PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Guttersen 8Y-441**

Surface Location: Guttersen 8T-HZ Pad Sec.8-T3N-R63W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
Ground Elevation: 4885.0

+N/-S	+E/-W	Northing	Easting	Latittude	Longitude	Slot
0.0	0.0	1329659.23	3291248.37	40.233610	-104.456800	

RKB - 15' WELL @ 4900.0ft (RKB - 15')

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 279'FSL & 1310'FEL	1.0	0.0	0.0	Point
BHL 500'FNL & 358'FEL	6866.0	4531.9	943.5	Point

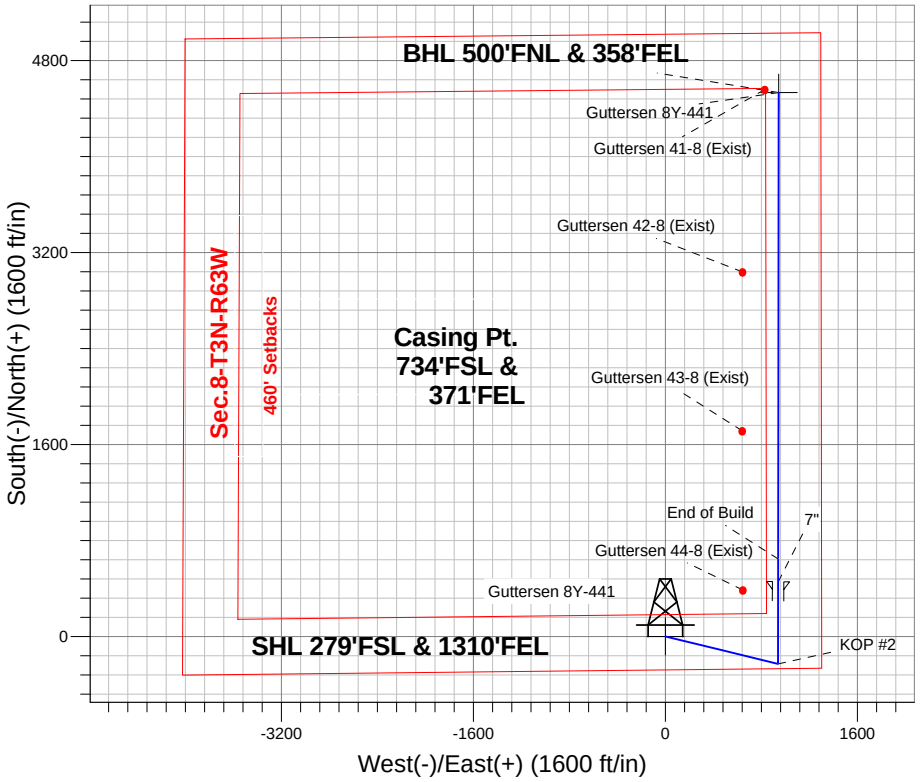
Azimuths to True North
Magnetic North: 8.33°

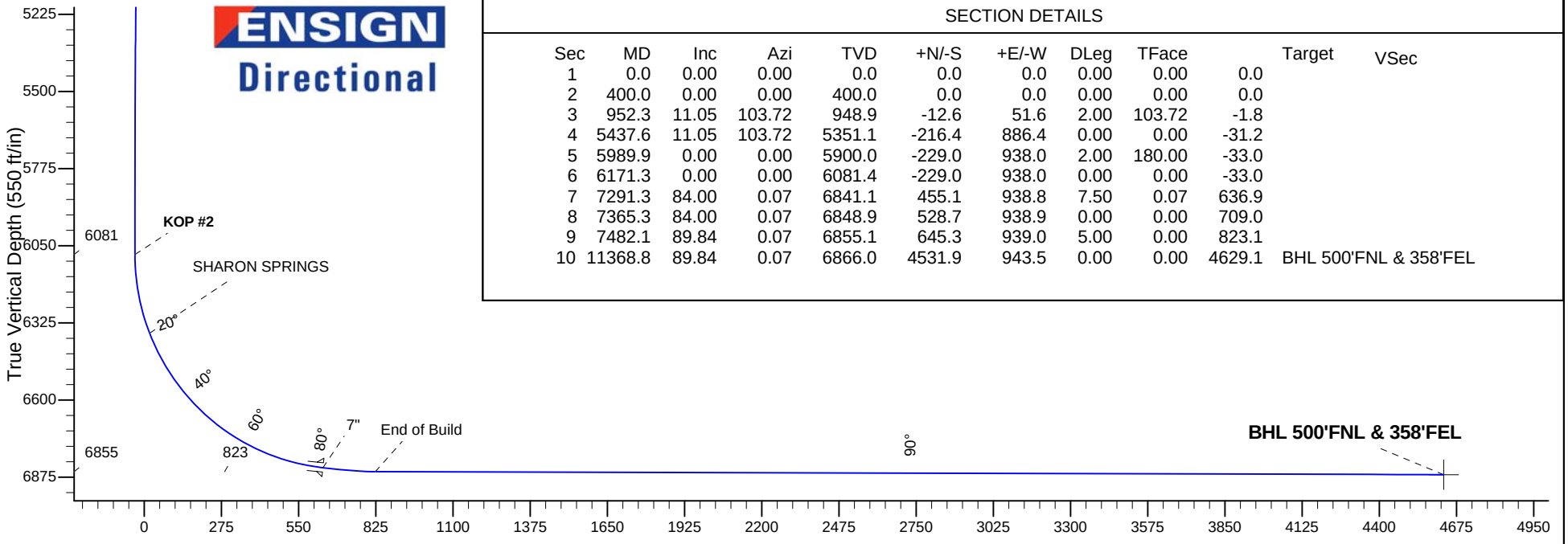
Magnetic Field
Strength: 52797.2snT
Dip Angle: 66.87°
Date: 2/5/2014
Model: IGRF2010

ANNOTATIONS

TVD	MD	Annotation
400.0	400.0	KOP #1
6081.4	6171.3	KOP #2
6855.1	7482.1	End of Build

Guttersen 8T-HZ Pad Sec.8-T3N-R63W
Guttersen 8Y-441
Plan #1 (2-05-14)
10:08, February 06 2014





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	400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.0	
3	952.3	11.05	103.72	948.9	-12.6	51.6	2.00	103.72	-1.8	
4	5437.6	11.05	103.72	5351.1	-216.4	886.4	0.00	0.00	-31.2	
5	5989.9	0.00	0.00	5900.0	-229.0	938.0	2.00	180.00	-33.0	
6	6171.3	0.00	0.00	6081.4	-229.0	938.0	0.00	0.00	-33.0	
7	7291.3	84.00	0.07	6841.1	455.1	938.8	7.50	0.07	636.9	
8	7365.3	84.00	0.07	6848.9	528.7	938.9	0.00	0.00	709.0	
9	7482.1	89.84	0.07	6855.1	645.3	939.0	5.00	0.00	823.1	
10	11368.8	89.84	0.07	6866.0	4531.9	943.5	0.00	0.00	4629.1	BHL 500'FNL & 358'FEL

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.8-T3N-R63W
Guttersen 8T-HZ Pad Sec.8-T3N-R63W
Guttersen 8Y-441

Wellbore #1

Plan: Plan #1 (2-05-14)

Standard Planning Report

06 February, 2014

Database:	Landmark	**Local Co-ordinate Reference:**	Well Guttersen 8Y-441
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**TVD Reference:**	WELL @ 4900.0ft (RKB - 15')
Project:	SEC.8-T3N-R63W	**MD Reference:**	WELL @ 4900.0ft (RKB - 15')
Site:	Guttersen 8T-HZ Pad Sec.8-T3N-R63W	**North Reference:**	True
Well:	Guttersen 8Y-441	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (2-05-14)		

Project SEC.8-T3N-R63W, Weld County, CO

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 8T-HZ Pad Sec.8-T3N-R63W

Site Position:		**Northing:**	1,329,659.24 ft	**Latitude:**	40.233610
From:	Lat/Long	**Easting:**	3,291,248.37 ft	**Longitude:**	-104.456800
Position Uncertainty:	0.0 ft	**Slot Radius:**	"	**Grid Convergence:**	0.67 °

Well Guttersen 8Y-441

Well Position	**+N/-S**	0.0 ft	**Northing:**	1,329,659.23 ft	**Latitude:**	40.233610
	+E/-W	0.0 ft	**Easting:**	3,291,248.37 ft	**Longitude:**	-104.456800
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	4,885.0 ft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/5/2014	8.33	66.87	52,797

Design Plan #1 (2-05-14)

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	11.76

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	
400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.00	0.00	
952.3	11.05	103.72	948.9	-12.6	51.6	2.00	2.00	0.00	103.72	
5,437.6	11.05	103.72	5,351.1	-216.4	886.4	0.00	0.00	0.00	0.00	
5,989.9	0.00	0.00	5,900.0	-229.0	938.0	2.00	-2.00	0.00	180.00	
6,171.3	0.00	0.00	6,081.4	-229.0	938.0	0.00	0.00	0.00	0.00	
7,291.3	84.00	0.07	6,841.1	455.1	938.8	7.50	7.50	0.00	0.07	
7,365.3	84.00	0.07	6,848.9	528.7	938.9	0.00	0.00	0.00	0.00	
7,482.1	89.84	0.07	6,855.1	645.3	939.0	5.00	5.00	0.00	0.00	
11,368.8	89.84	0.07	6,866.0	4,531.9	943.5	0.00	0.00	0.00	0.00	BHL 500'FNL & 358

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Site:	Guttersen 8T-HZ Pad Sec.8-T3N-R63W	**North Reference:**	True
Well:	Guttersen 8Y-441	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (2-05-14)		

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
SHL 279'FSL & 1310'FEL - SHL 250'FSL & 1304'FEL - SHL 309'FSL & 1317'FEL									
100.0	0.00	0.00	100.0	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
300.0	0.00	0.00	300.0	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
KOP #1									
500.0	2.00	103.72	500.0	-0.4	1.7	-0.1	2.00	2.00	0.00
600.0	4.00	103.72	599.8	-1.7	6.8	-0.2	2.00	2.00	0.00
700.0	6.00	103.72	699.5	-3.7	15.2	-0.5	2.00	2.00	0.00
800.0	8.00	103.72	798.7	-6.6	27.1	-1.0	2.00	2.00	0.00
900.0	10.00	103.72	897.5	-10.3	42.3	-1.5	2.00	2.00	0.00
952.3	11.05	103.72	948.9	-12.6	51.6	-1.8	2.00	2.00	0.00
1,000.0	11.05	103.72	995.7	-14.8	60.4	-2.1	0.00	0.00	0.00
1,100.0	11.05	103.72	1,093.8	-19.3	79.1	-2.8	0.00	0.00	0.00
1,200.0	11.05	103.72	1,192.0	-23.8	97.7	-3.4	0.00	0.00	0.00
1,300.0	11.05	103.72	1,290.1	-28.4	116.3	-4.1	0.00	0.00	0.00
1,400.0	11.05	103.72	1,388.3	-32.9	134.9	-4.7	0.00	0.00	0.00
1,500.0	11.05	103.72	1,486.4	-37.5	153.5	-5.4	0.00	0.00	0.00
1,600.0	11.05	103.72	1,584.6	-42.0	172.1	-6.1	0.00	0.00	0.00
1,700.0	11.05	103.72	1,682.7	-46.6	190.7	-6.7	0.00	0.00	0.00
1,800.0	11.05	103.72	1,780.9	-51.1	209.3	-7.4	0.00	0.00	0.00
1,900.0	11.05	103.72	1,879.0	-55.7	228.0	-8.0	0.00	0.00	0.00
2,000.0	11.05	103.72	1,977.2	-60.2	246.6	-8.7	0.00	0.00	0.00
2,100.0	11.05	103.72	2,075.3	-64.7	265.2	-9.3	0.00	0.00	0.00
2,200.0	11.05	103.72	2,173.5	-69.3	283.8	-10.0	0.00	0.00	0.00
2,300.0	11.05	103.72	2,271.6	-73.8	302.4	-10.6	0.00	0.00	0.00
2,400.0	11.05	103.72	2,369.8	-78.4	321.0	-11.3	0.00	0.00	0.00
2,500.0	11.05	103.72	2,467.9	-82.9	339.6	-11.9	0.00	0.00	0.00
2,600.0	11.05	103.72	2,566.1	-87.5	358.3	-12.6	0.00	0.00	0.00
2,700.0	11.05	103.72	2,664.2	-92.0	376.9	-13.3	0.00	0.00	0.00
2,800.0	11.05	103.72	2,762.4	-96.6	395.5	-13.9	0.00	0.00	0.00
2,900.0	11.05	103.72	2,860.5	-101.1	414.1	-14.6	0.00	0.00	0.00
3,000.0	11.05	103.72	2,958.6	-105.6	432.7	-15.2	0.00	0.00	0.00
3,100.0	11.05	103.72	3,056.8	-110.2	451.3	-15.9	0.00	0.00	0.00
3,200.0	11.05	103.72	3,154.9	-114.7	469.9	-16.5	0.00	0.00	0.00
3,300.0	11.05	103.72	3,253.1	-119.3	488.6	-17.2	0.00	0.00	0.00
3,400.0	11.05	103.72	3,351.2	-123.8	507.2	-17.8	0.00	0.00	0.00
3,500.0	11.05	103.72	3,449.4	-128.4	525.8	-18.5	0.00	0.00	0.00
3,600.0	11.05	103.72	3,547.5	-132.9	544.4	-19.2	0.00	0.00	0.00
3,700.0	11.05	103.72	3,645.7	-137.5	563.0	-19.8	0.00	0.00	0.00
3,714.6	11.05	103.72	3,660.0	-138.1	565.7	-19.9	0.00	0.00	0.00
PARKMAN									
3,800.0	11.05	103.72	3,743.8	-142.0	581.6	-20.5	0.00	0.00	0.00
3,900.0	11.05	103.72	3,842.0	-146.5	600.2	-21.1	0.00	0.00	0.00
4,000.0	11.05	103.72	3,940.1	-151.1	618.8	-21.8	0.00	0.00	0.00
4,100.0	11.05	103.72	4,038.3	-155.6	637.5	-22.4	0.00	0.00	0.00
4,200.0	11.05	103.72	4,136.4	-160.2	656.1	-23.1	0.00	0.00	0.00
4,275.0	11.05	103.72	4,210.0	-163.6	670.0	-23.6	0.00	0.00	0.00
SUSSEX									
4,300.0	11.05	103.72	4,234.6	-164.7	674.7	-23.7	0.00	0.00	0.00
4,400.0	11.05	103.72	4,332.7	-169.3	693.3	-24.4	0.00	0.00	0.00

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Project:	SEC.8-T3N-R63W	**MD Reference:**	WELL @ 4900.0ft (RKB - 15')
Site:	Guttersen 8T-HZ Pad Sec.8-T3N-R63W	**North Reference:**	True
Well:	Guttersen 8Y-441	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (2-05-14)		

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)
4,468.6	11.05	103.72	4,400.0	-172.4	706.1	-24.8	0.00	0.00	0.00
SHANNON									
4,500.0	11.05	103.72	4,430.9	-173.8	711.9	-25.0	0.00	0.00	0.00
4,600.0	11.05	103.72	4,529.0	-178.3	730.5	-25.7	0.00	0.00	0.00
4,700.0	11.05	103.72	4,627.1	-182.9	749.1	-26.4	0.00	0.00	0.00
4,800.0	11.05	103.72	4,725.3	-187.4	767.8	-27.0	0.00	0.00	0.00
4,900.0	11.05	103.72	4,823.4	-192.0	786.4	-27.7	0.00	0.00	0.00
5,000.0	11.05	103.72	4,921.6	-196.5	805.0	-28.3	0.00	0.00	0.00
5,100.0	11.05	103.72	5,019.7	-201.1	823.6	-29.0	0.00	0.00	0.00
5,200.0	11.05	103.72	5,117.9	-205.6	842.2	-29.6	0.00	0.00	0.00
5,300.0	11.05	103.72	5,216.0	-210.2	860.8	-30.3	0.00	0.00	0.00
5,400.0	11.05	103.72	5,314.2	-214.7	879.4	-30.9	0.00	0.00	0.00
5,437.6	11.05	103.72	5,351.1	-216.4	886.4	-31.2	0.00	0.00	0.00
5,500.0	9.80	103.72	5,412.5	-219.1	897.4	-31.6	2.00	-2.00	0.00
5,600.0	7.80	103.72	5,511.3	-222.7	912.3	-32.1	2.00	-2.00	0.00
5,700.0	5.80	103.72	5,610.6	-225.5	923.8	-32.5	2.00	-2.00	0.00
5,800.0	3.80	103.72	5,710.2	-227.5	931.9	-32.8	2.00	-2.00	0.00
5,900.0	1.80	103.72	5,810.1	-228.7	936.6	-33.0	2.00	-2.00	0.00
5,989.9	0.00	0.00	5,900.0	-229.0	938.0	-33.0	2.00	-2.00	0.00
6,000.0	0.00	0.00	5,910.1	-229.0	938.0	-33.0	0.00	0.00	0.00
6,100.0	0.00	0.00	6,010.1	-229.0	938.0	-33.0	0.00	0.00	0.00
6,171.3	0.00	0.00	6,081.4	-229.0	938.0	-33.0	0.00	0.00	0.00
KOP #2									
6,200.0	2.15	0.07	6,110.1	-228.5	938.0	-32.5	7.50	7.50	0.00
6,300.0	9.65	0.07	6,209.5	-218.2	938.0	-22.4	7.50	7.50	0.00
6,400.0	17.15	0.07	6,306.7	-195.0	938.0	0.3	7.50	7.50	0.00
6,458.7	21.55	0.07	6,362.0	-175.6	938.1	19.3	7.50	7.50	0.00
SHARON SPRINGS									
6,500.0	24.65	0.07	6,400.0	-159.4	938.1	35.2	7.50	7.50	0.00
6,600.0	32.15	0.07	6,487.9	-111.8	938.1	81.7	7.50	7.50	0.00
6,700.0	39.65	0.07	6,568.9	-53.2	938.2	139.1	7.50	7.50	0.00
6,800.0	47.15	0.07	6,641.5	15.4	938.3	206.3	7.50	7.50	0.00
6,900.0	54.65	0.07	6,704.5	93.0	938.4	282.3	7.50	7.50	0.00
7,000.0	62.15	0.07	6,756.8	178.1	938.5	365.6	7.50	7.50	0.00
7,100.0	69.65	0.07	6,797.6	269.3	938.6	455.0	7.50	7.50	0.00
7,200.0	77.15	0.07	6,826.2	365.1	938.7	548.7	7.50	7.50	0.00
7,291.3	84.00	0.07	6,841.1	455.1	938.8	636.9	7.50	7.50	0.00
7"									
7,300.0	84.00	0.07	6,842.0	463.7	938.8	645.4	0.01	0.01	0.00
7,365.3	84.00	0.07	6,848.9	528.7	938.9	709.0	0.00	0.00	0.00
7,400.0	85.73	0.07	6,852.0	563.2	938.9	742.8	5.00	5.00	0.00
7,482.1	89.84	0.07	6,855.1	645.3	939.0	823.1	5.00	5.00	0.00
End of Build									
7,500.0	89.84	0.07	6,855.2	663.2	939.0	840.6	0.00	0.00	0.00
7,600.0	89.84	0.07	6,855.5	763.2	939.2	938.6	0.00	0.00	0.00
7,700.0	89.84	0.07	6,855.8	863.2	939.3	1,036.5	0.00	0.00	0.00
7,800.0	89.84	0.07	6,856.0	963.2	939.4	1,134.4	0.00	0.00	0.00
7,900.0	89.84	0.07	6,856.3	1,063.2	939.5	1,232.3	0.00	0.00	0.00
8,000.0	89.84	0.07	6,856.6	1,163.2	939.6	1,330.3	0.00	0.00	0.00
8,100.0	89.84	0.07	6,856.9	1,263.2	939.7	1,428.2	0.00	0.00	0.00
8,200.0	89.84	0.07	6,857.2	1,363.2	939.9	1,526.1	0.00	0.00	0.00
8,300.0	89.84	0.07	6,857.4	1,463.2	940.0	1,624.0	0.00	0.00	0.00

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Well:	Guttersen 8Y-441	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (2-05-14)		

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)
8,400.0	89.84	0.07	6,857.7	1,563.2	940.1	1,722.0	0.00	0.00	0.00
8,500.0	89.84	0.07	6,858.0	1,663.1	940.2	1,819.9	0.00	0.00	0.00
8,600.0	89.84	0.07	6,858.3	1,763.1	940.3	1,917.8	0.00	0.00	0.00
8,700.0	89.84	0.07	6,858.5	1,863.1	940.4	2,015.7	0.00	0.00	0.00
8,800.0	89.84	0.07	6,858.8	1,963.1	940.6	2,113.6	0.00	0.00	0.00
8,900.0	89.84	0.07	6,859.1	2,063.1	940.7	2,211.6	0.00	0.00	0.00
9,000.0	89.84	0.07	6,859.4	2,163.1	940.8	2,309.5	0.00	0.00	0.00
9,100.0	89.84	0.07	6,859.7	2,263.1	940.9	2,407.4	0.00	0.00	0.00
9,200.0	89.84	0.07	6,859.9	2,363.1	941.0	2,505.3	0.00	0.00	0.00
9,300.0	89.84	0.07	6,860.2	2,463.1	941.1	2,603.3	0.00	0.00	0.00
9,400.0	89.84	0.07	6,860.5	2,563.1	941.3	2,701.2	0.00	0.00	0.00
9,500.0	89.84	0.07	6,860.8	2,663.1	941.4	2,799.1	0.00	0.00	0.00
9,600.0	89.84	0.07	6,861.1	2,763.1	941.5	2,897.0	0.00	0.00	0.00
9,700.0	89.84	0.07	6,861.3	2,863.1	941.6	2,995.0	0.00	0.00	0.00
9,800.0	89.84	0.07	6,861.6	2,963.1	941.7	3,092.9	0.00	0.00	0.00
9,900.0	89.84	0.07	6,861.9	3,063.1	941.8	3,190.8	0.00	0.00	0.00
10,000.0	89.84	0.07	6,862.2	3,163.1	942.0	3,288.7	0.00	0.00	0.00
10,100.0	89.84	0.07	6,862.5	3,263.1	942.1	3,386.7	0.00	0.00	0.00
10,200.0	89.84	0.07	6,862.7	3,363.1	942.2	3,484.6	0.00	0.00	0.00
10,300.0	89.84	0.07	6,863.0	3,463.1	942.3	3,582.5	0.00	0.00	0.00
10,400.0	89.84	0.07	6,863.3	3,563.1	942.4	3,680.4	0.00	0.00	0.00
10,500.0	89.84	0.07	6,863.6	3,663.1	942.5	3,778.4	0.00	0.00	0.00
10,600.0	89.84	0.07	6,863.9	3,763.1	942.6	3,876.3	0.00	0.00	0.00
10,700.0	89.84	0.07	6,864.1	3,863.1	942.8	3,974.2	0.00	0.00	0.00
10,800.0	89.84	0.07	6,864.4	3,963.1	942.9	4,072.1	0.00	0.00	0.00
10,900.0	89.84	0.07	6,864.7	4,063.1	943.0	4,170.0	0.00	0.00	0.00
11,000.0	89.84	0.07	6,865.0	4,163.1	943.1	4,268.0	0.00	0.00	0.00
11,100.0	89.84	0.07	6,865.2	4,263.1	943.2	4,365.9	0.00	0.00	0.00
11,200.0	89.84	0.07	6,865.5	4,363.1	943.3	4,463.8	0.00	0.00	0.00
11,300.0	89.84	0.07	6,865.8	4,463.1	943.5	4,561.7	0.00	0.00	0.00
11,368.8	89.84	0.07	6,866.0	4,531.9	943.5	4,629.1	0.00	0.00	0.00
BHL 500'FNL & 358'FEL									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,291.3	6,841.1	7"	7	7-1/2

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,714.6	3,660.0	PARKMAN		0.00	
4,275.0	4,210.0	SUSSEX		0.00	
4,468.6	4,400.0	SHANNON		0.00	
6,458.7	6,362.0	SHARON SPRINGS		0.00	

Database:	Landmark	**Local Co-ordinate Reference:**	Well Guttersen 8Y-441
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**TVD Reference:**	WELL @ 4900.0ft (RKB - 15')
Project:	SEC.8-T3N-R63W	**MD Reference:**	WELL @ 4900.0ft (RKB - 15')
Site:	Guttersen 8T-HZ Pad Sec.8-T3N-R63W	**North Reference:**	True
Well:	Guttersen 8Y-441	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (2-05-14)		

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
400.0	400.0	0.0	0.0	KOP #1
6,171.3	6,081.4	-229.0	938.0	KOP #2
7,482.1	6,855.1	645.3	939.0	End of Build

ENSIGN Directional

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.8-T3N-R63W
Guttersen 8T-HZ Pad Sec.8-T3N-R63W
Guttersen 8Y-441

Wellbore #1
Plan #1 (2-05-14)

Anticollision Report

06 February, 2014

PDC ENERGY
Growing E&P Value

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Guttersen 8Y-441
Project:	SEC.8-T3N-R63W	**TVD Reference:**	WELL @ 4900.0ft (RKB - 15')
Reference Site:	Guttersen 8T-HZ Pad Sec.8-T3N-R63W	**MD Reference:**	WELL @ 4900.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Guttersen 8Y-441	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (2-05-14)	**Offset TVD Reference:**	Offset Datum

Reference Plan #1 (2-05-14)

Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0ft	**Error Model:**	ISCWSA
Depth Range:	Unlimited	**Scan Method:**	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000.0ft	**Error Surface:**	Elliptical Conic

Warning Levels Evaluated at: 2.00 **Sigma**

Survey Tool Program **Date** 2/6/2014

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	11,368.8	Plan #1 (2-05-14) (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
Existing Wells Sec.8-T3N-R63W						
Guttersen 41-8 (Exist) - Wellbore #1 - Wellbore #1	11,368.8	6,846.0	120.0	-106.2	0.530	Level 1, CC, ES, SF
Guttersen 42-8 (Exist) - Wellbore #1 - Wellbore #1	9,874.8	6,831.8	299.7	101.7	1.514	CC, ES, SF
Guttersen 43-8 (Exist) - Wellbore #1 - Wellbore #1	8,548.7	6,848.1	300.9	126.5	1.725	CC, ES, SF
Guttersen 44-8 (Exist) - Wellbore #1 - Wellbore #1	7,221.2	6,830.7	293.8	138.8	1.896	CC, ES, SF
Guttersen 8T-HZ Pad Sec.8-T3N-R63W						
Guttersen 8Q-201 - Wellbore #1 - Plan #1 (2-05-14)	261.9	261.9	29.7	28.7	31.371	CC
Guttersen 8Q-201 - Wellbore #1 - Plan #1 (2-05-14)	300.0	300.0	29.7	28.6	26.673	ES
Guttersen 8Q-201 - Wellbore #1 - Plan #1 (2-05-14)	11,368.8	11,221.0	2,163.8	1,985.9	12.164	SF
Guttersen 8T-201 - Wellbore #1 - Plan #1 (2-05-14)	400.0	400.0	59.9	58.4	38.092	CC, ES
Guttersen 8T-201 - Wellbore #1 - Plan #1 (2-05-14)	11,368.8	11,108.7	816.0	643.6	4.735	SF
Guttersen 8T-341 - Wellbore #1 - Plan #1 (2-05-14)	400.0	400.0	29.7	28.1	18.860	CC, ES
Guttersen 8T-341 - Wellbore #1 - Plan #1 (2-05-14)	11,368.8	11,223.2	1,452.8	1,275.8	8.208	SF

Offset Design Existing Wells Sec.8-T3N-R63W - Guttersen 41-8 (Exist) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 7013-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
0.0	0.0	0.0	0.0	0.0	0.0	10.28	4,557.4	826.3	4,631.8				
100.0	100.0	80.0	80.0	0.1	1.6	10.28	4,557.4	826.3	4,631.7	4,630.0	1.71	2,704.534	
200.0	200.0	180.0	180.0	0.3	3.6	10.28	4,557.4	826.3	4,631.7	4,627.8	3.94	1,176.360	
300.0	300.0	280.0	280.0	0.6	5.6	10.28	4,557.4	826.3	4,631.7	4,625.6	6.16	751.648	
400.0	400.0	380.0	380.0	0.8	7.6	10.28	4,557.4	826.3	4,631.7	4,623.3	8.39	552.260	
500.0	500.0	480.0	480.0	1.0	9.6	-93.46	4,557.4	826.3	4,631.8	4,621.2	10.60	437.117	
600.0	599.8	579.8	579.8	1.2	11.6	-93.52	4,557.4	826.3	4,632.2	4,619.4	12.80	361.807	
700.0	699.5	679.5	679.5	1.4	13.6	-93.62	4,557.4	826.3	4,632.7	4,617.7	15.03	308.247	
800.0	798.7	778.7	778.7	1.7	15.6	-93.75	4,557.4	826.3	4,633.5	4,616.2	17.28	268.115	
900.0	897.5	877.5	877.5	2.0	17.5	-93.92	4,557.4	826.3	4,634.6	4,615.0	19.57	236.847	
1,000.0	995.7	975.7	975.7	2.4	19.5	-94.13	4,557.4	826.3	4,635.9	4,614.0	21.89	211.770	
1,100.0	1,093.8	1,073.8	1,073.8	2.8	21.5	-94.36	4,557.4	826.3	4,637.3	4,613.1	24.24	191.334	
1,200.0	1,192.0	1,172.0	1,172.0	3.2	23.4	-94.60	4,557.4	826.3	4,638.9	4,612.3	26.60	174.426	
1,300.0	1,290.1	1,270.1	1,270.1	3.6	25.4	-94.83	4,557.4	826.3	4,640.5	4,611.5	28.96	160.229	

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 8Y-441
Project:	SEC.8-T3N-R63W	**TVD Reference:**	WELL @ 4900.0ft (RKB - 15')
Reference Site:	Guttersen 8T-HZ Pad Sec.8-T3N-R63W	**MD Reference:**	WELL @ 4900.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Guttersen 8Y-441	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (2-05-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells Sec.8-T3N-R63W - Guttersen 41-8 (Exist) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 7013-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
1,400.0	1,388.3	1,368.3	1,368.3	4.0	27.4	-95.06	4,557.4	826.3	4,642.1	4,610.8	31.33	148.152	
1,500.0	1,486.4	1,466.4	1,466.4	4.4	29.3	-95.29	4,557.4	826.3	4,643.9	4,610.2	33.71	137.762	
1,600.0	1,584.6	1,564.6	1,564.6	4.8	31.3	-95.52	4,557.4	826.3	4,645.7	4,609.7	36.09	128.732	
1,700.0	1,682.7	1,662.7	1,662.7	5.2	33.3	-95.75	4,557.4	826.3	4,647.7	4,609.2	38.47	120.815	
1,800.0	1,780.9	1,760.9	1,760.9	5.7	35.2	-95.98	4,557.4	826.3	4,649.7	4,608.8	40.85	113.819	
1,900.0	1,879.0	1,859.0	1,859.0	6.1	37.2	-96.21	4,557.4	826.3	4,651.7	4,608.5	43.23	107.592	
2,000.0	1,977.2	1,957.2	1,957.2	6.5	39.1	-96.44	4,557.4	826.3	4,653.9	4,608.3	45.62	102.016	
2,100.0	2,075.3	2,055.3	2,055.3	6.9	41.1	-96.67	4,557.4	826.3	4,656.1	4,608.1	48.00	96.995	
2,200.0	2,173.5	2,153.5	2,153.5	7.4	43.1	-96.90	4,557.4	826.3	4,658.4	4,608.0	50.39	92.450	
2,300.0	2,271.6	2,251.6	2,251.6	7.8	45.0	-97.13	4,557.4	826.3	4,660.8	4,608.0	52.77	88.317	
2,400.0	2,369.8	2,349.8	2,349.8	8.2	47.0	-97.36	4,557.4	826.3	4,663.3	4,608.1	55.16	84.542	
2,500.0	2,467.9	2,447.9	2,447.9	8.7	49.0	-97.59	4,557.4	826.3	4,665.8	4,608.3	57.54	81.082	
2,600.0	2,566.1	2,546.1	2,546.1	9.1	50.9	-97.82	4,557.4	826.3	4,668.4	4,608.5	59.93	77.899	
2,700.0	2,664.2	2,644.2	2,644.2	9.5	52.9	-98.05	4,557.4	826.3	4,671.1	4,608.8	62.31	74.960	
2,800.0	2,762.4	2,742.4	2,742.4	10.0	54.8	-98.28	4,557.4	826.3	4,673.9	4,609.2	64.70	72.240	
2,900.0	2,860.5	2,840.5	2,840.5	10.4	56.8	-98.50	4,557.4	826.3	4,676.7	4,609.6	67.08	69.715	
3,000.0	2,958.6	2,938.6	2,938.6	10.8	58.8	-98.73	4,557.4	826.3	4,679.7	4,610.2	69.47	67.365	
3,100.0	3,056.8	3,036.8	3,036.8	11.2	60.7	-98.96	4,557.4	826.3	4,682.7	4,610.8	71.85	65.171	
3,200.0	3,154.9	3,134.9	3,134.9	11.7	62.7	-99.19	4,557.4	826.3	4,685.7	4,611.5	74.23	63.121	
3,300.0	3,253.1	3,233.1	3,233.1	12.1	64.7	-99.41	4,557.4	826.3	4,688.9	4,612.3	76.62	61.199	
3,400.0	3,351.2	3,331.2	3,331.2	12.5	66.6	-99.64	4,557.4	826.3	4,692.1	4,613.1	79.00	59.394	
3,500.0	3,449.4	3,429.4	3,429.4	13.0	68.6	-99.87	4,557.4	826.3	4,695.4	4,614.0	81.38	57.696	
3,600.0	3,547.5	3,527.5	3,527.5	13.4	70.6	-100.09	4,557.4	826.3	4,698.8	4,615.0	83.76	56.096	
3,700.0	3,645.7	3,625.7	3,625.7	13.8	72.5	-100.32	4,557.4	826.3	4,702.3	4,616.1	86.14	54.586	
3,800.0	3,743.8	3,723.8	3,723.8	14.3	74.5	-100.54	4,557.4	826.3	4,705.8	4,617.3	88.52	53.159	
3,900.0	3,842.0	3,822.0	3,822.0	14.7	76.4	-100.77	4,557.4	826.3	4,709.4	4,618.5	90.90	51.807	
4,000.0	3,940.1	3,920.1	3,920.1	15.1	78.4	-100.99	4,557.4	826.3	4,713.1	4,619.8	93.28	50.525	
4,100.0	4,038.3	4,018.3	4,018.3	15.6	80.4	-101.22	4,557.4	826.3	4,716.8	4,621.2	95.66	49.308	
4,200.0	4,136.4	4,116.4	4,116.4	16.0	82.3	-101.44	4,557.4	826.3	4,720.7	4,622.6	98.04	48.151	
4,300.0	4,234.6	4,214.6	4,214.6	16.4	84.3	-101.67	4,557.4	826.3	4,724.6	4,624.2	100.41	47.051	
4,400.0	4,332.7	4,312.7	4,312.7	16.9	86.3	-101.89	4,557.4	826.3	4,728.6	4,625.8	102.79	46.002	
4,500.0	4,430.9	4,410.9	4,410.9	17.3	88.2	-102.11	4,557.4	826.3	4,732.6	4,627.5	105.17	45.001	
4,600.0	4,529.0	4,509.0	4,509.0	17.7	90.2	-102.34	4,557.4	826.3	4,736.7	4,629.2	107.54	44.046	
4,700.0	4,627.1	4,607.1	4,607.1	18.2	92.1	-102.56	4,557.4	826.3	4,741.0	4,631.0	109.92	43.133	
4,800.0	4,725.3	4,705.3	4,705.3	18.6	94.1	-102.78	4,557.4	826.3	4,745.2	4,632.9	112.29	42.259	
4,900.0	4,823.4	4,803.4	4,803.4	19.0	96.1	-103.00	4,557.4	826.3	4,749.6	4,634.9	114.66	41.423	
5,000.0	4,921.6	4,901.6	4,901.6	19.5	98.0	-103.22	4,557.4	826.3	4,754.0	4,637.0	117.03	40.621	
5,100.0	5,019.7	4,999.7	4,999.7	19.9	100.0	-103.44	4,557.4	826.3	4,758.5	4,639.1	119.40	39.852	
5,200.0	5,117.9	5,097.9	5,097.9	20.3	102.0	-103.66	4,557.4	826.3	4,763.1	4,641.3	121.77	39.114	
5,300.0	5,216.0	5,196.0	5,196.0	20.8	103.9	-103.88	4,557.4	826.3	4,767.7	4,643.6	124.14	38.405	
5,400.0	5,314.2	5,294.2	5,294.2	21.2	105.9	-104.10	4,557.4	826.3	4,772.4	4,645.9	126.51	37.723	
5,500.0	5,412.5	5,392.5	5,392.5	21.6	107.8	-104.37	4,557.4	826.3	4,777.0	4,648.2	128.86	37.071	
5,600.0	5,511.3	5,491.3	5,491.3	21.9	109.8	-104.62	4,557.4	826.3	4,780.9	4,649.8	131.13	36.459	
5,700.0	5,610.6	5,590.6	5,590.6	22.1	111.8	-104.81	4,557.4	826.3	4,783.9	4,650.6	133.37	35.870	
5,800.0	5,710.2	5,690.2	5,690.2	22.3	113.8	-104.95	4,557.4	826.3	4,786.1	4,650.5	135.57	35.304	
5,900.0	5,810.1	5,790.1	5,790.1	22.5	115.8	-105.03	4,557.4	826.3	4,787.4	4,649.6	137.73	34.760	
6,000.0	5,910.1	5,890.1	5,890.1	22.6	117.8	-1.34	4,557.4	826.3	4,787.7	4,647.9	139.85	34.235	
6,100.0	6,010.1	5,990.1	5,990.1	22.7	119.8	-1.34	4,557.4	826.3	4,787.7	4,645.8	141.97	33.724	
6,200.0	6,110.1	6,090.1	6,090.1	22.8	121.8	-1.40	4,557.4	826.3	4,787.2	4,643.2	143.98	33.248	
6,300.0	6,209.5	6,189.5	6,189.5	22.9	123.8	-1.43	4,557.4	826.3	4,776.9	4,632.8	144.11	33.147	
6,400.0	6,306.7	6,286.7	6,286.7	23.0	125.7	-1.48	4,557.4	826.3	4,753.8	4,612.1	141.68	33.553	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Guttersen 8Y-441
Project:	SEC.8-T3N-R63W	**TVD Reference:**	WELL @ 4900.0ft (RKB - 15')
Reference Site:	Guttersen 8T-HZ Pad Sec.8-T3N-R63W	**MD Reference:**	WELL @ 4900.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Guttersen 8Y-441	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (2-05-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells Sec.8-T3N-R63W - Guttersen 41-8 (Exist) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 7013-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
6,500.0	6,400.0	6,380.0	6,380.0	23.0	127.6	-1.57	4,557.4	826.3	4,718.1	4,581.5	136.64	34.529	
6,600.0	6,487.9	6,467.9	6,467.9	23.0	129.4	-1.70	4,557.4	826.3	4,670.6	4,541.6	129.03	36.199	
6,700.0	6,568.9	6,548.9	6,548.9	23.0	131.0	-1.89	4,557.4	826.3	4,612.0	4,493.1	118.93	38.779	
6,800.0	6,641.5	6,621.5	6,621.5	23.0	132.4	-2.17	4,557.4	826.3	4,543.4	4,436.9	106.54	42.647	
6,900.0	6,704.5	6,684.5	6,684.5	23.1	133.7	-2.60	4,557.4	826.3	4,465.9	4,373.8	92.12	48.480	
7,000.0	6,756.8	6,736.8	6,736.8	23.2	134.7	-3.28	4,557.4	826.3	4,380.8	4,304.7	76.10	57.567	
7,100.0	6,797.6	6,777.6	6,777.6	23.3	135.6	-4.50	4,557.4	826.3	4,289.6	4,230.4	59.25	72.404	
7,200.0	6,826.2	6,806.2	6,806.2	23.6	136.1	-7.17	4,557.4	826.3	4,193.9	4,149.7	44.13	95.027	
7,300.0	6,842.0	6,822.0	6,822.0	24.0	136.4	-15.33	4,557.4	826.3	4,095.2	4,047.7	47.57	86.084	
7,400.0	6,852.0	6,832.0	6,832.0	24.6	136.6	-21.54	4,557.4	826.3	3,995.8	3,934.9	60.85	65.671	
7,500.0	6,855.2	6,835.2	6,835.2	25.4	136.7	-84.70	4,557.4	826.3	3,895.9	3,738.9	157.04	24.808	
7,600.0	6,855.5	6,835.5	6,835.5	26.3	136.7	-84.84	4,557.4	826.3	3,796.0	3,637.6	158.35	23.972	
7,700.0	6,855.8	6,835.8	6,835.8	27.4	136.7	-84.97	4,557.4	826.3	3,696.0	3,536.3	159.75	23.137	
7,800.0	6,856.0	6,836.0	6,836.0	28.6	136.7	-85.11	4,557.4	826.3	3,596.1	3,434.8	161.21	22.306	
7,900.0	6,856.3	6,836.3	6,836.3	29.9	136.7	-85.24	4,557.4	826.3	3,496.1	3,333.4	162.75	21.482	
8,000.0	6,856.6	6,836.6	6,836.6	31.3	136.7	-85.38	4,557.4	826.3	3,396.2	3,231.8	164.33	20.667	
8,100.0	6,856.9	6,836.9	6,836.9	32.7	136.7	-85.51	4,557.4	826.3	3,296.2	3,130.3	165.95	19.863	
8,200.0	6,857.2	6,837.2	6,837.2	34.2	136.7	-85.65	4,557.4	826.3	3,196.3	3,028.7	167.61	19.069	
8,300.0	6,857.4	6,837.4	6,837.4	35.7	136.7	-85.79	4,557.4	826.3	3,096.4	2,927.1	169.31	18.288	
8,400.0	6,857.7	6,837.7	6,837.7	37.3	136.8	-85.92	4,557.4	826.3	2,996.4	2,825.4	171.03	17.520	
8,500.0	6,858.0	6,838.0	6,838.0	38.9	136.8	-86.06	4,557.4	826.3	2,896.5	2,723.8	172.77	16.765	
8,600.0	6,858.3	6,838.3	6,838.3	40.5	136.8	-86.19	4,557.4	826.3	2,796.6	2,622.1	174.53	16.023	
8,700.0	6,858.5	6,838.5	6,838.5	42.2	136.8	-86.33	4,557.4	826.3	2,696.7	2,520.4	176.31	15.295	
8,800.0	6,858.8	6,838.8	6,838.8	43.9	136.8	-86.47	4,557.4	826.3	2,596.8	2,418.7	178.11	14.580	
8,900.0	6,859.1	6,839.1	6,839.1	45.6	136.8	-86.60	4,557.4	826.3	2,496.9	2,317.0	179.91	13.878	
9,000.0	6,859.4	6,839.4	6,839.4	47.3	136.8	-86.74	4,557.4	826.3	2,397.0	2,215.3	181.73	13.190	
9,100.0	6,859.7	6,839.7	6,839.7	49.0	136.8	-86.87	4,557.4	826.3	2,297.1	2,113.6	183.56	12.514	
9,200.0	6,859.9	6,839.9	6,839.9	50.7	136.8	-87.01	4,557.4	826.3	2,197.3	2,011.9	185.40	11.852	
9,300.0	6,860.2	6,840.2	6,840.2	52.5	136.8	-87.15	4,557.4	826.3	2,097.4	1,910.2	187.24	11.202	
9,400.0	6,860.5	6,840.5	6,840.5	54.3	136.8	-87.28	4,557.4	826.3	1,997.6	1,808.5	189.09	10.564	
9,500.0	6,860.8	6,840.8	6,840.8	56.0	136.8	-87.42	4,557.4	826.3	1,897.8	1,706.8	190.95	9.939	
9,600.0	6,861.1	6,841.1	6,841.1	57.8	136.8	-87.55	4,557.4	826.3	1,798.0	1,605.2	192.81	9.325	
9,700.0	6,861.3	6,841.3	6,841.3	59.6	136.8	-87.69	4,557.4	826.3	1,698.2	1,503.5	194.68	8.723	
9,800.0	6,861.6	6,841.6	6,841.6	61.4	136.8	-87.83	4,557.4	826.3	1,598.5	1,401.9	196.55	8.132	
9,900.0	6,861.9	6,841.9	6,841.9	63.2	136.8	-87.96	4,557.4	826.3	1,498.7	1,300.3	198.43	7.553	
10,000.0	6,862.2	6,842.2	6,842.2	65.0	136.8	-88.10	4,557.4	826.3	1,399.1	1,198.8	200.31	6.985	
10,100.0	6,862.5	6,842.5	6,842.5	66.9	136.8	-88.23	4,557.4	826.3	1,299.5	1,097.3	202.19	6.427	
10,200.0	6,862.7	6,842.7	6,842.7	68.7	136.9	-88.37	4,557.4	826.3	1,199.9	995.8	204.07	5.880	
10,300.0	6,863.0	6,843.0	6,843.0	70.5	136.9	-88.51	4,557.4	826.3	1,100.4	894.5	205.96	5.343	
10,400.0	6,863.3	6,843.3	6,843.3	72.4	136.9	-88.64	4,557.4	826.3	1,001.0	793.2	207.85	4.816	
10,500.0	6,863.6	6,843.6	6,843.6	74.2	136.9	-88.78	4,557.4	826.3	901.8	692.1	209.74	4.300	
10,600.0	6,863.9	6,843.9	6,843.9	76.0	136.9	-88.92	4,557.4	826.3	802.8	591.1	211.63	3.793	
10,700.0	6,864.1	6,844.1	6,844.1	77.9	136.9	-89.05	4,557.4	826.3	704.0	490.5	213.53	3.297	
10,800.0	6,864.4	6,844.4	6,844.4	79.7	136.9	-89.19	4,557.4	826.3	605.6	390.2	215.42	2.811	
10,900.0	6,864.7	6,844.7	6,844.7	81.6	136.9	-89.33	4,557.4	826.3	507.9	290.6	217.32	2.337	
11,000.0	6,865.0	6,845.0	6,845.0	83.4	136.9	-89.46	4,557.4	826.3	411.2	192.0	219.21	1.876	
11,100.0	6,865.2	6,845.2	6,845.2	85.3	136.9	-89.60	4,557.4	826.3	316.7	95.6	221.11	1.432	Level 3
11,200.0	6,865.5	6,845.5	6,845.5	87.2	136.9	-89.74	4,557.4	826.3	226.8	3.8	223.01	1.017	Level 2
11,300.0	6,865.8	6,845.8	6,845.8	89.0	136.9	-89.87	4,557.4	826.3	150.4	-74.5	224.91	0.669	Level 1
11,368.8	6,866.0	6,846.0	6,846.0	90.3	136.9	-89.97	4,557.4	826.3	120.0	-106.2	226.21	0.530	Level 1, CC, ES, SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Guttersen 8Y-441
Project:	SEC.8-T3N-R63W	**TVD Reference:**	WELL @ 4900.0ft (RKB - 15')
Reference Site:	Guttersen 8T-HZ Pad Sec.8-T3N-R63W	**MD Reference:**	WELL @ 4900.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Guttersen 8Y-441	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (2-05-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells Sec.8-T3N-R63W - Guttersen 42-8 (Exist) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 7029-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
0.0	0.0	0.0	0.0	0.0	0.0	11.93	3,038.3	642.1	3,105.5				
100.0	100.0	70.0	70.0	0.1	1.4	11.93	3,038.3	642.1	3,105.4	3,103.9	1.51	2,053.043	
200.0	200.0	170.0	170.0	0.3	3.4	11.93	3,038.3	642.1	3,105.4	3,101.7	3.74	830.909	
300.0	300.0	270.0	270.0	0.6	5.4	11.93	3,038.3	642.1	3,105.4	3,099.4	5.96	520.855	
400.0	400.0	370.0	370.0	0.8	7.4	11.93	3,038.3	642.1	3,105.4	3,097.2	8.19	379.314	
500.0	500.0	470.0	470.0	1.0	9.4	-91.82	3,038.3	642.1	3,105.4	3,095.1	10.40	298.706	
600.0	599.8	569.8	569.8	1.2	11.4	-91.91	3,038.3	642.1	3,105.6	3,093.0	12.60	246.420	
700.0	699.5	669.5	669.5	1.4	13.4	-92.06	3,038.3	642.1	3,105.9	3,091.1	14.83	209.442	
800.0	798.7	768.7	768.7	1.7	15.4	-92.28	3,038.3	642.1	3,106.4	3,089.3	17.08	181.846	
900.0	897.5	867.5	867.5	2.0	17.3	-92.55	3,038.3	642.1	3,107.1	3,087.7	19.37	160.413	
1,000.0	995.7	965.7	965.7	2.4	19.3	-92.88	3,038.3	642.1	3,108.0	3,086.3	21.69	143.268	
1,100.0	1,093.8	1,063.8	1,063.8	2.8	21.3	-93.22	3,038.3	642.1	3,109.0	3,085.0	24.04	129.329	
1,200.0	1,192.0	1,162.0	1,162.0	3.2	23.2	-93.57	3,038.3	642.1	3,110.2	3,083.8	26.40	117.817	
1,300.0	1,290.1	1,260.1	1,260.1	3.6	25.2	-93.92	3,038.3	642.1	3,111.4	3,082.7	28.76	108.167	
1,400.0	1,388.3	1,358.3	1,358.3	4.0	27.2	-94.26	3,038.3	642.1	3,112.8	3,081.7	31.14	99.971	
1,500.0	1,486.4	1,456.4	1,456.4	4.4	29.1	-94.61	3,038.3	642.1	3,114.3	3,080.8	33.51	92.928	
1,600.0	1,584.6	1,554.6	1,554.6	4.8	31.1	-94.95	3,038.3	642.1	3,116.0	3,080.1	35.89	86.815	
1,700.0	1,682.7	1,652.7	1,652.7	5.2	33.1	-95.30	3,038.3	642.1	3,117.7	3,079.4	38.27	81.460	
1,800.0	1,780.9	1,750.9	1,750.9	5.7	35.0	-95.64	3,038.3	642.1	3,119.6	3,078.9	40.65	76.734	
1,900.0	1,879.0	1,849.0	1,849.0	6.1	37.0	-95.98	3,038.3	642.1	3,121.5	3,078.5	43.04	72.531	
2,000.0	1,977.2	1,947.2	1,947.2	6.5	38.9	-96.33	3,038.3	642.1	3,123.6	3,078.2	45.42	68.772	
2,100.0	2,075.3	2,045.3	2,045.3	6.9	40.9	-96.67	3,038.3	642.1	3,125.8	3,078.0	47.80	65.389	
2,200.0	2,173.5	2,143.5	2,143.5	7.4	42.9	-97.01	3,038.3	642.1	3,128.2	3,078.0	50.19	62.330	
2,300.0	2,271.6	2,241.6	2,241.6	7.8	44.8	-97.35	3,038.3	642.1	3,130.6	3,078.0	52.57	59.550	
2,400.0	2,369.8	2,339.8	2,339.8	8.2	46.8	-97.69	3,038.3	642.1	3,133.2	3,078.2	54.95	57.014	
2,500.0	2,467.9	2,437.9	2,437.9	8.7	48.8	-98.04	3,038.3	642.1	3,135.8	3,078.5	57.34	54.691	
2,600.0	2,566.1	2,536.1	2,536.1	9.1	50.7	-98.38	3,038.3	642.1	3,138.6	3,078.9	59.72	52.556	
2,700.0	2,664.2	2,634.2	2,634.2	9.5	52.7	-98.71	3,038.3	642.1	3,141.5	3,079.4	62.10	50.587	
2,800.0	2,762.4	2,732.4	2,732.4	10.0	54.6	-99.05	3,038.3	642.1	3,144.5	3,080.0	64.48	48.766	
2,900.0	2,860.5	2,830.5	2,830.5	10.4	56.6	-99.39	3,038.3	642.1	3,147.7	3,080.8	66.86	47.077	
3,000.0	2,958.6	2,928.6	2,928.6	10.8	58.6	-99.73	3,038.3	642.1	3,150.9	3,081.6	69.24	45.505	
3,100.0	3,056.8	3,026.8	3,026.8	11.2	60.5	-100.07	3,038.3	642.1	3,154.2	3,082.6	71.62	44.041	
3,200.0	3,154.9	3,124.9	3,124.9	11.7	62.5	-100.40	3,038.3	642.1	3,157.7	3,083.7	74.00	42.672	
3,300.0	3,253.1	3,223.1	3,223.1	12.1	64.5	-100.74	3,038.3	642.1	3,161.3	3,084.9	76.38	41.391	
3,400.0	3,351.2	3,321.2	3,321.2	12.5	66.4	-101.07	3,038.3	642.1	3,165.0	3,086.2	78.75	40.189	
3,500.0	3,449.4	3,419.4	3,419.4	13.0	68.4	-101.41	3,038.3	642.1	3,168.8	3,087.7	81.13	39.059	
3,600.0	3,547.5	3,517.5	3,517.5	13.4	70.4	-101.74	3,038.3	642.1	3,172.7	3,089.2	83.50	37.996	
3,700.0	3,645.7	3,615.7	3,615.7	13.8	72.3	-102.07	3,038.3	642.1	3,176.7	3,090.8	85.87	36.992	
3,800.0	3,743.8	3,713.8	3,713.8	14.3	74.3	-102.40	3,038.3	642.1	3,180.9	3,092.6	88.25	36.045	
3,900.0	3,842.0	3,812.0	3,812.0	14.7	76.2	-102.73	3,038.3	642.1	3,185.1	3,094.5	90.62	35.149	
4,000.0	3,940.1	3,910.1	3,910.1	15.1	78.2	-103.06	3,038.3	642.1	3,189.5	3,096.5	92.99	34.300	
4,100.0	4,038.3	4,008.3	4,008.3	15.6	80.2	-103.39	3,038.3	642.1	3,193.9	3,098.6	95.36	33.495	
4,200.0	4,136.4	4,106.4	4,106.4	16.0	82.1	-103.72	3,038.3	642.1	3,198.5	3,100.8	97.72	32.730	
4,300.0	4,234.6	4,204.6	4,204.6	16.4	84.1	-104.05	3,038.3	642.1	3,203.2	3,103.1	100.09	32.003	
4,400.0	4,332.7	4,302.7	4,302.7	16.9	86.1	-104.37	3,038.3	642.1	3,208.0	3,105.5	102.45	31.311	
4,500.0	4,430.9	4,400.9	4,400.9	17.3	88.0	-104.70	3,038.3	642.1	3,212.8	3,108.0	104.82	30.652	
4,600.0	4,529.0	4,499.0	4,499.0	17.7	90.0	-105.02	3,038.3	642.1	3,217.8	3,110.7	107.18	30.023	
4,700.0	4,627.1	4,597.1	4,597.1	18.2	91.9	-105.35	3,038.3	642.1	3,223.0	3,113.4	109.54	29.423	
4,800.0	4,725.3	4,695.3	4,695.3	18.6	93.9	-105.67	3,038.3	642.1	3,228.2	3,116.3	111.90	28.849	
4,900.0	4,823.4	4,793.4	4,793.4	19.0	95.9	-105.99	3,038.3	642.1	3,233.5	3,119.2	114.26	28.300	
5,000.0	4,921.6	4,891.6	4,891.6	19.5	97.8	-106.31	3,038.3	642.1	3,238.9	3,122.3	116.61	27.775	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Guttersen 8Y-441
Project:	SEC.8-T3N-R63W	**TVD Reference:**	WELL @ 4900.0ft (RKB - 15')
Reference Site:	Guttersen 8T-HZ Pad Sec.8-T3N-R63W	**MD Reference:**	WELL @ 4900.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Guttersen 8Y-441	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (2-05-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells Sec.8-T3N-R63W - Guttersen 42-8 (Exist) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 7029-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
5,100.0	5,019.7	4,989.7	4,989.7	19.9	99.8	-106.63	3,038.3	642.1	3,244.4	3,125.5	118.97	27.272	
5,200.0	5,117.9	5,087.9	5,087.9	20.3	101.8	-106.95	3,038.3	642.1	3,250.1	3,128.7	121.32	26.789	
5,300.0	5,216.0	5,186.0	5,186.0	20.8	103.7	-107.27	3,038.3	642.1	3,255.8	3,132.1	123.67	26.326	
5,400.0	5,314.2	5,284.2	5,284.2	21.2	105.7	-107.58	3,038.3	642.1	3,261.6	3,135.6	126.02	25.881	
5,500.0	5,412.5	5,382.5	5,382.5	21.6	107.6	-107.95	3,038.3	642.1	3,267.4	3,139.0	128.37	25.452	
5,600.0	5,511.3	5,481.3	5,481.3	21.9	109.6	-108.30	3,038.3	642.1	3,272.2	3,141.5	130.65	25.046	
5,700.0	5,610.6	5,580.6	5,580.6	22.1	111.6	-108.56	3,038.3	642.1	3,275.9	3,143.1	132.89	24.652	
5,800.0	5,710.2	5,680.2	5,680.2	22.3	113.6	-108.75	3,038.3	642.1	3,278.6	3,143.5	135.09	24.270	
5,900.0	5,810.1	5,780.1	5,780.1	22.5	115.6	-108.86	3,038.3	642.1	3,280.2	3,142.9	137.25	23.899	
6,000.0	5,910.1	5,880.1	5,880.1	22.6	117.6	-5.17	3,038.3	642.1	3,280.7	3,141.3	139.37	23.538	
6,100.0	6,010.1	5,980.1	5,980.1	22.7	119.6	-5.17	3,038.3	642.1	3,280.7	3,139.2	141.50	23.185	
6,200.0	6,110.1	6,080.1	6,080.1	22.8	121.6	-5.25	3,038.3	642.1	3,280.1	3,136.6	143.51	22.856	
6,300.0	6,209.5	6,179.5	6,179.5	22.9	123.6	-5.33	3,038.3	642.1	3,269.9	3,126.2	143.65	22.763	
6,400.0	6,306.7	6,276.7	6,276.7	23.0	125.5	-5.54	3,038.3	642.1	3,246.8	3,105.6	141.25	22.986	
6,500.0	6,400.0	6,370.0	6,370.0	23.0	127.4	-5.89	3,038.3	642.1	3,211.3	3,075.0	136.29	23.563	
6,600.0	6,487.9	6,457.9	6,457.9	23.0	129.2	-6.41	3,038.3	642.1	3,164.0	3,035.2	128.82	24.562	
6,700.0	6,568.9	6,538.9	6,538.9	23.0	130.8	-7.18	3,038.3	642.1	3,105.7	2,986.7	118.99	26.101	
6,800.0	6,641.5	6,611.5	6,611.5	23.0	132.2	-8.30	3,038.3	642.1	3,037.3	2,930.2	107.12	28.354	
6,900.0	6,704.5	6,674.5	6,674.5	23.1	133.5	-9.98	3,038.3	642.1	2,960.2	2,866.3	93.85	31.541	
7,000.0	6,756.8	6,726.8	6,726.8	23.2	134.5	-12.64	3,038.3	642.1	2,875.5	2,794.9	80.62	35.670	
7,100.0	6,797.6	6,767.6	6,767.6	23.3	135.4	-17.29	3,038.3	642.1	2,784.8	2,713.4	71.41	39.000	
7,200.0	6,826.2	6,796.2	6,796.2	23.6	135.9	-26.76	3,038.3	642.1	2,689.6	2,612.1	77.53	34.689	
7,300.0	6,842.0	6,812.0	6,812.0	24.0	136.2	-48.08	3,038.3	642.1	2,591.6	2,476.0	115.59	22.421	
7,400.0	6,852.0	6,822.0	6,822.0	24.6	136.4	-58.44	3,038.3	642.1	2,492.8	2,360.0	132.77	18.775	
7,500.0	6,855.2	6,825.2	6,825.2	25.4	136.5	-88.73	3,038.3	642.1	2,393.6	2,235.9	157.69	15.179	
7,600.0	6,855.5	6,825.5	6,825.5	26.3	136.5	-88.79	3,038.3	642.1	2,294.4	2,135.5	158.97	14.433	
7,700.0	6,855.8	6,825.8	6,825.8	27.4	136.5	-88.84	3,038.3	642.1	2,195.3	2,035.0	160.34	13.692	
7,800.0	6,856.0	6,826.0	6,826.0	28.6	136.5	-88.89	3,038.3	642.1	2,096.3	1,934.5	161.78	12.958	
7,900.0	6,856.3	6,826.3	6,826.3	29.9	136.5	-88.95	3,038.3	642.1	1,997.4	1,834.1	163.28	12.233	
8,000.0	6,856.6	6,826.6	6,826.6	31.3	136.5	-89.00	3,038.3	642.1	1,898.6	1,733.8	164.83	11.518	
8,100.0	6,856.9	6,826.9	6,826.9	32.7	136.5	-89.05	3,038.3	642.1	1,799.9	1,633.5	166.43	10.815	
8,200.0	6,857.2	6,827.2	6,827.2	34.2	136.5	-89.11	3,038.3	642.1	1,701.4	1,533.3	168.06	10.124	
8,300.0	6,857.4	6,827.4	6,827.4	35.7	136.5	-89.16	3,038.3	642.1	1,603.1	1,433.3	169.73	9.445	
8,400.0	6,857.7	6,827.7	6,827.7	37.3	136.6	-89.21	3,038.3	642.1	1,504.9	1,333.5	171.42	8.779	
8,500.0	6,858.0	6,828.0	6,828.0	38.9	136.6	-89.27	3,038.3	642.1	1,407.1	1,233.9	173.13	8.127	
8,600.0	6,858.3	6,828.3	6,828.3	40.5	136.6	-89.32	3,038.3	642.1	1,309.5	1,134.7	174.87	7.489	
8,700.0	6,858.5	6,828.5	6,828.5	42.2	136.6	-89.37	3,038.3	642.1	1,212.4	1,035.8	176.62	6.864	
8,800.0	6,858.8	6,828.8	6,828.8	43.9	136.6	-89.43	3,038.3	642.1	1,115.8	937.4	178.39	6.255	
8,900.0	6,859.1	6,829.1	6,829.1	45.6	136.6	-89.48	3,038.3	642.1	1,019.8	839.7	180.17	5.660	
9,000.0	6,859.4	6,829.4	6,829.4	47.3	136.6	-89.53	3,038.3	642.1	924.7	742.7	181.96	5.082	
9,100.0	6,859.7	6,829.7	6,829.7	49.0	136.6	-89.59	3,038.3	642.1	830.7	647.0	183.77	4.521	
9,200.0	6,859.9	6,829.9	6,829.9	50.7	136.6	-89.64	3,038.3	642.1	738.4	552.8	185.58	3.979	
9,300.0	6,860.2	6,830.2	6,830.2	52.5	136.6	-89.69	3,038.3	642.1	648.2	460.8	187.40	3.459	
9,400.0	6,860.5	6,830.5	6,830.5	54.3	136.6	-89.75	3,038.3	642.1	561.5	372.2	189.23	2.967	
9,500.0	6,860.8	6,830.8	6,830.8	56.0	136.6	-89.80	3,038.3	642.1	479.9	288.8	191.06	2.512	
9,600.0	6,861.1	6,831.1	6,831.1	57.8	136.6	-89.85	3,038.3	642.1	406.6	213.7	192.90	2.108	
9,700.0	6,861.3	6,831.3	6,831.3	59.6	136.6	-89.91	3,038.3	642.1	347.0	152.2	194.75	1.782	
9,800.0	6,861.6	6,831.6	6,831.6	61.4	136.6	-89.96	3,038.3	642.1	308.9	112.3	196.60	1.571	
9,874.8	6,861.8	6,831.8	6,831.8	62.8	136.6	-90.00	3,038.3	642.1	299.7	101.7	197.99	1.514	CC, ES, SF
9,900.0	6,861.9	6,831.9	6,831.9	63.2	136.6	-90.01	3,038.3	642.1	300.8	102.3	198.46	1.516	
10,000.0	6,862.2	6,832.2	6,832.2	65.0	136.6	-90.07	3,038.3	642.1	324.8	124.5	200.32	1.621	

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 8Y-441
Project:	SEC.8-T3N-R63W	**TVD Reference:**	WELL @ 4900.0ft (RKB - 15')
Reference Site:	Guttersen 8T-HZ Pad Sec.8-T3N-R63W	**MD Reference:**	WELL @ 4900.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Guttersen 8Y-441	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (2-05-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells Sec.8-T3N-R63W - Guttersen 42-8 (Exist) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 7029-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
10,100.0	6,862.5	6,832.5	6,832.5	66.9	136.6	-90.12	3,038.3	642.1	374.9	172.7	202.18	1.854	
10,200.0	6,862.7	6,832.7	6,832.7	68.7	136.7	-90.17	3,038.3	642.1	442.2	238.2	204.05	2.167	
10,300.0	6,863.0	6,833.0	6,833.0	70.5	136.7	-90.23	3,038.3	642.1	520.2	314.3	205.92	2.526	
10,400.0	6,863.3	6,833.3	6,833.3	72.4	136.7	-90.28	3,038.3	642.1	604.7	396.9	207.79	2.910	
10,500.0	6,863.6	6,833.6	6,833.6	74.2	136.7	-90.33	3,038.3	642.1	693.3	483.7	209.66	3.307	
10,600.0	6,863.9	6,833.9	6,833.9	76.0	136.7	-90.39	3,038.3	642.1	784.7	573.2	211.54	3.709	
10,700.0	6,864.1	6,834.1	6,834.1	77.9	136.7	-90.44	3,038.3	642.1	877.9	664.5	213.42	4.114	
10,800.0	6,864.4	6,834.4	6,834.4	79.7	136.7	-90.49	3,038.3	642.1	972.5	757.2	215.30	4.517	
10,900.0	6,864.7	6,834.7	6,834.7	81.6	136.7	-90.55	3,038.3	642.1	1,068.1	850.9	217.19	4.918	
11,000.0	6,865.0	6,835.0	6,835.0	83.4	136.7	-90.60	3,038.3	642.1	1,164.4	945.4	219.07	5.315	
11,100.0	6,865.2	6,835.2	6,835.2	85.3	136.7	-90.65	3,038.3	642.1	1,261.3	1,040.4	220.96	5.708	
11,200.0	6,865.5	6,835.5	6,835.5	87.2	136.7	-90.71	3,038.3	642.1	1,358.7	1,135.8	222.85	6.097	
11,300.0	6,865.8	6,835.8	6,835.8	89.0	136.7	-90.76	3,038.3	642.1	1,456.4	1,231.6	224.74	6.480	
11,368.8	6,866.0	6,836.0	6,836.0	90.3	136.7	-90.80	3,038.3	642.1	1,523.8	1,297.7	226.04	6.741	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Guttersen 8Y-441
Project:	SEC.8-T3N-R63W	**TVD Reference:**	WELL @ 4900.0ft (RKB - 15')
Reference Site:	Guttersen 8T-HZ Pad Sec.8-T3N-R63W	**MD Reference:**	WELL @ 4900.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Guttersen 8Y-441	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (2-05-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells Sec.8-T3N-R63W - Guttersen 43-8 (Exist) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 7022-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
0.0	0.0	0.0	0.0	0.0	0.0	20.48	1,712.2	639.3	1,827.7				
100.0	100.0	90.0	90.0	0.1	1.8	20.48	1,712.2	639.3	1,827.7	1,825.8	1.91	955.618	
200.0	200.0	190.0	190.0	0.3	3.8	20.48	1,712.2	639.3	1,827.7	1,823.6	4.14	441.756	
300.0	300.0	290.0	290.0	0.6	5.8	20.48	1,712.2	639.3	1,827.7	1,821.3	6.36	287.278	
400.0	400.0	390.0	390.0	0.8	7.8	20.48	1,712.2	639.3	1,827.7	1,819.1	8.59	212.848	
500.0	500.0	490.0	490.0	1.0	9.8	-83.30	1,712.2	639.3	1,827.5	1,816.7	10.80	169.271	
600.0	599.8	589.8	589.8	1.2	11.8	-83.48	1,712.2	639.3	1,826.9	1,813.9	13.00	140.502	
700.0	699.5	689.5	689.5	1.4	13.8	-83.77	1,712.2	639.3	1,825.9	1,810.7	15.23	119.900	
800.0	798.7	788.7	788.7	1.7	15.8	-84.17	1,712.2	639.3	1,824.6	1,807.1	17.48	104.376	
900.0	897.5	887.5	887.5	2.0	17.7	-84.68	1,712.2	639.3	1,823.1	1,803.3	19.77	92.225	
1,000.0	995.7	985.7	985.7	2.4	19.7	-85.28	1,712.2	639.3	1,821.4	1,799.3	22.09	82.444	
1,100.0	1,093.8	1,083.8	1,083.8	2.8	21.7	-85.87	1,712.2	639.3	1,819.9	1,795.5	24.44	74.461	
1,200.0	1,192.0	1,182.0	1,182.0	3.2	23.6	-86.46	1,712.2	639.3	1,818.6	1,791.8	26.80	67.853	
1,300.0	1,290.1	1,280.1	1,280.1	3.6	25.6	-87.05	1,712.2	639.3	1,817.5	1,788.3	29.17	62.303	
1,400.0	1,388.3	1,378.3	1,378.3	4.0	27.6	-87.64	1,712.2	639.3	1,816.6	1,785.1	31.55	57.582	
1,500.0	1,486.4	1,476.4	1,476.4	4.4	29.5	-88.23	1,712.2	639.3	1,815.9	1,782.0	33.93	53.523	
1,600.0	1,584.6	1,574.6	1,574.6	4.8	31.5	-88.83	1,712.2	639.3	1,815.4	1,779.1	36.31	49.997	
1,700.0	1,682.7	1,672.7	1,672.7	5.2	33.5	-89.42	1,712.2	639.3	1,815.1	1,776.4	38.70	46.908	
1,797.5	1,778.4	1,768.4	1,768.4	5.7	35.4	-90.00	1,712.2	639.3	1,815.0	1,774.0	41.02	44.246	
1,800.0	1,780.9	1,770.9	1,770.9	5.7	35.4	-90.02	1,712.2	639.3	1,815.0	1,773.9	41.08	44.181	
1,900.0	1,879.0	1,869.0	1,869.0	6.1	37.4	-90.61	1,712.2	639.3	1,815.1	1,771.6	43.47	41.757	
2,000.0	1,977.2	1,967.2	1,967.2	6.5	39.3	-91.20	1,712.2	639.3	1,815.4	1,769.6	45.86	39.589	
2,100.0	2,075.3	2,065.3	2,065.3	6.9	41.3	-91.80	1,712.2	639.3	1,815.9	1,767.7	48.24	37.641	
2,200.0	2,173.5	2,163.5	2,163.5	7.4	43.3	-92.39	1,712.2	639.3	1,816.6	1,766.0	50.63	35.880	
2,300.0	2,271.6	2,261.6	2,261.6	7.8	45.2	-92.98	1,712.2	639.3	1,817.6	1,764.5	53.02	34.281	
2,400.0	2,369.8	2,359.8	2,359.8	8.2	47.2	-93.57	1,712.2	639.3	1,818.7	1,763.3	55.41	32.825	
2,500.0	2,467.9	2,457.9	2,457.9	8.7	49.2	-94.16	1,712.2	639.3	1,820.0	1,762.2	57.79	31.492	
2,600.0	2,566.1	2,556.1	2,556.1	9.1	51.1	-94.75	1,712.2	639.3	1,821.5	1,761.3	60.18	30.269	
2,700.0	2,664.2	2,654.2	2,654.2	9.5	53.1	-95.34	1,712.2	639.3	1,823.2	1,760.7	62.56	29.143	
2,800.0	2,762.4	2,752.4	2,752.4	10.0	55.0	-95.93	1,712.2	639.3	1,825.1	1,760.2	64.94	28.104	
2,900.0	2,860.5	2,850.5	2,850.5	10.4	57.0	-96.52	1,712.2	639.3	1,827.3	1,759.9	67.32	27.141	
3,000.0	2,958.6	2,948.6	2,948.6	10.8	59.0	-97.10	1,712.2	639.3	1,829.6	1,759.9	69.70	26.248	
3,100.0	3,056.8	3,046.8	3,046.8	11.2	60.9	-97.69	1,712.2	639.3	1,832.1	1,760.0	72.08	25.417	
3,200.0	3,154.9	3,144.9	3,144.9	11.7	62.9	-98.27	1,712.2	639.3	1,834.8	1,760.3	74.46	24.642	
3,300.0	3,253.1	3,243.1	3,243.1	12.1	64.9	-98.85	1,712.2	639.3	1,837.7	1,760.9	76.83	23.918	
3,400.0	3,351.2	3,341.2	3,341.2	12.5	66.8	-99.43	1,712.2	639.3	1,840.8	1,761.6	79.21	23.241	
3,500.0	3,449.4	3,439.4	3,439.4	13.0	68.8	-100.00	1,712.2	639.3	1,844.1	1,762.5	81.58	22.606	
3,600.0	3,547.5	3,537.5	3,537.5	13.4	70.8	-100.58	1,712.2	639.3	1,847.6	1,763.6	83.95	22.009	
3,700.0	3,645.7	3,635.7	3,635.7	13.8	72.7	-101.15	1,712.2	639.3	1,851.3	1,764.9	86.31	21.448	
3,800.0	3,743.8	3,733.8	3,733.8	14.3	74.7	-101.72	1,712.2	639.3	1,855.1	1,766.4	88.68	20.920	
3,900.0	3,842.0	3,832.0	3,832.0	14.7	76.6	-102.29	1,712.2	639.3	1,859.2	1,768.1	91.04	20.422	
4,000.0	3,940.1	3,930.1	3,930.1	15.1	78.6	-102.86	1,712.2	639.3	1,863.4	1,770.0	93.40	19.952	
4,100.0	4,038.3	4,028.3	4,028.3	15.6	80.6	-103.42	1,712.2	639.3	1,867.9	1,772.1	95.75	19.507	
4,200.0	4,136.4	4,126.4	4,126.4	16.0	82.5	-103.98	1,712.2	639.3	1,872.5	1,774.4	98.11	19.086	
4,300.0	4,234.6	4,224.6	4,224.6	16.4	84.5	-104.54	1,712.2	639.3	1,877.3	1,776.8	100.46	18.687	
4,400.0	4,332.7	4,322.7	4,322.7	16.9	86.5	-105.09	1,712.2	639.3	1,882.3	1,779.5	102.81	18.308	
4,500.0	4,430.9	4,420.9	4,420.9	17.3	88.4	-105.64	1,712.2	639.3	1,887.4	1,782.3	105.16	17.949	
4,600.0	4,529.0	4,519.0	4,519.0	17.7	90.4	-106.19	1,712.2	639.3	1,892.8	1,785.3	107.50	17.607	
4,700.0	4,627.1	4,617.1	4,617.1	18.2	92.3	-106.74	1,712.2	639.3	1,898.3	1,788.5	109.84	17.282	
4,800.0	4,725.3	4,715.3	4,715.3	18.6	94.3	-107.28	1,712.2	639.3	1,904.0	1,791.8	112.18	16.973	
4,900.0	4,823.4	4,813.4	4,813.4	19.0	96.3	-107.82	1,712.2	639.3	1,909.9	1,795.4	114.51	16.678	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Guttersen 8Y-441
Project:	SEC.8-T3N-R63W	**TVD Reference:**	WELL @ 4900.0ft (RKB - 15')
Reference Site:	Guttersen 8T-HZ Pad Sec.8-T3N-R63W	**MD Reference:**	WELL @ 4900.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Guttersen 8Y-441	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (2-05-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells Sec.8-T3N-R63W - Guttersen 43-8 (Exist) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 7022-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
5,000.0	4,921.6	4,911.6	4,911.6	19.5	98.2	-108.36	1,712.2	639.3	1,915.9	1,799.1	116.85	16.397	
5,100.0	5,019.7	5,009.7	5,009.7	19.9	100.2	-108.89	1,712.2	639.3	1,922.1	1,803.0	119.17	16.129	
5,200.0	5,117.9	5,107.9	5,107.9	20.3	102.2	-109.42	1,712.2	639.3	1,928.5	1,807.0	121.50	15.873	
5,300.0	5,216.0	5,206.0	5,206.0	20.8	104.1	-109.95	1,712.2	639.3	1,935.1	1,811.3	123.82	15.628	
5,400.0	5,314.2	5,304.2	5,304.2	21.2	106.1	-110.47	1,712.2	639.3	1,941.8	1,815.7	126.14	15.394	
5,500.0	5,412.5	5,402.5	5,402.5	21.6	108.0	-111.05	1,712.2	639.3	1,948.5	1,820.0	128.47	15.166	
5,600.0	5,511.3	5,501.3	5,501.3	21.9	110.0	-111.57	1,712.2	639.3	1,954.1	1,823.4	130.74	14.946	
5,700.0	5,610.6	5,600.6	5,600.6	22.1	112.0	-111.97	1,712.2	639.3	1,958.5	1,825.5	132.98	14.727	
5,800.0	5,710.2	5,700.2	5,700.2	22.3	114.0	-112.25	1,712.2	639.3	1,961.7	1,826.5	135.19	14.510	
5,900.0	5,810.1	5,800.1	5,800.1	22.5	116.0	-112.42	1,712.2	639.3	1,963.5	1,826.2	137.35	14.295	
6,000.0	5,910.1	5,900.1	5,900.1	22.6	118.0	-8.75	1,712.2	639.3	1,964.1	1,824.6	139.47	14.082	
6,100.0	6,010.1	6,000.1	6,000.1	22.7	120.0	-8.75	1,712.2	639.3	1,964.1	1,822.5	141.60	13.871	
6,200.0	6,110.1	6,100.1	6,100.1	22.8	122.0	-8.82	1,712.2	639.3	1,963.5	1,819.9	143.61	13.672	
6,300.0	6,209.5	6,199.5	6,199.5	22.9	124.0	-8.99	1,712.2	639.3	1,953.4	1,809.6	143.76	13.588	
6,400.0	6,306.7	6,296.7	6,296.7	23.0	125.9	-9.38	1,712.2	639.3	1,930.5	1,789.1	141.41	13.651	
6,500.0	6,400.0	6,390.0	6,390.0	23.0	127.8	-10.03	1,712.2	639.3	1,895.3	1,758.7	136.57	13.878	
6,600.0	6,487.9	6,477.9	6,477.9	23.0	129.6	-11.03	1,712.2	639.3	1,848.4	1,719.0	129.35	14.290	
6,700.0	6,568.9	6,558.9	6,558.9	23.0	131.2	-12.49	1,712.2	639.3	1,790.6	1,670.5	120.05	14.916	
6,800.0	6,641.5	6,631.5	6,631.5	23.0	132.6	-14.62	1,712.2	639.3	1,722.9	1,613.6	109.30	15.763	
6,900.0	6,704.5	6,694.5	6,694.5	23.1	133.9	-17.81	1,712.2	639.3	1,646.6	1,548.1	98.51	16.715	
7,000.0	6,756.8	6,746.8	6,746.8	23.2	134.9	-22.78	1,712.2	639.3	1,563.0	1,472.2	90.83	17.208	
7,100.0	6,797.6	6,787.6	6,787.6	23.3	135.8	-30.96	1,712.2	639.3	1,473.6	1,380.9	92.69	15.899	
7,200.0	6,826.2	6,816.2	6,816.2	23.6	136.3	-45.14	1,712.2	639.3	1,380.0	1,267.8	112.17	12.302	
7,300.0	6,842.0	6,832.0	6,832.0	24.0	136.6	-66.56	1,712.2	639.3	1,283.9	1,141.6	142.31	9.022	
7,400.0	6,852.0	6,842.0	6,842.0	24.6	136.8	-74.15	1,712.2	639.3	1,187.4	1,037.0	150.42	7.894	
7,500.0	6,855.2	6,845.2	6,845.2	25.4	136.9	-89.44	1,712.2	639.3	1,091.0	932.9	158.16	6.898	
7,600.0	6,855.5	6,845.5	6,845.5	26.3	136.9	-89.50	1,712.2	639.3	995.3	835.9	159.44	6.242	
7,700.0	6,855.8	6,845.8	6,845.8	27.4	136.9	-89.55	1,712.2	639.3	900.5	739.7	160.81	5.600	
7,800.0	6,856.0	6,846.0	6,846.0	28.6	136.9	-89.60	1,712.2	639.3	806.9	644.7	162.25	4.973	
7,900.0	6,856.3	6,846.3	6,846.3	29.9	136.9	-89.66	1,712.2	639.3	715.1	551.4	163.75	4.367	
8,000.0	6,856.6	6,846.6	6,846.6	31.3	136.9	-89.71	1,712.2	639.3	625.8	460.5	165.30	3.786	
8,100.0	6,856.9	6,846.9	6,846.9	32.7	136.9	-89.76	1,712.2	639.3	540.3	373.4	166.89	3.237	
8,200.0	6,857.2	6,847.2	6,847.2	34.2	136.9	-89.81	1,712.2	639.3	460.6	292.1	168.52	2.733	
8,300.0	6,857.4	6,847.4	6,847.4	35.7	136.9	-89.87	1,712.2	639.3	390.4	220.2	170.19	2.294	
8,400.0	6,857.7	6,847.7	6,847.7	37.3	137.0	-89.92	1,712.2	639.3	335.7	163.8	171.88	1.953	
8,500.0	6,858.0	6,848.0	6,848.0	38.9	137.0	-89.97	1,712.2	639.3	304.8	131.3	173.59	1.756	
8,548.7	6,858.1	6,848.1	6,848.1	39.7	137.0	-90.00	1,712.2	639.3	300.9	126.5	174.43	1.725	CC, ES, SF
8,600.0	6,858.3	6,848.3	6,848.3	40.5	137.0	-90.03	1,712.2	639.3	305.3	129.9	175.32	1.741	
8,700.0	6,858.5	6,848.5	6,848.5	42.2	137.0	-90.08	1,712.2	639.3	336.8	159.7	177.07	1.902	
8,800.0	6,858.8	6,848.8	6,848.8	43.9	137.0	-90.13	1,712.2	639.3	392.0	213.2	178.84	2.192	
8,900.0	6,859.1	6,849.1	6,849.1	45.6	137.0	-90.19	1,712.2	639.3	462.5	281.9	180.62	2.561	
9,000.0	6,859.4	6,849.4	6,849.4	47.3	137.0	-90.24	1,712.2	639.3	542.4	360.0	182.41	2.974	
9,100.0	6,859.7	6,849.7	6,849.7	49.0	137.0	-90.29	1,712.2	639.3	628.1	443.8	184.21	3.409	
9,200.0	6,859.9	6,849.9	6,849.9	50.7	137.0	-90.35	1,712.2	639.3	717.4	531.4	186.02	3.857	
9,300.0	6,860.2	6,850.2	6,850.2	52.5	137.0	-90.40	1,712.2	639.3	809.3	621.5	187.84	4.309	
9,400.0	6,860.5	6,850.5	6,850.5	54.3	137.0	-90.45	1,712.2	639.3	902.9	713.2	189.66	4.761	
9,500.0	6,860.8	6,850.8	6,850.8	56.0	137.0	-90.51	1,712.2	639.3	997.7	806.2	191.50	5.210	
9,600.0	6,861.1	6,851.1	6,851.1	57.8	137.0	-90.56	1,712.2	639.3	1,093.5	900.2	193.33	5.656	
9,700.0	6,861.3	6,851.3	6,851.3	59.6	137.0	-90.61	1,712.2	639.3	1,189.9	994.8	195.18	6.097	
9,800.0	6,861.6	6,851.6	6,851.6	61.4	137.0	-90.67	1,712.2	639.3	1,286.9	1,089.9	197.03	6.532	
9,900.0	6,861.9	6,851.9	6,851.9	63.2	137.0	-90.72	1,712.2	639.3	1,384.4	1,185.5	198.88	6.961	

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 8Y-441
Project:	SEC.8-T3N-R63W	**TVD Reference:**	WELL @ 4900.0ft (RKB - 15')
Reference Site:	Guttersen 8T-HZ Pad Sec.8-T3N-R63W	**MD Reference:**	WELL @ 4900.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Guttersen 8Y-441	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (2-05-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells Sec.8-T3N-R63W - Guttersen 43-8 (Exist) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 7022-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
10,000.0	6,862.2	6,852.2	6,852.2	65.0	137.0	-90.77	1,712.2	639.3	1,482.1	1,281.4	200.74	7.383	
10,100.0	6,862.5	6,852.5	6,852.5	66.9	137.0	-90.82	1,712.2	639.3	1,580.2	1,377.6	202.60	7.800	
10,200.0	6,862.7	6,852.7	6,852.7	68.7	137.1	-90.88	1,712.2	639.3	1,678.5	1,474.0	204.46	8.209	
10,300.0	6,863.0	6,853.0	6,853.0	70.5	137.1	-90.93	1,712.2	639.3	1,776.9	1,570.6	206.33	8.612	
10,400.0	6,863.3	6,853.3	6,853.3	72.4	137.1	-90.98	1,712.2	639.3	1,875.6	1,667.4	208.20	9.008	
10,500.0	6,863.6	6,853.6	6,853.6	74.2	137.1	-91.04	1,712.2	639.3	1,974.3	1,764.3	210.07	9.398	
10,600.0	6,863.9	6,853.9	6,853.9	76.0	137.1	-91.09	1,712.2	639.3	2,073.2	1,861.3	211.95	9.782	
10,700.0	6,864.1	6,854.1	6,854.1	77.9	137.1	-91.14	1,712.2	639.3	2,172.2	1,958.4	213.82	10.159	
10,800.0	6,864.4	6,854.4	6,854.4	79.7	137.1	-91.20	1,712.2	639.3	2,271.3	2,055.6	215.70	10.530	
10,900.0	6,864.7	6,854.7	6,854.7	81.6	137.1	-91.25	1,712.2	639.3	2,370.4	2,152.9	217.58	10.894	
11,000.0	6,865.0	6,855.0	6,855.0	83.4	137.1	-91.30	1,712.2	639.3	2,469.7	2,250.2	219.47	11.253	
11,100.0	6,865.2	6,855.2	6,855.2	85.3	137.1	-91.36	1,712.2	639.3	2,568.9	2,347.6	221.35	11.606	
11,200.0	6,865.5	6,855.5	6,855.5	87.2	137.1	-91.41	1,712.2	639.3	2,668.3	2,445.1	223.24	11.953	
11,300.0	6,865.8	6,855.8	6,855.8	89.0	137.1	-91.46	1,712.2	639.3	2,767.7	2,542.5	225.12	12.294	
11,368.8	6,866.0	6,856.0	6,856.0	90.3	137.1	-91.50	1,712.2	639.3	2,836.1	2,609.7	226.42	12.526	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Guttersen 8Y-441
Project:	SEC.8-T3N-R63W	**TVD Reference:**	WELL @ 4900.0ft (RKB - 15')
Reference Site:	Guttersen 8T-HZ Pad Sec.8-T3N-R63W	**MD Reference:**	WELL @ 4900.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Guttersen 8Y-441	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (2-05-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells Sec.8-T3N-R63W - Guttersen 44-8 (Exist) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 7025-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
0.0	0.0	0.0	0.0	0.0	0.0	59.09	386.2	645.0	751.7				
100.0	100.0	100.0	100.0	0.1	2.0	59.09	386.2	645.0	751.7	749.6	2.11	355.834	
200.0	200.0	200.0	200.0	0.3	4.0	59.09	386.2	645.0	751.7	747.4	4.34	173.315	
300.0	300.0	300.0	300.0	0.6	6.0	59.09	386.2	645.0	751.7	745.2	6.56	114.556	
400.0	400.0	400.0	400.0	0.8	8.0	59.09	386.2	645.0	751.7	742.9	8.79	85.551	
500.0	500.0	500.0	500.0	1.0	10.0	-44.74	386.2	645.0	750.5	739.5	10.99	68.270	
600.0	599.8	599.8	599.8	1.2	12.0	-45.08	386.2	645.0	746.8	733.6	13.18	56.640	
700.0	699.5	699.5	699.5	1.4	14.0	-45.64	386.2	645.0	740.6	725.3	15.38	48.164	
800.0	798.7	798.7	798.7	1.7	16.0	-46.44	386.2	645.0	732.1	714.6	17.57	41.664	
900.0	897.5	897.5	897.5	2.0	17.9	-47.50	386.2	645.0	721.4	701.6	19.77	36.481	
1,000.0	995.7	995.7	995.7	2.4	19.9	-48.70	386.2	645.0	708.8	686.8	22.02	32.191	
1,100.0	1,093.8	1,093.8	1,093.8	2.8	21.9	-49.87	386.2	645.0	696.2	671.9	24.31	28.632	
1,200.0	1,192.0	1,192.0	1,192.0	3.2	23.8	-51.08	386.2	645.0	683.8	657.2	26.63	25.682	
1,300.0	1,290.1	1,290.1	1,290.1	3.6	25.8	-52.34	386.2	645.0	671.8	642.9	28.96	23.202	
1,400.0	1,388.3	1,388.3	1,388.3	4.0	27.8	-53.64	386.2	645.0	660.2	628.9	31.30	21.093	
1,500.0	1,486.4	1,486.4	1,486.4	4.4	29.7	-54.99	386.2	645.0	648.8	615.2	33.65	19.281	
1,600.0	1,584.6	1,584.6	1,584.6	4.8	31.7	-56.38	386.2	645.0	637.9	601.9	36.02	17.710	
1,700.0	1,682.7	1,682.7	1,682.7	5.2	33.7	-57.82	386.2	645.0	627.4	589.0	38.40	16.339	
1,800.0	1,780.9	1,780.9	1,780.9	5.7	35.6	-59.30	386.2	645.0	617.2	576.4	40.78	15.135	
1,900.0	1,879.0	1,879.0	1,879.0	6.1	37.6	-60.83	386.2	645.0	607.5	564.4	43.18	14.070	
2,000.0	1,977.2	1,977.2	1,977.2	6.5	39.5	-62.41	386.2	645.0	598.3	552.7	45.58	13.125	
2,100.0	2,075.3	2,075.3	2,075.3	6.9	41.5	-64.04	386.2	645.0	589.5	541.5	48.00	12.282	
2,200.0	2,173.5	2,173.5	2,173.5	7.4	43.5	-65.71	386.2	645.0	581.3	530.8	50.42	11.529	
2,300.0	2,271.6	2,271.6	2,271.6	7.8	45.4	-67.43	386.2	645.0	573.5	520.7	52.85	10.853	
2,400.0	2,369.8	2,369.8	2,369.8	8.2	47.4	-69.19	386.2	645.0	566.3	511.1	55.28	10.245	
2,500.0	2,467.9	2,467.9	2,467.9	8.7	49.4	-70.99	386.2	645.0	559.7	502.0	57.71	9.698	
2,600.0	2,566.1	2,566.1	2,566.1	9.1	51.3	-72.84	386.2	645.0	553.6	493.5	60.15	9.204	
2,700.0	2,664.2	2,664.2	2,664.2	9.5	53.3	-74.72	386.2	645.0	548.2	485.6	62.59	8.758	
2,800.0	2,762.4	2,762.4	2,762.4	10.0	55.2	-76.63	386.2	645.0	543.4	478.3	65.03	8.355	
2,900.0	2,860.5	2,860.5	2,860.5	10.4	57.2	-78.58	386.2	645.0	539.2	471.7	67.47	7.991	
3,000.0	2,958.6	2,958.6	2,958.6	10.8	59.2	-80.55	386.2	645.0	535.7	465.7	69.90	7.663	
3,100.0	3,056.8	3,056.8	3,056.8	11.2	61.1	-82.55	386.2	645.0	532.8	460.5	72.33	7.366	
3,200.0	3,154.9	3,154.9	3,154.9	11.7	63.1	-84.56	386.2	645.0	530.6	455.8	74.76	7.098	
3,300.0	3,253.1	3,253.1	3,253.1	12.1	65.1	-86.59	386.2	645.0	529.1	451.9	77.17	6.856	
3,400.0	3,351.2	3,351.2	3,351.2	12.5	67.0	-88.63	386.2	645.0	528.3	448.7	79.57	6.639	
3,467.4	3,417.4	3,417.4	3,417.4	12.8	68.3	-90.00	386.2	645.0	528.1	446.9	81.18	6.505	
3,500.0	3,449.4	3,449.4	3,449.4	13.0	69.0	-90.67	386.2	645.0	528.2	446.2	81.96	6.444	
3,600.0	3,547.5	3,547.5	3,547.5	13.4	71.0	-92.70	386.2	645.0	528.7	444.4	84.34	6.269	
3,700.0	3,645.7	3,645.7	3,645.7	13.8	72.9	-94.74	386.2	645.0	530.0	443.3	86.70	6.113	
3,800.0	3,743.8	3,743.8	3,743.8	14.3	74.9	-96.75	386.2	645.0	531.9	442.9	89.05	5.974	
3,900.0	3,842.0	3,842.0	3,842.0	14.7	76.8	-98.76	386.2	645.0	534.6	443.2	91.38	5.850	
4,000.0	3,940.1	3,940.1	3,940.1	15.1	78.8	-100.74	386.2	645.0	537.9	444.2	93.69	5.741	
4,100.0	4,038.3	4,038.3	4,038.3	15.6	80.8	-102.70	386.2	645.0	541.8	445.9	95.99	5.645	
4,200.0	4,136.4	4,136.4	4,136.4	16.0	82.7	-104.62	386.2	645.0	546.5	448.2	98.27	5.561	
4,300.0	4,234.6	4,234.6	4,234.6	16.4	84.7	-106.51	386.2	645.0	551.7	451.1	100.54	5.487	
4,400.0	4,332.7	4,332.7	4,332.7	16.9	86.7	-108.37	386.2	645.0	557.5	454.7	102.78	5.424	
4,500.0	4,430.9	4,430.9	4,430.9	17.3	88.6	-110.19	386.2	645.0	564.0	458.9	105.02	5.370	
4,600.0	4,529.0	4,529.0	4,529.0	17.7	90.6	-111.96	386.2	645.0	571.0	463.7	107.23	5.324	
4,700.0	4,627.1	4,627.1	4,627.1	18.2	92.5	-113.70	386.2	645.0	578.5	469.1	109.44	5.286	
4,800.0	4,725.3	4,725.3	4,725.3	18.6	94.5	-115.39	386.2	645.0	586.6	475.0	111.63	5.255	
4,900.0	4,823.4	4,823.4	4,823.4	19.0	96.5	-117.03	386.2	645.0	595.2	481.4	113.81	5.230	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Guttersen 8Y-441
Project:	SEC.8-T3N-R63W	**TVD Reference:**	WELL @ 4900.0ft (RKB - 15')
Reference Site:	Guttersen 8T-HZ Pad Sec.8-T3N-R63W	**MD Reference:**	WELL @ 4900.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Guttersen 8Y-441	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (2-05-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells Sec.8-T3N-R63W - Guttersen 44-8 (Exist) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 7025-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
5,000.0	4,921.6	4,921.6	4,921.6	19.5	98.4	-118.62	386.2	645.0	604.3	488.3	115.97	5.210	
5,100.0	5,019.7	5,019.7	5,019.7	19.9	100.4	-120.17	386.2	645.0	613.8	495.7	118.13	5.196	
5,200.0	5,117.9	5,117.9	5,117.9	20.3	102.4	-121.67	386.2	645.0	623.8	503.5	120.27	5.186	
5,300.0	5,216.0	5,216.0	5,216.0	20.8	104.3	-123.13	386.2	645.0	634.2	511.8	122.41	5.181	
5,400.0	5,314.2	5,314.2	5,314.2	21.2	106.3	-124.53	386.2	645.0	645.0	520.5	124.54	5.179	
5,500.0	5,412.5	5,412.5	5,412.5	21.6	108.2	-125.96	386.2	645.0	655.8	529.0	126.77	5.173	
5,600.0	5,511.3	5,511.3	5,511.3	21.9	110.2	-127.16	386.2	645.0	665.0	535.9	129.03	5.154	
5,700.0	5,610.6	5,610.6	5,610.6	22.1	112.2	-128.08	386.2	645.0	672.2	541.0	131.27	5.121	
5,800.0	5,710.2	5,710.2	5,710.2	22.3	114.2	-128.72	386.2	645.0	677.4	544.0	133.48	5.075	
5,900.0	5,810.1	5,810.1	5,810.1	22.5	116.2	-129.09	386.2	645.0	680.5	544.9	135.65	5.016	
6,000.0	5,910.1	5,910.1	5,910.1	22.6	118.2	-25.47	386.2	645.0	681.4	543.6	137.77	4.946	
6,100.0	6,010.1	6,010.1	6,010.1	22.7	120.2	-25.47	386.2	645.0	681.4	541.5	139.91	4.870	
6,200.0	6,110.1	6,110.1	6,110.1	22.8	122.2	-25.57	386.2	645.0	680.9	539.0	141.94	4.797	
6,300.0	6,209.5	6,209.5	6,209.5	22.9	124.2	-26.26	386.2	645.0	671.7	529.3	142.32	4.719	
6,400.0	6,306.7	6,306.7	6,306.7	23.0	126.1	-27.89	386.2	645.0	650.9	510.2	140.70	4.626	
6,500.0	6,400.0	6,400.0	6,400.0	23.0	128.0	-30.66	386.2	645.0	619.3	481.8	137.47	4.505	
6,600.0	6,487.9	6,487.9	6,487.9	23.0	129.8	-34.88	386.2	645.0	577.9	444.3	133.58	4.326	
6,700.0	6,568.9	6,568.9	6,568.9	23.0	131.4	-40.99	386.2	645.0	528.3	397.5	130.81	4.039	
6,800.0	6,641.5	6,641.5	6,641.5	23.0	132.8	-49.39	386.2	645.0	472.8	341.1	131.62	3.592	
6,900.0	6,704.5	6,704.5	6,704.5	23.1	134.1	-60.02	386.2	645.0	414.8	277.4	137.40	3.019	
7,000.0	6,756.8	6,756.8	6,756.8	23.2	135.1	-71.72	386.2	645.0	359.8	214.1	145.67	2.470	
7,100.0	6,797.6	6,797.6	6,797.6	23.3	136.0	-82.15	386.2	645.0	316.0	164.2	151.86	2.081	
7,200.0	6,826.2	6,826.2	6,826.2	23.6	136.5	-89.10	386.2	645.0	294.5	139.9	154.62	1.905	
7,221.2	6,830.7	6,830.7	6,830.7	23.7	136.6	-90.00	386.2	645.0	293.8	138.8	154.96	1.896	CC, ES, SF
7,300.0	6,842.0	6,842.0	6,842.0	24.0	136.8	-91.59	386.2	645.0	303.9	148.0	155.93	1.949	
7,400.0	6,852.0	6,852.0	6,852.0	24.6	137.0	-92.57	386.2	645.0	343.2	186.0	157.14	2.184	
7,500.0	6,855.2	6,855.2	6,855.2	25.4	137.1	-90.15	386.2	645.0	404.0	245.6	158.41	2.550	
7,600.0	6,855.5	6,855.5	6,855.5	26.3	137.1	-90.21	386.2	645.0	478.2	318.5	159.69	2.995	
7,700.0	6,855.8	6,855.8	6,855.8	27.4	137.1	-90.26	386.2	645.0	560.5	399.4	161.05	3.480	
7,800.0	6,856.0	6,856.0	6,856.0	28.6	137.1	-90.31	386.2	645.0	647.8	485.3	162.49	3.986	
7,900.0	6,856.3	6,856.3	6,856.3	29.9	137.1	-90.37	386.2	645.0	738.3	574.3	163.99	4.502	
8,000.0	6,856.6	6,856.6	6,856.6	31.3	137.1	-90.42	386.2	645.0	831.0	665.4	165.54	5.020	
8,100.0	6,856.9	6,856.9	6,856.9	32.7	137.1	-90.48	386.2	645.0	925.2	758.1	167.13	5.536	
8,200.0	6,857.2	6,857.2	6,857.2	34.2	137.1	-90.53	386.2	645.0	1,020.5	851.8	168.76	6.047	
8,300.0	6,857.4	6,857.4	6,857.4	35.7	137.1	-90.59	386.2	645.0	1,116.7	946.2	170.42	6.552	
8,400.0	6,857.7	6,857.7	6,857.7	37.3	137.2	-90.64	386.2	645.0	1,213.4	1,041.3	172.11	7.050	
8,500.0	6,858.0	6,858.0	6,858.0	38.9	137.2	-90.70	386.2	645.0	1,310.7	1,136.9	173.82	7.540	
8,600.0	6,858.3	6,858.3	6,858.3	40.5	137.2	-90.75	386.2	645.0	1,408.3	1,232.8	175.55	8.022	
8,700.0	6,858.5	6,858.5	6,858.5	42.2	137.2	-90.80	386.2	645.0	1,506.2	1,329.0	177.30	8.496	
8,800.0	6,858.8	6,858.8	6,858.8	43.9	137.2	-90.86	386.2	645.0	1,604.4	1,425.4	179.06	8.960	
8,900.0	6,859.1	6,859.1	6,859.1	45.6	137.2	-90.91	386.2	645.0	1,702.9	1,522.0	180.84	9.417	
9,000.0	6,859.4	6,859.4	6,859.4	47.3	137.2	-90.97	386.2	645.0	1,801.4	1,618.8	182.62	9.864	
9,100.0	6,859.7	6,859.7	6,859.7	49.0	137.2	-91.02	386.2	645.0	1,900.2	1,715.7	184.42	10.303	
9,200.0	6,859.9	6,859.9	6,859.9	50.7	137.2	-91.08	386.2	645.0	1,999.0	1,812.8	186.23	10.734	
9,300.0	6,860.2	6,860.2	6,860.2	52.5	137.2	-91.13	386.2	645.0	2,098.0	1,909.9	188.05	11.157	
9,400.0	6,860.5	6,860.5	6,860.5	54.3	137.2	-91.19	386.2	645.0	2,197.0	2,007.2	189.87	11.571	
9,500.0	6,860.8	6,860.8	6,860.8	56.0	137.2	-91.24	386.2	645.0	2,296.2	2,104.5	191.70	11.978	
9,600.0	6,861.1	6,861.1	6,861.1	57.8	137.2	-91.29	386.2	645.0	2,395.4	2,201.9	193.54	12.377	
9,700.0	6,861.3	6,861.3	6,861.3	59.6	137.2	-91.35	386.2	645.0	2,494.7	2,299.3	195.38	12.769	
9,800.0	6,861.6	6,861.6	6,861.6	61.4	137.2	-91.40	386.2	645.0	2,594.0	2,396.8	197.22	13.153	
9,900.0	6,861.9	6,861.9	6,861.9	63.2	137.2	-91.46	386.2	645.0	2,693.4	2,494.3	199.07	13.530	

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 8Y-441
Project:	SEC.8-T3N-R63W	**TVD Reference:**	WELL @ 4900.0ft (RKB - 15')
Reference Site:	Guttersen 8T-HZ Pad Sec.8-T3N-R63W	**MD Reference:**	WELL @ 4900.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Guttersen 8Y-441	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (2-05-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells Sec.8-T3N-R63W - Guttersen 44-8 (Exist) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 7025-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
10,000.0	6,862.2	6,862.2	6,862.2	65.0	137.2	-91.51	386.2	645.0	2,792.8	2,591.9	200.93	13.900	
10,100.0	6,862.5	6,862.5	6,862.5	66.9	137.2	-91.57	386.2	645.0	2,892.3	2,689.5	202.79	14.263	
10,200.0	6,862.7	6,862.7	6,862.7	68.7	137.3	-91.62	386.2	645.0	2,991.8	2,787.1	204.65	14.619	
10,300.0	6,863.0	6,863.0	6,863.0	70.5	137.3	-91.68	386.2	645.0	3,091.3	2,884.8	206.51	14.969	
10,400.0	6,863.3	6,863.3	6,863.3	72.4	137.3	-91.73	386.2	645.0	3,190.9	2,982.5	208.38	15.313	
10,500.0	6,863.6	6,863.6	6,863.6	74.2	137.3	-91.78	386.2	645.0	3,290.5	3,080.2	210.25	15.650	
10,600.0	6,863.9	6,863.9	6,863.9	76.0	137.3	-91.84	386.2	645.0	3,390.1	3,177.9	212.12	15.982	
10,700.0	6,864.1	6,864.1	6,864.1	77.9	137.3	-91.89	386.2	645.0	3,489.7	3,275.7	213.99	16.307	
10,800.0	6,864.4	6,864.4	6,864.4	79.7	137.3	-91.95	386.2	645.0	3,589.4	3,373.5	215.87	16.627	
10,900.0	6,864.7	6,864.7	6,864.7	81.6	137.3	-92.00	386.2	645.0	3,689.0	3,471.3	217.75	16.942	
11,000.0	6,865.0	6,865.0	6,865.0	83.4	137.3	-92.06	386.2	645.0	3,788.7	3,569.1	219.63	17.251	
11,100.0	6,865.2	6,865.2	6,865.2	85.3	137.3	-92.11	386.2	645.0	3,888.4	3,666.9	221.51	17.554	
11,200.0	6,865.5	6,865.5	6,865.5	87.2	137.3	-92.17	386.2	645.0	3,988.1	3,764.8	223.39	17.853	
11,300.0	6,865.8	6,865.8	6,865.8	89.0	137.3	-92.22	386.2	645.0	4,087.9	3,862.6	225.27	18.146	
11,368.8	6,866.0	6,866.0	6,866.0	90.3	137.3	-92.26	386.2	645.0	4,156.5	3,929.9	226.57	18.346	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Guttersen 8Y-441
Project:	SEC.8-T3N-R63W	**TVD Reference:**	WELL @ 4900.0ft (RKB - 15')
Reference Site:	Guttersen 8T-HZ Pad Sec.8-T3N-R63W	**MD Reference:**	WELL @ 4900.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Guttersen 8Y-441	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (2-05-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Guttersen 8T-HZ Pad Sec.8-T3N-R63W - Guttersen 8Q-201 - Wellbore #1 - Plan #1 (2-05-14)

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	169.15	-29.1	5.6	29.7				
100.0	100.0	100.0	100.0	0.1	0.1	169.15	-29.1	5.6	29.7	29.4	0.22	132.023	
200.0	200.0	200.0	200.0	0.3	0.3	169.15	-29.1	5.6	29.7	29.0	0.67	44.008	
261.9	261.9	261.9	261.9	0.5	0.5	170.44	-29.3	4.9	29.7	28.7	0.95	31.371	CC
300.0	300.0	300.0	300.0	0.6	0.6	172.52	-29.4	3.9	29.7	28.6	1.11	26.673	ES
400.0	400.0	399.7	399.6	0.8	0.8	-177.58	-30.3	-1.3	30.3	28.8	1.56	19.452	
500.0	500.0	498.8	498.3	1.0	1.0	96.31	-31.7	-9.8	33.4	31.3	2.01	16.588	
600.0	599.8	596.5	595.2	1.2	1.3	117.27	-33.6	-21.4	42.9	40.4	2.48	17.322	
700.0	699.5	692.2	689.8	1.4	1.6	133.19	-36.0	-36.0	61.4	58.4	2.95	20.787	
800.0	798.7	785.3	781.2	1.7	2.0	143.13	-38.9	-53.2	88.3	84.8	3.43	25.724	
900.0	897.5	875.2	869.0	2.0	2.4	149.21	-42.1	-72.6	122.5	118.6	3.91	31.316	
1,000.0	995.7	964.4	955.4	2.4	2.8	153.27	-45.7	-94.0	162.6	158.2	4.39	37.007	
1,100.0	1,093.8	1,055.1	1,043.3	2.8	3.3	155.99	-49.3	-116.2	203.9	199.1	4.86	41.979	
1,200.0	1,192.0	1,145.8	1,131.2	3.2	3.7	157.80	-53.0	-138.4	245.5	240.2	5.33	46.059	
1,300.0	1,290.1	1,236.5	1,219.1	3.6	4.2	159.08	-56.7	-160.6	287.2	281.4	5.81	49.433	
1,400.0	1,388.3	1,327.2	1,307.0	4.0	4.7	160.04	-60.4	-182.8	329.0	322.7	6.30	52.213	
1,500.0	1,486.4	1,418.0	1,394.9	4.4	5.2	160.79	-64.1	-204.9	370.9	364.1	6.79	54.590	
1,600.0	1,584.6	1,508.7	1,482.8	4.8	5.6	161.38	-67.7	-227.1	412.8	405.5	7.29	56.613	
1,700.0	1,682.7	1,599.4	1,570.6	5.2	6.1	161.86	-71.4	-249.3	454.8	447.0	7.79	58.354	
1,800.0	1,780.9	1,690.1	1,658.5	5.7	6.6	162.26	-75.1	-271.5	496.7	488.4	8.30	59.864	
1,900.0	1,879.0	1,780.8	1,746.4	6.1	7.1	162.60	-78.8	-293.7	538.7	529.9	8.80	61.186	
2,000.0	1,977.2	1,871.6	1,834.3	6.5	7.6	162.89	-82.5	-315.8	580.7	571.4	9.31	62.352	
2,100.0	2,075.3	1,962.3	1,922.2	6.9	8.1	163.15	-86.1	-338.0	622.7	612.9	9.82	63.387	
2,200.0	2,173.5	2,053.0	2,010.1	7.4	8.6	163.37	-89.8	-360.2	664.7	654.4	10.34	64.311	
2,300.0	2,271.6	2,143.7	2,098.0	7.8	9.0	163.56	-93.5	-382.4	706.7	695.9	10.85	65.141	
2,400.0	2,369.8	2,234.4	2,185.9	8.2	9.5	163.73	-97.2	-404.6	748.8	737.4	11.36	65.889	
2,500.0	2,467.9	2,325.1	2,273.8	8.7	10.0	163.88	-100.8	-426.7	790.8	778.9	11.88	66.568	
2,600.0	2,566.1	2,415.9	2,361.6	9.1	10.5	164.02	-104.5	-448.9	832.8	820.4	12.40	67.185	
2,700.0	2,664.2	2,506.6	2,449.5	9.5	11.0	164.15	-108.2	-471.1	874.9	862.0	12.91	67.749	
2,800.0	2,762.4	2,597.3	2,537.4	10.0	11.5	164.26	-111.9	-493.3	916.9	903.5	13.43	68.266	
2,900.0	2,860.5	2,688.0	2,625.3	10.4	12.0	164.36	-115.6	-515.5	959.0	945.0	13.95	68.741	
3,000.0	2,958.6	2,778.7	2,713.2	10.8	12.5	164.46	-119.2	-537.6	1,001.0	986.5	14.47	69.180	
3,100.0	3,056.8	2,869.5	2,801.1	11.2	12.9	164.55	-122.9	-559.8	1,043.0	1,028.1	14.99	69.586	
3,200.0	3,154.9	2,960.2	2,889.0	11.7	13.4	164.63	-126.6	-582.0	1,085.1	1,069.6	15.51	69.962	
3,300.0	3,253.1	3,050.9	2,976.9	12.1	13.9	164.70	-130.3	-604.2	1,127.1	1,111.1	16.03	70.313	
3,400.0	3,351.2	3,141.6	3,064.8	12.5	14.4	164.77	-133.9	-626.4	1,169.2	1,152.6	16.55	70.639	
3,500.0	3,449.4	3,232.3	3,152.7	13.0	14.9	164.83	-137.6	-648.5	1,211.3	1,194.2	17.07	70.944	
3,600.0	3,547.5	3,323.1	3,240.5	13.4	15.4	164.89	-141.3	-670.7	1,253.3	1,235.7	17.60	71.229	
3,700.0	3,645.7	3,413.8	3,328.4	13.8	15.9	164.95	-145.0	-692.9	1,295.4	1,277.2	18.12	71.497	
3,800.0	3,743.8	3,504.5	3,416.3	14.3	16.4	165.00	-148.7	-715.1	1,337.4	1,318.8	18.64	71.748	
3,900.0	3,842.0	3,595.2	3,504.2	14.7	16.9	165.05	-152.3	-737.2	1,379.5	1,360.3	19.16	71.985	
4,000.0	3,940.1	3,685.9	3,592.1	15.1	17.3	165.10	-156.0	-759.4	1,421.5	1,401.9	19.69	72.208	
4,100.0	4,038.3	3,776.7	3,680.0	15.6	17.8	165.14	-159.7	-781.6	1,463.6	1,443.4	20.21	72.418	
4,200.0	4,136.4	3,867.4	3,767.9	16.0	18.3	165.18	-163.4	-803.8	1,505.7	1,484.9	20.73	72.617	
4,300.0	4,234.6	3,958.1	3,855.8	16.4	18.8	165.22	-167.1	-826.0	1,547.7	1,526.5	21.26	72.805	
4,400.0	4,332.7	4,048.8	3,943.7	16.9	19.3	165.26	-170.7	-848.1	1,589.8	1,568.0	21.78	72.983	
4,500.0	4,430.9	4,139.5	4,031.5	17.3	19.8	165.29	-174.4	-870.3	1,631.8	1,609.5	22.31	73.152	
4,600.0	4,529.0	4,230.3	4,119.4	17.7	20.3	165.33	-178.1	-892.5	1,673.9	1,651.1	22.83	73.312	
4,700.0	4,627.1	4,321.0	4,207.3	18.2	20.8	165.36	-181.8	-914.7	1,716.0	1,692.6	23.36	73.465	
4,800.0	4,725.3	4,411.7	4,295.2	18.6	21.3	165.39	-185.4	-936.9	1,758.0	1,734.2	23.88	73.610	
4,900.0	4,823.4	4,502.4	4,383.1	19.0	21.7	165.42	-189.1	-959.0	1,800.1	1,775.7	24.41	73.748	

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 8Y-441
Project:	SEC.8-T3N-R63W	**TVD Reference:**	WELL @ 4900.0ft (RKB - 15')
Reference Site:	Guttersen 8T-HZ Pad Sec.8-T3N-R63W	**MD Reference:**	WELL @ 4900.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Guttersen 8Y-441	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (2-05-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Guttersen 8T-HZ Pad Sec.8-T3N-R63W - Guttersen 8Q-201 - Wellbore #1 - Plan #1 (2-05-14)

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
5,000.0	4,921.6	4,593.1	4,471.0	19.5	22.2	165.44	-192.8	-981.2	1,842.2	1,817.2	24.93	73.880	
5,100.0	5,019.7	4,683.8	4,558.9	19.9	22.7	165.47	-196.5	-1,003.4	1,884.2	1,858.8	25.46	74.006	
5,200.0	5,117.9	4,774.6	4,646.8	20.3	23.2	165.50	-200.2	-1,025.6	1,926.3	1,900.3	25.99	74.126	
5,300.0	5,216.0	4,865.3	4,734.7	20.8	23.7	165.52	-203.8	-1,047.8	1,968.4	1,941.8	26.51	74.240	
5,400.0	5,314.2	4,956.0	4,822.5	21.2	24.2	165.54	-207.5	-1,069.9	2,010.4	1,983.4	27.04	74.350	
5,500.0	5,412.5	5,047.0	4,910.7	21.6	24.7	165.70	-211.2	-1,092.2	2,051.9	2,024.2	27.65	74.204	
5,600.0	5,511.3	5,165.9	5,025.9	21.9	25.3	165.89	-216.0	-1,121.0	2,090.4	2,062.1	28.32	73.802	
5,700.0	5,610.6	5,514.5	5,368.9	22.1	26.4	166.04	-226.0	-1,181.4	2,119.0	2,089.7	29.36	72.177	
5,800.0	5,710.2	5,856.5	5,710.2	22.3	26.9	166.21	-229.1	-1,200.4	2,132.3	2,102.1	30.19	70.623	
5,900.0	5,810.1	5,956.4	5,810.1	22.5	27.0	166.26	-229.1	-1,200.4	2,137.0	2,106.4	30.58	69.871	
6,000.0	5,910.1	6,056.3	5,910.0	22.6	27.1	-90.00	-229.1	-1,200.4	2,138.4	2,107.4	30.94	69.107	
6,100.0	6,010.1	6,154.9	6,008.2	22.7	27.2	-89.79	-221.3	-1,200.4	2,138.4	2,107.2	31.24	68.460	
6,200.0	6,110.1	6,250.0	6,101.2	22.8	27.2	-89.35	-202.0	-1,200.4	2,138.6	2,107.1	31.49	67.923	
6,300.0	6,209.5	6,342.3	6,188.6	22.9	27.3	-88.76	-172.3	-1,200.5	2,139.1	2,107.4	31.67	67.551	
6,400.0	6,306.7	6,432.3	6,269.7	23.0	27.3	-88.19	-133.4	-1,200.6	2,139.8	2,108.0	31.79	67.305	
6,500.0	6,400.0	6,520.4	6,344.1	23.0	27.3	-87.66	-86.3	-1,200.7	2,140.8	2,108.9	31.91	67.093	
6,600.0	6,487.9	6,606.8	6,411.4	23.0	27.3	-87.16	-32.1	-1,200.8	2,141.8	2,109.8	32.06	66.807	
6,700.0	6,568.9	6,691.9	6,471.2	23.0	27.3	-86.71	28.2	-1,201.0	2,143.0	2,110.6	32.31	66.325	
6,800.0	6,641.5	6,775.7	6,523.2	23.0	27.4	-86.30	93.9	-1,201.1	2,144.1	2,111.4	32.72	65.519	
6,900.0	6,704.5	6,858.6	6,567.3	23.1	27.5	-85.95	164.1	-1,201.3	2,145.2	2,111.9	33.34	64.339	
7,000.0	6,756.8	6,940.7	6,603.2	23.2	27.6	-85.65	237.9	-1,201.5	2,146.3	2,112.1	34.22	62.721	
7,100.0	6,797.6	7,022.2	6,630.8	23.3	27.8	-85.43	314.5	-1,201.6	2,147.2	2,111.8	35.38	60.697	
7,200.0	6,826.2	7,100.0	6,649.4	23.6	28.1	-85.26	390.0	-1,201.8	2,147.9	2,111.2	36.78	58.405	
7,300.0	6,842.0	7,184.1	6,660.8	24.0	28.5	-85.17	473.3	-1,202.0	2,148.5	2,110.0	38.50	55.804	
7,400.0	6,852.0	7,269.5	6,663.3	24.6	28.9	-84.99	558.6	-1,202.2	2,149.4	2,109.0	40.45	53.138	
7,500.0	6,855.2	7,369.4	6,663.6	25.4	29.6	-84.89	658.6	-1,202.5	2,150.1	2,107.3	42.79	50.245	
7,600.0	6,855.5	7,469.4	6,663.8	26.3	30.3	-84.89	758.6	-1,202.7	2,150.4	2,105.1	45.31	47.455	
7,700.0	6,855.8	7,569.4	6,664.1	27.4	31.2	-84.89	858.6	-1,202.9	2,150.8	2,102.8	48.01	44.799	
7,800.0	6,856.0	7,669.4	6,664.3	28.6	32.3	-84.89	958.6	-1,203.2	2,151.1	2,100.3	50.85	42.303	
7,900.0	6,856.3	7,769.4	6,664.6	29.9	33.4	-84.89	1,058.6	-1,203.4	2,151.5	2,097.7	53.81	39.981	
8,000.0	6,856.6	7,869.4	6,664.8	31.3	34.5	-84.89	1,158.6	-1,203.6	2,151.8	2,094.9	56.88	37.832	
8,100.0	6,856.9	7,969.4	6,665.1	32.7	35.8	-84.89	1,258.6	-1,203.9	2,152.2	2,092.2	60.03	35.851	
8,200.0	6,857.2	8,069.4	6,665.3	34.2	37.1	-84.89	1,358.6	-1,204.1	2,152.5	2,089.3	63.26	34.028	
8,300.0	6,857.4	8,169.4	6,665.5	35.7	38.5	-84.89	1,458.6	-1,204.3	2,152.9	2,086.3	66.55	32.351	
8,400.0	6,857.7	8,269.4	6,665.8	37.3	40.0	-84.89	1,558.6	-1,204.6	2,153.2	2,083.3	69.89	30.808	
8,500.0	6,858.0	8,369.4	6,666.0	38.9	41.5	-84.89	1,658.6	-1,204.8	2,153.6	2,080.3	73.28	29.387	
8,600.0	6,858.3	8,469.4	6,666.3	40.5	43.0	-84.89	1,758.6	-1,205.1	2,154.0	2,077.2	76.72	28.076	
8,700.0	6,858.5	8,569.4	6,666.5	42.2	44.5	-84.89	1,858.6	-1,205.3	2,154.3	2,074.1	80.19	26.867	
8,800.0	6,858.8	8,669.4	6,666.8	43.9	46.1	-84.89	1,958.6	-1,205.5	2,154.7	2,071.0	83.68	25.747	
8,900.0	6,859.1	8,769.4	6,667.0	45.6	47.7	-84.89	2,058.6	-1,205.8	2,155.0	2,067.8	87.21	24.710	
9,000.0	6,859.4	8,869.4	6,667.3	47.3	49.4	-84.89	2,158.6	-1,206.0	2,155.4	2,064.6	90.76	23.748	
9,100.0	6,859.7	8,969.4	6,667.5	49.0	51.0	-84.89	2,258.6	-1,206.2	2,155.7	2,061.4	94.33	22.852	
9,200.0	6,859.9	9,069.4	6,667.7	50.7	52.7	-84.89	2,358.6	-1,206.5	2,156.1	2,058.1	97.92	22.018	
9,300.0	6,860.2	9,169.4	6,668.0	52.5	54.4	-84.89	2,458.6	-1,206.7	2,156.4	2,054.9	101.53	21.239	
9,400.0	6,860.5	9,269.4	6,668.2	54.3	56.1	-84.89	2,558.6	-1,206.9	2,156.8	2,051.6	105.16	20.510	
9,500.0	6,860.8	9,369.4	6,668.5	56.0	57.8	-84.89	2,658.6	-1,207.2	2,157.1	2,048.3	108.79	19.828	
9,600.0	6,861.1	9,469.4	6,668.7	57.8	59.6	-84.89	2,758.6	-1,207.4	2,157.5	2,045.0	112.44	19.187	
9,700.0	6,861.3	9,569.4	6,669.0	59.6	61.3	-84.89	2,858.6	-1,207.6	2,157.8	2,041.7	116.10	18.585	
9,800.0	6,861.6	9,669.4	6,669.2	61.4	63.1	-84.89	2,958.5	-1,207.9	2,158.2	2,038.4	119.78	18.019	
9,900.0	6,861.9	9,769.4	6,669.5	63.2	64.8	-84.89	3,058.5	-1,208.1	2,158.5	2,035.1	123.46	17.484	
10,000.0	6,862.2	9,869.4	6,669.7	65.0	66.6	-84.89	3,158.5	-1,208.4	2,158.9	2,031.8	127.14	16.980	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Guttersen 8Y-441
Project:	SEC.8-T3N-R63W	**TVD Reference:**	WELL @ 4900.0ft (RKB - 15')
Reference Site:	Guttersen 8T-HZ Pad Sec.8-T3N-R63W	**MD Reference:**	WELL @ 4900.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Guttersen 8Y-441	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (2-05-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Guttersen 8T-HZ Pad Sec.8-T3N-R63W - Guttersen 8Q-201 - Wellbore #1 - Plan #1 (2-05-14)

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
10,100.0	6,862.5	9,969.4	6,669.9	66.9	68.4	-84.89	3,258.5	-1,208.6	2,159.3	2,028.4	130.84	16.503	
10,200.0	6,862.7	10,069.4	6,670.2	68.7	70.2	-84.89	3,358.5	-1,208.8	2,159.6	2,025.1	134.55	16.051	
10,300.0	6,863.0	10,169.4	6,670.4	70.5	72.0	-84.89	3,458.5	-1,209.1	2,160.0	2,021.7	138.26	15.623	
10,400.0	6,863.3	10,269.4	6,670.7	72.4	73.8	-84.89	3,558.5	-1,209.3	2,160.3	2,018.3	141.97	15.216	
10,500.0	6,863.6	10,369.4	6,670.9	74.2	75.6	-84.88	3,658.5	-1,209.5	2,160.7	2,015.0	145.69	14.830	
10,600.0	6,863.9	10,469.4	6,671.2	76.0	77.4	-84.88	3,758.5	-1,209.8	2,161.0	2,011.6	149.42	14.463	
10,700.0	6,864.1	10,569.4	6,671.4	77.9	79.2	-84.88	3,858.5	-1,210.0	2,161.4	2,008.2	153.15	14.112	
10,800.0	6,864.4	10,669.4	6,671.7	79.7	81.0	-84.88	3,958.5	-1,210.2	2,161.7	2,004.8	156.89	13.779	
10,900.0	6,864.7	10,769.4	6,671.9	81.6	82.9	-84.88	4,058.5	-1,210.5	2,162.1	2,001.5	160.63	13.460	
11,000.0	6,865.0	10,869.4	6,672.1	83.4	84.7	-84.88	4,158.5	-1,210.7	2,162.4	1,998.1	164.38	13.155	
11,100.0	6,865.2	10,969.4	6,672.4	85.3	86.5	-84.88	4,258.5	-1,210.9	2,162.8	1,994.7	168.12	12.864	
11,200.0	6,865.5	11,069.4	6,672.6	87.2	88.4	-84.88	4,358.5	-1,211.2	2,163.1	1,991.3	171.88	12.586	
11,300.0	6,865.8	11,169.4	6,672.9	89.0	90.2	-84.88	4,458.5	-1,211.4	2,163.5	1,987.9	175.63	12.319	
11,368.8	6,866.0	11,221.0	6,673.0	90.3	91.2	-84.88	4,510.1	-1,211.5	2,163.8	1,985.9	177.89	12.164	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Guttersen 8Y-441
Project:	SEC.8-T3N-R63W	**TVD Reference:**	WELL @ 4900.0ft (RKB - 15')
Reference Site:	Guttersen 8T-HZ Pad Sec.8-T3N-R63W	**MD Reference:**	WELL @ 4900.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Guttersen 8Y-441	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (2-05-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Guttersen 8T-HZ Pad Sec.8-T3N-R63W - Guttersen 8T-201 - Wellbore #1 - Plan #1 (2-05-14)

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	-13.47	58.3	-14.0	59.9				
100.0	100.0	100.0	100.0	0.1	0.1	-13.47	58.3	-14.0	59.9	59.7	0.22	266.645	
200.0	200.0	200.0	200.0	0.3	0.3	-13.47	58.3	-14.0	59.9	59.3	0.67	88.882	
300.0	300.0	300.0	300.0	0.6	0.6	-13.47	58.3	-14.0	59.9	58.8	1.12	53.329	
400.0	400.0	400.0	400.0	0.8	0.8	-13.47	58.3	-14.0	59.9	58.4	1.57	38.092	CC, ES
500.0	500.0	500.0	500.0	1.0	1.0	-118.64	58.3	-14.0	60.7	58.7	2.01	30.246	
600.0	599.8	599.8	599.8	1.2	1.2	-122.74	58.3	-14.0	63.4	61.0	2.44	25.976	
700.0	699.5	699.5	699.5	1.4	1.5	-128.79	58.3	-14.0	68.5	65.6	2.89	23.707	
800.0	798.7	798.7	798.7	1.7	1.7	-135.75	58.3	-14.0	76.8	73.4	3.35	22.901	
900.0	897.5	897.5	897.5	2.0	1.9	-142.64	58.3	-14.0	88.7	84.9	3.82	23.221	
1,000.0	995.7	995.7	995.7	2.4	2.1	-148.77	58.3	-14.0	104.3	100.0	4.29	24.319	
1,100.0	1,093.8	1,093.8	1,093.8	2.8	2.3	-153.46	58.3	-14.0	121.1	116.4	4.75	25.492	
1,200.0	1,192.0	1,192.0	1,192.0	3.2	2.6	-156.99	58.3	-14.0	138.6	133.4	5.21	26.579	
1,300.0	1,290.1	1,290.1	1,290.1	3.6	2.8	-159.73	58.3	-14.0	156.4	150.8	5.68	27.559	
1,400.0	1,388.3	1,388.3	1,388.3	4.0	3.0	-161.91	58.3	-14.0	174.6	168.4	6.14	28.433	
1,500.0	1,486.4	1,486.4	1,486.4	4.4	3.2	-163.67	58.3	-14.0	192.9	186.3	6.60	29.210	
1,600.0	1,584.6	1,584.6	1,584.6	4.8	3.4	-165.13	58.3	-14.0	211.4	204.3	7.07	29.900	
1,700.0	1,682.7	1,682.7	1,682.7	5.2	3.7	-166.35	58.3	-14.0	230.0	222.4	7.54	30.515	
1,800.0	1,780.9	1,780.9	1,780.9	5.7	3.9	-167.39	58.3	-14.0	248.7	240.7	8.00	31.065	
1,900.0	1,879.0	1,879.0	1,879.0	6.1	4.1	-168.29	58.3	-14.0	267.4	258.9	8.47	31.558	
2,000.0	1,977.2	1,977.2	1,977.2	6.5	4.3	-169.07	58.3	-14.0	286.2	277.3	8.94	32.002	
2,100.0	2,075.3	2,082.1	2,082.1	6.9	4.5	-169.93	57.2	-13.4	304.2	294.8	9.40	32.354	
2,200.0	2,173.5	2,189.9	2,189.7	7.4	4.7	-171.17	52.7	-11.0	319.5	309.7	9.83	32.494	
2,300.0	2,271.6	2,298.1	2,297.5	7.8	4.9	-172.74	44.6	-6.8	332.1	321.8	10.26	32.357	
2,400.0	2,369.8	2,401.5	2,400.3	8.2	5.1	-174.51	33.8	-1.1	342.5	331.8	10.70	32.017	
2,500.0	2,467.9	2,500.5	2,498.5	8.7	5.3	-176.16	23.1	4.4	352.9	341.8	11.14	31.675	
2,600.0	2,566.1	2,599.5	2,596.7	9.1	5.6	-177.70	12.5	10.0	363.6	352.0	11.60	31.343	
2,700.0	2,664.2	2,698.4	2,694.9	9.5	5.8	-179.16	1.8	15.6	374.5	362.4	12.07	31.021	
2,800.0	2,762.4	2,797.4	2,793.2	10.0	6.0	179.46	-8.9	21.2	385.6	373.1	12.56	30.710	
2,900.0	2,860.5	2,896.3	2,891.4	10.4	6.3	178.16	-19.6	26.8	397.0	383.9	13.06	30.407	
3,000.0	2,958.6	2,995.3	2,989.6	10.8	6.5	176.93	-30.2	32.4	408.5	395.0	13.57	30.114	
3,100.0	3,056.8	3,094.2	3,087.8	11.2	6.8	175.77	-40.9	38.0	420.3	406.2	14.09	29.831	
3,200.0	3,154.9	3,193.2	3,186.1	11.7	7.0	174.68	-51.6	43.6	432.2	417.5	14.62	29.558	
3,300.0	3,253.1	3,292.2	3,284.3	12.1	7.3	173.64	-62.3	49.1	444.2	429.0	15.16	29.295	
3,400.0	3,351.2	3,391.1	3,382.5	12.5	7.6	172.66	-72.9	54.7	456.4	440.6	15.71	29.042	
3,500.0	3,449.4	3,490.1	3,480.7	13.0	7.9	171.73	-83.6	60.3	468.7	452.4	16.27	28.799	
3,600.0	3,547.5	3,589.0	3,578.9	13.4	8.1	170.84	-94.3	65.9	481.1	464.2	16.84	28.566	
3,700.0	3,645.7	3,688.0	3,677.2	13.8	8.4	170.00	-105.0	71.5	493.6	476.2	17.42	28.342	
3,800.0	3,743.8	3,787.0	3,775.4	14.3	8.7	169.20	-115.6	77.1	506.2	488.2	18.00	28.128	
3,900.0	3,842.0	3,885.9	3,873.6	14.7	9.0	168.44	-126.3	82.7	518.9	500.3	18.58	27.924	
4,000.0	3,940.1	3,984.9	3,971.8	15.1	9.3	167.72	-137.0	88.3	531.7	512.5	19.18	27.728	
4,100.0	4,038.3	4,083.8	4,070.1	15.6	9.6	167.03	-147.7	93.8	544.6	524.8	19.77	27.541	
4,200.0	4,136.4	4,182.8	4,168.3	16.0	9.9	166.37	-158.3	99.4	557.6	537.2	20.38	27.362	
4,300.0	4,234.6	4,281.7	4,266.5	16.4	10.2	165.75	-169.0	105.0	570.6	549.6	20.98	27.191	
4,400.0	4,332.7	4,380.7	4,364.7	16.9	10.5	165.15	-179.7	110.6	583.7	562.1	21.60	27.028	
4,500.0	4,430.9	4,479.7	4,462.9	17.3	10.8	164.57	-190.4	116.2	596.8	574.6	22.21	26.872	
4,600.0	4,529.0	4,578.6	4,561.2	17.7	11.1	164.02	-201.0	121.8	610.0	587.2	22.83	26.722	
4,700.0	4,627.1	4,676.9	4,658.7	18.2	11.4	163.50	-211.6	127.3	623.3	599.8	23.44	26.585	
4,800.0	4,725.3	4,767.4	4,748.7	18.6	11.6	163.18	-219.9	131.7	637.4	613.4	23.98	26.581	
4,900.0	4,823.4	4,857.7	4,838.8	19.0	11.8	163.10	-225.7	134.7	652.7	628.3	24.47	26.680	
5,000.0	4,921.6	4,947.6	4,928.6	19.5	12.0	163.25	-228.9	136.4	669.4	644.5	24.91	26.870	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Guttersen 8Y-441
Project:	SEC.8-T3N-R63W	**TVD Reference:**	WELL @ 4900.0ft (RKB - 15')
Reference Site:	Guttersen 8T-HZ Pad Sec.8-T3N-R63W	**MD Reference:**	WELL @ 4900.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Guttersen 8Y-441	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (2-05-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Guttersen 8T-HZ Pad Sec.8-T3N-R63W - Guttersen 8T-201 - Wellbore #1 - Plan #1 (2-05-14)

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
5,100.0	5,019.7	5,038.7	5,019.7	19.9	12.1	163.60	-229.7	136.8	687.4	662.1	25.33	27.139	
5,200.0	5,117.9	5,136.9	5,117.9	20.3	12.3	164.04	-229.7	136.8	705.8	680.1	25.74	27.420	
5,300.0	5,216.0	5,235.0	5,216.0	20.8	12.5	164.46	-229.7	136.8	724.3	698.1	26.15	27.693	
5,400.0	5,314.2	5,333.2	5,314.2	21.2	12.7	164.85	-229.7	136.8	742.8	716.2	26.57	27.956	
5,500.0	5,412.5	5,431.4	5,412.5	21.6	12.9	165.27	-229.7	136.8	760.7	733.7	27.00	28.178	
5,600.0	5,511.3	5,530.3	5,511.3	21.9	13.0	165.64	-229.7	136.8	775.5	748.1	27.38	28.326	
5,700.0	5,610.6	5,629.6	5,610.6	22.1	13.2	165.91	-229.7	136.8	787.0	759.3	27.73	28.376	
5,800.0	5,710.2	5,729.2	5,710.2	22.3	13.4	166.09	-229.7	136.8	795.1	767.0	28.06	28.331	
5,900.0	5,810.1	5,829.1	5,810.1	22.5	13.6	166.20	-229.7	136.8	799.8	771.5	28.37	28.197	
6,000.0	5,910.1	5,929.1	5,910.1	22.6	13.8	-90.05	-229.6	136.8	801.2	772.6	28.67	27.950	
6,057.6	5,967.7	5,986.8	5,967.7	22.7	13.9	-89.83	-226.6	136.8	801.2	772.4	28.83	27.790	
6,100.0	6,010.1	6,028.7	6,009.4	22.7	13.9	-89.48	-221.7	136.8	801.2	772.3	28.92	27.708	
6,200.0	6,110.1	6,124.9	6,103.4	22.8	14.0	-88.16	-202.0	136.9	801.6	772.6	29.02	27.625	
6,300.0	6,209.5	6,217.8	6,191.2	22.9	14.0	-86.58	-171.7	137.0	802.6	773.6	29.03	27.645	
6,400.0	6,306.7	6,308.5	6,272.8	23.0	14.1	-85.07	-132.2	137.1	804.1	775.1	29.02	27.711	
6,500.0	6,400.0	6,397.2	6,347.5	23.0	14.1	-83.65	-84.5	137.2	806.1	777.1	29.03	27.769	
6,600.0	6,487.9	6,484.2	6,414.8	23.0	14.1	-82.34	-29.6	137.4	808.3	779.2	29.12	27.762	
6,700.0	6,568.9	6,569.6	6,474.5	23.0	14.1	-81.15	31.5	137.6	810.6	781.3	29.32	27.643	
6,800.0	6,641.5	6,650.0	6,524.2	23.0	14.3	-80.13	94.7	137.7	813.0	783.3	29.68	27.390	
6,900.0	6,704.5	6,737.0	6,570.1	23.1	14.6	-79.19	168.6	138.0	815.1	784.9	30.27	26.933	
7,000.0	6,756.8	6,819.4	6,605.5	23.2	15.1	-78.44	242.9	138.2	817.1	786.0	31.06	26.309	
7,100.0	6,797.6	6,900.0	6,632.3	23.3	15.7	-77.87	318.9	138.4	818.6	786.5	32.07	25.526	
7,200.0	6,826.2	6,982.3	6,651.2	23.6	16.4	-77.46	398.9	138.6	819.7	786.3	33.34	24.584	
7,300.0	6,842.0	7,063.2	6,661.3	24.0	17.2	-77.23	479.1	138.9	820.3	785.4	34.84	23.541	
7,400.0	6,852.0	7,150.1	6,663.3	24.6	18.2	-76.75	566.0	139.1	821.8	785.1	36.70	22.389	
7,500.0	6,855.2	7,250.0	6,663.6	25.4	19.4	-76.52	666.0	139.4	822.3	783.4	38.87	21.156	
7,600.0	6,855.5	7,350.0	6,663.8	26.3	20.7	-76.52	766.0	139.7	822.1	780.7	41.39	19.861	
7,700.0	6,855.8	7,450.0	6,664.1	27.4	22.2	-76.51	866.0	140.0	821.9	777.8	44.09	18.641	
7,800.0	6,856.0	7,550.0	6,664.3	28.6	23.6	-76.51	966.0	140.3	821.8	774.8	46.94	17.508	
7,900.0	6,856.3	7,650.0	6,664.5	29.9	25.2	-76.50	1,066.0	140.6	821.6	771.7	49.90	16.465	
8,000.0	6,856.6	7,750.0	6,664.8	31.3	26.8	-76.50	1,166.0	140.9	821.5	768.5	52.96	15.510	
8,100.0	6,856.9	7,850.0	6,665.0	32.7	28.4	-76.49	1,266.0	141.2	821.3	765.2	56.11	14.638	
8,200.0	6,857.2	7,950.0	6,665.3	34.2	30.1	-76.49	1,366.0	141.5	821.1	761.8	59.32	13.842	
8,300.0	6,857.4	8,050.0	6,665.5	35.7	31.8	-76.48	1,466.0	141.8	821.0	758.4	62.59	13.116	
8,400.0	6,857.7	8,150.0	6,665.8	37.3	33.5	-76.48	1,566.0	142.1	820.8	754.9	65.91	12.452	
8,500.0	6,858.0	8,250.0	6,666.0	38.9	35.2	-76.47	1,666.0	142.3	820.6	751.4	69.28	11.845	
8,600.0	6,858.3	8,350.0	6,666.3	40.5	37.0	-76.47	1,766.0	142.6	820.5	747.8	72.68	11.288	
8,700.0	6,858.5	8,450.0	6,666.5	42.2	38.8	-76.46	1,866.0	142.9	820.3	744.2	76.12	10.777	
8,800.0	6,858.8	8,550.0	6,666.7	43.9	40.5	-76.46	1,966.0	143.2	820.1	740.6	79.58	10.306	
8,900.0	6,859.1	8,650.0	6,667.0	45.6	42.3	-76.45	2,066.0	143.5	820.0	736.9	83.06	9.872	
9,000.0	6,859.4	8,750.0	6,667.2	47.3	44.1	-76.44	2,166.0	143.8	819.8	733.2	86.57	9.470	
9,100.0	6,859.7	8,850.0	6,667.5	49.0	46.0	-76.44	2,266.0	144.1	819.6	729.5	90.10	9.097	
9,200.0	6,859.9	8,950.0	6,667.7	50.7	47.8	-76.43	2,366.0	144.4	819.5	725.8	93.64	8.751	
9,300.0	6,860.2	9,050.0	6,668.0	52.5	49.6	-76.43	2,466.0	144.7	819.3	722.1	97.20	8.429	
9,400.0	6,860.5	9,150.0	6,668.2	54.3	51.4	-76.42	2,566.0	145.0	819.2	718.4	100.77	8.129	
9,500.0	6,860.8	9,250.0	6,668.5	56.0	53.3	-76.42	2,666.0	145.3	819.0	714.6	104.35	7.848	
9,600.0	6,861.1	9,350.0	6,668.7	57.8	55.1	-76.41	2,766.0	145.6	818.8	710.9	107.95	7.586	
9,700.0	6,861.3	9,450.0	6,668.9	59.6	57.0	-76.41	2,866.0	145.9	818.7	707.1	111.55	7.339	
9,800.0	6,861.6	9,550.0	6,669.2	61.4	58.8	-76.40	2,965.9	146.2	818.5	703.3	115.16	7.107	
9,900.0	6,861.9	9,650.0	6,669.4	63.2	60.7	-76.40	3,065.9	146.5	818.3	699.6	118.78	6.889	
10,000.0	6,862.2	9,750.0	6,669.7	65.0	62.6	-76.39	3,165.9	146.8	818.2	695.8	122.41	6.684	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Guttersen 8Y-441
Project:	SEC.8-T3N-R63W	**TVD Reference:**	WELL @ 4900.0ft (RKB - 15')
Reference Site:	Guttersen 8T-HZ Pad Sec.8-T3N-R63W	**MD Reference:**	WELL @ 4900.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Guttersen 8Y-441	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (2-05-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Guttersen 8T-HZ Pad Sec.8-T3N-R63W - Guttersen 8T-201 - Wellbore #1 - Plan #1 (2-05-14)

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
10,100.0	6,862.5	9,850.0	6,669.9	66.9	64.4	-76.39	3,265.9	147.0	818.0	692.0	126.04	6.490	
10,200.0	6,862.7	9,950.0	6,670.2	68.7	66.3	-76.38	3,365.9	147.3	817.8	688.2	129.68	6.307	
10,300.0	6,863.0	10,050.0	6,670.4	70.5	68.2	-76.38	3,465.9	147.6	817.7	684.4	133.32	6.133	
10,400.0	6,863.3	10,150.0	6,670.7	72.4	70.1	-76.37	3,565.9	147.9	817.5	680.5	136.97	5.968	
10,500.0	6,863.6	10,250.0	6,670.9	74.2	71.9	-76.37	3,665.9	148.2	817.4	676.7	140.63	5.812	
10,600.0	6,863.9	10,350.0	6,671.1	76.0	73.8	-76.36	3,765.9	148.5	817.2	672.9	144.29	5.664	
10,700.0	6,864.1	10,450.0	6,671.4	77.9	75.7	-76.35	3,865.9	148.8	817.0	669.1	147.95	5.522	
10,800.0	6,864.4	10,550.0	6,671.6	79.7	77.6	-76.35	3,965.9	149.1	816.9	665.2	151.62	5.388	
10,900.0	6,864.7	10,650.0	6,671.9	81.6	79.5	-76.34	4,065.9	149.4	816.7	661.4	155.29	5.259	
11,000.0	6,865.0	10,750.0	6,672.1	83.4	81.3	-76.34	4,165.9	149.7	816.5	657.6	158.96	5.137	
11,100.0	6,865.2	10,850.0	6,672.4	85.3	83.2	-76.33	4,265.9	150.0	816.4	653.7	162.64	5.020	
11,200.0	6,865.5	10,950.0	6,672.6	87.2	85.1	-76.33	4,365.9	150.3	816.2	649.9	166.31	4.908	
11,300.0	6,865.8	11,050.0	6,672.9	89.0	87.0	-76.32	4,465.9	150.6	816.0	646.0	170.00	4.800	
11,352.1	6,866.0	11,102.2	6,673.0	90.0	88.0	-76.32	4,518.1	150.7	816.0	644.0	171.91	4.746	
11,368.8	6,866.0	11,108.7	6,673.0	90.3	88.1	-76.32	4,524.6	150.7	816.0	643.6	172.34	4.735	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Guttersen 8Y-441
Project:	SEC.8-T3N-R63W	**TVD Reference:**	WELL @ 4900.0ft (RKB - 15')
Reference Site:	Guttersen 8T-HZ Pad Sec.8-T3N-R63W	**MD Reference:**	WELL @ 4900.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Guttersen 8Y-441	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (2-05-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Guttersen 8T-HZ Pad Sec.8-T3N-R63W - Guttersen 8T-341 - Wellbore #1 - Plan #1 (2-05-14)

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	-10.85	29.1	-5.6	29.7				
100.0	100.0	100.0	100.0	0.1	0.1	-10.85	29.1	-5.6	29.7	29.4	0.22	132.023	
200.0	200.0	200.0	200.0	0.3	0.3	-10.85	29.1	-5.6	29.7	29.0	0.67	44.008	
300.0	300.0	300.0	300.0	0.6	0.6	-10.85	29.1	-5.6	29.7	28.6	1.12	26.405	
400.0	400.0	400.0	400.0	0.8	0.8	-10.85	29.1	-5.6	29.7	28.1	1.57	18.860	CC, ES
500.0	500.0	500.0	500.0	1.0	1.0	-117.54	29.1	-5.6	30.4	28.4	2.01	15.156	
600.0	599.8	599.8	599.8	1.2	1.2	-125.53	29.1	-5.6	33.2	30.7	2.44	13.592	
700.0	699.5	699.5	699.5	1.4	1.5	-135.93	29.1	-5.6	38.9	36.0	2.89	13.471	
800.0	798.7	798.7	798.7	1.7	1.7	-145.88	29.1	-5.6	48.4	45.1	3.34	14.496	
900.0	897.5	897.5	897.5	2.0	1.9	-153.87	29.1	-5.6	62.0	58.2	3.79	16.356	
1,000.0	995.7	995.7	995.7	2.4	2.1	-159.75	29.1	-5.6	79.3	75.0	4.24	18.683	
1,100.0	1,093.8	1,093.8	1,093.8	2.8	2.3	-163.65	29.1	-5.6	97.5	92.8	4.70	20.758	
1,200.0	1,192.0	1,192.0	1,192.0	3.2	2.6	-166.31	29.1	-5.6	116.1	110.9	5.16	22.510	
1,300.0	1,290.1	1,287.6	1,287.6	3.6	2.8	-168.66	28.5	-6.8	135.6	130.0	5.59	24.241	
1,400.0	1,388.3	1,382.0	1,381.9	4.0	2.9	-171.30	26.4	-10.7	157.4	151.3	6.02	26.150	
1,500.0	1,486.4	1,475.0	1,474.6	4.4	3.1	-174.04	23.0	-17.3	181.5	175.1	6.45	28.164	
1,600.0	1,584.6	1,566.6	1,565.6	4.8	3.3	-176.71	18.2	-26.3	208.2	201.4	6.88	30.248	
1,700.0	1,682.7	1,656.6	1,654.7	5.2	3.6	-179.26	12.2	-37.7	237.5	230.2	7.34	32.381	
1,800.0	1,780.9	1,749.9	1,746.7	5.7	3.8	178.37	5.1	-51.3	268.8	261.0	7.81	34.425	
1,900.0	1,879.0	1,844.4	1,839.9	6.1	4.1	176.47	-2.2	-65.0	300.4	292.1	8.29	36.247	
2,000.0	1,977.2	1,938.8	1,933.0	6.5	4.4	174.92	-9.4	-78.8	332.2	323.5	8.78	37.861	
2,100.0	2,075.3	2,033.3	2,026.2	6.9	4.7	173.65	-16.7	-92.6	364.3	355.0	9.27	39.278	
2,200.0	2,173.5	2,127.7	2,119.3	7.4	5.0	172.58	-24.0	-106.3	396.5	386.7	9.78	40.558	
2,300.0	2,271.6	2,222.2	2,212.5	7.8	5.3	171.67	-31.2	-120.1	428.7	418.5	10.28	41.698	
2,400.0	2,369.8	2,316.6	2,305.7	8.2	5.6	170.88	-38.5	-133.9	461.1	450.3	10.79	42.723	
2,500.0	2,467.9	2,411.0	2,398.8	8.7	6.0	170.20	-45.7	-147.6	493.5	482.2	11.31	43.649	
2,600.0	2,566.1	2,505.5	2,492.0	9.1	6.3	169.61	-53.0	-161.4	526.0	514.2	11.82	44.488	
2,700.0	2,664.2	2,599.9	2,585.1	9.5	6.6	169.08	-60.2	-175.2	558.6	546.2	12.34	45.251	
2,800.0	2,762.4	2,694.4	2,678.3	10.0	7.0	168.61	-67.5	-188.9	591.1	578.3	12.87	45.947	
2,900.0	2,860.5	2,788.8	2,771.4	10.4	7.3	168.19	-74.8	-202.7	623.7	610.3	13.39	46.586	
3,000.0	2,958.6	2,883.2	2,864.6	10.8	7.7	167.81	-82.0	-216.4	656.4	642.5	13.91	47.172	
3,100.0	3,056.8	2,977.7	2,957.7	11.2	8.0	167.47	-89.3	-230.2	689.0	674.6	14.44	47.713	
3,200.0	3,154.9	3,072.1	3,050.9	11.7	8.4	167.15	-96.5	-244.0	721.7	706.7	14.97	48.214	
3,300.0	3,253.1	3,166.6	3,144.0	12.1	8.7	166.87	-103.8	-257.7	754.4	738.9	15.50	48.677	
3,400.0	3,351.2	3,261.0	3,237.2	12.5	9.1	166.61	-111.0	-271.5	787.1	771.1	16.03	49.108	
3,500.0	3,449.4	3,355.5	3,330.3	13.0	9.4	166.37	-118.3	-285.3	819.8	803.3	16.56	49.509	
3,600.0	3,547.5	3,449.9	3,423.5	13.4	9.8	166.15	-125.6	-299.0	852.5	835.4	17.09	49.883	
3,700.0	3,645.7	3,544.3	3,516.6	13.8	10.1	165.94	-132.8	-312.8	885.3	867.7	17.62	50.233	
3,800.0	3,743.8	3,638.8	3,609.8	14.3	10.5	165.75	-140.1	-326.6	918.0	899.9	18.16	50.562	
3,900.0	3,842.0	3,733.2	3,702.9	14.7	10.8	165.57	-147.3	-340.3	950.8	932.1	18.69	50.870	
4,000.0	3,940.1	3,827.7	3,796.1	15.1	11.2	165.41	-154.6	-354.1	983.6	964.3	19.23	51.159	
4,100.0	4,038.3	3,922.1	3,889.2	15.6	11.6	165.25	-161.8	-367.9	1,016.3	996.6	19.76	51.432	
4,200.0	4,136.4	4,016.5	3,982.4	16.0	11.9	165.10	-169.1	-381.6	1,049.1	1,028.8	20.30	51.690	
4,300.0	4,234.6	4,111.0	4,075.5	16.4	12.3	164.97	-176.4	-395.4	1,081.9	1,061.1	20.83	51.933	
4,400.0	4,332.7	4,205.4	4,168.7	16.9	12.7	164.84	-183.6	-409.2	1,114.7	1,093.3	21.37	52.163	
4,500.0	4,430.9	4,299.9	4,261.8	17.3	13.0	164.72	-190.9	-422.9	1,147.5	1,125.6	21.91	52.381	
4,600.0	4,529.0	4,394.3	4,355.0	17.7	13.4	164.60	-198.1	-436.7	1,180.3	1,157.8	22.44	52.587	
4,700.0	4,627.1	4,488.8	4,448.1	18.2	13.7	164.49	-205.4	-450.5	1,213.1	1,190.1	22.98	52.784	
4,800.0	4,725.3	4,591.8	4,549.8	18.6	14.1	164.38	-213.3	-465.4	1,245.9	1,222.3	23.54	52.931	
4,900.0	4,823.4	4,749.5	4,706.1	19.0	14.5	164.34	-222.8	-483.5	1,275.7	1,251.5	24.14	52.843	
5,000.0	4,921.6	4,911.7	4,867.8	19.5	14.9	164.48	-228.4	-494.2	1,300.7	1,276.0	24.72	52.620	

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 8Y-441
Project:	SEC.8-T3N-R63W	**TVD Reference:**	WELL @ 4900.0ft (RKB - 15')
Reference Site:	Guttersen 8T-HZ Pad Sec.8-T3N-R63W	**MD Reference:**	WELL @ 4900.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Guttersen 8Y-441	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (2-05-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Guttersen 8T-HZ Pad Sec.8-T3N-R63W - Guttersen 8T-341 - Wellbore #1 - Plan #1 (2-05-14)

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
5,100.0	5,019.7	5,063.6	5,019.7	19.9	15.1	164.76	-229.9	-496.9	1,320.8	1,295.6	25.25	52.307	
5,200.0	5,117.9	5,161.8	5,117.9	20.3	15.2	164.98	-229.9	-496.9	1,339.3	1,313.6	25.70	52.119	
5,300.0	5,216.0	5,259.9	5,216.0	20.8	15.4	165.19	-229.9	-496.9	1,357.9	1,331.7	26.14	51.938	
5,400.0	5,314.2	5,358.1	5,314.2	21.2	15.5	165.39	-229.9	-496.9	1,376.4	1,349.8	26.59	51.763	
5,500.0	5,412.5	5,456.4	5,412.5	21.6	15.7	165.64	-229.9	-496.9	1,394.3	1,367.3	27.08	51.491	
5,600.0	5,511.3	5,555.2	5,511.3	21.9	15.8	165.86	-229.9	-496.9	1,409.2	1,381.6	27.54	51.177	
5,700.0	5,610.6	5,654.5	5,610.6	22.1	16.0	166.04	-229.9	-496.9	1,420.7	1,392.7	27.96	50.817	
5,800.0	5,710.2	5,754.1	5,710.2	22.3	16.1	166.16	-229.9	-496.9	1,428.8	1,400.4	28.34	50.412	
5,900.0	5,810.1	5,854.0	5,810.1	22.5	16.3	166.23	-229.9	-496.9	1,433.5	1,404.8	28.69	49.964	
6,000.0	5,910.1	5,954.0	5,910.1	22.6	16.5	-90.03	-229.9	-496.9	1,434.9	1,405.9	29.02	49.442	
6,061.5	5,971.5	6,015.4	5,971.5	22.7	16.6	-90.03	-229.9	-496.9	1,434.9	1,405.7	29.24	49.077	
6,100.0	6,010.1	6,053.9	6,010.0	22.7	16.6	-90.03	-229.7	-496.9	1,434.9	1,405.5	29.37	48.853	
6,200.0	6,110.1	6,153.0	6,108.6	22.8	16.7	-89.79	-221.5	-496.9	1,434.9	1,405.3	29.66	48.371	
6,300.0	6,209.5	6,250.0	6,203.5	22.9	16.8	-89.36	-201.2	-496.9	1,435.1	1,405.2	29.85	48.070	
6,400.0	6,306.7	6,346.7	6,294.6	23.0	16.9	-88.93	-169.1	-497.0	1,435.3	1,405.4	29.96	47.915	
6,500.0	6,400.0	6,441.7	6,379.5	23.0	16.9	-88.53	-126.6	-497.1	1,435.7	1,405.7	30.02	47.824	
6,600.0	6,487.9	6,535.7	6,457.7	23.0	16.9	-88.16	-74.6	-497.2	1,436.1	1,406.0	30.11	47.698	
6,700.0	6,568.9	6,628.8	6,528.3	23.0	16.8	-87.81	-14.0	-497.3	1,436.6	1,406.3	30.29	47.426	
6,800.0	6,641.5	6,721.0	6,590.4	23.0	16.9	-87.50	54.1	-497.4	1,437.1	1,406.5	30.64	46.904	
6,900.0	6,704.5	6,812.5	6,643.5	23.1	16.9	-87.23	128.6	-497.5	1,437.6	1,406.4	31.22	46.050	
7,000.0	6,756.8	6,903.5	6,687.1	23.2	17.0	-87.01	208.4	-497.7	1,438.2	1,406.1	32.07	44.841	
7,100.0	6,797.6	6,994.1	6,720.8	23.3	17.3	-86.83	292.4	-497.8	1,438.6	1,405.4	33.24	43.284	
7,200.0	6,826.2	7,084.3	6,744.2	23.6	17.9	-86.70	379.5	-498.0	1,439.1	1,404.4	34.71	41.459	
7,300.0	6,842.0	7,174.3	6,757.2	24.0	18.6	-86.63	468.5	-498.1	1,439.4	1,403.0	36.47	39.473	
7,400.0	6,852.0	7,266.6	6,760.0	24.6	19.5	-86.36	560.7	-498.3	1,440.2	1,401.7	38.50	37.408	
7,500.0	6,855.2	7,366.5	6,760.0	25.4	20.7	-86.21	660.6	-498.5	1,440.7	1,399.8	40.85	35.271	
7,600.0	6,855.5	7,466.5	6,760.0	26.3	22.0	-86.20	760.6	-498.6	1,441.0	1,397.6	43.41	33.192	
7,700.0	6,855.8	7,566.5	6,760.0	27.4	23.3	-86.19	860.6	-498.8	1,441.3	1,395.1	46.16	31.226	
7,800.0	6,856.0	7,666.5	6,760.0	28.6	24.8	-86.18	960.6	-499.0	1,441.6	1,392.5	49.05	29.393	
7,900.0	6,856.3	7,766.5	6,760.0	29.9	26.2	-86.17	1,060.6	-499.2	1,441.9	1,389.8	52.06	27.699	
8,000.0	6,856.6	7,866.5	6,760.0	31.3	27.8	-86.16	1,160.6	-499.4	1,442.2	1,387.0	55.17	26.143	
8,100.0	6,856.9	7,966.5	6,760.0	32.7	29.4	-86.15	1,260.6	-499.5	1,442.5	1,384.2	58.36	24.716	
8,200.0	6,857.2	8,066.5	6,760.0	34.2	31.0	-86.14	1,360.6	-499.7	1,442.8	1,381.2	61.63	23.410	
8,300.0	6,857.4	8,166.5	6,760.0	35.7	32.7	-86.13	1,460.6	-499.9	1,443.1	1,378.2	64.96	22.214	
8,400.0	6,857.7	8,266.5	6,760.0	37.3	34.3	-86.12	1,560.6	-500.1	1,443.5	1,375.1	68.35	21.119	
8,500.0	6,858.0	8,366.5	6,760.0	38.9	36.0	-86.11	1,660.6	-500.2	1,443.8	1,372.0	71.77	20.115	
8,600.0	6,858.3	8,466.5	6,760.0	40.5	37.8	-86.10	1,760.6	-500.4	1,444.1	1,368.8	75.24	19.193	
8,700.0	6,858.5	8,566.5	6,760.0	42.2	39.5	-86.09	1,860.6	-500.6	1,444.4	1,365.6	78.74	18.344	
8,800.0	6,858.8	8,666.5	6,760.0	43.9	41.3	-86.08	1,960.6	-500.8	1,444.7	1,362.4	82.27	17.561	
8,900.0	6,859.1	8,766.5	6,760.0	45.6	43.0	-86.07	2,060.6	-500.9	1,445.0	1,359.2	85.82	16.837	
9,000.0	6,859.4	8,866.5	6,760.0	47.3	44.8	-86.06	2,160.6	-501.1	1,445.3	1,355.9	89.40	16.167	
9,100.0	6,859.7	8,966.5	6,760.0	49.0	46.6	-86.05	2,260.6	-501.3	1,445.6	1,352.6	93.00	15.545	
9,200.0	6,859.9	9,066.5	6,760.0	50.7	48.4	-86.04	2,360.6	-501.5	1,445.9	1,349.3	96.61	14.966	
9,300.0	6,860.2	9,166.5	6,760.0	52.5	50.2	-86.03	2,460.6	-501.6	1,446.3	1,346.0	100.24	14.427	
9,400.0	6,860.5	9,266.5	6,760.0	54.3	52.1	-86.02	2,560.6	-501.8	1,446.6	1,342.7	103.89	13.924	
9,500.0	6,860.8	9,366.5	6,760.0	56.0	53.9	-86.01	2,660.6	-502.0	1,446.9	1,339.3	107.55	13.454	
9,600.0	6,861.1	9,466.5	6,760.0	57.8	55.7	-86.00	2,760.6	-502.2	1,447.2	1,336.0	111.22	13.013	
9,700.0	6,861.3	9,566.5	6,760.0	59.6	57.5	-85.99	2,860.6	-502.3	1,447.5	1,332.6	114.89	12.599	
9,800.0	6,861.6	9,666.5	6,760.0	61.4	59.4	-85.98	2,960.6	-502.5	1,447.8	1,329.2	118.58	12.209	
9,900.0	6,861.9	9,766.5	6,760.0	63.2	61.2	-85.97	3,060.6	-502.7	1,448.1	1,325.8	122.28	11.843	
10,000.0	6,862.2	9,866.5	6,760.0	65.0	63.1	-85.96	3,160.6	-502.9	1,448.4	1,322.5	125.98	11.497	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Guttersen 8Y-441
Project:	SEC.8-T3N-R63W	**TVD Reference:**	WELL @ 4900.0ft (RKB - 15')
Reference Site:	Guttersen 8T-HZ Pad Sec.8-T3N-R63W	**MD Reference:**	WELL @ 4900.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Guttersen 8Y-441	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (2-05-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Guttersen 8T-HZ Pad Sec.8-T3N-R63W - Guttersen 8T-341 - Wellbore #1 - Plan #1 (2-05-14)

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
10,100.0	6,862.5	9,966.5	6,760.0	66.9	64.9	-85.95	3,260.6	-503.1	1,448.8	1,319.1	129.70	11.170	
10,200.0	6,862.7	10,066.5	6,760.0	68.7	66.8	-85.93	3,360.6	-503.2	1,449.1	1,315.7	133.41	10.861	
10,300.0	6,863.0	10,166.5	6,760.0	70.5	68.7	-85.92	3,460.6	-503.4	1,449.4	1,312.2	137.14	10.569	
10,400.0	6,863.3	10,266.5	6,760.0	72.4	70.5	-85.91	3,560.6	-503.6	1,449.7	1,308.8	140.87	10.291	
10,500.0	6,863.6	10,366.5	6,760.0	74.2	72.4	-85.90	3,660.6	-503.8	1,450.0	1,305.4	144.60	10.027	
10,600.0	6,863.9	10,466.5	6,760.0	76.0	74.3	-85.89	3,760.6	-503.9	1,450.3	1,302.0	148.34	9.777	
10,700.0	6,864.1	10,566.5	6,760.0	77.9	76.1	-85.88	3,860.6	-504.1	1,450.6	1,298.5	152.09	9.538	
10,800.0	6,864.4	10,666.5	6,760.0	79.7	78.0	-85.87	3,960.6	-504.3	1,450.9	1,295.1	155.83	9.311	
10,900.0	6,864.7	10,766.5	6,760.0	81.6	79.9	-85.86	4,060.6	-504.5	1,451.2	1,291.7	159.58	9.094	
11,000.0	6,865.0	10,866.5	6,760.0	83.4	81.8	-85.85	4,160.6	-504.6	1,451.6	1,288.2	163.34	8.887	
11,100.0	6,865.2	10,966.5	6,760.0	85.3	83.7	-85.84	4,260.6	-504.8	1,451.9	1,284.8	167.10	8.689	
11,200.0	6,865.5	11,066.5	6,760.0	87.2	85.5	-85.83	4,360.6	-505.0	1,452.2	1,281.3	170.86	8.499	
11,300.0	6,865.8	11,166.5	6,760.0	89.0	87.4	-85.82	4,460.6	-505.2	1,452.5	1,277.9	174.62	8.318	
11,368.8	6,866.0	11,223.2	6,760.0	90.3	88.5	-85.82	4,517.4	-505.3	1,452.8	1,275.8	176.99	8.208	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Guttersen 8Y-441
Project:	SEC.8-T3N-R63W	**TVD Reference:**	WELL @ 4900.0ft (RKB - 15')
Reference Site:	Guttersen 8T-HZ Pad Sec.8-T3N-R63W	**MD Reference:**	WELL @ 4900.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Guttersen 8Y-441	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (2-05-14)	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 4900.0ft (RKB - 15')
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: Guttersen 8Y-441
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.67°

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Guttersen 8Y-441
Project:	SEC.8-T3N-R63W	**TVD Reference:**	WELL @ 4900.0ft (RKB - 15')
Reference Site:	Guttersen 8T-HZ Pad Sec.8-T3N-R63W	**MD Reference:**	WELL @ 4900.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Guttersen 8Y-441	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Landmark
Reference Design:	Plan #1 (2-05-14)	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 4900.0ft (RKB - 15')	Coordinates are relative to: Guttersen 8Y-441
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: 0.67°