

PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Tarin 32Y-404**

Surface Location: Tarin 32X-HZ Pad Sec.32-T4N-R66W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

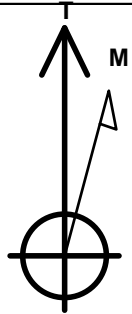
Ground Elevation: 4776.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1339526.00	3197254.51	40.263240	-104.793170	

RKB - 15' WELL @ 4791.0ft (RKB - 15')

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 853'FSL & 355'FEL, Sec.32	1.0	0.0	0.0	Point
BHL 75'FSL & 2141'FEL, Sec.31	7284.0	-818.7	-7080.6	Point



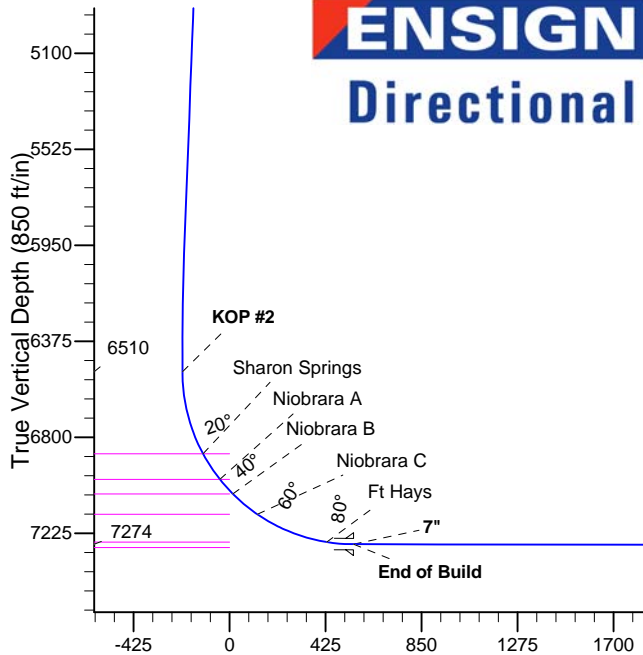
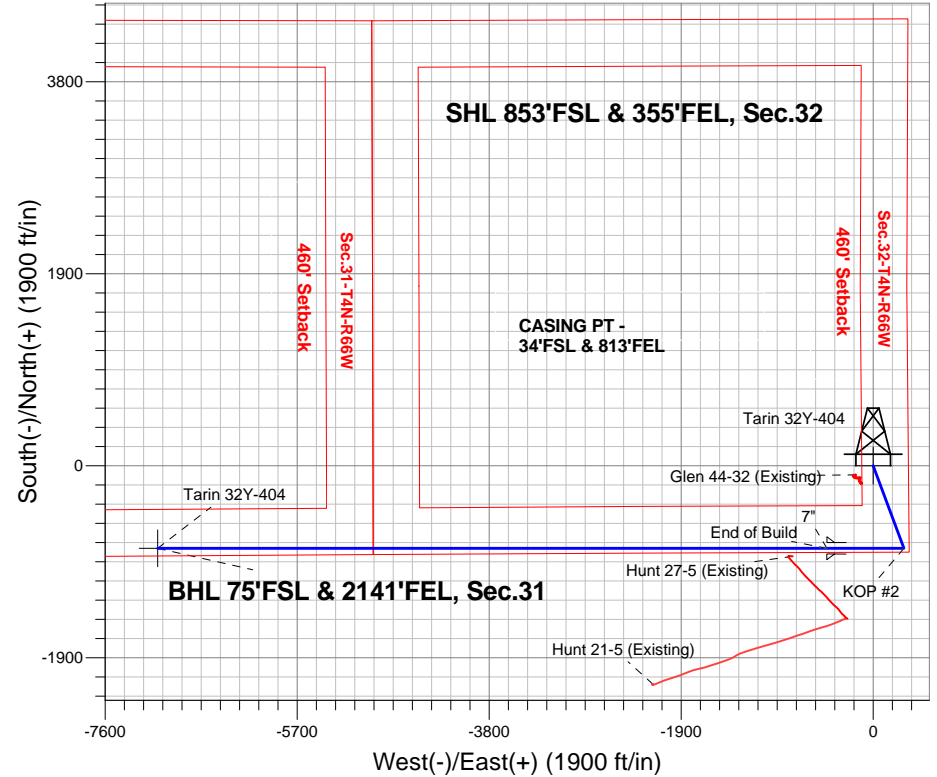
Azimuths to True North
Magnetic North: 8.45°

Magnetic Field
Strength: 52732.3nT
Dip Angle: 66.83°
Date: 7/15/2014
Model: IGRF2010

Tarin 32X-HZ Pad Sec.32-T4N-R66W
Tarin 32Y-404
Plan #2 (7-15-14)

ANNOTATIONS

TVD	MD	Annotation
500.0	500.0	KOP #1
6509.7	6577.4	KOP #2
7273.6	7776.2	End of Build



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	500.0	0.00	0.00	500.0	0.0	0.0	0.00	0.00	0.0	
3	955.9	9.12	159.57	954.0	-33.9	12.6	2.00	159.57	-8.7	
4	6011.8	9.12	159.57	5946.0	-784.7	292.4	0.00	0.00	-200.3	
5	6467.7	0.00	0.00	6400.0	-818.7	305.0	2.00	180.00	-209.0	
6	6577.4	0.00	0.00	6509.7	-818.7	305.0	0.00	0.00	-209.0	
7	7776.2	89.91	270.00	7273.6	-818.7	-457.7	7.50	270.00	548.7	
8	14399.1	89.91	270.00	7284.0	-818.7	-7080.6	0.00	0.00	7127.8	BHL 75'FSL & 2141'FEL, Sec.31

BHL 75'FSL & 2141'FEL, Sec.31

Vertical Section at 263.40° (850 ft/in)



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.32-T4N-R66W

Tarin 32X-HZ Pad Sec.32-T4N-R66W

Tarin 32Y-404

Wellbore #1

Plan: Plan #2 (7-15-14)

Standard Planning Report

15 July, 2014

Database:	landmark	Local Co-ordinate Reference:	Well Tarin 32Y-404
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4791.0ft (RKB - 15')
Project:	SEC.32-T4N-R66W	MD Reference:	WELL @ 4791.0ft (RKB - 15')
Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	North Reference:	True
Well:	Tarin 32Y-404	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (7-15-14)		

Project	SEC.32-T4N-R66W, 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	Tarin 32X-HZ Pad Sec.32-T4N-R66W		
Site Position:		Northing:	1,339,733.63 ft
From:	Lat/Long	Easting:	3,197,250.06 ft
Position Uncertainty:	0.0 ft	Slot Radius:	"
		Latitude:	40.263810
		Longitude:	-104.793180
		Grid Convergence:	0.46 °

Well	Tarin 32Y-404		
Well Position	+N/-S	-207.7 ft	Northing:
	+E/-W	2.8 ft	Easting:
Position Uncertainty		0.0 ft	Wellhead Elevation:
			Latitude:
			Longitude:
			Ground Level:

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/15/2014	8.45	66.83	52,732

Design	Plan #2 (7-15-14)			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	263.40

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.00	0.00	0.00	0.00	
955.9	9.12	159.57	954.0	-33.9	12.6	2.00	2.00	0.00	159.57	
6,011.8	9.12	159.57	5,946.0	-784.7	292.4	0.00	0.00	0.00	0.00	
6,467.7	0.00	0.00	6,400.0	-818.7	305.0	2.00	-2.00	0.00	180.00	
6,577.4	0.00	0.00	6,509.7	-818.7	305.0	0.00	0.00	0.00	0.00	
7,776.2	89.91	270.00	7,273.6	-818.7	-457.7	7.50	7.50	0.00	270.00	
14,399.1	89.91	270.00	7,284.0	-818.7	-7,080.6	0.00	0.00	0.00	0.00	BHL 75'FSL & 2141

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Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4791.0ft (RKB - 15')
Project:	SEC.32-T4N-R66W	MD Reference:	WELL @ 4791.0ft (RKB - 15')
Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	North Reference:	True
Well:	Tarin 32Y-404	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (7-15-14)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP #1									
600.0	2.00	159.57	600.0	-1.6	0.6	-0.4	2.00	2.00	0.00
700.0	4.00	159.57	699.8	-6.5	2.4	-1.7	2.00	2.00	0.00
800.0	6.00	159.57	799.5	-14.7	5.5	-3.8	2.00	2.00	0.00
900.0	8.00	159.57	898.7	-26.1	9.7	-6.7	2.00	2.00	0.00
955.9	9.12	159.57	954.0	-33.9	12.6	-8.7	2.00	2.00	0.00
1,000.0	9.12	159.57	997.5	-40.5	15.1	-10.3	0.00	0.00	0.00
1,100.0	9.12	159.57	1,096.3	-55.3	20.6	-14.1	0.00	0.00	0.00
1,200.0	9.12	159.57	1,195.0	-70.2	26.1	-17.9	0.00	0.00	0.00
1,300.0	9.12	159.57	1,293.7	-85.0	31.7	-21.7	0.00	0.00	0.00
1,400.0	9.12	159.57	1,392.5	-99.9	37.2	-25.5	0.00	0.00	0.00
1,500.0	9.12	159.57	1,491.2	-114.7	42.7	-29.3	0.00	0.00	0.00
1,600.0	9.12	159.57	1,589.9	-129.6	48.3	-33.1	0.00	0.00	0.00
1,700.0	9.12	159.57	1,688.7	-144.4	53.8	-36.9	0.00	0.00	0.00
1,800.0	9.12	159.57	1,787.4	-159.3	59.3	-40.7	0.00	0.00	0.00
1,900.0	9.12	159.57	1,886.1	-174.1	64.9	-44.4	0.00	0.00	0.00
2,000.0	9.12	159.57	1,984.9	-189.0	70.4	-48.2	0.00	0.00	0.00
2,100.0	9.12	159.57	2,083.6	-203.8	75.9	-52.0	0.00	0.00	0.00
2,200.0	9.12	159.57	2,182.4	-218.7	81.5	-55.8	0.00	0.00	0.00
2,300.0	9.12	159.57	2,281.1	-233.5	87.0	-59.6	0.00	0.00	0.00
2,400.0	9.12	159.57	2,379.8	-248.4	92.5	-63.4	0.00	0.00	0.00
2,500.0	9.12	159.57	2,478.6	-263.2	98.1	-67.2	0.00	0.00	0.00
2,600.0	9.12	159.57	2,577.3	-278.1	103.6	-71.0	0.00	0.00	0.00
2,700.0	9.12	159.57	2,676.0	-292.9	109.1	-74.8	0.00	0.00	0.00
2,800.0	9.12	159.57	2,774.8	-307.8	114.7	-78.6	0.00	0.00	0.00
2,900.0	9.12	159.57	2,873.5	-322.6	120.2	-82.3	0.00	0.00	0.00
3,000.0	9.12	159.57	2,972.2	-337.5	125.7	-86.1	0.00	0.00	0.00
3,100.0	9.12	159.57	3,071.0	-352.3	131.3	-89.9	0.00	0.00	0.00
3,200.0	9.12	159.57	3,169.7	-367.2	136.8	-93.7	0.00	0.00	0.00
3,300.0	9.12	159.57	3,268.5	-382.0	142.3	-97.5	0.00	0.00	0.00
3,400.0	9.12	159.57	3,367.2	-396.9	147.9	-101.3	0.00	0.00	0.00
3,500.0	9.12	159.57	3,465.9	-411.7	153.4	-105.1	0.00	0.00	0.00
3,600.0	9.12	159.57	3,564.7	-426.6	158.9	-108.9	0.00	0.00	0.00
3,700.0	9.12	159.57	3,663.4	-441.4	164.5	-112.7	0.00	0.00	0.00
3,747.2	9.12	159.57	3,710.0	-448.4	167.1	-114.5	0.00	0.00	0.00
Parkman									
3,800.0	9.12	159.57	3,762.1	-456.3	170.0	-116.5	0.00	0.00	0.00
3,900.0	9.12	159.57	3,860.9	-471.1	175.5	-120.3	0.00	0.00	0.00
4,000.0	9.12	159.57	3,959.6	-486.0	181.1	-124.0	0.00	0.00	0.00
4,100.0	9.12	159.57	4,058.3	-500.8	186.6	-127.8	0.00	0.00	0.00
4,200.0	9.12	159.57	4,157.1	-515.7	192.1	-131.6	0.00	0.00	0.00
4,300.0	9.12	159.57	4,255.8	-530.5	197.7	-135.4	0.00	0.00	0.00
4,400.0	9.12	159.57	4,354.6	-545.4	203.2	-139.2	0.00	0.00	0.00
4,435.9	9.12	159.57	4,390.0	-550.7	205.2	-140.6	0.00	0.00	0.00
Sussex									
4,500.0	9.12	159.57	4,453.3	-560.2	208.7	-143.0	0.00	0.00	0.00
4,600.0	9.12	159.57	4,552.0	-575.1	214.3	-146.8	0.00	0.00	0.00

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Project:	SEC.32-T4N-R66W	MD Reference:	WELL @ 4791.0ft (RKB - 15')
Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	North Reference:	True
Well:	Tarin 32Y-404	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (7-15-14)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,700.0	9.12	159.57	4,650.8	-589.9	219.8	-150.6	0.00	0.00	0.00
4,800.0	9.12	159.57	4,749.5	-604.8	225.3	-154.4	0.00	0.00	0.00
4,851.1	9.12	159.57	4,800.0	-612.4	228.1	-156.3	0.00	0.00	0.00
Shannon									
4,900.0	9.12	159.57	4,848.2	-619.6	230.8	-158.2	0.00	0.00	0.00
5,000.0	9.12	159.57	4,947.0	-634.5	236.4	-161.9	0.00	0.00	0.00
5,100.0	9.12	159.57	5,045.7	-649.3	241.9	-165.7	0.00	0.00	0.00
5,200.0	9.12	159.57	5,144.4	-664.2	247.4	-169.5	0.00	0.00	0.00
5,300.0	9.12	159.57	5,243.2	-679.0	253.0	-173.3	0.00	0.00	0.00
5,400.0	9.12	159.57	5,341.9	-693.9	258.5	-177.1	0.00	0.00	0.00
5,500.0	9.12	159.57	5,440.7	-708.7	264.0	-180.9	0.00	0.00	0.00
5,600.0	9.12	159.57	5,539.4	-723.6	269.6	-184.7	0.00	0.00	0.00
5,700.0	9.12	159.57	5,638.1	-738.4	275.1	-188.5	0.00	0.00	0.00
5,800.0	9.12	159.57	5,736.9	-753.3	280.6	-192.3	0.00	0.00	0.00
5,900.0	9.12	159.57	5,835.6	-768.1	286.2	-196.1	0.00	0.00	0.00
6,000.0	9.12	159.57	5,934.3	-783.0	291.7	-199.8	0.00	0.00	0.00
6,011.8	9.12	159.57	5,946.0	-784.7	292.4	-200.3	0.00	0.00	0.00
6,100.0	7.35	159.57	6,033.3	-796.6	296.8	-203.3	2.00	-2.00	0.00
6,200.0	5.35	159.57	6,132.7	-806.9	300.6	-206.0	2.00	-2.00	0.00
6,300.0	3.35	159.57	6,232.4	-814.1	303.3	-207.8	2.00	-2.00	0.00
6,400.0	1.35	159.57	6,332.3	-817.9	304.7	-208.8	2.00	-2.00	0.00
6,467.7	0.00	0.00	6,400.0	-818.7	305.0	-209.0	2.00	-2.00	0.00
6,500.0	0.00	0.00	6,432.3	-818.7	305.0	-209.0	0.00	0.00	0.00
6,577.4	0.00	0.00	6,509.7	-818.7	305.0	-209.0	0.00	0.00	0.00
KOP #2									
6,600.0	1.70	270.00	6,532.3	-818.7	304.7	-208.6	7.50	7.50	0.00
6,700.0	9.20	270.00	6,631.7	-818.7	295.2	-199.2	7.50	7.50	0.00
6,800.0	16.70	270.00	6,729.1	-818.7	272.8	-177.0	7.50	7.50	0.00
6,900.0	24.20	270.00	6,822.8	-818.7	237.9	-142.3	7.50	7.50	0.00
6,956.1	28.40	270.00	6,873.0	-818.7	213.1	-117.6	7.50	7.50	0.00
Sharon Springs									
7,000.0	31.70	270.00	6,911.0	-818.7	191.1	-95.8	7.50	7.50	0.00
7,091.7	38.57	270.00	6,986.0	-818.7	138.3	-43.4	7.50	7.50	0.00
Niobrara A									
7,100.0	39.20	270.00	6,992.4	-818.7	133.1	-38.2	7.50	7.50	0.00
7,179.0	45.12	270.00	7,051.0	-818.7	80.1	14.5	7.50	7.50	0.00
Niobrara B									
7,200.0	46.70	270.00	7,065.6	-818.7	65.0	29.4	7.50	7.50	0.00
7,300.0	54.20	270.00	7,129.2	-818.7	-12.0	106.0	7.50	7.50	0.00
7,320.5	55.73	270.00	7,141.0	-818.7	-28.8	122.7	7.50	7.50	0.00
Niobrara C									
7,400.0	61.70	270.00	7,182.3	-818.7	-96.7	190.1	7.50	7.50	0.00
7,500.0	69.20	270.00	7,223.8	-818.7	-187.6	280.4	7.50	7.50	0.00
7,600.0	76.70	270.00	7,253.1	-818.7	-283.1	375.3	7.50	7.50	0.00
7,656.2	80.91	270.00	7,264.0	-818.7	-338.2	430.0	7.50	7.50	0.00
Ft Hays									
7,700.0	84.20	270.00	7,269.7	-818.7	-381.7	473.2	7.50	7.50	0.00
7,776.2	89.91	270.00	7,273.6	-818.7	-457.8	548.8	7.50	7.50	0.00
End of Build - 7"									
7,800.0	89.91	270.00	7,273.6	-818.7	-481.6	572.4	0.00	0.00	0.00
7,900.0	89.91	270.00	7,273.8	-818.7	-581.6	671.7	0.00	0.00	0.00
8,000.0	89.91	270.00	7,273.9	-818.7	-681.6	771.1	0.00	0.00	0.00

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Project:	SEC.32-T4N-R66W	MD Reference:	WELL @ 4791.0ft (RKB - 15')
Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	North Reference:	True
Well:	Tarin 32Y-404	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (7-15-14)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,100.0	89.91	270.00	7,274.1	-818.7	-781.6	870.4	0.00	0.00	0.00
8,200.0	89.91	270.00	7,274.3	-818.7	-881.6	969.7	0.00	0.00	0.00
8,300.0	89.91	270.00	7,274.4	-818.7	-981.6	1,069.1	0.00	0.00	0.00
8,400.0	89.91	270.00	7,274.6	-818.7	-1,081.6	1,168.4	0.00	0.00	0.00
8,500.0	89.91	270.00	7,274.7	-818.7	-1,181.6	1,267.8	0.00	0.00	0.00
8,600.0	89.91	270.00	7,274.9	-818.7	-1,281.6	1,367.1	0.00	0.00	0.00
8,700.0	89.91	270.00	7,275.0	-818.7	-1,381.6	1,466.4	0.00	0.00	0.00
8,800.0	89.91	270.00	7,275.2	-818.7	-1,481.6	1,565.8	0.00	0.00	0.00
8,900.0	89.91	270.00	7,275.4	-818.7	-1,581.6	1,665.1	0.00	0.00	0.00
9,000.0	89.91	270.00	7,275.5	-818.7	-1,681.6	1,764.5	0.00	0.00	0.00
9,100.0	89.91	270.00	7,275.7	-818.7	-1,781.6	1,863.8	0.00	0.00	0.00
9,200.0	89.91	270.00	7,275.8	-818.7	-1,881.6	1,963.1	0.00	0.00	0.00
9,300.0	89.91	270.00	7,276.0	-818.7	-1,981.6	2,062.5	0.00	0.00	0.00
9,400.0	89.91	270.00	7,276.1	-818.7	-2,081.6	2,161.8	0.00	0.00	0.00
9,500.0	89.91	270.00	7,276.3	-818.7	-2,181.6	2,261.1	0.00	0.00	0.00
9,600.0	89.91	270.00	7,276.5	-818.7	-2,281.6	2,360.5	0.00	0.00	0.00
9,700.0	89.91	270.00	7,276.6	-818.7	-2,381.6	2,459.8	0.00	0.00	0.00
9,800.0	89.91	270.00	7,276.8	-818.7	-2,481.6	2,559.2	0.00	0.00	0.00
9,900.0	89.91	270.00	7,276.9	-818.7	-2,581.6	2,658.5	0.00	0.00	0.00
10,000.0	89.91	270.00	7,277.1	-818.7	-2,681.6	2,757.8	0.00	0.00	0.00
10,100.0	89.91	270.00	7,277.2	-818.7	-2,781.6	2,857.2	0.00	0.00	0.00
10,200.0	89.91	270.00	7,277.4	-818.7	-2,881.6	2,956.5	0.00	0.00	0.00
10,300.0	89.91	270.00	7,277.6	-818.7	-2,981.6	3,055.8	0.00	0.00	0.00
10,400.0	89.91	270.00	7,277.7	-818.7	-3,081.6	3,155.2	0.00	0.00	0.00
10,500.0	89.91	270.00	7,277.9	-818.7	-3,181.6	3,254.5	0.00	0.00	0.00
10,600.0	89.91	270.00	7,278.0	-818.7	-3,281.6	3,353.9	0.00	0.00	0.00
10,700.0	89.91	270.00	7,278.2	-818.7	-3,381.6	3,453.2	0.00	0.00	0.00
10,800.0	89.91	270.00	7,278.3	-818.7	-3,481.6	3,552.5	0.00	0.00	0.00
10,900.0	89.91	270.00	7,278.5	-818.7	-3,581.6	3,651.9	0.00	0.00	0.00
11,000.0	89.91	270.00	7,278.7	-818.7	-3,681.6	3,751.2	0.00	0.00	0.00
11,100.0	89.91	270.00	7,278.8	-818.7	-3,781.6	3,850.6	0.00	0.00	0.00
11,200.0	89.91	270.00	7,279.0	-818.7	-3,881.6	3,949.9	0.00	0.00	0.00
11,300.0	89.91	270.00	7,279.1	-818.7	-3,981.6	4,049.2	0.00	0.00	0.00
11,400.0	89.91	270.00	7,279.3	-818.7	-4,081.6	4,148.6	0.00	0.00	0.00
11,500.0	89.91	270.00	7,279.4	-818.7	-4,181.6	4,247.9	0.00	0.00	0.00
11,600.0	89.91	270.00	7,279.6	-818.7	-4,281.6	4,347.2	0.00	0.00	0.00
11,700.0	89.91	270.00	7,279.8	-818.7	-4,381.6	4,446.6	0.00	0.00	0.00
11,800.0	89.91	270.00	7,279.9	-818.7	-4,481.6	4,545.9	0.00	0.00	0.00
11,900.0	89.91	270.00	7,280.1	-818.7	-4,581.6	4,645.3	0.00	0.00	0.00
12,000.0	89.91	270.00	7,280.2	-818.7	-4,681.6	4,744.6	0.00	0.00	0.00
12,100.0	89.91	270.00	7,280.4	-818.7	-4,781.6	4,843.9	0.00	0.00	0.00
12,200.0	89.91	270.00	7,280.5	-818.7	-4,881.6	4,943.3	0.00	0.00	0.00
12,300.0	89.91	270.00	7,280.7	-818.7	-4,981.6	5,042.6	0.00	0.00	0.00
12,400.0	89.91	270.00	7,280.9	-818.7	-5,081.6	5,141.9	0.00	0.00	0.00
12,500.0	89.91	270.00	7,281.0	-818.7	-5,181.5	5,241.3	0.00	0.00	0.00
12,600.0	89.91	270.00	7,281.2	-818.7	-5,281.5	5,340.6	0.00	0.00	0.00
12,700.0	89.91	270.00	7,281.3	-818.7	-5,381.5	5,440.0	0.00	0.00	0.00
12,800.0	89.91	270.00	7,281.5	-818.7	-5,481.5	5,539.3	0.00	0.00	0.00
12,900.0	89.91	270.00	7,281.6	-818.7	-5,581.5	5,638.6	0.00	0.00	0.00
13,000.0	89.91	270.00	7,281.8	-818.7	-5,681.5	5,738.0	0.00	0.00	0.00
13,100.0	89.91	270.00	7,282.0	-818.7	-5,781.5	5,837.3	0.00	0.00	0.00
13,200.0	89.91	270.00	7,282.1	-818.7	-5,881.5	5,936.7	0.00	0.00	0.00
13,300.0	89.91	270.00	7,282.3	-818.7	-5,981.5	6,036.0	0.00	0.00	0.00

Database:	landmark	Local Co-ordinate Reference:	Well Tarin 32Y-404
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4791.0ft (RKB - 15')
Project:	SEC.32-T4N-R66W	MD Reference:	WELL @ 4791.0ft (RKB - 15')
Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	North Reference:	True
Well:	Tarin 32Y-404	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (7-15-14)		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
13,400.0	89.91	270.00	7,282.4	-818.7	-6,081.5	6,135.3	0.00	0.00	0.00
13,500.0	89.91	270.00	7,282.6	-818.7	-6,181.5	6,234.7	0.00	0.00	0.00
13,600.0	89.91	270.00	7,282.7	-818.7	-6,281.5	6,334.0	0.00	0.00	0.00
13,700.0	89.91	270.00	7,282.9	-818.7	-6,381.5	6,433.3	0.00	0.00	0.00
13,800.0	89.91	270.00	7,283.1	-818.7	-6,481.5	6,532.7	0.00	0.00	0.00
13,900.0	89.91	270.00	7,283.2	-818.7	-6,581.5	6,632.0	0.00	0.00	0.00
14,000.0	89.91	270.00	7,283.4	-818.7	-6,681.5	6,731.4	0.00	0.00	0.00
14,100.0	89.91	270.00	7,283.5	-818.7	-6,781.5	6,830.7	0.00	0.00	0.00
14,200.0	89.91	270.00	7,283.7	-818.7	-6,881.5	6,930.0	0.00	0.00	0.00
14,300.0	89.91	270.00	7,283.8	-818.7	-6,981.5	7,029.4	0.00	0.00	0.00
14,399.1	89.91	270.00	7,284.0	-818.7	-7,080.6	7,127.8	0.00	0.00	0.00

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,776.2	7,273.6	7"	7	7-1/2

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,747.2	3,710.0	Parkman		0.00	
4,435.9	4,390.0	Sussex		0.00	
4,851.1	4,800.0	Shannon		0.00	
6,956.1	6,873.0	Sharon Springs		0.00	
7,091.7	6,986.0	Niobrara A		0.00	
7,179.0	7,051.0	Niobrara B		0.00	
7,320.5	7,141.0	Niobrara C		0.00	
7,656.2	7,264.0	Ft Hays		0.00	
	7,288.0	Codell		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Comment
500.0	500.0	0.0	0.0	KOP #1
6,577.4	6,509.7	-818.7	305.0	KOP #2
7,776.2	7,273.6	-818.7	-457.8	End of Build



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.32-T4N-R66W

Tarin 32X-HZ Pad Sec.32-T4N-R66W

Tarin 32Y-404

Wellbore #1

Plan #2 (7-15-14)

Anticollision Report

15 July, 2014



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin 32Y-404
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4791.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4791.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin 32Y-404	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-15-14)	Offset TVD Reference:	Offset Datum

Reference	Plan #2 (7-15-14)
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria
Interpolation Method:	MD Interval 100.0ft
Depth Range:	Unlimited
Results Limited by:	Maximum center-center distance of 1,000.0ft
Warning Levels Evaluated at:	2.00 Sigma
Error Model:	ISCWSA
Scan Method:	Closest Approach 3D
Error Surface:	Elliptical Conic

Survey Tool Program		Date	7/15/2014		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	14,399.1	Plan #2 (7-15-14) (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						
Tarin 32X-HZ Pad Sec.32-T4N-R66W						
Tarin 32W-234 - Wellbore #1 - Plan #1 (4-14-14)	200.0	198.0	207.7	207.0	310.037	CC, ES
Tarin 32W-234 - Wellbore #1 - Plan #1 (4-14-14)	2,700.0	2,496.2	986.3	973.5	77.235	SF
Tarin 32W-434 - Wellbore #1 - Plan #1 (5-14-14)	400.0	398.0	178.5	176.9	113.782	CC, ES
Tarin 32W-434 - Wellbore #1 - Plan #1 (5-14-14)	3,300.0	3,138.7	989.6	973.9	63.116	SF
Tarin 32X-204 - Wellbore #1 - Plan #2 (5-14-14)	500.0	499.0	87.4	85.4	43.270	CC, ES
Tarin 32X-204 - Wellbore #1 - Plan #2 (5-14-14)	900.0	897.7	114.0	110.3	30.695	SF
Tarin 32X-314 - Wellbore #1 - Plan #1 (4-14-14)	500.0	499.0	149.4	147.3	73.921	CC, ES
Tarin 32X-314 - Wellbore #1 - Plan #1 (4-14-14)	900.0	881.4	188.9	185.2	50.875	SF
Tarin 32X-404 - Wellbore #1 - Plan #1 (4-14-14)	500.0	499.0	120.2	118.2	59.498	CC, ES
Tarin 32X-404 - Wellbore #1 - Plan #1 (4-14-14)	1,100.0	1,091.6	177.7	173.1	38.725	SF
Tarin 32Y-314 - Wellbore #1 - Plan #2 (5-22-14)	500.0	500.0	29.1	27.1	14.407	CC
Tarin 32Y-314 - Wellbore #1 - Plan #2 (5-22-14)	14,399.1	14,273.7	335.0	-31.1	0.915	Level 1, ES, SF
Tarin 32Y-414 - Wellbore #1 - Plan #2 (5-22-14)	500.0	499.0	58.3	56.3	28.844	CC
Tarin 32Y-414 - Wellbore #1 - Plan #2 (5-22-14)	14,399.1	14,371.0	408.8	4.5	1.011	Level 2, ES, SF
Tarin Existing Wells Sec.32-T4N-R66W						
Glen 44-32 (Existing) - Wellbore #1 - Wellbore #1	1,395.6	1,373.3	174.7	167.9	25.624	CC
Glen 44-32 (Existing) - Wellbore #1 - Wellbore #1	1,400.0	1,377.6	174.7	167.8	25.523	ES
Glen 44-32 (Existing) - Wellbore #1 - Wellbore #1	2,000.0	1,966.7	206.2	195.9	20.001	SF
Hunt 21-5 (Existing) - Wellbore #1 - Wellbore #1						Out of range
Hunt 27-5 (Existing) - Wellbore #1 - Wellbore #1	8,136.5	7,371.9	76.7	29.9	1.639	CC, ES, SF

Offset Design		Tarin 32X-HZ Pad Sec.32-T4N-R66W - Tarin 32W-234 - Wellbore #1 - Plan #1 (4-14-14)										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	
Depth (ft)	Depth (ft)	Depth (ft)	Depth (ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
0.0	0.0	0.0	0.0	0.0	0.0	-0.77	207.6	-2.8	207.7						
100.0	100.0	98.0	98.0	0.1	0.1	-0.77	207.6	-2.8	207.7	207.4	0.22	933.225			
200.0	200.0	198.0	198.0	0.3	0.3	-0.77	207.6	-2.8	207.7	207.0	0.67	310.037 CC, ES			
300.0	300.0	291.5	291.5	0.6	0.5	-0.67	209.1	-2.5	209.2	208.1	1.11	188.955			
400.0	400.0	384.7	384.6	0.8	0.8	-0.38	213.4	-1.4	213.9	212.3	1.55	137.851			
500.0	500.0	477.6	477.1	1.0	1.0	0.08	220.7	0.3	221.7	219.7	2.00	110.927			

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 Tarin 32Y-404
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4791.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4791.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin 32Y-404	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-15-14)	Offset TVD Reference:	Offset Datum

Offset Design													Tarin 32X-HZ Pad Sec.32-T4N-R66W - Tarin 32W-234 - Wellbore #1 - Plan #1 (4-14-14)		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)					
600.0	600.0	569.6	568.6	1.2	1.2	-158.95	230.8	2.7	234.3	231.9	2.44	96.063				
700.0	699.8	660.3	658.3	1.4	1.5	-158.53	243.5	5.7	253.2	250.3	2.87	88.273				
800.0	799.5	749.0	745.7	1.6	1.8	-158.23	258.7	9.3	278.3	275.0	3.31	84.079				
900.0	898.7	835.4	830.2	1.9	2.2	-158.01	275.9	13.4	309.3	305.5	3.76	82.290				
1,000.0	997.5	921.5	914.0	2.2	2.5	-157.97	295.5	18.1	345.7	341.5	4.21	82.058				
1,100.0	1,096.3	1,014.2	1,003.8	2.5	3.0	-158.08	317.3	23.3	383.4	378.7	4.68	81.871				
1,200.0	1,195.0	1,106.8	1,093.7	2.8	3.4	-158.17	339.0	28.4	421.1	415.9	5.16	81.686				
1,300.0	1,293.7	1,199.4	1,183.6	3.2	3.9	-158.25	360.8	33.6	458.8	453.1	5.64	81.386				
1,400.0	1,392.5	1,292.0	1,273.5	3.5	4.3	-158.32	382.6	38.8	496.5	490.3	6.13	81.021				
1,500.0	1,491.2	1,384.7	1,363.4	3.9	4.7	-158.37	404.4	44.0	534.1	527.5	6.62	80.658				
1,600.0	1,589.9	1,477.3	1,453.3	4.2	5.2	-158.42	426.2	49.1	571.8	564.7	7.12	80.289				
1,700.0	1,688.7	1,569.9	1,543.1	4.6	5.7	-158.46	447.9	54.3	609.5	601.9	7.63	79.929				
1,800.0	1,787.4	1,662.6	1,633.0	5.0	6.1	-158.50	469.7	59.5	647.2	639.0	8.13	79.583				
1,900.0	1,886.1	1,755.2	1,722.9	5.3	6.6	-158.53	491.5	64.7	684.9	676.2	8.64	79.254				
2,000.0	1,984.9	1,847.8	1,812.8	5.7	7.0	-158.56	513.3	69.8	722.5	713.4	9.15	78.944				
2,100.0	2,083.6	1,940.4	1,902.7	6.1	7.5	-158.59	535.0	75.0	760.2	750.6	9.67	78.651				
2,200.0	2,182.4	2,033.1	1,992.6	6.5	7.9	-158.61	556.8	80.2	797.9	787.7	10.18	78.377				
2,300.0	2,281.1	2,125.7	2,082.4	6.8	8.4	-158.63	578.6	85.4	835.6	824.9	10.70	78.119				
2,400.0	2,379.8	2,218.3	2,172.3	7.2	8.9	-158.65	600.4	90.5	873.3	862.0	11.21	77.877				
2,500.0	2,478.6	2,311.0	2,262.2	7.6	9.3	-158.67	622.1	95.7	910.9	899.2	11.73	77.650				
2,600.0	2,577.3	2,403.6	2,352.1	8.0	9.8	-158.69	643.9	100.9	948.6	936.4	12.25	77.436				
2,700.0	2,676.0	2,496.2	2,442.0	8.3	10.2	-158.70	665.7	106.1	986.3	973.5	12.77	77.235 SF				

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin 32Y-404
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4791.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4791.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin 32Y-404	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-15-14)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Tarin 32X-HZ Pad Sec.32-T4N-R66W - Tarin 32W-434 - Wellbore #1 - Plan #1 (5-14-14)														
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	0.00	178.5	0.0	178.5					
100.0	100.0	98.0	98.0	0.1	0.1	0.00	178.5	0.0	178.5	178.3	0.22	802.206		
200.0	200.0	198.0	198.0	0.3	0.3	0.00	178.5	0.0	178.5	177.8	0.67	266.509		
300.0	300.0	298.0	298.0	0.6	0.6	0.00	178.5	0.0	178.5	177.4	1.12	159.477		
400.0	400.0	398.0	398.0	0.8	0.8	0.00	178.5	0.0	178.5	176.9	1.57	113.782 CC, ES		
500.0	500.0	492.5	492.5	1.0	1.0	0.15	179.9	0.5	180.0	178.0	2.01	89.702		
600.0	600.0	586.6	586.4	1.2	1.2	-159.12	184.3	1.9	186.3	183.8	2.43	76.627		
700.0	699.8	679.8	679.3	1.4	1.4	-158.86	191.5	4.2	198.9	196.0	2.85	69.806		
800.0	799.5	771.6	770.6	1.6	1.7	-158.66	201.4	7.5	217.8	214.5	3.28	66.341		
900.0	898.7	861.6	859.6	1.9	1.9	-158.49	213.8	11.5	242.8	239.0	3.73	65.144		
1,000.0	997.5	953.1	949.8	2.2	2.2	-158.46	228.7	16.4	273.1	268.9	4.18	65.323		
1,100.0	1,096.3	1,048.2	1,043.3	2.5	2.6	-158.56	244.6	21.6	304.2	299.6	4.64	65.541		
1,200.0	1,195.0	1,143.2	1,136.9	2.8	2.9	-158.64	260.5	26.8	335.4	330.3	5.11	65.649		
1,300.0	1,293.7	1,238.2	1,230.4	3.2	3.2	-158.70	276.3	32.0	366.5	360.9	5.58	65.635		
1,400.0	1,392.5	1,333.2	1,324.0	3.5	3.6	-158.76	292.2	37.2	397.7	391.6	6.07	65.563		
1,500.0	1,491.2	1,428.3	1,417.5	3.9	3.9	-158.81	308.1	42.4	428.8	422.3	6.56	65.405		
1,600.0	1,589.9	1,523.3	1,511.1	4.2	4.3	-158.85	323.9	47.6	460.0	452.9	7.05	65.259		
1,700.0	1,688.7	1,618.3	1,604.6	4.6	4.7	-158.89	339.8	52.8	491.1	483.6	7.54	65.099		
1,800.0	1,787.4	1,713.3	1,698.1	5.0	5.0	-158.92	355.7	58.0	522.3	514.2	8.04	64.936		
1,900.0	1,886.1	1,808.4	1,791.7	5.3	5.4	-158.95	371.5	63.2	553.4	544.9	8.54	64.775		
2,000.0	1,984.9	1,903.4	1,885.2	5.7	5.8	-158.97	387.4	68.4	584.6	575.5	9.05	64.617		
2,100.0	2,083.6	1,998.4	1,978.8	6.1	6.1	-158.99	403.3	73.6	615.7	606.2	9.55	64.465		
2,200.0	2,182.4	2,093.4	2,072.3	6.5	6.5	-159.01	419.1	78.8	646.9	636.8	10.06	64.319		
2,300.0	2,281.1	2,188.5	2,165.9	6.8	6.9	-159.03	435.0	84.0	678.0	667.5	10.56	64.179		
2,400.0	2,379.8	2,283.5	2,259.4	7.2	7.2	-159.05	450.9	89.2	709.2	698.1	11.07	64.047		
2,500.0	2,478.6	2,378.5	2,353.0	7.6	7.6	-159.07	466.7	94.4	740.3	728.8	11.58	63.921		
2,600.0	2,577.3	2,473.5	2,446.5	8.0	8.0	-159.08	482.6	99.6	771.5	759.4	12.09	63.801		
2,700.0	2,676.0	2,568.5	2,540.1	8.3	8.3	-159.09	498.5	104.7	802.7	790.1	12.60	63.688		
2,800.0	2,774.8	2,663.6	2,633.6	8.7	8.7	-159.10	514.3	109.9	833.8	820.7	13.11	63.580		
2,900.0	2,873.5	2,758.6	2,727.1	9.1	9.1	-159.12	530.2	115.1	865.0	851.3	13.63	63.478		
3,000.0	2,972.2	2,853.6	2,820.7	9.5	9.4	-159.13	546.1	120.3	896.1	882.0	14.14	63.380		
3,100.0	3,071.0	2,948.6	2,914.2	9.8	9.8	-159.14	561.9	125.5	927.3	912.6	14.65	63.288		
3,200.0	3,169.7	3,043.7	3,007.8	10.2	10.2	-159.15	577.8	130.7	958.4	943.3	15.16	63.200		
3,300.0	3,268.5	3,138.7	3,101.3	10.6	10.6	-159.15	593.7	135.9	989.6	973.9	15.68	63.116 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin 32Y-404
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4791.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4791.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin 32Y-404	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-15-14)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Tarin 32X-HZ Pad Sec.32-T4N-R66W - Tarin 32X-204 - Wellbore #1 - Plan #2 (5-14-14)														
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	0.00	87.4	0.0	87.4					
100.0	100.0	99.0	99.0	0.1	0.1	0.00	87.4	0.0	87.4	87.2	0.22	390.946		
200.0	200.0	199.0	199.0	0.3	0.3	0.00	87.4	0.0	87.4	86.8	0.67	130.099		
300.0	300.0	299.0	299.0	0.6	0.6	0.00	87.4	0.0	87.4	86.3	1.12	77.955		
400.0	400.0	399.0	399.0	0.8	0.8	0.00	87.4	0.0	87.4	85.9	1.57	55.650		
500.0	500.0	499.0	499.0	1.0	1.0	0.00	87.4	0.0	87.4	85.4	2.02	43.270 CC, ES		
600.0	600.0	599.0	599.0	1.2	1.2	-159.95	87.4	0.0	89.1	86.6	2.45	36.410		
700.0	699.8	698.8	698.8	1.4	1.5	-161.01	87.4	0.0	94.0	91.1	2.86	32.881		
800.0	799.5	798.5	798.5	1.6	1.7	-162.55	87.4	0.0	102.3	99.0	3.28	31.162		
900.0	898.7	897.7	897.7	1.9	1.9	-164.32	87.4	0.0	114.0	110.3	3.71	30.695 SF		
1,000.0	997.5	996.5	996.5	2.2	2.1	-166.12	87.4	0.0	128.8	124.6	4.15	31.037		
1,100.0	1,096.3	1,095.3	1,095.3	2.5	2.3	-167.63	87.4	0.0	144.2	139.6	4.59	31.401		
1,200.0	1,195.0	1,194.0	1,194.0	2.8	2.6	-168.85	87.4	0.0	159.8	154.7	5.04	31.686		
1,300.0	1,293.7	1,292.7	1,292.7	3.2	2.8	-169.85	87.4	0.0	175.3	169.8	5.49	31.915		
1,400.0	1,392.5	1,391.5	1,391.5	3.5	3.0	-170.69	87.4	0.0	191.0	185.0	5.95	32.102		
1,500.0	1,491.2	1,490.2	1,490.2	3.9	3.2	-171.40	87.4	0.0	206.6	200.2	6.41	32.256		
1,600.0	1,589.9	1,585.9	1,585.9	4.2	3.4	-171.69	88.3	1.0	222.9	216.1	6.86	32.512		
1,700.0	1,688.7	1,680.8	1,680.6	4.6	3.7	-171.27	91.1	4.4	240.7	233.4	7.31	32.929		
1,800.0	1,787.4	1,774.9	1,774.5	5.0	3.9	-170.28	95.8	10.2	260.0	252.3	7.77	33.460		
1,900.0	1,886.1	1,871.2	1,870.3	5.3	4.1	-168.97	102.2	18.0	280.7	272.4	8.25	34.023		
2,000.0	1,984.9	1,968.8	1,967.3	5.7	4.3	-167.80	108.8	26.0	301.5	292.8	8.74	34.509		
2,100.0	2,083.6	2,066.5	2,064.4	6.1	4.6	-166.77	115.4	34.0	322.5	313.2	9.23	34.932		
2,200.0	2,182.4	2,164.1	2,161.5	6.5	4.8	-165.87	122.0	42.0	343.5	333.8	9.73	35.298		
2,300.0	2,281.1	2,261.7	2,258.6	6.8	5.1	-165.08	128.6	50.0	364.6	354.4	10.24	35.622		
2,400.0	2,379.8	2,359.4	2,355.6	7.2	5.3	-164.37	135.2	58.0	385.8	375.0	10.74	35.907		
2,500.0	2,478.6	2,457.0	2,452.7	7.6	5.6	-163.74	141.7	66.0	407.0	395.7	11.26	36.159		
2,600.0	2,577.3	2,554.6	2,549.8	8.0	5.8	-163.17	148.3	74.1	428.2	416.5	11.77	36.384		
2,700.0	2,676.0	2,652.2	2,646.9	8.3	6.1	-162.65	154.9	82.1	449.5	437.3	12.29	36.586		
2,800.0	2,774.8	2,749.9	2,743.9	8.7	6.4	-162.18	161.5	90.1	470.9	458.1	12.81	36.767		
2,900.0	2,873.5	2,847.5	2,841.0	9.1	6.6	-161.75	168.1	98.1	492.2	478.9	13.33	36.931		
3,000.0	2,972.2	2,945.1	2,938.1	9.5	6.9	-161.35	174.7	106.1	513.6	499.8	13.85	37.081		
3,100.0	3,071.0	3,042.8	3,035.2	9.8	7.2	-160.99	181.3	114.1	535.0	520.6	14.38	37.217		
3,200.0	3,169.7	3,140.4	3,132.3	10.2	7.4	-160.65	187.9	122.1	556.4	541.5	14.90	37.341		
3,300.0	3,268.5	3,238.0	3,229.3	10.6	7.7	-160.34	194.5	130.2	577.9	562.4	15.43	37.455		
3,400.0	3,367.2	3,335.6	3,326.4	11.0	8.0	-160.06	201.0	138.2	599.3	583.4	15.96	37.560		
3,500.0	3,465.9	3,433.3	3,423.5	11.4	8.3	-159.79	207.6	146.2	620.8	604.3	16.49	37.657		
3,600.0	3,564.7	3,530.9	3,520.6	11.7	8.6	-159.54	214.2	154.2	642.3	625.3	17.02	37.747		
3,700.0	3,663.4	3,628.5	3,617.6	12.1	8.8	-159.30	220.8	162.2	663.8	646.2	17.55	37.831		
3,800.0	3,762.1	3,726.2	3,714.7	12.5	9.1	-159.08	227.4	170.2	685.3	667.2	18.08	37.908		
3,900.0	3,860.9	3,823.8	3,811.8	12.9	9.4	-158.88	234.0	178.2	706.8	688.2	18.61	37.980		
4,000.0	3,959.6	3,921.4	3,908.9	13.3	9.7	-158.68	240.6	186.3	728.3	709.1	19.14	38.048		
4,100.0	4,058.3	4,019.1	4,005.9	13.6	10.0	-158.50	247.2	194.3	749.8	730.1	19.67	38.111		
4,200.0	4,157.1	4,116.7	4,103.0	14.0	10.2	-158.33	253.8	202.3	771.3	751.1	20.21	38.170		
4,300.0	4,255.8	4,214.3	4,200.1	14.4	10.5	-158.17	260.4	210.3	792.9	772.1	20.74	38.226		
4,400.0	4,354.6	4,311.9	4,297.2	14.8	10.8	-158.01	266.9	218.3	814.4	793.1	21.28	38.279		
4,500.0	4,453.3	4,409.6	4,394.2	15.2	11.1	-157.87	273.5	226.3	836.0	814.2	21.81	38.328		
4,600.0	4,552.0	4,507.2	4,491.3	15.5	11.4	-157.73	280.1	234.3	857.5	835.2	22.35	38.375		
4,700.0	4,650.8	4,604.8	4,588.4	15.9	11.6	-157.59	286.7	242.3	879.1	856.2	22.88	38.419		
4,800.0	4,749.5	4,702.5	4,685.5	16.3	11.9	-157.47	293.3	250.4	900.6	877.2	23.42	38.460		
4,900.0	4,848.2	4,800.1	4,782.5	16.7	12.2	-157.35	299.9	258.4	922.2	898.3	23.95	38.500		
5,000.0	4,947.0	4,897.7	4,879.6	17.1	12.5	-157.23	306.5	266.4	943.8	919.3	24.49	38.537		

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 Tarin 32Y-404
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4791.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4791.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin 32Y-404	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-15-14)	Offset TVD Reference:	Offset Datum

Offset Design Tarin 32X-HZ Pad Sec.32-T4N-R66W - Tarin 32X-204 - Wellbore #1 - Plan #2 (5-14-14)													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)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
5,100.0	5,045.7	4,995.3	4,976.7	17.4	12.8	-157.12	313.1	274.4	965.4	940.3	25.03	38.573		
5,200.0	5,144.4	5,093.0	5,073.8	17.8	13.1	-157.02	319.7	282.4	986.9	961.4	25.56	38.607		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin 32Y-404
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4791.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4791.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin 32Y-404	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-15-14)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Tarin 32X-HZ Pad Sec.32-T4N-R66W - Tarin 32X-314 - Wellbore #1 - Plan #1 (4-14-14)													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	0.00	149.4	0.0	149.4					
100.0	100.0	99.0	99.0	0.1	0.1	0.00	149.4	0.0	149.4	149.1	0.22	667.885		
200.0	200.0	199.0	199.0	0.3	0.3	0.00	149.4	0.0	149.4	148.7	0.67	222.258		
300.0	300.0	299.0	299.0	0.6	0.6	0.00	149.4	0.0	149.4	148.2	1.12	133.177		
400.0	400.0	399.0	399.0	0.8	0.8	0.00	149.4	0.0	149.4	147.8	1.57	95.072		
500.0	500.0	499.0	499.0	1.0	1.0	0.00	149.4	0.0	149.4	147.3	2.02	73.921 CC, ES		
600.0	600.0	599.0	599.0	1.2	1.2	-159.79	149.4	0.0	151.0	148.6	2.45	61.728		
700.0	699.8	694.2	694.1	1.4	1.4	-160.14	150.8	0.6	157.4	154.5	2.85	55.200		
800.0	799.5	788.5	788.3	1.6	1.7	-160.34	155.0	2.5	170.1	166.8	3.28	51.914		
900.0	898.7	881.4	880.9	1.9	1.9	-160.40	162.0	5.6	188.9	185.2	3.71	50.875 SF		
1,000.0	997.5	972.5	971.5	2.2	2.1	-160.38	171.5	9.9	213.5	209.3	4.16	51.332		
1,100.0	1,096.3	1,066.8	1,064.8	2.5	2.4	-160.25	183.3	15.2	240.7	236.0	4.62	52.127		
1,200.0	1,195.0	1,163.0	1,160.1	2.8	2.6	-160.12	195.6	20.7	268.0	262.9	5.08	52.732		
1,300.0	1,293.7	1,259.2	1,255.3	3.2	2.9	-160.02	207.9	26.2	295.3	289.8	5.55	53.178		
1,400.0	1,392.5	1,355.4	1,350.6	3.5	3.2	-159.93	220.1	31.6	322.7	316.6	6.03	53.490		
1,500.0	1,491.2	1,451.5	1,445.8	3.9	3.5	-159.86	232.4	37.1	350.0	343.5	6.51	53.723		
1,600.0	1,589.9	1,547.7	1,541.1	4.2	3.8	-159.80	244.7	42.6	377.3	370.3	7.01	53.854		
1,700.0	1,688.7	1,643.9	1,636.3	4.6	4.1	-159.74	256.9	48.1	404.7	397.2	7.50	53.969		
1,800.0	1,787.4	1,740.1	1,731.6	5.0	4.5	-159.70	269.2	53.6	432.0	424.0	7.99	54.046		
1,900.0	1,886.1	1,836.3	1,826.8	5.3	4.8	-159.66	281.5	59.1	459.3	450.9	8.49	54.097		
2,000.0	1,984.9	1,932.5	1,922.1	5.7	5.1	-159.62	293.7	64.5	486.7	477.7	8.99	54.131		
2,100.0	2,083.6	2,028.7	2,017.3	6.1	5.4	-159.59	306.0	70.0	514.0	504.5	9.49	54.152		
2,200.0	2,182.4	2,124.9	2,112.6	6.5	5.7	-159.56	318.3	75.5	541.4	531.4	10.00	54.162		
2,300.0	2,281.1	2,221.1	2,207.8	6.8	6.0	-159.53	330.5	81.0	568.7	558.2	10.50	54.165		
2,400.0	2,379.8	2,317.3	2,303.0	7.2	6.4	-159.51	342.8	86.5	596.0	585.0	11.00	54.162		
2,500.0	2,478.6	2,413.4	2,398.3	7.6	6.7	-159.49	355.1	92.0	623.4	611.9	11.51	54.155		
2,600.0	2,577.3	2,509.6	2,493.5	8.0	7.0	-159.47	367.3	97.4	650.7	638.7	12.02	54.145		
2,700.0	2,676.0	2,605.8	2,588.8	8.3	7.3	-159.45	379.6	102.9	678.1	665.5	12.53	54.133		
2,800.0	2,774.8	2,702.0	2,684.0	8.7	7.6	-159.43	391.9	108.4	705.4	692.4	13.03	54.119		
2,900.0	2,873.5	2,798.2	2,779.3	9.1	8.0	-159.42	404.1	113.9	732.7	719.2	13.54	54.103		
3,000.0	2,972.2	2,894.4	2,874.5	9.5	8.3	-159.40	416.4	119.4	760.1	746.0	14.05	54.087		
3,100.0	3,071.0	2,990.6	2,969.8	9.8	8.6	-159.39	428.7	124.9	787.4	772.9	14.56	54.070		
3,200.0	3,169.7	3,086.8	3,065.0	10.2	8.9	-159.37	440.9	130.3	814.8	799.7	15.07	54.052		
3,300.0	3,268.5	3,183.0	3,160.3	10.6	9.3	-159.36	453.2	135.8	842.1	826.5	15.58	54.034		
3,400.0	3,367.2	3,279.2	3,255.5	11.0	9.6	-159.35	465.5	141.3	869.4	853.3	16.10	54.016		
3,500.0	3,465.9	3,375.3	3,350.8	11.4	9.9	-159.34	477.7	146.8	896.8	880.2	16.61	53.999		
3,600.0	3,564.7	3,471.5	3,446.0	11.7	10.2	-159.33	490.0	152.3	924.1	907.0	17.12	53.981		
3,700.0	3,663.4	3,567.7	3,541.3	12.1	10.5	-159.32	502.3	157.8	951.5	933.8	17.63	53.963		
3,800.0	3,762.1	3,663.9	3,636.5	12.5	10.9	-159.31	514.5	163.2	978.8	960.6	18.14	53.946		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin 32Y-404
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4791.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4791.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin 32Y-404	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-15-14)	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	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	120.2	0.0	120.2				
100.0	100.0	99.0	99.0	0.1	0.1	0.00	0.00	120.2	0.0	120.2	120.0	0.22	537.569	
200.0	200.0	199.0	199.0	0.3	0.3	0.00	0.00	120.2	0.0	120.2	119.6	0.67	178.892	
300.0	300.0	299.0	299.0	0.6	0.6	0.00	0.00	120.2	0.0	120.2	119.1	1.12	107.192	
400.0	400.0	399.0	399.0	0.8	0.8	0.00	0.00	120.2	0.0	120.2	118.7	1.57	76.522	
500.0	500.0	499.0	499.0	1.0	1.0	0.00	0.00	120.2	0.0	120.2	118.2	2.02	59.498 CC, ES	
600.0	600.0	599.0	599.0	1.2	1.2	-159.84		120.2	0.0	121.9	119.4	2.45	49.815	
700.0	699.8	698.8	698.8	1.4	1.5	-160.62		120.2	0.0	126.8	123.9	2.86	44.348	
800.0	799.5	798.5	798.5	1.6	1.7	-161.80		120.2	0.0	135.0	131.8	3.28	41.139	
900.0	898.7	897.7	897.7	1.9	1.9	-163.22		120.2	0.0	146.7	143.0	3.71	39.494	
1,000.0	997.5	996.5	996.5	2.2	2.1	-164.74		120.2	0.0	161.4	157.2	4.15	38.879	
1,100.0	1,096.3	1,091.6	1,091.6	2.5	2.3	-165.68		121.3	1.0	177.7	173.1	4.59	38.725 SF	
1,200.0	1,195.0	1,186.0	1,185.8	2.8	2.5	-165.74		124.6	4.2	196.2	191.1	5.04	38.955	
1,300.0	1,293.7	1,279.5	1,279.0	3.2	2.8	-165.15		130.1	9.4	216.7	211.2	5.49	39.454	
1,400.0	1,392.5	1,373.5	1,372.5	3.5	3.0	-164.11		137.7	16.7	239.2	233.2	5.96	40.105	
1,500.0	1,491.2	1,470.7	1,468.9	3.9	3.2	-163.10		146.1	24.8	262.3	255.9	6.45	40.679	
1,600.0	1,589.9	1,567.9	1,565.4	4.2	3.5	-162.24		154.5	32.8	285.5	278.5	6.94	41.137	
1,700.0	1,688.7	1,665.1	1,661.9	4.6	3.7	-161.52		162.9	40.9	308.7	301.3	7.44	41.502	
1,800.0	1,787.4	1,762.3	1,758.4	5.0	4.0	-160.90		171.4	48.9	332.0	324.0	7.94	41.797	
1,900.0	1,886.1	1,859.5	1,854.9	5.3	4.3	-160.36		179.8	57.0	355.3	346.8	8.45	42.035	
2,000.0	1,984.9	1,956.7	1,951.4	5.7	4.6	-159.88		188.2	65.0	378.6	369.6	8.96	42.234	
2,100.0	2,083.6	2,053.9	2,047.9	6.1	4.9	-159.46		196.6	73.1	401.9	392.5	9.48	42.400	
2,200.0	2,182.4	2,151.1	2,144.4	6.5	5.1	-159.09		205.0	81.1	425.3	415.3	10.00	42.539	
2,300.0	2,281.1	2,248.3	2,240.9	6.8	5.4	-158.76		213.5	89.2	448.7	438.2	10.52	42.656	
2,400.0	2,379.8	2,345.5	2,337.4	7.2	5.7	-158.45		221.9	97.2	472.1	461.0	11.04	42.756	
2,500.0	2,478.6	2,442.7	2,433.9	7.6	6.0	-158.18		230.3	105.3	495.5	483.9	11.57	42.842	
2,600.0	2,577.3	2,539.9	2,530.4	8.0	6.3	-157.93		238.7	113.3	518.9	506.8	12.09	42.917	
2,700.0	2,676.0	2,637.0	2,626.9	8.3	6.6	-157.71		247.1	121.4	542.3	529.7	12.62	42.981	
2,800.0	2,774.8	2,734.2	2,723.4	8.7	6.9	-157.50		255.5	129.4	565.8	552.6	13.15	43.037	
2,900.0	2,873.5	2,831.4	2,819.9	9.1	7.2	-157.31		264.0	137.5	589.2	575.5	13.67	43.087	
3,000.0	2,972.2	2,928.6	2,916.4	9.5	7.5	-157.13		272.4	145.5	612.6	598.4	14.20	43.130	
3,100.0	3,071.0	3,025.8	3,012.9	9.8	7.8	-156.97		280.8	153.6	636.1	621.3	14.73	43.168	
3,200.0	3,169.7	3,123.0	3,109.4	10.2	8.1	-156.81		289.2	161.6	659.5	644.3	15.27	43.202	
3,300.0	3,268.5	3,220.2	3,205.9	10.6	8.4	-156.67		297.6	169.7	683.0	667.2	15.80	43.233	
3,400.0	3,367.2	3,317.4	3,302.4	11.0	8.7	-156.54		306.1	177.7	706.5	690.1	16.33	43.260	
3,500.0	3,465.9	3,414.6	3,398.9	11.4	9.0	-156.42		314.5	185.8	729.9	713.1	16.86	43.284	
3,600.0	3,564.7	3,511.8	3,495.4	11.7	9.3	-156.30		322.9	193.8	753.4	736.0	17.40	43.305	
3,700.0	3,663.4	3,609.0	3,591.9	12.1	9.6	-156.19		331.3	201.9	776.9	758.9	17.93	43.325	
3,800.0	3,762.1	3,706.2	3,688.4	12.5	9.9	-156.09		339.7	209.9	800.3	781.9	18.47	43.342	
3,900.0	3,860.9	3,803.4	3,784.9	12.9	10.2	-155.99		348.1	218.0	823.8	804.8	19.00	43.358	
4,000.0	3,959.6	3,900.6	3,881.4	13.3	10.5	-155.90		356.6	226.0	847.3	827.7	19.53	43.372	
4,100.0	4,058.3	3,997.8	3,977.8	13.6	10.8	-155.81		365.0	234.1	870.7	850.7	20.07	43.385	
4,200.0	4,157.1	4,095.0	4,074.3	14.0	11.1	-155.73		373.4	242.1	894.2	873.6	20.61	43.397	
4,300.0	4,255.8	4,192.2	4,170.8	14.4	11.4	-155.65		381.8	250.2	917.7	896.6	21.14	43.407	
4,400.0	4,354.6	4,289.4	4,267.3	14.8	11.7	-155.58		390.2	258.2	941.2	919.5	21.68	43.417	
4,500.0	4,453.3	4,386.6	4,363.8	15.2	12.0	-155.51		398.7	266.3	964.7	942.5	22.21	43.426	
4,600.0	4,552.0	4,483.8	4,460.3	15.5	12.3	-155.44		407.1	274.3	988.2	965.4	22.75	43.433	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin 32Y-404
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4791.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4791.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin 32Y-404	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-15-14)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Tarin 32X-HZ Pad Sec.32-T4N-R66W - Tarin 32Y-314 - Wellbore #1 - Plan #2 (5-22-14)														
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	0.00	29.1	0.0	29.1					
100.0	100.0	100.0	100.0	0.1	0.1	0.00	29.1	0.0	29.1	28.9	0.22	129.665		
200.0	200.0	200.0	200.0	0.3	0.3	0.00	29.1	0.0	29.1	28.5	0.67	43.222		
300.0	300.0	300.0	300.0	0.6	0.6	0.00	29.1	0.0	29.1	28.0	1.12	25.933		
400.0	400.0	400.0	400.0	0.8	0.8	0.00	29.1	0.0	29.1	27.6	1.57	18.524		
500.0	500.0	500.0	500.0	1.0	1.0	0.00	29.1	0.0	29.1	27.1	2.02	14.407 CC		
600.0	600.0	600.0	600.0	1.2	1.2	-160.69	29.1	0.0	30.8	28.3	2.45	12.573		
700.0	699.8	699.8	699.8	1.4	1.5	-163.43	29.1	0.0	35.8	32.9	2.86	12.501		
800.0	799.5	799.5	799.5	1.6	1.7	-166.62	29.1	0.0	44.2	40.9	3.28	13.457		
900.0	898.7	898.7	898.7	1.9	1.9	-169.45	29.1	0.0	56.1	52.4	3.71	15.117		
1,000.0	997.5	997.5	997.5	2.2	2.1	-171.68	29.1	0.0	71.2	67.1	4.15	17.181		
1,100.0	1,096.3	1,099.1	1,099.1	2.5	2.3	-172.92	27.6	0.8	85.3	80.8	4.56	18.701		
1,200.0	1,195.0	1,201.7	1,201.5	2.8	2.5	-173.25	22.9	3.5	96.1	91.1	4.97	19.338		
1,300.0	1,293.7	1,304.9	1,304.3	3.2	2.7	-172.96	15.0	7.9	103.3	98.0	5.39	19.168		
1,400.0	1,392.5	1,408.5	1,407.1	3.5	3.0	-172.17	3.8	14.2	107.2	101.3	5.83	18.371		
1,500.0	1,491.2	1,508.7	1,506.2	3.9	3.2	-171.14	-8.9	21.2	109.1	102.8	6.29	17.346		
1,600.0	1,589.9	1,608.6	1,605.1	4.2	3.5	-170.15	-21.5	28.3	111.0	104.2	6.75	16.435		
1,700.0	1,688.7	1,708.6	1,704.1	4.6	3.8	-169.18	-34.1	35.3	112.9	105.7	7.23	15.623		
1,800.0	1,787.4	1,808.6	1,803.0	5.0	4.1	-168.26	-46.7	42.4	114.9	107.2	7.71	14.895		
1,900.0	1,886.1	1,908.5	1,901.9	5.3	4.4	-167.36	-59.3	49.4	116.9	108.7	8.21	14.243		
2,000.0	1,984.9	2,008.5	2,000.8	5.7	4.7	-166.49	-71.9	56.4	118.9	110.2	8.71	13.654		
2,100.0	2,083.6	2,108.4	2,099.7	6.1	5.0	-165.66	-84.6	63.5	121.0	111.8	9.22	13.121		
2,200.0	2,182.4	2,208.4	2,198.6	6.5	5.3	-164.85	-97.2	70.5	123.1	113.3	9.74	12.637		
2,300.0	2,281.1	2,308.4	2,297.5	6.8	5.7	-164.07	-109.8	77.6	125.2	114.9	10.26	12.196		
2,400.0	2,379.8	2,408.3	2,396.5	7.2	6.0	-163.31	-122.4	84.6	127.3	116.5	10.80	11.792		
2,500.0	2,478.6	2,508.3	2,495.4	7.6	6.3	-162.58	-135.0	91.7	129.5	118.1	11.33	11.422		
2,600.0	2,577.3	2,608.3	2,594.3	8.0	6.7	-161.87	-147.6	98.7	131.6	119.8	11.88	11.082		
2,700.0	2,676.0	2,708.2	2,693.2	8.3	7.0	-161.19	-160.2	105.7	133.8	121.4	12.43	10.768		
2,800.0	2,774.8	2,808.2	2,792.1	8.7	7.4	-160.53	-172.9	112.8	136.0	123.1	12.98	10.478		
2,900.0	2,873.5	2,908.2	2,891.0	9.1	7.7	-159.89	-185.5	119.8	138.3	124.7	13.54	10.209		
3,000.0	2,972.2	3,008.1	2,989.9	9.5	8.0	-159.27	-198.1	126.9	140.5	126.4	14.11	9.959		
3,100.0	3,071.0	3,108.1	3,088.9	9.8	8.4	-158.67	-210.7	133.9	142.8	128.1	14.68	9.726		
3,200.0	3,169.7	3,208.0	3,187.8	10.2	8.7	-158.09	-223.3	140.9	145.0	129.8	15.25	9.509		
3,300.0	3,268.5	3,308.0	3,286.7	10.6	9.1	-157.52	-235.9	148.0	147.3	131.5	15.83	9.307		
3,400.0	3,367.2	3,408.0	3,385.6	11.0	9.4	-156.98	-248.5	155.0	149.6	133.2	16.41	9.117		
3,500.0	3,465.9	3,507.9	3,484.5	11.4	9.8	-156.45	-261.2	162.1	152.0	135.0	17.00	8.938		
3,600.0	3,564.7	3,607.9	3,583.4	11.7	10.1	-155.93	-273.8	169.1	154.3	136.7	17.59	8.771		
3,700.0	3,663.4	3,707.9	3,682.3	12.1	10.5	-155.44	-286.4	176.2	156.6	138.4	18.18	8.613		
3,800.0	3,762.1	3,807.8	3,781.3	12.5	10.9	-154.95	-299.0	183.2	159.0	140.2	18.78	8.465		
3,900.0	3,860.9	3,907.8	3,880.2	12.9	11.2	-154.48	-311.6	190.2	161.3	142.0	19.38	8.325		
4,000.0	3,959.6	4,007.8	3,979.1	13.3	11.6	-154.03	-324.2	197.3	163.7	143.7	19.98	8.192		
4,100.0	4,058.3	4,107.7	4,078.0	13.6	11.9	-153.58	-336.8	204.3	166.1	145.5	20.59	8.067		
4,200.0	4,157.1	4,207.7	4,176.9	14.0	12.3	-153.15	-349.5	211.4	168.5	147.3	21.20	7.948		
4,300.0	4,255.8	4,307.6	4,275.8	14.4	12.6	-152.74	-362.1	218.4	170.9	149.1	21.81	7.836		
4,400.0	4,354.6	4,407.6	4,374.7	14.8	13.0	-152.33	-374.7	225.5	173.3	150.9	22.42	7.729		
4,500.0	4,453.3	4,507.6	4,473.7	15.2	13.3	-151.93	-387.3	232.5	175.7	152.7	23.04	7.627		
4,600.0	4,552.0	4,607.5	4,572.6	15.5	13.7	-151.55	-399.9	239.5	178.2	154.5	23.66	7.530		
4,700.0	4,650.8	4,707.5	4,671.5	15.9	14.0	-151.17	-412.5	246.6	180.6	156.3	24.28	7.438		
4,800.0	4,749.5	4,807.5	4,770.4	16.3	14.4	-150.81	-425.1	253.6	183.0	158.1	24.90	7.350		
4,900.0	4,848.2	4,907.4	4,869.3	16.7	14.8	-150.46	-437.8	260.7	185.5	160.0	25.53	7.266		
5,000.0	4,947.0	5,007.4	4,968.2	17.1	15.1	-150.11	-450.4	267.7	188.0	161.8	26.15	7.186		

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 Tarin 32Y-404
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4791.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4791.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin 32Y-404	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-15-14)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Tarin 32X-HZ Pad Sec.32-T4N-R66W - Tarin 32Y-314 - Wellbore #1 - Plan #2 (5-22-14)													
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
5,100.0	5,045.7	5,107.3	5,067.1	17.4	15.5	-149.77	-463.0	274.8	190.4	163.6	26.78	7.110	
5,200.0	5,144.4	5,207.3	5,166.0	17.8	15.8	-149.45	-475.6	281.8	192.9	165.5	27.41	7.036	
5,300.0	5,243.2	5,307.3	5,265.0	18.2	16.2	-149.13	-488.2	288.8	195.4	167.3	28.05	6.966	
5,400.0	5,341.9	5,403.3	5,360.1	18.6	16.5	-149.01	-499.5	295.1	198.6	170.0	28.61	6.944	
5,500.0	5,440.7	5,500.0	5,456.3	19.0	16.7	-149.46	-508.1	299.9	204.4	175.4	29.02	7.043	
5,600.0	5,539.4	5,592.2	5,548.2	19.3	16.9	-150.39	-513.6	303.0	212.8	183.4	29.33	7.254	
5,700.0	5,638.1	5,685.8	5,641.8	19.7	17.0	-151.73	-516.6	304.7	223.8	194.2	29.55	7.572	
5,800.0	5,736.9	5,780.9	5,736.9	20.1	17.2	-153.39	-517.2	305.0	237.4	207.7	29.72	7.986	
5,900.0	5,835.6	5,879.6	5,835.6	20.5	17.3	-155.00	-517.2	305.0	251.7	221.8	29.90	8.417	
6,000.0	5,934.3	5,978.3	5,934.3	20.9	17.4	-156.44	-517.2	305.0	266.2	236.1	30.11	8.840	
6,100.0	6,033.3	6,077.3	6,033.3	21.2	17.6	-157.71	-517.2	305.0	279.5	249.2	30.33	9.216	
6,200.0	6,132.7	6,176.6	6,132.7	21.4	17.7	-158.62	-517.2	305.0	289.8	259.3	30.55	9.486	
6,300.0	6,232.4	6,276.4	6,232.4	21.6	17.9	-159.20	-517.2	305.0	296.9	266.1	30.79	9.642	
6,400.0	6,332.3	6,376.3	6,332.3	21.7	18.0	-159.51	-517.2	305.0	300.8	269.7	31.04	9.690	
6,500.0	6,432.3	6,476.2	6,432.3	21.9	18.1	-0.07	-517.2	304.6	301.5	263.0	38.54	7.824	
6,600.0	6,532.3	6,575.2	6,530.7	22.0	18.2	88.19	-517.2	295.2	301.7	270.3	31.34	9.624	
6,700.0	6,631.7	6,672.4	6,625.4	22.1	18.3	85.77	-517.2	273.6	302.3	271.1	31.20	9.692	
6,800.0	6,729.1	6,768.0	6,715.1	22.1	18.3	83.45	-517.2	240.9	303.5	272.5	31.02	9.785	
6,900.0	6,822.8	6,862.3	6,799.0	22.1	18.3	81.27	-517.2	197.8	305.1	274.2	30.88	9.881	
7,000.0	6,911.0	6,955.3	6,875.9	22.1	18.3	79.26	-517.2	145.5	306.9	276.1	30.84	9.952	
7,100.0	6,992.4	7,047.3	6,945.1	22.1	18.2	77.44	-517.2	85.1	309.0	278.0	31.00	9.966	
7,200.0	7,065.6	7,138.3	7,005.9	22.0	18.2	75.85	-517.2	17.4	311.0	279.6	31.46	9.887	
7,300.0	7,129.2	7,228.6	7,057.9	22.0	18.2	74.48	-517.2	-56.3	313.0	280.7	32.30	9.690	
7,400.0	7,182.3	7,318.2	7,100.6	22.0	18.2	73.37	-517.2	-135.0	314.7	281.1	33.60	9.367	
7,500.0	7,223.8	7,407.2	7,133.6	22.1	18.7	72.51	-517.2	-217.6	316.1	280.8	35.38	8.935	
7,600.0	7,253.1	7,495.9	7,156.6	22.4	20.0	71.91	-517.2	-303.2	317.2	279.5	37.68	8.419	
7,700.0	7,269.7	7,584.4	7,169.6	23.2	21.6	71.57	-517.2	-390.7	317.8	277.4	40.42	7.863	
7,800.0	7,273.6	7,674.8	7,172.6	24.7	23.3	71.47	-517.2	-481.0	318.0	274.4	43.60	7.293	
7,900.0	7,273.8	7,774.8	7,172.0	26.6	25.4	71.35	-517.2	-581.0	318.2	270.8	47.43	6.709	
8,000.0	7,273.9	7,874.8	7,171.5	28.6	27.6	71.24	-517.2	-681.0	318.4	266.9	51.51	6.182	
8,100.0	7,274.1	7,974.8	7,171.0	30.8	29.9	71.12	-517.2	-781.0	318.6	262.9	55.79	5.712	
8,200.0	7,274.3	8,074.8	7,170.5	33.1	32.3	71.01	-517.2	-881.0	318.9	258.6	60.23	5.295	
8,300.0	7,274.4	8,174.8	7,170.0	35.5	34.7	70.89	-517.2	-981.0	319.1	254.3	64.79	4.925	
8,400.0	7,274.6	8,274.8	7,169.4	37.9	37.2	70.77	-517.2	-1,081.0	319.3	249.9	69.45	4.598	
8,500.0	7,274.7	8,374.8	7,168.9	40.4	39.7	70.66	-517.2	-1,181.0	319.5	245.4	74.18	4.307	
8,600.0	7,274.9	8,474.8	7,168.4	42.9	42.3	70.54	-517.2	-1,281.0	319.8	240.8	78.98	4.049	
8,700.0	7,275.0	8,574.8	7,167.9	45.5	44.9	70.43	-517.2	-1,381.0	320.0	236.2	83.83	3.817	
8,800.0	7,275.2	8,674.8	7,167.3	48.0	47.5	70.31	-517.2	-1,481.0	320.2	231.5	88.72	3.609	
8,900.0	7,275.4	8,774.8	7,166.8	50.6	50.1	70.20	-517.2	-1,581.0	320.5	226.8	93.65	3.422	
9,000.0	7,275.5	8,874.8	7,166.3	53.3	52.8	70.09	-517.2	-1,681.0	320.7	222.1	98.60	3.253	
9,100.0	7,275.7	8,974.8	7,165.8	55.9	55.4	69.97	-517.2	-1,781.0	320.9	217.3	103.57	3.099	
9,200.0	7,275.8	9,074.8	7,165.2	58.6	58.1	69.86	-517.2	-1,881.0	321.1	212.6	108.56	2.958	
9,300.0	7,276.0	9,174.8	7,164.7	61.2	60.8	69.74	-517.2	-1,981.0	321.4	207.8	113.56	2.830	
9,400.0	7,276.1	9,274.8	7,164.2	63.9	63.5	69.63	-517.2	-2,081.0	321.6	203.0	118.58	2.712	
9,500.0	7,276.3	9,374.8	7,163.7	66.6	66.2	69.52	-517.2	-2,181.0	321.9	198.3	123.60	2.604	
9,600.0	7,276.5	9,474.8	7,163.1	69.3	68.9	69.40	-517.2	-2,281.0	322.1	193.5	128.63	2.504	
9,700.0	7,276.6	9,574.8	7,162.6	72.0	71.6	69.29	-517.2	-2,381.0	322.3	188.7	133.67	2.411	
9,800.0	7,276.8	9,674.8	7,162.1	74.7	74.4	69.18	-517.2	-2,481.0	322.6	183.9	138.71	2.326	
9,900.0	7,276.9	9,774.8	7,161.6	77.5	77.1	69.06	-517.2	-2,580.9	322.8	179.1	143.76	2.246	
10,000.0	7,277.1	9,874.8	7,161.1	80.2	79.8	68.95	-517.2	-2,680.9	323.1	174.3	148.80	2.171	
10,100.0	7,277.2	9,974.8	7,160.5	82.9	82.6	68.84	-517.2	-2,780.9	323.3	169.5	153.85	2.101	

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 Tarin 32Y-404
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4791.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4791.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin 32Y-404	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-15-14)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference														
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,200.0	7,277.4	10,074.7	7,160.0	85.7	85.3	68.73	68.73	-517.2	-2,880.9	323.6	164.7	158.89	2.036	
10,300.0	7,277.6	10,174.7	7,159.5	88.4	88.1	68.61	68.61	-517.2	-2,980.9	323.8	159.9	163.94	1.975	
10,400.0	7,277.7	10,274.7	7,159.0	91.1	90.8	68.50	68.50	-517.2	-3,080.9	324.1	155.1	168.98	1.918	
10,500.0	7,277.9	10,374.7	7,158.4	93.9	93.6	68.39	68.39	-517.2	-3,180.9	324.3	150.3	174.02	1.864	
10,600.0	7,278.0	10,474.7	7,157.9	96.6	96.4	68.28	68.28	-517.2	-3,280.9	324.6	145.5	179.06	1.813	
10,700.0	7,278.2	10,574.7	7,157.4	99.4	99.1	68.17	68.17	-517.2	-3,380.9	324.8	140.7	184.10	1.764	
10,800.0	7,278.3	10,674.7	7,156.9	102.2	101.9	68.05	68.05	-517.2	-3,480.9	325.1	135.9	189.13	1.719	
10,900.0	7,278.5	10,774.7	7,156.3	104.9	104.7	67.94	67.94	-517.2	-3,580.9	325.3	131.2	194.16	1.676	
11,000.0	7,278.7	10,874.7	7,155.8	107.7	107.4	67.83	67.83	-517.2	-3,680.9	325.6	126.4	199.18	1.635	
11,100.0	7,278.8	10,974.7	7,155.3	110.4	110.2	67.72	67.72	-517.2	-3,780.9	325.8	121.6	204.20	1.596	
11,200.0	7,279.0	11,074.7	7,154.8	113.2	113.0	67.61	67.61	-517.2	-3,880.9	326.1	116.9	209.21	1.559	
11,300.0	7,279.1	11,174.7	7,154.2	116.0	115.8	67.50	67.50	-517.2	-3,980.9	326.3	112.1	214.22	1.523	
11,400.0	7,279.3	11,274.7	7,153.7	118.8	118.5	67.39	67.39	-517.2	-4,080.9	326.6	107.4	219.23	1.490 Level 3	
11,500.0	7,279.4	11,374.7	7,153.2	121.5	121.3	67.28	67.28	-517.2	-4,180.9	326.9	102.6	224.23	1.458 Level 3	
11,600.0	7,279.6	11,474.7	7,152.7	124.3	124.1	67.17	67.17	-517.2	-4,280.9	327.1	97.9	229.22	1.427 Level 3	
11,700.0	7,279.8	11,574.7	7,152.2	127.1	126.9	67.06	67.06	-517.2	-4,380.9	327.4	93.2	234.20	1.398 Level 3	
11,800.0	7,279.9	11,674.7	7,151.6	129.8	129.7	66.95	66.95	-517.2	-4,480.9	327.7	88.5	239.18	1.370 Level 3	
11,900.0	7,280.1	11,774.7	7,151.1	132.6	132.4	66.84	66.84	-517.2	-4,580.9	327.9	83.8	244.16	1.343 Level 3	
12,000.0	7,280.2	11,874.7	7,150.6	135.4	135.2	66.73	66.73	-517.2	-4,680.9	328.2	79.1	249.12	1.317 Level 3	
12,100.0	7,280.4	11,974.7	7,150.1	138.2	138.0	66.62	66.62	-517.2	-4,780.9	328.5	74.4	254.09	1.293 Level 3	
12,200.0	7,280.5	12,074.7	7,149.5	141.0	140.8	66.51	66.51	-517.2	-4,880.9	328.7	69.7	259.04	1.269 Level 3	
12,300.0	7,280.7	12,174.7	7,149.0	143.8	143.6	66.40	66.40	-517.2	-4,980.9	329.0	65.0	263.99	1.246 Level 2	
12,400.0	7,280.9	12,274.7	7,148.5	146.5	146.4	66.30	66.30	-517.2	-5,080.9	329.3	60.4	268.93	1.224 Level 2	
12,500.0	7,281.0	12,374.7	7,148.0	149.3	149.2	66.19	66.19	-517.2	-5,180.9	329.6	55.7	273.86	1.203 Level 2	
12,600.0	7,281.2	12,474.7	7,147.4	152.1	151.9	66.08	66.08	-517.2	-5,280.8	329.8	51.0	278.79	1.183 Level 2	
12,700.0	7,281.3	12,574.7	7,146.9	154.9	154.7	65.97	65.97	-517.2	-5,380.8	330.1	46.4	283.70	1.164 Level 2	
12,800.0	7,281.5	12,674.7	7,146.4	157.7	157.5	65.86	65.86	-517.2	-5,480.8	330.4	41.8	288.62	1.145 Level 2	
12,900.0	7,281.6	12,774.7	7,145.9	160.5	160.3	65.76	65.76	-517.2	-5,580.8	330.7	37.1	293.52	1.127 Level 2	
13,000.0	7,281.8	12,874.7	7,145.3	163.3	163.1	65.65	65.65	-517.2	-5,680.8	330.9	32.5	298.42	1.109 Level 2	
13,100.0	7,282.0	12,974.7	7,144.8	166.0	165.9	65.54	65.54	-517.2	-5,780.8	331.2	27.9	303.31	1.092 Level 2	
13,200.0	7,282.1	13,074.7	7,144.3	168.8	168.7	65.43	65.43	-517.2	-5,880.8	331.5	23.3	308.19	1.076 Level 2	
13,300.0	7,282.3	13,174.7	7,143.8	171.6	171.5	65.33	65.33	-517.2	-5,980.8	331.8	18.7	313.06	1.060 Level 2	
13,400.0	7,282.4	13,274.7	7,143.2	174.4	174.3	65.22	65.22	-517.2	-6,080.8	332.1	14.2	317.93	1.045 Level 2	
13,500.0	7,282.6	13,374.7	7,142.7	177.2	177.1	65.11	65.11	-517.2	-6,180.8	332.4	9.6	322.78	1.030 Level 2	
13,600.0	7,282.7	13,474.7	7,142.2	180.0	179.9	65.01	65.01	-517.2	-6,280.8	332.7	5.0	327.63	1.015 Level 2	
13,700.0	7,282.9	13,574.7	7,141.7	182.8	182.7	64.90	64.90	-517.2	-6,380.8	332.9	0.5	332.48	1.001 Level 2	
13,800.0	7,283.1	13,674.7	7,141.2	185.6	185.5	64.80	64.80	-517.2	-6,480.8	333.2	-4.1	337.31	0.988 Level 1	
13,900.0	7,283.2	13,774.7	7,140.6	188.4	188.2	64.69	64.69	-517.2	-6,580.8	333.5	-8.6	342.14	0.975 Level 1	
14,000.0	7,283.4	13,874.7	7,140.1	191.2	191.0	64.58	64.58	-517.2	-6,680.8	333.8	-13.1	346.95	0.962 Level 1	
14,100.0	7,283.5	13,974.7	7,139.6	194.0	193.8	64.48	64.48	-517.2	-6,780.8	334.1	-17.7	351.76	0.950 Level 1	
14,200.0	7,283.7	14,074.7	7,139.1	196.7	196.6	64.37	64.37	-517.2	-6,880.8	334.4	-22.2	356.57	0.938 Level 1	
14,300.0	7,283.8	14,174.7	7,138.5	199.5	199.4	64.27	64.27	-517.2	-6,980.8	334.7	-26.7	361.36	0.926 Level 1	
14,399.1	7,284.0	14,273.7	7,138.0	202.3	202.2	64.16	64.16	-517.2	-7,079.9	335.0	-31.1	366.10	0.915 Level 1, ES, SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin 32Y-404
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4791.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4791.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin 32Y-404	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-15-14)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference														
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	58.3	0.0	58.3				
100.0	100.0	99.0	99.0	0.1	0.1	0.00	0.00	58.3	0.0	58.3	58.1	0.22	260.612	
200.0	200.0	199.0	199.0	0.3	0.3	0.00	0.00	58.3	0.0	58.3	57.6	0.67	86.726	
300.0	300.0	299.0	299.0	0.6	0.6	0.00	0.00	58.3	0.0	58.3	57.2	1.12	51.966	
400.0	400.0	399.0	399.0	0.8	0.8	0.00	0.00	58.3	0.0	58.3	56.7	1.57	37.098	
500.0	500.0	499.0	499.0	1.0	1.0	0.00	0.00	58.3	0.0	58.3	56.3	2.02	28.844 CC	
600.0	600.0	599.0	599.0	1.2	1.2	-160.14		58.3	0.0	59.9	57.5	2.45	24.495	
700.0	699.8	698.8	698.8	1.4	1.5	-161.68		58.3	0.0	64.9	62.0	2.86	22.690	
800.0	799.5	798.5	798.5	1.6	1.7	-163.78		58.3	0.0	73.2	69.9	3.28	22.301	
900.0	898.7	897.7	897.7	1.9	1.9	-166.01		58.3	0.0	85.0	81.3	3.71	22.890	
1,000.0	997.5	996.5	996.5	2.2	2.1	-168.10		58.3	0.0	99.9	95.8	4.15	24.088	
1,100.0	1,096.3	1,095.3	1,095.3	2.5	2.3	-169.72		58.3	0.0	115.5	110.9	4.59	25.157	
1,200.0	1,195.0	1,194.0	1,194.0	2.8	2.6	-170.96		58.3	0.0	131.1	126.1	5.04	26.025	
1,300.0	1,293.7	1,292.4	1,292.3	3.2	2.8	-171.74		56.9	0.9	145.3	139.8	5.47	26.559	
1,400.0	1,392.5	1,401.9	1,401.8	3.5	3.0	-171.90		52.3	3.9	156.1	150.3	5.89	26.520	
1,500.0	1,491.2	1,507.1	1,506.5	3.9	3.2	-171.57		44.5	9.0	163.6	157.3	6.32	25.875	
1,600.0	1,589.9	1,609.8	1,608.4	4.2	3.4	-170.87		34.2	15.7	168.1	161.3	6.77	24.832	
1,700.0	1,688.7	1,709.7	1,707.5	4.6	3.6	-170.16		23.7	22.5	172.2	164.9	7.22	23.839	
1,800.0	1,787.4	1,809.6	1,806.7	5.0	3.9	-169.49		13.3	29.3	176.3	168.6	7.69	22.939	
1,900.0	1,886.1	1,909.4	1,905.8	5.3	4.1	-168.85		2.8	36.1	180.4	172.3	8.16	22.121	
2,000.0	1,984.9	2,009.3	2,004.9	5.7	4.4	-168.24		-7.6	43.0	184.6	176.0	8.64	21.377	
2,100.0	2,083.6	2,109.2	2,104.0	6.1	4.7	-167.66		-18.1	49.8	188.8	179.7	9.12	20.699	
2,200.0	2,182.4	2,209.1	2,203.1	6.5	5.0	-167.10		-28.5	56.6	193.0	183.4	9.61	20.078	
2,300.0	2,281.1	2,309.0	2,302.2	6.8	5.3	-166.57		-39.0	63.4	197.2	187.1	10.11	19.509	
2,400.0	2,379.8	2,408.9	2,401.3	7.2	5.6	-166.05		-49.4	70.2	201.5	190.9	10.61	18.985	
2,500.0	2,478.6	2,508.8	2,500.4	7.6	5.9	-165.56		-59.9	77.0	205.7	194.6	11.12	18.503	
2,600.0	2,577.3	2,608.7	2,599.6	8.0	6.2	-165.09		-70.3	83.8	210.0	198.4	11.63	18.057	
2,700.0	2,676.0	2,708.6	2,698.7	8.3	6.5	-164.64		-80.8	90.6	214.3	202.1	12.14	17.644	
2,800.0	2,774.8	2,808.5	2,797.8	8.7	6.8	-164.21		-91.2	97.4	218.6	205.9	12.66	17.260	
2,900.0	2,873.5	2,908.4	2,896.9	9.1	7.1	-163.79		-101.7	104.2	222.9	209.7	13.19	16.904	
3,000.0	2,972.2	3,008.3	2,996.0	9.5	7.4	-163.39		-112.1	111.0	227.2	213.5	13.71	16.571	
3,100.0	3,071.0	3,108.2	3,095.1	9.8	7.7	-163.00		-122.5	117.8	231.5	217.3	14.24	16.260	
3,200.0	3,169.7	3,208.1	3,194.2	10.2	8.0	-162.63		-133.0	124.6	235.9	221.1	14.77	15.970	
3,300.0	3,268.5	3,308.0	3,293.4	10.6	8.3	-162.27		-143.4	131.4	240.2	224.9	15.30	15.697	
3,400.0	3,367.2	3,407.9	3,392.5	11.0	8.6	-161.92		-153.9	138.2	244.6	228.8	15.84	15.441	
3,500.0	3,465.9	3,507.8	3,491.6	11.4	9.0	-161.59		-164.3	145.1	249.0	232.6	16.38	15.200	
3,600.0	3,564.7	3,607.7	3,590.7	11.7	9.3	-161.27		-174.8	151.9	253.3	236.4	16.92	14.973	
3,700.0	3,663.4	3,707.5	3,689.8	12.1	9.6	-160.95		-185.2	158.7	257.7	240.3	17.46	14.758	
3,800.0	3,762.1	3,807.4	3,788.9	12.5	9.9	-160.65		-195.7	165.5	262.1	244.1	18.01	14.556	
3,900.0	3,860.9	3,907.3	3,888.0	12.9	10.2	-160.36		-206.1	172.3	266.5	248.0	18.55	14.364	
4,000.0	3,959.6	4,007.2	3,987.1	13.3	10.6	-160.08		-216.6	179.1	270.9	251.8	19.10	14.182	
4,100.0	4,058.3	4,107.1	4,086.3	13.6	10.9	-159.81		-227.0	185.9	275.3	255.7	19.65	14.010	
4,200.0	4,157.1	4,207.0	4,185.4	14.0	11.2	-159.54		-237.5	192.7	279.8	259.5	20.20	13.846	
4,300.0	4,255.8	4,306.9	4,284.5	14.4	11.5	-159.29		-247.9	199.5	284.2	263.4	20.76	13.690	
4,400.0	4,354.6	4,406.8	4,383.6	14.8	11.9	-159.04		-258.4	206.3	288.6	267.3	21.31	13.541	
4,500.0	4,453.3	4,506.7	4,482.7	15.2	12.2	-158.80		-268.8	213.1	293.0	271.2	21.87	13.400	
4,600.0	4,552.0	4,606.6	4,581.8	15.5	12.5	-158.57		-279.3	219.9	297.5	275.1	22.43	13.265	
4,700.0	4,650.8	4,706.5	4,680.9	15.9	12.8	-158.34		-289.7	226.7	301.9	278.9	22.98	13.136	
4,800.0	4,749.5	4,806.4	4,780.0	16.3	13.2	-158.12		-300.1	233.5	306.4	282.8	23.54	13.013	
4,900.0	4,848.2	4,906.3	4,879.2	16.7	13.5	-157.91		-310.6	240.4	310.8	286.7	24.10	12.895	
5,000.0	4,947.0	5,006.2	4,978.3	17.1	13.8	-157.70		-321.0	247.2	315.3	290.6	24.67	12.782	

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 Tarin 32Y-404
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4791.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4791.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin 32Y-404	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-15-14)	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		
5,100.0	5,045.7	5,106.1	5,077.4	17.4	14.1	-157.50	-331.5	254.0	319.7	294.5	25.23	12.673		
5,200.0	5,144.4	5,206.0	5,176.5	17.8	14.5	-157.30	-341.9	260.8	324.2	298.4	25.79	12.569		
5,300.0	5,243.2	5,305.9	5,275.6	18.2	14.8	-157.11	-352.4	267.6	328.7	302.3	26.36	12.470		
5,400.0	5,341.9	5,405.7	5,374.7	18.6	15.1	-156.92	-362.8	274.4	333.2	306.2	26.92	12.374		
5,500.0	5,440.7	5,505.6	5,473.8	19.0	15.4	-156.74	-373.3	281.2	337.6	310.1	27.49	12.282		
5,600.0	5,539.4	5,605.5	5,572.9	19.3	15.8	-156.57	-383.7	288.0	342.1	314.1	28.06	12.193		
5,700.0	5,638.1	5,700.0	5,666.7	19.7	16.1	-156.41	-393.5	294.4	346.7	318.1	28.60	12.122		
5,800.0	5,736.9	5,793.6	5,759.8	20.1	16.3	-156.48	-401.4	299.5	353.2	324.2	29.06	12.154		
5,900.0	5,835.6	5,884.0	5,850.0	20.5	16.5	-156.82	-406.5	302.9	362.3	332.9	29.47	12.296		
6,000.0	5,934.3	5,973.8	5,939.8	20.9	16.6	-157.39	-409.3	304.7	374.0	344.2	29.82	12.541		
6,100.0	6,033.3	6,066.3	6,032.3	21.2	16.8	-158.19	-409.8	305.0	386.8	356.7	30.13	12.839		
6,200.0	6,132.7	6,165.7	6,131.7	21.4	16.9	-158.85	-409.8	305.0	397.2	366.7	30.41	13.062		
6,300.0	6,232.4	6,265.4	6,231.4	21.6	17.1	-159.29	-409.8	305.0	404.2	373.6	30.68	13.178		
6,400.0	6,332.3	6,365.3	6,331.3	21.7	17.2	-159.52	-409.8	305.0	408.1	377.2	30.94	13.189		
6,500.0	6,432.3	6,465.3	6,431.3	21.9	17.4	0.00	-409.8	305.0	408.8	371.1	37.71	10.842		
6,558.6	6,490.8	6,523.9	6,489.8	21.9	17.5	90.07	-409.8	305.0	408.8	377.4	31.45	13.001		
6,600.0	6,532.3	6,565.3	6,531.3	22.0	17.5	90.02	-409.8	304.8	408.8	377.3	31.57	12.949		
6,700.0	6,631.7	6,665.4	6,630.9	22.1	17.6	90.13	-409.8	296.1	408.8	377.0	31.82	12.847		
6,800.0	6,729.1	6,765.6	6,728.6	22.1	17.7	90.24	-409.8	274.5	408.8	376.9	31.95	12.797		
6,900.0	6,822.8	6,865.9	6,822.8	22.1	17.7	90.35	-409.8	240.2	408.9	376.9	31.99	12.780		
7,000.0	6,911.0	6,966.2	6,911.7	22.1	17.7	90.45	-409.8	193.8	408.9	376.8	32.04	12.763		
7,100.0	6,992.4	7,066.7	6,993.9	22.1	17.7	90.54	-409.8	136.1	408.9	376.7	32.20	12.697		
7,200.0	7,065.6	7,167.2	7,067.8	22.0	17.6	90.62	-409.8	68.1	408.9	376.2	32.65	12.524		
7,300.0	7,129.2	7,267.8	7,132.2	22.0	17.6	90.69	-409.8	-9.1	408.9	375.3	33.53	12.194		
7,400.0	7,182.3	7,368.5	7,186.0	22.0	17.6	90.75	-409.8	-94.1	408.9	373.9	34.99	11.684		
7,500.0	7,223.8	7,469.3	7,228.1	22.1	18.2	90.80	-409.8	-185.6	408.9	371.8	37.11	11.017		
7,600.0	7,253.1	7,570.0	7,257.9	22.4	19.7	90.83	-409.8	-281.8	408.9	369.0	39.88	10.254		
7,700.0	7,269.7	7,670.8	7,274.7	23.2	21.4	90.85	-409.8	-381.1	408.9	365.7	43.19	9.467		
7,800.0	7,273.6	7,770.8	7,284.9	24.7	23.4	91.71	-409.8	-480.6	409.0	362.1	46.96	8.710		
7,900.0	7,273.8	7,871.9	7,288.5	26.6	25.4	92.21	-409.8	-581.6	409.1	358.1	51.04	8.015		
8,000.0	7,273.9	7,971.9	7,288.5	28.6	27.6	92.17	-409.8	-681.6	409.1	353.8	55.36	7.390		
8,100.0	7,274.1	8,071.9	7,288.4	30.8	29.9	92.14	-409.8	-781.6	409.1	349.2	59.89	6.832		
8,200.0	7,274.3	8,171.9	7,288.3	33.1	32.3	92.11	-409.8	-881.6	409.1	344.5	64.58	6.335		
8,300.0	7,274.4	8,271.9	7,288.3	35.5	34.7	92.08	-409.8	-981.6	409.1	339.7	69.41	5.894		
8,400.0	7,274.6	8,371.9	7,288.2	37.9	37.2	92.05	-409.8	-1,081.6	409.1	334.8	74.36	5.502		
8,500.0	7,274.7	8,471.9	7,288.1	40.4	39.7	92.02	-409.8	-1,181.6	409.1	329.7	79.39	5.153		
8,600.0	7,274.9	8,571.9	7,288.1	42.9	42.3	91.98	-409.8	-1,281.6	409.1	324.6	84.49	4.842		
8,700.0	7,275.0	8,671.9	7,288.0	45.5	44.9	91.95	-409.8	-1,381.6	409.1	319.4	89.65	4.563		
8,800.0	7,275.2	8,771.9	7,287.9	48.0	47.5	91.92	-409.8	-1,481.6	409.1	314.2	94.87	4.312		
8,900.0	7,275.4	8,871.9	7,287.8	50.6	50.1	91.89	-409.8	-1,581.6	409.1	308.9	100.13	4.085		
9,000.0	7,275.5	8,971.9	7,287.8	53.3	52.8	91.86	-409.8	-1,681.6	409.1	303.6	105.42	3.880		
9,100.0	7,275.7	9,071.9	7,287.7	55.9	55.4	91.82	-409.8	-1,781.6	409.1	298.3	110.75	3.694		
9,200.0	7,275.8	9,171.9	7,287.6	58.6	58.1	91.79	-409.8	-1,881.6	409.0	292.9	116.10	3.523		
9,300.0	7,276.0	9,271.9	7,287.6	61.2	60.8	91.76	-409.8	-1,981.6	409.0	287.6	121.48	3.367		
9,400.0	7,276.1	9,371.9	7,287.5	63.9	63.5	91.73	-409.8	-2,081.6	409.0	282.2	126.88	3.224		
9,500.0	7,276.3	9,471.9	7,287.4	66.6	66.2	91.70	-409.8	-2,181.6	409.0	276.7	132.29	3.092		
9,600.0	7,276.5	9,571.9	7,287.4	69.3	68.9	91.67	-409.8	-2,281.6	409.0	271.3	137.72	2.970		
9,700.0	7,276.6	9,671.9	7,287.3	72.0	71.6	91.63	-409.8	-2,381.6	409.0	265.8	143.17	2.857		
9,800.0	7,276.8	9,771.9	7,287.2	74.7	74.4	91.60	-409.8	-2,481.6	409.0	260.4	148.63	2.752		
9,900.0	7,276.9	9,871.9	7,287.1	77.5	77.1	91.57	-409.8	-2,581.6	409.0	254.9	154.09	2.654		
10,000.0	7,277.1	9,971.9	7,287.1	80.2	79.8	91.54	-409.8	-2,681.6	409.0	249.4	159.57	2.563		

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 Tarin 32Y-404
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4791.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4791.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin 32Y-404	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-15-14)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Tarin 32X-HZ Pad Sec.32-T4N-R66W - Tarin 32Y-414 - Wellbore #1 - Plan #2 (5-22-14)												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
10,100.0	7,277.2	10,071.9	7,287.0	82.9	82.6	91.51	-409.8	-2,781.6	409.0	243.9	165.06	2.478	
10,200.0	7,277.4	10,171.9	7,286.9	85.7	85.3	91.48	-409.8	-2,881.6	409.0	238.4	170.56	2.398	
10,300.0	7,277.6	10,271.9	7,286.9	88.4	88.1	91.44	-409.8	-2,981.6	409.0	232.9	176.06	2.323	
10,400.0	7,277.7	10,371.9	7,286.8	91.1	90.8	91.41	-409.8	-3,081.6	409.0	227.4	181.57	2.252	
10,500.0	7,277.9	10,471.9	7,286.7	93.9	93.6	91.38	-409.8	-3,181.6	409.0	221.9	187.09	2.186	
10,600.0	7,278.0	10,571.9	7,286.7	96.6	96.4	91.35	-409.8	-3,281.6	409.0	216.3	192.61	2.123	
10,700.0	7,278.2	10,671.9	7,286.6	99.4	99.1	91.32	-409.8	-3,381.6	409.0	210.8	198.14	2.064	
10,800.0	7,278.3	10,771.9	7,286.5	102.2	101.9	91.28	-409.8	-3,481.6	408.9	205.3	203.67	2.008	
10,900.0	7,278.5	10,871.9	7,286.4	104.9	104.7	91.25	-409.8	-3,581.6	408.9	199.7	209.21	1.955	
11,000.0	7,278.7	10,971.9	7,286.4	107.7	107.4	91.22	-409.8	-3,681.6	408.9	194.2	214.75	1.904	
11,100.0	7,278.8	11,071.9	7,286.3	110.4	110.2	91.19	-409.8	-3,781.6	408.9	188.6	220.30	1.856	
11,200.0	7,279.0	11,171.9	7,286.2	113.2	113.0	91.16	-409.8	-3,881.6	408.9	183.1	225.84	1.811	
11,300.0	7,279.1	11,271.9	7,286.2	116.0	115.7	91.13	-409.8	-3,981.6	408.9	177.5	231.40	1.767	
11,400.0	7,279.3	11,371.9	7,286.1	118.8	118.5	91.09	-409.8	-4,081.6	408.9	172.0	236.95	1.726	
11,500.0	7,279.4	11,471.9	7,286.0	121.5	121.3	91.06	-409.8	-4,181.6	408.9	166.4	242.51	1.686	
11,600.0	7,279.6	11,571.9	7,286.0	124.3	124.1	91.03	-409.8	-4,281.6	408.9	160.8	248.07	1.648	
11,700.0	7,279.8	11,671.9	7,285.9	127.1	126.9	91.00	-409.8	-4,381.6	408.9	155.3	253.63	1.612	
11,800.0	7,279.9	11,771.9	7,285.8	129.8	129.6	90.97	-409.8	-4,481.6	408.9	149.7	259.20	1.578	
11,900.0	7,280.1	11,871.9	7,285.7	132.6	132.4	90.93	-409.8	-4,581.6	408.9	144.1	264.76	1.544	
12,000.0	7,280.2	11,971.9	7,285.7	135.4	135.2	90.90	-409.8	-4,681.6	408.9	138.6	270.33	1.513	
12,100.0	7,280.4	12,071.9	7,285.6	138.2	138.0	90.87	-409.8	-4,781.6	408.9	133.0	275.90	1.482 Level 3	
12,200.0	7,280.5	12,171.9	7,285.5	141.0	140.8	90.84	-409.8	-4,881.6	408.9	127.4	281.47	1.453 Level 3	
12,300.0	7,280.7	12,271.9	7,285.5	143.8	143.6	90.81	-409.8	-4,981.6	408.9	121.8	287.05	1.424 Level 3	
12,400.0	7,280.9	12,371.9	7,285.4	146.5	146.4	90.78	-409.8	-5,081.6	408.9	116.3	292.62	1.397 Level 3	
12,500.0	7,281.0	12,471.9	7,285.3	149.3	149.1	90.74	-409.8	-5,181.6	408.9	110.7	298.20	1.371 Level 3	
12,600.0	7,281.2	12,571.9	7,285.3	152.1	151.9	90.71	-409.8	-5,281.6	408.9	105.1	303.78	1.346 Level 3	
12,700.0	7,281.3	12,671.9	7,285.2	154.9	154.7	90.68	-409.8	-5,381.6	408.9	99.5	309.36	1.322 Level 3	
12,800.0	7,281.5	12,771.9	7,285.1	157.7	157.5	90.65	-409.8	-5,481.6	408.9	93.9	314.94	1.298 Level 3	
12,900.0	7,281.6	12,871.9	7,285.0	160.5	160.3	90.62	-409.8	-5,581.6	408.9	88.3	320.52	1.276 Level 3	
13,000.0	7,281.8	12,971.9	7,285.0	163.3	163.1	90.59	-409.8	-5,681.6	408.9	82.8	326.11	1.254 Level 3	
13,100.0	7,282.0	13,071.9	7,284.9	166.0	165.9	90.55	-409.8	-5,781.6	408.9	77.2	331.69	1.233 Level 2	
13,200.0	7,282.1	13,171.9	7,284.8	168.8	168.7	90.52	-409.8	-5,881.6	408.9	71.6	337.28	1.212 Level 2	
13,300.0	7,282.3	13,271.9	7,284.8	171.6	171.5	90.49	-409.8	-5,981.6	408.9	66.0	342.86	1.192 Level 2	
13,400.0	7,282.4	13,371.9	7,284.7	174.4	174.3	90.46	-409.8	-6,081.6	408.9	60.4	348.45	1.173 Level 2	
13,500.0	7,282.6	13,471.9	7,284.6	177.2	177.1	90.43	-409.8	-6,181.6	408.9	54.8	354.04	1.155 Level 2	
13,600.0	7,282.7	13,571.9	7,284.6	180.0	179.9	90.39	-409.8	-6,281.6	408.9	49.2	359.62	1.137 Level 2	
13,700.0	7,282.9	13,671.9	7,284.5	182.8	182.6	90.36	-409.8	-6,381.6	408.9	43.6	365.21	1.119 Level 2	
13,800.0	7,283.1	13,771.9	7,284.4	185.6	185.4	90.33	-409.8	-6,481.5	408.8	38.0	370.80	1.103 Level 2	
13,900.0	7,283.2	13,871.9	7,284.4	188.4	188.2	90.30	-409.8	-6,581.5	408.8	32.5	376.40	1.086 Level 2	
14,000.0	7,283.4	13,971.9	7,284.3	191.2	191.0	90.27	-409.8	-6,681.5	408.8	26.9	381.99	1.070 Level 2	
14,100.0	7,283.5	14,071.9	7,284.2	194.0	193.8	90.24	-409.8	-6,781.5	408.8	21.3	387.58	1.055 Level 2	
14,200.0	7,283.7	14,171.9	7,284.1	196.7	196.6	90.20	-409.8	-6,881.5	408.8	15.7	393.17	1.040 Level 2	
14,300.0	7,283.8	14,271.9	7,284.1	199.5	199.4	90.17	-409.8	-6,981.5	408.8	10.1	398.76	1.025 Level 2	
14,399.1	7,284.0	14,371.0	7,284.0	202.3	202.2	90.14	-409.8	-7,080.6	408.8	4.5	404.31	1.011 Level 2, ES, SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin 32Y-404
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4791.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4791.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin 32Y-404	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-15-14)	Offset TVD Reference:	Offset Datum

Offset Design		Tarin Existing Wells Sec.32-T4N-R66W - Glen 44-32 (Existing) - Wellbore #1 - Wellbore #1											Offset Site Error:	0.0 ft
Survey Program:		100-NS-GYRO-MS											Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance								Warning
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
0.0	0.0	0.0	0.0	0.0	0.0	-147.45	-174.9	-111.6	207.9					
100.0	100.0	84.8	84.8	0.1	0.1	-147.34	-174.9	-112.1	207.7	207.5	0.23	922.614		
200.0	200.0	184.0	184.0	0.3	0.4	-147.05	-175.0	-113.4	208.5	207.8	0.69	301.343		
300.0	300.0	286.0	285.9	0.6	0.6	-146.75	-174.9	-114.7	209.1	208.0	1.17	178.670		
400.0	400.0	386.2	386.2	0.8	0.9	-146.39	-174.1	-115.7	209.0	207.4	1.64	127.328		
423.6	423.6	409.6	409.6	0.8	0.9	-146.29	-173.9	-116.0	209.0	207.3	1.75	119.220		
500.0	500.0	484.8	484.7	1.0	1.1	-146.03	-173.5	-116.9	209.2	207.1	2.12	98.809		
600.0	600.0	585.6	585.6	1.2	1.4	55.16	-173.2	-118.2	208.7	206.1	2.58	80.982		
700.0	699.8	687.5	687.5	1.4	1.6	56.84	-172.1	-119.3	205.5	202.5	3.00	68.598		
800.0	799.5	785.5	785.4	1.6	1.8	59.24	-171.2	-119.7	200.4	197.0	3.43	58.434		
900.0	898.7	885.0	884.9	1.9	2.1	62.82	-170.3	-120.8	194.5	190.6	3.92	49.557		
1,000.0	997.5	983.6	983.5	2.2	2.3	67.43	-169.3	-121.8	187.9	183.5	4.46	42.094		
1,100.0	1,096.3	1,082.7	1,082.6	2.5	2.6	72.27	-168.6	-122.3	182.3	177.3	5.03	36.237		
1,200.0	1,195.0	1,180.9	1,180.8	2.8	2.8	77.38	-167.7	-122.8	178.0	172.4	5.62	31.689		
1,300.0	1,293.7	1,279.2	1,279.1	3.2	3.1	82.72	-166.8	-123.6	175.5	169.2	6.23	28.181		
1,395.6	1,388.1	1,373.3	1,373.1	3.5	3.3	88.01	-165.8	-124.5	174.7	167.9	6.82	25.624 CC		
1,400.0	1,392.5	1,377.6	1,377.5	3.5	3.3	88.26	-165.7	-124.6	174.7	167.8	6.84	25.523 ES		
1,500.0	1,491.2	1,475.8	1,475.7	3.9	3.6	93.94	-164.2	-125.8	175.7	168.3	7.46	23.563		
1,600.0	1,589.9	1,574.4	1,574.3	4.2	3.9	99.44	-163.0	-127.1	178.5	170.5	8.06	22.145		
1,700.0	1,688.7	1,672.2	1,672.0	4.6	4.1	104.67	-161.8	-128.4	183.0	174.4	8.65	21.159		
1,800.0	1,787.4	1,770.4	1,770.2	5.0	4.4	109.64	-160.6	-130.0	189.4	180.2	9.22	20.541		
1,900.0	1,886.1	1,868.8	1,868.6	5.3	4.6	114.29	-159.4	-131.7	197.2	187.4	9.78	20.169		
2,000.0	1,984.9	1,966.7	1,966.5	5.7	4.9	118.63	-157.9	-133.4	206.2	195.9	10.31	20.001 SF		
2,100.0	2,083.6	2,064.9	2,064.6	6.1	5.2	122.64	-156.2	-135.4	216.7	205.8	10.83	20.002		
2,200.0	2,182.4	2,164.8	2,164.5	6.5	5.4	126.48	-153.9	-137.0	227.9	216.6	11.33	20.112		
2,300.0	2,281.1	2,266.0	2,265.6	6.8	5.6	130.12	-151.5	-137.4	239.0	227.2	11.79	20.270		
2,400.0	2,379.8	2,362.6	2,362.2	7.2	5.8	133.49	-148.5	-137.0	250.3	238.1	12.21	20.500		
2,500.0	2,478.6	2,461.4	2,460.9	7.6	6.1	136.69	-144.8	-137.2	263.4	250.8	12.63	20.854		
2,600.0	2,577.3	2,560.6	2,560.0	8.0	6.3	139.69	-141.2	-136.5	276.3	263.3	13.04	21.195		
2,700.0	2,676.0	2,659.0	2,658.4	8.3	6.5	142.32	-137.9	-136.0	290.0	276.6	13.45	21.567		
2,800.0	2,774.8	2,756.4	2,755.8	8.7	6.7	144.65	-134.9	-135.5	304.1	290.3	13.86	21.937		
2,900.0	2,873.5	2,855.8	2,855.1	9.1	6.9	146.84	-131.5	-135.2	319.0	304.7	14.28	22.339		
3,000.0	2,972.2	2,955.6	2,954.9	9.5	7.1	148.86	-128.5	-134.2	333.5	318.8	14.69	22.706		
3,100.0	3,071.0	3,057.1	3,056.3	9.8	7.3	150.82	-125.3	-132.6	348.1	333.0	15.07	23.093		
3,200.0	3,169.7	3,160.1	3,159.2	10.2	7.4	152.64	-123.1	-129.9	361.6	346.1	15.42	23.449		
3,300.0	3,268.5	3,257.6	3,256.7	10.6	7.6	154.10	-122.0	-127.6	374.8	359.0	15.76	23.786		
3,400.0	3,367.2	3,352.6	3,351.7	11.0	7.7	155.26	-121.2	-126.7	389.0	372.9	16.14	24.100		
3,500.0	3,465.9	3,447.4	3,446.5	11.4	7.9	156.16	-120.7	-127.3	404.3	387.8	16.58	24.383		
3,600.0	3,564.7	3,542.4	3,541.5	11.7	8.1	156.82	-120.3	-129.4	420.7	403.7	17.03	24.700		
3,700.0	3,663.4	3,639.7	3,638.7	12.1	8.3	157.27	-120.4	-133.0	437.7	420.3	17.47	25.049		
3,800.0	3,762.1	3,736.4	3,735.4	12.5	8.5	157.63	-120.8	-136.9	454.8	436.9	17.91	25.389		
3,900.0	3,860.9	3,830.2	3,829.0	12.9	8.7	157.88	-120.9	-141.7	472.9	454.5	18.36	25.758		
4,000.0	3,959.6	3,929.5	3,928.1	13.3	8.9	158.06	-121.1	-147.5	491.4	472.5	18.82	26.107		
4,100.0	4,058.3	4,029.8	4,028.2	13.6	9.1	158.23	-121.7	-152.9	509.1	489.9	19.28	26.405		
4,200.0	4,157.1	4,122.6	4,120.9	14.0	9.3	158.36	-122.0	-158.5	527.6	507.9	19.74	26.733		
4,300.0	4,255.8	4,220.1	4,218.2	14.4	9.5	158.52	-121.7	-164.4	546.6	526.4	20.21	27.044		
4,400.0	4,354.6	4,318.2	4,316.2	14.8	9.8	158.70	-121.1	-170.2	565.7	545.0	20.69	27.335		
4,500.0	4,453.3	4,415.7	4,413.5	15.2	10.0	158.91	-120.2	-175.6	584.7	563.6	21.18	27.611		
4,600.0	4,552.0	4,511.7	4,509.4	15.5	10.2	159.17	-118.8	-180.6	604.1	582.4	21.66	27.884		
4,700.0	4,650.8	4,608.4	4,606.0	15.9	10.5	159.51	-116.4	-185.0	623.8	601.6	22.16	28.153		
4,800.0	4,749.5	4,711.3	4,708.7	16.3	10.8	159.94	-113.6	-188.8	643.0	620.4	22.66	28.374		

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 Tarin 32Y-404
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4791.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4791.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin 32Y-404	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-15-14)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS													Offset Well Error:	0.0 ft
Tarin Existing Wells Sec.32-T4N-R66W - Glen 44-32 (Existing) - Wellbore #1 - Wellbore #1														
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
4,900.0	4,848.2	4,804.4	4,801.7	16.7	11.0	160.38	-110.4	-191.6	662.5	639.3	23.14	28.625		
5,000.0	4,947.0	4,906.8	4,904.0	17.1	11.3	160.87	-106.5	-194.4	682.0	658.4	23.64	28.847		
5,100.0	5,045.7	5,017.1	5,014.3	17.4	11.6	161.38	-103.4	-196.5	700.3	676.2	24.16	28.990		
5,200.0	5,144.4	5,126.5	5,123.7	17.8	11.8	161.86	-101.8	-197.2	717.0	692.3	24.65	29.085		
5,300.0	5,243.2	5,226.8	5,223.9	18.2	12.0	162.36	-100.4	-196.5	732.7	707.6	25.08	29.214		
5,400.0	5,341.9	5,319.5	5,316.6	18.6	12.2	162.78	-98.9	-196.5	749.1	723.6	25.50	29.371		
5,500.0	5,440.7	5,422.6	5,419.7	19.0	12.4	163.26	-97.0	-196.1	765.5	739.5	25.95	29.497		
5,600.0	5,539.4	5,525.5	5,522.6	19.3	12.6	163.74	-95.4	-195.0	781.3	754.9	26.35	29.649		
5,700.0	5,638.1	5,630.0	5,627.1	19.7	12.7	164.25	-94.0	-193.2	796.6	769.9	26.71	29.822		
5,800.0	5,736.9	5,738.4	5,735.4	20.1	12.8	164.69	-93.9	-191.3	810.9	783.9	27.02	30.014		
5,900.0	5,835.6	5,842.2	5,839.2	20.5	12.8	165.13	-94.6	-188.5	824.2	796.9	27.29	30.199		
6,000.0	5,934.3	5,937.7	5,934.7	20.9	12.9	165.45	-95.7	-186.9	837.7	810.1	27.56	30.392		
6,100.0	6,033.3	6,032.1	6,029.0	21.2	12.9	165.74	-96.8	-186.1	850.3	822.4	27.87	30.513		
6,200.0	6,132.7	6,129.3	6,126.2	21.4	12.9	166.00	-97.2	-185.2	860.1	832.0	28.13	30.575		
6,300.0	6,232.4	6,233.4	6,230.3	21.6	13.0	166.14	-98.3	-184.7	866.3	837.9	28.38	30.530		
6,400.0	6,332.3	6,334.0	6,331.0	21.7	13.1	166.15	-100.0	-184.6	868.9	840.3	28.58	30.398		
6,500.0	6,432.3	6,435.3	6,432.2	21.9	13.1	-34.31	-101.7	-184.3	868.1	833.5	34.62	25.076		
6,600.0	6,532.3	6,532.6	6,529.5	22.0	13.2	55.77	-102.7	-183.0	866.4	837.4	28.98	29.891		
6,700.0	6,631.7	6,624.0	6,620.8	22.1	13.3	56.73	-102.4	-181.3	860.3	831.3	28.99	29.679		
6,800.0	6,729.1	6,714.3	6,711.2	22.1	13.4	58.84	-101.0	-179.1	848.1	819.2	28.87	29.372		
6,900.0	6,822.8	6,800.0	6,796.8	22.1	13.5	61.98	-98.5	-176.9	831.2	802.4	28.77	28.893		
7,000.0	6,911.0	6,884.3	6,881.0	22.1	13.7	66.10	-95.9	-175.5	810.6	781.8	28.84	28.111		
7,100.0	6,992.4	6,973.0	6,969.7	22.1	13.9	71.38	-93.9	-174.8	787.5	758.2	29.24	26.930		
7,200.0	7,065.6	7,051.3	7,048.0	22.0	14.1	77.05	-93.2	-174.4	764.0	734.0	29.96	25.503		
7,300.0	7,129.2	7,116.8	7,113.5	22.0	14.2	82.46	-92.8	-173.8	743.7	712.8	30.89	24.074		
7,400.0	7,182.3	7,150.0	7,146.7	22.0	14.2	85.63	-92.7	-173.5	730.4	698.5	31.86	22.927		
7,461.8	7,209.3	7,150.0	7,146.7	22.0	14.2	85.82	-92.7	-173.5	727.9	695.4	32.50	22.400		
7,500.0	7,223.8	7,150.0	7,146.7	22.1	14.2	85.75	-92.7	-173.5	728.9	696.0	32.89	22.158		
7,600.0	7,253.1	7,150.0	7,146.7	22.4	14.2	84.91	-92.7	-173.5	740.0	705.8	34.18	21.653		
7,700.0	7,269.7	7,150.0	7,146.7	23.2	14.2	83.14	-92.7	-173.5	763.1	727.4	35.62	21.423		
7,800.0	7,273.6	7,150.0	7,146.7	24.7	14.2	81.19	-92.7	-173.5	796.7	759.5	37.19	21.424		
7,900.0	7,273.8	7,150.0	7,146.7	26.6	14.2	81.19	-92.7	-173.5	840.4	801.3	39.17	21.458		
8,000.0	7,273.9	7,150.0	7,146.7	28.6	14.2	81.19	-92.7	-173.5	893.3	852.0	41.29	21.636		
8,100.0	7,274.1	7,150.0	7,146.7	30.8	14.2	81.19	-92.7	-173.5	953.7	910.2	43.52	21.917		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin 32Y-404
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4791.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4791.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin 32Y-404	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-15-14)	Offset TVD Reference:	Offset Datum

Offset Design Tarin Existing Wells Sec.32-T4N-R66W - Hunt 27-5 (Existing) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 15-NS-GYRO-MS												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
7,100.0	6,992.4	7,102.6	6,993.9	22.1	16.5	-5.97	-895.6	-826.3	962.6	931.5	31.01	31.038	
7,200.0	7,065.6	7,185.2	7,076.4	22.0	16.6	-7.36	-895.4	-824.8	893.4	864.9	28.47	31.376	
7,300.0	7,129.2	7,254.1	7,145.3	22.0	16.6	-9.62	-895.4	-822.8	814.8	789.1	25.74	31.661	
7,400.0	7,182.3	7,309.5	7,200.6	22.0	16.7	-13.58	-895.3	-820.7	728.6	705.4	23.23	31.369	
7,500.0	7,223.8	7,348.9	7,240.1	22.1	16.7	-21.09	-895.3	-819.1	636.7	614.6	22.10	28.808	
7,600.0	7,253.1	7,374.7	7,265.8	22.4	16.7	-37.49	-895.4	-817.9	540.8	514.9	25.85	20.923	
7,700.0	7,269.7	7,387.1	7,278.2	23.2	16.7	-72.19	-895.4	-817.4	442.8	406.5	36.33	12.188	
7,800.0	7,273.6	7,386.5	7,277.6	24.7	16.7	-100.67	-895.4	-817.4	344.8	306.0	38.87	8.872	
7,900.0	7,273.8	7,382.1	7,273.2	26.6	16.7	-97.48	-895.4	-817.6	248.4	207.2	41.18	6.032	
8,000.0	7,273.9	7,377.8	7,268.9	28.6	16.7	-94.27	-895.4	-817.8	156.5	112.9	43.55	3.593	
8,100.0	7,274.1	7,373.5	7,264.6	30.8	16.7	-91.06	-895.4	-818.0	84.9	39.0	45.93	1.849	
8,136.5	7,274.2	7,371.9	7,263.0	31.7	16.7	-89.89	-895.4	-818.1	76.7	29.9	46.80	1.639 CC, ES, SF	
8,200.0	7,274.3	7,369.2	7,260.3	33.1	16.7	-87.87	-895.4	-818.2	99.5	51.3	48.26	2.062	
8,300.0	7,274.4	7,365.0	7,256.1	35.5	16.7	-84.73	-895.4	-818.4	180.5	129.9	50.53	3.572	
8,400.0	7,274.6	7,360.8	7,251.9	37.9	16.7	-81.66	-895.3	-818.5	274.2	221.5	52.69	5.204	
8,500.0	7,274.7	7,356.6	7,247.8	40.4	16.7	-78.65	-895.3	-818.7	371.2	316.5	54.73	6.782	
8,600.0	7,274.9	7,352.5	7,243.7	42.9	16.7	-75.74	-895.3	-818.9	469.4	412.7	56.65	8.286	
8,700.0	7,275.0	7,348.5	7,239.6	45.5	16.7	-72.93	-895.3	-819.1	568.2	509.8	58.43	9.725	
8,800.0	7,275.2	7,344.5	7,235.6	48.0	16.7	-70.22	-895.3	-819.3	667.3	607.3	60.07	11.109	
8,900.0	7,275.4	7,340.5	7,231.6	50.6	16.7	-67.63	-895.3	-819.4	766.7	705.1	61.58	12.450	
9,000.0	7,275.5	7,336.5	7,227.7	53.3	16.7	-65.15	-895.3	-819.6	866.1	803.2	62.96	13.757	
9,100.0	7,275.7	7,332.6	7,223.7	55.9	16.7	-62.79	-895.3	-819.8	965.7	901.5	64.22	15.037	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin 32Y-404
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4791.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4791.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin 32Y-404	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-15-14)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4791.0ft (RKB - 15')

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Tarin 32Y-404

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.46°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin 32Y-404
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4791.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4791.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin 32Y-404	Survey Calculation Method:	Minimum Curvature
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Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (7-15-14)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4791.0ft (RKB - 15')

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