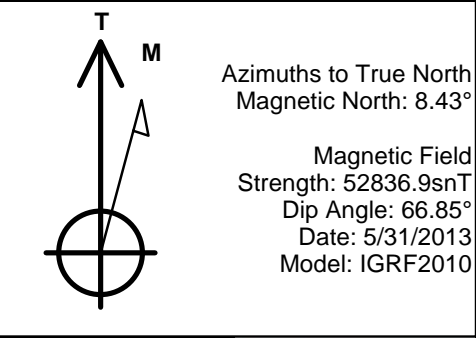


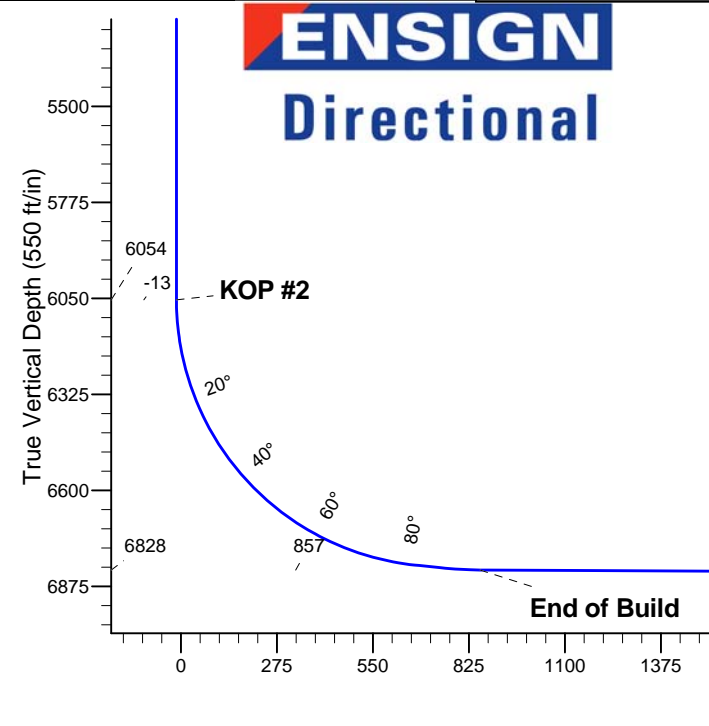
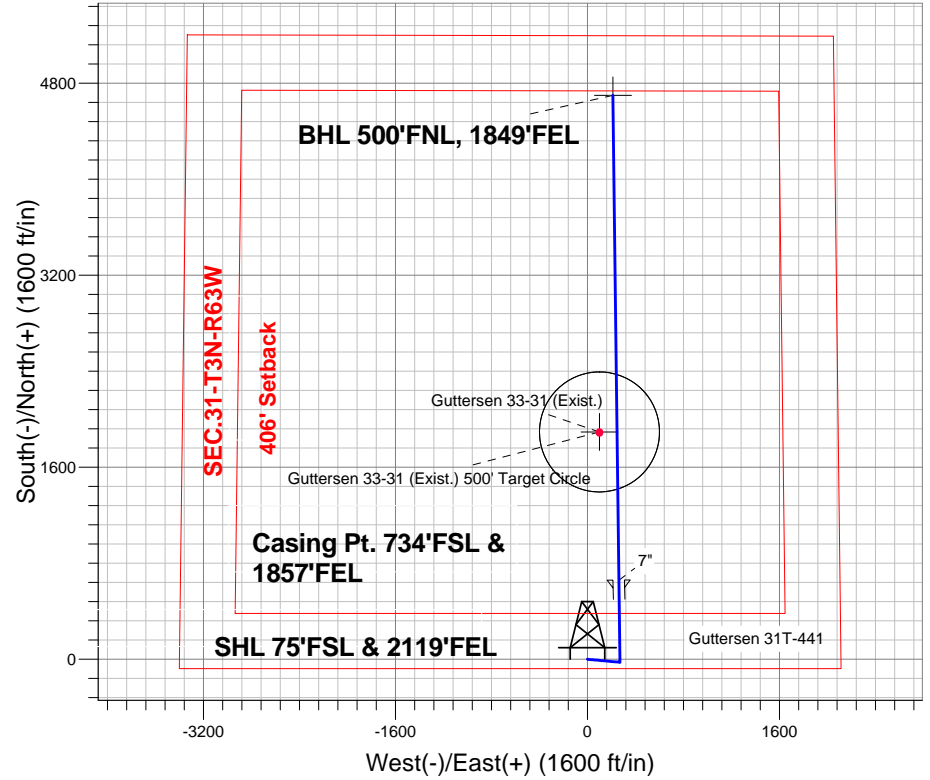
PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Guttersen 31T-441**
Surface Location: Guttersen 31Q-401 Pad Sec.31-T3N-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 1308192.11 3285436.77 40.174870 -104.478500
Original Well Elev WELL @ 4838.0ft (Original Well Elev)

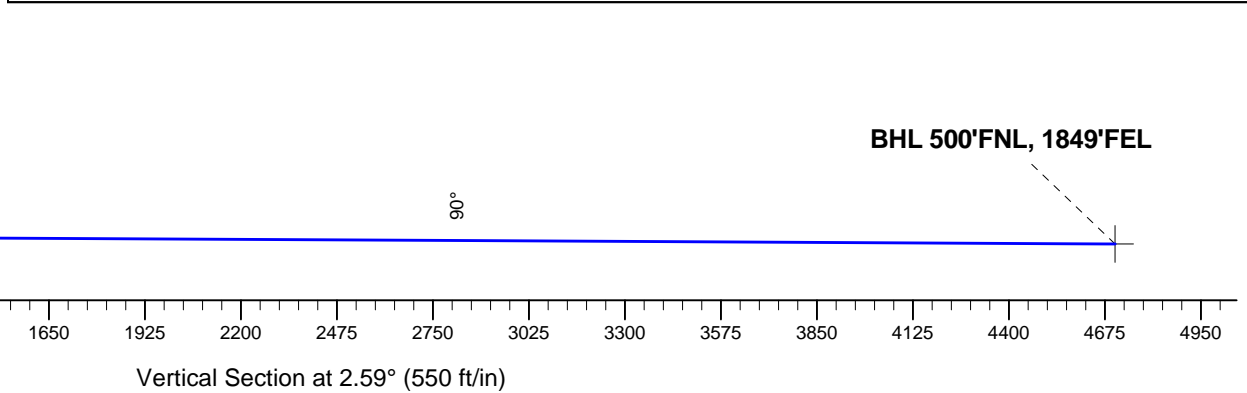
WELLBORE TARGET DETAILS				
Name	TVD	+N/-S	+E/-W	Shape
BHL 500'FNL, 1849'FEL	6848.0	4699.5	212.3	Point



Guttersen 31Q-401 Pad Sec.31-T3N-R63W Guttersen 31T-441 Plan #1 (5-31-13) 11:34, May 31 2013		
ANNOTATIONS		
TVD	MD	Annotation
1000.0	1000.0	KOP #1
6054.2	6067.6	KOP #2
6828.0	7375.7	End of Build



SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1000.0	0.00	0.00	1000.0	0.0	0.0	0.00	0.00	0.0	
3	1396.4	5.95	95.29	1395.7	-1.9	20.5	1.50	95.29	-1.0	
4	3616.9	5.95	95.29	3604.3	-23.1	249.5	0.00	0.00	-11.8	
5	4013.4	0.00	0.00	4000.0	-25.0	270.0	1.50	180.00	-12.8	
6	6067.6	0.00	0.00	6054.2	-25.0	270.0	0.00	0.00	-12.8	
7	7187.6	84.00	359.30	6814.0	659.0	261.6	7.50	359.30	670.2	
8	7261.6	84.00	359.30	6821.7	732.6	260.7	0.00	0.00	743.7	
9	7375.7	89.70	359.30	6828.0	846.5	259.4	5.00	0.01	857.3	
10	1229.0	89.70	359.30	6848.0	4699.5	212.3	0.00	0.00	4704.3	BHL 500'FNL, 1849'FEL





PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.31-T3N-R63W

Guttersen 31Q-401 Pad Sec.31-T3N-R63W

Guttersen 31T-441

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	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,396.4	5.95	95.29	1,395.7	-1.9	20.5	1.50	1.50	0.00	95.29	
3,616.9	5.95	95.29	3,604.3	-23.1	249.5	0.00	0.00	0.00	0.00	
4,013.4	0.00	0.00	4,000.0	-25.0	270.0	1.50	-1.50	0.00	180.00	
6,067.6	0.00	0.00	6,054.2	-25.0	270.0	0.00	0.00	0.00	0.00	
7,187.6	84.00	359.30	6,814.0	659.0	261.6	7.50	7.50	0.00	359.30	
7,261.6	84.00	359.30	6,821.7	732.6	260.7	0.00	0.00	0.00	0.00	
7,375.7	89.70	359.30	6,828.0	846.5	259.4	5.00	5.00	0.00	0.01	
11,229.0	89.70	359.30	6,848.0	4,699.5	212.3	0.00	0.00	0.00	0.00	BHL 500'FNL, 1849

Database:	Landmark	Local Co-ordinate Reference:	Well Guttersen 31T-441
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4838.0ft (Original Well Elev)
Project:	SEC.31-T3N-R63W	MD Reference:	WELL @ 4838.0ft (Original Well Elev)
Site:	Guttersen 31Q-401 Pad Sec.31-T3N-R63W	North Reference:	True
Well:	Guttersen 31T-441	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
1.0	0.00	0.00	1.0	0.0	0.0	0.0	0.00	0.00	0.00
Guttersen 33-31 (Exist.) 500' 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
KOP #1									
1,040.0	0.60	95.29	1,040.0	0.0	0.2	0.0	1.50	1.50	0.00
1,080.0	1.20	95.29	1,080.0	-0.1	0.8	0.0	1.50	1.50	0.00
1,120.0	1.80	95.29	1,120.0	-0.2	1.9	-0.1	1.50	1.50	0.00
1,160.0	2.40	95.29	1,160.0	-0.3	3.3	-0.2	1.50	1.50	0.00
1,200.0	3.00	95.29	1,199.9	-0.5	5.2	-0.2	1.50	1.50	0.00
1,240.0	3.60	95.29	1,239.8	-0.7	7.5	-0.4	1.50	1.50	0.00
1,280.0	4.20	95.29	1,279.7	-0.9	10.2	-0.5	1.50	1.50	0.00
1,320.0	4.80	95.29	1,319.6	-1.2	13.3	-0.6	1.50	1.50	0.00
1,360.0	5.40	95.29	1,359.5	-1.6	16.9	-0.8	1.50	1.50	0.00
1,396.4	5.95	95.29	1,395.7	-1.9	20.5	-1.0	1.50	1.50	0.00
1,400.0	5.95	95.29	1,399.3	-1.9	20.8	-1.0	0.00	0.00	0.00
1,440.0	5.95	95.29	1,439.1	-2.3	25.0	-1.2	0.00	0.00	0.00
1,480.0	5.95	95.29	1,478.8	-2.7	29.1	-1.4	0.00	0.00	0.00
1,520.0	5.95	95.29	1,518.6	-3.1	33.2	-1.6	0.00	0.00	0.00
1,560.0	5.95	95.29	1,558.4	-3.5	37.3	-1.8	0.00	0.00	0.00
1,600.0	5.95	95.29	1,598.2	-3.8	41.5	-2.0	0.00	0.00	0.00
1,640.0	5.95	95.29	1,638.0	-4.2	45.6	-2.2	0.00	0.00	0.00
1,680.0	5.95	95.29	1,677.8	-4.6	49.7	-2.4	0.00	0.00	0.00
1,720.0	5.95	95.29	1,717.5	-5.0	53.8	-2.6	0.00	0.00	0.00
1,760.0	5.95	95.29	1,757.3	-5.4	58.0	-2.7	0.00	0.00	0.00
1,800.0	5.95	95.29	1,797.1	-5.7	62.1	-2.9	0.00	0.00	0.00
1,840.0	5.95	95.29	1,836.9	-6.1	66.2	-3.1	0.00	0.00	0.00
1,880.0	5.95	95.29	1,876.7	-6.5	70.4	-3.3	0.00	0.00	0.00
1,920.0	5.95	95.29	1,916.5	-6.9	74.5	-3.5	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Guttersen 31T-441
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4838.0ft (Original Well Elev)
Project:	SEC.31-T3N-R63W	MD Reference:	WELL @ 4838.0ft (Original Well Elev)
Site:	Guttersen 31Q-401 Pad Sec.31-T3N-R63W	North Reference:	True
Well:	Guttersen 31T-441	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)
1,960.0	5.95	95.29	1,956.3	-7.3	78.6	-3.7	0.00	0.00	0.00
2,000.0	5.95	95.29	1,996.0	-7.7	82.7	-3.9	0.00	0.00	0.00
2,040.0	5.95	95.29	2,035.8	-8.0	86.9	-4.1	0.00	0.00	0.00
2,080.0	5.95	95.29	2,075.6	-8.4	91.0	-4.3	0.00	0.00	0.00
2,120.0	5.95	95.29	2,115.4	-8.8	95.1	-4.5	0.00	0.00	0.00
2,160.0	5.95	95.29	2,155.2	-9.2	99.2	-4.7	0.00	0.00	0.00
2,200.0	5.95	95.29	2,195.0	-9.6	103.4	-4.9	0.00	0.00	0.00
2,240.0	5.95	95.29	2,234.7	-10.0	107.5	-5.1	0.00	0.00	0.00
2,280.0	5.95	95.29	2,274.5	-10.3	111.6	-5.3	0.00	0.00	0.00
2,320.0	5.95	95.29	2,314.3	-10.7	115.7	-5.5	0.00	0.00	0.00
2,360.0	5.95	95.29	2,354.1	-11.1	119.9	-5.7	0.00	0.00	0.00
2,400.0	5.95	95.29	2,393.9	-11.5	124.0	-5.9	0.00	0.00	0.00
2,440.0	5.95	95.29	2,433.7	-11.9	128.1	-6.1	0.00	0.00	0.00
2,480.0	5.95	95.29	2,473.5	-12.2	132.2	-6.3	0.00	0.00	0.00
2,520.0	5.95	95.29	2,513.2	-12.6	136.4	-6.5	0.00	0.00	0.00
2,560.0	5.95	95.29	2,553.0	-13.0	140.5	-6.7	0.00	0.00	0.00
2,600.0	5.95	95.29	2,592.8	-13.4	144.6	-6.9	0.00	0.00	0.00
2,640.0	5.95	95.29	2,632.6	-13.8	148.8	-7.0	0.00	0.00	0.00
2,680.0	5.95	95.29	2,672.4	-14.2	152.9	-7.2	0.00	0.00	0.00
2,720.0	5.95	95.29	2,712.2	-14.5	157.0	-7.4	0.00	0.00	0.00
2,760.0	5.95	95.29	2,752.0	-14.9	161.1	-7.6	0.00	0.00	0.00
2,800.0	5.95	95.29	2,791.7	-15.3	165.3	-7.8	0.00	0.00	0.00
2,840.0	5.95	95.29	2,831.5	-15.7	169.4	-8.0	0.00	0.00	0.00
2,880.0	5.95	95.29	2,871.3	-16.1	173.5	-8.2	0.00	0.00	0.00
2,920.0	5.95	95.29	2,911.1	-16.4	177.6	-8.4	0.00	0.00	0.00
2,960.0	5.95	95.29	2,950.9	-16.8	181.8	-8.6	0.00	0.00	0.00
3,000.0	5.95	95.29	2,990.7	-17.2	185.9	-8.8	0.00	0.00	0.00
3,040.0	5.95	95.29	3,030.4	-17.6	190.0	-9.0	0.00	0.00	0.00
3,080.0	5.95	95.29	3,070.2	-18.0	194.1	-9.2	0.00	0.00	0.00
3,120.0	5.95	95.29	3,110.0	-18.4	198.3	-9.4	0.00	0.00	0.00
3,160.0	5.95	95.29	3,149.8	-18.7	202.4	-9.6	0.00	0.00	0.00
3,200.0	5.95	95.29	3,189.6	-19.1	206.5	-9.8	0.00	0.00	0.00
3,240.0	5.95	95.29	3,229.4	-19.5	210.6	-10.0	0.00	0.00	0.00
3,280.0	5.95	95.29	3,269.2	-19.9	214.8	-10.2	0.00	0.00	0.00
3,320.0	5.95	95.29	3,308.9	-20.3	218.9	-10.4	0.00	0.00	0.00
3,360.0	5.95	95.29	3,348.7	-20.7	223.0	-10.6	0.00	0.00	0.00
3,400.0	5.95	95.29	3,388.5	-21.0	227.2	-10.8	0.00	0.00	0.00
3,440.0	5.95	95.29	3,428.3	-21.4	231.3	-11.0	0.00	0.00	0.00
3,480.0	5.95	95.29	3,468.1	-21.8	235.4	-11.2	0.00	0.00	0.00
3,520.0	5.95	95.29	3,507.9	-22.2	239.5	-11.3	0.00	0.00	0.00
3,560.0	5.95	95.29	3,547.6	-22.6	243.7	-11.5	0.00	0.00	0.00
3,600.0	5.95	95.29	3,587.4	-22.9	247.8	-11.7	0.00	0.00	0.00
3,616.9	5.95	95.29	3,604.3	-23.1	249.5	-11.8	0.00	0.00	0.00
3,640.0	5.60	95.29	3,627.2	-23.3	251.8	-11.9	1.50	-1.50	0.00
3,680.0	5.00	95.29	3,667.1	-23.7	255.5	-12.1	1.50	-1.50	0.00
3,720.0	4.40	95.29	3,706.9	-24.0	258.8	-12.3	1.50	-1.50	0.00
3,760.0	3.80	95.29	3,746.8	-24.2	261.6	-12.4	1.50	-1.50	0.00
3,800.0	3.20	95.29	3,786.7	-24.5	264.1	-12.5	1.50	-1.50	0.00
3,840.0	2.60	95.29	3,826.7	-24.6	266.1	-12.6	1.50	-1.50	0.00
3,880.0	2.00	95.29	3,866.7	-24.8	267.7	-12.7	1.50	-1.50	0.00
3,920.0	1.40	95.29	3,906.6	-24.9	268.9	-12.7	1.50	-1.50	0.00
3,960.0	0.80	95.29	3,946.6	-25.0	269.6	-12.8	1.50	-1.50	0.00
4,000.0	0.20	95.29	3,986.6	-25.0	270.0	-12.8	1.50	-1.50	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Guttersen 31T-441
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4838.0ft (Original Well Elev)
Project:	SEC.31-T3N-R63W	MD Reference:	WELL @ 4838.0ft (Original Well Elev)
Site:	Guttersen 31Q-401 Pad Sec.31-T3N-R63W	North Reference:	True
Well:	Guttersen 31T-441	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)
4,013.4	0.00	0.00	4,000.0	-25.0	270.0	-12.8	1.50	-1.50	0.00
4,040.0	0.00	0.00	4,026.6	-25.0	270.0	-12.8	0.00	0.00	0.00
4,080.0	0.00	0.00	4,066.6	-25.0	270.0	-12.8	0.00	0.00	0.00
4,120.0	0.00	0.00	4,106.6	-25.0	270.0	-12.8	0.00	0.00	0.00
4,160.0	0.00	0.00	4,146.6	-25.0	270.0	-12.8	0.00	0.00	0.00
4,200.0	0.00	0.00	4,186.6	-25.0	270.0	-12.8	0.00	0.00	0.00
4,240.0	0.00	0.00	4,226.6	-25.0	270.0	-12.8	0.00	0.00	0.00
4,280.0	0.00	0.00	4,266.6	-25.0	270.0	-12.8	0.00	0.00	0.00
4,320.0	0.00	0.00	4,306.6	-25.0	270.0	-12.8	0.00	0.00	0.00
4,360.0	0.00	0.00	4,346.6	-25.0	270.0	-12.8	0.00	0.00	0.00
4,400.0	0.00	0.00	4,386.6	-25.0	270.0	-12.8	0.00	0.00	0.00
4,440.0	0.00	0.00	4,426.6	-25.0	270.0	-12.8	0.00	0.00	0.00
4,480.0	0.00	0.00	4,466.6	-25.0	270.0	-12.8	0.00	0.00	0.00
4,520.0	0.00	0.00	4,506.6	-25.0	270.0	-12.8	0.00	0.00	0.00
4,560.0	0.00	0.00	4,546.6	-25.0	270.0	-12.8	0.00	0.00	0.00
4,600.0	0.00	0.00	4,586.6	-25.0	270.0	-12.8	0.00	0.00	0.00
4,640.0	0.00	0.00	4,626.6	-25.0	270.0	-12.8	0.00	0.00	0.00
4,680.0	0.00	0.00	4,666.6	-25.0	270.0	-12.8	0.00	0.00	0.00
4,720.0	0.00	0.00	4,706.6	-25.0	270.0	-12.8	0.00	0.00	0.00
4,760.0	0.00	0.00	4,746.6	-25.0	270.0	-12.8	0.00	0.00	0.00
4,800.0	0.00	0.00	4,786.6	-25.0	270.0	-12.8	0.00	0.00	0.00
4,840.0	0.00	0.00	4,826.6	-25.0	270.0	-12.8	0.00	0.00	0.00
4,880.0	0.00	0.00	4,866.6	-25.0	270.0	-12.8	0.00	0.00	0.00
4,920.0	0.00	0.00	4,906.6	-25.0	270.0	-12.8	0.00	0.00	0.00
4,960.0	0.00	0.00	4,946.6	-25.0	270.0	-12.8	0.00	0.00	0.00
5,000.0	0.00	0.00	4,986.6	-25.0	270.0	-12.8	0.00	0.00	0.00
5,040.0	0.00	0.00	5,026.6	-25.0	270.0	-12.8	0.00	0.00	0.00
5,080.0	0.00	0.00	5,066.6	-25.0	270.0	-12.8	0.00	0.00	0.00
5,120.0	0.00	0.00	5,106.6	-25.0	270.0	-12.8	0.00	0.00	0.00
5,160.0	0.00	0.00	5,146.6	-25.0	270.0	-12.8	0.00	0.00	0.00
5,200.0	0.00	0.00	5,186.6	-25.0	270.0	-12.8	0.00	0.00	0.00
5,240.0	0.00	0.00	5,226.6	-25.0	270.0	-12.8	0.00	0.00	0.00
5,280.0	0.00	0.00	5,266.6	-25.0	270.0	-12.8	0.00	0.00	0.00
5,320.0	0.00	0.00	5,306.6	-25.0	270.0	-12.8	0.00	0.00	0.00
5,360.0	0.00	0.00	5,346.6	-25.0	270.0	-12.8	0.00	0.00	0.00
5,400.0	0.00	0.00	5,386.6	-25.0	270.0	-12.8	0.00	0.00	0.00
5,440.0	0.00	0.00	5,426.6	-25.0	270.0	-12.8	0.00	0.00	0.00
5,480.0	0.00	0.00	5,466.6	-25.0	270.0	-12.8	0.00	0.00	0.00
5,520.0	0.00	0.00	5,506.6	-25.0	270.0	-12.8	0.00	0.00	0.00
5,560.0	0.00	0.00	5,546.6	-25.0	270.0	-12.8	0.00	0.00	0.00
5,600.0	0.00	0.00	5,586.6	-25.0	270.0	-12.8	0.00	0.00	0.00
5,640.0	0.00	0.00	5,626.6	-25.0	270.0	-12.8	0.00	0.00	0.00
5,680.0	0.00	0.00	5,666.6	-25.0	270.0	-12.8	0.00	0.00	0.00
5,720.0	0.00	0.00	5,706.6	-25.0	270.0	-12.8	0.00	0.00	0.00
5,760.0	0.00	0.00	5,746.6	-25.0	270.0	-12.8	0.00	0.00	0.00
5,800.0	0.00	0.00	5,786.6	-25.0	270.0	-12.8	0.00	0.00	0.00
5,840.0	0.00	0.00	5,826.6	-25.0	270.0	-12.8	0.00	0.00	0.00
5,880.0	0.00	0.00	5,866.6	-25.0	270.0	-12.8	0.00	0.00	0.00
5,920.0	0.00	0.00	5,906.6	-25.0	270.0	-12.8	0.00	0.00	0.00
5,960.0	0.00	0.00	5,946.6	-25.0	270.0	-12.8	0.00	0.00	0.00
6,000.0	0.00	0.00	5,986.6	-25.0	270.0	-12.8	0.00	0.00	0.00
6,040.0	0.00	0.00	6,026.6	-25.0	270.0	-12.8	0.00	0.00	0.00
6,067.6	0.00	0.00	6,054.2	-25.0	270.0	-12.8	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Guttersen 31T-441
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4838.0ft (Original Well Elev)
Project:	SEC.31-T3N-R63W	MD Reference:	WELL @ 4838.0ft (Original Well Elev)
Site:	Guttersen 31Q-401 Pad Sec.31-T3N-R63W	North Reference:	True
Well:	Guttersen 31T-441	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	0.93	359.30	6,066.6	-24.9	270.0	-12.7	7.50	7.50	0.00
6,120.0	3.93	359.30	6,106.6	-23.2	270.0	-11.0	7.50	7.50	0.00
6,160.0	6.93	359.30	6,146.4	-19.4	269.9	-7.2	7.50	7.50	0.00
6,200.0	9.93	359.30	6,186.0	-13.6	269.9	-1.4	7.50	7.50	0.00
6,240.0	12.93	359.30	6,225.2	-5.6	269.8	6.5	7.50	7.50	0.00
6,280.0	15.93	359.30	6,263.9	4.3	269.6	16.5	7.50	7.50	0.00
6,320.0	18.93	359.30	6,302.1	16.3	269.5	28.5	7.50	7.50	0.00
6,360.0	21.93	359.30	6,339.5	30.3	269.3	42.4	7.50	7.50	0.00
6,400.0	24.93	359.30	6,376.2	46.2	269.1	58.3	7.50	7.50	0.00
6,440.0	27.93	359.30	6,412.1	64.0	268.9	76.0	7.50	7.50	0.00
6,480.0	30.93	359.30	6,446.9	83.6	268.7	95.7	7.50	7.50	0.00
6,520.0	33.93	359.30	6,480.6	105.1	268.4	117.1	7.50	7.50	0.00
6,560.0	36.93	359.30	6,513.2	128.3	268.1	140.2	7.50	7.50	0.00
6,600.0	39.93	359.30	6,544.6	153.1	267.8	165.0	7.50	7.50	0.00
6,640.0	42.93	359.30	6,574.6	179.6	267.5	191.5	7.50	7.50	0.00
6,680.0	45.93	359.30	6,603.1	207.6	267.2	219.4	7.50	7.50	0.00
6,720.0	48.93	359.30	6,630.2	237.0	266.8	248.8	7.50	7.50	0.00
6,760.0	51.93	359.30	6,655.6	267.9	266.4	279.6	7.50	7.50	0.00
6,800.0	54.93	359.30	6,679.5	300.0	266.0	311.7	7.50	7.50	0.00
6,840.0	57.93	359.30	6,701.6	333.3	265.6	344.9	7.50	7.50	0.00
6,880.0	60.93	359.30	6,721.9	367.7	265.2	379.3	7.50	7.50	0.00
6,920.0	63.93	359.30	6,740.4	403.2	264.8	414.7	7.50	7.50	0.00
6,960.0	66.93	359.30	6,757.1	439.6	264.3	451.0	7.50	7.50	0.00
7,000.0	69.93	359.30	6,771.8	476.7	263.9	488.2	7.50	7.50	0.00
7,040.0	72.93	359.30	6,784.5	514.7	263.4	526.0	7.50	7.50	0.00
7,080.0	75.93	359.30	6,795.3	553.2	262.9	564.5	7.50	7.50	0.00
7,120.0	78.93	359.30	6,804.0	592.2	262.5	603.5	7.50	7.50	0.00
7,160.0	81.93	359.30	6,810.6	631.6	262.0	642.8	7.50	7.50	0.00
7,187.6	84.00	359.30	6,814.0	659.0	261.6	670.2	7.50	7.50	0.00
7"									
7,200.0	84.00	359.30	6,815.3	671.4	261.5	682.5	0.00	0.00	0.00
7,240.0	84.00	359.30	6,819.5	711.1	261.0	722.2	0.00	0.00	0.00
7,261.6	84.00	359.30	6,821.7	732.6	260.7	743.7	0.00	0.00	0.00
7,280.0	84.92	359.30	6,823.5	750.9	260.5	761.9	5.00	5.00	0.00
7,320.0	86.92	359.30	6,826.3	790.8	260.0	801.8	5.00	5.00	0.00
7,360.0	88.92	359.30	6,827.8	830.8	259.5	841.7	5.00	5.00	0.00
7,375.7	89.70	359.30	6,828.0	846.5	259.4	857.3	4.98	4.98	0.00
End of Build									
7,400.0	89.70	359.30	6,828.1	870.8	259.1	881.6	0.00	0.00	0.00
7,440.0	89.70	359.30	6,828.3	910.8	258.6	921.5	0.00	0.00	0.00
7,480.0	89.70	359.30	6,828.5	950.8	258.1	961.5	0.00	0.00	0.00
7,520.0	89.70	359.30	6,828.7	990.8	257.6	1,001.4	0.00	0.00	0.00
7,560.0	89.70	359.30	6,828.9	1,030.8	257.1	1,041.3	0.00	0.00	0.00
7,600.0	89.70	359.30	6,829.2	1,070.8	256.6	1,081.3	0.00	0.00	0.00
7,640.0	89.70	359.30	6,829.4	1,110.8	256.1	1,121.2	0.00	0.00	0.00
7,680.0	89.70	359.30	6,829.6	1,150.8	255.6	1,161.1	0.00	0.00	0.00
7,720.0	89.70	359.30	6,829.8	1,190.8	255.2	1,201.1	0.00	0.00	0.00
7,760.0	89.70	359.30	6,830.0	1,230.8	254.7	1,241.0	0.00	0.00	0.00
7,800.0	89.70	359.30	6,830.2	1,270.8	254.2	1,280.9	0.00	0.00	0.00
7,840.0	89.70	359.30	6,830.4	1,310.8	253.7	1,320.9	0.00	0.00	0.00
7,880.0	89.70	359.30	6,830.6	1,350.8	253.2	1,360.8	0.00	0.00	0.00
7,920.0	89.70	359.30	6,830.8	1,390.8	252.7	1,400.7	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Guttersen 31T-441
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4838.0ft (Original Well Elev)
Project:	SEC.31-T3N-R63W	MD Reference:	WELL @ 4838.0ft (Original Well Elev)
Site:	Guttersen 31Q-401 Pad Sec.31-T3N-R63W	North Reference:	True
Well:	Guttersen 31T-441	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	89.70	359.30	6,831.0	1,430.7	252.2	1,440.7	0.00	0.00	0.00
8,000.0	89.70	359.30	6,831.2	1,470.7	251.7	1,480.6	0.00	0.00	0.00
8,040.0	89.70	359.30	6,831.4	1,510.7	251.2	1,520.5	0.00	0.00	0.00
8,080.0	89.70	359.30	6,831.6	1,550.7	250.8	1,560.5	0.00	0.00	0.00
8,120.0	89.70	359.30	6,831.9	1,590.7	250.3	1,600.4	0.00	0.00	0.00
8,160.0	89.70	359.30	6,832.1	1,630.7	249.8	1,640.3	0.00	0.00	0.00
8,200.0	89.70	359.30	6,832.3	1,670.7	249.3	1,680.3	0.00	0.00	0.00
8,240.0	89.70	359.30	6,832.5	1,710.7	248.8	1,720.2	0.00	0.00	0.00
8,280.0	89.70	359.30	6,832.7	1,750.7	248.3	1,760.1	0.00	0.00	0.00
8,320.0	89.70	359.30	6,832.9	1,790.7	247.8	1,800.1	0.00	0.00	0.00
8,360.0	89.70	359.30	6,833.1	1,830.7	247.3	1,840.0	0.00	0.00	0.00
8,400.0	89.70	359.30	6,833.3	1,870.7	246.9	1,879.9	0.00	0.00	0.00
8,440.0	89.70	359.30	6,833.5	1,910.7	246.4	1,919.9	0.00	0.00	0.00
8,480.0	89.70	359.30	6,833.7	1,950.7	245.9	1,959.8	0.00	0.00	0.00
8,520.0	89.70	359.30	6,833.9	1,990.7	245.4	1,999.7	0.00	0.00	0.00
8,560.0	89.70	359.30	6,834.1	2,030.7	244.9	2,039.7	0.00	0.00	0.00
8,600.0	89.70	359.30	6,834.3	2,070.7	244.4	2,079.6	0.00	0.00	0.00
8,640.0	89.70	359.30	6,834.6	2,110.7	243.9	2,119.5	0.00	0.00	0.00
8,680.0	89.70	359.30	6,834.8	2,150.7	243.4	2,159.5	0.00	0.00	0.00
8,720.0	89.70	359.30	6,835.0	2,190.7	243.0	2,199.4	0.00	0.00	0.00
8,760.0	89.70	359.30	6,835.2	2,230.7	242.5	2,239.3	0.00	0.00	0.00
8,800.0	89.70	359.30	6,835.4	2,270.7	242.0	2,279.3	0.00	0.00	0.00
8,840.0	89.70	359.30	6,835.6	2,310.7	241.5	2,319.2	0.00	0.00	0.00
8,880.0	89.70	359.30	6,835.8	2,350.7	241.0	2,359.1	0.00	0.00	0.00
8,920.0	89.70	359.30	6,836.0	2,390.7	240.5	2,399.1	0.00	0.00	0.00
8,960.0	89.70	359.30	6,836.2	2,430.7	240.0	2,439.0	0.00	0.00	0.00
9,000.0	89.70	359.30	6,836.4	2,470.7	239.5	2,478.9	0.00	0.00	0.00
9,040.0	89.70	359.30	6,836.6	2,510.7	239.0	2,518.9	0.00	0.00	0.00
9,080.0	89.70	359.30	6,836.8	2,550.6	238.6	2,558.8	0.00	0.00	0.00
9,120.0	89.70	359.30	6,837.0	2,590.6	238.1	2,598.8	0.00	0.00	0.00
9,160.0	89.70	359.30	6,837.3	2,630.6	237.6	2,638.7	0.00	0.00	0.00
9,200.0	89.70	359.30	6,837.5	2,670.6	237.1	2,678.6	0.00	0.00	0.00
9,240.0	89.70	359.30	6,837.7	2,710.6	236.6	2,718.6	0.00	0.00	0.00
9,280.0	89.70	359.30	6,837.9	2,750.6	236.1	2,758.5	0.00	0.00	0.00
9,320.0	89.70	359.30	6,838.1	2,790.6	235.6	2,798.4	0.00	0.00	0.00
9,360.0	89.70	359.30	6,838.3	2,830.6	235.1	2,838.4	0.00	0.00	0.00
9,400.0	89.70	359.30	6,838.5	2,870.6	234.7	2,878.3	0.00	0.00	0.00
9,440.0	89.70	359.30	6,838.7	2,910.6	234.2	2,918.2	0.00	0.00	0.00
9,480.0	89.70	359.30	6,838.9	2,950.6	233.7	2,958.2	0.00	0.00	0.00
9,520.0	89.70	359.30	6,839.1	2,990.6	233.2	2,998.1	0.00	0.00	0.00
9,560.0	89.70	359.30	6,839.3	3,030.6	232.7	3,038.0	0.00	0.00	0.00
9,600.0	89.70	359.30	6,839.5	3,070.6	232.2	3,078.0	0.00	0.00	0.00
9,640.0	89.70	359.30	6,839.7	3,110.6	231.7	3,117.9	0.00	0.00	0.00
9,680.0	89.70	359.30	6,840.0	3,150.6	231.2	3,157.8	0.00	0.00	0.00
9,720.0	89.70	359.30	6,840.2	3,190.6	230.8	3,197.8	0.00	0.00	0.00
9,760.0	89.70	359.30	6,840.4	3,230.6	230.3	3,237.7	0.00	0.00	0.00
9,800.0	89.70	359.30	6,840.6	3,270.6	229.8	3,277.6	0.00	0.00	0.00
9,840.0	89.70	359.30	6,840.8	3,310.6	229.3	3,317.6	0.00	0.00	0.00
9,880.0	89.70	359.30	6,841.0	3,350.6	228.8	3,357.5	0.00	0.00	0.00
9,920.0	89.70	359.30	6,841.2	3,390.6	228.3	3,397.4	0.00	0.00	0.00
9,960.0	89.70	359.30	6,841.4	3,430.6	227.8	3,437.4	0.00	0.00	0.00
10,000.0	89.70	359.30	6,841.6	3,470.6	227.3	3,477.3	0.00	0.00	0.00
10,040.0	89.70	359.30	6,841.8	3,510.6	226.8	3,517.2	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Guttersen 31T-441
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4838.0ft (Original Well Elev)
Project:	SEC.31-T3N-R63W	MD Reference:	WELL @ 4838.0ft (Original Well Elev)
Site:	Guttersen 31Q-401 Pad Sec.31-T3N-R63W	North Reference:	True
Well:	Guttersen 31T-441	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	89.70	359.30	6,842.0	3,550.6	226.4	3,557.2	0.00	0.00	0.00
10,120.0	89.70	359.30	6,842.2	3,590.6	225.9	3,597.1	0.00	0.00	0.00
10,160.0	89.70	359.30	6,842.4	3,630.6	225.4	3,637.0	0.00	0.00	0.00
10,200.0	89.70	359.30	6,842.7	3,670.6	224.9	3,677.0	0.00	0.00	0.00
10,240.0	89.70	359.30	6,842.9	3,710.5	224.4	3,716.9	0.00	0.00	0.00
10,280.0	89.70	359.30	6,843.1	3,750.5	223.9	3,756.8	0.00	0.00	0.00
10,320.0	89.70	359.30	6,843.3	3,790.5	223.4	3,796.8	0.00	0.00	0.00
10,360.0	89.70	359.30	6,843.5	3,830.5	222.9	3,836.7	0.00	0.00	0.00
10,400.0	89.70	359.30	6,843.7	3,870.5	222.5	3,876.6	0.00	0.00	0.00
10,440.0	89.70	359.30	6,843.9	3,910.5	222.0	3,916.6	0.00	0.00	0.00
10,480.0	89.70	359.30	6,844.1	3,950.5	221.5	3,956.5	0.00	0.00	0.00
10,520.0	89.70	359.30	6,844.3	3,990.5	221.0	3,996.4	0.00	0.00	0.00
10,560.0	89.70	359.30	6,844.5	4,030.5	220.5	4,036.4	0.00	0.00	0.00
10,600.0	89.70	359.30	6,844.7	4,070.5	220.0	4,076.3	0.00	0.00	0.00
10,640.0	89.70	359.30	6,844.9	4,110.5	219.5	4,116.2	0.00	0.00	0.00
10,680.0	89.70	359.30	6,845.1	4,150.5	219.0	4,156.2	0.00	0.00	0.00
10,720.0	89.70	359.30	6,845.4	4,190.5	218.6	4,196.1	0.00	0.00	0.00
10,760.0	89.70	359.30	6,845.6	4,230.5	218.1	4,236.0	0.00	0.00	0.00
10,800.0	89.70	359.30	6,845.8	4,270.5	217.6	4,276.0	0.00	0.00	0.00
10,840.0	89.70	359.30	6,846.0	4,310.5	217.1	4,315.9	0.00	0.00	0.00
10,880.0	89.70	359.30	6,846.2	4,350.5	216.6	4,355.8	0.00	0.00	0.00
10,920.0	89.70	359.30	6,846.4	4,390.5	216.1	4,395.8	0.00	0.00	0.00
10,960.0	89.70	359.30	6,846.6	4,430.5	215.6	4,435.7	0.00	0.00	0.00
11,000.0	89.70	359.30	6,846.8	4,470.5	215.1	4,475.6	0.00	0.00	0.00
11,040.0	89.70	359.30	6,847.0	4,510.5	214.6	4,515.6	0.00	0.00	0.00
11,080.0	89.70	359.30	6,847.2	4,550.5	214.2	4,555.5	0.00	0.00	0.00
11,120.0	89.70	359.30	6,847.4	4,590.5	213.7	4,595.4	0.00	0.00	0.00
11,160.0	89.70	359.30	6,847.6	4,630.5	213.2	4,635.4	0.00	0.00	0.00
11,200.0	89.70	359.30	6,847.8	4,670.5	212.7	4,675.3	0.00	0.00	0.00
11,229.0	89.70	359.30	6,848.0	4,699.5	212.3	4,704.3	0.00	0.00	0.00
BHL 500'FNL, 1849'FEL									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,187.6	6,814.0	7"	7	8-3/4

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,000.0	1,000.0	0.0	0.0	KOP #1
6,067.6	6,054.2	-25.0	270.0	KOP #2
7,375.7	6,828.0	846.5	259.4	End of Build



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.31-T3N-R63W

Guttersen 31Q-401 Pad Sec.31-T3N-R63W

Guttersen 31T-441

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 31T-441
Project:	SEC.31-T3N-R63W	TVD Reference:	WELL @ 4838.0ft (Original Well Elev)
Reference Site:	Guttersten 31Q-401 Pad Sec.31-T3N-R63W	MD Reference:	WELL @ 4838.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Guttersten 31T-441	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:	Reference Datum

Reference	Plan #1 (5-31-13)		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	TVD + Stations 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 5/31/2013			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	11,228.4	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						
Guttersten 31Q-401 Pad Sec.31-T3N-R63W						
Guttersten 31Q-221 - Wellbore #1 - Plan #1 (5-31-13)	1,000.0	1,000.0	30.7	26.5	7.198	CC, ES
Guttersten 31Q-221 - Wellbore #1 - Plan #1 (5-31-13)	1,100.0	1,100.0	32.0	27.3	6.811	SF
Guttersten 31Q-401 - Wellbore #1 - Plan #1 (5-31-13)	1,000.0	1,000.0	61.5	57.2	14.396	CC, ES
Guttersten 31Q-401 - Wellbore #1 - Plan #1 (5-31-13)	11,229.4	11,221.6	589.5	475.2	5.156	SF
Guttersten 31T-201 - Wellbore #1 - Plan #1 (5-31-13)	200.0	200.0	30.7	30.1	45.587	CC, ES
Guttersten 31T-201 - Wellbore #1 - Plan #1 (5-31-13)	11,200.0	11,066.9	422.6	351.3	5.928	SF
Guttersten 33-31 (Exist.) - Wellbore #1 - Wellbore #1	8,425.4	6,833.4	146.0	-17.2	0.894	Level 1, CC, ES, SF

Offset Design Guttersten 31Q-401 Pad Sec.31-T3N-R63W - Guttersten 31Q-221 - Wellbore #1 - Plan #1 (5-31-13)											
Survey Program: 0-MWD											
Offset Site Error: 0.0ft											
Offset Well Error: 0.0ft											
Reference	Offset	Semi Major Axis		Distance		Minimum Separation		Separation Factor		Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-90.01	0.0	-30.7	30.7		
100.0	100.0	100.0	100.0	0.1	0.1	-90.01	0.0	-30.7	30.7	30.5	0.22 136.761
200.0	200.0	200.0	200.0	0.3	0.3	-90.01	0.0	-30.7	30.7	30.1	0.67 45.587
300.0	300.0	300.0	300.0	0.6	0.6	-90.01	0.0	-30.7	30.7	29.6	1.12 27.352
400.0	400.0	400.0	400.0	0.8	0.8	-90.01	0.0	-30.7	30.7	29.2	1.57 19.537
500.0	500.0	500.0	500.0	1.0	1.0	-90.01	0.0	-30.7	30.7	28.7	2.02 15.196
600.0	600.0	600.0	600.0	1.2	1.2	-90.01	0.0	-30.7	30.7	28.3	2.47 12.433
700.0	700.0	700.0	700.0	1.5	1.5	-90.01	0.0	-30.7	30.7	27.8	2.92 10.520
800.0	800.0	800.0	800.0	1.7	1.7	-90.01	0.0	-30.7	30.7	27.4	3.37 9.117
900.0	900.0	900.0	900.0	1.9	1.9	-90.01	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	-90.01	0.0	-30.7	30.7	26.5	4.27 7.198 CC, ES
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.4	174.92	0.0	-30.7	32.0	27.3	4.70 6.811 SF
1,200.0	1,199.9	1,199.9	1,199.9	2.5	2.6	175.47	0.0	-30.7	36.0	30.8	5.12 7.016
1,300.0	1,299.7	1,299.7	1,299.7	2.8	2.8	176.16	0.0	-30.7	42.5	36.9	5.55 7.659
1,396.4	1,395.7	1,395.7	1,395.7	3.0	3.0	176.81	0.0	-30.7	51.2	45.3	5.95 8.607
1,400.0	1,399.3	1,399.3	1,399.3	3.0	3.0	176.83	0.0	-30.7	51.6	45.6	5.97 8.647
1,500.0	1,498.7	1,498.7	1,498.7	3.2	3.3	177.36	0.0	-30.7	62.0	55.6	6.40 9.678
1,600.0	1,598.2	1,598.2	1,598.2	3.5	3.5	177.74	0.0	-30.7	72.3	65.5	6.84 10.574
1,700.0	1,697.7	1,697.7	1,697.7	3.7	3.7	178.02	0.0	-30.7	82.7	75.4	7.28 11.358
1,800.0	1,797.1	1,797.1	1,797.1	4.0	3.9	178.24	0.0	-30.7	93.0	85.3	7.72 12.050

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

Offset Design Guttersen 31Q-401 Pad Sec.31-T3N-R63W - Guttersen 31Q-221 - Wellbore #1 - Plan #1 (5-31-13)													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 +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
1,900.0	1,896.6	1,896.6	1,896.6	4.3	4.2	178.42	0.0	-30.7	103.4	95.2	8.16	12.664		
2,000.0	1,996.0	1,996.0	1,996.0	4.5	4.4	178.56	0.0	-30.7	113.7	105.1	8.61	13.212		
2,100.0	2,095.5	2,095.5	2,095.5	4.8	4.6	178.68	0.0	-30.7	124.1	115.0	9.05	13.704		
2,200.0	2,195.0	2,195.0	2,195.0	5.1	4.8	178.78	0.0	-30.7	134.4	124.9	9.50	14.148		
2,300.0	2,294.4	2,294.4	2,294.4	5.4	5.0	178.87	0.0	-30.7	144.8	134.8	9.95	14.550		
2,400.0	2,393.9	2,393.9	2,393.9	5.6	5.3	178.95	0.0	-30.7	155.2	144.8	10.40	14.917		
2,500.0	2,493.4	2,493.4	2,493.4	5.9	5.5	179.01	0.0	-30.7	165.5	154.7	10.85	15.252		
2,600.0	2,592.8	2,592.8	2,592.8	6.2	5.7	179.07	0.0	-30.7	175.9	164.6	11.30	15.559		
2,700.0	2,692.3	2,692.3	2,692.3	6.5	5.9	179.12	0.0	-30.7	186.2	174.5	11.76	15.842		
2,800.0	2,791.7	2,791.7	2,791.7	6.8	6.2	179.17	0.0	-30.7	196.6	184.4	12.21	16.104		
2,900.0	2,891.2	2,891.2	2,891.2	7.1	6.4	179.21	0.0	-30.7	207.0	194.3	12.66	16.346		
3,000.0	2,990.7	2,990.7	2,990.7	7.4	6.6	179.25	0.0	-30.7	217.3	204.2	13.11	16.570		
3,100.0	3,090.1	3,085.6	3,085.6	7.6	6.8	179.16	-0.4	-31.6	228.6	215.0	13.54	16.878		
3,200.0	3,189.6	3,179.6	3,179.6	7.9	7.0	178.82	-1.7	-34.6	242.0	228.0	13.95	17.342		
3,300.0	3,289.0	3,273.0	3,272.8	8.2	7.2	178.28	-4.0	-39.6	257.5	243.1	14.36	17.931		
3,400.0	3,388.5	3,365.6	3,365.1	8.5	7.3	177.58	-7.1	-46.7	275.2	260.4	14.77	18.632		
3,500.0	3,488.0	3,463.4	3,462.4	8.8	7.5	176.81	-11.0	-55.3	294.1	278.9	15.19	19.359		
3,600.0	3,587.4	3,561.5	3,560.1	9.1	7.8	176.13	-14.9	-64.0	313.1	297.5	15.62	20.046		
3,616.9	3,604.3	3,578.2	3,576.6	9.1	7.8	176.03	-15.5	-65.5	316.3	300.6	15.69	20.159		
3,700.0	3,687.0	3,662.2	3,660.3	9.4	8.0	175.53	-18.8	-72.8	331.1	315.1	16.05	20.630		
3,800.0	3,786.7	3,769.9	3,767.6	9.6	8.2	175.08	-22.1	-80.2	344.8	328.3	16.47	20.929		
3,900.0	3,886.6	3,878.6	3,876.2	9.7	8.4	174.81	-24.2	-84.8	353.3	336.4	16.89	20.917		
4,000.0	3,986.6	3,987.8	3,985.4	9.9	8.6	174.71	-25.0	-86.6	356.6	339.3	17.28	20.634		
4,013.4	4,000.0	4,002.4	4,000.0	9.9	8.7	-90.00	-25.0	-86.6	356.6	339.3	17.31	20.598		
4,013.4	4,000.0	4,002.4	4,000.0	9.9	8.7	-90.00	-25.0	-86.6	356.6	339.3	17.31	20.598		
4,100.0	4,086.6	4,089.0	4,086.6	10.1	8.8	-90.00	-25.0	-86.6	356.6	339.0	17.66	20.194		
4,200.0	4,186.6	4,189.0	4,186.6	10.3	9.1	-90.00	-25.0	-86.6	356.6	338.5	18.09	19.719		
4,300.0	4,286.6	4,289.0	4,286.6	10.5	9.3	-90.00	-25.0	-86.6	356.6	338.1	18.51	19.262		
4,400.0	4,386.6	4,389.0	4,386.6	10.6	9.5	-90.00	-25.0	-86.6	356.6	337.7	18.94	18.825		
4,500.0	4,486.6	4,489.0	4,486.6	10.8	9.7	-90.00	-25.0	-86.6	356.6	337.2	19.37	18.406		
4,600.0	4,586.6	4,589.0	4,586.6	11.0	10.0	-90.00	-25.0	-86.6	356.6	336.8	19.81	18.005		
4,700.0	4,686.6	4,689.0	4,686.6	11.2	10.2	-90.00	-25.0	-86.6	356.6	336.4	20.24	17.621		
4,800.0	4,786.6	4,789.0	4,786.6	11.4	10.4	-90.00	-25.0	-86.6	356.6	335.9	20.67	17.251		
4,900.0	4,886.6	4,889.0	4,886.6	11.6	10.6	-90.00	-25.0	-86.6	356.6	335.5	21.11	16.897		
5,000.0	4,986.6	4,989.0	4,986.6	11.8	10.8	-90.00	-25.0	-86.6	356.6	335.1	21.54	16.556		
5,100.0	5,086.6	5,089.0	5,086.6	12.0	11.1	-90.00	-25.0	-86.6	356.6	334.6	21.97	16.228		
5,200.0	5,186.6	5,189.0	5,186.6	12.2	11.3	-90.00	-25.0	-86.6	356.6	334.2	22.41	15.913		
5,300.0	5,286.6	5,289.0	5,286.6	12.4	11.5	-90.00	-25.0	-86.6	356.6	333.8	22.85	15.609		
5,400.0	5,386.6	5,389.0	5,386.6	12.6	11.7	-90.00	-25.0	-86.6	356.6	333.3	23.28	15.317		
5,500.0	5,486.6	5,489.0	5,486.6	12.8	12.0	-90.00	-25.0	-86.6	356.6	332.9	23.72	15.034		
5,600.0	5,586.6	5,589.0	5,586.6	13.0	12.2	-90.00	-25.0	-86.6	356.6	332.5	24.16	14.762		
5,700.0	5,686.6	5,689.0	5,686.6	13.2	12.4	-90.00	-25.0	-86.6	356.6	332.0	24.60	14.499		
5,800.0	5,786.6	5,789.0	5,786.6	13.4	12.6	-90.00	-25.0	-86.6	356.6	331.6	25.03	14.245		
5,900.0	5,886.6	5,889.0	5,886.6	13.6	12.9	-90.00	-25.0	-86.6	356.6	331.1	25.47	14.000		
5,932.3	5,918.9	5,921.3	5,918.9	13.7	12.9	-89.94	-24.6	-86.6	356.6	331.0	25.61	13.923		
6,000.0	5,986.6	5,988.6	5,986.0	13.8	13.1	-89.11	-19.5	-86.6	356.7	330.8	25.90	13.769		
6,067.6	6,054.2	6,054.3	6,050.8	13.9	13.2	-87.39	-8.8	-86.6	357.0	330.8	26.18	13.634		
6,100.0	6,086.6	6,085.2	6,080.9	14.0	13.3	-85.65	-1.8	-86.6	357.4	331.1	26.31	13.581		
6,150.0	6,136.5	6,132.5	6,126.3	14.1	13.4	-84.08	11.2	-86.6	358.1	331.6	26.51	13.508		
6,200.0	6,186.0	6,179.2	6,170.4	14.2	13.5	-82.54	26.7	-86.6	359.1	332.4	26.70	13.447		
6,250.0	6,234.9	6,225.3	6,212.9	14.3	13.6	-81.04	44.7	-86.6	360.2	333.4	26.89	13.397		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Guttersen 31T-441
Project:	SEC.31-T3N-R63W	TVD Reference:	WELL @ 4838.0ft (Original Well Elev)
Reference Site:	Guttersen 31Q-401 Pad Sec.31-T3N-R63W	MD Reference:	WELL @ 4838.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Guttersen 31T-441	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:	Reference Datum

Offset Design Guttersen 31Q-401 Pad Sec.31-T3N-R63W - Guttersen 31Q-221 - Wellbore #1 - Plan #1 (5-31-13)													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)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
6,300.0	6,283.1	6,271.0	6,253.8	14.4	13.7	-79.59		65.0	-86.6	361.6	334.5	27.07	13.357	
6,350.0	6,330.2	6,316.2	6,293.0	14.5	13.8	-78.20		87.4	-86.6	363.1	335.8	27.24	13.327	
6,400.0	6,376.2	6,361.0	6,330.5	14.6	13.9	-76.87		111.9	-86.6	364.6	337.2	27.41	13.306	
6,450.0	6,420.9	6,405.4	6,366.2	14.7	14.1	-75.59		138.3	-86.6	366.3	338.8	27.56	13.293	
6,500.0	6,463.9	6,450.0	6,400.4	14.8	14.2	-74.37		166.9	-86.6	368.1	340.4	27.70	13.288	
6,550.0	6,505.2	6,493.0	6,431.9	14.9	14.4	-73.25		196.3	-86.6	369.8	342.0	27.82	13.290	
6,600.0	6,544.6	6,536.4	6,461.8	15.1	14.6	-72.18		227.7	-86.6	371.5	343.6	27.94	13.298	
6,650.0	6,581.8	6,579.5	6,489.7	15.2	14.9	-71.18		260.5	-86.6	373.3	345.2	28.04	13.310	
6,675.5	6,600.0	6,600.0	6,502.3	15.3	15.0	-70.73		276.7	-86.6	374.1	346.0	28.09	13.319	
6,700.0	6,616.8	6,622.3	6,515.5	15.4	15.2	-70.26		294.6	-86.6	374.9	346.8	28.13	13.326	
6,750.0	6,649.4	6,664.8	6,539.3	15.6	15.4	-69.42		329.9	-86.6	376.4	348.2	28.21	13.344	
6,800.0	6,679.5	6,707.1	6,561.0	15.9	15.8	-68.65		366.2	-86.6	377.9	349.6	28.28	13.361	
6,837.0	6,700.0	6,738.3	6,575.6	16.1	16.0	-68.13		393.8	-86.6	378.9	350.5	28.34	13.370	
6,850.0	6,706.8	6,750.0	6,580.8	16.2	16.1	-67.95		404.2	-86.6	379.2	350.8	28.35	13.376	
6,900.0	6,731.4	6,791.2	6,597.9	16.6	16.5	-67.34		441.7	-86.6	380.3	351.9	28.42	13.383	
6,950.0	6,753.1	6,833.0	6,613.1	17.0	16.9	-66.81		480.7	-86.6	381.3	352.8	28.49	13.383	
7,000.0	6,771.8	6,874.7	6,626.1	17.5	17.3	-66.35		520.3	-86.6	382.1	353.5	28.57	13.371	
7,050.0	6,787.4	6,916.3	6,636.9	18.0	17.8	-65.97		560.4	-86.6	382.6	353.9	28.67	13.347	
7,100.0	6,799.9	6,957.8	6,645.5	18.5	18.3	-65.67		601.0	-86.6	383.0	354.2	28.78	13.306	
7,100.6	6,800.0	6,958.3	6,645.6	18.5	18.3	-65.67		601.5	-86.6	383.0	354.2	28.78	13.305	
7,150.0	6,809.1	7,000.0	6,652.0	19.1	18.8	-65.45		642.7	-86.6	383.1	354.2	28.92	13.245	
7,187.6	6,814.0	7,030.3	6,655.2	19.5	19.2	-65.34		672.8	-86.6	383.0	354.0	29.05	13.185	
7,195.4	6,814.8	7,036.8	6,655.7	19.6	19.2	-65.31		679.3	-86.6	383.0	353.9	29.09	13.165	
7,200.0	6,815.3	7,040.6	6,656.0	19.7	19.3	-65.30		683.1	-86.6	383.0	353.9	29.12	13.154	
7,261.6	6,821.7	7,091.3	6,658.0	20.5	19.9	-64.81		733.7	-86.6	384.0	354.6	29.39	13.067	
7,300.0	6,825.1	7,126.7	6,657.8	21.0	20.4	-64.28		769.2	-86.6	385.1	355.7	29.44	13.083	
7,375.7	6,828.0	7,202.3	6,657.0	22.0	21.4	-63.70		844.7	-86.6	385.9	356.2	29.68	13.002	
7,400.0	6,828.1	7,226.6	6,656.8	22.4	21.8	-63.63		869.1	-86.6	385.8	356.0	29.85	12.924	
7,500.0	6,828.6	7,326.6	6,655.8	23.8	23.3	-63.35		969.0	-86.6	385.4	354.8	30.56	12.612	
7,600.0	6,829.2	7,426.6	6,654.8	25.3	24.8	-63.06		1,069.0	-86.6	385.0	353.7	31.32	12.294	
7,700.0	6,829.7	7,526.6	6,653.7	26.9	26.4	-62.78		1,169.0	-86.6	384.6	352.5	32.12	11.976	
7,800.0	6,830.2	7,626.6	6,652.7	28.5	28.0	-62.49		1,269.0	-86.6	384.2	351.3	32.95	11.662	
7,900.0	6,830.7	7,726.5	6,651.7	30.1	29.6	-62.20		1,368.9	-86.6	383.9	350.1	33.80	11.356	
8,000.0	6,831.2	7,826.5	6,650.7	31.8	31.3	-61.92		1,468.9	-86.6	383.5	348.8	34.68	11.059	
8,100.0	6,831.7	7,926.5	6,649.7	33.5	33.0	-61.63		1,568.9	-86.6	383.2	347.6	35.57	10.773	
8,200.0	6,832.3	8,026.5	6,648.7	35.2	34.8	-61.34		1,668.9	-86.6	382.8	346.4	36.46	10.499	
8,300.0	6,832.8	8,126.5	6,647.7	37.0	36.5	-61.05		1,768.8	-86.6	382.5	345.1	37.36	10.239	
8,400.0	6,833.3	8,226.4	6,646.7	38.8	38.3	-60.76		1,868.8	-86.6	382.2	343.9	38.25	9.992	
8,500.0	6,833.8	8,326.4	6,645.6	40.5	40.1	-60.47		1,968.8	-86.6	381.8	342.7	39.13	9.758	
8,600.0	6,834.3	8,426.4	6,644.6	42.3	41.9	-60.18		2,068.8	-86.6	381.5	341.5	40.00	9.538	
8,700.0	6,834.9	8,526.4	6,643.6	44.1	43.7	-59.89		2,168.7	-86.6	381.3	340.4	40.86	9.332	
8,800.0	6,835.4	8,626.4	6,642.6	45.9	45.5	-59.60		2,268.7	-86.6	381.0	339.3	41.69	9.138	
8,900.0	6,835.9	8,726.3	6,641.6	47.7	47.3	-59.31		2,368.7	-86.6	380.7	338.2	42.50	8.957	
9,000.0	6,836.4	8,826.3	6,640.6	49.6	49.1	-59.02		2,468.7	-86.6	380.4	337.1	43.29	8.788	
9,100.0	6,836.9	8,926.3	6,639.6	51.4	51.0	-58.72		2,568.6	-86.6	380.2	336.1	44.05	8.632	
9,200.0	6,837.5	9,026.3	6,638.6	53.2	52.8	-58.43		2,668.6	-86.6	379.9	335.2	44.77	8.486	
9,300.0	6,838.0	9,126.3	6,637.5	55.1	54.7	-58.14		2,768.6	-86.6	379.7	334.3	45.46	8.353	
9,400.0	6,838.5	9,226.2	6,636.5	56.9	56.5	-57.84		2,868.6	-86.6	379.5	333.4	46.11	8.230	
9,500.0	6,839.0	9,326.2	6,635.5	58.8	58.4	-57.55		2,968.6	-86.6	379.3	332.6	46.72	8.117	
9,600.0	6,839.5	9,426.2	6,634.5	60.7	60.2	-57.26		3,068.5	-86.6	379.1	331.8	47.29	8.016	
9,700.0	6,840.1	9,526.2	6,633.5	62.5	62.1	-56.96		3,168.5	-86.6	378.9	331.1	47.81	7.924	

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 31T-441
Project:	SEC.31-T3N-R63W	TVD Reference:	WELL @ 4838.0ft (Original Well Elev)
Reference Site:	Guttersen 31Q-401 Pad Sec.31-T3N-R63W	MD Reference:	WELL @ 4838.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Guttersen 31T-441	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:	Reference Datum

Offset Design Guttersen 31Q-401 Pad Sec.31-T3N-R63W - Guttersen 31Q-221 - Wellbore #1 - Plan #1 (5-31-13)													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)	Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning	
Reference	Offset	Reference	Offset	(ft)	(ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
9,800.0	6,840.6	9,626.2	6,632.5	64.4	64.0	-56.67	3,268.5	-86.6	378.7	330.4	48.29	7.843		
9,900.0	6,841.1	9,726.1	6,631.5	66.2	65.8	-56.37	3,368.5	-86.6	378.5	329.8	48.71	7.771		
10,000.0	6,841.6	9,826.1	6,630.5	68.1	67.7	-56.08	3,468.4	-86.6	378.4	329.3	49.08	7.709		
10,100.0	6,842.1	9,926.1	6,629.4	70.0	69.6	-55.78	3,568.4	-86.6	378.2	328.8	49.39	7.658		
10,200.0	6,842.7	10,026.1	6,628.4	71.9	71.4	-55.48	3,668.4	-86.6	378.1	328.4	49.64	7.616		
10,300.0	6,843.2	10,126.1	6,627.4	73.8	73.3	-55.19	3,768.4	-86.6	377.9	328.1	49.83	7.585		
10,400.0	6,843.7	10,226.1	6,626.4	75.6	75.2	-54.89	3,868.3	-86.6	377.8	327.9	49.95	7.564		
10,500.0	6,844.2	10,326.0	6,625.4	77.5	77.1	-54.60	3,968.3	-86.6	377.7	327.7	50.00	7.554		
10,600.0	6,844.7	10,426.0	6,624.4	79.4	79.0	-54.30	4,068.3	-86.6	377.6	327.6	49.97	7.556		
10,700.0	6,845.3	10,526.0	6,623.4	81.3	80.9	-54.00	4,168.3	-86.6	377.5	327.6	49.87	7.570		
10,800.0	6,845.8	10,626.0	6,622.4	83.2	82.7	-53.71	4,268.2	-86.6	377.4	327.7	49.68	7.597		
10,900.0	6,846.3	10,726.0	6,621.4	85.1	84.6	-53.41	4,368.2	-86.6	377.4	327.9	49.41	7.638		
11,000.0	6,846.8	10,825.9	6,620.3	87.0	86.5	-53.11	4,468.2	-86.6	377.3	328.3	49.04	7.694		
11,100.0	6,847.3	10,925.9	6,619.3	88.9	88.4	-52.81	4,568.2	-86.6	377.2	328.7	48.57	7.767		
11,200.0	6,847.8	11,025.9	6,618.3	90.8	90.3	-52.52	4,668.1	-86.6	377.2	329.2	47.99	7.860		
11,229.0	6,848.0	11,054.9	6,618.0	91.2	90.9	-52.43	4,697.1	-86.6	377.2	329.7	47.49	7.942		
11,229.4	6,848.0	11,055.3	6,618.0	91.2	90.9	-52.43	4,697.5	-86.6	377.2	329.7	47.48	7.944		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Guttersen 31T-441
Project:	SEC.31-T3N-R63W	TVD Reference:	WELL @ 4838.0ft (Original Well Elev)
Reference Site:	Guttersen 31Q-401 Pad Sec.31-T3N-R63W	MD Reference:	WELL @ 4838.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Guttersen 31T-441	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:	Reference Datum

Offset Design Guttersen 31Q-401 Pad Sec.31-T3N-R63W - Guttersen 31Q-401 - Wellbore #1 - Plan #1 (5-31-13)													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 (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
0.0	0.0	0.0	0.0	0.0	0.0	-90.00	-90.00	0.0	-61.5	61.5				
100.0	100.0	100.0	100.0	0.1	0.1	-90.00	-90.00	0.0	-61.5	61.5	61.3	0.22	273.522	
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	-90.00	0.0	-61.5	61.5	60.8	0.67	91.174	
300.0	300.0	300.0	300.0	0.6	0.6	-90.00	-90.00	0.0	-61.5	61.5	60.4	1.12	54.704	
400.0	400.0	400.0	400.0	0.8	0.8	-90.00	-90.00	0.0	-61.5	61.5	59.9	1.57	39.075	
500.0	500.0	500.0	500.0	1.0	1.0	-90.00	-90.00	0.0	-61.5	61.5	59.5	2.02	30.391	
600.0	600.0	600.0	600.0	1.2	1.2	-90.00	-90.00	0.0	-61.5	61.5	59.0	2.47	24.866	
700.0	700.0	700.0	700.0	1.5	1.5	-90.00	-90.00	0.0	-61.5	61.5	58.6	2.92	21.040	
800.0	800.0	800.0	800.0	1.7	1.7	-90.00	-90.00	0.0	-61.5	61.5	58.1	3.37	18.235	
900.0	900.0	900.0	900.0	1.9	1.9	-90.00	-90.00	0.0	-61.5	61.5	57.7	3.82	16.090	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-90.00	-90.00	0.0	-61.5	61.5	57.2	4.27	14.396 CC, ES	
1,100.0	1,100.0	1,098.4	1,098.3	2.3	2.3	174.71	174.71	-0.1	-62.7	64.1	59.4	4.69	13.670	
1,200.0	1,199.9	1,196.3	1,196.2	2.5	2.5	174.69	174.69	-0.5	-66.5	71.8	66.7	5.08	14.133	
1,300.0	1,299.7	1,293.5	1,293.2	2.8	2.7	174.67	174.67	-1.1	-72.7	84.7	79.2	5.48	15.445	
1,396.4	1,395.7	1,386.3	1,385.6	3.0	3.0	174.65	174.65	-1.9	-80.9	101.9	96.0	5.87	17.342	
1,400.0	1,399.3	1,389.8	1,389.1	3.0	3.0	174.65	174.65	-1.9	-81.2	102.6	96.7	5.89	17.419	
1,500.0	1,498.7	1,487.7	1,486.6	3.2	3.2	174.66	174.66	-2.8	-91.0	122.7	116.4	6.30	19.469	
1,600.0	1,598.2	1,585.7	1,584.0	3.5	3.4	174.66	174.66	-3.8	-100.7	142.8	136.1	6.72	21.251	
1,700.0	1,697.7	1,683.6	1,681.5	3.7	3.7	174.67	174.67	-4.7	-110.4	163.0	155.8	7.15	22.806	
1,800.0	1,797.1	1,781.6	1,779.0	4.0	3.9	174.67	174.67	-5.6	-120.1	183.1	175.5	7.58	24.171	
1,900.0	1,896.6	1,879.5	1,876.4	4.3	4.2	174.67	174.67	-6.5	-129.8	203.2	195.2	8.01	25.375	
2,000.0	1,996.0	1,977.5	1,973.9	4.5	4.5	174.67	174.67	-7.5	-139.5	223.4	214.9	8.45	26.447	
2,100.0	2,095.5	2,075.4	2,071.4	4.8	4.7	174.68	174.68	-8.4	-149.3	243.5	234.6	8.89	27.403	
2,200.0	2,195.0	2,173.4	2,168.8	5.1	5.0	174.68	174.68	-9.3	-159.0	263.6	254.3	9.33	28.262	
2,300.0	2,294.4	2,271.3	2,266.3	5.4	5.3	174.68	174.68	-10.3	-168.7	283.8	274.0	9.77	29.037	
2,400.0	2,393.9	2,369.3	2,363.7	5.6	5.5	174.68	174.68	-11.2	-178.4	303.9	293.7	10.22	29.739	
2,500.0	2,493.4	2,467.3	2,461.2	5.9	5.8	174.68	174.68	-12.1	-188.1	324.0	313.4	10.67	30.377	
2,600.0	2,592.8	2,565.2	2,558.7	6.2	6.1	174.68	174.68	-13.1	-197.8	344.2	333.0	11.12	30.959	
2,700.0	2,692.3	2,663.2	2,656.1	6.5	6.4	174.68	174.68	-14.0	-207.5	364.3	352.7	11.57	31.493	
2,800.0	2,791.7	2,761.1	2,753.6	6.8	6.6	174.68	174.68	-14.9	-217.3	384.4	372.4	12.02	31.984	
2,900.0	2,891.2	2,859.1	2,851.1	7.1	6.9	174.68	174.68	-15.8	-227.0	404.5	392.1	12.47	32.436	
3,000.0	2,990.7	2,957.0	2,948.5	7.4	7.2	174.69	174.69	-16.8	-236.7	424.7	411.7	12.93	32.855	
3,100.0	3,090.1	3,055.0	3,046.0	7.6	7.5	174.69	174.69	-17.7	-246.4	444.8	431.4	13.38	33.243	
3,200.0	3,189.6	3,152.9	3,143.5	7.9	7.8	174.69	174.69	-18.6	-256.1	464.9	451.1	13.84	33.603	
3,300.0	3,289.0	3,250.9	3,240.9	8.2	8.0	174.69	174.69	-19.6	-265.8	485.1	470.8	14.29	33.939	
3,400.0	3,388.5	3,348.8	3,338.4	8.5	8.3	174.69	174.69	-20.5	-275.5	505.2	490.4	14.75	34.253	
3,500.0	3,488.0	3,446.8	3,435.9	8.8	8.6	174.69	174.69	-21.4	-285.3	525.3	510.1	15.21	34.546	
3,600.0	3,587.4	3,544.7	3,533.3	9.1	8.9	174.69	174.69	-22.4	-295.0	545.5	529.8	15.66	34.821	
3,616.9	3,604.3	3,561.3	3,549.8	9.1	8.9	174.69	174.69	-22.5	-296.6	548.9	533.1	15.74	34.866	
3,700.0	3,687.0	3,644.9	3,633.0	9.4	9.2	174.70	174.70	-23.3	-304.9	564.7	548.5	16.13	35.005	
3,800.0	3,786.7	3,761.1	3,748.8	9.6	9.4	174.71	174.71	-24.2	-314.2	579.6	563.0	16.57	34.979	
3,900.0	3,886.6	3,878.5	3,866.1	9.7	9.7	174.71	174.71	-24.8	-320.1	588.8	571.8	16.98	34.668	
4,000.0	3,986.6	3,996.6	3,984.2	9.9	9.9	174.71	174.71	-25.0	-322.4	592.4	575.0	17.39	34.070	
4,013.4	4,000.0	4,012.5	4,000.0	9.9	9.9	-90.00	-90.00	-25.0	-322.5	592.5	575.1	17.43	33.998	
4,013.4	4,000.0	4,012.5	4,000.0	9.9	9.9	-90.00	-90.00	-25.0	-322.5	592.5	575.1	17.43	33.998	
4,100.0	4,086.6	4,099.1	4,086.6	10.1	10.0	-90.00	-90.00	-25.0	-322.5	592.5	574.7	17.77	33.341	
4,200.0	4,186.6	4,199.1	4,186.6	10.3	10.2	-90.00	-90.00	-25.0	-322.5	592.5	574.3	18.18	32.589	
4,300.0	4,286.6	4,299.1	4,286.6	10.5	10.4	-90.00	-90.00	-25.0	-322.5	592.5	573.9	18.59	31.867	
4,400.0	4,386.6	4,399.1	4,386.6	10.6	10.6	-90.00	-90.00	-25.0	-322.5	592.5	573.5	19.01	31.174	
4,500.0	4,486.6	4,499.1	4,486.6	10.8	10.8	-90.00	-90.00	-25.0	-322.5	592.5	573.1	19.42	30.508	
4,600.0	4,586.6	4,599.1	4,586.6	11.0	11.0	-90.00	-90.00	-25.0	-322.5	592.5	572.6	19.84	29.867	

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 Guttersten 31T-441
Project:	SEC.31-T3N-R63W	TVD Reference:	WELL @ 4838.0ft (Original Well Elev)
Reference Site:	Guttersten 31Q-401 Pad Sec.31-T3N-R63W	MD Reference:	WELL @ 4838.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Guttersten 31T-441	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:	Reference Datum

Offset Design Guttersten 31Q-401 Pad Sec.31-T3N-R63W - Guttersten 31Q-401 - Wellbore #1 - Plan #1 (5-31-13)													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
4,700.0	4,686.6	4,699.1	4,686.6	11.2	11.2	-90.00	-90.00	-25.0	-322.5	592.5	572.2	20.25	29.251	
4,800.0	4,786.6	4,799.1	4,786.6	11.4	11.4	-90.00	-90.00	-25.0	-322.5	592.5	571.8	20.67	28.658	
4,900.0	4,886.6	4,899.1	4,886.6	11.6	11.6	-90.00	-90.00	-25.0	-322.5	592.5	571.4	21.09	28.087	
5,000.0	4,986.6	4,999.1	4,986.6	11.8	11.8	-90.00	-90.00	-25.0	-322.5	592.5	571.0	21.52	27.536	
5,100.0	5,086.6	5,099.1	5,086.6	12.0	12.0	-90.00	-90.00	-25.0	-322.5	592.5	570.5	21.94	27.005	
5,200.0	5,186.6	5,199.1	5,186.6	12.2	12.1	-90.00	-90.00	-25.0	-322.5	592.5	570.1	22.36	26.494	
5,300.0	5,286.6	5,299.1	5,286.6	12.4	12.3	-90.00	-90.00	-25.0	-322.5	592.5	569.7	22.79	26.000	
5,400.0	5,386.6	5,399.1	5,386.6	12.6	12.5	-90.00	-90.00	-25.0	-322.5	592.5	569.3	23.21	25.523	
5,500.0	5,486.6	5,499.1	5,486.6	12.8	12.7	-90.00	-90.00	-25.0	-322.5	592.5	568.8	23.64	25.062	
5,600.0	5,586.6	5,599.1	5,586.6	13.0	13.0	-90.00	-90.00	-25.0	-322.5	592.5	568.4	24.07	24.617	
5,700.0	5,686.6	5,699.1	5,686.6	13.2	13.2	-90.00	-90.00	-25.0	-322.5	592.5	568.0	24.50	24.187	
5,800.0	5,786.6	5,799.1	5,786.6	13.4	13.4	-90.00	-90.00	-25.0	-322.5	592.5	567.6	24.93	23.770	
5,900.0	5,886.6	5,899.1	5,886.6	13.6	13.6	-90.00	-90.00	-25.0	-322.5	592.5	567.1	25.35	23.368	
6,000.0	5,986.6	5,999.1	5,986.6	13.8	13.8	-90.00	-90.00	-25.0	-322.5	592.5	566.7	25.79	22.978	
6,045.1	6,031.7	6,044.1	6,031.7	13.9	13.9	-90.00	-90.00	-25.0	-322.5	592.5	566.5	25.98	22.806	
6,067.6	6,054.2	6,066.7	6,054.2	13.9	13.9	-90.00	-90.00	-25.0	-322.5	592.5	566.4	26.08	22.721	
6,100.0	6,086.6	6,098.8	6,086.6	14.0	14.0	-89.30	-89.30	-24.3	-322.5	592.5	566.3	26.21	22.601	
6,150.0	6,136.5	6,148.4	6,135.7	14.1	14.1	-89.30	-89.30	-20.6	-322.5	592.5	566.0	26.43	22.421	
6,200.0	6,186.0	6,197.9	6,184.8	14.2	14.2	-89.31	-89.31	-13.7	-322.6	592.5	565.8	26.63	22.246	
6,250.0	6,234.9	6,247.5	6,233.3	14.3	14.3	-89.32	-89.32	-3.7	-322.7	592.5	565.6	26.84	22.077	
6,300.0	6,283.1	6,297.1	6,281.1	14.4	14.4	-89.33	-89.33	9.5	-322.9	592.5	565.4	27.04	21.912	
6,350.0	6,330.2	6,346.6	6,328.0	14.5	14.5	-89.35	-89.35	25.7	-323.1	592.4	565.2	27.24	21.749	
6,400.0	6,376.2	6,396.2	6,373.6	14.6	14.6	-89.36	-89.36	45.0	-323.3	592.4	565.0	27.44	21.589	
6,450.0	6,420.9	6,445.8	6,418.0	14.7	14.7	-89.38	-89.38	67.2	-323.5	592.4	564.8	27.65	21.428	
6,500.0	6,463.9	6,495.4	6,460.8	14.8	14.8	-89.41	-89.41	92.2	-323.8	592.4	564.5	27.86	21.264	
6,550.0	6,505.2	6,545.1	6,502.0	14.9	14.9	-89.43	-89.43	120.0	-324.1	592.4	564.3	28.08	21.097	
6,600.0	6,544.6	6,594.7	6,541.2	15.1	15.1	-89.46	-89.46	150.4	-324.5	592.3	564.0	28.31	20.923	
6,650.0	6,581.8	6,644.4	6,578.4	15.2	15.2	-89.49	-89.49	183.2	-324.9	592.3	563.8	28.56	20.740	
6,675.5	6,600.0	6,669.8	6,596.6	15.3	15.3	-89.51	-89.51	200.9	-325.1	592.3	563.6	28.70	20.640	
6,700.0	6,616.8	6,694.1	6,613.4	15.4	15.4	-89.52	-89.52	218.5	-325.3	592.3	563.5	28.82	20.548	
6,750.0	6,649.4	6,743.8	6,646.1	15.6	15.6	-89.56	-89.56	255.9	-325.7	592.3	563.1	29.11	20.345	
6,800.0	6,679.5	6,793.5	6,676.2	15.9	15.9	-89.59	-89.59	295.5	-326.2	592.2	562.8	29.42	20.129	
6,837.0	6,700.0	6,830.3	6,696.9	16.1	16.1	-89.62	-89.62	325.9	-326.5	592.2	562.5	29.67	19.957	
6,850.0	6,706.8	6,843.3	6,703.8	16.2	16.2	-89.63	-89.63	336.9	-326.6	592.2	562.4	29.76	19.899	
6,900.0	6,731.4	6,893.0	6,728.6	16.6	16.6	-89.67	-89.67	380.0	-327.1	592.2	562.0	30.13	19.657	
6,950.0	6,753.1	6,942.8	6,750.5	17.0	17.0	-89.71	-89.71	424.7	-327.7	592.1	561.6	30.52	19.401	
7,000.0	6,771.8	6,992.7	6,769.5	17.5	17.5	-89.75	-89.75	470.8	-328.2	592.1	561.1	30.95	19.133	
7,050.0	6,787.4	7,042.5	6,785.5	18.0	18.0	-89.80	-89.80	518.0	-328.7	592.1	560.7	31.40	18.855	
7,100.0	6,799.9	7,092.4	6,798.4	18.5	18.5	-89.84	-89.84	566.2	-329.3	592.0	560.1	31.89	18.566	
7,100.6	6,800.0	7,093.0	6,798.5	18.5	18.5	-89.84	-89.84	566.8	-329.3	592.0	560.1	31.89	18.563	
7,150.0	6,809.1	7,142.3	6,808.0	19.1	19.1	-89.89	-89.89	615.1	-329.9	592.0	559.6	32.40	18.271	
7,187.6	6,814.0	7,179.9	6,813.2	19.5	19.5	-89.92	-89.92	652.3	-330.3	592.0	559.2	32.80	18.045	
7,200.0	6,815.3	7,192.3	6,814.5	19.7	19.7	-89.92	-89.92	664.6	-330.4	592.0	559.0	32.94	17.971	
7,261.6	6,821.7	7,253.9	6,821.0	20.5	20.4	-89.92	-89.92	725.9	-331.1	591.9	558.3	33.65	17.590	
7,300.0	6,825.1	7,292.2	6,824.6	21.0	20.9	-89.94	-89.94	764.1	-331.6	591.9	557.8	34.11	17.350	
7,375.7	6,828.0	7,367.8	6,827.9	22.0	22.0	-89.99	-89.99	839.6	-332.4	591.8	556.8	35.07	16.877	
7,400.0	6,828.1	7,392.2	6,828.0	22.4	22.3	-89.99	-89.99	863.9	-332.7	591.8	556.4	35.39	16.725	
7,500.0	6,828.6	7,492.2	6,828.6	23.8	23.8	-89.99	-89.99	963.9	-333.9	591.8	555.0	36.76	16.097	
7,600.0	6,829.2	7,592.2	6,829.1	25.3	25.3	-89.99	-89.99	1,063.9	-335.0	591.7	553.5	38.23	15.476	
7,700.0	6,829.7	7,692.2	6,829.6	26.9	26.8	-89.99	-89.99	1,163.9	-336.2	591.6	551.8	39.79	14.868	
7,800.0	6,830.2	7,792.2	6,830.1	28.5	28.4	-89.99	-89.99	1,263.9	-337.4	591.6	550.1	41.43	14.279	

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 31T-441
Project:	SEC.31-T3N-R63W	TVD Reference:	WELL @ 4838.0ft (Original Well Elev)
Reference Site:	Guttersen 31Q-401 Pad Sec.31-T3N-R63W	MD Reference:	WELL @ 4838.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Guttersen 31T-441	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:	Reference Datum

Offset Design Guttersen 31Q-401 Pad Sec.31-T3N-R63W - Guttersen 31Q-401 - Wellbore #1 - Plan #1 (5-31-13)												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	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation		Separation Factor
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)		
7,900.0	6,830.7	7,892.2	6,830.6	30.1	30.1	-89.99	1,363.9	-338.5	591.5	548.4	43.14	13.712	
8,000.0	6,831.2	7,992.2	6,831.2	31.8	31.8	-89.99	1,463.9	-339.7	591.5	546.6	44.90	13.171	
8,100.0	6,831.7	8,092.2	6,831.7	33.5	33.5	-89.99	1,563.9	-340.8	591.4	544.7	46.73	12.657	
8,200.0	6,832.3	8,192.2	6,832.2	35.2	35.2	-89.99	1,663.9	-342.0	591.3	542.7	48.59	12.169	
8,300.0	6,832.8	8,292.2	6,832.7	37.0	36.9	-89.99	1,763.9	-343.2	591.3	540.8	50.51	11.707	
8,400.0	6,833.3	8,392.2	6,833.2	38.8	38.7	-89.99	1,863.9	-344.3	591.2	538.8	52.46	11.271	
8,500.0	6,833.8	8,492.2	6,833.8	40.5	40.5	-89.99	1,963.8	-345.5	591.2	536.7	54.44	10.859	
8,600.0	6,834.3	8,592.2	6,834.3	42.3	42.3	-89.99	2,063.8	-346.6	591.1	534.6	56.45	10.470	
8,700.0	6,834.9	8,692.2	6,834.8	44.1	44.1	-89.99	2,163.8	-347.8	591.0	532.5	58.49	10.104	
8,800.0	6,835.4	8,792.2	6,835.3	45.9	45.9	-89.99	2,263.8	-349.0	591.0	530.4	60.56	9.758	
8,900.0	6,835.9	8,892.2	6,835.8	47.7	47.7	-89.99	2,363.8	-350.1	590.9	528.3	62.65	9.432	
9,000.0	6,836.4	8,992.2	6,836.4	49.6	49.5	-89.99	2,463.8	-351.3	590.8	526.1	64.76	9.124	
9,100.0	6,836.9	9,092.2	6,836.9	51.4	51.3	-89.99	2,563.8	-352.4	590.8	523.9	66.88	8.833	
9,200.0	6,837.5	9,192.2	6,837.4	53.2	53.2	-89.99	2,663.8	-353.6	590.7	521.7	69.02	8.558	
9,300.0	6,838.0	9,292.2	6,837.9	55.1	55.0	-89.99	2,763.8	-354.8	590.7	519.5	71.18	8.298	
9,400.0	6,838.5	9,392.2	6,838.4	56.9	56.9	-89.99	2,863.8	-355.9	590.6	517.3	73.35	8.052	
9,500.0	6,839.0	9,492.2	6,839.0	58.8	58.7	-89.99	2,963.8	-357.1	590.5	515.0	75.53	7.818	
9,600.0	6,839.5	9,592.2	6,839.5	60.7	60.6	-89.99	3,063.8	-358.2	590.5	512.8	77.73	7.597	
9,700.0	6,840.1	9,692.2	6,840.0	62.5	62.5	-90.00	3,163.8	-359.4	590.4	510.5	79.93	7.387	
9,800.0	6,840.6	9,792.2	6,840.5	64.4	64.3	-90.00	3,263.7	-360.5	590.4	508.2	82.14	7.187	
9,900.0	6,841.1	9,892.2	6,841.0	66.2	66.2	-90.00	3,363.7	-361.7	590.3	505.9	84.37	6.997	
10,000.0	6,841.6	9,992.2	6,841.6	68.1	68.1	-90.00	3,463.7	-362.9	590.2	503.6	86.60	6.816	
10,100.0	6,842.1	10,092.2	6,842.1	70.0	69.9	-90.00	3,563.7	-364.0	590.2	501.3	88.84	6.643	
10,200.0	6,842.7	10,192.2	6,842.6	71.9	71.8	-90.00	3,663.7	-365.2	590.1	499.0	91.08	6.479	
10,300.0	6,843.2	10,292.2	6,843.1	73.8	73.7	-90.00	3,763.7	-366.3	590.1	496.7	93.33	6.322	
10,400.0	6,843.7	10,392.2	6,843.7	75.6	75.6	-90.00	3,863.7	-367.5	590.0	494.4	95.59	6.172	
10,500.0	6,844.2	10,492.2	6,844.2	77.5	77.5	-90.00	3,963.7	-368.7	589.9	492.1	97.86	6.029	
10,600.0	6,844.7	10,592.2	6,844.7	79.4	79.3	-90.00	4,063.7	-369.8	589.9	489.8	100.12	5.891	
10,700.0	6,845.3	10,692.2	6,845.2	81.3	81.2	-90.00	4,163.7	-371.0	589.8	487.4	102.40	5.760	
10,800.0	6,845.8	10,792.2	6,845.7	83.2	83.1	-90.00	4,263.7	-372.1	589.8	485.1	104.68	5.634	
10,900.0	6,846.3	10,892.2	6,846.3	85.1	85.0	-90.00	4,363.7	-373.3	589.7	482.7	106.96	5.513	
11,000.0	6,846.8	10,992.2	6,846.8	87.0	86.9	-90.00	4,463.6	-374.5	589.6	480.4	109.24	5.397	
11,100.0	6,847.3	11,092.2	6,847.3	88.9	88.8	-90.00	4,563.6	-375.6	589.6	478.0	111.53	5.286	
11,200.0	6,847.8	11,192.2	6,847.8	90.8	90.7	-90.00	4,663.6	-376.8	589.5	475.7	113.83	5.179	
11,229.0	6,848.0	11,221.2	6,848.0	91.2	91.2	-90.00	4,692.6	-377.1	589.5	475.2	114.33	5.156	
11,229.4	6,848.0	11,221.6	6,848.0	91.2	91.3	-90.00	4,693.0	-377.1	589.5	475.2	114.33	5.156 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Guttersen 31T-441
Project:	SEC.31-T3N-R63W	TVD Reference:	WELL @ 4838.0ft (Original Well Elev)
Reference Site:	Guttersen 31Q-401 Pad Sec.31-T3N-R63W	MD Reference:	WELL @ 4838.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Guttersen 31T-441	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:	Reference Datum

Offset Design Guttersen 31Q-401 Pad Sec.31-T3N-R63W - Guttersen 31T-201 - Wellbore #1 - Plan #1 (5-31-13)													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
0.0	0.0	0.0	0.0	0.0	0.0	90.02	90.02	0.0	30.7	30.7				
100.0	100.0	100.0	100.0	0.1	0.1	90.02	90.02	0.0	30.7	30.7	30.5	0.22	136.761	
200.0	200.0	200.0	200.0	0.3	0.3	90.02	90.02	0.0	30.7	30.7	30.1	0.67	45.587 CC, ES	
300.0	300.0	298.9	298.9	0.6	0.5	90.14	90.14	-0.1	32.4	32.5	31.4	1.11	29.224	
400.0	400.0	397.6	397.4	0.8	0.8	90.45	90.45	-0.3	37.5	37.6	36.1	1.55	24.210	
500.0	500.0	495.8	495.2	1.0	1.0	90.81	90.81	-0.6	46.0	46.2	44.2	2.02	22.842	
600.0	600.0	593.5	592.2	1.2	1.3	91.13	91.13	-1.1	57.7	58.2	55.7	2.53	23.047	
700.0	700.0	692.6	690.5	1.5	1.6	91.37	91.37	-1.7	70.9	71.5	68.5	3.06	23.406	
800.0	800.0	791.7	788.7	1.7	1.9	91.54	91.54	-2.3	84.1	84.9	81.3	3.60	23.601	
900.0	900.0	890.8	886.9	1.9	2.2	91.65	91.65	-2.8	97.3	98.2	94.1	4.14	23.712	
1,000.0	1,000.0	989.9	985.1	2.1	2.6	91.74	91.74	-3.4	110.5	111.6	106.9	4.69	23.781	
1,100.0	1,100.0	1,089.2	1,083.5	2.3	2.9	-3.50	-3.50	-3.9	123.8	123.6	119.3	4.27	28.934	
1,200.0	1,199.9	1,188.7	1,182.2	2.5	3.2	-3.53	-3.53	-4.5	137.0	133.1	128.5	4.61	28.848	
1,300.0	1,299.7	1,288.5	1,281.0	2.8	3.6	-3.63	-3.63	-5.0	150.3	139.9	135.0	4.95	28.251	
1,396.4	1,395.7	1,384.8	1,376.5	3.0	3.9	-3.78	-3.78	-5.6	163.2	144.0	138.8	5.28	27.294	
1,400.0	1,399.3	1,388.4	1,380.0	3.0	3.9	-3.78	-3.78	-5.6	163.6	144.1	138.9	5.29	27.252	
1,500.0	1,498.7	1,488.3	1,479.1	3.2	4.2	-3.97	-3.97	-6.2	177.0	147.2	141.5	5.63	26.146	
1,600.0	1,598.2	1,588.3	1,578.2	3.5	4.6	-4.14	-4.14	-6.7	190.3	150.2	144.2	5.97	25.176	
1,700.0	1,697.7	1,688.2	1,677.2	3.7	4.9	-4.31	-4.31	-7.3	203.6	153.2	146.9	6.30	24.317	
1,800.0	1,797.1	1,788.2	1,776.3	4.0	5.2	-4.48	-4.48	-7.8	216.9	156.3	149.6	6.63	23.551	
1,900.0	1,896.6	1,888.1	1,875.3	4.3	5.6	-4.63	-4.63	-8.4	230.3	159.3	152.3	6.97	22.862	
2,000.0	1,996.0	1,988.1	1,974.4	4.5	5.9	-4.78	-4.78	-9.0	243.6	162.3	155.0	7.30	22.240	
2,100.0	2,095.5	2,088.1	2,073.5	4.8	6.2	-4.93	-4.93	-9.5	256.9	165.3	157.7	7.63	21.674	
2,200.0	2,195.0	2,188.0	2,172.5	5.1	6.6	-5.07	-5.07	-10.1	270.2	168.4	160.4	7.96	21.158	
2,300.0	2,294.4	2,288.0	2,271.6	5.4	6.9	-5.20	-5.20	-10.6	283.6	171.4	163.1	8.29	20.685	
2,400.0	2,393.9	2,387.9	2,370.6	5.6	7.3	-5.33	-5.33	-11.2	296.9	174.5	165.8	8.62	20.249	
2,500.0	2,493.4	2,487.9	2,469.7	5.9	7.6	-5.46	-5.46	-11.8	310.2	177.5	168.5	8.94	19.846	
2,600.0	2,592.8	2,587.8	2,568.8	6.2	7.9	-5.58	-5.58	-12.3	323.5	180.5	171.3	9.27	19.472	
2,700.0	2,692.3	2,687.8	2,667.8	6.5	8.3	-5.70	-5.70	-12.9	336.9	183.6	174.0	9.60	19.125	
2,800.0	2,791.7	2,787.7	2,766.9	6.8	8.6	-5.81	-5.81	-13.5	350.2	186.6	176.7	9.92	18.801	
2,900.0	2,891.2	2,887.7	2,865.9	7.1	8.9	-5.92	-5.92	-14.0	363.5	189.6	179.4	10.25	18.499	
3,000.0	2,990.7	2,987.6	2,965.0	7.4	9.3	-6.03	-6.03	-14.6	376.8	192.7	182.1	10.58	18.215	
3,100.0	3,090.1	3,087.6	3,064.1	7.6	9.6	-6.13	-6.13	-15.1	390.2	195.7	184.8	10.90	17.949	
3,200.0	3,189.6	3,187.5	3,163.1	7.9	10.0	-6.23	-6.23	-15.7	403.5	198.8	187.5	11.23	17.699	
3,300.0	3,289.0	3,287.5	3,262.2	8.2	10.3	-6.33	-6.33	-16.3	416.8	201.8	190.2	11.56	17.463	
3,400.0	3,388.5	3,387.4	3,361.2	8.5	10.6	-6.42	-6.42	-16.8	430.1	204.8	193.0	11.88	17.240	
3,500.0	3,488.0	3,487.4	3,460.3	8.8	11.0	-6.52	-6.52	-17.4	443.5	207.9	195.7	12.21	17.029	
3,600.0	3,587.4	3,587.3	3,559.3	9.1	11.3	-6.61	-6.61	-17.9	456.8	210.9	198.4	12.53	16.830	
3,616.9	3,604.3	3,604.3	3,576.1	9.1	11.4	-6.62	-6.62	-18.0	459.0	211.4	198.9	12.59	16.797	
3,700.0	3,687.0	3,687.3	3,658.4	9.4	11.6	-6.67	-6.67	-18.5	470.1	214.9	202.0	12.84	16.735	
3,800.0	3,786.7	3,787.1	3,757.3	9.6	12.0	-6.66	-6.66	-19.1	483.4	221.4	208.3	13.12	16.874	
3,900.0	3,886.6	3,886.6	3,856.0	9.7	12.3	-6.58	-6.58	-19.6	496.7	230.5	217.1	13.40	17.198	
4,000.0	3,986.6	3,985.9	3,954.4	9.9	12.7	-6.44	-6.44	-20.2	509.9	242.1	228.5	13.68	17.699	
4,013.4	4,000.0	3,999.2	3,967.5	9.9	12.7	88.87	88.87	-20.3	511.7	243.9	225.8	18.15	13.440	
4,013.4	4,000.0	3,999.2	3,967.5	9.9	12.7	88.87	88.87	-20.3	511.7	243.9	225.8	18.15	13.440	
4,100.0	4,086.6	4,085.1	4,052.6	10.1	13.0	89.03	89.03	-20.7	523.1	255.4	236.9	18.52	13.790	
4,200.0	4,186.6	4,184.2	4,150.8	10.3	13.3	89.20	89.20	-21.3	536.3	268.8	249.8	18.97	14.171	
4,300.0	4,286.6	4,283.3	4,249.0	10.5	13.7	89.35	89.35	-21.8	549.6	282.1	262.7	19.41	14.533	
4,400.0	4,386.6	4,382.4	4,347.3	10.6	14.0	89.49	89.49	-22.4	562.8	295.4	275.6	19.85	14.879	
4,500.0	4,486.6	4,481.5	4,445.5	10.8	14.3	89.62	89.62	-23.0	576.0	308.7	288.4	20.30	15.209	
4,600.0	4,586.6	4,580.6	4,543.7	11.0	14.7	89.73	89.73	-23.5	589.2	322.1	301.3	20.75	15.524	

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 31T-441
Project:	SEC.31-T3N-R63W	TVD Reference:	WELL @ 4838.0ft (Original Well Elev)
Reference Site:	Guttersen 31Q-401 Pad Sec.31-T3N-R63W	MD Reference:	WELL @ 4838.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Guttersen 31T-441	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:	Reference Datum

Offset Design Guttersen 31Q-401 Pad Sec.31-T3N-R63W - Guttersen 31T-201 - Wellbore #1 - Plan #1 (5-31-13)													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)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,700.0	4,686.6	4,682.9	4,645.1	11.2	15.0	89.84		-24.1	602.7	335.3	314.1	21.19	15.820	
4,800.0	4,786.6	4,795.8	4,757.4	11.4	15.3	89.93		-24.6	614.5	345.7	324.1	21.61	15.995	
4,900.0	4,886.6	4,909.4	4,870.8	11.6	15.5	89.98		-24.9	621.8	352.2	330.2	22.02	15.994	
5,000.0	4,986.6	5,023.4	4,984.7	11.8	15.6	90.00		-25.0	624.7	354.7	332.3	22.42	15.818	
5,100.0	5,086.6	5,125.3	5,086.6	12.0	15.8	90.00		-25.0	624.7	354.7	331.9	22.81	15.553	
5,200.0	5,186.6	5,225.3	5,186.6	12.2	15.9	90.00		-25.0	624.7	354.7	331.5	23.21	15.286	
5,300.0	5,286.6	5,325.3	5,286.6	12.4	16.1	90.00		-25.0	624.7	354.7	331.1	23.61	15.027	
5,400.0	5,386.6	5,425.3	5,386.6	12.6	16.2	90.00		-25.0	624.7	354.7	330.7	24.01	14.776	
5,500.0	5,486.6	5,525.3	5,486.6	12.8	16.4	90.00		-25.0	624.7	354.7	330.3	24.41	14.532	
5,600.0	5,586.6	5,625.3	5,586.6	13.0	16.5	90.00		-25.0	624.7	354.7	329.9	24.82	14.295	
5,700.0	5,686.6	5,725.3	5,686.6	13.2	16.7	90.00		-25.0	624.7	354.7	329.5	25.22	14.064	
5,800.0	5,786.6	5,825.3	5,786.6	13.4	16.8	90.00		-25.0	624.7	354.7	329.1	25.63	13.841	
5,900.0	5,886.6	5,925.3	5,886.6	13.6	17.0	90.00		-25.0	624.7	354.7	328.7	26.04	13.623	
5,989.1	5,975.7	6,014.6	5,975.7	13.8	17.1	89.30		-20.6	624.7	354.7	328.3	26.41	13.431	
6,000.0	5,986.6	6,025.4	5,986.5	13.8	17.2	89.10		-19.4	624.7	354.7	328.3	26.46	13.407	
6,067.6	6,054.2	6,091.5	6,051.7	13.9	17.3	87.35		-8.6	624.5	354.9	328.2	26.76	13.265	
6,100.0	6,086.6	6,122.6	6,081.9	14.0	17.3	87.00		-1.6	624.5	355.2	328.3	26.92	13.196	
6,150.0	6,136.5	6,170.0	6,127.6	14.1	17.4	85.40		11.5	624.3	355.9	328.8	27.15	13.110	
6,200.0	6,186.0	6,216.9	6,171.7	14.2	17.4	83.83		27.2	624.1	356.9	329.5	27.37	13.038	
6,250.0	6,234.9	6,263.3	6,214.4	14.3	17.5	82.30		45.4	623.9	358.1	330.5	27.59	12.977	
6,300.0	6,283.1	6,309.2	6,255.4	14.4	17.6	80.82		65.8	623.6	359.5	331.7	27.79	12.936	
6,350.0	6,330.2	6,354.6	6,294.8	14.5	17.7	79.39		88.5	623.4	361.1	333.1	27.97	12.910	
6,400.0	6,376.2	6,400.0	6,332.7	14.6	17.8	78.00		113.4	623.1	362.9	334.7	28.13	12.899	
6,450.0	6,420.9	6,444.1	6,368.1	14.7	17.8	76.70		139.8	622.7	364.8	336.5	28.27	12.903	
6,500.0	6,463.9	6,488.2	6,401.9	14.8	17.9	75.45		168.2	622.4	366.8	338.4	28.39	12.920	
6,550.0	6,505.2	6,532.1	6,433.8	14.9	18.0	74.27		198.2	622.0	368.9	340.4	28.49	12.947	
6,600.0	6,544.6	6,575.5	6,463.7	15.1	18.2	73.16		229.8	621.6	371.0	342.4	28.57	12.983	
6,650.0	6,581.8	6,618.7	6,491.5	15.2	18.3	72.12		262.7	621.2	373.1	344.4	28.65	13.023	
6,675.5	6,600.0	6,640.7	6,504.9	15.3	18.4	71.62		280.1	621.0	374.1	345.4	28.68	13.043	
6,700.0	6,616.8	6,661.6	6,517.3	15.4	18.5	71.16		297.0	620.8	375.1	346.4	28.72	13.063	
6,750.0	6,649.4	6,704.3	6,541.0	15.6	18.6	70.27		332.5	620.4	377.1	348.4	28.79	13.100	
6,800.0	6,679.5	6,750.0	6,564.1	15.9	18.9	69.41		371.9	619.9	379.1	350.2	28.88	13.128	
6,837.0	6,700.0	6,777.9	6,577.1	16.1	19.0	68.91		396.7	619.6	380.4	351.5	28.96	13.136	
6,850.0	6,706.8	6,788.9	6,581.9	16.2	19.1	68.73		406.5	619.5	380.9	351.9	28.99	13.139	
6,900.0	6,731.4	6,830.9	6,599.2	16.6	19.4	68.08		444.8	619.0	382.6	353.4	29.13	13.133	
6,950.0	6,753.1	6,872.8	6,614.2	17.0	19.7	67.51		483.9	618.5	384.1	354.8	29.31	13.104	
7,000.0	6,771.8	6,914.5	6,627.1	17.5	20.0	67.01		523.6	618.1	385.5	355.9	29.54	13.048	
7,050.0	6,787.4	6,956.1	6,637.7	18.0	20.4	66.60		563.8	617.6	386.6	356.8	29.83	12.962	
7,100.0	6,799.9	7,000.0	6,646.5	18.5	20.8	66.24		606.7	617.0	387.6	357.4	30.18	12.843	
7,100.6	6,800.0	7,000.0	6,646.5	18.5	20.8	66.24		606.7	617.0	387.6	357.4	30.18	12.842	
7,150.0	6,809.1	7,039.1	6,652.3	19.1	21.2	66.00		645.4	616.6	388.3	357.7	30.59	12.695	
7,187.6	6,814.0	7,070.2	6,655.5	19.5	21.5	65.86		676.4	616.2	388.8	357.8	30.95	12.562	
7,200.0	6,815.3	7,080.5	6,656.3	19.7	21.6	65.82		686.6	616.1	388.9	357.9	31.03	12.534	
7,261.6	6,821.7	7,131.2	6,658.1	20.5	22.2	65.35		737.3	615.5	390.7	359.3	31.37	12.455	
7,300.0	6,825.1	7,167.4	6,657.7	21.0	22.6	64.82		773.5	615.0	392.2	360.6	31.65	12.393	
7,375.7	6,828.0	7,243.0	6,657.0	22.0	23.6	64.26		849.0	614.1	393.8	361.4	32.41	12.150	
7,400.0	6,828.1	7,267.3	6,656.7	22.4	23.9	64.22		873.4	613.8	394.0	361.4	32.62	12.077	
7,500.0	6,828.6	7,367.3	6,655.7	23.8	25.3	64.02		973.4	612.6	394.6	361.1	33.52	11.775	
7,600.0	6,829.2	7,467.3	6,654.7	25.3	26.7	63.82		1,073.3	611.4	395.3	360.9	34.46	11.471	
7,700.0	6,829.7	7,567.3	6,653.7	26.9	28.2	63.62		1,173.3	610.1	396.0	360.5	35.46	11.169	
7,800.0	6,830.2	7,667.3	6,652.7	28.5	29.8	63.42		1,273.3	608.9	396.7	360.2	36.49	10.872	

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 31T-441
Project:	SEC.31-T3N-R63W	TVD Reference:	WELL @ 4838.0ft (Original Well Elev)
Reference Site:	Guttersen 31Q-401 Pad Sec.31-T3N-R63W	MD Reference:	WELL @ 4838.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Guttersen 31T-441	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:	Reference Datum

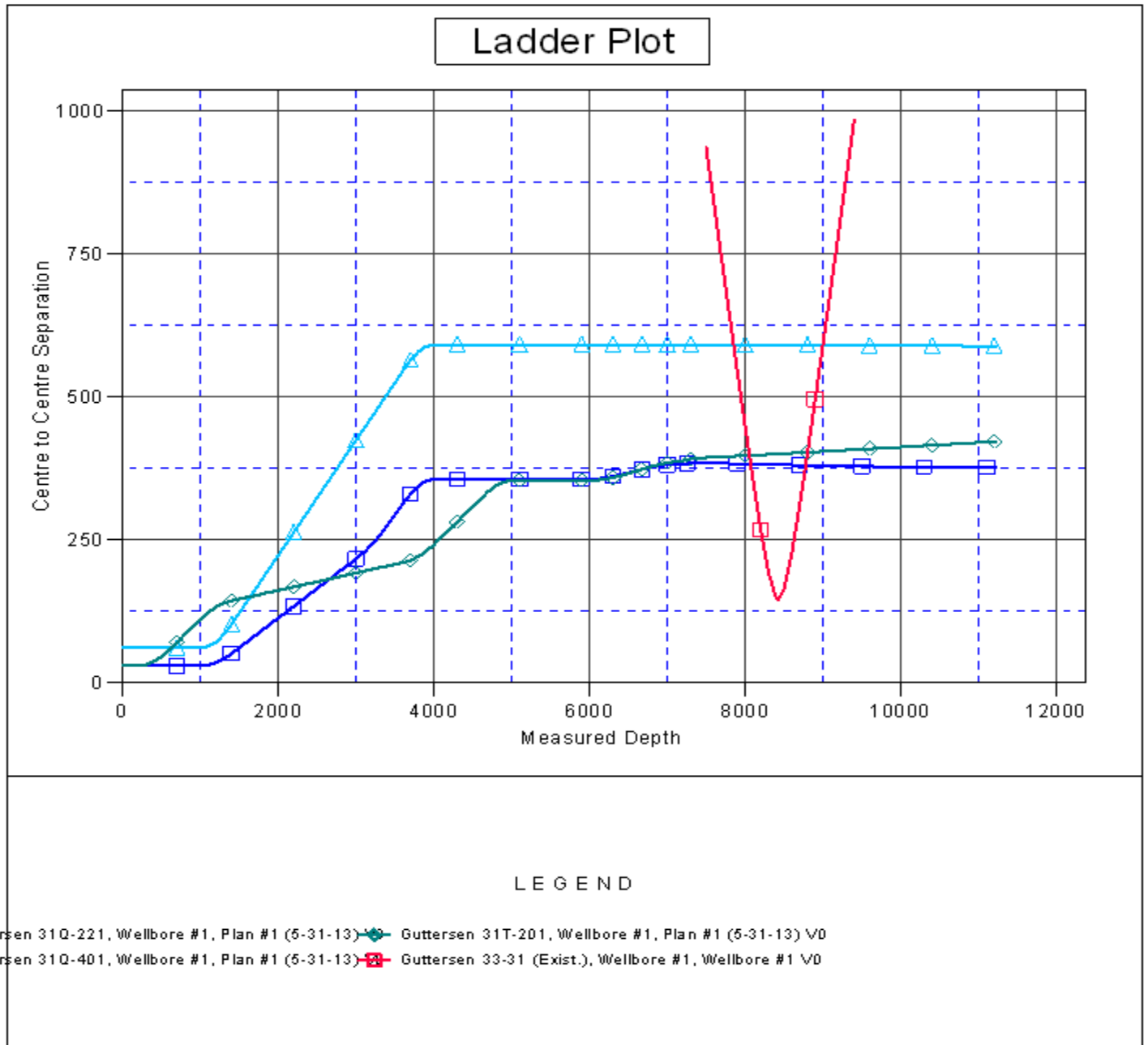
Offset Design		Guttersen 31Q-401 Pad Sec.31-T3N-R63W - Guttersen 31T-201 - Wellbore #1 - Plan #1 (5-31-13)											Offset Site Error:		0.0 ft
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis		Distance								Warning	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre	Between Centres	Between Ellipses	Minimum Separation	Separation Factor				
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
7,900.0	6,830.7	7,767.3	6,651.7	30.1	31.3	63.22	1,373.3	607.7	397.4	359.8	37.55	10.583			
8,000.0	6,831.2	7,867.3	6,650.7	31.8	33.0	63.03	1,473.2	606.5	398.1	359.4	38.64	10.302			
8,100.0	6,831.7	7,967.2	6,649.7	33.5	34.6	62.83	1,573.2	605.3	398.8	359.0	39.75	10.032			
8,200.0	6,832.3	8,067.2	6,648.6	35.2	36.3	62.63	1,673.2	604.0	399.5	358.6	40.88	9.772			
8,300.0	6,832.8	8,167.2	6,647.6	37.0	38.0	62.44	1,773.2	602.8	400.2	358.2	42.02	9.523			
8,400.0	6,833.3	8,267.2	6,646.6	38.8	39.7	62.25	1,873.1	601.6	400.9	357.7	43.17	9.286			
8,500.0	6,833.8	8,367.2	6,645.6	40.5	41.5	62.05	1,973.1	600.4	401.6	357.3	44.33	9.059			
8,600.0	6,834.3	8,467.2	6,644.6	42.3	43.2	61.86	2,073.1	599.2	402.3	356.8	45.50	8.843			
8,700.0	6,834.9	8,567.2	6,643.6	44.1	45.0	61.67	2,173.1	598.0	403.1	356.4	46.66	8.638			
8,800.0	6,835.4	8,667.2	6,642.6	45.9	46.8	61.48	2,273.0	596.7	403.8	356.0	47.82	8.444			
8,900.0	6,835.9	8,767.2	6,641.6	47.7	48.6	61.29	2,373.0	595.5	404.5	355.5	48.98	8.259			
9,000.0	6,836.4	8,867.1	6,640.5	49.6	50.4	61.10	2,473.0	594.3	405.3	355.1	50.14	8.083			
9,100.0	6,836.9	8,967.1	6,639.5	51.4	52.2	60.91	2,573.0	593.1	406.0	354.7	51.28	7.917			
9,200.0	6,837.5	9,067.1	6,638.5	53.2	54.0	60.72	2,672.9	591.9	406.8	354.3	52.42	7.759			
9,300.0	6,838.0	9,167.1	6,637.5	55.1	55.8	60.53	2,772.9	590.6	407.5	354.0	53.55	7.610			
9,400.0	6,838.5	9,267.1	6,636.5	56.9	57.7	60.34	2,872.9	589.4	408.3	353.6	54.67	7.468			
9,500.0	6,839.0	9,367.1	6,635.5	58.8	59.5	60.16	2,972.9	588.2	409.0	353.2	55.77	7.333			
9,600.0	6,839.5	9,467.1	6,634.5	60.7	61.4	59.97	3,072.9	587.0	409.8	352.9	56.87	7.206			
9,700.0	6,840.1	9,567.1	6,633.5	62.5	63.2	59.79	3,172.8	585.8	410.6	352.6	57.94	7.085			
9,800.0	6,840.6	9,667.0	6,632.4	64.4	65.0	59.60	3,272.8	584.6	411.3	352.3	59.01	6.971			
9,900.0	6,841.1	9,767.0	6,631.4	66.2	66.9	59.42	3,372.8	583.3	412.1	352.1	60.05	6.863			
10,000.0	6,841.6	9,867.0	6,630.4	68.1	68.8	59.24	3,472.8	582.1	412.9	351.8	61.08	6.760			
10,100.0	6,842.1	9,967.0	6,629.4	70.0	70.6	59.06	3,572.7	580.9	413.7	351.6	62.09	6.663			
10,200.0	6,842.7	10,067.0	6,628.4	71.9	72.5	58.87	3,672.7	579.7	414.5	351.4	63.08	6.571			
10,300.0	6,843.2	10,167.0	6,627.4	73.8	74.4	58.69	3,772.7	578.5	415.3	351.2	64.05	6.484			
10,400.0	6,843.7	10,267.0	6,626.4	75.6	76.2	58.51	3,872.7	577.3	416.1	351.1	65.00	6.401			
10,500.0	6,844.2	10,367.0	6,625.4	77.5	78.1	58.33	3,972.6	576.0	416.9	350.9	65.93	6.323			
10,600.0	6,844.7	10,467.0	6,624.3	79.4	80.0	58.15	4,072.6	574.8	417.7	350.8	66.83	6.249			
10,700.0	6,845.3	10,566.9	6,623.3	81.3	81.9	57.98	4,172.6	573.6	418.5	350.8	67.72	6.180			
10,800.0	6,845.8	10,666.9	6,622.3	83.2	83.7	57.80	4,272.6	572.4	419.3	350.7	68.58	6.114			
10,900.0	6,846.3	10,766.9	6,621.3	85.1	85.6	57.62	4,372.5	571.2	420.1	350.7	69.42	6.052			
11,000.0	6,846.8	10,866.9	6,620.3	87.0	87.5	57.45	4,472.5	569.9	421.0	350.7	70.24	5.993			
11,100.0	6,847.3	10,966.9	6,619.3	88.9	89.4	57.27	4,572.5	568.7	421.8	350.8	71.03	5.938			
11,200.0	6,847.8	11,066.9	6,618.3	90.8	91.1	57.10	4,672.5	567.5	422.6	351.3	71.29	5.928 SF			
11,229.0	6,848.0	11,093.9	6,618.0	91.2	91.5	57.05	4,699.5	567.2	422.9	351.8	71.08	5.949			
11,229.4	6,848.0	11,093.9	6,618.0	91.2	91.5	57.05	4,699.5	567.2	422.9	351.8	71.08	5.949			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Guttersen 31T-441
Project:	SEC.31-T3N-R63W	TVD Reference:	WELL @ 4838.0ft (Original Well Elev)
Reference Site:	Guttersen 31Q-401 Pad Sec.31-T3N-R63W	MD Reference:	WELL @ 4838.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Guttersen 31T-441	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:	Reference Datum

Offset Design Guttersen 31Q-401 Pad Sec.31-T3N-R63W - Guttersen 33-31 (Exist.) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 7300-UNKNOWN												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
7,500.0	6,828.6	6,828.6	6,828.6	23.8	136.6	-88.11	1,894.3	100.6	936.9	782.0	154.87	6.049	
7,600.0	6,829.2	6,829.2	6,829.2	25.3	136.6	-88.32	1,894.3	100.6	838.2	682.6	155.63	5.386	
7,700.0	6,829.7	6,829.7	6,829.7	26.9	136.6	-88.52	1,894.3	100.6	740.0	583.5	156.44	4.730	
7,800.0	6,830.2	6,830.2	6,830.2	28.5	136.6	-88.73	1,894.3	100.6	642.2	484.9	157.29	4.083	
7,900.0	6,830.7	6,830.7	6,830.7	30.1	136.6	-88.93	1,894.3	100.6	545.3	387.1	158.17	3.448	
8,000.0	6,831.2	6,831.2	6,831.2	31.8	136.6	-89.13	1,894.3	100.6	449.8	290.7	159.08	2.827	
8,100.0	6,831.7	6,831.7	6,831.7	33.5	136.6	-89.34	1,894.3	100.6	356.7	196.6	160.01	2.229	
8,200.0	6,832.3	6,832.3	6,832.3	35.2	136.6	-89.54	1,894.3	100.6	268.6	107.6	160.97	1.668	
8,300.0	6,832.8	6,832.8	6,832.8	37.0	136.7	-89.74	1,894.3	100.6	192.4	30.5	161.94	1.188 Level 2	
8,400.0	6,833.3	6,833.3	6,833.3	38.8	136.7	-89.95	1,894.3	100.6	148.2	-14.8	162.93	0.909 Level 1	
8,425.4	6,833.4	6,833.4	6,833.4	39.2	136.7	-90.00	1,894.3	100.6	146.0	-17.2	163.19	0.894 Level 1, CC, ES, SF	
8,500.0	6,833.8	6,833.8	6,833.8	40.5	136.7	-90.15	1,894.3	100.6	163.9	0.0	163.94	1.000 Level 1	
8,600.0	6,834.3	6,834.3	6,834.3	42.3	136.7	-90.36	1,894.3	100.6	227.6	62.6	164.96	1.379 Level 3	
8,700.0	6,834.9	6,834.9	6,834.9	44.1	136.7	-90.56	1,894.3	100.6	311.0	145.0	165.99	1.873	
8,800.0	6,835.4	6,835.4	6,835.4	45.9	136.7	-90.76	1,894.3	100.6	402.0	235.0	167.03	2.407	
8,900.0	6,835.9	6,835.9	6,835.9	47.7	136.7	-90.97	1,894.3	100.6	496.5	328.4	168.08	2.954	
9,000.0	6,836.4	6,836.4	6,836.4	49.6	136.7	-91.17	1,894.3	100.6	592.8	423.7	169.13	3.505	
9,100.0	6,836.9	6,836.9	6,836.9	51.4	136.7	-91.38	1,894.3	100.6	690.2	520.0	170.19	4.055	
9,200.0	6,837.5	6,837.5	6,837.5	53.2	136.7	-91.58	1,894.3	100.6	788.2	616.9	171.26	4.602	
9,300.0	6,838.0	6,838.0	6,838.0	55.1	136.8	-91.78	1,894.3	100.6	886.7	714.3	172.33	5.145	
9,400.0	6,838.5	6,838.5	6,838.5	56.9	136.8	-91.99	1,894.3	100.6	985.4	812.0	173.40	5.683	

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Reference Site:	Guttersen 31Q-401 Pad Sec.31-T3N-R63W	MD Reference:	WELL @ 4838.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Guttersen 31T-441	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:	Reference Datum

Reference Depths are relative to WELL @ 4838.0ft (Original Well Elev) Coordinates are relative to: Guttersen 31T-441
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: 0.66°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Guttersen 31T-441
Project:	SEC.31-T3N-R63W	TVD Reference:	WELL @ 4838.0ft (Original Well Elev)
Reference Site:	Guttersen 31Q-401 Pad Sec.31-T3N-R63W	MD Reference:	WELL @ 4838.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Guttersen 31T-441	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
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