

PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Gaddis 36M-443**

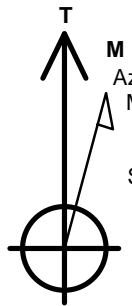
Surface Location: Gaddis Pad Sec.36-T4N-R68W
 North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
 Ground Elevation: 5057.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1344050.33	3151767.86	40.276540	-104.956060	

Ensign Rig #119 - RKB - 23' WELL @ 5080.0ft (Ensign Rig #119 - RKB - 23')

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 310'FNL, 1300'FWL	1.0	0.0	0.0	Point
BHL 500'FSL, 2040'FWL	7392.0	-4488.2	736.8	Point



Azimuths to True North
 Magnetic North: 8.64°

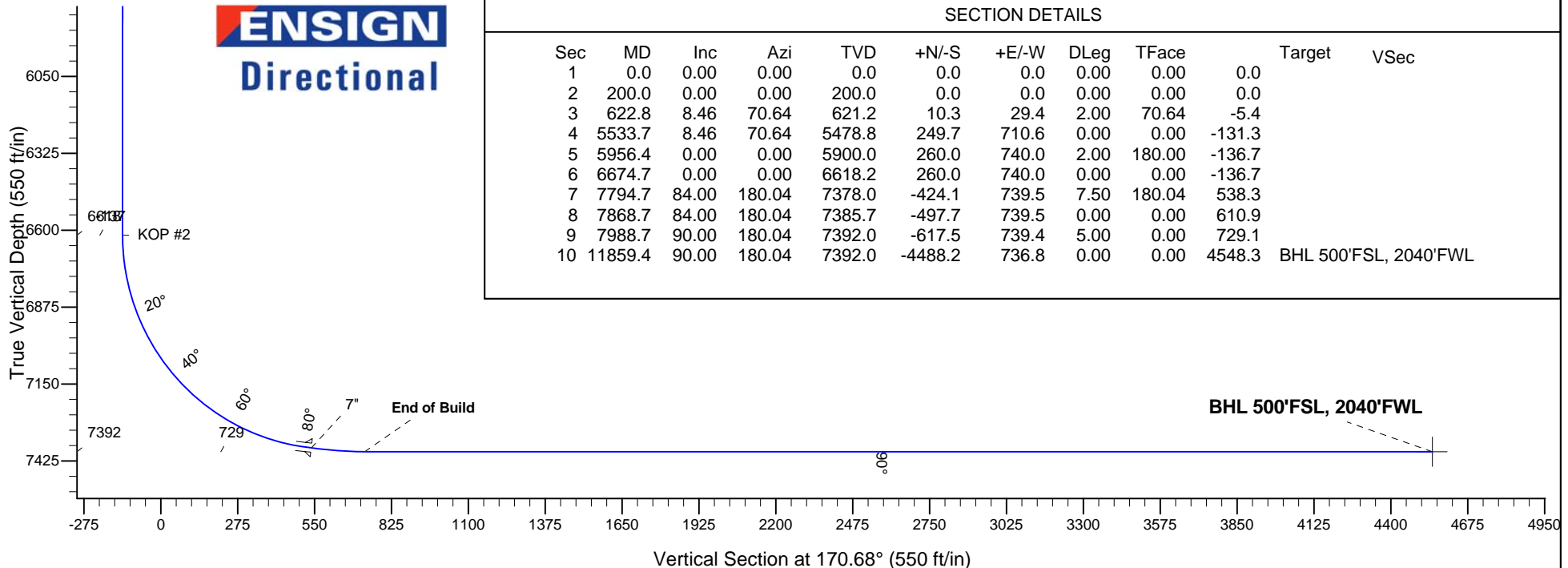
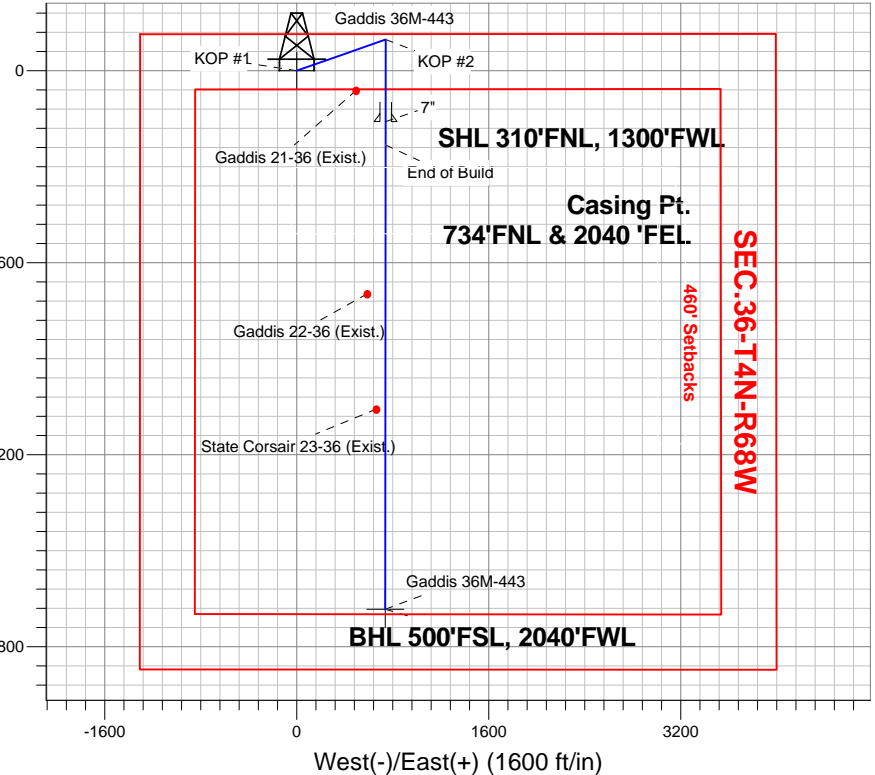
Magnetic Field
 Strength: 52798.0snT
 Dip Angle: 66.84°
 Date: 10/16/2013
 Model: IGRF2010

ANNOTATIONS

TVD	MD	Annotation
200.0	200.0	KOP #1
6618.3	6674.7	KOP #2
7392.0	7988.7	End of Build

Gaddis Pad Sec.36-T4N-R68W
 Gaddis 36M-443
 Plan #4 (10-16-13)
 12:49, October 21 2013

South(-)/North(+) (1600 ft/in)



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	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
3	622.8	8.46	70.64	621.2	10.3	29.4	2.00	70.64	-5.4	
4	5533.7	8.46	70.64	5478.8	249.7	710.6	0.00	0.00	-131.3	
5	5956.4	0.00	0.00	5900.0	260.0	740.0	2.00	180.00	-136.7	
6	6674.7	0.00	0.00	6618.2	260.0	740.0	0.00	0.00	-136.7	
7	7794.7	84.00	180.04	7378.0	-424.1	739.5	7.50	180.04	538.3	
8	7868.7	84.00	180.04	7385.7	-497.7	739.5	0.00	0.00	610.9	
9	7988.7	90.00	180.04	7392.0	-617.5	739.4	5.00	0.00	729.1	
10	11859.4	90.00	180.04	7392.0	-4488.2	736.8	0.00	0.00	4548.3	BHL 500'FSL, 2040'FWL



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.36-T4N-R68W

Gaddis Pad Sec.36-T4N-R68W

Gaddis 36M-443

Wellbore #1

Plan: Plan #4 (10-16-13)

Standard Planning Report

21 October, 2013

Database:	Landmark	Local Co-ordinate Reference:	Well Gaddis 36M-443
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 5080.0ft (Ensign Rig #119 - RKB - 23')
Project:	SEC.36-T4N-R68W	MD Reference:	WELL @ 5080.0ft (Ensign Rig #119 - RKB - 23')
Site:	Gaddis Pad Sec.36-T4N-R68W	North Reference:	True
Well:	Gaddis 36M-443	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #4 (10-16-13)		

Project	SEC.36-T4N-R68W, 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		Gaddis Pad Sec.36-T4N-R68W			
Site Position:		Northing:	1,344,049.99ft	Latitude:	40.276540
From:	Lat/Long	Easting:	3,151,709.26ft	Longitude:	-104.956270
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.35 °

Well	Gaddis 36M-443					
Well Position	+N-S	0.0 ft	Northing:	1,344,050.33 ft	Latitude:	40.276540
	+E-W	58.6 ft	Easting:	3,151,767.86 ft	Longitude:	-104.956060
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,057.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/16/2013	8.64	66.84	52,798

Design	Plan #4 (10-16-13)			
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	170.68

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
622.8	8.46	70.64	621.2	10.3	29.4	2.00	2.00	0.00	70.64	
5,533.7	8.46	70.64	5,478.8	249.7	710.6	0.00	0.00	0.00	0.00	
5,956.4	0.00	0.00	5,900.0	260.0	740.0	2.00	-2.00	0.00	180.00	
6,674.7	0.00	0.00	6,618.2	260.0	740.0	0.00	0.00	0.00	0.00	
7,794.7	84.00	180.04	7,378.0	-424.1	739.5	7.50	7.50	0.00	180.04	
7,868.7	84.00	180.04	7,385.7	-497.7	739.5	0.00	0.00	0.00	0.00	
7,988.7	90.00	180.04	7,392.0	-617.5	739.4	5.00	5.00	0.00	0.00	
11,859.4	90.00	180.04	7,392.0	-4,488.2	736.8	0.00	0.00	0.00	0.00	BHL 500'FSL, 2040

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Project:	SEC.36-T4N-R68W	MD Reference:	WELL @ 5080.0ft (Ensign Rig #119 - RKB - 23')
Site:	Gaddis Pad Sec.36-T4N-R68W	North Reference:	True
Well:	Gaddis 36M-443	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #4 (10-16-13)		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
1.0	0.00	0.00	1.0	0.0	0.0	0.0	0.00	0.00	0.00
SHL 310'FNL, 1300'FWL									
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP #1									
300.0	2.00	70.64	300.0	0.6	1.6	-0.3	2.00	2.00	0.00
400.0	4.00	70.64	399.8	2.3	6.6	-1.2	2.00	2.00	0.00
500.0	6.00	70.64	499.5	5.2	14.8	-2.7	2.00	2.00	0.00
600.0	8.00	70.64	598.7	9.2	26.3	-4.9	2.00	2.00	0.00
622.8	8.46	70.64	621.2	10.3	29.4	-5.4	2.00	2.00	0.00
700.0	8.46	70.64	697.6	14.1	40.1	-7.4	0.00	0.00	0.00
800.0	8.46	70.64	796.5	19.0	54.0	-10.0	0.00	0.00	0.00
900.0	8.46	70.64	895.5	23.8	67.8	-12.5	0.00	0.00	0.00
1,000.0	8.46	70.64	994.4	28.7	81.7	-15.1	0.00	0.00	0.00
1,100.0	8.46	70.64	1,093.3	33.6	95.6	-17.7	0.00	0.00	0.00
1,200.0	8.46	70.64	1,192.2	38.5	109.5	-20.2	0.00	0.00	0.00
1,300.0	8.46	70.64	1,291.1	43.3	123.3	-22.8	0.00	0.00	0.00
1,400.0	8.46	70.64	1,390.0	48.2	137.2	-25.3	0.00	0.00	0.00
1,500.0	8.46	70.64	1,488.9	53.1	151.1	-27.9	0.00	0.00	0.00
1,600.0	8.46	70.64	1,587.8	58.0	164.9	-30.5	0.00	0.00	0.00
1,700.0	8.46	70.64	1,686.8	62.8	178.8	-33.0	0.00	0.00	0.00
1,800.0	8.46	70.64	1,785.7	67.7	192.7	-35.6	0.00	0.00	0.00
1,900.0	8.46	70.64	1,884.6	72.6	206.6	-38.2	0.00	0.00	0.00
2,000.0	8.46	70.64	1,983.5	77.4	220.4	-40.7	0.00	0.00	0.00
2,100.0	8.46	70.64	2,082.4	82.3	234.3	-43.3	0.00	0.00	0.00
2,200.0	8.46	70.64	2,181.3	87.2	248.2	-45.8	0.00	0.00	0.00
2,300.0	8.46	70.64	2,280.2	92.1	262.0	-48.4	0.00	0.00	0.00
2,400.0	8.46	70.64	2,379.2	96.9	275.9	-51.0	0.00	0.00	0.00
2,500.0	8.46	70.64	2,478.1	101.8	289.8	-53.5	0.00	0.00	0.00
2,600.0	8.46	70.64	2,577.0	106.7	303.7	-56.1	0.00	0.00	0.00
2,700.0	8.46	70.64	2,675.9	111.6	317.5	-58.7	0.00	0.00	0.00
2,800.0	8.46	70.64	2,774.8	116.4	331.4	-61.2	0.00	0.00	0.00
2,900.0	8.46	70.64	2,873.7	121.3	345.3	-63.8	0.00	0.00	0.00
3,000.0	8.46	70.64	2,972.6	126.2	359.1	-66.3	0.00	0.00	0.00
3,100.0	8.46	70.64	3,071.5	131.1	373.0	-68.9	0.00	0.00	0.00
3,200.0	8.46	70.64	3,170.5	135.9	386.9	-71.5	0.00	0.00	0.00
3,300.0	8.46	70.64	3,269.4	140.8	400.8	-74.0	0.00	0.00	0.00
3,400.0	8.46	70.64	3,368.3	145.7	414.6	-76.6	0.00	0.00	0.00
3,500.0	8.46	70.64	3,467.2	150.6	428.5	-79.2	0.00	0.00	0.00
3,600.0	8.46	70.64	3,566.1	155.4	442.4	-81.7	0.00	0.00	0.00
3,700.0	8.46	70.64	3,665.0	160.3	456.3	-84.3	0.00	0.00	0.00
3,800.0	8.46	70.64	3,763.9	165.2	470.1	-86.8	0.00	0.00	0.00
3,900.0	8.46	70.64	3,862.8	170.1	484.0	-89.4	0.00	0.00	0.00
4,000.0	8.46	70.64	3,961.8	174.9	497.9	-92.0	0.00	0.00	0.00
4,100.0	8.46	70.64	4,060.7	179.8	511.7	-94.5	0.00	0.00	0.00
4,200.0	8.46	70.64	4,159.6	184.7	525.6	-97.1	0.00	0.00	0.00
4,300.0	8.46	70.64	4,258.5	189.5	539.5	-99.7	0.00	0.00	0.00
4,400.0	8.46	70.64	4,357.4	194.4	553.4	-102.2	0.00	0.00	0.00
4,500.0	8.46	70.64	4,456.3	199.3	567.2	-104.8	0.00	0.00	0.00
4,600.0	8.46	70.64	4,555.2	204.2	581.1	-107.3	0.00	0.00	0.00
4,700.0	8.46	70.64	4,654.2	209.0	595.0	-109.9	0.00	0.00	0.00

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Site:	Gaddis Pad Sec.36-T4N-R68W	North Reference:	True
Well:	Gaddis 36M-443	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #4 (10-16-13)		

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)
4,800.0	8.46	70.64	4,753.1	213.9	608.8	-112.5	0.00	0.00	0.00
4,900.0	8.46	70.64	4,852.0	218.8	622.7	-115.0	0.00	0.00	0.00
5,000.0	8.46	70.64	4,950.9	223.7	636.6	-117.6	0.00	0.00	0.00
5,100.0	8.46	70.64	5,049.8	228.5	650.5	-120.2	0.00	0.00	0.00
5,200.0	8.46	70.64	5,148.7	233.4	664.3	-122.7	0.00	0.00	0.00
5,300.0	8.46	70.64	5,247.6	238.3	678.2	-125.3	0.00	0.00	0.00
5,400.0	8.46	70.64	5,346.5	243.2	692.1	-127.8	0.00	0.00	0.00
5,500.0	8.46	70.64	5,445.5	248.0	706.0	-130.4	0.00	0.00	0.00
5,533.7	8.46	70.64	5,478.8	249.7	710.6	-131.3	0.00	0.00	0.00
5,600.0	7.13	70.64	5,544.5	252.7	719.1	-132.8	2.00	-2.00	0.00
5,700.0	5.13	70.64	5,643.9	256.2	729.2	-134.7	2.00	-2.00	0.00
5,800.0	3.13	70.64	5,743.6	258.6	736.0	-135.9	2.00	-2.00	0.00
5,900.0	1.13	70.64	5,843.6	259.8	739.5	-136.6	2.00	-2.00	0.00
5,956.4	0.00	0.00	5,900.0	260.0	740.0	-136.7	2.00	-2.00	0.00
6,000.0	0.00	0.00	5,943.6	260.0	740.0	-136.7	0.00	0.00	0.00
6,100.0	0.00	0.00	6,043.6	260.0	740.0	-136.7	0.00	0.00	0.00
6,200.0	0.00	0.00	6,143.6	260.0	740.0	-136.7	0.00	0.00	0.00
6,300.0	0.00	0.00	6,243.6	260.0	740.0	-136.7	0.00	0.00	0.00
6,400.0	0.00	0.00	6,343.6	260.0	740.0	-136.7	0.00	0.00	0.00
6,500.0	0.00	0.00	6,443.6	260.0	740.0	-136.7	0.00	0.00	0.00
6,600.0	0.00	0.00	6,543.6	260.0	740.0	-136.7	0.00	0.00	0.00
6,674.7	0.00	0.00	6,618.3	260.0	740.0	-136.7	0.00	0.00	0.00
KOP #2									
6,700.0	1.90	180.04	6,643.6	259.6	740.0	-136.3	7.51	7.51	0.00
6,800.0	9.40	180.04	6,743.0	249.7	740.0	-126.6	7.50	7.50	0.00
6,900.0	16.90	180.04	6,840.3	227.0	740.0	-104.1	7.50	7.50	0.00
7,000.0	24.40	180.04	6,933.8	191.8	740.0	-69.4	7.50	7.50	0.00
7,100.0	31.90	180.04	7,021.9	144.6	739.9	-22.9	7.50	7.50	0.00
7,200.0	39.40	180.04	7,103.1	86.4	739.9	34.6	7.50	7.50	0.00
7,300.0	46.90	180.04	7,176.0	18.0	739.8	102.0	7.50	7.50	0.00
7,400.0	54.40	180.04	7,239.4	-59.2	739.8	178.3	7.50	7.50	0.00
7,500.0	61.90	180.04	7,292.1	-144.1	739.7	262.0	7.50	7.50	0.00
7,600.0	69.40	180.04	7,333.3	-235.2	739.7	351.9	7.50	7.50	0.00
7,700.0	76.90	180.04	7,362.3	-330.8	739.6	446.2	7.50	7.50	0.00
7,794.7	84.00	180.04	7,378.0	-424.1	739.5	538.3	7.50	7.50	0.00
7"									
7,800.0	84.00	180.04	7,378.5	-429.4	739.5	543.5	0.00	0.00	0.00
7,868.7	84.00	180.04	7,385.7	-497.7	739.5	610.9	0.00	0.00	0.00
7,900.0	85.57	180.04	7,388.6	-528.9	739.5	641.7	5.00	5.00	0.00
7,988.7	90.00	180.04	7,392.0	-617.5	739.4	729.1	5.00	5.00	0.00
End of Build									
8,000.0	90.00	180.04	7,392.0	-628.8	739.4	740.3	0.00	0.00	0.00
8,100.0	90.00	180.04	7,392.0	-728.8	739.3	838.9	0.00	0.00	0.00
8,200.0	90.00	180.04	7,392.0	-828.8	739.3	937.6	0.00	0.00	0.00
8,300.0	90.00	180.04	7,392.0	-928.8	739.2	1,036.3	0.00	0.00	0.00
8,400.0	90.00	180.04	7,392.0	-1,028.8	739.1	1,134.9	0.00	0.00	0.00
8,500.0	90.00	180.04	7,392.0	-1,128.8	739.1	1,233.6	0.00	0.00	0.00
8,600.0	90.00	180.04	7,392.0	-1,228.8	739.0	1,332.3	0.00	0.00	0.00
8,700.0	90.00	180.04	7,392.0	-1,328.8	738.9	1,430.9	0.00	0.00	0.00
8,800.0	90.00	180.04	7,392.0	-1,428.8	738.9	1,529.6	0.00	0.00	0.00
8,900.0	90.00	180.04	7,392.0	-1,528.8	738.8	1,628.3	0.00	0.00	0.00
9,000.0	90.00	180.04	7,392.0	-1,628.8	738.7	1,726.9	0.00	0.00	0.00

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Project:	SEC.36-T4N-R68W	MD Reference:	WELL @ 5080.0ft (Ensign Rig #119 - RKB - 23')
Site:	Gaddis Pad Sec.36-T4N-R68W	North Reference:	True
Well:	Gaddis 36M-443	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #4 (10-16-13)		

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)
9,100.0	90.00	180.04	7,392.0	-1,728.8	738.6	1,825.6	0.00	0.00	0.00
9,200.0	90.00	180.04	7,392.0	-1,828.8	738.6	1,924.3	0.00	0.00	0.00
9,300.0	90.00	180.04	7,392.0	-1,928.8	738.5	2,023.0	0.00	0.00	0.00
9,400.0	90.00	180.04	7,392.0	-2,028.8	738.4	2,121.6	0.00	0.00	0.00
9,500.0	90.00	180.04	7,392.0	-2,128.8	738.4	2,220.3	0.00	0.00	0.00
9,600.0	90.00	180.04	7,392.0	-2,228.8	738.3	2,319.0	0.00	0.00	0.00
9,700.0	90.00	180.04	7,392.0	-2,328.8	738.2	2,417.6	0.00	0.00	0.00
9,800.0	90.00	180.04	7,392.0	-2,428.8	738.2	2,516.3	0.00	0.00	0.00
9,900.0	90.00	180.04	7,392.0	-2,528.8	738.1	2,615.0	0.00	0.00	0.00
10,000.0	90.00	180.04	7,392.0	-2,628.8	738.0	2,713.6	0.00	0.00	0.00
10,100.0	90.00	180.04	7,392.0	-2,728.8	738.0	2,812.3	0.00	0.00	0.00
10,200.0	90.00	180.04	7,392.0	-2,828.8	737.9	2,911.0	0.00	0.00	0.00
10,300.0	90.00	180.04	7,392.0	-2,928.8	737.8	3,009.6	0.00	0.00	0.00
10,400.0	90.00	180.04	7,392.0	-3,028.8	737.8	3,108.3	0.00	0.00	0.00
10,500.0	90.00	180.04	7,392.0	-3,128.8	737.7	3,207.0	0.00	0.00	0.00
10,600.0	90.00	180.04	7,392.0	-3,228.8	737.6	3,305.6	0.00	0.00	0.00
10,700.0	90.00	180.04	7,392.0	-3,328.8	737.6	3,404.3	0.00	0.00	0.00
10,800.0	90.00	180.04	7,392.0	-3,428.8	737.5	3,503.0	0.00	0.00	0.00
10,900.0	90.00	180.04	7,392.0	-3,528.8	737.4	3,601.6	0.00	0.00	0.00
11,000.0	90.00	180.04	7,392.0	-3,628.8	737.4	3,700.3	0.00	0.00	0.00
11,100.0	90.00	180.04	7,392.0	-3,728.8	737.3	3,799.0	0.00	0.00	0.00
11,200.0	90.00	180.04	7,392.0	-3,828.8	737.2	3,897.6	0.00	0.00	0.00
11,300.0	90.00	180.04	7,392.0	-3,928.8	737.2	3,996.3	0.00	0.00	0.00
11,400.0	90.00	180.04	7,392.0	-4,028.8	737.1	4,095.0	0.00	0.00	0.00
11,500.0	90.00	180.04	7,392.0	-4,128.8	737.0	4,193.7	0.00	0.00	0.00
11,600.0	90.00	180.04	7,392.0	-4,228.8	736.9	4,292.3	0.00	0.00	0.00
11,700.0	90.00	180.04	7,392.0	-4,328.8	736.9	4,391.0	0.00	0.00	0.00
11,800.0	90.00	180.04	7,392.0	-4,428.8	736.8	4,489.7	0.00	0.00	0.00
11,859.4	90.00	180.04	7,392.0	-4,488.2	736.8	4,548.3	0.00	0.00	0.00

BHL 500'FSL, 2040'FWL

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,794.7	7,378.0	7"	7	7-1/2

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
200.0	200.0	0.0	0.0	KOP #1
6,674.7	6,618.3	260.0	740.0	KOP #2
7,988.7	7,392.0	-617.5	739.4	End of Build



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.36-T4N-R68W

Gaddis Pad Sec.36-T4N-R68W

Gaddis 36M-443

Wellbore #1

Plan #4 (10-16-13)

Anticollision Report

21 October, 2013



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Gaddis 36M-443
Project:	SEC.36-T4N-R68W	TVD Reference:	WELL @ 5080.0ft (Ensign Rig #119 - RKB - 23')
Reference Site:	Gaddis Pad Sec.36-T4N-R68W	MD Reference:	WELL @ 5080.0ft (Ensign Rig #119 - RKB - 23')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Gaddis 36M-443	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 (10-16-13)	Offset TVD Reference:	Offset Datum

Reference	Plan #4 (10-16-13)
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria
Interpolation Method:	MD Interval 100.0ft
Depth Range:	Unlimited
Results Limited by:	Maximum center-center distance of 1,000.0ft
Warning Levels Evaluated at:	2.00 Sigma
Error Model:	ISCWSA
Scan Method:	Closest Approach 3D
Error Surface:	Elliptical Conic

Survey Tool Program		Date	10/21/2013		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	11,859.4	Plan #4 (10-16-13) (Wellbore #1)	MWD	MWD - Standard	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Gaddis Pad Sec.36-T4N-R68W						
Gaddis 21-36 (Exist.) - Wellbore #1 - Wellbore #1	7,522.5	7,282.4	245.8	83.1	1.510	CC, ES, SF
Gaddis 22-36 (Exist.) - Wellbore #1 - Wellbore #1	9,229.2	7,300.0	160.2	-16.5	0.906	Level 1, CC, ES, SF
Gaddis 36J-223 - Wellbore #1 - Plan #2 (10-16-13)	200.0	200.0	30.7	30.0	45.519	CC, ES
Gaddis 36J-223 - Wellbore #1 - Plan #2 (10-16-13)	11,859.4	11,642.9	441.1	283.9	2.806	SF
Gaddis 36J-3034 /Codell Sidetrack - Wellbore #2 Codell	200.0	193.0	58.6	57.9	86.611	CC, ES
Gaddis 36J-3034 /Codell Sidetrack - Wellbore #2 Codell	11,859.4	11,802.4	851.4	675.3	4.836	SF
Gaddis 36J-3034 /Codell Sidetrack - Wellbore 1 Gaddis	200.0	201.0	58.6	57.9	86.611	CC, ES
Gaddis 36J-3034 /Codell Sidetrack - Wellbore 1 Gaddis	11,859.4	11,764.7	733.6	560.8	4.246	SF
State Corsair 23-36 (Exist.) - Wellbore #1 - Wellbore #1	10,191.0	7,300.0	82.5	-99.3	0.454	Level 1, CC, ES, SF

Offset Design	Gaddis Pad Sec.36-T4N-R68W - Gaddis 21-36 (Exist.) - Wellbore #1 - Wellbore #1											Offset Site Error:	0.0ft
Survey Program:	7300-UNKNOWN											Offset Well Error:	0.0ft
Reference	Offset	Semi Major Axis		Distance		Minimum Separation		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	Warning
0.0	0.0	0.0	0.0	0.0	0.0	108.36	-163.9	493.9	520.8				
100.0	100.0	80.0	80.0	0.1	1.6	108.36	-163.9	493.9	520.4	518.7	1.71	303.858	
200.0	200.0	180.0	180.0	0.3	3.6	108.36	-163.9	493.9	520.4	516.4	3.94	132.166	
300.0	300.0	280.0	280.0	0.6	5.6	37.86	-163.9	493.9	519.0	512.8	6.15	84.344	
400.0	399.8	379.8	379.8	0.8	7.6	38.26	-163.9	493.9	514.9	506.5	8.36	61.576	
500.0	499.5	479.5	479.5	1.0	9.6	38.96	-163.9	493.9	508.1	497.5	10.57	48.084	
600.0	598.7	578.7	578.7	1.3	11.6	39.96	-163.9	493.9	498.6	485.9	12.77	39.055	
700.0	697.6	677.6	677.6	1.6	13.6	41.09	-163.9	493.9	487.5	472.5	15.00	32.498	
800.0	796.5	776.5	776.5	2.0	15.5	42.24	-163.9	493.9	476.4	459.2	17.25	27.614	
900.0	895.5	875.5	875.5	2.3	17.5	43.46	-163.9	493.9	465.6	446.1	19.52	23.856	
1,000.0	994.4	974.4	974.4	2.7	19.5	44.72	-163.9	493.9	455.0	433.2	21.79	20.880	
1,100.0	1,093.3	1,073.3	1,073.3	3.0	21.5	46.05	-163.9	493.9	444.6	420.5	24.07	18.470	
1,200.0	1,192.2	1,172.2	1,172.2	3.4	23.4	47.44	-163.9	493.9	434.5	408.1	26.36	16.481	
1,300.0	1,291.1	1,271.1	1,271.1	3.7	25.4	48.89	-163.9	493.9	424.6	395.9	28.66	14.815	
1,400.0	1,390.0	1,370.0	1,370.0	4.1	27.4	50.41	-163.9	493.9	415.0	384.0	30.96	13.403	
1,500.0	1,488.9	1,468.9	1,468.9	4.4	29.4	52.00	-163.9	493.9	405.7	372.5	33.28	12.192	

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 Gaddis 36M-443
Project:	SEC.36-T4N-R68W	TVD Reference:	WELL @ 5080.0ft (Ensign Rig #119 - RKB - 23')
Reference Site:	Gaddis Pad Sec.36-T4N-R68W	MD Reference:	WELL @ 5080.0ft (Ensign Rig #119 - RKB - 23')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Gaddis 36M-443	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 (10-16-13)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Gaddis Pad Sec.36-T4N-R68W - Gaddis 21-36 (Exist.) - Wellbore #1 - Wellbore #1													Offset Well Error:	0.0 ft
Survey Program: 7300-UNKNOWN														
Reference														
Offset														
Semi Major Axis														
Distance														
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
1,600.0	1,587.8	1,567.8	1,567.8	4.8	31.4	53.66	-163.9	493.9	396.8	361.2	35.60	11.145		
1,700.0	1,686.8	1,666.8	1,666.8	5.1	33.3	55.39	-163.9	493.9	388.2	350.3	37.93	10.233		
1,800.0	1,785.7	1,765.7	1,765.7	5.5	35.3	57.21	-163.9	493.9	380.0	339.7	40.27	9.434		
1,900.0	1,884.6	1,864.6	1,864.6	5.8	37.3	59.09	-163.9	493.9	372.1	329.5	42.62	8.731		
2,000.0	1,983.5	1,963.5	1,963.5	6.2	39.3	61.06	-163.9	493.9	364.8	319.8	44.98	8.109		
2,100.0	2,082.4	2,062.4	2,062.4	6.5	41.2	63.10	-163.9	493.9	357.8	310.5	47.34	7.558		
2,200.0	2,181.3	2,161.3	2,161.3	6.9	43.2	65.22	-163.9	493.9	351.3	301.6	49.71	7.068		
2,300.0	2,280.2	2,260.2	2,260.2	7.2	45.2	67.42	-163.9	493.9	345.4	293.3	52.09	6.631		
2,400.0	2,379.2	2,359.2	2,359.2	7.6	47.2	69.68	-163.9	493.9	340.0	285.5	54.47	6.241		
2,500.0	2,478.1	2,458.1	2,458.1	8.0	49.2	72.02	-163.9	493.9	335.1	278.2	56.85	5.894		
2,600.0	2,577.0	2,557.0	2,557.0	8.3	51.1	74.42	-163.9	493.9	330.8	271.6	59.23	5.585		
2,700.0	2,675.9	2,655.9	2,655.9	8.7	53.1	76.87	-163.9	493.9	327.1	265.5	61.62	5.309		
2,800.0	2,774.8	2,754.8	2,754.8	9.0	55.1	79.38	-163.9	493.9	324.1	260.1	64.00	5.064		
2,900.0	2,873.7	2,853.7	2,853.7	9.4	57.1	81.93	-163.9	493.9	321.6	255.3	66.37	4.846		
3,000.0	2,972.6	2,952.6	2,952.6	9.7	59.1	84.51	-163.9	493.9	319.9	251.1	68.74	4.653		
3,100.0	3,071.5	3,051.5	3,051.5	10.1	61.0	87.11	-163.9	493.9	318.8	247.7	71.10	4.484		
3,200.0	3,170.5	3,150.5	3,150.5	10.4	63.0	89.73	-163.9	493.9	318.4	244.9	73.45	4.335		
3,210.5	3,180.8	3,160.8	3,160.8	10.5	63.2	90.00	-163.9	493.9	318.4	244.7	73.69	4.320		
3,300.0	3,269.4	3,249.4	3,249.4	10.8	65.0	92.34	-163.9	493.9	318.7	242.9	75.79	4.205		
3,400.0	3,368.3	3,348.3	3,348.3	11.2	67.0	94.95	-163.9	493.9	319.6	241.5	78.11	4.092		
3,500.0	3,467.2	3,447.2	3,447.2	11.5	68.9	97.53	-163.9	493.9	321.2	240.8	80.42	3.994		
3,600.0	3,566.1	3,546.1	3,546.1	11.9	70.9	100.09	-163.9	493.9	323.5	240.8	82.71	3.911		
3,700.0	3,665.0	3,645.0	3,645.0	12.2	72.9	102.60	-163.9	493.9	326.4	241.4	84.99	3.841		
3,800.0	3,763.9	3,743.9	3,743.9	12.6	74.9	105.07	-163.9	493.9	330.0	242.7	87.25	3.782		
3,900.0	3,862.8	3,842.8	3,842.8	12.9	76.9	107.48	-163.9	493.9	334.1	244.6	89.50	3.733		
4,000.0	3,961.8	3,941.8	3,941.8	13.3	78.8	109.83	-163.9	493.9	338.9	247.2	91.73	3.694		
4,100.0	4,060.7	4,040.7	4,040.7	13.6	80.8	112.11	-163.9	493.9	344.2	250.3	93.95	3.664		
4,200.0	4,159.6	4,139.6	4,139.6	14.0	82.8	114.32	-163.9	493.9	350.0	253.9	96.15	3.641		
4,300.0	4,258.5	4,238.5	4,238.5	14.4	84.8	116.46	-163.9	493.9	356.4	258.1	98.34	3.624		
4,400.0	4,357.4	4,337.4	4,337.4	14.7	86.7	118.52	-163.9	493.9	363.3	262.7	100.52	3.614		
4,500.0	4,456.3	4,436.3	4,436.3	15.1	88.7	120.50	-163.9	493.9	370.6	267.9	102.70	3.608		
4,600.0	4,555.2	4,535.2	4,535.2	15.4	90.7	122.40	-163.9	493.9	378.3	273.4	104.86	3.608		
4,700.0	4,654.2	4,634.2	4,634.2	15.8	92.7	124.23	-163.9	493.9	386.4	279.4	107.02	3.611		
4,800.0	4,753.1	4,733.1	4,733.1	16.1	94.7	125.98	-163.9	493.9	395.0	285.8	109.17	3.618		
4,900.0	4,852.0	4,832.0	4,832.0	16.5	96.6	127.66	-163.9	493.9	403.8	292.5	111.32	3.628		
5,000.0	4,950.9	4,930.9	4,930.9	16.9	98.6	129.26	-163.9	493.9	413.0	299.6	113.46	3.640		
5,100.0	5,049.8	5,029.8	5,029.8	17.2	100.6	130.80	-163.9	493.9	422.6	306.9	115.60	3.655		
5,200.0	5,148.7	5,128.7	5,128.7	17.6	102.6	132.26	-163.9	493.9	432.4	314.6	117.74	3.672		
5,300.0	5,247.6	5,227.6	5,227.6	17.9	104.6	133.67	-163.9	493.9	442.4	322.6	119.88	3.691		
5,400.0	5,346.5	5,326.5	5,326.5	18.3	106.5	135.00	-163.9	493.9	452.8	330.8	122.01	3.711		
5,500.0	5,445.5	5,425.5	5,425.5	18.6	108.5	136.28	-163.9	493.9	463.3	339.2	124.15	3.732		
5,600.0	5,544.5	5,524.5	5,524.5	19.0	110.5	137.53	-163.9	493.9	473.6	347.1	126.44	3.745		
5,700.0	5,643.9	5,623.9	5,623.9	19.2	112.5	138.50	-163.9	493.9	481.5	352.8	128.74	3.740		
5,800.0	5,743.6	5,723.6	5,723.6	19.4	114.5	139.13	-163.9	493.9	487.0	356.0	130.99	3.717		
5,900.0	5,843.6	5,823.6	5,823.6	19.5	116.5	139.45	-163.9	493.9	489.8	356.6	133.18	3.678		
6,000.0	5,943.6	5,923.6	5,923.6	19.7	118.5	-149.86	-163.9	493.9	490.2	354.9	135.32	3.622		
6,078.9	6,022.4	6,002.4	6,002.4	19.8	120.0	-149.86	-163.9	493.9	490.2	353.2	137.03	3.577		
6,100.0	6,043.6	6,023.6	6,023.6	19.8	120.5	-149.86	-163.9	493.9	490.2	352.7	137.49	3.565		
6,178.9	6,122.4	6,102.4	6,102.4	19.9	122.0	-149.86	-163.9	493.9	490.2	351.0	139.19	3.522		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Gaddis 36M-443
Project:	SEC.36-T4N-R68W	TVD Reference:	WELL @ 5080.0ft (Ensign Rig #119 - RKB - 23')
Reference Site:	Gaddis Pad Sec.36-T4N-R68W	MD Reference:	WELL @ 5080.0ft (Ensign Rig #119 - RKB - 23')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Gaddis 36M-443	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 (10-16-13)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Gaddis Pad Sec.36-T4N-R68W - Gaddis 21-36 (Exist.) - Wellbore #1 - Wellbore #1													Offset Well Error:	0.0 ft
Survey Program: 7300-UNKNOWN														
Reference														
Offset														
Semi Major Axis														
Distance														
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
6,200.0	6,143.6	6,123.6	6,123.6	19.9	122.5	-149.86	-163.9	493.9	490.2	350.5	139.65	3.510		
6,278.9	6,222.4	6,202.4	6,202.4	20.1	124.0	-149.86	-163.9	493.9	490.2	348.8	141.36	3.468		
6,300.0	6,243.6	6,223.6	6,223.6	20.1	124.5	-149.86	-163.9	493.9	490.2	348.4	141.82	3.456		
6,378.9	6,322.4	6,302.4	6,302.4	20.2	126.0	-149.86	-163.9	493.9	490.2	346.7	143.53	3.415		
6,400.0	6,343.6	6,323.6	6,323.6	20.2	126.5	-149.86	-163.9	493.9	490.2	346.2	143.99	3.404		
6,478.9	6,422.4	6,402.4	6,402.4	20.4	128.0	-149.86	-163.9	493.9	490.2	344.5	145.70	3.364		
6,500.0	6,443.6	6,423.6	6,423.6	20.4	128.5	-149.86	-163.9	493.9	490.2	344.0	146.16	3.354		
6,578.9	6,522.4	6,502.4	6,502.4	20.5	130.0	-149.86	-163.9	493.9	490.2	342.3	147.87	3.315		
6,600.0	6,543.6	6,523.6	6,523.6	20.5	130.5	-149.86	-163.9	493.9	490.2	341.9	148.33	3.305		
6,700.0	6,643.6	6,623.6	6,623.6	20.7	132.5	30.14	-163.9	493.9	489.8	339.4	150.40	3.257		
6,800.0	6,743.0	6,723.0	6,723.0	20.8	134.5	31.05	-163.9	493.9	481.3	330.4	150.92	3.190		
6,900.0	6,840.3	6,820.3	6,820.3	20.8	136.4	33.30	-163.9	493.9	461.9	312.3	149.61	3.088		
7,000.0	6,933.8	6,913.8	6,913.8	20.9	138.3	37.18	-163.9	493.9	432.5	285.3	147.18	2.939		
7,100.0	7,021.9	7,001.9	7,001.9	20.9	140.0	43.17	-163.9	493.9	394.6	249.6	145.09	2.720		
7,200.0	7,103.1	7,083.1	7,083.1	20.9	141.7	51.78	-163.9	493.9	351.0	205.3	145.68	2.409		
7,300.0	7,176.0	7,156.0	7,156.0	20.9	143.1	63.15	-163.9	493.9	305.9	155.3	150.62	2.031		
7,400.0	7,239.4	7,219.4	7,219.4	21.0	144.4	76.05	-163.9	493.9	267.3	109.5	157.77	1.694		
7,500.0	7,292.1	7,272.1	7,272.1	21.1	145.4	87.81	-163.9	493.9	246.6	84.3	162.32	1.519		
7,522.5	7,302.4	7,282.4	7,282.4	21.1	145.6	90.00	-163.9	493.9	245.8	83.1	162.77	1.510 CC, ES, SF		
7,600.0	7,333.3	7,300.0	7,300.0	21.4	146.0	92.92	-163.9	493.9	256.2	92.8	163.41	1.568		
7,700.0	7,362.3	7,300.0	7,300.0	21.8	146.0	89.21	-163.9	493.9	300.0	135.8	164.18	1.827		
7,800.0	7,378.5	7,300.0	7,300.0	22.4	146.0	82.93	-163.9	493.9	366.4	202.8	163.61	2.239		
7,900.0	7,388.6	7,300.0	7,300.0	23.1	146.0	80.72	-163.9	493.9	445.2	281.6	163.61	2.721		
8,000.0	7,392.0	7,300.0	7,300.0	24.0	146.0	73.68	-163.9	493.9	530.6	370.7	159.89	3.319		
8,100.0	7,392.0	7,300.0	7,300.0	25.1	146.0	73.68	-163.9	493.9	620.1	459.0	161.05	3.850		
8,200.0	7,392.0	7,300.0	7,300.0	26.2	146.0	73.68	-163.9	493.9	712.3	550.0	162.30	4.389		
8,300.0	7,392.0	7,300.0	7,300.0	27.5	146.0	73.68	-163.9	493.9	806.5	642.8	163.64	4.928		
8,400.0	7,392.0	7,300.0	7,300.0	28.8	146.0	73.68	-163.9	493.9	901.8	736.8	165.04	5.464		
8,500.0	7,392.0	7,300.0	7,300.0	30.2	146.0	73.68	-163.9	493.9	998.1	831.6	166.50	5.995		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Gaddis 36M-443
Project:	SEC.36-T4N-R68W	TVD Reference:	WELL @ 5080.0ft (Ensign Rig #119 - RKB - 23')
Reference Site:	Gaddis Pad Sec.36-T4N-R68W	MD Reference:	WELL @ 5080.0ft (Ensign Rig #119 - RKB - 23')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Gaddis 36M-443	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 (10-16-13)	Offset TVD Reference:	Offset Datum

Offset Design Gaddis Pad Sec.36-T4N-R68W - Gaddis 22-36 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7300-UNKNOWN													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
8,300.0	7,392.0	7,300.0	7,300.0	27.5	146.0	72.19	-1,857.9	586.0	943.0	780.6	162.32	5.809		
8,400.0	7,392.0	7,300.0	7,300.0	28.8	146.0	72.19	-1,857.9	586.0	844.6	680.9	163.71	5.159		
8,500.0	7,392.0	7,300.0	7,300.0	30.2	146.0	72.19	-1,857.9	586.0	746.6	581.5	165.15	4.521		
8,600.0	7,392.0	7,300.0	7,300.0	31.7	146.0	72.19	-1,857.9	586.0	649.3	482.7	166.65	3.896		
8,700.0	7,392.0	7,300.0	7,300.0	33.2	146.0	72.19	-1,857.9	586.0	553.0	384.8	168.18	3.288		
8,800.0	7,392.0	7,300.0	7,300.0	34.7	146.0	72.19	-1,857.9	586.0	458.2	288.4	169.75	2.699		
8,900.0	7,392.0	7,300.0	7,300.0	36.3	146.0	72.19	-1,857.9	586.0	366.2	194.8	171.35	2.137		
9,000.0	7,392.0	7,300.0	7,300.0	37.9	146.0	72.19	-1,857.9	586.0	279.7	106.7	172.97	1.617		
9,100.0	7,392.0	7,300.0	7,300.0	39.5	146.0	72.19	-1,857.9	586.0	205.9	31.3	174.61	1.179	Level 2	
9,200.0	7,392.0	7,300.0	7,300.0	41.2	146.0	72.19	-1,857.9	586.0	162.9	-13.4	176.27	0.924	Level 1	
9,229.2	7,392.0	7,300.0	7,300.0	41.7	146.0	72.19	-1,857.9	586.0	160.2	-16.5	176.76	0.906	Level 1, CC, ES, SF	
9,300.0	7,392.0	7,300.0	7,300.0	42.9	146.0	72.19	-1,857.9	586.0	175.2	-2.8	177.95	0.984	Level 1	
9,400.0	7,392.0	7,300.0	7,300.0	44.6	146.0	72.19	-1,857.9	586.0	234.2	54.5	179.64	1.303	Level 3	
9,500.0	7,392.0	7,300.0	7,300.0	46.3	146.0	72.19	-1,857.9	586.0	314.6	133.3	181.34	1.735		
9,600.0	7,392.0	7,300.0	7,300.0	48.0	146.0	72.19	-1,857.9	586.0	403.9	220.8	183.06	2.206		
9,700.0	7,392.0	7,300.0	7,300.0	49.8	146.0	72.19	-1,857.9	586.0	497.3	312.5	184.78	2.691		
9,800.0	7,392.0	7,300.0	7,300.0	51.5	146.0	72.19	-1,857.9	586.0	592.8	406.3	186.52	3.178		
9,900.0	7,392.0	7,300.0	7,300.0	53.3	146.0	72.19	-1,857.9	586.0	689.6	501.4	188.26	3.663		
10,000.0	7,392.0	7,300.0	7,300.0	55.1	146.0	72.19	-1,857.9	586.0	787.2	597.2	190.01	4.143		
10,100.0	7,392.0	7,300.0	7,300.0	56.9	146.0	72.19	-1,857.9	586.0	885.4	693.6	191.76	4.617		
10,200.0	7,392.0	7,300.0	7,300.0	58.7	146.0	72.19	-1,857.9	586.0	983.9	790.4	193.52	5.084		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Gaddis 36M-443
Project:	SEC.36-T4N-R68W	TVD Reference:	WELL @ 5080.0ft (Ensign Rig #119 - RKB - 23')
Reference Site:	Gaddis Pad Sec.36-T4N-R68W	MD Reference:	WELL @ 5080.0ft (Ensign Rig #119 - RKB - 23')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Gaddis 36M-443	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 (10-16-13)	Offset TVD Reference:	Offset Datum

Offset Design														Offset Site Error:	0.0 ft
Gaddis Pad Sec.36-T4N-R68W - Gaddis 36J-223 - Wellbore #1 - Plan #2 (10-16-13)														Offset Well Error:	0.0 ft
Survey Program: 0-MWD															
Reference															
Measured Depth (ft)	Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning		
				Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
0.0	0.0	0.0	0.0	0.0	0.0	-90.00	0.0	-30.7	30.7						
100.0	100.0	100.0	100.0	0.1	0.1	-90.00	0.0	-30.7	30.7	30.5	0.22	136.557			
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	0.0	-30.7	30.7	30.0	0.67	45.519 CC, ES			
300.0	300.0	300.0	300.0	0.6	0.6	-161.66	0.0	-30.7	32.3	31.2	1.12	28.803			
400.0	399.8	399.8	399.8	0.8	0.8	-164.16	0.0	-30.7	37.3	35.8	1.57	23.714			
500.0	499.5	499.5	499.5	1.0	1.0	-167.10	0.0	-30.7	45.8	43.8	2.03	22.540			
600.0	598.7	598.7	598.7	1.3	1.2	-169.75	0.0	-30.7	57.7	55.3	2.49	23.179			
700.0	697.6	697.6	697.6	1.6	1.5	-171.81	0.0	-30.7	72.2	69.2	2.94	24.519			
800.0	796.5	796.5	796.5	2.0	1.7	-173.19	0.0	-30.7	86.8	83.4	3.40	25.532			
900.0	895.5	895.5	895.5	2.3	1.9	-174.18	0.0	-30.7	101.4	97.5	3.86	26.294			
1,000.0	894.4	894.4	894.4	2.7	2.1	-174.91	0.0	-30.7	116.0	111.7	4.31	26.886			
1,100.0	1,093.3	1,093.3	1,093.3	3.0	2.3	-175.49	0.0	-30.7	130.7	125.9	4.78	27.358			
1,200.0	1,192.2	1,192.2	1,192.2	3.4	2.6	-175.94	0.0	-30.7	145.3	140.1	5.24	27.743			
1,300.0	1,291.1	1,291.1	1,291.1	3.7	2.8	-176.31	0.0	-30.7	160.0	154.3	5.70	28.062			
1,400.0	1,390.0	1,390.0	1,390.0	4.1	3.0	-176.62	0.0	-30.7	174.7	168.5	6.17	28.331			
1,500.0	1,488.9	1,488.9	1,488.9	4.4	3.2	-176.89	0.0	-30.7	189.4	182.7	6.63	28.560			
1,600.0	1,587.8	1,594.2	1,594.2	4.8	3.5	-176.99	0.9	-29.4	202.7	195.6	7.10	28.542			
1,700.0	1,686.8	1,701.1	1,700.9	5.1	3.7	-176.76	4.0	-24.9	212.5	204.9	7.57	28.078			
1,800.0	1,785.7	1,808.6	1,808.0	5.5	3.9	-176.22	9.3	-17.0	218.8	210.7	8.04	27.204			
1,900.0	1,884.6	1,912.4	1,911.0	5.8	4.2	-175.44	16.4	-6.5	221.9	213.4	8.51	26.069			
2,000.0	1,983.5	2,012.3	2,010.2	6.2	4.4	-174.67	23.5	3.9	224.7	215.7	8.98	25.014			
2,100.0	2,082.4	2,112.2	2,109.3	6.5	4.7	-173.92	30.6	14.3	227.5	218.1	9.46	24.056			
2,200.0	2,181.3	2,212.2	2,208.4	6.9	5.0	-173.19	37.7	24.8	230.4	220.5	9.94	23.184			
2,300.0	2,280.2	2,312.1	2,307.5	7.2	5.2	-172.47	44.7	35.2	233.3	222.9	10.42	22.387			
2,400.0	2,379.2	2,412.0	2,406.6	7.6	5.5	-171.78	51.8	45.7	236.2	225.3	10.91	21.655			
2,500.0	2,478.1	2,511.9	2,505.7	8.0	5.8	-171.10	58.9	56.1	239.2	227.8	11.40	20.981			
2,600.0	2,577.0	2,611.8	2,604.9	8.3	6.1	-170.44	66.0	66.5	242.2	230.3	11.90	20.359			
2,700.0	2,675.9	2,711.7	2,704.0	8.7	6.4	-169.79	73.1	77.0	245.2	232.8	12.40	19.783			
2,800.0	2,774.8	2,811.7	2,803.1	9.0	6.7	-169.16	80.2	87.4	248.3	235.4	12.90	19.249			
2,900.0	2,873.7	2,911.6	2,902.2	9.4	7.0	-168.55	87.3	97.9	251.4	238.0	13.41	18.752			
3,000.0	2,972.6	3,011.5	3,001.3	9.7	7.3	-167.95	94.3	108.3	254.5	240.6	13.92	18.289			
3,100.0	3,071.5	3,111.4	3,100.4	10.1	7.6	-167.36	101.4	118.7	257.6	243.2	14.43	17.856			
3,200.0	3,170.5	3,211.3	3,199.6	10.4	7.9	-166.79	108.5	129.2	260.8	245.9	14.95	17.451			
3,300.0	3,269.4	3,311.2	3,298.7	10.8	8.2	-166.23	115.6	139.6	264.0	248.5	15.46	17.071			
3,400.0	3,368.3	3,411.2	3,397.8	11.2	8.5	-165.69	122.7	150.0	267.2	251.2	15.99	16.714			
3,500.0	3,467.2	3,511.1	3,496.9	11.5	8.8	-165.16	129.8	160.5	270.5	254.0	16.51	16.379			
3,600.0	3,566.1	3,611.0	3,596.0	11.9	9.1	-164.64	136.9	170.9	273.7	256.7	17.04	16.062			
3,700.0	3,665.0	3,710.9	3,695.1	12.2	9.4	-164.13	144.0	181.4	277.0	259.5	17.57	15.763			
3,800.0	3,763.9	3,810.8	3,794.3	12.6	9.7	-163.64	151.0	191.8	280.3	262.2	18.11	15.481			
3,900.0	3,862.8	3,910.7	3,893.4	12.9	10.0	-163.16	158.1	202.2	283.7	265.0	18.65	15.213			
4,000.0	3,961.8	4,010.7	3,992.5	13.3	10.3	-162.69	165.2	212.7	287.0	267.8	19.19	14.960			
4,100.0	4,060.7	4,110.6	4,091.6	13.6	10.7	-162.23	172.3	223.1	290.4	270.7	19.73	14.719			
4,200.0	4,159.6	4,210.5	4,190.7	14.0	11.0	-161.78	179.4	233.5	293.8	273.5	20.27	14.491			
4,300.0	4,258.5	4,310.4	4,289.8	14.4	11.3	-161.34	186.5	244.0	297.2	276.4	20.82	14.273			
4,400.0	4,357.4	4,410.3	4,389.0	14.7	11.6	-160.91	193.6	254.4	300.6	279.2	21.37	14.066			
4,500.0	4,456.3	4,510.2	4,488.1	15.1	11.9	-160.49	200.6	264.9	304.0	282.1	21.92	13.869			
4,600.0	4,555.2	4,610.1	4,587.2	15.4	12.2	-160.08	207.7	275.3	307.5	285.0	22.48	13.681			
4,700.0	4,654.2	4,710.1	4,686.3	15.8	12.5	-159.67	214.8	285.7	311.0	287.9	23.03	13.501			
4,800.0	4,753.1	4,810.0	4,785.4	16.1	12.9	-159.28	221.9	296.2	314.4	290.9	23.59	13.330			

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 Gaddis 36M-443
Project:	SEC.36-T4N-R68W	TVD Reference:	WELL @ 5080.0ft (Ensign Rig #119 - RKB - 23')
Reference Site:	Gaddis Pad Sec.36-T4N-R68W	MD Reference:	WELL @ 5080.0ft (Ensign Rig #119 - RKB - 23')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Gaddis 36M-443	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 (10-16-13)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference														
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,900.0	4,852.0	4,909.9	4,884.5	16.5	13.2	-158.90		229.0	306.6	317.9	293.8	24.15	13.165	
5,000.0	4,950.9	5,009.8	4,983.7	16.9	13.5	-158.52		236.1	317.1	321.5	296.7	24.71	13.008	
5,100.0	5,049.8	5,109.7	5,082.8	17.2	13.8	-158.16		243.2	327.5	325.0	299.7	25.28	12.857	
5,200.0	5,148.7	5,206.0	5,178.3	17.6	14.1	-157.84		249.8	337.3	328.8	303.0	25.81	12.736	
5,300.0	5,247.6	5,300.0	5,271.9	17.9	14.3	-157.80		254.9	344.8	334.7	308.4	26.28	12.739	
5,400.0	5,346.5	5,388.3	5,360.0	18.3	14.5	-158.06		258.1	349.5	343.2	316.5	26.68	12.862	
5,500.0	5,445.5	5,478.8	5,450.4	18.6	14.6	-158.58		259.8	352.0	354.2	327.2	27.05	13.095	
5,600.0	5,544.5	5,572.9	5,544.5	19.0	14.8	-159.35		260.0	352.3	366.9	339.5	27.39	13.394	
5,700.0	5,643.9	5,672.3	5,643.9	19.2	15.0	-159.99		260.0	352.3	376.9	349.2	27.71	13.599	
5,800.0	5,743.6	5,772.0	5,743.6	19.4	15.1	-160.40		260.0	352.3	383.7	355.6	28.03	13.687	
5,900.0	5,843.6	5,871.9	5,843.6	19.5	15.3	-160.61		260.0	352.3	387.2	358.8	28.33	13.665	
6,000.0	5,943.6	5,971.9	5,943.6	19.7	15.5	-90.00		260.0	352.3	387.7	359.0	28.66	13.528	
6,100.0	6,043.6	6,071.9	6,043.6	19.8	15.7	-90.00		260.0	352.3	387.7	358.7	29.04	13.350	
6,200.0	6,143.6	6,171.9	6,143.6	19.9	15.9	-90.00		260.0	352.3	387.7	358.3	29.43	13.175	
6,300.0	6,243.6	6,271.9	6,243.6	20.1	16.1	-90.00		260.0	352.3	387.7	357.9	29.81	13.005	
6,400.0	6,343.6	6,371.9	6,343.6	20.2	16.3	-90.00		260.0	352.3	387.7	357.5	30.20	12.837	
6,462.7	6,406.2	6,434.6	6,406.2	20.3	16.4	-90.00		260.0	352.3	387.7	357.2	30.44	12.734	
6,500.0	6,443.6	6,471.9	6,443.6	20.4	16.4	-90.01		259.9	352.3	387.7	357.1	30.58	12.676	
6,513.9	6,457.4	6,485.8	6,457.4	20.4	16.5	-90.07		259.6	352.3	387.7	357.1	30.63	12.657	
6,600.0	6,543.6	6,571.1	6,542.3	20.5	16.6	-91.20		251.9	352.3	387.8	357.0	30.80	12.592	
6,700.0	6,643.6	6,666.7	6,635.8	20.7	16.6	85.87		232.1	352.3	388.8	357.9	30.82	12.614	
6,800.0	6,743.0	6,759.1	6,723.2	20.8	16.7	82.57		202.0	352.3	391.2	360.4	30.75	12.722	
6,900.0	6,840.3	6,850.0	6,804.9	20.8	16.7	79.43		162.4	352.2	394.7	364.0	30.68	12.865	
7,000.0	6,933.8	6,937.4	6,878.5	20.9	16.7	76.56		115.4	352.2	399.1	368.4	30.64	13.022	
7,100.0	7,021.9	7,023.8	6,945.5	20.9	16.7	73.94		61.0	352.2	404.0	373.3	30.65	13.179	
7,200.0	7,103.1	7,108.7	7,005.0	20.9	16.7	71.61		0.4	352.1	409.1	378.4	30.71	13.323	
7,300.0	7,176.0	7,192.4	7,056.7	20.9	16.8	69.59		-65.3	352.1	414.2	383.4	30.80	13.446	
7,400.0	7,239.4	7,275.1	7,100.5	21.0	16.9	67.89		-135.5	352.0	418.9	387.9	31.00	13.511	
7,500.0	7,292.1	7,357.0	7,136.0	21.1	17.2	66.52		-209.1	352.0	423.0	391.7	31.30	13.513	
7,600.0	7,333.3	7,438.2	7,163.3	21.4	17.6	65.47		-285.6	351.9	426.4	394.6	31.76	13.423	
7,700.0	7,362.3	7,518.9	7,182.3	21.8	18.2	64.74		-364.0	351.9	428.8	396.4	32.42	13.226	
7,800.0	7,378.5	7,600.0	7,192.9	22.4	19.0	64.34		-444.4	351.8	430.2	396.8	33.34	12.904	
7,900.0	7,388.6	7,683.7	7,195.1	23.1	19.8	63.56		-528.0	351.7	433.3	398.6	34.72	12.481	
8,000.0	7,392.0	7,783.6	7,194.8	24.0	21.0	63.04		-627.9	351.7	435.0	398.7	36.28	11.992	
8,100.0	7,392.0	7,883.6	7,194.5	25.1	22.2	63.00		-727.9	351.6	435.2	396.7	38.48	11.309	
8,200.0	7,392.0	7,983.6	7,194.1	26.2	23.5	62.97		-827.9	351.5	435.3	394.5	40.86	10.654	
8,300.0	7,392.0	8,083.6	7,193.8	27.5	24.9	62.93		-927.9	351.4	435.5	392.1	43.39	10.037	
8,400.0	7,392.0	8,183.6	7,193.5	28.8	26.4	62.89		-1,027.9	351.4	435.6	389.6	46.03	9.463	
8,500.0	7,392.0	8,283.6	7,193.1	30.2	27.9	62.85		-1,127.9	351.3	435.8	387.0	48.78	8.933	
8,600.0	7,392.0	8,383.6	7,192.8	31.7	29.5	62.81		-1,227.9	351.2	435.9	384.3	51.62	8.445	
8,700.0	7,392.0	8,483.6	7,192.5	33.2	31.1	62.77		-1,327.9	351.2	436.1	381.6	54.52	7.998	
8,800.0	7,392.0	8,583.5	7,192.1	34.7	32.7	62.73		-1,427.9	351.1	436.2	378.8	57.49	7.588	
8,900.0	7,392.0	8,683.5	7,191.8	36.3	34.4	62.70		-1,527.9	351.0	436.4	375.9	60.51	7.212	
9,000.0	7,392.0	8,783.5	7,191.5	37.9	36.1	62.66		-1,627.8	350.9	436.6	373.0	63.57	6.867	
9,100.0	7,392.0	8,883.5	7,191.2	39.5	37.8	62.62		-1,727.8	350.9	436.7	370.0	66.67	6.551	
9,200.0	7,392.0	8,983.5	7,190.8	41.2	39.5	62.58		-1,827.8	350.8	436.9	367.1	69.80	6.259	
9,300.0	7,392.0	9,083.5	7,190.5	42.9	41.3	62.54		-1,927.8	350.7	437.0	364.1	72.95	5.990	
9,400.0	7,392.0	9,183.5	7,190.2	44.6	43.1	62.50		-2,027.8	350.6	437.2	361.0	76.13	5.742	
9,500.0	7,392.0	9,283.5	7,189.8	46.3	44.8	62.47		-2,127.8	350.6	437.3	358.0	79.34	5.513	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Gaddis 36M-443
Project:	SEC.36-T4N-R68W	TVD Reference:	WELL @ 5080.0ft (Ensign Rig #119 - RKB - 23')
Reference Site:	Gaddis Pad Sec.36-T4N-R68W	MD Reference:	WELL @ 5080.0ft (Ensign Rig #119 - RKB - 23')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Gaddis 36M-443	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 (10-16-13)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Gaddis Pad Sec.36-T4N-R68W - Gaddis 36J-223 - Wellbore #1 - Plan #2 (10-16-13)													Offset Well Error:	0.0 ft
Survey Program: 0-MWD														
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
9,600.0	7,392.0	9,383.5	7,189.5	48.0	46.6	62.43	-2,227.8	350.5	437.5	354.9	82.56	5.299		
9,700.0	7,392.0	9,483.5	7,189.2	49.8	48.4	62.39	-2,327.8	350.4	437.7	351.9	85.79	5.101		
9,800.0	7,392.0	9,583.5	7,188.8	51.5	50.2	62.35	-2,427.8	350.4	437.8	348.8	89.04	4.917		
9,900.0	7,392.0	9,683.5	7,188.5	53.3	52.0	62.31	-2,527.8	350.3	438.0	345.7	92.30	4.745		
10,000.0	7,392.0	9,783.5	7,188.2	55.1	53.9	62.27	-2,627.8	350.2	438.1	342.6	95.57	4.584		
10,100.0	7,392.0	9,883.5	7,187.8	56.9	55.7	62.24	-2,727.8	350.1	438.3	339.4	98.85	4.434		
10,200.0	7,392.0	9,983.5	7,187.5	58.7	57.5	62.20	-2,827.8	350.1	438.4	336.3	102.14	4.292		
10,300.0	7,392.0	10,083.5	7,187.2	60.5	59.4	62.16	-2,927.8	350.0	438.6	333.2	105.44	4.160		
10,400.0	7,392.0	10,183.5	7,186.8	62.3	61.2	62.12	-3,027.8	349.9	438.8	330.0	108.74	4.035		
10,500.0	7,392.0	10,283.5	7,186.5	64.1	63.1	62.08	-3,127.8	349.8	438.9	326.9	112.05	3.917		
10,600.0	7,392.0	10,383.5	7,186.2	65.9	64.9	62.05	-3,227.8	349.8	439.1	323.7	115.37	3.806		
10,700.0	7,392.0	10,483.5	7,185.8	67.8	66.8	62.01	-3,327.8	349.7	439.2	320.6	118.68	3.701		
10,800.0	7,392.0	10,583.5	7,185.5	69.6	68.6	61.97	-3,427.8	349.6	439.4	317.4	122.01	3.601		
10,900.0	7,392.0	10,683.5	7,185.2	71.4	70.5	61.93	-3,527.8	349.6	439.6	314.2	125.33	3.507		
11,000.0	7,392.0	10,783.5	7,184.9	73.3	72.4	61.90	-3,627.8	349.5	439.7	311.1	128.66	3.418		
11,100.0	7,392.0	10,883.5	7,184.5	75.1	74.2	61.86	-3,727.8	349.4	439.9	307.9	131.99	3.333		
11,200.0	7,392.0	10,983.5	7,184.2	77.0	76.1	61.82	-3,827.8	349.3	440.0	304.7	135.33	3.252		
11,300.0	7,392.0	11,083.5	7,183.9	78.8	78.0	61.78	-3,927.8	349.3	440.2	301.5	138.66	3.175		
11,400.0	7,392.0	11,183.5	7,183.5	80.7	79.8	61.74	-4,027.8	349.2	440.4	298.4	142.00	3.101		
11,500.0	7,392.0	11,283.5	7,183.2	82.6	81.7	61.71	-4,127.8	349.1	440.5	295.2	145.34	3.031		
11,600.0	7,392.0	11,383.5	7,182.9	84.4	83.6	61.67	-4,227.8	349.0	440.7	292.0	148.68	2.964		
11,700.0	7,392.0	11,483.5	7,182.5	86.3	85.5	61.63	-4,327.8	349.0	440.9	288.8	152.02	2.900		
11,800.0	7,392.0	11,583.5	7,182.2	88.1	87.4	61.59	-4,427.8	348.9	441.0	285.7	155.36	2.839		
11,859.4	7,392.0	11,642.9	7,182.0	89.3	88.3	61.57	-4,487.2	348.9	441.1	283.9	157.20	2.806 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Gaddis 36M-443
Project:	SEC.36-T4N-R68W	TVD Reference:	WELL @ 5080.0ft (Ensign Rig #119 - RKB - 23')
Reference Site:	Gaddis Pad Sec.36-T4N-R68W	MD Reference:	WELL @ 5080.0ft (Ensign Rig #119 - RKB - 23')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Gaddis 36M-443	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 (10-16-13)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: -8-MWD, 7210-MWD													Offset Well Error:	0.0 ft
Reference														
Measured Depth		Vertical Depth		Offset		Semi Major Axis		Highside		Distance		Minimum Separation		Warning
Depth (ft)	Reference (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Reference (ft)	Offset (ft)	Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Separation Factor	
0.0	0.0	-7.0	-7.0	0.0	0.0	-90.00	0.0	-90.00	0.0	-58.6	58.6	58.6	0.00	N/A
100.0	100.0	93.0	93.0	0.1	0.1	-90.00	0.0	-90.00	0.0	-58.6	58.6	58.4	0.23	258.118
200.0	200.0	193.0	193.0	0.3	0.3	-90.00	0.0	-90.00	0.0	-58.6	58.6	57.9	0.68	86.611 CC, ES
300.0	300.0	293.0	293.0	0.6	0.6	-161.18	0.0	-58.6	0.0	-58.6	60.2	59.1	1.13	53.544
400.0	399.8	392.8	392.8	0.8	0.8	-162.64	0.0	-58.6	0.0	-58.6	65.2	63.6	1.58	41.359
500.0	499.5	492.5	492.5	1.0	1.0	-164.62	0.0	-58.6	0.0	-58.6	73.6	71.6	2.03	36.182
600.0	598.7	591.7	591.7	1.3	1.2	-166.73	0.0	-58.6	0.0	-58.6	85.4	82.9	2.49	34.245
700.0	697.6	690.6	690.6	1.6	1.5	-168.65	0.0	-58.6	0.0	-58.6	99.7	96.7	2.95	33.822
800.0	796.5	789.5	789.5	2.0	1.7	-170.10	0.0	-58.6	0.0	-58.6	114.1	110.7	3.40	33.547
900.0	895.5	888.5	888.5	2.3	1.9	-171.22	0.0	-58.6	0.0	-58.6	128.7	124.8	3.86	33.328
1,000.0	994.4	987.4	987.4	2.7	2.1	-172.12	0.0	-58.6	0.0	-58.6	143.2	138.9	4.32	33.149
1,100.0	1,093.3	1,086.3	1,086.3	3.0	2.3	-172.85	0.0	-58.6	0.0	-58.6	157.8	153.0	4.78	33.001
1,200.0	1,192.2	1,185.2	1,185.2	3.4	2.6	-173.46	0.0	-58.6	0.0	-58.6	172.4	167.1	5.24	32.876
1,300.0	1,291.1	1,284.1	1,284.1	3.7	2.8	-173.97	0.0	-58.6	0.0	-58.6	187.0	181.3	5.71	32.770
1,400.0	1,390.0	1,383.0	1,383.0	4.1	3.0	-174.41	0.0	-58.6	0.0	-58.6	201.6	195.5	6.17	32.678
1,500.0	1,488.9	1,481.9	1,481.9	4.4	3.2	-174.79	0.0	-58.6	0.0	-58.6	216.3	209.6	6.63	32.598
1,600.0	1,587.8	1,580.8	1,580.8	4.8	3.5	-175.12	0.0	-58.6	0.0	-58.6	230.9	223.8	7.10	32.527
1,700.0	1,686.8	1,679.8	1,679.8	5.1	3.7	-175.41	0.0	-58.6	0.0	-58.6	245.6	238.0	7.56	32.464
1,800.0	1,785.7	1,778.7	1,778.7	5.5	3.9	-175.67	0.0	-58.6	0.0	-58.6	260.2	252.2	8.03	32.408
1,900.0	1,884.6	1,877.6	1,877.6	5.8	4.1	-175.90	0.0	-58.6	0.0	-58.6	274.9	266.4	8.50	32.358
2,000.0	1,983.5	1,976.5	1,976.5	6.2	4.3	-176.11	0.0	-58.6	0.0	-58.6	289.6	280.6	8.96	32.312
2,100.0	2,082.4	2,075.4	2,075.4	6.5	4.6	-176.30	0.0	-58.6	0.0	-58.6	304.2	294.8	9.43	32.271
2,200.0	2,181.3	2,174.3	2,174.3	6.9	4.8	-176.47	0.0	-58.6	0.0	-58.6	318.9	309.0	9.89	32.233
2,300.0	2,280.2	2,273.2	2,273.2	7.2	5.0	-176.63	0.0	-58.6	0.0	-58.6	333.6	323.2	10.36	32.198
2,400.0	2,379.2	2,372.2	2,372.2	7.6	5.2	-176.77	0.0	-58.6	0.0	-58.6	348.3	337.5	10.83	32.166
2,500.0	2,478.1	2,471.1	2,471.1	8.0	5.5	-176.90	0.0	-58.6	0.0	-58.6	363.0	351.7	11.29	32.137
2,600.0	2,577.0	2,570.0	2,570.0	8.3	5.7	-177.02	0.0	-58.6	0.0	-58.6	377.6	365.9	11.76	32.110
2,700.0	2,675.9	2,668.9	2,668.9	8.7	5.9	-177.13	0.0	-58.6	0.0	-58.6	392.3	380.1	12.23	32.084
2,800.0	2,774.8	2,767.8	2,767.8	9.0	6.1	-177.24	0.0	-58.6	0.0	-58.6	407.0	394.3	12.70	32.061
2,900.0	2,873.7	2,866.7	2,866.7	9.4	6.3	-177.33	0.0	-58.6	0.0	-58.6	421.7	408.5	13.16	32.039
3,000.0	2,972.6	2,965.6	2,965.6	9.7	6.6	-177.42	0.0	-58.6	0.0	-58.6	436.4	422.8	13.63	32.018
3,100.0	3,071.5	3,071.6	3,071.6	10.1	6.8	-177.39	1.1	-58.3	450.5	-58.3	436.4	436.4	14.11	31.926
3,200.0	3,170.5	3,180.7	3,180.5	10.4	7.1	-176.96	5.9	-56.7	462.6	-56.7	448.0	448.0	14.60	31.691
3,300.0	3,269.4	3,289.9	3,289.3	10.8	7.3	-176.13	14.7	-53.9	472.6	-53.9	457.5	457.5	15.09	31.327
3,400.0	3,368.3	3,399.0	3,397.6	11.2	7.5	-174.92	27.5	-49.8	480.6	-49.8	465.1	465.1	15.58	30.845
3,500.0	3,467.2	3,498.5	3,496.1	11.5	7.8	-173.65	41.1	-45.5	487.8	-45.5	471.7	471.7	16.07	30.354
3,600.0	3,566.1	3,597.7	3,594.3	11.9	8.0	-172.42	54.6	-41.2	495.2	-41.2	478.6	478.6	16.57	29.889
3,700.0	3,665.0	3,696.8	3,692.4	12.2	8.3	-171.23	68.1	-36.9	502.8	-36.9	485.8	485.8	17.08	29.446
3,800.0	3,763.9	3,796.0	3,790.5	12.6	8.5	-170.07	81.6	-32.5	510.7	-32.5	493.1	493.1	17.60	29.024
3,900.0	3,862.8	3,895.2	3,888.7	12.9	8.8	-168.95	95.1	-28.2	518.7	-28.2	500.6	500.6	18.12	28.622
4,000.0	3,961.8	3,994.3	3,986.8	13.3	9.0	-167.86	108.6	-23.9	527.0	-23.9	508.3	508.3	18.66	28.239
4,100.0	4,060.7	4,093.5	4,085.0	13.6	9.3	-166.81	122.1	-19.6	535.4	-19.6	516.2	516.2	19.21	27.874
4,200.0	4,159.6	4,192.6	4,183.1	14.0	9.6	-165.79	135.7	-15.3	544.0	-15.3	524.2	524.2	19.76	27.526
4,300.0	4,258.5	4,291.8	4,281.3	14.4	9.9	-164.80	149.2	-11.0	552.7	-11.0	532.4	532.4	20.33	27.195
4,400.0	4,357.4	4,391.0	4,379.4	14.7	10.2	-163.84	162.7	-6.7	561.7	-6.7	540.8	540.8	20.90	26.880
4,500.0	4,456.3	4,490.1	4,477.5	15.1	10.4	-162.91	176.2	-2.3	570.7	-2.3	549.3	549.3	21.47	26.580
4,600.0	4,555.2	4,589.3	4,575.7	15.4	10.7	-162.01	189.7	2.0	580.0	2.0	557.9	557.9	22.06	26.294
4,700.0	4,654.2	4,688.5	4,673.8	15.8	11.0	-161.14	203.2	6.3	589.3	6.3	566.7	566.7	22.65	26.022
4,800.0	4,753.1	4,787.6	4,772.0	16.1	11.3	-160.30	216.8	10.6	598.8	10.6	575.6	575.6	23.24	25.763

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Gaddis 36M-443
Project:	SEC.36-T4N-R68W	TVD Reference:	WELL @ 5080.0ft (Ensign Rig #119 - RKB - 23')
Reference Site:	Gaddis Pad Sec.36-T4N-R68W	MD Reference:	WELL @ 5080.0ft (Ensign Rig #119 - RKB - 23')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Gaddis 36M-443	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 (10-16-13)	Offset TVD Reference:	Offset Datum

Offset Design														Gaddis Pad Sec.36-T4N-R68W - Gaddis 36J-3034 /Codell Sidetrack - Wellbore #2 Codell Sidetrack - P	Offset Site Error:	0.0 ft
Survey Program: -8-MWD, 7210-MWD															Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis		Distance		Minimum Separation		Separation Factor		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	Warning			
4,900.0	4,852.0	4,886.8	4,870.1	16.5	11.6	-159.48	230.3	14.9	608.4	584.6	23.85	25.516				
5,000.0	4,950.9	4,981.0	4,963.6	16.9	11.9	-158.83	242.0	18.7	618.5	594.1	24.40	25.352				
5,100.0	5,049.8	5,074.8	5,056.8	17.2	12.1	-158.47	250.8	21.5	629.5	604.7	24.89	25.294				
5,200.0	5,148.7	5,168.4	5,150.3	17.6	12.3	-158.39	256.7	23.3	641.5	616.1	25.34	25.310				
5,300.0	5,247.6	5,261.9	5,243.6	17.9	12.4	-158.58	259.6	24.3	654.3	628.5	25.76	25.396				
5,400.0	5,346.5	5,357.8	5,339.5	18.3	12.6	-158.99	260.0	24.4	667.9	641.7	26.17	25.524				
5,500.0	5,445.5	5,456.7	5,438.5	18.6	12.8	-159.43	260.0	24.4	681.7	655.1	26.59	25.634				
5,600.0	5,544.5	5,555.7	5,537.5	19.0	13.0	-159.89	260.0	24.4	694.7	667.7	27.03	25.703				
5,700.0	5,643.9	5,655.1	5,636.9	19.2	13.2	-160.26	260.0	24.4	704.8	677.4	27.43	25.698				
5,800.0	5,743.6	5,754.8	5,736.6	19.4	13.4	-160.50	260.0	24.4	711.6	683.8	27.79	25.601				
5,900.0	5,843.6	5,854.8	5,836.6	19.5	13.6	-160.62	260.0	24.4	715.1	686.9	28.14	25.414				
6,000.0	5,943.6	5,954.8	5,936.6	19.7	13.8	-90.00	260.0	24.4	715.6	687.1	28.48	25.122				
6,100.0	6,043.6	6,054.8	6,036.6	19.8	14.1	-90.00	260.0	24.4	715.6	686.7	28.88	24.782				
6,200.0	6,143.6	6,154.8	6,136.6	19.9	14.3	-90.00	260.0	24.4	715.6	686.3	29.27	24.449				
6,300.0	6,243.6	6,254.8	6,236.6	20.1	14.5	-90.00	260.0	24.4	715.6	685.9	29.66	24.123				
6,400.0	6,343.6	6,354.8	6,336.6	20.2	14.7	-90.00	260.0	24.4	715.6	685.5	30.06	23.806				
6,500.0	6,443.6	6,454.8	6,436.6	20.4	14.9	-90.00	260.0	24.4	715.6	685.1	30.46	23.495				
6,600.0	6,543.6	6,554.8	6,536.6	20.5	15.1	-90.00	260.0	24.4	715.6	684.7	30.86	23.191				
6,693.2	6,636.7	6,647.9	6,629.7	20.7	15.3	90.08	260.0	24.4	715.6	684.4	31.24	22.910				
6,700.0	6,643.6	6,654.8	6,636.6	20.7	15.3	89.99	259.9	24.4	715.6	684.3	31.25	22.896				
6,800.0	6,743.0	6,754.8	6,736.1	20.8	15.4	90.05	250.9	24.4	715.6	684.1	31.51	22.710				
6,900.0	6,840.3	6,854.7	6,832.9	20.8	15.5	89.91	226.4	24.4	715.6	684.0	31.62	22.631				
7,000.0	6,933.8	6,954.1	6,924.1	20.9	15.5	89.55	187.4	24.3	715.6	684.0	31.64	22.617				
7,100.0	7,021.9	7,052.5	7,007.4	20.9	15.5	89.01	135.2	24.3	715.7	684.1	31.64	22.618				
7,200.0	7,103.1	7,149.5	7,080.7	20.9	15.5	88.28	71.8	24.2	716.0	684.3	31.72	22.575				
7,300.0	7,176.0	7,232.2	7,135.1	20.9	15.6	87.53	9.6	23.9	716.8	684.8	31.92	22.457				
7,400.0	7,239.4	7,300.0	7,175.4	21.0	15.7	86.96	-44.8	20.6	721.6	689.3	32.26	22.366				
7,500.0	7,292.1	7,350.0	7,203.0	21.1	15.9	86.41	-86.2	15.6	731.1	698.3	32.75	22.325				
7,600.0	7,333.3	7,411.8	7,234.3	21.4	16.1	85.91	-138.7	6.5	745.2	711.7	33.47	22.267				
7,700.0	7,362.3	7,469.7	7,260.7	21.8	16.4	85.39	-188.9	-4.9	763.8	729.4	34.37	22.226				
7,800.0	7,378.5	7,525.9	7,283.6	22.4	16.7	84.91	-238.4	-18.7	786.8	751.4	35.45	22.198				
7,900.0	7,388.6	7,594.2	7,308.0	23.1	17.1	85.91	-299.1	-38.4	814.4	777.5	36.94	22.047				
8,000.0	7,392.0	7,772.1	7,361.1	24.0	18.5	88.34	-462.5	-83.6	839.9	800.4	39.50	21.263				
8,100.0	7,392.0	8,003.1	7,394.3	25.1	20.9	90.62	-688.7	-112.1	852.4	809.1	43.24	19.714				
8,200.0	7,392.0	8,143.0	7,395.8	26.2	22.6	90.73	-828.6	-113.7	853.0	806.7	46.30	18.424				
8,300.0	7,392.0	8,243.0	7,395.6	27.5	24.0	90.71	-928.6	-113.7	853.0	803.9	49.06	17.385				
8,400.0	7,392.0	8,343.0	7,395.3	28.8	25.5	90.69	-1,028.6	-113.7	852.9	800.9	51.96	16.413				
8,500.0	7,392.0	8,443.0	7,395.1	30.2	27.0	90.68	-1,128.6	-113.7	852.9	797.9	54.98	15.512				
8,600.0	7,392.0	8,543.0	7,394.8	31.7	28.5	90.66	-1,228.6	-113.8	852.8	794.7	58.10	14.680				
8,700.0	7,392.0	8,643.0	7,394.6	33.2	30.1	90.64	-1,328.6	-113.8	852.8	791.5	61.29	13.913				
8,800.0	7,392.0	8,743.0	7,394.4	34.7	31.8	90.63	-1,428.6	-113.8	852.7	788.2	64.56	13.209				
8,900.0	7,392.0	8,843.0	7,394.1	36.3	33.4	90.61	-1,528.6	-113.8	852.7	784.8	67.89	12.561				
9,000.0	7,392.0	8,943.0	7,393.9	37.9	35.1	90.60	-1,628.6	-113.9	852.6	781.4	71.26	11.965				
9,100.0	7,392.0	9,043.0	7,393.6	39.5	36.8	90.58	-1,728.6	-113.9	852.6	777.9	74.69	11.416				
9,200.0	7,392.0	9,143.0	7,393.4	41.2	38.6	90.56	-1,828.6	-113.9	852.5	774.4	78.15	10.910				
9,300.0	7,392.0	9,243.0	7,393.2	42.9	40.3	90.55	-1,928.6	-114.0	852.5	770.9	81.64	10.442				
9,400.0	7,392.0	9,343.0	7,392.9	44.6	42.1	90.53	-2,028.6	-114.0	852.5	767.3	85.17	10.009				
9,500.0	7,392.0	9,443.0	7,392.7	46.3	43.8	90.52	-2,128.6	-114.0	852.4	763.7	88.72	9.608				
9,600.0	7,392.0	9,543.0	7,392.4	48.0	45.6	90.50	-2,228.6	-114.0	852.4	760.1	92.29	9.236				

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Gaddis 36M-443
Project:	SEC.36-T4N-R68W	TVD Reference:	WELL @ 5080.0ft (Ensign Rig #119 - RKB - 23')
Reference Site:	Gaddis Pad Sec.36-T4N-R68W	MD Reference:	WELL @ 5080.0ft (Ensign Rig #119 - RKB - 23')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Gaddis 36M-443	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 (10-16-13)	Offset TVD Reference:	Offset Datum

Offset Design										Gaddis Pad Sec.36-T4N-R68W - Gaddis 36J-3034 /Codell Sidetrack - Wellbore #2 Codell Sidetrack - P			Offset Site Error:		0.0 ft
Survey Program: -8-MWD, 7210-MWD													Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance								
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
9,700.0	7,392.0	9,643.0	7,392.2	49.8	47.4	90.48	-2,328.6	-114.1	852.3	756.4	95.89	8.889			
9,800.0	7,392.0	9,743.0	7,392.0	51.5	49.2	90.47	-2,428.6	-114.1	852.3	752.8	99.50	8.566			
9,900.0	7,392.0	9,843.0	7,391.7	53.3	51.1	90.45	-2,528.6	-114.1	852.2	749.1	103.13	8.264			
10,000.0	7,392.0	9,943.0	7,391.5	55.1	52.9	90.44	-2,628.6	-114.1	852.2	745.4	106.77	7.981			
10,100.0	7,392.0	10,043.0	7,391.2	56.9	54.7	90.42	-2,728.6	-114.2	852.1	741.7	110.43	7.717			
10,200.0	7,392.0	10,143.0	7,391.0	58.7	56.5	90.40	-2,828.6	-114.2	852.1	738.0	114.10	7.468			
10,300.0	7,392.0	10,243.0	7,390.8	60.5	58.4	90.39	-2,928.6	-114.2	852.1	734.3	117.78	7.235			
10,400.0	7,392.0	10,343.0	7,390.5	62.3	60.2	90.37	-3,028.6	-114.2	852.0	730.5	121.47	7.014			
10,500.0	7,392.0	10,443.0	7,390.3	64.1	62.1	90.35	-3,128.6	-114.3	852.0	726.8	125.16	6.807			
10,600.0	7,392.0	10,543.0	7,390.0	65.9	63.9	90.34	-3,228.6	-114.3	851.9	723.1	128.87	6.611			
10,700.0	7,392.0	10,643.0	7,389.8	67.8	65.8	90.32	-3,328.6	-114.3	851.9	719.3	132.59	6.425			
10,800.0	7,392.0	10,743.0	7,389.5	69.6	67.7	90.31	-3,428.6	-114.3	851.8	715.5	136.31	6.249			
10,900.0	7,392.0	10,843.0	7,389.3	71.4	69.5	90.29	-3,528.6	-114.4	851.8	711.8	140.03	6.083			
11,000.0	7,392.0	10,943.0	7,389.1	73.3	71.4	90.27	-3,628.6	-114.4	851.7	708.0	143.77	5.924			
11,100.0	7,392.0	11,043.0	7,388.8	75.1	73.3	90.26	-3,728.6	-114.4	851.7	704.2	147.51	5.774			
11,200.0	7,392.0	11,143.0	7,388.6	77.0	75.1	90.24	-3,828.6	-114.4	851.7	700.4	151.25	5.631			
11,300.0	7,392.0	11,243.0	7,388.3	78.8	77.0	90.23	-3,928.6	-114.5	851.6	696.6	155.00	5.494			
11,400.0	7,392.0	11,343.0	7,388.1	80.7	78.9	90.21	-4,028.6	-114.5	851.6	692.8	158.75	5.364			
11,500.0	7,392.0	11,443.0	7,387.9	82.6	80.8	90.19	-4,128.6	-114.5	851.5	689.0	162.51	5.240			
11,600.0	7,392.0	11,543.0	7,387.6	84.4	82.7	90.18	-4,228.6	-114.5	851.5	685.2	166.27	5.121			
11,700.0	7,392.0	11,643.0	7,387.4	86.3	84.5	90.16	-4,328.6	-114.6	851.4	681.4	170.03	5.008			
11,800.0	7,392.0	11,743.0	7,387.1	88.1	86.4	90.14	-4,428.6	-114.6	851.4	677.6	173.80	4.899			
11,859.4	7,392.0	11,802.4	7,387.0	89.3	87.5	90.13	-4,488.0	-114.6	851.4	675.3	176.04	4.836 SF			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Gaddis 36M-443
Project:	SEC.36-T4N-R68W	TVD Reference:	WELL @ 5080.0ft (Ensign Rig #119 - RKB - 23')
Reference Site:	Gaddis Pad Sec.36-T4N-R68W	MD Reference:	WELL @ 5080.0ft (Ensign Rig #119 - RKB - 23')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Gaddis 36M-443	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 (10-16-13)	Offset TVD Reference:	Offset Datum

Offset Design														Offset Site Error:	0.0 ft
Survey Program: 0-MWD														Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis		Distance		Minimum Separation		Separation Factor		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	-90.00	0.0	-58.6	58.6	58.6	0.00	N/A			
100.0	100.0	101.0	101.0	0.1	0.1	-90.00	0.0	-58.6	58.6	58.4	0.23	258.118			
200.0	200.0	201.0	201.0	0.3	0.3	-90.00	0.0	-58.6	58.6	57.9	0.68	86.611 CC, ES			
300.0	300.0	301.0	301.0	0.6	0.6	-161.18	0.0	-58.6	60.2	59.1	1.13	53.544			
400.0	399.8	400.8	400.8	0.8	0.8	-162.64	0.0	-58.6	65.2	63.6	1.58	41.359			
500.0	499.5	500.5	500.5	1.0	1.0	-164.62	0.0	-58.6	73.6	71.6	2.03	36.181			
600.0	598.7	599.7	599.7	1.3	1.2	-166.73	0.0	-58.6	85.4	82.9	2.49	34.245			
700.0	697.6	698.6	698.6	1.6	1.5	-168.65	0.0	-58.6	99.7	96.7	2.95	33.822			
800.0	796.5	797.5	797.5	2.0	1.7	-170.10	0.0	-58.6	114.1	110.7	3.40	33.547			
900.0	895.5	896.5	896.5	2.3	1.9	-171.22	0.0	-58.6	128.7	124.8	3.86	33.328			
1,000.0	994.4	995.4	995.4	2.7	2.1	-172.12	0.0	-58.6	143.2	138.9	4.32	33.149			
1,100.0	1,093.3	1,094.3	1,094.3	3.0	2.3	-172.85	0.0	-58.6	157.8	153.0	4.78	33.001			
1,200.0	1,192.2	1,193.2	1,193.2	3.4	2.6	-173.46	0.0	-58.6	172.4	167.1	5.24	32.876			
1,300.0	1,291.1	1,292.1	1,292.1	3.7	2.8	-173.97	0.0	-58.6	187.0	181.3	5.71	32.770			
1,400.0	1,390.0	1,391.0	1,391.0	4.1	3.0	-174.41	0.0	-58.6	201.6	195.5	6.17	32.678			
1,500.0	1,488.9	1,489.9	1,489.9	4.4	3.2	-174.79	0.0	-58.6	216.3	209.6	6.63	32.597			
1,600.0	1,587.8	1,588.8	1,588.8	4.8	3.5	-175.12	0.0	-58.6	230.9	223.8	7.10	32.527			
1,700.0	1,686.8	1,687.8	1,687.8	5.1	3.7	-175.41	0.0	-58.6	245.6	238.0	7.56	32.464			
1,800.0	1,785.7	1,786.7	1,786.7	5.5	3.9	-175.67	0.0	-58.6	260.2	252.2	8.03	32.408			
1,900.0	1,884.6	1,885.6	1,885.6	5.8	4.1	-175.90	0.0	-58.6	274.9	266.4	8.50	32.358			
2,000.0	1,983.5	1,984.5	1,984.5	6.2	4.3	-176.11	0.0	-58.6	289.6	280.6	8.96	32.312			
2,100.0	2,082.4	2,083.4	2,083.4	6.5	4.6	-176.30	0.0	-58.6	304.2	294.8	9.43	32.271			
2,200.0	2,181.3	2,182.3	2,182.3	6.9	4.8	-176.47	0.0	-58.6	318.9	309.0	9.89	32.233			
2,300.0	2,280.2	2,281.2	2,281.2	7.2	5.0	-176.63	0.0	-58.6	333.6	323.2	10.36	32.198			
2,400.0	2,379.2	2,380.2	2,380.2	7.6	5.2	-176.77	0.0	-58.6	348.3	337.5	10.83	32.166			
2,500.0	2,478.1	2,479.1	2,479.1	8.0	5.5	-176.90	0.0	-58.6	363.0	351.7	11.29	32.137			
2,600.0	2,577.0	2,578.0	2,578.0	8.3	5.7	-177.02	0.0	-58.6	377.6	365.9	11.76	32.110			
2,700.0	2,675.9	2,676.9	2,676.9	8.7	5.9	-177.13	0.0	-58.6	392.3	380.1	12.23	32.084			
2,800.0	2,774.8	2,775.8	2,775.8	9.0	6.1	-177.24	0.0	-58.6	407.0	394.3	12.70	32.061			
2,900.0	2,873.7	2,874.7	2,874.7	9.4	6.3	-177.33	0.0	-58.6	421.7	408.5	13.16	32.039			
3,000.0	2,972.6	2,973.6	2,973.6	9.7	6.6	-177.42	0.0	-58.6	436.4	422.8	13.63	32.018			
3,100.0	3,071.5	3,079.6	3,079.6	10.1	6.8	-177.39	1.1	-58.3	450.5	436.4	14.11	31.926			
3,200.0	3,170.5	3,188.7	3,188.5	10.4	7.1	-176.96	5.9	-56.7	462.6	448.0	14.60	31.691			
3,300.0	3,269.4	3,297.9	3,297.3	10.8	7.3	-176.13	14.7	-53.9	472.6	457.5	15.09	31.327			
3,400.0	3,368.3	3,407.0	3,405.6	11.2	7.5	-174.92	27.5	-49.8	480.6	465.1	15.58	30.845			
3,500.0	3,467.2	3,506.5	3,504.1	11.5	7.8	-173.65	41.1	-45.5	487.8	471.7	16.07	30.354			
3,600.0	3,566.1	3,605.7	3,602.3	11.9	8.0	-172.42	54.6	-41.2	495.2	478.6	16.57	29.889			
3,700.0	3,665.0	3,704.8	3,700.4	12.2	8.3	-171.23	68.1	-36.9	502.8	485.8	17.08	29.446			
3,800.0	3,763.9	3,804.0	3,798.5	12.6	8.5	-170.07	81.6	-32.5	510.7	493.1	17.60	29.024			
3,900.0	3,862.8	3,903.2	3,896.7	12.9	8.8	-168.95	95.1	-28.2	518.7	500.6	18.12	28.622			
4,000.0	3,961.8	4,002.3	3,994.8	13.3	9.0	-167.86	108.6	-23.9	527.0	508.3	18.66	28.239			
4,100.0	4,060.7	4,101.5	4,093.0	13.6	9.3	-166.81	122.1	-19.6	535.4	516.2	19.21	27.874			
4,200.0	4,159.6	4,200.6	4,191.1	14.0	9.6	-165.79	135.7	-15.3	544.0	524.2	19.76	27.526			
4,300.0	4,258.5	4,299.8	4,289.3	14.4	9.9	-164.80	149.2	-11.0	552.7	532.4	20.33	27.195			
4,400.0	4,357.4	4,399.0	4,387.4	14.7	10.2	-163.84	162.7	-6.7	561.7	540.8	20.90	26.880			
4,500.0	4,456.3	4,498.1	4,485.5	15.1	10.4	-162.91	176.2	-2.3	570.7	549.3	21.47	26.580			
4,600.0	4,555.2	4,597.3	4,583.7	15.4	10.7	-162.01	189.7	2.0	580.0	557.9	22.06	26.294			
4,700.0	4,654.2	4,696.5	4,681.8	15.8	11.0	-161.14	203.2	6.3	589.3	566.7	22.65	26.022			
4,800.0	4,753.1	4,795.6	4,780.0	16.1	11.3	-160.30	216.8	10.6	598.8	575.6	23.24	25.763			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Gaddis 36M-443
Project:	SEC.36-T4N-R68W	TVD Reference:	WELL @ 5080.0ft (Ensign Rig #119 - RKB - 23')
Reference Site:	Gaddis Pad Sec.36-T4N-R68W	MD Reference:	WELL @ 5080.0ft (Ensign Rig #119 - RKB - 23')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Gaddis 36M-443	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 (10-16-13)	Offset TVD Reference:	Offset Datum

Offset Design														Offset Site Error:	0.0 ft
Survey Program: 0-MWD														Offset Well Error:	0.0 ft
Reference															
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
4,900.0	4,852.0	4,894.8	4,878.1	16.5	11.6	-159.48	230.3	14.9	608.4	584.6	23.85	25.516			
5,000.0	4,950.9	4,989.0	4,971.6	16.9	11.9	-158.83	242.0	18.7	618.5	594.1	24.40	25.352			
5,100.0	5,049.8	5,082.8	5,064.8	17.2	12.1	-158.47	250.8	21.5	629.5	604.7	24.89	25.294			
5,200.0	5,148.7	5,176.4	5,158.3	17.6	12.3	-158.39	256.7	23.3	641.5	616.1	25.34	25.310			
5,300.0	5,247.6	5,269.9	5,251.6	17.9	12.4	-158.58	259.6	24.3	654.3	628.5	25.76	25.395			
5,400.0	5,346.5	5,365.8	5,347.5	18.3	12.6	-158.99	260.0	24.4	667.9	641.7	26.17	25.524			
5,500.0	5,445.5	5,464.7	5,446.5	18.6	12.8	-159.43	260.0	24.4	681.7	655.1	26.59	25.633			
5,600.0	5,544.5	5,563.7	5,545.5	19.0	13.0	-159.89	260.0	24.4	694.7	667.7	27.03	25.703			
5,700.0	5,643.9	5,663.1	5,644.9	19.2	13.2	-160.26	260.0	24.4	704.8	677.4	27.43	25.698			
5,800.0	5,743.6	5,762.8	5,744.6	19.4	13.4	-160.50	260.0	24.4	711.6	683.8	27.80	25.601			
5,900.0	5,843.6	5,862.8	5,844.6	19.5	13.6	-160.62	260.0	24.4	715.1	686.9	28.14	25.414			
6,000.0	5,943.6	5,962.8	5,944.6	19.7	13.8	-90.00	260.0	24.4	715.6	687.1	28.48	25.122			
6,100.0	6,043.6	6,062.8	6,044.6	19.8	14.1	-90.00	260.0	24.4	715.6	686.7	28.88	24.782			
6,200.0	6,143.6	6,162.8	6,144.6	19.9	14.3	-90.00	260.0	24.4	715.6	686.3	29.27	24.449			
6,300.0	6,243.6	6,262.8	6,244.6	20.1	14.5	-90.00	260.0	24.4	715.6	685.9	29.66	24.123			
6,400.0	6,343.6	6,362.8	6,344.6	20.2	14.7	-90.00	260.0	24.4	715.6	685.5	30.06	23.805			
6,500.0	6,443.6	6,462.8	6,444.6	20.4	14.9	-90.00	260.0	24.4	715.6	685.1	30.46	23.495			
6,600.0	6,543.6	6,562.8	6,544.6	20.5	15.1	-90.00	260.0	24.4	715.6	684.7	30.86	23.191			
6,693.2	6,636.7	6,655.9	6,637.7	20.7	15.3	90.08	260.0	24.4	715.6	684.4	31.24	22.910			
6,700.0	6,643.6	6,662.8	6,644.6	20.7	15.3	89.99	259.9	24.4	715.6	684.3	31.25	22.896			
6,800.0	6,743.0	6,762.8	6,744.1	20.8	15.4	90.05	250.9	24.4	715.6	684.1	31.51	22.710			
6,900.0	6,840.3	6,862.7	6,840.9	20.8	15.5	89.91	226.4	24.4	715.6	684.0	31.62	22.631			
7,000.0	6,933.8	6,962.1	6,932.1	20.9	15.5	89.55	187.4	24.3	715.6	684.0	31.64	22.617			
7,100.0	7,021.9	7,060.5	7,015.4	20.9	15.5	89.01	135.2	24.3	715.7	684.1	31.64	22.618			
7,200.0	7,103.1	7,157.5	7,088.7	20.9	15.5	88.28	71.8	24.2	716.0	684.3	31.72	22.575			
7,300.0	7,176.0	7,252.8	7,150.5	20.9	15.6	87.40	-0.6	24.1	716.4	684.5	31.94	22.432			
7,400.0	7,239.4	7,346.2	7,200.0	21.0	15.8	86.39	-79.8	24.1	717.2	684.8	32.38	22.150			
7,500.0	7,292.1	7,437.6	7,236.7	21.1	16.2	85.28	-163.4	24.0	718.2	685.2	33.08	21.715			
7,600.0	7,333.3	7,527.0	7,260.6	21.4	16.8	84.08	-249.5	23.9	719.7	685.7	34.03	21.149			
7,700.0	7,362.3	7,614.3	7,272.1	21.8	17.4	82.83	-335.9	23.8	721.6	686.4	35.21	20.494			
7,800.0	7,378.5	7,706.2	7,273.0	22.4	18.2	81.59	-427.8	23.7	723.7	687.1	36.65	19.747			
7,900.0	7,388.6	7,805.6	7,272.2	23.1	19.3	80.72	-527.2	23.6	725.4	686.9	38.51	18.839			
8,000.0	7,392.0	7,905.4	7,271.3	24.0	20.4	80.36	-627.0	23.5	726.2	685.6	40.60	17.885			
8,100.0	7,392.0	8,005.4	7,270.5	25.1	21.7	80.29	-727.0	23.4	726.3	683.3	43.03	16.879			
8,200.0	7,392.0	8,105.4	7,269.7	26.2	23.0	80.23	-827.0	23.3	726.5	680.9	45.65	15.916			
8,300.0	7,392.0	8,205.4	7,268.8	27.5	24.5	80.16	-927.0	23.2	726.7	678.3	48.41	15.010			
8,400.0	7,392.0	8,305.4	7,268.0	28.8	25.9	80.10	-1,027.0	23.1	726.9	675.6	51.31	14.166			
8,500.0	7,392.0	8,405.4	7,267.2	30.2	27.5	80.03	-1,127.0	23.0	727.0	672.7	54.31	13.386			
8,600.0	7,392.0	8,505.4	7,266.3	31.7	29.1	79.97	-1,227.0	22.9	727.2	669.8	57.41	12.668			
8,700.0	7,392.0	8,605.4	7,265.5	33.2	30.7	79.90	-1,327.0	22.8	727.4	666.8	60.58	12.007			
8,800.0	7,392.0	8,705.4	7,264.6	34.7	32.4	79.84	-1,427.0	22.7	727.6	663.8	63.82	11.401			
8,900.0	7,392.0	8,805.4	7,263.8	36.3	34.1	79.77	-1,527.0	22.6	727.8	660.7	67.11	10.845			
9,000.0	7,392.0	8,905.4	7,263.0	37.9	35.8	79.71	-1,627.0	22.5	728.0	657.5	70.45	10.334			
9,100.0	7,392.0	9,005.4	7,262.1	39.5	37.5	79.65	-1,727.0	22.4	728.1	654.3	73.82	9.863			
9,200.0	7,392.0	9,105.4	7,261.3	41.2	39.2	79.58	-1,827.0	22.3	728.3	651.1	77.24	9.429			
9,300.0	7,392.0	9,205.4	7,260.5	42.9	41.0	79.52	-1,927.0	22.2	728.5	647.8	80.68	9.029			
9,400.0	7,392.0	9,305.4	7,259.6	44.6	42.8	79.45	-2,026.9	22.1	728.7	644.5	84.15	8.659			
9,500.0	7,392.0	9,405.4	7,258.8	46.3	44.6	79.39	-2,126.9	22.0	728.9	641.2	87.65	8.316			
9,600.0	7,392.0	9,505.4	7,257.9	48.0	46.4	79.32	-2,226.9	21.9	729.1	637.9	91.16	7.997			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Gaddis 36M-443
Project:	SEC.36-T4N-R68W	TVD Reference:	WELL @ 5080.0ft (Ensign Rig #119 - RKB - 23')
Reference Site:	Gaddis Pad Sec.36-T4N-R68W	MD Reference:	WELL @ 5080.0ft (Ensign Rig #119 - RKB - 23')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Gaddis 36M-443	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 (10-16-13)	Offset TVD Reference:	Offset Datum

Offset Design		Gaddis Pad Sec.36-T4N-R68W - Gaddis 36J-3034 /Codell Sidetrack - Wellbore 1 Gaddis 36J-3034 - PI										Offset Site Error:		0.0 ft		
Survey Program: 0-MWD														Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance									
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)					
9,700.0	7,392.0	9,605.4	7,257.1	49.8	48.2	79.26	-2,326.9	21.8	729.3	634.6	94.70	7.701				
9,800.0	7,392.0	9,705.4	7,256.3	51.5	50.0	79.20	-2,426.9	21.7	729.4	631.2	98.24	7.425				
9,900.0	7,392.0	9,805.4	7,255.4	53.3	51.8	79.13	-2,526.9	21.6	729.6	627.8	101.81	7.167				
10,000.0	7,392.0	9,905.4	7,254.6	55.1	53.7	79.07	-2,626.9	21.5	729.8	624.5	105.38	6.926				
10,100.0	7,392.0	10,005.4	7,253.8	56.9	55.5	79.00	-2,726.9	21.3	730.0	621.1	108.97	6.700				
10,200.0	7,392.0	10,105.4	7,252.9	58.7	57.3	78.94	-2,826.9	21.2	730.2	617.7	112.56	6.487				
10,300.0	7,392.0	10,205.4	7,252.1	60.5	59.2	78.88	-2,926.9	21.1	730.4	614.2	116.16	6.288				
10,400.0	7,392.0	10,305.4	7,251.2	62.3	61.0	78.81	-3,026.9	21.0	730.6	610.8	119.78	6.100				
10,500.0	7,392.0	10,405.4	7,250.4	64.1	62.9	78.75	-3,126.9	20.9	730.8	607.4	123.40	5.922				
10,600.0	7,392.0	10,505.4	7,249.6	65.9	64.7	78.68	-3,226.9	20.8	731.0	604.0	127.02	5.755				
10,700.0	7,392.0	10,605.3	7,248.7	67.8	66.6	78.62	-3,326.9	20.7	731.2	600.6	130.65	5.597				
10,800.0	7,392.0	10,705.3	7,247.9	69.6	68.5	78.56	-3,426.8	20.6	731.4	597.1	134.29	5.447				
10,900.0	7,392.0	10,805.3	7,247.1	71.4	70.3	78.49	-3,526.8	20.5	731.6	593.7	137.93	5.304				
11,000.0	7,392.0	10,905.3	7,246.2	73.3	72.2	78.43	-3,626.8	20.4	731.8	590.2	141.57	5.169				
11,100.0	7,392.0	11,005.3	7,245.4	75.1	74.1	78.37	-3,726.8	20.3	732.0	586.8	145.22	5.041				
11,200.0	7,392.0	11,105.3	7,244.5	77.0	76.0	78.30	-3,826.8	20.2	732.2	583.3	148.87	4.919				
11,300.0	7,392.0	11,205.3	7,243.7	78.8	77.8	78.24	-3,926.8	20.1	732.4	579.9	152.52	4.802				
11,400.0	7,392.0	11,305.3	7,242.9	80.7	79.7	78.17	-4,026.8	20.0	732.6	576.4	156.18	4.691				
11,500.0	7,392.0	11,405.3	7,242.0	82.6	81.6	78.11	-4,126.8	19.9	732.8	573.0	159.83	4.585				
11,600.0	7,392.0	11,505.3	7,241.2	84.4	83.5	78.05	-4,226.8	19.8	733.0	569.5	163.49	4.484				
11,700.0	7,392.0	11,605.3	7,240.4	86.3	85.4	77.98	-4,326.8	19.7	733.2	566.1	167.15	4.387				
11,800.0	7,392.0	11,705.3	7,239.5	88.1	87.2	77.92	-4,426.8	19.6	733.4	562.6	170.80	4.294				
11,859.4	7,392.0	11,764.7	7,239.0	89.3	88.1	77.88	-4,486.2	19.5	733.6	560.8	172.76	4.246 SF				

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Gaddis 36M-443
Project:	SEC.36-T4N-R68W	TVD Reference:	WELL @ 5080.0ft (Ensign Rig #119 - RKB - 23')
Reference Site:	Gaddis Pad Sec.36-T4N-R68W	MD Reference:	WELL @ 5080.0ft (Ensign Rig #119 - RKB - 23')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Gaddis 36M-443	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 (10-16-13)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Gaddis Pad Sec.36-T4N-R68W - State Corsair 23-36 (Exist.) - Wellbore #1 - Wellbore #1													Offset Well Error:	0.0 ft
Survey Program: 7300-UNKNOWN														
Reference														
Offset														
Semi Major Axis														
Distance														
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
9,200.0	7,392.0	7,300.0	7,300.0	41.2	146.0	63.35	-2,819.7	664.2	994.4	828.8	165.55	6.007		
9,300.0	7,392.0	7,300.0	7,300.0	42.9	146.0	63.35	-2,819.7	664.2	894.8	727.6	167.14	5.353		
9,400.0	7,392.0	7,300.0	7,300.0	44.6	146.0	63.35	-2,819.7	664.2	795.2	626.5	168.75	4.713		
9,500.0	7,392.0	7,300.0	7,300.0	46.3	146.0	63.35	-2,819.7	664.2	695.9	525.5	170.36	4.085		
9,600.0	7,392.0	7,300.0	7,300.0	48.0	146.0	63.35	-2,819.7	664.2	596.7	424.7	171.99	3.469		
9,700.0	7,392.0	7,300.0	7,300.0	49.8	146.0	63.35	-2,819.7	664.2	497.8	324.2	173.63	2.867		
9,800.0	7,392.0	7,300.0	7,300.0	51.5	146.0	63.35	-2,819.7	664.2	399.6	224.3	175.27	2.280		
9,900.0	7,392.0	7,300.0	7,300.0	53.3	146.0	63.35	-2,819.7	664.2	302.4	125.5	176.93	1.709		
10,000.0	7,392.0	7,300.0	7,300.0	55.1	146.0	63.35	-2,819.7	664.2	208.0	29.4	178.58	1.165 Level 2		
10,100.0	7,392.0	7,300.0	7,300.0	56.9	146.0	63.35	-2,819.7	664.2	122.8	-57.4	180.25	0.681 Level 1		
10,191.0	7,392.0	7,300.0	7,300.0	58.5	146.0	63.35	-2,819.7	664.2	82.5	-99.3	181.77	0.454 Level 1, CC, ES, SF		
10,200.0	7,392.0	7,300.0	7,300.0	58.7	146.0	63.35	-2,819.7	664.2	83.0	-98.9	181.92	0.456 Level 1		
10,300.0	7,392.0	7,300.0	7,300.0	60.5	146.0	63.35	-2,819.7	664.2	136.7	-46.9	183.60	0.745 Level 1		
10,400.0	7,392.0	7,300.0	7,300.0	62.3	146.0	63.35	-2,819.7	664.2	224.7	39.5	185.28	1.213 Level 2		
10,500.0	7,392.0	7,300.0	7,300.0	64.1	146.0	63.35	-2,819.7	664.2	319.9	132.9	186.96	1.711		
10,600.0	7,392.0	7,300.0	7,300.0	65.9	146.0	63.35	-2,819.7	664.2	417.3	228.6	188.65	2.212		
10,700.0	7,392.0	7,300.0	7,300.0	67.8	146.0	63.35	-2,819.7	664.2	515.7	325.3	190.34	2.709		
10,800.0	7,392.0	7,300.0	7,300.0	69.6	146.0	63.35	-2,819.7	664.2	614.6	422.6	192.03	3.201		
10,900.0	7,392.0	7,300.0	7,300.0	71.4	146.0	63.35	-2,819.7	664.2	713.8	520.1	193.73	3.685		
11,000.0	7,392.0	7,300.0	7,300.0	73.3	146.0	63.35	-2,819.7	664.2	813.2	617.8	195.43	4.161		
11,100.0	7,392.0	7,300.0	7,300.0	75.1	146.0	63.35	-2,819.7	664.2	912.8	715.6	197.13	4.630		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Gaddis 36M-443
Project:	SEC.36-T4N-R68W	TVD Reference:	WELL @ 5080.0ft (Ensign Rig #119 - RKB - 23')
Reference Site:	Gaddis Pad Sec.36-T4N-R68W	MD Reference:	WELL @ 5080.0ft (Ensign Rig #119 - RKB - 23')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Gaddis 36M-443	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 (10-16-13)	Offset TVD Reference:	Offset Datum

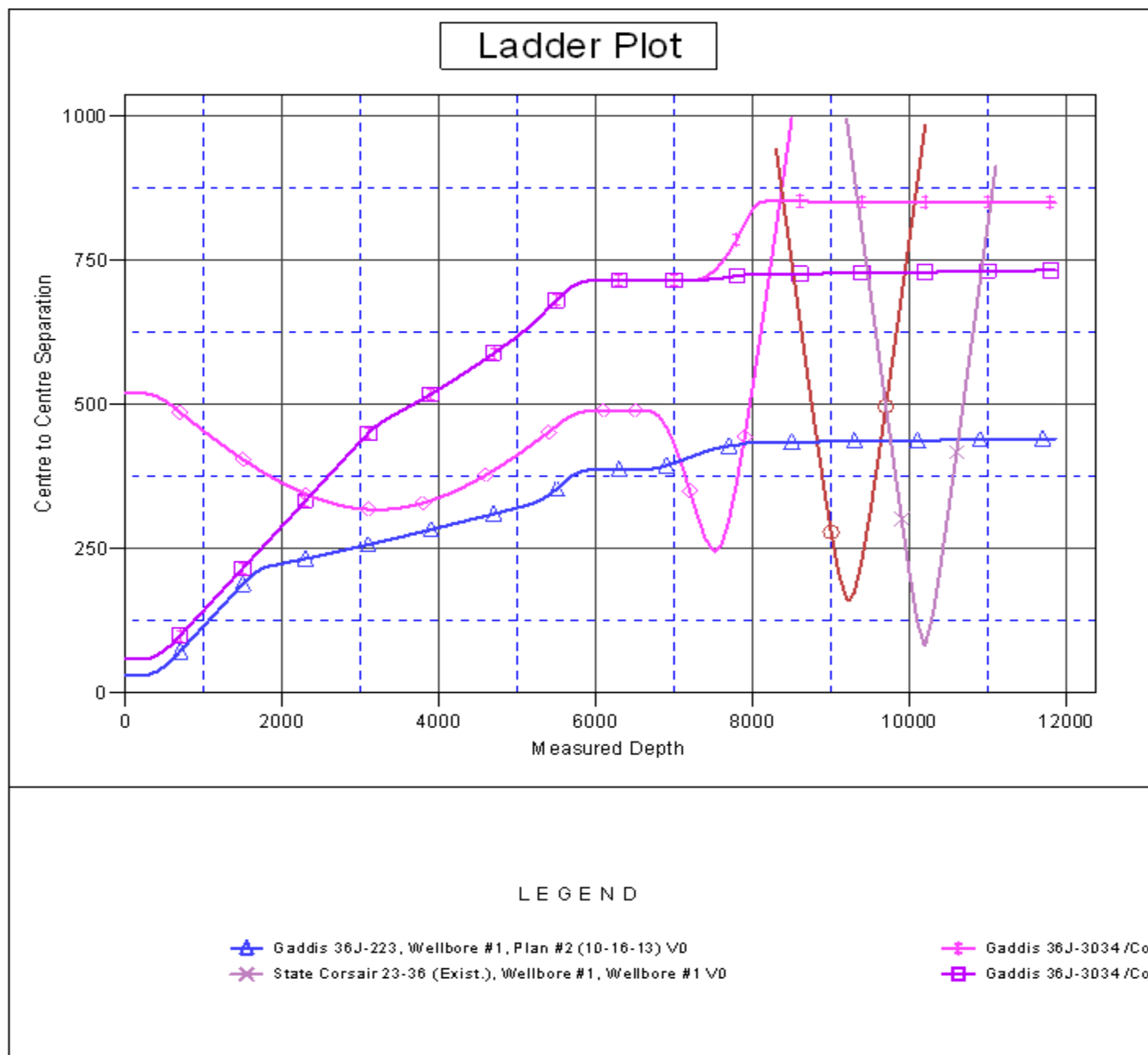
Reference Depths are relative to WELL @ 5080.0ft (Ensign Rig #119 - Coordinates are relative to: Gaddis 36M-443

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.35°



Reference Depths are relative to WELL @ 5080.0ft (Ensign Rig #119 - Coordinates are relative to: Gaddis 36M-443
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is -105.500000 ° Grid Convergence at Surface is: 0.35°

