

PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Gaddis 36J-3034 /Codell Sidetrack**

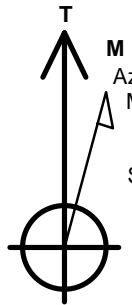
Surface Location: Gaddis Pad Sec.36-T4N-R68W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
Ground Elevation: 5058.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1344049.97	3151709.26	40.276540	-104.956270	

RKB Ensign 32 - 15' WELL @ 5073.0ft (RKB Ensign 32 - 15')

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 310'FNL, 1240'FWL	-7.0	0.0	0.0	Point
BHL 36J-3034 500'FSL, 1323'FWL	7231.0	-4488.2	78.1	Point
BHL 36J-3034 (CODELL SIDETRACK) 500'FSL & 1158'FWL	7387.0	-4488.2	-56.0	Point



Azimuths to True North
Magnetic North: 8.67°

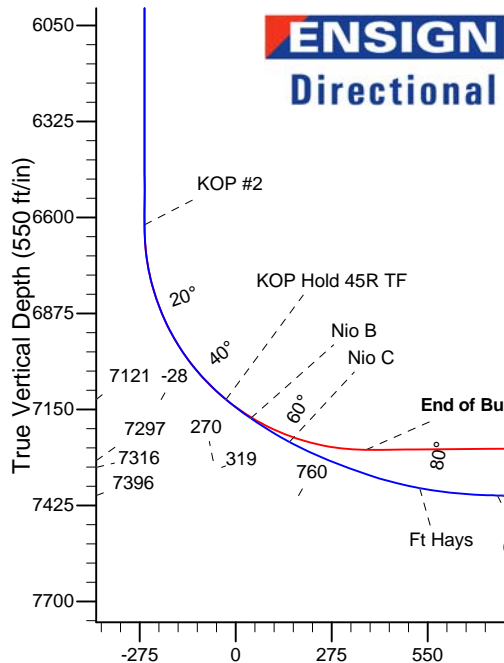
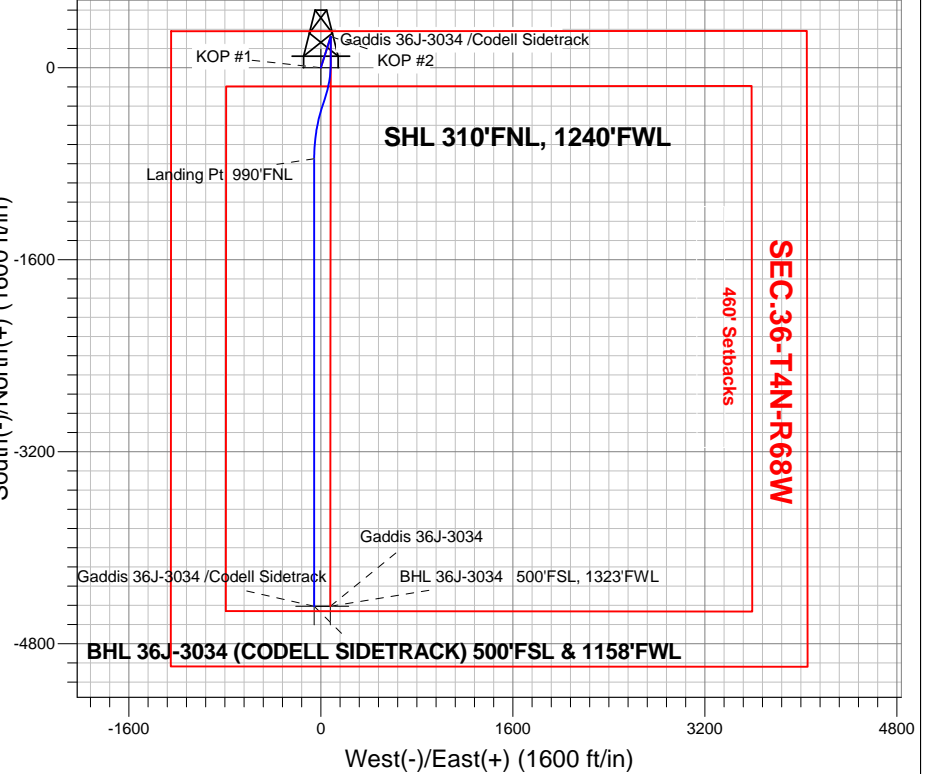
Magnetic Field
Strength: 52822.5snT
Dip Angle: 66.85°
Date: 7/23/2013
Model: IGRF2010

ANNOTATIONS

TVD	MD	Annotation
7121.2	7210.0	KOP Hold 45R TF
7296.7	7562.0	End of build and Turn 45R TF
7315.9	7617.0	Start build to landing
7396.0	8073.8	Landing Pt 990'FNL

Gaddis Pad Sec.36-T4N-R68W
Gaddis 36J-3034 /Codell Sidetrack
Plan #3 (10-16-13) Sidetrack
7:31, October 22 2013

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



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	Target	VSec
1	7210.0	50.67	180.06	7121.2	26.9	82.8	0.00	0.00	-27.9	
2	7562.0	69.63	198.39	7296.7	-270.4	29.8	7.00	45.00	270.0	
3	7617.0	69.63	198.39	7315.9	-319.4	13.5	0.00	0.00	319.2	
4	8071.8	90.15	180.00	7396.0	-757.4	-55.1	6.00	-43.47	758.0	
5	8072.8	90.15	180.00	7396.0	-758.4	-55.1	0.00	0.00	759.0	
6	8073.8	90.14	180.01	7396.0	-759.4	-55.1	2.00	130.21	760.0	
7	11802.6	90.14	180.01	7387.0	-4488.2	-56.0	0.00	0.00	4488.6	BHL 36J-3034 (CODELL SIDETRACK) 500'FSL & 1158'FWL

Vertical Section at 180.71° (550 ft/in)



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.36-T4N-R68W

Gaddis Pad Sec.36-T4N-R68W

Gaddis 36J-3034 /Codell Sidetrack

Wellbore #2 Codell Sidetrack

Plan: Plan #3 (10-16-13) Sidetrack

Standard Planning Report

22 October, 2013

Database:	Landmark	Local Co-ordinate Reference:	Well Gaddis 36J-3034 /Codell Sidetrack
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 5073.0ft (RKB Ensign 32 - 15')
Project:	SEC.36-T4N-R68W	MD Reference:	WELL @ 5073.0ft (RKB Ensign 32 - 15')
Site:	Gaddis Pad Sec.36-T4N-R68W	North Reference:	True
Well:	Gaddis 36J-3034 /Codell Sidetrack	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #2 Codell Sidetrack		
Design:	Plan #3 (10-16-13) Sidetrack		

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:	1,344,049.99 ft
From:	Lat/Long	Easting:	3,151,709.26 ft
Position Uncertainty:	0.0 ft	Slot Radius:	"
		Latitude:	40.276540
		Longitude:	-104.956270
		Grid Convergence:	0.35 °

Well	Gaddis 36J-3034 /Codell Sidetrack		
Well Position	+N/-S	0.0 ft	Northing: 1,344,049.97 ft
	+E/-W	0.0 ft	Easting: 3,151,709.26 ft
Position Uncertainty		0.0 ft	Wellhead Elevation: ft
			Latitude: 40.276540
			Longitude: -104.956270
			Ground Level: 5,058.0 ft

Wellbore	Wellbore #2 Codell Sidetrack				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/23/2013	8.67	66.85	52,822

Design	Plan #3 (10-16-13) Sidetrack			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	7,210.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	-8.0	0.0	0.0	180.71

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
7,210.0	50.67	180.06	7,121.2	26.9	82.8	0.00	0.00	0.00	0.00	
7,562.0	69.63	198.39	7,296.7	-270.4	29.8	7.00	5.39	5.21	45.00	
7,617.0	69.63	198.39	7,315.9	-319.4	13.5	0.00	0.00	0.00	0.00	
8,071.8	90.15	180.00	7,396.0	-757.4	-55.1	6.00	4.51	-4.04	-43.47	
8,072.8	90.15	180.00	7,396.0	-758.4	-55.1	0.00	0.00	0.00	0.00	
8,073.8	90.14	180.01	7,396.0	-759.4	-55.1	2.00	-1.29	1.53	130.21	
11,802.6	90.14	180.01	7,387.0	-4,488.2	-56.0	0.00	0.00	0.00	0.00	BHL 36J-3034 (COI

Database:	Landmark	Local Co-ordinate Reference:	Well Gaddis 36J-3034 /Codell Sidetrack
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 5073.0ft (RKB Ensign 32 - 15')
Project:	SEC.36-T4N-R68W	MD Reference:	WELL @ 5073.0ft (RKB Ensign 32 - 15')
Site:	Gaddis Pad Sec.36-T4N-R68W	North Reference:	True
Well:	Gaddis 36J-3034 /Codell Sidetrack	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #2 Codell Sidetrack		
Design:	Plan #3 (10-16-13) Sidetrack		

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)
7,210.0	50.67	180.06	7,121.2	26.9	82.8	-27.9	0.00	0.00	0.00
KOP Hold 45R TF - SHL 310'FNL, 1240'FWL									
7,299.2	55.21	185.43	7,175.0	-44.2	79.3	43.2	7.00	5.09	6.02
Nio B									
7,300.0	55.25	185.48	7,175.4	-44.8	79.2	43.8	7.00	5.22	5.67
7,400.0	60.60	190.82	7,228.6	-128.6	67.1	127.8	7.00	5.34	5.34
7,430.2	62.25	192.32	7,243.0	-154.6	61.8	153.8	7.00	5.48	4.97
Nio C									
7,500.0	66.13	195.62	7,273.4	-215.5	46.6	214.9	7.00	5.56	4.73
7,562.0	69.63	198.39	7,296.7	-270.4	29.8	270.0	7.00	5.65	4.46
End of build and Turn 45R TF									
7,600.0	69.63	198.39	7,310.0	-304.2	18.5	304.0	0.00	0.00	0.00
7,617.0	69.63	198.39	7,315.9	-319.4	13.5	319.2	0.00	0.00	0.00
Start build to landing									
7,700.0	73.28	194.81	7,342.3	-394.8	-9.0	394.8	6.00	4.40	-4.31
7,800.0	77.75	190.68	7,367.3	-489.1	-30.3	489.5	6.00	4.47	-4.13
7,839.1	79.52	189.11	7,375.0	-526.9	-36.9	527.3	6.00	4.52	-4.03
Ft Hays									
7,900.0	82.29	186.69	7,384.6	-586.5	-45.1	587.0	6.00	4.54	-3.97
8,000.0	86.86	182.78	7,394.1	-685.6	-53.3	686.2	6.00	4.57	-3.91
8,060.9	90.15	180.00	7,396.0	-746.5	-55.1	747.1	7.08	5.41	-4.57
Codell									
8,071.8	90.15	180.00	7,396.0	-757.4	-55.1	758.0	0.00	0.00	0.00
8,072.8	90.15	180.00	7,396.0	-758.4	-55.1	759.0	0.00	0.00	0.00
8,073.8	90.14	180.01	7,396.0	-759.4	-55.1	760.0	1.97	-1.27	1.50
Landing Pt 990'FNL									
8,100.0	90.14	180.01	7,395.9	-785.6	-55.1	786.2	0.00	0.00	0.00
8,200.0	90.14	180.01	7,395.7	-885.6	-55.1	886.2	0.00	0.00	0.00
8,300.0	90.14	180.01	7,395.4	-985.6	-55.1	986.2	0.00	0.00	0.00
8,400.0	90.14	180.01	7,395.2	-1,085.6	-55.1	1,086.2	0.00	0.00	0.00
8,500.0	90.14	180.01	7,394.9	-1,185.6	-55.2	1,186.2	0.00	0.00	0.00
8,600.0	90.14	180.01	7,394.7	-1,285.6	-55.2	1,286.2	0.00	0.00	0.00
8,700.0	90.14	180.01	7,394.5	-1,385.6	-55.2	1,386.1	0.00	0.00	0.00
8,800.0	90.14	180.01	7,394.2	-1,485.6	-55.2	1,486.1	0.00	0.00	0.00
8,900.0	90.14	180.01	7,394.0	-1,585.6	-55.3	1,586.1	0.00	0.00	0.00
9,000.0	90.14	180.01	7,393.7	-1,685.6	-55.3	1,686.1	0.00	0.00	0.00
9,100.0	90.14	180.01	7,393.5	-1,785.6	-55.3	1,786.1	0.00	0.00	0.00
9,200.0	90.14	180.01	7,393.3	-1,885.6	-55.3	1,886.1	0.00	0.00	0.00
9,300.0	90.14	180.01	7,393.0	-1,985.6	-55.4	1,986.1	0.00	0.00	0.00
9,400.0	90.14	180.01	7,392.8	-2,085.6	-55.4	2,086.1	0.00	0.00	0.00
9,500.0	90.14	180.01	7,392.5	-2,185.6	-55.4	2,186.1	0.00	0.00	0.00
9,600.0	90.14	180.01	7,392.3	-2,285.6	-55.4	2,286.1	0.00	0.00	0.00
9,700.0	90.14	180.01	7,392.1	-2,385.6	-55.5	2,386.1	0.00	0.00	0.00
9,800.0	90.14	180.01	7,391.8	-2,485.6	-55.5	2,486.1	0.00	0.00	0.00
9,900.0	90.14	180.01	7,391.6	-2,585.6	-55.5	2,586.1	0.00	0.00	0.00
10,000.0	90.14	180.01	7,391.3	-2,685.6	-55.5	2,686.0	0.00	0.00	0.00
10,100.0	90.14	180.01	7,391.1	-2,785.6	-55.6	2,786.0	0.00	0.00	0.00
10,200.0	90.14	180.01	7,390.9	-2,885.6	-55.6	2,886.0	0.00	0.00	0.00
10,300.0	90.14	180.01	7,390.6	-2,985.6	-55.6	2,986.0	0.00	0.00	0.00
10,400.0	90.14	180.01	7,390.4	-3,085.6	-55.6	3,086.0	0.00	0.00	0.00
10,500.0	90.14	180.01	7,390.1	-3,185.6	-55.7	3,186.0	0.00	0.00	0.00
10,600.0	90.14	180.01	7,389.9	-3,285.6	-55.7	3,286.0	0.00	0.00	0.00

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Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 5073.0ft (RKB Ensign 32 - 15')
Project:	SEC.36-T4N-R68W	MD Reference:	WELL @ 5073.0ft (RKB Ensign 32 - 15')
Site:	Gaddis Pad Sec.36-T4N-R68W	North Reference:	True
Well:	Gaddis 36J-3034 /Codell Sidetrack	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #2 Codell Sidetrack		
Design:	Plan #3 (10-16-13) Sidetrack		

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)
10,700.0	90.14	180.01	7,389.7	-3,385.6	-55.7	3,386.0	0.00	0.00	0.00
10,800.0	90.14	180.01	7,389.4	-3,485.6	-55.7	3,486.0	0.00	0.00	0.00
10,900.0	90.14	180.01	7,389.2	-3,585.6	-55.8	3,586.0	0.00	0.00	0.00
11,000.0	90.14	180.01	7,388.9	-3,685.6	-55.8	3,686.0	0.00	0.00	0.00
11,100.0	90.14	180.01	7,388.7	-3,785.6	-55.8	3,786.0	0.00	0.00	0.00
11,200.0	90.14	180.01	7,388.4	-3,885.6	-55.8	3,886.0	0.00	0.00	0.00
11,300.0	90.14	180.01	7,388.2	-3,985.6	-55.9	3,985.9	0.00	0.00	0.00
11,400.0	90.14	180.01	7,388.0	-4,085.6	-55.9	4,085.9	0.00	0.00	0.00
11,500.0	90.14	180.01	7,387.7	-4,185.6	-55.9	4,185.9	0.00	0.00	0.00
11,600.0	90.14	180.01	7,387.5	-4,285.6	-55.9	4,285.9	0.00	0.00	0.00
11,700.0	90.14	180.01	7,387.2	-4,385.6	-56.0	4,385.9	0.00	0.00	0.00
11,800.0	90.14	180.01	7,387.0	-4,485.6	-56.0	4,485.9	0.00	0.00	0.00
11,802.6	90.14	180.01	7,387.0	-4,488.2	-56.0	4,488.6	0.00	0.00	0.00
BHL 36J-3034 500'FSL, 1323'FWL - BHL 36J-3034 (CODELL SIDETRACK) 500'FSL & 1158'FWL									

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
7,004.7	6,968.0	Sharon Springs		0.00	
7,180.5	7,102.0	Nio A		0.00	
7,299.2	7,175.0	Nio B		0.00	
7,430.2	7,243.0	Nio C		0.00	
7,839.1	7,375.0	Ft Hays		0.00	
8,060.9	7,396.0	Codell		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N-S (ft)	+E-W (ft)	
7,210.0	7,121.2	26.9	82.8	KOP Hold 45R TF
7,562.0	7,296.7	-270.4	29.8	End of build and Turn 45R TF
7,617.0	7,315.9	-319.4	13.5	Start build to landing
8,073.8	7,396.0	-759.4	-55.1	Landing Pt 990'FNL



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.36-T4N-R68W

Gaddis Pad Sec.36-T4N-R68W

Gaddis 36J-3034 /Codell Sidetrack

Wellbore #2 Codell Sidetrack

Plan #3 (10-16-13) Sidetrack

Anticollision Report

22 October, 2013



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Gaddis 36J-3034 /Codell Sidetrack
Project:	SEC.36-T4N-R68W	TVD Reference:	WELL @ 5073.0ft (RKB Ensign 32 - 15')
Reference Site:	Gaddis Pad Sec.36-T4N-R68W	MD Reference:	WELL @ 5073.0ft (RKB Ensign 32 - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Gaddis 36J-3034 /Codell Sidetrack	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #2 Codell Sidetrack	Database:	Landmark
Reference Design:	Plan #3 (10-16-13) Sidetrack	Offset TVD Reference:	Offset Datum

Reference	Plan #3 (10-16-13) Sidetrack		
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	10/22/2013		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
-8.0	7,210.0	Plan #4 (10-16-13) (Wellbore 1 Gaddis 36	MWD	MWD - Standard
7,210.0	11,802.6	Plan #3 (10-16-13) Sidetrack (Wellbore #2	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 36J-223 - Wellbore #1 - Plan #2 (10-16-13)	1,464.2	1,471.2	27.9	21.5	4.366	CC
Gaddis 36J-223 - Wellbore #1 - Plan #2 (10-16-13)	1,500.0	1,506.9	27.9	21.4	4.260	ES
Gaddis 36J-223 - Wellbore #1 - Plan #2 (10-16-13)	11,803.6	11,643.9	509.6	346.7	3.127	SF
Gaddis 36J-243 - Wellbore #1 - Plan #2 (10-16-13)	1,963.8	1,971.8	30.7	22.1	3.553	CC
Gaddis 36J-243 - Wellbore #1 - Plan #2 (10-16-13)	2,000.0	2,007.9	30.7	21.9	3.488	ES
Gaddis 36J-243 - Wellbore #1 - Plan #2 (10-16-13)	11,803.6	11,637.9	285.2	154.4	2.180	SF
Gaddis 36J-3034 /Codell Sidetrack - Wellbore 1 Gaddis :	7,210.0	7,218.0	0.1	0.0	1.117	Level 2, CC, ES, SF
Gaddis 36M-443 - Wellbore #1 - Plan #4 (10-16-13)	164.2	171.2	58.6	58.0	107.145	CC
Gaddis 36M-443 - Wellbore #1 - Plan #4 (10-16-13)	200.0	206.9	58.6	57.9	82.852	ES
Gaddis 36M-443 - Wellbore #1 - Plan #4 (10-16-13)	11,803.6	11,859.4	851.4	675.3	4.836	SF

Offset Design		Gaddis Pad Sec.36-T4N-R68W - Gaddis 36J-223 - Wellbore #1 - Plan #2 (10-16-13)										Offset Site Error:		0.0 ft	
Survey Program:		0-MWD										Offset Well Error:		0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
							+N/-S (ft)	+E/-W (ft)							
-8.0	-8.0	0.0	0.0	0.0	0.0	89.99	0.0	27.9	27.9						
0.0	0.0	7.0	7.0	0.0	0.0	89.99	0.0	27.9	27.9	27.9	0.02	1,637.169			
100.0	100.0	107.0	107.0	0.1	0.1	89.99	0.0	27.9	27.9	27.6	0.26	107.950			
200.0	200.0	207.0	207.0	0.4	0.4	89.99	0.0	27.9	27.9	27.2	0.71	39.410			
300.0	300.0	307.0	307.0	0.6	0.6	89.99	0.0	27.9	27.9	26.7	1.16	24.105			
400.0	400.0	407.0	407.0	0.8	0.8	89.99	0.0	27.9	27.9	26.3	1.61	17.363			
500.0	500.0	507.0	507.0	1.0	1.0	89.99	0.0	27.9	27.9	25.8	2.06	13.567			
600.0	600.0	607.0	607.0	1.3	1.3	89.99	0.0	27.9	27.9	25.4	2.51	11.134			
700.0	700.0	707.0	707.0	1.5	1.5	89.99	0.0	27.9	27.9	24.9	2.96	9.440			
800.0	800.0	807.0	807.0	1.7	1.7	89.99	0.0	27.9	27.9	24.5	3.41	8.194			
900.0	900.0	907.0	907.0	1.9	1.9	89.99	0.0	27.9	27.9	24.0	3.85	7.239			
1,000.0	1,000.0	1,007.0	1,007.0	2.2	2.2	89.99	0.0	27.9	27.9	23.6	4.30	6.483			
1,100.0	1,100.0	1,107.0	1,107.0	2.4	2.4	89.99	0.0	27.9	27.9	23.1	4.75	5.870			
1,200.0	1,200.0	1,207.0	1,207.0	2.6	2.6	89.99	0.0	27.9	27.9	22.7	5.20	5.363			
1,300.0	1,300.0	1,307.0	1,307.0	2.8	2.8	89.99	0.0	27.9	27.9	22.3	5.65	4.936			
1,400.0	1,400.0	1,407.0	1,407.0	3.1	3.1	89.99	0.0	27.9	27.9	21.8	6.10	4.572			

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 36J-3034 /Codell Sidetrack
Project:	SEC.36-T4N-R68W	TVD Reference:	WELL @ 5073.0ft (RKB Ensign 32 - 15')
Reference Site:	Gaddis Pad Sec.36-T4N-R68W	MD Reference:	WELL @ 5073.0ft (RKB Ensign 32 - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Gaddis 36J-3034 /Codell Sidetrack	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #2 Codell Sidetrack	Database:	Landmark
Reference Design:	Plan #3 (10-16-13) Sidetrack	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference														
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
1,464.2	1,464.2	1,471.2	1,471.2	3.2	3.2	89.99		0.0	27.9	27.9	21.5	6.39	4.366 CC	
1,500.0	1,500.0	1,506.9	1,506.9	3.3	3.3	89.98		0.0	27.9	27.9	21.4	6.55	4.260 ES	
1,600.0	1,600.0	1,606.1	1,606.1	3.5	3.5	87.85		1.1	29.5	29.6	22.6	6.99	4.228	
1,700.0	1,700.0	1,705.0	1,704.8	3.7	3.7	83.08		4.1	34.0	34.3	26.9	7.43	4.615	
1,800.0	1,800.0	1,803.4	1,802.8	4.0	3.9	77.65		9.0	41.2	42.4	34.5	7.87	5.383	
1,900.0	1,900.0	1,901.8	1,900.5	4.2	4.2	72.92		15.7	51.0	53.7	45.4	8.31	6.460	
2,000.0	2,000.0	2,001.0	1,998.9	4.4	4.4	69.69		22.7	61.3	65.9	57.1	8.76	7.524	
2,100.0	2,100.0	2,100.2	2,097.3	4.6	4.7	67.48		29.7	71.7	78.2	69.0	9.20	8.499	
2,200.0	2,200.0	2,199.4	2,195.7	4.9	4.9	65.87		36.8	82.0	90.6	81.0	9.65	9.390	
2,300.0	2,300.0	2,298.6	2,294.1	5.1	5.2	64.64		43.8	92.4	103.1	93.0	10.10	10.205	
2,400.0	2,400.0	2,397.8	2,392.5	5.3	5.5	63.68		50.8	102.8	115.6	105.0	10.55	10.951	
2,500.0	2,500.0	2,497.0	2,490.9	5.5	5.8	62.91		57.9	113.1	128.1	117.1	11.01	11.636	
2,600.0	2,600.0	2,596.2	2,589.4	5.7	6.0	62.28		64.9	123.5	140.6	129.2	11.46	12.267	
2,700.0	2,700.0	2,695.4	2,687.8	6.0	6.3	61.75		71.9	133.9	153.2	141.3	11.92	12.850	
2,800.0	2,800.0	2,794.6	2,786.2	6.2	6.6	61.30		79.0	144.2	165.7	153.4	12.38	13.389	
2,900.0	2,900.0	2,893.8	2,884.6	6.4	6.9	60.91		86.0	154.6	178.3	165.5	12.84	13.888	
3,000.0	3,000.0	2,993.0	2,983.0	6.6	7.2	42.86		93.0	165.0	190.9	177.7	13.24	14.414	
3,100.0	3,100.0	3,092.4	3,081.6	6.9	7.5	42.80		100.1	175.3	202.0	188.3	13.70	14.745	
3,200.0	3,199.8	3,192.0	3,180.4	7.1	7.8	43.42		107.2	185.7	210.6	196.4	14.15	14.883	
3,300.0	3,299.4	3,291.6	3,279.2	7.3	8.1	44.66		114.2	196.2	216.7	202.1	14.60	14.848	
3,400.0	3,398.6	3,391.3	3,378.1	7.5	8.4	46.50		121.3	206.6	220.5	205.5	15.04	14.662	
3,500.0	3,497.6	3,490.9	3,476.9	7.8	8.7	48.68		128.4	217.0	223.4	207.8	15.52	14.395	
3,600.0	3,596.6	3,590.5	3,575.7	8.0	9.0	50.80		135.4	227.4	226.5	210.5	16.00	14.154	
3,700.0	3,695.5	3,690.1	3,674.5	8.3	9.3	52.86		142.5	237.8	229.9	213.4	16.50	13.936	
3,800.0	3,794.5	3,789.7	3,773.3	8.5	9.6	54.86		149.5	248.2	233.7	216.7	17.01	13.740	
3,900.0	3,893.5	3,889.3	3,872.1	8.8	10.0	56.80		156.6	258.6	237.7	220.2	17.53	13.562	
4,000.0	3,992.4	3,988.9	3,970.9	9.1	10.3	58.67		163.7	269.0	242.0	223.9	18.06	13.400	
4,100.0	4,091.4	4,088.5	4,069.7	9.3	10.6	60.47		170.7	279.4	246.5	227.9	18.60	13.254	
4,200.0	4,190.4	4,188.1	4,168.5	9.6	10.9	62.21		177.8	289.8	251.3	232.1	19.15	13.121	
4,300.0	4,289.4	4,287.7	4,267.3	9.9	11.2	63.88		184.9	300.2	256.2	236.5	19.71	13.000	
4,400.0	4,388.3	4,387.3	4,366.1	10.2	11.5	65.49		191.9	310.6	261.4	241.2	20.28	12.891	
4,500.0	4,487.3	4,486.9	4,464.9	10.5	11.8	67.03		199.0	321.0	266.8	246.0	20.86	12.792	
4,600.0	4,586.3	4,586.5	4,563.7	10.8	12.2	68.51		206.1	331.4	272.4	251.0	21.45	12.703	
4,700.0	4,685.2	4,686.1	4,662.5	11.1	12.5	69.93		213.1	341.8	278.2	256.1	22.04	12.622	
4,800.0	4,784.2	4,785.7	4,761.3	11.4	12.8	71.29		220.2	352.2	284.1	261.4	22.64	12.548	
4,900.0	4,883.2	4,885.3	4,860.1	11.7	13.1	72.60		227.2	362.6	290.2	266.9	23.25	12.482	
5,000.0	4,982.4	4,985.0	4,959.0	11.9	13.4	73.66		234.3	373.1	296.9	273.1	23.81	12.471	
5,100.0	5,082.0	5,084.7	5,057.9	12.1	13.7	74.05		241.4	383.5	304.6	280.3	24.30	12.537	
5,200.0	5,181.8	5,186.1	5,158.5	12.3	14.0	73.84		248.5	394.0	313.3	288.5	24.74	12.662	
5,300.0	5,281.8	5,295.6	5,267.5	12.5	14.3	73.23		254.7	403.1	320.8	295.7	25.11	12.777	
5,400.0	5,381.8	5,405.6	5,377.3	12.7	14.5	90.26		258.5	408.7	325.9	300.5	25.47	12.797	
5,500.0	5,481.8	5,516.0	5,487.6	12.9	14.7	90.00		260.0	410.9	327.9	302.0	25.86	12.681	
5,600.0	5,581.8	5,617.2	5,588.8	13.1	14.9	90.00		260.0	410.9	327.9	301.7	26.25	12.491	
5,700.0	5,681.8	5,717.2	5,688.8	13.3	15.0	90.00		260.0	410.9	327.9	301.2	26.66	12.301	
5,800.0	5,781.8	5,817.2	5,788.8	13.5	15.2	90.00		260.0	410.9	327.9	300.8	27.06	12.116	
5,900.0	5,881.8	5,917.2	5,888.8	13.7	15.4	90.00		260.0	410.9	327.9	300.4	27.47	11.935	
6,000.0	5,981.8	6,017.2	5,988.8	13.9	15.6	90.00		260.0	410.9	327.9	300.0	27.88	11.760	
6,100.0	6,081.8	6,117.2	6,088.8	14.1	15.8	90.00		260.0	410.9	327.9	299.6	28.30	11.589	
6,200.0	6,181.8	6,217.2	6,188.8	14.4	16.0	90.00		260.0	410.9	327.9	299.2	28.71	11.422	
6,300.0	6,281.8	6,317.2	6,288.8	14.6	16.2	90.00		260.0	410.9	327.9	298.8	29.12	11.260	
6,400.0	6,381.8	6,417.2	6,388.8	14.8	16.3	90.00		260.0	410.9	327.9	298.4	29.54	11.102	

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 36J-3034 /Codell Sidetrack
Project:	SEC.36-T4N-R68W	TVD Reference:	WELL @ 5073.0ft (RKB Ensign 32 - 15')
Reference Site:	Gaddis Pad Sec.36-T4N-R68W	MD Reference:	WELL @ 5073.0ft (RKB Ensign 32 - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Gaddis 36J-3034 /Codell Sidetrack	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #2 Codell Sidetrack	Database:	Landmark
Reference Design:	Plan #3 (10-16-13) Sidetrack	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Gaddis Pad Sec.36-T4N-R68W - Gaddis 36J-223 - Wellbore #1 - Plan #2 (10-16-13)													
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)					
6,460.5	6,442.2	6,477.6	6,449.2	14.9	16.4	90.04	259.8	410.9	327.9	298.1	29.78	11.009	
6,500.0	6,481.8	6,517.1	6,488.6	15.0	16.5	90.38	257.8	410.9	327.9	298.0	29.94	10.952	
6,600.0	6,581.8	6,615.0	6,585.6	15.2	16.6	92.75	244.3	410.9	328.3	297.9	30.34	10.819	
6,700.0	6,681.7	6,708.7	6,675.9	15.4	16.6	-83.28	219.8	410.9	330.3	299.6	30.72	10.752	
6,800.0	6,780.3	6,800.0	6,760.5	15.5	16.7	-79.51	185.4	410.8	333.7	302.8	30.92	10.794	
6,900.0	6,875.2	6,889.9	6,839.1	15.5	16.7	-76.39	142.0	410.8	337.7	306.7	30.94	10.914	
7,000.0	6,964.0	6,978.6	6,911.2	15.5	16.7	-73.96	90.4	410.8	341.4	310.6	30.82	11.077	
7,100.0	7,044.5	7,066.5	6,976.3	15.5	16.7	-72.24	31.4	410.7	344.5	313.8	30.66	11.235	
7,200.0	7,114.8	7,153.8	7,033.8	15.6	16.7	-71.23	-34.3	410.7	346.4	315.8	30.60	11.321	
7,300.0	7,175.4	7,240.7	7,083.2	15.7	16.8	-73.72	-105.7	410.6	351.3	320.3	31.02	11.325	
7,400.0	7,228.6	7,326.3	7,123.6	16.0	17.1	-75.29	-181.1	410.6	365.1	333.5	31.59	11.557	
7,500.0	7,273.4	7,409.7	7,154.7	16.5	17.5	-75.74	-258.5	410.5	387.4	355.2	32.27	12.005	
7,600.0	7,310.0	7,490.5	7,176.6	17.2	18.0	-75.45	-336.1	410.5	417.6	384.4	33.15	12.598	
7,700.0	7,342.3	7,569.4	7,189.9	17.9	18.7	-72.78	-414.0	410.4	449.1	414.8	34.20	13.129	
7,800.0	7,367.3	7,650.0	7,195.1	18.7	19.5	-69.90	-494.3	410.4	475.7	440.2	35.53	13.388	
7,900.0	7,384.6	7,741.8	7,194.9	19.7	20.5	-67.45	-586.1	410.3	496.1	458.8	37.28	13.306	
8,000.0	7,394.1	7,841.0	7,194.6	20.9	21.7	-66.12	-685.3	410.2	507.4	468.0	39.49	12.849	
8,100.0	7,395.9	7,940.9	7,194.3	22.1	22.9	-65.85	-785.2	410.1	509.8	467.9	41.96	12.152	
8,200.0	7,395.7	8,040.9	7,193.9	23.4	24.3	-65.83	-885.2	410.1	509.8	465.3	44.49	11.459	
8,300.0	7,395.4	8,140.9	7,193.6	24.8	25.8	-65.82	-985.2	410.0	509.8	462.7	47.16	10.811	
8,400.0	7,395.2	8,240.9	7,193.3	26.3	27.3	-65.81	-1,085.2	409.9	509.8	459.9	49.94	10.210	
8,500.0	7,394.9	8,340.9	7,193.0	27.8	28.8	-65.80	-1,185.2	409.9	509.8	457.0	52.81	9.655	
8,600.0	7,394.7	8,440.9	7,192.6	29.4	30.4	-65.79	-1,285.2	409.8	509.8	454.1	55.75	9.144	
8,700.0	7,394.5	8,540.9	7,192.3	31.0	32.0	-65.78	-1,385.2	409.7	509.8	451.0	58.77	8.675	
8,800.0	7,394.2	8,640.9	7,192.0	32.7	33.7	-65.77	-1,485.2	409.6	509.8	448.0	61.84	8.244	
8,900.0	7,394.0	8,740.9	7,191.6	34.4	35.4	-65.75	-1,585.2	409.6	509.8	444.8	64.96	7.848	
9,000.0	7,393.7	8,840.9	7,191.3	36.1	37.1	-65.74	-1,685.2	409.5	509.8	441.7	68.12	7.484	
9,100.0	7,393.5	8,940.9	7,191.0	37.8	38.8	-65.73	-1,785.2	409.4	509.8	438.5	71.32	7.148	
9,200.0	7,393.3	9,040.9	7,190.6	39.5	40.5	-65.72	-1,885.2	409.3	509.8	435.2	74.55	6.838	
9,300.0	7,393.0	9,140.9	7,190.3	41.3	42.3	-65.71	-1,985.2	409.3	509.8	432.0	77.80	6.552	
9,400.0	7,392.8	9,240.9	7,190.0	43.1	44.1	-65.70	-2,085.2	409.2	509.8	428.7	81.08	6.287	
9,500.0	7,392.5	9,340.9	7,189.6	44.9	45.9	-65.68	-2,185.2	409.1	509.8	425.4	84.38	6.041	
9,600.0	7,392.3	9,440.9	7,189.3	46.7	47.6	-65.67	-2,285.2	409.1	509.8	422.1	87.70	5.812	
9,700.0	7,392.1	9,540.9	7,189.0	48.5	49.5	-65.66	-2,385.2	409.0	509.8	418.7	91.04	5.599	
9,800.0	7,391.8	9,640.9	7,188.6	50.3	51.3	-65.65	-2,485.2	408.9	509.7	415.4	94.39	5.400	
9,900.0	7,391.6	9,740.9	7,188.3	52.1	53.1	-65.64	-2,585.2	408.8	509.7	412.0	97.75	5.215	
10,000.0	7,391.3	9,840.9	7,188.0	53.9	54.9	-65.63	-2,685.2	408.8	509.7	408.6	101.13	5.040	
10,100.0	7,391.1	9,940.9	7,187.6	55.8	56.7	-65.62	-2,785.2	408.7	509.7	405.2	104.52	4.877	
10,200.0	7,390.9	10,040.9	7,187.3	57.6	58.6	-65.60	-2,885.2	408.6	509.7	401.8	107.91	4.724	
10,300.0	7,390.6	10,140.9	7,187.0	59.4	60.4	-65.59	-2,985.2	408.5	509.7	398.4	111.32	4.579	
10,400.0	7,390.4	10,240.9	7,186.7	61.3	62.3	-65.58	-3,085.2	408.5	509.7	395.0	114.73	4.443	
10,500.0	7,390.1	10,340.9	7,186.3	63.1	64.1	-65.57	-3,185.2	408.4	509.7	391.6	118.15	4.314	
10,600.0	7,389.9	10,440.9	7,186.0	65.0	66.0	-65.56	-3,285.2	408.3	509.7	388.1	121.57	4.193	
10,700.0	7,389.7	10,540.9	7,185.7	66.9	67.8	-65.55	-3,385.2	408.3	509.7	384.7	125.01	4.077	
10,800.0	7,389.4	10,640.9	7,185.3	68.7	69.7	-65.53	-3,485.2	408.2	509.7	381.2	128.44	3.968	
10,900.0	7,389.2	10,740.9	7,185.0	70.6	71.6	-65.52	-3,585.2	408.1	509.7	377.8	131.89	3.865	
11,000.0	7,388.9	10,840.9	7,184.7	72.5	73.4	-65.51	-3,685.2	408.0	509.7	374.4	135.33	3.766	
11,100.0	7,388.7	10,940.9	7,184.3	74.3	75.3	-65.50	-3,785.2	408.0	509.7	370.9	138.78	3.672	
11,200.0	7,388.4	11,040.9	7,184.0	76.2	77.2	-65.49	-3,885.2	407.9	509.7	367.4	142.24	3.583	
11,300.0	7,388.2	11,140.9	7,183.7	78.1	79.0	-65.48	-3,985.2	407.8	509.7	364.0	145.69	3.498	
11,400.0	7,388.0	11,240.9	7,183.3	80.0	80.9	-65.47	-4,085.2	407.7	509.7	360.5	149.15	3.417	

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 36J-3034 /Codell Sidetrack
Project:	SEC.36-T4N-R68W	TVD Reference:	WELL @ 5073.0ft (RKB Ensign 32 - 15')
Reference Site:	Gaddis Pad Sec.36-T4N-R68W	MD Reference:	WELL @ 5073.0ft (RKB Ensign 32 - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Gaddis 36J-3034 /Codell Sidetrack	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #2 Codell Sidetrack	Database:	Landmark
Reference Design:	Plan #3 (10-16-13) Sidetrack	Offset TVD Reference:	Offset Datum

Offset Design Gaddis Pad Sec.36-T4N-R68W - Gaddis 36J-223 - Wellbore #1 - Plan #2 (10-16-13)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
11,500.0	7,387.7	11,340.9	7,183.0	81.8	82.8	-65.45	-4,185.2	407.7	509.7	357.0	152.62	3.339	
11,600.0	7,387.5	11,440.9	7,182.7	83.7	84.7	-65.44	-4,285.2	407.6	509.7	353.6	156.08	3.265	
11,700.0	7,387.2	11,540.9	7,182.3	85.6	86.6	-65.43	-4,385.2	407.5	509.6	350.1	159.55	3.194	
11,800.0	7,387.0	11,640.9	7,182.0	87.5	88.3	-65.42	-4,485.2	407.5	509.6	346.8	162.88	3.129	
11,802.7	7,387.0	11,643.6	7,182.0	87.5	88.4	-65.42	-4,487.9	407.5	509.6	346.7	162.96	3.127	
11,803.6	7,387.0	11,643.9	7,182.0	87.6	88.4	-65.42	-4,488.2	407.5	509.6	346.7	162.98	3.127 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Gaddis 36J-3034 /Codell Sidetrack
Project:	SEC.36-T4N-R68W	TVD Reference:	WELL @ 5073.0ft (RKB Ensign 32 - 15')
Reference Site:	Gaddis Pad Sec.36-T4N-R68W	MD Reference:	WELL @ 5073.0ft (RKB Ensign 32 - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Gaddis 36J-3034 /Codell Sidetrack	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #2 Codell Sidetrack	Database:	Landmark
Reference Design:	Plan #3 (10-16-13) Sidetrack	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference														
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
-8.0	-8.0	0.0	0.0	0.0	0.0	-90.03	-90.03	0.0	-30.7	30.7				
0.0	0.0	8.0	8.0	0.0	0.0	-90.03	-90.03	0.0	-30.7	30.7	30.7	0.02	1,689.669	
100.0	100.0	108.0	108.0	0.1	0.1	-90.03	-90.03	0.0	-30.7	30.7	30.4	0.26	117.721	
200.0	200.0	208.0	208.0	0.4	0.4	-90.03	-90.03	0.0	-30.7	30.7	30.0	0.71	43.214	
300.0	300.0	308.0	308.0	0.6	0.6	-90.03	-90.03	0.0	-30.7	30.7	29.5	1.16	26.464	
400.0	400.0	408.0	408.0	0.8	0.8	-90.03	-90.03	0.0	-30.7	30.7	29.1	1.61	19.072	
500.0	500.0	508.0	508.0	1.0	1.0	-90.03	-90.03	0.0	-30.7	30.7	28.6	2.06	14.908	
600.0	600.0	608.0	608.0	1.3	1.3	-90.03	-90.03	0.0	-30.7	30.7	28.2	2.51	12.236	
700.0	700.0	708.0	708.0	1.5	1.5	-90.03	-90.03	0.0	-30.7	30.7	27.7	2.96	10.377	
800.0	800.0	808.0	808.0	1.7	1.7	-90.03	-90.03	0.0	-30.7	30.7	27.3	3.41	9.008	
900.0	900.0	908.0	908.0	1.9	1.9	-90.03	-90.03	0.0	-30.7	30.7	26.8	3.86	7.958	
1,000.0	1,000.0	1,008.0	1,008.0	2.2	2.2	-90.03	-90.03	0.0	-30.7	30.7	26.4	4.31	7.127	
1,100.0	1,100.0	1,108.0	1,108.0	2.4	2.4	-90.03	-90.03	0.0	-30.7	30.7	25.9	4.76	6.454	
1,200.0	1,200.0	1,208.0	1,208.0	2.6	2.6	-90.03	-90.03	0.0	-30.7	30.7	25.5	5.21	5.896	
1,300.0	1,300.0	1,308.0	1,308.0	2.8	2.8	-90.03	-90.03	0.0	-30.7	30.7	25.0	5.66	5.428	
1,400.0	1,400.0	1,408.0	1,408.0	3.1	3.1	-90.03	-90.03	0.0	-30.7	30.7	24.6	6.10	5.028	
1,500.0	1,500.0	1,508.0	1,508.0	3.3	3.3	-90.03	-90.03	0.0	-30.7	30.7	24.1	6.55	4.683	
1,600.0	1,600.0	1,608.0	1,608.0	3.5	3.5	-90.03	-90.03	0.0	-30.7	30.7	23.7	7.00	4.382	
1,700.0	1,700.0	1,708.0	1,708.0	3.7	3.7	-90.03	-90.03	0.0	-30.7	30.7	23.2	7.45	4.118	
1,800.0	1,800.0	1,808.0	1,808.0	4.0	4.0	-90.03	-90.03	0.0	-30.7	30.7	22.8	7.90	3.884	
1,900.0	1,900.0	1,908.0	1,908.0	4.2	4.2	-90.03	-90.03	0.0	-30.7	30.7	22.3	8.35	3.675	
1,963.8	1,963.8	1,971.8	1,971.8	4.3	4.3	-90.03	-90.03	0.0	-30.7	30.7	22.1	8.64	3.553 CC	
2,000.0	2,000.0	2,007.9	2,007.9	4.4	4.4	-90.01	-90.01	0.0	-30.7	30.7	21.9	8.80	3.488 ES	
2,100.0	2,100.0	2,107.2	2,107.2	4.6	4.6	-87.27	-87.27	1.5	-32.0	32.0	22.8	9.25	3.464	
2,200.0	2,200.0	2,206.2	2,206.0	4.9	4.8	-80.90	-80.90	5.7	-35.4	36.0	26.3	9.69	3.712	
2,300.0	2,300.0	2,304.8	2,304.2	5.1	5.1	-73.18	-73.18	12.4	-41.1	43.1	32.9	10.13	4.253	
2,400.0	2,400.0	2,404.2	2,403.1	5.3	5.3	-66.82	-66.82	20.5	-47.8	52.2	41.6	10.57	4.937	
2,500.0	2,500.0	2,503.7	2,502.0	5.5	5.5	-62.39	-62.39	28.5	-54.5	61.8	50.8	11.02	5.606	
2,600.0	2,600.0	2,603.1	2,600.9	5.7	5.8	-59.16	-59.16	36.5	-61.2	71.6	60.2	11.47	6.245	
2,700.0	2,700.0	2,702.6	2,699.8	6.0	6.0	-56.72	-56.72	44.6	-67.9	81.7	69.7	11.92	6.850	
2,800.0	2,800.0	2,802.0	2,798.7	6.2	6.3	-54.81	-54.81	52.6	-74.6	91.8	79.4	12.37	7.420	
2,900.0	2,900.0	2,901.4	2,897.5	6.4	6.5	-53.28	-53.28	60.7	-81.3	102.0	89.2	12.82	7.955	
3,000.0	3,000.0	3,000.9	2,996.4	6.6	6.8	-69.73	-69.73	68.7	-88.1	112.3	99.0	13.25	8.472	
3,100.0	3,100.0	3,100.4	3,095.4	6.9	7.0	-69.40	-69.40	76.8	-94.8	121.9	108.2	13.70	8.895	
3,200.0	3,199.8	3,200.0	3,194.5	7.1	7.3	-70.56	-70.56	84.8	-101.5	130.3	116.1	14.15	9.208	
3,300.0	3,299.4	3,299.6	3,293.5	7.3	7.6	-72.95	-72.95	92.9	-108.2	137.7	123.1	14.60	9.430	
3,400.0	3,398.6	3,398.9	3,392.3	7.5	7.8	-76.41	-76.41	100.9	-114.9	144.5	129.4	15.07	9.592	
3,500.0	3,497.6	3,498.2	3,490.9	7.8	8.1	-80.35	-80.35	108.9	-121.6	151.5	136.0	15.55	9.747	
3,600.0	3,596.6	3,597.4	3,589.6	8.0	8.4	-83.94	-83.94	116.9	-128.3	159.2	143.2	16.04	9.926	
3,700.0	3,695.5	3,696.6	3,688.3	8.3	8.7	-87.19	-87.19	125.0	-135.0	167.4	150.9	16.54	10.122	
3,800.0	3,794.5	3,795.8	3,787.0	8.5	8.9	-90.13	-90.13	133.0	-141.7	176.1	159.1	17.05	10.329	
3,900.0	3,893.5	3,895.1	3,885.7	8.8	9.2	-92.78	-92.78	141.0	-148.4	185.3	167.7	17.58	10.542	
4,000.0	3,992.4	3,994.3	3,984.3	9.1	9.5	-95.18	-95.18	149.0	-155.1	194.8	176.7	18.10	10.759	
4,100.0	4,091.4	4,093.5	4,083.0	9.3	9.8	-97.36	-97.36	157.1	-161.8	204.6	185.9	18.64	10.976	
4,200.0	4,190.4	4,192.8	4,181.7	9.6	10.0	-99.34	-99.34	165.1	-168.5	214.7	195.5	19.18	11.191	
4,300.0	4,289.4	4,292.0	4,280.4	9.9	10.3	-101.14	-101.14	173.1	-175.2	225.0	205.2	19.73	11.404	
4,400.0	4,388.3	4,391.2	4,379.0	10.2	10.6	-102.78	-102.78	181.1	-181.9	235.5	215.2	20.28	11.612	
4,500.0	4,487.3	4,490.4	4,477.7	10.5	10.9	-104.28	-104.28	189.2	-188.6	246.2	225.3	20.83	11.817	
4,600.0	4,586.3	4,589.7	4,576.4	10.8	11.2	-105.65	-105.65	197.2	-195.3	257.0	235.6	21.39	12.016	
4,700.0	4,685.2	4,688.9	4,675.1	11.1	11.5	-106.92	-106.92	205.2	-202.0	268.0	246.0	21.95	12.209	
4,800.0	4,784.2	4,788.1	4,773.7	11.4	11.7	-108.08	-108.08	213.2	-208.7	279.1	256.6	22.51	12.397	

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 36J-3034 /Codell Sidetrack
Project:	SEC.36-T4N-R68W	TVD Reference:	WELL @ 5073.0ft (RKB Ensign 32 - 15')
Reference Site:	Gaddis Pad Sec.36-T4N-R68W	MD Reference:	WELL @ 5073.0ft (RKB Ensign 32 - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Gaddis 36J-3034 /Codell Sidetrack	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #2 Codell Sidetrack	Database:	Landmark
Reference Design:	Plan #3 (10-16-13) Sidetrack	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference														
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,900.0	4,883.2	4,887.4	4,872.4	11.7	12.0	-109.16		221.3	-215.4	290.3	267.2	23.07	12.579	
5,000.0	4,982.4	4,986.7	4,971.2	11.9	12.3	-110.03		229.3	-222.1	300.9	277.3	23.61	12.745	
5,100.0	5,082.0	5,086.3	5,070.2	12.1	12.6	-110.24		237.3	-228.8	310.5	286.4	24.10	12.882	
5,200.0	5,181.8	5,185.9	5,169.3	12.3	12.9	-109.83		245.4	-235.5	318.8	294.2	24.56	12.979	
5,300.0	5,281.8	5,290.8	5,273.7	12.5	13.1	-108.91		253.1	-242.0	325.4	300.4	24.98	13.026	
5,400.0	5,381.8	5,398.4	5,381.1	12.7	13.4	-90.33		258.1	-246.1	329.2	303.9	25.37	12.979	
5,500.0	5,481.8	5,506.3	5,489.0	12.9	13.5	-90.01		260.0	-247.7	330.7	304.9	25.76	12.838	
5,600.0	5,581.8	5,607.1	5,589.8	13.1	13.7	-90.00		260.0	-247.7	330.7	304.5	26.15	12.646	
5,700.0	5,681.8	5,707.1	5,689.8	13.3	13.9	-90.00		260.0	-247.7	330.7	304.1	26.56	12.449	
5,800.0	5,781.8	5,807.1	5,789.8	13.5	14.1	-90.00		260.0	-247.7	330.7	303.7	26.98	12.258	
5,900.0	5,881.8	5,907.1	5,889.8	13.7	14.3	-90.00		260.0	-247.7	330.7	303.3	27.39	12.072	
6,000.0	5,981.8	6,007.1	5,989.8	13.9	14.5	-90.00		260.0	-247.7	330.7	302.9	27.81	11.892	
6,100.0	6,081.8	6,107.1	6,089.8	14.1	14.7	-90.00		260.0	-247.7	330.7	302.5	28.23	11.716	
6,200.0	6,181.8	6,207.1	6,189.8	14.4	14.9	-90.00		260.0	-247.7	330.7	302.0	28.64	11.545	
6,300.0	6,281.8	6,307.1	6,289.8	14.6	15.1	-90.00		260.0	-247.7	330.7	301.6	29.06	11.378	
6,400.0	6,381.8	6,407.1	6,389.8	14.8	15.3	-90.00		260.0	-247.7	330.7	301.2	29.48	11.216	
6,446.8	6,428.6	6,453.9	6,436.6	14.9	15.4	-90.00		260.0	-247.7	330.7	301.0	29.68	11.142	
6,500.0	6,481.8	6,507.0	6,489.6	15.0	15.5	-90.33		258.1	-247.7	330.7	300.8	29.88	11.066	
6,600.0	6,581.8	6,605.0	6,586.7	15.2	15.6	-92.59		245.0	-247.7	331.1	300.8	30.22	10.955	
6,700.0	6,681.7	6,700.0	6,678.4	15.4	15.7	83.38		220.6	-247.7	333.0	302.5	30.48	10.924	
6,800.0	6,780.3	6,790.5	6,762.3	15.5	15.7	79.76		186.9	-247.7	336.2	305.7	30.59	10.993	
6,900.0	6,875.2	6,880.6	6,841.3	15.5	15.7	76.73		143.7	-247.8	340.0	309.4	30.56	11.124	
7,000.0	6,964.0	6,969.5	6,913.9	15.5	15.7	74.39		92.3	-247.8	343.5	313.0	30.45	11.280	
7,100.0	7,044.5	7,057.7	6,979.3	15.5	15.7	72.74		33.3	-247.9	346.3	316.0	30.34	11.414	
7,200.0	7,114.8	7,145.3	7,037.3	15.6	15.7	71.79		-32.4	-247.9	348.1	317.7	30.35	11.470	
7,300.0	7,175.4	7,232.5	7,087.0	15.7	15.8	67.82		-103.8	-248.0	346.1	315.8	30.34	11.410	
7,400.0	7,228.6	7,318.4	7,127.8	16.0	16.2	63.70		-179.4	-248.0	337.2	306.8	30.42	11.083	
7,500.0	7,273.4	7,400.0	7,158.5	16.5	16.7	59.66		-255.0	-248.1	321.7	291.1	30.58	10.520	
7,600.0	7,310.0	7,483.3	7,181.3	17.2	17.4	55.44		-335.0	-248.1	301.2	270.4	30.81	9.775	
7,700.0	7,342.3	7,562.6	7,194.8	17.9	18.1	52.85		-413.2	-248.2	285.9	254.7	31.24	9.153	
7,800.0	7,367.3	7,641.4	7,200.1	18.7	18.9	49.84		-491.8	-248.2	279.7	248.1	31.55	8.865	
7,825.0	7,372.4	7,662.1	7,200.2	19.0	19.1	48.94		-512.5	-248.3	279.5	247.9	31.60	8.843	
7,900.0	7,384.6	7,735.3	7,199.9	19.7	20.0	46.14		-585.7	-248.3	280.0	248.2	31.82	8.801	
8,000.0	7,394.1	7,834.4	7,199.6	20.9	21.2	43.88		-684.8	-248.4	281.2	248.5	32.67	8.605	
8,100.0	7,395.9	7,934.4	7,199.3	22.1	22.5	43.38		-784.7	-248.5	281.6	247.2	34.34	8.199	
8,200.0	7,395.7	8,034.4	7,198.9	23.4	23.9	43.38		-884.7	-248.5	281.7	245.3	36.35	7.748	
8,300.0	7,395.4	8,134.4	7,198.6	24.8	25.4	43.37		-984.7	-248.6	281.8	243.3	38.47	7.324	
8,400.0	7,395.2	8,234.4	7,198.3	26.3	26.9	43.37		-1,084.7	-248.7	281.8	241.2	40.68	6.929	
8,500.0	7,394.9	8,334.4	7,198.0	27.8	28.5	43.36		-1,184.7	-248.8	281.9	239.0	42.96	6.563	
8,600.0	7,394.7	8,434.4	7,197.6	29.4	30.1	43.36		-1,284.7	-248.8	282.0	236.7	45.30	6.226	
8,700.0	7,394.5	8,534.4	7,197.3	31.0	31.7	43.35		-1,384.7	-248.9	282.1	234.4	47.70	5.915	
8,800.0	7,394.2	8,634.4	7,197.0	32.7	33.4	43.34		-1,484.7	-249.0	282.2	232.1	50.14	5.629	
8,900.0	7,394.0	8,734.4	7,196.6	34.4	35.1	43.34		-1,584.7	-249.0	282.3	229.7	52.62	5.366	
9,000.0	7,393.7	8,834.4	7,196.3	36.1	36.8	43.33		-1,684.7	-249.1	282.4	227.3	55.14	5.122	
9,100.0	7,393.5	8,934.4	7,196.0	37.8	38.5	43.33		-1,784.7	-249.2	282.5	224.9	57.68	4.898	
9,200.0	7,393.3	9,034.4	7,195.6	39.5	40.3	43.32		-1,884.7	-249.3	282.6	222.4	60.26	4.691	
9,300.0	7,393.0	9,134.4	7,195.3	41.3	42.1	43.32		-1,984.7	-249.3	282.7	219.9	62.85	4.499	
9,400.0	7,392.8	9,234.4	7,195.0	43.1	43.8	43.31		-2,084.7	-249.4	282.8	217.4	65.46	4.321	
9,500.0	7,392.5	9,334.4	7,194.6	44.9	45.6	43.30		-2,184.7	-249.5	282.9	214.8	68.09	4.155	
9,600.0	7,392.3	9,434.4	7,194.3	46.7	47.4	43.30		-2,284.7	-249.6	283.0	212.3	70.74	4.001	
9,700.0	7,392.1	9,534.4	7,194.0	48.5	49.3	43.29		-2,384.7	-249.6	283.1	209.7	73.40	3.857	

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 36J-3034 /Codell Sidetrack
Project:	SEC.36-T4N-R68W	TVD Reference:	WELL @ 5073.0ft (RKB Ensign 32 - 15')
Reference Site:	Gaddis Pad Sec.36-T4N-R68W	MD Reference:	WELL @ 5073.0ft (RKB Ensign 32 - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Gaddis 36J-3034 /Codell Sidetrack	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #2 Codell Sidetrack	Database:	Landmark
Reference Design:	Plan #3 (10-16-13) Sidetrack	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)	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	
9,800.0	7,391.8	9,634.4	7,193.6	50.3	51.1	43.29	-2,484.7	-249.7	283.2	207.2	76.07	3.723		
9,900.0	7,391.6	9,734.4	7,193.3	52.1	52.9	43.28	-2,584.7	-249.8	283.3	204.6	78.75	3.598		
10,000.0	7,391.3	9,834.4	7,193.0	53.9	54.7	43.28	-2,684.7	-249.8	283.4	202.0	81.45	3.480		
10,100.0	7,391.1	9,934.4	7,192.6	55.8	56.6	43.27	-2,784.7	-249.9	283.5	199.4	84.15	3.369		
10,200.0	7,390.9	10,034.4	7,192.3	57.6	58.4	43.27	-2,884.7	-250.0	283.6	196.8	86.86	3.265		
10,300.0	7,390.6	10,134.4	7,192.0	59.4	60.3	43.26	-2,984.7	-250.1	283.7	194.2	89.58	3.168		
10,400.0	7,390.4	10,234.4	7,191.7	61.3	62.1	43.25	-3,084.7	-250.1	283.8	191.5	92.30	3.075		
10,500.0	7,390.1	10,334.4	7,191.3	63.1	64.0	43.25	-3,184.7	-250.2	283.9	188.9	95.03	2.988		
10,600.0	7,389.9	10,434.4	7,191.0	65.0	65.8	43.24	-3,284.7	-250.3	284.0	186.3	97.76	2.905		
10,700.0	7,389.7	10,534.4	7,190.7	66.9	67.7	43.24	-3,384.7	-250.4	284.1	183.6	100.50	2.827		
10,800.0	7,389.4	10,634.4	7,190.3	68.7	69.6	43.23	-3,484.7	-250.4	284.2	181.0	103.25	2.753		
10,900.0	7,389.2	10,734.4	7,190.0	70.6	71.4	43.23	-3,584.7	-250.5	284.3	178.3	105.99	2.682		
11,000.0	7,388.9	10,834.4	7,189.7	72.5	73.3	43.22	-3,684.7	-250.6	284.4	175.7	108.75	2.616		
11,100.0	7,388.7	10,934.4	7,189.3	74.3	75.2	43.22	-3,784.7	-250.7	284.5	173.0	111.50	2.552		
11,200.0	7,388.4	11,034.4	7,189.0	76.2	77.1	43.21	-3,884.7	-250.7	284.6	170.4	114.26	2.491		
11,300.0	7,388.2	11,134.4	7,188.7	78.1	78.9	43.20	-3,984.7	-250.8	284.7	167.7	117.02	2.433		
11,400.0	7,388.0	11,234.4	7,188.3	80.0	80.8	43.20	-4,084.7	-250.9	284.8	165.0	119.79	2.378		
11,500.0	7,387.7	11,334.4	7,188.0	81.8	82.7	43.19	-4,184.7	-250.9	284.9	162.4	122.55	2.325		
11,600.0	7,387.5	11,434.4	7,187.7	83.7	84.6	43.19	-4,284.7	-251.0	285.0	159.7	125.32	2.274		
11,700.0	7,387.2	11,534.4	7,187.3	85.6	86.5	43.18	-4,384.7	-251.1	285.1	157.0	128.09	2.226		
11,800.0	7,387.0	11,634.4	7,187.0	87.5	88.2	43.18	-4,484.7	-251.2	285.2	154.5	130.75	2.181		
11,803.6	7,387.0	11,637.9	7,187.0	87.6	88.3	43.18	-4,488.2	-251.2	285.2	154.4	130.84	2.180 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Gaddis 36J-3034 /Codell Sidetrack
Project:	SEC.36-T4N-R68W	TVD Reference:	WELL @ 5073.0ft (RKB Ensign 32 - 15')
Reference Site:	Gaddis Pad Sec.36-T4N-R68W	MD Reference:	WELL @ 5073.0ft (RKB Ensign 32 - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Gaddis 36J-3034 /Codell Sidetrack	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #2 Codell Sidetrack	Database:	Landmark
Reference Design:	Plan #3 (10-16-13) Sidetrack	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		Highside Toolface (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)						
7,210.0	7,121.3	7,218.0	7,129.2	0.0	0.1	-51.08	26.9	82.8	0.1	0.0	0.05	1.117	Level 2, CC, ES, SF	
7,300.0	7,175.4	7,307.7	7,181.0	0.8	1.5	-53.82	-46.3	82.7	4.5	2.7	1.79	2.519		
7,400.0	7,228.6	7,405.4	7,225.1	1.9	2.7	-56.11	-133.4	82.6	19.9	16.4	3.43	5.786		
7,500.0	7,273.4	7,500.0	7,254.6	1.0	3.3	-57.32	-223.1	82.5	45.4	42.2	3.26	13.962		
7,600.0	7,310.0	7,587.7	7,269.9	1.7	3.8	-57.42	-309.4	82.4	80.2	76.0	4.15	19.317		
7,700.0	7,342.3	7,672.6	7,273.3	2.5	4.4	-52.80	-394.2	82.3	119.4	114.9	4.52	26.396		
7,800.0	7,367.3	7,766.8	7,272.5	3.5	5.0	-49.03	-488.4	82.2	152.4	148.5	3.90	39.091		
7,900.0	7,384.6	7,864.0	7,271.7	4.5	5.8	-47.00	-585.6	82.1	175.6	169.1	6.45	27.215		
8,000.0	7,394.1	7,963.1	7,270.9	5.6	6.7	-45.98	-684.7	82.0	188.5	180.1	8.47	22.267		
8,100.0	7,395.9	8,063.0	7,270.0	6.7	7.8	-45.66	-784.6	81.9	191.6	181.2	10.35	18.500		
8,200.0	7,395.7	8,163.0	7,269.2	8.0	9.0	-45.52	-884.6	81.8	191.9	179.5	12.42	15.458		
8,300.0	7,395.4	8,263.0	7,268.4	9.4	10.3	-45.37	-984.6	81.7	192.3	177.7	14.58	13.191		
8,400.0	7,395.2	8,363.0	7,267.5	10.9	11.7	-45.23	-1,084.6	81.6	192.6	175.8	16.82	11.452		
8,500.0	7,394.9	8,463.0	7,266.7	12.4	13.2	-45.09	-1,184.6	81.5	193.0	173.9	19.13	10.087		
8,600.0	7,394.7	8,563.0	7,265.8	13.9	14.7	-44.95	-1,284.6	81.4	193.4	171.9	21.50	8.993		
8,700.0	7,394.5	8,663.0	7,265.0	15.5	16.3	-44.81	-1,384.6	81.3	193.7	169.8	23.92	8.100		
8,800.0	7,394.2	8,763.0	7,264.2	17.2	18.0	-44.67	-1,484.5	81.2	194.1	167.7	26.37	7.361		
8,900.0	7,394.0	8,863.0	7,263.3	18.9	19.7	-44.53	-1,584.5	81.1	194.5	165.6	28.86	6.740		
9,000.0	7,393.7	8,963.0	7,262.5	20.6	21.4	-44.39	-1,684.5	81.0	194.9	163.5	31.36	6.213		
9,100.0	7,393.5	9,063.0	7,261.7	22.3	23.1	-44.25	-1,784.5	80.9	195.2	161.3	33.89	5.760		
9,200.0	7,393.3	9,163.0	7,260.8	24.0	24.8	-44.11	-1,884.5	80.8	195.6	159.2	36.44	5.368		
9,300.0	7,393.0	9,263.0	7,260.0	25.8	26.6	-43.97	-1,984.5	80.7	196.0	157.0	39.00	5.025		
9,400.0	7,392.8	9,363.0	7,259.1	27.5	28.4	-43.83	-2,084.5	80.6	196.4	154.8	41.57	4.724		
9,500.0	7,392.5	9,463.0	7,258.3	29.3	30.1	-43.70	-2,184.5	80.5	196.7	152.6	44.15	4.456		
9,600.0	7,392.3	9,563.0	7,257.5	31.1	31.9	-43.56	-2,284.5	80.4	197.1	150.4	46.73	4.218		
9,700.0	7,392.1	9,663.0	7,256.6	32.9	33.7	-43.43	-2,384.5	80.3	197.5	148.2	49.32	4.004		
9,800.0	7,391.8	9,763.0	7,255.8	34.7	35.6	-43.29	-2,484.5	80.2	197.9	146.0	51.91	3.812		
9,900.0	7,391.6	9,863.0	7,254.9	36.6	37.4	-43.16	-2,584.5	80.1	198.3	143.8	54.51	3.638		
10,000.0	7,391.3	9,963.0	7,254.1	38.4	39.2	-43.02	-2,684.5	80.0	198.6	141.5	57.10	3.479		
10,100.0	7,391.1	10,063.0	7,253.3	40.2	41.1	-42.89	-2,784.5	79.9	199.0	139.3	59.69	3.334		
10,200.0	7,390.9	10,163.0	7,252.4	42.1	42.9	-42.76	-2,884.5	79.8	199.4	137.1	62.28	3.202		
10,300.0	7,390.6	10,263.0	7,251.6	43.9	44.7	-42.62	-2,984.5	79.7	199.8	134.9	64.87	3.080		
10,400.0	7,390.4	10,363.0	7,250.8	45.7	46.6	-42.49	-3,084.5	79.6	200.2	132.7	67.46	2.968		
10,500.0	7,390.1	10,463.0	7,249.9	47.6	48.4	-42.36	-3,184.5	79.5	200.6	130.5	70.04	2.864		
10,600.0	7,389.9	10,562.9	7,249.1	49.5	50.3	-42.23	-3,284.5	79.4	201.0	128.4	72.62	2.768		
10,700.0	7,389.7	10,662.9	7,248.2	51.3	52.2	-42.10	-3,384.4	79.3	201.4	126.2	75.19	2.678		
10,800.0	7,389.4	10,762.9	7,247.4	53.2	54.0	-41.97	-3,484.4	79.2	201.8	124.0	77.76	2.595		
10,900.0	7,389.2	10,862.9	7,246.6	55.0	55.9	-41.84	-3,584.4	79.1	202.1	121.8	80.32	2.517		
11,000.0	7,388.9	10,962.9	7,245.7	56.9	57.8	-41.71	-3,684.4	79.0	202.5	119.7	82.88	2.444		
11,100.0	7,388.7	11,062.9	7,244.9	58.8	59.7	-41.58	-3,784.4	78.9	202.9	117.5	85.43	2.375		
11,200.0	7,388.4	11,162.9	7,244.1	60.7	61.5	-41.45	-3,884.4	78.8	203.3	115.4	87.98	2.311		
11,300.0	7,388.2	11,262.9	7,243.2	62.5	63.4	-41.33	-3,984.4	78.7	203.7	113.2	90.52	2.251		
11,400.0	7,388.0	11,362.9	7,242.4	64.4	65.3	-41.20	-4,084.4	78.6	204.1	111.1	93.05	2.194		
11,500.0	7,387.7	11,462.9	7,241.5	66.3	67.2	-41.07	-4,184.4	78.5	204.5	108.9	95.58	2.140		
11,600.0	7,387.5	11,562.9	7,240.7	68.2	69.1	-40.95	-4,284.4	78.4	204.9	106.8	98.10	2.089		
11,700.0	7,387.2	11,662.9	7,239.9	70.1	70.9	-40.82	-4,384.4	78.2	205.3	104.7	100.62	2.041		
11,800.0	7,387.0	11,762.9	7,239.0	72.0	72.6	-40.70	-4,484.4	78.1	205.7	102.8	102.92	1.999		
11,803.6	7,387.0	11,766.5	7,239.0	72.0	72.7	-40.69	-4,488.0	78.1	205.7	102.7	103.00	1.998		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Gaddis 36J-3034 /Codell Sidetrack
Project:	SEC.36-T4N-R68W	TVD Reference:	WELL @ 5073.0ft (RKB Ensign 32 - 15')
Reference Site:	Gaddis Pad Sec.36-T4N-R68W	MD Reference:	WELL @ 5073.0ft (RKB Ensign 32 - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Gaddis 36J-3034 /Codell Sidetrack	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #2 Codell Sidetrack	Database:	Landmark
Reference Design:	Plan #3 (10-16-13) Sidetrack	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Gaddis Pad Sec.36-T4N-R68W - Gaddis 36M-443 - Wellbore #1 - Plan #4 (10-16-13)													
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)					
-8.0	-8.0	0.0	0.0	0.0	0.0	90.00	0.0	58.6	58.6				
0.0	0.0	7.0	7.0	0.0	0.0	90.00	0.0	58.6	58.6	58.6	0.02	3,438.055	
100.0	100.0	107.0	107.0	0.1	0.1	90.00	0.0	58.6	58.6	58.3	0.26	226.695	
164.2	164.2	171.2	171.2	0.3	0.3	90.00	0.0	58.6	58.6	58.0	0.55	107.145 CC	
200.0	200.0	206.9	206.9	0.4	0.4	89.99	0.0	58.6	58.6	57.9	0.71	82.852 ES	
300.0	300.0	304.9	304.9	0.6	0.6	89.39	0.6	60.4	60.4	59.3	1.15	52.657	
400.0	400.0	402.7	402.6	0.8	0.8	87.91	2.4	65.4	65.6	64.0	1.60	41.074	
500.0	500.0	500.0	499.5	1.0	1.0	85.94	5.2	73.4	74.0	71.9	2.05	36.077	
600.0	600.0	596.7	595.5	1.3	1.3	83.85	9.1	84.5	85.7	83.2	2.51	34.153	
700.0	700.0	694.9	692.6	1.5	1.6	81.96	13.8	98.0	100.0	97.0	2.98	33.610	
800.0	800.0	793.8	790.4	1.7	2.0	80.51	18.7	111.7	114.5	111.0	3.43	33.336	
900.0	900.0	892.7	888.3	1.9	2.3	79.39	23.5	125.4	129.0	125.1	3.90	33.101	
1,000.0	1,000.0	991.6	986.1	2.2	2.6	78.50	28.3	139.1	143.5	139.2	4.36	32.897	
1,100.0	1,100.0	1,090.5	1,083.9	2.4	3.0	77.77	33.1	152.9	158.1	153.3	4.83	32.720	
1,200.0	1,200.0	1,189.5	1,181.8	2.6	3.3	77.17	37.9	166.6	172.7	167.4	5.30	32.566	
1,300.0	1,300.0	1,288.4	1,279.6	2.8	3.7	76.66	42.8	180.3	187.3	181.5	5.78	32.431	
1,400.0	1,400.0	1,387.3	1,377.4	3.1	4.0	76.22	47.6	194.0	202.0	195.7	6.25	32.311	
1,500.0	1,500.0	1,486.2	1,475.3	3.3	4.4	75.84	52.4	207.7	216.6	209.9	6.73	32.205	
1,600.0	1,600.0	1,585.1	1,573.1	3.5	4.7	75.51	57.2	221.5	231.2	224.0	7.20	32.110	
1,700.0	1,700.0	1,684.0	1,671.0	3.7	5.1	75.22	62.1	235.2	245.9	238.2	7.68	32.025	
1,800.0	1,800.0	1,782.9	1,768.8	4.0	5.4	74.96	66.9	248.9	260.6	252.4	8.16	31.948	
1,900.0	1,900.0	1,881.9	1,866.6	4.2	5.8	74.73	71.7	262.6	275.2	266.6	8.63	31.879	
2,000.0	2,000.0	1,980.8	1,964.5	4.4	6.1	74.52	76.5	276.4	289.9	280.8	9.11	31.816	
2,100.0	2,100.0	2,079.7	2,062.3	4.6	6.5	74.34	81.3	290.1	304.6	295.0	9.59	31.758	
2,200.0	2,200.0	2,178.6	2,160.1	4.9	6.8	74.17	86.2	303.8	319.2	309.2	10.07	31.705	
2,300.0	2,300.0	2,277.5	2,258.0	5.1	7.2	74.01	91.0	317.5	333.9	323.4	10.55	31.656	
2,400.0	2,400.0	2,376.4	2,355.8	5.3	7.5	73.87	95.8	331.2	348.6	337.6	11.03	31.610	
2,500.0	2,500.0	2,475.3	2,453.7	5.5	7.9	73.74	100.6	345.0	363.3	351.8	11.51	31.569	
2,600.0	2,600.0	2,574.2	2,551.5	5.7	8.2	73.62	105.4	358.7	378.0	366.0	11.99	31.530	
2,700.0	2,700.0	2,673.2	2,649.3	6.0	8.6	73.51	110.3	372.4	392.6	380.2	12.47	31.494	
2,800.0	2,800.0	2,772.1	2,747.2	6.2	8.9	73.40	115.1	386.1	407.3	394.4	12.95	31.460	
2,900.0	2,900.0	2,871.0	2,845.0	6.4	9.3	73.31	119.9	399.8	422.0	408.6	13.43	31.428	
3,000.0	3,000.0	2,969.9	2,942.9	6.6	9.6	55.49	124.7	413.6	436.7	423.1	13.64	32.011	
3,100.0	3,100.0	3,069.0	3,040.8	6.9	10.0	55.40	129.6	427.3	450.3	436.1	14.12	31.886	
3,200.0	3,199.8	3,168.2	3,139.0	7.1	10.3	55.69	134.4	441.1	461.9	447.3	14.59	31.646	
3,300.0	3,299.4	3,267.5	3,237.2	7.3	10.7	56.34	139.2	454.9	471.6	456.5	15.07	31.300	
3,400.0	3,398.6	3,366.8	3,335.4	7.5	11.0	57.33	144.1	468.6	479.5	463.9	15.54	30.855	
3,500.0	3,497.6	3,465.9	3,433.5	7.8	11.4	58.60	148.9	482.4	486.6	470.6	16.03	30.365	
3,600.0	3,596.6	3,565.1	3,531.6	8.0	11.7	59.83	153.7	496.1	494.0	477.5	16.52	29.899	
3,700.0	3,695.5	3,664.2	3,629.7	8.3	12.1	61.03	158.6	509.9	501.6	484.6	17.03	29.455	
3,800.0	3,794.5	3,763.4	3,727.7	8.5	12.4	62.19	163.4	523.6	509.4	491.8	17.55	29.032	
3,900.0	3,893.5	3,862.6	3,825.8	8.8	12.8	63.32	168.2	537.4	517.4	499.3	18.07	28.630	
4,000.0	3,992.4	3,961.7	3,923.9	9.1	13.2	64.41	173.1	551.2	525.6	507.0	18.61	28.247	
4,100.0	4,091.4	4,060.9	4,022.0	9.3	13.5	65.47	177.9	564.9	534.0	514.8	19.15	27.882	
4,200.0	4,190.4	4,160.1	4,120.1	9.6	13.9	66.50	182.7	578.7	542.6	522.9	19.70	27.534	
4,300.0	4,289.4	4,259.2	4,218.2	9.9	14.2	67.49	187.6	592.4	551.3	531.0	20.27	27.203	
4,400.0	4,388.3	4,358.4	4,316.3	10.2	14.6	68.46	192.4	606.2	560.2	539.4	20.83	26.888	
4,500.0	4,487.3	4,457.6	4,414.3	10.5	14.9	69.39	197.2	619.9	569.2	547.8	21.41	26.588	
4,600.0	4,486.3	4,456.7	4,412.4	10.8	15.3	70.30	202.1	633.7	578.4	556.5	21.99	26.303	
4,700.0	4,685.2	4,655.9	4,610.5	11.1	15.6	71.17	206.9	647.5	587.8	565.2	22.58	26.031	
4,800.0	4,784.2	4,755.0	4,708.6	11.4	16.0	72.02	211.7	661.2	597.3	574.1	23.17	25.772	

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 36J-3034 /Codell Sidetrack
Project:	SEC.36-T4N-R68W	TVD Reference:	WELL @ 5073.0ft (RKB Ensign 32 - 15')
Reference Site:	Gaddis Pad Sec.36-T4N-R68W	MD Reference:	WELL @ 5073.0ft (RKB Ensign 32 - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Gaddis 36J-3034 /Codell Sidetrack	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #2 Codell Sidetrack	Database:	Landmark
Reference Design:	Plan #3 (10-16-13) Sidetrack	Offset TVD Reference:	Offset Datum

Offset Design Gaddis Pad Sec.36-T4N-R68W - Gaddis 36M-443 - Wellbore #1 - Plan #4 (10-16-13)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,900.0	4,883.2	4,854.2	4,806.7	11.7	16.3	72.84	216.6	675.0	606.9	583.1	23.77	25.526		
5,000.0	4,982.4	4,953.4	4,904.8	11.9	16.7	73.68	221.4	688.7	617.1	592.7	24.33	25.362		
5,100.0	5,082.0	5,052.8	5,003.1	12.1	17.0	74.21	226.2	702.5	628.3	603.5	24.83	25.308		
5,200.0	5,181.8	5,152.0	5,101.2	12.3	17.4	74.44	231.1	716.3	640.5	615.2	25.29	25.331		
5,300.0	5,281.8	5,251.1	5,199.2	12.5	17.7	74.40	235.9	730.0	653.6	627.9	25.70	25.429		
5,400.0	5,381.8	5,350.0	5,297.1	12.7	18.1	91.67	240.7	743.7	667.4	641.2	26.11	25.560		
5,500.0	5,481.8	5,448.9	5,394.9	12.9	18.5	91.23	245.6	757.5	681.1	654.6	26.54	25.663		
5,600.0	5,581.8	5,552.0	5,496.9	13.1	18.8	90.79	250.6	771.7	694.9	667.9	26.98	25.758		
5,700.0	5,681.8	5,651.0	5,624.9	13.3	19.1	90.36	255.6	786.1	706.0	678.6	27.42	25.747		
5,800.0	5,781.8	5,811.1	5,754.7	13.5	19.4	90.10	258.8	795.1	712.9	685.1	27.85	25.600		
5,900.0	5,881.8	5,941.8	5,885.3	13.7	19.6	90.00	260.0	798.6	715.6	687.3	28.27	25.313		
6,000.0	5,981.8	6,045.2	5,988.8	13.9	19.7	90.00	260.0	798.6	715.6	686.9	28.66	24.968		
6,100.0	6,081.8	6,145.2	6,088.8	14.1	19.9	90.00	260.0	798.6	715.6	686.5	29.05	24.631		
6,200.0	6,181.8	6,245.2	6,188.8	14.4	20.0	90.00	260.0	798.6	715.6	686.2	29.45	24.302		
6,300.0	6,281.8	6,345.2	6,288.8	14.6	20.2	90.00	260.0	798.6	715.6	685.8	29.84	23.980		
6,400.0	6,381.8	6,445.2	6,388.8	14.8	20.3	90.00	260.0	798.6	715.6	685.4	30.24	23.665		
6,500.0	6,481.8	6,545.2	6,488.8	15.0	20.5	90.00	260.0	798.6	715.6	685.0	30.64	23.357		
6,600.0	6,581.8	6,645.2	6,588.8	15.2	20.6	90.00	260.0	798.6	715.6	684.6	31.04	23.057		
6,633.4	6,615.2	6,678.7	6,622.2	15.3	20.7	-90.10	260.0	798.6	715.6	684.4	31.16	22.964		
6,700.0	6,681.7	6,745.2	6,688.7	15.4	20.7	-89.97	256.7	798.6	715.6	684.2	31.39	22.795		
6,800.0	6,780.3	6,845.1	6,787.3	15.5	20.8	-90.01	241.1	798.6	715.6	684.0	31.57	22.664		
6,900.0	6,875.2	6,945.2	6,883.2	15.5	20.8	-90.25	212.6	798.6	715.6	684.0	31.64	22.619		
7,000.0	6,964.0	7,045.8	6,974.9	15.5	20.9	-90.69	171.6	798.5	715.7	684.0	31.64	22.620		
7,100.0	7,044.5	7,147.1	7,061.1	15.5	20.9	-91.33	118.5	798.5	715.8	684.2	31.66	22.608		
7,200.0	7,114.8	7,249.4	7,140.3	15.6	20.9	-92.16	53.8	798.5	716.2	684.4	31.80	22.522		
7,300.0	7,175.4	7,353.2	7,211.0	15.7	20.9	-96.04	-22.1	798.4	720.1	688.2	31.98	22.517		
7,400.0	7,228.6	7,457.8	7,271.2	16.0	21.0	-98.65	-107.4	798.3	732.4	700.1	32.32	22.660		
7,500.0	7,273.4	7,561.4	7,318.8	16.5	21.2	-99.73	-199.3	798.3	752.9	720.0	32.91	22.875		
7,600.0	7,310.0	7,662.5	7,352.9	17.2	21.6	-99.44	-294.5	798.2	780.6	746.8	33.82	23.078		
7,700.0	7,342.3	7,762.0	7,373.9	17.9	22.1	-96.13	-391.6	798.2	807.5	772.1	35.36	22.835		
7,800.0	7,367.3	7,859.5	7,384.8	18.7	22.8	-93.02	-488.6	798.1	828.4	791.1	37.33	22.195		
7,900.0	7,384.6	7,958.2	7,391.6	19.7	23.6	-90.89	-587.0	798.0	843.1	803.4	39.69	21.242		
8,000.0	7,394.1	8,057.4	7,392.0	20.9	24.6	-89.54	-686.2	798.0	851.3	808.9	42.39	20.083		
8,100.0	7,395.9	8,157.4	7,392.0	22.1	25.7	-89.27	-786.1	797.9	853.0	807.9	45.16	18.887		
8,200.0	7,395.7	8,257.4	7,392.0	23.4	27.0	-89.28	-886.1	797.8	853.0	805.1	47.86	17.821		
8,300.0	7,395.4	8,357.4	7,392.0	24.8	28.2	-89.30	-986.1	797.7	852.9	802.2	50.71	16.820		
8,400.0	7,395.2	8,457.4	7,392.0	26.3	29.6	-89.32	-1,086.1	797.7	852.9	799.2	53.68	15.888		
8,500.0	7,394.9	8,557.4	7,392.0	27.8	31.0	-89.33	-1,186.1	797.6	852.8	796.1	56.75	15.027		
8,600.0	7,394.7	8,657.4	7,392.0	29.4	32.5	-89.35	-1,286.1	797.5	852.8	792.9	59.92	14.233		
8,700.0	7,394.5	8,757.4	7,392.0	31.0	34.0	-89.36	-1,386.1	797.5	852.7	789.6	63.16	13.502		
8,800.0	7,394.2	8,857.4	7,392.0	32.7	35.6	-89.38	-1,486.1	797.4	852.7	786.2	66.46	12.831		
8,900.0	7,394.0	8,957.4	7,392.0	34.4	37.2	-89.40	-1,586.1	797.3	852.7	782.8	69.81	12.213		
9,000.0	7,393.7	9,057.4	7,392.0	36.1	38.8	-89.41	-1,686.1	797.3	852.6	779.4	73.22	11.645		
9,100.0	7,393.5	9,157.4	7,392.0	37.8	40.5	-89.43	-1,786.1	797.2	852.6	775.9	76.66	11.121		
9,200.0	7,393.3	9,257.4	7,392.0	39.5	42.2	-89.45	-1,886.1	797.1	852.5	772.4	80.15	10.637		
9,300.0	7,393.0	9,357.4	7,392.0	41.3	43.9	-89.46	-1,986.1	797.1	852.5	768.8	83.66	10.190		
9,400.0	7,392.8	9,457.4	7,392.0	43.1	45.6	-89.48	-2,086.1	797.0	852.4	765.2	87.20	9.776		
9,500.0	7,392.5	9,557.4	7,392.0	44.9	47.3	-89.49	-2,186.1	796.9	852.4	761.6	90.76	9.391		
9,600.0	7,392.3	9,657.4	7,392.0	46.7	49.0	-89.51	-2,286.1	796.9	852.3	758.0	94.35	9.034		
9,700.0	7,392.1	9,757.4	7,392.0	48.5	50.8	-89.53	-2,386.1	796.8	852.3	754.3	97.95	8.701		
9,800.0	7,391.8	9,857.4	7,392.0	50.3	52.6	-89.54	-2,486.1	796.7	852.3	750.7	101.58	8.390		

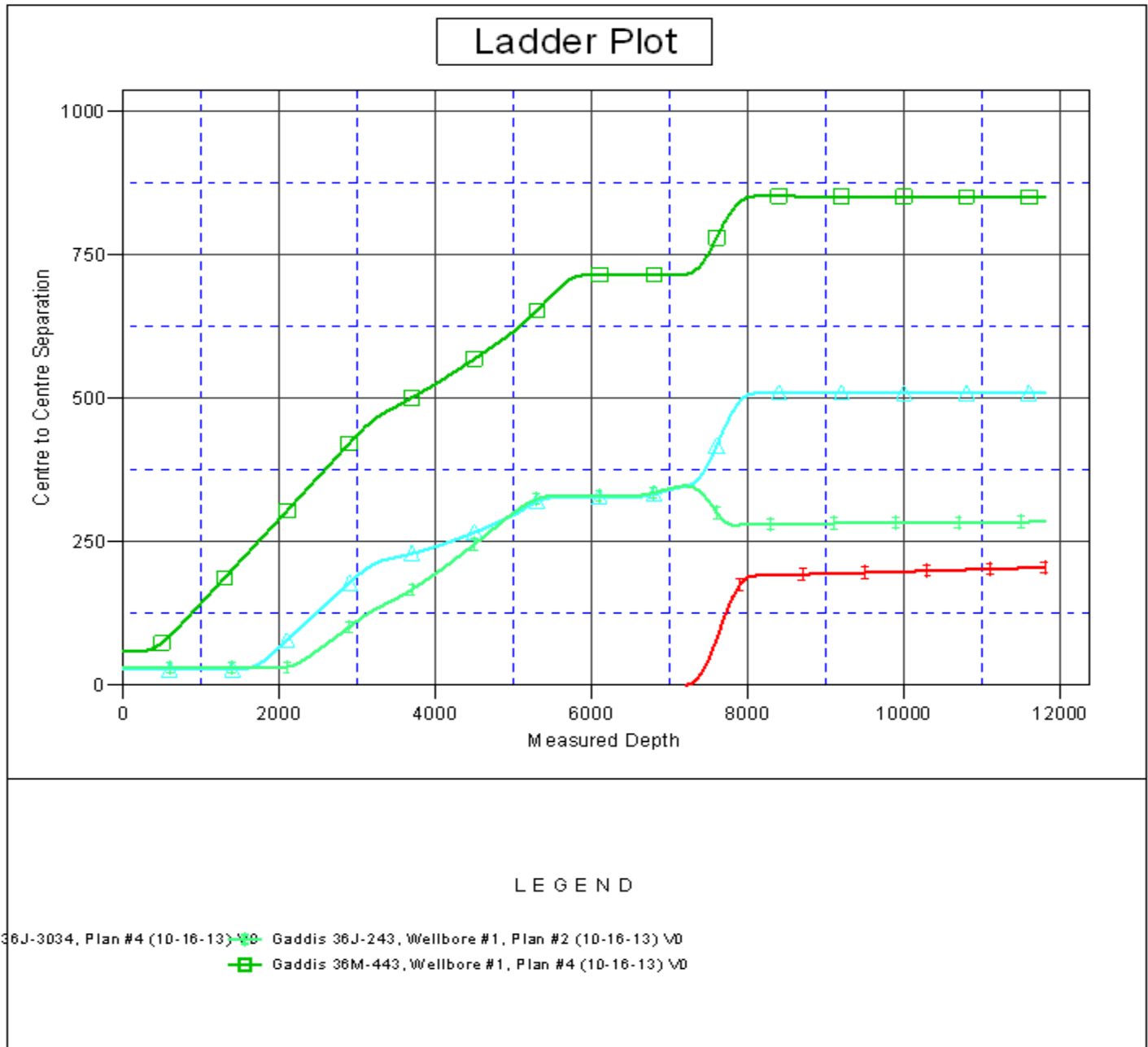
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Gaddis 36J-3034 /Codell Sidetrack
Project:	SEC.36-T4N-R68W	TVD Reference:	WELL @ 5073.0ft (RKB Ensign 32 - 15')
Reference Site:	Gaddis Pad Sec.36-T4N-R68W	MD Reference:	WELL @ 5073.0ft (RKB Ensign 32 - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Gaddis 36J-3034 /Codell Sidetrack	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #2 Codell Sidetrack	Database:	Landmark
Reference Design:	Plan #3 (10-16-13) Sidetrack	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)	Semi Major Axis Reference (ft)	Semi Major Axis 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	
9,900.0	7,391.6	9,957.3	7,392.0	52.1	54.3	-89.56	-2,586.1	796.7	852.2	747.0	105.21	8.100		
10,000.0	7,391.3	10,057.3	7,392.0	53.9	56.1	-89.57	-2,686.1	796.6	852.2	743.3	108.86	7.828		
10,100.0	7,391.1	10,157.3	7,392.0	55.8	57.9	-89.59	-2,786.1	796.5	852.1	739.6	112.53	7.573		
10,200.0	7,390.9	10,257.3	7,392.0	57.6	59.7	-89.61	-2,886.1	796.5	852.1	735.9	116.20	7.333		
10,300.0	7,390.6	10,357.3	7,392.0	59.4	61.5	-89.62	-2,986.1	796.4	852.0	732.1	119.89	7.107		
10,400.0	7,390.4	10,457.3	7,392.0	61.3	63.3	-89.64	-3,086.1	796.3	852.0	728.4	123.58	6.894		
10,500.0	7,390.1	10,557.3	7,392.0	63.1	65.2	-89.65	-3,186.1	796.3	851.9	724.7	127.29	6.693		
10,600.0	7,389.9	10,657.3	7,392.0	65.0	67.0	-89.67	-3,286.1	796.2	851.9	720.9	131.00	6.503		
10,700.0	7,389.7	10,757.3	7,392.0	66.9	68.8	-89.69	-3,386.1	796.1	851.9	717.1	134.72	6.323		
10,800.0	7,389.4	10,857.3	7,392.0	68.7	70.7	-89.70	-3,486.1	796.1	851.8	713.4	138.44	6.153		
10,900.0	7,389.2	10,957.3	7,392.0	70.6	72.5	-89.72	-3,586.1	796.0	851.8	709.6	142.17	5.991		
11,000.0	7,388.9	11,057.3	7,392.0	72.5	74.3	-89.74	-3,686.1	795.9	851.7	705.8	145.91	5.837		
11,100.0	7,388.7	11,157.3	7,392.0	74.3	76.2	-89.75	-3,786.1	795.8	851.7	702.0	149.65	5.691		
11,200.0	7,388.4	11,257.3	7,392.0	76.2	78.0	-89.77	-3,886.1	795.8	851.6	698.2	153.40	5.552		
11,300.0	7,388.2	11,357.3	7,392.0	78.1	79.9	-89.78	-3,986.1	795.7	851.6	694.4	157.15	5.419		
11,400.0	7,388.0	11,457.3	7,392.0	80.0	81.8	-89.80	-4,086.1	795.6	851.5	690.6	160.90	5.292		
11,500.0	7,387.7	11,557.3	7,392.0	81.8	83.6	-89.82	-4,186.1	795.6	851.5	686.8	164.66	5.171		
11,600.0	7,387.5	11,657.3	7,392.0	83.7	85.5	-89.83	-4,286.1	795.5	851.5	683.0	168.42	5.055		
11,700.0	7,387.2	11,757.3	7,392.0	85.6	87.3	-89.85	-4,386.1	795.4	851.4	679.2	172.19	4.945		
11,800.0	7,387.0	11,857.3	7,392.0	87.5	89.2	-89.87	-4,486.1	795.4	851.4	675.4	175.96	4.839		
11,802.4	7,387.0	11,859.4	7,392.0	87.5	89.3	-89.87	-4,488.2	795.4	851.4	675.3	176.04	4.836		
11,803.6	7,387.0	11,859.4	7,392.0	87.6	89.3	-89.87	-4,488.2	795.4	851.4	675.3	176.06	4.836 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Gaddis 36J-3034 /Codell Sidetrack
Project:	SEC.36-T4N-R68W	TVD Reference:	WELL @ 5073.0ft (RKB Ensign 32 - 15')
Reference Site:	Gaddis Pad Sec.36-T4N-R68W	MD Reference:	WELL @ 5073.0ft (RKB Ensign 32 - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Gaddis 36J-3034 /Codell Sidetrack	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #2 Codell Sidetrack	Database:	Landmark
Reference Design:	Plan #3 (10-16-13) Sidetrack	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 5073.0ft (RKB Ensign 32 - 1 Coordinates are relative to: Gaddis 36J-3034 /Codell Sidetrack
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°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Gaddis 36J-3034 /Codell Sidetrack
Project:	SEC.36-T4N-R68W	TVD Reference:	WELL @ 5073.0ft (RKB Ensign 32 - 15')
Reference Site:	Gaddis Pad Sec.36-T4N-R68W	MD Reference:	WELL @ 5073.0ft (RKB Ensign 32 - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Gaddis 36J-3034 /Codell Sidetrack	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #2 Codell Sidetrack	Database:	Landmark
Reference Design:	Plan #3 (10-16-13) Sidetrack	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 5073.0ft (RKB Ensign 32 - 1 Coordinates are relative to: Gaddis 36J-3034 /Codell Sidetrack
 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°

