	463.4	395.3	68.07	6.808	
3,100.0	3,034.2	3,021.2	3,021.2	12.0	60.4	-59.42	-74.3	826.6	447.7	376.9	70.80	6.323	
3,200.0	3,130.0	3,117.0	3,117.0	12.6	62.3	-62.59	-74.3	826.6	433.3	359.7	73.56	5.891	
3,300.0	3,225.8	3,212.8	3,212.8	13.2	64.3	-65.94	-74.3	826.6	420.4	344.0	76.33	5.507	
3,400.0	3,321.6	3,308.6	3,308.6	13.8	66.2	-69.49	-74.3	826.6	409.0	329.9	79.12	5.170	
3,500.0	3,417.3	3,404.3	3,404.3	14.4	68.1	-73.20	-74.3	826.6	399.5	317.6	81.90	4.878	
3,600.0	3,513.1	3,500.1	3,500.1	15.0	70.0	-77.07	-74.3	826.6	391.8	307.2	84.65	4.628	
3,700.0	3,608.9	3,595.9	3,595.9	15.6	71.9	-81.06	-74.3	826.6	386.1	298.8	87.36	4.420	
3,800.0	3,704.7	3,691.7	3,691.7	16.2	73.8	-85.14	-74.3	826.6	382.5	292.5	90.01	4.249	
3,900.0	3,800.5	3,787.5	3,787.5	16.8	75.7	-89.26	-74.3	826.6	381.0	288.5	92.59	4.116	
3,917.8	3,817.5	3,804.5	3,804.5	16.9	76.1	-90.00	-74.3	826.6	381.0	288.0	93.04	4.095	
4,000.0	3,896.2	3,883.2	3,883.2	17.5	77.7	-93.40	-74.3	826.6	381.7	286.7	95.07	4.015	
4,100.0	3,992.0	3,979.0	3,979.0	18.1	79.6	-97.50	-74.3	826.6	384.6	287.1	97.46	3.946	
4,200.0	4,087.8	4,074.8	4,074.8	18.7	81.5	-101.53	-74.3	826.6	389.6	289.8	99.74	3.906	
4,300.0	4,183.6	4,170.6	4,170.6	19.3	83.4	-105.44	-74.3	826.6	396.5	294.6	101.93	3.890	
4,400.0	4,279.4	4,266.4	4,266.4	19.9	85.3	-109.21	-74.3	826.6	405.4	301.4	104.02	3.898	
4,500.0	4,375.1	4,362.1	4,362.1	20.5	87.2	-112.82	-74.3	826.6	416.1	310.1	106.04	3.924	
4,600.0	4,470.9	4,457.9	4,457.9	21.1	89.2	-116.24	-74.3	826.6	428.5	320.5	107.99	3.968	
4,700.0	4,566.7	4,553.7	4,553.7	21.7	91.1	-119.48	-74.3	826.6	442.4	332.5	109.89	4.026	
4,800.0	4,662.5	4,649.5	4,649.5	22.4	93.0	-122.52	-74.3	826.6	457.7	345.9	111.74	4.096	
4,900.0	4,758.3	4,745.3	4,745.3	23.0	94.9	-125.36	-74.3	826.6	474.2	360.6	113.57	4.176	
5,000.0	4,854.0	4,841.0	4,841.0	23.6	96.8	-128.02	-74.3	826.6	491.9	376.5	115.37	4.263	
5,100.0	4,949.8	4,936.8	4,936.8	24.2	98.7	-130.51	-74.3	826.6	510.5	393.4	117.17	4.357	
5,200.0	5,045.6	5,032.6	5,032.6	24.8	100.7	-132.82	-74.3	826.6	530.1	411.1	118.96	4.456	
5,232.3	5,076.6	5,063.5	5,063.5	25.0	101.3	-133.53	-74.3	826.6	536.6	417.1	119.54	4.489	
5,300.0	5,141.6	5,128.6	5,128.6	25.4	102.6	-135.10	-74.3	826.6	549.9	428.9	121.01	4.544	
5,400.0	5,238.5	5,225.5	5,225.5	25.8	104.5	-137.09	-74.3	826.6	568.0	444.8	123.22	4.610	
5,500.0	5,336.2	5,323.2	5,323.2	26.1	106.5	-138.72	-74.3	826.6	584.1	458.6	125.48	4.655	
5,600.0	5,434.5	5,421.5	5,421.5	26.5	108.4	-140.03	-74.3	826.6	597.8	470.1	127.77	4.679	
5,700.0	5,533.5	5,520.5	5,520.5	26.7	110.4	-141.05	-74.3	826.6	609.1	479.0	130.05	4.683	
5,800.0	5,632.8	5,619.8	5,619.8	27.0	112.4	-141.80	-74.3	826.6	617.8	485.4	132.31	4.669	
5,900.0	5,732.6	5,719.5	5,719.5	27.1	114.4	-142.30	-74.3	826.6	623.7	489.2	134.51	4.637	
6,000.0	5,832.5	5,819.5	5,819.5	27.3	116.4	-142.57	-74.3	826.6	627.0	490.3	136.66	4.588	
6,067.5	5,900.0	5,887.0	5,887.0	27.3	117.7	-20.16	-74.3	826.6	627.6	489.6	138.07	4.546	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7Q-341
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7Q-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-11-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 7062-UNKNOWN													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
6,100.0	5,932.5	5,919.4	5,919.4	27.4	118.4	-20.16	-74.3	826.6	627.6	488.9	138.76	4.523		
6,200.0	6,032.5	6,019.4	6,019.4	27.5	120.4	-20.16	-74.3	826.6	627.6	486.7	140.89	4.455		
6,216.4	6,048.9	6,035.9	6,035.9	27.5	120.7	-20.16	-74.3	826.6	627.6	486.4	141.24	4.444		
6,250.0	6,082.4	6,069.4	6,069.4	27.5	121.4	-20.20	-74.3	826.6	626.9	485.2	141.74	4.423		
6,300.0	6,132.3	6,119.3	6,119.3	27.5	122.4	-20.41	-74.3	826.6	623.3	481.3	141.99	4.390		
6,350.0	6,181.8	6,168.8	6,168.8	27.5	123.4	-20.82	-74.3	826.6	616.7	475.1	141.65	4.354		
6,400.0	6,230.7	6,217.7	6,217.7	27.5	124.4	-21.43	-74.3	826.6	607.1	466.4	140.71	4.314		
6,450.0	6,278.8	6,265.8	6,265.8	27.5	125.3	-22.27	-74.3	826.6	594.5	455.3	139.22	4.270		
6,500.0	6,326.0	6,313.0	6,313.0	27.4	126.3	-23.36	-74.3	826.6	579.1	441.8	137.21	4.220		
6,550.0	6,372.0	6,359.0	6,359.0	27.3	127.2	-24.76	-74.3	826.6	560.9	426.1	134.77	4.162		
6,600.0	6,416.5	6,403.5	6,403.5	27.2	128.1	-26.50	-74.3	826.6	540.1	408.1	132.00	4.092		
6,650.0	6,459.6	6,446.5	6,446.5	27.1	128.9	-28.65	-74.3	826.6	516.8	387.7	129.11	4.003		
6,700.0	6,500.8	6,487.8	6,487.8	27.0	129.8	-31.30	-74.3	826.6	491.3	365.0	126.36	3.889		
6,750.0	6,540.1	6,527.1	6,527.1	26.9	130.5	-34.54	-74.3	826.6	463.8	339.7	124.14	3.736		
6,800.0	6,577.3	6,564.3	6,564.3	26.8	131.3	-38.47	-74.3	826.6	434.6	311.6	122.96	3.534		
6,850.0	6,612.3	6,599.3	6,599.3	26.6	132.0	-43.18	-74.3	826.6	403.9	280.6	123.40	3.274		
6,900.0	6,644.8	6,631.8	6,631.8	26.5	132.6	-48.74	-74.3	826.6	372.4	246.5	125.90	2.958		
6,950.0	6,674.8	6,661.8	6,661.8	26.3	133.2	-55.09	-74.3	826.6	340.7	210.2	130.48	2.611		
7,000.0	6,702.1	6,689.1	6,689.1	26.2	133.8	-62.04	-74.3	826.6	309.5	173.0	136.47	2.268		
7,050.0	6,726.6	6,713.6	6,713.6	26.0	134.3	-69.22	-74.3	826.6	280.0	137.3	142.68	1.962		
7,100.0	6,748.2	6,735.2	6,735.2	25.9	134.7	-76.13	-74.3	826.6	253.7	105.8	147.88	1.716		
7,150.0	6,766.8	6,753.8	6,753.8	25.7	135.1	-82.23	-74.3	826.6	232.8	81.4	151.42	1.538		
7,200.0	6,782.4	6,769.4	6,769.4	25.6	135.4	-87.13	-74.3	826.6	219.7	66.4	153.34	1.433	Level 3	
7,240.1	6,792.6	6,779.6	6,779.6	25.5	135.6	-90.00	-74.3	826.6	216.3	62.2	154.07	1.404	Level 3, CC, ES, SF	
7,250.0	6,794.8	6,781.8	6,781.8	25.4	135.6	-90.55	-74.3	826.6	216.5	62.3	154.17	1.404	Level 3	
7,300.0	6,804.0	6,791.0	6,791.0	25.3	135.8	-92.36	-74.3	826.6	224.1	69.6	154.52	1.450	Level 3	
7,350.0	6,809.9	6,796.9	6,796.9	25.2	135.9	-92.49	-74.3	826.6	241.9	87.1	154.80	1.563		
7,400.0	6,812.7	6,799.6	6,799.6	25.1	136.0	-90.90	-74.3	826.6	268.0	112.9	155.08	1.728		
7,418.0	6,812.8	6,799.8	6,799.8	25.1	136.0	-89.90	-74.3	826.6	279.0	123.9	155.11	1.799		
7,500.0	6,812.7	6,799.7	6,799.7	25.0	136.0	-89.86	-74.3	826.6	336.9	181.3	155.58	2.165		
7,600.0	6,812.5	6,799.4	6,799.4	24.9	136.0	-89.80	-74.3	826.6	418.5	262.2	156.31	2.678		
7,700.0	6,812.2	6,799.2	6,799.2	25.1	136.0	-89.75	-74.3	826.6	506.8	349.6	157.18	3.224		
7,800.0	6,812.0	6,799.0	6,799.0	25.5	136.0	-89.69	-74.3	826.6	598.7	440.6	158.19	3.785		
7,900.0	6,811.8	6,798.8	6,798.8	26.2	136.0	-89.63	-74.3	826.6	692.9	533.6	159.31	4.350		
8,000.0	6,811.6	6,798.6	6,798.6	27.1	136.0	-89.58	-74.3	826.6	788.6	628.0	160.53	4.912		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7Q-341
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7Q-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-11-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
1,400.0	1,397.5	1,403.5	1,403.5	3.0	3.0	-32.82	-24.8	834.3	794.7	788.7	5.96	133.258		
1,500.0	1,496.1	1,502.1	1,502.1	3.3	3.3	-33.61	-24.8	834.3	780.4	774.0	6.43	121.447		
1,600.0	1,594.2	1,600.2	1,600.2	3.7	3.5	-34.56	-24.8	834.3	764.2	757.3	6.91	110.634		
1,700.0	1,691.7	1,697.7	1,697.7	4.1	3.7	-35.67	-24.8	834.3	746.0	738.6	7.41	100.646		
1,800.0	1,788.6	1,794.6	1,794.6	4.5	3.9	-36.98	-24.8	834.3	725.9	718.0	7.95	91.351		
1,900.0	1,884.9	1,876.0	1,876.0	5.0	4.1	-38.33	-24.1	835.1	705.1	696.7	8.48	83.171		
1,913.6	1,897.9	1,886.9	1,886.9	5.1	4.1	-38.53	-23.9	835.3	702.3	693.8	8.55	82.113		
2,000.0	1,980.6	1,956.3	1,956.2	5.6	4.3	-39.73	-21.9	837.5	685.7	676.6	9.06	75.711		
2,100.0	2,076.4	2,036.7	2,036.5	6.1	4.5	-41.29	-18.2	841.6	669.1	659.4	9.67	69.195		
2,200.0	2,172.2	2,117.1	2,116.5	6.7	4.6	-43.01	-13.0	847.4	655.5	645.2	10.32	63.540		
2,300.0	2,268.0	2,200.0	2,198.7	7.2	4.8	-44.93	-6.1	855.0	645.2	634.2	11.01	58.627		
2,400.0	2,363.8	2,277.4	2,275.2	7.8	5.0	-46.86	1.9	863.8	638.4	626.7	11.71	54.498		
2,500.0	2,459.5	2,357.1	2,353.6	8.4	5.2	-48.96	11.5	874.4	635.2	622.8	12.46	50.976		
2,572.2	2,528.7	2,424.1	2,419.3	8.8	5.4	-50.77	20.3	884.1	634.8	621.8	13.06	48.621		
2,600.0	2,555.3	2,450.6	2,445.3	9.0	5.5	-51.48	23.8	888.0	634.9	621.6	13.29	47.765		
2,700.0	2,651.1	2,546.0	2,538.8	9.6	5.8	-54.06	36.3	901.9	636.0	621.8	14.15	44.943		
2,800.0	2,746.9	2,641.4	2,632.4	10.2	6.1	-56.62	48.9	915.8	638.5	623.5	15.03	42.479		
2,900.0	2,842.7	2,736.9	2,726.0	10.8	6.4	-59.16	61.5	929.7	642.4	626.4	15.93	40.333		
3,000.0	2,938.4	2,832.3	2,819.5	11.4	6.8	-61.66	74.0	943.6	647.6	630.8	16.83	38.470		
3,100.0	3,034.2	2,927.7	2,913.1	12.0	7.1	-64.12	86.6	957.5	654.2	636.4	17.75	36.855		
3,200.0	3,130.0	3,023.1	3,006.6	12.6	7.4	-66.54	99.2	971.4	662.1	643.4	18.67	35.457		
3,300.0	3,225.8	3,118.5	3,100.2	13.2	7.8	-68.90	111.7	985.3	671.2	651.6	19.60	34.248		
3,400.0	3,321.6	3,213.9	3,193.7	13.8	8.1	-71.19	124.3	999.2	681.5	661.0	20.52	33.205		
3,500.0	3,417.3	3,309.3	3,287.3	14.4	8.5	-73.42	136.9	1,013.1	692.9	671.5	21.45	32.305		
3,600.0	3,513.1	3,404.8	3,380.9	15.0	8.9	-75.58	149.5	1,027.0	705.5	683.1	22.37	31.531		
3,700.0	3,608.9	3,500.2	3,474.4	15.6	9.2	-77.67	162.0	1,040.9	719.0	695.7	23.30	30.865		
3,800.0	3,704.7	3,595.6	3,568.0	16.2	9.6	-79.68	174.6	1,054.8	733.5	709.3	24.21	30.295		
3,900.0	3,800.5	3,691.0	3,661.5	16.8	10.0	-81.62	187.2	1,068.7	749.0	723.9	25.13	29.806		
4,000.0	3,896.2	3,786.4	3,755.1	17.5	10.4	-83.48	199.7	1,082.6	765.3	739.3	26.04	29.389		
4,100.0	3,992.0	3,881.8	3,848.6	18.1	10.7	-85.27	212.3	1,096.5	782.4	755.5	26.95	29.035		
7,000.0	6,702.1	6,772.6	6,708.1	26.2	19.3	38.45	436.3	1,344.1	791.6	759.3	32.24	24.551		
7,050.0	6,726.6	6,797.1	6,732.6	26.0	19.4	43.49	436.3	1,344.1	751.5	719.0	32.42	23.182		
7,100.0	6,748.2	6,818.7	6,754.2	25.9	19.4	49.33	436.3	1,344.1	710.4	677.4	32.99	21.532		
7,150.0	6,766.8	6,837.3	6,772.8	25.7	19.5	55.90	436.3	1,344.1	668.7	634.8	33.87	19.741		
7,200.0	6,782.4	6,852.8	6,788.4	25.6	19.5	62.99	436.3	1,344.1	626.6	591.7	34.85	17.977		
7,250.0	6,794.8	6,865.2	6,800.8	25.4	19.5	70.23	436.3	1,344.1	584.6	548.9	35.71	16.371		
7,300.0	6,804.0	6,874.4	6,810.0	25.3	19.5	77.17	436.3	1,344.1	543.1	506.8	36.27	14.975		
7,350.0	6,809.9	6,880.4	6,815.9	25.2	19.5	83.39	436.3	1,344.1	502.6	466.1	36.49	13.773		
7,400.0	6,812.7	6,883.1	6,818.6	25.1	19.5	88.56	436.3	1,344.1	463.6	427.1	36.46	12.714		
7,418.0	6,812.8	6,883.3	6,818.8	25.1	19.5	90.13	436.3	1,344.1	450.0	413.6	36.42	12.357		
7,500.0	6,812.7	6,883.1	6,818.7	25.0	19.5	90.10	436.3	1,344.1	393.0	356.1	36.90	10.650		
7,600.0	6,812.5	6,882.9	6,818.4	24.9	19.5	90.06	436.3	1,344.1	337.6	300.0	37.64	8.970		
7,700.0	6,812.2	6,882.7	6,818.2	25.1	19.5	90.02	436.3	1,344.1	305.8	267.3	38.52	7.938		
7,752.3	6,812.1	6,882.6	6,818.1	25.3	19.5	90.00	436.3	1,344.1	301.3	262.3	39.06	7.715 CC, ES, SF		
7,800.0	6,812.0	6,882.5	6,818.0	25.5	19.5	89.98	436.3	1,344.1	305.1	265.5	39.54	7.715		
7,900.0	6,811.8	6,882.3	6,817.8	26.2	19.5	89.94	436.3	1,344.1	335.6	294.9	40.68	8.250		
8,000.0	6,811.6	6,882.1	6,817.6	27.1	19.5	89.90	436.3	1,344.1	390.1	348.2	41.91	9.308		
8,100.0	6,811.4	6,881.9	6,817.4	28.3	19.5	89.86	436.3	1,344.1	460.1	416.9	43.22	10.645		
8,200.0	6,811.2	6,881.6	6,817.2	29.5	19.5	89.82	436.3	1,344.1	539.7	495.1	44.61	12.098		
8,300.0	6,811.0	6,881.4	6,817.0	30.9	19.5	89.78	436.3	1,344.1	625.1	579.1	46.06	13.573		
8,400.0	6,810.8	6,881.2	6,816.8	32.3	19.5	89.74	436.3	1,344.1	714.4	666.8	47.56	15.021		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7Q-341
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7Q-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-11-15)	Offset TVD Reference:	Offset Datum

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7Q-341
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7Q-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-11-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells - Sec.7-T5N-R64W - Dunn #23-7 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7275-UNKNOWN													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						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		
7,600.0	6,812.5	6,797.4	6,797.4	24.9	135.9	-91.98	1,065.3	995.6	782.7	626.3	156.35	5.006		
7,700.0	6,812.2	6,797.2	6,797.2	25.1	135.9	-91.73	1,065.3	995.6	682.9	525.7	157.24	4.343		
7,800.0	6,812.0	6,797.0	6,797.0	25.5	135.9	-91.48	1,065.3	995.6	583.2	424.9	158.25	3.685		
7,900.0	6,811.8	6,796.8	6,796.8	26.2	135.9	-91.22	1,065.3	995.6	483.6	324.2	159.37	3.034		
8,000.0	6,811.6	6,796.6	6,796.6	27.1	135.9	-90.97	1,065.3	995.6	384.2	223.6	160.58	2.392		
8,100.0	6,811.4	6,796.4	6,796.4	28.3	135.9	-90.71	1,065.3	995.6	285.2	123.3	161.88	1.762		
8,200.0	6,811.2	6,796.2	6,796.2	29.5	135.9	-90.46	1,065.3	995.6	187.3	24.1	163.24	1.147	Level 2	
8,300.0	6,811.0	6,796.0	6,796.0	30.9	135.9	-90.21	1,065.3	995.6	94.0	-70.7	164.67	0.571	Level 1	
8,381.3	6,810.8	6,795.8	6,795.8	32.1	135.9	-90.00	1,065.3	995.6	47.3	-118.6	165.87	0.285	Level 1, CC, ES, SF	
8,400.0	6,810.8	6,795.8	6,795.8	32.3	135.9	-89.95	1,065.3	995.6	50.8	-115.3	166.14	0.306	Level 1	
8,500.0	6,810.6	6,795.6	6,795.6	33.8	135.9	-89.70	1,065.3	995.6	127.8	-39.9	167.66	0.762	Level 1	
8,600.0	6,810.4	6,795.3	6,795.3	35.3	135.9	-89.44	1,065.3	995.6	223.8	54.6	169.22	1.323	Level 3	
8,700.0	6,810.1	6,795.1	6,795.1	36.9	135.9	-89.19	1,065.3	995.6	322.2	151.4	170.80	1.887		
8,800.0	6,809.9	6,794.9	6,794.9	38.5	135.9	-88.94	1,065.3	995.6	421.4	249.0	172.41	2.444		
8,900.0	6,809.7	6,794.7	6,794.7	40.1	135.9	-88.68	1,065.3	995.6	520.9	346.8	174.05	2.993		
9,000.0	6,809.5	6,794.5	6,794.5	41.8	135.9	-88.43	1,065.3	995.6	620.5	444.8	175.70	3.532		
9,100.0	6,809.3	6,794.3	6,794.3	43.5	135.9	-88.18	1,065.3	995.6	720.3	542.9	177.37	4.061		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7Q-341
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7Q-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-11-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells - Sec.7-T5N-R64W - Little Will #7 (P&A) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7000-UNKNOWN													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (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		
14,500.0	6,798.0	6,783.0	6,783.0	143.0	135.7	-90.98	7,928.6	951.8	750.1	472.1	278.00	2.698		
14,600.0	6,797.8	6,782.8	6,782.8	144.9	135.7	-90.85	7,928.6	951.8	651.0	371.1	279.90	2.326		
14,700.0	6,797.6	6,782.6	6,782.6	146.8	135.7	-90.72	7,928.6	951.8	552.1	270.3	281.81	1.959		
14,800.0	6,797.4	6,782.4	6,782.4	148.7	135.6	-90.59	7,928.6	951.8	453.8	170.1	283.71	1.600		
14,900.0	6,797.2	6,782.2	6,782.2	150.6	135.6	-90.45	7,928.6	951.8	356.4	70.8	285.60	1.248	Level 2	
15,000.0	6,797.0	6,781.9	6,781.9	152.5	135.6	-90.32	7,928.6	951.8	260.9	-26.6	287.50	0.908	Level 1	
15,100.0	6,796.7	6,781.7	6,781.7	154.4	135.6	-90.19	7,928.6	951.8	170.8	-118.6	289.40	0.590	Level 1	
15,200.0	6,796.5	6,781.5	6,781.5	156.3	135.6	-90.06	7,928.6	951.8	101.3	-190.0	291.30	0.348	Level 1	
15,244.6	6,796.4	6,781.4	6,781.4	157.1	135.6	-90.00	7,928.6	951.8	91.0	-201.2	292.14	0.311	Level 1, CC, ES, SF	
15,300.0	6,796.3	6,781.3	6,781.3	158.2	135.6	-89.93	7,928.6	951.8	106.5	-186.7	293.19	0.363	Level 1	
15,400.0	6,796.1	6,781.1	6,781.1	160.1	135.6	-89.79	7,928.6	951.8	180.1	-115.0	295.09	0.610	Level 1	
15,500.0	6,795.9	6,780.9	6,780.9	162.0	135.6	-89.66	7,928.6	951.8	271.1	-25.8	296.98	0.913	Level 1	
15,600.0	6,795.7	6,780.7	6,780.7	163.9	135.6	-89.53	7,928.6	951.8	366.9	68.0	298.87	1.228	Level 2	
15,700.0	6,795.5	6,780.5	6,780.5	165.8	135.6	-89.40	7,928.6	951.8	464.4	163.7	300.76	1.544		
15,800.0	6,795.3	6,780.3	6,780.3	167.7	135.6	-89.27	7,928.6	951.8	562.8	260.2	302.65	1.860		
15,900.0	6,795.1	6,780.1	6,780.1	169.6	135.6	-89.14	7,928.6	951.8	661.7	357.2	304.54	2.173		
16,000.0	6,794.9	6,779.9	6,779.9	171.5	135.6	-89.00	7,928.6	951.8	760.9	454.5	306.43	2.483		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7Q-341
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7Q-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-11-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells - Sec.7-T5N-R64W - Silva #1 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 6976-UNKNOWN													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
11,900.0	6,803.4	6,764.4	6,764.4	94.0	135.3	-90.21	5,257.8	650.4	779.7	551.4	228.33	3.415		
12,000.0	6,803.2	6,764.2	6,764.2	95.9	135.3	-90.18	5,257.8	650.4	695.1	464.9	230.21	3.020		
12,100.0	6,803.0	6,764.0	6,764.0	97.7	135.3	-90.14	5,257.8	650.4	615.2	383.1	232.09	2.651		
12,200.0	6,802.8	6,763.8	6,763.8	99.6	135.3	-90.11	5,257.8	650.4	541.9	308.0	233.97	2.316		
12,300.0	6,802.6	6,763.6	6,763.6	101.5	135.3	-90.08	5,257.8	650.4	478.5	242.6	235.85	2.029		
12,400.0	6,802.4	6,763.4	6,763.4	103.4	135.3	-90.05	5,257.8	650.4	429.2	191.4	237.73	1.805		
12,500.0	6,802.2	6,763.2	6,763.2	105.2	135.3	-90.02	5,257.8	650.4	399.3	159.7	239.62	1.666		
12,573.8	6,802.0	6,763.0	6,763.0	106.6	135.3	-90.00	5,257.8	650.4	392.4	151.4	241.01	1.628	CC, ES, SF	
12,600.0	6,802.0	6,763.0	6,763.0	107.1	135.3	-89.99	5,257.8	650.4	393.3	151.8	241.50	1.628		
12,700.0	6,801.8	6,762.8	6,762.8	109.0	135.3	-89.96	5,257.8	650.4	412.2	168.8	243.39	1.694		
12,800.0	6,801.6	6,762.6	6,762.6	110.9	135.3	-89.93	5,257.8	650.4	452.9	207.7	245.27	1.847		
12,900.0	6,801.4	6,762.3	6,762.3	112.8	135.2	-89.90	5,257.8	650.4	510.3	263.1	247.16	2.065		
13,000.0	6,801.1	6,762.1	6,762.1	114.6	135.2	-89.87	5,257.8	650.4	579.4	330.3	249.05	2.326		
13,100.0	6,800.9	6,761.9	6,761.9	116.5	135.2	-89.84	5,257.8	650.4	656.4	405.5	250.94	2.616		
13,200.0	6,800.7	6,761.7	6,761.7	118.4	135.2	-89.81	5,257.8	650.4	739.0	486.2	252.83	2.923		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7Q-341
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7Q-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-11-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells - Sec.7-T5N-R64W - Silva #23-6 (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7100-UNKNOWN													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (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	6,801.1	6,771.1	6,771.1	114.6	135.4	-90.95	6,413.4	950.8	735.2	485.9	249.27	2.949		
13,100.0	6,800.9	6,770.9	6,770.9	116.5	135.4	-90.82	6,413.4	950.8	636.1	384.9	251.16	2.533		
13,200.0	6,800.7	6,770.7	6,770.7	118.4	135.4	-90.69	6,413.4	950.8	537.3	284.3	253.05	2.123		
13,300.0	6,800.5	6,770.5	6,770.5	120.3	135.4	-90.56	6,413.4	950.8	439.1	184.2	254.94	1.723		
13,400.0	6,800.3	6,770.3	6,770.3	122.2	135.4	-90.43	6,413.4	950.8	342.0	85.2	256.83	1.332 Level 3		
13,500.0	6,800.1	6,770.1	6,770.1	124.1	135.4	-90.30	6,413.4	950.8	247.2	-11.6	258.72	0.955 Level 1		
13,600.0	6,799.9	6,769.9	6,769.9	126.0	135.4	-90.17	6,413.4	950.8	158.8	-101.8	260.61	0.609 Level 1		
13,700.0	6,799.7	6,769.7	6,769.7	127.9	135.4	-90.04	6,413.4	950.8	96.6	-165.9	262.50	0.368 Level 1		
13,729.4	6,799.6	6,769.6	6,769.6	128.4	135.4	-90.00	6,413.4	950.8	92.0	-171.0	263.05	0.350 Level 1, CC, ES, SF		
13,800.0	6,799.5	6,769.5	6,769.5	129.7	135.4	-89.91	6,413.4	950.8	116.0	-148.4	264.39	0.439 Level 1		
13,900.0	6,799.3	6,769.2	6,769.2	131.6	135.4	-89.78	6,413.4	950.8	193.8	-72.4	266.27	0.728 Level 1		
14,000.0	6,799.0	6,769.0	6,769.0	133.5	135.4	-89.65	6,413.4	950.8	285.8	17.7	268.16	1.066 Level 2		
14,100.0	6,798.8	6,768.8	6,768.8	135.4	135.4	-89.52	6,413.4	950.8	381.9	111.8	270.05	1.414 Level 3		
14,200.0	6,798.6	6,768.6	6,768.6	137.3	135.4	-89.39	6,413.4	950.8	479.5	207.6	271.93	1.763		
14,300.0	6,798.4	6,768.4	6,768.4	139.2	135.4	-89.26	6,413.4	950.8	578.0	304.2	273.82	2.111		
14,400.0	6,798.2	6,768.2	6,768.2	141.1	135.4	-89.13	6,413.4	950.8	676.9	401.2	275.70	2.455		
14,500.0	6,798.0	6,768.0	6,768.0	143.0	135.4	-89.00	6,413.4	950.8	776.1	498.5	277.58	2.796		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7Q-341
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7Q-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-11-15)	Offset TVD Reference:	Offset Datum

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

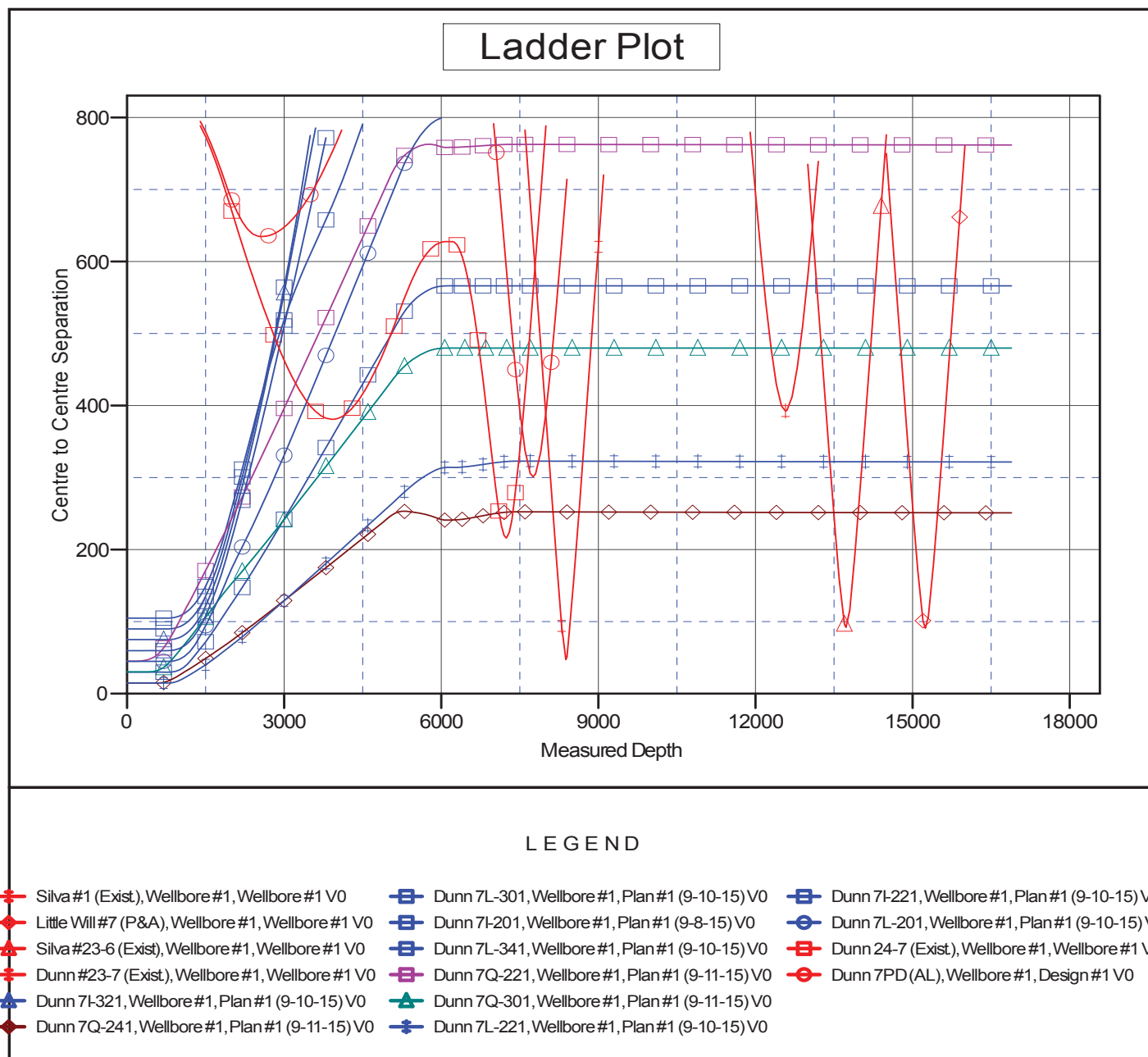
Offset Depths are relative to Offset Datum

Central Meridian is -105.500000

Coordinates are relative to: Dunn 7Q-341

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.58°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Dunn 7Q-341
Project:	SEC.7-T5N-R64W	TVD Reference:	WELL @ 4638.0ft (Original Well Elev)
Reference Site:	Dunn 5N64W7 Pad Sec.7-T5N-R64W	MD Reference:	WELL @ 4638.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Dunn 7Q-341	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (9-11-15)	Offset TVD Reference:	Offset Datum

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

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000

Coordinates are relative to: Dunn 7Q-341

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.58°

