PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Guttersen 31Q-221**

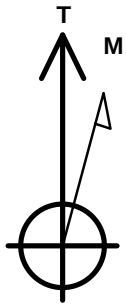
Surface Location: Guttersen 31Q-401 Pad Sec.31-T3N-R63W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
Ground Elevation: 4823.0

+N/-S	+E/-W	Northing	Easting	Latittude	Longitude	Slot
0.0	0.0	1308191.76	3285406.03	40.174870	-104.478610	

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

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
BHL 500'FNL, 2149'FEL	6618.0	4699.5	-55.9	Point



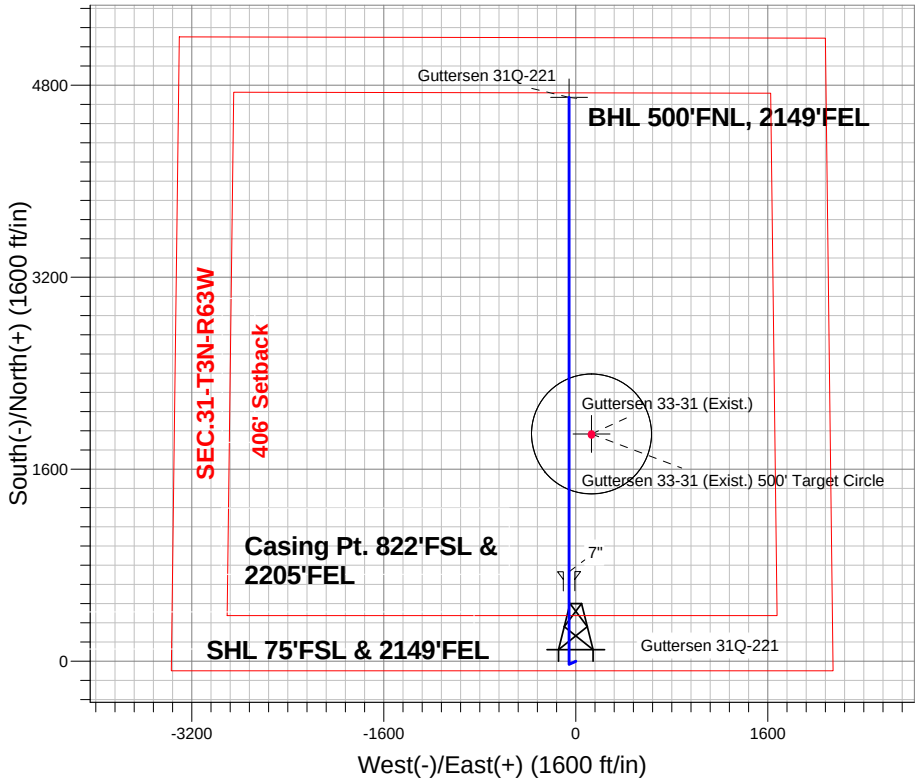
Azimuths to True North
Magnetic North: 8.43°

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

Guttersen 31Q-401 Pad Sec.31-T3N-R63W
Guttersen 31Q-221
Plan #1 (5-31-13)
10:54, May 31 2013

ANNOTATIONS

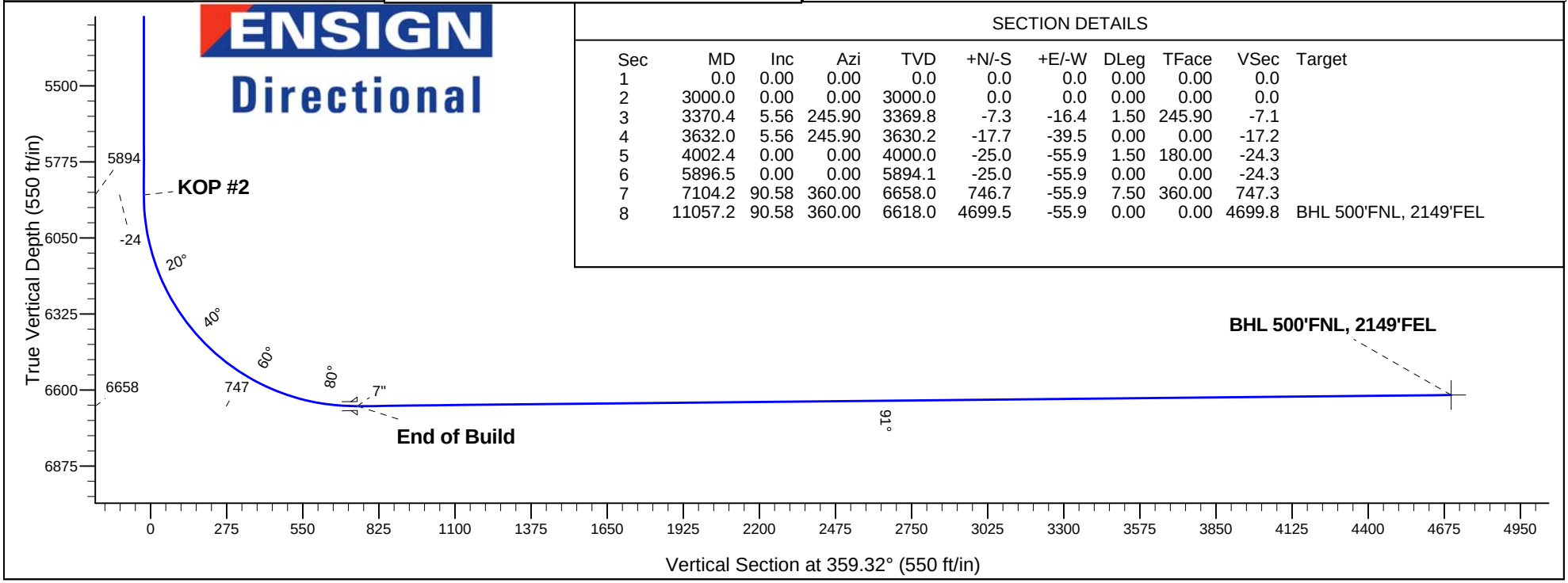
TVD	MD	Annotation
3000.0	3000.0	KOP #1
5894.1	5896.5	KOP #2
6658.0	7104.2	End of Build



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	3000.0	0.00	0.00	3000.0	0.0	0.0	0.00	0.00	0.0	
3	3370.4	5.56	245.90	3369.8	-7.3	-16.4	1.50	245.90	-7.1	
4	3632.0	5.56	245.90	3630.2	-17.7	-39.5	0.00	0.00	-17.2	
5	4002.4	0.00	0.00	4000.0	-25.0	-55.9	1.50	180.00	-24.3	
6	5896.5	0.00	0.00	5894.1	-25.0	-55.9	0.00	0.00	-24.3	
7	7104.2	90.58	360.00	6658.0	746.7	-55.9	7.50	360.00	747.3	
8	11057.2	90.58	360.00	6618.0	4699.5	-55.9	0.00	0.00	4699.8	BHL 500'FNL, 2149'FEL



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.31-T3N-R63W
Guttersen 31Q-401 Pad Sec.31-T3N-R63W
Guttersen 31Q-221

Wellbore #1

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

Standard Planning Report

31 May, 2013

Database:	Landmark	**Local Co-ordinate Reference:**	Well Guttersen 31Q-221
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 31Q-221	**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 31Q-221

Well Position	**+N/-S**	0.0 ft	**Northing:**	1,308,191.76 ft	**Latitude:**	40.174870
	+E/-W	30.7 ft	**Easting:**	3,285,406.03 ft	**Longitude:**	-104.478610
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	359.32

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,370.4	5.56	245.90	3,369.8	-7.3	-16.4	1.50	1.50	0.00	245.90	
3,632.0	5.56	245.90	3,630.2	-17.7	-39.5	0.00	0.00	0.00	0.00	
4,002.4	0.00	0.00	4,000.0	-25.0	-55.9	1.50	-1.50	0.00	180.00	
5,896.5	0.00	0.00	5,894.1	-25.0	-55.9	0.00	0.00	0.00	0.00	
7,104.2	90.58	360.00	6,658.0	746.7	-55.9	7.50	7.50	0.00	360.00	
11,057.2	90.58	360.00	6,618.0	4,699.5	-55.9	0.00	0.00	0.00	0.00	BHL 500'FNL, 2149

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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 31Q-221	**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
1,040.0	0.00	0.00	1,040.0	0.0	0.0	0.0	0.00	0.00	0.00
1,080.0	0.00	0.00	1,080.0	0.0	0.0	0.0	0.00	0.00	0.00
1,120.0	0.00	0.00	1,120.0	0.0	0.0	0.0	0.00	0.00	0.00
1,160.0	0.00	0.00	1,160.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,240.0	0.00	0.00	1,240.0	0.0	0.0	0.0	0.00	0.00	0.00
1,280.0	0.00	0.00	1,280.0	0.0	0.0	0.0	0.00	0.00	0.00
1,320.0	0.00	0.00	1,320.0	0.0	0.0	0.0	0.00	0.00	0.00
1,360.0	0.00	0.00	1,360.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,440.0	0.00	0.00	1,440.0	0.0	0.0	0.0	0.00	0.00	0.00
1,480.0	0.00	0.00	1,480.0	0.0	0.0	0.0	0.00	0.00	0.00
1,520.0	0.00	0.00	1,520.0	0.0	0.0	0.0	0.00	0.00	0.00
1,560.0	0.00	0.00	1,560.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,640.0	0.00	0.00	1,640.0	0.0	0.0	0.0	0.00	0.00	0.00
1,680.0	0.00	0.00	1,680.0	0.0	0.0	0.0	0.00	0.00	0.00
1,720.0	0.00	0.00	1,720.0	0.0	0.0	0.0	0.00	0.00	0.00
1,760.0	0.00	0.00	1,760.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,840.0	0.00	0.00	1,840.0	0.0	0.0	0.0	0.00	0.00	0.00
1,880.0	0.00	0.00	1,880.0	0.0	0.0	0.0	0.00	0.00	0.00
1,920.0	0.00	0.00	1,920.0	0.0	0.0	0.0	0.00	0.00	0.00
1,960.0	0.00	0.00	1,960.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00

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Site:	Guttersen 31Q-401 Pad Sec.31-T3N-R63W	**North Reference:**	True
Well:	Guttersen 31Q-221	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (5-31-13)		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
2,040.0	0.00	0.00	2,040.0	0.0	0.0	0.0	0.00	0.00	0.00
2,080.0	0.00	0.00	2,080.0	0.0	0.0	0.0	0.00	0.00	0.00
2,120.0	0.00	0.00	2,120.0	0.0	0.0	0.0	0.00	0.00	0.00
2,160.0	0.00	0.00	2,160.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,240.0	0.00	0.00	2,240.0	0.0	0.0	0.0	0.00	0.00	0.00
2,280.0	0.00	0.00	2,280.0	0.0	0.0	0.0	0.00	0.00	0.00
2,320.0	0.00	0.00	2,320.0	0.0	0.0	0.0	0.00	0.00	0.00
2,360.0	0.00	0.00	2,360.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,440.0	0.00	0.00	2,440.0	0.0	0.0	0.0	0.00	0.00	0.00
2,480.0	0.00	0.00	2,480.0	0.0	0.0	0.0	0.00	0.00	0.00
2,520.0	0.00	0.00	2,520.0	0.0	0.0	0.0	0.00	0.00	0.00
2,560.0	0.00	0.00	2,560.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,640.0	0.00	0.00	2,640.0	0.0	0.0	0.0	0.00	0.00	0.00
2,680.0	0.00	0.00	2,680.0	0.0	0.0	0.0	0.00	0.00	0.00
2,720.0	0.00	0.00	2,720.0	0.0	0.0	0.0	0.00	0.00	0.00
2,760.0	0.00	0.00	2,760.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,840.0	0.00	0.00	2,840.0	0.0	0.0	0.0	0.00	0.00	0.00
2,880.0	0.00	0.00	2,880.0	0.0	0.0	0.0	0.00	0.00	0.00
2,920.0	0.00	0.00	2,920.0	0.0	0.0	0.0	0.00	0.00	0.00
2,960.0	0.00	0.00	2,960.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP #1									
3,040.0	0.60	245.90	3,040.0	-0.1	-0.2	-0.1	1.50	1.50	0.00
3,080.0	1.20	245.90	3,080.0	-0.3	-0.8	-0.3	1.50	1.50	0.00
3,120.0	1.80	245.90	3,120.0	-0.8	-1.7	-0.7	1.50	1.50	0.00
3,160.0	2.40	245.90	3,160.0	-1.4	-3.1	-1.3	1.50	1.50	0.00
3,200.0	3.00	245.90	3,199.9	-2.1	-4.8	-2.1	1.50	1.50	0.00
3,240.0	3.60	245.90	3,239.8	-3.1	-6.9	-3.0	1.50	1.50	0.00
3,280.0	4.20	245.90	3,279.7	-4.2	-9.4	-4.1	1.50	1.50	0.00
3,320.0	4.80	245.90	3,319.6	-5.5	-12.2	-5.3	1.50	1.50	0.00
3,360.0	5.40	245.90	3,359.5	-6.9	-15.5	-6.7	1.50	1.50	0.00
3,370.4	5.56	245.90	3,369.8	-7.3	-16.4	-7.1	1.50	1.50	0.00
3,400.0	5.56	245.90	3,399.3	-8.5	-19.0	-8.3	0.00	0.00	0.00
3,440.0	5.56	245.90	3,439.1	-10.1	-22.5	-9.8	0.00	0.00	0.00
3,480.0	5.56	245.90	3,478.9	-11.7	-26.1	-11.4	0.00	0.00	0.00
3,520.0	5.56	245.90	3,518.7	-13.2	-29.6	-12.9	0.00	0.00	0.00
3,560.0	5.56	245.90	3,558.5	-14.8	-33.1	-14.4	0.00	0.00	0.00
3,600.0	5.56	245.90	3,598.3	-16.4	-36.7	-16.0	0.00	0.00	0.00
3,632.0	5.56	245.90	3,630.2	-17.7	-39.5	-17.2	0.00	0.00	0.00
3,640.0	5.44	245.90	3,638.2	-18.0	-40.2	-17.5	1.50	-1.50	0.00
3,680.0	4.84	245.90	3,678.0	-19.4	-43.5	-18.9	1.50	-1.50	0.00
3,720.0	4.24	245.90	3,717.9	-20.7	-46.4	-20.2	1.50	-1.50	0.00
3,760.0	3.64	245.90	3,757.8	-21.9	-48.9	-21.3	1.50	-1.50	0.00
3,800.0	3.04	245.90	3,797.7	-22.8	-51.0	-22.2	1.50	-1.50	0.00
3,840.0	2.44	245.90	3,837.7	-23.6	-52.7	-23.0	1.50	-1.50	0.00
3,880.0	1.84	245.90	3,877.6	-24.2	-54.1	-23.6	1.50	-1.50	0.00
3,920.0	1.24	245.90	3,917.6	-24.6	-55.1	-24.0	1.50	-1.50	0.00
3,960.0	0.64	245.90	3,957.6	-24.9	-55.7	-24.2	1.50	-1.50	0.00
4,000.0	0.04	245.90	3,997.6	-25.0	-55.9	-24.3	1.50	-1.50	0.00

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Well:	Guttersen 31Q-221	**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)
4,002.4	0.00	0.00	4,000.0	-25.0	-55.9	-24.3	1.50	-1.50	0.00
4,040.0	0.00	0.00	4,037.6	-25.0	-55.9	-24.3	0.00	0.00	0.00
4,080.0	0.00	0.00	4,077.6	-25.0	-55.9	-24.3	0.00	0.00	0.00
4,120.0	0.00	0.00	4,117.6	-25.0	-55.9	-24.3	0.00	0.00	0.00
4,160.0	0.00	0.00	4,157.6	-25.0	-55.9	-24.3	0.00	0.00	0.00
4,200.0	0.00	0.00	4,197.6	-25.0	-55.9	-24.3	0.00	0.00	0.00
4,240.0	0.00	0.00	4,237.6	-25.0	-55.9	-24.3	0.00	0.00	0.00
4,280.0	0.00	0.00	4,277.6	-25.0	-55.9	-24.3	0.00	0.00	0.00
4,320.0	0.00	0.00	4,317.6	-25.0	-55.9	-24.3	0.00	0.00	0.00
4,360.0	0.00	0.00	4,357.6	-25.0	-55.9	-24.3	0.00	0.00	0.00
4,400.0	0.00	0.00	4,397.6	-25.0	-55.9	-24.3	0.00	0.00	0.00
4,440.0	0.00	0.00	4,437.6	-25.0	-55.9	-24.3	0.00	0.00	0.00
4,480.0	0.00	0.00	4,477.6	-25.0	-55.9	-24.3	0.00	0.00	0.00
4,520.0	0.00	0.00	4,517.6	-25.0	-55.9	-24.3	0.00	0.00	0.00
4,560.0	0.00	0.00	4,557.6	-25.0	-55.9	-24.3	0.00	0.00	0.00
4,600.0	0.00	0.00	4,597.6	-25.0	-55.9	-24.3	0.00	0.00	0.00
4,640.0	0.00	0.00	4,637.6	-25.0	-55.9	-24.3	0.00	0.00	0.00
4,680.0	0.00	0.00	4,677.6	-25.0	-55.9	-24.3	0.00	0.00	0.00
4,720.0	0.00	0.00	4,717.6	-25.0	-55.9	-24.3	0.00	0.00	0.00
4,760.0	0.00	0.00	4,757.6	-25.0	-55.9	-24.3	0.00	0.00	0.00
4,800.0	0.00	0.00	4,797.6	-25.0	-55.9	-24.3	0.00	0.00	0.00
4,840.0	0.00	0.00	4,837.6	-25.0	-55.9	-24.3	0.00	0.00	0.00
4,880.0	0.00	0.00	4,877.6	-25.0	-55.9	-24.3	0.00	0.00	0.00
4,920.0	0.00	0.00	4,917.6	-25.0	-55.9	-24.3	0.00	0.00	0.00
4,960.0	0.00	0.00	4,957.6	-25.0	-55.9	-24.3	0.00	0.00	0.00
5,000.0	0.00	0.00	4,997.6	-25.0	-55.9	-24.3	0.00	0.00	0.00
5,040.0	0.00	0.00	5,037.6	-25.0	-55.9	-24.3	0.00	0.00	0.00
5,080.0	0.00	0.00	5,077.6	-25.0	-55.9	-24.3	0.00	0.00	0.00
5,120.0	0.00	0.00	5,117.6	-25.0	-55.9	-24.3	0.00	0.00	0.00
5,160.0	0.00	0.00	5,157.6	-25.0	-55.9	-24.3	0.00	0.00	0.00
5,200.0	0.00	0.00	5,197.6	-25.0	-55.9	-24.3	0.00	0.00	0.00
5,240.0	0.00	0.00	5,237.6	-25.0	-55.9	-24.3	0.00	0.00	0.00
5,280.0	0.00	0.00	5,277.6	-25.0	-55.9	-24.3	0.00	0.00	0.00
5,320.0	0.00	0.00	5,317.6	-25.0	-55.9	-24.3	0.00	0.00	0.00
5,360.0	0.00	0.00	5,357.6	-25.0	-55.9	-24.3	0.00	0.00	0.00
5,400.0	0.00	0.00	5,397.6	-25.0	-55.9	-24.3	0.00	0.00	0.00
5,440.0	0.00	0.00	5,437.6	-25.0	-55.9	-24.3	0.00	0.00	0.00
5,480.0	0.00	0.00	5,477.6	-25.0	-55.9	-24.3	0.00	0.00	0.00
5,520.0	0.00	0.00	5,517.6	-25.0	-55.9	-24.3	0.00	0.00	0.00
5,560.0	0.00	0.00	5,557.6	-25.0	-55.9	-24.3	0.00	0.00	0.00
5,600.0	0.00	0.00	5,597.6	-25.0	-55.9	-24.3	0.00	0.00	0.00
5,640.0	0.00	0.00	5,637.6	-25.0	-55.9	-24.3	0.00	0.00	0.00
5,680.0	0.00	0.00	5,677.6	-25.0	-55.9	-24.3	0.00	0.00	0.00
5,720.0	0.00	0.00	5,717.6	-25.0	-55.9	-24.3	0.00	0.00	0.00
5,760.0	0.00	0.00	5,757.6	-25.0	-55.9	-24.3	0.00	0.00	0.00
5,800.0	0.00	0.00	5,797.6	-25.0	-55.9	-24.3	0.00	0.00	0.00
5,840.0	0.00	0.00	5,837.6	-25.0	-55.9	-24.3	0.00	0.00	0.00
5,880.0	0.00	0.00	5,877.6	-25.0	-55.9	-24.3	0.00	0.00	0.00
5,896.5	0.00	0.00	5,894.1	-25.0	-55.9	-24.3	0.00	0.00	0.00
KOP #2									
5,920.0	1.76	360.00	5,917.6	-24.6	-55.9	-24.0	7.50	7.50	0.00
5,960.0	4.76	360.00	5,957.5	-22.4	-55.9	-21.7	7.50	7.50	0.00

Database:	Landmark	**Local Co-ordinate Reference:**	Well Guttersen 31Q-221
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 31Q-221	**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	7.76	360.00	5,997.3	-18.0	-55.9	-17.3	7.50	7.50	0.00
6,040.0	10.76	360.00	6,036.8	-11.6	-55.9	-10.9	7.50	7.50	0.00
6,080.0	13.76	360.00	6,075.9	-3.1	-55.9	-2.4	7.50	7.50	0.00
6,120.0	16.76	360.00	6,114.4	7.5	-55.9	8.1	7.50	7.50	0.00
6,160.0	19.76	360.00	6,152.4	20.0	-55.9	20.7	7.50	7.50	0.00
6,200.0	22.76	360.00	6,189.7	34.5	-55.9	35.2	7.50	7.50	0.00
6,240.0	25.76	360.00	6,226.2	50.9	-55.9	51.6	7.50	7.50	0.00
6,280.0	28.76	360.00	6,261.7	69.3	-55.9	69.9	7.50	7.50	0.00
6,320.0	31.76	360.00	6,296.2	89.4	-55.9	90.1	7.50	7.50	0.00
6,360.0	34.76	360.00	6,329.7	111.3	-55.9	112.0	7.50	7.50	0.00
6,400.0	37.76	360.00	6,361.9	135.0	-55.9	135.7	7.50	7.50	0.00
6,440.0	40.76	360.00	6,392.9	160.3	-55.9	161.0	7.50	7.50	0.00
6,480.0	43.76	360.00	6,422.5	187.2	-55.9	187.9	7.50	7.50	0.00
6,520.0	46.76	360.00	6,450.7	215.6	-55.9	216.3	7.50	7.50	0.00
6,560.0	49.76	360.00	6,477.3	245.5	-55.9	246.1	7.50	7.50	0.00
6,600.0	52.76	360.00	6,502.3	276.7	-55.9	277.3	7.50	7.50	0.00
6,640.0	55.76	360.00	6,525.7	309.1	-55.9	309.8	7.50	7.50	0.00
6,680.0	58.76	360.00	6,547.3	342.8	-55.9	343.4	7.50	7.50	0.00
6,720.0	61.76	360.00	6,567.1	377.5	-55.9	378.1	7.50	7.50	0.00
6,760.0	64.76	360.00	6,585.1	413.2	-55.9	413.9	7.50	7.50	0.00
6,800.0	67.76	360.00	6,601.2	449.8	-55.9	450.5	7.50	7.50	0.00
6,840.0	70.76	360.00	6,615.4	487.2	-55.9	487.9	7.50	7.50	0.00
6,880.0	73.76	360.00	6,627.6	525.3	-55.9	526.0	7.50	7.50	0.00
6,920.0	76.76	360.00	6,637.8	564.0	-55.9	564.6	7.50	7.50	0.00
6,960.0	79.76	360.00	6,645.9	603.2	-55.9	603.8	7.50	7.50	0.00
7,000.0	82.76	360.00	6,652.0	642.7	-55.9	643.3	7.50	7.50	0.00
7,040.0	85.76	360.00	6,656.0	682.5	-55.9	683.1	7.50	7.50	0.00
7,080.0	88.76	360.00	6,657.9	722.4	-55.9	723.1	7.50	7.50	0.00
7,104.2	90.58	360.00	6,658.0	746.6	-55.9	747.3	7.50	7.50	0.00
End of Build - 7"									
7,120.0	90.58	360.00	6,657.9	762.4	-55.9	763.1	0.02	0.02	0.00
7,160.0	90.58	360.00	6,657.5	802.4	-55.9	803.0	0.00	0.00	0.00
7,200.0	90.58	360.00	6,657.0	842.4	-55.9	843.0	0.00	0.00	0.00
7,240.0	90.58	360.00	6,656.6	882.4	-55.9	883.0	0.00	0.00	0.00
7,280.0	90.58	360.00	6,656.2	922.4	-55.9	923.0	0.00	0.00	0.00
7,320.0	90.58	360.00	6,655.8	962.4	-55.9	963.0	0.00	0.00	0.00
7,360.0	90.58	360.00	6,655.4	1,002.4	-55.9	1,003.0	0.00	0.00	0.00
7,400.0	90.58	360.00	6,655.0	1,042.4	-55.9	1,043.0	0.00	0.00	0.00
7,440.0	90.58	360.00	6,654.6	1,082.4	-55.9	1,083.0	0.00	0.00	0.00
7,480.0	90.58	360.00	6,654.2	1,122.4	-55.9	1,123.0	0.00	0.00	0.00
7,520.0	90.58	360.00	6,653.8	1,162.4	-55.9	1,163.0	0.00	0.00	0.00
7,560.0	90.58	360.00	6,653.4	1,202.4	-55.9	1,203.0	0.00	0.00	0.00
7,600.0	90.58	360.00	6,653.0	1,242.4	-55.9	1,243.0	0.00	0.00	0.00
7,640.0	90.58	360.00	6,652.6	1,282.4	-55.9	1,283.0	0.00	0.00	0.00
7,680.0	90.58	360.00	6,652.2	1,322.4	-55.9	1,323.0	0.00	0.00	0.00
7,720.0	90.58	360.00	6,651.8	1,362.4	-55.9	1,363.0	0.00	0.00	0.00
7,760.0	90.58	360.00	6,651.4	1,402.4	-55.9	1,403.0	0.00	0.00	0.00
7,800.0	90.58	360.00	6,651.0	1,442.4	-55.9	1,443.0	0.00	0.00	0.00
7,840.0	90.58	360.00	6,650.6	1,482.4	-55.9	1,483.0	0.00	0.00	0.00
7,880.0	90.58	360.00	6,650.2	1,522.4	-55.9	1,523.0	0.00	0.00	0.00
7,920.0	90.58	360.00	6,649.8	1,562.4	-55.9	1,563.0	0.00	0.00	0.00
7,960.0	90.58	360.00	6,649.4	1,602.4	-55.9	1,603.0	0.00	0.00	0.00
8,000.0	90.58	360.00	6,648.9	1,642.4	-55.9	1,642.9	0.00	0.00	0.00

Database:	Landmark	**Local Co-ordinate Reference:**	Well Guttersen 31Q-221
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 31Q-221	**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	360.00	6,648.5	1,682.4	-55.9	1,682.9	0.00	0.00	0.00
8,080.0	90.58	360.00	6,648.1	1,722.4	-55.9	1,722.9	0.00	0.00	0.00
8,120.0	90.58	360.00	6,647.7	1,762.4	-55.9	1,762.9	0.00	0.00	0.00
8,160.0	90.58	360.00	6,647.3	1,802.4	-55.9	1,802.9	0.00	0.00	0.00
8,200.0	90.58	360.00	6,646.9	1,842.4	-55.9	1,842.9	0.00	0.00	0.00
8,240.0	90.58	360.00	6,646.5	1,882.4	-55.9	1,882.9	0.00	0.00	0.00
8,280.0	90.58	360.00	6,646.1	1,922.4	-55.9	1,922.9	0.00	0.00	0.00
8,320.0	90.58	360.00	6,645.7	1,962.4	-55.9	1,962.9	0.00	0.00	0.00
8,360.0	90.58	360.00	6,645.3	2,002.4	-55.9	2,002.9	0.00	0.00	0.00
8,400.0	90.58	360.00	6,644.9	2,042.4	-55.9	2,042.9	0.00	0.00	0.00
8,440.0	90.58	360.00	6,644.5	2,082.4	-55.9	2,082.9	0.00	0.00	0.00
8,480.0	90.58	360.00	6,644.1	2,122.4	-55.9	2,122.9	0.00	0.00	0.00
8,520.0	90.58	360.00	6,643.7	2,162.4	-55.9	2,162.9	0.00	0.00	0.00
8,560.0	90.58	360.00	6,643.3	2,202.4	-55.9	2,202.9	0.00	0.00	0.00
8,600.0	90.58	360.00	6,642.9	2,242.4	-55.9	2,242.9	0.00	0.00	0.00
8,640.0	90.58	360.00	6,642.5	2,282.4	-55.9	2,282.9	0.00	0.00	0.00
8,680.0	90.58	360.00	6,642.1	2,322.4	-55.9	2,322.9	0.00	0.00	0.00
8,720.0	90.58	360.00	6,641.7	2,362.4	-55.9	2,362.9	0.00	0.00	0.00
8,760.0	90.58	360.00	6,641.3	2,402.4	-55.9	2,402.9	0.00	0.00	0.00
8,800.0	90.58	360.00	6,640.8	2,442.4	-55.9	2,442.8	0.00	0.00	0.00
8,840.0	90.58	360.00	6,640.4	2,482.4	-55.9	2,482.8	0.00	0.00	0.00
8,880.0	90.58	360.00	6,640.0	2,522.4	-55.9	2,522.8	0.00	0.00	0.00
8,920.0	90.58	360.00	6,639.6	2,562.4	-55.9	2,562.8	0.00	0.00	0.00
8,960.0	90.58	360.00	6,639.2	2,602.3	-55.9	2,602.8	0.00	0.00	0.00
9,000.0	90.58	360.00	6,638.8	2,642.3	-55.9	2,642.8	0.00	0.00	0.00
9,040.0	90.58	360.00	6,638.4	2,682.3	-55.9	2,682.8	0.00	0.00	0.00
9,080.0	90.58	360.00	6,638.0	2,722.3	-55.9	2,722.8	0.00	0.00	0.00
9,120.0	90.58	360.00	6,637.6	2,762.3	-55.9	2,762.8	0.00	0.00	0.00
9,160.0	90.58	360.00	6,637.2	2,802.3	-55.9	2,802.8	0.00	0.00	0.00
9,200.0	90.58	360.00	6,636.8	2,842.3	-55.9	2,842.8	0.00	0.00	0.00
9,240.0	90.58	360.00	6,636.4	2,882.3	-55.9	2,882.8	0.00	0.00	0.00
9,280.0	90.58	360.00	6,636.0	2,922.3	-55.9	2,922.8	0.00	0.00	0.00
9,320.0	90.58	360.00	6,635.6	2,962.3	-55.9	2,962.8	0.00	0.00	0.00
9,360.0	90.58	360.00	6,635.2	3,002.3	-55.9	3,002.8	0.00	0.00	0.00
9,400.0	90.58	360.00	6,634.8	3,042.3	-55.9	3,042.8	0.00	0.00	0.00
9,440.0	90.58	360.00	6,634.4	3,082.3	-55.9	3,082.8	0.00	0.00	0.00
9,480.0	90.58	360.00	6,634.0	3,122.3	-55.9	3,122.8	0.00	0.00	0.00
9,520.0	90.58	360.00	6,633.6	3,162.3	-55.9	3,162.8	0.00	0.00	0.00
9,560.0	90.58	360.00	6,633.2	3,202.3	-55.9	3,202.8	0.00	0.00	0.00
9,600.0	90.58	360.00	6,632.8	3,242.3	-55.9	3,242.8	0.00	0.00	0.00
9,640.0	90.58	360.00	6,632.3	3,282.3	-55.9	3,282.7	0.00	0.00	0.00
9,680.0	90.58	360.00	6,631.9	3,322.3	-55.9	3,322.7	0.00	0.00	0.00
9,720.0	90.58	360.00	6,631.5	3,362.3	-55.9	3,362.7	0.00	0.00	0.00
9,760.0	90.58	360.00	6,631.1	3,402.3	-55.9	3,402.7	0.00	0.00	0.00
9,800.0	90.58	360.00	6,630.7	3,442.3	-55.9	3,442.7	0.00	0.00	0.00
9,840.0	90.58	360.00	6,630.3	3,482.3	-55.9	3,482.7	0.00	0.00	0.00
9,880.0	90.58	360.00	6,629.9	3,522.3	-55.9	3,522.7	0.00	0.00	0.00
9,920.0	90.58	360.00	6,629.5	3,562.3	-55.9	3,562.7	0.00	0.00	0.00
9,960.0	90.58	360.00	6,629.1	3,602.3	-55.9	3,602.7	0.00	0.00	0.00
10,000.0	90.58	360.00	6,628.7	3,642.3	-55.9	3,642.7	0.00	0.00	0.00
10,040.0	90.58	360.00	6,628.3	3,682.3	-55.9	3,682.7	0.00	0.00	0.00
10,080.0	90.58	360.00	6,627.9	3,722.3	-55.9	3,722.7	0.00	0.00	0.00
10,120.0	90.58	360.00	6,627.5	3,762.3	-55.9	3,762.7	0.00	0.00	0.00

Database:	Landmark	**Local Co-ordinate Reference:**	Well Guttersen 31Q-221
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 31Q-221	**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	360.00	6,627.1	3,802.3	-55.9	3,802.7	0.00	0.00	0.00
10,200.0	90.58	360.00	6,626.7	3,842.3	-55.9	3,842.7	0.00	0.00	0.00
10,240.0	90.58	360.00	6,626.3	3,882.3	-55.9	3,882.7	0.00	0.00	0.00
10,280.0	90.58	360.00	6,625.9	3,922.3	-55.9	3,922.7	0.00	0.00	0.00
10,320.0	90.58	360.00	6,625.5	3,962.3	-55.9	3,962.7	0.00	0.00	0.00
10,360.0	90.58	360.00	6,625.1	4,002.3	-55.9	4,002.7	0.00	0.00	0.00
10,400.0	90.58	360.00	6,624.7	4,042.3	-55.9	4,042.7	0.00	0.00	0.00
10,440.0	90.58	360.00	6,624.2	4,082.3	-55.9	4,082.6	0.00	0.00	0.00
10,480.0	90.58	360.00	6,623.8	4,122.3	-55.9	4,122.6	0.00	0.00	0.00
10,520.0	90.58	360.00	6,623.4	4,162.3	-55.9	4,162.6	0.00	0.00	0.00
10,560.0	90.58	360.00	6,623.0	4,202.3	-55.9	4,202.6	0.00	0.00	0.00
10,600.0	90.58	360.00	6,622.6	4,242.3	-55.9	4,242.6	0.00	0.00	0.00
10,640.0	90.58	360.00	6,622.2	4,282.3	-55.9	4,282.6	0.00	0.00	0.00
10,680.0	90.58	360.00	6,621.8	4,322.3	-55.9	4,322.6	0.00	0.00	0.00
10,720.0	90.58	360.00	6,621.4	4,362.3	-55.9	4,362.6	0.00	0.00	0.00
10,760.0	90.58	360.00	6,621.0	4,402.3	-55.9	4,402.6	0.00	0.00	0.00
10,800.0	90.58	360.00	6,620.6	4,442.3	-55.9	4,442.6	0.00	0.00	0.00
10,840.0	90.58	360.00	6,620.2	4,482.3	-55.9	4,482.6	0.00	0.00	0.00
10,880.0	90.58	360.00	6,619.8	4,522.3	-55.9	4,522.6	0.00	0.00	0.00
10,920.0	90.58	360.00	6,619.4	4,562.2	-55.9	4,562.6	0.00	0.00	0.00
10,960.0	90.58	360.00	6,619.0	4,602.2	-55.9	4,602.6	0.00	0.00	0.00
11,000.0	90.58	360.00	6,618.6	4,642.2	-55.9	4,642.6	0.00	0.00	0.00
11,040.0	90.58	360.00	6,618.2	4,682.2	-55.9	4,682.6	0.00	0.00	0.00
11,057.2	90.58	360.00	6,618.0	4,699.5	-55.9	4,699.8	0.00	0.00	0.00
BHL 500'FNL, 2149'FEL									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,104.2	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
3,000.0	3,000.0	0.0	0.0	KOP #1
5,896.5	5,894.1	-25.0	-55.9	KOP #2
7,104.2	6,658.0	746.6	-55.9	End of Build

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.31-T3N-R63W
Guttersen 31Q-401 Pad Sec.31-T3N-R63W
Guttersen 31Q-221

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

Anticollision Report

31 May, 2013

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Guttersen 31Q-221
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 31Q-221	**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	11,057.0	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						
Guttersen 31Q-401 - Wellbore #1 - Plan #1 (5-31-13)	1,000.0	1,000.0	30.7	26.5	7.198	CC, ES
Guttersen 31Q-401 - Wellbore #1 - Plan #1 (5-31-13)	1,100.0	1,099.2	32.0	27.3	6.810	SF
Guttersen 31T-441 - Wellbore #1 - Plan #1 (5-31-13)	1,000.0	1,000.0	30.7	26.5	7.198	CC, ES
Guttersen 31T-441 - Wellbore #1 - Plan #1 (5-31-13)	1,100.0	1,099.2	32.0	27.3	6.810	SF
Guttersen 33-31 (Exist.) - Wellbore #1 - Wellbore #1	8,252.0	6,646.4	187.2	28.2	1.177	Level 2, CC, ES, SF

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	-89.98	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	
300.0	300.0	300.0	300.0	0.6	0.6	-89.98	0.0	-30.7	30.7	29.6	1.12	27.352	
400.0	400.0	400.0	400.0	0.8	0.8	-89.98	0.0	-30.7	30.7	29.2	1.57	19.537	
500.0	500.0	500.0	500.0	1.0	1.0	-89.98	0.0	-30.7	30.7	28.7	2.02	15.196	
600.0	600.0	600.0	600.0	1.2	1.2	-89.98	0.0	-30.7	30.7	28.3	2.47	12.433	
700.0	700.0	700.0	700.0	1.5	1.5	-89.98	0.0	-30.7	30.7	27.8	2.92	10.520	
800.0	800.0	800.0	800.0	1.7	1.7	-89.98	0.0	-30.7	30.7	27.4	3.37	9.117	
900.0	900.0	900.0	900.0	1.9	1.9	-89.98	0.0	-30.7	30.7	26.9	3.82	8.045	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-89.98	0.0	-30.7	30.7	26.5	4.27	7.198	CC, ES
1,100.0	1,100.0	1,099.2	1,099.2	2.4	2.3	-90.20	-0.1	-32.0	32.0	27.3	4.70	6.810	SF
1,200.0	1,200.0	1,198.2	1,198.1	2.6	2.5	-90.77	-0.5	-35.9	35.9	30.8	5.13	7.003	
1,300.0	1,300.0	1,297.0	1,296.7	2.8	2.8	-91.48	-1.1	-42.2	42.4	36.8	5.56	7.620	
1,400.0	1,400.0	1,395.6	1,394.9	3.0	3.0	-92.18	-1.9	-51.1	51.4	45.4	6.00	8.557	
1,500.0	1,500.0	1,495.1	1,493.9	3.3	3.2	-92.71	-2.9	-61.0	61.3	54.9	6.46	9.493	
1,600.0	1,600.0	1,594.6	1,592.9	3.5	3.5	-93.10	-3.8	-70.8	71.3	64.4	6.92	10.295	
1,700.0	1,700.0	1,694.1	1,691.9	3.7	3.7	-93.39	-4.8	-80.7	81.2	73.8	7.39	10.988	
1,800.0	1,800.0	1,793.6	1,790.9	3.9	4.0	-93.62	-5.7	-90.6	91.2	83.3	7.87	11.591	
1,900.0	1,900.0	1,893.1	1,889.9	4.2	4.2	-93.80	-6.7	-100.4	101.2	92.8	8.35	12.119	
2,000.0	2,000.0	1,992.6	1,988.9	4.4	4.5	-93.95	-7.6	-110.3	111.1	102.3	8.83	12.586	

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 31Q-221
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 31Q-221	**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
2,100.0	2,100.0	2,092.1	2,087.9	4.6	4.8	-94.07	-8.6	-120.2	121.1	111.8	9.31	13.000	
2,200.0	2,200.0	2,191.6	2,186.9	4.8	5.0	-94.18	-9.5	-130.0	131.0	121.2	9.80	13.370	
2,300.0	2,300.0	2,291.1	2,286.0	5.1	5.3	-94.27	-10.4	-139.9	141.0	130.7	10.29	13.702	
2,400.0	2,400.0	2,390.6	2,385.0	5.3	5.6	-94.35	-11.4	-149.8	151.0	140.2	10.78	14.001	
2,500.0	2,500.0	2,490.1	2,484.0	5.5	5.9	-94.42	-12.3	-159.6	160.9	149.6	11.27	14.273	
2,600.0	2,600.0	2,589.6	2,583.0	5.7	6.2	-94.48	-13.3	-169.5	170.9	159.1	11.77	14.520	
2,700.0	2,700.0	2,689.1	2,682.0	6.0	6.4	-94.54	-14.2	-179.4	180.8	168.6	12.26	14.746	
2,800.0	2,800.0	2,788.6	2,781.0	6.2	6.7	-94.58	-15.2	-189.2	190.8	178.0	12.76	14.954	
2,900.0	2,900.0	2,888.1	2,880.0	6.4	7.0	-94.63	-16.1	-199.1	200.8	187.5	13.26	15.144	
3,000.0	3,000.0	2,987.6	2,979.0	6.6	7.3	-94.67	-17.1	-209.0	210.7	197.0	13.75	15.320	
3,100.0	3,100.0	3,087.2	3,078.1	6.8	7.6	19.47	-18.0	-218.9	219.5	206.5	12.99	16.892	
3,200.0	3,199.9	3,187.0	3,177.4	7.0	7.9	19.73	-19.0	-228.8	225.7	212.4	13.36	16.892	
3,300.0	3,299.7	3,286.9	3,276.8	7.2	8.1	20.22	-19.9	-238.7	229.6	215.8	13.73	16.719	
3,370.4	3,369.8	3,357.3	3,346.8	7.4	8.3	20.69	-20.6	-245.6	230.8	216.8	13.99	16.503	
3,400.0	3,399.3	3,386.9	3,376.3	7.4	8.4	20.91	-20.9	-248.6	231.1	217.0	14.10	16.391	
3,500.0	3,498.8	3,486.8	3,475.7	7.6	8.7	21.67	-21.8	-258.5	232.0	217.5	14.48	16.026	
3,600.0	3,598.3	3,586.8	3,575.2	7.8	9.0	22.42	-22.8	-268.4	233.0	218.1	14.86	15.681	
3,632.0	3,630.2	3,618.8	3,607.0	7.9	9.1	22.66	-23.1	-271.6	233.3	218.3	14.98	15.574	
3,700.0	3,697.9	3,690.3	3,678.3	8.0	9.3	23.14	-23.7	-278.2	234.1	218.9	15.25	15.352	
3,800.0	3,797.7	3,796.8	3,784.5	8.3	9.5	23.67	-24.4	-285.7	235.1	219.4	15.63	15.036	
3,900.0	3,897.6	3,903.4	3,890.9	8.5	9.7	24.00	-24.8	-290.2	235.7	219.6	16.03	14.704	
4,002.4	4,000.0	4,012.5	4,000.0	8.7	9.9	-90.00	-25.0	-291.7	235.9	218.6	17.30	13.630	
4,002.4	4,000.0	4,012.5	4,000.0	8.7	9.9	-90.00	-25.0	-291.7	235.9	218.6	17.30	13.630	
4,100.0	4,097.6	4,110.1	4,097.6	8.9	10.1	-90.00	-25.0	-291.7	235.9	218.2	17.70	13.329	
4,200.0	4,197.6	4,210.1	4,197.6	9.1	10.2	-90.00	-25.0	-291.7	235.9	217.7	18.12	13.014	
4,300.0	4,297.6	4,310.1	4,297.6	9.3	10.4	-90.00	-25.0	-291.7	235.9	217.3	18.55	12.713	
4,400.0	4,397.6	4,410.1	4,397.6	9.5	10.6	-90.00	-25.0	-291.7	235.9	216.9	18.98	12.425	
4,500.0	4,497.6	4,510.1	4,497.6	9.8	10.8	-90.00	-25.0	-291.7	235.9	216.4	19.41	12.149	
4,600.0	4,597.6	4,610.1	4,597.6	10.0	11.0	-90.00	-25.0	-291.7	235.9	216.0	19.85	11.885	
4,700.0	4,697.6	4,710.1	4,697.6	10.2	11.2	-90.00	-25.0	-291.7	235.9	215.6	20.28	11.631	
4,800.0	4,797.6	4,810.1	4,797.6	10.4	11.4	-90.00	-25.0	-291.7	235.9	215.1	20.71	11.388	
4,900.0	4,897.6	4,910.1	4,897.6	10.6	11.6	-90.00	-25.0	-291.7	235.9	214.7	21.15	11.154	
5,000.0	4,997.6	5,010.1	4,997.6	10.9	11.8	-90.00	-25.0	-291.7	235.9	214.3	21.58	10.930	
5,100.0	5,097.6	5,110.1	5,097.6	11.1	12.0	-90.00	-25.0	-291.7	235.9	213.8	22.01	10.714	
5,200.0	5,197.6	5,210.1	5,197.6	11.3	12.2	-90.00	-25.0	-291.7	235.9	213.4	22.45	10.506	
5,300.0	5,297.6	5,310.1	5,297.6	11.5	12.4	-90.00	-25.0	-291.7	235.9	213.0	22.89	10.306	
5,400.0	5,397.6	5,410.1	5,397.6	11.8	12.6	-90.00	-25.0	-291.7	235.9	212.5	23.32	10.113	
5,500.0	5,497.6	5,510.1	5,497.6	12.0	12.8	-90.00	-25.0	-291.7	235.9	212.1	23.76	9.927	
5,600.0	5,597.6	5,610.1	5,597.6	12.2	13.0	-90.00	-25.0	-291.7	235.9	211.7	24.20	9.747	
5,700.0	5,697.6	5,710.1	5,697.6	12.4	13.2	-90.00	-25.0	-291.7	235.9	211.2	24.64	9.574	
5,800.0	5,797.6	5,810.1	5,797.6	12.7	13.4	-90.00	-25.0	-291.7	235.9	210.8	25.07	9.406	
5,896.5	5,894.1	5,906.6	5,894.1	12.9	13.6	-90.00	-25.0	-291.7	235.9	210.4	25.50	9.250	
5,900.0	5,897.6	5,910.1	5,897.6	12.9	13.6	-90.00	-25.0	-291.7	235.9	210.3	25.51	9.245	
5,908.8	5,906.4	5,918.8	5,906.4	12.9	13.6	-90.02	-25.0	-291.7	235.9	210.3	25.55	9.231	
5,950.0	5,947.6	5,960.0	5,947.6	13.0	13.7	-90.45	-25.0	-291.7	235.9	210.1	25.73	9.167	
6,000.0	5,997.3	6,009.8	5,997.3	13.1	13.8	-91.68	-25.0	-291.7	236.0	210.0	25.94	9.097	
6,050.0	6,046.6	6,059.0	6,046.6	13.2	13.9	-93.65	-25.0	-291.7	236.4	210.2	26.14	9.042	
6,100.0	6,095.2	6,109.0	6,096.5	13.3	14.0	-96.10	-23.8	-291.8	237.3	210.9	26.34	9.010	
6,150.0	6,143.0	6,159.8	6,147.1	13.4	14.1	-98.53	-19.3	-291.8	238.7	212.2	26.52	9.000	
6,200.0	6,189.7	6,211.3	6,198.0	13.5	14.2	-100.90	-11.3	-291.9	240.6	213.9	26.70	9.011	
6,250.0	6,235.1	6,263.6	6,248.9	13.7	14.3	-103.22	0.2	-292.0	242.9	216.0	26.86	9.043	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Guttersen 31Q-221
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 31Q-221	**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
6,300.0	6,279.1	6,316.7	6,299.8	13.8	14.4	-105.45	15.5	-292.2	245.6	218.6	27.00	9.097	
6,350.0	6,321.4	6,370.6	6,350.1	13.9	14.5	-107.58	34.7	-292.4	248.6	221.5	27.11	9.173	
6,400.0	6,361.9	6,425.3	6,399.8	14.1	14.6	-109.60	57.6	-292.7	252.0	224.8	27.19	9.268	
6,450.0	6,400.4	6,480.8	6,448.4	14.2	14.8	-111.51	84.6	-293.0	255.5	228.3	27.24	9.382	
6,500.0	6,436.8	6,537.2	6,495.6	14.5	14.9	-113.28	115.4	-293.4	259.3	232.0	27.25	9.513	
6,550.0	6,470.8	6,594.5	6,541.0	14.7	15.1	-114.92	150.2	-293.8	263.1	235.8	27.23	9.661	
6,596.2	6,500.0	6,648.1	6,581.1	15.0	15.2	-116.31	185.8	-294.2	266.6	239.4	27.18	9.809	
6,600.0	6,502.3	6,652.5	6,584.3	15.0	15.3	-116.42	188.8	-294.2	266.9	239.7	27.17	9.822	
6,650.0	6,531.2	6,711.4	6,625.0	15.3	15.5	-117.78	231.3	-294.7	270.7	243.6	27.08	9.994	
6,700.0	6,557.4	6,770.9	6,662.9	15.7	15.8	-118.98	277.3	-295.2	274.3	247.3	26.97	10.172	
6,750.0	6,580.8	6,831.3	6,697.4	16.1	16.2	-120.04	326.7	-295.8	277.8	250.9	26.82	10.355	
6,796.8	6,600.0	6,888.3	6,726.3	16.5	16.6	-120.89	375.8	-296.4	280.8	254.1	26.68	10.525	
6,800.0	6,601.2	6,892.2	6,728.2	16.6	16.6	-120.95	379.3	-296.4	281.0	254.3	26.67	10.537	
6,850.0	6,618.6	6,953.8	6,755.0	17.1	17.1	-121.70	434.7	-297.0	283.9	257.4	26.50	10.712	
6,900.0	6,632.9	7,015.9	6,777.3	17.6	17.7	-122.30	492.6	-297.7	286.4	260.1	26.34	10.873	
6,950.0	6,644.1	7,078.4	6,795.1	18.2	18.3	-122.75	552.6	-298.4	288.6	262.4	26.20	11.015	
7,000.0	6,652.0	7,141.3	6,807.9	18.8	19.0	-123.05	614.1	-299.1	290.3	264.2	26.09	11.129	
7,050.0	6,656.6	7,200.7	6,815.4	19.4	19.8	-123.21	673.0	-299.8	291.7	265.7	26.01	11.216	
7,104.2	6,658.0	7,254.7	6,821.1	20.1	20.4	-123.66	726.7	-300.4	294.6	268.8	25.79	11.421	
7,200.0	6,657.0	7,365.6	6,827.9	21.4	21.9	-124.79	837.3	-301.7	299.4	273.8	25.61	11.690	
7,300.0	6,656.0	7,466.9	6,828.4	22.9	23.4	-124.91	938.7	-302.9	301.2	275.3	25.90	11.632	
7,400.0	6,655.0	7,566.9	6,829.0	24.4	24.9	-125.02	1,038.6	-304.0	303.0	276.8	26.21	11.560	
7,500.0	6,654.0	7,666.9	6,829.5	25.9	26.4	-125.13	1,138.6	-305.2	304.9	278.3	26.57	11.476	
7,600.0	6,653.0	7,766.9	6,830.0	27.6	28.0	-125.24	1,238.6	-306.3	306.7	279.8	26.95	11.380	
7,700.0	6,652.0	7,866.8	6,830.5	29.2	29.7	-125.35	1,338.6	-307.5	308.5	281.2	27.36	11.276	
7,800.0	6,651.0	7,966.8	6,831.0	30.9	31.3	-125.46	1,438.5	-308.6	310.4	282.6	27.80	11.166	
7,900.0	6,650.0	8,066.8	6,831.6	32.6	33.0	-125.56	1,538.5	-309.8	312.2	284.0	28.25	11.051	
8,000.0	6,648.9	8,166.8	6,832.1	34.3	34.7	-125.67	1,638.5	-311.0	314.0	285.3	28.72	10.933	
8,100.0	6,647.9	8,266.8	6,832.6	36.1	36.5	-125.77	1,738.5	-312.1	315.9	286.7	29.21	10.813	
8,200.0	6,646.9	8,366.8	6,833.1	37.8	38.2	-125.87	1,838.4	-313.3	317.7	288.0	29.71	10.693	
8,300.0	6,645.9	8,466.7	6,833.6	39.6	40.0	-125.97	1,938.4	-314.4	319.5	289.3	30.22	10.573	
8,400.0	6,644.9	8,566.7	6,834.2	41.4	41.8	-126.07	2,038.4	-315.6	321.4	290.6	30.74	10.455	
8,500.0	6,643.9	8,666.7	6,834.7	43.2	43.6	-126.17	2,138.4	-316.8	323.2	292.0	31.27	10.338	
8,600.0	6,642.9	8,766.7	6,835.2	45.0	45.4	-126.27	2,238.3	-317.9	325.1	293.3	31.79	10.224	
8,700.0	6,641.9	8,866.7	6,835.7	46.8	47.2	-126.37	2,338.3	-319.1	326.9	294.6	32.33	10.113	
8,800.0	6,640.8	8,966.6	6,836.2	48.6	49.0	-126.46	2,438.3	-320.2	328.8	295.9	32.86	10.006	
8,900.0	6,639.8	9,066.6	6,836.8	50.5	50.9	-126.55	2,538.2	-321.4	330.6	297.2	33.39	9.902	
9,000.0	6,638.8	9,166.6	6,837.3	52.3	52.7	-126.65	2,638.2	-322.6	332.4	298.5	33.92	9.801	
9,100.0	6,637.8	9,266.6	6,837.8	54.2	54.6	-126.74	2,738.2	-323.7	334.3	299.8	34.44	9.705	
9,200.0	6,636.8	9,366.6	6,838.3	56.0	56.4	-126.83	2,838.2	-324.9	336.1	301.2	34.97	9.613	
9,300.0	6,635.8	9,466.6	6,838.8	57.9	58.3	-126.92	2,938.1	-326.0	338.0	302.5	35.48	9.525	
9,400.0	6,634.8	9,566.5	6,839.4	59.7	60.1	-127.01	3,038.1	-327.2	339.8	303.8	35.99	9.441	
9,500.0	6,633.8	9,666.5	6,839.9	61.6	62.0	-127.10	3,138.1	-328.4	341.7	305.2	36.50	9.361	
9,600.0	6,632.8	9,766.5	6,840.4	63.5	63.8	-127.19	3,238.1	-329.5	343.5	306.5	36.99	9.286	
9,700.0	6,631.7	9,866.5	6,840.9	65.3	65.7	-127.27	3,338.0	-330.7	345.4	307.9	37.48	9.214	
9,800.0	6,630.7	9,966.5	6,841.4	67.2	67.6	-127.36	3,438.0	-331.8	347.2	309.3	37.96	9.147	
9,900.0	6,629.7	10,066.4	6,842.0	69.1	69.5	-127.44	3,538.0	-333.0	349.1	310.6	38.43	9.084	
10,000.0	6,628.7	10,166.4	6,842.5	70.9	71.3	-127.53	3,638.0	-334.1	350.9	312.0	38.89	9.024	
10,100.0	6,627.7	10,266.4	6,843.0	72.8	73.2	-127.61	3,737.9	-335.3	352.8	313.4	39.33	8.969	
10,200.0	6,626.7	10,366.4	6,843.5	74.7	75.1	-127.69	3,837.9	-336.5	354.6	314.9	39.77	8.917	
10,300.0	6,625.7	10,466.4	6,844.0	76.6	77.0	-127.77	3,937.9	-337.6	356.5	316.3	40.19	8.869	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Guttersen 31Q-221
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 31Q-221	**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
10,400.0	6,624.7	10,566.3	6,844.6	78.5	78.9	-127.85	4,037.9	-338.8	358.3	317.7	40.61	8.825	
10,500.0	6,623.6	10,666.3	6,845.1	80.4	80.7	-127.93	4,137.8	-339.9	360.2	319.2	41.00	8.785	
10,600.0	6,622.6	10,766.3	6,845.6	82.2	82.6	-128.01	4,237.8	-341.1	362.1	320.7	41.39	8.748	
10,700.0	6,621.6	10,866.3	6,846.1	84.1	84.5	-128.09	4,337.8	-342.3	363.9	322.2	41.76	8.714	
10,800.0	6,620.6	10,966.3	6,846.6	86.0	86.4	-128.16	4,437.7	-343.4	365.8	323.7	42.12	8.685	
10,900.0	6,619.6	11,066.3	6,847.2	87.9	88.3	-128.24	4,537.7	-344.6	367.6	325.2	42.46	8.658	
11,000.0	6,618.6	11,166.2	6,847.7	89.8	90.2	-128.32	4,637.7	-345.7	369.5	326.7	42.79	8.635	
11,057.2	6,618.0	11,223.4	6,848.0	90.9	91.3	-128.36	4,694.9	-346.4	370.6	327.6	42.97	8.624	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Guttersen 31Q-221
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 31Q-221	**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	89.99	0.0	30.7	30.7				
100.0	100.0	100.0	100.0	0.1	0.1	89.99	0.0	30.7	30.7	30.5	0.22	136.761	
200.0	200.0	200.0	200.0	0.3	0.3	89.99	0.0	30.7	30.7	30.1	0.67	45.587	
300.0	300.0	300.0	300.0	0.6	0.6	89.99	0.0	30.7	30.7	29.6	1.12	27.352	
400.0	400.0	400.0	400.0	0.8	0.8	89.99	0.0	30.7	30.7	29.2	1.57	19.537	
500.0	500.0	500.0	500.0	1.0	1.0	89.99	0.0	30.7	30.7	28.7	2.02	15.196	
600.0	600.0	600.0	600.0	1.2	1.2	89.99	0.0	30.7	30.7	28.3	2.47	12.433	
700.0	700.0	700.0	700.0	1.5	1.5	89.99	0.0	30.7	30.7	27.8	2.92	10.520	
800.0	800.0	800.0	800.0	1.7	1.7	89.99	0.0	30.7	30.7	27.4	3.37	9.117	
900.0	900.0	900.0	900.0	1.9	1.9	89.99	0.0	30.7	30.7	26.9	3.82	8.045	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	89.99	0.0	30.7	30.7	26.5	4.27	7.198	CC, ES
1,100.0	1,100.0	1,099.2	1,099.2	2.4	2.3	90.20	-0.1	32.0	32.0	27.3	4.70	6.810	SF
1,200.0	1,200.0	1,198.2	1,198.1	2.6	2.5	90.75	-0.5	35.9	35.9	30.8	5.13	7.003	
1,300.0	1,300.0	1,297.0	1,296.7	2.8	2.8	91.44	-1.1	42.2	42.4	36.8	5.56	7.619	
1,400.0	1,400.0	1,395.4	1,394.7	3.0	3.0	92.11	-1.9	51.1	51.4	45.4	6.01	8.558	
1,500.0	1,500.0	1,494.8	1,493.6	3.3	3.2	92.64	-2.8	61.4	61.8	55.3	6.47	9.550	
1,600.0	1,600.0	1,594.3	1,592.5	3.5	3.5	93.02	-3.8	71.6	72.1	65.2	6.93	10.398	
1,700.0	1,700.0	1,693.8	1,691.5	3.7	3.7	93.31	-4.7	81.9	82.5	75.0	7.41	11.130	
1,800.0	1,800.0	1,793.2	1,790.4	3.9	4.0	93.53	-5.7	92.1	92.8	84.9	7.89	11.765	
1,900.0	1,900.0	1,892.7	1,889.3	4.2	4.2	93.71	-6.6	102.4	103.2	94.8	8.37	12.322	
2,000.0	2,000.0	1,992.2	1,988.2	4.4	4.5	93.85	-7.6	112.7	113.5	104.7	8.86	12.812	
2,100.0	2,100.0	2,091.6	2,087.2	4.6	4.8	93.97	-8.5	122.9	123.9	114.5	9.35	13.247	
2,200.0	2,200.0	2,191.1	2,186.1	4.8	5.1	94.07	-9.5	133.2	134.2	124.4	9.85	13.635	
2,300.0	2,300.0	2,290.5	2,285.0	5.1	5.3	94.16	-10.4	143.4	144.6	134.3	10.34	13.983	
2,400.0	2,400.0	2,390.0	2,383.9	5.3	5.6	94.23	-11.4	153.7	155.0	144.1	10.84	14.297	
2,500.0	2,500.0	2,489.5	2,482.9	5.5	5.9	94.30	-12.3	164.0	165.3	154.0	11.34	14.581	
2,600.0	2,600.0	2,588.9	2,581.8	5.7	6.2	94.36	-13.3	174.2	175.7	163.8	11.84	14.840	
2,700.0	2,700.0	2,688.4	2,680.7	6.0	6.5	94.41	-14.2	184.5	186.0	173.7	12.34	15.076	
2,800.0	2,800.0	2,787.9	2,779.7	6.2	6.7	94.46	-15.2	194.7	196.4	183.6	12.84	15.293	
2,900.0	2,900.0	2,887.3	2,878.6	6.4	7.0	94.50	-16.1	205.0	206.8	193.4	13.35	15.492	
3,000.0	3,000.0	2,986.8	2,977.5	6.6	7.3	94.54	-17.1	215.3	217.1	203.3	13.85	15.676	
3,100.0	3,100.0	3,086.1	3,076.3	6.8	7.6	-151.40	-18.0	225.5	228.6	215.1	13.55	16.870	
3,200.0	3,199.9	3,185.1	3,174.8	7.0	7.9	-151.71	-19.0	235.7	242.4	228.5	13.95	17.379	
3,300.0	3,299.7	3,283.8	3,272.9	7.2	8.2	-152.24	-19.9	245.9	258.5	244.1	14.34	18.028	
3,370.4	3,369.8	3,353.0	3,341.7	7.4	8.4	-152.71	-20.6	253.0	271.2	256.6	14.61	18.564	
3,400.0	3,399.3	3,382.0	3,370.6	7.4	8.5	-152.95	-20.9	256.0	276.8	262.1	14.73	18.788	
3,500.0	3,498.8	3,480.2	3,468.2	7.6	8.7	-153.71	-21.8	266.2	295.7	280.6	15.15	19.516	
3,600.0	3,598.3	3,578.3	3,565.8	7.8	9.0	-154.38	-22.7	276.3	314.7	299.1	15.58	20.202	
3,632.0	3,630.2	3,609.7	3,597.0	7.9	9.1	-154.58	-23.0	279.5	320.8	305.1	15.71	20.414	
3,700.0	3,697.9	3,682.2	3,669.2	8.0	9.3	-155.05	-23.7	286.5	332.7	316.6	16.03	20.752	
3,800.0	3,797.7	3,790.9	3,777.6	8.3	9.5	-155.53	-24.4	294.3	345.9	329.4	16.48	20.990	
3,900.0	3,897.6	3,900.6	3,887.2	8.5	9.7	-155.81	-24.8	299.1	353.9	336.9	16.91	20.923	
4,002.4	4,000.0	4,013.4	4,000.0	8.7	9.9	90.00	-25.0	300.7	356.6	339.3	17.32	20.594	
4,002.4	4,000.0	4,013.4	4,000.0	8.7	9.9	90.00	-25.0	300.7	356.6	339.3	17.32	20.594	
4,100.0	4,097.6	4,111.0	4,097.6	8.9	10.1	90.00	-25.0	300.7	356.6	338.9	17.71	20.139	
4,200.0	4,197.6	4,211.0	4,197.6	9.1	10.3	90.00	-25.0	300.7	356.6	338.5	18.14	19.664	
4,300.0	4,297.6	4,311.0	4,297.6	9.3	10.5	90.00	-25.0	300.7	356.6	338.1	18.56	19.210	
4,400.0	4,397.6	4,411.0	4,397.6	9.5	10.7	90.00	-25.0	300.7	356.6	337.6	18.99	18.775	
4,500.0	4,497.6	4,511.0	4,497.6	9.8	10.9	90.00	-25.0	300.7	356.6	337.2	19.43	18.359	
4,600.0	4,597.6	4,611.0	4,597.6	10.0	11.1	90.00	-25.0	300.7	356.6	336.8	19.86	17.959	
4,700.0	4,697.6	4,711.0	4,697.6	10.2	11.2	90.00	-25.0	300.7	356.6	336.3	20.29	17.577	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Guttersen 31Q-221
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 31Q-221	**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
4,800.0	4,797.6	4,811.0	4,797.6	10.4	11.4	90.00	-25.0	300.7	356.6	335.9	20.72	17.209	
4,900.0	4,897.6	4,911.0	4,897.6	10.6	11.6	90.00	-25.0	300.7	356.6	335.5	21.16	16.857	
5,000.0	4,997.6	5,011.0	4,997.6	10.9	11.8	90.00	-25.0	300.7	356.6	335.0	21.59	16.517	
5,100.0	5,097.6	5,111.0	5,097.6	11.1	12.0	90.00	-25.0	300.7	356.6	334.6	22.03	16.191	
5,200.0	5,197.6	5,211.0	5,197.6	11.3	12.2	90.00	-25.0	300.7	356.6	334.2	22.46	15.877	
5,300.0	5,297.6	5,311.0	5,297.6	11.5	12.4	90.00	-25.0	300.7	356.6	333.7	22.90	15.575	
5,400.0	5,397.6	5,411.0	5,397.6	11.8	12.6	90.00	-25.0	300.7	356.6	333.3	23.33	15.283	
5,500.0	5,497.6	5,511.0	5,497.6	12.0	12.8	90.00	-25.0	300.7	356.6	332.8	23.77	15.002	
5,600.0	5,597.6	5,611.0	5,597.6	12.2	13.0	90.00	-25.0	300.7	356.6	332.4	24.21	14.731	
5,700.0	5,697.6	5,711.0	5,697.6	12.4	13.2	90.00	-25.0	300.7	356.6	332.0	24.65	14.469	
5,800.0	5,797.6	5,811.0	5,797.6	12.7	13.4	90.00	-25.0	300.7	356.6	331.5	25.08	14.216	
5,896.5	5,894.1	5,907.5	5,894.1	12.9	13.6	90.00	-25.0	300.7	356.6	331.1	25.51	13.981	
5,899.0	5,896.6	5,910.0	5,896.6	12.9	13.6	90.00	-25.0	300.7	356.6	331.1	25.52	13.975	
5,900.0	5,897.6	5,911.0	5,897.6	12.9	13.6	90.00	-25.0	300.7	356.6	331.1	25.52	13.972	
5,908.7	5,906.3	5,919.7	5,906.3	12.9	13.6	90.01	-25.0	300.7	356.6	331.1	25.56	13.951	
5,950.0	5,947.6	5,960.9	5,947.6	13.0	13.7	90.30	-25.0	300.7	356.6	330.9	25.74	13.855	
6,000.0	5,997.3	6,010.7	5,997.3	13.1	13.8	91.11	-25.0	300.7	356.7	330.7	25.95	13.744	
6,050.0	6,046.6	6,060.0	6,046.6	13.2	13.9	92.42	-25.0	300.7	356.9	330.8	26.16	13.647	
6,100.0	6,095.2	6,110.3	6,096.9	13.3	14.0	94.06	-23.8	300.7	357.5	331.2	26.36	13.566	
6,150.0	6,143.0	6,161.6	6,148.0	13.4	14.1	95.70	-19.2	300.7	358.4	331.8	26.55	13.497	
6,200.0	6,189.7	6,213.6	6,199.4	13.5	14.2	97.32	-11.1	300.6	359.5	332.7	26.74	13.442	
6,250.0	6,235.1	6,266.4	6,250.8	13.7	14.3	98.91	0.7	300.4	360.8	333.9	26.92	13.401	
6,300.0	6,279.1	6,320.1	6,302.1	13.8	14.4	100.47	16.3	300.2	362.3	335.2	27.10	13.369	
6,350.0	6,321.4	6,374.5	6,353.0	13.9	14.6	101.99	35.8	300.0	364.0	336.8	27.26	13.354	
6,400.0	6,361.9	6,429.8	6,403.0	14.1	14.7	103.45	59.3	299.7	365.9	338.5	27.41	13.347	
6,450.0	6,400.4	6,486.0	6,452.0	14.2	14.8	104.85	86.7	299.4	367.8	340.3	27.55	13.349	
6,500.0	6,436.8	6,542.9	6,499.5	14.5	14.9	106.19	118.2	299.0	369.8	342.1	27.68	13.360	
6,550.0	6,470.8	6,600.7	6,545.1	14.7	15.1	107.45	153.6	298.6	371.8	344.0	27.80	13.376	
6,596.2	6,500.0	6,654.8	6,585.3	15.0	15.2	108.54	189.8	298.1	373.7	345.8	27.90	13.393	
6,600.0	6,502.3	6,659.3	6,588.5	15.0	15.3	108.63	192.9	298.1	373.8	345.9	27.91	13.395	
6,650.0	6,531.2	6,718.6	6,629.3	15.3	15.5	109.72	236.0	297.6	375.7	347.7	28.01	13.413	
6,700.0	6,557.4	6,778.7	6,667.0	15.7	15.8	110.72	282.7	297.0	377.5	349.4	28.11	13.430	
6,750.0	6,580.8	6,839.5	6,701.3	16.1	16.2	111.62	332.9	296.4	379.1	350.9	28.20	13.440	
6,796.8	6,600.0	6,896.9	6,730.0	16.5	16.6	112.36	382.6	295.8	380.4	352.1	28.30	13.439	
6,800.0	6,601.2	6,900.9	6,731.8	16.6	16.6	112.41	386.1	295.7	380.4	352.1	28.31	13.440	
6,850.0	6,618.6	6,962.8	6,758.2	17.1	17.1	113.10	442.2	295.0	381.6	353.1	28.43	13.422	
6,900.0	6,632.9	7,025.2	6,780.0	17.6	17.7	113.67	500.6	294.3	382.4	353.8	28.56	13.387	
6,950.0	6,644.1	7,088.0	6,797.2	18.2	18.4	114.12	560.9	293.6	382.9	354.2	28.73	13.329	
7,000.0	6,652.0	7,151.0	6,809.3	18.8	19.1	114.46	622.8	292.8	383.1	354.1	28.92	13.244	
7,036.8	6,655.7	7,195.4	6,814.8	19.2	19.6	114.62	666.8	292.3	383.0	353.9	29.09	13.165	
7,050.0	6,656.6	7,208.6	6,816.2	19.4	19.8	114.69	680.0	292.1	383.0	353.9	29.14	13.144	
7,104.2	6,658.0	7,262.9	6,821.9	20.1	20.5	115.23	733.9	291.5	384.3	355.0	29.27	13.129	
7,200.0	6,657.0	7,374.9	6,828.0	21.4	22.0	116.30	845.7	290.1	385.9	356.2	29.69	13.000	
7,300.0	6,656.0	7,475.0	6,828.5	22.9	23.5	116.58	945.7	288.9	385.5	355.1	30.39	12.686	
7,400.0	6,655.0	7,574.9	6,829.0	24.4	25.0	116.87	1,045.7	287.7	385.1	354.0	31.14	12.369	
7,500.0	6,654.0	7,674.9	6,829.5	25.9	26.5	117.15	1,145.7	286.4	384.7	352.8	31.93	12.050	
7,600.0	6,653.0	7,774.9	6,830.1	27.6	28.1	117.44	1,245.7	285.2	384.3	351.6	32.75	11.735	
7,700.0	6,652.0	7,874.9	6,830.6	29.2	29.7	117.72	1,345.6	284.0	384.0	350.4	33.60	11.427	
7,800.0	6,651.0	7,974.9	6,831.1	30.9	31.4	118.01	1,445.6	282.8	383.6	349.1	34.47	11.128	
7,900.0	6,650.0	8,074.8	6,831.6	32.6	33.1	118.30	1,545.6	281.6	383.2	347.9	35.36	10.839	
8,000.0	6,648.9	8,174.8	6,832.1	34.3	34.8	118.59	1,645.5	280.3	382.9	346.6	36.25	10.563	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Guttersen 31Q-221
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 31Q-221	**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
8,100.0	6,647.9	8,274.8	6,832.7	36.1	36.6	118.88	1,745.5	279.1	382.6	345.4	37.15	10.299	
8,200.0	6,646.9	8,374.8	6,833.2	37.8	38.3	119.16	1,845.5	277.9	382.2	344.2	38.04	10.049	
8,300.0	6,645.9	8,474.8	6,833.7	39.6	40.1	119.45	1,945.5	276.7	381.9	343.0	38.92	9.812	
8,400.0	6,644.9	8,574.7	6,834.2	41.4	41.9	119.74	2,045.4	275.5	381.6	341.8	39.80	9.589	
8,500.0	6,643.9	8,674.7	6,834.7	43.2	43.7	120.04	2,145.4	274.2	381.3	340.7	40.66	9.379	
8,600.0	6,642.9	8,774.7	6,835.3	45.0	45.5	120.33	2,245.4	273.0	381.0	339.5	41.50	9.182	
8,700.0	6,641.9	8,874.7	6,835.8	46.8	47.3	120.62	2,345.4	271.8	380.8	338.5	42.32	8.998	
8,800.0	6,640.8	8,974.7	6,836.3	48.6	49.1	120.91	2,445.3	270.6	380.5	337.4	43.11	8.826	
8,900.0	6,639.8	9,074.6	6,836.8	50.5	50.9	121.20	2,545.3	269.4	380.3	336.4	43.87	8.667	
9,000.0	6,638.8	9,174.6	6,837.3	52.3	52.8	121.50	2,645.3	268.1	380.0	335.4	44.61	8.519	
9,100.0	6,637.8	9,274.6	6,837.8	54.2	54.6	121.79	2,745.2	266.9	379.8	334.5	45.31	8.382	
9,200.0	6,636.8	9,374.6	6,838.4	56.0	56.5	122.08	2,845.2	265.7	379.5	333.6	45.97	8.257	
9,300.0	6,635.8	9,474.6	6,838.9	57.9	58.3	122.38	2,945.2	264.5	379.3	332.7	46.59	8.142	
9,400.0	6,634.8	9,574.5	6,839.4	59.7	60.2	122.67	3,045.2	263.3	379.1	332.0	47.17	8.038	
9,500.0	6,633.8	9,674.5	6,839.9	61.6	62.0	122.96	3,145.1	262.0	378.9	331.2	47.70	7.944	
9,600.0	6,632.8	9,774.5	6,840.4	63.5	63.9	123.26	3,245.1	260.8	378.7	330.6	48.19	7.860	
9,700.0	6,631.7	9,874.5	6,841.0	65.3	65.8	123.55	3,345.1	259.6	378.6	329.9	48.62	7.786	
9,800.0	6,630.7	9,974.5	6,841.5	67.2	67.7	123.85	3,445.0	258.4	378.4	329.4	49.01	7.722	
9,900.0	6,629.7	10,074.5	6,842.0	69.1	69.5	124.15	3,545.0	257.2	378.2	328.9	49.33	7.667	
10,000.0	6,628.7	10,174.4	6,842.5	70.9	71.4	124.44	3,645.0	255.9	378.1	328.5	49.60	7.623	
10,100.0	6,627.7	10,274.4	6,843.0	72.8	73.3	124.74	3,745.0	254.7	378.0	328.2	49.80	7.590	
10,200.0	6,626.7	10,374.4	6,843.6	74.7	75.2	125.03	3,844.9	253.5	377.8	327.9	49.94	7.566	
10,300.0	6,625.7	10,474.4	6,844.1	76.6	77.0	125.33	3,944.9	252.3	377.7	327.7	50.01	7.554	
10,400.0	6,624.7	10,574.4	6,844.6	78.5	78.9	125.63	4,044.9	251.1	377.6	327.6	50.00	7.552	
10,500.0	6,623.6	10,674.3	6,845.1	80.4	80.8	125.92	4,144.9	249.8	377.5	327.6	49.92	7.563	
10,600.0	6,622.6	10,774.3	6,845.6	82.2	82.7	126.22	4,244.8	248.6	377.4	327.7	49.75	7.587	
10,700.0	6,621.6	10,874.3	6,846.2	84.1	84.6	126.52	4,344.8	247.4	377.4	327.9	49.50	7.624	
10,800.0	6,620.6	10,974.3	6,846.7	86.0	86.5	126.81	4,444.8	246.2	377.3	328.2	49.15	7.676	
10,900.0	6,619.6	11,074.3	6,847.2	87.9	88.4	127.11	4,544.7	245.0	377.3	328.5	48.71	7.745	
11,000.0	6,618.6	11,174.2	6,847.7	89.8	90.3	127.41	4,644.7	243.7	377.2	329.1	48.16	7.833	
11,044.3	6,618.1	11,218.5	6,847.9	90.6	91.0	127.54	4,689.0	243.2	377.2	329.5	47.68	7.910	
11,057.2	6,618.0	11,229.4	6,848.0	90.9	91.2	127.57	4,699.9	243.1	377.2	329.7	47.50	7.941	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Guttersen 31Q-221
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 31Q-221	**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
7,300.0	6,656.0	6,656.0	6,656.0	22.9	133.1	92.95	1,894.4	131.3	970.2	819.4	150.79	6.434	
7,400.0	6,655.0	6,655.0	6,655.0	24.4	133.1	92.64	1,894.4	131.3	872.3	720.7	151.52	5.757	
7,500.0	6,654.0	6,654.0	6,654.0	25.9	133.1	92.33	1,894.4	131.3	774.9	622.6	152.30	5.088	
7,600.0	6,653.0	6,653.0	6,653.0	27.6	133.1	92.02	1,894.4	131.3	678.3	525.2	153.11	4.430	
7,700.0	6,652.0	6,652.0	6,652.0	29.2	133.0	91.71	1,894.4	131.3	582.8	428.9	153.95	3.786	
7,800.0	6,651.0	6,651.0	6,651.0	30.9	133.0	91.40	1,894.4	131.3	489.2	334.4	154.82	3.160	
7,900.0	6,650.0	6,650.0	6,650.0	32.6	133.0	91.09	1,894.4	131.3	398.6	242.9	155.72	2.560	
8,000.0	6,648.9	6,648.9	6,648.9	34.3	133.0	90.78	1,894.4	131.3	313.9	157.3	156.64	2.004	
8,100.0	6,647.9	6,647.9	6,647.9	36.1	133.0	90.47	1,894.4	131.3	241.1	83.6	157.57	1.530	
8,200.0	6,646.9	6,646.9	6,646.9	37.8	132.9	90.16	1,894.4	131.3	194.3	35.8	158.52	1.226	Level 2
8,252.0	6,646.4	6,646.4	6,646.4	38.7	132.9	90.00	1,894.4	131.3	187.2	28.2	159.02	1.177	Level 2, CC, ES, SF
8,300.0	6,645.9	6,645.9	6,645.9	39.6	132.9	89.85	1,894.4	131.3	193.3	33.8	159.48	1.212	Level 2
8,400.0	6,644.9	6,644.9	6,644.9	41.4	132.9	89.54	1,894.4	131.3	238.7	78.2	160.45	1.487	Level 3
8,500.0	6,643.9	6,643.9	6,643.9	43.2	132.9	89.23	1,894.4	131.3	310.7	149.3	161.43	1.925	
8,600.0	6,642.9	6,642.9	6,642.9	45.0	132.9	88.92	1,894.4	131.3	395.2	232.8	162.41	2.433	
8,700.0	6,641.9	6,641.9	6,641.9	46.8	132.8	88.61	1,894.4	131.3	485.6	322.1	163.40	2.972	
8,800.0	6,640.8	6,640.8	6,640.8	48.6	132.8	88.30	1,894.4	131.3	579.1	414.7	164.40	3.523	
8,900.0	6,639.8	6,639.8	6,639.8	50.5	132.8	87.99	1,894.4	131.3	674.5	509.1	165.39	4.078	
9,000.0	6,638.8	6,638.8	6,638.8	52.3	132.8	87.68	1,894.4	131.3	771.1	604.7	166.39	4.634	
9,100.0	6,637.8	6,637.8	6,637.8	54.2	132.8	87.37	1,894.4	131.3	868.4	701.0	167.39	5.188	
9,200.0	6,636.8	6,636.8	6,636.8	56.0	132.7	87.07	1,894.4	131.3	966.3	797.9	168.39	5.738	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Guttersen 31Q-221
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 31Q-221	**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 31Q-221
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 31Q-221
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 31Q-221	**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 31Q-221
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°