

PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Tarin Federal 32X-334**

Surface Location: Tarin 32X-HZ Pad Sec.32-T4N-R66W
 North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
 Ground Elevation: 4775.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1339613.42	3197253.81	40.263480	-104.793170	
RKB - 15' WELL @ 4790.0ft (RKB - 15')						

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 943'FSL & 355'FEL, Sec.32	1.0	0.0	0.0	Point
BHL 1066'FSL & 2147'FEL, Sec.31	7146.0	84.8	-7088.7	Point

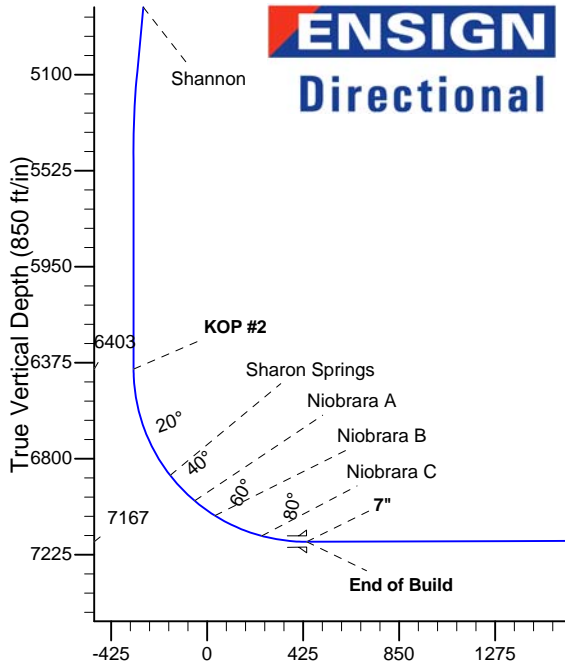
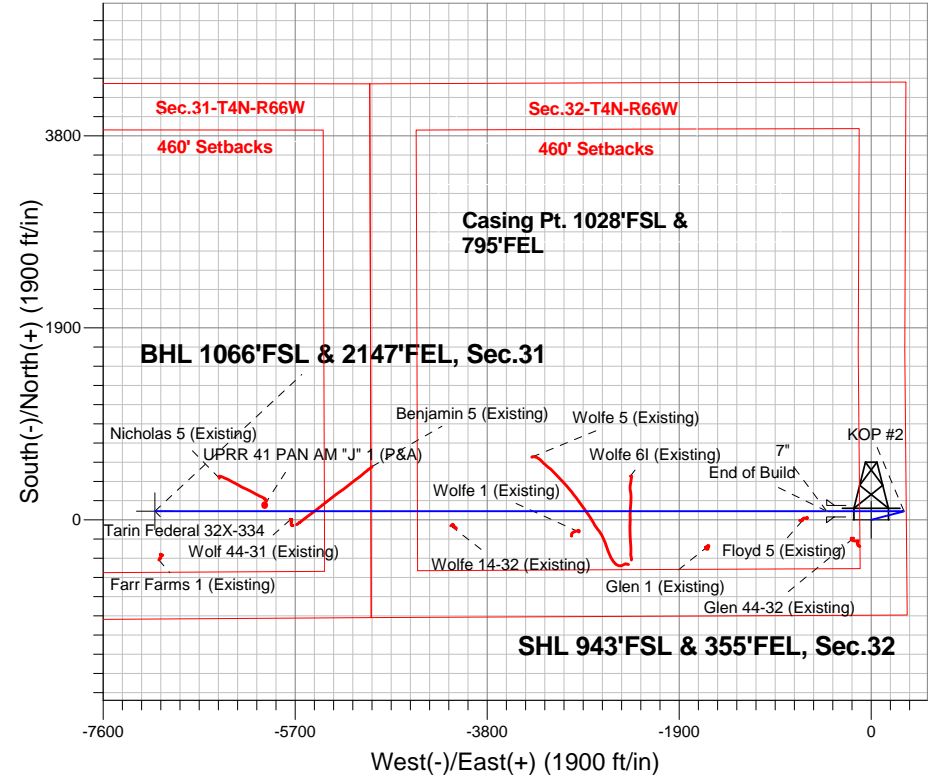


Azimuths to True North
 Magnetic North: 8.36°
 Magnetic Field
 Strength: 52661.9snT
 Dip Angle: 66.81°
 Date: 3/17/2015
 Model: IGRF2010

ANNOTATIONS

TVD	MD	Annotation
1500.0	1500.0	KOP #1
6403.0	6418.6	KOP #2
7166.9	7621.0	End of Build

Tarin 32X-HZ Pad Sec.32-T4N-R66W
 Tarin Federal 32X-334
 Plan #4 (3-17-15)



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	Target	VSec
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1500.0	0.00	0.00	1500.0	0.0	0.0	0.00	0.00	0.0	
3	2052.2	5.52	75.42	2051.3	6.7	25.7	1.00	75.42	-25.6	
4	5139.5	5.52	75.42	5124.3	81.5	313.2	0.00	0.00	-312.2	
5	5415.6	0.00	0.00	5400.0	84.8	326.1	2.00	180.00	-325.1	
6	6418.6	0.00	0.00	6402.9	84.8	326.1	0.00	0.00	-325.1	
7	7621.0	90.18	270.00	7166.9	84.8	-440.2	7.50	270.00	441.2	
8	14269.4	90.18	270.00	7146.0	84.8	-7088.7	0.00	0.00	7089.2	BHL 1066'FSL & 2147'FEL, Sec.31

BHL 1066'FSL & 2147'FEL, Sec.31

Vertical Section at 270.69° (850 ft/in)



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.32-T4N-R66W

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

Tarin Federal 32X-334

Wellbore #1

Plan: Plan #4 (3-17-15)

Standard Planning Report

18 March, 2015



Database:	Landmark	Local Co-ordinate Reference:	Well Tarin Federal 32X-334
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4790.0ft (RKB - 15')
Project:	SEC.32-T4N-R66W	MD Reference:	WELL @ 4790.0ft (RKB - 15')
Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	North Reference:	True
Well:	Tarin Federal 32X-334	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #4 (3-17-15)		

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	Latitude:	40.263810
From:	Lat/Long	Easting:	3,197,250.06 ft	Longitude:	-104.793180
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.46 °

Well	Tarin Federal 32X-334					
Well Position	+N/-S	-120.2 ft	Northing:	1,339,613.42 ft	Latitude:	40.263480
	+E/-W	2.8 ft	Easting:	3,197,253.81 ft	Longitude:	-104.793170
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,775.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	3/17/2015	8.36	66.81	52,662

Design	Plan #4 (3-17-15)			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	270.69

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	
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,052.2	5.52	75.42	2,051.3	6.7	25.7	1.00	1.00	0.00	75.42	
5,139.5	5.52	75.42	5,124.3	81.5	313.2	0.00	0.00	0.00	0.00	
5,415.6	0.00	0.00	5,400.0	84.8	326.1	2.00	-2.00	0.00	180.00	
6,418.6	0.00	0.00	6,402.9	84.8	326.1	0.00	0.00	0.00	0.00	
7,621.0	90.18	270.00	7,166.9	84.8	-440.2	7.50	7.50	0.00	270.00	
14,269.4	90.18	270.00	7,146.0	84.8	-7,088.7	0.00	0.00	0.00	0.00	BHL 1066'FSL & 21

Database:	Landmark	Local Co-ordinate Reference:	Well Tarin Federal 32X-334
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4790.0ft (RKB - 15')
Project:	SEC.32-T4N-R66W	MD Reference:	WELL @ 4790.0ft (RKB - 15')
Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	North Reference:	True
Well:	Tarin Federal 32X-334	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #4 (3-17-15)		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00	
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00	
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00	
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00	
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00	
KOP #1										
1,600.0	1.00	75.42	1,600.0	0.2	0.8	-0.8	1.00	1.00	0.00	
1,700.0	2.00	75.42	1,700.0	0.9	3.4	-3.4	1.00	1.00	0.00	
1,800.0	3.00	75.42	1,799.9	2.0	7.6	-7.6	1.00	1.00	0.00	
1,900.0	4.00	75.42	1,899.7	3.5	13.5	-13.5	1.00	1.00	0.00	
2,000.0	5.00	75.42	1,999.4	5.5	21.1	-21.0	1.00	1.00	0.00	
2,052.2	5.52	75.42	2,051.3	6.7	25.7	-25.6	1.00	1.00	0.00	
2,100.0	5.52	75.42	2,098.9	7.9	30.2	-30.1	0.00	0.00	0.00	
2,200.0	5.52	75.42	2,198.5	10.3	39.5	-39.4	0.00	0.00	0.00	
2,300.0	5.52	75.42	2,298.0	12.7	48.8	-48.7	0.00	0.00	0.00	
2,400.0	5.52	75.42	2,397.5	15.1	58.1	-57.9	0.00	0.00	0.00	
2,500.0	5.52	75.42	2,497.1	17.5	67.4	-67.2	0.00	0.00	0.00	
2,600.0	5.52	75.42	2,596.6	20.0	76.7	-76.5	0.00	0.00	0.00	
2,700.0	5.52	75.42	2,696.1	22.4	86.1	-85.8	0.00	0.00	0.00	
2,800.0	5.52	75.42	2,795.7	24.8	95.4	-95.1	0.00	0.00	0.00	
2,900.0	5.52	75.42	2,895.2	27.2	104.7	-104.3	0.00	0.00	0.00	
3,000.0	5.52	75.42	2,994.7	29.7	114.0	-113.6	0.00	0.00	0.00	
3,100.0	5.52	75.42	3,094.3	32.1	123.3	-122.9	0.00	0.00	0.00	
3,200.0	5.52	75.42	3,193.8	34.5	132.6	-132.2	0.00	0.00	0.00	
3,300.0	5.52	75.42	3,293.4	36.9	141.9	-141.5	0.00	0.00	0.00	
3,400.0	5.52	75.42	3,392.9	39.3	151.2	-150.8	0.00	0.00	0.00	
3,500.0	5.52	75.42	3,492.4	41.8	160.6	-160.0	0.00	0.00	0.00	
3,600.0	5.52	75.42	3,592.0	44.2	169.9	-169.3	0.00	0.00	0.00	
3,700.0	5.52	75.42	3,691.5	46.6	179.2	-178.6	0.00	0.00	0.00	
3,718.6	5.52	75.42	3,710.0	47.1	180.9	-180.3	0.00	0.00	0.00	
Parkman										
3,800.0	5.52	75.42	3,791.0	49.0	188.5	-187.9	0.00	0.00	0.00	
3,900.0	5.52	75.42	3,890.6	51.5	197.8	-197.2	0.00	0.00	0.00	
4,000.0	5.52	75.42	3,990.1	53.9	207.1	-206.5	0.00	0.00	0.00	
4,100.0	5.52	75.42	4,089.6	56.3	216.4	-215.7	0.00	0.00	0.00	
4,200.0	5.52	75.42	4,189.2	58.7	225.7	-225.0	0.00	0.00	0.00	
4,300.0	5.52	75.42	4,288.7	61.1	235.1	-234.3	0.00	0.00	0.00	
4,400.0	5.52	75.42	4,388.3	63.6	244.4	-243.6	0.00	0.00	0.00	
4,401.8	5.52	75.42	4,390.0	63.6	244.5	-243.8	0.00	0.00	0.00	
Sussex										
4,500.0	5.52	75.42	4,487.8	66.0	253.7	-252.9	0.00	0.00	0.00	
4,600.0	5.52	75.42	4,587.3	68.4	263.0	-262.2	0.00	0.00	0.00	

Database:	Landmark	Local Co-ordinate Reference:	Well Tarin Federal 32X-334
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4790.0ft (RKB - 15')
Project:	SEC.32-T4N-R66W	MD Reference:	WELL @ 4790.0ft (RKB - 15')
Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	North Reference:	True
Well:	Tarin Federal 32X-334	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #4 (3-17-15)		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,700.0	5.52	75.42	4,686.9	70.8	272.3	-271.4	0.00	0.00	0.00
4,800.0	5.52	75.42	4,786.4	73.3	281.6	-280.7	0.00	0.00	0.00
4,813.7	5.52	75.42	4,800.0	73.6	282.9	-282.0	0.00	0.00	0.00
Shannon									
4,900.0	5.52	75.42	4,885.9	75.7	290.9	-290.0	0.00	0.00	0.00
5,000.0	5.52	75.42	4,985.5	78.1	300.2	-299.3	0.00	0.00	0.00
5,100.0	5.52	75.42	5,085.0	80.5	309.6	-308.6	0.00	0.00	0.00
5,139.5	5.52	75.42	5,124.3	81.5	313.2	-312.2	0.00	0.00	0.00
5,200.0	4.31	75.42	5,184.6	82.8	318.3	-317.2	2.00	-2.00	0.00
5,300.0	2.31	75.42	5,284.4	84.2	323.8	-322.8	2.00	-2.00	0.00
5,400.0	0.31	75.42	5,384.4	84.8	326.1	-325.0	2.00	-2.00	0.00
5,415.6	0.00	0.00	5,400.0	84.8	326.1	-325.1	2.00	-2.00	0.00
5,500.0	0.00	0.00	5,484.4	84.8	326.1	-325.1	0.00	0.00	0.00
5,600.0	0.00	0.00	5,584.4	84.8	326.1	-325.1	0.00	0.00	0.00
5,700.0	0.00	0.00	5,684.4	84.8	326.1	-325.1	0.00	0.00	0.00
5,800.0	0.00	0.00	5,784.4	84.8	326.1	-325.1	0.00	0.00	0.00
5,900.0	0.00	0.00	5,884.4	84.8	326.1	-325.1	0.00	0.00	0.00
6,000.0	0.00	0.00	5,984.4	84.8	326.1	-325.1	0.00	0.00	0.00
6,100.0	0.00	0.00	6,084.4	84.8	326.1	-325.1	0.00	0.00	0.00
6,200.0	0.00	0.00	6,184.4	84.8	326.1	-325.1	0.00	0.00	0.00
6,300.0	0.00	0.00	6,284.4	84.8	326.1	-325.1	0.00	0.00	0.00
6,400.0	0.00	0.00	6,384.4	84.8	326.1	-325.1	0.00	0.00	0.00
6,418.6	0.00	0.00	6,403.0	84.8	326.1	-325.1	0.00	0.00	0.00
KOP #2									
6,500.0	6.11	270.00	6,484.2	84.8	321.8	-320.7	7.50	7.50	0.00
6,600.0	13.61	270.00	6,582.7	84.8	304.7	-303.6	7.50	7.50	0.00
6,700.0	21.11	270.00	6,678.1	84.8	274.8	-273.8	7.50	7.50	0.00
6,800.0	28.61	270.00	6,768.7	84.8	232.8	-231.8	7.50	7.50	0.00
6,900.0	36.11	270.00	6,853.2	84.8	179.3	-178.3	7.50	7.50	0.00
6,924.9	37.97	270.00	6,873.0	84.8	164.4	-163.3	7.50	7.50	0.00
Sharon Springs									
7,000.0	43.61	270.00	6,929.9	84.8	115.3	-114.3	7.50	7.50	0.00
7,081.9	49.75	270.00	6,986.0	84.8	55.8	-54.8	7.50	7.50	0.00
Niobrara A									
7,100.0	51.11	270.00	6,997.6	84.8	41.8	-40.8	7.50	7.50	0.00
7,192.3	58.03	270.00	7,051.0	84.8	-33.3	34.3	7.50	7.50	0.00
Niobrara B									
7,200.0	58.61	270.00	7,055.1	84.8	-39.9	40.9	7.50	7.50	0.00
7,300.0	66.11	270.00	7,101.4	84.8	-128.4	129.4	7.50	7.50	0.00
7,400.0	73.61	270.00	7,135.8	84.8	-222.3	223.3	7.50	7.50	0.00
7,419.1	75.04	270.00	7,141.0	84.8	-240.6	241.6	7.50	7.50	0.00
Niobrara C									
7,500.0	81.11	270.00	7,157.7	84.8	-319.8	320.8	7.50	7.50	0.00
7,600.0	88.61	270.00	7,166.7	84.8	-419.3	420.3	7.50	7.50	0.00
7,621.0	90.18	270.00	7,166.9	84.8	-440.3	441.3	7.48	7.48	0.00
End of Build - 7"									
7,700.0	90.18	270.00	7,166.6	84.8	-519.3	520.3	0.00	0.00	0.00
7,800.0	90.18	270.00	7,166.3	84.8	-619.3	620.3	0.00	0.00	0.00
7,900.0	90.18	270.00	7,166.0	84.8	-719.3	720.3	0.00	0.00	0.00
8,000.0	90.18	270.00	7,165.7	84.8	-819.3	820.2	0.00	0.00	0.00
8,100.0	90.18	270.00	7,165.4	84.8	-919.3	920.2	0.00	0.00	0.00
8,200.0	90.18	270.00	7,165.1	84.8	-1,019.3	1,020.2	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Tarin Federal 32X-334
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4790.0ft (RKB - 15')
Project:	SEC.32-T4N-R66W	MD Reference:	WELL @ 4790.0ft (RKB - 15')
Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	North Reference:	True
Well:	Tarin Federal 32X-334	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #4 (3-17-15)		

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	90.18	270.00	7,164.8	84.8	-1,119.3	1,120.2	0.00	0.00	0.00	
8,400.0	90.18	270.00	7,164.4	84.8	-1,219.3	1,220.2	0.00	0.00	0.00	
8,500.0	90.18	270.00	7,164.1	84.8	-1,319.3	1,320.2	0.00	0.00	0.00	
8,600.0	90.18	270.00	7,163.8	84.8	-1,419.3	1,420.2	0.00	0.00	0.00	
8,700.0	90.18	270.00	7,163.5	84.8	-1,519.3	1,520.2	0.00	0.00	0.00	
8,800.0	90.18	270.00	7,163.2	84.8	-1,619.3	1,620.2	0.00	0.00	0.00	
8,900.0	90.18	270.00	7,162.9	84.8	-1,719.3	1,720.2	0.00	0.00	0.00	
9,000.0	90.18	270.00	7,162.6	84.8	-1,819.3	1,820.2	0.00	0.00	0.00	
9,100.0	90.18	270.00	7,162.2	84.8	-1,919.3	1,920.2	0.00	0.00	0.00	
9,200.0	90.18	270.00	7,161.9	84.8	-2,019.3	2,020.2	0.00	0.00	0.00	
9,300.0	90.18	270.00	7,161.6	84.8	-2,119.3	2,120.1	0.00	0.00	0.00	
9,400.0	90.18	270.00	7,161.3	84.8	-2,219.3	2,220.1	0.00	0.00	0.00	
9,500.0	90.18	270.00	7,161.0	84.8	-2,319.3	2,320.1	0.00	0.00	0.00	
9,600.0	90.18	270.00	7,160.7	84.8	-2,419.3	2,420.1	0.00	0.00	0.00	
9,700.0	90.18	270.00	7,160.4	84.8	-2,519.3	2,520.1	0.00	0.00	0.00	
9,800.0	90.18	270.00	7,160.0	84.8	-2,619.3	2,620.1	0.00	0.00	0.00	
9,900.0	90.18	270.00	7,159.7	84.8	-2,719.3	2,720.1	0.00	0.00	0.00	
10,000.0	90.18	270.00	7,159.4	84.8	-2,819.3	2,820.1	0.00	0.00	0.00	
10,100.0	90.18	270.00	7,159.1	84.8	-2,919.3	2,920.1	0.00	0.00	0.00	
10,200.0	90.18	270.00	7,158.8	84.8	-3,019.3	3,020.1	0.00	0.00	0.00	
10,300.0	90.18	270.00	7,158.5	84.8	-3,119.3	3,120.1	0.00	0.00	0.00	
10,400.0	90.18	270.00	7,158.2	84.8	-3,219.3	3,220.1	0.00	0.00	0.00	
10,500.0	90.18	270.00	7,157.8	84.8	-3,319.3	3,320.1	0.00	0.00	0.00	
10,600.0	90.18	270.00	7,157.5	84.8	-3,419.3	3,420.0	0.00	0.00	0.00	
10,700.0	90.18	270.00	7,157.2	84.8	-3,519.3	3,520.0	0.00	0.00	0.00	
10,800.0	90.18	270.00	7,156.9	84.8	-3,619.3	3,620.0	0.00	0.00	0.00	
10,900.0	90.18	270.00	7,156.6	84.8	-3,719.3	3,720.0	0.00	0.00	0.00	
11,000.0	90.18	270.00	7,156.3	84.8	-3,819.3	3,820.0	0.00	0.00	0.00	
11,100.0	90.18	270.00	7,156.0	84.8	-3,919.3	3,920.0	0.00	0.00	0.00	
11,200.0	90.18	270.00	7,155.6	84.8	-4,019.3	4,020.0	0.00	0.00	0.00	
11,300.0	90.18	270.00	7,155.3	84.8	-4,119.3	4,120.0	0.00	0.00	0.00	
11,400.0	90.18	270.00	7,155.0	84.8	-4,219.3	4,220.0	0.00	0.00	0.00	
11,500.0	90.18	270.00	7,154.7	84.8	-4,319.3	4,320.0	0.00	0.00	0.00	
11,600.0	90.18	270.00	7,154.4	84.8	-4,419.3	4,420.0	0.00	0.00	0.00	
11,700.0	90.18	270.00	7,154.1	84.8	-4,519.3	4,520.0	0.00	0.00	0.00	
11,800.0	90.18	270.00	7,153.8	84.8	-4,619.3	4,620.0	0.00	0.00	0.00	
11,900.0	90.18	270.00	7,153.4	84.8	-4,719.3	4,719.9	0.00	0.00	0.00	
12,000.0	90.18	270.00	7,153.1	84.8	-4,819.3	4,819.9	0.00	0.00	0.00	
12,100.0	90.18	270.00	7,152.8	84.8	-4,919.3	4,919.9	0.00	0.00	0.00	
12,200.0	90.18	270.00	7,152.5	84.8	-5,019.3	5,019.9	0.00	0.00	0.00	
12,300.0	90.18	270.00	7,152.2	84.8	-5,119.3	5,119.9	0.00	0.00	0.00	
12,400.0	90.18	270.00	7,151.9	84.8	-5,219.3	5,219.9	0.00	0.00	0.00	
12,500.0	90.18	270.00	7,151.6	84.8	-5,319.3	5,319.9	0.00	0.00	0.00	
12,600.0	90.18	270.00	7,151.2	84.8	-5,419.3	5,419.9	0.00	0.00	0.00	
12,700.0	90.18	270.00	7,150.9	84.8	-5,519.3	5,519.9	0.00	0.00	0.00	
12,800.0	90.18	270.00	7,150.6	84.8	-5,619.3	5,619.9	0.00	0.00	0.00	
12,900.0	90.18	270.00	7,150.3	84.8	-5,719.3	5,719.9	0.00	0.00	0.00	
13,000.0	90.18	270.00	7,150.0	84.8	-5,819.3	5,819.9	0.00	0.00	0.00	
13,100.0	90.18	270.00	7,149.7	84.8	-5,919.3	5,919.9	0.00	0.00	0.00	
13,200.0	90.18	270.00	7,149.4	84.8	-6,019.3	6,019.8	0.00	0.00	0.00	
13,300.0	90.18	270.00	7,149.0	84.8	-6,119.3	6,119.8	0.00	0.00	0.00	
13,400.0	90.18	270.00	7,148.7	84.8	-6,219.3	6,219.8	0.00	0.00	0.00	
13,500.0	90.18	270.00	7,148.4	84.8	-6,319.3	6,319.8	0.00	0.00	0.00	

Database:	Landmark	Local Co-ordinate Reference:	Well Tarin Federal 32X-334
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4790.0ft (RKB - 15')
Project:	SEC.32-T4N-R66W	MD Reference:	WELL @ 4790.0ft (RKB - 15')
Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	North Reference:	True
Well:	Tarin Federal 32X-334	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #4 (3-17-15)		

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	90.18	270.00	7,148.1	84.8	-6,419.3	6,419.8	0.00	0.00	0.00	
13,700.0	90.18	270.00	7,147.8	84.8	-6,519.3	6,519.8	0.00	0.00	0.00	
13,800.0	90.18	270.00	7,147.5	84.8	-6,619.3	6,619.8	0.00	0.00	0.00	
13,900.0	90.18	270.00	7,147.2	84.8	-6,719.3	6,719.8	0.00	0.00	0.00	
14,000.0	90.18	270.00	7,146.8	84.8	-6,819.3	6,819.8	0.00	0.00	0.00	
14,100.0	90.18	270.00	7,146.5	84.8	-6,919.3	6,919.8	0.00	0.00	0.00	
14,200.0	90.18	270.00	7,146.2	84.8	-7,019.3	7,019.8	0.00	0.00	0.00	
14,269.4	90.18	270.00	7,146.0	84.8	-7,088.7	7,089.2	0.00	0.00	0.00	

Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude	
SHL 943'FSL & 355'F - hit/miss target - Shape - Point	0.00	0.00	1.0	0.0	0.0	1,339,613.44	3,197,253.81	40.263480	-104.793170	
BHL 1066'FSL & 2147 - plan hits target center - Point	0.00	0.00	7,146.0	84.8	-7,088.7	1,339,641.74	3,190,164.98	40.263710	-104.818570	

Casing Points						
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")		
7,621.0	7,166.9	7"	7	7-1/2		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,718.6	3,710.0	Parkman		0.00		
4,401.8	4,390.0	Sussex		0.00		
4,813.7	4,800.0	Shannon		0.00		
6,924.9	6,873.0	Sharon Springs		0.00		
7,081.9	6,986.0	Niobrara A		0.00		
7,192.3	7,051.0	Niobrara B		0.00		
7,419.1	7,141.0	Niobrara C		0.00		
	7,264.0	Ft Hays		0.00		
	7,288.0	Codell		0.00		

Database:	Landmark	Local Co-ordinate Reference:	Well Tarin Federal 32X-334
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4790.0ft (RKB - 15')
Project:	SEC.32-T4N-R66W	MD Reference:	WELL @ 4790.0ft (RKB - 15')
Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	North Reference:	True
Well:	Tarin Federal 32X-334	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #4 (3-17-15)		

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,500.0	1,500.0	0.0	0.0	KOP #1
6,418.6	6,403.0	84.8	326.1	KOP #2
7,621.0	7,166.9	84.8	-440.3	End of Build



Directional

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.32-T4N-R66W

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

Tarin Federal 32X-334

Wellbore #1

Plan #4 (3-17-15)

Anticollision Report

18 March, 2015



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin Federal 32X-334
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4790.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4790.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin Federal 32X-334	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 #4 (3-17-15)	Offset TVD Reference:	Offset Datum

Reference	Plan #4 (3-17-15)		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0ft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,000.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date	3/18/2015		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	14,268.6	Plan #4 (3-17-15) (Wellbore #1)	MWD	MWD - Standard

Summary						
Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Existing Wells Sec.32-T4N-R66W						
Benjamin 5 (Existing) - Wellbore #1 - Wellbore #1	12,119.7	7,228.3	442.9	281.1	2.737	CC, ES, SF
Farr Farms 1 (Existing) - Wellbore #1 - Wellbore #1	14,229.0	7,133.3	480.7	265.0	2.228	CC, ES, SF
Floyd 5 (Existing) - Wellbore #1 - Wellbore #1	7,861.6	7,148.8	91.2	-39.0	0.701	Level 1, CC, ES, SF
Glen 1 (Existing) - Wellbore #1 - Wellbore #1	8,796.1	7,149.9	347.1	282.0	5.330	CC
Glen 1 (Existing) - Wellbore #1 - Wellbore #1	8,800.0	7,149.8	347.1	281.9	5.321	ES, SF
Glen 44-32 (Existing) - Wellbore #1 - Wellbore #1	7,349.5	7,111.5	265.1	232.5	8.146	CC, ES
Glen 44-32 (Existing) - Wellbore #1 - Wellbore #1	7,400.0	7,126.8	269.4	236.2	8.115	SF
Nicholas 5 (Existing) - Wellbore #1 - Wellbore #1	13,634.4	7,192.0	336.5	135.1	1.671	CC, ES, SF
UPRR 41 PAN AM "J" 1 (P&A) - Wellbore #1 - Wellbore	13,181.0	7,135.4	65.3	-249.9	0.207	Level 1, CC, ES, SF
Wolf 44-31 (Existing) - Wellbore #1 - Wellbore #1	12,926.8	7,136.3	81.7	-98.0	0.455	Level 1, CC, ES, SF
Wolfe 1 (Existing) - Wellbore #1 - Wellbore #1	10,073.8	7,139.8	201.0	101.0	2.010	CC, ES, SF
Wolfe 14-32 (Existing) - Wellbore #1 - Wellbore #1	11,336.5	7,136.8	141.8	5.9	1.043	Level 2, CC, ES, SF
Wolfe 5 (Existing) - Wellbore #1 - Wellbore #1	10,535.8	7,404.0	537.3	418.7	4.529	CC, ES
Wolfe 5 (Existing) - Wellbore #1 - Wellbore #1	10,600.0	7,404.6	541.1	420.7	4.494	SF
Wolfe 6I (Existing) - Wellbore #1 - Wellbore #1	9,556.3	7,211.0	348.6	259.2	3.898	CC, ES
Wolfe 6I (Existing) - Wellbore #1 - Wellbore #1	9,600.0	7,211.9	351.3	260.7	3.877	SF
Tarin 32X-HZ Pad Sec.32-T4N-R66W						
Tarin 32W-234 - Wellbore #1 - Plan #1 (4-14-14)	200.0	199.0	120.3	119.6	178.934	CC, ES
Tarin 32W-234 - Wellbore #1 - Plan #1 (4-14-14)	1,500.0	1,439.3	343.2	335.0	41.643	SF
Tarin 32W-434 - Wellbore #1 - Plan #2 (12-18-14)	400.0	399.0	91.1	89.5	57.974	CC, ES
Tarin 32W-434 - Wellbore #1 - Plan #2 (12-18-14)	14,269.4	14,445.9	939.6	536.1	2.329	SF
Tarin 32X-204 - Wellbore #1 - Plan #2 (12-18-14)	1,000.0	1,000.0	32.8	28.5	7.679	CC
Tarin 32X-204 - Wellbore #1 - Plan #2 (12-18-14)	14,269.4	14,157.0	243.7	-139.6	0.636	Level 1, ES, SF
Tarin 32X-314 - Wellbore #1 - Plan #1 (4-14-14)	600.0	600.0	61.9	59.5	25.054	CC, ES
Tarin 32X-314 - Wellbore #1 - Plan #1 (4-14-14)	14,269.4	14,298.8	659.4	254.8	1.630	SF
Tarin 32Y-214 - Wellbore #1 - Plan #3 (12-18-14)	1,200.0	1,200.0	29.1	24.0	5.638	CC, ES
Tarin 32Y-214 - Wellbore #1 - Plan #3 (12-18-14)	14,269.4	14,163.3	589.2	189.2	1.473	Level 3, SF
Tarin 32Y-314 - Wellbore #1 - Plan #3 (12-18-14)	966.3	967.3	58.3	54.2	14.141	CC
Tarin 32Y-314 - Wellbore #1 - Plan #3 (12-18-14)	1,000.0	1,001.0	58.3	54.0	13.641	ES
Tarin 32Y-314 - Wellbore #1 - Plan #3 (12-18-14)	14,269.4	14,299.4	842.3	437.8	2.082	SF
Tarin 32Y-404 - Wellbore #1 - Plan #2 (7-15-14)	466.3	467.3	87.4	85.6	46.659	CC
Tarin 32Y-404 - Wellbore #1 - Plan #2 (7-15-14)	500.0	500.0	87.4	85.4	43.222	ES
Tarin 32Y-404 - Wellbore #1 - Plan #2 (7-15-14)	13,700.0	13,837.5	1,000.0	629.8	2.701	SF

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin Federal 32X-334
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4790.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4790.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin Federal 32X-334	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 #4 (3-17-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 464-NS-GYRO-MS Existing Wells Sec.32-T4N-R66W - Benjamin 5 (Existing) - Wellbore #1 - Wellbore #1													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	
11,300.0	7,155.3	7,227.2	7,137.7	120.0	19.5	89.86	527.7	-4,939.0	931.7	792.7	138.97	6.705		
11,400.0	7,155.0	7,227.4	7,137.8	122.8	19.5	89.88	527.7	-4,939.0	845.1	703.3	141.75	5.962		
11,500.0	7,154.7	7,227.5	7,138.0	125.6	19.5	89.90	527.7	-4,939.0	761.7	617.2	144.53	5.270		
11,600.0	7,154.4	7,227.6	7,138.1	128.4	19.5	89.91	527.7	-4,939.0	682.8	535.5	147.31	4.635		
11,700.0	7,154.1	7,227.8	7,138.2	131.2	19.5	89.93	527.7	-4,939.0	610.2	460.1	150.09	4.065		
11,800.0	7,153.8	7,227.9	7,138.3	134.0	19.5	89.95	527.7	-4,939.0	546.2	393.3	152.88	3.573		
11,900.0	7,153.4	7,228.0	7,138.5	136.7	19.5	89.96	527.7	-4,939.0	494.4	338.7	155.67	3.176		
12,000.0	7,153.1	7,228.1	7,138.6	139.5	19.5	89.98	527.7	-4,939.0	458.8	300.3	158.45	2.895		
12,100.0	7,152.8	7,228.3	7,138.7	142.3	19.5	90.00	527.7	-4,939.0	443.3	282.1	161.24	2.749		
12,119.7	7,152.8	7,228.3	7,138.8	142.9	19.5	90.00	527.7	-4,939.0	442.9	281.1	161.79	2.737	CC, ES, SF	
12,200.0	7,152.5	7,228.4	7,138.9	145.1	19.5	90.01	527.7	-4,939.0	450.1	286.1	164.03	2.744		
12,300.0	7,152.2	7,228.5	7,139.0	147.9	19.5	90.03	527.7	-4,939.0	478.2	311.3	166.82	2.866		
12,400.0	7,151.9	7,228.6	7,139.1	150.7	19.5	90.05	527.7	-4,939.0	524.1	354.5	169.61	3.090		
12,500.0	7,151.6	7,228.8	7,139.2	153.5	19.5	90.06	527.7	-4,939.0	583.7	411.3	172.40	3.386		
12,600.0	7,151.2	7,228.9	7,139.4	156.3	19.5	90.08	527.7	-4,939.0	653.3	478.1	175.19	3.729		
12,700.0	7,150.9	7,229.0	7,139.5	159.1	19.5	90.09	527.7	-4,939.0	730.0	552.0	177.98	4.101		
12,800.0	7,150.6	7,229.1	7,139.6	161.8	19.5	90.11	527.7	-4,939.0	811.7	631.0	180.77	4.490		
12,900.0	7,150.3	7,229.3	7,139.7	164.6	19.5	90.13	527.7	-4,939.0	897.2	713.6	183.56	4.888		
13,000.0	7,150.0	7,229.4	7,139.9	167.4	19.5	90.14	527.7	-4,939.0	985.4	799.0	186.35	5.288		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin Federal 32X-334
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4790.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4790.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin Federal 32X-334	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 #4 (3-17-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Existing Wells Sec.32-T4N-R66W - Farr Farms 1 (Existing) - Wellbore #1 - Wellbore #1													Offset Well Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS														
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
13,400.0	7,148.7	7,131.6	7,130.5	178.6	14.3	-89.57	-395.9	-7,048.2	958.3	765.4	192.87	4.968		
13,500.0	7,148.4	7,131.8	7,130.8	181.4	14.3	-89.60	-395.9	-7,048.2	873.2	677.5	195.67	4.463		
13,600.0	7,148.1	7,132.0	7,131.0	184.2	14.3	-89.62	-395.9	-7,048.2	791.6	593.2	198.46	3.989		
13,700.0	7,147.8	7,132.2	7,131.2	187.0	14.3	-89.65	-395.9	-7,048.2	714.8	513.5	201.26	3.551		
13,800.0	7,147.5	7,132.4	7,131.4	189.8	14.3	-89.67	-395.9	-7,048.2	644.3	440.2	204.06	3.157		
13,900.0	7,147.2	7,132.6	7,131.6	192.6	14.3	-89.70	-395.9	-7,048.2	582.5	375.7	206.86	2.816		
14,000.0	7,146.8	7,132.8	7,131.8	195.4	14.3	-89.72	-395.9	-7,048.2	532.5	322.8	209.65	2.540		
14,100.0	7,146.5	7,133.0	7,132.0	198.2	14.3	-89.74	-395.9	-7,048.2	497.7	285.3	212.45	2.343		
14,200.0	7,146.2	7,133.2	7,132.2	201.0	14.3	-89.77	-395.9	-7,048.2	481.6	266.4	215.25	2.237		
14,229.0	7,146.1	7,133.3	7,132.2	201.5	14.3	-89.77	-395.9	-7,048.2	480.7	265.0	215.77	2.228	CC, ES, SF	
14,269.4	7,146.0	7,133.3	7,132.3	202.2	14.3	-89.78	-395.9	-7,048.2	482.4	265.9	216.50	2.228		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin Federal 32X-334
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4790.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4790.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin Federal 32X-334	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 #4 (3-17-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 100-UNKNOWN													Offset Well Error:	0.0 ft
Existing Wells Sec.32-T4N-R66W - Floyd 5 (Existing) - Wellbore #1 - Wellbore #1														
Reference				Offset			Semi Major Axis			Distance			Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-88.02	21.9	-633.5	634.2					
100.0	100.0	85.3	85.3	0.1	1.7	-88.03	21.8	-633.2	633.6	631.8	1.82	348.176		
200.0	200.0	181.0	181.0	0.3	3.8	-88.06	21.4	-632.8	633.2	629.0	4.13	153.161		
300.0	300.0	284.1	284.1	0.6	5.4	-88.07	21.3	-632.7	633.1	627.1	6.01	105.405		
379.0	379.0	360.0	360.0	0.7	6.5	-88.07	21.3	-632.4	632.8	625.5	7.24	87.387		
400.0	400.0	379.7	379.7	0.8	6.8	-88.08	21.2	-632.5	632.8	625.2	7.56	83.698		
500.0	500.0	481.1	481.1	1.0	9.3	-88.15	20.4	-632.7	633.0	622.7	10.29	61.498		
600.0	600.0	581.3	581.3	1.2	13.0	-88.22	19.7	-632.7	633.0	618.8	14.19	44.600		
619.0	619.0	600.0	600.0	1.3	13.7	-88.23	19.6	-632.6	632.9	618.0	14.96	42.310		
700.0	700.0	678.0	678.0	1.5	16.4	-88.27	19.1	-632.8	633.1	615.3	17.82	35.527		
800.0	800.0	780.1	780.1	1.7	20.0	-88.38	18.0	-633.3	633.5	611.9	21.65	29.269		
900.0	900.0	881.4	881.4	1.9	23.9	-88.49	16.7	-633.3	633.5	607.7	25.82	24.540		
938.9	938.9	919.9	919.9	2.0	25.4	-88.53	16.3	-633.3	633.5	606.1	27.42	23.108		
1,000.0	1,000.0	979.5	979.4	2.1	27.7	-88.59	15.6	-633.4	633.6	603.7	29.86	21.218		
1,100.0	1,100.0	1,080.6	1,080.5	2.4	31.7	-88.69	14.5	-633.7	633.8	599.8	34.01	18.634		
1,200.0	1,200.0	1,181.2	1,181.1	2.6	35.7	-88.77	13.6	-633.7	633.8	595.6	38.24	16.576		
1,214.4	1,214.4	1,195.6	1,195.6	2.6	36.2	-88.77	13.6	-633.7	633.8	595.0	38.85	16.315		
1,300.0	1,300.0	1,278.2	1,278.2	2.8	38.0	-88.80	13.3	-633.8	634.0	593.1	40.84	15.524		
1,400.0	1,400.0	1,376.1	1,376.0	3.0	39.7	-88.82	13.1	-634.5	634.6	591.9	42.69	14.866		
1,500.0	1,500.0	1,477.0	1,476.9	3.3	40.7	-88.85	12.8	-635.3	635.4	591.5	43.91	14.469		
1,600.0	1,600.0	1,576.3	1,576.3	3.5	41.7	-164.29	12.8	-635.9	636.9	591.8	45.12	14.114		
1,700.0	1,700.0	1,672.6	1,672.5	3.7	43.9	-164.38	12.3	-636.9	640.4	592.8	47.55	13.467		
1,800.0	1,799.9	1,770.9	1,770.8	3.9	45.8	-164.50	12.0	-638.3	646.1	596.5	49.60	13.027		
1,900.0	1,899.7	1,869.5	1,869.4	4.1	46.6	-164.58	12.4	-639.9	653.6	603.1	50.54	12.933		
2,000.0	1,999.4	1,966.6	1,966.4	4.3	47.0	-164.66	13.3	-641.8	663.0	612.0	51.05	12.987		
2,100.0	2,098.9	2,063.8	2,063.6	4.6	47.5	-164.76	14.4	-644.0	674.4	622.7	51.71	13.041		
2,200.0	2,198.5	2,157.1	2,156.9	4.8	48.3	-164.84	15.8	-646.5	686.4	633.7	52.71	13.021		
2,300.0	2,298.0	2,254.2	2,254.0	5.0	49.8	-164.94	17.1	-650.0	699.3	644.9	54.44	12.846		
2,400.0	2,397.5	2,353.4	2,353.1	5.3	52.2	-165.10	17.7	-653.5	712.0	655.0	57.00	12.492		
2,500.0	2,497.1	2,451.3	2,450.9	5.5	55.1	-165.28	17.8	-657.1	725.0	664.9	60.10	12.063		
2,600.0	2,596.6	2,554.0	2,553.6	5.8	58.6	-165.51	17.4	-660.8	737.9	674.2	63.77	11.572		
2,700.0	2,696.1	2,652.5	2,652.0	6.1	62.2	-165.73	16.9	-663.8	750.3	682.8	67.52	11.113		
2,800.0	2,795.7	2,749.7	2,749.1	6.3	65.9	-165.97	16.0	-667.4	763.3	691.9	71.36	10.696		
2,900.0	2,895.2	2,854.1	2,853.5	6.6	69.9	-166.24	14.8	-670.8	776.0	700.4	75.60	10.264		
3,000.0	2,994.7	2,958.5	2,957.8	6.9	74.0	-166.50	13.5	-673.5	787.8	707.9	79.89	9.861		
3,100.0	3,094.3	3,058.1	3,057.4	7.1	78.0	-166.80	11.7	-675.6	799.4	715.3	84.03	9.513		
3,200.0	3,193.8	3,165.0	3,164.3	7.4	82.1	-167.08	9.9	-677.7	810.7	722.4	88.38	9.174		
3,300.0	3,293.4	3,271.3	3,270.5	7.7	85.8	-167.34	8.5	-678.4	820.9	728.7	92.21	8.902		
3,400.0	3,392.9	3,374.4	3,373.6	7.9	88.5	-167.61	6.8	-678.6	830.5	735.4	95.13	8.730		
3,500.0	3,492.4	3,463.7	3,462.9	8.2	90.9	-167.80	5.8	-679.0	840.4	742.5	97.84	8.589		
3,600.0	3,592.0	3,558.4	3,557.6	8.5	94.3	-167.99	4.9	-680.6	851.5	750.1	101.39	8.398		
3,700.0	3,691.5	3,656.3	3,655.5	8.7	98.1	-168.21	3.5	-682.3	862.7	757.3	105.43	8.183		
3,800.0	3,791.0	3,753.4	3,752.5	9.0	102.0	-168.40	2.4	-684.4	874.3	764.9	109.45	7.988		
3,900.0	3,890.6	3,855.5	3,854.6	9.3	106.0	-168.64	0.6	-686.5	885.9	772.2	113.70	7.791		
4,000.0	3,990.1	3,954.8	3,953.9	9.6	110.0	-168.85	-0.9	-688.1	897.1	779.2	117.86	7.612		
4,100.0	4,089.6	4,058.0	4,057.1	9.9	114.0	-169.10	-3.0	-690.0	908.5	786.4	122.05	7.444		
4,200.0	4,189.2	4,164.6	4,163.6	10.1	117.9	-169.33	-4.8	-691.0	918.9	792.7	126.19	7.282		
4,300.0	4,288.7	4,260.3	4,259.3	10.4	121.5	-169.49	-5.8	-691.6	929.1	799.1	130.01	7.147		
4,400.0	4,388.3	4,360.4	4,359.4	10.7	125.5	-169.66	-6.8	-692.8	939.9	805.7	134.16	7.005		
4,500.0	4,487.8	4,458.1	4,457.0	11.0	129.4	-169.79	-7.4	-693.7	950.3	812.0	138.27	6.873		
4,600.0	4,587.3	4,555.6	4,554.5	11.2	133.2	-169.93	-8.3	-695.1	961.2	819.0	142.27	6.757		

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 Federal 32X-334
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4790.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4790.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin Federal 32X-334	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 #4 (3-17-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 100-UNKNOWN													Offset Well Error:	0.0 ft	
Existing Wells Sec.32-T4N-R66W - Floyd 5 (Existing) - Wellbore #1 - Wellbore #1															
Reference				Offset			Semi Major Axis			Distance				Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
4,700.0	4,686.9	4,647.4	4,646.4	11.5	136.4	-170.04	-8.5	-696.5	972.3	826.6	145.69	6.674			
4,800.0	4,786.4	4,738.7	4,737.6	11.8	139.2	-170.10	-8.3	-699.2	984.6	835.9	148.73	6.620			
4,900.0	4,885.9	4,839.1	4,838.0	12.1	142.2	-170.17	-8.1	-702.1	996.9	845.0	151.91	6.563			
6,600.0	6,582.7	6,581.1	6,579.6	15.5	117.1	-5.28	-4.3	-690.8	999.5	871.0	128.54	7.776			
6,700.0	6,678.1	6,676.4	6,674.9	15.5	114.3	-5.70	-4.3	-689.2	968.3	846.7	121.58	7.964			
6,800.0	6,768.7	6,765.3	6,763.8	15.5	112.2	-6.40	-5.0	-687.7	925.0	811.4	113.60	8.143			
6,900.0	6,853.2	6,849.7	6,848.3	15.6	110.4	-7.45	-5.5	-686.4	870.5	766.1	104.40	8.338			
7,000.0	6,929.9	6,927.1	6,925.6	15.8	108.8	-9.08	-6.2	-684.9	805.5	711.3	94.21	8.550			
7,100.0	6,997.6	6,994.6	6,993.1	16.1	107.1	-11.61	-6.4	-683.6	731.3	647.5	83.73	8.734			
7,200.0	7,055.1	7,049.4	7,047.9	16.8	105.4	-15.69	-6.3	-682.6	649.2	574.6	74.56	8.707			
7,300.0	7,101.4	7,093.3	7,091.8	17.8	104.1	-22.93	-6.4	-681.8	560.9	489.7	71.17	7.881			
7,400.0	7,135.8	7,126.1	7,124.5	19.0	103.0	-36.74	-6.4	-681.2	468.0	385.5	82.54	5.670			
7,500.0	7,157.7	7,146.4	7,144.8	20.6	102.4	-61.37	-6.3	-680.9	372.5	262.2	110.33	3.377			
7,600.0	7,166.7	7,153.7	7,152.2	22.4	102.2	-88.83	-6.3	-680.8	277.0	152.4	124.55	2.224			
7,700.0	7,166.6	7,152.0	7,150.4	24.4	102.2	-92.08	-6.3	-680.8	185.5	59.1	126.34	1.468	Level 3		
7,800.0	7,166.3	7,150.0	7,148.5	26.5	102.3	-90.83	-6.3	-680.8	110.0	-18.7	128.66	0.855	Level 1		
7,861.6	7,166.1	7,148.8	7,147.2	27.9	102.3	-90.06	-6.3	-680.9	91.2	-39.0	130.13	0.701	Level 1, CC, ES, SF		
7,900.0	7,166.0	7,148.0	7,146.5	28.7	102.3	-89.58	-6.3	-680.9	98.9	-32.1	131.04	0.755	Level 1		
8,000.0	7,165.7	7,146.0	7,144.5	31.1	102.4	-88.33	-6.3	-680.9	165.7	32.3	133.45	1.242	Level 2		
8,100.0	7,165.4	7,144.0	7,142.5	33.5	102.5	-87.08	-6.3	-680.9	255.2	119.4	135.86	1.879			
8,200.0	7,165.1	7,142.0	7,140.5	35.9	102.5	-85.84	-6.3	-681.0	350.4	212.2	138.27	2.534			
8,300.0	7,164.8	7,140.0	7,138.5	38.4	102.6	-84.59	-6.4	-681.0	447.7	307.1	140.66	3.183			
8,400.0	7,164.4	7,138.0	7,136.5	41.0	102.6	-83.36	-6.4	-681.0	546.0	403.0	143.01	3.818			
8,500.0	7,164.1	7,136.0	7,134.5	43.6	102.7	-82.13	-6.4	-681.1	644.8	499.5	145.31	4.437			
8,600.0	7,163.8	7,134.1	7,132.5	46.2	102.8	-80.90	-6.4	-681.1	743.9	596.3	147.57	5.041			
8,700.0	7,163.5	7,132.1	7,130.5	48.8	102.8	-79.68	-6.4	-681.1	843.2	693.4	149.76	5.630			
8,800.0	7,163.2	7,130.1	7,128.5	51.5	102.9	-78.48	-6.4	-681.2	942.7	790.8	151.90	6.206			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin Federal 32X-334
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4790.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4790.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin Federal 32X-334	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 #4 (3-17-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 100-NS-GYRO-MS													Offset Well Error:	0.0 ft	
Reference													Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
7,900.0	7,166.0	7,169.0	7,168.7	28.7	13.8	-93.88	-262.0	-1,615.1	960.8	918.3	42.50	22.608			
8,000.0	7,165.7	7,166.7	7,166.5	31.1	13.8	-93.51	-262.0	-1,615.1	868.3	823.5	44.83	19.369			
8,100.0	7,165.4	7,164.5	7,164.2	33.5	13.8	-93.14	-262.1	-1,615.1	777.7	730.5	47.24	16.463			
8,200.0	7,165.1	7,162.3	7,162.1	35.9	13.8	-92.78	-262.1	-1,615.2	689.7	640.0	49.70	13.876			
8,300.0	7,164.8	7,160.2	7,159.9	38.4	13.8	-92.43	-262.1	-1,615.2	605.4	553.2	52.22	11.594			
8,400.0	7,164.4	7,158.1	7,157.8	41.0	13.8	-92.08	-262.2	-1,615.3	526.6	471.8	54.77	9.615			
8,500.0	7,164.1	7,156.0	7,155.7	43.6	13.8	-91.73	-262.2	-1,615.3	456.2	398.9	57.35	7.955			
8,600.0	7,163.8	7,153.9	7,153.6	46.2	13.8	-91.39	-262.2	-1,615.3	398.7	338.7	59.96	6.649			
8,700.0	7,163.5	7,151.9	7,151.6	48.8	13.8	-91.05	-262.2	-1,615.4	360.2	297.6	62.59	5.755			
8,796.1	7,163.2	7,149.9	7,149.6	51.4	13.8	-90.73	-262.3	-1,615.4	347.1	282.0	65.13	5.330 CC			
8,800.0	7,163.2	7,149.8	7,149.6	51.5	13.8	-90.72	-262.3	-1,615.4	347.1	281.9	65.23	5.321 ES, SF			
8,900.0	7,162.9	7,147.9	7,147.6	54.1	13.8	-90.39	-262.3	-1,615.4	362.3	294.4	67.89	5.337			
9,000.0	7,162.6	7,145.9	7,145.6	56.8	13.8	-90.07	-262.3	-1,615.5	402.5	332.0	70.57	5.705			
9,100.0	7,162.2	7,144.0	7,143.7	59.5	13.8	-89.75	-262.3	-1,615.5	461.3	388.1	73.25	6.298			
9,200.0	7,161.9	7,142.1	7,141.8	62.2	13.8	-89.44	-262.4	-1,615.5	532.5	456.6	75.94	7.012			
9,300.0	7,161.6	7,140.2	7,139.9	64.9	13.8	-89.13	-262.4	-1,615.6	611.8	533.2	78.64	7.780			
9,400.0	7,161.3	7,138.3	7,138.0	67.6	13.8	-88.82	-262.4	-1,615.6	696.4	615.1	81.34	8.562			
9,500.0	7,161.0	7,136.5	7,136.2	70.3	13.8	-88.52	-262.4	-1,615.6	784.7	700.7	84.05	9.336			
9,600.0	7,160.7	7,134.7	7,134.4	73.1	13.7	-88.22	-262.5	-1,615.7	875.5	788.7	86.76	10.091			
9,700.0	7,160.4	7,132.9	7,132.6	75.8	13.7	-87.92	-262.5	-1,615.7	968.1	878.6	89.47	10.820			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin Federal 32X-334
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4790.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4790.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin Federal 32X-334	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 #4 (3-17-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS													Offset Well Error:	0.0 ft
Existing Wells Sec.32-T4N-R66W - Glen 44-32 (Existing) - Wellbore #1 - Wellbore #1														
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-156.94	-262.3	-111.6	285.4					
100.0	100.0	85.8	85.8	0.1	0.1	-156.86	-262.3	-112.1	285.2	285.0	0.23	1,259.548		
200.0	200.0	184.7	184.7	0.3	0.4	-156.62	-262.4	-113.4	285.9	285.2	0.69	411.979		
300.0	300.0	287.5	287.5	0.6	0.6	-156.39	-262.3	-114.7	286.3	285.1	1.17	243.775		
400.0	400.0	388.0	388.0	0.8	0.9	-156.13	-261.5	-115.7	285.9	284.3	1.65	173.735		
451.0	451.0	438.0	438.0	0.9	1.0	-155.98	-261.1	-116.3	285.8	284.0	1.89	151.454		
500.0	500.0	485.8	485.8	1.0	1.1	-155.86	-260.9	-116.9	285.9	283.8	2.12	134.882		
600.0	600.0	587.4	587.4	1.2	1.4	-155.59	-260.6	-118.3	286.2	283.6	2.61	109.775		
700.0	700.0	689.9	689.9	1.5	1.6	-155.31	-259.5	-119.3	285.6	282.6	3.06	93.243		
800.0	800.0	787.7	787.6	1.7	1.8	-155.15	-258.6	-119.8	285.0	281.4	3.51	81.150		
900.0	900.0	888.9	888.8	1.9	2.1	-154.88	-257.7	-120.8	284.6	280.6	4.00	71.237		
1,000.0	1,000.0	988.0	987.9	2.1	2.3	-154.61	-256.7	-121.8	284.1	279.6	4.48	63.476		
1,100.0	1,100.0	1,088.9	1,088.8	2.4	2.6	-154.46	-255.9	-122.3	283.7	278.7	4.95	57.281		
1,200.0	1,200.0	1,188.5	1,188.4	2.6	2.8	-154.28	-255.0	-122.9	283.1	277.6	5.43	52.171		
1,300.0	1,300.0	1,288.2	1,288.1	2.8	3.1	-154.05	-254.1	-123.7	282.6	276.7	5.91	47.823		
1,400.0	1,400.0	1,389.5	1,389.4	3.0	3.4	-153.75	-253.0	-124.7	282.0	275.6	6.40	44.071		
1,500.0	1,500.0	1,488.7	1,488.6	3.3	3.6	-153.38	-251.5	-126.0	281.3	274.4	6.88	40.859		
1,546.9	1,546.9	1,535.5	1,535.4	3.4	3.8	131.39	-250.9	-126.6	281.2	274.1	7.11	39.539		
1,600.0	1,600.0	1,588.7	1,588.6	3.5	3.9	131.67	-250.2	-127.3	281.3	274.0	7.37	38.197		
1,700.0	1,700.0	1,687.9	1,687.8	3.7	4.2	132.41	-249.0	-128.6	282.6	274.8	7.83	36.083		
1,800.0	1,799.9	1,787.6	1,787.4	3.9	4.4	133.45	-247.9	-130.3	285.4	277.1	8.31	34.363		
1,900.0	1,899.7	1,888.3	1,888.0	4.1	4.7	134.73	-246.5	-132.0	289.3	280.6	8.78	32.945		
2,000.0	1,999.4	1,987.5	1,987.3	4.3	4.9	136.22	-245.0	-133.8	294.5	285.3	9.26	31.809		
2,100.0	2,098.9	2,088.8	2,088.6	4.6	5.2	137.97	-243.1	-135.8	300.9	291.1	9.75	30.873		
2,200.0	2,198.5	2,189.9	2,189.6	4.8	5.5	139.64	-240.7	-137.2	307.0	296.8	10.23	30.022		
2,300.0	2,298.0	2,294.1	2,293.7	5.0	5.7	141.12	-238.1	-137.3	312.4	301.7	10.68	29.258		
2,400.0	2,397.5	2,393.2	2,392.8	5.3	5.9	142.53	-234.8	-137.1	317.2	306.1	11.11	28.542		
2,500.0	2,497.1	2,495.5	2,495.0	5.5	6.1	144.00	-231.0	-137.0	322.0	310.4	11.56	27.844		
2,600.0	2,596.6	2,593.8	2,593.2	5.8	6.3	145.27	-227.5	-136.3	326.7	314.7	12.00	27.227		
2,700.0	2,696.1	2,692.3	2,691.7	6.1	6.5	146.50	-224.3	-135.8	331.9	319.5	12.44	26.683		
2,800.0	2,795.7	2,792.5	2,791.9	6.3	6.8	147.73	-221.1	-135.4	337.4	324.5	12.89	26.169		
2,900.0	2,895.2	2,892.4	2,891.7	6.6	7.0	148.89	-217.8	-134.9	342.8	329.5	13.34	25.704		
3,000.0	2,994.7	2,993.9	2,993.1	6.9	7.2	149.94	-214.7	-133.7	348.1	334.3	13.77	25.274		
3,100.0	3,094.3	3,094.7	3,093.9	7.1	7.4	150.84	-211.8	-131.7	353.1	338.9	14.18	24.897		
3,200.0	3,193.8	3,191.5	3,190.7	7.4	7.5	151.48	-210.1	-129.1	358.3	343.8	14.54	24.648		
3,300.0	3,293.4	3,286.8	3,285.9	7.7	7.6	152.06	-209.2	-127.1	364.7	349.8	14.90	24.479		
3,400.0	3,392.9	3,381.4	3,380.5	7.9	7.8	152.76	-208.5	-126.7	372.4	357.1	15.32	24.311		
3,500.0	3,492.4	3,475.9	3,475.0	8.2	8.0	153.54	-208.0	-127.7	381.5	365.7	15.77	24.196		
3,600.0	3,592.0	3,569.5	3,568.6	8.5	8.2	154.41	-207.7	-130.3	392.0	375.8	16.19	24.205		
3,700.0	3,691.5	3,666.3	3,665.2	8.7	8.4	155.30	-208.0	-134.0	403.8	387.2	16.61	24.307		
3,800.0	3,791.0	3,762.6	3,761.5	9.0	8.6	156.16	-208.3	-138.1	416.1	399.1	17.03	24.434		
3,900.0	3,890.6	3,858.6	3,857.4	9.3	8.8	157.09	-208.4	-143.4	429.3	411.9	17.45	24.598		
4,000.0	3,990.1	3,957.5	3,956.1	9.6	9.0	158.00	-208.7	-149.1	443.0	425.1	17.88	24.776		
4,100.0	4,089.6	4,055.6	4,054.1	9.9	9.2	158.78	-209.3	-154.4	456.7	438.4	18.31	24.943		
4,200.0	4,189.2	4,154.9	4,153.1	10.1	9.4	159.63	-209.4	-160.5	470.7	452.0	18.75	25.110		
4,300.0	4,288.7	4,255.4	4,253.5	10.4	9.6	160.49	-208.9	-166.5	484.4	465.2	19.20	25.233		
4,400.0	4,388.3	4,356.4	4,354.2	10.7	9.9	161.31	-208.3	-172.3	498.0	478.3	19.66	25.333		
4,500.0	4,487.8	4,458.5	4,456.3	11.0	10.1	162.11	-207.1	-177.8	511.0	490.9	20.13	25.388		
4,600.0	4,587.3	4,563.0	4,560.6	11.2	10.4	162.95	-205.1	-183.0	523.4	502.8	20.61	25.389		
4,700.0	4,686.9	4,667.5	4,664.9	11.5	10.6	163.78	-202.2	-187.3	534.7	513.6	21.11	25.328		
4,800.0	4,786.4	4,771.7	4,769.1	11.8	10.9	164.53	-199.0	-190.7	545.2	523.6	21.61	25.229		

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 Federal 32X-334
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4790.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4790.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin Federal 32X-334	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 #4 (3-17-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.32-T4N-R66W - Glen 44-32 (Existing) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
4,900.0	4,885.9	4,872.8	4,870.1	12.1	11.2	165.30	-195.2	-193.5	555.0	532.9	22.10	25.116		
5,000.0	4,985.5	4,973.8	4,970.9	12.4	11.4	165.95	-191.9	-195.8	564.8	542.2	22.59	25.002		
5,100.0	5,085.0	5,075.5	5,072.6	12.6	11.7	166.43	-189.8	-197.0	574.2	551.1	23.08	24.881		
5,200.0	5,184.6	5,183.0	5,180.1	12.9	11.9	166.79	-188.4	-196.9	582.3	558.7	23.55	24.730		
5,300.0	5,284.4	5,278.0	5,275.1	13.1	12.1	167.03	-187.0	-196.3	586.7	562.7	23.94	24.511		
5,400.0	5,384.4	5,382.4	5,379.5	13.3	12.3	167.25	-185.2	-196.4	588.2	563.8	24.33	24.171		
5,500.0	5,484.4	5,483.7	5,480.7	13.4	12.5	-117.22	-183.5	-195.5	586.6	560.8	25.85	22.693		
5,600.0	5,584.4	5,588.1	5,585.2	13.6	12.7	-117.16	-182.0	-194.0	584.7	558.5	26.20	22.318		
5,700.0	5,684.4	5,683.0	5,680.0	13.8	12.8	-117.17	-181.2	-192.2	582.7	556.2	26.48	22.005		
5,800.0	5,784.4	5,787.4	5,784.5	14.0	12.8	-117.30	-181.6	-190.1	581.0	554.3	26.73	21.739		
5,900.0	5,884.4	5,880.9	5,877.9	14.2	12.9	-117.48	-182.4	-187.7	579.2	552.2	26.95	21.489		
6,000.0	5,984.4	5,975.3	5,972.3	14.4	12.9	-117.64	-183.5	-186.5	578.6	551.4	27.17	21.295		
6,100.0	6,084.4	6,078.9	6,075.8	14.6	12.9	-117.75	-184.5	-185.7	578.3	550.9	27.41	21.098		
6,195.8	6,180.2	6,170.2	6,167.2	14.8	13.0	-117.83	-184.9	-184.9	577.8	550.1	27.65	20.895		
6,200.0	6,184.4	6,174.1	6,171.1	14.8	13.0	-117.83	-184.9	-184.8	577.8	550.1	27.66	20.888		
6,300.0	6,284.4	6,270.1	6,267.1	15.0	13.0	-117.97	-186.4	-184.6	578.3	550.4	27.91	20.720		
6,400.0	6,384.4	6,371.2	6,368.1	15.2	13.1	-118.12	-188.1	-184.6	579.0	550.9	28.16	20.561		
6,500.0	6,484.2	6,477.7	6,474.6	15.4	13.1	-28.65	-189.6	-183.8	575.3	548.0	27.26	21.103		
6,600.0	6,582.7	6,582.7	6,579.6	15.5	13.2	-30.29	-190.1	-182.1	559.1	532.1	27.08	20.648		
6,700.0	6,678.1	6,685.3	6,682.1	15.5	13.3	-33.23	-189.0	-179.9	531.0	504.3	26.74	19.863		
6,800.0	6,768.7	6,777.5	6,774.3	15.5	13.5	-37.70	-186.7	-177.4	492.3	466.0	26.37	18.668		
6,900.0	6,853.2	6,856.8	6,853.6	15.6	13.7	-43.94	-184.1	-175.8	445.7	419.4	26.25	16.977		
7,000.0	6,929.9	6,928.1	6,924.8	15.8	13.8	-52.51	-182.2	-175.1	394.6	367.8	26.78	14.736		
7,100.0	6,997.6	6,991.8	6,988.5	16.1	13.9	-63.45	-181.1	-174.7	343.0	314.8	28.18	12.171		
7,200.0	7,055.1	7,048.2	7,044.9	16.8	14.1	-75.71	-180.6	-174.4	297.6	267.5	30.10	9.888		
7,300.0	7,101.4	7,093.5	7,090.2	17.8	14.1	-86.36	-180.3	-174.1	269.1	237.3	31.80	8.462		
7,349.5	7,120.0	7,111.5	7,108.2	18.4	14.2	-90.27	-180.3	-173.9	265.1	232.5	32.54	8.146 CC, ES		
7,400.0	7,135.8	7,126.8	7,123.5	19.0	14.2	-93.10	-180.2	-173.7	269.4	236.2	33.20	8.115 SF		
7,500.0	7,157.7	7,147.8	7,144.5	20.6	14.2	-94.82	-180.1	-173.6	302.6	267.8	34.76	8.706		
7,600.0	7,166.7	7,150.0	7,146.7	22.4	14.2	-89.78	-180.1	-173.5	361.4	324.8	36.62	9.870		
7,700.0	7,166.6	7,150.0	7,146.7	24.4	14.2	-88.26	-180.1	-173.5	435.6	397.1	38.55	11.300		
7,800.0	7,166.3	7,150.0	7,146.7	26.5	14.2	-88.26	-180.1	-173.5	518.6	477.9	40.67	12.751		
7,900.0	7,166.0	7,150.0	7,146.7	28.7	14.2	-88.26	-180.1	-173.5	606.7	563.8	42.91	14.139		
8,000.0	7,165.7	7,150.0	7,146.7	31.1	14.2	-88.26	-180.1	-173.5	698.0	652.8	45.24	15.430		
8,100.0	7,165.4	7,150.0	7,146.7	33.5	14.2	-88.26	-180.1	-173.5	791.4	743.8	47.64	16.613		
8,200.0	7,165.1	7,149.1	7,145.8	35.9	14.2	-88.07	-180.1	-173.5	886.3	836.2	50.09	17.693		
8,300.0	7,164.8	7,147.9	7,144.6	38.4	14.2	-87.81	-180.1	-173.6	982.2	929.6	52.59	18.677		

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 Federal 32X-334
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4790.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4790.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin Federal 32X-334	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 #4 (3-17-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS													Offset Well Error:	0.0 ft
Reference													Warning	
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)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
12,700.0	7,150.9	7,208.8	7,158.8	159.1	16.5	94.56	420.7	-6,453.4	993.0	818.2	174.80	5.681		
12,800.0	7,150.6	7,207.0	7,157.0	161.8	16.5	94.25	420.7	-6,453.5	899.6	721.9	177.66	5.063		
12,900.0	7,150.3	7,205.2	7,155.2	164.6	16.5	93.94	420.8	-6,453.5	807.7	627.2	180.51	4.474		
13,000.0	7,150.0	7,203.4	7,153.3	167.4	16.5	93.63	420.8	-6,453.5	718.0	534.6	183.37	3.916		
13,100.0	7,149.7	7,201.6	7,151.5	170.2	16.5	93.32	420.9	-6,453.5	631.4	445.2	186.22	3.391		
13,200.0	7,149.4	7,199.7	7,149.7	173.0	16.5	93.01	420.9	-6,453.6	549.4	360.3	189.07	2.906		
13,300.0	7,149.0	7,197.8	7,147.8	175.8	16.5	92.69	421.0	-6,453.6	474.3	282.4	191.91	2.472		
13,400.0	7,148.7	7,196.0	7,146.0	178.6	16.5	92.38	421.0	-6,453.6	410.0	215.3	194.76	2.105		
13,500.0	7,148.4	7,194.2	7,144.2	181.4	16.5	92.08	421.1	-6,453.6	362.3	164.7	197.59	1.834		
13,600.0	7,148.1	7,192.5	7,142.5	184.2	16.5	91.79	421.1	-6,453.7	338.2	137.8	200.42	1.688		
13,634.4	7,148.0	7,192.0	7,141.9	185.2	16.5	91.69	421.1	-6,453.7	336.5	135.1	201.40	1.671	CC, ES, SF	
13,700.0	7,147.8	7,190.9	7,140.9	187.0	16.5	91.51	421.2	-6,453.7	342.8	139.6	203.25	1.687		
13,800.0	7,147.5	7,189.3	7,139.3	189.8	16.5	91.24	421.2	-6,453.7	375.0	168.9	206.07	1.820		
13,900.0	7,147.2	7,187.8	7,137.7	192.6	16.5	90.98	421.3	-6,453.7	428.7	219.8	208.89	2.052		
14,000.0	7,146.8	7,186.3	7,136.3	195.4	16.5	90.73	421.3	-6,453.8	496.8	285.1	211.70	2.347		
14,100.0	7,146.5	7,184.9	7,134.8	198.2	16.5	90.49	421.4	-6,453.8	574.4	359.9	214.52	2.678		
14,200.0	7,146.2	7,183.5	7,133.5	201.0	16.5	90.25	421.4	-6,453.8	658.1	440.7	217.32	3.028		
14,269.4	7,146.0	7,182.6	7,132.5	202.2	16.5	90.09	421.4	-6,453.8	718.6	500.0	218.58	3.288		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin Federal 32X-334
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4790.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4790.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin Federal 32X-334	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 #4 (3-17-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft					
Survey Program: 7970-UNKNOWN													Offset Well Error:	0.0 ft					
Reference													Semi Major Axis		Distance				Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor							
12,200.0	7,152.5	7,138.5	7,138.5	145.1	142.8	92.70	150.1	-6,000.3	983.2	695.6	287.54	3.419							
12,300.0	7,152.2	7,138.2	7,138.2	147.9	142.8	92.43	150.1	-6,000.3	883.4	593.0	290.38	3.042							
12,400.0	7,151.9	7,137.9	7,137.9	150.7	142.8	92.15	150.1	-6,000.3	783.7	490.5	293.22	2.673							
12,500.0	7,151.6	7,137.6	7,137.6	153.5	142.8	91.88	150.1	-6,000.3	684.1	388.1	296.05	2.311							
12,600.0	7,151.2	7,137.2	7,137.2	156.3	142.7	91.60	150.1	-6,000.3	584.7	285.8	298.88	1.956							
12,700.0	7,150.9	7,136.9	7,136.9	159.1	142.7	91.33	150.1	-6,000.3	485.4	183.7	301.70	1.609							
12,800.0	7,150.6	7,136.6	7,136.6	161.8	142.7	91.05	150.1	-6,000.3	386.6	82.0	304.52	1.269	Level 3						
12,900.0	7,150.3	7,136.3	7,136.3	164.6	142.7	90.77	150.1	-6,000.3	288.5	-18.8	307.33	0.939	Level 1						
13,000.0	7,150.0	7,136.0	7,136.0	167.4	142.7	90.50	150.1	-6,000.3	192.4	-117.7	310.14	0.620	Level 1						
13,100.0	7,149.7	7,135.7	7,135.7	170.2	142.7	90.22	150.1	-6,000.3	104.0	-208.9	312.93	0.332	Level 1						
13,181.0	7,149.4	7,135.4	7,135.4	172.5	142.7	90.00	150.1	-6,000.3	65.3	-249.9	315.20	0.207	Level 1, CC, ES, SF						
13,200.0	7,149.4	7,135.4	7,135.4	173.0	142.7	89.95	150.1	-6,000.3	68.0	-247.7	315.73	0.215	Level 1						
13,300.0	7,149.0	7,135.0	7,135.0	175.8	142.7	89.67	150.1	-6,000.3	135.7	-182.8	318.51	0.426	Level 1						
13,400.0	7,148.7	7,134.7	7,134.7	178.6	142.7	89.40	150.1	-6,000.3	228.5	-92.8	321.29	0.711	Level 1						
13,500.0	7,148.4	7,134.4	7,134.4	181.4	142.7	89.12	150.1	-6,000.3	325.6	1.5	324.07	1.005	Level 2						
13,600.0	7,148.1	7,134.1	7,134.1	184.2	142.7	88.84	150.1	-6,000.3	424.0	97.2	326.83	1.297	Level 3						
13,700.0	7,147.8	7,133.8	7,133.8	187.0	142.7	88.57	150.1	-6,000.3	523.1	193.5	329.59	1.587							
13,800.0	7,147.5	7,133.5	7,133.5	189.8	142.7	88.29	150.1	-6,000.3	622.4	290.1	332.34	1.873							
13,900.0	7,147.2	7,133.2	7,133.2	192.6	142.7	88.02	150.1	-6,000.3	722.0	386.9	335.08	2.155							
14,000.0	7,146.8	7,132.8	7,132.8	195.4	142.7	87.74	150.1	-6,000.3	821.6	483.8	337.82	2.432							
14,100.0	7,146.5	7,132.5	7,132.5	198.2	142.7	87.47	150.1	-6,000.3	921.3	580.8	340.54	2.705							

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin Federal 32X-334
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4790.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4790.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin Federal 32X-334	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 #4 (3-17-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft					
Survey Program: 100-NS-GYRO-MS													Offset Well Error:	0.0 ft					
Reference													Semi Major Axis		Distance				Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor							
12,000.0	7,153.1	7,134.5	7,133.3	139.5	14.3	-88.64	3.1	-5,746.1	930.4	776.6	153.80	6.050							
12,100.0	7,152.8	7,134.7	7,133.5	142.3	14.3	-88.78	3.1	-5,746.1	830.8	674.3	156.59	5.306							
12,200.0	7,152.5	7,134.9	7,133.7	145.1	14.3	-88.92	3.1	-5,746.1	731.4	572.0	159.39	4.589							
12,300.0	7,152.2	7,135.1	7,133.9	147.9	14.3	-89.05	3.1	-5,746.1	632.1	469.9	162.19	3.897							
12,400.0	7,151.9	7,135.3	7,134.1	150.7	14.3	-89.19	3.1	-5,746.1	533.1	368.1	164.98	3.231							
12,500.0	7,151.6	7,135.5	7,134.3	153.5	14.3	-89.33	3.1	-5,746.1	434.6	266.8	167.78	2.590							
12,600.0	7,151.2	7,135.7	7,134.5	156.3	14.3	-89.46	3.1	-5,746.1	336.9	166.3	170.58	1.975							
12,700.0	7,150.9	7,135.9	7,134.6	159.1	14.3	-89.60	3.1	-5,746.1	241.1	67.7	173.38	1.391 Level 3							
12,800.0	7,150.6	7,136.0	7,134.8	161.8	14.3	-89.74	3.1	-5,746.1	150.9	-25.3	176.17	0.856 Level 1							
12,900.0	7,150.3	7,136.2	7,135.0	164.6	14.3	-89.87	3.1	-5,746.1	86.0	-92.9	178.97	0.481 Level 1							
12,926.8	7,150.2	7,136.3	7,135.1	165.4	14.3	-89.91	3.1	-5,746.1	81.7	-98.0	179.72	0.455 Level 1, CC, ES, SF							
13,000.0	7,150.0	7,136.4	7,135.2	167.4	14.3	-90.01	3.1	-5,746.1	109.7	-72.0	181.76	0.604 Level 1							
13,100.0	7,149.7	7,136.6	7,135.4	170.2	14.3	-90.14	3.1	-5,746.1	191.5	6.9	184.56	1.038 Level 2							
13,200.0	7,149.4	7,136.8	7,135.6	173.0	14.3	-90.28	3.1	-5,746.1	285.2	97.8	187.35	1.522							
13,300.0	7,149.0	7,137.0	7,135.8	175.8	14.3	-90.42	3.1	-5,746.1	382.0	191.9	190.15	2.009							
13,400.0	7,148.7	7,137.2	7,136.0	178.6	14.3	-90.55	3.1	-5,746.1	480.2	287.2	192.94	2.489							
13,500.0	7,148.4	7,137.4	7,136.2	181.4	14.3	-90.69	3.1	-5,746.1	579.0	383.2	195.73	2.958							
13,600.0	7,148.1	7,137.6	7,136.4	184.2	14.3	-90.82	3.1	-5,746.1	678.1	479.6	198.53	3.416							
13,700.0	7,147.8	7,137.8	7,136.6	187.0	14.3	-90.96	3.1	-5,746.1	777.5	576.2	201.32	3.862							
13,800.0	7,147.5	7,138.0	7,136.8	189.8	14.3	-91.09	3.1	-5,746.1	877.0	672.9	204.11	4.297							
13,900.0	7,147.2	7,138.2	7,137.0	192.6	14.3	-91.23	3.1	-5,746.1	976.6	769.7	206.90	4.720							

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin Federal 32X-334
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4790.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4790.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin Federal 32X-334	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 #4 (3-17-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS													Offset Well Error:	0.0 ft
Reference													Warning	
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)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
9,100.0	7,162.2	7,143.5	7,142.2	59.5	14.0	-90.58	-116.2	-2,893.1	994.4	920.9	73.44	13.540		
9,200.0	7,161.9	7,143.1	7,141.8	62.2	14.0	-90.47	-116.2	-2,893.1	896.7	820.5	76.14	11.777		
9,300.0	7,161.6	7,142.7	7,141.4	64.9	14.0	-90.36	-116.2	-2,893.1	799.5	720.7	78.85	10.140		
9,400.0	7,161.3	7,142.3	7,141.1	67.6	14.0	-90.25	-116.2	-2,893.1	703.2	621.6	81.56	8.621		
9,500.0	7,161.0	7,141.9	7,140.7	70.3	14.0	-90.14	-116.2	-2,893.1	608.0	523.7	84.29	7.214		
9,600.0	7,160.7	7,141.5	7,140.3	73.1	14.0	-90.03	-116.2	-2,893.1	514.7	427.7	87.02	5.915		
9,700.0	7,160.4	7,141.2	7,139.9	75.8	14.0	-89.93	-116.2	-2,893.1	424.4	334.7	89.75	4.729		
9,800.0	7,160.0	7,140.8	7,139.6	78.5	14.0	-89.82	-116.2	-2,893.1	339.7	247.2	92.49	3.673		
9,900.0	7,159.7	7,140.5	7,139.2	81.3	14.0	-89.72	-116.2	-2,893.1	265.7	170.5	95.24	2.790		
10,000.0	7,159.4	7,140.1	7,138.9	84.0	14.0	-89.62	-116.2	-2,893.1	214.1	116.2	97.98	2.185		
10,073.8	7,159.2	7,139.8	7,138.6	86.1	14.0	-89.55	-116.2	-2,893.1	201.0	101.0	100.01	2.010	CC, ES, SF	
10,100.0	7,159.1	7,139.7	7,138.5	86.8	14.0	-89.52	-116.2	-2,893.1	202.7	102.0	100.73	2.012		
10,200.0	7,158.8	7,139.4	7,138.2	89.6	14.0	-89.42	-116.2	-2,893.1	237.3	133.8	103.49	2.293		
10,300.0	7,158.5	7,139.1	7,137.8	92.3	14.0	-89.32	-116.2	-2,893.1	302.6	196.3	106.24	2.848		
10,400.0	7,158.2	7,138.7	7,137.5	95.1	14.0	-89.23	-116.2	-2,893.1	383.1	274.1	109.00	3.515		
10,500.0	7,157.8	7,138.4	7,137.1	97.8	13.9	-89.13	-116.2	-2,893.1	471.2	359.4	111.77	4.216		
10,600.0	7,157.5	7,138.1	7,136.8	100.6	13.9	-89.04	-116.2	-2,893.1	563.2	448.7	114.53	4.918		
10,700.0	7,157.2	7,137.7	7,136.5	103.4	13.9	-88.95	-116.2	-2,893.1	657.6	540.3	117.29	5.607		
10,800.0	7,156.9	7,137.4	7,136.2	106.2	13.9	-88.85	-116.2	-2,893.1	753.5	633.4	120.06	6.276		
10,900.0	7,156.6	7,137.1	7,135.8	108.9	13.9	-88.76	-116.2	-2,893.1	850.3	727.4	122.83	6.922		
11,000.0	7,156.3	7,136.8	7,135.5	111.7	13.9	-88.67	-116.1	-2,893.1	947.7	822.1	125.60	7.546		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin Federal 32X-334
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4790.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4790.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin Federal 32X-334	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 #4 (3-17-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS													Offset Well Error:	0.0 ft
Existing Wells Sec.32-T4N-R66W - Wolfe 14-32 (Existing) - Wellbore #1 - Wellbore #1														
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
10,400.0	7,158.2	7,127.2	7,126.4	95.1	14.8	-85.64	-56.9	-4,155.6	947.1	837.5	109.55	8.645		
10,500.0	7,157.8	7,128.2	7,127.4	97.8	14.8	-86.05	-56.9	-4,155.6	848.4	736.0	112.37	7.550		
10,600.0	7,157.5	7,129.2	7,128.5	100.6	14.8	-86.46	-56.9	-4,155.6	750.0	634.8	115.19	6.511		
10,700.0	7,157.2	7,130.3	7,129.5	103.4	14.8	-86.87	-56.9	-4,155.6	652.0	534.0	118.00	5.526		
10,800.0	7,156.9	7,131.3	7,130.5	106.2	14.8	-87.29	-56.9	-4,155.7	554.9	434.0	120.82	4.592		
10,900.0	7,156.6	7,132.3	7,131.5	108.9	14.8	-87.70	-56.9	-4,155.7	458.9	335.3	123.63	3.712		
11,000.0	7,156.3	7,133.3	7,132.6	111.7	14.8	-88.12	-56.9	-4,155.7	365.1	238.7	126.44	2.888		
11,100.0	7,156.0	7,134.4	7,133.6	114.5	14.8	-88.53	-56.9	-4,155.7	275.7	146.5	129.25	2.133		
11,200.0	7,155.6	7,135.4	7,134.6	117.3	14.8	-88.95	-56.9	-4,155.7	196.8	64.7	132.05	1.490	Level 3	
11,300.0	7,155.3	7,136.4	7,135.6	120.0	14.8	-89.36	-56.9	-4,155.7	146.4	11.5	134.85	1.086	Level 2	
11,336.5	7,155.2	7,136.8	7,136.0	121.1	14.8	-89.51	-56.9	-4,155.7	141.8	5.9	135.87	1.043	Level 2, CC, ES, SF	
11,400.0	7,155.0	7,137.4	7,136.7	122.8	14.8	-89.77	-56.9	-4,155.7	155.4	17.7	137.64	1.129	Level 2	
11,500.0	7,154.7	7,138.5	7,137.7	125.6	14.8	-90.19	-57.0	-4,155.8	216.4	76.0	140.43	1.541		
11,600.0	7,154.4	7,139.5	7,138.7	128.4	14.8	-90.60	-57.0	-4,155.8	299.2	156.0	143.21	2.089		
11,700.0	7,154.1	7,140.5	7,139.7	131.2	14.8	-91.02	-57.0	-4,155.8	390.2	244.2	145.99	2.673		
11,800.0	7,153.8	7,141.5	7,140.8	134.0	14.8	-91.43	-57.0	-4,155.8	484.7	335.9	148.76	3.258		
11,900.0	7,153.4	7,142.6	7,141.8	136.7	14.8	-91.85	-57.0	-4,155.8	581.1	429.5	151.52	3.835		
12,000.0	7,153.1	7,143.6	7,142.8	139.5	14.8	-92.26	-57.0	-4,155.8	678.5	524.2	154.28	4.398		
12,100.0	7,152.8	7,144.6	7,143.8	142.3	14.8	-92.67	-57.0	-4,155.8	776.5	619.5	157.02	4.945		
12,200.0	7,152.5	7,145.7	7,144.9	145.1	14.8	-93.09	-57.0	-4,155.9	875.0	715.3	159.76	5.477		
12,300.0	7,152.2	7,146.7	7,145.9	147.9	14.9	-93.50	-57.0	-4,155.9	973.9	811.4	162.49	5.993		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin Federal 32X-334
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4790.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4790.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin Federal 32X-334	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 #4 (3-17-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS													Offset Well Error:	0.0 ft
Reference													Warning	
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)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
9,700.0	7,160.4	7,396.0	7,134.3	75.8	21.7	89.42	622.2	-3,354.9	993.6	897.9	95.63	10.389		
9,800.0	7,160.0	7,397.0	7,135.3	78.5	21.7	89.52	622.2	-3,355.0	911.0	812.7	98.37	9.261		
9,900.0	7,159.7	7,397.9	7,136.3	81.3	21.7	89.63	622.2	-3,355.0	832.4	731.3	101.12	8.232		
10,000.0	7,159.4	7,398.9	7,137.2	84.0	21.7	89.73	622.2	-3,355.0	758.8	654.9	103.86	7.305		
10,100.0	7,159.1	7,399.9	7,138.2	86.8	21.7	89.84	622.2	-3,355.0	691.8	585.2	106.62	6.489		
10,200.0	7,158.8	7,400.8	7,139.2	89.6	21.7	89.94	622.2	-3,355.0	633.6	524.2	109.37	5.793		
10,300.0	7,158.5	7,401.8	7,140.1	92.3	21.7	90.04	622.2	-3,355.0	586.8	474.6	112.13	5.233		
10,400.0	7,158.2	7,402.7	7,141.1	95.1	21.7	90.14	622.1	-3,355.0	554.2	439.3	114.89	4.824		
10,500.0	7,157.8	7,403.7	7,142.0	97.8	21.7	90.24	622.1	-3,355.0	538.5	420.9	117.65	4.577		
10,535.8	7,157.7	7,404.0	7,142.3	98.8	21.7	90.28	622.1	-3,355.0	537.3	418.7	118.64	4.529 CC, ES		
10,600.0	7,157.5	7,404.6	7,142.9	100.6	21.7	90.34	622.1	-3,355.1	541.1	420.7	120.41	4.494 SF		
10,700.0	7,157.2	7,405.5	7,143.8	103.4	21.7	90.44	622.1	-3,355.1	561.9	438.7	123.18	4.561		
10,800.0	7,156.9	7,406.4	7,144.7	106.2	21.7	90.54	622.1	-3,355.1	598.8	472.8	125.95	4.754		
10,900.0	7,156.6	7,407.3	7,145.7	108.9	21.7	90.63	622.1	-3,355.1	649.1	520.4	128.72	5.043		
11,000.0	7,156.3	7,408.2	7,146.5	111.7	21.7	90.73	622.1	-3,355.1	710.1	578.6	131.49	5.400		
11,100.0	7,156.0	7,409.1	7,147.4	114.5	21.7	90.82	622.1	-3,355.1	779.1	644.9	134.26	5.803		
11,200.0	7,155.6	7,410.0	7,148.3	117.3	21.7	90.92	622.1	-3,355.1	854.3	717.3	137.03	6.235		
11,300.0	7,155.3	7,410.9	7,149.2	120.0	21.7	91.01	622.1	-3,355.1	934.2	794.4	139.80	6.682		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin Federal 32X-334
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4790.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4790.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin Federal 32X-334	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 #4 (3-17-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 668-NS-GYRO-MS													Offset Well Error:	0.0 ft
Existing Wells Sec.32-T4N-R66W - Wolfe 6I (Existing) - Wellbore #1 - Wellbore #1														
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
8,700.0	7,163.5	7,193.6	7,125.4	48.8	18.8	87.14	433.4	-2,375.2	924.4	858.0	66.37	13.929		
8,800.0	7,163.2	7,195.6	7,127.3	51.5	18.8	87.46	433.4	-2,375.3	832.6	763.6	69.02	12.064		
8,900.0	7,162.9	7,197.6	7,129.3	54.1	18.8	87.79	433.4	-2,375.3	743.0	671.3	71.68	10.365		
9,000.0	7,162.6	7,199.6	7,131.4	56.8	18.8	88.12	433.4	-2,375.3	656.4	582.0	74.36	8.827		
9,100.0	7,162.2	7,201.6	7,133.4	59.5	18.8	88.45	433.4	-2,375.4	574.2	497.1	77.05	7.452		
9,200.0	7,161.9	7,203.6	7,135.4	62.2	18.8	88.78	433.4	-2,375.4	498.4	418.7	79.75	6.250		
9,300.0	7,161.6	7,205.7	7,137.5	64.9	18.8	89.12	433.4	-2,375.5	432.6	350.2	82.45	5.247		
9,400.0	7,161.3	7,207.8	7,139.5	67.6	18.8	89.46	433.4	-2,375.5	382.0	296.8	85.16	4.485		
9,500.0	7,161.0	7,209.8	7,141.6	70.3	18.8	89.80	433.4	-2,375.6	353.1	265.2	87.88	4.018		
9,556.3	7,160.8	7,211.0	7,142.8	71.9	18.8	89.99	433.4	-2,375.6	348.6	259.2	89.41	3.898 CC, ES		
9,600.0	7,160.7	7,211.9	7,143.7	73.1	18.8	90.14	433.4	-2,375.6	351.3	260.7	90.60	3.877 SF		
9,700.0	7,160.4	7,214.0	7,145.8	75.8	18.8	90.49	433.4	-2,375.7	377.0	283.7	93.32	4.040		
9,800.0	7,160.0	7,216.1	7,147.9	78.5	18.8	90.84	433.4	-2,375.7	425.3	329.2	96.04	4.428		
9,900.0	7,159.7	7,218.3	7,150.0	81.3	18.8	91.19	433.4	-2,375.8	489.4	390.7	98.77	4.956		
10,000.0	7,159.4	7,220.4	7,152.2	84.0	18.8	91.54	433.4	-2,375.8	564.1	462.6	101.49	5.559		
10,100.0	7,159.1	7,222.6	7,154.3	86.8	18.8	91.89	433.4	-2,375.9	645.7	541.5	104.21	6.196		
10,200.0	7,158.8	7,224.7	7,156.5	89.6	18.8	92.25	433.4	-2,375.9	731.9	624.9	106.93	6.844		
10,300.0	7,158.5	7,226.9	7,158.7	92.3	18.8	92.61	433.4	-2,376.0	821.2	711.5	109.65	7.489		
10,400.0	7,158.2	7,229.1	7,160.9	95.1	18.8	92.97	433.4	-2,376.0	912.7	800.3	112.36	8.122		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin Federal 32X-334
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4790.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4790.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin Federal 32X-334	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 #4 (3-17-15)	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-234 - 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	-1.33	120.2	-2.8	120.3					
100.0	100.0	99.0	99.0	0.1	0.1	-1.33	120.2	-2.8	120.3	120.0	0.22	537.696		
200.0	200.0	199.0	199.0	0.3	0.3	-1.33	120.2	-2.8	120.3	119.6	0.67	178.934 CC, ES		
300.0	300.0	295.1	295.1	0.6	0.6	-1.14	121.8	-2.4	121.8	120.7	1.11	109.543		
400.0	400.0	391.0	390.8	0.8	0.8	-0.60	126.4	-1.3	126.7	125.1	1.56	81.320		
500.0	500.0	486.4	485.9	1.0	1.0	0.22	134.1	0.5	134.8	132.8	2.02	66.745		
600.0	600.0	581.2	580.0	1.2	1.3	1.21	144.9	3.1	146.1	143.6	2.51	58.307		
700.0	700.0	675.1	673.0	1.5	1.6	2.28	158.5	6.3	160.7	157.7	3.03	53.115		
800.0	800.0	768.1	764.3	1.7	1.9	3.34	174.8	10.2	178.5	174.9	3.58	49.830		
900.0	900.0	859.8	854.0	1.9	2.3	4.34	193.8	14.7	199.5	195.3	4.18	47.747		
1,000.0	1,000.0	954.1	945.6	2.1	2.7	5.27	215.7	19.9	223.1	218.3	4.82	46.284		
1,100.0	1,100.0	1,051.2	1,039.7	2.4	3.1	6.06	238.5	25.3	247.1	241.6	5.49	44.971		
1,200.0	1,200.0	1,148.2	1,133.9	2.6	3.6	6.71	261.4	30.8	271.1	264.9	6.18	43.897		
1,300.0	1,300.0	1,245.2	1,228.1	2.8	4.1	7.25	284.2	36.2	295.1	288.3	6.86	43.010		
1,400.0	1,400.0	1,342.3	1,322.2	3.0	4.5	7.72	307.0	41.6	319.2	311.6	7.55	42.269		
1,500.0	1,500.0	1,439.3	1,416.4	3.3	5.0	8.11	329.8	47.0	343.2	335.0	8.24	41.643 SF		
1,600.0	1,600.0	1,536.5	1,510.6	3.5	5.5	-66.86	352.6	52.4	367.0	359.8	7.21	50.924		
1,700.0	1,700.0	1,633.7	1,605.1	3.7	6.0	-66.70	375.5	57.9	390.0	382.4	7.68	50.810		
1,800.0	1,799.9	1,731.2	1,699.6	3.9	6.5	-66.76	398.4	63.3	412.5	404.3	8.15	50.578		
1,900.0	1,899.7	1,828.7	1,794.3	4.1	6.9	-67.02	421.3	68.8	434.2	425.6	8.64	50.242		
2,000.0	1,999.4	1,926.4	1,889.0	4.3	7.4	-67.45	444.3	74.2	455.3	446.2	9.14	49.814		
2,100.0	2,098.9	2,024.0	1,983.8	4.6	7.9	-68.09	467.3	79.7	476.0	466.3	9.65	49.316		
2,200.0	2,198.5	2,121.7	2,078.6	4.8	8.4	-68.80	490.2	85.1	496.6	486.4	10.17	48.826		
2,300.0	2,298.0	2,219.4	2,173.3	5.0	8.9	-69.46	513.2	90.6	517.2	506.5	10.70	48.358		
2,400.0	2,397.5	2,317.1	2,268.1	5.3	9.4	-70.06	536.1	96.1	538.0	526.7	11.23	47.912		
2,500.0	2,497.1	2,414.7	2,362.9	5.5	9.8	-70.62	559.1	101.5	558.7	547.0	11.77	47.489		
2,600.0	2,596.6	2,512.4	2,457.7	5.8	10.3	-71.14	582.1	107.0	579.6	567.3	12.31	47.088		
2,700.0	2,696.1	2,610.1	2,552.5	6.1	10.8	-71.62	605.0	112.4	600.4	587.6	12.86	46.708		
2,800.0	2,795.7	2,707.8	2,647.2	6.3	11.3	-72.07	628.0	117.9	621.4	607.9	13.41	46.348		
2,900.0	2,895.2	2,805.4	2,742.0	6.6	11.8	-72.49	651.0	123.3	642.3	628.3	13.96	46.008		
3,000.0	2,994.7	2,903.1	2,836.8	6.9	12.3	-72.89	673.9	128.8	663.3	648.8	14.52	45.685		
3,100.0	3,094.3	3,000.8	2,931.6	7.1	12.8	-73.26	696.9	134.3	684.3	669.2	15.08	45.379		
3,200.0	3,193.8	3,098.5	3,026.4	7.4	13.2	-73.61	719.8	139.7	705.3	689.7	15.64	45.090		
3,300.0	3,293.4	3,196.1	3,121.2	7.7	13.7	-73.94	742.8	145.2	726.4	710.2	16.21	44.815		
3,400.0	3,392.9	3,293.8	3,215.9	7.9	14.2	-74.25	765.8	150.6	747.4	730.7	16.78	44.554		
3,500.0	3,492.4	3,391.5	3,310.7	8.2	14.7	-74.54	788.7	156.1	768.5	751.2	17.35	44.307		
3,600.0	3,592.0	3,489.2	3,405.5	8.5	15.2	-74.82	811.7	161.5	789.6	771.7	17.92	44.071		
3,700.0	3,691.5	3,586.8	3,500.3	8.7	15.7	-75.08	834.7	167.0	810.8	792.3	18.49	43.848		
3,800.0	3,791.0	3,684.5	3,595.1	9.0	16.2	-75.33	857.6	172.5	831.9	812.9	19.07	43.634		
3,900.0	3,890.6	3,782.2	3,689.8	9.3	16.6	-75.57	880.6	177.9	853.1	833.4	19.64	43.431		
4,000.0	3,990.1	3,879.9	3,784.6	9.6	17.1	-75.79	903.5	183.4	874.3	854.0	20.22	43.238		
4,100.0	4,089.6	3,977.6	3,879.4	9.9	17.6	-76.01	926.5	188.8	895.4	874.6	20.80	43.053		
4,200.0	4,189.2	4,075.2	3,974.2	10.1	18.1	-76.21	949.5	194.3	916.6	895.3	21.38	42.877		
4,300.0	4,288.7	4,172.9	4,069.0	10.4	18.6	-76.41	972.4	199.7	937.8	915.9	21.96	42.708		
4,400.0	4,388.3	4,270.6	4,163.8	10.7	19.1	-76.60	995.4	205.2	959.1	936.5	22.54	42.547		
4,500.0	4,487.8	4,368.3	4,258.5	11.0	19.6	-76.77	1,018.4	210.7	980.3	957.2	23.12	42.392		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin Federal 32X-334
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4790.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4790.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin Federal 32X-334	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 #4 (3-17-15)	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 #2 (12-18-14)														
Reference				Offset			Semi Major Axis			Distance				
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	0.00	91.1	0.0	91.1					
100.0	100.0	99.0	99.0	0.1	0.1	0.00	91.1	0.0	91.1	90.9	0.22	407.273		
200.0	200.0	199.0	199.0	0.3	0.3	0.00	91.1	0.0	91.1	90.4	0.67	135.532		
300.0	300.0	299.0	299.0	0.6	0.6	0.00	91.1	0.0	91.1	90.0	1.12	81.210		
400.0	400.0	399.0	399.0	0.8	0.8	0.00	91.1	0.0	91.1	89.5	1.57	57.974 CC, ES		
500.0	500.0	496.1	496.0	1.0	1.0	0.31	92.6	0.5	92.7	90.7	2.01	46.037		
600.0	600.0	592.9	592.7	1.2	1.2	1.19	97.3	2.0	97.5	95.0	2.46	39.674		
700.0	700.0	689.2	688.8	1.5	1.5	2.48	104.9	4.5	105.5	102.6	2.91	36.238		
800.0	800.0	785.0	783.8	1.7	1.7	3.98	115.6	8.0	116.9	113.5	3.39	34.490		
900.0	900.0	879.8	877.6	1.9	2.0	5.52	129.2	12.5	131.5	127.6	3.90	33.756		
1,000.0	1,000.0	977.1	973.4	2.1	2.3	6.98	145.3	17.8	148.6	144.2	4.44	33.465		
1,100.0	1,100.0	1,075.6	1,070.3	2.4	2.6	8.15	161.7	23.2	165.8	160.8	5.01	33.126		
1,200.0	1,200.0	1,174.0	1,167.3	2.6	3.0	9.10	178.1	28.5	183.2	177.6	5.58	32.806		
1,300.0	1,300.0	1,272.5	1,264.2	2.8	3.4	9.89	194.5	33.9	200.5	194.3	6.17	32.517		
1,400.0	1,400.0	1,370.9	1,361.1	3.0	3.7	10.56	210.9	39.3	217.9	211.1	6.75	32.259		
1,500.0	1,500.0	1,469.4	1,458.0	3.3	4.1	11.12	227.3	44.7	235.3	227.9	7.35	32.031		
1,600.0	1,600.0	1,567.9	1,555.0	3.5	4.5	-63.84	243.8	50.1	252.3	245.2	7.07	35.682		
1,700.0	1,700.0	1,666.6	1,652.2	3.7	4.8	-63.76	260.2	55.5	268.6	261.1	7.53	35.694		
1,800.0	1,799.9	1,765.4	1,749.4	3.9	5.2	-64.00	276.7	60.9	284.1	276.1	7.99	35.575		
1,900.0	1,899.7	1,864.2	1,846.7	4.1	5.6	-64.51	293.1	66.3	298.9	290.5	8.46	35.347		
2,000.0	1,999.4	1,963.1	1,944.1	4.3	6.0	-65.26	309.6	71.7	313.0	304.1	8.94	35.024		
2,100.0	2,098.9	2,062.0	2,041.4	4.6	6.4	-66.25	326.1	77.1	326.6	317.2	9.43	34.629		
2,200.0	2,198.5	2,160.9	2,138.8	4.8	6.7	-67.25	342.6	82.5	340.2	330.2	9.93	34.243		
2,300.0	2,298.0	2,259.8	2,236.2	5.0	7.1	-68.18	359.1	87.9	353.8	343.4	10.44	33.881		
2,400.0	2,397.5	2,358.7	2,333.6	5.3	7.5	-69.04	375.5	93.3	367.6	356.6	10.96	33.540		
2,500.0	2,497.1	2,457.6	2,430.9	5.5	7.9	-69.83	392.0	98.7	381.4	369.9	11.48	33.219		
2,600.0	2,596.6	2,556.5	2,528.3	5.8	8.3	-70.57	408.5	104.1	395.3	383.3	12.01	32.918		
2,700.0	2,696.1	2,655.4	2,625.7	6.1	8.7	-71.26	425.0	109.5	409.2	396.7	12.54	32.635		
2,800.0	2,795.7	2,754.3	2,723.1	6.3	9.0	-71.91	441.5	114.9	423.2	410.2	13.08	32.369		
2,900.0	2,895.2	2,853.2	2,820.4	6.6	9.4	-72.51	458.0	120.3	437.3	423.7	13.61	32.119		
3,000.0	2,994.7	2,952.1	2,917.8	6.9	9.8	-73.08	474.5	125.7	451.4	437.2	14.16	31.883		
3,100.0	3,094.3	3,051.0	3,015.2	7.1	10.2	-73.61	490.9	131.1	465.5	450.8	14.70	31.661		
3,200.0	3,193.8	3,150.0	3,112.5	7.4	10.6	-74.11	507.4	136.5	479.7	464.5	15.25	31.451		
3,300.0	3,293.4	3,248.9	3,209.9	7.7	11.0	-74.58	523.9	141.9	493.9	478.1	15.80	31.254		
3,400.0	3,392.9	3,347.8	3,307.3	7.9	11.4	-75.03	540.4	147.4	508.2	491.8	16.36	31.067		
3,500.0	3,492.4	3,446.7	3,404.7	8.2	11.8	-75.45	556.9	152.8	522.4	505.5	16.91	30.890		
3,600.0	3,592.0	3,545.6	3,502.0	8.5	12.1	-75.85	573.4	158.2	536.7	519.2	17.47	30.723		
3,700.0	3,691.5	3,644.5	3,599.4	8.7	12.5	-76.23	589.8	163.6	551.0	533.0	18.03	30.564		
3,800.0	3,791.0	3,743.4	3,696.8	9.0	12.9	-76.58	606.3	169.0	565.4	546.8	18.59	30.413		
3,900.0	3,890.6	3,842.3	3,794.1	9.3	13.3	-76.93	622.8	174.4	579.7	560.6	19.15	30.270		
4,000.0	3,990.1	3,941.2	3,891.5	9.6	13.7	-77.25	639.3	179.8	594.1	574.4	19.72	30.135		
4,100.0	4,089.6	4,040.1	3,988.9	9.9	14.1	-77.56	655.8	185.2	608.5	588.2	20.28	30.005		
4,200.0	4,189.2	4,139.0	4,086.3	10.1	14.5	-77.85	672.3	190.6	622.9	602.1	20.85	29.882		
4,300.0	4,288.7	4,237.9	4,183.6	10.4	14.8	-78.14	688.7	196.0	637.4	616.0	21.41	29.765		
4,400.0	4,388.3	4,336.8	4,281.0	10.7	15.2	-78.41	705.2	201.4	651.8	629.8	21.98	29.653		
4,500.0	4,487.8	4,435.7	4,378.4	11.0	15.6	-78.66	721.7	206.8	666.3	643.7	22.55	29.546		
4,600.0	4,587.3	4,534.6	4,475.8	11.2	16.0	-78.91	738.2	212.2	680.7	657.6	23.12	29.443		
4,700.0	4,686.9	4,633.5	4,573.1	11.5	16.4	-79.15	754.7	217.6	695.2	671.5	23.69	29.345		
4,800.0	4,786.4	4,732.4	4,670.5	11.8	16.8	-79.37	771.2	223.0	709.7	685.5	24.26	29.252		
4,900.0	4,885.9	4,831.4	4,767.9	12.1	17.2	-79.59	787.6	228.4	724.2	699.4	24.83	29.162		
5,000.0	4,985.5	4,930.3	4,865.2	12.4	17.6	-79.80	804.1	233.8	738.7	713.3	25.41	29.076		

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 Federal 32X-334
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4790.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4790.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin Federal 32X-334	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 #4 (3-17-15)	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 #2 (12-18-14)														
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,100.0	5,085.0	5,029.2	4,962.6	12.6	17.9	-80.00	820.6	239.3	753.3	727.3	25.98	28.993		
5,200.0	5,184.6	5,128.1	5,060.0	12.9	18.3	-80.32	837.1	244.7	767.9	741.4	26.54	28.937		
5,300.0	5,284.4	5,226.9	5,157.3	13.1	18.7	-80.53	853.6	250.1	783.1	756.1	27.02	28.985		
5,400.0	5,384.4	5,325.5	5,254.4	13.3	19.1	-80.51	870.0	255.5	798.8	771.4	27.45	29.097		
5,500.0	5,484.4	5,424.0	5,351.3	13.4	19.5	-4.65	886.4	260.8	815.0	784.3	30.76	26.498		
5,600.0	5,584.4	5,522.4	5,448.2	13.6	19.9	-4.19	902.8	266.2	831.3	799.9	31.37	26.498		
5,700.0	5,684.4	5,620.9	5,545.2	13.8	20.3	-3.74	919.2	271.6	847.5	815.6	31.98	26.499		
5,800.0	5,784.4	5,719.3	5,642.1	14.0	20.7	-3.30	935.6	277.0	863.9	831.3	32.60	26.502		
5,900.0	5,884.4	5,817.8	5,739.0	14.2	21.0	-2.89	952.1	282.4	880.2	847.0	33.21	26.506		
6,000.0	5,984.4	5,916.2	5,835.9	14.4	21.4	-2.49	968.5	287.7	896.7	862.9	33.82	26.511		
6,100.0	6,084.4	6,030.0	5,948.0	14.6	21.8	-2.05	987.0	293.8	912.8	878.4	34.46	26.491		
6,200.0	6,184.4	6,172.0	6,088.7	14.8	22.2	-1.64	1,005.0	299.7	925.4	890.3	35.07	26.389		
6,300.0	6,284.4	6,315.5	6,231.7	15.0	22.5	-1.39	1,016.4	303.5	933.3	897.7	35.59	26.220		
6,400.0	6,384.4	6,459.9	6,376.0	15.2	22.7	-1.29	1,021.0	305.0	936.4	900.4	36.03	25.988		
6,500.0	6,484.2	6,567.1	6,483.2	15.4	22.9	88.98	1,021.1	305.0	936.4	904.4	32.05	29.219		
6,600.0	6,582.7	6,665.5	6,581.6	15.5	23.0	89.92	1,021.1	303.3	936.3	904.1	32.21	29.068		
6,607.8	6,590.2	6,673.2	6,589.2	15.5	23.0	90.00	1,021.1	302.8	936.3	904.0	32.21	29.063		
6,700.0	6,678.1	6,765.0	6,680.1	15.5	23.1	90.95	1,021.1	290.3	936.4	904.1	32.26	29.028		
6,800.0	6,768.7	6,866.8	6,778.4	15.5	23.1	91.98	1,021.1	263.9	936.8	904.6	32.26	29.037		
6,900.0	6,853.2	6,971.0	6,874.4	15.6	23.1	92.98	1,021.1	223.5	937.6	905.3	32.31	29.017		
7,000.0	6,929.9	7,077.8	6,966.1	15.8	23.0	93.95	1,021.1	169.1	938.5	906.0	32.52	28.861		
7,100.0	6,997.6	7,187.1	7,051.2	16.1	23.0	94.85	1,021.1	100.6	939.7	906.7	33.04	28.443		
7,200.0	7,055.1	7,298.9	7,127.3	16.8	23.0	95.67	1,021.1	18.7	940.9	906.9	34.03	27.651		
7,300.0	7,101.4	7,413.2	7,191.8	17.8	23.0	96.40	1,021.1	-75.4	942.2	906.5	35.65	26.426		
7,400.0	7,135.8	7,529.5	7,242.3	19.0	23.2	97.00	1,021.1	-180.1	943.3	905.4	37.98	24.835		
7,500.0	7,157.7	7,647.7	7,276.8	20.6	23.7	97.47	1,021.1	-293.1	944.3	903.3	41.00	23.033		
7,600.0	7,166.7	7,767.3	7,293.5	22.4	24.9	97.79	1,021.1	-411.3	945.0	900.4	44.61	21.184		
7,700.0	7,166.6	7,879.7	7,293.2	24.4	26.6	97.76	1,021.1	-523.7	944.9	896.3	48.60	19.441		
7,800.0	7,166.3	7,979.7	7,289.8	26.5	28.5	97.57	1,021.1	-623.6	944.5	891.8	52.74	17.910		
7,900.0	7,166.0	8,079.6	7,286.3	28.7	30.5	97.38	1,021.1	-723.5	944.1	887.0	57.11	16.530		
8,000.0	7,165.7	8,179.6	7,282.9	31.1	32.6	97.20	1,021.1	-823.4	943.7	882.0	61.69	15.297		
8,100.0	7,165.4	8,279.5	7,279.4	33.5	34.9	97.01	1,021.1	-923.3	943.3	876.9	66.43	14.201		
8,200.0	7,165.1	8,379.5	7,276.0	35.9	37.2	96.82	1,021.1	-1,023.2	942.9	871.6	71.29	13.227		
8,300.0	7,164.8	8,479.4	7,272.5	38.4	39.6	96.63	1,021.1	-1,123.0	942.6	866.3	76.26	12.360		
8,400.0	7,164.4	8,579.4	7,269.1	41.0	42.1	96.44	1,021.1	-1,222.9	942.2	860.9	81.31	11.587		
8,500.0	7,164.1	8,679.3	7,265.6	43.6	44.5	96.25	1,021.1	-1,322.8	941.9	855.4	86.44	10.896		
8,600.0	7,163.8	8,779.3	7,262.2	46.2	47.1	96.06	1,021.1	-1,422.7	941.5	849.9	91.62	10.276		
8,700.0	7,163.5	8,879.2	7,258.7	48.8	49.6	95.87	1,021.1	-1,522.6	941.2	844.3	96.86	9.717		
8,800.0	7,163.2	8,979.2	7,255.3	51.5	52.2	95.68	1,021.1	-1,622.5	940.9	838.7	102.14	9.212		
8,900.0	7,162.9	9,079.2	7,251.8	54.1	54.8	95.49	1,021.1	-1,722.4	940.6	833.1	107.45	8.753		
9,000.0	7,162.6	9,179.1	7,248.3	56.8	57.4	95.30	1,021.1	-1,822.3	940.3	827.5	112.80	8.336		
9,100.0	7,162.2	9,279.1	7,244.9	59.5	60.1	95.11	1,021.1	-1,922.2	940.0	821.8	118.18	7.954		
9,200.0	7,161.9	9,379.0	7,241.4	62.2	62.7	94.92	1,021.1	-2,022.1	939.7	816.1	123.57	7.604		
9,300.0	7,161.6	9,479.0	7,238.0	64.9	65.4	94.72	1,021.1	-2,122.0	939.5	810.5	129.00	7.283		
9,400.0	7,161.3	9,578.9	7,234.5	67.6	68.0	94.53	1,021.1	-2,221.8	939.2	804.8	134.44	6.986		
9,500.0	7,161.0	9,678.9	7,231.1	70.3	70.7	94.34	1,021.1	-2,321.7	939.0	799.1	139.89	6.712		
9,600.0	7,160.7	9,778.8	7,227.6	73.1	73.4	94.15	1,021.1	-2,421.6	938.7	793.4	145.36	6.458		
9,700.0	7,160.4	9,878.8	7,224.2	75.8	76.1	93.96	1,021.1	-2,521.5	938.5	787.7	150.85	6.222		
9,800.0	7,160.0	9,978.7	7,220.7	78.5	78.8	93.77	1,021.1	-2,621.4	938.3	781.9	156.34	6.002		
9,900.0	7,159.7	10,078.7	7,217.3	81.3	81.5	93.58	1,021.1	-2,721.3	938.1	776.2	161.85	5.796		
10,000.0	7,159.4	10,178.6	7,213.8	84.0	84.3	93.39	1,021.1	-2,821.2	937.9	770.5	167.36	5.604		

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 Federal 32X-334
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4790.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4790.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin Federal 32X-334	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 #4 (3-17-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference													Tarin 32X-HZ Pad Sec.32-T4N-R66W - Tarin 32W-434 - Wellbore #1 - Plan #2 (12-18-14)	
Reference				Offset		Semi Major Axis			Distance				Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
10,100.0	7,159.1	10,278.6	7,210.4	86.8	87.0	93.20	1,021.1	-2,921.1	937.7	764.8	172.89	5.424		
10,200.0	7,158.8	10,378.5	7,206.9	89.6	89.7	93.00	1,021.1	-3,021.0	937.5	759.1	178.42	5.255		
10,300.0	7,158.5	10,478.5	7,203.5	92.3	92.4	92.81	1,021.1	-3,120.9	937.4	753.4	183.96	5.096		
10,400.0	7,158.2	10,578.4	7,200.0	95.1	95.2	92.62	1,021.1	-3,220.8	937.2	747.7	189.50	4.946		
10,500.0	7,157.8	10,678.4	7,196.5	97.8	97.9	92.43	1,021.1	-3,320.6	937.1	742.1	195.05	4.804		
10,600.0	7,157.5	10,778.3	7,193.1	100.6	100.7	92.24	1,021.1	-3,420.5	937.0	736.4	200.61	4.671		
10,700.0	7,157.2	10,878.3	7,189.6	103.4	103.4	92.04	1,021.1	-3,520.4	936.9	730.7	206.16	4.544		
10,800.0	7,156.9	10,978.2	7,186.2	106.2	106.2	91.85	1,021.1	-3,620.3	936.8	725.0	211.72	4.424		
10,900.0	7,156.6	11,078.2	7,182.7	108.9	108.9	91.66	1,021.1	-3,720.2	936.7	719.4	217.29	4.311		
11,000.0	7,156.3	11,178.1	7,179.3	111.7	111.7	91.47	1,021.1	-3,820.1	936.6	713.7	222.86	4.203		
11,100.0	7,156.0	11,278.1	7,175.8	114.5	114.4	91.28	1,021.1	-3,920.0	936.5	708.1	228.42	4.100		
11,200.0	7,155.6	11,378.0	7,172.4	117.3	117.2	91.08	1,021.1	-4,019.9	936.4	702.4	233.99	4.002		
11,300.0	7,155.3	11,478.0	7,168.9	120.0	120.0	90.89	1,021.1	-4,119.8	936.4	696.8	239.57	3.909		
11,400.0	7,155.0	11,577.9	7,165.5	122.8	122.7	90.70	1,021.1	-4,219.7	936.3	691.2	245.14	3.820		
11,500.0	7,154.7	11,677.9	7,162.0	125.6	125.5	90.51	1,021.1	-4,319.6	936.3	685.6	250.71	3.735		
11,600.0	7,154.4	11,777.8	7,158.6	128.4	128.3	90.32	1,021.1	-4,419.4	936.3	680.0	256.28	3.653		
11,700.0	7,154.1	11,877.8	7,155.1	131.2	131.0	90.12	1,021.1	-4,519.3	936.3	674.4	261.86	3.575		
11,764.3	7,153.9	11,942.0	7,152.9	133.0	132.8	90.00	1,021.1	-4,583.5	936.3	670.8	265.44	3.527		
11,800.0	7,153.8	11,977.7	7,151.7	134.0	133.8	89.93	1,021.1	-4,619.2	936.3	668.8	267.43	3.501		
11,900.0	7,153.4	12,077.7	7,148.2	136.7	136.6	89.74	1,021.1	-4,719.1	936.3	663.3	273.00	3.430		
12,000.0	7,153.1	12,177.6	7,144.7	139.5	139.3	89.55	1,021.1	-4,819.0	936.3	657.7	278.57	3.361		
12,100.0	7,152.8	12,277.6	7,141.3	142.3	142.1	89.36	1,021.1	-4,918.9	936.3	652.2	284.14	3.295		
12,200.0	7,152.5	12,377.5	7,137.8	145.1	144.9	89.16	1,021.1	-5,018.8	936.4	646.7	289.71	3.232		
12,300.0	7,152.2	12,477.5	7,134.4	147.9	147.7	88.97	1,021.1	-5,118.7	936.4	641.1	295.27	3.171		
12,400.0	7,151.9	12,577.4	7,130.9	150.7	150.5	88.78	1,021.1	-5,218.6	936.5	635.6	300.84	3.113		
12,500.0	7,151.6	12,677.4	7,127.5	153.5	153.2	88.59	1,021.1	-5,318.5	936.5	630.2	306.40	3.057		
12,600.0	7,151.2	12,777.3	7,124.0	156.3	156.0	88.40	1,021.1	-5,418.4	936.6	624.7	311.95	3.002		
12,700.0	7,150.9	12,877.3	7,120.6	159.1	158.8	88.20	1,021.1	-5,518.2	936.7	619.2	317.51	2.950		
12,800.0	7,150.6	12,977.2	7,117.1	161.8	161.6	88.01	1,021.1	-5,618.1	936.8	613.8	323.06	2.900		
12,900.0	7,150.3	13,077.2	7,113.7	164.6	164.4	87.82	1,021.1	-5,718.0	936.9	608.3	328.61	2.851		
13,000.0	7,150.0	13,177.1	7,110.2	167.4	167.1	87.63	1,021.1	-5,817.9	937.1	602.9	334.16	2.804		
13,100.0	7,149.7	13,277.1	7,106.8	170.2	169.9	87.44	1,021.1	-5,917.8	937.2	597.5	339.70	2.759		
13,200.0	7,149.4	13,377.0	7,103.3	173.0	172.7	87.24	1,021.1	-6,017.7	937.3	592.1	345.23	2.715		
13,300.0	7,149.0	13,477.0	7,099.9	175.8	175.5	87.05	1,021.1	-6,117.6	937.5	586.7	350.77	2.673		
13,400.0	7,148.7	13,576.9	7,096.4	178.6	178.3	86.86	1,021.1	-6,217.5	937.7	581.4	356.30	2.632		
13,500.0	7,148.4	13,676.9	7,092.9	181.4	181.1	86.67	1,021.1	-6,317.4	937.8	576.0	361.82	2.592		
13,600.0	7,148.1	13,776.8	7,089.5	184.2	183.8	86.48	1,021.1	-6,417.3	938.0	570.7	367.34	2.554		
13,700.0	7,147.8	13,876.8	7,086.0	187.0	186.6	86.29	1,021.1	-6,517.2	938.2	565.4	372.85	2.516		
13,800.0	7,147.5	13,976.7	7,082.6	189.8	189.4	86.10	1,021.1	-6,617.1	938.4	560.1	378.36	2.480		
13,900.0	7,147.2	14,076.7	7,079.1	192.6	192.2	85.90	1,021.1	-6,716.9	938.7	554.8	383.86	2.445		
14,000.0	7,146.8	14,176.6	7,075.7	195.4	195.0	85.71	1,021.1	-6,816.8	938.9	549.5	389.36	2.411		
14,100.0	7,146.5	14,276.6	7,072.2	198.2	197.8	85.52	1,021.1	-6,916.7	939.1	544.3	394.85	2.378		
14,200.0	7,146.2	14,376.5	7,068.8	201.0	200.6	85.33	1,021.1	-7,016.6	939.4	539.0	400.34	2.346		
14,269.4	7,146.0	14,445.9	7,066.4	202.2	202.5	85.20	1,021.1	-7,086.0	939.6	536.1	403.45	2.329 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin Federal 32X-334
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4790.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4790.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin Federal 32X-334	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 #4 (3-17-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWDD													Offset Well Error:	0.0 ft
Tarin 32X-HZ Pad Sec.32-T4N-R66W - Tarin 32X-204 - Wellbore #1 - Plan #2 (12-18-14)														
Reference				Offset			Semi Major Axis			Distance			Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	0.00	32.8	0.0	32.8					
100.0	100.0	100.0	100.0	0.1	0.1	0.00	32.8	0.0	32.8	32.6	0.22	145.910		
200.0	200.0	200.0	200.0	0.3	0.3	0.00	32.8	0.0	32.8	32.1	0.67	48.637		
300.0	300.0	300.0	300.0	0.6	0.6	0.00	32.8	0.0	32.8	31.7	1.12	29.182		
400.0	400.0	400.0	400.0	0.8	0.8	0.00	32.8	0.0	32.8	31.2	1.57	20.844		
500.0	500.0	500.0	500.0	1.0	1.0	0.00	32.8	0.0	32.8	30.8	2.02	16.212		
600.0	600.0	600.0	600.0	1.2	1.2	0.00	32.8	0.0	32.8	30.3	2.47	13.265		
700.0	700.0	700.0	700.0	1.5	1.5	0.00	32.8	0.0	32.8	29.9	2.92	11.224		
800.0	800.0	800.0	800.0	1.7	1.7	0.00	32.8	0.0	32.8	29.4	3.37	9.727		
900.0	900.0	900.0	900.0	1.9	1.9	0.00	32.8	0.0	32.8	29.0	3.82	8.583		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	0.00	32.8	0.0	32.8	28.5	4.27	7.679 CC		
1,100.0	1,100.0	1,099.2	1,099.2	2.4	2.4	2.13	34.0	1.3	34.0	29.3	4.71	7.212		
1,200.0	1,200.0	1,198.1	1,198.0	2.6	2.6	7.66	37.4	5.0	37.8	32.7	5.15	7.340		
1,300.0	1,300.0	1,296.6	1,296.1	2.8	2.8	14.63	43.2	11.3	44.8	39.2	5.60	8.001		
1,400.0	1,400.0	1,395.7	1,394.5	3.0	3.0	20.91	50.7	19.4	54.5	48.4	6.06	8.987		
1,500.0	1,500.0	1,495.0	1,493.3	3.3	3.3	25.32	58.2	27.5	64.8	58.2	6.54	9.900		
1,600.0	1,600.0	1,594.5	1,592.1	3.5	3.5	-47.32	65.8	35.7	74.7	67.7	6.95	10.748		
1,700.0	1,700.0	1,694.1	1,691.0	3.7	3.8	-46.04	73.4	43.9	83.5	76.2	7.38	11.313		
1,800.0	1,799.9	1,793.8	1,790.1	3.9	4.1	-45.79	80.9	52.2	91.2	83.4	7.82	11.654		
1,900.0	1,899.7	1,893.6	1,889.3	4.1	4.4	-46.31	88.5	60.4	97.6	89.4	8.27	11.801		
2,000.0	1,999.4	1,993.4	1,988.5	4.3	4.6	-47.47	96.1	68.6	102.9	94.2	8.73	11.785		
2,100.0	2,098.9	2,093.3	2,087.7	4.6	4.9	-49.16	103.7	76.8	107.2	98.0	9.21	11.646		
2,200.0	2,198.5	2,193.1	2,186.9	4.8	5.2	-50.83	111.3	85.1	111.4	101.7	9.69	11.501		
2,300.0	2,298.0	2,293.0	2,286.2	5.0	5.5	-52.37	118.9	93.3	115.8	105.6	10.18	11.370		
2,400.0	2,397.5	2,392.8	2,385.4	5.3	5.8	-53.80	126.5	101.5	120.2	109.5	10.68	11.251		
2,500.0	2,497.1	2,492.7	2,484.6	5.5	6.1	-55.13	134.1	109.8	124.6	113.4	11.19	11.142		
2,600.0	2,596.6	2,592.6	2,583.9	5.8	6.4	-56.37	141.7	118.0	129.2	117.5	11.70	11.042		
2,700.0	2,696.1	2,692.4	2,683.1	6.1	6.7	-57.52	149.3	126.2	133.7	121.5	12.21	10.951		
2,800.0	2,795.7	2,792.3	2,782.3	6.3	7.0	-58.60	156.9	134.4	138.4	125.6	12.73	10.866		
2,900.0	2,895.2	2,892.1	2,881.6	6.6	7.3	-59.60	164.5	142.7	143.1	129.8	13.26	10.789		
3,000.0	2,994.7	2,992.0	2,980.8	6.9	7.5	-60.55	172.1	150.9	147.8	134.0	13.79	10.717		
3,100.0	3,094.3	3,091.9	3,080.0	7.1	7.8	-61.43	179.7	159.1	152.6	138.2	14.32	10.650		
3,200.0	3,193.8	3,191.7	3,179.2	7.4	8.1	-62.26	187.3	167.4	157.3	142.5	14.86	10.588		
3,300.0	3,293.4	3,291.6	3,278.5	7.7	8.4	-63.04	194.9	175.6	162.2	146.8	15.40	10.530		
3,400.0	3,392.9	3,391.4	3,377.7	7.9	8.7	-63.78	202.5	183.8	167.0	151.1	15.94	10.477		
3,500.0	3,492.4	3,491.3	3,476.9	8.2	9.0	-64.47	210.1	192.1	171.9	155.4	16.49	10.426		
3,600.0	3,592.0	3,591.2	3,576.2	8.5	9.3	-65.13	217.6	200.3	176.8	159.8	17.03	10.379		
3,700.0	3,691.5	3,691.0	3,675.4	8.7	9.6	-65.75	225.2	208.5	181.7	164.2	17.58	10.335		
3,800.0	3,791.0	3,790.9	3,774.6	9.0	9.9	-66.33	232.8	216.7	186.7	168.6	18.14	10.294		
3,900.0	3,890.6	3,890.7	3,873.9	9.3	10.2	-66.89	240.4	225.0	191.7	173.0	18.69	10.255		
4,000.0	3,990.1	3,990.6	3,973.1	9.6	10.5	-67.42	248.0	233.2	196.6	177.4	19.24	10.219		
4,100.0	4,089.6	4,090.5	4,072.3	9.9	10.8	-67.92	255.6	241.4	201.6	181.8	19.80	10.185		
4,200.0	4,189.2	4,190.3	4,171.5	10.1	11.1	-68.40	263.2	249.7	206.6	186.3	20.35	10.152		
4,300.0	4,288.7	4,290.2	4,270.8	10.4	11.4	-68.86	270.8	257.9	211.7	190.8	20.91	10.122		
4,400.0	4,388.3	4,390.0	4,370.0	10.7	11.7	-69.29	278.4	266.1	216.7	195.2	21.47	10.093		
4,500.0	4,487.8	4,489.9	4,469.2	11.0	12.0	-69.70	286.0	274.3	221.8	199.7	22.03	10.065		
4,600.0	4,587.3	4,589.8	4,568.5	11.2	12.3	-70.10	293.6	282.6	226.8	204.2	22.59	10.039		
4,700.0	4,686.9	4,689.6	4,667.7	11.5	12.6	-70.48	301.2	290.8	231.9	208.7	23.16	10.015		
4,800.0	4,786.4	4,795.2	4,772.7	11.8	12.9	-71.12	308.2	298.4	235.9	212.2	23.71	9.951		
4,900.0	4,885.9	4,901.4	4,878.7	12.1	13.1	-72.39	312.6	303.1	237.3	213.1	24.24	9.791		
5,000.0	4,985.5	5,007.3	4,984.6	12.4	13.3	-74.32	314.3	305.0	236.2	211.4	24.77	9.536		

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 Federal 32X-334
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4790.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4790.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin Federal 32X-334	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 #4 (3-17-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft		
Survey Program: 0-MWDD													Offset Well Error:	0.0 ft		
Reference													Tarin 32X-HZ Pad Sec.32-T4N-R66W - Tarin 32X-204 - Wellbore #1 - Plan #2 (12-18-14)			
Reference				Offset			Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning			
5,100.0	5,085.0	5,107.7	5,085.0	12.6	13.5	-76.60	314.3	305.0	233.8	208.5	25.32	9.235				
5,200.0	5,184.6	5,207.3	5,184.6	12.9	13.6	-78.73	314.3	305.0	231.9	206.0	25.85	8.971				
5,300.0	5,284.4	5,307.1	5,284.4	13.1	13.8	-80.11	314.3	305.0	230.8	204.5	26.28	8.783				
5,400.0	5,384.4	5,407.1	5,384.4	13.3	14.0	-80.66	314.3	305.0	230.4	203.8	26.67	8.642				
5,444.5	5,428.9	5,451.6	5,428.9	13.4	14.1	-80.71	314.3	305.0	230.4	203.6	26.83	8.588				
5,500.0	5,484.4	5,507.1	5,484.4	13.4	14.2	-5.25	314.3	305.0	230.4	205.4	25.04	9.203				
5,600.0	5,584.4	5,607.1	5,584.4	13.6	14.4	-5.25	314.3	305.0	230.4	205.0	25.45	9.054				
5,700.0	5,684.4	5,707.1	5,684.4	13.8	14.6	-5.25	314.3	305.0	230.4	204.6	25.86	8.910				
5,800.0	5,784.4	5,807.1	5,784.4	14.0	14.8	-5.25	314.3	305.0	230.4	204.2	26.27	8.770				
5,900.0	5,884.4	5,907.1	5,884.4	14.2	14.9	-5.25	314.3	305.0	230.4	203.7	26.69	8.634				
6,000.0	5,984.4	6,007.1	5,984.4	14.4	15.1	-5.25	314.3	305.0	230.4	203.3	27.10	8.502				
6,100.0	6,084.4	6,107.1	6,084.4	14.6	15.3	-5.25	314.3	305.0	230.4	202.9	27.52	8.374				
6,200.0	6,184.4	6,207.1	6,184.4	14.8	15.5	-5.25	314.3	305.0	230.4	202.5	27.94	8.249				
6,300.0	6,284.4	6,307.1	6,284.4	15.0	15.7	-5.25	314.3	305.0	230.4	202.1	28.35	8.127				
6,400.0	6,384.4	6,404.7	6,381.9	15.2	15.9	-6.22	314.3	301.1	230.8	202.1	28.72	8.038				
6,500.0	6,484.2	6,500.0	6,475.9	15.4	15.9	80.87	314.3	285.6	232.5	201.6	30.90	7.524				
6,600.0	6,582.7	6,594.1	6,566.0	15.5	16.0	78.09	314.3	258.9	234.6	203.5	31.06	7.552				
6,700.0	6,678.1	6,686.9	6,651.1	15.5	16.0	75.57	314.3	221.9	237.0	205.9	31.10	7.623				
6,800.0	6,768.7	6,778.7	6,730.3	15.5	16.0	73.32	314.3	175.5	239.6	208.6	31.06	7.716				
6,900.0	6,853.2	6,869.6	6,802.6	15.6	16.0	71.37	314.3	120.5	242.2	211.2	31.03	7.806				
7,000.0	6,929.9	6,959.8	6,867.3	15.8	16.0	69.73	314.3	57.8	244.7	213.5	31.16	7.852				
7,100.0	6,997.6	7,050.0	6,924.3	16.1	16.3	68.40	314.3	-12.1	246.8	215.2	31.60	7.812				
7,200.0	7,055.1	7,138.3	6,971.7	16.8	17.0	67.42	314.3	-86.5	248.6	216.1	32.49	7.649				
7,300.0	7,101.4	7,227.0	7,010.3	17.8	18.0	66.75	314.3	-166.2	249.8	215.8	33.96	7.355				
7,400.0	7,135.8	7,315.4	7,039.4	19.0	19.2	66.40	314.3	-249.7	250.4	214.4	36.05	6.947				
7,500.0	7,157.7	7,403.8	7,058.7	20.6	20.6	66.38	314.3	-335.9	250.5	211.7	38.74	6.466				
7,600.0	7,166.7	7,492.2	7,067.8	22.4	22.2	66.68	314.3	-423.8	249.9	207.9	41.96	5.956				
7,700.0	7,166.6	7,587.6	7,068.6	24.4	24.1	66.86	314.3	-519.2	249.5	204.0	45.55	5.479				
7,800.0	7,166.3	7,687.6	7,068.5	26.5	26.2	66.92	314.3	-619.2	249.4	200.0	49.45	5.044				
7,900.0	7,166.0	7,787.6	7,068.4	28.7	28.4	66.97	314.3	-719.2	249.4	195.8	53.58	4.654				
8,000.0	7,165.7	7,887.6	7,068.4	31.1	30.7	67.02	314.3	-819.2	249.3	191.4	57.88	4.306				
8,100.0	7,165.4	7,987.6	7,068.3	33.5	33.1	67.07	314.3	-919.2	249.2	186.8	62.33	3.998				
8,200.0	7,165.1	8,087.6	7,068.2	35.9	35.6	67.12	314.3	-1,019.2	249.1	182.2	66.89	3.723				
8,300.0	7,164.8	8,187.6	7,068.2	38.4	38.1	67.17	314.3	-1,119.2	249.0	177.4	71.55	3.480				
8,400.0	7,164.4	8,287.6	7,068.1	41.0	40.6	67.23	314.3	-1,219.2	248.9	172.6	76.29	3.262				
8,500.0	7,164.1	8,387.6	7,068.0	43.6	43.2	67.28	314.3	-1,319.2	248.8	167.7	81.09	3.068				
8,600.0	7,163.8	8,487.6	7,068.0	46.2	45.8	67.33	314.3	-1,419.2	248.7	162.8	85.94	2.894				
8,700.0	7,163.5	8,587.6	7,067.9	48.8	48.4	67.38	314.3	-1,519.2	248.6	157.8	90.84	2.737				
8,800.0	7,163.2	8,687.6	7,067.8	51.5	51.1	67.43	314.3	-1,619.2	248.5	152.7	95.78	2.595				
8,900.0	7,162.9	8,787.6	7,067.7	54.1	53.7	67.49	314.3	-1,719.2	248.4	147.7	100.76	2.465				
9,000.0	7,162.6	8,887.6	7,067.7	56.8	56.4	67.54	314.3	-1,819.2	248.3	142.6	105.76	2.348				
9,100.0	7,162.2	8,987.6	7,067.6	59.5	59.1	67.59	314.3	-1,919.2	248.2	137.4	110.79	2.240				
9,200.0	7,161.9	9,087.6	7,067.5	62.2	61.8	67.64	314.3	-2,019.2	248.1	132.3	115.85	2.142				
9,300.0	7,161.6	9,187.6	7,067.5	64.9	64.5	67.69	314.3	-2,119.2	248.0	127.1	120.92	2.051				
9,400.0	7,161.3	9,287.6	7,067.4	67.6	67.2	67.75	314.3	-2,219.2	248.0	121.9	126.02	1.968				
9,500.0	7,161.0	9,387.6	7,067.3	70.3	69.9	67.80	314.3	-2,319.2	247.9	116.7	131.13	1.890				
9,600.0	7,160.7	9,487.6	7,067.3	73.1	72.6	67.85	314.3	-2,419.2	247.8	111.5	136.26	1.818				
9,700.0	7,160.4	9,587.6	7,067.2	75.8	75.4	67.90	314.3	-2,519.2	247.7	106.3	141.40	1.752				
9,800.0	7,160.0	9,687.6	7,067.1	78.5	78.1	67.96	314.3	-2,619.2	247.6	101.0	146.56	1.689				
9,900.0	7,159.7	9,787.6	7,067.1	81.3	80.9	68.01	314.3	-2,719.2	247.5	95.8	151.73	1.631				
10,000.0	7,159.4	9,887.6	7,067.0	84.0	83.6	68.06	314.3	-2,819.2	247.4	90.5	156.90	1.577				

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 Federal 32X-334
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4790.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4790.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin Federal 32X-334	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 #4 (3-17-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Tarin 32X-HZ Pad Sec.32-T4N-R66W - Tarin 32X-204 - Wellbore #1 - Plan #2 (12-18-14)														
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
10,100.0	7,159.1	9,987.6	7,066.9	86.8	86.4	68.11	314.3	-2,919.2	247.3	85.2	162.09	1.526		
10,200.0	7,158.8	10,087.6	7,066.8	89.6	89.1	68.17	314.3	-3,019.2	247.2	79.9	167.29	1.478	Level 3	
10,300.0	7,158.5	10,187.6	7,066.8	92.3	91.9	68.22	314.3	-3,119.2	247.1	74.6	172.50	1.433	Level 3	
10,400.0	7,158.2	10,287.6	7,066.7	95.1	94.6	68.27	314.3	-3,219.2	247.0	69.3	177.72	1.390	Level 3	
10,500.0	7,157.8	10,387.6	7,066.6	97.8	97.4	68.32	314.3	-3,319.2	247.0	64.0	182.95	1.350	Level 3	
10,600.0	7,157.5	10,487.6	7,066.6	100.6	100.2	68.38	314.3	-3,419.2	246.9	58.7	188.18	1.312	Level 3	
10,700.0	7,157.2	10,587.6	7,066.5	103.4	102.9	68.43	314.3	-3,519.2	246.8	53.4	193.42	1.276	Level 3	
10,800.0	7,156.9	10,687.6	7,066.4	106.2	105.7	68.48	314.3	-3,619.2	246.7	48.0	198.67	1.242	Level 2	
10,900.0	7,156.6	10,787.6	7,066.4	108.9	108.5	68.54	314.3	-3,719.2	246.6	42.7	203.93	1.209	Level 2	
11,000.0	7,156.3	10,887.6	7,066.3	111.7	111.3	68.59	314.3	-3,819.2	246.5	37.3	209.19	1.178	Level 2	
11,100.0	7,156.0	10,987.6	7,066.2	114.5	114.0	68.64	314.3	-3,919.2	246.4	32.0	214.46	1.149	Level 2	
11,200.0	7,155.6	11,087.6	7,066.1	117.3	116.8	68.69	314.3	-4,019.2	246.3	26.6	219.73	1.121	Level 2	
11,300.0	7,155.3	11,187.6	7,066.1	120.0	119.6	68.75	314.3	-4,119.2	246.2	21.2	225.01	1.094	Level 2	
11,400.0	7,155.0	11,287.6	7,066.0	122.8	122.4	68.80	314.3	-4,219.2	246.2	15.9	230.30	1.069	Level 2	
11,500.0	7,154.7	11,387.6	7,065.9	125.6	125.1	68.85	314.3	-4,319.2	246.1	10.5	235.59	1.044	Level 2	
11,600.0	7,154.4	11,487.6	7,065.9	128.4	127.9	68.91	314.3	-4,419.2	246.0	5.1	240.89	1.021	Level 2	
11,700.0	7,154.1	11,587.6	7,065.8	131.2	130.7	68.96	314.3	-4,519.2	245.9	-0.3	246.19	0.999	Level 1	
11,800.0	7,153.8	11,687.6	7,065.7	134.0	133.5	69.01	314.3	-4,619.2	245.8	-5.7	251.50	0.977	Level 1	
11,900.0	7,153.4	11,787.6	7,065.7	136.7	136.3	69.07	314.3	-4,719.2	245.7	-11.1	256.81	0.957	Level 1	
12,000.0	7,153.1	11,887.6	7,065.6	139.5	139.1	69.12	314.3	-4,819.2	245.6	-16.5	262.13	0.937	Level 1	
12,100.0	7,152.8	11,987.6	7,065.5	142.3	141.9	69.17	314.3	-4,919.2	245.5	-21.9	267.45	0.918	Level 1	
12,200.0	7,152.5	12,087.6	7,065.4	145.1	144.6	69.23	314.3	-5,019.2	245.5	-27.3	272.78	0.900	Level 1	
12,300.0	7,152.2	12,187.6	7,065.4	147.9	147.4	69.28	314.3	-5,119.2	245.4	-32.7	278.11	0.882	Level 1	
12,400.0	7,151.9	12,287.6	7,065.3	150.7	150.2	69.33	314.3	-5,219.2	245.3	-38.2	283.45	0.865	Level 1	
12,500.0	7,151.6	12,387.6	7,065.2	153.5	153.0	69.39	314.3	-5,319.2	245.2	-43.6	288.79	0.849	Level 1	
12,600.0	7,151.2	12,487.6	7,065.2	156.3	155.8	69.44	314.3	-5,419.2	245.1	-49.0	294.14	0.833	Level 1	
12,700.0	7,150.9	12,587.6	7,065.1	159.1	158.6	69.49	314.3	-5,519.2	245.0	-54.5	299.49	0.818	Level 1	
12,800.0	7,150.6	12,687.6	7,065.0	161.8	161.4	69.55	314.3	-5,619.2	244.9	-59.9	304.84	0.804	Level 1	
12,900.0	7,150.3	12,787.6	7,065.0	164.6	164.2	69.60	314.3	-5,719.2	244.9	-65.3	310.20	0.789	Level 1	
13,000.0	7,150.0	12,887.6	7,064.9	167.4	167.0	69.65	314.3	-5,819.2	244.8	-70.8	315.56	0.776	Level 1	
13,100.0	7,149.7	12,987.6	7,064.8	170.2	169.8	69.71	314.3	-5,919.2	244.7	-76.2	320.93	0.762	Level 1	
13,200.0	7,149.4	13,087.6	7,064.7	173.0	172.6	69.76	314.3	-6,019.2	244.6	-81.7	326.30	0.750	Level 1	
13,300.0	7,149.0	13,187.6	7,064.7	175.8	175.4	69.82	314.3	-6,119.2	244.5	-87.2	331.68	0.737	Level 1	
13,400.0	7,148.7	13,287.6	7,064.6	178.6	178.1	69.87	314.3	-6,219.2	244.4	-92.6	337.06	0.725	Level 1	
13,500.0	7,148.4	13,387.6	7,064.5	181.4	180.9	69.92	314.3	-6,319.2	244.4	-98.1	342.44	0.714	Level 1	
13,600.0	7,148.1	13,487.6	7,064.5	184.2	183.7	69.98	314.3	-6,419.2	244.3	-103.6	347.83	0.702	Level 1	
13,700.0	7,147.8	13,587.6	7,064.4	187.0	186.5	70.03	314.3	-6,519.2	244.2	-109.0	353.22	0.691	Level 1	
13,800.0	7,147.5	13,687.6	7,064.3	189.8	189.3	70.09	314.3	-6,619.2	244.1	-114.5	358.61	0.681	Level 1	
13,900.0	7,147.2	13,787.6	7,064.3	192.6	192.1	70.14	314.3	-6,719.2	244.0	-120.0	364.01	0.670	Level 1	
14,000.0	7,146.8	13,887.6	7,064.2	195.4	194.9	70.19	314.3	-6,819.2	243.9	-125.5	369.41	0.660	Level 1	
14,100.0	7,146.5	13,987.6	7,064.1	198.2	197.7	70.25	314.3	-6,919.2	243.9	-131.0	374.82	0.651	Level 1	
14,200.0	7,146.2	14,087.6	7,064.0	201.0	200.5	70.30	314.3	-7,019.2	243.8	-136.4	380.22	0.641	Level 1	
14,269.4	7,146.0	14,157.0	7,064.0	202.2	202.5	70.34	314.3	-7,088.6	243.7	-139.6	383.32	0.636	Level 1, ES, SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin Federal 32X-334
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4790.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4790.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin Federal 32X-334	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 #4 (3-17-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWDD													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			Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	0.00	61.9	0.0	61.9					
100.0	100.0	100.0	100.0	0.1	0.1	0.00	61.9	0.0	61.9	61.7	0.22	275.593		
200.0	200.0	200.0	200.0	0.3	0.3	0.00	61.9	0.0	61.9	61.3	0.67	91.864		
300.0	300.0	300.0	300.0	0.6	0.6	0.00	61.9	0.0	61.9	60.8	1.12	55.119		
400.0	400.0	400.0	400.0	0.8	0.8	0.00	61.9	0.0	61.9	60.4	1.57	39.370		
500.0	500.0	500.0	500.0	1.0	1.0	0.00	61.9	0.0	61.9	59.9	2.02	30.621		
600.0	600.0	600.0	600.0	1.2	1.2	0.00	61.9	0.0	61.9	59.5	2.47	25.054	CC, ES	
700.0	700.0	698.0	698.0	1.5	1.5	0.62	63.5	0.7	63.5	60.6	2.92	21.782		
800.0	800.0	795.8	795.7	1.7	1.7	2.30	68.1	2.7	68.2	64.9	3.36	20.313		
900.0	900.0	893.2	892.7	1.9	1.9	4.62	75.6	6.1	76.2	72.4	3.81	19.993		
1,000.0	1,000.0	989.8	988.6	2.1	2.2	7.15	86.1	10.8	87.5	83.3	4.28	20.433		
1,100.0	1,100.0	1,088.5	1,086.3	2.4	2.4	9.45	98.7	16.4	101.0	96.2	4.78	21.111		
1,200.0	1,200.0	1,187.5	1,184.4	2.6	2.7	11.21	111.3	22.1	114.5	109.2	5.30	21.625		
1,300.0	1,300.0	1,286.6	1,282.4	2.8	3.0	12.60	123.9	27.7	128.2	122.4	5.82	22.026		
1,400.0	1,400.0	1,385.6	1,380.5	3.0	3.3	13.73	136.6	33.4	141.9	135.6	6.35	22.345		
1,500.0	1,500.0	1,484.6	1,478.5	3.3	3.6	14.65	149.2	39.0	155.7	148.8	6.89	22.606		
1,600.0	1,600.0	1,583.7	1,576.7	3.5	3.9	-60.14	161.8	44.7	169.1	162.0	7.01	24.121		
1,700.0	1,700.0	1,682.9	1,674.9	3.7	4.3	-60.07	174.5	50.3	181.6	174.1	7.45	24.359		
1,800.0	1,799.9	1,782.2	1,773.2	3.9	4.6	-60.45	187.1	56.0	193.2	185.3	7.91	24.438		
1,900.0	1,899.7	1,881.6	1,871.6	4.1	4.9	-61.22	199.8	61.6	204.1	195.7	8.37	24.386		
2,000.0	1,999.4	1,981.0	1,970.0	4.3	5.2	-62.32	212.5	67.3	214.1	205.3	8.84	24.222		
2,100.0	2,098.9	2,080.4	2,068.5	4.6	5.6	-63.71	225.2	73.0	223.6	214.2	9.32	23.977		
2,200.0	2,198.5	2,179.8	2,166.9	4.8	5.9	-65.08	237.8	78.6	233.1	223.2	9.82	23.736		
2,300.0	2,298.0	2,279.2	2,265.3	5.0	6.2	-66.34	250.5	84.3	242.7	232.3	10.32	23.512		
2,400.0	2,397.5	2,378.6	2,363.8	5.3	6.6	-67.51	263.2	90.0	252.4	241.5	10.83	23.305		
2,500.0	2,497.1	2,478.0	2,462.2	5.5	6.9	-68.59	275.9	95.6	262.2	250.8	11.34	23.112		
2,600.0	2,596.6	2,577.4	2,560.6	5.8	7.2	-69.59	288.5	101.3	272.1	260.2	11.86	22.933		
2,700.0	2,696.1	2,676.8	2,659.0	6.1	7.6	-70.52	301.2	107.0	282.1	269.7	12.39	22.767		
2,800.0	2,795.7	2,776.2	2,757.5	6.3	7.9	-71.39	313.9	112.6	292.1	279.2	12.92	22.611		
2,900.0	2,895.2	2,875.6	2,855.9	6.6	8.2	-72.20	326.6	118.3	302.2	288.8	13.45	22.466		
3,000.0	2,994.7	2,975.0	2,954.3	6.9	8.6	-72.96	339.2	124.0	312.4	298.4	13.99	22.330		
3,100.0	3,094.3	3,074.4	3,052.7	7.1	8.9	-73.67	351.9	129.6	322.6	308.1	14.53	22.203		
3,200.0	3,193.8	3,173.8	3,151.2	7.4	9.2	-74.34	364.6	135.3	332.9	317.8	15.07	22.084		
3,300.0	3,293.4	3,273.2	3,249.6	7.7	9.6	-74.96	377.3	141.0	343.2	327.5	15.62	21.973		
3,400.0	3,392.9	3,372.6	3,348.0	7.9	9.9	-75.55	389.9	146.6	353.5	337.3	16.17	21.868		
3,500.0	3,492.4	3,472.0	3,446.4	8.2	10.2	-76.11	402.6	152.3	363.9	347.2	16.72	21.769		
3,600.0	3,592.0	3,571.4	3,544.9	8.5	10.6	-76.63	415.3	158.0	374.3	357.0	17.27	21.676		
3,700.0	3,691.5	3,670.8	3,643.3	8.7	10.9	-77.13	428.0	163.6	384.7	366.9	17.82	21.588		
3,800.0	3,791.0	3,770.2	3,741.7	9.0	11.2	-77.60	440.6	169.3	395.2	376.8	18.38	21.505		
3,900.0	3,890.6	3,869.6	3,840.1	9.3	11.6	-78.05	453.3	175.0	405.7	386.7	18.93	21.427		
4,000.0	3,990.1	3,969.0	3,938.6	9.6	11.9	-78.47	466.0	180.6	416.2	396.7	19.49	21.353		
4,100.0	4,089.6	4,068.4	4,037.0	9.9	12.2	-78.88	478.7	186.3	426.7	406.7	20.05	21.282		
4,200.0	4,189.2	4,167.8	4,135.4	10.1	12.6	-79.26	491.3	192.0	437.3	416.7	20.61	21.216		
4,300.0	4,288.7	4,267.2	4,233.8	10.4	12.9	-79.62	504.0	197.6	447.8	426.7	21.17	21.152		
4,400.0	4,388.3	4,366.6	4,332.3	10.7	13.2	-79.97	516.7	203.3	458.4	436.7	21.73	21.092		
4,500.0	4,487.8	4,466.0	4,430.7	11.0	13.6	-80.31	529.4	209.0	469.0	446.7	22.30	21.035		
4,600.0	4,587.3	4,565.4	4,529.1	11.2	13.9	-80.62	542.1	214.6	479.6	456.8	22.86	20.981		
4,700.0	4,686.9	4,664.8	4,627.5	11.5	14.3	-80.93	554.7	220.3	490.3	466.9	23.43	20.929		
4,800.0	4,786.4	4,764.2	4,726.0	11.8	14.6	-81.22	567.4	226.0	500.9	476.9	23.99	20.879		
4,900.0	4,885.9	4,863.6	4,824.4	12.1	14.9	-81.50	580.1	231.6	511.6	487.0	24.56	20.832		
5,000.0	4,985.5	4,963.0	4,922.8	12.4	15.3	-81.77	592.8	237.3	522.3	497.1	25.13	20.786		

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 Federal 32X-334
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4790.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4790.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin Federal 32X-334	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 #4 (3-17-15)	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				Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,100.0	5,085.0	5,062.4	5,021.2	12.6	15.6	-82.03	605.4	243.0	532.9	507.3	25.69	20.743		
5,200.0	5,184.6	5,161.8	5,119.7	12.9	15.9	-82.34	618.1	248.6	543.7	517.5	26.24	20.722		
5,300.0	5,284.4	5,261.1	5,218.0	13.1	16.3	-82.40	630.8	254.3	554.9	528.2	26.70	20.781		
5,400.0	5,384.4	5,360.3	5,316.3	13.3	16.6	-82.13	643.4	259.9	566.6	539.5	27.12	20.891		
5,500.0	5,484.4	5,459.3	5,414.3	13.4	17.0	-6.05	656.0	265.6	578.7	550.6	28.06	20.621		
5,600.0	5,584.4	5,558.3	5,512.4	13.6	17.3	-5.37	668.7	271.2	590.8	562.2	28.63	20.638		
5,700.0	5,684.4	5,657.4	5,610.4	13.8	17.6	-4.72	681.3	276.9	603.1	573.9	29.20	20.656		
5,800.0	5,784.4	5,756.4	5,708.5	14.0	18.0	-4.09	693.9	282.5	615.4	585.6	29.76	20.676		
5,900.0	5,884.4	5,855.4	5,806.5	14.2	18.3	-3.49	706.6	288.2	627.7	597.4	30.33	20.697		
6,000.0	5,984.4	5,955.6	5,905.7	14.4	18.6	-2.91	719.3	293.9	640.2	609.3	30.90	20.718		
6,100.0	6,084.4	6,080.0	6,029.3	14.6	18.9	-2.33	732.5	299.8	650.6	619.1	31.46	20.682		
6,200.0	6,184.4	6,205.5	6,154.4	14.8	19.2	-1.97	740.8	303.5	657.1	625.1	31.94	20.571		
6,300.0	6,284.4	6,331.5	6,280.3	15.0	19.4	-1.84	744.2	305.0	659.7	627.3	32.36	20.383		
6,400.0	6,384.4	6,435.5	6,384.4	15.2	19.6	-1.83	744.2	305.0	659.7	627.0	32.73	20.154		
6,500.0	6,484.2	6,533.8	6,482.6	15.4	19.7	88.30	744.2	302.2	659.7	628.2	31.49	20.949		
6,600.0	6,582.7	6,631.4	6,579.0	15.5	19.8	88.50	744.2	287.8	659.6	628.0	31.65	20.838		
6,700.0	6,678.1	6,729.3	6,673.2	15.5	19.8	88.73	744.2	261.0	659.6	627.8	31.73	20.789		
6,800.0	6,768.7	6,827.6	6,763.4	15.5	19.8	88.98	744.2	222.3	659.5	627.7	31.77	20.759		
6,900.0	6,853.2	6,926.2	6,848.3	15.6	19.7	89.25	744.2	172.2	659.4	627.6	31.88	20.683		
7,000.0	6,929.9	7,025.2	6,926.2	15.8	19.7	89.53	744.2	111.2	659.4	627.2	32.20	20.476		
7,100.0	6,997.6	7,124.7	6,995.9	16.1	19.7	89.82	744.2	40.4	659.4	626.5	32.88	20.052		
7,163.2	7,035.1	7,187.8	7,035.1	16.5	19.7	90.00	744.2	-9.0	659.4	625.8	33.60	19.624		
7,200.0	7,055.1	7,224.6	7,056.1	16.8	19.7	90.11	744.2	-39.2	659.4	625.3	34.07	19.351		
7,300.0	7,101.4	7,324.9	7,105.6	17.8	19.8	90.40	744.2	-126.4	659.4	623.5	35.88	18.379		
7,400.0	7,135.8	7,425.7	7,143.3	19.0	20.3	90.69	744.2	-219.8	659.4	621.1	38.33	17.206		
7,500.0	7,157.7	7,526.9	7,168.6	20.6	21.5	90.96	744.2	-317.7	659.5	618.1	41.37	15.943		
7,600.0	7,166.7	7,628.5	7,180.7	22.4	23.2	91.22	744.2	-418.6	659.5	614.7	44.88	14.694		
7,700.0	7,166.6	7,729.3	7,181.4	24.4	25.1	91.28	744.2	-519.4	659.6	610.8	48.77	13.525		
7,800.0	7,166.3	7,829.3	7,180.9	26.5	27.1	91.27	744.2	-619.4	659.6	606.6	52.94	12.459		
7,900.0	7,166.0	7,929.3	7,180.4	28.7	29.3	91.25	744.2	-719.4	659.5	602.2	57.36	11.499		
8,000.0	7,165.7	8,029.3	7,179.9	31.1	31.5	91.23	744.2	-819.4	659.5	597.6	61.97	10.643		
8,100.0	7,165.4	8,129.3	7,179.3	33.5	33.9	91.21	744.2	-919.4	659.5	592.8	66.73	9.883		
8,200.0	7,165.1	8,229.3	7,178.8	35.9	36.3	91.19	744.2	-1,019.4	659.5	587.9	71.62	9.208		
8,300.0	7,164.8	8,329.3	7,178.3	38.4	38.7	91.18	744.2	-1,119.4	659.5	582.9	76.61	8.609		
8,400.0	7,164.4	8,429.3	7,177.8	41.0	41.2	91.16	744.2	-1,219.4	659.5	577.8	81.68	8.074		
8,500.0	7,164.1	8,529.3	7,177.2	43.6	43.8	91.14	744.2	-1,319.4	659.5	572.7	86.82	7.597		
8,600.0	7,163.8	8,629.3	7,176.7	46.2	46.3	91.12	744.2	-1,419.4	659.5	567.5	92.01	7.168		
8,700.0	7,163.5	8,729.3	7,176.2	48.8	48.9	91.10	744.2	-1,519.4	659.5	562.3	97.25	6.782		
8,800.0	7,163.2	8,829.3	7,175.7	51.5	51.5	91.08	744.2	-1,619.3	659.5	557.0	102.53	6.432		
8,900.0	7,162.9	8,929.3	7,175.1	54.1	54.2	91.07	744.2	-1,719.3	659.5	551.7	107.85	6.115		
9,000.0	7,162.6	9,029.3	7,174.6	56.8	56.8	91.05	744.2	-1,819.3	659.5	546.3	113.19	5.827		
9,100.0	7,162.2	9,129.3	7,174.1	59.5	59.5	91.03	744.2	-1,919.3	659.5	540.9	118.56	5.563		
9,200.0	7,161.9	9,229.3	7,173.6	62.2	62.1	91.01	744.2	-2,019.3	659.5	535.5	123.95	5.321		
9,300.0	7,161.6	9,329.3	7,173.0	64.9	64.8	90.99	744.2	-2,119.3	659.5	530.1	129.35	5.098		
9,400.0	7,161.3	9,429.3	7,172.5	67.6	67.5	90.98	744.2	-2,219.3	659.5	524.7	134.78	4.893		
9,500.0	7,161.0	9,529.3	7,172.0	70.3	70.2	90.96	744.2	-2,319.3	659.5	519.3	140.22	4.703		
9,600.0	7,160.7	9,629.3	7,171.5	73.1	73.0	90.94	744.2	-2,419.3	659.5	513.8	145.68	4.527		
9,700.0	7,160.4	9,729.3	7,171.0	75.8	75.7	90.92	744.2	-2,519.3	659.5	508.3	151.14	4.363		
9,800.0	7,160.0	9,829.3	7,170.4	78.5	78.4	90.90	744.2	-2,619.3	659.5	502.9	156.62	4.211		
9,900.0	7,159.7	9,929.3	7,169.9	81.3	81.1	90.88	744.2	-2,719.3	659.5	497.4	162.10	4.068		
10,000.0	7,159.4	10,029.3	7,169.4	84.0	83.9	90.87	744.2	-2,819.3	659.5	491.9	167.60	3.935		

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 Federal 32X-334
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4790.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4790.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin Federal 32X-334	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 #4 (3-17-15)	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						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		
10,100.0	7,159.1	10,129.3	7,168.9	86.8	86.6	90.85	744.2	-2,919.3	659.5	486.4	173.10	3.810		
10,200.0	7,158.8	10,229.3	7,168.3	89.6	89.4	90.83	744.2	-3,019.3	659.5	480.8	178.61	3.692		
10,300.0	7,158.5	10,329.3	7,167.8	92.3	92.1	90.81	744.2	-3,119.3	659.5	475.3	184.13	3.582		
10,400.0	7,158.2	10,429.3	7,167.3	95.1	94.9	90.79	744.2	-3,219.3	659.5	469.8	189.65	3.477		
10,500.0	7,157.8	10,529.3	7,166.8	97.8	97.6	90.78	744.2	-3,319.3	659.5	464.3	195.18	3.379		
10,600.0	7,157.5	10,629.3	7,166.2	100.6	100.4	90.76	744.2	-3,419.3	659.4	458.7	200.71	3.286		
10,700.0	7,157.2	10,729.3	7,165.7	103.4	103.1	90.74	744.2	-3,519.3	659.4	453.2	206.24	3.197		
10,800.0	7,156.9	10,829.3	7,165.2	106.2	105.9	90.72	744.2	-3,619.3	659.4	447.7	211.79	3.114		
10,900.0	7,156.6	10,929.3	7,164.7	108.9	108.7	90.70	744.2	-3,719.3	659.4	442.1	217.33	3.034		
11,000.0	7,156.3	11,029.3	7,164.1	111.7	111.4	90.68	744.2	-3,819.3	659.4	436.6	222.88	2.959		
11,100.0	7,156.0	11,129.3	7,163.6	114.5	114.2	90.67	744.2	-3,919.3	659.4	431.0	228.43	2.887		
11,200.0	7,155.6	11,229.3	7,163.1	117.3	117.0	90.65	744.2	-4,019.3	659.4	425.4	233.98	2.818		
11,300.0	7,155.3	11,329.3	7,162.6	120.0	119.7	90.63	744.2	-4,119.3	659.4	419.9	239.54	2.753		
11,400.0	7,155.0	11,429.3	7,162.1	122.8	122.5	90.61	744.2	-4,219.3	659.4	414.3	245.10	2.690		
11,500.0	7,154.7	11,529.3	7,161.5	125.6	125.3	90.59	744.2	-4,319.3	659.4	408.8	250.66	2.631		
11,600.0	7,154.4	11,629.3	7,161.0	128.4	128.1	90.58	744.2	-4,419.3	659.4	403.2	256.23	2.574		
11,700.0	7,154.1	11,729.3	7,160.5	131.2	130.8	90.56	744.2	-4,519.3	659.4	397.6	261.80	2.519		
11,800.0	7,153.8	11,829.3	7,160.0	134.0	133.6	90.54	744.2	-4,619.3	659.4	392.1	267.37	2.466		
11,900.0	7,153.4	11,929.3	7,159.4	136.7	136.4	90.52	744.2	-4,719.3	659.4	386.5	272.94	2.416		
12,000.0	7,153.1	12,029.3	7,158.9	139.5	139.2	90.50	744.2	-4,819.3	659.4	380.9	278.51	2.368		
12,100.0	7,152.8	12,129.3	7,158.4	142.3	142.0	90.48	744.2	-4,919.3	659.4	375.3	284.08	2.321		
12,200.0	7,152.5	12,229.3	7,157.9	145.1	144.7	90.47	744.2	-5,019.3	659.4	369.8	289.66	2.277		
12,300.0	7,152.2	12,329.3	7,157.3	147.9	147.5	90.45	744.2	-5,119.3	659.4	364.2	295.24	2.233		
12,400.0	7,151.9	12,429.3	7,156.8	150.7	150.3	90.43	744.2	-5,219.3	659.4	358.6	300.82	2.192		
12,500.0	7,151.6	12,529.3	7,156.3	153.5	153.1	90.41	744.2	-5,319.3	659.4	353.0	306.40	2.152		
12,600.0	7,151.2	12,629.3	7,155.8	156.3	155.9	90.39	744.2	-5,419.3	659.4	347.4	311.98	2.114		
12,700.0	7,150.9	12,729.3	7,155.2	159.1	158.7	90.37	744.2	-5,519.3	659.4	341.8	317.56	2.076		
12,800.0	7,150.6	12,829.3	7,154.7	161.8	161.5	90.36	744.2	-5,619.3	659.4	336.3	323.15	2.041		
12,900.0	7,150.3	12,929.3	7,154.2	164.6	164.3	90.34	744.2	-5,719.3	659.4	330.7	328.73	2.006		
13,000.0	7,150.0	13,029.3	7,153.7	167.4	167.0	90.32	744.2	-5,819.3	659.4	325.1	334.32	1.972		
13,100.0	7,149.7	13,129.3	7,153.2	170.2	169.8	90.30	744.2	-5,919.3	659.4	319.5	339.90	1.940		
13,200.0	7,149.4	13,229.3	7,152.6	173.0	172.6	90.28	744.2	-6,019.3	659.4	313.9	345.49	1.909		
13,300.0	7,149.0	13,329.3	7,152.1	175.8	175.4	90.27	744.2	-6,119.3	659.4	308.3	351.08	1.878		
13,400.0	7,148.7	13,429.3	7,151.6	178.6	178.2	90.25	744.2	-6,219.3	659.4	302.7	356.67	1.849		
13,500.0	7,148.4	13,529.3	7,151.1	181.4	181.0	90.23	744.2	-6,319.3	659.4	297.1	362.26	1.820		
13,600.0	7,148.1	13,629.3	7,150.5	184.2	183.8	90.21	744.2	-6,419.3	659.4	291.5	367.85	1.793		
13,700.0	7,147.8	13,729.3	7,150.0	187.0	186.6	90.19	744.2	-6,519.3	659.4	286.0	373.44	1.766		
13,800.0	7,147.5	13,829.3	7,149.5	189.8	189.4	90.17	744.2	-6,619.3	659.4	280.4	379.04	1.740		
13,900.0	7,147.2	13,929.3	7,149.0	192.6	192.2	90.16	744.2	-6,719.3	659.4	274.8	384.63	1.714		
14,000.0	7,146.8	14,029.3	7,148.4	195.4	195.0	90.14	744.2	-6,819.3	659.4	269.2	390.22	1.690		
14,100.0	7,146.5	14,129.3	7,147.9	198.2	197.8	90.12	744.2	-6,919.3	659.4	263.6	395.82	1.666		
14,200.0	7,146.2	14,229.3	7,147.4	201.0	200.5	90.10	744.2	-7,019.3	659.4	258.0	401.41	1.643		
14,269.4	7,146.0	14,298.8	7,147.0	202.2	202.5	90.09	744.2	-7,088.7	659.4	254.8	404.61	1.630 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin Federal 32X-334
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4790.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4790.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin Federal 32X-334	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 #4 (3-17-15)	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-214 - Wellbore #1 - Plan #3 (12-18-14)														
Reference				Offset			Semi Major Axis			Distance				Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-180.00	-29.1	0.0	29.1					
100.0	100.0	100.0	100.0	0.1	0.1	-180.00	-29.1	0.0	29.1	28.9	0.22	129.665		
200.0	200.0	200.0	200.0	0.3	0.3	-180.00	-29.1	0.0	29.1	28.5	0.67	43.222		
300.0	300.0	300.0	300.0	0.6	0.6	-180.00	-29.1	0.0	29.1	28.0	1.12	25.933		
400.0	400.0	400.0	400.0	0.8	0.8	-180.00	-29.1	0.0	29.1	27.6	1.57	18.524		
500.0	500.0	500.0	500.0	1.0	1.0	-180.00	-29.1	0.0	29.1	27.1	2.02	14.407		
600.0	600.0	600.0	600.0	1.2	1.2	-180.00	-29.1	0.0	29.1	26.7	2.47	11.788		
700.0	700.0	700.0	700.0	1.5	1.5	-180.00	-29.1	0.0	29.1	26.2	2.92	9.974		
800.0	800.0	800.0	800.0	1.7	1.7	-180.00	-29.1	0.0	29.1	25.8	3.37	8.644		
900.0	900.0	900.0	900.0	1.9	1.9	-180.00	-29.1	0.0	29.1	25.3	3.82	7.627		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-180.00	-29.1	0.0	29.1	24.9	4.27	6.824		
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	-180.00	-29.1	0.0	29.1	24.4	4.72	6.175		
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-180.00	-29.1	0.0	29.1	24.0	5.17	5.638	CC, ES	
1,300.0	1,300.0	1,299.1	1,299.1	2.8	2.8	178.25	-30.6	0.9	30.6	25.0	5.59	5.475		
1,400.0	1,400.0	1,398.0	1,397.8	3.0	3.0	173.89	-34.9	3.7	35.1	29.1	5.99	5.864		
1,500.0	1,500.0	1,496.4	1,495.9	3.3	3.2	168.73	-42.0	8.4	43.0	36.6	6.40	6.715		
1,600.0	1,600.0	1,594.8	1,593.6	3.5	3.4	89.52	-51.7	14.7	54.1	47.3	6.82	7.938		
1,700.0	1,700.0	1,694.1	1,692.1	3.7	3.6	88.31	-62.1	21.5	66.0	58.8	7.22	9.136		
1,800.0	1,799.9	1,793.4	1,790.6	3.9	3.8	88.73	-72.5	28.2	77.8	70.2	7.64	10.188		
1,900.0	1,899.7	1,892.6	1,889.1	4.1	4.1	90.13	-82.9	35.0	89.6	81.6	8.07	11.113		
2,000.0	1,999.4	1,991.9	1,987.5	4.3	4.4	92.17	-93.2	41.8	101.6	93.0	8.51	11.936		
2,100.0	2,098.9	2,091.0	2,085.9	4.6	4.6	94.58	-103.6	48.5	113.7	104.7	8.97	12.678		
2,200.0	2,198.5	2,190.2	2,184.3	4.8	4.9	96.69	-114.0	55.3	126.0	116.6	9.44	13.351		
2,300.0	2,298.0	2,289.3	2,282.6	5.0	5.2	98.42	-124.3	62.0	138.5	128.6	9.92	13.960		
2,400.0	2,397.5	2,388.4	2,381.0	5.3	5.5	99.87	-134.7	68.8	151.1	140.7	10.41	14.511		
2,500.0	2,497.1	2,487.6	2,479.4	5.5	5.8	101.09	-145.1	75.5	163.8	152.9	10.91	15.010		
2,600.0	2,596.6	2,586.7	2,577.7	5.8	6.1	102.13	-155.4	82.3	176.5	165.1	11.42	15.462		
2,700.0	2,696.1	2,685.8	2,676.1	6.1	6.4	103.04	-165.8	89.0	189.3	177.4	11.92	15.873		
2,800.0	2,795.7	2,785.0	2,774.5	6.3	6.7	103.83	-176.2	95.8	202.1	189.7	12.44	16.248		
2,900.0	2,895.2	2,884.1	2,872.8	6.6	7.0	104.52	-186.5	102.6	215.0	202.0	12.96	16.590		
3,000.0	2,994.7	2,983.3	2,971.2	6.9	7.3	105.14	-196.9	109.3	227.8	214.4	13.48	16.903		
3,100.0	3,094.3	3,082.4	3,069.6	7.1	7.6	105.69	-207.3	116.1	240.7	226.7	14.00	17.190		
3,200.0	3,193.8	3,181.5	3,167.9	7.4	7.9	106.19	-217.7	122.8	253.7	239.1	14.53	17.455		
3,300.0	3,293.4	3,280.7	3,266.3	7.7	8.2	106.64	-228.0	129.6	266.6	251.5	15.06	17.699		
3,400.0	3,392.9	3,379.8	3,364.6	7.9	8.6	107.04	-238.4	136.3	279.6	264.0	15.60	17.925		
3,500.0	3,492.4	3,479.0	3,463.0	8.2	8.9	107.41	-248.8	143.1	292.5	276.4	16.13	18.134		
3,600.0	3,592.0	3,578.1	3,561.4	8.5	9.2	107.75	-259.1	149.8	305.5	288.8	16.67	18.329		
3,700.0	3,691.5	3,677.2	3,659.7	8.7	9.5	108.06	-269.5	156.6	318.5	301.3	17.21	18.510		
3,800.0	3,791.0	3,776.4	3,758.1	9.0	9.8	108.35	-279.9	163.4	331.5	313.7	17.75	18.679		
3,900.0	3,890.6	3,875.5	3,856.5	9.3	10.1	108.61	-290.2	170.1	344.5	326.2	18.29	18.837		
4,000.0	3,990.1	3,974.7	3,954.8	9.6	10.5	108.86	-300.6	176.9	357.5	338.7	18.83	18.985		
4,100.0	4,089.6	4,073.8	4,053.2	9.9	10.8	109.09	-311.0	183.6	370.5	351.1	19.37	19.124		
4,200.0	4,189.2	4,172.9	4,151.5	10.1	11.1	109.30	-321.3	190.4	383.5	363.6	19.92	19.255		
4,300.0	4,288.7	4,272.1	4,249.9	10.4	11.4	109.50	-331.7	197.1	396.6	376.1	20.47	19.378		
4,400.0	4,388.3	4,371.2	4,348.3	10.7	11.7	109.68	-342.1	203.9	409.6	388.6	21.01	19.493		
4,500.0	4,487.8	4,470.3	4,446.6	11.0	12.1	109.86	-352.4	210.6	422.6	401.1	21.56	19.603		
4,600.0	4,587.3	4,569.5	4,545.0	11.2	12.4	110.02	-362.8	217.4	435.7	413.6	22.11	19.706		
4,700.0	4,686.9	4,668.6	4,643.4	11.5	12.7	110.18	-373.2	224.2	448.7	426.1	22.66	19.804		
4,800.0	4,786.4	4,767.8	4,741.7	11.8	13.0	110.32	-383.5	230.9	461.8	438.6	23.21	19.897		
4,900.0	4,885.9	4,866.9	4,840.1	12.1	13.4	110.46	-393.9	237.7	474.8	451.1	23.76	19.985		
5,000.0	4,985.5	4,966.0	4,938.5	12.4	13.7	110.59	-404.3	244.4	487.9	463.6	24.31	20.069		

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 Federal 32X-334
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4790.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4790.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin Federal 32X-334	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 #4 (3-17-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference													Warning	
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		
5,100.0	5,085.0	5,065.2	5,036.8	12.6	14.0	110.72	-414.6	251.2	500.9	476.1	24.86	20.149		
5,200.0	5,184.6	5,164.3	5,135.2	12.9	14.3	110.91	-425.0	257.9	513.7	488.3	25.40	20.225		
5,300.0	5,284.4	5,263.6	5,233.7	13.1	14.7	110.85	-435.4	264.7	525.4	499.6	25.87	20.308		
5,400.0	5,384.4	5,362.9	5,332.2	13.3	15.0	110.43	-445.8	271.5	535.9	509.6	26.31	20.372		
5,500.0	5,484.4	5,462.1	5,430.7	13.4	15.3	-174.94	-456.2	278.2	545.7	519.3	26.41	20.663		
5,600.0	5,584.4	5,561.3	5,529.1	13.6	15.6	-175.74	-466.5	285.0	555.6	528.7	26.95	20.620		
5,700.0	5,684.4	5,660.6	5,627.5	13.8	16.0	-176.50	-476.9	291.7	565.6	538.2	27.48	20.581		
5,800.0	5,784.4	5,776.2	5,742.5	14.0	16.2	-177.26	-487.5	298.7	574.5	546.5	27.99	20.524		
5,900.0	5,884.4	5,895.5	5,861.5	14.2	16.5	-177.73	-494.4	303.2	580.2	551.7	28.46	20.389		
6,000.0	5,984.4	6,015.3	5,981.3	14.4	16.7	-177.92	-497.2	305.0	582.4	553.5	28.88	20.170		
6,100.0	6,084.4	6,118.5	6,084.4	14.6	16.8	-177.92	-497.2	305.0	582.5	553.2	29.26	19.909		
6,200.0	6,184.4	6,218.5	6,184.4	14.8	17.0	-177.92	-497.2	305.0	582.5	552.8	29.62	19.662		
6,300.0	6,284.4	6,318.5	6,284.4	15.0	17.1	-177.92	-497.2	305.0	582.5	552.5	29.99	19.421		
6,400.0	6,384.4	6,416.1	6,381.9	15.2	17.3	-177.54	-497.2	301.1	582.6	552.3	30.34	19.203		
6,500.0	6,484.2	6,511.5	6,475.9	15.4	17.3	-86.38	-497.2	285.6	583.3	552.7	30.58	19.071		
6,600.0	6,582.7	6,605.5	6,566.1	15.5	17.4	-85.26	-497.2	259.0	584.1	553.4	30.74	19.004		
6,700.0	6,678.1	6,700.0	6,652.6	15.5	17.4	-84.20	-497.2	221.3	585.1	554.3	30.81	18.993		
6,800.0	6,768.7	6,790.2	6,730.4	15.5	17.3	-83.27	-497.2	175.6	586.1	555.3	30.86	18.992		
6,900.0	6,853.2	6,881.1	6,802.7	15.6	17.3	-82.44	-497.2	120.6	587.2	556.2	31.01	18.936		
7,000.0	6,929.9	6,971.3	6,867.4	15.8	17.3	-81.73	-497.2	58.0	588.2	556.8	31.38	18.746		
7,100.0	6,997.6	7,060.8	6,924.0	16.1	17.3	-81.15	-497.2	-11.4	589.1	557.0	32.11	18.348		
7,200.0	7,055.1	7,150.0	6,972.0	16.8	17.2	-80.71	-497.2	-86.5	589.8	556.5	33.32	17.699		
7,300.0	7,101.4	7,238.5	7,010.5	17.8	17.6	-80.41	-497.2	-166.2	590.3	555.2	35.13	16.804		
7,400.0	7,135.8	7,327.0	7,039.6	19.0	18.8	-80.25	-497.2	-249.7	590.6	553.1	37.52	15.740		
7,500.0	7,157.7	7,415.4	7,058.9	20.6	20.3	-80.24	-497.2	-335.9	590.6	550.2	40.46	14.599		
7,600.0	7,166.7	7,503.9	7,068.1	22.4	21.9	-80.38	-497.2	-423.8	590.4	546.5	43.83	13.470		
7,700.0	7,166.6	7,599.1	7,068.7	24.4	23.8	-80.45	-497.2	-519.1	590.2	542.6	47.63	12.391		
7,800.0	7,166.3	7,699.1	7,068.5	26.5	26.0	-80.46	-497.2	-619.1	590.2	538.4	51.82	11.391		
7,900.0	7,166.0	7,799.1	7,068.3	28.7	28.2	-80.47	-497.2	-719.1	590.2	534.0	56.23	10.495		
8,000.0	7,165.7	7,899.1	7,068.1	31.1	30.6	-80.48	-497.2	-819.1	590.2	529.4	60.84	9.701		
8,100.0	7,165.4	7,999.1	7,067.9	33.5	33.0	-80.49	-497.2	-919.1	590.2	524.6	65.59	8.999		
8,200.0	7,165.1	8,099.1	7,067.7	35.9	35.4	-80.50	-497.2	-1,019.1	590.2	519.7	70.45	8.377		
8,300.0	7,164.8	8,199.1	7,067.5	38.4	37.9	-80.51	-497.2	-1,119.1	590.1	514.7	75.41	7.826		
8,400.0	7,164.4	8,299.1	7,067.3	41.0	40.5	-80.52	-497.2	-1,219.1	590.1	509.7	80.44	7.336		
8,500.0	7,164.1	8,399.1	7,067.1	43.6	43.1	-80.53	-497.2	-1,319.1	590.1	504.6	85.54	6.898		
8,600.0	7,163.8	8,499.1	7,066.9	46.2	45.7	-80.54	-497.2	-1,419.1	590.1	499.4	90.69	6.506		
8,700.0	7,163.5	8,599.1	7,066.7	48.8	48.3	-80.55	-497.2	-1,519.1	590.1	494.2	95.89	6.154		
8,800.0	7,163.2	8,699.1	7,066.4	51.5	51.0	-80.56	-497.2	-1,619.1	590.1	488.9	101.12	5.835		
8,900.0	7,162.9	8,799.1	7,066.2	54.1	53.6	-80.57	-497.2	-1,719.1	590.0	483.7	106.39	5.546		
9,000.0	7,162.6	8,899.1	7,066.0	56.8	56.3	-80.58	-497.2	-1,819.1	590.0	478.3	111.68	5.283		
9,100.0	7,162.2	8,999.1	7,065.8	59.5	59.0	-80.59	-497.2	-1,919.1	590.0	473.0	116.99	5.043		
9,200.0	7,161.9	9,099.1	7,065.6	62.2	61.7	-80.60	-497.2	-2,019.1	590.0	467.7	122.33	4.823		
9,300.0	7,161.6	9,199.1	7,065.4	64.9	64.4	-80.61	-497.2	-2,119.1	590.0	462.3	127.68	4.621		
9,400.0	7,161.3	9,299.1	7,065.2	67.6	67.1	-80.62	-497.2	-2,219.1	590.0	456.9	133.05	4.434		
9,500.0	7,161.0	9,399.1	7,065.0	70.3	69.8	-80.63	-497.2	-2,319.1	589.9	451.5	138.44	4.261		
9,600.0	7,160.7	9,499.1	7,064.8	73.1	72.6	-80.64	-497.2	-2,419.1	589.9	446.1	143.84	4.101		
9,700.0	7,160.4	9,599.1	7,064.6	75.8	75.3	-80.65	-497.2	-2,519.1	589.9	440.7	149.25	3.953		
9,800.0	7,160.0	9,699.1	7,064.3	78.5	78.1	-80.66	-497.2	-2,619.1	589.9	435.2	154.66	3.814		
9,900.0	7,159.7	9,799.1	7,064.1	81.3	80.8	-80.67	-497.2	-2,719.1	589.9	429.8	160.09	3.685		
10,000.0	7,159.4	9,899.1	7,063.9	84.0	83.5	-80.68	-497.2	-2,819.1	589.8	424.3	165.53	3.563		
10,100.0	7,159.1	9,999.1	7,063.7	86.8	86.3	-80.69	-497.2	-2,919.1	589.8	418.9	170.97	3.450		

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 Federal 32X-334
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4790.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4790.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin Federal 32X-334	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 #4 (3-17-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft		
Survey Program: 0-MWD													Offset Well Error:	0.0 ft		
Reference													Tarin 32X-HZ Pad Sec.32-T4N-R66W - Tarin 32Y-214 - Wellbore #1 - Plan #3 (12-18-14)			
Reference				Offset		Semi Major Axis			Distance				Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor				
10,200.0	7,158.8	10,099.1	7,063.5	89.6	89.1	-80.70	-497.2	-3,019.1	589.8	413.4	176.42	3.343				
10,300.0	7,158.5	10,199.1	7,063.3	92.3	91.8	-80.71	-497.2	-3,119.1	589.8	407.9	181.88	3.243				
10,400.0	7,158.2	10,299.1	7,063.1	95.1	94.6	-80.72	-497.2	-3,219.1	589.8	402.4	187.34	3.148				
10,500.0	7,157.8	10,399.1	7,062.9	97.8	97.3	-80.73	-497.2	-3,319.1	589.8	397.0	192.81	3.059				
10,600.0	7,157.5	10,499.1	7,062.7	100.6	100.1	-80.74	-497.2	-3,419.1	589.7	391.5	198.28	2.974				
10,700.0	7,157.2	10,599.1	7,062.5	103.4	102.9	-80.75	-497.2	-3,519.1	589.7	386.0	203.76	2.894				
10,800.0	7,156.9	10,699.1	7,062.3	106.2	105.7	-80.76	-497.2	-3,619.1	589.7	380.5	209.24	2.818				
10,900.0	7,156.6	10,799.1	7,062.0	108.9	108.4	-80.77	-497.2	-3,719.1	589.7	375.0	214.72	2.746				
11,000.0	7,156.3	10,899.1	7,061.8	111.7	111.2	-80.78	-497.2	-3,819.1	589.7	369.5	220.21	2.678				
11,100.0	7,156.0	10,999.1	7,061.6	114.5	114.0	-80.79	-497.2	-3,919.1	589.7	364.0	225.71	2.613				
11,200.0	7,155.6	11,099.1	7,061.4	117.3	116.8	-80.80	-497.2	-4,019.1	589.6	358.4	231.20	2.550				
11,300.0	7,155.3	11,199.1	7,061.2	120.0	119.5	-80.81	-497.2	-4,119.1	589.6	352.9	236.70	2.491				
11,400.0	7,155.0	11,299.1	7,061.0	122.8	122.3	-80.82	-497.2	-4,219.1	589.6	347.4	242.20	2.434				
11,500.0	7,154.7	11,399.1	7,060.8	125.6	125.1	-80.83	-497.2	-4,319.1	589.6	341.9	247.70	2.380				
11,600.0	7,154.4	11,499.1	7,060.6	128.4	127.9	-80.84	-497.2	-4,419.1	589.6	336.4	253.21	2.328				
11,700.0	7,154.1	11,599.1	7,060.4	131.2	130.7	-80.85	-497.2	-4,519.1	589.6	330.8	258.72	2.279				
11,800.0	7,153.8	11,699.1	7,060.2	134.0	133.4	-80.86	-497.2	-4,619.1	589.5	325.3	264.23	2.231				
11,900.0	7,153.4	11,799.1	7,060.0	136.7	136.2	-80.88	-497.2	-4,719.1	589.5	319.8	269.74	2.186				
12,000.0	7,153.1	11,899.1	7,059.7	139.5	139.0	-80.89	-497.2	-4,819.1	589.5	314.3	275.25	2.142				
12,100.0	7,152.8	11,999.1	7,059.5	142.3	141.8	-80.90	-497.2	-4,919.1	589.5	308.7	280.77	2.100				
12,200.0	7,152.5	12,099.1	7,059.3	145.1	144.6	-80.91	-497.2	-5,019.1	589.5	303.2	286.29	2.059				
12,300.0	7,152.2	12,199.1	7,059.1	147.9	147.4	-80.92	-497.2	-5,119.1	589.5	297.7	291.81	2.020				
12,400.0	7,151.9	12,299.1	7,058.9	150.7	150.2	-80.93	-497.2	-5,219.1	589.4	292.1	297.33	1.982				
12,500.0	7,151.6	12,399.1	7,058.7	153.5	153.0	-80.94	-497.2	-5,319.1	589.4	286.6	302.85	1.946				
12,600.0	7,151.2	12,499.1	7,058.5	156.3	155.8	-80.95	-497.2	-5,419.1	589.4	281.0	308.38	1.911				
12,700.0	7,150.9	12,599.1	7,058.3	159.1	158.5	-80.96	-497.2	-5,519.1	589.4	275.5	313.90	1.878				
12,800.0	7,150.6	12,699.1	7,058.1	161.8	161.3	-80.97	-497.2	-5,619.1	589.4	269.9	319.43	1.845				
12,900.0	7,150.3	12,799.1	7,057.9	164.6	164.1	-80.98	-497.2	-5,719.1	589.4	264.4	324.96	1.814				
13,000.0	7,150.0	12,899.1	7,057.6	167.4	166.9	-80.99	-497.2	-5,819.1	589.3	258.9	330.49	1.783				
13,100.0	7,149.7	12,999.1	7,057.4	170.2	169.7	-81.00	-497.2	-5,919.1	589.3	253.3	336.02	1.754				
13,200.0	7,149.4	13,099.1	7,057.2	173.0	172.5	-81.01	-497.2	-6,019.1	589.3	247.8	341.55	1.725				
13,300.0	7,149.0	13,199.1	7,057.0	175.8	175.3	-81.02	-497.2	-6,119.1	589.3	242.2	347.08	1.698				
13,400.0	7,148.7	13,299.1	7,056.8	178.6	178.1	-81.03	-497.2	-6,219.1	589.3	236.7	352.62	1.671				
13,500.0	7,148.4	13,399.1	7,056.6	181.4	180.9	-81.04	-497.2	-6,319.1	589.3	231.1	358.15	1.645				
13,600.0	7,148.1	13,499.1	7,056.4	184.2	183.7	-81.05	-497.2	-6,419.1	589.2	225.6	363.69	1.620				
13,700.0	7,147.8	13,599.1	7,056.2	187.0	186.5	-81.06	-497.2	-6,519.1	589.2	220.0	369.22	1.596				
13,800.0	7,147.5	13,699.1	7,056.0	189.8	189.3	-81.07	-497.2	-6,619.1	589.2	214.5	374.76	1.572				
13,900.0	7,147.2	13,799.1	7,055.8	192.6	192.1	-81.08	-497.2	-6,719.1	589.2	208.9	380.30	1.549				
14,000.0	7,146.8	13,899.1	7,055.6	195.4	194.9	-81.09	-497.2	-6,819.1	589.2	203.3	385.84	1.527				
14,100.0	7,146.5	13,999.1	7,055.3	198.2	197.7	-81.10	-497.2	-6,919.1	589.2	197.8	391.38	1.505				
14,200.0	7,146.2	14,099.1	7,055.1	201.0	200.5	-81.11	-497.2	-7,019.1	589.1	192.2	396.92	1.484	Level 3			
14,250.1	7,146.1	14,149.2	7,055.0	201.9	201.9	-81.11	-497.2	-7,069.2	589.1	189.9	399.21	1.476	Level 3			
14,269.4	7,146.0	14,163.3	7,055.0	202.2	202.3	-81.11	-497.2	-7,083.3	589.2	189.2	399.94	1.473	Level 3, SF			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin Federal 32X-334
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4790.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4790.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin Federal 32X-334	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 #4 (3-17-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Tarin 32X-HZ Pad Sec.32-T4N-R66W - Tarin 32Y-314 - Wellbore #1 - Plan #3 (12-18-14)														
Reference				Offset			Semi Major Axis			Distance			Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	1.0	1.0	0.0	0.0	-180.00	-58.3	0.0	58.3	58.3	0.00	N/A		
100.0	100.0	101.0	101.0	0.1	0.1	-180.00	-58.3	0.0	58.3	58.1	0.23	256.726		
200.0	200.0	201.0	201.0	0.3	0.3	-180.00	-58.3	0.0	58.3	57.6	0.68	86.144		
300.0	300.0	301.0	301.0	0.6	0.6	-180.00	-58.3	0.0	58.3	57.2	1.13	51.755		
400.0	400.0	401.0	401.0	0.8	0.8	-180.00	-58.3	0.0	58.3	56.7	1.58	36.989		
500.0	500.0	501.0	501.0	1.0	1.0	-180.00	-58.3	0.0	58.3	56.3	2.03	28.778		
600.0	600.0	601.0	601.0	1.2	1.2	-180.00	-58.3	0.0	58.3	55.8	2.47	23.551		
700.0	700.0	701.0	701.0	1.5	1.5	-180.00	-58.3	0.0	58.3	55.4	2.92	19.930		
800.0	800.0	801.0	801.0	1.7	1.7	-180.00	-58.3	0.0	58.3	54.9	3.37	17.275		
900.0	900.0	901.0	901.0	1.9	1.9	-180.00	-58.3	0.0	58.3	54.5	3.82	15.244		
966.3	966.3	967.3	967.3	2.1	2.1	-180.00	-58.3	0.0	58.3	54.2	4.12	14.141 CC		
1,000.0	1,000.0	1,001.0	1,001.0	2.1	2.1	180.00	-58.3	0.0	58.3	54.0	4.27	13.641 ES		
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.3	179.33	-59.9	0.7	59.9	55.2	4.69	12.764		
1,200.0	1,200.0	1,197.0	1,196.9	2.6	2.5	177.60	-64.5	2.7	64.7	59.6	5.09	12.707		
1,300.0	1,300.0	1,294.4	1,293.9	2.8	2.7	175.21	-72.1	6.0	72.7	67.2	5.50	13.221		
1,400.0	1,400.0	1,391.2	1,390.0	3.0	2.9	172.65	-82.7	10.7	84.1	78.2	5.93	14.185		
1,500.0	1,500.0	1,487.1	1,484.7	3.3	3.1	170.25	-96.1	16.5	98.9	92.5	6.39	15.485		
1,600.0	1,600.0	1,584.5	1,580.6	3.5	3.4	93.02	-112.0	23.4	116.3	109.5	6.77	17.172		
1,700.0	1,700.0	1,682.9	1,677.4	3.7	3.7	92.35	-128.2	30.5	134.0	126.8	7.19	18.637		
1,800.0	1,799.9	1,781.3	1,774.2	3.9	4.1	92.47	-144.4	37.6	151.8	144.1	7.62	19.922		
1,900.0	1,899.7	1,879.7	1,871.0	4.1	4.4	93.12	-160.6	44.6	169.6	161.6	8.06	21.049		
2,000.0	1,999.4	1,978.0	1,967.7	4.3	4.7	94.15	-176.7	51.7	187.6	179.1	8.51	22.040		
2,100.0	2,098.9	2,076.2	2,064.3	4.6	5.1	95.49	-192.9	58.7	205.9	196.9	8.98	22.912		
2,200.0	2,198.5	2,174.4	2,160.9	4.8	5.5	96.76	-209.0	65.8	224.2	214.8	9.47	23.679		
2,300.0	2,298.0	2,272.5	2,257.5	5.0	5.8	97.83	-225.2	72.8	242.7	232.7	9.96	24.357		
2,400.0	2,397.5	2,370.7	2,354.1	5.3	6.2	98.75	-241.3	79.9	261.2	250.7	10.47	24.957		
2,500.0	2,497.1	2,468.9	2,450.7	5.5	6.6	99.55	-257.5	86.9	279.8	268.8	10.97	25.491		
2,600.0	2,596.6	2,567.1	2,547.3	5.8	7.0	100.25	-273.6	94.0	298.4	286.9	11.49	25.967		
2,700.0	2,696.1	2,665.3	2,643.9	6.1	7.4	100.86	-289.8	101.0	317.0	305.0	12.01	26.393		
2,800.0	2,795.7	2,763.5	2,740.5	6.3	7.7	101.41	-305.9	108.0	335.7	323.2	12.54	26.776		
2,900.0	2,895.2	2,861.7	2,837.1	6.6	8.1	101.90	-322.1	115.1	354.4	341.4	13.07	27.121		
3,000.0	2,994.7	2,959.9	2,933.7	6.9	8.5	102.34	-338.2	122.1	373.2	359.6	13.60	27.434		
3,100.0	3,094.3	3,058.1	3,030.2	7.1	8.9	102.74	-354.4	129.2	391.9	377.8	14.14	27.717		
3,200.0	3,193.8	3,156.3	3,126.8	7.4	9.3	103.11	-370.5	136.2	410.7	396.0	14.68	27.976		
3,300.0	3,293.4	3,254.4	3,223.4	7.7	9.7	103.44	-386.7	143.3	429.5	414.3	15.22	28.212		
3,400.0	3,392.9	3,352.6	3,320.0	7.9	10.1	103.74	-402.8	150.3	448.3	432.5	15.77	28.428		
3,500.0	3,492.4	3,450.8	3,416.6	8.2	10.5	104.02	-419.0	157.4	467.1	450.8	16.32	28.627		
3,600.0	3,592.0	3,549.0	3,513.2	8.5	10.9	104.28	-435.1	164.4	485.9	469.1	16.87	28.810		
3,700.0	3,691.5	3,647.2	3,609.8	8.7	11.3	104.52	-451.3	171.5	504.8	487.3	17.42	28.979		
3,800.0	3,791.0	3,745.4	3,706.4	9.0	11.7	104.74	-467.4	178.5	523.6	505.6	17.97	29.136		
3,900.0	3,890.6	3,843.6	3,803.0	9.3	12.1	104.94	-483.6	185.5	542.4	523.9	18.52	29.281		
4,000.0	3,990.1	3,941.8	3,899.6	9.6	12.5	105.13	-499.7	192.6	561.3	542.2	19.08	29.417		
4,100.0	4,089.6	4,040.0	3,996.2	9.9	12.9	105.31	-515.9	199.6	580.1	560.5	19.64	29.543		
4,200.0	4,189.2	4,138.2	4,092.8	10.1	13.3	105.48	-532.0	206.7	599.0	578.8	20.20	29.660		
4,300.0	4,288.7	4,236.3	4,189.4	10.4	13.7	105.64	-548.2	213.7	617.9	597.1	20.75	29.770		
4,400.0	4,388.3	4,334.5	4,286.0	10.7	14.1	105.79	-564.3	220.8	636.7	615.4	21.31	29.874		
4,500.0	4,487.8	4,432.7	4,382.6	11.0	14.5	105.93	-580.5	227.8	655.6	633.7	21.88	29.971		
4,600.0	4,587.3	4,530.9	4,479.2	11.2	14.9	106.06	-596.6	234.9	674.5	652.1	22.44	30.062		
4,700.0	4,686.9	4,629.1	4,575.8	11.5	15.3	106.18	-612.8	241.9	693.4	670.4	23.00	30.147		
4,800.0	4,786.4	4,727.3	4,672.4	11.8	15.7	106.30	-628.9	248.9	712.3	688.7	23.56	30.228		
4,900.0	4,885.9	4,825.5	4,769.0	12.1	16.1	106.42	-645.1	256.0	731.2	707.0	24.13	30.305		

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 Federal 32X-334
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4790.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4790.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin Federal 32X-334	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 #4 (3-17-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft					
Survey Program: 0-MWD													Offset Well Error:	0.0 ft					
Reference													Semi Major Axis		Distance				Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor							
5,000.0	4,985.5	4,923.7	4,865.6	12.4	16.5	106.52	-661.2	263.0	750.0	725.4	24.69	30.377							
5,100.0	5,085.0	5,021.9	4,962.2	12.6	16.9	106.62	-677.4	270.1	768.9	743.7	25.26	30.446							
5,200.0	5,184.6	5,120.1	5,058.8	12.9	17.3	106.89	-693.5	277.1	787.7	761.8	25.82	30.503							
5,300.0	5,284.4	5,218.5	5,155.6	13.1	17.7	107.07	-709.7	284.2	805.4	779.1	26.32	30.597							
5,400.0	5,384.4	5,340.4	5,275.8	13.3	18.1	106.91	-728.4	292.4	821.3	794.5	26.81	30.637							
5,500.0	5,484.4	5,474.6	5,408.9	13.4	18.5	-178.13	-743.8	299.1	832.6	802.9	29.72	28.019							
5,600.0	5,584.4	5,610.1	5,544.0	13.6	18.7	-178.44	-753.5	303.3	839.6	809.4	30.20	27.799							
5,700.0	5,684.4	5,746.3	5,680.1	13.8	18.9	-178.56	-757.3	305.0	842.4	811.8	30.63	27.504							
5,800.0	5,784.4	5,851.6	5,785.4	14.0	19.1	-178.56	-757.4	305.0	842.5	811.5	30.98	27.195							
5,900.0	5,884.4	5,951.6	5,885.4	14.2	19.2	-178.56	-757.4	305.0	842.5	811.2	31.31	26.903							
6,000.0	5,984.4	6,051.6	5,985.4	14.4	19.3	-178.56	-757.4	305.0	842.5	810.8	31.65	26.616							
6,100.0	6,084.4	6,151.6	6,085.4	14.6	19.4	-178.56	-757.4	305.0	842.5	810.5	31.99	26.333							
6,200.0	6,184.4	6,251.6	6,185.4	14.8	19.6	-178.56	-757.4	305.0	842.5	810.1	32.34	26.054							
6,300.0	6,284.4	6,351.6	6,285.4	15.0	19.7	-178.56	-757.4	305.0	842.5	809.8	32.68	25.779							
6,400.0	6,384.4	6,451.6	6,385.4	15.2	19.8	-178.56	-757.4	305.0	842.5	809.4	33.03	25.508							
6,500.0	6,484.2	6,550.0	6,483.7	15.4	19.9	-88.61	-757.4	301.3	842.5	811.5	30.96	27.210							
6,600.0	6,582.7	6,647.0	6,579.3	15.5	20.0	-88.68	-757.4	285.7	842.4	811.3	31.12	27.070							
6,700.0	6,678.1	6,744.6	6,672.8	15.5	20.0	-88.77	-757.4	257.9	842.4	811.2	31.18	27.014							
6,800.0	6,768.7	6,842.4	6,762.2	15.5	20.0	-88.89	-757.4	218.3	842.4	811.1	31.22	26.984							
6,900.0	6,853.2	6,940.4	6,845.9	15.6	20.0	-89.02	-757.4	167.5	842.3	811.0	31.32	26.890							
7,000.0	6,929.9	7,038.6	6,922.7	15.8	20.0	-89.17	-757.4	106.3	842.3	810.7	31.64	26.618							
7,100.0	6,997.6	7,137.2	6,991.1	16.1	19.9	-89.34	-757.4	35.5	842.3	809.9	32.33	26.050							
7,200.0	7,055.1	7,236.0	7,050.0	16.8	19.9	-89.51	-757.4	-43.8	842.2	808.7	33.54	25.111							
7,300.0	7,101.4	7,335.2	7,098.4	17.8	19.9	-89.70	-757.4	-130.4	842.2	806.8	35.37	23.809							
7,400.0	7,135.8	7,434.8	7,135.3	19.0	20.1	-89.89	-757.4	-222.8	842.2	804.4	37.86	22.247							
7,459.0	7,150.3	7,493.8	7,151.3	20.0	20.5	-90.00	-757.4	-279.5	842.2	802.6	39.64	21.247							
7,500.0	7,157.7	7,534.7	7,159.9	20.6	21.0	-90.08	-757.4	-319.6	842.2	801.3	40.94	20.572							
7,600.0	7,166.7	7,635.0	7,171.6	22.4	22.6	-90.27	-757.4	-419.1	842.2	797.7	44.50	18.927							
7,700.0	7,166.6	7,735.3	7,172.4	24.4	24.5	-90.32	-757.4	-519.3	842.2	793.8	48.42	17.392							
7,800.0	7,166.3	7,835.3	7,171.8	26.5	26.6	-90.31	-757.4	-619.3	842.2	789.6	52.64	16.001							
7,900.0	7,166.0	7,935.3	7,171.3	28.7	28.8	-90.29	-757.4	-719.3	842.2	785.1	57.09	14.752							
8,000.0	7,165.7	8,035.3	7,170.8	31.1	31.1	-90.28	-757.4	-819.3	842.2	780.5	61.74	13.642							
8,100.0	7,165.4	8,135.3	7,170.3	33.5	33.5	-90.26	-757.4	-919.3	842.2	775.7	66.53	12.659							
8,200.0	7,165.1	8,235.3	7,169.8	35.9	35.9	-90.25	-757.4	-1,019.3	842.2	770.8	71.44	11.788							
8,300.0	7,164.8	8,335.3	7,169.2	38.4	38.4	-90.24	-757.4	-1,119.3	842.2	765.8	76.46	11.016							
8,400.0	7,164.4	8,435.3	7,168.7	41.0	40.9	-90.22	-757.4	-1,219.3	842.2	760.7	81.55	10.328							
8,500.0	7,164.1	8,535.3	7,168.2	43.6	43.5	-90.21	-757.4	-1,319.3	842.2	755.5	86.70	9.714							
8,600.0	7,163.8	8,635.3	7,167.7	46.2	46.1	-90.19	-757.4	-1,419.3	842.2	750.3	91.91	9.164							
8,700.0	7,163.5	8,735.3	7,167.1	48.8	48.7	-90.18	-757.4	-1,519.3	842.2	745.0	97.16	8.668							
8,800.0	7,163.2	8,835.3	7,166.6	51.5	51.3	-90.17	-757.4	-1,619.3	842.2	739.8	102.46	8.220							
8,900.0	7,162.9	8,935.3	7,166.1	54.1	54.0	-90.15	-757.4	-1,719.3	842.2	734.4	107.78	7.814							
9,000.0	7,162.6	9,035.3	7,165.6	56.8	56.7	-90.14	-757.4	-1,819.3	842.2	729.1	113.13	7.444							
9,100.0	7,162.2	9,135.3	7,165.0	59.5	59.3	-90.12	-757.4	-1,919.3	842.2	723.7	118.51	7.107							
9,200.0	7,161.9	9,235.3	7,164.5	62.2	62.0	-90.11	-757.4	-2,019.3	842.2	718.3	123.91	6.797							
9,300.0	7,161.6	9,335.3	7,164.0	64.9	64.7	-90.09	-757.4	-2,119.3	842.2	712.9	129.33	6.512							
9,400.0	7,161.3	9,435.3	7,163.5	67.6	67.4	-90.08	-757.4	-2,219.3	842.2	707.4	134.76	6.250							
9,500.0	7,161.0	9,535.3	7,162.9	70.3	70.1	-90.07	-757.4	-2,319.3	842.2	702.0	140.21	6.007							
9,600.0	7,160.7	9,635.3	7,162.4	73.1	72.9	-90.05	-757.4	-2,419.3	842.2	696.5	145.67	5.782							
9,700.0	7,160.4	9,735.3	7,161.9	75.8	75.6	-90.04	-757.4	-2,519.3	842.2	691.1	151.14	5.572							
9,800.0	7,160.0	9,835.3	7,161.4	78.5	78.3	-90.02	-757.4	-2,619.3	842.2	685.6	156.62	5.377							
9,900.0	7,159.7	9,935.3	7,160.9	81.3	81.1	-90.01	-757.4	-2,719.3	842.2	680.1	162.11	5.195							

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 Federal 32X-334
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4790.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4790.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin Federal 32X-334	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 #4 (3-17-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD													Offset Well Error:	0.0 ft	
Tarin 32X-HZ Pad Sec.32-T4N-R66W - Tarin 32Y-314 - Wellbore #1 - Plan #3 (12-18-14)															
Reference				Offset			Semi Major Axis			Distance				Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
9,958.9	7,159.5	9,994.1	7,160.5	82.9	82.7	-90.00	-757.4	-2,778.1	842.2	676.9	165.35	5.094			
10,000.0	7,159.4	10,035.3	7,160.3	84.0	83.8	-89.99	-757.4	-2,819.3	842.2	674.6	167.61	5.025			
10,100.0	7,159.1	10,135.3	7,159.8	86.8	86.5	-89.98	-757.4	-2,919.3	842.2	669.1	173.12	4.865			
10,200.0	7,158.8	10,235.3	7,159.3	89.6	89.3	-89.97	-757.4	-3,019.3	842.2	663.6	178.63	4.715			
10,300.0	7,158.5	10,335.3	7,158.8	92.3	92.0	-89.95	-757.4	-3,119.3	842.2	658.1	184.15	4.574			
10,400.0	7,158.2	10,435.3	7,158.2	95.1	94.8	-89.94	-757.4	-3,219.3	842.2	652.5	189.67	4.440			
10,500.0	7,157.8	10,535.3	7,157.7	97.8	97.6	-89.92	-757.4	-3,319.3	842.2	647.0	195.20	4.315			
10,600.0	7,157.5	10,635.3	7,157.2	100.6	100.3	-89.91	-757.4	-3,419.3	842.2	641.5	200.74	4.196			
10,700.0	7,157.2	10,735.3	7,156.7	103.4	103.1	-89.89	-757.4	-3,519.3	842.2	635.9	206.28	4.083			
10,800.0	7,156.9	10,835.3	7,156.1	106.2	105.9	-89.88	-757.4	-3,619.3	842.2	630.4	211.82	3.976			
10,900.0	7,156.6	10,935.3	7,155.6	108.9	108.6	-89.87	-757.4	-3,719.3	842.2	624.8	217.37	3.875			
11,000.0	7,156.3	11,035.3	7,155.1	111.7	111.4	-89.85	-757.4	-3,819.3	842.2	619.3	222.92	3.778			
11,100.0	7,156.0	11,135.3	7,154.6	114.5	114.2	-89.84	-757.4	-3,919.3	842.2	613.7	228.47	3.686			
11,200.0	7,155.6	11,235.3	7,154.0	117.3	116.9	-89.82	-757.4	-4,019.3	842.2	608.2	234.02	3.599			
11,300.0	7,155.3	11,335.3	7,153.5	120.0	119.7	-89.81	-757.4	-4,119.3	842.2	602.6	239.58	3.515			
11,400.0	7,155.0	11,435.3	7,153.0	122.8	122.5	-89.79	-757.4	-4,219.3	842.2	597.1	245.14	3.436			
11,500.0	7,154.7	11,535.3	7,152.5	125.6	125.3	-89.78	-757.4	-4,319.3	842.2	591.5	250.71	3.359			
11,600.0	7,154.4	11,635.3	7,151.9	128.4	128.1	-89.77	-757.4	-4,419.3	842.2	585.9	256.27	3.286			
11,700.0	7,154.1	11,735.3	7,151.4	131.2	130.8	-89.75	-757.4	-4,519.3	842.2	580.4	261.84	3.216			
11,800.0	7,153.8	11,835.3	7,150.9	134.0	133.6	-89.74	-757.4	-4,619.2	842.2	574.8	267.41	3.150			
11,900.0	7,153.4	11,935.3	7,150.4	136.7	136.4	-89.72	-757.4	-4,719.2	842.2	569.2	272.98	3.085			
12,000.0	7,153.1	12,035.3	7,149.9	139.5	139.2	-89.71	-757.4	-4,819.2	842.2	563.7	278.56	3.024			
12,100.0	7,152.8	12,135.3	7,149.3	142.3	142.0	-89.69	-757.4	-4,919.2	842.2	558.1	284.13	2.964			
12,200.0	7,152.5	12,235.3	7,148.8	145.1	144.7	-89.68	-757.4	-5,019.2	842.2	552.5	289.71	2.907			
12,300.0	7,152.2	12,335.3	7,148.3	147.9	147.5	-89.67	-757.4	-5,119.2	842.2	546.9	295.28	2.852			
12,400.0	7,151.9	12,435.3	7,147.8	150.7	150.3	-89.65	-757.4	-5,219.2	842.2	541.4	300.86	2.799			
12,500.0	7,151.6	12,535.3	7,147.2	153.5	153.1	-89.64	-757.4	-5,319.2	842.2	535.8	306.44	2.748			
12,600.0	7,151.2	12,635.3	7,146.7	156.3	155.9	-89.62	-757.4	-5,419.2	842.2	530.2	312.03	2.699			
12,700.0	7,150.9	12,735.3	7,146.2	159.1	158.7	-89.61	-757.4	-5,519.2	842.2	524.6	317.61	2.652			
12,800.0	7,150.6	12,835.3	7,145.7	161.8	161.5	-89.60	-757.4	-5,619.2	842.2	519.0	323.19	2.606			
12,900.0	7,150.3	12,935.3	7,145.1	164.6	164.3	-89.58	-757.4	-5,719.2	842.2	513.5	328.78	2.562			
13,000.0	7,150.0	13,035.3	7,144.6	167.4	167.1	-89.57	-757.4	-5,819.2	842.2	507.9	334.36	2.519			
13,100.0	7,149.7	13,135.3	7,144.1	170.2	169.9	-89.55	-757.4	-5,919.2	842.2	502.3	339.95	2.478			
13,200.0	7,149.4	13,235.3	7,143.6	173.0	172.6	-89.54	-757.4	-6,019.2	842.2	496.7	345.54	2.437			
13,300.0	7,149.0	13,335.3	7,143.0	175.8	175.4	-89.52	-757.4	-6,119.2	842.2	491.1	351.12	2.399			
13,400.0	7,148.7	13,435.3	7,142.5	178.6	178.2	-89.51	-757.4	-6,219.2	842.2	485.5	356.71	2.361			
13,500.0	7,148.4	13,535.3	7,142.0	181.4	181.0	-89.50	-757.4	-6,319.2	842.2	479.9	362.30	2.325			
13,600.0	7,148.1	13,635.3	7,141.5	184.2	183.8	-89.48	-757.4	-6,419.2	842.2	474.3	367.89	2.289			
13,700.0	7,147.8	13,735.3	7,141.0	187.0	186.6	-89.47	-757.4	-6,519.2	842.2	468.8	373.48	2.255			
13,800.0	7,147.5	13,835.3	7,140.4	189.8	189.4	-89.45	-757.4	-6,619.2	842.2	463.2	379.07	2.222			
13,900.0	7,147.2	13,935.3	7,139.9	192.6	192.2	-89.44	-757.4	-6,719.2	842.2	457.6	384.67	2.190			
14,000.0	7,146.8	14,035.3	7,139.4	195.4	195.0	-89.42	-757.4	-6,819.2	842.2	452.0	390.26	2.158			
14,100.0	7,146.5	14,135.3	7,138.9	198.2	197.8	-89.41	-757.4	-6,919.2	842.3	446.4	395.85	2.128			
14,200.0	7,146.2	14,235.3	7,138.3	201.0	200.6	-89.40	-757.4	-7,019.2	842.3	440.8	401.45	2.098			
14,238.7	7,146.1	14,273.9	7,138.1	201.7	201.7	-89.39	-757.4	-7,057.9	842.3	439.0	403.22	2.089			
14,269.4	7,146.0	14,299.4	7,138.0	202.2	202.4	-89.39	-757.4	-7,083.3	842.3	437.8	404.49	2.082 SF			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin Federal 32X-334
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4790.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4790.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin Federal 32X-334	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 #4 (3-17-15)	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 #2 (7-15-14)														
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	1.0	1.0	0.0	0.0	180.00	-87.4	0.0	87.4	87.4	0.00	N/A		
100.0	100.0	101.0	101.0	0.1	0.1	180.00	-87.4	0.0	87.4	87.2	0.23	385.125		
200.0	200.0	201.0	201.0	0.3	0.3	180.00	-87.4	0.0	87.4	86.8	0.68	129.228		
300.0	300.0	301.0	301.0	0.6	0.6	180.00	-87.4	0.0	87.4	86.3	1.13	77.640		
400.0	400.0	401.0	401.0	0.8	0.8	180.00	-87.4	0.0	87.4	85.9	1.58	55.489		
466.3	466.3	467.3	467.3	0.9	0.9	180.00	-87.4	0.0	87.4	85.6	1.87	46.659 CC		
500.0	500.0	500.0	500.0	1.0	1.0	180.00	-87.4	0.0	87.4	85.4	2.02	43.222 ES		
600.0	600.0	598.2	598.1	1.2	1.2	179.62	-89.0	0.6	89.1	86.6	2.44	36.462		
700.0	700.0	695.1	695.0	1.5	1.4	178.58	-93.7	2.3	93.9	91.0	2.85	32.944		
800.0	800.0	791.6	791.1	1.7	1.6	177.07	-101.3	5.2	101.9	98.7	3.28	31.106		
900.0	900.0	887.5	886.3	1.9	1.8	175.34	-111.9	9.1	113.3	109.5	3.73	30.362		
1,000.0	1,000.0	983.6	981.3	2.1	2.1	173.56	-125.5	14.2	127.8	123.6	4.22	30.294		
1,100.0	1,100.0	1,082.3	1,078.8	2.4	2.4	172.02	-140.1	19.6	143.2	138.5	4.74	30.221		
1,200.0	1,200.0	1,181.1	1,176.3	2.6	2.7	170.79	-154.8	25.1	158.7	153.5	5.28	30.084		
1,300.0	1,300.0	1,279.8	1,273.8	2.8	3.1	169.78	-169.5	30.6	174.3	168.5	5.83	29.917		
1,400.0	1,400.0	1,378.6	1,371.3	3.0	3.4	168.93	-184.1	36.0	189.9	183.6	6.39	29.743		
1,500.0	1,500.0	1,477.3	1,468.8	3.3	3.8	168.21	-198.8	41.5	205.6	198.6	6.95	29.574		
1,600.0	1,600.0	1,576.0	1,566.3	3.5	4.1	92.25	-213.4	46.9	221.3	214.5	6.85	32.290		
1,700.0	1,700.0	1,674.8	1,663.8	3.7	4.5	92.18	-228.1	52.4	237.1	229.8	7.30	32.493		
1,800.0	1,799.9	1,773.5	1,761.2	3.9	4.9	92.49	-242.8	57.9	253.0	245.2	7.75	32.649		
1,900.0	1,899.7	1,872.1	1,858.6	4.1	5.2	93.13	-257.4	63.3	268.9	260.7	8.21	32.766		
2,000.0	1,999.4	1,970.7	1,956.0	4.3	5.6	94.03	-272.0	68.8	285.1	276.4	8.68	32.848		
2,100.0	2,098.9	2,069.1	2,053.2	4.6	6.0	95.19	-286.7	74.2	301.4	292.3	9.16	32.897		
2,200.0	2,198.5	2,167.6	2,150.3	4.8	6.3	96.34	-301.3	79.7	318.0	308.3	9.66	32.920		
2,300.0	2,298.0	2,266.0	2,247.5	5.0	6.7	97.39	-315.9	85.1	334.6	324.4	10.16	32.928		
2,400.0	2,397.5	2,364.4	2,344.7	5.3	7.1	98.33	-330.5	90.6	351.3	340.6	10.67	32.924		
2,500.0	2,497.1	2,462.9	2,441.9	5.5	7.4	99.19	-345.1	96.0	368.1	356.9	11.18	32.912		
2,600.0	2,596.6	2,561.3	2,539.1	5.8	7.8	99.97	-359.8	101.5	385.0	373.3	11.70	32.893		
2,700.0	2,696.1	2,659.8	2,636.3	6.1	8.2	100.69	-374.4	106.9	401.9	389.7	12.23	32.869		
2,800.0	2,795.7	2,758.2	2,733.5	6.3	8.5	101.35	-389.0	112.4	418.9	406.2	12.76	32.843		
2,900.0	2,895.2	2,856.6	2,830.7	6.6	8.9	101.96	-403.6	117.8	436.0	422.7	13.29	32.814		
3,000.0	2,994.7	2,955.1	2,927.9	6.9	9.3	102.52	-418.2	123.2	453.1	439.3	13.82	32.783		
3,100.0	3,094.3	3,053.5	3,025.1	7.1	9.7	103.04	-432.8	128.7	470.2	455.9	14.36	32.752		
3,200.0	3,193.8	3,151.9	3,122.2	7.4	10.0	103.53	-447.5	134.1	487.4	472.5	14.90	32.720		
3,300.0	3,293.4	3,250.4	3,219.4	7.7	10.4	103.98	-462.1	139.6	504.6	489.2	15.44	32.689		
3,400.0	3,392.9	3,348.8	3,316.6	7.9	10.8	104.40	-476.7	145.0	521.8	505.9	15.98	32.657		
3,500.0	3,492.4	3,447.2	3,413.8	8.2	11.2	104.80	-491.3	150.5	539.1	522.6	16.52	32.626		
3,600.0	3,592.0	3,545.7	3,511.0	8.5	11.5	105.17	-505.9	155.9	556.4	539.3	17.07	32.596		
3,700.0	3,691.5	3,644.1	3,608.2	8.7	11.9	105.52	-520.6	161.4	573.7	556.1	17.62	32.566		
3,800.0	3,791.0	3,742.5	3,705.4	9.0	12.3	105.85	-535.2	166.8	591.0	572.8	18.16	32.537		
3,900.0	3,890.6	3,841.0	3,802.6	9.3	12.7	106.16	-549.8	172.3	608.3	589.6	18.71	32.508		
4,000.0	3,990.1	3,939.4	3,899.8	9.6	13.0	106.45	-564.4	177.7	625.7	606.4	19.26	32.481		
4,100.0	4,089.6	4,037.8	3,997.0	9.9	13.4	106.73	-579.0	183.1	643.1	623.2	19.81	32.454		
4,200.0	4,189.2	4,136.3	4,094.1	10.1	13.8	106.99	-593.6	188.6	660.4	640.1	20.37	32.428		
4,300.0	4,288.7	4,234.7	4,191.3	10.4	14.1	107.24	-608.3	194.0	677.8	656.9	20.92	32.402		
4,400.0	4,388.3	4,333.1	4,288.5	10.7	14.5	107.47	-622.9	199.5	695.2	673.8	21.47	32.378		
4,500.0	4,487.8	4,431.6	4,385.7	11.0	14.9	107.70	-637.5	204.9	712.7	690.6	22.03	32.354		
4,600.0	4,587.3	4,530.0	4,482.9	11.2	15.3	107.91	-652.1	210.4	730.1	707.5	22.58	32.331		
4,700.0	4,686.9	4,628.4	4,580.1	11.5	15.6	108.11	-666.7	215.8	747.5	724.4	23.14	32.309		
4,800.0	4,786.4	4,726.9	4,677.3	11.8	16.0	108.31	-681.3	221.3	765.0	741.3	23.69	32.287		
4,900.0	4,885.9	4,825.3	4,774.5	12.1	16.4	108.49	-696.0	226.7	782.4	758.2	24.25	32.266		

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 Federal 32X-334
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4790.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4790.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin Federal 32X-334	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 #4 (3-17-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference													Warning	
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		
5,000.0	4,985.5	4,923.7	4,871.7	12.4	16.8	108.67	-710.6	232.2	799.9	775.1	24.81	32.246		
5,100.0	5,085.0	5,022.2	4,968.9	12.6	17.1	108.84	-725.2	237.6	817.4	792.0	25.36	32.226		
5,200.0	5,184.6	5,120.6	5,066.1	12.9	17.5	109.16	-739.8	243.1	834.6	808.7	25.92	32.199		
5,300.0	5,284.4	5,219.3	5,163.5	13.1	17.9	109.38	-754.5	248.5	850.9	824.5	26.42	32.209		
5,400.0	5,384.4	5,318.0	5,261.0	13.3	18.3	109.36	-769.1	254.0	866.0	839.1	26.87	32.223		
5,500.0	5,484.4	5,416.8	5,358.5	13.4	18.6	-175.61	-783.8	259.4	880.4	850.4	29.98	29.361		
5,600.0	5,584.4	5,515.5	5,456.0	13.6	19.0	-176.04	-798.5	264.9	894.8	864.2	30.57	29.268		
5,700.0	5,684.4	5,614.2	5,553.5	13.8	19.4	-176.45	-813.1	270.4	909.3	878.1	31.16	29.179		
5,800.0	5,784.4	5,713.0	5,650.9	14.0	19.8	-176.85	-827.8	275.8	923.8	892.1	31.75	29.093		
5,900.0	5,884.4	5,811.7	5,748.4	14.2	20.1	-177.23	-842.5	281.3	938.4	906.1	32.35	29.012		
6,000.0	5,984.4	5,910.5	5,845.9	14.4	20.5	-177.61	-857.1	286.8	953.0	920.1	32.94	28.934		
6,100.0	6,084.4	6,009.2	5,943.4	14.6	20.9	-177.97	-871.8	292.2	967.7	934.1	33.53	28.859		
6,200.0	6,184.4	6,152.7	6,085.6	14.8	21.3	-178.40	-889.9	299.0	980.2	946.0	34.15	28.700		
6,300.0	6,284.4	6,299.0	6,231.4	15.0	21.6	-178.67	-901.4	303.3	988.0	953.3	34.66	28.505		
6,400.0	6,384.4	6,446.2	6,378.5	15.2	21.8	-178.78	-906.0	305.0	991.1	956.0	35.10	28.240		
6,500.0	6,484.2	6,553.0	6,485.2	15.4	21.9	-89.04	-906.1	305.0	991.1	959.5	31.59	31.369		
6,600.0	6,582.7	6,651.2	6,583.4	15.5	22.0	-89.81	-906.1	301.4	990.9	959.2	31.75	31.206		
6,623.0	6,605.0	6,674.0	6,606.0	15.5	22.0	-90.00	-906.1	298.9	990.9	959.1	31.77	31.190		
6,700.0	6,678.1	6,750.7	6,681.5	15.5	22.1	-90.62	-906.1	285.4	991.0	959.2	31.81	31.153		
6,800.0	6,768.7	6,852.1	6,778.5	15.5	22.1	-91.42	-906.1	256.1	991.2	959.4	31.81	31.160		
6,900.0	6,853.2	6,955.5	6,872.5	15.6	22.1	-92.21	-906.1	213.3	991.7	959.8	31.85	31.138		
7,000.0	6,929.9	7,060.9	6,961.5	15.8	22.1	-92.97	-906.1	157.1	992.3	960.2	32.05	30.964		
7,100.0	6,997.6	7,168.2	7,043.3	16.1	22.0	-93.68	-906.1	87.7	993.0	960.4	32.57	30.488		
7,200.0	7,055.1	7,277.6	7,115.9	16.8	22.0	-94.32	-906.1	5.9	993.8	960.2	33.59	29.582		
7,300.0	7,101.4	7,388.8	7,176.9	17.8	22.0	-94.90	-906.1	-86.9	994.6	959.3	35.26	28.206		
7,400.0	7,135.8	7,501.7	7,224.4	19.0	22.1	-95.38	-906.1	-189.2	995.3	957.7	37.65	26.438		
7,500.0	7,157.7	7,616.0	7,256.6	20.6	22.5	-95.76	-906.1	-298.8	996.0	955.2	40.74	24.445		
7,600.0	7,166.7	7,731.4	7,272.2	22.4	23.6	-96.03	-906.1	-413.0	996.4	952.0	44.41	22.437		
7,700.0	7,166.6	7,837.6	7,273.7	24.4	25.4	-96.11	-906.1	-519.1	996.6	948.2	48.36	20.606		
7,800.0	7,166.3	7,937.6	7,273.9	26.5	27.3	-96.14	-906.1	-619.1	996.6	944.1	52.51	18.980		
7,900.0	7,166.0	8,037.6	7,274.0	28.7	29.5	-96.16	-906.1	-719.1	996.7	939.8	56.90	17.515		
8,000.0	7,165.7	8,137.6	7,274.2	31.1	31.7	-96.19	-906.1	-819.1	996.7	935.2	61.49	16.209		
8,100.0	7,165.4	8,237.6	7,274.3	33.5	34.0	-96.22	-906.1	-919.1	996.8	930.5	66.23	15.050		
8,200.0	7,165.1	8,337.6	7,274.5	35.9	36.4	-96.24	-906.1	-1,019.1	996.8	925.7	71.09	14.022		
8,300.0	7,164.8	8,437.6	7,274.6	38.4	38.8	-96.27	-906.1	-1,119.1	996.9	920.8	76.05	13.108		
8,400.0	7,164.4	8,537.6	7,274.8	41.0	41.3	-96.30	-906.1	-1,219.1	996.9	915.8	81.09	12.294		
8,500.0	7,164.1	8,637.6	7,274.9	43.6	43.9	-96.32	-906.1	-1,319.1	997.0	910.8	86.20	11.566		
8,600.0	7,163.8	8,737.6	7,275.1	46.2	46.4	-96.35	-906.1	-1,419.1	997.0	905.7	91.36	10.913		
8,700.0	7,163.5	8,837.6	7,275.3	48.8	49.0	-96.38	-906.1	-1,519.1	997.1	900.5	96.57	10.325		
8,800.0	7,163.2	8,937.6	7,275.4	51.5	51.6	-96.41	-906.1	-1,619.1	997.1	895.3	101.82	9.794		
8,900.0	7,162.9	9,037.6	7,275.6	54.1	54.3	-96.43	-906.1	-1,719.1	997.2	890.1	107.10	9.311		
9,000.0	7,162.6	9,137.6	7,275.7	56.8	56.9	-96.46	-906.1	-1,819.1	997.2	884.8	112.40	8.872		
9,100.0	7,162.2	9,237.6	7,275.9	59.5	59.6	-96.49	-906.1	-1,919.1	997.3	879.6	117.74	8.471		
9,200.0	7,161.9	9,337.6	7,276.0	62.2	62.2	-96.51	-906.1	-2,019.1	997.4	874.3	123.09	8.103		
9,300.0	7,161.6	9,437.6	7,276.2	64.9	64.9	-96.54	-906.1	-2,119.1	997.4	868.9	128.46	7.764		
9,400.0	7,161.3	9,537.5	7,276.4	67.6	67.6	-96.57	-906.1	-2,219.1	997.5	863.6	133.85	7.452		
9,500.0	7,161.0	9,637.5	7,276.5	70.3	70.3	-96.59	-906.1	-2,319.1	997.5	858.3	139.25	7.163		
9,600.0	7,160.7	9,737.5	7,276.7	73.1	73.0	-96.62	-906.1	-2,419.1	997.6	852.9	144.67	6.896		
9,700.0	7,160.4	9,837.5	7,276.8	75.8	75.8	-96.65	-906.1	-2,519.1	997.6	847.5	150.09	6.647		
9,800.0	7,160.0	9,937.5	7,277.0	78.5	78.5	-96.67	-906.1	-2,619.1	997.7	842.1	155.53	6.415		
9,900.0	7,159.7	10,037.5	7,277.1	81.3	81.2	-96.70	-906.1	-2,719.1	997.7	836.8	160.97	6.198		

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

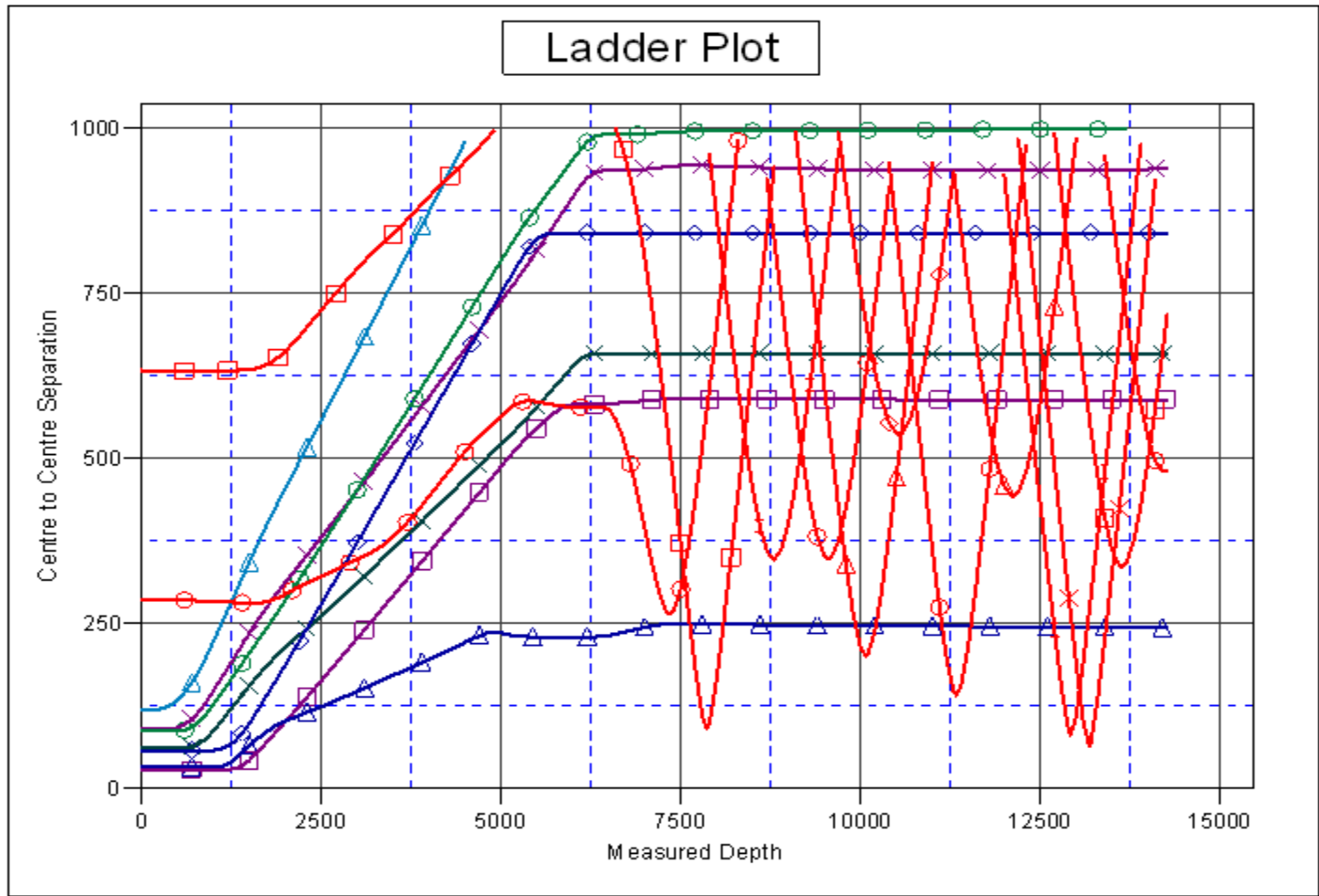
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin Federal 32X-334
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4790.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4790.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin Federal 32X-334	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 #4 (3-17-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft		
Survey Program: 0-MWD													Offset Well Error:	0.0 ft		
Reference													Tarin 32X-HZ Pad Sec.32-T4N-R66W - Tarin 32Y-404 - Wellbore #1 - Plan #2 (7-15-14)			
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			
10,000.0	7,159.4	10,137.5	7,277.3	84.0	83.9	-96.73	-906.1	-2,819.1	997.8	831.4	166.42	5.995				
10,100.0	7,159.1	10,237.5	7,277.5	86.8	86.7	-96.75	-906.1	-2,919.1	997.8	826.0	171.88	5.805				
10,200.0	7,158.8	10,337.5	7,277.6	89.6	89.4	-96.78	-906.1	-3,019.1	997.9	820.5	177.35	5.627				
10,300.0	7,158.5	10,437.5	7,277.8	92.3	92.2	-96.81	-906.1	-3,119.1	998.0	815.1	182.82	5.459				
10,400.0	7,158.2	10,537.5	7,277.9	95.1	94.9	-96.84	-906.1	-3,219.1	998.0	809.7	188.30	5.300				
10,500.0	7,157.8	10,637.5	7,278.1	97.8	97.7	-96.86	-906.1	-3,319.1	998.1	804.3	193.78	5.151				
10,600.0	7,157.5	10,737.5	7,278.2	100.6	100.4	-96.89	-906.1	-3,419.1	998.1	798.9	199.26	5.009				
10,700.0	7,157.2	10,837.5	7,278.4	103.4	103.2	-96.92	-906.1	-3,519.1	998.2	793.4	204.75	4.875				
10,800.0	7,156.9	10,937.5	7,278.6	106.2	106.0	-96.94	-906.1	-3,619.1	998.2	788.0	210.25	4.748				
10,900.0	7,156.6	11,037.5	7,278.7	108.9	108.7	-96.97	-906.1	-3,719.1	998.3	782.5	215.74	4.627				
11,000.0	7,156.3	11,137.5	7,278.9	111.7	111.5	-97.00	-906.1	-3,819.1	998.3	777.1	221.24	4.513				
11,100.0	7,156.0	11,237.5	7,279.0	114.5	114.2	-97.02	-906.1	-3,919.1	998.4	771.7	226.74	4.403				
11,200.0	7,155.6	11,337.5	7,279.2	117.3	117.0	-97.05	-906.1	-4,019.1	998.5	766.2	232.24	4.299				
11,300.0	7,155.3	11,437.5	7,279.3	120.0	119.8	-97.08	-906.1	-4,119.1	998.5	760.8	237.75	4.200				
11,400.0	7,155.0	11,537.5	7,279.5	122.8	122.6	-97.10	-906.1	-4,219.1	998.6	755.3	243.26	4.105				
11,500.0	7,154.7	11,637.5	7,279.7	125.6	125.3	-97.13	-906.1	-4,319.1	998.6	749.9	248.77	4.014				
11,600.0	7,154.4	11,737.5	7,279.8	128.4	128.1	-97.16	-906.1	-4,419.1	998.7	744.4	254.28	3.928				
11,700.0	7,154.1	11,837.5	7,280.0	131.2	130.9	-97.18	-906.1	-4,519.1	998.8	739.0	259.79	3.844				
11,800.0	7,153.8	11,937.5	7,280.1	134.0	133.7	-97.21	-906.1	-4,619.1	998.8	733.5	265.31	3.765				
11,900.0	7,153.4	12,037.5	7,280.3	136.7	136.5	-97.24	-906.1	-4,719.1	998.9	728.1	270.82	3.688				
12,000.0	7,153.1	12,137.5	7,280.4	139.5	139.2	-97.26	-906.1	-4,819.1	998.9	722.6	276.34	3.615				
12,100.0	7,152.8	12,237.5	7,280.6	142.3	142.0	-97.29	-906.1	-4,919.1	999.0	717.1	281.86	3.544				
12,200.0	7,152.5	12,337.5	7,280.8	145.1	144.8	-97.32	-906.1	-5,019.1	999.1	711.7	287.37	3.476				
12,300.0	7,152.2	12,437.5	7,280.9	147.9	147.6	-97.35	-906.1	-5,119.1	999.1	706.2	292.89	3.411				
12,400.0	7,151.9	12,537.5	7,281.1	150.7	150.4	-97.37	-906.1	-5,219.1	999.2	700.8	298.41	3.348				
12,500.0	7,151.6	12,637.5	7,281.2	153.5	153.1	-97.40	-906.1	-5,319.1	999.2	695.3	303.93	3.288				
12,600.0	7,151.2	12,737.5	7,281.4	156.3	155.9	-97.43	-906.1	-5,419.1	999.3	689.8	309.46	3.229				
12,700.0	7,150.9	12,837.5	7,281.5	159.1	158.7	-97.45	-906.1	-5,519.1	999.4	684.4	314.98	3.173				
12,800.0	7,150.6	12,937.5	7,281.7	161.8	161.5	-97.48	-906.1	-5,619.1	999.4	678.9	320.50	3.118				
12,900.0	7,150.3	13,037.5	7,281.9	164.6	164.3	-97.51	-906.1	-5,719.1	999.5	673.5	326.02	3.066				
13,000.0	7,150.0	13,137.5	7,282.0	167.4	167.1	-97.53	-906.1	-5,819.1	999.5	668.0	331.55	3.015				
13,100.0	7,149.7	13,237.5	7,282.2	170.2	169.9	-97.56	-906.1	-5,919.1	999.6	662.5	337.07	2.966				
13,200.0	7,149.4	13,337.5	7,282.3	173.0	172.7	-97.59	-906.1	-6,019.1	999.7	657.1	342.59	2.918				
13,300.0	7,149.0	13,437.5	7,282.5	175.8	175.5	-97.61	-906.1	-6,119.1	999.7	651.6	348.12	2.872				
13,400.0	7,148.7	13,537.5	7,282.6	178.6	178.2	-97.64	-906.1	-6,219.1	999.8	646.1	353.64	2.827				
13,500.0	7,148.4	13,637.5	7,282.8	181.4	181.0	-97.67	-906.1	-6,319.1	999.8	640.7	359.16	2.784				
13,600.0	7,148.1	13,737.5	7,283.0	184.2	183.8	-97.69	-906.1	-6,419.1	999.9	635.2	364.69	2.742				
13,700.0	7,147.8	13,837.5	7,283.1	187.0	186.6	-97.72	-906.1	-6,519.0	1,000.0	629.8	370.21	2.701 SF				

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin Federal 32X-334
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4790.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4790.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin Federal 32X-334	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 #4 (3-17-15)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4790.0ft (RKB - 15')
 Offset Depths are relative to Offset Datum
 Central Meridian is -105.500000 °

Coordinates are relative to: Tarin Federal 32X-334
 Coordinate System is US State Plane 1983, Colorado Northern Zone
 Grid Convergence at Surface is: 0.46°



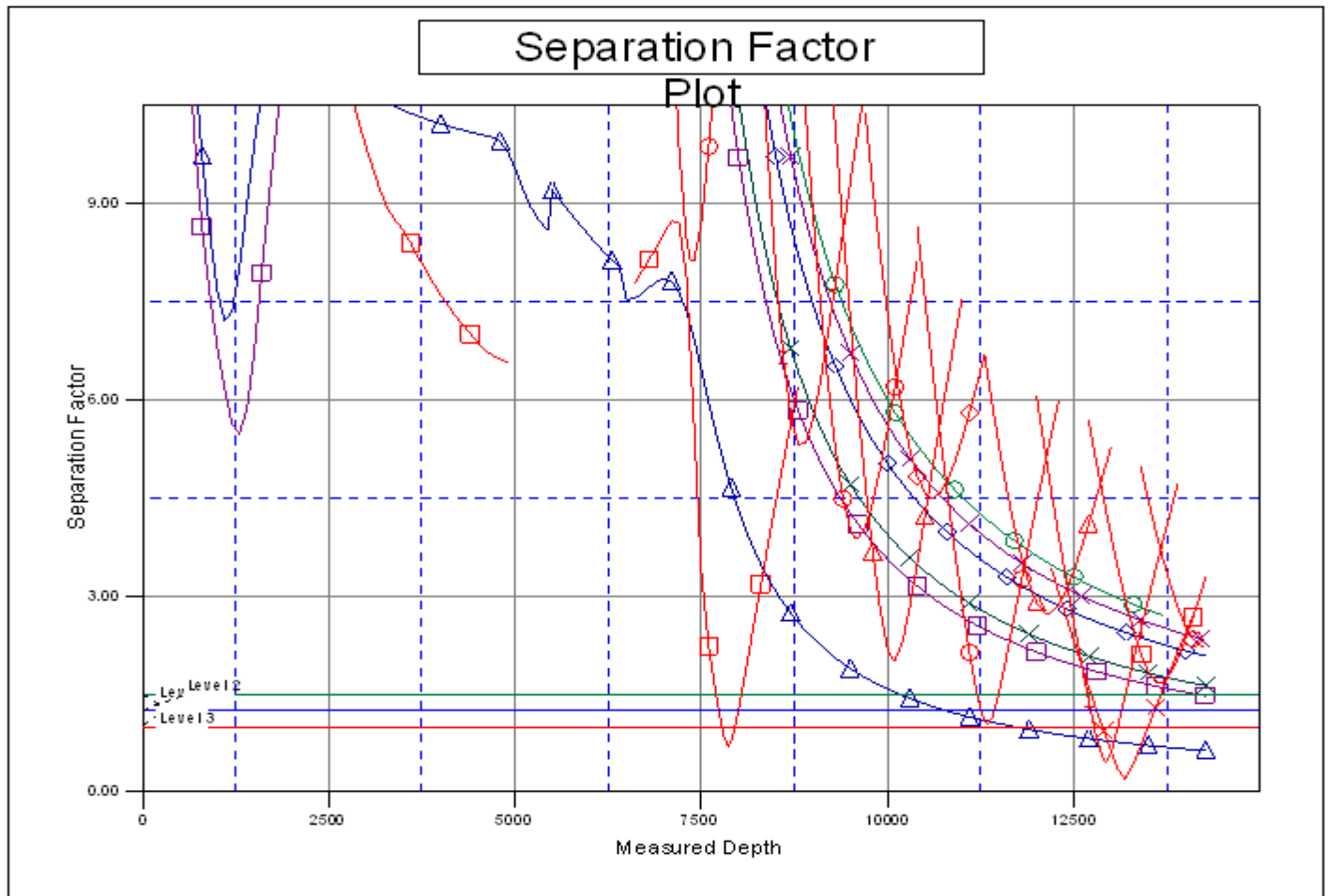
LEGEND

Wellbore #1, Plan #3 (12-18-14) VD	□ Floyd 5 (Existing), Wellbore #1, Wellbore #1 VD	○ Wolfe 81 (Existing), Wellbore #1, Wellbore #1 VD
Wellbore #1, Plan #2 (12-18-14) VD	△ Benjamin 5 (Existing), Wellbore #1, Wellbore #1 VD	△ Wolfe 1 (Existing), Wellbore #1, Wellbore #1 VD
Wellbore #1, Plan #1 (4-14-14) VD	○ Glen 44-32 (Existing), Wellbore #1, Wellbore #1 VD	○ Wolfe 14-32 (Existing), Wellbore #1, Wellbore #1 VD
Wellbore #1, Plan #2 (12-18-14) VD	□ Nicholas 5 (Existing), Wellbore #1, Wellbore #1 VD	△ Wolf 44-31 (Existing), Wellbore #1, Wellbore #1 VD
Wellbore #1, Plan #1 (4-14-14) VD	× UPRR 41 PAN AM "J" 1 (P&A), Wellbore #1, Wellbore #1 VD	○ Farr Farms 1 (Existing), Wellbore #1, Wellbore #1 VD
Wellbore #1, Plan #2 (7-15-14) VD	△ Glen 1 (Existing), Wellbore #1, Wellbore #1 VD	
Wellbore #1, Plan #3 (12-18-14) VD	◇ Wolfe 5 (Existing), Wellbore #1, Wellbore #1 VD	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Tarin Federal 32X-334
Project:	SEC.32-T4N-R66W	TVD Reference:	WELL @ 4790.0ft (RKB - 15')
Reference Site:	Tarin 32X-HZ Pad Sec.32-T4N-R66W	MD Reference:	WELL @ 4790.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Tarin Federal 32X-334	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 #4 (3-17-15)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4790.0ft (RKB - 15')
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: Tarin Federal 32X-334
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.46°



LEGEND

Wellbore #1, Plan #3 (12-18-14) VD	Floyd 5 (Existing), Wellbore #1, Wellbore #1 VD	Wolfe 61 (Existing), Wellbore #1, Wellbore #1 VD
Wellbore #1, Plan #2 (12-18-14) VD	Benjamin 5 (Existing), Wellbore #1, Wellbore #1 VD	Wolfe 1 (Existing), Wellbore #1, Wellbore #1 VD
Wellbore #1, Plan #1 (4-14-14) VD	Glen 44-32 (Existing), Wellbore #1, Wellbore #1 VD	Wolfe 14-32 (Existing), Wellbore #1, Wellbore #1 VD
Wellbore #1, Plan #2 (12-18-14) VD	Nicholas 5 (Existing), Wellbore #1, Wellbore #1 VD	Wolf 44-31 (Existing), Wellbore #1, Wellbore #1 VD
Wellbore #1, Plan #1 (4-14-14) VD	UPRR 41 PAN AM "J" 1 (P&A), Wellbore #1, Wellbore #1 VD	Farr Farms 1 (Existing), Wellbore #1, Wellbore #1 VD
Wellbore #1, Plan #2 (7-15-14) VD	Glen 1 (Existing), Wellbore #1, Wellbore #1 VD	
Wellbore #1, Plan #3 (12-18-14) VD	Wolfe 5 (Existing), Wellbore #1, Wellbore #1 VD	