

PETROLEUM DEVELOPMENT CORP Weld County CO

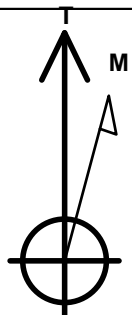
Well Name: **Tarin 32W-234**

Surface Location: Tarin 32X-HZ Pad Sec.32-T4N-R66W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
Ground Elevation: 4774.0

+N-S	+E-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1339733.61	3197250.06	40.263810	-104.793180	
RKB - 15' WELL @ 4789.0ft (RKB - 15')						

WELLBORE TARGET DETAILS

Name	TVD	+N-S	+E-W	Shape
SHL 1063'FSL & 355'FEL, Sec.32	1.0	0.0	0.0	Point
BHL 2385'FSL & 2152'FEL, Sec.31	7056.0	1283.4	-7096.7	Point



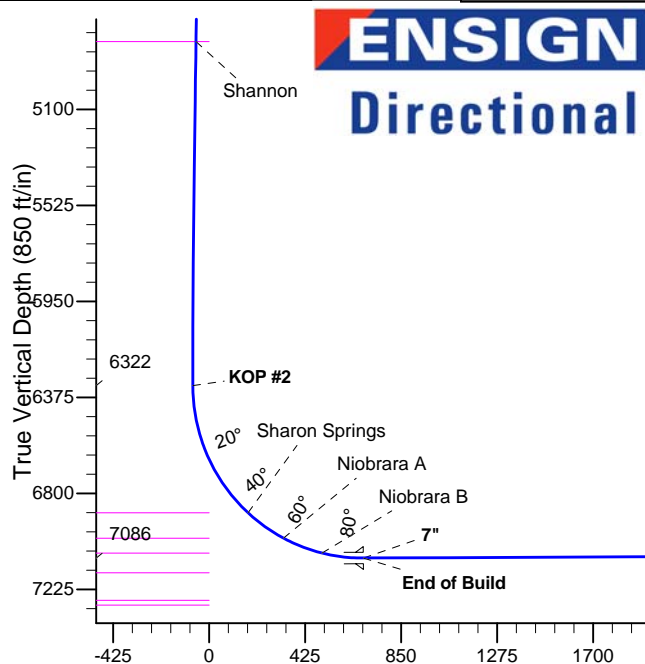
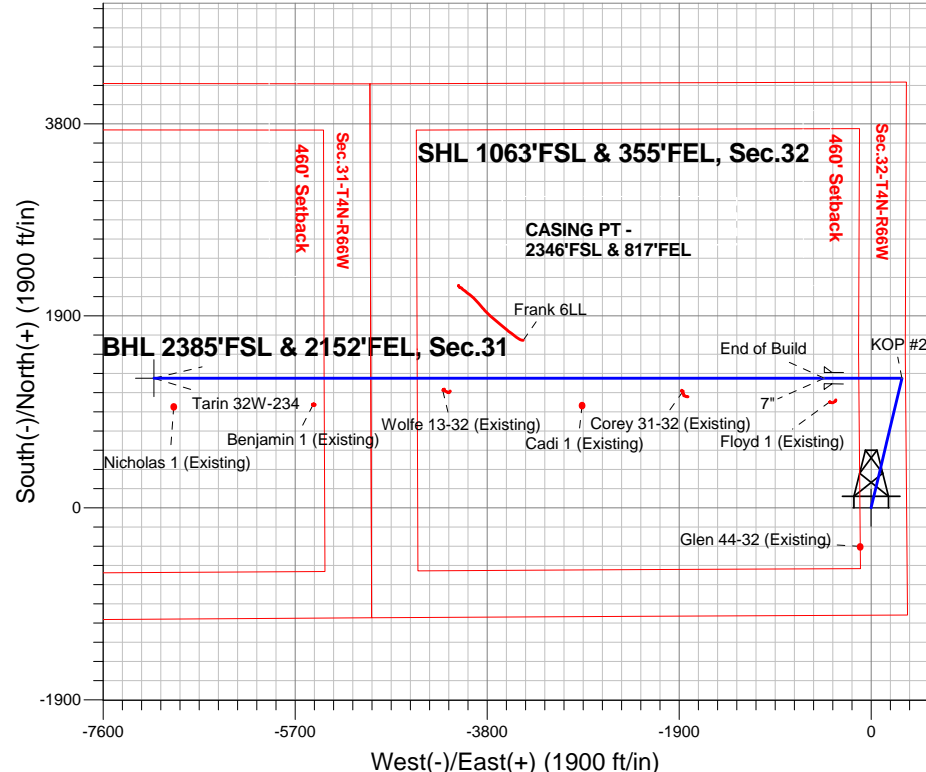
Azimuths to True North
Magnetic North: 8.48°

Magnetic Field
Strength: 52756.6srT
Dip Angle: 66.84°
Date: 4/23/2014
Model: IGRF2010

Tarin 32X-HZ Pad Sec.32-T4N-R66W
Tarin 32W-234
Plan #1 (4-14-14)
11:15, April 25 2014

ANNOTATIONS

TVD	MD	Annotation
200.0	200.0	KOP #1
6322.2	6477.0	KOP #2
7086.1	7680.4	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	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
3	899.2	13.98	13.37	892.2	82.6	19.6	2.00	13.37	-4.6	
4	5655.6	13.98	13.37	5507.8	1200.8	285.4	0.00	0.00	-67.1	
5	6354.8	0.00	0.00	6200.0	1283.4	305.0	2.00	180.00	-71.7	
6	6477.0	0.00	0.00	6322.2	1283.4	305.0	0.00	0.00	-71.7	
7	7680.4	90.26	270.00	7086.1	1283.4	-462.4	7.50	270.00	683.4	
8	14314.8	90.26	270.00	7056.0	1283.4	-7096.7	0.00	0.00	7211.8	BHL 2385'FSL & 2152'FEL, Sec.31

BHL 2385'FSL & 2152'FEL, Sec.31

Vertical Section at 280.25° (850 ft/in)



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.32-T4N-R66W

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

Tarin 32W-234

Wellbore #1

Plan: Plan #1 (4-14-14)

Standard Planning Report

25 April, 2014

Database:	landmark	Local Co-ordinate Reference:	Well Tarin 32W-234
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4789.0ft (RKB - 15')
Project:	SEC.32-T4N-R66W	MD Reference:	WELL @ 4789.0ft (RKB - 15')
Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	North Reference:	True
Well:	Tarin 32W-234	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (4-14-14)		

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 32W-234		
Well Position	+N/-S	0.0 ft	Northing: 1,339,733.61 ft
	+E/-W	0.0 ft	Easting: 3,197,250.06 ft
Position Uncertainty		0.0 ft	Wellhead Elevation: ft
			Latitude: 40.263810
			Longitude: -104.793180
			Ground Level: 4,774.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/23/2014	8.48	66.84	52,757

Design	Plan #1 (4-14-14)			
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	280.25

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	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
899.2	13.98	13.37	892.2	82.6	19.6	2.00	2.00	0.00	13.37	
5,655.6	13.98	13.37	5,507.8	1,200.8	285.4	0.00	0.00	0.00	0.00	
6,354.8	0.00	0.00	6,200.0	1,283.4	305.0	2.00	-2.00	0.00	180.00	
6,477.0	0.00	0.00	6,322.2	1,283.4	305.0	0.00	0.00	0.00	0.00	
7,680.4	90.26	270.00	7,086.1	1,283.4	-462.4	7.50	7.50	0.00	270.00	
14,314.8	90.26	270.00	7,056.0	1,283.4	-7,096.7	0.00	0.00	0.00	0.00	BHL 2385'FSL & 21

Database:	landmark	Local Co-ordinate Reference:	Well Tarin 32W-234
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4789.0ft (RKB - 15')
Project:	SEC.32-T4N-R66W	MD Reference:	WELL @ 4789.0ft (RKB - 15')
Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	North Reference:	True
Well:	Tarin 32W-234	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (4-14-14)		

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
1.0	0.00	0.00	1.0	0.0	0.0	0.0	0.00	0.00	0.00
SHL 1063'FSL & 355'FEL, Sec.32									
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
KOP #1									
300.0	2.00	13.37	300.0	1.7	0.4	-0.1	2.00	2.00	0.00
400.0	4.00	13.37	399.8	6.8	1.6	-0.4	2.00	2.00	0.00
500.0	6.00	13.37	499.5	15.3	3.6	-0.9	2.00	2.00	0.00
600.0	8.00	13.37	598.7	27.1	6.4	-1.5	2.00	2.00	0.00
700.0	10.00	13.37	697.5	42.3	10.1	-2.4	2.00	2.00	0.00
800.0	12.00	13.37	795.6	60.9	14.5	-3.4	2.00	2.00	0.00
899.2	13.98	13.37	892.2	82.6	19.6	-4.6	2.00	2.00	0.00
900.0	13.98	13.37	893.1	82.8	19.7	-4.6	0.00	0.00	0.00
1,000.0	13.98	13.37	990.1	106.3	25.3	-5.9	0.00	0.00	0.00
1,100.0	13.98	13.37	1,087.1	129.8	30.8	-7.3	0.00	0.00	0.00
1,200.0	13.98	13.37	1,184.2	153.3	36.4	-8.6	0.00	0.00	0.00
1,300.0	13.98	13.37	1,281.2	176.8	42.0	-9.9	0.00	0.00	0.00
1,400.0	13.98	13.37	1,378.2	200.3	47.6	-11.2	0.00	0.00	0.00
1,500.0	13.98	13.37	1,475.3	223.8	53.2	-12.5	0.00	0.00	0.00
1,600.0	13.98	13.37	1,572.3	247.4	58.8	-13.8	0.00	0.00	0.00
1,700.0	13.98	13.37	1,669.3	270.9	64.4	-15.1	0.00	0.00	0.00
1,800.0	13.98	13.37	1,766.4	294.4	70.0	-16.5	0.00	0.00	0.00
1,900.0	13.98	13.37	1,863.4	317.9	75.5	-17.8	0.00	0.00	0.00
2,000.0	13.98	13.37	1,960.5	341.4	81.1	-19.1	0.00	0.00	0.00
2,100.0	13.98	13.37	2,057.5	364.9	86.7	-20.4	0.00	0.00	0.00
2,200.0	13.98	13.37	2,154.5	388.4	92.3	-21.7	0.00	0.00	0.00
2,300.0	13.98	13.37	2,251.6	411.9	97.9	-23.0	0.00	0.00	0.00
2,400.0	13.98	13.37	2,348.6	435.4	103.5	-24.3	0.00	0.00	0.00
2,500.0	13.98	13.37	2,445.6	458.9	109.1	-25.7	0.00	0.00	0.00
2,600.0	13.98	13.37	2,542.7	482.4	114.7	-27.0	0.00	0.00	0.00
2,700.0	13.98	13.37	2,639.7	506.0	120.2	-28.3	0.00	0.00	0.00
2,800.0	13.98	13.37	2,736.8	529.5	125.8	-29.6	0.00	0.00	0.00
2,900.0	13.98	13.37	2,833.8	553.0	131.4	-30.9	0.00	0.00	0.00
3,000.0	13.98	13.37	2,930.8	576.5	137.0	-32.2	0.00	0.00	0.00
3,100.0	13.98	13.37	3,027.9	600.0	142.6	-33.5	0.00	0.00	0.00
3,200.0	13.98	13.37	3,124.9	623.5	148.2	-34.9	0.00	0.00	0.00
3,300.0	13.98	13.37	3,221.9	647.0	153.8	-36.2	0.00	0.00	0.00
3,400.0	13.98	13.37	3,319.0	670.5	159.3	-37.5	0.00	0.00	0.00
3,500.0	13.98	13.37	3,416.0	694.0	164.9	-38.8	0.00	0.00	0.00
3,600.0	13.98	13.37	3,513.0	717.5	170.5	-40.1	0.00	0.00	0.00
3,700.0	13.98	13.37	3,610.1	741.0	176.1	-41.4	0.00	0.00	0.00
3,800.0	13.98	13.37	3,707.1	764.5	181.7	-42.7	0.00	0.00	0.00
3,803.0	13.98	13.37	3,710.0	765.2	181.9	-42.8	0.00	0.00	0.00
Parkman									
3,900.0	13.98	13.37	3,804.2	788.1	187.3	-44.1	0.00	0.00	0.00
4,000.0	13.98	13.37	3,901.2	811.6	192.9	-45.4	0.00	0.00	0.00
4,100.0	13.98	13.37	3,998.2	835.1	198.5	-46.7	0.00	0.00	0.00
4,200.0	13.98	13.37	4,095.3	858.6	204.0	-48.0	0.00	0.00	0.00
4,300.0	13.98	13.37	4,192.3	882.1	209.6	-49.3	0.00	0.00	0.00
4,400.0	13.98	13.37	4,289.3	905.6	215.2	-50.6	0.00	0.00	0.00
4,500.0	13.98	13.37	4,386.4	929.1	220.8	-51.9	0.00	0.00	0.00
4,503.7	13.98	13.37	4,390.0	930.0	221.0	-52.0	0.00	0.00	0.00

Database:	landmark	Local Co-ordinate Reference:	Well Tarin 32W-234
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4789.0ft (RKB - 15')
Project:	SEC.32-T4N-R66W	MD Reference:	WELL @ 4789.0ft (RKB - 15')
Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	North Reference:	True
Well:	Tarin 32W-234	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (4-14-14)		

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)
Sussex									
4,600.0	13.98	13.37	4,483.4	952.6	226.4	-53.3	0.00	0.00	0.00
4,700.0	13.98	13.37	4,580.4	976.1	232.0	-54.6	0.00	0.00	0.00
4,800.0	13.98	13.37	4,677.5	999.6	237.6	-55.9	0.00	0.00	0.00
4,900.0	13.98	13.37	4,774.5	1,023.1	243.2	-57.2	0.00	0.00	0.00
4,926.3	13.98	13.37	4,800.0	1,029.3	244.6	-57.5	0.00	0.00	0.00
Shannon									
5,000.0	13.98	13.37	4,871.6	1,046.7	248.7	-58.5	0.00	0.00	0.00
5,100.0	13.98	13.37	4,968.6	1,070.2	254.3	-59.8	0.00	0.00	0.00
5,200.0	13.98	13.37	5,065.6	1,093.7	259.9	-61.1	0.00	0.00	0.00
5,300.0	13.98	13.37	5,162.7	1,117.2	265.5	-62.5	0.00	0.00	0.00
5,400.0	13.98	13.37	5,259.7	1,140.7	271.1	-63.8	0.00	0.00	0.00
5,500.0	13.98	13.37	5,356.7	1,164.2	276.7	-65.1	0.00	0.00	0.00
5,600.0	13.98	13.37	5,453.8	1,187.7	282.3	-66.4	0.00	0.00	0.00
5,655.6	13.98	13.37	5,507.8	1,200.8	285.4	-67.1	0.00	0.00	0.00
5,700.0	13.10	13.37	5,550.9	1,210.9	287.8	-67.7	2.00	-2.00	0.00
5,800.0	11.10	13.37	5,648.7	1,231.3	292.6	-68.8	2.00	-2.00	0.00
5,900.0	9.10	13.37	5,747.1	1,248.3	296.7	-69.8	2.00	-2.00	0.00
6,000.0	7.10	13.37	5,846.1	1,262.0	299.9	-70.6	2.00	-2.00	0.00
6,100.0	5.10	13.37	5,945.5	1,272.4	302.4	-71.1	2.00	-2.00	0.00
6,200.0	3.10	13.37	6,045.3	1,279.3	304.0	-71.5	2.00	-2.00	0.00
6,300.0	1.10	13.37	6,145.2	1,282.9	304.9	-71.7	2.00	-2.00	0.00
6,354.8	0.00	0.00	6,200.0	1,283.4	305.0	-71.7	2.00	-2.00	0.00
6,400.0	0.00	0.00	6,245.2	1,283.4	305.0	-71.7	0.00	0.00	0.00
6,477.0	0.00	0.00	6,322.2	1,283.4	305.0	-71.7	0.00	0.00	0.00
KOP #2									
6,500.0	1.73	270.00	6,345.2	1,283.4	304.7	-71.4	7.51	7.51	0.00
6,600.0	9.23	270.00	6,444.7	1,283.4	295.1	-62.0	7.50	7.50	0.00
6,700.0	16.73	270.00	6,542.1	1,283.4	272.7	-39.9	7.50	7.50	0.00
6,800.0	24.23	270.00	6,635.7	1,283.4	237.7	-5.5	7.50	7.50	0.00
6,900.0	31.73	270.00	6,723.9	1,283.4	190.8	40.6	7.50	7.50	0.00
7,000.0	39.23	270.00	6,805.3	1,283.4	132.8	97.7	7.50	7.50	0.00
7,100.0	46.73	270.00	6,878.4	1,283.4	64.7	164.7	7.50	7.50	0.00
7,111.2	47.57	270.00	6,886.0	1,283.4	56.5	172.8	7.50	7.50	0.00
Sharon Springs									
7,200.0	54.23	270.00	6,942.0	1,283.4	-12.4	240.6	7.50	7.50	0.00
7,300.0	61.73	270.00	6,995.0	1,283.4	-97.1	323.9	7.50	7.50	0.00
7,306.4	62.21	270.00	6,998.0	1,283.4	-102.8	329.5	7.50	7.50	0.00
Niobrara A									
7,400.0	69.23	270.00	7,036.5	1,283.4	-188.0	413.4	7.50	7.50	0.00
7,492.7	76.18	270.00	7,064.0	1,283.4	-276.5	500.4	7.50	7.50	0.00
Niobrara B									
7,500.0	76.73	270.00	7,065.7	1,283.4	-283.6	507.4	7.50	7.50	0.00
7,600.0	84.23	270.00	7,082.2	1,283.4	-382.1	604.4	7.50	7.50	0.00
7,680.4	90.26	270.00	7,086.1	1,283.4	-462.4	683.4	7.50	7.50	0.00
End of Build - 7"									
7,700.0	90.26	270.00	7,086.0	1,283.4	-482.0	702.7	0.01	0.01	0.00
7,800.0	90.26	270.00	7,085.6	1,283.4	-582.0	801.1	0.00	0.00	0.00
7,900.0	90.26	270.00	7,085.1	1,283.4	-682.0	899.5	0.00	0.00	0.00
8,000.0	90.26	270.00	7,084.7	1,283.4	-782.0	997.9	0.00	0.00	0.00
8,100.0	90.26	270.00	7,084.2	1,283.4	-882.0	1,096.3	0.00	0.00	0.00
8,200.0	90.26	270.00	7,083.7	1,283.4	-982.0	1,194.7	0.00	0.00	0.00

Database:	landmark	Local Co-ordinate Reference:	Well Tarin 32W-234
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4789.0ft (RKB - 15')
Project:	SEC.32-T4N-R66W	MD Reference:	WELL @ 4789.0ft (RKB - 15')
Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	North Reference:	True
Well:	Tarin 32W-234	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (4-14-14)		

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)
8,300.0	90.26	270.00	7,083.3	1,283.4	-1,082.0	1,293.1	0.00	0.00	0.00
8,400.0	90.26	270.00	7,082.8	1,283.4	-1,182.0	1,391.5	0.00	0.00	0.00
8,500.0	90.26	270.00	7,082.4	1,283.4	-1,282.0	1,489.9	0.00	0.00	0.00
8,600.0	90.26	270.00	7,081.9	1,283.4	-1,382.0	1,588.3	0.00	0.00	0.00
8,700.0	90.26	270.00	7,081.5	1,283.4	-1,482.0	1,686.7	0.00	0.00	0.00
8,800.0	90.26	270.00	7,081.0	1,283.4	-1,582.0	1,785.1	0.00	0.00	0.00
8,900.0	90.26	270.00	7,080.6	1,283.4	-1,682.0	1,883.5	0.00	0.00	0.00
9,000.0	90.26	270.00	7,080.1	1,283.4	-1,782.0	1,981.9	0.00	0.00	0.00
9,100.0	90.26	270.00	7,079.7	1,283.4	-1,882.0	2,080.3	0.00	0.00	0.00
9,200.0	90.26	270.00	7,079.2	1,283.4	-1,982.0	2,178.7	0.00	0.00	0.00
9,300.0	90.26	270.00	7,078.8	1,283.4	-2,082.0	2,277.1	0.00	0.00	0.00
9,400.0	90.26	270.00	7,078.3	1,283.4	-2,182.0	2,375.5	0.00	0.00	0.00
9,500.0	90.26	270.00	7,077.8	1,283.4	-2,282.0	2,473.9	0.00	0.00	0.00
9,600.0	90.26	270.00	7,077.4	1,283.4	-2,382.0	2,572.3	0.00	0.00	0.00
9,700.0	90.26	270.00	7,076.9	1,283.4	-2,482.0	2,670.7	0.00	0.00	0.00
9,800.0	90.26	270.00	7,076.5	1,283.4	-2,582.0	2,769.1	0.00	0.00	0.00
9,900.0	90.26	270.00	7,076.0	1,283.4	-2,682.0	2,867.5	0.00	0.00	0.00
10,000.0	90.26	270.00	7,075.6	1,283.4	-2,782.0	2,965.9	0.00	0.00	0.00
10,100.0	90.26	270.00	7,075.1	1,283.4	-2,882.0	3,064.3	0.00	0.00	0.00
10,200.0	90.26	270.00	7,074.7	1,283.4	-2,982.0	3,162.7	0.00	0.00	0.00
10,300.0	90.26	270.00	7,074.2	1,283.4	-3,082.0	3,261.2	0.00	0.00	0.00
10,400.0	90.26	270.00	7,073.8	1,283.4	-3,182.0	3,359.6	0.00	0.00	0.00
10,500.0	90.26	270.00	7,073.3	1,283.4	-3,282.0	3,458.0	0.00	0.00	0.00
10,600.0	90.26	270.00	7,072.9	1,283.4	-3,382.0	3,556.4	0.00	0.00	0.00
10,700.0	90.26	270.00	7,072.4	1,283.4	-3,482.0	3,654.8	0.00	0.00	0.00
10,800.0	90.26	270.00	7,071.9	1,283.4	-3,582.0	3,753.2	0.00	0.00	0.00
10,900.0	90.26	270.00	7,071.5	1,283.4	-3,682.0	3,851.6	0.00	0.00	0.00
11,000.0	90.26	270.00	7,071.0	1,283.4	-3,782.0	3,950.0	0.00	0.00	0.00
11,100.0	90.26	270.00	7,070.6	1,283.4	-3,882.0	4,048.4	0.00	0.00	0.00
11,200.0	90.26	270.00	7,070.1	1,283.4	-3,981.9	4,146.8	0.00	0.00	0.00
11,300.0	90.26	270.00	7,069.7	1,283.4	-4,081.9	4,245.2	0.00	0.00	0.00
11,400.0	90.26	270.00	7,069.2	1,283.4	-4,181.9	4,343.6	0.00	0.00	0.00
11,500.0	90.26	270.00	7,068.8	1,283.4	-4,281.9	4,442.0	0.00	0.00	0.00
11,600.0	90.26	270.00	7,068.3	1,283.4	-4,381.9	4,540.4	0.00	0.00	0.00
11,700.0	90.26	270.00	7,067.9	1,283.4	-4,481.9	4,638.8	0.00	0.00	0.00
11,800.0	90.26	270.00	7,067.4	1,283.4	-4,581.9	4,737.2	0.00	0.00	0.00
11,900.0	90.26	270.00	7,067.0	1,283.4	-4,681.9	4,835.6	0.00	0.00	0.00
12,000.0	90.26	270.00	7,066.5	1,283.4	-4,781.9	4,934.0	0.00	0.00	0.00
12,100.0	90.26	270.00	7,066.1	1,283.4	-4,881.9	5,032.4	0.00	0.00	0.00
12,200.0	90.26	270.00	7,065.6	1,283.4	-4,981.9	5,130.8	0.00	0.00	0.00
12,300.0	90.26	270.00	7,065.1	1,283.4	-5,081.9	5,229.2	0.00	0.00	0.00
12,400.0	90.26	270.00	7,064.7	1,283.4	-5,181.9	5,327.6	0.00	0.00	0.00
12,500.0	90.26	270.00	7,064.2	1,283.4	-5,281.9	5,426.0	0.00	0.00	0.00
12,600.0	90.26	270.00	7,063.8	1,283.4	-5,381.9	5,524.4	0.00	0.00	0.00
12,700.0	90.26	270.00	7,063.3	1,283.4	-5,481.9	5,622.8	0.00	0.00	0.00
12,800.0	90.26	270.00	7,062.9	1,283.4	-5,581.9	5,721.2	0.00	0.00	0.00
12,900.0	90.26	270.00	7,062.4	1,283.4	-5,681.9	5,819.6	0.00	0.00	0.00
13,000.0	90.26	270.00	7,062.0	1,283.4	-5,781.9	5,918.0	0.00	0.00	0.00
13,100.0	90.26	270.00	7,061.5	1,283.4	-5,881.9	6,016.4	0.00	0.00	0.00
13,200.0	90.26	270.00	7,061.1	1,283.4	-5,981.9	6,114.8	0.00	0.00	0.00
13,300.0	90.26	270.00	7,060.6	1,283.4	-6,081.9	6,213.2	0.00	0.00	0.00
13,400.0	90.26	270.00	7,060.2	1,283.4	-6,181.9	6,311.6	0.00	0.00	0.00
13,500.0	90.26	270.00	7,059.7	1,283.4	-6,281.9	6,410.0	0.00	0.00	0.00

Database:	landmark	Local Co-ordinate Reference:	Well Tarin 32W-234
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4789.0ft (RKB - 15')
Project:	SEC.32-T4N-R66W	MD Reference:	WELL @ 4789.0ft (RKB - 15')
Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	North Reference:	True
Well:	Tarin 32W-234	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (4-14-14)		

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)
13,600.0	90.26	270.00	7,059.2	1,283.4	-6,381.9	6,508.4	0.00	0.00	0.00
13,700.0	90.26	270.00	7,058.8	1,283.4	-6,481.9	6,606.8	0.00	0.00	0.00
13,800.0	90.26	270.00	7,058.3	1,283.4	-6,581.9	6,705.3	0.00	0.00	0.00
13,900.0	90.26	270.00	7,057.9	1,283.4	-6,681.9	6,803.7	0.00	0.00	0.00
14,000.0	90.26	270.00	7,057.4	1,283.4	-6,781.9	6,902.1	0.00	0.00	0.00
14,100.0	90.26	270.00	7,057.0	1,283.4	-6,881.9	7,000.5	0.00	0.00	0.00
14,200.0	90.26	270.00	7,056.5	1,283.4	-6,981.9	7,098.9	0.00	0.00	0.00
14,300.0	90.26	270.00	7,056.1	1,283.4	-7,081.9	7,197.3	0.00	0.00	0.00
14,314.8	90.26	270.00	7,056.0	1,283.4	-7,096.7	7,211.8	0.00	0.00	0.00
BHL 2385'FSL & 2152'FEL, Sec.31									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,680.4	7,086.1	7"	7	7-1/2

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,803.0	3,710.0	Parkman		0.00	
4,503.7	4,390.0	Sussex		0.00	
4,926.3	4,800.0	Shannon		0.00	
7,111.2	6,886.0	Sharon Springs		0.00	
7,306.4	6,998.0	Niobrara A		0.00	
7,492.7	7,064.0	Niobrara B		0.00	
	7,151.0	Niobrara C		0.00	
	7,273.0	Ft Hays		0.00	
	7,295.0	Codell		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
200.0	200.0	0.0	0.0	KOP #1
6,477.0	6,322.2	1,283.4	305.0	KOP #2
7,680.4	7,086.1	1,283.4	-462.4	End of Build



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.32-T4N-R66W

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

Tarin 32W-234

Wellbore #1

Plan #1 (4-14-14)

Anticollision Report

25 April, 2014



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin 32W-234
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4789.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4789.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin 32W-234	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 #1 (4-14-14)	Offset TVD Reference:	Offset Datum

Reference	Plan #1 (4-14-14)
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	4/25/2014		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	14,314.8	Plan #1 (4-14-14) (Wellbore #1)	MWD	MWD - Standard	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Separation Factor	Warning	
Offset Well - Wellbore - Design						
Existing Wells Pad Sec.29-T4-R66W						
Frank 6LL - Wellbore #1 - Wellbore #1	10,671.8	7,126.8	375.0	255.3	3.133	CC, ES
Frank 6LL - Wellbore #1 - Wellbore #1	10,700.0	7,125.7	376.0	255.6	3.122	SF
Tarin 32X-HZ Pad Sec.32-T4N-R66W						
Tarin 32W-434 - Wellbore #1 - Plan #1 (4-14-14)	200.0	200.0	29.3	28.6	43.407	CC, ES
Tarin 32W-434 - Wellbore #1 - Plan #1 (4-14-14)	14,314.8	14,443.7	449.7	98.5	1.280	Level 3, SF
Tarin 32X-234 - Wellbore #1 - Plan #1 (4-14-14)	200.0	201.0	120.2	119.6	177.727	CC, ES
Tarin 32X-234 - Wellbore #1 - Plan #1 (4-14-14)	5,300.0	5,242.8	997.4	969.4	35.576	SF
Tarin 32X-314 - Wellbore #1 - Plan #1 (4-14-14)	200.0	201.0	58.3	57.7	86.237	CC, ES
Tarin 32X-314 - Wellbore #1 - Plan #1 (4-14-14)	14,314.8	14,304.2	665.5	263.1	1.654	SF
Tarin 32X-404 - Wellbore #1 - Plan #1 (4-14-14)	200.0	201.0	87.5	86.8	129.282	CC, ES
Tarin 32X-404 - Wellbore #1 - Plan #1 (4-14-14)	4,700.0	4,667.6	765.6	740.1	29.936	SF
Tarin 32X-434 - Wellbore #1 - Plan #1 (4-14-14)	200.0	201.0	149.4	148.7	220.801	CC, ES
Tarin 32X-434 - Wellbore #1 - Plan #1 (4-14-14)	1,300.0	1,276.5	329.2	323.4	56.675	SF
Tarin 32Y-314 - Wellbore #1 - Plan #1 (4-14-14)	200.0	202.0	178.5	177.8	262.999	CC, ES
Tarin 32Y-314 - Wellbore #1 - Plan #1 (4-14-14)	1,200.0	1,170.0	338.0	332.7	63.886	SF
Tarin 32Y-404 - Wellbore #1 - Plan #1 (4-14-14)	200.0	202.0	207.7	207.0	305.930	CC, ES
Tarin 32Y-404 - Wellbore #1 - Plan #1 (4-14-14)	2,700.0	2,517.1	990.4	977.5	76.594	SF
Tarin Existing Wells Sec.32-T4N-R66W						
Benjamin 1 (Existing) - Wellbore #1 - Wellbore #1	12,736.7	7,046.2	261.7	90.9	1.532	CC, ES, SF
Cadi 1 (Existing) - Wellbore #1 - Wellbore #1	10,078.5	7,059.2	266.8	40.7	1.180	Level 2, CC, ES, SF
Corey 31-32 (Existing) - Wellbore #1 - Wellbore #1	9,082.2	7,060.1	130.0	58.3	1.814	CC, ES, SF
Floyd 1 (Existing) - Wellbore #1 - Wellbore #1	7,623.9	7,066.1	234.5	197.6	6.352	CC, ES, SF
Glen 44-32 (Existing) - Wellbore #1 - Wellbore #1	200.0	188.0	397.7	393.6	97.063	CC
Glen 44-32 (Existing) - Wellbore #1 - Wellbore #1	300.0	288.0	399.4	393.1	63.197	ES
Glen 44-32 (Existing) - Wellbore #1 - Wellbore #1	3,000.0	2,918.8	990.0	925.5	15.356	SF
Nicholas 1 (Existing) - Wellbore #1 - Wellbore #1	14,119.5	7,043.9	280.6	-57.5	0.830	Level 1, CC, ES, SF
Wolfe 13-32 (Existing) - Wellbore #1 - Wellbore #1	11,456.1	7,050.9	119.4	-18.5	0.866	Level 1, CC, ES, SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin 32W-234
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4789.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4789.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin 32W-234	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 #1 (4-14-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Pad Sec.29-T4-R66W - Frank 6LL - Wellbore #1 - Wellbore #1													Offset Site Error: 0.0ft
Survey Program: 639-MWD													Offset Well Error: 0.0ft
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
9,800.0	7,076.5	7,159.3	7,090.1	78.4	20.5	95.41	1,658.1	-3,452.7	948.5	853.2	95.21	9.961	
9,900.0	7,076.0	7,155.8	7,086.5	81.1	20.5	94.87	1,658.1	-3,452.8	857.6	759.6	98.02	8.749	
10,000.0	7,075.6	7,152.2	7,082.9	83.8	20.5	94.32	1,658.2	-3,452.9	768.9	668.1	100.84	7.626	
10,100.0	7,075.1	7,148.5	7,079.2	86.5	20.5	93.77	1,658.2	-3,453.0	683.4	579.8	103.65	6.594	
10,200.0	7,074.7	7,143.0	7,073.7	89.2	20.5	92.93	1,658.2	-3,453.2	602.4	495.9	106.49	5.657	
10,300.0	7,074.2	7,141.1	7,071.8	91.9	20.5	92.64	1,658.2	-3,453.3	527.9	418.6	109.27	4.831	
10,400.0	7,073.8	7,137.3	7,068.0	94.7	20.5	92.06	1,658.3	-3,453.4	463.0	350.9	112.07	4.131	
10,500.0	7,073.3	7,133.5	7,064.2	97.4	20.5	91.48	1,658.3	-3,453.6	412.4	297.5	114.88	3.590	
10,600.0	7,072.9	7,129.6	7,060.3	100.1	20.5	90.89	1,658.3	-3,453.7	381.8	264.1	117.67	3.245	
10,671.8	7,072.5	7,126.8	7,057.6	102.1	20.5	90.46	1,658.4	-3,453.8	375.0	255.3	119.67	3.133 CC, ES	
10,700.0	7,072.4	7,125.7	7,056.5	102.9	20.5	90.29	1,658.4	-3,453.8	376.0	255.6	120.46	3.122 SF	
10,800.0	7,071.9	7,121.8	7,052.5	105.6	20.5	89.69	1,658.4	-3,454.0	396.3	273.0	123.24	3.215	
10,900.0	7,071.5	7,117.8	7,048.6	108.4	20.4	89.09	1,658.4	-3,454.1	438.9	312.9	126.01	3.483	
11,000.0	7,071.0	7,113.9	7,044.6	111.1	20.4	88.48	1,658.5	-3,454.2	498.1	369.4	128.76	3.869	
11,100.0	7,070.6	7,109.8	7,040.6	113.9	20.4	87.87	1,658.5	-3,454.4	568.9	437.4	131.51	4.326	
11,200.0	7,070.1	7,105.8	7,036.5	116.6	20.4	87.25	1,658.5	-3,454.5	647.4	513.2	134.24	4.823	
11,300.0	7,069.7	7,101.7	7,032.4	119.4	20.4	86.63	1,658.6	-3,454.7	731.2	594.2	136.95	5.339	
11,400.0	7,069.2	7,097.5	7,028.3	122.1	20.4	86.00	1,658.6	-3,454.8	818.6	678.9	139.65	5.862	
11,500.0	7,068.8	7,093.4	7,024.1	124.9	20.4	85.37	1,658.6	-3,455.0	908.5	766.2	142.33	6.383	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin 32W-234
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4789.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4789.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin 32W-234	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 #1 (4-14-14)	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 (4-14-14)													
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	174.53	-29.1	2.8	29.3				
100.0	100.0	100.0	100.0	0.1	0.1	174.53	-29.1	2.8	29.3	29.0	0.22	130.222	
200.0	200.0	200.0	200.0	0.3	0.3	174.53	-29.1	2.8	29.3	28.6	0.67	43.407 CC, ES	
300.0	300.0	300.0	300.0	0.6	0.6	162.19	-29.1	2.8	30.9	29.8	1.13	27.348	
400.0	399.8	399.8	399.8	0.8	0.8	164.72	-29.1	2.8	35.9	34.4	1.59	22.575	
500.0	499.5	500.9	500.9	1.0	1.0	166.99	-27.4	3.3	42.7	40.7	2.05	20.847	
600.0	598.7	602.2	602.1	1.3	1.2	168.29	-22.4	5.0	49.6	47.1	2.51	19.793	
700.0	697.5	703.8	703.2	1.6	1.5	168.97	-13.8	7.8	56.5	53.6	2.97	19.023	
800.0	795.6	805.6	804.3	2.0	1.8	169.23	-1.9	11.7	63.4	60.0	3.45	18.398	
900.0	893.1	907.6	905.0	2.4	2.1	169.18	13.5	16.7	70.4	66.4	3.94	17.847	
1,000.0	990.1	1,007.4	1,003.2	2.9	2.4	169.07	30.1	22.2	77.3	72.9	4.46	17.328	
1,100.0	1,087.1	1,107.1	1,101.4	3.4	2.8	168.97	46.8	27.7	84.3	79.3	4.99	16.875	
1,200.0	1,184.2	1,206.9	1,199.6	3.9	3.1	168.89	63.5	33.1	91.2	85.7	5.53	16.490	
1,300.0	1,281.2	1,306.7	1,297.8	4.3	3.5	168.82	80.1	38.6	98.2	92.1	6.08	16.158	
1,400.0	1,378.2	1,406.4	1,396.0	4.8	3.9	168.76	96.8	44.0	105.1	98.5	6.62	15.877	
1,500.0	1,475.3	1,506.2	1,494.2	5.3	4.2	168.71	113.4	49.5	112.1	104.9	7.17	15.629	
1,600.0	1,572.3	1,605.9	1,592.4	5.8	4.6	168.66	130.1	54.9	119.0	111.3	7.72	15.411	
1,700.0	1,669.3	1,705.7	1,690.6	6.3	5.0	168.62	146.7	60.4	126.0	117.7	8.28	15.220	
1,800.0	1,766.4	1,805.4	1,788.8	6.8	5.4	168.58	163.4	65.8	132.9	124.1	8.83	15.050	
1,900.0	1,863.4	1,905.2	1,887.0	7.3	5.8	168.54	180.1	71.3	139.9	130.5	9.39	14.898	
2,000.0	1,960.5	2,005.0	1,985.2	7.8	6.1	168.51	196.7	76.7	146.8	136.9	9.95	14.761	
2,100.0	2,057.5	2,104.7	2,083.4	8.3	6.5	168.49	213.4	82.2	153.8	143.3	10.51	14.638	
2,200.0	2,154.5	2,204.5	2,181.7	8.8	6.9	168.46	230.0	87.6	160.8	149.7	11.07	14.526	
2,300.0	2,251.6	2,304.2	2,279.9	9.3	7.3	168.44	246.7	93.1	167.7	156.1	11.63	14.424	
2,400.0	2,348.6	2,404.0	2,378.1	9.8	7.7	168.42	263.3	98.5	174.7	162.5	12.19	14.331	
2,500.0	2,445.6	2,503.8	2,476.3	10.3	8.1	168.40	280.0	104.0	181.6	168.9	12.75	14.245	
2,600.0	2,542.7	2,603.5	2,574.5	10.8	8.5	168.38	296.7	109.5	188.6	175.3	13.31	14.167	
2,700.0	2,639.7	2,703.3	2,672.7	11.3	8.9	168.36	313.3	114.9	195.5	181.6	13.87	14.094	
2,800.0	2,736.8	2,803.0	2,770.9	11.8	9.2	168.34	330.0	120.4	202.5	188.0	14.43	14.026	
2,900.0	2,833.8	2,902.8	2,869.1	12.3	9.6	168.33	346.6	125.8	209.4	194.4	15.00	13.964	
3,000.0	2,930.8	3,002.5	2,967.3	12.7	10.0	168.32	363.3	131.3	216.4	200.8	15.56	13.905	
3,100.0	3,027.9	3,102.3	3,065.5	13.2	10.4	168.30	379.9	136.7	223.3	207.2	16.12	13.851	
3,200.0	3,124.9	3,202.1	3,163.7	13.7	10.8	168.29	396.6	142.2	230.3	213.6	16.69	13.800	
3,300.0	3,221.9	3,301.8	3,261.9	14.2	11.2	168.28	413.2	147.6	237.2	220.0	17.25	13.752	
3,400.0	3,319.0	3,401.6	3,360.1	14.7	11.6	168.27	429.9	153.1	244.2	226.4	17.81	13.707	
3,500.0	3,416.0	3,501.3	3,458.3	15.2	12.0	168.26	446.6	158.5	251.1	232.8	18.38	13.665	
3,600.0	3,513.0	3,601.1	3,556.5	15.7	12.4	168.25	463.2	164.0	258.1	239.1	18.94	13.625	
3,700.0	3,610.1	3,700.8	3,654.7	16.2	12.8	168.24	479.9	169.4	265.0	245.5	19.51	13.587	
3,800.0	3,707.1	3,800.6	3,753.0	16.7	13.1	168.23	496.5	174.9	272.0	251.9	20.07	13.551	
3,900.0	3,804.2	3,900.4	3,851.2	17.2	13.5	168.22	513.2	180.3	279.0	258.3	20.64	13.518	
4,000.0	3,901.2	4,000.1	3,949.4	17.7	13.9	168.21	529.8	185.8	285.9	264.7	21.20	13.486	
4,100.0	3,998.2	4,099.9	4,047.6	18.2	14.3	168.21	546.5	191.2	292.9	271.1	21.77	13.455	
4,200.0	4,095.3	4,199.6	4,145.8	18.7	14.7	168.20	563.2	196.7	299.8	277.5	22.33	13.426	
4,300.0	4,192.3	4,299.4	4,244.0	19.2	15.1	168.19	579.8	202.2	306.8	283.9	22.90	13.399	
4,400.0	4,289.3	4,399.2	4,342.2	19.7	15.5	168.19	596.5	207.6	313.7	290.3	23.46	13.372	
4,500.0	4,386.4	4,498.9	4,440.4	20.2	15.9	168.18	613.1	213.1	320.7	296.6	24.03	13.347	
4,600.0	4,483.4	4,598.7	4,538.6	20.7	16.3	168.17	629.8	218.5	327.6	303.0	24.59	13.323	
4,700.0	4,580.4	4,698.4	4,636.8	21.2	16.7	168.17	646.4	224.0	334.6	309.4	25.16	13.300	
4,800.0	4,677.5	4,798.2	4,735.0	21.7	17.1	168.16	663.1	229.4	341.5	315.8	25.72	13.278	
4,900.0	4,774.5	4,897.9	4,833.2	22.2	17.4	168.16	679.7	234.9	348.5	322.2	26.29	13.257	
5,000.0	4,871.6	4,997.7	4,931.4	22.7	17.8	168.15	696.4	240.3	355.4	328.6	26.85	13.237	

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 32W-234
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4789.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4789.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin 32W-234	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 #1 (4-14-14)	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 (4-14-14)													
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
5,100.0	4,968.6	5,097.5	5,029.6	23.2	18.2	168.15	713.1	245.8	362.4	335.0	27.42	13.218	
5,200.0	5,065.6	5,197.2	5,127.8	23.7	18.6	168.14	729.7	251.2	369.3	341.4	27.98	13.199	
5,300.0	5,162.7	5,297.0	5,226.1	24.2	19.0	168.14	746.4	256.7	376.3	347.7	28.55	13.181	
5,400.0	5,259.7	5,396.7	5,324.3	24.7	19.4	168.13	763.0	262.1	383.2	354.1	29.11	13.164	
5,500.0	5,356.7	5,496.5	5,422.5	25.2	19.8	168.13	779.7	267.6	390.2	360.5	29.68	13.147	
5,600.0	5,453.8	5,596.2	5,520.7	25.7	20.2	168.13	796.3	273.0	397.1	366.9	30.24	13.131	
5,700.0	5,550.9	5,696.0	5,618.9	26.2	20.6	168.12	813.0	278.5	403.8	373.0	30.81	13.103	
5,800.0	5,648.7	5,796.0	5,717.3	26.5	21.0	168.04	829.7	284.0	407.5	376.2	31.35	13.000	
5,900.0	5,747.1	5,895.9	5,815.7	26.9	21.4	167.84	846.4	289.4	407.8	376.0	31.86	12.802	
6,000.0	5,846.1	5,993.8	5,912.0	27.1	21.7	167.53	862.7	294.8	404.8	372.5	32.33	12.519	
6,100.0	5,945.5	6,081.8	5,999.0	27.3	22.0	167.22	875.7	299.0	400.3	367.6	32.69	12.246	
6,200.0	6,045.3	6,170.0	6,086.5	27.5	22.2	166.92	886.1	302.4	395.4	362.4	32.99	11.985	
6,300.0	6,145.2	6,258.3	6,174.4	27.7	22.4	166.63	894.0	305.0	390.0	356.7	33.23	11.735	
6,400.0	6,245.2	6,346.8	6,262.7	27.8	22.6	179.74	899.3	306.8	384.4	335.2	49.20	7.815	
6,500.0	6,345.2	6,435.5	6,351.3	27.9	22.7	-90.48	902.1	307.7	381.4	347.5	33.85	11.265	
6,554.2	6,399.3	6,484.1	6,400.0	27.9	22.8	-91.01	902.5	307.8	381.0	346.9	34.10	11.171	
6,600.0	6,444.7	6,528.8	6,444.7	27.9	22.8	-91.88	902.5	307.8	381.1	346.7	34.43	11.070	
6,700.0	6,542.1	6,627.2	6,543.1	28.0	23.0	-95.04	902.5	307.5	382.5	347.1	35.40	10.806	
6,800.0	6,635.7	6,730.3	6,645.5	28.0	23.0	-98.76	902.5	297.6	385.7	349.4	36.35	10.611	
6,900.0	6,723.9	6,837.3	6,749.6	28.0	23.1	-102.33	902.5	272.9	390.5	353.5	37.00	10.552	
7,000.0	6,805.3	6,948.7	6,853.1	27.9	23.1	-105.69	902.5	231.9	396.5	359.2	37.30	10.629	
7,100.0	6,878.4	7,064.6	6,953.3	27.9	23.1	-108.76	902.5	173.9	403.3	365.9	37.32	10.807	
7,200.0	6,942.0	7,185.0	7,046.9	27.9	23.0	-111.46	902.5	98.2	410.3	373.0	37.26	11.011	
7,300.0	6,995.0	7,309.9	7,130.1	27.9	23.0	-113.73	902.5	5.3	416.9	379.4	37.48	11.124	
7,400.0	7,036.5	7,438.8	7,198.9	28.1	23.1	-115.52	902.5	-103.5	422.6	384.2	38.41	11.005	
7,500.0	7,065.7	7,570.9	7,249.5	28.3	23.4	-116.78	902.5	-225.3	426.9	386.6	40.35	10.579	
7,600.0	7,082.2	7,705.1	7,278.6	28.8	24.3	-117.46	902.5	-356.2	429.3	385.9	43.47	9.877	
7,700.0	7,086.0	7,812.4	7,290.0	29.6	25.7	-118.16	902.5	-462.9	432.5	385.6	46.92	9.218	
7,800.0	7,085.6	7,931.7	7,295.0	30.7	27.7	-118.80	902.5	-582.0	434.7	384.2	50.51	8.606	
7,900.0	7,085.1	8,031.7	7,295.0	32.1	29.7	-118.86	902.5	-682.0	434.9	380.8	54.16	8.030	
8,000.0	7,084.7	8,131.7	7,295.0	33.9	31.8	-118.91	902.5	-782.0	435.1	377.1	57.99	7.503	
8,100.0	7,084.2	8,231.7	7,295.0	35.8	34.0	-118.96	902.5	-882.0	435.4	373.4	61.98	7.024	
8,200.0	7,083.7	8,331.7	7,295.0	37.9	36.3	-119.01	902.5	-982.0	435.6	369.5	66.10	6.590	
8,300.0	7,083.3	8,431.7	7,295.0	40.1	38.7	-119.06	902.5	-1,082.0	435.8	365.5	70.32	6.198	
8,400.0	7,082.8	8,531.7	7,295.0	42.4	41.1	-119.12	902.5	-1,182.0	436.0	361.4	74.62	5.843	
8,500.0	7,082.4	8,631.7	7,295.0	44.8	43.6	-119.17	902.5	-1,282.0	436.2	357.2	79.00	5.522	
8,600.0	7,081.9	8,731.7	7,295.0	47.2	46.1	-119.22	902.5	-1,382.0	436.5	353.0	83.43	5.232	
8,700.0	7,081.5	8,831.7	7,295.0	49.7	48.7	-119.27	902.5	-1,482.0	436.7	348.8	87.91	4.967	
8,800.0	7,081.0	8,931.7	7,295.0	52.2	51.2	-119.32	902.5	-1,582.0	436.9	344.5	92.43	4.727	
8,900.0	7,080.6	9,031.7	7,295.0	54.7	53.8	-119.38	902.5	-1,682.0	437.1	340.1	96.99	4.507	
9,000.0	7,080.1	9,131.7	7,295.0	57.3	56.5	-119.43	902.5	-1,782.0	437.3	335.8	101.58	4.306	
9,100.0	7,079.7	9,231.7	7,295.0	59.9	59.1	-119.48	902.5	-1,882.0	437.6	331.4	106.19	4.121	
9,200.0	7,079.2	9,331.7	7,295.0	62.5	61.7	-119.53	902.5	-1,982.0	437.8	327.0	110.82	3.951	
9,300.0	7,078.8	9,431.7	7,295.0	65.1	64.4	-119.58	902.5	-2,082.0	438.0	322.5	115.47	3.793	
9,400.0	7,078.3	9,531.7	7,295.0	67.7	67.1	-119.63	902.5	-2,182.0	438.2	318.1	120.13	3.648	
9,500.0	7,077.8	9,631.7	7,295.0	70.4	69.8	-119.69	902.5	-2,282.0	438.5	313.7	124.81	3.513	
9,600.0	7,077.4	9,731.7	7,295.0	73.1	72.4	-119.74	902.5	-2,382.0	438.7	309.2	129.50	3.388	
9,700.0	7,076.9	9,831.7	7,295.0	75.7	75.2	-119.79	902.5	-2,482.0	438.9	304.7	134.20	3.271	
9,800.0	7,076.5	9,931.7	7,295.0	78.4	77.9	-119.84	902.5	-2,582.0	439.1	300.2	138.91	3.161	
9,900.0	7,076.0	10,031.7	7,295.0	81.1	80.6	-119.89	902.5	-2,682.0	439.4	295.7	143.62	3.059	
10,000.0	7,075.6	10,131.7	7,295.0	83.8	83.3	-119.94	902.5	-2,782.0	439.6	291.3	148.34	2.963	

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 32W-234
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4789.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4789.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin 32W-234	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 #1 (4-14-14)	Offset TVD Reference:	Offset Datum

Offset Design Tarin 32X-HZ Pad Sec.32-T4N-R66W - Tarin 32W-434 - Wellbore #1 - Plan #1 (4-14-14)													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	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
10,100.0	7,075.1	10,231.7	7,295.0	86.5	86.0	-119.99		902.5	-2,882.0	439.8	286.8	153.06	2.874	
10,200.0	7,074.7	10,331.7	7,295.0	89.2	88.8	-120.05		902.5	-2,982.0	440.0	282.3	157.79	2.789	
10,300.0	7,074.2	10,431.7	7,295.0	91.9	91.5	-120.10		902.5	-3,082.0	440.3	277.8	162.52	2.709	
10,400.0	7,073.8	10,531.7	7,295.0	94.7	94.2	-120.15		902.5	-3,182.0	440.5	273.3	167.25	2.634	
10,500.0	7,073.3	10,631.7	7,295.0	97.4	97.0	-120.20		902.5	-3,282.0	440.7	268.7	171.99	2.563	
10,600.0	7,072.9	10,731.7	7,295.0	100.1	99.7	-120.25		902.5	-3,382.0	441.0	264.2	176.72	2.495	
10,700.0	7,072.4	10,831.7	7,295.0	102.9	102.5	-120.30		902.5	-3,482.0	441.2	259.7	181.46	2.431	
10,800.0	7,071.9	10,931.7	7,295.0	105.6	105.2	-120.35		902.5	-3,582.0	441.4	255.2	186.20	2.371	
10,900.0	7,071.5	11,031.7	7,295.0	108.4	108.0	-120.40		902.5	-3,682.0	441.6	250.7	190.93	2.313	
11,000.0	7,071.0	11,131.7	7,295.0	111.1	110.7	-120.45		902.5	-3,782.0	441.9	246.2	195.67	2.258	
11,100.0	7,070.6	11,231.7	7,295.0	113.9	113.5	-120.50		902.5	-3,882.0	442.1	241.7	200.40	2.206	
11,200.0	7,070.1	11,331.6	7,295.0	116.6	116.3	-120.55		902.5	-3,981.9	442.3	237.2	205.14	2.156	
11,300.0	7,069.7	11,431.6	7,295.0	119.4	119.0	-120.60		902.5	-4,081.9	442.6	232.7	209.87	2.109	
11,400.0	7,069.2	11,531.6	7,295.0	122.1	121.8	-120.66		902.5	-4,181.9	442.8	228.2	214.61	2.063	
11,500.0	7,068.8	11,631.6	7,295.0	124.9	124.6	-120.71		902.5	-4,281.9	443.0	223.7	219.34	2.020	
11,600.0	7,068.3	11,731.6	7,295.0	127.6	127.3	-120.76		902.5	-4,381.9	443.3	219.2	224.06	1.978	
11,700.0	7,067.9	11,831.6	7,295.0	130.4	130.1	-120.81		902.5	-4,481.9	443.5	214.7	228.79	1.938	
11,800.0	7,067.4	11,931.6	7,295.0	133.2	132.9	-120.86		902.5	-4,581.9	443.7	210.2	233.52	1.900	
11,900.0	7,067.0	12,031.6	7,295.0	135.9	135.7	-120.91		902.5	-4,681.9	444.0	205.7	238.24	1.864	
12,000.0	7,066.5	12,131.6	7,295.0	138.7	138.4	-120.96		902.5	-4,781.9	444.2	201.2	242.96	1.828	
12,100.0	7,066.1	12,231.6	7,295.0	141.5	141.2	-121.01		902.5	-4,881.9	444.4	196.8	247.67	1.794	
12,200.0	7,065.6	12,331.6	7,295.0	144.2	144.0	-121.06		902.5	-4,981.9	444.7	192.3	252.39	1.762	
12,300.0	7,065.1	12,431.6	7,295.0	147.0	146.8	-121.11		902.5	-5,081.9	444.9	187.8	257.10	1.730	
12,400.0	7,064.7	12,531.6	7,295.0	149.8	149.6	-121.16		902.5	-5,181.9	445.1	183.3	261.81	1.700	
12,500.0	7,064.2	12,631.6	7,295.0	152.6	152.3	-121.21		902.5	-5,281.9	445.4	178.9	266.51	1.671	
12,600.0	7,063.8	12,731.6	7,295.0	155.3	155.1	-121.26		902.5	-5,381.9	445.6	174.4	271.22	1.643	
12,700.0	7,063.3	12,831.6	7,295.0	158.1	157.9	-121.31		902.5	-5,481.9	445.8	169.9	275.91	1.616	
12,800.0	7,062.9	12,931.6	7,295.0	160.9	160.7	-121.36		902.5	-5,581.9	446.1	165.5	280.61	1.590	
12,900.0	7,062.4	13,031.6	7,295.0	163.7	163.5	-121.41		902.5	-5,681.9	446.3	161.0	285.30	1.564	
13,000.0	7,062.0	13,131.6	7,295.0	166.5	166.3	-121.46		902.5	-5,781.9	446.5	156.6	289.99	1.540	
13,100.0	7,061.5	13,231.6	7,295.0	169.2	169.0	-121.51		902.5	-5,881.9	446.8	152.1	294.68	1.516	
13,200.0	7,061.1	13,331.6	7,295.0	172.0	171.8	-121.56		902.5	-5,981.9	447.0	147.7	299.36	1.493 Level 3	
13,300.0	7,060.6	13,431.6	7,295.0	174.8	174.6	-121.61		902.5	-6,081.9	447.3	143.2	304.04	1.471 Level 3	
13,400.0	7,060.2	13,531.6	7,295.0	177.6	177.4	-121.65		902.5	-6,181.9	447.5	138.8	308.71	1.450 Level 3	
13,500.0	7,059.7	13,631.6	7,295.0	180.4	180.2	-121.70		902.5	-6,281.9	447.7	134.4	313.38	1.429 Level 3	
13,600.0	7,059.2	13,731.6	7,295.0	183.2	183.0	-121.75		902.5	-6,381.9	448.0	129.9	318.05	1.409 Level 3	
13,700.0	7,058.8	13,831.6	7,295.0	186.0	185.8	-121.80		902.5	-6,481.9	448.2	125.5	322.71	1.389 Level 3	
13,800.0	7,058.3	13,931.6	7,295.0	188.7	188.6	-121.85		902.5	-6,581.9	448.5	121.1	327.37	1.370 Level 3	
13,900.0	7,057.9	14,031.6	7,295.0	191.5	191.4	-121.90		902.5	-6,681.9	448.7	116.7	332.02	1.351 Level 3	
14,000.0	7,057.4	14,131.6	7,295.0	194.3	194.1	-121.95		902.5	-6,781.9	448.9	112.3	336.68	1.333 Level 3	
14,100.0	7,057.0	14,231.6	7,295.0	197.1	196.9	-122.00		902.5	-6,881.9	449.2	107.9	341.32	1.316 Level 3	
14,200.0	7,056.5	14,331.6	7,295.0	199.9	199.7	-122.05		902.5	-6,981.9	449.4	103.4	345.97	1.299 Level 3	
14,300.0	7,056.1	14,431.6	7,295.0	202.7	202.5	-122.10		902.5	-7,081.9	449.7	99.1	350.61	1.283 Level 3	
14,314.8	7,056.0	14,443.7	7,295.0	203.1	202.9	-122.10		902.5	-7,094.0	449.7	98.5	351.23	1.280 Level 3, SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin 32W-234
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4789.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4789.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin 32W-234	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 #1 (4-14-14)	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)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	1.0	1.0	0.0	0.0	178.67	178.67	-120.2	2.8	120.2	120.2	0.00	N/A	
100.0	100.0	101.0	101.0	0.1	0.1	178.67	178.67	-120.2	2.8	120.2	120.0	0.23	529.660	
200.0	200.0	201.0	201.0	0.3	0.3	178.67	178.67	-120.2	2.8	120.2	119.6	0.68	177.727 CC, ES	
300.0	300.0	301.0	301.0	0.6	0.6	165.50	165.50	-120.2	2.8	121.9	120.8	1.13	107.588	
400.0	399.8	400.8	400.8	0.8	0.8	166.07	166.07	-120.2	2.8	127.0	125.4	1.59	79.648	
500.0	499.5	500.5	500.5	1.0	1.0	166.92	166.92	-120.2	2.8	135.5	133.4	2.06	65.870	
600.0	598.7	599.7	599.7	1.3	1.2	167.94	167.94	-120.2	2.8	147.4	144.9	2.52	58.474	
700.0	697.5	698.5	698.5	1.6	1.5	169.03	169.03	-120.2	2.8	162.7	159.7	2.99	54.496	
800.0	795.6	796.6	796.6	2.0	1.7	170.11	170.11	-120.2	2.8	181.5	178.0	3.45	52.561	
900.0	893.1	894.1	894.1	2.4	1.9	171.13	171.13	-120.2	2.8	203.7	199.8	3.92	51.940	
1,000.0	890.1	891.1	891.1	2.9	2.1	172.06	172.06	-120.2	2.8	227.6	223.2	4.39	51.808	
1,100.0	1,087.1	1,088.1	1,088.1	3.4	2.3	172.82	172.82	-120.2	2.8	251.6	246.7	4.87	51.663	
1,200.0	1,184.2	1,185.2	1,185.2	3.9	2.6	173.45	173.45	-120.2	2.8	275.6	270.2	5.35	51.520	
1,300.0	1,281.2	1,282.2	1,282.2	4.3	2.8	173.98	173.98	-120.2	2.8	299.6	293.8	5.83	51.384	
1,400.0	1,378.2	1,379.2	1,379.2	4.8	3.0	174.43	174.43	-120.2	2.8	323.7	317.3	6.31	51.256	
1,500.0	1,475.3	1,476.3	1,476.3	5.3	3.2	174.81	174.81	-120.2	2.8	347.7	340.9	6.80	51.137	
1,600.0	1,572.3	1,581.1	1,581.1	5.8	3.4	175.05	175.05	-119.5	3.7	371.0	363.7	7.30	50.841	
1,700.0	1,669.3	1,689.7	1,689.6	6.3	3.7	174.88	174.88	-116.2	7.6	391.7	383.9	7.80	50.207	
1,800.0	1,766.4	1,799.3	1,798.8	6.8	3.9	174.32	174.32	-110.3	14.9	409.6	401.3	8.32	49.228	
1,900.0	1,863.4	1,898.5	1,897.4	7.3	4.2	173.67	173.67	-103.6	23.0	426.0	417.2	8.83	48.242	
2,000.0	1,960.5	1,997.0	1,995.3	7.8	4.4	173.07	173.07	-96.9	31.1	442.5	433.1	9.35	47.322	
2,100.0	2,057.5	2,095.5	2,093.3	8.3	4.6	172.51	172.51	-90.3	39.2	459.0	449.1	9.88	46.476	
2,200.0	2,154.5	2,194.1	2,191.3	8.8	4.9	171.99	171.99	-83.6	47.3	475.5	465.1	10.41	45.696	
2,300.0	2,251.6	2,292.6	2,289.3	9.3	5.1	171.51	171.51	-77.0	55.3	492.1	481.2	10.94	44.973	
2,400.0	2,348.6	2,391.1	2,387.2	9.8	5.4	171.06	171.06	-70.3	63.4	508.7	497.3	11.48	44.304	
2,500.0	2,445.6	2,489.7	2,485.2	10.3	5.7	170.63	170.63	-63.7	71.5	525.4	513.4	12.03	43.683	
2,600.0	2,542.7	2,588.2	2,583.2	10.8	5.9	170.24	170.24	-57.0	79.6	542.1	529.5	12.58	43.106	
2,700.0	2,639.7	2,686.7	2,681.2	11.3	6.2	169.86	169.86	-50.4	87.7	558.8	545.6	13.13	42.568	
2,800.0	2,736.8	2,785.3	2,779.1	11.8	6.5	169.51	169.51	-43.7	95.8	575.5	561.8	13.68	42.065	
2,900.0	2,833.8	2,883.8	2,877.1	12.3	6.7	169.18	169.18	-37.1	103.9	592.2	578.0	14.24	41.595	
3,000.0	2,930.8	2,982.3	2,975.1	12.7	7.0	168.86	168.86	-30.4	112.0	609.0	594.2	14.80	41.155	
3,100.0	3,027.9	3,080.9	3,073.1	13.2	7.3	168.57	168.57	-23.8	120.0	625.7	610.4	15.36	40.742	
3,200.0	3,124.9	3,179.4	3,171.0	13.7	7.6	168.28	168.28	-17.1	128.1	642.5	626.6	15.92	40.353	
3,300.0	3,221.9	3,277.9	3,269.0	14.2	7.8	168.02	168.02	-10.5	136.2	659.3	642.8	16.49	39.987	
3,400.0	3,319.0	3,376.5	3,367.0	14.7	8.1	167.76	167.76	-3.8	144.3	676.2	659.1	17.06	39.642	
3,500.0	3,416.0	3,475.0	3,465.0	15.2	8.4	167.52	167.52	2.8	152.4	693.0	675.4	17.63	39.316	
3,600.0	3,513.0	3,573.5	3,562.9	15.7	8.7	167.29	167.29	9.5	160.5	709.8	691.6	18.20	39.008	
3,700.0	3,610.1	3,672.1	3,660.9	16.2	9.0	167.07	167.07	16.1	168.6	726.7	707.9	18.77	38.716	
3,800.0	3,707.1	3,770.6	3,758.9	16.7	9.2	166.86	166.86	22.8	176.7	743.5	724.2	19.34	38.440	
3,900.0	3,804.2	3,869.1	3,856.9	17.2	9.5	166.66	166.66	29.4	184.8	760.4	740.5	19.92	38.177	
4,000.0	3,901.2	3,967.7	3,954.8	17.7	9.8	166.47	166.47	36.1	192.8	777.3	756.8	20.49	37.927	
4,100.0	3,998.2	4,066.2	4,052.8	18.2	10.1	166.28	166.28	42.7	200.9	794.2	773.1	21.07	37.690	
4,200.0	4,095.3	4,164.7	4,150.8	18.7	10.4	166.11	166.11	49.4	209.0	811.1	789.4	21.65	37.463	
4,300.0	4,192.3	4,263.3	4,248.8	19.2	10.7	165.94	165.94	56.0	217.1	828.0	805.7	22.23	37.247	
4,400.0	4,289.3	4,361.8	4,346.7	19.7	10.9	165.78	165.78	62.7	225.2	844.9	822.1	22.81	37.041	
4,500.0	4,386.4	4,460.3	4,444.7	20.2	11.2	165.62	165.62	69.3	233.3	861.8	838.4	23.39	36.844	
4,600.0	4,483.4	4,558.9	4,542.7	20.7	11.5	165.47	165.47	76.0	241.4	878.7	854.7	23.97	36.656	
4,700.0	4,580.4	4,657.4	4,640.7	21.2	11.8	165.33	165.33	82.6	249.5	895.6	871.1	24.55	36.476	
4,800.0	4,677.5	4,755.9	4,738.6	21.7	12.1	165.19	165.19	89.3	257.5	912.6	887.4	25.14	36.303	
4,900.0	4,774.5	4,854.5	4,836.6	22.2	12.4	165.05	165.05	95.9	265.6	929.5	903.8	25.72	36.137	
5,000.0	4,871.6	4,953.0	4,934.6	22.7	12.7	164.93	164.93	102.6	273.7	946.4	920.1	26.31	35.978	

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 32W-234
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4789.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4789.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin 32W-234	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 #1 (4-14-14)	Offset TVD Reference:	Offset Datum

Offset Design Tarin 32X-HZ Pad Sec.32-T4N-R66W - Tarin 32X-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										
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	4,968.6	5,051.5	5,032.6	23.2	13.0	164.80	109.2	281.8	963.4	936.5	26.89	35.825		
5,200.0	5,065.6	5,150.1	5,130.5	23.7	13.2	164.68	115.9	289.9	980.3	952.9	27.48	35.678		
5,300.0	5,162.7	5,242.8	5,222.7	24.2	13.5	164.58	122.1	297.4	997.4	969.4	28.04	35.576 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin 32W-234
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4789.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4789.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin 32W-234	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 #1 (4-14-14)	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)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	1.0	1.0	0.0	0.0	177.26	177.26	-58.3	2.8	58.3	58.3	0.00	N/A	
100.0	100.0	101.0	101.0	0.1	0.1	177.26	177.26	-58.3	2.8	58.3	58.1	0.23	257.002	
200.0	200.0	201.0	201.0	0.3	0.3	177.26	177.26	-58.3	2.8	58.3	57.7	0.68	86.237 CC, ES	
300.0	300.0	301.0	301.0	0.6	0.6	164.34	164.34	-58.3	2.8	60.0	58.9	1.13	52.965	
400.0	399.8	400.8	400.8	0.8	0.8	165.56	165.56	-58.3	2.8	65.1	63.5	1.59	40.813	
500.0	499.5	500.5	500.5	1.0	1.0	167.22	167.22	-58.3	2.8	73.5	71.5	2.06	35.760	
600.0	598.7	599.7	599.7	1.3	1.2	168.98	168.98	-58.3	2.8	85.5	83.0	2.52	33.919	
700.0	697.5	701.8	701.8	1.6	1.5	170.32	170.32	-56.6	3.5	99.2	96.3	2.98	33.276	
800.0	795.6	804.4	804.2	2.0	1.7	170.99	170.99	-51.6	5.8	113.1	109.7	3.44	32.851	
900.0	893.1	907.5	906.9	2.4	1.9	171.20	171.20	-43.2	9.5	127.1	123.2	3.92	32.445	
1,000.0	990.1	1,010.8	1,009.4	2.9	2.2	171.01	171.01	-31.4	14.8	139.4	134.9	4.41	31.568	
1,100.0	1,087.1	1,110.2	1,107.9	3.4	2.5	170.66	170.66	-18.8	20.5	150.2	145.3	4.92	30.517	
1,200.0	1,184.2	1,209.6	1,206.3	3.9	2.8	170.36	170.36	-6.1	26.1	161.1	155.7	5.44	29.598	
1,300.0	1,281.2	1,309.0	1,304.7	4.3	3.1	170.10	170.10	6.6	31.8	172.0	166.1	5.97	28.810	
1,400.0	1,378.2	1,408.4	1,403.1	4.8	3.4	169.87	169.87	19.3	37.5	182.9	176.4	6.50	28.126	
1,500.0	1,475.3	1,507.8	1,501.6	5.3	3.7	169.66	169.66	31.9	43.1	193.8	186.8	7.04	27.540	
1,600.0	1,572.3	1,607.2	1,600.0	5.8	4.0	169.48	169.48	44.6	48.8	204.7	197.2	7.58	27.018	
1,700.0	1,669.3	1,706.7	1,698.4	6.3	4.3	169.32	169.32	57.3	54.5	215.6	207.5	8.12	26.559	
1,800.0	1,766.4	1,806.1	1,796.9	6.8	4.7	169.17	169.17	70.0	60.1	226.5	217.9	8.66	26.150	
1,900.0	1,863.4	1,905.5	1,895.3	7.3	5.0	169.04	169.04	82.6	65.8	237.5	228.2	9.21	25.785	
2,000.0	1,960.5	2,004.9	1,993.7	7.8	5.3	168.91	168.91	95.3	71.5	248.4	238.6	9.76	25.457	
2,100.0	2,057.5	2,104.3	2,092.1	8.3	5.6	168.80	168.80	108.0	77.1	259.3	249.0	10.30	25.161	
2,200.0	2,154.5	2,203.7	2,190.6	8.8	6.0	168.70	168.70	120.7	82.8	270.2	259.3	10.85	24.892	
2,300.0	2,251.6	2,303.1	2,289.0	9.3	6.3	168.60	168.60	133.3	88.5	281.1	269.7	11.41	24.646	
2,400.0	2,348.6	2,402.5	2,387.4	9.8	6.6	168.51	168.51	146.0	94.1	292.0	280.1	11.96	24.422	
2,500.0	2,445.6	2,501.9	2,485.8	10.3	7.0	168.43	168.43	158.7	99.8	302.9	290.4	12.51	24.216	
2,600.0	2,542.7	2,601.3	2,584.3	10.8	7.3	168.36	168.36	171.4	105.5	313.8	300.8	13.06	24.026	
2,700.0	2,639.7	2,700.7	2,682.7	11.3	7.6	168.28	168.28	184.0	111.1	324.8	311.1	13.62	23.850	
2,800.0	2,736.8	2,800.1	2,781.1	11.8	8.0	168.22	168.22	196.7	116.8	335.7	321.5	14.17	23.687	
2,900.0	2,833.8	2,899.5	2,879.6	12.3	8.3	168.16	168.16	209.4	122.4	346.6	331.9	14.73	23.536	
3,000.0	2,930.8	2,998.9	2,978.0	12.7	8.6	168.10	168.10	222.1	128.1	357.5	342.2	15.28	23.395	
3,100.0	3,027.9	3,098.3	3,076.4	13.2	9.0	168.04	168.04	234.7	133.8	368.4	352.6	15.84	23.263	
3,200.0	3,124.9	3,197.7	3,174.8	13.7	9.3	167.99	167.99	247.4	139.4	379.3	362.9	16.39	23.140	
3,300.0	3,221.9	3,297.1	3,273.3	14.2	9.6	167.94	167.94	260.1	145.1	390.3	373.3	16.95	23.025	
3,400.0	3,319.0	3,396.5	3,371.7	14.7	10.0	167.89	167.89	272.8	150.8	401.2	383.7	17.51	22.916	
3,500.0	3,416.0	3,495.9	3,470.1	15.2	10.3	167.85	167.85	285.5	156.4	412.1	394.0	18.06	22.814	
3,600.0	3,513.0	3,595.3	3,568.5	15.7	10.6	167.81	167.81	298.1	162.1	423.0	404.4	18.62	22.717	
3,700.0	3,610.1	3,694.7	3,667.0	16.2	11.0	167.77	167.77	310.8	167.8	433.9	414.8	19.18	22.626	
3,800.0	3,707.1	3,794.1	3,765.4	16.7	11.3	167.73	167.73	323.5	173.4	444.9	425.1	19.74	22.540	
3,900.0	3,804.2	3,893.5	3,863.8	17.2	11.6	167.70	167.70	336.2	179.1	455.8	435.5	20.29	22.458	
4,000.0	3,901.2	3,992.9	3,962.3	17.7	12.0	167.66	167.66	348.8	184.8	466.7	445.8	20.85	22.380	
4,100.0	3,998.2	4,092.3	4,060.7	18.2	12.3	167.63	167.63	361.5	190.4	477.6	456.2	21.41	22.307	
4,200.0	4,095.3	4,191.7	4,159.1	18.7	12.7	167.60	167.60	374.2	196.1	488.5	466.6	21.97	22.237	
4,300.0	4,192.3	4,291.1	4,257.5	19.2	13.0	167.57	167.57	386.9	201.8	499.4	476.9	22.53	22.170	
4,400.0	4,289.3	4,390.5	4,356.0	19.7	13.3	167.54	167.54	399.5	207.4	510.4	487.3	23.09	22.106	
4,500.0	4,386.4	4,489.9	4,454.4	20.2	13.7	167.51	167.51	412.2	213.1	521.3	497.6	23.65	22.045	
4,600.0	4,483.4	4,589.3	4,552.8	20.7	14.0	167.49	167.49	424.9	218.8	532.2	508.0	24.21	21.987	
4,700.0	4,580.4	4,688.7	4,651.2	21.2	14.3	167.46	167.46	437.6	224.4	543.1	518.4	24.76	21.932	
4,800.0	4,677.5	4,788.1	4,749.7	21.7	14.7	167.44	167.44	450.2	230.1	554.0	528.7	25.32	21.878	
4,900.0	4,774.5	4,887.5	4,848.1	22.2	15.0	167.42	167.42	462.9	235.8	565.0	539.1	25.88	21.827	
5,000.0	4,871.6	4,986.9	4,946.5	22.7	15.3	167.39	167.39	475.6	241.4	575.9	549.4	26.44	21.778	

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 32W-234
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4789.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4789.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin 32W-234	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 #1 (4-14-14)	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)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	4,968.6	5,086.3	5,045.0	23.2	15.7	167.37		488.3	247.1	586.8	559.8	27.00	21.731	
5,200.0	5,065.6	5,185.7	5,143.4	23.7	16.0	167.35		500.9	252.8	597.7	570.2	27.56	21.686	
5,300.0	5,162.7	5,285.1	5,241.8	24.2	16.4	167.33		513.6	258.4	608.6	580.5	28.12	21.643	
5,400.0	5,259.7	5,384.5	5,340.2	24.7	16.7	167.31		526.3	264.1	619.6	590.9	28.68	21.601	
5,500.0	5,356.7	5,483.9	5,438.7	25.2	17.0	167.29		539.0	269.8	630.5	601.2	29.24	21.561	
5,600.0	5,453.8	5,583.3	5,537.1	25.7	17.4	167.28		551.6	275.4	641.4	611.6	29.80	21.522	
5,700.0	5,550.9	5,682.8	5,635.5	26.2	17.7	167.27		564.3	281.1	652.0	621.6	30.37	21.468	
5,800.0	5,648.7	5,782.4	5,734.3	26.5	18.0	167.23		577.0	286.8	659.7	628.8	30.90	21.347	
5,900.0	5,747.1	5,882.3	5,833.2	26.9	18.4	167.10		589.8	292.5	664.0	632.6	31.41	21.142	
6,000.0	5,846.1	5,976.6	5,926.5	27.1	18.7	166.91		601.7	297.8	665.1	633.3	31.86	20.878	
6,100.0	5,945.5	6,059.0	6,008.4	27.3	18.9	166.75		610.4	301.7	664.8	632.6	32.18	20.657	
6,200.0	6,045.3	6,141.5	6,090.6	27.5	19.1	166.61		617.0	304.7	663.8	631.3	32.45	20.457	
6,300.0	6,145.2	6,224.1	6,173.0	27.7	19.2	166.49		621.4	306.6	662.0	629.3	32.65	20.272	
6,400.0	6,245.2	6,306.7	6,255.5	27.8	19.4	179.77		623.7	307.7	659.8	613.9	45.88	14.381	
6,471.5	6,316.7	6,368.9	6,317.7	27.8	19.5	-90.31		624.0	307.8	659.4	626.3	33.11	19.913	
6,500.0	6,345.2	6,397.3	6,346.2	27.9	19.5	-90.27		624.0	307.8	659.4	626.2	33.20	19.859	
6,600.0	6,444.7	6,497.3	6,446.1	27.9	19.6	-91.05		624.0	307.3	659.5	625.8	33.65	19.598	
6,700.0	6,542.1	6,599.0	6,547.2	28.0	19.7	-92.11		624.0	296.8	659.8	625.8	34.03	19.391	
6,800.0	6,635.7	6,702.4	6,647.6	28.0	19.8	-93.14		624.0	272.4	660.4	626.1	34.28	19.263	
6,900.0	6,723.9	6,807.5	6,745.4	28.0	19.8	-94.12		624.0	234.0	661.1	626.7	34.45	19.189	
7,000.0	6,805.3	6,914.4	6,838.4	27.9	19.7	-95.03		624.0	181.6	662.0	627.3	34.63	19.116	
7,100.0	6,878.4	7,022.9	6,924.5	27.9	19.7	-95.86		624.0	115.6	662.9	627.9	34.96	18.961	
7,200.0	6,942.0	7,133.0	7,001.3	27.9	19.7	-96.59		624.0	36.9	663.8	628.1	35.64	18.625	
7,300.0	6,995.0	7,244.4	7,066.8	27.9	19.7	-97.19		624.0	-53.1	664.6	627.8	36.87	18.026	
7,400.0	7,036.5	7,356.9	7,118.9	28.1	19.9	-97.66		624.0	-152.8	665.3	626.5	38.82	17.138	
7,500.0	7,065.7	7,470.3	7,156.1	28.3	20.8	-97.98		624.0	-259.8	665.8	624.3	41.54	16.028	
7,600.0	7,082.2	7,584.3	7,177.0	28.8	22.4	-98.15		624.0	-371.7	666.1	621.1	44.96	14.816	
7,700.0	7,086.0	7,695.3	7,181.6	29.6	24.4	-98.16		624.0	-482.5	666.1	617.3	48.82	13.645	
7,800.0	7,085.6	7,795.3	7,181.1	30.7	26.4	-98.16		624.0	-582.5	666.1	613.4	52.71	12.638	
7,900.0	7,085.1	7,895.3	7,180.6	32.1	28.5	-98.15		624.0	-682.5	666.1	609.2	56.87	11.712	
8,000.0	7,084.7	7,995.3	7,180.0	33.9	30.7	-98.15		624.0	-782.5	666.1	604.8	61.26	10.873	
8,100.0	7,084.2	8,095.3	7,179.5	35.8	33.0	-98.14		624.0	-882.5	666.1	600.3	65.83	10.119	
8,200.0	7,083.7	8,195.3	7,179.0	37.9	35.4	-98.13		624.0	-982.5	666.1	595.5	70.54	9.443	
8,300.0	7,083.3	8,295.3	7,178.5	40.1	37.9	-98.13		624.0	-1,082.5	666.1	590.7	75.36	8.838	
8,400.0	7,082.8	8,395.3	7,177.9	42.4	40.4	-98.12		624.0	-1,182.5	666.1	585.8	80.28	8.296	
8,500.0	7,082.4	8,495.3	7,177.4	44.8	42.9	-98.12		624.0	-1,282.5	666.1	580.8	85.28	7.810	
8,600.0	7,081.9	8,595.3	7,176.9	47.2	45.4	-98.11		624.0	-1,382.5	666.0	575.7	90.35	7.372	
8,700.0	7,081.5	8,695.3	7,176.4	49.7	48.0	-98.10		624.0	-1,482.5	666.0	570.6	95.47	6.976	
8,800.0	7,081.0	8,795.3	7,175.8	52.2	50.6	-98.10		624.0	-1,582.5	666.0	565.4	100.64	6.618	
8,900.0	7,080.6	8,895.3	7,175.3	54.7	53.3	-98.09		624.0	-1,682.5	666.0	560.2	105.85	6.292	
9,000.0	7,080.1	8,995.3	7,174.8	57.3	55.9	-98.09		624.0	-1,782.5	666.0	554.9	111.09	5.995	
9,100.0	7,079.7	9,095.3	7,174.3	59.9	58.6	-98.08		624.0	-1,882.5	666.0	549.6	116.37	5.723	
9,200.0	7,079.2	9,195.3	7,173.8	62.5	61.2	-98.07		624.0	-1,982.5	666.0	544.3	121.67	5.474	
9,300.0	7,078.8	9,295.3	7,173.2	65.1	63.9	-98.07		624.0	-2,082.5	666.0	539.0	126.99	5.244	
9,400.0	7,078.3	9,395.3	7,172.7	67.7	66.6	-98.06		624.0	-2,182.5	666.0	533.6	132.33	5.033	
9,500.0	7,077.8	9,495.3	7,172.2	70.4	69.3	-98.06		624.0	-2,282.5	666.0	528.3	137.69	4.837	
9,600.0	7,077.4	9,595.3	7,171.7	73.1	72.0	-98.05		624.0	-2,382.5	665.9	522.9	143.07	4.655	
9,700.0	7,076.9	9,695.3	7,171.1	75.7	74.7	-98.04		624.0	-2,482.5	665.9	517.5	148.46	4.486	
9,800.0	7,076.5	9,795.3	7,170.6	78.4	77.5	-98.04		624.0	-2,582.5	665.9	512.1	153.86	4.328	
9,900.0	7,076.0	9,895.3	7,170.1	81.1	80.2	-98.03		624.0	-2,682.4	665.9	506.6	159.28	4.181	
10,000.0	7,075.6	9,995.3	7,169.6	83.8	82.9	-98.03		624.0	-2,782.4	665.9	501.2	164.70	4.043	

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 32W-234
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4789.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4789.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin 32W-234	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 #1 (4-14-14)	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-314 - Wellbore #1 - Plan #1 (4-14-14)														
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	
10,100.0	7,075.1	10,095.3	7,169.0	86.5	85.7	-98.02	624.0	-2,882.4	665.9	495.8	170.13	3.914		
10,200.0	7,074.7	10,195.3	7,168.5	89.2	88.4	-98.01	624.0	-2,982.4	665.9	490.3	175.58	3.793		
10,300.0	7,074.2	10,295.2	7,168.0	91.9	91.2	-98.01	624.0	-3,082.4	665.9	484.9	181.03	3.678		
10,400.0	7,073.8	10,395.2	7,167.5	94.7	93.9	-98.00	624.0	-3,182.4	665.9	479.4	186.48	3.571		
10,500.0	7,073.3	10,495.2	7,166.9	97.4	96.7	-98.00	624.0	-3,282.4	665.9	473.9	191.95	3.469		
10,600.0	7,072.9	10,595.2	7,166.4	100.1	99.4	-97.99	624.0	-3,382.4	665.9	468.4	197.42	3.373		
10,700.0	7,072.4	10,695.2	7,165.9	102.9	102.2	-97.98	624.0	-3,482.4	665.8	463.0	202.89	3.282		
10,800.0	7,071.9	10,795.2	7,165.4	105.6	104.9	-97.98	624.0	-3,582.4	665.8	457.5	208.37	3.195		
10,900.0	7,071.5	10,895.2	7,164.8	108.4	107.7	-97.97	624.0	-3,682.4	665.8	452.0	213.85	3.113		
11,000.0	7,071.0	10,995.2	7,164.3	111.1	110.5	-97.97	624.0	-3,782.4	665.8	446.5	219.34	3.035		
11,100.0	7,070.6	11,095.2	7,163.8	113.9	113.2	-97.96	624.0	-3,882.4	665.8	441.0	224.84	2.961		
11,200.0	7,070.1	11,195.2	7,163.3	116.6	116.0	-97.96	624.0	-3,982.4	665.8	435.5	230.33	2.891		
11,300.0	7,069.7	11,295.2	7,162.8	119.4	118.8	-97.95	624.0	-4,082.4	665.8	430.0	235.83	2.823		
11,400.0	7,069.2	11,395.2	7,162.2	122.1	121.6	-97.94	624.0	-4,182.4	665.8	424.4	241.33	2.759		
11,500.0	7,068.8	11,495.2	7,161.7	124.9	124.3	-97.94	624.0	-4,282.4	665.8	418.9	246.84	2.697		
11,600.0	7,068.3	11,595.2	7,161.2	127.6	127.1	-97.93	624.0	-4,382.4	665.8	413.4	252.35	2.638		
11,700.0	7,067.9	11,695.2	7,160.7	130.4	129.9	-97.93	624.0	-4,482.4	665.7	407.9	257.86	2.582		
11,800.0	7,067.4	11,795.2	7,160.1	133.2	132.7	-97.92	624.0	-4,582.4	665.7	402.4	263.38	2.528		
11,900.0	7,067.0	11,895.2	7,159.6	135.9	135.4	-97.91	624.0	-4,682.4	665.7	396.8	268.89	2.476		
12,000.0	7,066.5	11,995.2	7,159.1	138.7	138.2	-97.91	624.0	-4,782.4	665.7	391.3	274.41	2.426		
12,100.0	7,066.1	12,095.2	7,158.6	141.5	141.0	-97.90	624.0	-4,882.4	665.7	385.8	279.93	2.378		
12,200.0	7,065.6	12,195.2	7,158.0	144.2	143.8	-97.90	624.0	-4,982.4	665.7	380.2	285.46	2.332		
12,300.0	7,065.1	12,295.2	7,157.5	147.0	146.6	-97.89	624.0	-5,082.4	665.7	374.7	290.98	2.288		
12,400.0	7,064.7	12,395.2	7,157.0	149.8	149.4	-97.88	624.0	-5,182.4	665.7	369.2	296.51	2.245		
12,500.0	7,064.2	12,495.2	7,156.5	152.6	152.2	-97.88	624.0	-5,282.4	665.7	363.6	302.04	2.204		
12,600.0	7,063.8	12,595.2	7,155.9	155.3	154.9	-97.87	624.0	-5,382.4	665.7	358.1	307.57	2.164		
12,700.0	7,063.3	12,695.2	7,155.4	158.1	157.7	-97.87	624.0	-5,482.4	665.7	352.6	313.10	2.126		
12,800.0	7,062.9	12,795.2	7,154.9	160.9	160.5	-97.86	624.0	-5,582.4	665.6	347.0	318.63	2.089		
12,900.0	7,062.4	12,895.2	7,154.4	163.7	163.3	-97.85	624.0	-5,682.4	665.6	341.5	324.16	2.053		
13,000.0	7,062.0	12,995.2	7,153.9	166.5	166.1	-97.85	624.0	-5,782.4	665.6	335.9	329.70	2.019		
13,100.0	7,061.5	13,095.2	7,153.3	169.2	168.9	-97.84	624.0	-5,882.4	665.6	330.4	335.24	1.986		
13,200.0	7,061.1	13,195.2	7,152.8	172.0	171.7	-97.84	624.0	-5,982.4	665.6	324.8	340.78	1.953		
13,300.0	7,060.6	13,295.2	7,152.3	174.8	174.5	-97.83	624.0	-6,082.4	665.6	319.3	346.31	1.922		
13,400.0	7,060.2	13,395.2	7,151.8	177.6	177.3	-97.82	624.0	-6,182.4	665.6	313.7	351.86	1.892		
13,500.0	7,059.7	13,495.2	7,151.2	180.4	180.0	-97.82	624.0	-6,282.4	665.6	308.2	357.40	1.862		
13,600.0	7,059.2	13,595.2	7,150.7	183.2	182.8	-97.81	624.0	-6,382.4	665.6	302.6	362.94	1.834		
13,700.0	7,058.8	13,695.2	7,150.2	186.0	185.6	-97.81	624.0	-6,482.4	665.6	297.1	368.48	1.806		
13,800.0	7,058.3	13,795.2	7,149.7	188.7	188.4	-97.80	624.0	-6,582.4	665.5	291.5	374.03	1.779		
13,900.0	7,057.9	13,895.2	7,149.1	191.5	191.2	-97.79	624.0	-6,682.4	665.5	286.0	379.57	1.753		
14,000.0	7,057.4	13,995.2	7,148.6	194.3	194.0	-97.79	624.0	-6,782.4	665.5	280.4	385.12	1.728		
14,100.0	7,057.0	14,095.2	7,148.1	197.1	196.8	-97.78	624.0	-6,882.4	665.5	274.9	390.67	1.704		
14,200.0	7,056.5	14,195.2	7,147.6	199.9	199.6	-97.78	624.0	-6,982.4	665.5	269.3	396.22	1.680		
14,300.0	7,056.1	14,295.2	7,147.0	202.7	202.4	-97.77	624.0	-7,082.4	665.5	263.7	401.76	1.656		
14,309.0	7,056.0	14,304.2	7,147.0	202.9	202.6	-97.77	624.0	-7,091.3	665.5	263.2	402.26	1.654		
14,314.8	7,056.0	14,304.2	7,147.0	203.1	202.6	-97.77	624.0	-7,091.3	665.5	263.1	402.42	1.654 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin 32W-234
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4789.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4789.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin 32W-234	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 #1 (4-14-14)	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)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	1.0	1.0	0.0	0.0	178.17	178.17	-87.4	2.8	87.5	87.5	0.00	N/A	
100.0	100.0	101.0	101.0	0.1	0.1	178.17	178.17	-87.4	2.8	87.5	87.2	0.23	385.285	
200.0	200.0	201.0	201.0	0.3	0.3	178.17	178.17	-87.4	2.8	87.5	86.8	0.68	129.282 CC, ES	
300.0	300.0	301.0	301.0	0.6	0.6	165.09	165.09	-87.4	2.8	89.2	88.0	1.13	78.666	
400.0	399.8	400.8	400.8	0.8	0.8	165.88	165.88	-87.4	2.8	94.2	92.6	1.59	59.088	
500.0	499.5	500.5	500.5	1.0	1.0	167.03	167.03	-87.4	2.8	102.7	100.6	2.06	49.930	
600.0	598.7	599.7	599.7	1.3	1.2	168.35	168.35	-87.4	2.8	114.6	112.1	2.52	45.473	
700.0	697.5	698.5	698.5	1.6	1.5	169.69	169.69	-87.4	2.8	130.0	127.0	2.99	43.537	
800.0	795.6	796.6	796.6	2.0	1.7	170.94	170.94	-87.4	2.8	148.8	145.3	3.45	43.107	
900.0	893.1	894.1	894.1	2.4	1.9	172.06	172.06	-87.4	2.8	171.0	167.1	3.92	43.641	
1,000.0	990.1	991.1	991.1	2.9	2.1	173.04	173.04	-87.4	2.8	195.0	190.6	4.39	44.422	
1,100.0	1,087.1	1,093.9	1,093.9	3.4	2.3	173.60	173.60	-86.3	3.9	217.9	213.0	4.87	44.737	
1,200.0	1,184.2	1,198.5	1,198.4	3.9	2.6	173.51	173.51	-82.5	7.5	237.9	232.5	5.36	44.424	
1,300.0	1,281.2	1,304.3	1,303.7	4.3	2.8	172.91	172.91	-75.8	14.0	255.0	249.2	5.86	43.528	
1,400.0	1,378.2	1,406.0	1,404.7	4.8	3.1	172.01	172.01	-67.1	22.2	269.9	263.5	6.37	42.337	
1,500.0	1,475.3	1,504.8	1,502.8	5.3	3.3	171.19	171.19	-58.6	30.4	284.6	277.7	6.90	41.238	
1,600.0	1,572.3	1,603.6	1,600.9	5.8	3.6	170.46	170.46	-50.0	38.6	299.3	291.9	7.44	40.255	
1,700.0	1,669.3	1,702.5	1,699.1	6.3	3.9	169.79	169.79	-41.5	46.7	314.1	306.2	7.98	39.371	
1,800.0	1,766.4	1,801.3	1,797.2	6.8	4.1	169.18	169.18	-32.9	54.9	329.0	320.4	8.53	38.576	
1,900.0	1,863.4	1,900.1	1,895.3	7.3	4.4	168.63	168.63	-24.3	63.1	343.8	334.8	9.08	37.856	
2,000.0	1,960.5	1,999.0	1,993.4	7.8	4.7	168.12	168.12	-15.8	71.3	358.7	349.1	9.64	37.203	
2,100.0	2,057.5	2,097.8	2,091.6	8.3	5.0	167.65	167.65	-7.2	79.5	373.7	363.4	10.21	36.608	
2,200.0	2,154.5	2,196.7	2,189.7	8.8	5.3	167.22	167.22	1.3	87.7	388.6	377.8	10.78	36.064	
2,300.0	2,251.6	2,295.5	2,287.8	9.3	5.6	166.82	166.82	9.9	95.9	403.6	392.2	11.35	35.566	
2,400.0	2,348.6	2,394.3	2,385.9	9.8	5.9	166.45	166.45	18.5	104.1	418.5	406.6	11.92	35.108	
2,500.0	2,445.6	2,493.2	2,484.1	10.3	6.2	166.10	166.10	27.0	112.2	433.5	421.0	12.50	34.685	
2,600.0	2,542.7	2,592.0	2,582.2	10.8	6.5	165.78	165.78	35.6	120.4	448.6	435.5	13.08	34.295	
2,700.0	2,639.7	2,690.8	2,680.3	11.3	6.8	165.48	165.48	44.1	128.6	463.6	449.9	13.66	33.933	
2,800.0	2,736.8	2,789.7	2,778.4	11.8	7.1	165.19	165.19	52.7	136.8	478.6	464.4	14.25	33.596	
2,900.0	2,833.8	2,888.5	2,876.6	12.3	7.4	164.93	164.93	61.3	145.0	493.7	478.8	14.83	33.283	
3,000.0	2,930.8	2,987.3	2,974.7	12.7	7.7	164.68	164.68	69.8	153.2	508.7	493.3	15.42	32.990	
3,100.0	3,027.9	3,086.2	3,072.8	13.2	8.0	164.44	164.44	78.4	161.4	523.8	507.8	16.01	32.717	
3,200.0	3,124.9	3,185.0	3,170.9	13.7	8.3	164.22	164.22	86.9	169.6	538.9	522.3	16.60	32.460	
3,300.0	3,221.9	3,283.9	3,269.0	14.2	8.6	164.01	164.01	95.5	177.7	553.9	536.8	17.19	32.220	
3,400.0	3,319.0	3,382.7	3,367.2	14.7	8.9	163.81	163.81	104.1	185.9	569.0	551.2	17.79	31.993	
3,500.0	3,416.0	3,481.5	3,465.3	15.2	9.2	163.62	163.62	112.6	194.1	584.1	565.7	18.38	31.780	
3,600.0	3,513.0	3,580.4	3,563.4	15.7	9.5	163.44	163.44	121.2	202.3	599.2	580.3	18.98	31.578	
3,700.0	3,610.1	3,679.2	3,661.5	16.2	9.8	163.27	163.27	129.7	210.5	614.3	594.8	19.57	31.388	
3,800.0	3,707.1	3,778.0	3,759.7	16.7	10.1	163.11	163.11	138.3	218.7	629.4	609.3	20.17	31.208	
3,900.0	3,804.2	3,876.9	3,857.8	17.2	10.4	162.96	162.96	146.9	226.9	644.6	623.8	20.77	31.037	
4,000.0	3,901.2	3,975.7	3,955.9	17.7	10.7	162.81	162.81	155.4	235.1	659.7	638.3	21.37	30.875	
4,100.0	3,998.2	4,074.5	4,054.0	18.2	11.0	162.67	162.67	164.0	243.2	674.8	652.8	21.97	30.721	
4,200.0	4,095.3	4,173.4	4,152.2	18.7	11.3	162.53	162.53	172.5	251.4	689.9	667.4	22.57	30.574	
4,300.0	4,192.3	4,272.2	4,250.3	19.2	11.6	162.40	162.40	181.1	259.6	705.1	681.9	23.17	30.434	
4,400.0	4,289.3	4,371.1	4,348.4	19.7	11.9	162.28	162.28	189.7	267.8	720.2	696.4	23.77	30.301	
4,500.0	4,386.4	4,469.9	4,446.5	20.2	12.2	162.16	162.16	198.2	276.0	735.3	711.0	24.37	30.174	
4,600.0	4,483.4	4,568.7	4,544.7	20.7	12.5	162.05	162.05	206.8	284.2	750.5	725.5	24.97	30.052	
4,700.0	4,580.4	4,667.6	4,642.8	21.2	12.8	161.94	161.94	215.3	292.4	765.6	740.1	25.58	29.936 SF	
4,800.0	4,677.5	4,753.3	4,728.0	21.7	13.1	161.90	161.90	222.1	298.8	781.5	755.4	26.08	29.960	
4,900.0	4,774.5	4,836.4	4,810.8	22.2	13.2	161.99	161.99	227.0	303.5	799.2	772.7	26.54	30.113	
5,000.0	4,871.6	4,918.8	4,893.1	22.7	13.4	162.20	162.20	230.0	306.4	818.9	791.9	26.97	30.368	

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 32W-234
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4789.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4789.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin 32W-234	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 #1 (4-14-14)	Offset TVD Reference:	Offset Datum

Offset Design Tarin 32X-HZ Pad Sec.32-T4N-R66W - Tarin 32X-404 - Wellbore #1 - Plan #1 (4-14-14)												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)	Semi Major Axis Reference (ft)	Offset (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
5,100.0	4,968.6	5,000.0	4,974.3	23.2	13.5	162.53	231.4	307.7	840.5	813.1	27.36	30.720	
5,200.0	5,065.6	5,092.3	5,066.6	23.7	13.7	162.98	231.5	307.8	863.5	835.8	27.75	31.119	
5,300.0	5,162.7	5,189.4	5,163.7	24.2	13.8	163.43	231.5	307.8	886.7	858.5	28.17	31.481	
5,400.0	5,259.7	5,286.4	5,260.7	24.7	14.0	163.87	231.5	307.8	910.0	881.4	28.59	31.830	
5,500.0	5,356.7	5,383.5	5,357.7	25.2	14.2	164.28	231.5	307.8	933.2	904.2	29.01	32.165	
5,600.0	5,453.8	5,480.5	5,454.8	25.7	14.4	164.67	231.5	307.8	956.6	927.1	29.44	32.489	
5,700.0	5,550.9	5,577.6	5,551.9	26.2	14.5	165.09	231.5	307.8	979.6	949.7	29.88	32.781	
5,800.0	5,648.7	5,675.4	5,649.7	26.5	14.7	165.50	231.5	307.8	999.9	969.6	30.29	33.007	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin 32W-234
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4789.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4789.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin 32W-234	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 #1 (4-14-14)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Tarin 32X-HZ Pad Sec.32-T4N-R66W - Tarin 32X-434 - 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	1.0	1.0	0.0	0.0	178.93	-149.4	2.8	149.4					
100.0	100.0	101.0	101.0	0.1	0.1	178.93	-149.4	2.8	149.4	149.2	0.23	658.032		
200.0	200.0	201.0	201.0	0.3	0.3	178.93	-149.4	2.8	149.4	148.7	0.68	220.801 CC, ES		
300.0	300.0	301.0	301.0	0.6	0.6	165.72	-149.4	2.8	151.1	149.9	1.13	133.302		
400.0	399.8	400.8	400.8	0.8	0.8	166.17	-149.4	2.8	156.1	154.6	1.59	97.927		
500.0	499.5	500.5	500.5	1.0	1.0	166.85	-149.4	2.8	164.6	162.6	2.06	80.042		
600.0	598.7	599.7	599.7	1.3	1.2	167.70	-149.4	2.8	176.5	174.0	2.52	70.033		
700.0	697.5	698.5	698.5	1.6	1.5	168.64	-149.4	2.8	191.8	188.9	2.99	64.242		
800.0	795.6	796.6	796.6	2.0	1.7	169.59	-149.4	2.8	210.6	207.1	3.45	60.972		
900.0	893.1	894.1	894.1	2.4	1.9	170.52	-149.4	2.8	232.8	228.8	3.92	59.324		
1,000.0	890.1	891.1	891.1	2.9	2.1	171.40	-149.4	2.8	256.6	252.2	4.40	58.380		
1,100.0	1,087.1	1,088.1	1,088.1	3.4	2.3	172.14	-149.4	2.8	280.6	275.7	4.87	57.577		
1,200.0	1,184.2	1,185.2	1,185.2	3.9	2.6	172.76	-149.4	2.8	304.5	299.2	5.35	56.892		
1,300.0	1,281.2	1,276.5	1,276.5	4.3	2.7	173.12	-150.1	3.5	329.2	323.4	5.81	56.675 SF		
1,400.0	1,378.2	1,365.8	1,365.8	4.8	2.9	173.08	-152.9	6.0	355.9	349.7	6.26	56.883		
1,500.0	1,475.3	1,454.1	1,453.8	5.3	3.1	172.72	-157.7	10.4	384.6	377.9	6.71	57.316		
1,600.0	1,572.3	1,541.2	1,540.4	5.8	3.3	172.12	-164.3	16.5	415.2	408.0	7.17	57.880		
1,700.0	1,669.3	1,632.2	1,630.7	6.3	3.5	171.34	-173.0	24.4	447.4	439.7	7.66	58.422		
1,800.0	1,766.4	1,726.6	1,724.3	6.8	3.7	170.62	-182.1	32.7	479.9	471.7	8.15	58.859		
1,900.0	1,863.4	1,821.1	1,817.9	7.3	3.9	170.00	-191.2	41.1	512.4	503.7	8.66	59.190		
2,000.0	1,960.5	1,915.5	1,911.5	7.8	4.2	169.44	-200.3	49.4	545.0	535.8	9.17	59.440		
2,100.0	2,057.5	2,009.9	2,005.1	8.3	4.5	168.95	-209.5	57.7	577.6	567.9	9.69	59.630		
2,200.0	2,154.5	2,104.3	2,098.7	8.8	4.7	168.52	-218.6	66.1	610.2	600.0	10.21	59.768		
2,300.0	2,251.6	2,198.8	2,192.3	9.3	5.0	168.12	-227.7	74.4	642.9	632.1	10.74	59.872		
2,400.0	2,348.6	2,293.2	2,285.9	9.8	5.3	167.77	-236.8	82.8	675.6	664.3	11.27	59.948		
2,500.0	2,445.6	2,387.6	2,379.6	10.3	5.6	167.44	-246.0	91.1	708.3	696.5	11.80	60.001		
2,600.0	2,542.7	2,482.0	2,473.2	10.8	5.9	167.15	-255.1	99.4	741.0	728.7	12.34	60.038		
2,700.0	2,639.7	2,576.5	2,566.8	11.3	6.1	166.88	-264.2	107.8	773.8	760.9	12.88	60.061		
2,800.0	2,736.8	2,670.9	2,660.4	11.8	6.4	166.63	-273.3	116.1	806.6	793.1	13.43	60.074		
2,900.0	2,833.8	2,765.3	2,754.0	12.3	6.7	166.40	-282.4	124.5	839.3	825.4	13.97	60.078		
3,000.0	2,930.8	2,859.7	2,847.6	12.7	7.0	166.19	-291.6	132.8	872.1	857.6	14.52	60.076		
3,100.0	3,027.9	2,954.2	2,941.2	13.2	7.3	166.00	-300.7	141.1	904.9	889.9	15.06	60.069		
3,200.0	3,124.9	3,048.6	3,034.8	13.7	7.6	165.82	-309.8	149.5	937.7	922.1	15.61	60.057		
3,300.0	3,221.9	3,143.0	3,128.4	14.2	7.9	165.65	-318.9	157.8	970.6	954.4	16.16	60.042		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin 32W-234
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4789.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4789.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin 32W-234	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 #1 (4-14-14)	Offset TVD Reference:	Offset Datum

Offset Design Tarin 32X-HZ Pad Sec.32-T4N-R66W - Tarin 32Y-314 - 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 (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	2.0	2.0	0.0	0.0	179.10	-178.5	2.8	178.5	178.5	0.00	N/A	
100.0	100.0	102.0	102.0	0.1	0.1	179.10	-178.5	2.8	178.5	178.3	0.23	778.685	
200.0	200.0	202.0	202.0	0.3	0.3	179.10	-178.5	2.8	178.5	177.8	0.68	262.999 CC, ES	
300.0	300.0	302.0	302.0	0.6	0.6	165.86	-178.5	2.8	180.2	179.1	1.14	158.702	
400.0	399.8	401.8	401.8	0.8	0.8	166.24	-178.5	2.8	185.3	183.7	1.60	116.043	
500.0	499.5	501.5	501.5	1.0	1.0	166.81	-178.5	2.8	193.8	191.7	2.06	94.113	
600.0	598.7	600.7	600.7	1.3	1.2	167.53	-178.5	2.8	205.7	203.1	2.52	81.522	
700.0	697.5	699.5	699.5	1.6	1.5	168.35	-178.5	2.8	221.0	218.0	2.99	73.936	
800.0	795.6	797.6	797.6	2.0	1.7	169.19	-178.5	2.8	239.7	236.2	3.46	69.342	
900.0	893.1	895.1	895.1	2.4	1.9	170.04	-178.5	2.8	261.8	257.9	3.93	66.676	
1,000.0	990.1	992.1	992.1	2.9	2.1	170.88	-178.5	2.8	285.7	281.3	4.40	64.924	
1,100.0	1,087.1	1,081.9	1,081.9	3.4	2.3	171.41	-179.5	3.4	310.6	305.8	4.85	64.065	
1,200.0	1,184.2	1,170.0	1,169.9	3.9	2.5	171.57	-182.8	5.4	338.0	332.7	5.29	63.886 SF	
1,300.0	1,281.2	1,256.8	1,256.5	4.3	2.6	171.45	-188.4	8.6	367.7	362.0	5.74	64.098	
1,400.0	1,378.2	1,342.2	1,341.4	4.8	2.8	171.13	-196.1	13.2	399.8	393.6	6.19	64.569	
1,500.0	1,475.3	1,429.7	1,428.1	5.3	3.0	170.64	-206.0	19.1	434.0	427.4	6.67	65.116	
1,600.0	1,572.3	1,523.4	1,520.9	5.8	3.2	170.16	-217.2	25.6	468.8	461.6	7.14	65.608	
1,700.0	1,669.3	1,617.1	1,613.7	6.3	3.5	169.74	-228.3	32.2	503.5	495.9	7.63	65.965	
1,800.0	1,766.4	1,710.8	1,706.5	6.8	3.8	169.37	-239.4	38.8	538.3	530.2	8.13	66.222	
1,900.0	1,863.4	1,804.5	1,799.4	7.3	4.0	169.05	-250.6	45.4	573.1	564.4	8.63	66.408	
2,000.0	1,960.5	1,898.2	1,892.2	7.8	4.3	168.76	-261.7	51.9	607.9	598.7	9.14	66.531	
2,100.0	2,057.5	1,991.9	1,985.0	8.3	4.6	168.51	-272.9	58.5	642.7	633.1	9.65	66.615	
2,200.0	2,154.5	2,085.6	2,077.8	8.8	4.9	168.28	-284.0	65.1	677.5	667.4	10.16	66.669	
2,300.0	2,251.6	2,179.3	2,170.6	9.3	5.2	168.07	-295.1	71.7	712.4	701.7	10.68	66.700	
2,400.0	2,348.6	2,273.1	2,263.4	9.8	5.5	167.89	-306.3	78.3	747.2	736.0	11.20	66.713	
2,500.0	2,445.6	2,366.8	2,356.2	10.3	5.8	167.72	-317.4	84.8	782.1	770.3	11.72	66.713	
2,600.0	2,542.7	2,460.5	2,449.0	10.8	6.1	167.56	-328.5	91.4	816.9	804.7	12.25	66.702	
2,700.0	2,639.7	2,554.2	2,541.8	11.3	6.4	167.42	-339.7	98.0	851.8	839.0	12.77	66.683	
2,800.0	2,736.8	2,647.9	2,634.6	11.8	6.7	167.29	-350.8	104.6	886.7	873.4	13.30	66.658	
2,900.0	2,833.8	2,741.6	2,727.4	12.3	7.0	167.17	-361.9	111.2	921.5	907.7	13.83	66.628	
3,000.0	2,930.8	2,835.3	2,820.3	12.7	7.3	167.05	-373.1	117.7	956.4	942.0	14.36	66.596	
3,100.0	3,027.9	2,929.0	2,913.1	13.2	7.7	166.95	-384.2	124.3	991.3	976.4	14.89	66.561	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin 32W-234
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4789.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4789.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin 32W-234	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 #1 (4-14-14)	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-404 - Wellbore #1 - Plan #1 (4-14-14)													
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	2.0	2.0	0.0	0.0	179.23	-207.6	2.8	207.7	207.7	0.00	N/A	
100.0	100.0	102.0	102.0	0.1	0.1	179.23	-207.6	2.8	207.7	207.4	0.23	905.794	
200.0	200.0	202.0	202.0	0.3	0.3	179.23	-207.6	2.8	207.7	207.0	0.68	305.930 CC, ES	
300.0	300.0	302.0	302.0	0.6	0.6	165.97	-207.6	2.8	209.4	208.2	1.14	184.365	
400.0	399.8	401.8	401.8	0.8	0.8	166.28	-207.6	2.8	214.4	212.8	1.60	134.294	
500.0	499.5	500.0	500.0	1.0	1.0	166.77	-207.6	2.8	222.9	220.9	2.06	108.436	
600.0	598.7	593.5	593.5	1.3	1.2	167.21	-209.1	3.3	236.3	233.8	2.49	94.804	
700.0	697.5	684.3	684.2	1.6	1.4	167.48	-213.2	4.9	256.1	253.1	2.93	87.369	
800.0	795.6	773.1	772.7	2.0	1.6	167.60	-219.8	7.3	281.9	278.6	3.38	83.369	
900.0	893.1	859.6	858.6	2.4	1.8	167.58	-228.8	10.7	313.8	310.0	3.84	81.644	
1,000.0	990.1	943.8	942.0	2.9	2.0	167.58	-239.8	14.8	349.9	345.5	4.31	81.209	
1,100.0	1,087.1	1,035.0	1,032.1	3.4	2.3	167.48	-253.3	19.8	387.5	382.7	4.78	81.013	
1,200.0	1,184.2	1,127.7	1,123.6	3.9	2.6	167.39	-267.1	24.9	425.2	419.9	5.26	80.843	
1,300.0	1,281.2	1,220.3	1,215.0	4.3	2.9	167.31	-280.8	30.1	462.9	457.1	5.74	80.569	
1,400.0	1,378.2	1,312.9	1,306.5	4.8	3.2	167.25	-294.6	35.2	500.5	494.3	6.24	80.244	
1,500.0	1,475.3	1,405.6	1,398.0	5.3	3.5	167.19	-308.3	40.3	538.2	531.5	6.74	79.904	
1,600.0	1,572.3	1,498.2	1,489.4	5.8	3.9	167.15	-322.1	45.4	575.9	568.7	7.24	79.542	
1,700.0	1,669.3	1,590.8	1,580.9	6.3	4.2	167.10	-335.9	50.6	613.6	605.8	7.75	79.194	
1,800.0	1,766.4	1,683.4	1,672.3	6.8	4.5	167.07	-349.6	55.7	651.3	643.0	8.26	78.865	
1,900.0	1,863.4	1,776.1	1,763.8	7.3	4.9	167.04	-363.4	60.8	688.9	680.2	8.77	78.550	
2,000.0	1,960.5	1,868.7	1,855.2	7.8	5.2	167.01	-377.1	65.9	726.6	717.3	9.29	78.252	
2,100.0	2,057.5	1,961.3	1,946.7	8.3	5.6	166.98	-390.9	71.1	764.3	754.5	9.80	77.970	
2,200.0	2,154.5	2,054.0	2,038.2	8.8	5.9	166.96	-404.6	76.2	802.0	791.7	10.32	77.704	
2,300.0	2,251.6	2,146.6	2,129.6	9.3	6.3	166.93	-418.4	81.3	839.7	828.8	10.84	77.455	
2,400.0	2,348.6	2,239.2	2,221.1	9.8	6.6	166.91	-432.1	86.4	877.3	866.0	11.36	77.220	
2,500.0	2,445.6	2,331.8	2,312.5	10.3	6.9	166.90	-445.9	91.6	915.0	903.1	11.88	76.999	
2,600.0	2,542.7	2,424.5	2,404.0	10.8	7.3	166.88	-459.7	96.7	952.7	940.3	12.41	76.790	
2,700.0	2,639.7	2,517.1	2,495.5	11.3	7.6	166.86	-473.4	101.8	990.4	977.5	12.93	76.594 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin 32W-234
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4789.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4789.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin 32W-234	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 #1 (4-14-14)	Offset TVD Reference:	Offset Datum

Offset Design Tarin Existing Wells Sec.32-T4N-R66W - Benjamin 1 (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						
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
11,800.0	7,067.4	7,037.6	7,037.2	133.2	12.2	-88.05	1,021.7	-5,518.6	972.6	828.0	144.56	6.728	
11,900.0	7,067.0	7,038.5	7,038.2	135.9	12.2	-88.25	1,021.7	-5,518.6	876.7	729.3	147.36	5.949	
12,000.0	7,066.5	7,039.5	7,039.1	138.7	12.2	-88.45	1,021.7	-5,518.6	781.8	631.6	150.17	5.206	
12,100.0	7,066.1	7,040.4	7,040.0	141.5	12.2	-88.65	1,021.7	-5,518.6	688.4	535.4	152.98	4.500	
12,200.0	7,065.6	7,041.3	7,040.9	144.2	12.2	-88.86	1,021.7	-5,518.6	597.1	441.3	155.78	3.833	
12,300.0	7,065.1	7,042.2	7,041.9	147.0	12.2	-89.06	1,021.7	-5,518.6	509.1	350.5	158.59	3.210	
12,400.0	7,064.7	7,043.2	7,042.8	149.8	12.2	-89.26	1,021.7	-5,518.6	426.5	265.1	161.39	2.642	
12,500.0	7,064.2	7,044.1	7,043.7	152.6	12.2	-89.46	1,021.7	-5,518.6	352.9	188.7	164.20	2.149	
12,600.0	7,063.8	7,045.0	7,044.6	155.3	12.2	-89.66	1,021.7	-5,518.7	295.3	128.3	167.00	1.768	
12,700.0	7,063.3	7,045.9	7,045.5	158.1	12.2	-89.86	1,021.7	-5,518.7	264.3	94.5	169.80	1.556	
12,736.7	7,063.2	7,046.2	7,045.9	159.1	12.2	-89.93	1,021.7	-5,518.7	261.7	90.9	170.83	1.532 CC, ES, SF	
12,800.0	7,062.9	7,046.8	7,046.4	160.9	12.2	-90.06	1,021.7	-5,518.7	269.2	96.6	172.60	1.560	
12,900.0	7,062.4	7,047.7	7,047.3	163.7	12.2	-90.26	1,021.7	-5,518.7	308.4	133.0	175.40	1.758	
13,000.0	7,062.0	7,048.6	7,048.2	166.5	12.2	-90.46	1,021.7	-5,518.7	371.2	193.0	178.20	2.083	
13,100.0	7,061.5	7,049.5	7,049.1	169.2	12.2	-90.65	1,021.7	-5,518.7	447.7	266.7	180.99	2.474	
13,200.0	7,061.1	7,050.4	7,050.0	172.0	12.2	-90.85	1,021.7	-5,518.7	532.0	348.3	183.79	2.895	
13,300.0	7,060.6	7,051.3	7,050.9	174.8	12.2	-91.05	1,021.7	-5,518.7	621.1	434.5	186.58	3.329	
13,400.0	7,060.2	7,052.2	7,051.8	177.6	12.2	-91.24	1,021.7	-5,518.8	713.0	523.6	189.37	3.765	
13,500.0	7,059.7	7,053.1	7,052.7	180.4	12.2	-91.44	1,021.7	-5,518.8	806.8	614.7	192.16	4.199	
13,600.0	7,059.2	7,054.0	7,053.6	183.2	12.2	-91.63	1,021.7	-5,518.8	902.0	707.1	194.95	4.627	
13,700.0	7,058.8	7,054.9	7,054.5	186.0	12.2	-91.83	1,021.7	-5,518.8	998.1	800.4	197.73	5.048	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin 32W-234
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4789.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4789.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin 32W-234	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 #1 (4-14-14)	Offset TVD Reference:	Offset Datum

Offset Design Tarin Existing Wells Sec.32-T4N-R66W - Cadi 1 (Existing) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 7428-UNKNOWN												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
9,200.0	7,079.2	7,063.2	7,063.2	62.5	141.3	-90.86	1,016.6	-2,860.5	918.1	715.7	202.42	4.536	
9,300.0	7,078.8	7,062.8	7,062.8	65.1	141.3	-90.76	1,016.6	-2,860.5	823.0	617.9	205.09	4.013	
9,400.0	7,078.3	7,062.3	7,062.3	67.7	141.2	-90.66	1,016.6	-2,860.5	729.1	521.3	207.77	3.509	
9,500.0	7,077.8	7,061.8	7,061.8	70.4	141.2	-90.56	1,016.6	-2,860.5	637.1	426.6	210.46	3.027	
9,600.0	7,077.4	7,061.4	7,061.4	73.1	141.2	-90.47	1,016.6	-2,860.5	547.9	334.7	213.16	2.570	
9,700.0	7,076.9	7,060.9	7,060.9	75.7	141.2	-90.37	1,016.6	-2,860.5	463.1	247.2	215.86	2.145	
9,800.0	7,076.5	7,060.5	7,060.5	78.4	141.2	-90.27	1,016.6	-2,860.5	385.7	167.1	218.57	1.765	
9,900.0	7,076.0	7,060.0	7,060.0	81.1	141.2	-90.17	1,016.6	-2,860.5	321.0	99.7	221.28	1.451	Level 3
10,000.0	7,075.6	7,059.6	7,059.6	83.8	141.2	-90.08	1,016.6	-2,860.5	278.1	54.1	224.00	1.242	Level 2
10,078.5	7,075.2	7,059.2	7,059.2	85.9	141.2	-90.00	1,016.6	-2,860.5	266.8	40.7	226.14	1.180	Level 2, CC, ES, SF
10,100.0	7,075.1	7,059.1	7,059.1	86.5	141.2	-89.98	1,016.6	-2,860.5	267.7	40.9	226.72	1.181	Level 2
10,200.0	7,074.7	7,058.7	7,058.7	89.2	141.2	-89.88	1,016.6	-2,860.5	293.2	63.7	229.45	1.278	Level 3
10,300.0	7,074.2	7,058.2	7,058.2	91.9	141.2	-89.78	1,016.6	-2,860.5	346.7	114.6	232.18	1.493	Level 3
10,400.0	7,073.8	7,057.8	7,057.8	94.7	141.2	-89.69	1,016.6	-2,860.5	417.8	182.9	234.92	1.778	
10,500.0	7,073.3	7,057.3	7,057.3	97.4	141.1	-89.59	1,016.6	-2,860.5	498.8	261.2	237.65	2.099	
10,600.0	7,072.9	7,056.9	7,056.9	100.1	141.1	-89.49	1,016.6	-2,860.5	585.8	345.4	240.39	2.437	
10,700.0	7,072.4	7,056.4	7,056.4	102.9	141.1	-89.39	1,016.6	-2,860.5	676.3	433.2	243.13	2.782	
10,800.0	7,071.9	7,055.9	7,055.9	105.6	141.1	-89.30	1,016.6	-2,860.5	769.2	523.4	245.87	3.129	
10,900.0	7,071.5	7,055.5	7,055.5	108.4	141.1	-89.20	1,016.6	-2,860.5	863.7	615.1	248.62	3.474	
11,000.0	7,071.0	7,055.0	7,055.0	111.1	141.1	-89.10	1,016.6	-2,860.5	959.3	708.0	251.36	3.817	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin 32W-234
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4789.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4789.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin 32W-234	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 #1 (4-14-14)	Offset TVD Reference:	Offset Datum

Offset Design Tarin Existing Wells Sec.32-T4N-R66W - Corey 31-32 (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							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
8,100.0	7,084.2	7,072.6	7,071.0	35.8	13.7	-95.83	1,153.4	-1,864.0	990.6	943.7	46.97	21.093		
8,200.0	7,083.7	7,071.3	7,069.7	37.9	13.7	-95.27	1,153.4	-1,864.0	891.6	842.3	49.31	18.083		
8,300.0	7,083.3	7,070.1	7,068.5	40.1	13.7	-94.71	1,153.4	-1,864.0	792.8	741.1	51.71	15.332		
8,400.0	7,082.8	7,068.8	7,067.2	42.4	13.7	-94.15	1,153.4	-1,864.1	694.4	640.2	54.16	12.820		
8,500.0	7,082.4	7,067.5	7,065.9	44.8	13.7	-93.59	1,153.4	-1,864.1	596.5	539.8	56.66	10.527		
8,600.0	7,081.9	7,066.2	7,064.6	47.2	13.7	-93.03	1,153.4	-1,864.1	499.3	440.2	59.19	8.437		
8,700.0	7,081.5	7,064.9	7,063.4	49.7	13.7	-92.47	1,153.4	-1,864.1	403.6	341.9	61.74	6.537		
8,800.0	7,081.0	7,063.7	7,062.1	52.2	13.7	-91.91	1,153.4	-1,864.1	310.7	246.3	64.32	4.830		
8,900.0	7,080.6	7,062.4	7,060.8	54.7	13.7	-91.34	1,153.4	-1,864.1	223.8	156.9	66.92	3.344		
9,000.0	7,080.1	7,061.1	7,059.5	57.3	13.7	-90.78	1,153.4	-1,864.1	153.8	84.3	69.53	2.212		
9,082.2	7,079.7	7,060.1	7,058.5	59.4	13.7	-90.32	1,153.4	-1,864.1	130.0	58.3	71.68	1.814 CC, ES, SF		
9,100.0	7,079.7	7,059.8	7,058.2	59.9	13.7	-90.22	1,153.4	-1,864.1	131.2	59.1	72.15	1.819		
9,200.0	7,079.2	7,058.6	7,057.0	62.5	13.7	-89.66	1,153.3	-1,864.1	175.5	100.7	74.78	2.347		
9,300.0	7,078.8	7,057.3	7,055.7	65.1	13.7	-89.09	1,153.3	-1,864.2	253.7	176.3	77.42	3.277		
9,400.0	7,078.3	7,056.0	7,054.4	67.7	13.7	-88.53	1,153.3	-1,864.2	343.4	263.3	80.06	4.289		
9,500.0	7,077.8	7,054.7	7,053.1	70.4	13.7	-87.97	1,153.3	-1,864.2	437.6	354.9	82.70	5.291		
9,600.0	7,077.4	7,053.5	7,051.9	73.1	13.7	-87.41	1,153.3	-1,864.2	533.9	448.5	85.34	6.256		
9,700.0	7,076.9	7,052.2	7,050.6	75.7	13.7	-86.85	1,153.3	-1,864.2	631.3	543.4	87.97	7.176		
9,800.0	7,076.5	7,050.9	7,049.3	78.4	13.7	-86.29	1,153.3	-1,864.2	729.5	638.9	90.61	8.051		
9,900.0	7,076.0	7,049.6	7,048.0	81.1	13.7	-85.73	1,153.3	-1,864.2	828.1	734.8	93.24	8.881		
10,000.0	7,075.6	7,048.3	7,046.7	83.8	13.7	-85.17	1,153.3	-1,864.2	926.9	831.1	95.86	9.670		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin 32W-234
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4789.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4789.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin 32W-234	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 #1 (4-14-14)	Offset TVD Reference:	Offset Datum

Offset Design		Tarin Existing Wells Sec.32-T4N-R66W - Floyd 1 (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		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)						
1,200.0	1,184.2	1,166.0	1,166.0	3.9	2.3	-37.13	1,065.8	-349.3	990.7	985.2	5.46	181.475				
1,300.0	1,281.2	1,263.0	1,263.0	4.3	2.5	-37.99	1,065.5	-349.3	971.0	964.9	6.05	160.390				
1,400.0	1,378.2	1,359.9	1,359.9	4.8	2.7	-38.88	1,065.2	-349.2	951.6	944.9	6.65	143.136				
1,500.0	1,475.3	1,456.7	1,456.7	5.3	2.9	-39.79	1,065.1	-349.0	932.4	925.2	7.24	128.853				
1,600.0	1,572.3	1,553.5	1,553.5	5.8	3.1	-40.74	1,064.9	-348.8	913.5	905.6	7.85	116.432				
1,700.0	1,669.3	1,649.2	1,649.2	6.3	3.3	-41.73	1,064.7	-348.8	894.9	886.4	8.48	105.574				
1,800.0	1,766.4	1,748.1	1,748.0	6.8	3.5	-42.80	1,064.5	-348.9	876.7	867.6	9.12	96.088				
1,900.0	1,863.4	1,848.7	1,848.7	7.3	3.7	-43.93	1,063.9	-348.8	858.3	848.5	9.79	87.629				
2,000.0	1,960.5	1,944.7	1,944.7	7.8	4.0	-45.05	1,063.2	-348.5	840.0	829.6	10.48	80.184				
2,100.0	2,057.5	2,040.2	2,040.2	8.3	4.2	-46.22	1,062.7	-348.5	822.4	811.2	11.17	73.597				
2,200.0	2,154.5	2,136.7	2,136.7	8.8	4.5	-47.49	1,062.0	-348.9	805.2	793.3	11.89	67.723				
2,300.0	2,251.6	2,233.3	2,233.2	9.3	4.7	-48.83	1,061.1	-349.5	788.5	775.8	12.61	62.514				
2,400.0	2,348.6	2,331.0	2,331.0	9.8	4.9	-50.25	1,060.2	-350.2	772.1	758.7	13.35	57.814				
2,500.0	2,445.6	2,427.1	2,427.0	10.3	5.2	-51.70	1,059.2	-350.7	756.2	742.1	14.11	53.608				
2,600.0	2,542.7	2,522.0	2,521.9	10.8	5.4	-53.17	1,058.6	-351.4	741.0	726.2	14.86	49.873				
2,700.0	2,639.7	2,618.4	2,618.3	11.3	5.6	-54.70	1,058.2	-351.8	726.5	710.9	15.62	46.522				
2,800.0	2,736.8	2,716.1	2,716.0	11.8	5.9	-56.32	1,057.8	-352.4	712.6	696.2	16.40	43.457				
2,900.0	2,833.8	2,813.2	2,813.1	12.3	6.1	-58.00	1,057.2	-352.9	699.2	682.0	17.19	40.677				
3,000.0	2,930.8	2,911.8	2,911.8	12.7	6.3	-59.72	1,056.9	-353.0	686.2	668.3	17.95	38.226				
3,100.0	3,027.9	3,008.3	3,008.3	13.2	6.5	-61.46	1,056.6	-352.9	673.8	655.1	18.73	35.980				
3,200.0	3,124.9	3,104.6	3,104.6	13.7	6.7	-63.27	1,056.3	-353.0	662.2	642.6	19.56	33.857				
3,300.0	3,221.9	3,203.8	3,203.7	14.2	7.0	-65.19	1,055.9	-353.0	651.1	630.7	20.40	31.918				
3,400.0	3,319.0	3,298.6	3,298.5	14.7	7.2	-67.10	1,055.3	-353.1	640.8	619.6	21.23	30.185				
3,500.0	3,416.0	3,390.9	3,390.8	15.2	7.4	-69.05	1,054.7	-353.8	631.9	609.8	22.04	28.669				
3,600.0	3,513.0	3,488.1	3,488.1	15.7	7.7	-71.17	1,054.2	-355.0	624.1	601.3	22.86	27.302				
3,700.0	3,610.1	3,582.8	3,582.7	16.2	7.9	-73.30	1,053.5	-356.3	617.4	593.7	23.68	26.076				
3,800.0	3,707.1	3,679.3	3,679.2	16.7	8.1	-75.54	1,052.7	-358.0	611.8	587.4	24.49	24.979				
3,900.0	3,804.2	3,776.1	3,775.9	17.2	8.3	-77.82	1,051.8	-359.7	607.3	582.0	25.31	23.995				
4,000.0	3,901.2	3,873.1	3,873.0	17.7	8.5	-80.13	1,051.0	-361.4	603.8	577.7	26.12	23.120				
4,100.0	3,998.2	3,970.9	3,970.8	18.2	8.8	-82.48	1,050.2	-362.9	601.2	574.3	26.91	22.339				
4,200.0	4,095.3	4,067.1	4,066.9	18.7	9.0	-84.82	1,049.1	-364.4	599.6	571.9	27.70	21.645				
4,275.8	4,168.8	4,139.5	4,139.3	19.1	9.2	-86.64	1,047.9	-365.8	599.2	570.9	28.29	21.182				
4,300.0	4,192.3	4,162.7	4,162.5	19.2	9.3	-87.23	1,047.4	-366.3	599.3	570.8	28.48	21.045				
4,400.0	4,289.3	4,258.5	4,258.2	19.7	9.5	-89.65	1,045.5	-368.4	600.2	571.0	29.23	20.533				
4,500.0	4,386.4	4,353.4	4,353.2	20.2	9.7	-92.07	1,043.5	-370.6	602.5	572.5	29.96	20.108				
4,600.0	4,483.4	4,448.1	4,447.7	20.7	10.0	-94.45	1,041.6	-373.1	606.2	575.5	30.66	19.769				
4,700.0	4,580.4	4,542.8	4,542.4	21.2	10.2	-96.76	1,040.1	-375.7	611.3	580.0	31.33	19.511				
4,800.0	4,677.5	4,637.9	4,637.5	21.7	10.4	-98.97	1,039.4	-378.6	617.7	585.8	31.96	19.327				
4,900.0	4,774.5	4,732.9	4,732.4	22.2	10.6	-101.11	1,039.0	-381.7	625.4	592.8	32.56	19.205				
5,000.0	4,871.6	4,828.0	4,827.4	22.7	10.8	-103.19	1,038.7	-385.1	634.3	601.1	33.14	19.141				
5,100.0	4,968.6	4,926.3	4,925.7	23.2	11.0	-105.24	1,038.9	-388.5	644.0	610.3	33.69	19.117				
5,200.0	5,065.6	5,023.9	5,023.2	23.7	11.2	-107.21	1,039.2	-391.8	654.4	620.2	34.21	19.128				
5,300.0	5,162.7	5,123.6	5,122.9	24.2	11.4	-109.11	1,040.0	-395.0	665.3	630.6	34.71	19.167				
5,400.0	5,259.7	5,224.2	5,223.5	24.7	11.6	-110.96	1,041.0	-397.7	676.3	641.1	35.18	19.224				
5,500.0	5,356.7	5,322.6	5,321.8	25.2	11.8	-112.73	1,041.9	-400.0	687.7	652.1	35.64	19.298				
5,600.0	5,453.8	5,420.5	5,419.7	25.7	11.9	-114.43	1,042.7	-402.0	699.6	663.5	36.08	19.389				
5,700.0	5,550.9	5,517.6	5,516.7	26.2	12.1	-116.14	1,043.5	-404.1	712.0	675.5	36.49	19.509				
5,800.0	5,648.7	5,618.1	5,617.3	26.5	12.3	-117.80	1,043.8	-405.9	723.3	686.5	36.83	19.639				
5,900.0	5,747.1	5,719.4	5,718.5	26.9	12.6	-119.20	1,043.6	-407.1	733.0	695.8	37.18	19.716				
6,000.0	5,846.1	5,819.8	5,819.0	27.1	12.8	-120.28	1,043.5	-408.1	741.0	703.5	37.50	19.759				
6,100.0	5,945.5	5,926.0	5,925.1	27.3	12.9	-121.11	1,043.6	-408.5	746.8	709.0	37.75	19.785				

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 32W-234
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4789.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4789.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin 32W-234	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 #1 (4-14-14)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Tarin Existing Wells Sec.32-T4N-R66W - Floyd 1 (Existing) - Wellbore #1 - Wellbore #1													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)			
6,200.0	6,045.3	6,028.3	6,027.4	27.5	13.0	-121.62	1,044.0	-408.3	750.2	712.3	37.89	19.800		
6,300.0	6,145.2	6,129.0	6,128.1	27.7	13.0	-121.87	1,044.3	-407.9	751.7	713.7	38.01	19.777		
6,400.0	6,245.2	6,229.0	6,228.1	27.8	13.1	-108.50	1,044.9	-407.6	751.4	718.2	33.28	22.578		
6,500.0	6,345.2	6,329.1	6,328.2	27.9	13.1	-18.48	1,045.6	-407.3	750.6	712.3	38.26	19.617		
6,600.0	6,444.7	6,428.2	6,427.3	27.9	13.1	-18.91	1,046.3	-406.9	741.0	703.2	37.83	19.586		
6,700.0	6,542.1	6,523.8	6,522.9	28.0	13.2	-20.00	1,046.8	-406.8	719.4	682.7	36.78	19.561		
6,800.0	6,635.7	6,618.0	6,617.1	28.0	13.3	-21.94	1,047.2	-406.6	686.2	651.1	35.13	19.533		
6,900.0	6,723.9	6,707.3	6,706.4	28.0	13.3	-25.00	1,047.5	-406.3	642.0	609.0	32.99	19.460		
7,000.0	6,805.3	6,787.5	6,786.6	27.9	13.4	-29.54	1,047.7	-405.9	588.1	557.5	30.61	19.214		
7,100.0	6,878.4	6,859.6	6,858.7	27.9	13.4	-36.21	1,047.9	-405.8	526.1	497.7	28.48	18.472		
7,200.0	6,942.0	6,922.8	6,921.9	27.9	13.5	-45.73	1,048.2	-405.8	458.4	430.8	27.55	16.641		
7,300.0	6,995.0	6,975.8	6,974.9	27.9	13.5	-58.25	1,048.4	-405.8	388.0	359.2	28.78	13.482		
7,400.0	7,036.5	7,017.5	7,016.6	28.1	13.6	-72.03	1,048.6	-405.8	320.3	288.6	31.65	10.120		
7,500.0	7,065.7	7,047.2	7,046.3	28.3	13.6	-83.55	1,048.8	-405.8	264.6	230.2	34.39	7.693		
7,600.0	7,082.2	7,064.0	7,063.1	28.8	13.6	-89.87	1,048.9	-405.8	235.7	199.2	36.46	6.465		
7,623.9	7,084.3	7,066.1	7,065.2	28.9	13.6	-90.46	1,048.9	-405.8	234.5	197.6	36.92	6.352 CC, ES, SF		
7,700.0	7,086.0	7,067.8	7,066.9	29.6	13.6	-90.38	1,048.9	-405.8	246.5	208.3	38.25	6.445		
7,800.0	7,085.6	7,067.4	7,066.5	30.7	13.6	-90.27	1,048.9	-405.8	293.3	253.1	40.17	7.301		
7,900.0	7,085.1	7,066.9	7,066.0	32.1	13.6	-90.17	1,048.9	-405.8	362.3	320.0	42.23	8.578		
8,000.0	7,084.7	7,066.5	7,065.6	33.9	13.6	-90.06	1,048.9	-405.8	443.3	398.8	44.42	9.980		
8,100.0	7,084.2	7,066.0	7,065.2	35.8	13.6	-89.95	1,048.9	-405.8	530.8	484.1	46.69	11.368		
8,200.0	7,083.7	7,065.6	7,064.7	37.9	13.6	-89.84	1,048.9	-405.8	622.0	573.0	49.04	12.684		
8,300.0	7,083.3	7,065.2	7,064.3	40.1	13.6	-89.73	1,048.9	-405.8	715.7	664.2	51.45	13.909		
8,400.0	7,082.8	7,064.7	7,063.8	42.4	13.6	-89.62	1,048.9	-405.8	810.8	756.9	53.91	15.039		
8,500.0	7,082.4	7,064.3	7,063.4	44.8	13.6	-89.51	1,048.9	-405.8	907.0	850.6	56.42	16.076		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin 32W-234
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4789.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4789.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin 32W-234	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 #1 (4-14-14)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Tarin Existing Wells Sec.32-T4N-R66W - Glen 44-32 (Existing) - Wellbore #1 - Wellbore #1													Offset Well Error:	0.0 ft
Survey Program: 7404-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	
0.0	0.0	0.0	0.0	0.0	0.0	-164.12	-382.5	-108.8	397.9					
100.0	100.0	88.0	88.0	0.1	1.8	-164.12	-382.5	-108.8	397.7	395.8	1.87	212.380		
200.0	200.0	188.0	188.0	0.3	3.8	-164.12	-382.5	-108.8	397.7	393.6	4.10	97.063 CC		
300.0	300.0	288.0	288.0	0.6	5.8	-177.49	-382.5	-108.8	399.4	393.1	6.32	63.197 ES		
400.0	399.8	387.8	387.8	0.8	7.8	-177.52	-382.5	-108.8	404.7	396.1	8.53	47.439		
500.0	499.5	487.5	487.5	1.0	9.7	-177.57	-382.5	-108.8	413.4	402.7	10.72	38.573		
600.0	598.7	586.7	586.7	1.3	11.7	-177.63	-382.5	-108.8	425.6	412.7	12.87	33.058		
700.0	697.5	685.5	685.5	1.6	13.7	-177.70	-382.5	-108.8	441.2	426.2	14.99	29.430		
800.0	795.6	783.6	783.6	2.0	15.7	-177.78	-382.5	-108.8	460.2	443.2	17.06	26.973		
900.0	893.1	881.1	881.1	2.4	17.6	-177.86	-382.5	-108.8	482.7	463.6	19.08	25.295		
1,000.0	990.1	978.1	978.1	2.9	19.6	-177.97	-382.5	-108.8	506.9	485.6	21.23	23.873		
1,100.0	1,087.1	1,075.1	1,075.1	3.4	21.5	-178.06	-382.5	-108.8	531.0	507.6	23.38	22.708		
1,200.0	1,184.2	1,172.2	1,172.2	3.9	23.4	-178.14	-382.5	-108.8	555.2	529.6	25.54	21.738		
1,300.0	1,281.2	1,269.2	1,269.2	4.3	25.4	-178.22	-382.5	-108.8	579.3	551.6	27.70	20.916		
1,400.0	1,378.2	1,366.2	1,366.2	4.8	27.3	-178.29	-382.5	-108.8	603.5	573.6	29.86	20.213		
1,500.0	1,475.3	1,463.3	1,463.3	5.3	29.3	-178.36	-382.5	-108.8	627.6	595.6	32.02	19.604		
1,600.0	1,572.3	1,560.3	1,560.3	5.8	31.2	-178.42	-382.5	-108.8	651.8	617.6	34.18	19.071		
1,700.0	1,669.3	1,657.3	1,657.3	6.3	33.1	-178.48	-382.5	-108.8	675.9	639.6	36.34	18.602		
1,800.0	1,766.4	1,754.4	1,754.4	6.8	35.1	-178.53	-382.5	-108.8	700.1	661.6	38.50	18.184		
1,900.0	1,863.4	1,851.4	1,851.4	7.3	37.0	-178.58	-382.5	-108.8	724.3	683.6	40.66	17.811		
2,000.0	1,960.5	1,948.5	1,948.5	7.8	39.0	-178.62	-382.5	-108.8	748.4	705.6	42.83	17.476		
2,100.0	2,057.5	2,045.5	2,045.5	8.3	40.9	-178.67	-382.5	-108.8	772.6	727.6	44.99	17.172		
2,200.0	2,154.5	2,142.5	2,142.5	8.8	42.9	-178.71	-382.5	-108.8	796.7	749.6	47.15	16.897		
2,300.0	2,251.6	2,239.6	2,239.6	9.3	44.8	-178.74	-382.5	-108.8	820.9	771.6	49.32	16.645		
2,400.0	2,348.6	2,336.6	2,336.6	9.8	46.7	-178.78	-382.5	-108.8	845.0	793.6	51.48	16.415		
2,500.0	2,445.6	2,433.6	2,433.6	10.3	48.7	-178.81	-382.5	-108.8	869.2	815.6	53.64	16.203		
2,600.0	2,542.7	2,530.7	2,530.7	10.8	50.6	-178.85	-382.5	-108.8	893.4	837.6	55.81	16.007		
2,700.0	2,639.7	2,627.7	2,627.7	11.3	52.6	-178.88	-382.5	-108.8	917.5	859.5	57.97	15.827		
2,800.0	2,736.8	2,724.8	2,724.8	11.8	54.5	-178.91	-382.5	-108.8	941.7	881.5	60.14	15.659		
2,900.0	2,833.8	2,821.8	2,821.8	12.3	56.4	-178.93	-382.5	-108.8	965.8	903.5	62.30	15.502		
3,000.0	2,930.8	2,918.8	2,918.8	12.7	58.4	-178.96	-382.5	-108.8	990.0	925.5	64.47	15.356 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin 32W-234
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4789.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4789.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin 32W-234	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 #1 (4-14-14)	Offset TVD Reference:	Offset Datum

Offset Design												Tarin Existing Wells Sec.32-T4N-R66W - Nicholas 1 (Existing) - Wellbore #1 - Wellbore #1		Offset Site Error:		0.0 ft	
Survey Program: 7493-UNKNOWN														Offset Well Error:		0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning			
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor					
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)						
13,200.0	7,061.1	7,048.1	7,048.1	172.0	141.0	-90.85	1,002.8	-6,901.4	961.4	648.9	312.50	3.076					
13,300.0	7,060.6	7,047.6	7,047.6	174.8	141.0	-90.76	1,002.8	-6,901.4	866.2	550.9	315.28	2.747					
13,400.0	7,060.2	7,047.2	7,047.2	177.6	140.9	-90.67	1,002.8	-6,901.4	772.3	454.2	318.07	2.428					
13,500.0	7,059.7	7,046.7	7,046.7	180.4	140.9	-90.57	1,002.8	-6,901.4	680.1	359.2	320.85	2.120					
13,600.0	7,059.2	7,046.2	7,046.2	183.2	140.9	-90.48	1,002.8	-6,901.4	590.4	266.8	323.63	1.824					
13,700.0	7,058.8	7,045.8	7,045.8	186.0	140.9	-90.39	1,002.8	-6,901.4	504.7	178.3	326.42	1.546					
13,800.0	7,058.3	7,045.3	7,045.3	188.7	140.9	-90.30	1,002.8	-6,901.4	425.2	96.0	329.20	1.292 Level 3					
13,900.0	7,057.9	7,044.9	7,044.9	191.5	140.9	-90.20	1,002.8	-6,901.4	356.2	24.3	331.98	1.073 Level 2					
14,000.0	7,057.4	7,044.4	7,044.4	194.3	140.9	-90.11	1,002.8	-6,901.4	305.0	-29.8	334.76	0.911 Level 1					
14,100.0	7,057.0	7,044.0	7,044.0	197.1	140.9	-90.02	1,002.8	-6,901.4	281.3	-56.3	337.54	0.833 Level 1					
14,119.5	7,056.9	7,043.9	7,043.9	197.6	140.9	-90.00	1,002.8	-6,901.4	280.6	-57.5	338.08	0.830 Level 1, CC, ES, SF					
14,200.0	7,056.5	7,043.5	7,043.5	199.9	140.9	-89.93	1,002.8	-6,901.4	291.9	-48.4	340.32	0.858 Level 1					
14,300.0	7,056.1	7,043.1	7,043.1	202.7	140.9	-89.83	1,002.8	-6,901.4	333.6	-9.5	343.10	0.972 Level 1					
14,314.8	7,056.0	7,043.0	7,043.0	203.1	140.9	-89.82	1,002.8	-6,901.4	341.8	-1.7	343.51	0.995 Level 1					

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin 32W-234
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4789.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4789.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin 32W-234	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 #1 (4-14-14)	Offset TVD Reference:	Offset Datum

Offset Design Tarin Existing Wells Sec.32-T4N-R66W - Wolfe 13-32 (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							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
10,500.0	7,073.3	7,049.1	7,048.1	97.4	15.0	-88.62	1,164.0	-4,238.0	963.5	852.1	111.40	8.650		
10,600.0	7,072.9	7,049.3	7,048.3	100.1	15.0	-88.72	1,164.0	-4,238.0	864.4	750.2	114.16	7.572		
10,700.0	7,072.4	7,049.5	7,048.5	102.9	15.0	-88.81	1,164.0	-4,238.0	765.5	648.6	116.93	6.547		
10,800.0	7,071.9	7,049.7	7,048.7	105.6	15.0	-88.90	1,164.0	-4,238.0	666.9	547.2	119.70	5.571		
10,900.0	7,071.5	7,049.9	7,048.9	108.4	15.0	-88.99	1,164.0	-4,238.0	568.8	446.3	122.47	4.644		
11,000.0	7,071.0	7,050.1	7,049.1	111.1	15.0	-89.08	1,164.0	-4,238.0	471.5	346.2	125.25	3.764		
11,100.0	7,070.6	7,050.3	7,049.3	113.9	15.0	-89.18	1,164.0	-4,238.0	375.6	247.6	128.02	2.934		
11,200.0	7,070.1	7,050.5	7,049.4	116.6	15.0	-89.27	1,164.0	-4,238.0	282.6	151.8	130.80	2.160		
11,300.0	7,069.7	7,050.7	7,049.6	119.4	15.0	-89.36	1,164.0	-4,238.1	196.6	63.0	133.58	1.471	Level 3	
11,400.0	7,069.2	7,050.8	7,049.8	122.1	15.0	-89.45	1,164.0	-4,238.1	131.9	-4.4	136.36	0.968	Level 1	
11,456.1	7,069.0	7,050.9	7,049.9	123.7	15.0	-89.50	1,164.0	-4,238.1	119.4	-18.5	137.92	0.866	Level 1, CC, ES, SF	
11,500.0	7,068.8	7,051.0	7,050.0	124.9	15.0	-89.54	1,164.0	-4,238.1	127.2	-11.9	139.14	0.914	Level 1	
11,600.0	7,068.3	7,051.2	7,050.2	127.6	15.0	-89.63	1,164.0	-4,238.1	187.0	45.1	141.92	1.318	Level 3	
11,700.0	7,067.9	7,051.4	7,050.4	130.4	15.0	-89.73	1,164.0	-4,238.1	271.6	126.9	144.71	1.877		
11,800.0	7,067.4	7,051.6	7,050.6	133.2	15.0	-89.82	1,164.0	-4,238.1	364.0	216.5	147.49	2.468		
11,900.0	7,067.0	7,051.8	7,050.8	135.9	15.0	-89.91	1,164.0	-4,238.1	459.7	309.4	150.28	3.059		
12,000.0	7,066.5	7,052.0	7,051.0	138.7	15.0	-90.00	1,164.0	-4,238.1	556.8	403.8	153.07	3.638		
12,100.0	7,066.1	7,052.2	7,051.2	141.5	15.0	-90.09	1,164.0	-4,238.1	654.9	499.0	155.85	4.202		
12,200.0	7,065.6	7,052.4	7,051.4	144.2	15.0	-90.19	1,164.0	-4,238.1	753.4	594.8	158.64	4.749		
12,300.0	7,065.1	7,052.6	7,051.6	147.0	15.0	-90.28	1,163.9	-4,238.1	852.3	690.9	161.43	5.280		
12,400.0	7,064.7	7,052.8	7,051.7	149.8	15.0	-90.37	1,163.9	-4,238.1	951.4	787.2	164.22	5.794		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin 32W-234
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4789.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4789.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin 32W-234	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 #1 (4-14-14)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4789.0ft (RKB - 15')

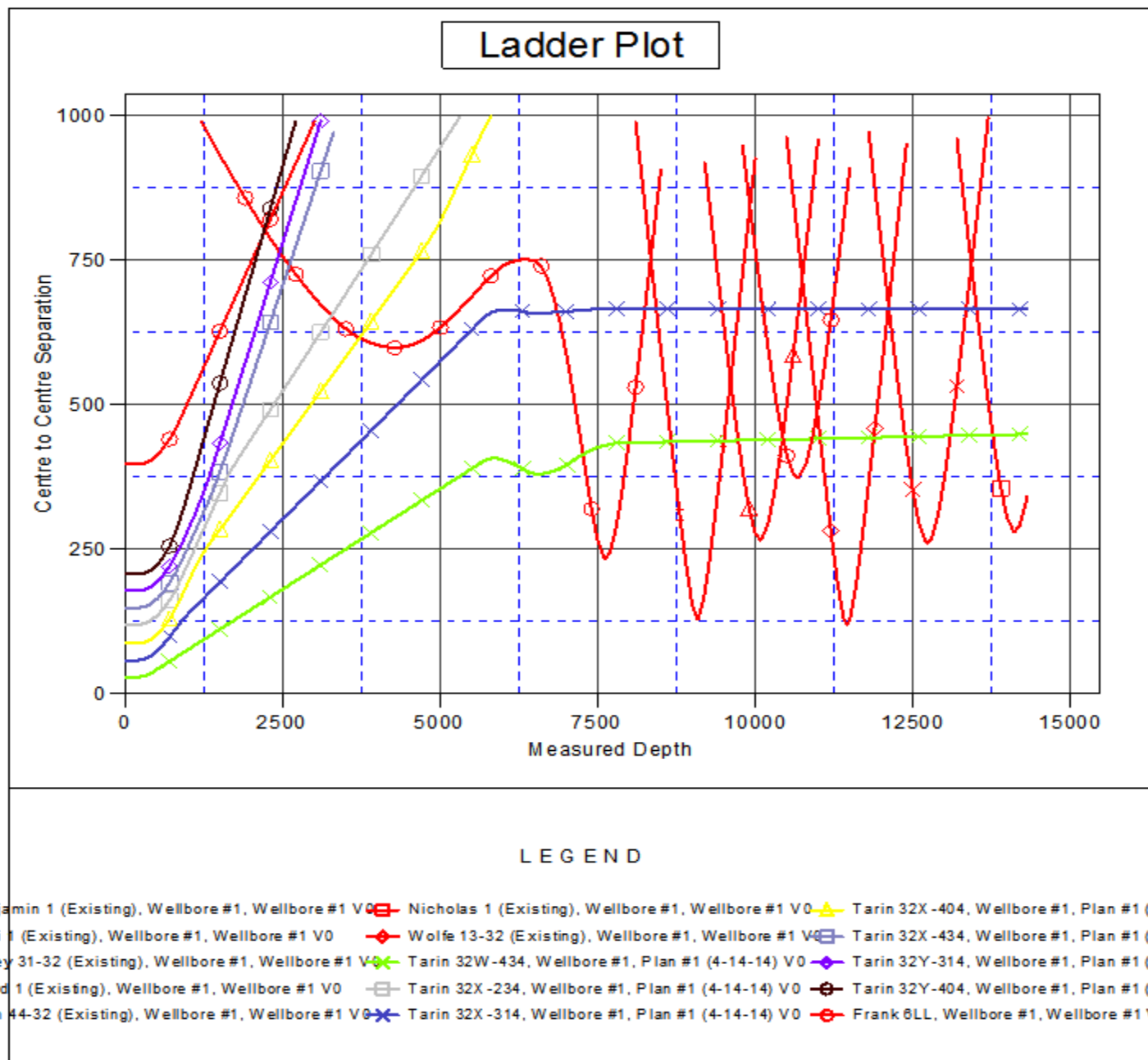
Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Tarin 32W-234

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 32W-234
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4789.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4789.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin 32W-234	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 #1 (4-14-14)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4789.0ft (RKB - 15')

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Tarin 32W-234

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.46°

