PETROLEUM DEVELOPMENT CORP Weld County CO

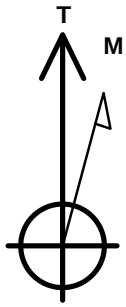
Well Name: **Guttersen 31T-201**
Surface Location: Guttersen 31Q-401 Pad Sec.31-T3N-R63W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
Ground Elevation: 4823.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1308192.46	3285467.50	40.174870	-104.478390	

Original Well Elev WELL @ 4838.0ft (Original Well Elev)

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
BHL 500'FNL, 1495'FEL	6618.0	4699.5	536.4	Point



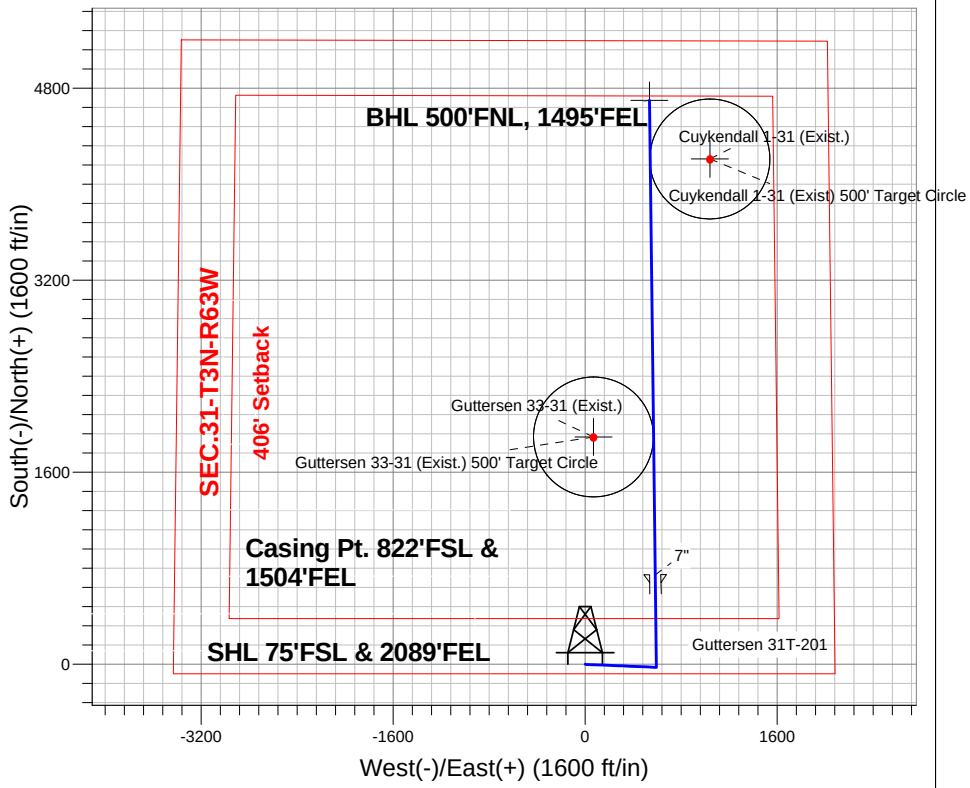
Azimuths to True North
Magnetic North: 8.43°

Magnetic Field
Strength: 52836.9snT
Dip Angle: 66.85°
Date: 5/31/2013
Model: IGRF2010

Guttersen 31Q-401 Pad Sec.31-T3N-R63W
Guttersen 31T-201
Plan #1 (5-31-13)
11:53, May 31 2013

ANNOTATIONS

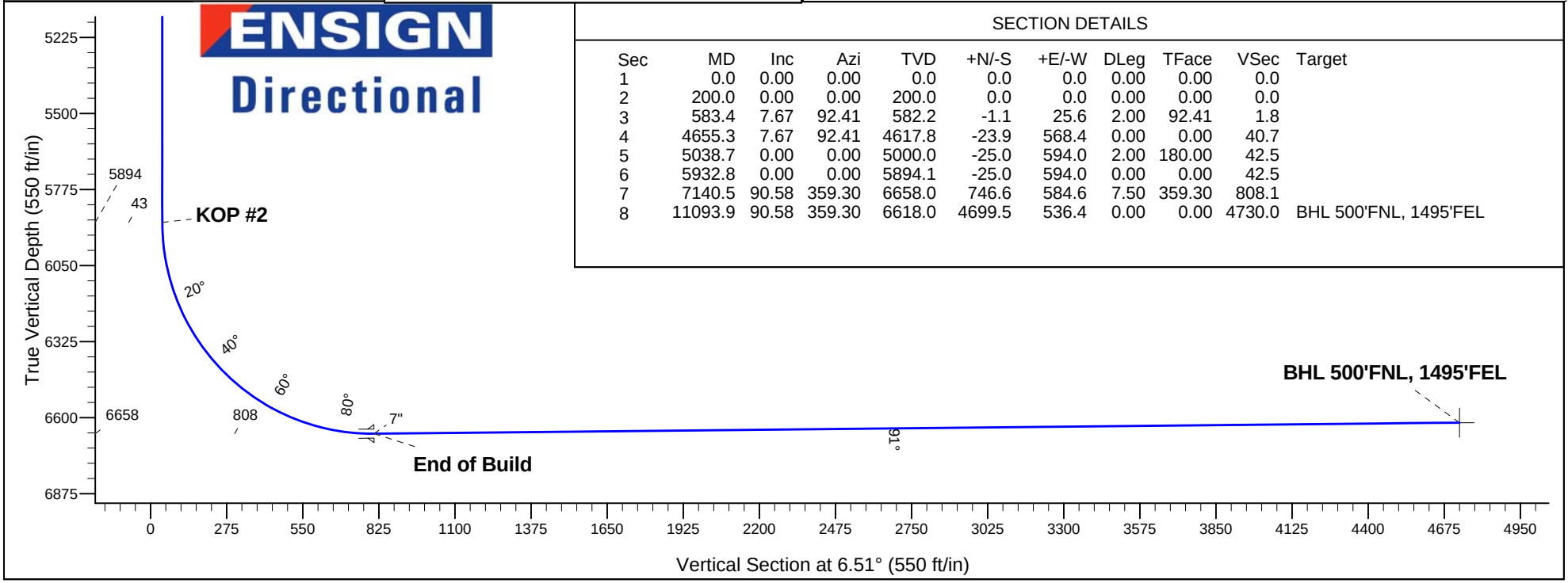
TVD	MD	Annotation
200.0	200.0	KOP #1
5894.1	5932.8	KOP #2
6658.0	7140.5	End of Build



ENSIGN Directional

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	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
3	583.4	7.67	92.41	582.2	-1.1	25.6	2.00	92.41	1.8	
4	4655.3	7.67	92.41	4617.8	-23.9	568.4	0.00	0.00	40.7	
5	5038.7	0.00	0.00	5000.0	-25.0	594.0	2.00	180.00	42.5	
6	5932.8	0.00	0.00	5894.1	-25.0	594.0	0.00	0.00	42.5	
7	7140.5	90.58	359.30	6658.0	746.6	584.6	7.50	359.30	808.1	
8	11093.9	90.58	359.30	6618.0	4699.5	536.4	0.00	0.00	4730.0	BHL 500'FNL, 1495'FEL



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.31-T3N-R63W
Guttersen 31Q-401 Pad Sec.31-T3N-R63W
Guttersen 31T-201

Wellbore #1

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

Standard Planning Report

31 May, 2013

Database:	Landmark	**Local Co-ordinate Reference:**	Well Guttersen 31T-201
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-201	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (5-31-13)		

Project SEC.31-T3N-R63W, Weld County, Colorado

Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

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

Site Position:		**Northing:**	1,308,191.41 ft	**Latitude:**	40.174870
From:	Lat/Long	**Easting:**	3,285,375.30 ft	**Longitude:**	-104.478720
Position Uncertainty:	0.0 ft	**Slot Radius:**	"	**Grid Convergence:**	0.66 °

Well Guttersen 31T-201

Well Position	**+N/-S**	0.0 ft	**Northing:**	1,308,192.46 ft	**Latitude:**	40.174870
	+E/-W	92.2 ft	**Easting:**	3,285,467.50 ft	**Longitude:**	-104.478390
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	4,823.0 ft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/31/2013	8.43	66.85	52,837

Design Plan #1 (5-31-13)

Audit Notes:

Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	0.0

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	6.51

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
583.4	7.67	92.41	582.2	-1.1	25.6	2.00	2.00	0.00	92.41	
4,655.3	7.67	92.41	4,617.8	-23.9	568.4	0.00	0.00	0.00	0.00	
5,038.7	0.00	0.00	5,000.0	-25.0	594.0	2.00	-2.00	0.00	180.00	
5,932.8	0.00	0.00	5,894.1	-25.0	594.0	0.00	0.00	0.00	0.00	
7,140.5	90.58	359.30	6,658.0	746.6	584.6	7.50	7.50	0.00	359.30	
11,093.9	90.58	359.30	6,618.0	4,699.5	536.4	0.00	0.00	0.00	0.00	BHL 500'FNL, 1495

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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-201	**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
Cuykendall 1-31 (Exist) 500' Target Circle - 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
KOP #1									
240.0	0.80	92.41	240.0	0.0	0.3	0.0	2.00	2.00	0.00
280.0	1.60	92.41	280.0	0.0	1.1	0.1	2.00	2.00	0.00
320.0	2.40	92.41	320.0	-0.1	2.5	0.2	2.00	2.00	0.00
360.0	3.20	92.41	359.9	-0.2	4.5	0.3	2.00	2.00	0.00
400.0	4.00	92.41	399.8	-0.3	7.0	0.5	2.00	2.00	0.00
440.0	4.80	92.41	439.7	-0.4	10.0	0.7	2.00	2.00	0.00
480.0	5.60	92.41	479.6	-0.6	13.7	1.0	2.00	2.00	0.00
520.0	6.40	92.41	519.3	-0.8	17.8	1.3	2.00	2.00	0.00
560.0	7.20	92.41	559.1	-0.9	22.6	1.6	2.00	2.00	0.00
583.4	7.67	92.41	582.2	-1.1	25.6	1.8	2.00	2.00	0.00
600.0	7.67	92.41	598.7	-1.2	27.8	2.0	0.00	0.00	0.00
640.0	7.67	92.41	638.4	-1.4	33.1	2.4	0.00	0.00	0.00
680.0	7.67	92.41	678.0	-1.6	38.5	2.8	0.00	0.00	0.00
720.0	7.67	92.41	717.6	-1.8	43.8	3.1	0.00	0.00	0.00
760.0	7.67	92.41	757.3	-2.1	49.1	3.5	0.00	0.00	0.00
800.0	7.67	92.41	796.9	-2.3	54.5	3.9	0.00	0.00	0.00
840.0	7.67	92.41	836.6	-2.5	59.8	4.3	0.00	0.00	0.00
880.0	7.67	92.41	876.2	-2.7	65.1	4.7	0.00	0.00	0.00
920.0	7.67	92.41	915.8	-3.0	70.5	5.0	0.00	0.00	0.00
960.0	7.67	92.41	955.5	-3.2	75.8	5.4	0.00	0.00	0.00
1,000.0	7.67	92.41	995.1	-3.4	81.1	5.8	0.00	0.00	0.00
1,040.0	7.67	92.41	1,034.8	-3.6	86.5	6.2	0.00	0.00	0.00
1,080.0	7.67	92.41	1,074.4	-3.9	91.8	6.6	0.00	0.00	0.00
1,120.0	7.67	92.41	1,114.1	-4.1	97.1	7.0	0.00	0.00	0.00
1,160.0	7.67	92.41	1,153.7	-4.3	102.5	7.3	0.00	0.00	0.00
1,200.0	7.67	92.41	1,193.3	-4.5	107.8	7.7	0.00	0.00	0.00
1,240.0	7.67	92.41	1,233.0	-4.8	113.1	8.1	0.00	0.00	0.00
1,280.0	7.67	92.41	1,272.6	-5.0	118.5	8.5	0.00	0.00	0.00
1,320.0	7.67	92.41	1,312.3	-5.2	123.8	8.9	0.00	0.00	0.00
1,360.0	7.67	92.41	1,351.9	-5.4	129.1	9.2	0.00	0.00	0.00
1,400.0	7.67	92.41	1,391.6	-5.7	134.5	9.6	0.00	0.00	0.00
1,440.0	7.67	92.41	1,431.2	-5.9	139.8	10.0	0.00	0.00	0.00
1,480.0	7.67	92.41	1,470.8	-6.1	145.1	10.4	0.00	0.00	0.00
1,520.0	7.67	92.41	1,510.5	-6.3	150.4	10.8	0.00	0.00	0.00
1,560.0	7.67	92.41	1,550.1	-6.6	155.8	11.2	0.00	0.00	0.00
1,600.0	7.67	92.41	1,589.8	-6.8	161.1	11.5	0.00	0.00	0.00
1,640.0	7.67	92.41	1,629.4	-7.0	166.4	11.9	0.00	0.00	0.00
1,680.0	7.67	92.41	1,669.1	-7.2	171.8	12.3	0.00	0.00	0.00
1,720.0	7.67	92.41	1,708.7	-7.5	177.1	12.7	0.00	0.00	0.00
1,760.0	7.67	92.41	1,748.3	-7.7	182.4	13.1	0.00	0.00	0.00
1,800.0	7.67	92.41	1,788.0	-7.9	187.8	13.4	0.00	0.00	0.00
1,840.0	7.67	92.41	1,827.6	-8.1	193.1	13.8	0.00	0.00	0.00
1,880.0	7.67	92.41	1,867.3	-8.4	198.4	14.2	0.00	0.00	0.00
1,920.0	7.67	92.41	1,906.9	-8.6	203.8	14.6	0.00	0.00	0.00

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Site:	Guttersen 31Q-401 Pad Sec.31-T3N-R63W	**North Reference:**	True
Well:	Guttersen 31T-201	**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	7.67	92.41	1,946.5	-8.8	209.1	15.0	0.00	0.00	0.00
2,000.0	7.67	92.41	1,986.2	-9.0	214.4	15.4	0.00	0.00	0.00
2,040.0	7.67	92.41	2,025.8	-9.2	219.8	15.7	0.00	0.00	0.00
2,080.0	7.67	92.41	2,065.5	-9.5	225.1	16.1	0.00	0.00	0.00
2,120.0	7.67	92.41	2,105.1	-9.7	230.4	16.5	0.00	0.00	0.00
2,160.0	7.67	92.41	2,144.8	-9.9	235.8	16.9	0.00	0.00	0.00
2,200.0	7.67	92.41	2,184.4	-10.1	241.1	17.3	0.00	0.00	0.00
2,240.0	7.67	92.41	2,224.0	-10.4	246.4	17.6	0.00	0.00	0.00
2,280.0	7.67	92.41	2,263.7	-10.6	251.8	18.0	0.00	0.00	0.00
2,320.0	7.67	92.41	2,303.3	-10.8	257.1	18.4	0.00	0.00	0.00
2,360.0	7.67	92.41	2,343.0	-11.0	262.4	18.8	0.00	0.00	0.00
2,400.0	7.67	92.41	2,382.6	-11.3	267.8	19.2	0.00	0.00	0.00
2,440.0	7.67	92.41	2,422.3	-11.5	273.1	19.6	0.00	0.00	0.00
2,480.0	7.67	92.41	2,461.9	-11.7	278.4	19.9	0.00	0.00	0.00
2,520.0	7.67	92.41	2,501.5	-11.9	283.8	20.3	0.00	0.00	0.00
2,560.0	7.67	92.41	2,541.2	-12.2	289.1	20.7	0.00	0.00	0.00
2,600.0	7.67	92.41	2,580.8	-12.4	294.4	21.1	0.00	0.00	0.00
2,640.0	7.67	92.41	2,620.5	-12.6	299.8	21.5	0.00	0.00	0.00
2,680.0	7.67	92.41	2,660.1	-12.8	305.1	21.8	0.00	0.00	0.00
2,720.0	7.67	92.41	2,699.8	-13.1	310.4	22.2	0.00	0.00	0.00
2,760.0	7.67	92.41	2,739.4	-13.3	315.7	22.6	0.00	0.00	0.00
2,800.0	7.67	92.41	2,779.0	-13.5	321.1	23.0	0.00	0.00	0.00
2,840.0	7.67	92.41	2,818.7	-13.7	326.4	23.4	0.00	0.00	0.00
2,880.0	7.67	92.41	2,858.3	-14.0	331.7	23.8	0.00	0.00	0.00
2,920.0	7.67	92.41	2,898.0	-14.2	337.1	24.1	0.00	0.00	0.00
2,960.0	7.67	92.41	2,937.6	-14.4	342.4	24.5	0.00	0.00	0.00
3,000.0	7.67	92.41	2,977.2	-14.6	347.7	24.9	0.00	0.00	0.00
3,040.0	7.67	92.41	3,016.9	-14.9	353.1	25.3	0.00	0.00	0.00
3,080.0	7.67	92.41	3,056.5	-15.1	358.4	25.7	0.00	0.00	0.00
3,120.0	7.67	92.41	3,096.2	-15.3	363.7	26.0	0.00	0.00	0.00
3,160.0	7.67	92.41	3,135.8	-15.5	369.1	26.4	0.00	0.00	0.00
3,200.0	7.67	92.41	3,175.5	-15.8	374.4	26.8	0.00	0.00	0.00
3,240.0	7.67	92.41	3,215.1	-16.0	379.7	27.2	0.00	0.00	0.00
3,280.0	7.67	92.41	3,254.7	-16.2	385.1	27.6	0.00	0.00	0.00
3,320.0	7.67	92.41	3,294.4	-16.4	390.4	28.0	0.00	0.00	0.00
3,360.0	7.67	92.41	3,334.0	-16.7	395.7	28.3	0.00	0.00	0.00
3,400.0	7.67	92.41	3,373.7	-16.9	401.1	28.7	0.00	0.00	0.00
3,440.0	7.67	92.41	3,413.3	-17.1	406.4	29.1	0.00	0.00	0.00
3,480.0	7.67	92.41	3,453.0	-17.3	411.7	29.5	0.00	0.00	0.00
3,520.0	7.67	92.41	3,492.6	-17.6	417.1	29.9	0.00	0.00	0.00
3,560.0	7.67	92.41	3,532.2	-17.8	422.4	30.2	0.00	0.00	0.00
3,600.0	7.67	92.41	3,571.9	-18.0	427.7	30.6	0.00	0.00	0.00
3,640.0	7.67	92.41	3,611.5	-18.2	433.1	31.0	0.00	0.00	0.00
3,680.0	7.67	92.41	3,651.2	-18.5	438.4	31.4	0.00	0.00	0.00
3,720.0	7.67	92.41	3,690.8	-18.7	443.7	31.8	0.00	0.00	0.00
3,760.0	7.67	92.41	3,730.5	-18.9	449.1	32.2	0.00	0.00	0.00
3,800.0	7.67	92.41	3,770.1	-19.1	454.4	32.5	0.00	0.00	0.00
3,840.0	7.67	92.41	3,809.7	-19.3	459.7	32.9	0.00	0.00	0.00
3,880.0	7.67	92.41	3,849.4	-19.6	465.1	33.3	0.00	0.00	0.00
3,920.0	7.67	92.41	3,889.0	-19.8	470.4	33.7	0.00	0.00	0.00
3,960.0	7.67	92.41	3,928.7	-20.0	475.7	34.1	0.00	0.00	0.00
4,000.0	7.67	92.41	3,968.3	-20.2	481.1	34.4	0.00	0.00	0.00
4,040.0	7.67	92.41	4,008.0	-20.5	486.4	34.8	0.00	0.00	0.00

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Site:	Guttersen 31Q-401 Pad Sec.31-T3N-R63W	**North Reference:**	True
Well:	Guttersen 31T-201	**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)
4,080.0	7.67	92.41	4,047.6	-20.7	491.7	35.2	0.00	0.00	0.00
4,120.0	7.67	92.41	4,087.2	-20.9	497.0	35.6	0.00	0.00	0.00
4,160.0	7.67	92.41	4,126.9	-21.1	502.4	36.0	0.00	0.00	0.00
4,200.0	7.67	92.41	4,166.5	-21.4	507.7	36.4	0.00	0.00	0.00
4,240.0	7.67	92.41	4,206.2	-21.6	513.0	36.7	0.00	0.00	0.00
4,280.0	7.67	92.41	4,245.8	-21.8	518.4	37.1	0.00	0.00	0.00
4,320.0	7.67	92.41	4,285.4	-22.0	523.7	37.5	0.00	0.00	0.00
4,360.0	7.67	92.41	4,325.1	-22.3	529.0	37.9	0.00	0.00	0.00
4,400.0	7.67	92.41	4,364.7	-22.5	534.4	38.3	0.00	0.00	0.00
4,440.0	7.67	92.41	4,404.4	-22.7	539.7	38.6	0.00	0.00	0.00
4,480.0	7.67	92.41	4,444.0	-22.9	545.0	39.0	0.00	0.00	0.00
4,520.0	7.67	92.41	4,483.7	-23.2	550.4	39.4	0.00	0.00	0.00
4,560.0	7.67	92.41	4,523.3	-23.4	555.7	39.8	0.00	0.00	0.00
4,600.0	7.67	92.41	4,562.9	-23.6	561.0	40.2	0.00	0.00	0.00
4,640.0	7.67	92.41	4,602.6	-23.8	566.4	40.5	0.00	0.00	0.00
4,655.3	7.67	92.41	4,617.8	-23.9	568.4	40.7	0.00	0.00	0.00
4,680.0	7.17	92.41	4,642.2	-24.1	571.6	40.9	2.00	-2.00	0.00
4,720.0	6.37	92.41	4,682.0	-24.3	576.3	41.3	2.00	-2.00	0.00
4,760.0	5.57	92.41	4,721.7	-24.4	580.5	41.6	2.00	-2.00	0.00
4,800.0	4.77	92.41	4,761.6	-24.6	584.1	41.8	2.00	-2.00	0.00
4,840.0	3.97	92.41	4,801.5	-24.7	587.1	42.0	2.00	-2.00	0.00
4,880.0	3.17	92.41	4,841.4	-24.8	589.6	42.2	2.00	-2.00	0.00
4,920.0	2.37	92.41	4,881.3	-24.9	591.5	42.4	2.00	-2.00	0.00
4,960.0	1.57	92.41	4,921.3	-25.0	592.9	42.5	2.00	-2.00	0.00
5,000.0	0.77	92.41	4,961.3	-25.0	593.7	42.5	2.00	-2.00	0.00
5,038.7	0.00	0.00	5,000.0	-25.0	594.0	42.5	2.00	-2.00	0.00
5,040.0	0.00	0.00	5,001.3	-25.0	594.0	42.5	0.00	0.00	0.00
5,080.0	0.00	0.00	5,041.3	-25.0	594.0	42.5	0.00	0.00	0.00
5,120.0	0.00	0.00	5,081.3	-25.0	594.0	42.5	0.00	0.00	0.00
5,160.0	0.00	0.00	5,121.3	-25.0	594.0	42.5	0.00	0.00	0.00
5,200.0	0.00	0.00	5,161.3	-25.0	594.0	42.5	0.00	0.00	0.00
5,240.0	0.00	0.00	5,201.3	-25.0	594.0	42.5	0.00	0.00	0.00
5,280.0	0.00	0.00	5,241.3	-25.0	594.0	42.5	0.00	0.00	0.00
5,320.0	0.00	0.00	5,281.3	-25.0	594.0	42.5	0.00	0.00	0.00
5,360.0	0.00	0.00	5,321.3	-25.0	594.0	42.5	0.00	0.00	0.00
5,400.0	0.00	0.00	5,361.3	-25.0	594.0	42.5	0.00	0.00	0.00
5,440.0	0.00	0.00	5,401.3	-25.0	594.0	42.5	0.00	0.00	0.00
5,480.0	0.00	0.00	5,441.3	-25.0	594.0	42.5	0.00	0.00	0.00
5,520.0	0.00	0.00	5,481.3	-25.0	594.0	42.5	0.00	0.00	0.00
5,560.0	0.00	0.00	5,521.3	-25.0	594.0	42.5	0.00	0.00	0.00
5,600.0	0.00	0.00	5,561.3	-25.0	594.0	42.5	0.00	0.00	0.00
5,640.0	0.00	0.00	5,601.3	-25.0	594.0	42.5	0.00	0.00	0.00
5,680.0	0.00	0.00	5,641.3	-25.0	594.0	42.5	0.00	0.00	0.00
5,720.0	0.00	0.00	5,681.3	-25.0	594.0	42.5	0.00	0.00	0.00
5,760.0	0.00	0.00	5,721.3	-25.0	594.0	42.5	0.00	0.00	0.00
5,800.0	0.00	0.00	5,761.3	-25.0	594.0	42.5	0.00	0.00	0.00
5,840.0	0.00	0.00	5,801.3	-25.0	594.0	42.5	0.00	0.00	0.00
5,880.0	0.00	0.00	5,841.3	-25.0	594.0	42.5	0.00	0.00	0.00
5,920.0	0.00	0.00	5,881.3	-25.0	594.0	42.5	0.00	0.00	0.00
5,932.8	0.00	0.00	5,894.1	-25.0	594.0	42.5	0.00	0.00	0.00
KOP #2									
5,960.0	2.04	359.30	5,921.3	-24.5	594.0	43.0	7.50	7.50	0.00

Database:	Landmark	**Local Co-ordinate Reference:**	Well Guttersen 31T-201
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-201	**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)
6,000.0	5.04	359.30	5,961.2	-22.0	594.0	45.5	7.50	7.50	0.00
6,040.0	8.04	359.30	6,001.0	-17.5	593.9	50.0	7.50	7.50	0.00
6,080.0	11.04	359.30	6,040.4	-10.9	593.8	56.6	7.50	7.50	0.00
6,120.0	14.04	359.30	6,079.4	-2.2	593.7	65.2	7.50	7.50	0.00
6,160.0	17.04	359.30	6,118.0	8.5	593.6	75.8	7.50	7.50	0.00
6,200.0	20.04	359.30	6,155.9	21.2	593.4	88.4	7.50	7.50	0.00
6,240.0	23.04	359.30	6,193.1	35.9	593.3	103.0	7.50	7.50	0.00
6,280.0	26.04	359.30	6,229.5	52.5	593.1	119.5	7.50	7.50	0.00
6,320.0	29.04	359.30	6,264.9	71.0	592.8	137.8	7.50	7.50	0.00
6,360.0	32.04	359.30	6,299.4	91.4	592.6	158.0	7.50	7.50	0.00
6,400.0	35.04	359.30	6,332.7	113.4	592.3	179.9	7.50	7.50	0.00
6,440.0	38.04	359.30	6,364.9	137.3	592.0	203.5	7.50	7.50	0.00
6,480.0	41.04	359.30	6,395.7	162.7	591.7	228.8	7.50	7.50	0.00
6,520.0	44.04	359.30	6,425.2	189.8	591.4	255.6	7.50	7.50	0.00
6,560.0	47.04	359.30	6,453.2	218.3	591.0	283.9	7.50	7.50	0.00
6,600.0	50.04	359.30	6,479.7	248.3	590.7	313.7	7.50	7.50	0.00
6,640.0	53.04	359.30	6,504.5	279.6	590.3	344.7	7.50	7.50	0.00
6,680.0	56.04	359.30	6,527.7	312.2	589.9	377.0	7.50	7.50	0.00
6,720.0	59.04	359.30	6,549.2	345.9	589.5	410.5	7.50	7.50	0.00
6,760.0	62.04	359.30	6,568.9	380.7	589.1	445.1	7.50	7.50	0.00
6,800.0	65.04	359.30	6,586.7	416.5	588.6	480.6	7.50	7.50	0.00
6,840.0	68.04	359.30	6,602.6	453.2	588.2	517.0	7.50	7.50	0.00
6,880.0	71.04	359.30	6,616.6	490.7	587.7	554.2	7.50	7.50	0.00
6,920.0	74.04	359.30	6,628.6	528.8	587.3	592.0	7.50	7.50	0.00
6,960.0	77.04	359.30	6,638.6	567.6	586.8	630.4	7.50	7.50	0.00
7,000.0	80.04	359.30	6,646.5	606.8	586.3	669.3	7.50	7.50	0.00
7,040.0	83.04	359.30	6,652.4	646.3	585.8	708.6	7.50	7.50	0.00
7,080.0	86.04	359.30	6,656.2	686.1	585.3	748.1	7.50	7.50	0.00
7,120.0	89.04	359.30	6,658.0	726.1	584.8	787.7	7.50	7.50	0.00
7,140.5	90.58	359.30	6,658.0	746.6	584.6	808.1	7.50	7.50	0.00
End of Build - 7"									
7,160.0	90.58	359.30	6,657.8	766.1	584.4	827.4	0.02	0.02	0.00
7,200.0	90.58	359.30	6,657.4	806.1	583.9	867.1	0.00	0.00	0.00
7,240.0	90.58	359.30	6,657.0	846.1	583.4	906.8	0.00	0.00	0.00
7,280.0	90.58	359.30	6,656.6	886.1	582.9	946.5	0.00	0.00	0.00
7,320.0	90.58	359.30	6,656.2	926.1	582.4	986.1	0.00	0.00	0.00
7,360.0	90.58	359.30	6,655.8	966.1	581.9	1,025.8	0.00	0.00	0.00
7,400.0	90.58	359.30	6,655.4	1,006.0	581.4	1,065.5	0.00	0.00	0.00
7,440.0	90.58	359.30	6,655.0	1,046.0	581.0	1,105.2	0.00	0.00	0.00
7,480.0	90.58	359.30	6,654.6	1,086.0	580.5	1,144.9	0.00	0.00	0.00
7,520.0	90.58	359.30	6,654.2	1,126.0	580.0	1,184.5	0.00	0.00	0.00
7,560.0	90.58	359.30	6,653.8	1,166.0	579.5	1,224.2	0.00	0.00	0.00
7,600.0	90.58	359.30	6,653.4	1,206.0	579.0	1,263.9	0.00	0.00	0.00
7,640.0	90.58	359.30	6,653.0	1,246.0	578.5	1,303.6	0.00	0.00	0.00
7,680.0	90.58	359.30	6,652.6	1,286.0	578.0	1,343.3	0.00	0.00	0.00
7,720.0	90.58	359.30	6,652.2	1,326.0	577.5	1,383.0	0.00	0.00	0.00
7,760.0	90.58	359.30	6,651.7	1,366.0	577.1	1,422.6	0.00	0.00	0.00
7,800.0	90.58	359.30	6,651.3	1,406.0	576.6	1,462.3	0.00	0.00	0.00
7,840.0	90.58	359.30	6,650.9	1,446.0	576.1	1,502.0	0.00	0.00	0.00
7,880.0	90.58	359.30	6,650.5	1,486.0	575.6	1,541.7	0.00	0.00	0.00
7,920.0	90.58	359.30	6,650.1	1,526.0	575.1	1,581.4	0.00	0.00	0.00
7,960.0	90.58	359.30	6,649.7	1,566.0	574.6	1,621.0	0.00	0.00	0.00
8,000.0	90.58	359.30	6,649.3	1,606.0	574.1	1,660.7	0.00	0.00	0.00

Database:	Landmark	**Local Co-ordinate Reference:**	Well Guttersen 31T-201
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-201	**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)
8,040.0	90.58	359.30	6,648.9	1,646.0	573.6	1,700.4	0.00	0.00	0.00
8,080.0	90.58	359.30	6,648.5	1,686.0	573.2	1,740.1	0.00	0.00	0.00
8,120.0	90.58	359.30	6,648.1	1,726.0	572.7	1,779.8	0.00	0.00	0.00
8,160.0	90.58	359.30	6,647.7	1,766.0	572.2	1,819.4	0.00	0.00	0.00
8,200.0	90.58	359.30	6,647.3	1,805.9	571.7	1,859.1	0.00	0.00	0.00
8,240.0	90.58	359.30	6,646.9	1,845.9	571.2	1,898.8	0.00	0.00	0.00
8,280.0	90.58	359.30	6,646.5	1,885.9	570.7	1,938.5	0.00	0.00	0.00
8,320.0	90.58	359.30	6,646.1	1,925.9	570.2	1,978.2	0.00	0.00	0.00
8,360.0	90.58	359.30	6,645.7	1,965.9	569.7	2,017.9	0.00	0.00	0.00
8,400.0	90.58	359.30	6,645.3	2,005.9	569.3	2,057.5	0.00	0.00	0.00
8,440.0	90.58	359.30	6,644.9	2,045.9	568.8	2,097.2	0.00	0.00	0.00
8,480.0	90.58	359.30	6,644.5	2,085.9	568.3	2,136.9	0.00	0.00	0.00
8,520.0	90.58	359.30	6,644.1	2,125.9	567.8	2,176.6	0.00	0.00	0.00
8,560.0	90.58	359.30	6,643.6	2,165.9	567.3	2,216.3	0.00	0.00	0.00
8,600.0	90.58	359.30	6,643.2	2,205.9	566.8	2,255.9	0.00	0.00	0.00
8,640.0	90.58	359.30	6,642.8	2,245.9	566.3	2,295.6	0.00	0.00	0.00
8,680.0	90.58	359.30	6,642.4	2,285.9	565.8	2,335.3	0.00	0.00	0.00
8,720.0	90.58	359.30	6,642.0	2,325.9	565.4	2,375.0	0.00	0.00	0.00
8,760.0	90.58	359.30	6,641.6	2,365.9	564.9	2,414.7	0.00	0.00	0.00
8,800.0	90.58	359.30	6,641.2	2,405.9	564.4	2,454.4	0.00	0.00	0.00
8,840.0	90.58	359.30	6,640.8	2,445.9	563.9	2,494.0	0.00	0.00	0.00
8,880.0	90.58	359.30	6,640.4	2,485.9	563.4	2,533.7	0.00	0.00	0.00
8,920.0	90.58	359.30	6,640.0	2,525.9	562.9	2,573.4	0.00	0.00	0.00
8,960.0	90.58	359.30	6,639.6	2,565.9	562.4	2,613.1	0.00	0.00	0.00
9,000.0	90.58	359.30	6,639.2	2,605.8	561.9	2,652.8	0.00	0.00	0.00
9,040.0	90.58	359.30	6,638.8	2,645.8	561.5	2,692.4	0.00	0.00	0.00
9,080.0	90.58	359.30	6,638.4	2,685.8	561.0	2,732.1	0.00	0.00	0.00
9,120.0	90.58	359.30	6,638.0	2,725.8	560.5	2,771.8	0.00	0.00	0.00
9,160.0	90.58	359.30	6,637.6	2,765.8	560.0	2,811.5	0.00	0.00	0.00
9,200.0	90.58	359.30	6,637.2	2,805.8	559.5	2,851.2	0.00	0.00	0.00
9,240.0	90.58	359.30	6,636.8	2,845.8	559.0	2,890.9	0.00	0.00	0.00
9,280.0	90.58	359.30	6,636.4	2,885.8	558.5	2,930.5	0.00	0.00	0.00
9,320.0	90.58	359.30	6,636.0	2,925.8	558.0	2,970.2	0.00	0.00	0.00
9,360.0	90.58	359.30	6,635.6	2,965.8	557.6	3,009.9	0.00	0.00	0.00
9,400.0	90.58	359.30	6,635.1	3,005.8	557.1	3,049.6	0.00	0.00	0.00
9,440.0	90.58	359.30	6,634.7	3,045.8	556.6	3,089.3	0.00	0.00	0.00
9,480.0	90.58	359.30	6,634.3	3,085.8	556.1	3,128.9	0.00	0.00	0.00
9,520.0	90.58	359.30	6,633.9	3,125.8	555.6	3,168.6	0.00	0.00	0.00
9,560.0	90.58	359.30	6,633.5	3,165.8	555.1	3,208.3	0.00	0.00	0.00
9,600.0	90.58	359.30	6,633.1	3,205.8	554.6	3,248.0	0.00	0.00	0.00
9,640.0	90.58	359.30	6,632.7	3,245.8	554.1	3,287.7	0.00	0.00	0.00
9,680.0	90.58	359.30	6,632.3	3,285.8	553.7	3,327.4	0.00	0.00	0.00
9,720.0	90.58	359.30	6,631.9	3,325.8	553.2	3,367.0	0.00	0.00	0.00
9,760.0	90.58	359.30	6,631.5	3,365.8	552.7	3,406.7	0.00	0.00	0.00
9,800.0	90.58	359.30	6,631.1	3,405.7	552.2	3,446.4	0.00	0.00	0.00
9,840.0	90.58	359.30	6,630.7	3,445.7	551.7	3,486.1	0.00	0.00	0.00
9,880.0	90.58	359.30	6,630.3	3,485.7	551.2	3,525.8	0.00	0.00	0.00
9,920.0	90.58	359.30	6,629.9	3,525.7	550.7	3,565.4	0.00	0.00	0.00
9,960.0	90.58	359.30	6,629.5	3,565.7	550.3	3,605.1	0.00	0.00	0.00
10,000.0	90.58	359.30	6,629.1	3,605.7	549.8	3,644.8	0.00	0.00	0.00
10,040.0	90.58	359.30	6,628.7	3,645.7	549.3	3,684.5	0.00	0.00	0.00
10,080.0	90.58	359.30	6,628.3	3,685.7	548.8	3,724.2	0.00	0.00	0.00
10,120.0	90.58	359.30	6,627.9	3,725.7	548.3	3,763.9	0.00	0.00	0.00

Database:	Landmark	**Local Co-ordinate Reference:**	Well Guttersen 31T-201
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-201	**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)
10,160.0	90.58	359.30	6,627.5	3,765.7	547.8	3,803.5	0.00	0.00	0.00
10,200.0	90.58	359.30	6,627.0	3,805.7	547.3	3,843.2	0.00	0.00	0.00
10,240.0	90.58	359.30	6,626.6	3,845.7	546.8	3,882.9	0.00	0.00	0.00
10,280.0	90.58	359.30	6,626.2	3,885.7	546.4	3,922.6	0.00	0.00	0.00
10,320.0	90.58	359.30	6,625.8	3,925.7	545.9	3,962.3	0.00	0.00	0.00
10,360.0	90.58	359.30	6,625.4	3,965.7	545.4	4,001.9	0.00	0.00	0.00
10,400.0	90.58	359.30	6,625.0	4,005.7	544.9	4,041.6	0.00	0.00	0.00
10,440.0	90.58	359.30	6,624.6	4,045.7	544.4	4,081.3	0.00	0.00	0.00
10,480.0	90.58	359.30	6,624.2	4,085.7	543.9	4,121.0	0.00	0.00	0.00
10,520.0	90.58	359.30	6,623.8	4,125.7	543.4	4,160.7	0.00	0.00	0.00
10,560.0	90.58	359.30	6,623.4	4,165.6	542.9	4,200.3	0.00	0.00	0.00
10,600.0	90.58	359.30	6,623.0	4,205.6	542.5	4,240.0	0.00	0.00	0.00
10,640.0	90.58	359.30	6,622.6	4,245.6	542.0	4,279.7	0.00	0.00	0.00
10,680.0	90.58	359.30	6,622.2	4,285.6	541.5	4,319.4	0.00	0.00	0.00
10,720.0	90.58	359.30	6,621.8	4,325.6	541.0	4,359.1	0.00	0.00	0.00
10,760.0	90.58	359.30	6,621.4	4,365.6	540.5	4,398.8	0.00	0.00	0.00
10,800.0	90.58	359.30	6,621.0	4,405.6	540.0	4,438.4	0.00	0.00	0.00
10,840.0	90.58	359.30	6,620.6	4,445.6	539.5	4,478.1	0.00	0.00	0.00
10,880.0	90.58	359.30	6,620.2	4,485.6	539.0	4,517.8	0.00	0.00	0.00
10,920.0	90.58	359.30	6,619.8	4,525.6	538.6	4,557.5	0.00	0.00	0.00
10,960.0	90.58	359.30	6,619.4	4,565.6	538.1	4,597.2	0.00	0.00	0.00
11,000.0	90.58	359.30	6,619.0	4,605.6	537.6	4,636.8	0.00	0.00	0.00
11,040.0	90.58	359.30	6,618.5	4,645.6	537.1	4,676.5	0.00	0.00	0.00
11,080.0	90.58	359.30	6,618.1	4,685.6	536.6	4,716.2	0.00	0.00	0.00
11,093.9	90.58	359.30	6,618.0	4,699.5	536.4	4,730.0	0.00	0.00	0.00
BHL 500'FNL, 1495'FEL									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,140.5	6,658.0	7"	7	8-3/4

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
200.0	200.0	0.0	0.0	KOP #1
5,932.8	5,894.1	-25.0	594.0	KOP #2
7,140.5	6,658.0	746.6	584.6	End of Build

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.31-T3N-R63W
Guttersen 31Q-401 Pad Sec.31-T3N-R63W
Guttersen 31T-201

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

Anticollision Report

31 May, 2013

ENSIGN Directional

Anticollision Report

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Guttersen 31T-201
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-201	**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	11,093.2	Plan #1 (5-31-13) (Wellbore #1)	MWD	MWD - Standard

Summary

Site Name / Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Guttersen 31Q-401 Pad Sec.31-T3N-R63W						
Cuykendall 1-31 (Exist.) - Wellbore #1 - Wellbore #1	10,599.6	6,623.0	496.9	312.6	2.695	CC
Cuykendall 1-31 (Exist.) - Wellbore #1 - Wellbore #1	10,600.0	6,623.0	496.9	312.6	2.695	ES, SF
Guttersen 31Q-221 - Wellbore #1 - Plan #1 (5-31-13)	200.0	200.0	61.5	60.8	91.174	CC, ES
Guttersen 31Q-221 - Wellbore #1 - Plan #1 (5-31-13)	11,093.9	11,057.2	653.8	540.0	5.747	SF
Guttersen 31Q-401 - Wellbore #1 - Plan #1 (5-31-13)	200.0	200.0	92.2	91.5	136.761	CC, ES
Guttersen 31Q-401 - Wellbore #1 - Plan #1 (5-31-13)	11,093.9	11,215.9	971.9	864.5	9.046	SF
Guttersen 31T-441 - Wellbore #1 - Plan #1 (5-31-13)	200.0	200.0	30.7	30.1	45.587	CC, ES
Guttersen 31T-441 - Wellbore #1 - Plan #1 (5-31-13)	11,000.0	11,129.6	422.0	350.6	5.905	SF
Guttersen 33-31 (Exist.) - Wellbore #1 - Wellbore #1	8,294.5	6,646.3	500.7	340.9	3.133	CC
Guttersen 33-31 (Exist.) - Wellbore #1 - Wellbore #1	8,300.0	6,646.3	500.8	340.9	3.133	ES, SF

Offset Design Guttersen 31Q-401 Pad Sec.31-T3N-R63W - Cuykendall 1-31 (Exist.) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 7300-UNKNOWN **Offset Well Error:** 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
9,800.0	6,631.1	6,631.1	6,631.1	67.5	132.6	90.93	4,211.3	1,039.4	941.4	766.0	175.45	5.366	
9,900.0	6,630.1	6,630.1	6,630.1	69.4	132.6	90.82	4,211.3	1,039.4	858.1	681.6	176.56	4.860	
10,000.0	6,629.1	6,629.1	6,629.1	71.2	132.6	90.70	4,211.3	1,039.4	778.8	601.1	177.67	4.383	
10,100.0	6,628.1	6,628.1	6,628.1	73.1	132.6	90.58	4,211.3	1,039.4	704.7	525.9	178.79	3.941	
10,200.0	6,627.0	6,627.0	6,627.0	75.0	132.5	90.47	4,211.3	1,039.4	637.7	457.8	179.90	3.545	
10,300.0	6,626.0	6,626.0	6,626.0	76.8	132.5	90.35	4,211.3	1,039.4	580.3	399.2	181.02	3.206	
10,400.0	6,625.0	6,625.0	6,625.0	78.7	132.5	90.23	4,211.3	1,039.4	535.5	353.4	182.14	2.940	
10,500.0	6,624.0	6,624.0	6,624.0	80.6	132.5	90.12	4,211.3	1,039.4	506.8	323.6	183.26	2.766	
10,599.6	6,623.0	6,623.0	6,623.0	82.5	132.5	90.00	4,211.3	1,039.4	496.9	312.6	184.38	2.695	CC
10,600.0	6,623.0	6,623.0	6,623.0	82.5	132.5	90.00	4,211.3	1,039.4	496.9	312.6	184.39	2.695	ES, SF
10,700.0	6,622.0	6,622.0	6,622.0	84.4	132.4	89.88	4,211.3	1,039.4	507.0	321.5	185.51	2.733	
10,800.0	6,621.0	6,621.0	6,621.0	86.2	132.4	89.77	4,211.3	1,039.4	535.8	349.2	186.64	2.871	
10,900.0	6,620.0	6,620.0	6,620.0	88.1	132.4	89.65	4,211.3	1,039.4	580.7	392.9	187.77	3.093	
11,000.0	6,619.0	6,619.0	6,619.0	90.0	132.4	89.53	4,211.3	1,039.4	638.2	449.3	188.89	3.378	
11,093.9	6,618.0	6,618.0	6,618.0	91.5	132.4	89.42	4,211.3	1,039.4	700.9	511.5	189.42	3.700	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Guttersen 31T-201
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-201	**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

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-90.00	0.0	-61.5	61.5				
100.0	100.0	100.0	100.0	0.1	0.1	-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	0.0	-61.5	61.5	60.8	0.67	91.174	CC, ES
300.0	300.0	300.0	300.0	0.6	0.6	177.66	0.0	-61.5	63.2	62.1	1.12	56.477	
400.0	399.8	399.8	399.8	0.8	0.8	177.83	0.0	-61.5	68.5	66.9	1.57	43.679	
500.0	499.5	499.5	499.5	1.0	1.0	178.07	0.0	-61.5	77.2	75.1	2.02	38.177	
583.4	582.2	582.2	582.2	1.3	1.2	178.29	0.0	-61.5	87.1	84.7	2.40	36.251	
600.0	598.7	598.7	598.7	1.3	1.2	178.33	0.0	-61.5	89.3	86.8	2.48	36.064	
700.0	697.8	697.8	697.8	1.6	1.5	178.55	0.0	-61.5	102.6	99.7	2.92	35.094	
800.0	796.9	796.9	796.9	1.9	1.7	178.71	0.0	-61.5	116.0	112.6	3.38	34.337	
900.0	896.0	896.0	896.0	2.3	1.9	178.85	0.0	-61.5	129.3	125.5	3.83	33.733	
1,000.0	995.1	995.1	995.1	2.6	2.1	178.95	0.0	-61.5	142.6	138.4	4.29	33.243	
1,100.0	1,094.2	1,094.2	1,094.2	2.9	2.3	179.04	0.0	-61.5	156.0	151.2	4.75	32.837	
1,200.0	1,193.3	1,193.3	1,193.3	3.3	2.6	179.12	0.0	-61.5	169.3	164.1	5.21	32.497	
1,300.0	1,292.4	1,292.4	1,292.4	3.6	2.8	179.18	0.0	-61.5	182.7	177.0	5.67	32.208	
1,400.0	1,391.6	1,391.6	1,391.6	3.9	3.0	179.24	0.0	-61.5	196.0	189.9	6.13	31.959	
1,500.0	1,490.7	1,490.7	1,490.7	4.3	3.2	179.29	0.0	-61.5	209.4	202.8	6.60	31.743	
1,600.0	1,589.8	1,589.8	1,589.8	4.6	3.5	179.33	0.0	-61.5	222.7	215.6	7.06	31.553	
1,700.0	1,688.9	1,688.9	1,688.9	4.9	3.7	179.37	0.0	-61.5	236.0	228.5	7.52	31.385	
1,800.0	1,788.0	1,788.0	1,788.0	5.3	3.9	179.40	0.0	-61.5	249.4	241.4	7.98	31.236	
1,900.0	1,887.1	1,887.1	1,887.1	5.6	4.1	179.43	0.0	-61.5	262.7	254.3	8.45	31.102	
2,000.0	1,986.2	1,986.2	1,986.2	5.9	4.4	179.46	0.0	-61.5	276.1	267.2	8.91	30.982	
2,100.0	2,085.3	2,085.3	2,085.3	6.3	4.6	179.48	0.0	-61.5	289.4	280.0	9.37	30.873	
2,200.0	2,184.4	2,184.4	2,184.4	6.6	4.8	179.51	0.0	-61.5	302.7	292.9	9.84	30.774	
2,300.0	2,283.5	2,283.5	2,283.5	7.0	5.0	179.53	0.0	-61.5	316.1	305.8	10.30	30.683	
2,400.0	2,382.6	2,382.6	2,382.6	7.3	5.2	179.55	0.0	-61.5	329.4	318.7	10.77	30.600	
2,500.0	2,481.7	2,481.7	2,481.7	7.6	5.5	179.56	0.0	-61.5	342.8	331.5	11.23	30.524	
2,600.0	2,580.8	2,580.8	2,580.8	8.0	5.7	179.58	0.0	-61.5	356.1	344.4	11.69	30.453	
2,700.0	2,679.9	2,679.9	2,679.9	8.3	5.9	179.60	0.0	-61.5	369.5	357.3	12.16	30.388	
2,800.0	2,779.0	2,779.0	2,779.0	8.6	6.1	179.61	0.0	-61.5	382.8	370.2	12.62	30.327	
2,900.0	2,878.1	2,878.1	2,878.1	9.0	6.4	179.62	0.0	-61.5	396.1	383.1	13.09	30.271	
3,000.0	2,977.2	2,977.2	2,977.2	9.3	6.6	179.64	0.0	-61.5	409.5	395.9	13.55	30.218	
3,100.0	3,076.4	3,069.4	3,069.4	9.7	6.8	179.61	-0.3	-62.1	423.4	409.5	13.99	30.275	
3,200.0	3,175.5	3,159.1	3,159.0	10.0	6.9	179.46	-1.3	-64.5	439.5	425.0	14.40	30.511	
3,300.0	3,274.6	3,248.0	3,247.8	10.3	7.1	179.21	-3.3	-68.8	457.5	442.7	14.81	30.885	
3,400.0	3,373.7	3,336.2	3,335.7	10.7	7.3	178.87	-6.0	-75.0	477.7	462.4	15.23	31.372	
3,500.0	3,472.8	3,429.8	3,428.9	11.0	7.5	178.45	-9.7	-83.1	499.5	483.8	15.65	31.914	
3,600.0	3,571.9	3,527.3	3,525.9	11.4	7.7	178.04	-13.5	-91.7	521.5	505.4	16.08	32.425	
3,700.0	3,671.0	3,624.7	3,623.0	11.7	7.9	177.67	-17.4	-100.3	543.5	527.0	16.52	32.903	
3,800.0	3,770.1	3,736.3	3,734.2	12.0	8.1	177.33	-21.2	-108.9	564.4	547.5	16.99	33.222	
3,900.0	3,869.2	3,850.3	3,848.0	12.4	8.4	177.15	-23.8	-114.6	582.7	565.2	17.47	33.357	
4,000.0	3,968.3	3,965.4	3,963.0	12.7	8.6	177.11	-24.9	-117.2	598.3	580.3	17.94	33.350	
4,100.0	4,067.4	4,069.8	4,067.4	13.0	8.8	177.17	-25.0	-117.4	611.8	593.4	18.39	33.269	
4,200.0	4,166.5	4,168.9	4,166.5	13.4	9.0	177.23	-25.0	-117.4	625.1	606.2	18.84	33.170	
4,300.0	4,265.6	4,268.0	4,265.6	13.7	9.2	177.29	-25.0	-117.4	638.4	619.1	19.31	33.065	
4,400.0	4,364.7	4,367.1	4,364.7	14.1	9.5	177.35	-25.0	-117.4	651.7	632.0	19.77	32.964	
4,500.0	4,463.8	4,466.2	4,463.8	14.4	9.7	177.40	-25.0	-117.4	665.1	644.8	20.23	32.868	
4,600.0	4,562.9	4,565.3	4,562.9	14.7	9.9	177.45	-25.0	-117.4	678.4	657.7	20.70	32.776	
4,655.3	4,617.8	4,620.2	4,617.8	14.9	10.0	177.48	-25.0	-117.4	685.8	664.8	20.95	32.727	
4,700.0	4,662.1	4,664.5	4,662.1	15.1	10.1	177.50	-25.0	-117.4	691.4	670.2	21.17	32.664	
4,800.0	4,761.6	4,764.0	4,761.6	15.3	10.3	177.55	-25.0	-117.4	701.4	679.8	21.59	32.482	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Guttersen 31T-201
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-201	**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

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,900.0	4,861.4	4,863.7	4,861.4	15.5	10.6	177.58	-25.0	-117.4	708.0	686.0	22.00	32.189	
5,000.0	4,961.3	4,963.7	4,961.3	15.6	10.8	177.59	-25.0	-117.4	711.1	688.7	22.37	31.793	
5,038.7	5,000.0	5,002.4	5,000.0	15.7	10.9	-90.00	-25.0	-117.4	711.4	688.9	22.49	31.635	
5,038.7	5,000.0	5,002.4	5,000.0	15.7	10.9	-90.00	-25.0	-117.4	711.4	688.9	22.49	31.635	
5,100.0	5,061.3	5,063.7	5,061.3	15.7	11.0	-90.00	-25.0	-117.4	711.4	688.6	22.74	31.287	
5,200.0	5,161.3	5,163.7	5,161.3	15.9	11.2	-90.00	-25.0	-117.4	711.4	688.2	23.15	30.734	
5,300.0	5,261.3	5,263.7	5,261.3	16.0	11.5	-90.00	-25.0	-117.4	711.4	687.8	23.56	30.198	
5,400.0	5,361.3	5,363.7	5,361.3	16.2	11.7	-90.00	-25.0	-117.4	711.4	687.4	23.97	29.678	
5,500.0	5,461.3	5,463.7	5,461.3	16.3	11.9	-90.00	-25.0	-117.4	711.4	687.0	24.38	29.175	
5,600.0	5,561.3	5,563.7	5,561.3	16.5	12.1	-90.00	-25.0	-117.4	711.4	686.6	24.80	28.688	
5,700.0	5,661.3	5,663.7	5,661.3	16.6	12.3	-90.00	-25.0	-117.4	711.4	686.1	25.21	28.215	
5,800.0	5,761.3	5,763.7	5,761.3	16.8	12.6	-90.00	-25.0	-117.4	711.4	685.7	25.63	27.756	
5,900.0	5,861.3	5,863.7	5,861.3	17.0	12.8	-90.00	-25.0	-117.4	711.4	685.3	26.05	27.311	
5,921.9	5,883.2	5,885.6	5,883.2	17.0	12.8	-90.00	-25.0	-117.4	711.4	685.2	26.14	27.215	
5,932.8	5,894.1	5,896.5	5,894.1	17.0	12.9	-90.00	-25.0	-117.4	711.4	685.2	26.18	27.168	
5,938.7	5,900.0	5,902.4	5,900.0	17.0	12.9	-89.30	-25.0	-117.4	711.4	685.1	26.21	27.137	
5,950.0	5,911.3	5,913.7	5,911.3	17.0	12.9	-89.30	-24.8	-117.4	711.4	685.1	26.26	27.091	
6,000.0	5,961.2	5,963.7	5,961.2	17.1	13.0	-89.30	-22.0	-117.4	711.3	684.9	26.46	26.879	
6,050.0	6,010.8	6,013.7	6,010.8	17.2	13.1	-89.31	-16.0	-117.4	711.2	684.6	26.67	26.671	
6,100.0	6,060.0	6,063.7	6,060.0	17.3	13.2	-89.32	-6.8	-117.4	711.1	684.3	26.87	26.468	
6,150.0	6,108.4	6,113.7	6,108.4	17.3	13.3	-89.33	5.7	-117.4	711.0	683.9	27.07	26.268	
6,200.0	6,155.9	6,163.7	6,155.9	17.4	13.5	-89.34	21.3	-117.4	710.8	683.5	27.26	26.070	
6,250.0	6,202.3	6,213.7	6,202.3	17.5	13.6	-89.36	39.9	-117.4	710.6	683.1	27.46	25.873	
6,300.0	6,247.3	6,263.7	6,247.3	17.6	13.7	-89.38	61.6	-117.4	710.3	682.6	27.67	25.674	
6,350.0	6,290.9	6,313.7	6,290.9	17.7	13.8	-89.40	86.1	-117.4	710.0	682.1	27.87	25.472	
6,360.7	6,300.0	6,324.4	6,300.0	17.7	13.8	-89.41	91.7	-117.4	709.9	682.0	27.92	25.426	
6,400.0	6,332.7	6,363.7	6,332.7	17.8	13.9	-89.43	113.5	-117.4	709.7	681.6	28.09	25.264	
6,450.0	6,372.7	6,413.7	6,372.7	17.9	14.1	-89.45	143.5	-117.4	709.3	681.0	28.32	25.048	
6,485.7	6,400.0	6,449.4	6,400.0	17.9	14.2	-89.48	166.5	-117.4	709.0	680.5	28.49	24.887	
6,500.0	6,410.6	6,463.7	6,410.6	18.0	14.3	-89.48	176.1	-117.4	708.9	680.3	28.56	24.821	
6,550.0	6,446.3	6,513.7	6,446.3	18.1	14.5	-89.52	211.0	-117.4	708.5	679.7	28.82	24.583	
6,600.0	6,479.7	6,563.7	6,479.7	18.2	14.8	-89.55	248.3	-117.4	708.0	678.9	29.10	24.331	
6,632.5	6,500.0	6,596.2	6,500.0	18.3	15.0	-89.57	273.6	-117.4	707.7	678.4	29.30	24.158	
6,650.0	6,510.5	6,613.7	6,510.5	18.4	15.1	-89.59	287.6	-117.4	707.5	678.1	29.40	24.064	
6,700.0	6,538.7	6,663.7	6,538.7	18.6	15.4	-89.62	328.9	-117.4	707.0	677.3	29.73	23.781	
6,750.0	6,564.1	6,713.7	6,564.1	18.9	15.8	-89.66	371.9	-117.4	706.5	676.4	30.09	23.482	
6,800.0	6,586.7	6,763.7	6,586.7	19.2	16.2	-89.70	416.5	-117.4	706.0	675.5	30.47	23.167	
6,833.1	6,600.0	6,796.7	6,600.0	19.4	16.5	-89.73	446.8	-117.4	705.6	674.9	30.75	22.950	
6,850.0	6,606.3	6,813.7	6,606.3	19.5	16.7	-89.75	462.5	-117.4	705.4	674.5	30.89	22.837	
6,900.0	6,622.9	6,863.7	6,622.8	19.9	17.2	-89.79	509.7	-117.4	704.8	673.5	31.33	22.494	
6,950.0	6,636.3	6,913.6	6,636.3	20.3	17.8	-89.83	557.8	-117.4	704.3	672.4	31.81	22.139	
7,000.0	6,646.5	6,963.6	6,646.5	20.8	18.3	-89.88	606.8	-117.4	703.7	671.3	32.31	21.775	
7,050.0	6,653.6	7,013.6	6,653.6	21.3	18.9	-89.92	656.2	-117.4	703.1	670.2	32.85	21.404	
7,100.0	6,657.4	7,063.6	6,657.3	21.8	19.6	-89.97	706.1	-117.4	702.4	669.0	33.40	21.029	
7,140.5	6,658.0	7,104.2	6,658.0	22.3	20.1	-90.01	746.6	-117.4	702.0	668.1	33.87	20.725	
7,200.0	6,657.4	7,163.6	6,657.4	23.0	20.9	-90.01	806.1	-117.4	701.2	666.6	34.60	20.266	
7,300.0	6,656.4	7,263.6	6,656.4	24.3	22.3	-90.01	906.1	-117.4	700.0	664.1	35.90	19.497	
7,400.0	6,655.4	7,363.6	6,655.4	25.7	23.8	-90.01	1,006.0	-117.4	698.8	661.5	37.31	18.729	
7,500.0	6,654.4	7,463.6	6,654.4	27.2	25.4	-90.01	1,106.0	-117.4	697.6	658.8	38.81	17.974	
7,600.0	6,653.4	7,563.6	6,653.4	28.7	27.0	-90.01	1,206.0	-117.4	696.4	656.0	40.40	17.239	
7,700.0	6,652.4	7,663.6	6,652.4	30.3	28.6	-90.01	1,306.0	-117.4	695.1	653.1	42.05	16.530	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Guttersen 31T-201
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-201	**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

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,800.0	6,651.3	7,763.6	6,651.3	31.9	30.3	-90.01	1,406.0	-117.4	693.9	650.1	43.78	15.851	
7,900.0	6,650.3	7,863.6	6,650.3	33.5	32.0	-90.01	1,506.0	-117.4	692.7	647.1	45.56	15.205	
8,000.0	6,649.3	7,963.6	6,649.3	35.2	33.7	-90.01	1,606.0	-117.4	691.5	644.1	47.39	14.591	
8,100.0	6,648.3	8,063.6	6,648.3	36.9	35.4	-90.01	1,706.0	-117.4	690.3	641.0	49.27	14.010	
8,200.0	6,647.3	8,163.6	6,647.3	38.6	37.2	-90.01	1,805.9	-117.4	689.0	637.9	51.19	13.460	
8,300.0	6,646.3	8,263.5	6,646.3	40.3	39.0	-90.01	1,905.9	-117.4	687.8	634.7	53.15	12.942	
8,400.0	6,645.3	8,363.5	6,645.3	42.0	40.7	-90.01	2,005.9	-117.4	686.6	631.5	55.14	12.453	
8,500.0	6,644.3	8,463.5	6,644.3	43.8	42.5	-90.01	2,105.9	-117.4	685.4	628.2	57.15	11.992	
8,600.0	6,643.2	8,563.5	6,643.2	45.6	44.3	-90.01	2,205.9	-117.4	684.2	625.0	59.20	11.558	
8,700.0	6,642.2	8,663.5	6,642.2	47.4	46.2	-90.01	2,305.9	-117.4	683.0	621.7	61.26	11.148	
8,800.0	6,641.2	8,763.5	6,641.2	49.2	48.0	-90.01	2,405.9	-117.4	681.7	618.4	63.35	10.761	
8,900.0	6,640.2	8,863.5	6,640.2	51.0	49.8	-90.01	2,505.9	-117.4	680.5	615.1	65.46	10.396	
9,000.0	6,639.2	8,963.5	6,639.2	52.8	51.7	-90.01	2,605.8	-117.4	679.3	611.7	67.59	10.051	
9,100.0	6,638.2	9,063.5	6,638.2	54.6	53.5	-90.01	2,705.8	-117.4	678.1	608.4	69.73	9.725	
9,200.0	6,637.2	9,163.5	6,637.2	56.4	55.3	-90.01	2,805.8	-117.4	676.9	605.0	71.88	9.416	
9,300.0	6,636.2	9,263.5	6,636.2	58.3	57.2	-90.01	2,905.8	-117.4	675.6	601.6	74.05	9.124	
9,400.0	6,635.1	9,363.5	6,635.1	60.1	59.1	-90.01	3,005.8	-117.4	674.4	598.2	76.23	8.847	
9,500.0	6,634.1	9,463.5	6,634.1	62.0	60.9	-90.01	3,105.8	-117.4	673.2	594.8	78.42	8.585	
9,600.0	6,633.1	9,563.4	6,633.1	63.8	62.8	-90.01	3,205.8	-117.4	672.0	591.4	80.62	8.335	
9,700.0	6,632.1	9,663.4	6,632.1	65.7	64.6	-90.01	3,305.8	-117.4	670.8	587.9	82.83	8.098	
9,800.0	6,631.1	9,763.4	6,631.1	67.5	66.5	-90.01	3,405.7	-117.4	669.6	584.5	85.05	7.872	
9,900.0	6,630.1	9,863.4	6,630.1	69.4	68.4	-90.01	3,505.7	-117.4	668.3	581.1	87.28	7.658	
10,000.0	6,629.1	9,963.4	6,629.1	71.2	70.3	-90.01	3,605.7	-117.4	667.1	577.6	89.51	7.453	
10,100.0	6,628.1	10,063.4	6,628.1	73.1	72.1	-90.01	3,705.7	-117.4	665.9	574.1	91.75	7.258	
10,200.0	6,627.0	10,163.4	6,627.0	75.0	74.0	-90.01	3,805.7	-117.4	664.7	570.7	94.00	7.071	
10,300.0	6,626.0	10,263.4	6,626.0	76.8	75.9	-90.01	3,905.7	-117.4	663.5	567.2	96.25	6.893	
10,400.0	6,625.0	10,363.4	6,625.0	78.7	77.8	-90.01	4,005.7	-117.4	662.2	563.7	98.51	6.722	
10,500.0	6,624.0	10,463.4	6,624.0	80.6	79.7	-90.01	4,105.7	-117.4	661.0	560.3	100.78	6.559	
10,600.0	6,623.0	10,563.4	6,623.0	82.5	81.6	-90.01	4,205.6	-117.4	659.8	556.8	103.04	6.403	
10,700.0	6,622.0	10,663.4	6,622.0	84.4	83.5	-90.01	4,305.6	-117.4	658.6	553.3	105.32	6.253	
10,800.0	6,621.0	10,763.4	6,621.0	86.2	85.3	-90.01	4,405.6	-117.4	657.4	549.8	107.59	6.110	
10,900.0	6,620.0	10,863.4	6,620.0	88.1	87.2	-90.01	4,505.6	-117.4	656.2	546.3	109.88	5.972	
11,000.0	6,619.0	10,963.3	6,619.0	90.0	89.1	-90.01	4,605.6	-117.4	654.9	542.8	112.16	5.839	
11,093.9	6,618.0	11,057.2	6,618.0	91.5	90.9	-90.01	4,699.5	-117.4	653.8	540.0	113.77	5.747 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Guttersen 31T-201
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-201	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-89.99	0.0	-92.2	92.2				
100.0	100.0	100.0	100.0	0.1	0.1	-89.99	0.0	-92.2	92.2	92.0	0.22	410.283	
200.0	200.0	200.0	200.0	0.3	0.3	-89.99	0.0	-92.2	92.2	91.5	0.67	136.761	CC, ES
300.0	300.0	300.0	300.0	0.6	0.6	177.64	0.0	-92.2	94.0	92.8	1.12	83.937	
400.0	399.8	399.8	399.8	0.8	0.8	177.76	0.0	-92.2	99.2	97.6	1.57	63.294	
500.0	499.5	499.5	499.5	1.0	1.0	177.94	0.0	-92.2	107.9	105.9	2.02	53.386	
583.4	582.2	582.2	582.2	1.3	1.2	178.10	0.0	-92.2	117.8	115.4	2.40	49.046	
600.0	598.7	598.7	598.7	1.3	1.2	178.14	0.0	-92.2	120.0	117.6	2.48	48.477	
700.0	697.8	697.8	697.8	1.6	1.5	178.32	0.0	-92.2	133.4	130.4	2.92	45.602	
800.0	796.9	796.9	796.9	1.9	1.7	178.48	0.0	-92.2	146.7	143.3	3.38	43.434	
900.0	896.0	896.0	896.0	2.3	1.9	178.60	0.0	-92.2	160.0	156.2	3.83	41.748	
1,000.0	995.1	995.1	995.1	2.6	2.1	178.71	0.0	-92.2	173.4	169.1	4.29	40.402	
1,100.0	1,094.2	1,089.9	1,089.8	2.9	2.3	178.76	-0.1	-93.3	187.8	183.1	4.73	39.704	
1,200.0	1,193.3	1,183.6	1,183.6	3.3	2.5	178.73	-0.4	-96.6	204.7	199.5	5.16	39.647	
1,300.0	1,292.4	1,276.6	1,276.4	3.6	2.7	178.63	-0.9	-102.2	223.9	218.3	5.60	40.018	
1,400.0	1,391.6	1,368.6	1,368.0	3.9	2.9	178.49	-1.7	-109.9	245.5	239.5	6.03	40.712	
1,500.0	1,490.7	1,465.1	1,464.1	4.3	3.1	178.33	-2.6	-119.5	268.6	262.1	6.47	41.487	
1,600.0	1,589.8	1,562.4	1,560.9	4.6	3.4	178.19	-3.5	-129.1	291.7	284.8	6.92	42.170	
1,700.0	1,688.9	1,659.7	1,657.7	4.9	3.6	178.08	-4.4	-138.8	314.8	307.4	7.36	42.751	
1,800.0	1,788.0	1,757.0	1,754.5	5.3	3.9	177.98	-5.4	-148.4	337.9	330.0	7.81	43.252	
1,900.0	1,887.1	1,854.3	1,851.3	5.6	4.1	177.89	-6.3	-158.1	360.9	352.7	8.26	43.682	
2,000.0	1,986.2	1,951.6	1,948.1	5.9	4.4	177.81	-7.2	-167.7	384.0	375.3	8.72	44.062	
2,100.0	2,085.3	2,048.9	2,044.9	6.3	4.7	177.74	-8.1	-177.4	407.1	398.0	9.17	44.396	
2,200.0	2,184.4	2,146.2	2,141.7	6.6	4.9	177.68	-9.1	-187.0	430.2	420.6	9.63	44.691	
2,300.0	2,283.5	2,243.5	2,238.6	7.0	5.2	177.63	-10.0	-196.7	453.3	443.2	10.08	44.954	
2,400.0	2,382.6	2,340.8	2,335.4	7.3	5.5	177.58	-10.9	-206.3	476.4	465.9	10.54	45.190	
2,500.0	2,481.7	2,438.1	2,432.2	7.6	5.7	177.53	-11.8	-216.0	499.5	488.5	11.00	45.402	
2,600.0	2,580.8	2,535.4	2,529.0	8.0	6.0	177.49	-12.8	-225.6	522.6	511.1	11.46	45.593	
2,700.0	2,679.9	2,632.7	2,625.8	8.3	6.3	177.46	-13.7	-235.3	545.7	533.8	11.92	45.767	
2,800.0	2,779.0	2,730.0	2,722.6	8.6	6.5	177.42	-14.6	-244.9	568.8	556.4	12.39	45.926	
2,900.0	2,878.1	2,827.3	2,819.4	9.0	6.8	177.39	-15.5	-254.6	591.9	579.0	12.85	46.070	
3,000.0	2,977.2	2,924.5	2,916.2	9.3	7.1	177.36	-16.5	-264.2	615.0	601.7	13.31	46.203	
3,100.0	3,076.4	3,021.8	3,013.0	9.7	7.4	177.33	-17.4	-273.9	638.1	624.3	13.77	46.326	
3,200.0	3,175.5	3,119.1	3,109.9	10.0	7.7	177.31	-18.3	-283.5	661.2	646.9	14.24	46.438	
3,300.0	3,274.6	3,216.4	3,206.7	10.3	7.9	177.28	-19.2	-293.2	684.3	669.6	14.70	46.543	
3,400.0	3,373.7	3,313.7	3,303.5	10.7	8.2	177.26	-20.2	-302.8	707.4	692.2	15.17	46.640	
3,500.0	3,472.8	3,411.0	3,400.3	11.0	8.5	177.24	-21.1	-312.5	730.5	714.8	15.63	46.730	
3,600.0	3,571.9	3,508.3	3,497.1	11.4	8.8	177.22	-22.0	-322.1	753.6	737.5	16.10	46.814	
3,700.0	3,671.0	3,605.6	3,593.9	11.7	9.1	177.20	-22.9	-331.8	776.7	760.1	16.56	46.892	
3,800.0	3,770.1	3,721.8	3,709.6	12.0	9.3	177.19	-23.9	-342.2	798.9	781.9	17.05	46.869	
3,900.0	3,869.2	3,846.1	3,833.7	12.4	9.6	177.20	-24.6	-349.6	818.1	800.6	17.52	46.709	
4,000.0	3,968.3	3,972.0	3,959.5	12.7	9.8	177.24	-25.0	-353.0	834.1	816.1	17.99	46.377	
4,100.0	4,067.4	4,079.9	4,067.4	13.0	10.0	177.28	-25.0	-353.2	847.6	829.2	18.43	45.978	
4,200.0	4,166.5	4,179.0	4,166.5	13.4	10.2	177.33	-25.0	-353.2	860.9	842.1	18.88	45.601	
4,300.0	4,265.6	4,278.1	4,265.6	13.7	10.4	177.37	-25.0	-353.2	874.3	854.9	19.33	45.237	
4,400.0	4,364.7	4,377.2	4,364.7	14.1	10.6	177.41	-25.0	-353.2	887.6	867.8	19.77	44.887	
4,500.0	4,463.8	4,476.3	4,463.8	14.4	10.7	177.44	-25.0	-353.2	900.9	880.7	20.22	44.550	
4,600.0	4,562.9	4,575.4	4,562.9	14.7	10.9	177.48	-25.0	-353.2	914.3	893.6	20.67	44.227	
4,655.3	4,617.8	4,630.2	4,617.8	14.9	11.0	177.50	-25.0	-353.2	921.6	900.7	20.92	44.053	
4,700.0	4,662.1	4,674.6	4,662.1	15.1	11.1	177.52	-25.0	-353.2	927.2	906.1	21.13	43.876	
4,800.0	4,761.6	4,774.0	4,761.6	15.3	11.3	177.56	-25.0	-353.2	937.3	915.7	21.56	43.468	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Guttersen 31T-201
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-201	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,900.0	4,861.4	4,873.8	4,861.4	15.5	11.5	177.58	-25.0	-353.2	943.9	921.9	21.96	42.972	
5,000.0	4,961.3	4,973.8	4,961.3	15.6	11.7	177.59	-25.0	-353.2	947.0	924.6	22.34	42.393	
5,038.7	5,000.0	5,012.5	5,000.0	15.7	11.8	-90.00	-25.0	-353.2	947.2	924.8	22.46	42.171	
5,038.7	5,000.0	5,012.5	5,000.0	15.7	11.8	-90.00	-25.0	-353.2	947.2	924.8	22.46	42.171	
5,100.0	5,061.3	5,073.8	5,061.3	15.7	11.9	-90.00	-25.0	-353.2	947.2	924.5	22.70	41.720	
5,200.0	5,161.3	5,173.8	5,161.3	15.9	12.1	-90.00	-25.0	-353.2	947.2	924.1	23.10	41.002	
5,300.0	5,261.3	5,273.8	5,261.3	16.0	12.3	-90.00	-25.0	-353.2	947.2	923.7	23.50	40.306	
5,400.0	5,361.3	5,373.8	5,361.3	16.2	12.5	-90.00	-25.0	-353.2	947.2	923.3	23.90	39.629	
5,500.0	5,461.3	5,473.8	5,461.3	16.3	12.7	-90.00	-25.0	-353.2	947.2	922.9	24.30	38.973	
5,600.0	5,561.3	5,573.8	5,561.3	16.5	12.9	-90.00	-25.0	-353.2	947.2	922.5	24.71	38.335	
5,700.0	5,661.3	5,673.8	5,661.3	16.6	13.1	-90.00	-25.0	-353.2	947.2	922.1	25.11	37.715	
5,800.0	5,761.3	5,773.8	5,761.3	16.8	13.3	-90.00	-25.0	-353.2	947.2	921.7	25.52	37.114	
5,900.0	5,861.3	5,873.8	5,861.3	17.0	13.5	-90.00	-25.0	-353.2	947.2	921.3	25.93	36.529	
5,932.8	5,894.1	5,906.6	5,894.1	17.0	13.6	-90.00	-25.0	-353.2	947.2	921.2	26.06	36.341	
5,938.7	5,900.0	5,912.5	5,900.0	17.0	13.6	-89.30	-25.0	-353.2	947.2	921.1	26.09	36.303	
5,950.0	5,911.3	5,923.8	5,911.3	17.0	13.6	-89.31	-25.0	-353.2	947.2	921.1	26.14	36.242	
6,000.0	5,961.2	5,973.7	5,961.2	17.1	13.7	-89.48	-25.0	-353.2	947.2	920.8	26.34	35.958	
6,050.0	6,010.8	6,023.3	6,010.8	17.2	13.8	-89.85	-25.0	-353.2	947.2	920.6	26.55	35.678	
6,065.8	6,026.5	6,038.9	6,026.5	17.2	13.8	-90.00	-25.0	-353.2	947.1	920.5	26.61	35.590	
6,100.0	6,060.0	6,072.5	6,060.0	17.3	13.9	-90.39	-25.0	-353.2	947.2	920.4	26.75	35.403	
6,150.0	6,108.4	6,122.2	6,109.7	17.3	14.0	-91.01	-23.0	-353.2	947.3	920.3	26.96	35.136	
6,200.0	6,155.9	6,172.6	6,159.8	17.4	14.1	-91.64	-17.7	-353.3	947.5	920.4	27.17	34.880	
6,250.0	6,202.3	6,223.7	6,210.2	17.5	14.2	-92.25	-8.9	-353.4	947.9	920.5	27.37	34.634	
6,300.0	6,247.3	6,275.6	6,260.6	17.6	14.3	-92.87	3.4	-353.5	948.4	920.8	27.57	34.395	
6,350.0	6,290.9	6,328.3	6,310.8	17.7	14.4	-93.47	19.4	-353.7	948.9	921.2	27.78	34.164	
6,360.7	6,300.0	6,339.7	6,321.5	17.7	14.5	-93.60	23.3	-353.8	949.1	921.2	27.82	34.113	
6,400.0	6,332.7	6,381.8	6,360.5	17.8	14.5	-94.07	39.1	-354.0	949.6	921.6	27.98	33.935	
6,450.0	6,372.7	6,436.1	6,409.4	17.9	14.7	-94.65	62.6	-354.2	950.3	922.1	28.19	33.706	
6,485.7	6,400.0	6,475.4	6,443.7	17.9	14.7	-95.06	81.8	-354.4	950.9	922.6	28.35	33.536	
6,500.0	6,410.6	6,491.3	6,457.3	18.0	14.8	-95.22	90.0	-354.5	951.1	922.7	28.42	33.473	
6,550.0	6,446.3	6,547.3	6,503.7	18.1	14.9	-95.76	121.3	-354.9	952.0	923.4	28.65	33.231	
6,600.0	6,479.7	6,604.1	6,548.4	18.2	15.1	-96.28	156.4	-355.3	952.9	924.0	28.90	32.975	
6,632.5	6,500.0	6,641.5	6,576.3	18.3	15.2	-96.61	181.2	-355.6	953.5	924.4	29.08	32.794	
6,650.0	6,510.5	6,661.7	6,590.9	18.4	15.3	-96.78	195.3	-355.8	953.8	924.7	29.17	32.699	
6,700.0	6,538.7	6,720.2	6,630.9	18.6	15.5	-97.25	237.9	-356.2	954.8	925.3	29.47	32.399	
6,750.0	6,564.1	6,779.4	6,668.0	18.9	15.8	-97.68	284.1	-356.8	955.7	925.9	29.80	32.074	
6,800.0	6,586.7	6,839.4	6,701.8	19.2	16.2	-98.08	333.6	-357.3	956.5	926.4	30.16	31.718	
6,833.1	6,600.0	6,879.5	6,722.1	19.4	16.5	-98.32	368.1	-357.7	957.1	926.7	30.42	31.459	
6,850.0	6,606.3	6,900.1	6,731.9	19.5	16.6	-98.44	386.3	-358.0	957.4	926.8	30.56	31.332	
6,900.0	6,622.9	6,961.4	6,758.0	19.9	17.2	-98.75	441.7	-358.6	958.1	927.1	31.00	30.905	
6,950.0	6,636.3	7,023.3	6,779.7	20.3	17.8	-99.02	499.6	-359.3	958.7	927.2	31.49	30.448	
7,000.0	6,646.5	7,085.6	6,796.8	20.8	18.4	-99.25	559.6	-360.0	959.3	927.3	32.02	29.961	
7,050.0	6,653.6	7,148.4	6,809.0	21.3	19.1	-99.42	621.1	-360.7	959.7	927.1	32.59	29.450	
7,100.0	6,657.4	7,206.2	6,816.0	21.8	19.8	-99.55	678.5	-361.3	960.0	926.8	33.18	28.937	
7,140.5	6,658.0	7,246.6	6,820.2	22.3	20.3	-99.71	718.7	-361.8	960.6	927.0	33.64	28.557	
7,200.0	6,657.4	7,313.4	6,826.0	23.0	21.2	-100.09	785.2	-362.6	961.5	927.2	34.33	28.005	
7,300.0	6,656.4	7,422.4	6,828.2	24.3	22.7	-100.29	894.2	-363.8	962.0	926.4	35.62	27.010	
7,400.0	6,655.4	7,522.4	6,828.7	25.7	24.2	-100.38	994.2	-365.0	962.2	925.3	36.95	26.043	
7,500.0	6,654.4	7,622.4	6,829.2	27.2	25.7	-100.47	1,094.2	-366.1	962.4	924.1	38.37	25.086	
7,600.0	6,653.4	7,722.4	6,829.8	28.7	27.3	-100.56	1,194.1	-367.3	962.7	922.8	39.86	24.150	
7,700.0	6,652.4	7,822.4	6,830.3	30.3	28.9	-100.65	1,294.1	-368.5	962.9	921.5	41.43	23.243	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Guttersen 31T-201
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-201	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,800.0	6,651.3	7,922.4	6,830.8	31.9	30.6	-100.74	1,394.1	-369.6	963.1	920.1	43.05	22.371	
7,900.0	6,650.3	8,022.4	6,831.3	33.5	32.3	-100.83	1,494.1	-370.8	963.3	918.6	44.73	21.537	
8,000.0	6,649.3	8,122.3	6,831.8	35.2	34.0	-100.92	1,594.1	-371.9	963.6	917.1	46.45	20.743	
8,100.0	6,648.3	8,222.3	6,832.4	36.9	35.7	-101.01	1,694.0	-373.1	963.8	915.6	48.22	19.988	
8,200.0	6,647.3	8,322.3	6,832.9	38.6	37.5	-101.10	1,794.0	-374.2	964.0	914.0	50.02	19.273	
8,300.0	6,646.3	8,422.3	6,833.4	40.3	39.2	-101.19	1,894.0	-375.4	964.3	912.4	51.86	18.595	
8,400.0	6,645.3	8,522.3	6,833.9	42.0	41.0	-101.28	1,994.0	-376.6	964.5	910.8	53.72	17.955	
8,500.0	6,644.3	8,622.3	6,834.4	43.8	42.8	-101.37	2,094.0	-377.7	964.8	909.2	55.61	17.350	
8,600.0	6,643.2	8,722.3	6,835.0	45.6	44.6	-101.46	2,193.9	-378.9	965.0	907.5	57.52	16.778	
8,700.0	6,642.2	8,822.3	6,835.5	47.4	46.4	-101.55	2,293.9	-380.0	965.3	905.8	59.45	16.238	
8,800.0	6,641.2	8,922.3	6,836.0	49.2	48.2	-101.64	2,393.9	-381.2	965.5	904.1	61.39	15.727	
8,900.0	6,640.2	9,022.2	6,836.5	51.0	50.1	-101.73	2,493.9	-382.4	965.8	902.4	63.36	15.244	
9,000.0	6,639.2	9,122.2	6,837.0	52.8	51.9	-101.82	2,593.9	-383.5	966.0	900.7	65.33	14.787	
9,100.0	6,638.2	9,222.2	6,837.6	54.6	53.7	-101.91	2,693.8	-384.7	966.3	899.0	67.32	14.354	
9,200.0	6,637.2	9,322.2	6,838.1	56.4	55.6	-102.00	2,793.8	-385.8	966.5	897.2	69.32	13.944	
9,300.0	6,636.2	9,422.2	6,838.6	58.3	57.4	-102.09	2,893.8	-387.0	966.8	895.5	71.32	13.555	
9,400.0	6,635.1	9,522.2	6,839.1	60.1	59.3	-102.18	2,993.8	-388.2	967.1	893.7	73.34	13.186	
9,500.0	6,634.1	9,622.2	6,839.6	62.0	61.1	-102.27	3,093.8	-389.3	967.3	892.0	75.36	12.836	
9,600.0	6,633.1	9,722.2	6,840.2	63.8	63.0	-102.35	3,193.7	-390.5	967.6	890.2	77.39	12.503	
9,700.0	6,632.1	9,822.1	6,840.7	65.7	64.9	-102.44	3,293.7	-391.6	967.9	888.5	79.42	12.187	
9,800.0	6,631.1	9,922.1	6,841.2	67.5	66.8	-102.53	3,393.7	-392.8	968.1	886.7	81.46	11.885	
9,900.0	6,630.1	10,022.1	6,841.7	69.4	68.6	-102.62	3,493.7	-394.0	968.4	884.9	83.50	11.598	
10,000.0	6,629.1	10,122.1	6,842.2	71.2	70.5	-102.71	3,593.7	-395.1	968.7	883.2	85.54	11.324	
10,100.0	6,628.1	10,222.1	6,842.8	73.1	72.4	-102.80	3,693.6	-396.3	969.0	881.4	87.59	11.062	
10,200.0	6,627.0	10,322.1	6,843.3	75.0	74.3	-102.89	3,793.6	-397.4	969.3	879.6	89.64	10.813	
10,300.0	6,626.0	10,422.1	6,843.8	76.8	76.1	-102.98	3,893.6	-398.6	969.5	877.9	91.69	10.574	
10,400.0	6,625.0	10,522.1	6,844.3	78.7	78.0	-103.07	3,993.6	-399.7	969.8	876.1	93.74	10.346	
10,500.0	6,624.0	10,622.1	6,844.8	80.6	79.9	-103.16	4,093.6	-400.9	970.1	874.3	95.80	10.127	
10,600.0	6,623.0	10,722.0	6,845.4	82.5	81.8	-103.25	4,193.5	-402.1	970.4	872.6	97.85	9.917	
10,700.0	6,622.0	10,822.0	6,845.9	84.4	83.7	-103.33	4,293.5	-403.2	970.7	870.8	99.90	9.717	
10,800.0	6,621.0	10,922.0	6,846.4	86.2	85.6	-103.42	4,393.5	-404.4	971.0	869.1	101.96	9.524	
10,900.0	6,620.0	11,022.0	6,846.9	88.1	87.5	-103.51	4,493.5	-405.5	971.3	867.3	104.01	9.339	
11,000.0	6,619.0	11,122.0	6,847.4	90.0	89.4	-103.60	4,593.5	-406.7	971.6	865.6	106.06	9.161	
11,093.9	6,618.0	11,215.9	6,847.9	91.5	91.1	-103.68	4,687.3	-407.8	971.9	864.5	107.43	9.046	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Guttersen 31T-201
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-201	**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-441 - Wellbore #1 - Plan #1 (5-31-13)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-89.98	0.0	-30.7	30.7				
100.0	100.0	100.0	100.0	0.1	0.1	-89.98	0.0	-30.7	30.7	30.5	0.22	136.761	
200.0	200.0	200.0	200.0	0.3	0.3	-89.98	0.0	-30.7	30.7	30.1	0.67	45.587	CC, ES
300.0	300.0	300.0	300.0	0.6	0.6	177.73	0.0	-30.7	32.5	31.4	1.12	29.017	
400.0	399.8	399.8	399.8	0.8	0.8	178.04	0.0	-30.7	37.7	36.1	1.57	24.065	
500.0	499.5	499.5	499.5	1.0	1.0	178.41	0.0	-30.7	46.4	44.4	2.02	22.970	
583.4	582.2	582.2	582.2	1.3	1.2	178.68	0.0	-30.7	56.3	53.9	2.40	23.456	
600.0	598.7	598.7	598.7	1.3	1.2	178.73	0.0	-30.7	58.6	56.1	2.48	23.652	
700.0	697.8	697.8	697.8	1.6	1.5	178.97	0.0	-30.7	71.9	69.0	2.92	24.587	
800.0	796.9	796.9	796.9	1.9	1.7	179.13	0.0	-30.7	85.2	81.9	3.38	25.240	
900.0	896.0	896.0	896.0	2.3	1.9	179.25	0.0	-30.7	98.6	94.7	3.83	25.719	
1,000.0	995.1	995.1	995.1	2.6	2.1	179.34	0.0	-30.7	111.9	107.6	4.29	26.084	
1,100.0	1,094.2	1,097.4	1,097.4	2.9	2.3	179.37	-0.1	-29.5	124.1	119.8	4.27	29.060	
1,200.0	1,193.3	1,200.4	1,200.3	3.3	2.5	179.33	-0.5	-25.5	133.5	128.9	4.61	28.940	
1,300.0	1,292.4	1,303.9	1,303.6	3.6	2.8	179.23	-1.1	-18.7	140.3	135.4	4.96	28.274	
1,400.0	1,391.6	1,407.3	1,406.5	3.9	3.0	179.06	-2.0	-9.2	144.4	139.1	5.31	27.200	
1,500.0	1,490.7	1,507.2	1,505.9	4.3	3.2	178.88	-2.9	1.2	147.5	141.8	5.65	26.102	
1,600.0	1,589.8	1,607.2	1,605.3	4.6	3.5	178.70	-3.9	11.5	150.5	144.5	5.99	25.139	
1,700.0	1,688.9	1,707.1	1,704.7	4.9	3.7	178.53	-4.9	21.8	153.5	147.2	6.32	24.286	
1,800.0	1,788.0	1,807.1	1,804.1	5.3	4.0	178.37	-5.8	32.1	156.5	149.9	6.65	23.523	
1,900.0	1,887.1	1,907.0	1,903.6	5.6	4.3	178.21	-6.8	42.4	159.6	152.6	6.99	22.839	
2,000.0	1,986.2	2,007.0	2,003.0	5.9	4.5	178.06	-7.7	52.7	162.6	155.3	7.32	22.220	
2,100.0	2,085.3	2,106.9	2,102.4	6.3	4.8	177.92	-8.7	63.0	165.6	158.0	7.65	21.657	
2,200.0	2,184.4	2,206.9	2,201.8	6.6	5.1	177.78	-9.6	73.3	168.7	160.7	7.98	21.143	
2,300.0	2,283.5	2,306.8	2,301.2	7.0	5.4	177.64	-10.6	83.6	171.7	163.4	8.31	20.671	
2,400.0	2,382.6	2,406.8	2,400.6	7.3	5.7	177.51	-11.5	94.0	174.7	166.1	8.63	20.237	
2,500.0	2,481.7	2,506.7	2,500.1	7.6	5.9	177.39	-12.5	104.3	177.8	168.8	8.96	19.835	
2,600.0	2,580.8	2,606.7	2,599.5	8.0	6.2	177.27	-13.4	114.6	180.8	171.5	9.29	19.463	
2,700.0	2,679.9	2,706.6	2,698.9	8.3	6.5	177.15	-14.4	124.9	183.8	174.2	9.62	19.117	
2,800.0	2,779.0	2,806.6	2,798.3	8.6	6.8	177.04	-15.4	135.2	186.9	176.9	9.94	18.794	
2,900.0	2,878.1	2,906.6	2,897.7	9.0	7.1	176.93	-16.3	145.5	189.9	179.7	10.27	18.492	
3,000.0	2,977.2	3,006.5	2,997.1	9.3	7.4	176.82	-17.3	155.8	193.0	182.4	10.60	18.210	
3,100.0	3,076.4	3,106.5	3,096.5	9.7	7.7	176.72	-18.2	166.1	196.0	185.1	10.92	17.944	
3,200.0	3,175.5	3,206.4	3,196.0	10.0	8.0	176.62	-19.2	176.4	199.0	187.8	11.25	17.694	
3,300.0	3,274.6	3,306.4	3,295.4	10.3	8.2	176.52	-20.1	186.8	202.1	190.5	11.58	17.459	
3,400.0	3,373.7	3,406.3	3,394.8	10.7	8.5	176.43	-21.1	197.1	205.1	193.2	11.90	17.237	
3,500.0	3,472.8	3,506.3	3,494.2	11.0	8.8	176.34	-22.0	207.4	208.2	195.9	12.23	17.026	
3,600.0	3,571.9	3,606.2	3,593.6	11.4	9.1	176.25	-23.0	217.7	211.2	198.7	12.55	16.827	
3,700.0	3,671.0	3,700.0	3,687.0	11.7	9.4	176.19	-23.8	226.5	215.2	202.4	12.85	16.749	
3,800.0	3,770.1	3,795.9	3,782.6	12.0	9.6	176.21	-24.4	233.1	221.7	208.6	13.14	16.869	
3,900.0	3,869.2	3,890.0	3,876.6	12.4	9.7	176.30	-24.8	237.3	230.6	217.2	13.45	17.151	
4,000.0	3,968.3	3,983.6	3,970.2	12.7	9.9	176.44	-25.0	239.1	242.0	228.2	13.76	17.580	
4,100.0	4,067.4	4,080.8	4,067.4	13.0	10.1	176.62	-25.0	239.3	255.2	236.5	18.61	13.714	
4,200.0	4,166.5	4,179.9	4,166.5	13.4	10.2	176.79	-25.0	239.3	268.5	249.4	19.05	14.096	
4,300.0	4,265.6	4,279.0	4,265.6	13.7	10.4	176.94	-25.0	239.3	281.8	262.3	19.49	14.459	
4,400.0	4,364.7	4,378.1	4,364.7	14.1	10.6	177.08	-25.0	239.3	295.1	275.2	19.93	14.804	
4,500.0	4,463.8	4,477.2	4,463.8	14.4	10.8	177.20	-25.0	239.3	308.4	288.1	20.38	15.135	
4,600.0	4,562.9	4,576.3	4,562.9	14.7	11.0	177.32	-25.0	239.3	321.8	300.9	20.83	15.450	
4,655.3	4,617.8	4,631.1	4,617.8	14.9	11.1	177.38	-25.0	239.3	329.1	308.1	21.07	15.618	
4,700.0	4,662.1	4,675.5	4,662.1	15.1	11.2	177.43	-25.0	239.3	334.8	313.5	21.27	15.739	
4,800.0	4,761.6	4,775.0	4,761.6	15.3	11.4	177.51	-25.0	239.3	344.8	323.1	21.66	15.918	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Guttersen 31T-201
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-201	**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-441 - Wellbore #1 - Plan #1 (5-31-13)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,900.0	4,861.4	4,874.7	4,861.4	15.5	11.6	177.57	-25.0	239.3	351.4	329.4	22.03	15.953	
5,000.0	4,961.3	4,974.7	4,961.3	15.6	11.8	177.59	-25.0	239.3	354.5	332.1	22.36	15.851	
5,038.7	5,000.0	5,013.4	5,000.0	15.7	11.8	-90.00	-25.0	239.3	354.7	332.3	22.47	15.790	
5,038.7	5,000.0	5,013.4	5,000.0	15.7	11.8	-90.00	-25.0	239.3	354.7	332.3	22.47	15.790	
5,100.0	5,061.3	5,074.7	5,061.3	15.7	12.0	-90.00	-25.0	239.3	354.7	332.0	22.71	15.621	
5,200.0	5,161.3	5,174.7	5,161.3	15.9	12.1	-90.00	-25.0	239.3	354.7	331.6	23.11	15.353	
5,300.0	5,261.3	5,274.7	5,261.3	16.0	12.3	-90.00	-25.0	239.3	354.7	331.2	23.51	15.092	
5,400.0	5,361.3	5,374.7	5,361.3	16.2	12.5	-90.00	-25.0	239.3	354.7	330.8	23.91	14.839	
5,500.0	5,461.3	5,474.7	5,461.3	16.3	12.7	-90.00	-25.0	239.3	354.7	330.4	24.31	14.593	
5,600.0	5,561.3	5,574.7	5,561.3	16.5	12.9	-90.00	-25.0	239.3	354.7	330.0	24.71	14.354	
5,700.0	5,661.3	5,674.7	5,661.3	16.6	13.1	-90.00	-25.0	239.3	354.7	329.6	25.12	14.122	
5,800.0	5,761.3	5,774.7	5,761.3	16.8	13.4	-90.00	-25.0	239.3	354.7	329.2	25.53	13.897	
5,900.0	5,861.3	5,874.7	5,861.3	17.0	13.6	-90.00	-25.0	239.3	354.7	328.8	25.94	13.678	
5,932.8	5,894.1	5,907.5	5,894.1	17.0	13.6	-90.00	-25.0	239.3	354.7	328.7	26.07	13.607	
5,938.7	5,900.0	5,913.4	5,900.0	17.0	13.6	-89.30	-25.0	239.3	354.7	328.6	26.10	13.590	
5,950.0	5,911.3	5,924.7	5,911.3	17.0	13.7	-89.33	-25.0	239.3	354.7	328.6	26.15	13.567	
6,000.0	5,961.2	5,974.6	5,961.2	17.1	13.8	-89.78	-25.0	239.3	354.7	328.4	26.36	13.458	
6,014.2	5,975.3	5,988.7	5,975.3	17.1	13.8	-90.00	-25.0	239.3	354.7	328.3	26.42	13.426	
6,050.0	6,010.8	6,024.2	6,010.8	17.2	13.9	-90.74	-25.0	239.3	354.7	328.2	26.58	13.346	
6,100.0	6,060.0	6,073.5	6,060.1	17.3	14.0	-92.19	-25.0	239.3	355.0	328.2	26.81	13.239	
6,150.0	6,108.4	6,123.6	6,110.2	17.3	14.1	-93.84	-22.9	239.2	355.5	328.5	27.05	13.142	
6,200.0	6,155.9	6,174.5	6,160.7	17.4	14.2	-95.48	-17.5	239.2	356.4	329.1	27.29	13.059	
6,250.0	6,202.3	6,226.1	6,211.6	17.5	14.3	-97.10	-8.6	239.1	357.6	330.1	27.52	12.995	
6,300.0	6,247.3	6,278.5	6,262.4	17.6	14.4	-98.70	3.9	238.9	359.0	331.3	27.72	12.950	
6,350.0	6,290.9	6,331.7	6,313.1	17.7	14.5	-100.25	20.2	238.7	360.7	332.8	27.91	12.924	
6,360.7	6,300.0	6,343.2	6,323.9	17.7	14.5	-100.58	24.2	238.7	361.1	333.1	27.95	12.919	
6,400.0	6,332.7	6,385.7	6,363.2	17.8	14.6	-101.76	40.3	238.5	362.6	334.5	28.08	12.915	
6,450.0	6,372.7	6,440.5	6,412.5	17.9	14.7	-103.22	64.2	238.2	364.7	336.5	28.22	12.926	
6,485.7	6,400.0	6,480.2	6,447.0	17.9	14.8	-104.23	83.7	237.9	366.3	338.0	28.31	12.941	
6,500.0	6,410.6	6,496.1	6,460.7	18.0	14.8	-104.62	92.1	237.8	367.0	338.6	28.33	12.951	
6,550.0	6,446.3	6,552.6	6,507.3	18.1	14.9	-105.95	123.9	237.4	369.3	340.9	28.44	12.987	
6,600.0	6,479.7	6,610.0	6,552.2	18.2	15.1	-107.20	159.6	237.0	371.8	343.2	28.53	13.029	
6,632.5	6,500.0	6,647.7	6,580.1	18.3	15.2	-107.96	184.8	236.7	373.3	344.7	28.60	13.056	
6,650.0	6,510.5	6,668.1	6,594.8	18.4	15.3	-108.36	199.1	236.5	374.2	345.6	28.63	13.071	
6,700.0	6,538.7	6,727.1	6,634.8	18.6	15.5	-109.44	242.4	236.0	376.6	347.9	28.73	13.107	
6,750.0	6,564.1	6,786.8	6,671.8	18.9	15.8	-110.42	289.2	235.4	378.9	350.0	28.86	13.130	
6,800.0	6,586.7	6,847.2	6,705.4	19.2	16.2	-111.30	339.4	234.8	381.1	352.1	29.02	13.132	
6,833.1	6,600.0	6,887.5	6,725.5	19.4	16.5	-111.83	374.3	234.4	382.4	353.3	29.16	13.116	
6,850.0	6,606.3	6,908.2	6,735.2	19.5	16.7	-112.08	392.6	234.2	383.1	353.8	29.23	13.106	
6,900.0	6,622.9	6,969.9	6,760.9	19.9	17.2	-112.74	448.7	233.5	384.8	355.3	29.50	13.046	
6,950.0	6,636.3	7,032.0	6,782.1	20.3	17.8	-113.29	507.0	232.8	386.3	356.5	29.84	12.948	
7,000.0	6,646.5	7,094.6	6,798.7	20.8	18.5	-113.72	567.4	232.0	387.6	357.3	30.26	12.809	
7,050.0	6,653.6	7,157.5	6,810.3	21.3	19.2	-114.04	629.2	231.3	388.5	357.7	30.76	12.628	
7,100.0	6,657.4	7,213.7	6,816.7	21.8	19.9	-114.27	685.0	230.6	389.3	357.9	31.32	12.427	
7,140.5	6,658.0	7,254.1	6,820.9	22.3	20.4	-114.64	725.2	230.1	390.7	359.0	31.75	12.306	
7,200.0	6,657.4	7,322.1	6,826.5	23.0	21.3	-115.47	793.0	229.3	393.1	360.9	32.11	12.242	
7,300.0	6,656.4	7,430.0	6,828.3	24.3	22.8	-115.85	900.8	228.0	394.2	361.2	32.96	11.959	
7,400.0	6,655.4	7,530.0	6,828.8	25.7	24.3	-116.05	1,000.8	226.7	394.9	361.0	33.88	11.654	
7,500.0	6,654.4	7,630.0	6,829.3	27.2	25.8	-116.25	1,100.8	225.5	395.5	360.7	34.85	11.350	
7,600.0	6,653.4	7,730.0	6,829.8	28.7	27.4	-116.44	1,200.8	224.3	396.2	360.4	35.86	11.049	
7,700.0	6,652.4	7,830.0	6,830.3	30.3	29.0	-116.64	1,300.8	223.1	396.9	360.0	36.91	10.754	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Guttersen 31T-201
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-201	**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-441 - Wellbore #1 - Plan #1 (5-31-13)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,800.0	6,651.3	7,930.0	6,830.9	31.9	30.7	-116.84	1,400.7	221.9	397.6	359.6	37.99	10.467	
7,900.0	6,650.3	8,030.0	6,831.4	33.5	32.3	-117.04	1,500.7	220.6	398.3	359.2	39.09	10.190	
8,000.0	6,649.3	8,130.0	6,831.9	35.2	34.0	-117.23	1,600.7	219.4	399.0	358.8	40.21	9.923	
8,100.0	6,648.3	8,229.9	6,832.4	36.9	35.8	-117.43	1,700.7	218.2	399.7	358.3	41.35	9.667	
8,200.0	6,647.3	8,329.9	6,832.9	38.6	37.5	-117.62	1,800.7	217.0	400.4	357.9	42.50	9.422	
8,300.0	6,646.3	8,429.9	6,833.5	40.3	39.3	-117.81	1,900.6	215.8	401.1	357.5	43.66	9.188	
8,400.0	6,645.3	8,529.9	6,834.0	42.0	41.1	-118.01	2,000.6	214.5	401.8	357.0	44.82	8.965	
8,500.0	6,644.3	8,629.9	6,834.5	43.8	42.9	-118.20	2,100.6	213.3	402.6	356.6	45.99	8.753	
8,600.0	6,643.2	8,729.9	6,835.0	45.6	44.7	-118.39	2,200.6	212.1	403.3	356.1	47.16	8.552	
8,700.0	6,642.2	8,829.9	6,835.5	47.4	46.5	-118.58	2,300.6	210.9	404.0	355.7	48.32	8.361	
8,800.0	6,641.2	8,929.9	6,836.1	49.2	48.3	-118.77	2,400.5	209.7	404.8	355.3	49.48	8.180	
8,900.0	6,640.2	9,029.8	6,836.6	51.0	50.1	-118.96	2,500.5	208.4	405.5	354.9	50.64	8.007	
9,000.0	6,639.2	9,129.8	6,837.1	52.8	52.0	-119.15	2,600.5	207.2	406.2	354.5	51.79	7.844	
9,100.0	6,638.2	9,229.8	6,837.6	54.6	53.8	-119.34	2,700.5	206.0	407.0	354.1	52.93	7.690	
9,200.0	6,637.2	9,329.8	6,838.1	56.4	55.6	-119.53	2,800.4	204.8	407.7	353.7	54.06	7.543	
9,300.0	6,636.2	9,429.8	6,838.7	58.3	57.5	-119.71	2,900.4	203.6	408.5	353.3	55.17	7.404	
9,400.0	6,635.1	9,529.8	6,839.2	60.1	59.4	-119.90	3,000.4	202.3	409.3	353.0	56.28	7.272	
9,500.0	6,634.1	9,629.8	6,839.7	62.0	61.2	-120.09	3,100.4	201.1	410.0	352.7	57.37	7.147	
9,600.0	6,633.1	9,729.8	6,840.2	63.8	63.1	-120.27	3,200.4	199.9	410.8	352.4	58.44	7.029	
9,700.0	6,632.1	9,829.8	6,840.7	65.7	64.9	-120.45	3,300.3	198.7	411.6	352.1	59.50	6.917	
9,800.0	6,631.1	9,929.7	6,841.3	67.5	66.8	-120.64	3,400.3	197.5	412.4	351.8	60.54	6.811	
9,900.0	6,630.1	10,029.7	6,841.8	69.4	68.7	-120.82	3,500.3	196.2	413.1	351.6	61.57	6.710	
10,000.0	6,629.1	10,129.7	6,842.3	71.2	70.6	-121.00	3,600.3	195.0	413.9	351.4	62.58	6.615	
10,100.0	6,628.1	10,229.7	6,842.8	73.1	72.4	-121.18	3,700.3	193.8	414.7	351.2	63.56	6.525	
10,200.0	6,627.0	10,329.7	6,843.3	75.0	74.3	-121.36	3,800.2	192.6	415.5	351.0	64.53	6.439	
10,300.0	6,626.0	10,429.7	6,843.8	76.8	76.2	-121.54	3,900.2	191.4	416.3	350.8	65.48	6.358	
10,400.0	6,625.0	10,529.7	6,844.4	78.7	78.1	-121.72	4,000.2	190.1	417.1	350.7	66.40	6.282	
10,500.0	6,624.0	10,629.7	6,844.9	80.6	80.0	-121.90	4,100.2	188.9	417.9	350.6	67.30	6.210	
10,600.0	6,623.0	10,729.6	6,845.4	82.5	81.9	-122.08	4,200.2	187.7	418.7	350.6	68.19	6.141	
10,700.0	6,622.0	10,829.6	6,845.9	84.4	83.8	-122.26	4,300.1	186.5	419.6	350.5	69.04	6.077	
10,800.0	6,621.0	10,929.6	6,846.4	86.2	85.6	-122.43	4,400.1	185.3	420.4	350.5	69.88	6.016	
10,900.0	6,620.0	11,029.6	6,847.0	88.1	87.5	-122.61	4,500.1	184.0	421.2	350.5	70.69	5.959	
11,000.0	6,619.0	11,129.6	6,847.5	90.0	89.4	-122.78	4,600.1	182.8	422.0	350.6	71.47	5.905 SF	
11,093.9	6,618.0	11,223.5	6,848.0	91.5	91.1	-122.95	4,693.9	181.7	422.8	351.5	71.29	5.931	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Guttersen 31T-201
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-201	**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

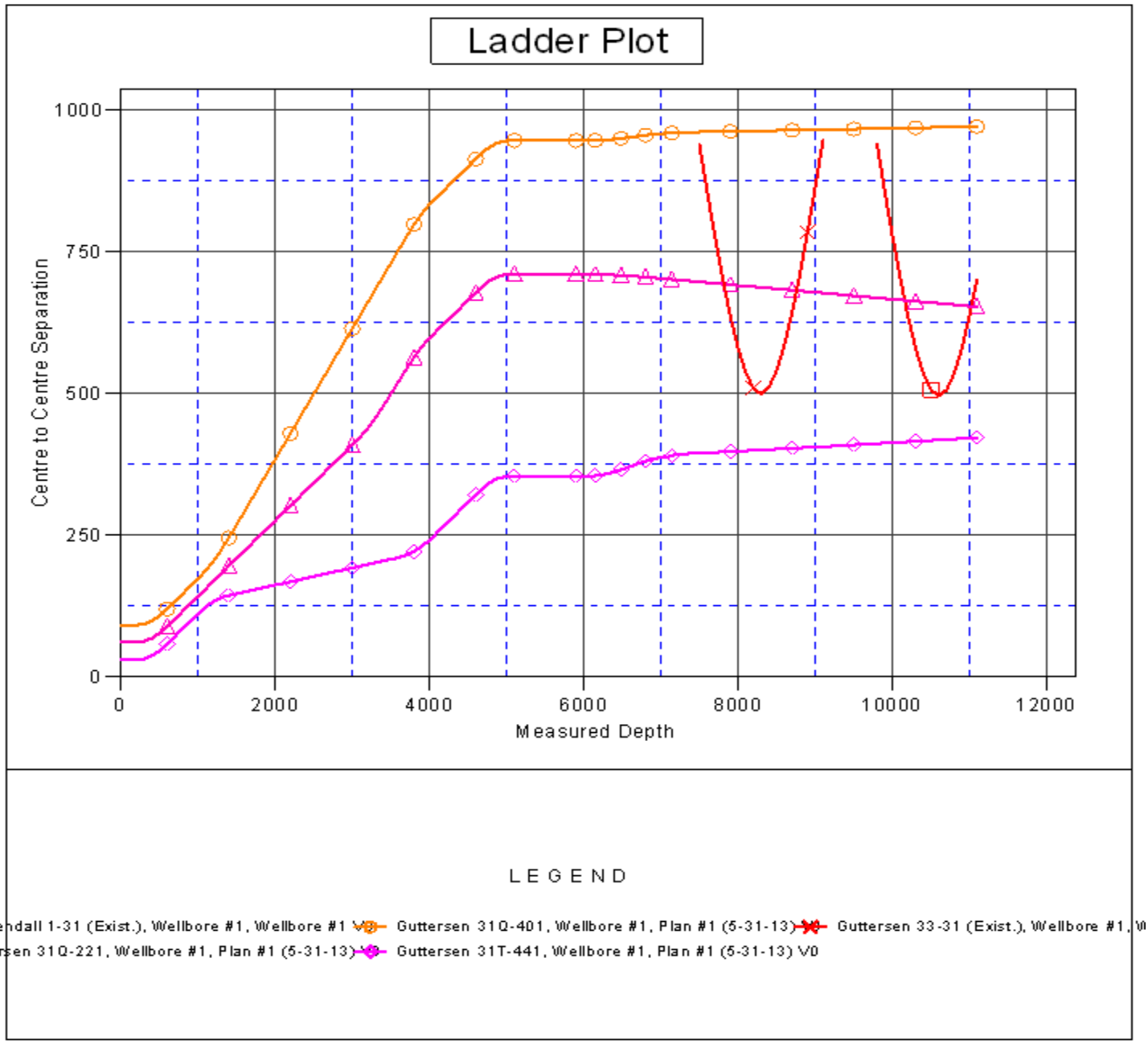
Survey Program: 7300-UNKNOWN

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,500.0	6,654.4	6,654.4	6,654.4	27.2	133.1	-90.92	1,894.4	69.9	939.1	786.3	152.84	6.144	
7,600.0	6,653.4	6,653.4	6,653.4	28.7	133.1	-90.80	1,894.4	69.9	856.2	702.6	153.62	5.573	
7,700.0	6,652.4	6,652.4	6,652.4	30.3	133.0	-90.69	1,894.4	69.9	777.3	622.8	154.43	5.033	
7,800.0	6,651.3	6,651.3	6,651.3	31.9	133.0	-90.57	1,894.4	69.9	703.7	548.5	155.27	4.532	
7,900.0	6,650.3	6,650.3	6,650.3	33.5	133.0	-90.46	1,894.4	69.9	637.5	481.3	156.14	4.083	
8,000.0	6,649.3	6,649.3	6,649.3	35.2	133.0	-90.34	1,894.4	69.9	580.9	423.9	157.04	3.699	
8,100.0	6,648.3	6,648.3	6,648.3	36.9	133.0	-90.23	1,894.4	69.9	537.2	379.2	157.96	3.401	
8,200.0	6,647.3	6,647.3	6,647.3	38.6	132.9	-90.11	1,894.4	69.9	509.6	350.7	158.90	3.207	
8,294.5	6,646.3	6,646.3	6,646.3	40.2	132.9	-90.00	1,894.4	69.9	500.7	340.9	159.80	3.133	CC
8,300.0	6,646.3	6,646.3	6,646.3	40.3	132.9	-89.99	1,894.4	69.9	500.8	340.9	159.85	3.133	ES, SF
8,400.0	6,645.3	6,645.3	6,645.3	42.0	132.9	-89.88	1,894.4	69.9	511.7	350.9	160.82	3.182	
8,500.0	6,644.3	6,644.3	6,644.3	43.8	132.9	-89.76	1,894.4	69.9	541.2	379.4	161.80	3.345	
8,600.0	6,643.2	6,643.2	6,643.2	45.6	132.9	-89.65	1,894.4	69.9	586.5	423.7	162.80	3.603	
8,700.0	6,642.2	6,642.2	6,642.2	47.4	132.8	-89.53	1,894.4	69.9	644.3	480.5	163.81	3.933	
8,800.0	6,641.2	6,641.2	6,641.2	49.2	132.8	-89.41	1,894.4	69.9	711.5	546.7	164.82	4.317	
8,900.0	6,640.2	6,640.2	6,640.2	51.0	132.8	-89.30	1,894.4	69.9	785.7	619.8	165.85	4.737	
9,000.0	6,639.2	6,639.2	6,639.2	52.8	132.8	-89.18	1,894.4	69.9	865.1	698.2	166.88	5.184	
9,100.0	6,638.2	6,638.2	6,638.2	54.6	132.8	-89.07	1,894.4	69.9	948.4	780.5	167.92	5.648	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Guttersen 31T-201
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-201	**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-201
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is -105.500000 ° Grid Convergence at Surface is: 0.66°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Guttersen 31T-201
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-201	**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-201
Offset Depths are relative to Offset Datum	Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is -105.500000 °	Grid Convergence at Surface is: 0.66°