

PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Guttersen 6M-423**

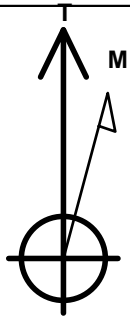
Surface Location: Guttersen 6M-203 Pad Sec.6-T2N-R63W
 North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
 Ground Elevation: 4823.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1308042.20	3285390.99	40.174460	-104.478670	

RKB - 15' WELL @ 4838.0ft (RKB - 15')

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape Point
BHL 500'FSL, 2122'FEL	6828.0	-4710.3	2.8	



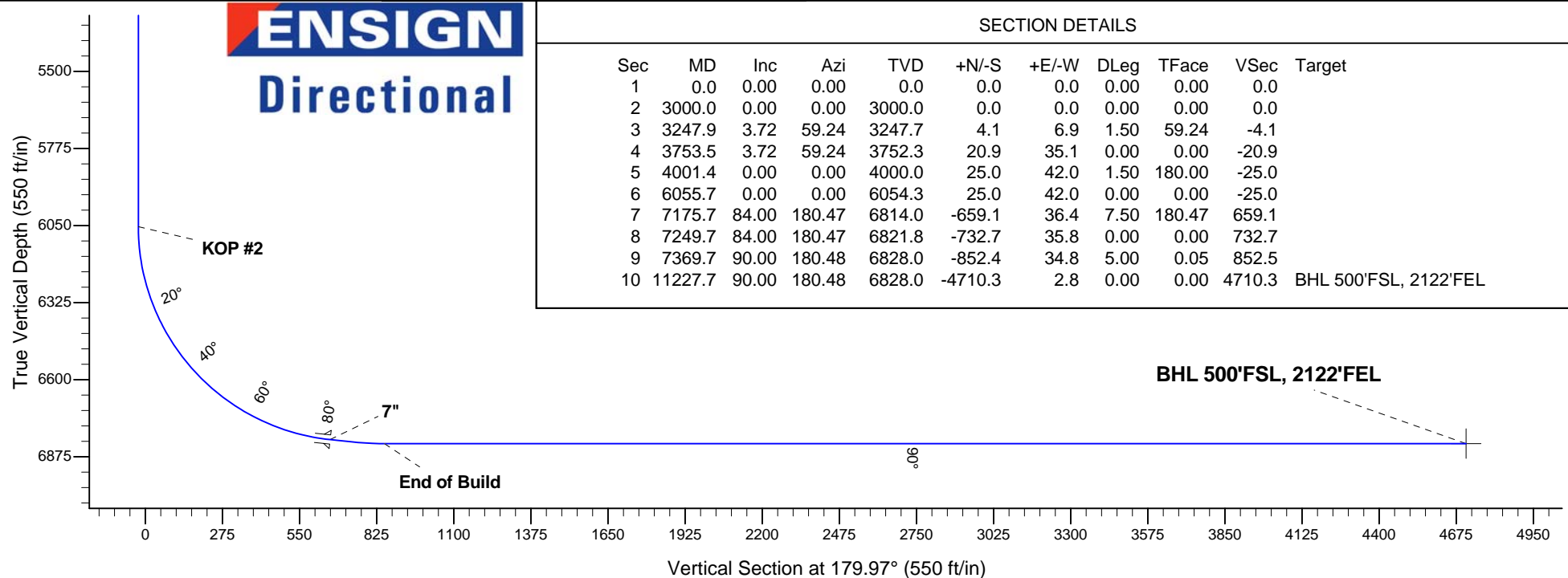
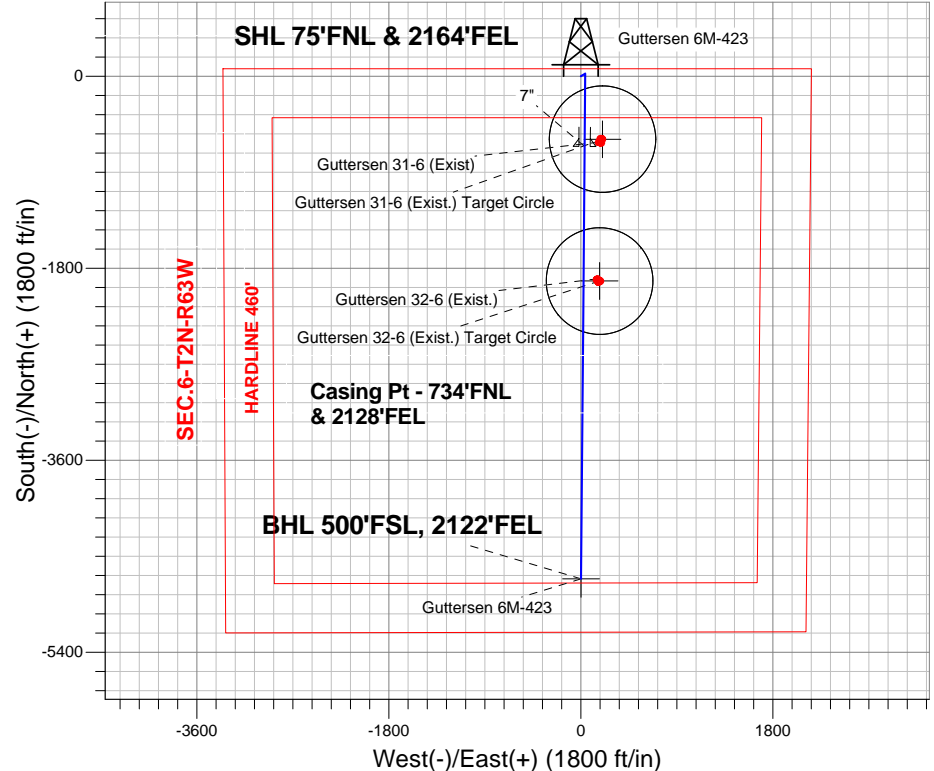
Azimuths to True North
 Magnetic North: 8.43°

Magnetic Field
 Strength: 52836.7nT
 Dip Angle: 66.85°
 Date: 5/31/2013
 Model: IGRF2010

Guttersen 6M-203 Pad Sec.6-T2N-R63W
 Guttersen 6M-423
 Plan #1 (5-31-13)
 16:19, May 31 2013

ANNOTATIONS

TVD	MD	Annotation
3000.0	3000.0	KOP #1
6054.3	6055.7	KOP #2
6828.0	7369.7	End of Build





Directional

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.6-T2N-R63W

Guttersen 6M-203 Pad Sec.6-T2N-R63W

Guttersen 6M-423

Wellbore #1

Plan: Plan #1 (5-31-13)

Standard Planning Report

31 May, 2013

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	
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,247.9	3.72	59.24	3,247.7	4.1	6.9	1.50	1.50	0.00	59.24	
3,753.5	3.72	59.24	3,752.3	20.9	35.1	0.00	0.00	0.00	0.00	
4,001.4	0.00	0.00	4,000.0	25.0	42.0	1.50	-1.50	0.00	180.00	
6,055.7	0.00	0.00	6,054.3	25.0	42.0	0.00	0.00	0.00	0.00	
7,175.7	84.00	180.47	6,814.0	-659.1	36.4	7.50	7.50	0.00	180.47	
7,249.7	84.00	180.47	6,821.8	-732.7	35.8	0.00	0.00	0.00	0.00	
7,369.7	90.00	180.48	6,828.0	-852.4	34.8	5.00	5.00	0.00	0.05	
11,227.7	90.00	180.48	6,828.0	-4,710.3	2.8	0.00	0.00	0.00	0.00	BHL 500'FSL, 2122

Database:	Landmark	Local Co-ordinate Reference:	Well Guttersen 6M-423
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4838.0ft (RKB - 15')
Project:	SEC.6-T2N-R63W	MD Reference:	WELL @ 4838.0ft (RKB - 15')
Site:	Guttersen 6M-203 Pad Sec.6-T2N-R63W	North Reference:	True
Well:	Guttersen 6M-423	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (5-31-13)		

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
Guttersen 31-6 (Exist.) Target Circle - Guttersen 32-6 (Exist.) Target Circle									
40.0	0.00	0.00	40.0	0.0	0.0	0.0	0.00	0.00	0.00
80.0	0.00	0.00	80.0	0.0	0.0	0.0	0.00	0.00	0.00
120.0	0.00	0.00	120.0	0.0	0.0	0.0	0.00	0.00	0.00
160.0	0.00	0.00	160.0	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
240.0	0.00	0.00	240.0	0.0	0.0	0.0	0.00	0.00	0.00
280.0	0.00	0.00	280.0	0.0	0.0	0.0	0.00	0.00	0.00
320.0	0.00	0.00	320.0	0.0	0.0	0.0	0.00	0.00	0.00
360.0	0.00	0.00	360.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
440.0	0.00	0.00	440.0	0.0	0.0	0.0	0.00	0.00	0.00
480.0	0.00	0.00	480.0	0.0	0.0	0.0	0.00	0.00	0.00
520.0	0.00	0.00	520.0	0.0	0.0	0.0	0.00	0.00	0.00
560.0	0.00	0.00	560.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
640.0	0.00	0.00	640.0	0.0	0.0	0.0	0.00	0.00	0.00
680.0	0.00	0.00	680.0	0.0	0.0	0.0	0.00	0.00	0.00
720.0	0.00	0.00	720.0	0.0	0.0	0.0	0.00	0.00	0.00
760.0	0.00	0.00	760.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
840.0	0.00	0.00	840.0	0.0	0.0	0.0	0.00	0.00	0.00
880.0	0.00	0.00	880.0	0.0	0.0	0.0	0.00	0.00	0.00
920.0	0.00	0.00	920.0	0.0	0.0	0.0	0.00	0.00	0.00
960.0	0.00	0.00	960.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,040.0	0.00	0.00	1,040.0	0.0	0.0	0.0	0.00	0.00	0.00
1,080.0	0.00	0.00	1,080.0	0.0	0.0	0.0	0.00	0.00	0.00
1,120.0	0.00	0.00	1,120.0	0.0	0.0	0.0	0.00	0.00	0.00
1,160.0	0.00	0.00	1,160.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,240.0	0.00	0.00	1,240.0	0.0	0.0	0.0	0.00	0.00	0.00
1,280.0	0.00	0.00	1,280.0	0.0	0.0	0.0	0.00	0.00	0.00
1,320.0	0.00	0.00	1,320.0	0.0	0.0	0.0	0.00	0.00	0.00
1,360.0	0.00	0.00	1,360.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,440.0	0.00	0.00	1,440.0	0.0	0.0	0.0	0.00	0.00	0.00
1,480.0	0.00	0.00	1,480.0	0.0	0.0	0.0	0.00	0.00	0.00
1,520.0	0.00	0.00	1,520.0	0.0	0.0	0.0	0.00	0.00	0.00
1,560.0	0.00	0.00	1,560.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,640.0	0.00	0.00	1,640.0	0.0	0.0	0.0	0.00	0.00	0.00
1,680.0	0.00	0.00	1,680.0	0.0	0.0	0.0	0.00	0.00	0.00
1,720.0	0.00	0.00	1,720.0	0.0	0.0	0.0	0.00	0.00	0.00
1,760.0	0.00	0.00	1,760.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,840.0	0.00	0.00	1,840.0	0.0	0.0	0.0	0.00	0.00	0.00
1,880.0	0.00	0.00	1,880.0	0.0	0.0	0.0	0.00	0.00	0.00
1,920.0	0.00	0.00	1,920.0	0.0	0.0	0.0	0.00	0.00	0.00
1,960.0	0.00	0.00	1,960.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,040.0	0.00	0.00	2,040.0	0.0	0.0	0.0	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Guttersen 6M-423
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4838.0ft (RKB - 15')
Project:	SEC.6-T2N-R63W	MD Reference:	WELL @ 4838.0ft (RKB - 15')
Site:	Guttersen 6M-203 Pad Sec.6-T2N-R63W	North Reference:	True
Well:	Guttersen 6M-423	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (5-31-13)		

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)
2,080.0	0.00	0.00	2,080.0	0.0	0.0	0.0	0.00	0.00	0.00
2,120.0	0.00	0.00	2,120.0	0.0	0.0	0.0	0.00	0.00	0.00
2,160.0	0.00	0.00	2,160.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,240.0	0.00	0.00	2,240.0	0.0	0.0	0.0	0.00	0.00	0.00
2,280.0	0.00	0.00	2,280.0	0.0	0.0	0.0	0.00	0.00	0.00
2,320.0	0.00	0.00	2,320.0	0.0	0.0	0.0	0.00	0.00	0.00
2,360.0	0.00	0.00	2,360.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,440.0	0.00	0.00	2,440.0	0.0	0.0	0.0	0.00	0.00	0.00
2,480.0	0.00	0.00	2,480.0	0.0	0.0	0.0	0.00	0.00	0.00
2,520.0	0.00	0.00	2,520.0	0.0	0.0	0.0	0.00	0.00	0.00
2,560.0	0.00	0.00	2,560.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,640.0	0.00	0.00	2,640.0	0.0	0.0	0.0	0.00	0.00	0.00
2,680.0	0.00	0.00	2,680.0	0.0	0.0	0.0	0.00	0.00	0.00
2,720.0	0.00	0.00	2,720.0	0.0	0.0	0.0	0.00	0.00	0.00
2,760.0	0.00	0.00	2,760.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,840.0	0.00	0.00	2,840.0	0.0	0.0	0.0	0.00	0.00	0.00
2,880.0	0.00	0.00	2,880.0	0.0	0.0	0.0	0.00	0.00	0.00
2,920.0	0.00	0.00	2,920.0	0.0	0.0	0.0	0.00	0.00	0.00
2,960.0	0.00	0.00	2,960.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP #1									
3,040.0	0.60	59.24	3,040.0	0.1	0.2	-0.1	1.50	1.50	0.00
3,080.0	1.20	59.24	3,080.0	0.4	0.7	-0.4	1.50	1.50	0.00
3,120.0	1.80	59.24	3,120.0	1.0	1.6	-1.0	1.50	1.50	0.00
3,160.0	2.40	59.24	3,160.0	1.7	2.9	-1.7	1.50	1.50	0.00
3,200.0	3.00	59.24	3,199.9	2.7	4.5	-2.7	1.50	1.50	0.00
3,240.0	3.60	59.24	3,239.8	3.9	6.5	-3.9	1.50	1.50	0.00
3,247.9	3.72	59.24	3,247.7	4.1	6.9	-4.1	1.50	1.50	0.00
3,280.0	3.72	59.24	3,279.8	5.2	8.7	-5.2	0.00	0.00	0.00
3,320.0	3.72	59.24	3,319.7	6.5	10.9	-6.5	0.00	0.00	0.00
3,360.0	3.72	59.24	3,359.6	7.8	13.2	-7.8	0.00	0.00	0.00
3,400.0	3.72	59.24	3,399.5	9.2	15.4	-9.1	0.00	0.00	0.00
3,440.0	3.72	59.24	3,439.4	10.5	17.6	-10.5	0.00	0.00	0.00
3,480.0	3.72	59.24	3,479.3	11.8	19.8	-11.8	0.00	0.00	0.00
3,520.0	3.72	59.24	3,519.3	13.1	22.1	-13.1	0.00	0.00	0.00
3,560.0	3.72	59.24	3,559.2	14.5	24.3	-14.5	0.00	0.00	0.00
3,600.0	3.72	59.24	3,599.1	15.8	26.5	-15.8	0.00	0.00	0.00
3,640.0	3.72	59.24	3,639.0	17.1	28.8	-17.1	0.00	0.00	0.00
3,680.0	3.72	59.24	3,678.9	18.4	31.0	-18.4	0.00	0.00	0.00
3,720.0	3.72	59.24	3,718.8	19.8	33.2	-19.8	0.00	0.00	0.00
3,753.5	3.72	59.24	3,752.3	20.9	35.1	-20.9	0.00	0.00	0.00
3,760.0	3.62	59.24	3,758.7	21.1	35.4	-21.1	1.50	-1.50	0.00
3,800.0	3.02	59.24	3,798.7	22.3	37.4	-22.3	1.50	-1.50	0.00
3,840.0	2.42	59.24	3,838.6	23.3	39.1	-23.2	1.50	-1.50	0.00
3,880.0	1.82	59.24	3,878.6	24.0	40.3	-24.0	1.50	-1.50	0.00
3,920.0	1.22	59.24	3,918.6	24.6	41.3	-24.5	1.50	-1.50	0.00
3,960.0	0.62	59.24	3,958.6	24.9	41.8	-24.9	1.50	-1.50	0.00
4,000.0	0.02	59.24	3,998.6	25.0	42.0	-25.0	1.50	-1.50	0.00
4,001.4	0.00	0.00	4,000.0	25.0	42.0	-25.0	1.50	-1.50	0.00

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Well:	Guttersen 6M-423	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (5-31-13)		

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)
4,040.0	0.00	0.00	4,038.6	25.0	42.0	-25.0	0.00	0.00	0.00
4,080.0	0.00	0.00	4,078.6	25.0	42.0	-25.0	0.00	0.00	0.00
4,120.0	0.00	0.00	4,118.6	25.0	42.0	-25.0	0.00	0.00	0.00
4,160.0	0.00	0.00	4,158.6	25.0	42.0	-25.0	0.00	0.00	0.00
4,200.0	0.00	0.00	4,198.6	25.0	42.0	-25.0	0.00	0.00	0.00
4,240.0	0.00	0.00	4,238.6	25.0	42.0	-25.0	0.00	0.00	0.00
4,280.0	0.00	0.00	4,278.6	25.0	42.0	-25.0	0.00	0.00	0.00
4,320.0	0.00	0.00	4,318.6	25.0	42.0	-25.0	0.00	0.00	0.00
4,360.0	0.00	0.00	4,358.6	25.0	42.0	-25.0	0.00	0.00	0.00
4,400.0	0.00	0.00	4,398.6	25.0	42.0	-25.0	0.00	0.00	0.00
4,440.0	0.00	0.00	4,438.6	25.0	42.0	-25.0	0.00	0.00	0.00
4,480.0	0.00	0.00	4,478.6	25.0	42.0	-25.0	0.00	0.00	0.00
4,520.0	0.00	0.00	4,518.6	25.0	42.0	-25.0	0.00	0.00	0.00
4,560.0	0.00	0.00	4,558.6	25.0	42.0	-25.0	0.00	0.00	0.00
4,600.0	0.00	0.00	4,598.6	25.0	42.0	-25.0	0.00	0.00	0.00
4,640.0	0.00	0.00	4,638.6	25.0	42.0	-25.0	0.00	0.00	0.00
4,680.0	0.00	0.00	4,678.6	25.0	42.0	-25.0	0.00	0.00	0.00
4,720.0	0.00	0.00	4,718.6	25.0	42.0	-25.0	0.00	0.00	0.00
4,760.0	0.00	0.00	4,758.6	25.0	42.0	-25.0	0.00	0.00	0.00
4,800.0	0.00	0.00	4,798.6	25.0	42.0	-25.0	0.00	0.00	0.00
4,840.0	0.00	0.00	4,838.6	25.0	42.0	-25.0	0.00	0.00	0.00
4,880.0	0.00	0.00	4,878.6	25.0	42.0	-25.0	0.00	0.00	0.00
4,920.0	0.00	0.00	4,918.6	25.0	42.0	-25.0	0.00	0.00	0.00
4,960.0	0.00	0.00	4,958.6	25.0	42.0	-25.0	0.00	0.00	0.00
5,000.0	0.00	0.00	4,998.6	25.0	42.0	-25.0	0.00	0.00	0.00
5,040.0	0.00	0.00	5,038.6	25.0	42.0	-25.0	0.00	0.00	0.00
5,080.0	0.00	0.00	5,078.6	25.0	42.0	-25.0	0.00	0.00	0.00
5,120.0	0.00	0.00	5,118.6	25.0	42.0	-25.0	0.00	0.00	0.00
5,160.0	0.00	0.00	5,158.6	25.0	42.0	-25.0	0.00	0.00	0.00
5,200.0	0.00	0.00	5,198.6	25.0	42.0	-25.0	0.00	0.00	0.00
5,240.0	0.00	0.00	5,238.6	25.0	42.0	-25.0	0.00	0.00	0.00
5,280.0	0.00	0.00	5,278.6	25.0	42.0	-25.0	0.00	0.00	0.00
5,320.0	0.00	0.00	5,318.6	25.0	42.0	-25.0	0.00	0.00	0.00
5,360.0	0.00	0.00	5,358.6	25.0	42.0	-25.0	0.00	0.00	0.00
5,400.0	0.00	0.00	5,398.6	25.0	42.0	-25.0	0.00	0.00	0.00
5,440.0	0.00	0.00	5,438.6	25.0	42.0	-25.0	0.00	0.00	0.00
5,480.0	0.00	0.00	5,478.6	25.0	42.0	-25.0	0.00	0.00	0.00
5,520.0	0.00	0.00	5,518.6	25.0	42.0	-25.0	0.00	0.00	0.00
5,560.0	0.00	0.00	5,558.6	25.0	42.0	-25.0	0.00	0.00	0.00
5,600.0	0.00	0.00	5,598.6	25.0	42.0	-25.0	0.00	0.00	0.00
5,640.0	0.00	0.00	5,638.6	25.0	42.0	-25.0	0.00	0.00	0.00
5,680.0	0.00	0.00	5,678.6	25.0	42.0	-25.0	0.00	0.00	0.00
5,720.0	0.00	0.00	5,718.6	25.0	42.0	-25.0	0.00	0.00	0.00
5,760.0	0.00	0.00	5,758.6	25.0	42.0	-25.0	0.00	0.00	0.00
5,800.0	0.00	0.00	5,798.6	25.0	42.0	-25.0	0.00	0.00	0.00
5,840.0	0.00	0.00	5,838.6	25.0	42.0	-25.0	0.00	0.00	0.00
5,880.0	0.00	0.00	5,878.6	25.0	42.0	-25.0	0.00	0.00	0.00
5,920.0	0.00	0.00	5,918.6	25.0	42.0	-25.0	0.00	0.00	0.00
5,960.0	0.00	0.00	5,958.6	25.0	42.0	-25.0	0.00	0.00	0.00
6,000.0	0.00	0.00	5,998.6	25.0	42.0	-25.0	0.00	0.00	0.00
6,040.0	0.00	0.00	6,038.6	25.0	42.0	-25.0	0.00	0.00	0.00
6,055.7	0.00	0.00	6,054.3	25.0	42.0	-25.0	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Guttersen 6M-423
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4838.0ft (RKB - 15')
Project:	SEC.6-T2N-R63W	MD Reference:	WELL @ 4838.0ft (RKB - 15')
Site:	Guttersen 6M-203 Pad Sec.6-T2N-R63W	North Reference:	True
Well:	Guttersen 6M-423	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (5-31-13)		

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)
KOP #2									
6,080.0	1.82	180.47	6,078.6	24.6	42.0	-24.6	7.51	7.51	0.00
6,120.0	4.82	180.47	6,118.5	22.3	42.0	-22.3	7.50	7.50	0.00
6,160.0	7.82	180.47	6,158.3	17.9	41.9	-17.9	7.50	7.50	0.00
6,200.0	10.82	180.47	6,197.7	11.4	41.9	-11.4	7.50	7.50	0.00
6,240.0	13.82	180.47	6,236.8	2.9	41.8	-2.8	7.50	7.50	0.00
6,280.0	16.82	180.47	6,275.4	-7.7	41.7	7.7	7.50	7.50	0.00
6,320.0	19.82	180.47	6,313.3	-20.3	41.6	20.3	7.50	7.50	0.00
6,360.0	22.82	180.47	6,350.6	-34.8	41.5	34.8	7.50	7.50	0.00
6,400.0	25.82	180.47	6,387.0	-51.3	41.4	51.3	7.50	7.50	0.00
6,440.0	28.82	180.47	6,422.6	-69.6	41.2	69.7	7.50	7.50	0.00
6,480.0	31.82	180.47	6,457.1	-89.8	41.1	89.9	7.50	7.50	0.00
6,520.0	34.82	180.47	6,490.5	-111.8	40.9	111.8	7.50	7.50	0.00
6,560.0	37.82	180.47	6,522.7	-135.5	40.7	135.5	7.50	7.50	0.00
6,600.0	40.82	180.47	6,553.7	-160.8	40.5	160.9	7.50	7.50	0.00
6,640.0	43.82	180.47	6,583.3	-187.8	40.3	187.8	7.50	7.50	0.00
6,680.0	46.82	180.47	6,611.4	-216.2	40.0	216.2	7.50	7.50	0.00
6,720.0	49.82	180.47	6,638.0	-246.1	39.8	246.1	7.50	7.50	0.00
6,760.0	52.82	180.47	6,663.0	-277.3	39.5	277.3	7.50	7.50	0.00
6,800.0	55.82	180.47	6,686.3	-309.8	39.3	309.8	7.50	7.50	0.00
6,840.0	58.82	180.47	6,707.9	-343.5	39.0	343.5	7.50	7.50	0.00
6,880.0	61.82	180.47	6,727.7	-378.2	38.7	378.2	7.50	7.50	0.00
6,920.0	64.82	180.47	6,745.6	-414.0	38.4	414.0	7.50	7.50	0.00
6,960.0	67.82	180.47	6,761.7	-450.6	38.1	450.6	7.50	7.50	0.00
7,000.0	70.82	180.47	6,775.8	-488.0	37.8	488.0	7.50	7.50	0.00
7,040.0	73.82	180.47	6,788.0	-526.1	37.5	526.1	7.50	7.50	0.00
7,080.0	76.82	180.47	6,798.1	-564.8	37.2	564.8	7.50	7.50	0.00
7,120.0	79.82	180.47	6,806.2	-604.0	36.8	604.0	7.50	7.50	0.00
7,160.0	82.82	180.47	6,812.2	-643.5	36.5	643.5	7.50	7.50	0.00
7,175.7	84.00	180.47	6,814.0	-659.1	36.4	659.1	7.49	7.49	0.00
7"									
7,200.0	84.00	180.47	6,816.6	-683.3	36.2	683.3	0.00	0.00	0.00
7,240.0	84.00	180.47	6,820.7	-723.0	35.9	723.1	0.00	0.00	0.00
7,249.7	84.00	180.47	6,821.8	-732.7	35.8	732.7	0.00	0.00	0.00
7,280.0	85.52	180.47	6,824.5	-762.9	35.5	762.9	5.00	5.00	0.00
7,320.0	87.52	180.47	6,827.0	-802.8	35.2	802.8	5.00	5.00	0.00
7,360.0	89.52	180.47	6,828.0	-842.8	34.9	842.8	5.00	5.00	0.00
7,369.7	90.00	180.48	6,828.0	-852.5	34.8	852.5	4.99	4.99	0.00
End of Build									
7,400.0	90.00	180.48	6,828.0	-882.8	34.5	882.8	0.00	0.00	0.00
7,440.0	90.00	180.48	6,828.0	-922.8	34.2	922.8	0.00	0.00	0.00
7,480.0	90.00	180.48	6,828.0	-962.8	33.9	962.8	0.00	0.00	0.00
7,520.0	90.00	180.48	6,828.0	-1,002.8	33.5	1,002.8	0.00	0.00	0.00
7,560.0	90.00	180.48	6,828.0	-1,042.8	33.2	1,042.8	0.00	0.00	0.00
7,600.0	90.00	180.48	6,828.0	-1,082.8	32.9	1,082.8	0.00	0.00	0.00
7,640.0	90.00	180.48	6,828.0	-1,122.8	32.6	1,122.8	0.00	0.00	0.00
7,680.0	90.00	180.48	6,828.0	-1,162.7	32.2	1,162.8	0.00	0.00	0.00
7,720.0	90.00	180.48	6,828.0	-1,202.7	31.9	1,202.8	0.00	0.00	0.00
7,760.0	90.00	180.48	6,828.0	-1,242.7	31.6	1,242.8	0.00	0.00	0.00
7,800.0	90.00	180.48	6,828.0	-1,282.7	31.2	1,282.8	0.00	0.00	0.00
7,840.0	90.00	180.48	6,828.0	-1,322.7	30.9	1,322.8	0.00	0.00	0.00
7,880.0	90.00	180.48	6,828.0	-1,362.7	30.6	1,362.8	0.00	0.00	0.00
7,920.0	90.00	180.48	6,828.0	-1,402.7	30.2	1,402.8	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Guttersen 6M-423
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4838.0ft (RKB - 15')
Project:	SEC.6-T2N-R63W	MD Reference:	WELL @ 4838.0ft (RKB - 15')
Site:	Guttersen 6M-203 Pad Sec.6-T2N-R63W	North Reference:	True
Well:	Guttersen 6M-423	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (5-31-13)		

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)
7,960.0	90.00	180.48	6,828.0	-1,442.7	29.9	1,442.8	0.00	0.00	0.00
8,000.0	90.00	180.48	6,828.0	-1,482.7	29.6	1,482.8	0.00	0.00	0.00
8,040.0	90.00	180.48	6,828.0	-1,522.7	29.2	1,522.8	0.00	0.00	0.00
8,080.0	90.00	180.48	6,828.0	-1,562.7	28.9	1,562.8	0.00	0.00	0.00
8,120.0	90.00	180.48	6,828.0	-1,602.7	28.6	1,602.8	0.00	0.00	0.00
8,160.0	90.00	180.48	6,828.0	-1,642.7	28.2	1,642.7	0.00	0.00	0.00
8,200.0	90.00	180.48	6,828.0	-1,682.7	27.9	1,682.7	0.00	0.00	0.00
8,240.0	90.00	180.48	6,828.0	-1,722.7	27.6	1,722.7	0.00	0.00	0.00
8,280.0	90.00	180.48	6,828.0	-1,762.7	27.2	1,762.7	0.00	0.00	0.00
8,320.0	90.00	180.48	6,828.0	-1,802.7	26.9	1,802.7	0.00	0.00	0.00
8,360.0	90.00	180.48	6,828.0	-1,842.7	26.6	1,842.7	0.00	0.00	0.00
8,400.0	90.00	180.48	6,828.0	-1,882.7	26.3	1,882.7	0.00	0.00	0.00
8,440.0	90.00	180.48	6,828.0	-1,922.7	25.9	1,922.7	0.00	0.00	0.00
8,480.0	90.00	180.48	6,828.0	-1,962.7	25.6	1,962.7	0.00	0.00	0.00
8,520.0	90.00	180.48	6,828.0	-2,002.7	25.3	2,002.7	0.00	0.00	0.00
8,560.0	90.00	180.48	6,828.0	-2,042.7	24.9	2,042.7	0.00	0.00	0.00
8,600.0	90.00	180.48	6,828.0	-2,082.7	24.6	2,082.7	0.00	0.00	0.00
8,640.0	90.00	180.48	6,828.0	-2,122.7	24.3	2,122.7	0.00	0.00	0.00
8,680.0	90.00	180.48	6,828.0	-2,162.7	23.9	2,162.7	0.00	0.00	0.00
8,720.0	90.00	180.48	6,828.0	-2,202.7	23.6	2,202.7	0.00	0.00	0.00
8,760.0	90.00	180.48	6,828.0	-2,242.7	23.3	2,242.7	0.00	0.00	0.00
8,800.0	90.00	180.48	6,828.0	-2,282.7	22.9	2,282.7	0.00	0.00	0.00
8,840.0	90.00	180.48	6,828.0	-2,322.7	22.6	2,322.7	0.00	0.00	0.00
8,880.0	90.00	180.48	6,828.0	-2,362.7	22.3	2,362.7	0.00	0.00	0.00
8,920.0	90.00	180.48	6,828.0	-2,402.7	21.9	2,402.7	0.00	0.00	0.00
8,960.0	90.00	180.48	6,828.0	-2,442.7	21.6	2,442.7	0.00	0.00	0.00
9,000.0	90.00	180.48	6,828.0	-2,482.7	21.3	2,482.7	0.00	0.00	0.00
9,040.0	90.00	180.48	6,828.0	-2,522.7	20.9	2,522.7	0.00	0.00	0.00
9,080.0	90.00	180.48	6,828.0	-2,562.7	20.6	2,562.7	0.00	0.00	0.00
9,120.0	90.00	180.48	6,828.0	-2,602.7	20.3	2,602.7	0.00	0.00	0.00
9,160.0	90.00	180.48	6,828.0	-2,642.7	19.9	2,642.7	0.00	0.00	0.00
9,200.0	90.00	180.48	6,828.0	-2,682.7	19.6	2,682.7	0.00	0.00	0.00
9,240.0	90.00	180.48	6,828.0	-2,722.7	19.3	2,722.7	0.00	0.00	0.00
9,280.0	90.00	180.48	6,828.0	-2,762.7	19.0	2,762.7	0.00	0.00	0.00
9,320.0	90.00	180.48	6,828.0	-2,802.7	18.6	2,802.7	0.00	0.00	0.00
9,360.0	90.00	180.48	6,828.0	-2,842.7	18.3	2,842.7	0.00	0.00	0.00
9,400.0	90.00	180.48	6,828.0	-2,882.7	18.0	2,882.7	0.00	0.00	0.00
9,440.0	90.00	180.48	6,828.0	-2,922.7	17.6	2,922.7	0.00	0.00	0.00
9,480.0	90.00	180.48	6,828.0	-2,962.7	17.3	2,962.7	0.00	0.00	0.00
9,520.0	90.00	180.48	6,828.0	-3,002.7	17.0	3,002.7	0.00	0.00	0.00
9,560.0	90.00	180.48	6,828.0	-3,042.7	16.6	3,042.7	0.00	0.00	0.00
9,600.0	90.00	180.48	6,828.0	-3,082.7	16.3	3,082.7	0.00	0.00	0.00
9,640.0	90.00	180.48	6,828.0	-3,122.7	16.0	3,122.7	0.00	0.00	0.00
9,680.0	90.00	180.48	6,828.0	-3,162.7	15.6	3,162.7	0.00	0.00	0.00
9,720.0	90.00	180.48	6,828.0	-3,202.7	15.3	3,202.7	0.00	0.00	0.00
9,760.0	90.00	180.48	6,828.0	-3,242.7	15.0	3,242.7	0.00	0.00	0.00
9,800.0	90.00	180.48	6,828.0	-3,282.7	14.6	3,282.7	0.00	0.00	0.00
9,840.0	90.00	180.48	6,828.0	-3,322.7	14.3	3,322.7	0.00	0.00	0.00
9,880.0	90.00	180.48	6,828.0	-3,362.7	14.0	3,362.7	0.00	0.00	0.00
9,920.0	90.00	180.48	6,828.0	-3,402.7	13.6	3,402.7	0.00	0.00	0.00
9,960.0	90.00	180.48	6,828.0	-3,442.7	13.3	3,442.7	0.00	0.00	0.00
10,000.0	90.00	180.48	6,828.0	-3,482.7	13.0	3,482.7	0.00	0.00	0.00
10,040.0	90.00	180.48	6,828.0	-3,522.7	12.6	3,522.7	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Guttersen 6M-423
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4838.0ft (RKB - 15')
Project:	SEC.6-T2N-R63W	MD Reference:	WELL @ 4838.0ft (RKB - 15')
Site:	Guttersen 6M-203 Pad Sec.6-T2N-R63W	North Reference:	True
Well:	Guttersen 6M-423	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (5-31-13)		

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)
10,080.0	90.00	180.48	6,828.0	-3,562.7	12.3	3,562.7	0.00	0.00	0.00
10,120.0	90.00	180.48	6,828.0	-3,602.7	12.0	3,602.7	0.00	0.00	0.00
10,160.0	90.00	180.48	6,828.0	-3,642.7	11.7	3,642.7	0.00	0.00	0.00
10,200.0	90.00	180.48	6,828.0	-3,682.7	11.3	3,682.7	0.00	0.00	0.00
10,240.0	90.00	180.48	6,828.0	-3,722.7	11.0	3,722.7	0.00	0.00	0.00
10,280.0	90.00	180.48	6,828.0	-3,762.7	10.7	3,762.7	0.00	0.00	0.00
10,320.0	90.00	180.48	6,828.0	-3,802.7	10.3	3,802.7	0.00	0.00	0.00
10,360.0	90.00	180.48	6,828.0	-3,842.7	10.0	3,842.7	0.00	0.00	0.00
10,400.0	90.00	180.48	6,828.0	-3,882.7	9.7	3,882.7	0.00	0.00	0.00
10,440.0	90.00	180.48	6,828.0	-3,922.7	9.3	3,922.7	0.00	0.00	0.00
10,480.0	90.00	180.48	6,828.0	-3,962.7	9.0	3,962.7	0.00	0.00	0.00
10,520.0	90.00	180.48	6,828.0	-4,002.7	8.7	4,002.7	0.00	0.00	0.00
10,560.0	90.00	180.48	6,828.0	-4,042.7	8.3	4,042.7	0.00	0.00	0.00
10,600.0	90.00	180.48	6,828.0	-4,082.6	8.0	4,082.7	0.00	0.00	0.00
10,640.0	90.00	180.48	6,828.0	-4,122.6	7.7	4,122.7	0.00	0.00	0.00
10,680.0	90.00	180.48	6,828.0	-4,162.6	7.3	4,162.7	0.00	0.00	0.00
10,720.0	90.00	180.48	6,828.0	-4,202.6	7.0	4,202.6	0.00	0.00	0.00
10,760.0	90.00	180.48	6,828.0	-4,242.6	6.7	4,242.6	0.00	0.00	0.00
10,800.0	90.00	180.48	6,828.0	-4,282.6	6.3	4,282.6	0.00	0.00	0.00
10,840.0	90.00	180.48	6,828.0	-4,322.6	6.0	4,322.6	0.00	0.00	0.00
10,880.0	90.00	180.48	6,828.0	-4,362.6	5.7	4,362.6	0.00	0.00	0.00
10,920.0	90.00	180.48	6,828.0	-4,402.6	5.3	4,402.6	0.00	0.00	0.00
10,960.0	90.00	180.48	6,828.0	-4,442.6	5.0	4,442.6	0.00	0.00	0.00
11,000.0	90.00	180.48	6,828.0	-4,482.6	4.7	4,482.6	0.00	0.00	0.00
11,040.0	90.00	180.48	6,828.0	-4,522.6	4.4	4,522.6	0.00	0.00	0.00
11,080.0	90.00	180.48	6,828.0	-4,562.6	4.0	4,562.6	0.00	0.00	0.00
11,120.0	90.00	180.48	6,828.0	-4,602.6	3.7	4,602.6	0.00	0.00	0.00
11,160.0	90.00	180.48	6,828.0	-4,642.6	3.4	4,642.6	0.00	0.00	0.00
11,200.0	90.00	180.48	6,828.0	-4,682.6	3.0	4,682.6	0.00	0.00	0.00
11,227.7	90.00	180.48	6,828.0	-4,710.3	2.8	4,710.3	0.00	0.00	0.00
BHL 500'FSL, 2122'FEL									

Targets

Target Name

- hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Guttersen 31-6 (Exist. - plan misses target center by 624.4ft at 0.0ft MD (0.0 TVD, 0.0 N, 0.0 E) - Circle (radius 500.0)	0.00	0.00	0.0	-590.1	204.0	1,307,454.48	3,285,601.76	40.172840	-104.477940
Guttersen 32-6 (Exist. - plan misses target center by 1927.9ft at 0.0ft MD (0.0 TVD, 0.0 N, 0.0 E) - Circle (radius 500.0)	0.00	0.00	0.0	-1,919.8	176.1	1,306,124.61	3,285,589.14	40.169190	-104.478040
BHL 500'FSL, 2122'FI - plan hits target center - Point	0.00	0.00	6,828.0	-4,710.3	2.8	1,303,332.42	3,285,448.03	40.161530	-104.478660

Database:	Landmark	Local Co-ordinate Reference:	Well Guttersen 6M-423
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4838.0ft (RKB - 15')
Project:	SEC.6-T2N-R63W	MD Reference:	WELL @ 4838.0ft (RKB - 15')
Site:	Guttersen 6M-203 Pad Sec.6-T2N-R63W	North Reference:	True
Well:	Guttersen 6M-423	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (5-31-13)		

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,175.7	6,814.0	7"	7	7-1/2

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
3,000.0	3,000.0	0.0	0.0	KOP #1
6,055.7	6,054.3	25.0	42.0	KOP #2
7,369.7	6,828.0	-852.5	34.8	End of Build



Directional

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.6-T2N-R63W

Guttersen 6M-203 Pad Sec.6-T2N-R63W

Guttersen 6M-423

Wellbore #1

Plan #1 (5-31-13)

Anticollision Report

31 May, 2013



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Guttersten 6M-423
Project:	SEC.6-T2N-R63W	TVD Reference:	WELL @ 4838.0ft (RKB - 15')
Reference Site:	Guttersten 6M-203 Pad Sec.6-T2N-R63W	MD Reference:	WELL @ 4838.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Guttersten 6M-423	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (5-31-13)	Offset TVD Reference:	Offset Datum

Reference	Plan #1 (5-31-13)		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date 5/31/2013			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	11,227.5	Plan #1 (5-31-13) (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						
Existing Wells Sec.6-T2N-R63W						
Guttersten 31-6 (Exist) - Wellbore #1 - Wellbore #1	7,123.2	6,750.0	145.8	116.6	4.999	CC, ES, SF
Guttersten 32-6 (Exist.) - Wellbore #1 - Wellbore #1	8,415.0	6,750.0	153.3	108.5	3.419	CC, ES, SF
Guttersten 6M-203 Pad Sec.6-T2N-R63W						
Guttersten 6M-203 - Wellbore #1 - Plan #1 (1-07-13)	1,000.0	1,000.0	27.9	23.7	6.544	CC, ES
Guttersten 6M-203 - Wellbore #1 - Plan #1 (1-07-13)	11,227.7	11,073.6	415.9	259.1	2.653	SF
Guttersten 6R-243 - Wellbore #1 - Plan #1 (1-07-13)	1,000.0	1,000.0	30.7	26.5	7.198	CC, ES
Guttersten 6R-243 - Wellbore #1 - Plan #1 (1-07-13)	11,227.7	11,082.2	406.4	254.5	2.676	SF

Offset Design												
Existing Wells Sec.6-T2N-R63W - Guttersten 31-6 (Exist) - Wellbore #1 - Wellbore #1												
Survey Program: 100-NS-GYRO-MS												
Reference Offset Semi Major Axis												
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)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor
0.0	0.0	0.0	0.0	0.0	0.0	160.93	-590.1	204.0	624.4			
100.0	100.0	102.7	102.7	0.1	0.1	160.99	-590.1	203.3	624.2	623.9	0.25	2,471.886
200.0	200.0	202.6	202.6	0.3	0.4	161.09	-590.1	202.1	623.8	623.0	0.74	839.979
300.0	300.0	301.6	301.6	0.6	0.7	161.18	-590.1	201.1	623.4	622.2	1.23	506.951
400.0	400.0	401.7	401.6	0.8	0.9	161.25	-590.1	200.3	623.2	621.5	1.72	362.361
500.0	500.0	505.1	505.1	1.0	1.2	161.31	-589.8	199.5	622.6	620.4	2.20	282.804
600.0	600.0	605.2	605.2	1.2	1.4	161.34	-589.1	198.9	621.8	619.1	2.66	233.810
700.0	700.0	705.3	705.3	1.5	1.7	161.37	-588.4	198.4	621.0	617.8	3.12	199.037
800.0	800.0	805.8	805.8	1.7	1.9	161.40	-587.6	197.8	620.1	616.5	3.59	172.710
900.0	900.0	905.2	905.2	1.9	2.2	161.43	-586.9	197.2	619.2	615.1	4.07	152.297
1,000.0	1,000.0	1,004.4	1,004.3	2.1	2.4	161.46	-586.3	196.7	618.4	613.9	4.54	136.109
1,100.0	1,100.0	1,104.2	1,104.1	2.4	2.7	161.48	-585.7	196.2	617.7	612.7	5.02	122.935
1,200.0	1,200.0	1,203.7	1,203.6	2.6	2.9	161.55	-585.4	195.3	617.1	611.6	5.51	112.075
1,300.0	1,300.0	1,303.3	1,303.2	2.8	3.2	161.65	-585.2	194.1	616.6	610.6	5.98	103.029
1,400.0	1,400.0	1,401.0	1,401.0	3.0	3.4	161.77	-585.3	192.8	616.2	609.8	6.45	95.583
1,500.0	1,500.0	1,501.7	1,501.6	3.3	3.7	161.90	-585.5	191.4	616.0	609.1	6.91	89.119
1,600.0	1,600.0	1,604.1	1,604.0	3.5	3.9	162.04	-585.5	189.8	615.5	608.2	7.40	83.238
1,700.0	1,700.0	1,703.4	1,703.3	3.7	4.2	162.18	-585.4	188.2	615.0	607.1	7.88	78.075
1,800.0	1,800.0	1,804.9	1,804.8	3.9	4.4	162.30	-585.2	186.8	614.3	605.9	8.37	73.424

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 Guttersen 6M-423
Project:	SEC.6-T2N-R63W	TVD Reference:	WELL @ 4838.0ft (RKB - 15')
Reference Site:	Guttersen 6M-203 Pad Sec.6-T2N-R63W	MD Reference:	WELL @ 4838.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Guttersen 6M-423	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (5-31-13)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.6-T2N-R63W - Guttersen 31-6 (Exist) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft	
Survey Program: 100-NS-GYRO-MS												Offset Well Error:	0.0 ft	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
1,900.0	1,900.0	1,904.9	1,904.7	4.2	4.7	162.42	162.42	-584.8	185.3	613.5	604.6	8.85	69.287	
1,990.3	1,990.3	1,990.3	1,990.2	4.4	4.9	162.55	162.55	-584.9	183.9	613.2	603.9	9.27	66.156	
2,000.0	2,000.0	2,000.0	1,999.9	4.4	4.9	162.57	162.57	-585.0	183.7	613.2	603.8	9.31	65.832	
2,100.0	2,100.0	2,097.3	2,097.1	4.6	5.1	162.68	162.68	-585.6	182.6	613.5	603.7	9.74	62.972	
2,200.0	2,200.0	2,193.1	2,192.9	4.8	5.3	162.73	162.73	-586.5	182.3	614.3	604.2	10.09	60.855	
2,300.0	2,300.0	2,290.8	2,290.7	5.1	5.3	162.74	162.74	-587.8	182.6	615.6	605.2	10.39	59.262	
2,400.0	2,400.0	2,386.2	2,386.0	5.3	5.4	162.73	162.73	-589.5	183.3	617.5	606.8	10.67	57.863	
2,500.0	2,500.0	2,481.3	2,481.1	5.5	5.5	162.71	162.71	-591.8	184.2	620.1	609.2	10.97	56.542	
2,600.0	2,600.0	2,578.1	2,577.8	5.7	5.6	162.73	162.73	-595.0	184.9	623.5	612.2	11.29	55.222	
2,700.0	2,700.0	2,676.5	2,676.2	6.0	5.7	162.82	162.82	-598.8	185.1	627.2	615.5	11.65	53.853	
2,800.0	2,800.0	2,775.9	2,775.5	6.2	5.8	162.97	162.97	-602.9	184.7	631.0	619.0	12.03	52.466	
2,900.0	2,900.0	2,875.4	2,874.8	6.4	6.0	163.13	163.13	-607.1	184.1	634.9	622.5	12.42	51.119	
3,000.0	3,000.0	2,976.2	2,975.6	6.6	6.2	163.28	163.28	-611.4	183.6	638.9	626.0	12.82	49.829	
3,100.0	3,100.0	3,081.1	3,080.4	6.8	6.4	104.22	104.22	-615.3	183.6	642.7	629.5	13.21	48.632	
3,200.0	3,199.9	3,183.9	3,183.1	7.1	6.5	104.53	104.53	-618.1	184.1	646.4	632.8	13.58	47.588	
3,247.9	3,247.7	3,233.2	3,232.5	7.2	6.6	104.74	104.74	-619.2	184.6	648.3	634.6	13.75	47.146	
3,300.0	3,299.7	3,287.0	3,286.3	7.3	6.7	105.00	105.00	-620.3	185.3	650.4	636.4	13.93	46.682	
3,400.0	3,399.5	3,391.2	3,390.4	7.5	6.8	105.46	105.46	-621.6	187.1	653.8	639.6	14.25	45.874	
3,500.0	3,499.3	3,491.3	3,490.5	7.7	6.8	105.85	105.85	-622.5	189.1	656.9	642.3	14.56	45.120	
3,600.0	3,599.1	3,593.1	3,592.3	7.9	7.0	106.28	106.28	-623.3	190.8	659.9	645.0	14.88	44.339	
3,700.0	3,698.9	3,694.8	3,694.0	8.2	7.1	106.76	106.76	-624.0	191.8	662.6	647.4	15.23	43.515	
3,753.5	3,752.3	3,749.3	3,748.5	8.3	7.1	107.02	107.02	-624.2	192.2	664.0	648.6	15.41	43.086	
3,800.0	3,798.7	3,796.7	3,795.9	8.4	7.2	107.24	107.24	-624.4	192.6	665.0	649.5	15.56	42.735	
3,900.0	3,898.6	3,899.8	3,899.0	8.6	7.3	107.54	107.54	-624.4	193.2	666.4	650.6	15.85	42.055	
4,001.4	4,000.0	4,001.3	4,000.4	8.7	7.4	166.88	166.88	-624.3	193.4	666.7	650.6	16.17	41.235	
4,100.0	4,098.6	4,101.5	4,100.7	8.9	7.6	166.91	166.91	-624.2	193.0	666.6	650.0	16.57	40.236	
4,200.0	4,198.6	4,201.3	4,200.5	9.2	7.8	166.97	166.97	-624.1	192.2	666.3	649.3	17.01	39.176	
4,300.0	4,298.6	4,303.6	4,302.8	9.4	8.1	167.04	167.04	-623.8	191.3	665.8	648.4	17.45	38.156	
4,400.0	4,398.6	4,404.6	4,403.7	9.6	8.3	167.11	167.11	-623.3	190.3	665.1	647.2	17.88	37.197	
4,500.0	4,498.6	4,506.4	4,505.5	9.8	8.5	167.20	167.20	-622.6	189.2	664.2	645.9	18.31	36.266	
4,600.0	4,498.6	4,606.9	4,606.0	10.1	8.7	167.29	167.29	-621.8	187.8	663.1	644.4	18.75	35.368	
4,700.0	4,698.6	4,706.2	4,705.3	10.3	8.9	167.40	167.40	-621.1	186.4	662.0	642.9	19.19	34.506	
4,800.0	4,798.6	4,800.0	4,799.1	10.5	9.1	167.49	167.49	-620.5	185.2	661.2	641.5	19.62	33.705	
4,843.2	4,841.8	4,842.2	4,841.3	10.6	9.2	167.53	167.53	-620.4	184.7	661.0	641.2	19.81	33.371	
4,900.0	4,898.6	4,892.5	4,891.6	10.7	9.3	167.60	167.60	-620.9	184.0	661.3	641.3	20.05	32.986	
5,000.0	4,998.6	5,003.3	5,002.4	11.0	9.6	167.73	167.73	-621.6	182.6	661.7	641.2	20.53	32.234	
5,100.0	5,098.6	5,101.7	5,100.7	11.2	9.8	167.83	167.83	-621.4	181.4	661.2	640.3	20.98	31.513	
5,200.0	5,198.6	5,202.5	5,201.5	11.4	10.1	167.93	167.93	-621.2	180.2	660.9	639.4	21.45	30.813	
5,300.0	5,298.6	5,303.0	5,302.0	11.6	10.3	168.01	168.01	-621.0	179.2	660.4	638.5	21.91	30.142	
5,400.0	5,398.6	5,405.1	5,404.2	11.8	10.5	168.12	168.12	-620.5	177.8	659.7	637.3	22.37	29.485	
5,500.0	5,498.6	5,500.4	5,499.5	12.1	10.8	168.24	168.24	-620.3	176.4	659.2	636.3	22.82	28.880	
5,600.0	5,598.6	5,602.6	5,601.6	12.3	11.0	168.37	168.37	-620.3	174.9	658.9	635.6	23.30	28.278	
5,700.0	5,698.6	5,705.7	5,704.8	12.5	11.3	168.52	168.52	-620.0	173.0	658.1	634.4	23.77	27.683	
5,800.0	5,798.6	5,803.6	5,802.6	12.7	11.5	168.69	168.69	-619.6	170.9	657.4	633.2	24.24	27.123	
5,900.0	5,898.6	5,907.4	5,906.3	13.0	11.7	168.80	168.80	-618.9	169.5	656.5	631.8	24.69	26.584	
6,000.0	5,998.6	6,007.3	6,006.3	13.2	11.9	168.85	168.85	-617.9	168.7	655.3	630.2	25.12	26.082	
6,055.7	6,054.3	6,061.8	6,060.7	13.3	12.0	168.87	168.87	-617.4	168.3	654.7	629.3	25.35	25.822	
6,100.0	6,098.6	6,105.0	6,104.0	13.4	12.1	-11.63	-11.63	-617.0	168.2	653.0	627.5	25.49	25.622	
6,150.0	6,148.3	6,153.0	6,151.9	13.5	12.2	-11.78	-11.78	-616.7	168.1	648.2	622.7	25.52	25.403	
6,200.0	6,197.7	6,200.5	6,199.5	13.6	12.3	-12.05	-12.05	-616.5	168.0	640.4	615.0	25.46	25.157	
6,250.0	6,246.5	6,249.9	6,248.8	13.7	12.3	-12.44	-12.44	-616.3	168.1	629.5	604.2	25.30	24.887	

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 Guttersen 6M-423
Project:	SEC.6-T2N-R63W	TVD Reference:	WELL @ 4838.0ft (RKB - 15')
Reference Site:	Guttersen 6M-203 Pad Sec.6-T2N-R63W	MD Reference:	WELL @ 4838.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Guttersen 6M-423	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (5-31-13)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.6-T2N-R63W - Guttersen 31-6 (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS													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
6,300.0	6,294.4	6,298.3	6,297.3	13.7	12.4	-12.99	-616.1	168.2	615.5	590.4	25.05	24.574		
6,350.0	6,341.4	6,344.5	6,343.5	13.8	12.5	-13.68	-615.9	168.2	598.4	573.7	24.72	24.212		
6,400.0	6,387.0	6,389.5	6,388.4	13.9	12.5	-14.56	-615.7	168.3	578.5	554.2	24.31	23.794		
6,450.0	6,431.3	6,432.1	6,431.1	14.0	12.6	-15.64	-615.7	168.3	555.9	532.0	23.84	23.316		
6,500.0	6,474.0	6,473.1	6,472.0	14.1	12.6	-17.01	-615.7	168.5	530.6	507.3	23.32	22.754		
6,550.0	6,514.8	6,512.1	6,511.0	14.3	12.7	-18.71	-615.9	168.7	503.0	480.2	22.78	22.078		
6,600.0	6,553.7	6,548.7	6,547.7	14.4	12.7	-20.83	-616.2	169.0	473.1	450.9	22.26	21.252		
6,650.0	6,590.4	6,583.7	6,582.7	14.6	12.7	-23.48	-616.6	169.3	441.3	419.4	21.83	20.218		
6,700.0	6,624.9	6,618.5	6,617.5	14.9	12.8	-26.94	-617.2	169.7	407.5	385.9	21.57	18.889		
6,750.0	6,656.9	6,652.4	6,651.3	15.1	12.8	-31.47	-617.7	170.0	371.9	350.3	21.65	17.180		
6,800.0	6,686.3	6,683.4	6,682.3	15.5	12.8	-37.21	-618.0	170.2	334.9	312.7	22.20	15.087		
6,850.0	6,713.0	6,712.2	6,711.1	15.8	12.9	-44.53	-618.3	170.4	296.9	273.5	23.39	12.696		
6,900.0	6,736.9	6,738.8	6,737.8	16.2	12.9	-53.57	-618.4	170.3	258.5	233.3	25.21	10.253		
6,950.0	6,757.9	6,750.0	6,748.9	16.6	12.9	-60.09	-618.4	170.2	221.0	194.3	26.66	8.290		
7,000.0	6,775.8	6,750.0	6,748.9	17.1	12.9	-63.05	-618.4	170.2	187.7	160.2	27.50	6.826		
7,050.0	6,790.7	6,750.0	6,748.9	17.6	12.9	-65.10	-618.4	170.2	161.9	133.6	28.26	5.727		
7,100.0	6,802.4	6,750.0	6,748.9	18.2	12.9	-66.14	-618.4	170.2	147.5	118.6	28.91	5.102		
7,123.2	6,806.8	6,750.0	6,748.9	18.5	12.9	-66.26	-618.4	170.2	145.8	116.6	29.16	4.999	CC, ES, SF	
7,150.0	6,810.9	6,750.0	6,748.9	18.8	12.9	-66.10	-618.4	170.2	148.0	118.6	29.40	5.034		
7,175.7	6,814.0	6,750.0	6,748.9	19.1	12.9	-65.66	-618.4	170.2	154.2	124.6	29.60	5.211		
7,200.0	6,816.6	6,750.0	6,748.9	19.4	12.9	-65.66	-618.4	170.2	163.5	133.6	29.88	5.473		
7,249.7	6,821.8	6,750.0	6,748.9	20.1	12.9	-65.66	-618.4	170.2	190.9	160.4	30.47	6.264		
7,300.0	6,825.9	6,750.0	6,748.9	20.7	12.9	-63.41	-618.4	170.2	226.1	195.5	30.59	7.392		
7,369.7	6,828.0	6,750.0	6,748.9	21.7	12.9	-59.34	-618.4	170.2	281.7	251.3	30.45	9.251		
7,400.0	6,828.0	6,750.0	6,748.9	22.1	12.9	-59.34	-618.4	170.2	307.5	276.7	30.83	9.973		
7,500.0	6,828.0	6,750.0	6,748.9	23.6	12.9	-59.34	-618.4	170.2	397.1	364.9	32.12	12.363		
7,600.0	6,828.0	6,750.0	6,748.9	25.1	12.9	-59.34	-618.4	170.2	490.7	457.2	33.46	14.666		
7,700.0	6,828.0	6,750.0	6,748.9	26.7	12.9	-59.34	-618.4	170.2	586.4	551.5	34.84	16.831		
7,800.0	6,828.0	6,750.0	6,748.9	28.3	12.9	-59.34	-618.4	170.2	683.3	647.1	36.26	18.844		
7,900.0	6,828.0	6,750.0	6,748.9	30.0	12.9	-59.34	-618.4	170.2	781.1	743.3	37.72	20.709		
8,000.0	6,828.0	6,750.0	6,748.9	31.7	12.9	-59.34	-618.4	170.2	879.3	840.1	39.20	22.433		
8,100.0	6,828.0	6,750.0	6,748.9	33.4	12.9	-59.34	-618.4	170.2	977.9	937.2	40.70	24.027		
8,200.0	6,828.0	6,750.0	6,748.9	35.1	12.9	-59.34	-618.4	170.2	1,076.7	1,034.5	42.22	25.502		
8,300.0	6,828.0	6,750.0	6,748.9	36.8	12.9	-59.34	-618.4	170.2	1,175.8	1,132.0	43.76	26.869		
8,400.0	6,828.0	6,750.0	6,748.9	38.6	12.9	-59.34	-618.4	170.2	1,275.0	1,229.7	45.31	28.137		
8,500.0	6,828.0	6,750.0	6,748.9	40.4	12.9	-59.34	-618.4	170.2	1,374.3	1,327.4	46.88	29.316		
8,600.0	6,828.0	6,750.0	6,748.9	42.2	12.9	-59.34	-618.4	170.2	1,473.7	1,425.2	48.45	30.414		
8,700.0	6,828.0	6,750.0	6,748.9	44.0	12.9	-59.34	-618.4	170.2	1,573.2	1,523.1	50.04	31.438		
8,800.0	6,828.0	6,750.0	6,748.9	45.8	12.9	-59.34	-618.4	170.2	1,672.7	1,621.1	51.63	32.395		
8,900.0	6,828.0	6,750.0	6,748.9	47.6	12.9	-59.34	-618.4	170.2	1,772.3	1,719.1	53.24	33.291		
9,000.0	6,828.0	6,750.0	6,748.9	49.4	12.9	-59.34	-618.4	170.2	1,871.9	1,817.1	54.84	34.132		
9,100.0	6,828.0	6,750.0	6,748.9	51.3	12.9	-59.34	-618.4	170.2	1,971.6	1,915.2	56.46	34.921		
9,200.0	6,828.0	6,750.0	6,748.9	53.1	12.9	-59.34	-618.4	170.2	2,071.3	2,013.2	58.08	35.664		
9,300.0	6,828.0	6,750.0	6,748.9	54.9	12.9	-59.34	-618.4	170.2	2,171.0	2,111.3	59.70	36.364		
9,400.0	6,828.0	6,750.0	6,748.9	56.8	12.9	-59.34	-618.4	170.2	2,270.8	2,209.5	61.33	37.025		
9,500.0	6,828.0	6,750.0	6,748.9	58.6	12.9	-59.34	-618.4	170.2	2,370.6	2,307.6	62.97	37.649		
9,600.0	6,828.0	6,750.0	6,748.9	60.5	12.9	-59.34	-618.4	170.2	2,470.4	2,405.8	64.60	38.240		
9,700.0	6,828.0	6,750.0	6,748.9	62.4	12.9	-59.34	-618.4	170.2	2,570.2	2,503.9	66.24	38.801		
9,800.0	6,828.0	6,750.0	6,748.9	64.2	12.9	-59.34	-618.4	170.2	2,670.0	2,602.1	67.88	39.332		
9,900.0	6,828.0	6,750.0	6,748.9	66.1	12.9	-59.34	-618.4	170.2	2,769.8	2,700.3	69.53	39.837		
10,000.0	6,828.0	6,750.0	6,748.9	68.0	12.9	-59.34	-618.4	170.2	2,869.7	2,798.5	71.18	40.318		

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 Guttersen 6M-423
Project:	SEC.6-T2N-R63W	TVD Reference:	WELL @ 4838.0ft (RKB - 15')
Reference Site:	Guttersen 6M-203 Pad Sec.6-T2N-R63W	MD Reference:	WELL @ 4838.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Guttersen 6M-423	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (5-31-13)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.6-T2N-R63W - Guttersen 31-6 (Exist) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		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)					
10,100.0	6,828.0	6,750.0	6,748.9	69.8	12.9	-59.34	-618.4	170.2	2,969.6	2,896.7	72.83	40.776	
10,200.0	6,828.0	6,750.0	6,748.9	71.7	12.9	-59.34	-618.4	170.2	3,069.4	2,994.9	74.48	41.212	
10,300.0	6,828.0	6,750.0	6,748.9	73.6	12.9	-59.34	-618.4	170.2	3,169.3	3,093.2	76.13	41.628	
10,400.0	6,828.0	6,750.0	6,748.9	75.5	12.9	-59.34	-618.4	170.2	3,269.2	3,191.4	77.79	42.026	
10,500.0	6,828.0	6,750.0	6,748.9	77.3	12.9	-59.34	-618.4	170.2	3,369.1	3,289.6	79.45	42.407	
10,600.0	6,828.0	6,750.0	6,748.9	79.2	12.9	-59.34	-618.4	170.2	3,469.0	3,387.9	81.11	42.771	
10,700.0	6,828.0	6,750.0	6,748.9	81.1	12.9	-59.34	-618.4	170.2	3,568.9	3,486.1	82.77	43.120	
10,800.0	6,828.0	6,750.0	6,748.9	83.0	12.9	-59.34	-618.4	170.2	3,668.8	3,584.4	84.43	43.454	
10,900.0	6,828.0	6,750.0	6,748.9	84.9	12.9	-59.34	-618.4	170.2	3,768.7	3,682.6	86.09	43.775	
11,000.0	6,828.0	6,750.0	6,748.9	86.8	12.9	-59.34	-618.4	170.2	3,868.6	3,780.9	87.76	44.084	
11,100.0	6,828.0	6,750.0	6,748.9	88.6	12.9	-59.34	-618.4	170.2	3,968.5	3,879.1	89.42	44.380	
11,200.0	6,828.0	6,750.0	6,748.9	90.5	12.9	-59.34	-618.4	170.2	4,068.5	3,977.4	91.09	44.665	
11,227.7	6,828.0	6,750.0	6,748.9	91.1	12.9	-59.34	-618.4	170.2	4,096.2	4,004.6	91.55	44.742	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Guttersen 6M-423
Project:	SEC.6-T2N-R63W	TVD Reference:	WELL @ 4838.0ft (RKB - 15')
Reference Site:	Guttersen 6M-203 Pad Sec.6-T2N-R63W	MD Reference:	WELL @ 4838.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Guttersen 6M-423	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (5-31-13)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.6-T2N-R63W - Guttersen 32-6 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS													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
0.0	0.0	0.0	0.0	0.0	0.0	174.76	174.76	-1,919.8	176.1	1,927.9				
100.0	100.0	79.0	79.0	0.1	0.1	174.77	174.77	-1,920.3	175.9	1,928.4	1,928.2	0.22	8,873.039	
200.0	200.0	188.3	188.3	0.3	0.4	174.79	174.79	-1,921.5	175.3	1,929.5	1,928.8	0.70	2,766.199	
300.0	300.0	303.5	303.5	0.6	0.6	174.80	174.80	-1,921.8	174.7	1,929.7	1,928.5	1.17	1,646.565	
400.0	400.0	406.1	406.1	0.8	0.8	174.82	174.82	-1,921.5	174.4	1,929.4	1,927.8	1.60	1,206.509	
500.0	500.0	508.3	508.3	1.0	1.0	174.83	174.83	-1,921.2	173.8	1,929.1	1,927.0	2.05	940.778	
600.0	600.0	612.2	612.2	1.2	1.3	174.84	174.84	-1,920.7	173.4	1,928.5	1,926.0	2.50	771.937	
700.0	700.0	708.5	708.5	1.5	1.5	174.85	174.85	-1,920.2	173.0	1,928.0	1,925.0	2.93	657.410	
765.7	765.7	765.7	765.7	1.6	1.6	174.86	174.86	-1,920.0	172.8	1,927.8	1,924.6	3.17	608.166	
800.0	800.0	800.0	800.0	1.7	1.6	174.86	174.86	-1,920.1	172.8	1,927.9	1,924.6	3.30	584.090	
900.0	900.0	884.2	884.1	1.9	1.7	174.86	174.86	-1,920.6	172.7	1,928.4	1,924.7	3.64	529.454	
1,000.0	1,000.0	981.4	981.4	2.1	1.9	174.88	174.88	-1,921.5	172.1	1,929.3	1,925.3	4.06	475.421	
1,100.0	1,100.0	1,088.6	1,088.5	2.4	2.2	174.90	174.90	-1,922.5	171.4	1,930.1	1,925.6	4.53	426.498	
1,200.0	1,200.0	1,190.0	1,190.0	2.6	2.4	174.93	174.93	-1,923.1	170.7	1,930.7	1,925.7	5.00	386.219	
1,300.0	1,300.0	1,289.6	1,289.6	2.8	2.7	174.95	174.95	-1,923.7	170.0	1,931.2	1,925.7	5.47	352.841	
1,400.0	1,400.0	1,390.1	1,390.0	3.0	2.9	174.97	174.97	-1,924.3	169.2	1,931.7	1,925.8	5.95	324.457	
1,500.0	1,500.0	1,484.1	1,484.0	3.3	3.2	175.00	175.00	-1,925.0	168.4	1,932.4	1,926.0	6.42	301.099	
1,600.0	1,600.0	1,579.2	1,579.2	3.5	3.4	175.03	175.03	-1,926.0	167.5	1,933.3	1,926.5	6.88	281.049	
1,700.0	1,700.0	1,680.0	1,679.9	3.7	3.6	175.05	175.05	-1,927.1	166.7	1,934.4	1,927.1	7.35	263.063	
1,800.0	1,800.0	1,783.2	1,783.1	3.9	3.9	175.08	175.08	-1,928.2	165.9	1,935.4	1,927.5	7.84	246.934	
1,900.0	1,900.0	1,891.9	1,891.8	4.2	4.2	175.10	175.10	-1,929.0	165.2	1,936.1	1,927.7	8.34	232.107	
2,000.0	2,000.0	2,000.5	2,000.4	4.4	4.5	175.13	175.13	-1,929.3	164.5	1,936.3	1,927.4	8.84	218.972	
2,100.0	2,100.0	2,106.2	2,106.1	4.6	4.7	175.15	175.15	-1,929.1	163.7	1,936.1	1,926.8	9.31	207.900	
2,200.0	2,200.0	2,201.3	2,201.2	4.8	4.9	175.17	175.17	-1,929.0	163.1	1,935.9	1,926.1	9.76	198.389	
2,300.0	2,300.0	2,306.1	2,306.0	5.1	5.1	175.17	175.17	-1,928.8	163.0	1,935.7	1,925.6	10.11	191.432	
2,400.0	2,400.0	2,408.7	2,408.6	5.3	5.1	175.16	175.16	-1,928.4	163.4	1,935.3	1,924.9	10.36	186.726	
2,500.0	2,500.0	2,502.7	2,502.6	5.5	5.1	175.14	175.14	-1,928.1	163.9	1,935.0	1,924.4	10.63	182.103	
2,600.0	2,600.0	2,615.2	2,615.1	5.7	5.2	175.12	175.12	-1,927.4	164.7	1,934.5	1,923.6	10.91	177.324	
2,700.0	2,700.0	2,711.1	2,711.0	6.0	5.2	175.09	175.09	-1,926.7	165.4	1,933.8	1,922.6	11.20	172.720	
2,800.0	2,800.0	2,815.2	2,815.1	6.2	5.3	175.07	175.07	-1,925.9	166.2	1,933.1	1,921.6	11.50	168.108	
2,900.0	2,900.0	2,909.8	2,909.7	6.4	5.4	175.03	175.03	-1,925.2	167.3	1,932.5	1,920.7	11.80	163.718	
3,000.0	3,000.0	3,013.2	3,013.1	6.6	5.5	174.99	174.99	-1,924.5	168.8	1,931.9	1,919.8	12.12	159.348	
3,059.1	3,059.1	3,072.2	3,072.0	6.8	5.6	115.73	115.73	-1,924.0	169.8	1,931.7	1,919.4	12.31	156.892	
3,100.0	3,100.0	3,113.8	3,113.7	6.8	5.6	115.73	115.73	-1,923.6	170.7	1,931.8	1,919.4	12.44	155.228	
3,200.0	3,199.9	3,216.6	3,216.4	7.1	5.7	115.76	115.76	-1,922.6	172.8	1,932.7	1,919.9	12.77	151.311	
3,247.9	3,247.7	3,259.2	3,259.0	7.2	5.8	115.78	115.78	-1,922.2	173.8	1,933.5	1,920.6	12.93	149.580	
3,300.0	3,299.7	3,300.0	3,299.8	7.3	5.8	115.83	115.83	-1,921.9	174.6	1,934.8	1,921.7	13.09	147.817	
3,400.0	3,399.5	3,391.6	3,391.4	7.5	5.9	115.93	115.93	-1,921.8	176.6	1,937.7	1,924.3	13.43	144.299	
3,500.0	3,499.3	3,496.4	3,496.2	7.7	6.1	116.04	116.04	-1,921.9	178.9	1,940.9	1,927.1	13.80	140.688	
3,600.0	3,599.1	3,597.9	3,597.6	7.9	6.2	116.17	116.17	-1,921.9	180.5	1,943.8	1,929.7	14.17	137.201	
3,700.0	3,698.9	3,696.5	3,696.2	8.2	6.4	116.31	116.31	-1,922.0	181.6	1,946.8	1,932.3	14.55	133.844	
3,753.5	3,752.3	3,750.6	3,750.3	8.3	6.5	116.38	116.38	-1,922.0	182.2	1,948.4	1,933.7	14.75	132.063	
3,800.0	3,798.7	3,797.7	3,797.5	8.4	6.6	116.46	116.46	-1,922.0	182.7	1,949.7	1,934.8	14.93	130.612	
3,900.0	3,898.6	3,898.9	3,898.6	8.6	6.7	116.55	116.55	-1,921.9	183.9	1,951.5	1,936.2	15.28	127.683	
4,001.4	4,000.0	4,015.7	4,015.4	8.7	6.9	175.81	175.81	-1,921.4	184.6	1,951.6	1,936.0	15.67	124.585	
4,100.0	4,098.6	4,114.4	4,114.1	8.9	7.1	175.82	175.82	-1,920.6	184.2	1,950.8	1,934.8	16.03	121.693	
4,200.0	4,198.6	4,210.2	4,209.9	9.2	7.3	175.85	175.85	-1,920.0	183.2	1,950.2	1,933.7	16.42	118.747	
4,300.0	4,298.6	4,311.6	4,311.3	9.4	7.4	175.89	175.89	-1,919.5	181.7	1,949.6	1,932.7	16.83	115.837	
4,400.0	4,398.6	4,418.3	4,418.0	9.6	7.6	175.94	175.94	-1,918.7	179.8	1,948.7	1,931.5	17.25	112.952	
4,500.0	4,498.6	4,519.3	4,519.0	9.8	7.8	176.00	176.00	-1,917.8	177.8	1,947.7	1,930.0	17.67	110.231	
4,600.0	4,598.6	4,617.5	4,617.1	10.1	8.0	176.06	176.06	-1,917.0	175.8	1,946.7	1,928.6	18.08	107.642	

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 Guttersen 6M-423
Project:	SEC.6-T2N-R63W	TVD Reference:	WELL @ 4838.0ft (RKB - 15')
Reference Site:	Guttersen 6M-203 Pad Sec.6-T2N-R63W	MD Reference:	WELL @ 4838.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Guttersen 6M-423	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (5-31-13)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.6-T2N-R63W - Guttersen 32-6 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	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)						
4,700.0	4,698.6	4,710.6	4,710.2	10.3	8.2	176.11	-1,916.4	173.9	1,945.9	1,927.4	18.49	105.221		
4,800.0	4,798.6	4,800.0	4,799.6	10.5	8.4	176.17	-1,916.1	172.0	1,945.5	1,926.6	18.90	102.953		
4,801.1	4,799.6	4,800.0	4,799.6	10.5	8.4	176.17	-1,916.1	172.0	1,945.5	1,926.6	18.90	102.940		
4,900.0	4,898.6	4,877.8	4,877.4	10.7	8.5	176.21	-1,916.6	170.6	1,945.9	1,926.7	19.27	100.971		
5,000.0	4,998.6	5,012.0	5,011.5	11.0	8.8	176.28	-1,917.3	168.3	1,946.5	1,926.7	19.76	98.493		
5,100.0	5,098.6	5,113.9	5,113.4	11.2	9.0	176.33	-1,916.7	166.4	1,945.8	1,925.6	20.20	96.323		
5,200.0	5,198.6	5,219.5	5,219.0	11.4	9.3	176.39	-1,915.9	164.5	1,944.8	1,924.2	20.65	94.186		
5,300.0	5,298.6	5,316.9	5,316.4	11.6	9.5	176.44	-1,915.0	162.5	1,943.8	1,922.8	21.08	92.203		
5,400.0	5,398.6	5,415.4	5,414.9	11.8	9.7	176.50	-1,914.4	160.6	1,943.0	1,921.5	21.52	90.288		
5,500.0	5,498.6	5,527.3	5,526.8	12.1	9.9	176.56	-1,913.0	158.6	1,941.7	1,919.7	21.99	88.306		
5,600.0	5,598.6	5,615.3	5,614.7	12.3	10.1	176.60	-1,912.1	157.0	1,940.6	1,918.2	22.41	86.612		
5,700.0	5,698.6	5,721.8	5,721.1	12.5	10.4	176.66	-1,911.2	154.9	1,939.6	1,916.7	22.87	84.818		
5,800.0	5,798.6	5,822.6	5,821.9	12.7	10.6	176.70	-1,910.0	153.4	1,938.4	1,915.0	23.32	83.131		
5,900.0	5,898.6	5,917.5	5,916.8	13.0	10.8	176.75	-1,909.1	151.9	1,937.3	1,913.6	23.76	81.554		
6,000.0	5,998.6	6,021.5	6,020.9	13.2	11.0	176.80	-1,908.1	150.1	1,936.2	1,912.0	24.22	79.951		
6,055.7	6,054.3	6,071.6	6,070.9	13.3	11.1	176.83	-1,907.6	149.2	1,935.6	1,911.2	24.46	79.143		
6,100.0	6,098.6	6,111.3	6,110.6	13.4	11.2	-3.63	-1,907.3	148.4	1,934.0	1,909.4	24.60	78.632		
6,150.0	6,148.3	6,155.5	6,154.8	13.5	11.3	-3.64	-1,907.2	147.7	1,929.3	1,904.6	24.65	78.261		
6,200.0	6,197.7	6,200.0	6,199.3	13.6	11.4	-3.68	-1,907.1	147.2	1,921.4	1,896.8	24.62	78.055		
6,250.0	6,246.5	6,237.0	6,236.3	13.7	11.5	-3.74	-1,907.2	146.9	1,910.6	1,886.1	24.45	78.132		
6,300.0	6,294.4	6,274.0	6,273.3	13.7	11.6	-3.83	-1,907.5	146.8	1,896.8	1,872.6	24.20	78.381		
6,350.0	6,341.4	6,323.1	6,322.4	13.8	11.6	-3.96	-1,908.2	147.0	1,880.2	1,856.4	23.87	78.772		
6,400.0	6,387.0	6,401.3	6,400.6	13.9	11.7	-4.18	-1,908.2	147.8	1,860.0	1,836.6	23.48	79.234		
6,450.0	6,431.3	6,458.1	6,457.3	14.0	11.8	-4.43	-1,907.6	148.5	1,836.4	1,813.4	22.98	79.906		
6,500.0	6,474.0	6,511.6	6,510.8	14.1	11.9	-4.73	-1,906.6	149.2	1,809.6	1,787.2	22.41	80.751		
6,550.0	6,514.8	6,560.3	6,559.5	14.3	12.0	-5.10	-1,905.4	150.0	1,779.9	1,758.2	21.77	81.770		
6,600.0	6,553.7	6,605.8	6,605.0	14.4	12.0	-5.56	-1,904.1	151.2	1,747.5	1,726.5	21.06	82.973		
6,650.0	6,590.4	6,646.6	6,645.7	14.6	12.1	-6.12	-1,902.8	152.5	1,712.6	1,692.3	20.30	84.363		
6,700.0	6,624.9	6,684.3	6,683.4	14.9	12.2	-6.84	-1,901.4	154.0	1,675.3	1,655.8	19.50	85.896		
6,750.0	6,656.9	6,716.4	6,715.4	15.1	12.2	-7.71	-1,900.1	155.6	1,635.9	1,617.2	18.69	87.532		
6,800.0	6,686.3	6,743.8	6,742.7	15.5	12.2	-8.80	-1,899.1	157.1	1,594.6	1,576.7	17.89	89.154		
6,850.0	6,713.0	6,750.0	6,749.0	15.8	12.2	-9.90	-1,898.8	157.5	1,551.7	1,534.6	17.10	90.757		
6,900.0	6,736.9	6,750.0	6,749.0	16.2	12.2	-11.19	-1,898.8	157.5	1,507.6	1,491.2	16.38	92.012		
6,950.0	6,757.9	6,750.0	6,749.0	16.6	12.2	-12.85	-1,898.8	157.5	1,462.4	1,446.5	15.83	92.400		
7,000.0	6,775.8	6,750.0	6,749.0	17.1	12.2	-15.04	-1,898.8	157.5	1,416.1	1,400.6	15.53	91.200		
7,050.0	6,790.7	6,750.0	6,749.0	17.6	12.2	-18.06	-1,898.8	157.5	1,369.0	1,353.3	15.66	87.432		
7,100.0	6,802.4	6,750.0	6,749.0	18.2	12.2	-22.42	-1,898.8	157.5	1,321.1	1,304.6	16.50	80.077		
7,150.0	6,810.9	6,750.0	6,749.0	18.8	12.2	-29.12	-1,898.8	157.5	1,272.5	1,254.0	18.51	68.740		
7,175.7	6,814.0	6,750.0	6,749.0	19.1	12.2	-34.06	-1,898.8	157.5	1,247.3	1,227.1	20.23	61.672		
7,200.0	6,816.6	6,750.0	6,749.0	19.4	12.2	-34.06	-1,898.8	157.5	1,223.5	1,203.1	20.41	59.943		
7,249.7	6,821.8	6,750.0	6,749.0	20.1	12.2	-34.06	-1,898.8	157.5	1,174.7	1,153.9	20.80	56.477		
7,300.0	6,825.9	6,750.0	6,749.0	20.7	12.2	-42.25	-1,898.8	157.5	1,125.3	1,101.3	23.99	46.903		
7,369.7	6,828.0	6,750.0	6,749.0	21.7	12.2	-58.96	-1,898.8	157.5	1,056.5	1,026.7	29.79	35.459		
7,400.0	6,828.0	6,750.0	6,749.0	22.1	12.2	-58.96	-1,898.8	157.5	1,026.5	996.3	30.17	34.023		
7,500.0	6,828.0	6,750.0	6,749.0	23.6	12.2	-58.96	-1,898.8	157.5	927.8	896.3	31.45	29.498		
7,600.0	6,828.0	6,750.0	6,749.0	25.1	12.2	-58.96	-1,898.8	157.5	829.3	796.5	32.79	25.294		
7,700.0	6,828.0	6,750.0	6,749.0	26.7	12.2	-58.96	-1,898.8	157.5	731.3	697.1	34.17	21.403		
7,800.0	6,828.0	6,750.0	6,749.0	28.3	12.2	-58.96	-1,898.8	157.5	633.8	598.2	35.58	17.812		
7,900.0	6,828.0	6,750.0	6,749.0	30.0	12.2	-58.96	-1,898.8	157.5	537.3	500.3	37.03	14.510		
8,000.0	6,828.0	6,750.0	6,749.0	31.7	12.2	-58.96	-1,898.8	157.5	442.4	403.9	38.51	11.489		
8,100.0	6,828.0	6,750.0	6,749.0	33.4	12.2	-58.96	-1,898.8	157.5	350.3	310.3	40.01	8.757		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Guttersen 6M-423
Project:	SEC.6-T2N-R63W	TVD Reference:	WELL @ 4838.0ft (RKB - 15')
Reference Site:	Guttersen 6M-203 Pad Sec.6-T2N-R63W	MD Reference:	WELL @ 4838.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Guttersen 6M-423	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (5-31-13)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.6-T2N-R63W - Guttersen 32-6 (Exist.) - Wellbore #1 - Wellbore #1												Offset Site Error: 0.0 ft	
Survey Program: 100-NS-GYRO-MS												Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
8,200.0	6,828.0	6,750.0	6,749.0	35.1	12.2	-58.96	-1,898.8	157.5	264.1	222.5	41.52	6.360	
8,300.0	6,828.0	6,750.0	6,749.0	36.8	12.2	-58.96	-1,898.8	157.5	191.7	148.6	43.06	4.451	
8,400.0	6,828.0	6,750.0	6,749.0	38.6	12.2	-58.96	-1,898.8	157.5	154.0	109.4	44.60	3.454	
8,415.0	6,828.0	6,750.0	6,749.0	38.9	12.2	-58.96	-1,898.8	157.5	153.3	108.5	44.84	3.419	CC, ES, SF
8,500.0	6,828.0	6,750.0	6,749.0	40.4	12.2	-58.96	-1,898.8	157.5	175.3	129.1	46.16	3.797	
8,600.0	6,828.0	6,750.0	6,749.0	42.2	12.2	-58.96	-1,898.8	157.5	240.3	192.5	47.73	5.034	
8,700.0	6,828.0	6,750.0	6,749.0	44.0	12.2	-58.96	-1,898.8	157.5	323.6	274.3	49.32	6.562	
8,800.0	6,828.0	6,750.0	6,749.0	45.8	12.2	-58.96	-1,898.8	157.5	414.4	363.5	50.90	8.141	
8,900.0	6,828.0	6,750.0	6,749.0	47.6	12.2	-58.96	-1,898.8	157.5	508.7	456.2	52.50	9.688	
9,000.0	6,828.0	6,750.0	6,749.0	49.4	12.2	-58.96	-1,898.8	157.5	604.8	550.7	54.10	11.178	
9,100.0	6,828.0	6,750.0	6,749.0	51.3	12.2	-58.96	-1,898.8	157.5	701.9	646.2	55.71	12.599	
9,200.0	6,828.0	6,750.0	6,749.0	53.1	12.2	-58.96	-1,898.8	157.5	799.8	742.5	57.33	13.952	
9,300.0	6,828.0	6,750.0	6,749.0	54.9	12.2	-58.96	-1,898.8	157.5	898.2	839.2	58.95	15.237	
9,400.0	6,828.0	6,750.0	6,749.0	56.8	12.2	-58.96	-1,898.8	157.5	996.9	936.3	60.57	16.458	
9,500.0	6,828.0	6,750.0	6,749.0	58.6	12.2	-58.96	-1,898.8	157.5	1,095.8	1,033.6	62.20	17.617	
9,600.0	6,828.0	6,750.0	6,749.0	60.5	12.2	-58.96	-1,898.8	157.5	1,194.9	1,131.0	63.83	18.720	
9,700.0	6,828.0	6,750.0	6,749.0	62.4	12.2	-58.96	-1,898.8	157.5	1,294.1	1,228.7	65.46	19.768	
9,800.0	6,828.0	6,750.0	6,749.0	64.2	12.2	-58.96	-1,898.8	157.5	1,393.5	1,326.4	67.10	20.767	
9,900.0	6,828.0	6,750.0	6,749.0	66.1	12.2	-58.96	-1,898.8	157.5	1,492.9	1,424.2	68.74	21.718	
10,000.0	6,828.0	6,750.0	6,749.0	68.0	12.2	-58.96	-1,898.8	157.5	1,592.4	1,522.0	70.38	22.625	
10,100.0	6,828.0	6,750.0	6,749.0	69.8	12.2	-58.96	-1,898.8	157.5	1,692.0	1,619.9	72.03	23.490	
10,200.0	6,828.0	6,750.0	6,749.0	71.7	12.2	-58.96	-1,898.8	157.5	1,791.6	1,717.9	73.67	24.317	
10,300.0	6,828.0	6,745.2	6,744.2	73.6	12.2	-57.41	-1,899.0	157.2	1,891.2	1,816.9	74.29	25.459	
10,400.0	6,828.0	6,741.4	6,740.4	75.5	12.2	-56.19	-1,899.2	157.0	1,990.9	1,915.8	75.05	26.526	
10,500.0	6,828.0	6,737.6	6,736.6	77.3	12.2	-55.01	-1,899.3	156.8	2,090.6	2,014.8	75.79	27.585	
10,600.0	6,828.0	6,733.8	6,732.8	79.2	12.2	-53.87	-1,899.5	156.5	2,190.3	2,113.8	76.48	28.637	
10,700.0	6,828.0	6,730.0	6,729.0	81.1	12.2	-52.75	-1,899.6	156.3	2,290.0	2,212.9	77.15	29.682	
10,800.0	6,828.0	6,726.2	6,725.2	83.0	12.2	-51.66	-1,899.8	156.1	2,389.8	2,312.0	77.79	30.721	
10,900.0	6,828.0	6,722.4	6,721.4	84.9	12.2	-50.61	-1,899.9	155.9	2,489.6	2,411.2	78.40	31.754	
11,000.0	6,828.0	6,718.6	6,717.7	86.8	12.2	-49.59	-1,900.1	155.7	2,589.3	2,510.4	78.99	32.781	
11,100.0	6,828.0	6,714.9	6,713.9	88.6	12.2	-48.59	-1,900.2	155.5	2,689.1	2,609.6	79.55	33.803	
11,200.0	6,828.0	6,711.1	6,710.2	90.5	12.2	-47.63	-1,900.4	155.3	2,788.9	2,708.8	80.10	34.820	
11,227.7	6,828.0	6,710.1	6,709.1	91.1	12.2	-47.37	-1,900.4	155.3	2,816.6	2,736.3	80.24	35.101	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Guttersen 6M-423
Project:	SEC.6-T2N-R63W	TVD Reference:	WELL @ 4838.0ft (RKB - 15')
Reference Site:	Guttersen 6M-203 Pad Sec.6-T2N-R63W	MD Reference:	WELL @ 4838.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Guttersen 6M-423	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (5-31-13)	Offset TVD Reference:	Offset Datum

Offset Design Guttersen 6M-203 Pad Sec.6-T2N-R63W - Guttersen 6M-203 - Wellbore #1 - Plan #1 (1-07-13)													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 (ft)	Offset (ft)	Semi Major Axis (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
0.0	0.0	0.0	0.0	0.0	0.0	-89.97	-89.97	0.0	-27.9	27.9				
100.0	100.0	100.0	100.0	0.1	0.1	-89.97	-89.97	0.0	-27.9	27.9	27.7	0.22	124.329	
200.0	200.0	200.0	200.0	0.3	0.3	-89.97	-89.97	0.0	-27.9	27.9	27.3	0.67	41.443	
300.0	300.0	300.0	300.0	0.6	0.6	-89.97	-89.97	0.0	-27.9	27.9	26.8	1.12	24.866	
400.0	400.0	400.0	400.0	0.8	0.8	-89.97	-89.97	0.0	-27.9	27.9	26.4	1.57	17.761	
500.0	500.0	500.0	500.0	1.0	1.0	-89.97	-89.97	0.0	-27.9	27.9	25.9	2.02	13.814	
600.0	600.0	600.0	600.0	1.2	1.2	-89.97	-89.97	0.0	-27.9	27.9	25.5	2.47	11.303	
700.0	700.0	700.0	700.0	1.5	1.5	-89.97	-89.97	0.0	-27.9	27.9	25.0	2.92	9.564	
800.0	800.0	800.0	800.0	1.7	1.7	-89.97	-89.97	0.0	-27.9	27.9	24.6	3.37	8.289	
900.0	900.0	900.0	900.0	1.9	1.9	-89.97	-89.97	0.0	-27.9	27.9	24.1	3.82	7.313	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-89.97	-89.97	0.0	-27.9	27.9	23.7	4.27	6.544 CC, ES	
1,100.0	1,100.0	1,099.3	1,099.2	2.4	2.3	-89.74	-89.74	0.1	-29.2	29.2	24.5	4.71	6.213	
1,200.0	1,200.0	1,198.4	1,198.3	2.6	2.6	-89.16	-89.16	0.5	-33.1	33.1	28.0	5.14	6.450	
1,300.0	1,300.0	1,297.2	1,296.9	2.8	2.8	-88.45	-88.45	1.1	-39.5	39.6	34.0	5.57	7.106	
1,400.0	1,400.0	1,395.7	1,395.0	3.0	3.0	-87.78	-87.78	1.9	-48.3	48.6	42.6	6.02	8.082	
1,500.0	1,500.0	1,495.0	1,493.8	3.3	3.2	-87.24	-87.24	2.8	-58.8	59.2	52.7	6.48	9.135	
1,600.0	1,600.0	1,594.5	1,592.7	3.5	3.5	-86.87	-86.87	3.8	-69.2	69.7	62.7	6.94	10.040	
1,700.0	1,700.0	1,693.9	1,691.6	3.7	3.7	-86.60	-86.60	4.7	-79.6	80.2	72.8	7.41	10.823	
1,800.0	1,800.0	1,793.4	1,790.4	3.9	4.0	-86.39	-86.39	5.7	-90.1	90.7	82.9	7.89	11.506	
1,900.0	1,900.0	1,892.8	1,889.3	4.2	4.3	-86.22	-86.22	6.6	-100.5	101.3	92.9	8.37	12.105	
2,000.0	2,000.0	1,992.2	1,988.2	4.4	4.5	-86.09	-86.09	7.6	-110.9	111.8	103.0	8.85	12.636	
2,100.0	2,100.0	2,091.7	2,087.1	4.6	4.8	-85.97	-85.97	8.5	-121.4	122.4	113.0	9.33	13.107	
2,200.0	2,200.0	2,191.1	2,186.0	4.8	5.1	-85.88	-85.88	9.5	-131.8	132.9	123.1	9.82	13.529	
2,300.0	2,300.0	2,290.6	2,284.9	5.1	5.4	-85.80	-85.80	10.4	-142.2	143.4	133.1	10.31	13.909	
2,400.0	2,400.0	2,390.0	2,383.8	5.3	5.7	-85.73	-85.73	11.4	-152.7	154.0	143.2	10.80	14.252	
2,500.0	2,500.0	2,489.5	2,482.7	5.5	5.9	-85.67	-85.67	12.3	-163.1	164.5	153.2	11.30	14.563	
2,600.0	2,600.0	2,588.9	2,581.6	5.7	6.2	-85.62	-85.62	13.3	-173.6	175.0	163.2	11.79	14.847	
2,700.0	2,700.0	2,688.4	2,680.4	6.0	6.5	-85.57	-85.57	14.3	-184.0	185.6	173.3	12.28	15.107	
2,800.0	2,800.0	2,787.8	2,779.3	6.2	6.8	-85.53	-85.53	15.2	-194.4	196.1	183.3	12.78	15.345	
2,900.0	2,900.0	2,887.2	2,878.2	6.4	7.1	-85.49	-85.49	16.2	-204.9	206.6	193.4	13.28	15.565	
3,000.0	3,000.0	2,986.7	2,977.1	6.6	7.4	-85.46	-85.46	17.1	-215.3	217.2	203.4	13.77	15.768	
3,100.0	3,100.0	3,086.0	3,075.9	6.8	7.7	-144.75	-144.75	18.1	-225.7	228.8	215.2	13.60	16.819	
3,200.0	3,199.9	3,185.0	3,174.4	7.1	8.0	-145.14	-145.14	19.0	-236.1	242.5	228.5	14.03	17.291	
3,247.9	3,247.7	3,232.4	3,221.4	7.2	8.1	-145.42	-145.42	19.5	-241.1	249.9	235.6	14.23	17.564	
3,300.0	3,299.7	3,283.8	3,272.5	7.3	8.3	-145.81	-145.81	20.0	-246.5	258.1	243.7	14.45	17.859	
3,400.0	3,399.5	3,382.4	3,370.7	7.5	8.5	-146.49	-146.49	20.9	-256.8	274.0	259.1	14.89	18.399	
3,500.0	3,499.3	3,481.1	3,468.8	7.7	8.8	-147.11	-147.11	21.8	-267.2	289.9	274.6	15.33	18.908	
3,600.0	3,599.1	3,579.8	3,566.9	7.9	9.1	-147.65	-147.65	22.8	-277.5	305.9	290.1	15.77	19.389	
3,700.0	3,698.9	3,684.7	3,671.3	8.2	9.4	-148.19	-148.19	23.7	-287.8	321.2	304.9	16.22	19.806	
3,753.5	3,752.3	3,742.6	3,729.0	8.3	9.5	-148.48	-148.48	24.1	-292.4	328.3	311.8	16.44	19.967	
3,800.0	3,798.7	3,793.2	3,779.5	8.4	9.6	-148.74	-148.74	24.4	-295.6	333.6	317.0	16.64	20.048	
3,900.0	3,898.6	3,902.5	3,888.7	8.6	9.8	-149.11	-149.11	24.9	-300.3	341.3	324.3	17.05	20.023	
4,001.4	4,000.0	4,013.8	4,000.0	8.7	10.0	-90.00	-90.00	25.0	-301.9	343.9	326.5	17.45	19.715	
4,100.0	4,098.6	4,112.4	4,098.6	8.9	10.2	-90.00	-90.00	25.0	-301.9	343.9	326.1	17.84	19.281	
4,200.0	4,198.6	4,212.4	4,198.6	9.2	10.4	-90.00	-90.00	25.0	-301.9	343.9	325.7	18.27	18.826	
4,300.0	4,298.6	4,312.4	4,298.6	9.4	10.6	-90.00	-90.00	25.0	-301.9	343.9	325.2	18.70	18.391	
4,400.0	4,398.6	4,412.4	4,398.6	9.6	10.8	-90.00	-90.00	25.0	-301.9	343.9	324.8	19.13	17.976	
4,500.0	4,498.6	4,512.4	4,498.6	9.8	10.9	-90.00	-90.00	25.0	-301.9	343.9	324.4	19.57	17.577	
4,600.0	4,498.6	4,612.4	4,598.6	10.1	11.1	-90.00	-90.00	25.0	-301.9	343.9	323.9	20.00	17.196	
4,700.0	4,698.6	4,712.4	4,698.6	10.3	11.3	-90.00	-90.00	25.0	-301.9	343.9	323.5	20.44	16.830	
4,800.0	4,798.6	4,812.4	4,798.6	10.5	11.5	-90.00	-90.00	25.0	-301.9	343.9	323.1	20.87	16.479	

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 Guttersen 6M-423
Project:	SEC.6-T2N-R63W	TVD Reference:	WELL @ 4838.0ft (RKB - 15')
Reference Site:	Guttersen 6M-203 Pad Sec.6-T2N-R63W	MD Reference:	WELL @ 4838.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Guttersen 6M-423	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (5-31-13)	Offset TVD Reference:	Offset Datum

Offset Design Guttersen 6M-203 Pad Sec.6-T2N-R63W - Guttersen 6M-203 - Wellbore #1 - Plan #1 (1-07-13)													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	4,898.6	4,912.4	4,898.6	10.7	11.7	-90.00		25.0	-301.9	343.9	322.6	21.31	16.142	
5,000.0	4,998.6	5,012.4	4,998.6	11.0	11.9	-90.00		25.0	-301.9	343.9	322.2	21.74	15.818	
5,100.0	5,098.6	5,112.4	5,098.6	11.2	12.1	-90.00		25.0	-301.9	343.9	321.8	22.18	15.506	
5,200.0	5,198.6	5,212.4	5,198.6	11.4	12.3	-90.00		25.0	-301.9	343.9	321.3	22.62	15.206	
5,300.0	5,298.6	5,312.4	5,298.6	11.6	12.5	-90.00		25.0	-301.9	343.9	320.9	23.06	14.918	
5,400.0	5,398.6	5,412.4	5,398.6	11.8	12.7	-90.00		25.0	-301.9	343.9	320.5	23.49	14.639	
5,500.0	5,498.6	5,512.4	5,498.6	12.1	12.9	-90.00		25.0	-301.9	343.9	320.0	23.93	14.371	
5,600.0	5,598.6	5,612.4	5,598.6	12.3	13.1	-90.00		25.0	-301.9	343.9	319.6	24.37	14.112	
5,700.0	5,698.6	5,712.4	5,698.6	12.5	13.3	-90.00		25.0	-301.9	343.9	319.1	24.81	13.862	
5,800.0	5,798.6	5,812.4	5,798.6	12.7	13.5	-90.00		25.0	-301.9	343.9	318.7	25.25	13.620	
5,865.2	5,863.8	5,877.5	5,863.8	12.9	13.7	-90.00		25.0	-301.9	343.9	318.4	25.54	13.467	
5,900.0	5,898.6	5,912.4	5,898.6	13.0	13.7	-90.00		25.0	-301.9	343.9	318.3	25.69	13.387	
6,000.0	5,998.6	6,011.3	5,997.2	13.2	13.9	-91.16		18.0	-302.0	344.1	318.0	26.10	13.183	
6,055.7	6,054.3	6,065.2	6,050.3	13.3	14.0	-92.68		8.9	-302.1	344.5	318.2	26.32	13.089	
6,100.0	6,098.6	6,107.2	6,091.2	13.4	14.1	85.39		-0.8	-302.2	345.1	318.6	26.48	13.034	
6,150.0	6,148.3	6,154.2	6,136.2	13.5	14.1	83.78		-14.3	-302.3	346.1	319.4	26.64	12.990	
6,200.0	6,197.7	6,200.0	6,179.2	13.6	14.2	82.22		-30.1	-302.4	347.3	320.5	26.80	12.958	
6,250.0	6,246.5	6,246.5	6,221.7	13.7	14.3	80.67		-48.7	-302.6	348.8	321.8	26.96	12.935	
6,300.0	6,294.4	6,291.9	6,262.2	13.7	14.4	79.19		-69.4	-302.8	350.4	323.3	27.12	12.921	
6,350.0	6,341.4	6,336.9	6,301.0	13.8	14.5	77.77		-92.2	-303.0	352.2	325.0	27.28	12.911	
6,400.0	6,387.0	6,381.5	6,338.0	13.9	14.6	76.42		-117.0	-303.2	354.2	326.8	27.45	12.903	
6,450.0	6,431.3	6,425.7	6,373.2	14.0	14.8	75.13		-143.7	-303.4	356.3	328.6	27.63	12.894	
6,500.0	6,474.0	6,469.5	6,406.5	14.1	14.9	73.92		-172.2	-303.7	358.4	330.6	27.83	12.880	
6,550.0	6,514.8	6,513.0	6,438.0	14.3	15.1	72.77		-202.2	-304.0	360.6	332.5	28.04	12.857	
6,600.0	6,553.7	6,556.2	6,467.4	14.4	15.3	71.71		-233.8	-304.2	362.8	334.5	28.29	12.822	
6,650.0	6,590.4	6,600.0	6,495.4	14.6	15.5	70.70		-267.5	-304.5	364.9	336.3	28.58	12.768	
6,700.0	6,624.9	6,641.8	6,520.3	14.9	15.7	69.80		-301.1	-304.8	367.0	338.1	28.91	12.694	
6,750.0	6,656.9	6,684.3	6,543.6	15.1	16.0	68.97		-336.5	-305.1	369.0	339.7	29.30	12.596	
6,800.0	6,686.3	6,726.5	6,564.9	15.5	16.3	68.22		-373.0	-305.5	370.9	341.2	29.74	12.471	
6,850.0	6,713.0	6,768.5	6,584.0	15.8	16.6	67.55		-410.4	-305.8	372.6	342.4	30.25	12.319	
6,900.0	6,736.9	6,810.4	6,601.0	16.2	17.0	66.96		-448.7	-306.1	374.3	343.4	30.83	12.138	
6,950.0	6,757.9	6,850.0	6,615.0	16.6	17.4	66.47		-485.7	-306.5	375.7	344.2	31.47	11.937	
7,000.0	6,775.8	6,893.8	6,628.4	17.1	17.8	66.02		-527.4	-306.8	376.9	344.7	32.23	11.694	
7,050.0	6,790.7	6,935.3	6,638.8	17.6	18.3	65.67		-567.6	-307.2	377.9	344.9	33.05	11.434	
7,100.0	6,802.4	6,976.8	6,647.0	18.2	18.8	65.40		-608.3	-307.5	378.7	344.8	33.95	11.155	
7,150.0	6,810.9	7,018.2	6,652.9	18.8	19.3	65.22		-649.2	-307.9	379.3	344.4	34.93	10.859	
7,175.7	6,814.0	7,039.4	6,655.1	19.1	19.5	65.15		-670.3	-308.1	379.5	344.1	35.46	10.702	
7,200.0	6,816.6	7,059.5	6,656.7	19.4	19.8	65.07		-690.4	-308.3	379.8	343.9	35.96	10.562	
7,249.7	6,821.8	7,100.0	6,658.2	20.1	20.3	64.70		-730.8	-308.6	381.3	344.3	36.95	10.319	
7,300.0	6,825.9	7,146.4	6,657.7	20.7	20.9	64.04		-777.2	-309.0	383.3	345.3	38.00	10.086	
7,369.7	6,828.0	7,216.0	6,656.7	21.7	21.9	63.55		-846.8	-309.6	384.8	345.1	39.69	9.694	
7,400.0	6,828.0	7,246.3	6,656.2	22.1	22.3	63.49		-877.1	-309.9	385.0	344.5	40.47	9.514	
7,500.0	6,828.0	7,346.3	6,654.7	23.6	23.8	63.29		-977.1	-310.8	385.7	342.6	43.09	8.951	
7,600.0	6,828.0	7,446.3	6,653.2	25.1	25.3	63.10		-1,077.1	-311.7	386.4	340.6	45.81	8.435	
7,700.0	6,828.0	7,546.3	6,651.7	26.7	26.9	62.90		-1,177.0	-312.6	387.2	338.6	48.62	7.964	
7,800.0	6,828.0	7,646.2	6,650.1	28.3	28.5	62.70		-1,277.0	-313.4	387.9	336.4	51.49	7.534	
7,900.0	6,828.0	7,746.2	6,648.6	30.0	30.2	62.51		-1,377.0	-314.3	388.7	334.3	54.41	7.143	
8,000.0	6,828.0	7,846.2	6,647.1	31.7	31.8	62.31		-1,476.9	-315.2	389.4	332.0	57.38	6.787	
8,100.0	6,828.0	7,946.2	6,645.6	33.4	33.5	62.12		-1,576.9	-316.1	390.2	329.8	60.38	6.462	
8,200.0	6,828.0	8,046.2	6,644.1	35.1	35.3	61.93		-1,676.9	-317.0	390.9	327.5	63.41	6.165	
8,300.0	6,828.0	8,146.2	6,642.5	36.8	37.0	61.74		-1,776.9	-317.9	391.7	325.2	66.46	5.893	

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 Guttersen 6M-423
Project:	SEC.6-T2N-R63W	TVD Reference:	WELL @ 4838.0ft (RKB - 15')
Reference Site:	Guttersen 6M-203 Pad Sec.6-T2N-R63W	MD Reference:	WELL @ 4838.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Guttersen 6M-423	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (5-31-13)	Offset TVD Reference:	Offset Datum

Offset Design Guttersen 6M-203 Pad Sec.6-T2N-R63W - Guttersen 6M-203 - Wellbore #1 - Plan #1 (1-07-13)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
8,400.0	6,828.0	8,246.2	6,641.0	38.6	38.8	61.54	-1,876.8	-318.7	392.5	322.9	69.54	5.644	
8,500.0	6,828.0	8,346.2	6,639.5	40.4	40.6	61.35	-1,976.8	-319.6	393.2	320.6	72.62	5.415	
8,600.0	6,828.0	8,446.2	6,638.0	42.2	42.3	61.16	-2,076.8	-320.5	394.0	318.3	75.72	5.203	
8,700.0	6,828.0	8,546.1	6,636.5	44.0	44.1	60.97	-2,176.8	-321.4	394.8	316.0	78.83	5.008	
8,800.0	6,828.0	8,646.1	6,635.0	45.8	45.9	60.79	-2,276.7	-322.3	395.6	313.6	81.94	4.827	
8,900.0	6,828.0	8,746.1	6,633.4	47.6	47.8	60.60	-2,376.7	-323.2	396.4	311.3	85.06	4.660	
9,000.0	6,828.0	8,846.1	6,631.9	49.4	49.6	60.41	-2,476.7	-324.0	397.2	309.0	88.18	4.504	
9,100.0	6,828.0	8,946.1	6,630.4	51.3	51.4	60.23	-2,576.6	-324.9	398.0	306.7	91.31	4.359	
9,200.0	6,828.0	9,046.1	6,628.9	53.1	53.3	60.04	-2,676.6	-325.8	398.8	304.3	94.43	4.223	
9,300.0	6,828.0	9,146.1	6,627.4	54.9	55.1	59.86	-2,776.6	-326.7	399.6	302.0	97.55	4.096	
9,400.0	6,828.0	9,246.1	6,625.8	56.8	56.9	59.67	-2,876.6	-327.6	400.4	299.7	100.67	3.977	
9,500.0	6,828.0	9,346.1	6,624.3	58.6	58.8	59.49	-2,976.5	-328.5	401.2	297.4	103.79	3.865	
9,600.0	6,828.0	9,446.0	6,622.8	60.5	60.6	59.31	-3,076.5	-329.3	402.0	295.1	106.91	3.760	
9,700.0	6,828.0	9,546.0	6,621.3	62.4	62.5	59.12	-3,176.5	-330.2	402.8	292.8	110.02	3.662	
9,800.0	6,828.0	9,646.0	6,619.8	64.2	64.4	58.94	-3,276.5	-331.1	403.7	290.5	113.12	3.568	
9,900.0	6,828.0	9,746.0	6,618.3	66.1	66.2	58.76	-3,376.4	-332.0	404.5	288.3	116.22	3.480	
10,000.0	6,828.0	9,846.0	6,616.7	68.0	68.1	58.58	-3,476.4	-332.9	405.3	286.0	119.32	3.397	
10,100.0	6,828.0	9,946.0	6,615.2	69.8	70.0	58.41	-3,576.4	-333.8	406.2	283.8	122.41	3.318	
10,200.0	6,828.0	10,046.0	6,613.7	71.7	71.8	58.23	-3,676.4	-334.6	407.0	281.5	125.49	3.243	
10,300.0	6,828.0	10,146.0	6,612.2	73.6	73.7	58.05	-3,776.3	-335.5	407.9	279.3	128.57	3.172	
10,400.0	6,828.0	10,246.0	6,610.7	75.5	75.6	57.87	-3,876.3	-336.4	408.7	277.1	131.64	3.105	
10,500.0	6,828.0	10,345.9	6,609.1	77.3	77.5	57.70	-3,976.3	-337.3	409.6	274.9	134.70	3.041	
10,600.0	6,828.0	10,445.9	6,607.6	79.2	79.3	57.52	-4,076.2	-338.2	410.4	272.7	137.75	2.979	
10,700.0	6,828.0	10,545.9	6,606.1	81.1	81.2	57.35	-4,176.2	-339.1	411.3	270.5	140.80	2.921	
10,800.0	6,828.0	10,645.9	6,604.6	83.0	83.1	57.17	-4,276.2	-339.9	412.2	268.3	143.84	2.865	
10,900.0	6,828.0	10,745.9	6,603.1	84.9	85.0	57.00	-4,376.2	-340.8	413.0	266.1	146.87	2.812	
11,000.0	6,828.0	10,845.9	6,601.6	86.8	86.9	56.83	-4,476.1	-341.7	413.9	264.0	149.90	2.761	
11,100.0	6,828.0	10,945.9	6,600.0	88.6	88.8	56.66	-4,576.1	-342.6	414.8	261.9	152.91	2.712	
11,200.0	6,828.0	11,045.9	6,598.5	90.5	90.7	56.49	-4,676.1	-343.5	415.7	259.7	155.92	2.666	
11,227.7	6,828.0	11,073.6	6,598.1	91.1	91.2	56.44	-4,703.8	-343.7	415.9	259.1	156.75	2.653 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Guttersen 6M-423
Project:	SEC.6-T2N-R63W	TVD Reference:	WELL @ 4838.0ft (RKB - 15')
Reference Site:	Guttersen 6M-203 Pad Sec.6-T2N-R63W	MD Reference:	WELL @ 4838.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Guttersen 6M-423	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (5-31-13)	Offset TVD Reference:	Offset Datum

Offset Design Guttersen 6M-203 Pad Sec.6-T2N-R63W - Guttersen 6R-243 - Wellbore #1 - Plan #1 (1-07-13)													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 (ft)	Offset (ft)	Semi Major Axis (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
0.0	0.0	0.0	0.0	0.0	0.0	89.98	89.98	0.0	30.7	30.7				
100.0	100.0	100.0	100.0	0.1	0.1	89.98	89.98	0.0	30.7	30.7	30.5	0.22	136.762	
200.0	200.0	200.0	200.0	0.3	0.3	89.98	89.98	0.0	30.7	30.7	30.1	0.67	45.587	
300.0	300.0	300.0	300.0	0.6	0.6	89.98	89.98	0.0	30.7	30.7	29.6	1.12	27.352	
400.0	400.0	400.0	400.0	0.8	0.8	89.98	89.98	0.0	30.7	30.7	29.2	1.57	19.537	
500.0	500.0	500.0	500.0	1.0	1.0	89.98	89.98	0.0	30.7	30.7	28.7	2.02	15.196	
600.0	600.0	600.0	600.0	1.2	1.2	89.98	89.98	0.0	30.7	30.7	28.3	2.47	12.433	
700.0	700.0	700.0	700.0	1.5	1.5	89.98	89.98	0.0	30.7	30.7	27.8	2.92	10.520	
800.0	800.0	800.0	800.0	1.7	1.7	89.98	89.98	0.0	30.7	30.7	27.4	3.37	9.117	
900.0	900.0	900.0	900.0	1.9	1.9	89.98	89.98	0.0	30.7	30.7	26.9	3.82	8.045	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	89.98	89.98	0.0	30.7	30.7	26.5	4.27	7.198 CC, ES	
1,100.0	1,100.0	1,099.2	1,099.2	2.4	2.3	89.81	89.81	0.1	32.0	32.0	27.3	4.71	6.807	
1,200.0	1,200.0	1,198.2	1,198.1	2.6	2.6	89.38	89.38	0.4	35.9	35.9	30.8	5.13	6.995	
1,300.0	1,300.0	1,297.0	1,296.7	2.8	2.8	88.82	88.82	0.9	42.2	42.4	36.8	5.57	7.609	
1,400.0	1,400.0	1,395.4	1,394.7	3.0	3.0	88.29	88.29	1.5	51.1	51.4	45.4	6.02	8.547	
1,500.0	1,500.0	1,494.6	1,493.3	3.3	3.2	87.84	87.84	2.3	61.8	62.2	55.7	6.48	9.604	
1,600.0	1,600.0	1,594.0	1,592.1	3.5	3.5	87.53	87.53	3.1	72.5	73.0	66.1	6.94	10.516	
1,700.0	1,700.0	1,693.4	1,690.9	3.7	3.7	87.30	87.30	3.9	83.2	83.8	76.4	7.42	11.303	
1,800.0	1,800.0	1,792.8	1,789.8	3.9	4.0	87.12	87.12	4.7	94.0	94.7	86.8	7.90	11.988	
1,900.0	1,900.0	1,892.2	1,888.6	4.2	4.3	86.98	86.98	5.5	104.7	105.5	97.1	8.38	12.588	
2,000.0	2,000.0	1,991.6	1,987.4	4.4	4.5	86.86	86.86	6.3	115.4	116.3	107.4	8.87	13.118	
2,100.0	2,100.0	2,091.0	2,086.2	4.6	4.8	86.77	86.77	7.1	126.2	127.1	117.8	9.36	13.588	
2,200.0	2,200.0	2,190.4	2,185.1	4.8	5.1	86.68	86.68	7.9	136.9	137.9	128.1	9.85	14.007	
2,300.0	2,300.0	2,289.9	2,283.9	5.1	5.4	86.62	86.62	8.7	147.6	148.8	138.4	10.34	14.384	
2,400.0	2,400.0	2,389.3	2,382.7	5.3	5.7	86.56	86.56	9.5	158.4	159.6	148.7	10.84	14.724	
2,500.0	2,500.0	2,488.7	2,481.6	5.5	5.9	86.50	86.50	10.3	169.1	170.4	159.1	11.34	15.032	
2,600.0	2,600.0	2,588.1	2,580.4	5.7	6.2	86.46	86.46	11.1	179.8	181.2	169.4	11.84	15.312	
2,700.0	2,700.0	2,687.5	2,679.2	6.0	6.5	86.42	86.42	11.9	190.6	192.1	179.7	12.34	15.568	
2,800.0	2,800.0	2,786.9	2,778.0	6.2	6.8	86.38	86.38	12.7	201.3	202.9	190.0	12.84	15.803	
2,900.0	2,900.0	2,886.3	2,876.9	6.4	7.1	86.35	86.35	13.5	212.0	213.7	200.4	13.34	16.019	
3,000.0	3,000.0	2,985.7	2,975.7	6.6	7.4	86.32	86.32	14.3	222.7	224.5	210.7	13.84	16.219	
3,100.0	3,100.0	3,085.3	3,074.6	6.8	7.7	27.13	27.13	15.1	233.5	234.2	220.6	13.62	17.196	
3,200.0	3,199.9	3,185.0	3,173.8	7.1	8.0	27.48	27.48	15.9	244.3	241.5	227.5	14.06	17.180	
3,247.9	3,247.7	3,232.8	3,221.3	7.2	8.1	27.74	27.74	16.3	249.4	244.2	230.0	14.27	17.118	
3,300.0	3,299.7	3,284.8	3,273.0	7.3	8.3	28.08	28.08	16.7	255.0	246.9	232.4	14.50	17.029	
3,400.0	3,399.5	3,384.6	3,372.2	7.5	8.6	28.70	28.70	17.6	265.8	252.0	237.1	14.94	16.865	
3,500.0	3,499.3	3,484.5	3,471.5	7.7	8.9	29.30	29.30	18.4	276.6	257.2	241.8	15.39	16.711	
3,600.0	3,599.1	3,584.3	3,570.7	7.9	9.2	29.87	29.87	19.2	287.4	262.4	246.5	15.84	16.566	
3,700.0	3,698.9	3,684.1	3,670.0	8.2	9.5	30.43	30.43	20.0	298.1	267.6	251.3	16.29	16.428	
3,753.5	3,752.3	3,737.5	3,723.1	8.3	9.6	30.71	30.71	20.4	303.9	270.4	253.9	16.53	16.358	
3,800.0	3,798.7	3,784.0	3,769.2	8.4	9.8	30.95	30.95	20.8	308.9	273.1	256.3	16.73	16.319	
3,900.0	3,898.6	3,883.7	3,868.3	8.6	10.1	31.25	31.25	21.6	319.7	280.5	263.3	17.15	16.355	
4,001.4	4,000.0	3,984.6	3,968.7	8.7	10.4	90.52	90.52	22.4	330.6	290.3	272.7	17.56	16.534	
4,100.0	4,098.6	4,082.6	4,066.1	8.9	10.6	90.35	90.35	23.2	341.1	300.9	282.9	17.98	16.734	
4,200.0	4,198.6	4,189.0	4,172.0	9.2	10.9	90.19	90.19	24.0	351.7	310.8	292.4	18.43	16.862	
4,300.0	4,298.6	4,297.7	4,280.4	9.4	11.2	90.08	90.08	24.5	359.4	318.0	299.1	18.86	16.859	
4,400.0	4,398.6	4,406.7	4,389.3	9.6	11.4	90.02	90.02	24.9	364.1	322.3	303.0	19.28	16.714	
4,500.0	4,498.6	4,515.9	4,498.5	9.8	11.5	90.00	90.00	25.0	365.7	323.7	304.0	19.70	16.431	
4,600.0	4,598.6	4,616.0	4,598.6	10.1	11.7	90.00	90.00	25.0	365.7	323.7	303.6	20.12	16.087	
4,700.0	4,698.6	4,716.0	4,698.6	10.3	11.9	90.00	90.00	25.0	365.7	323.7	303.2	20.55	15.752	
4,800.0	4,798.6	4,816.0	4,798.6	10.5	12.1	90.00	90.00	25.0	365.7	323.7	302.8	20.98	15.429	

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 Guttersen 6M-423
Project:	SEC.6-T2N-R63W	TVD Reference:	WELL @ 4838.0ft (RKB - 15')
Reference Site:	Guttersen 6M-203 Pad Sec.6-T2N-R63W	MD Reference:	WELL @ 4838.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Guttersen 6M-423	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (5-31-13)	Offset TVD Reference:	Offset Datum

Offset Design Guttersen 6M-203 Pad Sec.6-T2N-R63W - Guttersen 6R-243 - Wellbore #1 - Plan #1 (1-07-13)												Offset Site Error: 0.0 ft	
Survey Program: 0-MWD												Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
4,900.0	4,898.6	4,916.0	4,898.6	10.7	12.3	90.00	25.0	365.7	323.7	302.3	21.41	15.119	
5,000.0	4,998.6	5,016.0	4,998.6	11.0	12.4	90.00	25.0	365.7	323.7	301.9	21.84	14.821	
5,100.0	5,098.6	5,116.0	5,098.6	11.2	12.6	90.00	25.0	365.7	323.7	301.5	22.28	14.533	
5,200.0	5,198.6	5,216.0	5,198.6	11.4	12.8	90.00	25.0	365.7	323.7	301.0	22.71	14.256	
5,300.0	5,298.6	5,316.0	5,298.6	11.6	13.0	90.00	25.0	365.7	323.7	300.6	23.14	13.990	
5,400.0	5,398.6	5,416.0	5,398.6	11.8	13.2	90.00	25.0	365.7	323.7	300.2	23.58	13.732	
5,500.0	5,498.6	5,516.0	5,498.6	12.1	13.4	90.00	25.0	365.7	323.7	299.7	24.01	13.484	
5,600.0	5,598.6	5,616.0	5,598.6	12.3	13.6	90.00	25.0	365.7	323.7	299.3	24.44	13.244	
5,700.0	5,698.6	5,716.0	5,698.6	12.5	13.8	90.00	25.0	365.7	323.7	298.9	24.88	13.012	
5,800.0	5,798.6	5,816.0	5,798.6	12.7	14.0	90.00	25.0	365.7	323.7	298.4	25.32	12.788	
5,900.0	5,898.6	5,916.0	5,898.6	13.0	14.2	90.00	25.0	365.7	323.7	298.0	25.75	12.572	
5,959.5	5,958.1	5,975.6	5,958.1	13.1	14.3	90.47	22.4	365.7	323.7	297.7	26.00	12.452	
6,000.0	5,998.6	6,015.7	5,998.0	13.2	14.3	91.25	18.0	365.7	323.8	297.6	26.16	12.375	
6,055.7	6,054.3	6,069.9	6,051.4	13.3	14.4	92.88	8.7	365.6	324.0	297.6	26.38	12.281	
6,100.0	6,098.6	6,112.3	6,092.6	13.4	14.5	-86.02	-1.1	365.5	324.5	298.0	26.55	12.224	
6,150.0	6,148.3	6,159.6	6,137.8	13.5	14.6	-84.29	-14.8	365.4	325.4	298.7	26.72	12.180	
6,200.0	6,197.7	6,206.3	6,181.6	13.6	14.7	-82.59	-31.0	365.3	326.6	299.7	26.88	12.148	
6,250.0	6,246.5	6,252.4	6,223.8	13.7	14.8	-80.95	-49.6	365.1	328.0	300.9	27.04	12.129	
6,300.0	6,294.4	6,298.1	6,264.5	13.7	14.9	-79.36	-70.6	365.0	329.6	302.4	27.20	12.119	
6,350.0	6,341.4	6,343.4	6,303.4	13.8	15.0	-77.82	-93.6	364.8	331.4	304.1	27.36	12.116	
6,400.0	6,387.0	6,388.2	6,340.5	13.9	15.1	-76.36	-118.7	364.6	333.4	305.9	27.52	12.117	
6,450.0	6,431.3	6,432.6	6,375.8	14.0	15.2	-74.96	-145.6	364.3	335.5	307.8	27.69	12.119	
6,500.0	6,474.0	6,476.6	6,409.1	14.1	15.3	-73.64	-174.4	364.1	337.7	309.9	27.87	12.119	
6,550.0	6,514.8	6,520.3	6,440.6	14.3	15.5	-72.40	-204.7	363.9	340.0	311.9	28.07	12.112	
6,600.0	6,553.7	6,563.7	6,470.0	14.4	15.7	-71.24	-236.5	363.6	342.3	314.0	28.30	12.094	
6,650.0	6,590.4	6,606.7	6,497.4	14.6	15.9	-70.15	-269.8	363.3	344.5	316.0	28.56	12.061	
6,700.0	6,624.9	6,650.0	6,523.0	14.9	16.2	-69.15	-304.7	363.0	346.7	317.9	28.88	12.008	
6,750.0	6,656.9	6,692.1	6,546.0	15.1	16.4	-68.24	-339.9	362.8	348.9	319.6	29.24	11.931	
6,800.0	6,686.3	6,734.5	6,567.1	15.5	16.7	-67.41	-376.7	362.5	350.9	321.2	29.67	11.827	
6,850.0	6,713.0	6,776.6	6,586.0	15.8	17.1	-66.66	-414.3	362.1	352.8	322.7	30.17	11.695	
6,900.0	6,736.9	6,818.6	6,602.8	16.2	17.4	-66.00	-452.8	361.8	354.6	323.8	30.74	11.535	
6,950.0	6,757.9	6,860.4	6,617.4	16.6	17.8	-65.43	-492.0	361.5	356.1	324.7	31.39	11.345	
7,000.0	6,775.8	6,900.0	6,629.2	17.1	18.2	-64.95	-529.7	361.2	357.5	325.4	32.11	11.134	
7,050.0	6,790.7	6,943.7	6,640.0	17.6	18.7	-64.53	-572.1	360.9	358.7	325.7	32.96	10.884	
7,100.0	6,802.4	6,985.2	6,647.9	18.2	19.1	-64.20	-612.8	360.5	359.6	325.8	33.87	10.619	
7,150.0	6,810.9	7,026.7	6,653.7	18.8	19.6	-63.96	-653.8	360.2	360.3	325.5	34.86	10.336	
7,175.7	6,814.0	7,050.0	6,655.9	19.1	19.9	-63.87	-677.1	360.0	360.6	325.2	35.42	10.180	
7,200.0	6,816.6	7,068.0	6,657.2	19.4	20.1	-63.77	-695.1	359.9	361.0	325.1	35.89	10.057	
7,249.7	6,821.8	7,108.9	6,658.4	20.1	20.7	-63.35	-735.9	359.5	362.6	325.8	36.86	9.838	
7,300.0	6,825.9	7,155.3	6,657.7	20.7	21.3	-62.62	-782.3	359.1	364.8	326.9	37.91	9.624	
7,369.7	6,828.0	7,224.8	6,656.4	21.7	22.2	-62.07	-851.8	358.6	366.4	326.8	39.61	9.252	
7,400.0	6,828.0	7,255.2	6,655.8	22.1	22.7	-61.99	-882.1	358.3	366.7	326.4	40.37	9.085	
7,500.0	6,828.0	7,355.1	6,653.9	23.6	24.1	-61.73	-982.1	357.5	367.6	324.7	42.94	8.561	
7,600.0	6,828.0	7,455.1	6,652.0	25.1	25.6	-61.47	-1,082.1	356.7	368.5	322.9	45.61	8.080	
7,700.0	6,828.0	7,555.1	6,650.1	26.7	27.2	-61.21	-1,182.0	355.9	369.5	321.1	48.35	7.641	
7,800.0	6,828.0	7,655.1	6,648.2	28.3	28.8	-60.96	-1,282.0	355.1	370.4	319.2	51.16	7.240	
7,900.0	6,828.0	7,755.1	6,646.3	30.0	30.4	-60.70	-1,381.9	354.2	371.3	317.3	54.02	6.874	
8,000.0	6,828.0	7,855.0	6,644.4	31.7	32.1	-60.45	-1,481.9	353.4	372.3	315.4	56.91	6.541	
8,100.0	6,828.0	7,955.0	6,642.5	33.4	33.8	-60.20	-1,581.9	352.6	373.2	313.4	59.84	6.237	
8,200.0	6,828.0	8,055.0	6,640.6	35.1	35.5	-59.94	-1,681.8	351.8	374.2	311.4	62.79	5.960	
8,300.0	6,828.0	8,155.0	6,638.7	36.8	37.2	-59.69	-1,781.8	351.0	375.1	309.4	65.76	5.705	

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

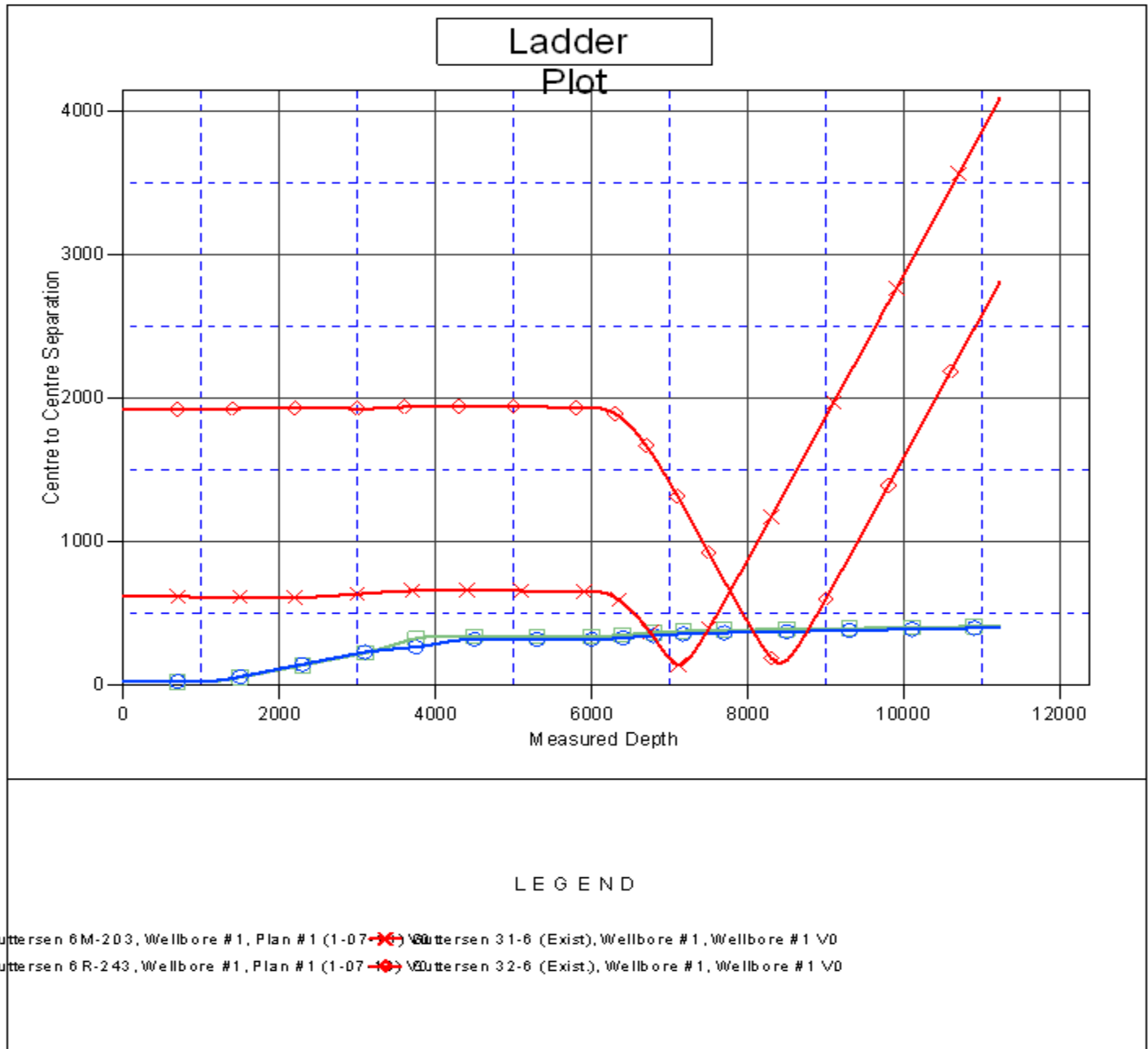
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Guttersen 6M-423
Project:	SEC.6-T2N-R63W	TVD Reference:	WELL @ 4838.0ft (RKB - 15')
Reference Site:	Guttersen 6M-203 Pad Sec.6-T2N-R63W	MD Reference:	WELL @ 4838.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Guttersen 6M-423	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (5-31-13)	Offset TVD Reference:	Offset Datum

Offset Design Guttersen 6M-203 Pad Sec.6-T2N-R63W - Guttersen 6R-243 - Wellbore #1 - Plan #1 (1-07-13)													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
8,400.0	6,828.0	8,255.0	6,636.8	38.6	39.0	-59.44	-1,881.7	350.1	376.1	307.4	68.74	5.472		
8,500.0	6,828.0	8,355.0	6,634.9	40.4	40.8	-59.20	-1,981.7	349.3	377.1	305.4	71.73	5.257		
8,600.0	6,828.0	8,454.9	6,633.0	42.2	42.5	-58.95	-2,081.7	348.5	378.1	303.4	74.74	5.059		
8,700.0	6,828.0	8,554.9	6,631.1	44.0	44.3	-58.70	-2,181.6	347.7	379.1	301.3	77.74	4.876		
8,800.0	6,828.0	8,654.9	6,629.2	45.8	46.1	-58.46	-2,281.6	346.9	380.1	299.3	80.75	4.707		
8,900.0	6,828.0	8,754.9	6,627.3	47.6	48.0	-58.22	-2,381.5	346.1	381.1	297.3	83.76	4.550		
9,000.0	6,828.0	8,854.9	6,625.4	49.4	49.8	-57.98	-2,481.5	345.2	382.1	295.3	86.77	4.404		
9,100.0	6,828.0	8,954.8	6,623.5	51.3	51.6	-57.74	-2,581.5	344.4	383.1	293.4	89.78	4.268		
9,200.0	6,828.0	9,054.8	6,621.6	53.1	53.4	-57.50	-2,681.4	343.6	384.2	291.4	92.78	4.141		
9,300.0	6,828.0	9,154.8	6,619.7	54.9	55.3	-57.26	-2,781.4	342.8	385.2	289.4	95.78	4.022		
9,400.0	6,828.0	9,254.8	6,617.8	56.8	57.1	-57.02	-2,881.3	342.0	386.2	287.5	98.77	3.911		
9,500.0	6,828.0	9,354.8	6,615.9	58.6	59.0	-56.79	-2,981.3	341.2	387.3	285.5	101.75	3.806		
9,600.0	6,828.0	9,454.8	6,614.0	60.5	60.8	-56.55	-3,081.3	340.3	388.3	283.6	104.73	3.708		
9,700.0	6,828.0	9,554.7	6,612.1	62.4	62.7	-56.32	-3,181.2	339.5	389.4	281.7	107.70	3.615		
9,800.0	6,828.0	9,654.7	6,610.2	64.2	64.5	-56.09	-3,281.2	338.7	390.5	279.8	110.67	3.528		
9,900.0	6,828.0	9,754.7	6,608.3	66.1	66.4	-55.86	-3,381.1	337.9	391.5	277.9	113.62	3.446		
10,000.0	6,828.0	9,854.7	6,606.4	68.0	68.2	-55.63	-3,481.1	337.1	392.6	276.1	116.57	3.368		
10,100.0	6,828.0	9,954.7	6,604.5	69.8	70.1	-55.40	-3,581.1	336.2	393.7	274.2	119.50	3.295		
10,200.0	6,828.0	10,054.6	6,602.6	71.7	72.0	-55.18	-3,681.0	335.4	394.8	272.4	122.43	3.225		
10,300.0	6,828.0	10,154.6	6,600.7	73.6	73.9	-54.95	-3,781.0	334.6	395.9	270.6	125.34	3.159		
10,400.0	6,828.0	10,254.6	6,598.8	75.5	75.7	-54.73	-3,880.9	333.8	397.0	268.8	128.25	3.096		
10,500.0	6,828.0	10,354.6	6,596.9	77.3	77.6	-54.51	-3,980.9	333.0	398.1	267.0	131.14	3.036		
10,600.0	6,828.0	10,454.6	6,595.0	79.2	79.5	-54.29	-4,080.9	332.2	399.2	265.2	134.02	2.979		
10,700.0	6,828.0	10,554.6	6,593.1	81.1	81.4	-54.07	-4,180.8	331.3	400.4	263.5	136.90	2.924		
10,800.0	6,828.0	10,654.5	6,591.2	83.0	83.2	-53.85	-4,280.8	330.5	401.5	261.7	139.76	2.873		
10,900.0	6,828.0	10,754.5	6,589.3	84.9	85.1	-53.63	-4,380.7	329.7	402.6	260.0	142.61	2.823		
11,000.0	6,828.0	10,854.5	6,587.4	86.8	87.0	-53.41	-4,480.7	328.9	403.8	258.3	145.44	2.776		
11,100.0	6,828.0	10,954.5	6,585.5	88.6	88.9	-53.20	-4,580.7	328.1	404.9	256.6	148.27	2.731		
11,200.0	6,828.0	11,054.5	6,583.6	90.5	90.8	-52.99	-4,680.6	327.3	406.1	255.0	151.09	2.688		
11,227.7	6,828.0	11,082.2	6,583.0	91.1	91.3	-52.93	-4,708.3	327.0	406.4	254.5	151.86	2.676 SF		

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Reference Site:	Guttersen 6M-203 Pad Sec.6-T2N-R63W	MD Reference:	WELL @ 4838.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Guttersen 6M-423	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (5-31-13)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4838.0ft (RKB - 15')
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: Guttersen 6M-423
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.66°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Guttersen 6M-423
Project:	SEC.6-T2N-R63W	TVD Reference:	WELL @ 4838.0ft (RKB - 15')
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