PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Stroh 13G-403**

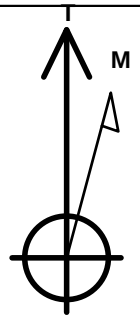
Surface Location: Stroh 13GK-HZ Pad Sec. 13-T4N-R67W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
Ground Elevation: 4806.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1356827.55	3183166.78	40.311030	-104.843190	

Original Well Elev WELL @ 4821.0ft (Original Well Elev)

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 2352'FSL & 1526'FWL, Sec.13	1.0	0.0	0.0	Point
BHL 500'FSL & 75'FWL, Sec.24	7261.0	-7114.8	-1433.9	Point



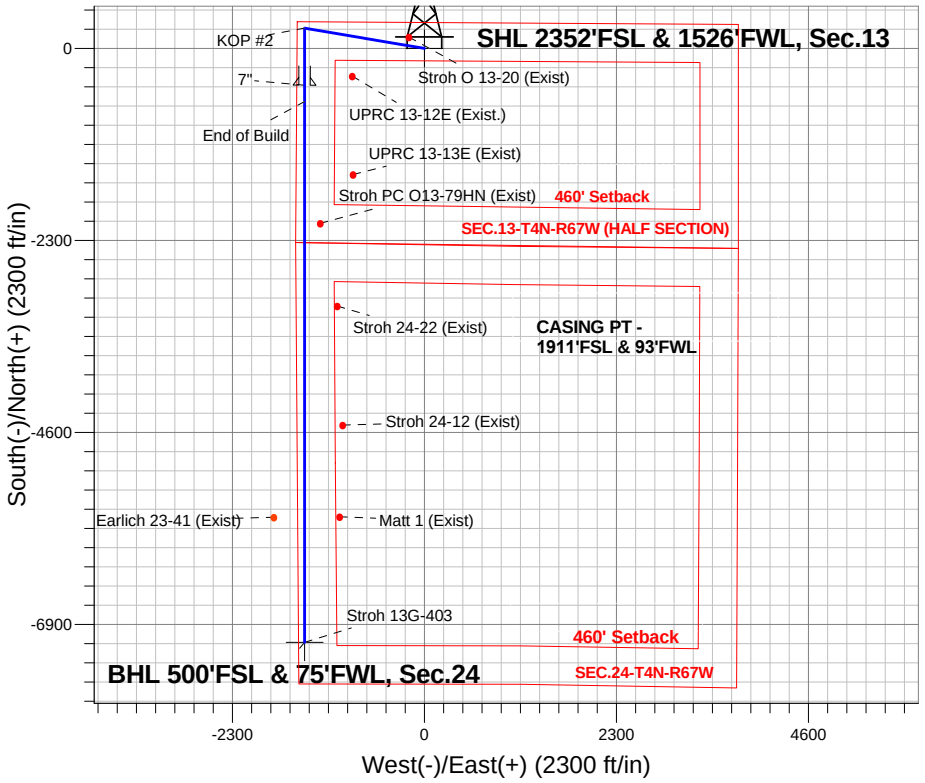
Azimuths to True North
Magnetic North: 8.53°

Magnetic Field
Strength: 52788.2snT
Dip Angle: 66.87°
Date: 3/11/2014
Model: IGRF2010

Stroh 13GK-HZ Pad Sec. 13-T4N-R67W
Stroh 13G-403
Plan #1 (3-11-14)
11:31, April 01 2014

ANNOTATIONS

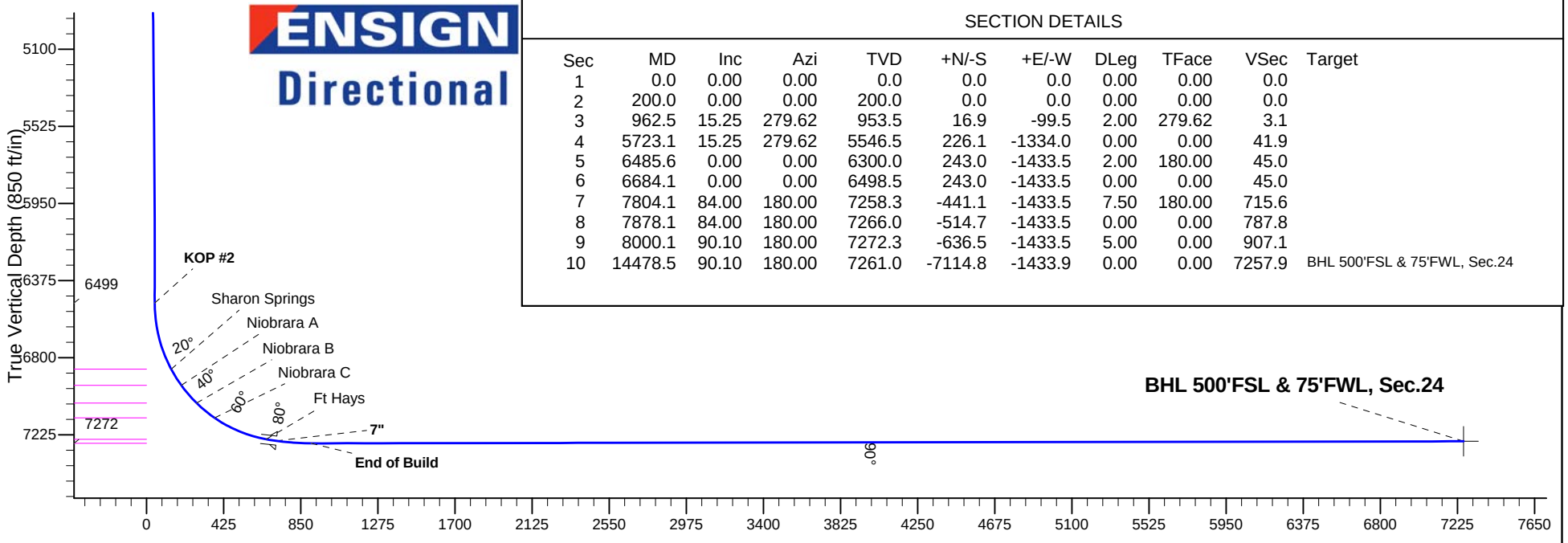
TVD	MD	Annotation
200.0	200.0	KOP #1
6498.5	6684.1	KOP #2
7272.3	8000.1	End of Build



ENSIGN Directional

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
3	962.5	15.25	279.62	953.5	16.9	-99.5	2.00	279.62	3.1	
4	5723.1	15.25	279.62	5546.5	226.1	-1334.0	0.00	0.00	41.9	
5	6485.6	0.00	0.00	6300.0	243.0	-1433.5	2.00	180.00	45.0	
6	6684.1	0.00	0.00	6498.5	243.0	-1433.5	0.00	0.00	45.0	
7	7804.1	84.00	180.00	7258.3	-441.1	-1433.5	7.50	180.00	715.6	
8	7878.1	84.00	180.00	7266.0	-514.7	-1433.5	0.00	0.00	787.8	
9	8000.1	90.10	180.00	7272.3	-636.5	-1433.5	5.00	0.00	907.1	
10	14478.5	90.10	180.00	7261.0	-7114.8	-1433.9	0.00	0.00	7257.9	BHL 500'FSL & 75'FWL, Sec.24



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.13-T4N-R67W
Stroh 13GK-HZ Pad Sec. 13-T4N-R67W
Stroh 13G-403

Wellbore #1

Plan: Plan #1 (3-11-14)

Standard Planning Report

01 April, 2014

Database:	landmark	**Local Co-ordinate Reference:**	Well Stroh 13G-403
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**TVD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Project:	SEC.13-T4N-R67W	**MD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**North Reference:**	True
Well:	Stroh 13G-403	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (3-11-14)		

Project SEC.13-T4N-R67W, Weld County, Colorado

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

Site Stroh 13GK-HZ Pad Sec. 13-T4N-R67W

Site Position:		**Northing:**	1,356,827.56 ft	**Latitude:**	40.311030
From:	Lat/Long	**Easting:**	3,183,166.78 ft	**Longitude:**	-104.843190
Position Uncertainty:	0.0 ft	**Slot Radius:**	"	**Grid Convergence:**	0.42 °

Well Stroh 13G-403

Well Position	**+N/-S**	0.0 ft	**Northing:**	1,356,827.55 ft	**Latitude:**	40.311030
	+E/-W	0.0 ft	**Easting:**	3,183,166.78 ft	**Longitude:**	-104.843190
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	4,806.0 ft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	3/11/2014	8.53	66.87	52,788

Design Plan #1 (3-11-14)

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	191.39

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
962.5	15.25	279.62	953.5	16.9	-99.5	2.00	2.00	0.00	279.62	
5,723.1	15.25	279.62	5,546.5	226.1	-1,334.0	0.00	0.00	0.00	0.00	
6,485.6	0.00	0.00	6,300.0	243.0	-1,433.5	2.00	-2.00	0.00	180.00	
6,684.1	0.00	0.00	6,498.5	243.0	-1,433.5	0.00	0.00	0.00	0.00	
7,804.1	84.00	180.00	7,258.3	-441.1	-1,433.5	7.50	7.50	0.00	180.00	
7,878.1	84.00	180.00	7,266.0	-514.7	-1,433.5	0.00	0.00	0.00	0.00	
8,000.1	90.10	180.00	7,272.3	-636.5	-1,433.5	5.00	5.00	0.00	0.00	
14,478.5	90.10	180.00	7,261.0	-7,114.8	-1,433.9	0.00	0.00	0.00	0.00	BHL 500'FSL & 75'I

Database:	landmark	**Local Co-ordinate Reference:**	Well Stroh 13G-403
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Project:	SEC.13-T4N-R67W	**MD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**North Reference:**	True
Well:	Stroh 13G-403	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (3-11-14)		

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 2352'FSL & 1526'FWL, Sec.13									
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
KOP #1									
300.0	2.00	279.62	300.0	0.3	-1.7	0.1	2.00	2.00	0.00
400.0	4.00	279.62	399.8	1.2	-6.9	0.2	2.00	2.00	0.00
500.0	6.00	279.62	499.5	2.6	-15.5	0.5	2.00	2.00	0.00
600.0	8.00	279.62	598.7	4.7	-27.5	0.9	2.00	2.00	0.00
700.0	10.00	279.62	697.5	7.3	-42.9	1.3	2.00	2.00	0.00
800.0	12.00	279.62	795.6	10.5	-61.7	1.9	2.00	2.00	0.00
900.0	14.00	279.62	893.1	14.2	-83.9	2.6	2.00	2.00	0.00
962.5	15.25	279.62	953.5	16.9	-99.5	3.1	2.00	2.00	0.00
1,000.0	15.25	279.62	989.7	18.5	-109.2	3.4	0.00	0.00	0.00
1,100.0	15.25	279.62	1,086.2	22.9	-135.1	4.2	0.00	0.00	0.00
1,200.0	15.25	279.62	1,182.7	27.3	-161.0	5.1	0.00	0.00	0.00
1,300.0	15.25	279.62	1,279.1	31.7	-187.0	5.9	0.00	0.00	0.00
1,400.0	15.25	279.62	1,375.6	36.1	-212.9	6.7	0.00	0.00	0.00
1,500.0	15.25	279.62	1,472.1	40.5	-238.8	7.5	0.00	0.00	0.00
1,600.0	15.25	279.62	1,568.6	44.9	-264.8	8.3	0.00	0.00	0.00
1,700.0	15.25	279.62	1,665.1	49.3	-290.7	9.1	0.00	0.00	0.00
1,800.0	15.25	279.62	1,761.5	53.7	-316.6	9.9	0.00	0.00	0.00
1,900.0	15.25	279.62	1,858.0	58.1	-342.6	10.8	0.00	0.00	0.00
2,000.0	15.25	279.62	1,954.5	62.5	-368.5	11.6	0.00	0.00	0.00
2,100.0	15.25	279.62	2,051.0	66.9	-394.4	12.4	0.00	0.00	0.00
2,200.0	15.25	279.62	2,147.5	71.3	-420.4	13.2	0.00	0.00	0.00
2,300.0	15.25	279.62	2,243.9	75.7	-446.3	14.0	0.00	0.00	0.00
2,400.0	15.25	279.62	2,340.4	80.1	-472.2	14.8	0.00	0.00	0.00
2,500.0	15.25	279.62	2,436.9	84.5	-498.2	15.6	0.00	0.00	0.00
2,600.0	15.25	279.62	2,533.4	88.8	-524.1	16.5	0.00	0.00	0.00
2,700.0	15.25	279.62	2,629.8	93.2	-550.0	17.3	0.00	0.00	0.00
2,800.0	15.25	279.62	2,726.3	97.6	-576.0	18.1	0.00	0.00	0.00
2,900.0	15.25	279.62	2,822.8	102.0	-601.9	18.9	0.00	0.00	0.00
3,000.0	15.25	279.62	2,919.3	106.4	-627.8	19.7	0.00	0.00	0.00
3,100.0	15.25	279.62	3,015.8	110.8	-653.8	20.5	0.00	0.00	0.00
3,200.0	15.25	279.62	3,112.2	115.2	-679.7	21.3	0.00	0.00	0.00
3,300.0	15.25	279.62	3,208.7	119.6	-705.6	22.1	0.00	0.00	0.00
3,400.0	15.25	279.62	3,305.2	124.0	-731.6	23.0	0.00	0.00	0.00
3,500.0	15.25	279.62	3,401.7	128.4	-757.5	23.8	0.00	0.00	0.00
3,600.0	15.25	279.62	3,498.2	132.8	-783.4	24.6	0.00	0.00	0.00
3,700.0	15.25	279.62	3,594.6	137.2	-809.4	25.4	0.00	0.00	0.00
3,800.0	15.25	279.62	3,691.1	141.6	-835.3	26.2	0.00	0.00	0.00
3,900.0	15.25	279.62	3,787.6	146.0	-861.2	27.0	0.00	0.00	0.00
4,000.0	15.25	279.62	3,884.1	150.4	-887.2	27.8	0.00	0.00	0.00
4,100.0	15.25	279.62	3,980.5	154.8	-913.1	28.7	0.00	0.00	0.00
4,200.0	15.25	279.62	4,077.0	159.2	-939.0	29.5	0.00	0.00	0.00
4,300.0	15.25	279.62	4,173.5	163.6	-965.0	30.3	0.00	0.00	0.00
4,400.0	15.25	279.62	4,270.0	168.0	-990.9	31.1	0.00	0.00	0.00
4,500.0	15.25	279.62	4,366.5	172.4	-1,016.8	31.9	0.00	0.00	0.00
4,600.0	15.25	279.62	4,462.9	176.8	-1,042.8	32.7	0.00	0.00	0.00
4,700.0	15.25	279.62	4,559.4	181.2	-1,068.7	33.5	0.00	0.00	0.00
4,800.0	15.25	279.62	4,655.9	185.6	-1,094.6	34.4	0.00	0.00	0.00

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Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**North Reference:**	True
Well:	Stroh 13G-403	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (3-11-14)		

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)
4,900.0	15.25	279.62	4,752.4	190.0	-1,120.6	35.2	0.00	0.00	0.00
5,000.0	15.25	279.62	4,848.9	194.4	-1,146.5	36.0	0.00	0.00	0.00
5,100.0	15.25	279.62	4,945.3	198.7	-1,172.4	36.8	0.00	0.00	0.00
5,200.0	15.25	279.62	5,041.8	203.1	-1,198.4	37.6	0.00	0.00	0.00
5,300.0	15.25	279.62	5,138.3	207.5	-1,224.3	38.4	0.00	0.00	0.00
5,400.0	15.25	279.62	5,234.8	211.9	-1,250.2	39.2	0.00	0.00	0.00
5,500.0	15.25	279.62	5,331.3	216.3	-1,276.2	40.1	0.00	0.00	0.00
5,600.0	15.25	279.62	5,427.7	220.7	-1,302.1	40.9	0.00	0.00	0.00
5,700.0	15.25	279.62	5,524.2	225.1	-1,328.0	41.7	0.00	0.00	0.00
5,723.1	15.25	279.62	5,546.5	226.1	-1,334.0	41.9	0.00	0.00	0.00
5,800.0	13.71	279.62	5,620.9	229.4	-1,353.0	42.5	2.00	-2.00	0.00
5,900.0	11.71	279.62	5,718.5	233.0	-1,374.7	43.1	2.00	-2.00	0.00
6,000.0	9.71	279.62	5,816.7	236.1	-1,393.0	43.7	2.00	-2.00	0.00
6,100.0	7.71	279.62	5,915.6	238.7	-1,407.9	44.2	2.00	-2.00	0.00
6,200.0	5.71	279.62	6,014.9	240.6	-1,419.5	44.6	2.00	-2.00	0.00
6,300.0	3.71	279.62	6,114.6	242.0	-1,427.6	44.8	2.00	-2.00	0.00
6,400.0	1.71	279.62	6,214.4	242.8	-1,432.2	45.0	2.00	-2.00	0.00
6,485.6	0.00	0.00	6,300.0	243.0	-1,433.5	45.0	2.00	-2.00	0.00
6,500.0	0.00	0.00	6,314.4	243.0	-1,433.5	45.0	0.00	0.00	0.00
6,600.0	0.00	0.00	6,414.4	243.0	-1,433.5	45.0	0.00	0.00	0.00
6,684.1	0.00	0.00	6,498.5	243.0	-1,433.5	45.0	0.00	0.00	0.00
KOP #2									
6,700.0	1.19	180.00	6,514.4	242.8	-1,433.5	45.2	7.49	7.49	0.00
6,800.0	8.69	180.00	6,614.0	234.2	-1,433.5	53.6	7.50	7.50	0.00
6,900.0	16.19	180.00	6,711.6	212.7	-1,433.5	74.7	7.50	7.50	0.00
7,000.0	23.69	180.00	6,805.5	178.6	-1,433.5	108.1	7.50	7.50	0.00
7,064.0	28.49	180.00	6,863.0	150.5	-1,433.5	135.7	7.50	7.50	0.00
Sharon Springs									
7,100.0	31.19	180.00	6,894.2	132.6	-1,433.5	153.3	7.50	7.50	0.00
7,169.6	36.41	180.00	6,952.0	93.9	-1,433.5	191.2	7.50	7.50	0.00
Niobrara A									
7,200.0	38.69	180.00	6,976.1	75.3	-1,433.5	209.4	7.50	7.50	0.00
7,300.0	46.19	180.00	7,049.8	7.9	-1,433.5	275.5	7.50	7.50	0.00
7,300.2	46.19	180.00	7,050.0	7.7	-1,433.5	275.6	0.00	0.00	0.00
Niobrara B									
7,400.0	53.69	180.00	7,114.2	-68.6	-1,433.5	350.4	7.52	7.52	0.00
7,431.0	56.02	180.00	7,132.0	-93.9	-1,433.5	375.3	7.50	7.50	0.00
Niobrara C									
7,500.0	61.19	180.00	7,167.9	-152.8	-1,433.5	433.0	7.50	7.50	0.00
7,600.0	68.69	180.00	7,210.3	-243.3	-1,433.5	521.8	7.50	7.50	0.00
7,700.0	76.19	180.00	7,240.4	-338.6	-1,433.5	615.1	7.50	7.50	0.00
7,745.8	79.63	180.00	7,250.0	-383.4	-1,433.5	659.1	7.50	7.50	0.00
Ft Hays									
7,800.0	83.69	180.00	7,257.9	-437.0	-1,433.5	711.6	7.50	7.50	0.00
7,804.1	84.00	180.00	7,258.3	-441.1	-1,433.5	715.6	7.50	7.50	0.00
7"									
7,878.1	84.00	180.00	7,266.0	-514.7	-1,433.5	787.8	0.00	0.00	0.00
7,900.0	85.09	180.00	7,268.1	-536.5	-1,433.5	809.1	5.00	5.00	0.00
7,971.5	88.67	180.00	7,272.0	-607.9	-1,433.5	879.1	5.00	5.00	0.00
Codell									
8,000.0	90.09	180.00	7,272.3	-636.4	-1,433.5	907.0	5.00	5.00	0.00
8,000.1	90.10	180.00	7,272.3	-636.5	-1,433.5	907.1	5.00	5.00	0.00

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Well:	Stroh 13G-403	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (3-11-14)		

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)
End of Build									
8,100.0	90.10	180.00	7,272.1	-736.4	-1,433.5	1,005.1	0.00	0.00	0.00
8,200.0	90.10	180.00	7,272.0	-836.4	-1,433.5	1,103.1	0.00	0.00	0.00
8,300.0	90.10	180.00	7,271.8	-936.4	-1,433.6	1,201.1	0.00	0.00	0.00
8,400.0	90.10	180.00	7,271.6	-1,036.4	-1,433.6	1,299.1	0.00	0.00	0.00
8,500.0	90.10	180.00	7,271.4	-1,136.4	-1,433.6	1,397.2	0.00	0.00	0.00
8,600.0	90.10	180.00	7,271.3	-1,236.4	-1,433.6	1,495.2	0.00	0.00	0.00
8,700.0	90.10	180.00	7,271.1	-1,336.4	-1,433.6	1,593.2	0.00	0.00	0.00
8,800.0	90.10	180.00	7,270.9	-1,436.4	-1,433.6	1,691.3	0.00	0.00	0.00
8,900.0	90.10	180.00	7,270.7	-1,536.4	-1,433.6	1,789.3	0.00	0.00	0.00
9,000.0	90.10	180.00	7,270.6	-1,636.4	-1,433.6	1,887.3	0.00	0.00	0.00
9,100.0	90.10	180.00	7,270.4	-1,736.4	-1,433.6	1,985.4	0.00	0.00	0.00
9,200.0	90.10	180.00	7,270.2	-1,836.4	-1,433.6	2,083.4	0.00	0.00	0.00
9,300.0	90.10	180.00	7,270.0	-1,936.4	-1,433.6	2,181.4	0.00	0.00	0.00
9,400.0	90.10	180.00	7,269.9	-2,036.4	-1,433.6	2,279.4	0.00	0.00	0.00
9,500.0	90.10	180.00	7,269.7	-2,136.4	-1,433.6	2,377.5	0.00	0.00	0.00
9,600.0	90.10	180.00	7,269.5	-2,236.4	-1,433.6	2,475.5	0.00	0.00	0.00
9,700.0	90.10	180.00	7,269.3	-2,336.4	-1,433.6	2,573.5	0.00	0.00	0.00
9,800.0	90.10	180.00	7,269.2	-2,436.4	-1,433.6	2,671.6	0.00	0.00	0.00
9,900.0	90.10	180.00	7,269.0	-2,536.4	-1,433.6	2,769.6	0.00	0.00	0.00
10,000.0	90.10	180.00	7,268.8	-2,636.4	-1,433.6	2,867.6	0.00	0.00	0.00
10,100.0	90.10	180.00	7,268.6	-2,736.3	-1,433.7	2,965.7	0.00	0.00	0.00
10,200.0	90.10	180.00	7,268.5	-2,836.3	-1,433.7	3,063.7	0.00	0.00	0.00
10,300.0	90.10	180.00	7,268.3	-2,936.3	-1,433.7	3,161.7	0.00	0.00	0.00
10,400.0	90.10	180.00	7,268.1	-3,036.3	-1,433.7	3,259.7	0.00	0.00	0.00
10,500.0	90.10	180.00	7,267.9	-3,136.3	-1,433.7	3,357.8	0.00	0.00	0.00
10,600.0	90.10	180.00	7,267.8	-3,236.3	-1,433.7	3,455.8	0.00	0.00	0.00
10,700.0	90.10	180.00	7,267.6	-3,336.3	-1,433.7	3,553.8	0.00	0.00	0.00
10,800.0	90.10	180.00	7,267.4	-3,436.3	-1,433.7	3,651.9	0.00	0.00	0.00
10,900.0	90.10	180.00	7,267.2	-3,536.3	-1,433.7	3,749.9	0.00	0.00	0.00
11,000.0	90.10	180.00	7,267.1	-3,636.3	-1,433.7	3,847.9	0.00	0.00	0.00
11,100.0	90.10	180.00	7,266.9	-3,736.3	-1,433.7	3,946.0	0.00	0.00	0.00
11,200.0	90.10	180.00	7,266.7	-3,836.3	-1,433.7	4,044.0	0.00	0.00	0.00
11,300.0	90.10	180.00	7,266.5	-3,936.3	-1,433.7	4,142.0	0.00	0.00	0.00
11,400.0	90.10	180.00	7,266.4	-4,036.3	-1,433.7	4,240.0	0.00	0.00	0.00
11,500.0	90.10	180.00	7,266.2	-4,136.3	-1,433.7	4,338.1	0.00	0.00	0.00
11,600.0	90.10	180.00	7,266.0	-4,236.3	-1,433.7	4,436.1	0.00	0.00	0.00
11,700.0	90.10	180.00	7,265.8	-4,336.3	-1,433.7	4,534.1	0.00	0.00	0.00
11,800.0	90.10	180.00	7,265.7	-4,436.3	-1,433.7	4,632.2	0.00	0.00	0.00
11,900.0	90.10	180.00	7,265.5	-4,536.3	-1,433.8	4,730.2	0.00	0.00	0.00
12,000.0	90.10	180.00	7,265.3	-4,636.3	-1,433.8	4,828.2	0.00	0.00	0.00
12,100.0	90.10	180.00	7,265.2	-4,736.3	-1,433.8	4,926.3	0.00	0.00	0.00
12,200.0	90.10	180.00	7,265.0	-4,836.3	-1,433.8	5,024.3	0.00	0.00	0.00
12,300.0	90.10	180.00	7,264.8	-4,936.3	-1,433.8	5,122.3	0.00	0.00	0.00
12,400.0	90.10	180.00	7,264.6	-5,036.3	-1,433.8	5,220.3	0.00	0.00	0.00
12,500.0	90.10	180.00	7,264.5	-5,136.3	-1,433.8	5,318.4	0.00	0.00	0.00
12,600.0	90.10	180.00	7,264.3	-5,236.3	-1,433.8	5,416.4	0.00	0.00	0.00
12,700.0	90.10	180.00	7,264.1	-5,336.3	-1,433.8	5,514.4	0.00	0.00	0.00
12,800.0	90.10	180.00	7,263.9	-5,436.3	-1,433.8	5,612.5	0.00	0.00	0.00
12,900.0	90.10	180.00	7,263.8	-5,536.3	-1,433.8	5,710.5	0.00	0.00	0.00
13,000.0	90.10	180.00	7,263.6	-5,636.3	-1,433.8	5,808.5	0.00	0.00	0.00
13,100.0	90.10	180.00	7,263.4	-5,736.3	-1,433.8	5,906.6	0.00	0.00	0.00

Database:	landmark	**Local Co-ordinate Reference:**	Well Stroh 13G-403
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**TVD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Project:	SEC.13-T4N-R67W	**MD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**North Reference:**	True
Well:	Stroh 13G-403	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (3-11-14)		

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)
13,200.0	90.10	180.00	7,263.2	-5,836.3	-1,433.8	6,004.6	0.00	0.00	0.00
13,300.0	90.10	180.00	7,263.1	-5,936.3	-1,433.8	6,102.6	0.00	0.00	0.00
13,400.0	90.10	180.00	7,262.9	-6,036.3	-1,433.8	6,200.6	0.00	0.00	0.00
13,500.0	90.10	180.00	7,262.7	-6,136.3	-1,433.8	6,298.7	0.00	0.00	0.00
13,600.0	90.10	180.00	7,262.5	-6,236.3	-1,433.8	6,396.7	0.00	0.00	0.00
13,700.0	90.10	180.00	7,262.4	-6,336.3	-1,433.9	6,494.7	0.00	0.00	0.00
13,800.0	90.10	180.00	7,262.2	-6,436.3	-1,433.9	6,592.8	0.00	0.00	0.00
13,900.0	90.10	180.00	7,262.0	-6,536.3	-1,433.9	6,690.8	0.00	0.00	0.00
14,000.0	90.10	180.00	7,261.8	-6,636.3	-1,433.9	6,788.8	0.00	0.00	0.00
14,100.0	90.10	180.00	7,261.7	-6,736.3	-1,433.9	6,886.9	0.00	0.00	0.00
14,200.0	90.10	180.00	7,261.5	-6,836.3	-1,433.9	6,984.9	0.00	0.00	0.00
14,300.0	90.10	180.00	7,261.3	-6,936.3	-1,433.9	7,082.9	0.00	0.00	0.00
14,400.0	90.10	180.00	7,261.1	-7,036.3	-1,433.9	7,180.9	0.00	0.00	0.00
14,478.5	90.10	180.00	7,261.0	-7,114.8	-1,433.9	7,257.9	0.00	0.00	0.00
BHL 500'FSL & 75'FWL, Sec.24									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,804.1	7,258.3	7"	7	7-1/2

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
7,064.0	6,863.0	Sharon Springs		0.00	
7,169.6	6,952.0	Niobrara A		0.00	
7,300.2	7,050.0	Niobrara B		0.00	
7,431.0	7,132.0	Niobrara C		0.00	
7,745.8	7,250.0	Ft Hays		0.00	
7,971.5	7,272.0	Codell		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
200.0	200.0	0.0	0.0	KOP #1
6,684.1	6,498.5	243.0	-1,433.5	KOP #2
8,000.1	7,272.3	-636.5	-1,433.5	End of Build

ENSIGN Directional

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.13-T4N-R67W
Stroh 13GK-HZ Pad Sec. 13-T4N-R67W
Stroh 13G-403

Wellbore #1
Plan #1 (3-11-14)

Anticollision Report

01 April, 2014

PDC ENERGY
Growing E&P Value

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13G-403
Project:	SEC.13-T4N-R67W	**TVD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**MD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Stroh 13G-403	**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 (3-11-14)	**Offset TVD Reference:**	Offset Datum

Reference Plan #1 (3-11-14)

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 1,000.0ft	**Error Surface:**	Elliptical Conic

Warning Levels Evaluated at: 2.00 **Sigma**

Survey Tool Program **Date** 4/1/2014

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	14,478.5	Plan #1 (3-11-14) (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.13-T4N-R67W						
Earlich 23-41 (Exist) - Wellbore #1 - Wellbore #1	12,981.2	7,218.6	368.2	113.6	1.446	Level 3, CC, ES
Earlich 23-41 (Exist) - Wellbore #1 - Wellbore #1	13,000.0	7,218.6	368.7	113.7	1.446	Level 3, SF
Matt 1 (Exist) - Wellbore #1 - Wellbore #1	12,973.9	7,171.6	418.4	164.9	1.650	CC, ES
Matt 1 (Exist) - Wellbore #1 - Wellbore #1	13,000.0	7,171.6	419.2	165.2	1.650	SF
Stroh 24-12 (Exist) - Wellbore #1 - Wellbore #1	11,877.5	7,200.0	458.3	227.2	1.983	CC, ES
Stroh 24-12 (Exist) - Wellbore #1 - Wellbore #1	11,900.0	7,200.0	458.9	227.3	1.982	SF
Stroh 24-22 (Exist) - Wellbore #1 - Wellbore #1	10,449.3	7,266.0	390.5	182.3	1.876	CC, ES, SF
Stroh O 13-20 (Exist) - Wellbore #1 - Wellbore #1	1,358.8	1,323.8	101.9	70.5	3.245	CC
Stroh O 13-20 (Exist) - Wellbore #1 - Wellbore #1	1,400.0	1,363.6	102.5	70.1	3.164	ES
Stroh O 13-20 (Exist) - Wellbore #1 - Wellbore #1	1,500.0	1,460.1	108.5	73.9	3.137	SF
Stroh PC O13-79HN (Exist) - Wellbore #1 - Wellbore #1	9,458.5	7,200.0	208.6	40.5	1.241	Level 2, CC, ES, SF
UPRC 13-12E (Exist.) - Wellbore #1 - Wellbore #1	3,609.0	3,501.9	471.3	383.7	5.378	CC
UPRC 13-12E (Exist.) - Wellbore #1 - Wellbore #1	3,800.0	3,686.1	474.0	381.7	5.133	ES
UPRC 13-12E (Exist.) - Wellbore #1 - Wellbore #1	7,700.0	7,235.4	569.0	404.4	3.457	SF
UPRC 13-13E (Exist) - Wellbore #1 - Wellbore #1	8,875.5	7,285.8	580.1	399.3	3.207	CC, ES
UPRC 13-13E (Exist) - Wellbore #1 - Wellbore #1	8,900.0	7,285.7	580.7	399.4	3.203	SF
Stroh 13GK-HZ Pad Sec. 13-T4N-R67W						
Stroh 13G-323 - Wellbore #1 - Plan #1 (3-11-14)	200.0	199.0	30.7	30.0	45.648	CC, ES
Stroh 13G-323 - Wellbore #1 - Plan #1 (3-11-14)	14,478.5	14,261.8	304.7	42.0	1.160	Level 2, SF
Stroh 13K-203 - Wellbore #1 - Plan #1 (3-11-14)	200.0	199.0	89.2	88.6	132.794	CC, ES
Stroh 13K-203 - Wellbore #1 - Plan #1 (3-11-14)	3,800.0	3,744.0	772.3	751.8	37.746	SF
Stroh 13K-423 - Wellbore #1 - Plan #1 (3-11-14)	200.0	199.0	119.9	119.2	178.442	CC, ES
Stroh 13K-423 - Wellbore #1 - Plan #1 (3-11-14)	900.0	892.1	204.3	200.4	52.766	SF
Stroh 13K-443 - Wellbore #1 - Plan #1 (3-11-14)	200.0	199.0	61.4	60.7	91.296	CC, ES
Stroh 13K-443 - Wellbore #1 - Plan #1 (3-11-14)	14,478.5	14,183.4	905.2	629.0	3.277	SF
Stroh 13O-343 - Wellbore #1 - Plan #1 (3-11-14)	200.0	198.0	150.6	149.9	224.842	CC, ES
Stroh 13O-343 - Wellbore #1 - Plan #1 (3-11-14)	1,300.0	1,269.8	339.9	334.1	58.956	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13G-403
Project:	SEC.13-T4N-R67W	**TVD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**MD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Stroh 13G-403	**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 (3-11-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells - Sec.13-T4N-R67W - Earlich 23-41 (Exist) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 7440-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
12,100.0	7,265.2	7,220.2	7,220.2	96.1	144.4	90.24	-5,617.5	-1,802.0	955.0	717.0	238.01	4.013	
12,200.0	7,265.0	7,220.0	7,220.0	98.0	144.4	90.21	-5,617.5	-1,802.0	863.6	623.7	239.89	3.600	
12,300.0	7,264.8	7,219.8	7,219.8	99.8	144.4	90.19	-5,617.5	-1,802.0	774.4	532.6	241.77	3.203	
12,400.0	7,264.6	7,219.6	7,219.6	101.6	144.4	90.16	-5,617.5	-1,802.0	688.0	444.4	243.65	2.824	
12,500.0	7,264.5	7,219.5	7,219.5	103.5	144.4	90.13	-5,617.5	-1,802.0	605.9	360.4	245.54	2.468	
12,600.0	7,264.3	7,219.3	7,219.3	105.3	144.4	90.10	-5,617.5	-1,802.0	530.0	282.6	247.43	2.142	
12,700.0	7,264.1	7,219.1	7,219.1	107.2	144.4	90.08	-5,617.5	-1,802.0	463.3	214.0	249.32	1.858	
12,800.0	7,263.9	7,218.9	7,218.9	109.0	144.4	90.05	-5,617.5	-1,802.0	410.4	159.2	251.20	1.634	
12,900.0	7,263.8	7,218.8	7,218.8	110.9	144.4	90.02	-5,617.5	-1,802.0	377.1	124.0	253.09	1.490	Level 3
12,981.2	7,263.6	7,218.6	7,218.6	112.4	144.4	90.00	-5,617.5	-1,802.0	368.2	113.6	254.63	1.446	Level 3, CC, ES
13,000.0	7,263.6	7,218.6	7,218.6	112.7	144.4	89.99	-5,617.5	-1,802.0	368.7	113.7	254.98	1.446	Level 3, SF
13,100.0	7,263.4	7,218.4	7,218.4	114.6	144.4	89.97	-5,617.5	-1,802.0	386.9	130.0	256.88	1.506	
13,200.0	7,263.2	7,218.2	7,218.2	116.5	144.4	89.94	-5,617.5	-1,802.0	428.3	169.5	258.77	1.655	
13,300.0	7,263.1	7,218.1	7,218.1	118.3	144.4	89.91	-5,617.5	-1,802.0	487.0	226.4	260.66	1.868	
13,400.0	7,262.9	7,217.9	7,217.9	120.2	144.4	89.89	-5,617.5	-1,802.0	557.6	295.1	262.56	2.124	
13,500.0	7,262.7	7,217.7	7,217.7	122.0	144.4	89.86	-5,617.5	-1,802.0	636.2	371.7	264.45	2.406	
13,600.0	7,262.5	7,217.5	7,217.5	123.9	144.4	89.83	-5,617.5	-1,802.0	720.1	453.7	266.35	2.703	
13,700.0	7,262.4	7,217.4	7,217.4	125.8	144.3	89.80	-5,617.5	-1,802.0	807.6	539.4	268.24	3.011	
13,800.0	7,262.2	7,217.2	7,217.2	127.7	144.3	89.78	-5,617.5	-1,802.0	897.8	627.6	270.14	3.323	
13,900.0	7,262.0	7,217.0	7,217.0	129.5	144.3	89.75	-5,617.5	-1,802.0	989.8	717.8	272.04	3.639	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13G-403
Project:	SEC.13-T4N-R67W	**TVD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**MD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Stroh 13G-403	**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 (3-11-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells - Sec.13-T4N-R67W - Matt 1 (Exist) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 7345-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
12,100.0	7,265.2	7,173.2	7,173.2	96.1	143.5	-90.21	-5,610.3	-1,015.4	968.9	731.8	237.10	4.087	
12,200.0	7,265.0	7,173.0	7,173.0	98.0	143.5	-90.18	-5,610.3	-1,015.4	879.8	640.8	238.98	3.681	
12,300.0	7,264.8	7,172.8	7,172.8	99.8	143.5	-90.16	-5,610.3	-1,015.4	793.3	552.4	240.86	3.293	
12,400.0	7,264.6	7,172.6	7,172.6	101.6	143.5	-90.14	-5,610.3	-1,015.4	710.3	467.5	242.74	2.926	
12,500.0	7,264.5	7,172.5	7,172.5	103.5	143.4	-90.11	-5,610.3	-1,015.4	632.2	387.6	244.62	2.584	
12,600.0	7,264.3	7,172.3	7,172.3	105.3	143.4	-90.09	-5,610.3	-1,015.4	561.2	314.7	246.50	2.277	
12,700.0	7,264.1	7,172.1	7,172.1	107.2	143.4	-90.07	-5,610.3	-1,015.4	500.1	251.7	248.39	2.013	
12,800.0	7,263.9	7,171.9	7,171.9	109.0	143.4	-90.04	-5,610.3	-1,015.4	453.1	202.9	250.27	1.811	
12,900.0	7,263.8	7,171.8	7,171.8	110.9	143.4	-90.02	-5,610.3	-1,015.4	424.9	172.8	252.16	1.685	
12,973.9	7,263.6	7,171.6	7,171.6	112.3	143.4	-90.00	-5,610.3	-1,015.4	418.4	164.9	253.55	1.650	CC, ES
13,000.0	7,263.6	7,171.6	7,171.6	112.7	143.4	-89.99	-5,610.3	-1,015.4	419.2	165.2	254.04	1.650	SF
13,100.0	7,263.4	7,171.4	7,171.4	114.6	143.4	-89.97	-5,610.3	-1,015.4	437.0	181.1	255.93	1.708	
13,200.0	7,263.2	7,171.2	7,171.2	116.5	143.4	-89.95	-5,610.3	-1,015.4	475.6	217.8	257.82	1.845	
13,300.0	7,263.1	7,171.1	7,171.1	118.3	143.4	-89.92	-5,610.3	-1,015.4	530.5	270.8	259.71	2.043	
13,400.0	7,262.9	7,170.9	7,170.9	120.2	143.4	-89.90	-5,610.3	-1,015.4	597.2	335.6	261.60	2.283	
13,500.0	7,262.7	7,170.7	7,170.7	122.0	143.4	-89.87	-5,610.3	-1,015.4	672.2	408.7	263.49	2.551	
13,600.0	7,262.5	7,170.5	7,170.5	123.9	143.4	-89.85	-5,610.3	-1,015.4	753.0	487.6	265.38	2.838	
13,700.0	7,262.4	7,170.4	7,170.4	125.8	143.4	-89.83	-5,610.3	-1,015.4	838.0	570.7	267.28	3.135	
13,800.0	7,262.2	7,170.2	7,170.2	127.7	143.4	-89.80	-5,610.3	-1,015.4	926.0	656.8	269.17	3.440	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13G-403
Project:	SEC.13-T4N-R67W	**TVD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**MD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Stroh 13G-403	**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 (3-11-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells - Sec.13-T4N-R67W - Stroh 24-12 (Exist) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 7200-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
11,000.0	7,267.1	7,200.0	7,200.0	76.2	144.0	-82.79	-4,513.7	-979.1	989.9	775.1	214.84	4.608	
11,100.0	7,266.9	7,200.0	7,200.0	78.0	144.0	-82.79	-4,513.7	-979.1	902.5	685.8	216.69	4.165	
11,200.0	7,266.7	7,200.0	7,200.0	79.8	144.0	-82.79	-4,513.7	-979.1	817.9	599.4	218.54	3.743	
11,300.0	7,266.5	7,200.0	7,200.0	81.6	144.0	-82.79	-4,513.7	-979.1	737.2	516.8	220.40	3.345	
11,400.0	7,266.4	7,200.0	7,200.0	83.4	144.0	-82.79	-4,513.7	-979.1	661.8	439.6	222.25	2.978	
11,500.0	7,266.2	7,200.0	7,200.0	85.2	144.0	-82.79	-4,513.7	-979.1	593.7	369.6	224.11	2.649	
11,600.0	7,266.0	7,200.0	7,200.0	87.0	144.0	-82.79	-4,513.7	-979.1	535.7	309.8	225.97	2.371	
11,700.0	7,265.8	7,200.0	7,200.0	88.8	144.0	-82.79	-4,513.7	-979.1	491.5	263.6	227.84	2.157	
11,800.0	7,265.7	7,200.0	7,200.0	90.6	144.0	-82.79	-4,513.7	-979.1	464.8	235.1	229.70	2.024	
11,877.5	7,265.5	7,200.0	7,200.0	92.1	144.0	-82.79	-4,513.7	-979.1	458.3	227.2	231.15	1.983	CC, ES
11,900.0	7,265.5	7,200.0	7,200.0	92.5	144.0	-82.79	-4,513.7	-979.1	458.9	227.3	231.57	1.982	SF
12,000.0	7,265.3	7,200.0	7,200.0	94.3	144.0	-82.79	-4,513.7	-979.1	474.4	241.0	233.44	2.032	
12,100.0	7,265.2	7,200.0	7,200.0	96.1	144.0	-82.79	-4,513.7	-979.1	509.5	274.2	235.31	2.165	
12,200.0	7,265.0	7,200.0	7,200.0	98.0	144.0	-82.79	-4,513.7	-979.1	560.4	323.2	237.18	2.363	
12,300.0	7,264.8	7,200.0	7,200.0	99.8	144.0	-82.79	-4,513.7	-979.1	623.4	384.3	239.05	2.608	
12,400.0	7,264.6	7,200.0	7,200.0	101.6	144.0	-82.79	-4,513.7	-979.1	695.0	454.1	240.92	2.885	
12,500.0	7,264.5	7,200.0	7,200.0	103.5	144.0	-82.79	-4,513.7	-979.1	773.0	530.2	242.80	3.184	
12,600.0	7,264.3	7,200.0	7,200.0	105.3	144.0	-82.79	-4,513.7	-979.1	855.6	611.0	244.68	3.497	
12,700.0	7,264.1	7,200.0	7,200.0	107.2	144.0	-82.79	-4,513.7	-979.1	941.6	695.1	246.55	3.819	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13G-403
Project:	SEC.13-T4N-R67W	**TVD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**MD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Stroh 13G-403	**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 (3-11-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells - Sec.13-T4N-R67W - Stroh 24-22 (Exist) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 7500-UNKNOWN

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
9,600.0	7,269.5	7,267.5	7,267.5	52.4	145.4	-90.22	-3,085.7	-1,043.2	934.8	741.8	192.91	4.846	
9,700.0	7,269.3	7,267.3	7,267.3	54.0	145.3	-90.19	-3,085.7	-1,043.2	844.9	650.3	194.67	4.340	
9,800.0	7,269.2	7,267.2	7,267.2	55.6	145.3	-90.17	-3,085.7	-1,043.2	757.7	561.2	196.45	3.857	
9,900.0	7,269.0	7,267.0	7,267.0	57.3	145.3	-90.14	-3,085.7	-1,043.2	673.9	475.7	198.24	3.400	
10,000.0	7,268.8	7,266.8	7,266.8	58.9	145.3	-90.12	-3,085.7	-1,043.2	595.3	395.2	200.04	2.976	
10,100.0	7,268.6	7,266.6	7,266.6	60.6	145.3	-90.09	-3,085.7	-1,043.2	523.9	322.1	201.84	2.596	
10,200.0	7,268.5	7,266.5	7,266.5	62.3	145.3	-90.06	-3,085.7	-1,043.2	463.3	259.6	203.65	2.275	
10,300.0	7,268.3	7,266.3	7,266.3	64.0	145.3	-90.04	-3,085.7	-1,043.2	418.1	212.6	205.47	2.035	
10,400.0	7,268.1	7,266.1	7,266.1	65.7	145.3	-90.01	-3,085.7	-1,043.2	393.6	186.3	207.29	1.899	
10,449.3	7,268.0	7,266.0	7,266.0	66.6	145.3	-90.00	-3,085.7	-1,043.2	390.5	182.3	208.19	1.876	CC, ES, SF
10,500.0	7,267.9	7,265.9	7,265.9	67.4	145.3	-89.99	-3,085.7	-1,043.2	393.8	184.7	209.12	1.883	
10,600.0	7,267.8	7,265.8	7,265.8	69.2	145.3	-89.96	-3,085.7	-1,043.2	418.6	207.6	210.96	1.984	
10,700.0	7,267.6	7,265.6	7,265.6	70.9	145.3	-89.94	-3,085.7	-1,043.2	464.1	251.3	212.79	2.181	
10,800.0	7,267.4	7,265.4	7,265.4	72.7	145.3	-89.91	-3,085.7	-1,043.2	524.9	310.2	214.64	2.445	
10,900.0	7,267.2	7,265.2	7,265.2	74.5	145.3	-89.88	-3,085.7	-1,043.2	596.4	379.9	216.48	2.755	
11,000.0	7,267.1	7,265.1	7,265.1	76.2	145.3	-89.86	-3,085.7	-1,043.2	675.1	456.8	218.33	3.092	
11,100.0	7,266.9	7,264.9	7,264.9	78.0	145.3	-89.83	-3,085.7	-1,043.2	758.9	538.7	220.18	3.447	
11,200.0	7,266.7	7,264.7	7,264.7	79.8	145.3	-89.81	-3,085.7	-1,043.2	846.2	624.2	222.04	3.811	
11,300.0	7,266.5	7,264.5	7,264.5	81.6	145.3	-89.78	-3,085.7	-1,043.2	936.1	712.2	223.90	4.181	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13G-403
Project:	SEC.13-T4N-R67W	**TVD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**MD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Stroh 13G-403	**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 (3-11-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells - Sec.13-T4N-R67W - Stroh O 13-20 (Exist) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 7438-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	-53.95	134.8	-185.2	229.4				
100.0	100.0	88.0	88.0	0.1	1.8	-53.95	134.8	-185.2	229.0	227.2	1.87	122.315	
200.0	200.0	188.0	188.0	0.3	3.8	-53.95	134.8	-185.2	229.0	224.9	4.10	55.901	
300.0	300.0	288.0	288.0	0.6	5.8	26.64	134.8	-185.2	227.5	221.2	6.31	36.042	
400.0	399.8	387.8	387.8	0.8	7.8	27.29	134.8	-185.2	222.8	214.3	8.52	26.163	
500.0	499.5	487.5	487.5	1.0	9.7	28.42	134.8	-185.2	215.1	204.4	10.71	20.077	
600.0	598.7	586.7	586.7	1.3	11.7	30.15	134.8	-185.2	204.5	191.6	12.90	15.846	
700.0	697.5	685.5	685.5	1.7	13.7	32.65	134.8	-185.2	191.1	176.0	15.09	12.661	
800.0	795.6	783.6	783.6	2.0	15.7	36.18	134.8	-185.2	175.2	157.9	17.29	10.133	
900.0	893.1	881.1	881.1	2.5	17.6	41.20	134.8	-185.2	157.5	137.9	19.55	8.055	
1,000.0	989.7	977.7	977.7	3.0	19.6	48.23	134.8	-185.2	138.9	117.0	21.96	6.327	
1,100.0	1,086.2	1,074.2	1,074.2	3.5	21.5	57.21	134.8	-185.2	122.6	98.0	24.55	4.993	
1,200.0	1,182.7	1,170.7	1,170.7	4.1	23.4	68.44	134.8	-185.2	110.2	82.9	27.25	4.043	
1,300.0	1,279.1	1,267.1	1,267.1	4.6	25.3	81.68	134.8	-185.2	103.1	73.2	29.93	3.446	
1,358.8	1,335.8	1,323.8	1,323.8	4.9	26.5	90.00	134.8	-185.2	101.9	70.5	31.42	3.245	CC
1,400.0	1,375.6	1,363.6	1,363.6	5.2	27.3	95.86	134.8	-185.2	102.5	70.1	32.41	3.164	ES
1,500.0	1,472.1	1,460.1	1,460.1	5.7	29.2	109.37	134.8	-185.2	108.5	73.9	34.59	3.137	SF
1,600.0	1,568.6	1,556.6	1,556.6	6.3	31.1	120.98	134.8	-185.2	120.1	83.5	36.54	3.286	
1,700.0	1,665.1	1,653.1	1,653.1	6.8	33.1	130.35	134.8	-185.2	135.8	97.4	38.39	3.538	
1,800.0	1,761.5	1,749.5	1,749.5	7.4	35.0	137.68	134.8	-185.2	154.5	114.3	40.23	3.840	
1,900.0	1,858.0	1,846.0	1,846.0	8.0	36.9	143.42	134.8	-185.2	175.1	133.0	42.10	4.159	
2,000.0	1,954.5	1,942.5	1,942.5	8.5	38.9	147.93	134.8	-185.2	197.1	153.1	44.01	4.478	
2,100.0	2,051.0	2,039.0	2,039.0	9.1	40.8	151.54	134.8	-185.2	220.0	174.0	45.97	4.786	
2,200.0	2,147.5	2,135.5	2,135.5	9.6	42.7	154.47	134.8	-185.2	243.6	195.7	47.96	5.080	
2,300.0	2,243.9	2,231.9	2,231.9	10.2	44.6	156.89	134.8	-185.2	267.7	217.8	49.98	5.357	
2,400.0	2,340.4	2,328.4	2,328.4	10.8	46.6	158.90	134.8	-185.2	292.2	240.2	52.02	5.618	
2,500.0	2,436.9	2,424.9	2,424.9	11.3	48.5	160.61	134.8	-185.2	317.0	262.9	54.08	5.862	
2,600.0	2,533.4	2,521.4	2,521.4	11.9	50.4	162.07	134.8	-185.2	342.0	285.9	56.16	6.091	
2,700.0	2,629.8	2,617.8	2,617.8	12.5	52.4	163.33	134.8	-185.2	367.2	309.0	58.24	6.305	
2,800.0	2,726.3	2,714.3	2,714.3	13.0	54.3	164.42	134.8	-185.2	392.6	332.2	60.34	6.506	
2,900.0	2,822.8	2,810.8	2,810.8	13.6	56.2	165.39	134.8	-185.2	418.0	355.6	62.44	6.695	
3,000.0	2,919.3	2,907.3	2,907.3	14.2	58.1	166.25	134.8	-185.2	443.6	379.0	64.55	6.872	
3,100.0	3,015.8	3,003.8	3,003.8	14.7	60.1	167.01	134.8	-185.2	469.2	402.5	66.67	7.038	
3,200.0	3,112.2	3,100.2	3,100.2	15.3	62.0	167.69	134.8	-185.2	494.9	426.1	68.79	7.195	
3,300.0	3,208.7	3,196.7	3,196.7	15.9	63.9	168.31	134.8	-185.2	520.7	449.8	70.91	7.343	
3,400.0	3,305.2	3,293.2	3,293.2	16.4	65.9	168.87	134.8	-185.2	546.5	473.5	73.03	7.483	
3,500.0	3,401.7	3,389.7	3,389.7	17.0	67.8	169.37	134.8	-185.2	572.4	497.2	75.16	7.615	
3,600.0	3,498.2	3,486.2	3,486.2	17.6	69.7	169.84	134.8	-185.2	598.3	521.0	77.30	7.740	
3,700.0	3,594.6	3,582.6	3,582.6	18.1	71.7	170.26	134.8	-185.2	624.2	544.8	79.43	7.859	
3,800.0	3,691.1	3,679.1	3,679.1	18.7	73.6	170.66	134.8	-185.2	650.2	568.6	81.56	7.971	
3,900.0	3,787.6	3,775.6	3,775.6	19.3	75.5	171.02	134.8	-185.2	676.2	592.5	83.70	8.078	
4,000.0	3,884.1	3,872.1	3,872.1	19.8	77.4	171.35	134.8	-185.2	702.2	616.3	85.84	8.180	
4,100.0	3,980.5	3,968.5	3,968.5	20.4	79.4	171.66	134.8	-185.2	728.2	640.2	87.98	8.277	
4,200.0	4,077.0	4,065.0	4,065.0	21.0	81.3	171.95	134.8	-185.2	754.3	664.1	90.12	8.370	
4,300.0	4,173.5	4,161.5	4,161.5	21.5	83.2	172.22	134.8	-185.2	780.3	688.1	92.26	8.458	
4,400.0	4,270.0	4,258.0	4,258.0	22.1	85.2	172.48	134.8	-185.2	806.4	712.0	94.40	8.542	
4,500.0	4,366.5	4,354.5	4,354.5	22.6	87.1	172.71	134.8	-185.2	832.5	736.0	96.55	8.623	
4,600.0	4,462.9	4,450.9	4,450.9	23.2	89.0	172.93	134.8	-185.2	858.6	759.9	98.69	8.700	
4,700.0	4,559.4	4,547.4	4,547.4	23.8	90.9	173.14	134.8	-185.2	884.7	783.9	100.84	8.774	
4,800.0	4,655.9	4,643.9	4,643.9	24.3	92.9	173.34	134.8	-185.2	910.9	807.9	102.98	8.845	
4,900.0	4,752.4	4,740.4	4,740.4	24.9	94.8	173.53	134.8	-185.2	937.0	831.9	105.13	8.913	

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 Stroh 13G-403
Project:	SEC.13-T4N-R67W	**TVD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**MD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Stroh 13G-403	**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 (3-11-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells - Sec.13-T4N-R67W - Stroh O 13-20 (Exist) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 7438-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	4,848.9	4,836.9	4,836.9	25.5	96.7	173.70	134.8	-185.2	963.2	855.9	107.27	8.979	
5,100.0	4,945.3	4,933.3	4,933.3	26.0	98.7	173.87	134.8	-185.2	989.3	879.9	109.42	9.042	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13G-403
Project:	SEC.13-T4N-R67W	**TVD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**MD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Stroh 13G-403	**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 (3-11-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells - Sec.13-T4N-R67W - Stroh PC O13-79HN (Exist) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 7200-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
8,500.0	7,271.4	7,200.0	7,200.0	37.4	144.0	-63.60	-2,094.7	-1,246.7	981.0	827.4	153.58	6.388	
8,600.0	7,271.3	7,200.0	7,200.0	38.5	144.0	-63.60	-2,094.7	-1,246.7	883.5	728.6	154.96	5.701	
8,700.0	7,271.1	7,200.0	7,200.0	39.6	144.0	-63.60	-2,094.7	-1,246.7	786.7	630.3	156.40	5.030	
8,800.0	7,270.9	7,200.0	7,200.0	40.8	144.0	-63.60	-2,094.7	-1,246.7	690.8	532.9	157.86	4.376	
8,900.0	7,270.7	7,200.0	7,200.0	42.1	144.0	-63.60	-2,094.7	-1,246.7	596.2	436.9	159.36	3.741	
9,000.0	7,270.6	7,200.0	7,200.0	43.5	144.0	-63.60	-2,094.7	-1,246.7	503.8	342.9	160.88	3.131	
9,100.0	7,270.4	7,200.0	7,200.0	44.9	144.0	-63.60	-2,094.7	-1,246.7	414.8	252.4	162.42	2.554	
9,200.0	7,270.2	7,200.0	7,200.0	46.3	144.0	-63.60	-2,094.7	-1,246.7	332.2	168.2	163.99	2.026	
9,300.0	7,270.0	7,200.0	7,200.0	47.8	144.0	-63.60	-2,094.7	-1,246.7	262.0	96.5	165.57	1.583	
9,400.0	7,269.9	7,200.0	7,200.0	49.3	144.0	-63.60	-2,094.7	-1,246.7	216.7	49.5	167.17	1.296	Level 3
9,458.5	7,269.8	7,200.0	7,200.0	50.2	144.0	-63.60	-2,094.7	-1,246.7	208.6	40.5	168.11	1.241	Level 2, CC, ES, SF
9,500.0	7,269.7	7,200.0	7,200.0	50.8	144.0	-63.60	-2,094.7	-1,246.7	212.7	43.9	168.77	1.260	Level 3
9,600.0	7,269.5	7,200.0	7,200.0	52.4	144.0	-63.60	-2,094.7	-1,246.7	252.1	81.7	170.39	1.479	Level 3
9,700.0	7,269.3	7,200.0	7,200.0	54.0	144.0	-63.60	-2,094.7	-1,246.7	319.1	147.1	172.02	1.855	
9,800.0	7,269.2	7,200.0	7,200.0	55.6	144.0	-63.60	-2,094.7	-1,246.7	400.2	226.5	173.66	2.304	
9,900.0	7,269.0	7,200.0	7,200.0	57.3	144.0	-63.60	-2,094.7	-1,246.7	488.3	313.0	175.31	2.785	
10,000.0	7,268.8	7,200.0	7,200.0	58.9	144.0	-63.60	-2,094.7	-1,246.7	580.3	403.3	176.97	3.279	
10,100.0	7,268.6	7,200.0	7,200.0	60.6	144.0	-63.60	-2,094.7	-1,246.7	674.5	495.9	178.63	3.776	
10,200.0	7,268.5	7,200.0	7,200.0	62.3	144.0	-63.60	-2,094.7	-1,246.7	770.3	590.0	180.30	4.272	
10,300.0	7,268.3	7,200.0	7,200.0	64.0	144.0	-63.60	-2,094.7	-1,246.7	866.9	685.0	181.97	4.764	
10,400.0	7,268.1	7,200.0	7,200.0	65.7	144.0	-63.60	-2,094.7	-1,246.7	964.3	780.7	183.65	5.251	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13G-403
Project:	SEC.13-T4N-R67W	**TVD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**MD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Stroh 13G-403	**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 (3-11-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells - Sec.13-T4N-R67W - UPRC 13-12E (Exist.) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 7427-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	-110.98	-331.5	-864.6	926.0				
100.0	100.0	95.0	95.0	0.1	1.9	-110.98	-331.5	-864.6	925.9	923.9	2.01	460.077	
200.0	200.0	195.0	195.0	0.3	3.9	-110.98	-331.5	-864.6	925.9	921.7	4.24	218.519	
300.0	300.0	295.0	295.0	0.6	5.9	-30.67	-331.5	-864.6	924.4	918.0	6.45	143.293	
400.0	399.8	394.8	394.8	0.8	7.9	-30.88	-331.5	-864.6	919.9	911.3	8.66	106.287	
500.0	499.5	494.5	494.5	1.0	9.9	-31.24	-331.5	-864.6	912.5	901.6	10.85	84.091	
600.0	598.7	593.7	593.7	1.3	11.9	-31.75	-331.5	-864.6	902.1	889.0	13.04	69.203	
700.0	697.5	692.5	692.5	1.7	13.8	-32.42	-331.5	-864.6	888.8	873.5	15.21	58.447	
800.0	795.6	790.6	790.6	2.0	15.8	-33.27	-331.5	-864.6	872.6	855.3	17.37	50.250	
900.0	893.1	888.1	888.1	2.5	17.8	-34.31	-331.5	-864.6	853.8	834.3	19.52	43.745	
1,000.0	989.7	984.7	984.7	3.0	19.7	-35.45	-331.5	-864.6	832.5	810.8	21.71	38.342	
1,100.0	1,086.2	1,081.2	1,081.2	3.5	21.6	-36.51	-331.5	-864.6	811.0	787.0	24.00	33.791	
1,200.0	1,182.7	1,177.7	1,177.7	4.1	23.6	-37.63	-331.5	-864.6	789.7	763.4	26.31	30.018	
1,300.0	1,279.1	1,274.1	1,274.1	4.6	25.5	-38.81	-331.5	-864.6	768.8	740.1	28.64	26.844	
1,400.0	1,375.6	1,370.6	1,370.6	5.2	27.4	-40.06	-331.5	-864.6	748.2	717.2	30.99	24.143	
1,500.0	1,472.1	1,467.1	1,467.1	5.7	29.3	-41.37	-331.5	-864.6	727.9	694.6	33.36	21.820	
1,600.0	1,568.6	1,563.6	1,563.6	6.3	31.3	-42.75	-331.5	-864.6	708.1	672.3	35.76	19.804	
1,700.0	1,665.1	1,660.1	1,660.1	6.8	33.2	-44.21	-331.5	-864.6	688.7	650.5	38.17	18.042	
1,800.0	1,761.5	1,756.5	1,756.5	7.4	35.1	-45.75	-331.5	-864.6	669.8	629.1	40.61	16.492	
1,900.0	1,858.0	1,853.0	1,853.0	8.0	37.1	-47.38	-331.5	-864.6	651.3	608.3	43.08	15.120	
2,000.0	1,954.5	1,949.5	1,949.5	8.5	39.0	-49.10	-331.5	-864.6	633.5	587.9	45.57	13.902	
2,100.0	2,051.0	2,046.0	2,046.0	9.1	40.9	-50.91	-331.5	-864.6	616.2	568.1	48.08	12.816	
2,200.0	2,147.5	2,142.5	2,142.5	9.6	42.8	-52.82	-331.5	-864.6	599.6	549.0	50.62	11.845	
2,300.0	2,243.9	2,238.9	2,238.9	10.2	44.8	-54.82	-331.5	-864.6	583.7	530.5	53.19	10.974	
2,400.0	2,340.4	2,335.4	2,335.4	10.8	46.7	-56.94	-331.5	-864.6	568.6	512.8	55.78	10.194	
2,500.0	2,436.9	2,431.9	2,431.9	11.3	48.6	-59.16	-331.5	-864.6	554.3	495.9	58.39	9.493	
2,600.0	2,533.4	2,528.4	2,528.4	11.9	50.6	-61.49	-331.5	-864.6	540.9	479.9	61.03	8.864	
2,700.0	2,629.8	2,624.8	2,624.8	12.5	52.5	-63.92	-331.5	-864.6	528.5	464.8	63.68	8.299	
2,800.0	2,726.3	2,721.3	2,721.3	13.0	54.4	-66.46	-331.5	-864.6	517.2	450.8	66.35	7.794	
2,900.0	2,822.8	2,817.8	2,817.8	13.6	56.4	-69.11	-331.5	-864.6	506.9	437.9	69.02	7.344	
3,000.0	2,919.3	2,914.3	2,914.3	14.2	58.3	-71.85	-331.5	-864.6	497.8	426.1	71.70	6.943	
3,100.0	3,015.8	3,010.8	3,010.8	14.7	60.2	-74.67	-331.5	-864.6	490.0	415.6	74.38	6.588	
3,200.0	3,112.2	3,107.2	3,107.2	15.3	62.1	-77.58	-331.5	-864.6	483.5	406.4	77.04	6.276	
3,300.0	3,208.7	3,203.7	3,203.7	15.9	64.1	-80.55	-331.5	-864.6	478.3	398.6	79.68	6.003	
3,400.0	3,305.2	3,300.2	3,300.2	16.4	66.0	-83.58	-331.5	-864.6	474.5	392.2	82.30	5.766	
3,500.0	3,401.7	3,396.7	3,396.7	17.0	67.9	-86.64	-331.5	-864.6	472.2	387.3	84.88	5.563	
3,600.0	3,498.2	3,493.2	3,493.2	17.6	69.9	-89.72	-331.5	-864.6	471.3	383.9	87.41	5.392	
3,609.0	3,506.9	3,501.9	3,501.9	17.6	70.0	-90.00	-331.5	-864.6	471.3	383.7	87.64	5.378	CC
3,700.0	3,594.6	3,589.6	3,589.6	18.1	71.8	-92.80	-331.5	-864.6	471.9	382.0	89.90	5.249	
3,800.0	3,691.1	3,686.1	3,686.1	18.7	73.7	-95.87	-331.5	-864.6	474.0	381.7	92.34	5.133	ES
3,900.0	3,787.6	3,782.6	3,782.6	19.3	75.7	-98.90	-331.5	-864.6	477.5	382.8	94.72	5.041	
4,000.0	3,884.1	3,879.1	3,879.1	19.8	77.6	-101.89	-331.5	-864.6	482.4	385.4	97.05	4.971	
4,100.0	3,980.5	3,975.5	3,975.5	20.4	79.5	-104.81	-331.5	-864.6	488.7	389.4	99.32	4.920	
4,200.0	4,077.0	4,072.0	4,072.0	21.0	81.4	-107.65	-331.5	-864.6	496.3	394.8	101.54	4.888	
4,300.0	4,173.5	4,168.5	4,168.5	21.5	83.4	-110.41	-331.5	-864.6	505.2	401.5	103.71	4.871	
4,400.0	4,270.0	4,265.0	4,265.0	22.1	85.3	-113.07	-331.5	-864.6	515.2	409.4	105.83	4.868	
4,500.0	4,366.5	4,361.5	4,361.5	22.6	87.2	-115.63	-331.5	-864.6	526.4	418.5	107.91	4.878	
4,600.0	4,462.9	4,457.9	4,457.9	23.2	89.2	-118.08	-331.5	-864.6	538.6	428.6	109.96	4.898	
4,700.0	4,559.4	4,554.4	4,554.4	23.8	91.1	-120.43	-331.5	-864.6	551.8	439.8	111.98	4.928	
4,800.0	4,655.9	4,650.9	4,650.9	24.3	93.0	-122.67	-331.5	-864.6	565.9	452.0	113.97	4.966	
4,900.0	4,752.4	4,747.4	4,747.4	24.9	94.9	-124.80	-331.5	-864.6	580.9	465.0	115.94	5.011	

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 Stroh 13G-403
Project:	SEC.13-T4N-R67W	**TVD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**MD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Stroh 13G-403	**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 (3-11-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells - Sec.13-T4N-R67W - UPRC 13-12E (Exist.) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 7427-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	4,848.9	4,843.9	4,843.9	25.5	96.9	-126.83	-331.5	-864.6	596.7	478.8	117.89	5.061	
5,100.0	4,945.3	4,940.3	4,940.3	26.0	98.8	-128.76	-331.5	-864.6	613.2	493.3	119.83	5.117	
5,200.0	5,041.8	5,036.8	5,036.8	26.6	100.7	-130.58	-331.5	-864.6	630.3	508.5	121.76	5.177	
5,300.0	5,138.3	5,133.3	5,133.3	27.2	102.7	-132.32	-331.5	-864.6	648.1	524.4	123.69	5.240	
5,400.0	5,234.8	5,229.8	5,229.8	27.7	104.6	-133.96	-331.5	-864.6	666.4	540.8	125.61	5.305	
5,500.0	5,331.3	5,326.3	5,326.3	28.3	106.5	-135.51	-331.5	-864.6	685.2	557.7	127.53	5.373	
5,600.0	5,427.7	5,422.7	5,422.7	28.9	108.5	-136.99	-331.5	-864.6	704.6	575.1	129.45	5.443	
5,700.0	5,524.2	5,519.2	5,519.2	29.4	110.4	-138.39	-331.5	-864.6	724.3	593.0	131.37	5.513	
5,800.0	5,620.9	5,615.9	5,615.9	29.9	112.3	-139.86	-331.5	-864.6	743.7	610.1	133.65	5.565	
5,900.0	5,718.5	5,713.5	5,713.5	30.3	114.3	-141.13	-331.5	-864.6	760.9	624.9	135.99	5.595	
6,000.0	5,816.7	5,811.7	5,811.7	30.6	116.2	-142.17	-331.5	-864.6	775.5	637.2	138.34	5.606	
6,100.0	5,915.6	5,910.6	5,910.6	30.9	118.2	-142.99	-331.5	-864.6	787.6	647.0	140.67	5.599	
6,200.0	6,014.9	6,009.9	6,009.9	31.1	120.2	-143.61	-331.5	-864.6	797.0	654.1	142.95	5.575	
6,300.0	6,114.6	6,109.6	6,109.6	31.3	122.2	-144.03	-331.5	-864.6	803.7	658.5	145.18	5.536	
6,400.0	6,214.4	6,209.4	6,209.4	31.5	124.2	-144.28	-331.5	-864.6	807.5	660.2	147.33	5.481	
6,500.0	6,314.4	6,309.4	6,309.4	31.5	126.2	135.28	-331.5	-864.6	808.5	659.1	149.42	5.411	
6,600.0	6,414.4	6,409.4	6,409.4	31.6	128.2	135.28	-331.5	-864.6	808.5	657.0	151.54	5.336	
6,700.0	6,514.4	6,509.4	6,509.4	31.7	130.2	-44.74	-331.5	-864.6	808.4	654.8	153.61	5.263	
6,800.0	6,614.0	6,609.0	6,609.0	31.8	132.2	-45.50	-331.5	-864.6	802.3	647.9	154.44	5.195	
6,900.0	6,711.6	6,706.6	6,706.6	31.8	134.1	-47.43	-331.5	-864.6	787.3	633.5	153.82	5.118	
7,000.0	6,805.5	6,800.5	6,800.5	31.9	136.0	-50.61	-331.5	-864.6	764.1	611.8	152.35	5.016	
7,100.0	6,894.2	6,889.2	6,889.2	31.9	137.8	-55.10	-331.5	-864.6	734.2	583.1	151.04	4.861	
7,200.0	6,976.1	6,971.1	6,971.1	31.9	139.4	-60.84	-331.5	-864.6	699.4	548.4	151.06	4.630	
7,300.0	7,049.8	7,044.8	7,044.8	31.9	140.9	-67.56	-331.5	-864.6	662.5	509.4	153.10	4.327	
7,400.0	7,114.2	7,109.2	7,109.2	31.9	142.2	-74.70	-331.5	-864.6	626.7	470.1	156.66	4.001	
7,500.0	7,167.9	7,162.9	7,162.9	32.0	143.3	-81.40	-331.5	-864.6	596.3	436.0	160.33	3.720	
7,600.0	7,210.3	7,205.3	7,205.3	32.1	144.1	-86.78	-331.5	-864.6	575.7	412.8	162.98	3.533	
7,692.6	7,238.6	7,233.6	7,233.6	32.3	144.7	-90.00	-331.5	-864.6	569.0	404.4	164.52	3.458	
7,700.0	7,240.4	7,235.4	7,235.4	32.3	144.7	-90.17	-331.5	-864.6	569.0	404.4	164.62	3.457	SF
7,800.0	7,257.9	7,252.9	7,252.9	32.6	145.1	-91.17	-331.5	-864.6	578.7	412.9	165.81	3.490	
7,900.0	7,268.1	7,263.1	7,263.1	33.0	145.3	-91.76	-331.5	-864.6	604.8	437.8	166.95	3.622	
8,000.0	7,272.3	7,267.3	7,267.3	33.4	145.3	-89.95	-331.5	-864.6	645.5	477.5	168.02	3.842	
8,100.0	7,272.1	7,267.1	7,267.1	34.0	145.3	-89.93	-331.5	-864.6	698.3	529.1	169.17	4.128	
8,200.0	7,272.0	7,267.0	7,267.0	34.7	145.3	-89.91	-331.5	-864.6	760.7	590.2	170.42	4.463	
8,300.0	7,271.8	7,266.8	7,266.8	35.5	145.3	-89.89	-331.5	-864.6	830.4	658.7	171.74	4.835	
8,400.0	7,271.6	7,266.6	7,266.6	36.4	145.3	-89.88	-331.5	-864.6	905.8	732.7	173.14	5.232	
8,500.0	7,271.4	7,266.4	7,266.4	37.4	145.3	-89.86	-331.5	-864.6	985.7	811.1	174.59	5.646	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13G-403
Project:	SEC.13-T4N-R67W	**TVD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**MD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Stroh 13G-403	**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 (3-11-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells - Sec.13-T4N-R67W - UPRC 13-13E (Exist) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 7461-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
8,100.0	7,272.1	7,287.1	7,287.1	34.0	145.7	-90.13	-1,511.9	-853.5	968.5	798.9	169.59	5.710	
8,200.0	7,272.0	7,287.0	7,287.0	34.7	145.7	-90.12	-1,511.9	-853.5	890.4	719.6	170.84	5.212	
8,300.0	7,271.8	7,286.8	7,286.8	35.5	145.7	-90.10	-1,511.9	-853.5	817.1	645.0	172.16	4.746	
8,400.0	7,271.6	7,286.6	7,286.6	36.4	145.7	-90.08	-1,511.9	-853.5	750.1	576.5	173.56	4.322	
8,500.0	7,271.4	7,286.4	7,286.4	37.4	145.7	-90.06	-1,511.9	-853.5	691.0	516.0	175.01	3.949	
8,600.0	7,271.3	7,286.3	7,286.3	38.5	145.7	-90.05	-1,511.9	-853.5	642.2	465.7	176.52	3.638	
8,700.0	7,271.1	7,286.1	7,286.1	39.6	145.7	-90.03	-1,511.9	-853.5	606.1	428.0	178.06	3.404	
8,800.0	7,270.9	7,285.9	7,285.9	40.8	145.7	-90.01	-1,511.9	-853.5	585.0	405.4	179.65	3.256	
8,875.5	7,270.8	7,285.8	7,285.8	41.8	145.7	-90.00	-1,511.9	-853.5	580.1	399.3	180.87	3.207	CC, ES
8,900.0	7,270.7	7,285.7	7,285.7	42.1	145.7	-90.00	-1,511.9	-853.5	580.7	399.4	181.27	3.203	SF
9,000.0	7,270.6	7,285.6	7,285.6	43.5	145.7	-89.98	-1,511.9	-853.5	593.3	410.4	182.91	3.244	
9,100.0	7,270.4	7,285.4	7,285.4	44.9	145.7	-89.96	-1,511.9	-853.5	622.1	437.5	184.58	3.370	
9,200.0	7,270.2	7,285.2	7,285.2	46.3	145.7	-89.94	-1,511.9	-853.5	664.7	478.5	186.28	3.569	
9,300.0	7,270.0	7,285.0	7,285.0	47.8	145.7	-89.93	-1,511.9	-853.5	718.9	530.9	187.99	3.824	
9,400.0	7,269.9	7,284.9	7,284.9	49.3	145.7	-89.91	-1,511.9	-853.5	782.1	592.4	189.72	4.122	
9,500.0	7,269.7	7,284.7	7,284.7	50.8	145.7	-89.89	-1,511.9	-853.5	852.4	660.9	191.46	4.452	
9,600.0	7,269.5	7,284.5	7,284.5	52.4	145.7	-89.88	-1,511.9	-853.5	928.2	735.0	193.22	4.804	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13G-403
Project:	SEC.13-T4N-R67W	**TVD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**MD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Stroh 13G-403	**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 (3-11-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Stroh 13GK-HZ Pad Sec. 13-T4N-R67W - Stroh 13G-323 - Wellbore #1 - Plan #1 (3-11-14)

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	90.00	0.0	30.7	30.7				
100.0	100.0	99.0	99.0	0.1	0.1	90.00	0.0	30.7	30.7	30.5	0.22	137.172	
200.0	200.0	199.0	199.0	0.3	0.3	90.00	0.0	30.7	30.7	30.0	0.67	45.648	CC, ES
300.0	300.0	299.0	299.0	0.6	0.6	170.89	0.0	30.7	32.4	31.3	1.12	28.941	
400.0	399.8	398.8	398.8	0.8	0.8	172.14	0.0	30.7	37.6	36.0	1.57	23.937	
500.0	499.5	500.0	500.0	1.0	1.0	173.40	0.3	29.0	44.5	42.5	2.01	22.145	
600.0	598.7	601.5	601.3	1.3	1.2	174.37	1.1	23.7	51.4	49.0	2.44	21.032	
700.0	697.5	703.2	702.6	1.7	1.5	175.15	2.5	14.8	58.3	55.4	2.89	20.151	
800.0	795.6	805.1	803.8	2.0	1.7	175.81	4.4	2.4	65.1	61.7	3.35	19.413	
900.0	893.1	907.3	904.7	2.5	2.1	176.38	6.9	-13.6	71.8	68.0	3.83	18.762	
1,000.0	989.7	1,009.8	1,005.2	3.0	2.4	176.88	9.9	-33.2	78.2	73.9	4.32	18.087	
1,100.0	1,086.2	1,110.9	1,103.7	3.5	2.9	177.25	13.4	-55.4	82.4	77.5	4.85	16.997	
1,200.0	1,182.7	1,210.8	1,201.1	4.1	3.3	177.57	16.9	-77.6	86.3	80.9	5.38	16.038	
1,300.0	1,279.1	1,310.7	1,298.4	4.6	3.8	177.87	20.3	-99.9	90.2	84.2	5.92	15.233	
1,400.0	1,375.6	1,410.6	1,395.8	5.2	4.2	178.14	23.8	-122.1	94.0	87.6	6.46	14.558	
1,500.0	1,472.1	1,510.5	1,493.2	5.7	4.7	178.39	27.3	-144.4	97.9	90.9	7.01	13.974	
1,600.0	1,568.6	1,610.5	1,590.5	6.3	5.2	178.63	30.7	-166.6	101.8	94.3	7.56	13.471	
1,700.0	1,665.1	1,710.4	1,687.9	6.8	5.7	178.84	34.2	-188.8	105.7	97.6	8.11	13.032	
1,800.0	1,761.5	1,810.3	1,785.2	7.4	6.1	179.04	37.6	-211.1	109.6	100.9	8.67	12.646	
1,900.0	1,858.0	1,910.2	1,882.6	8.0	6.6	179.23	41.1	-233.3	113.5	104.3	9.23	12.305	
2,000.0	1,954.5	2,010.2	1,979.9	8.5	7.1	179.40	44.6	-255.5	117.4	107.6	9.78	12.000	
2,100.0	2,051.0	2,110.1	2,077.3	9.1	7.6	179.56	48.0	-277.8	121.3	111.0	10.34	11.728	
2,200.0	2,147.5	2,210.0	2,174.6	9.6	8.1	179.72	51.5	-300.0	125.2	114.3	10.91	11.482	
2,300.0	2,243.9	2,309.9	2,272.0	10.2	8.6	179.86	54.9	-322.2	129.1	117.6	11.47	11.259	
2,400.0	2,340.4	2,409.9	2,369.4	10.8	9.1	179.99	58.4	-344.5	133.0	121.0	12.03	11.056	
2,500.0	2,436.9	2,509.8	2,466.7	11.3	9.5	-179.88	61.9	-366.7	136.9	124.3	12.59	10.871	
2,600.0	2,533.4	2,609.7	2,564.1	11.9	10.0	-179.76	65.3	-388.9	140.8	127.7	13.16	10.701	
2,700.0	2,629.8	2,709.6	2,661.4	12.5	10.5	-179.65	68.8	-411.2	144.7	131.0	13.72	10.545	
2,800.0	2,726.3	2,809.6	2,758.8	13.0	11.0	-179.54	72.3	-433.4	148.6	134.3	14.29	10.401	
2,900.0	2,822.8	2,909.5	2,856.1	13.6	11.5	-179.44	75.7	-455.6	152.5	137.7	14.86	10.267	
3,000.0	2,919.3	3,009.4	2,953.5	14.2	12.0	-179.34	79.2	-477.9	156.4	141.0	15.42	10.143	
3,100.0	3,015.8	3,109.3	3,050.9	14.7	12.5	-179.25	82.6	-500.1	160.3	144.3	15.99	10.027	
3,200.0	3,112.2	3,209.2	3,148.2	15.3	13.0	-179.16	86.1	-522.4	164.2	147.7	16.56	9.919	
3,300.0	3,208.7	3,309.2	3,245.6	15.9	13.5	-179.07	89.6	-544.6	168.2	151.0	17.13	9.818	
3,400.0	3,305.2	3,409.1	3,342.9	16.4	14.0	-178.99	93.0	-566.8	172.1	154.4	17.69	9.724	
3,500.0	3,401.7	3,509.0	3,440.3	17.0	14.4	-178.92	96.5	-589.1	176.0	157.7	18.26	9.635	
3,600.0	3,498.2	3,608.9	3,537.6	17.6	14.9	-178.84	100.0	-611.3	179.9	161.0	18.83	9.551	
3,700.0	3,594.6	3,708.9	3,635.0	18.1	15.4	-178.77	103.4	-633.5	183.8	164.4	19.40	9.472	
3,800.0	3,691.1	3,808.8	3,732.4	18.7	15.9	-178.71	106.9	-655.8	187.7	167.7	19.97	9.398	
3,900.0	3,787.6	3,908.7	3,829.7	19.3	16.4	-178.64	110.3	-678.0	191.6	171.1	20.54	9.327	
4,000.0	3,884.1	4,008.6	3,927.1	19.8	16.9	-178.58	113.8	-700.2	195.5	174.4	21.11	9.261	
4,100.0	3,980.5	4,108.6	4,024.4	20.4	17.4	-178.52	117.3	-722.5	199.4	177.7	21.68	9.197	
4,200.0	4,077.0	4,208.5	4,121.8	21.0	17.9	-178.47	120.7	-744.7	203.3	181.1	22.25	9.137	
4,300.0	4,173.5	4,308.4	4,219.1	21.5	18.4	-178.41	124.2	-766.9	207.2	184.4	22.82	9.080	
4,400.0	4,270.0	4,408.3	4,316.5	22.1	18.9	-178.36	127.6	-789.2	211.1	187.7	23.39	9.026	
4,500.0	4,366.5	4,508.2	4,413.8	22.6	19.4	-178.31	131.1	-811.4	215.0	191.1	23.96	8.974	
4,600.0	4,462.9	4,608.2	4,511.2	23.2	19.9	-178.26	134.6	-833.7	219.0	194.4	24.54	8.924	
4,700.0	4,559.4	4,708.1	4,608.6	23.8	20.4	-178.21	138.0	-855.9	222.9	197.8	25.11	8.877	
4,800.0	4,655.9	4,808.0	4,705.9	24.3	20.8	-178.16	141.5	-878.1	226.8	201.1	25.68	8.831	
4,900.0	4,752.4	4,907.9	4,803.3	24.9	21.3	-178.12	145.0	-900.4	230.7	204.4	26.25	8.788	
5,000.0	4,848.9	5,007.9	4,900.6	25.5	21.8	-178.08	148.4	-922.6	234.6	207.8	26.82	8.746	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13G-403
Project:	SEC.13-T4N-R67W	**TVD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**MD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Stroh 13G-403	**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 (3-11-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Stroh 13GK-HZ Pad Sec. 13-T4N-R67W - Stroh 13G-323 - Wellbore #1 - Plan #1 (3-11-14)

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	4,945.3	5,107.8	4,998.0	26.0	22.3	-178.04	151.9	-944.8	238.5	211.1	27.39	8.707	
5,200.0	5,041.8	5,207.7	5,095.3	26.6	22.8	-178.00	155.3	-967.1	242.4	214.5	27.97	8.668	
5,300.0	5,138.3	5,307.6	5,192.7	27.2	23.3	-177.96	158.8	-989.3	246.3	217.8	28.54	8.632	
5,400.0	5,234.8	5,407.6	5,290.1	27.7	23.8	-177.92	162.3	-1,011.5	250.2	221.1	29.11	8.596	
5,500.0	5,331.3	5,507.5	5,387.4	28.3	24.3	-177.88	165.7	-1,033.8	254.1	224.5	29.68	8.562	
5,600.0	5,427.7	5,607.4	5,484.8	28.9	24.8	-177.85	169.2	-1,056.0	258.1	227.8	30.25	8.530	
5,700.0	5,524.2	5,705.0	5,579.9	29.4	25.3	-177.82	172.6	-1,077.6	262.1	231.3	30.81	8.506	
5,800.0	5,620.9	5,800.0	5,673.0	29.9	25.6	-177.81	175.5	-1,096.4	267.5	236.2	31.31	8.542	
5,900.0	5,718.5	5,887.7	5,759.4	30.3	25.8	-177.80	177.8	-1,111.0	272.6	240.9	31.72	8.594	
6,000.0	5,816.7	5,978.8	5,849.6	30.6	26.1	-177.81	179.7	-1,123.5	277.5	245.4	32.08	8.650	
6,100.0	5,915.6	6,069.8	5,940.1	30.9	26.3	-177.82	181.2	-1,133.1	282.0	249.6	32.38	8.710	
6,200.0	6,014.9	6,160.7	6,030.8	31.1	26.4	-177.83	182.2	-1,139.8	286.2	253.6	32.61	8.776	
6,300.0	6,114.6	6,251.5	6,121.5	31.3	26.6	-177.85	182.8	-1,143.7	290.1	257.3	32.79	8.847	
6,400.0	6,214.4	6,343.5	6,213.4	31.5	26.7	-177.87	183.0	-1,144.7	293.7	260.7	32.92	8.920	
6,500.0	6,314.4	6,443.5	6,313.4	31.5	26.8	101.74	183.0	-1,144.7	294.9	261.9	33.07	8.920	
6,560.5	6,374.9	6,504.0	6,373.9	31.6	26.8	101.74	183.0	-1,144.7	294.9	261.7	33.27	8.866	
6,600.0	6,414.4	6,542.3	6,412.3	31.6	26.9	101.76	182.9	-1,144.7	295.0	261.6	33.40	8.832	
6,700.0	6,514.4	6,634.4	6,504.0	31.7	26.9	-76.86	175.6	-1,144.7	296.6	262.8	33.81	8.775	
6,800.0	6,614.0	6,725.0	6,592.8	31.8	27.0	-74.76	157.7	-1,144.7	299.4	265.3	34.14	8.770	
6,900.0	6,711.6	6,814.6	6,677.9	31.8	27.0	-72.92	129.8	-1,144.7	302.2	267.8	34.43	8.779	
7,000.0	6,805.5	6,903.4	6,758.4	31.9	27.1	-71.37	92.5	-1,144.7	304.8	270.2	34.61	8.807	
7,100.0	6,894.2	6,991.5	6,833.5	31.9	27.1	-70.11	46.6	-1,144.7	307.2	272.5	34.69	8.854	
7,200.0	6,976.1	7,079.0	6,902.4	31.9	27.2	-69.15	-7.4	-1,144.7	309.1	274.4	34.68	8.911	
7,300.0	7,049.8	7,166.1	6,964.4	31.9	27.2	-68.48	-68.5	-1,144.7	310.4	275.9	34.57	8.981	
7,400.0	7,114.2	7,250.0	7,017.1	31.9	27.3	-68.13	-133.7	-1,144.7	311.2	276.7	34.47	9.028	
7,500.0	7,167.9	7,339.8	7,065.3	32.0	27.5	-68.06	-209.4	-1,144.7	311.3	276.8	34.51	9.021	
7,600.0	7,210.3	7,426.6	7,103.1	32.1	27.6	-68.30	-287.5	-1,144.7	310.8	276.1	34.74	8.949	
7,700.0	7,240.4	7,513.7	7,131.9	32.3	27.9	-68.84	-369.6	-1,144.7	309.7	274.5	35.23	8.790	
7,800.0	7,257.9	7,600.0	7,151.0	32.6	28.2	-69.67	-453.7	-1,144.7	308.0	272.0	36.06	8.542	
7,861.9	7,264.2	7,655.4	7,158.3	32.8	28.5	-69.95	-508.6	-1,144.7	307.4	270.3	37.11	8.285	
7,900.0	7,268.1	7,688.8	7,160.7	33.0	28.7	-69.76	-541.9	-1,144.7	307.8	270.2	37.65	8.177	
8,000.0	7,272.3	7,783.3	7,161.7	33.4	29.2	-69.22	-636.4	-1,144.7	308.9	270.1	38.77	7.967	
8,100.0	7,272.1	7,883.3	7,161.8	34.0	30.0	-69.26	-736.4	-1,144.7	308.8	267.9	40.97	7.538	
8,200.0	7,272.0	7,983.3	7,161.8	34.7	30.8	-69.30	-836.4	-1,144.7	308.8	265.4	43.36	7.121	
8,300.0	7,271.8	8,083.3	7,161.8	35.5	31.8	-69.33	-936.4	-1,144.7	308.7	262.8	45.91	6.724	
8,400.0	7,271.6	8,183.3	7,161.9	36.4	32.8	-69.37	-1,036.4	-1,144.7	308.6	260.0	48.60	6.350	
8,500.0	7,271.4	8,283.3	7,161.9	37.4	34.0	-69.41	-1,136.4	-1,144.7	308.6	257.1	51.42	6.001	
8,600.0	7,271.3	8,383.3	7,161.9	38.5	35.2	-69.44	-1,236.4	-1,144.7	308.5	254.2	54.33	5.678	
8,700.0	7,271.1	8,483.3	7,162.0	39.6	36.5	-69.48	-1,336.4	-1,144.7	308.4	251.1	57.33	5.380	
8,800.0	7,270.9	8,583.3	7,162.0	40.8	37.9	-69.52	-1,436.4	-1,144.7	308.3	248.0	60.40	5.105	
8,900.0	7,270.7	8,683.3	7,162.1	42.1	39.3	-69.56	-1,536.4	-1,144.7	308.3	244.8	63.53	4.853	
9,000.0	7,270.6	8,783.3	7,162.1	43.5	40.8	-69.59	-1,636.4	-1,144.7	308.2	241.5	66.71	4.620	
9,100.0	7,270.4	8,883.3	7,162.1	44.9	42.3	-69.63	-1,736.4	-1,144.7	308.1	238.2	69.95	4.405	
9,200.0	7,270.2	8,983.3	7,162.2	46.3	43.8	-69.67	-1,836.4	-1,144.7	308.1	234.9	73.22	4.208	
9,300.0	7,270.0	9,083.3	7,162.2	47.8	45.4	-69.70	-1,936.4	-1,144.7	308.0	231.5	76.53	4.025	
9,400.0	7,269.9	9,183.3	7,162.2	49.3	47.0	-69.74	-2,036.4	-1,144.7	307.9	228.1	79.87	3.856	
9,500.0	7,269.7	9,283.3	7,162.3	50.8	48.6	-69.78	-2,136.4	-1,144.7	307.9	224.6	83.24	3.699	
9,600.0	7,269.5	9,383.3	7,162.3	52.4	50.2	-69.81	-2,236.4	-1,144.7	307.8	221.2	86.63	3.553	
9,700.0	7,269.3	9,483.3	7,162.3	54.0	51.9	-69.85	-2,336.4	-1,144.7	307.7	217.7	90.05	3.418	
9,800.0	7,269.2	9,583.3	7,162.4	55.6	53.6	-69.89	-2,436.4	-1,144.7	307.7	214.2	93.48	3.291	
9,900.0	7,269.0	9,683.3	7,162.4	57.3	55.3	-69.92	-2,536.4	-1,144.7	307.6	210.7	96.94	3.173	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13G-403
Project:	SEC.13-T4N-R67W	**TVD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**MD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Stroh 13G-403	**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 (3-11-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Stroh 13GK-HZ Pad Sec. 13-T4N-R67W - Stroh 13G-323 - Wellbore #1 - Plan #1 (3-11-14)

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
10,000.0	7,268.8	9,783.3	7,162.4	58.9	57.0	-69.96	-2,636.4	-1,144.7	307.5	207.1	100.41	3.063	
10,100.0	7,268.6	9,883.3	7,162.5	60.6	58.7	-70.00	-2,736.4	-1,144.7	307.5	203.6	103.89	2.960	
10,200.0	7,268.5	9,983.3	7,162.5	62.3	60.5	-70.04	-2,836.4	-1,144.7	307.4	200.0	107.39	2.863	
10,300.0	7,268.3	10,083.3	7,162.5	64.0	62.2	-70.07	-2,936.4	-1,144.7	307.3	196.4	110.90	2.771	
10,400.0	7,268.1	10,183.3	7,162.6	65.7	64.0	-70.11	-3,036.4	-1,144.7	307.3	192.9	114.42	2.685	
10,500.0	7,267.9	10,283.3	7,162.6	67.4	65.8	-70.15	-3,136.4	-1,144.7	307.2	189.3	117.95	2.605	
10,600.0	7,267.8	10,383.3	7,162.6	69.2	67.5	-70.18	-3,236.4	-1,144.7	307.1	185.7	121.50	2.528	
10,700.0	7,267.6	10,483.3	7,162.7	70.9	69.3	-70.22	-3,336.4	-1,144.7	307.1	182.0	125.05	2.456	
10,800.0	7,267.4	10,583.3	7,162.7	72.7	71.1	-70.26	-3,436.4	-1,144.7	307.0	178.4	128.60	2.387	
10,900.0	7,267.2	10,683.3	7,162.8	74.5	72.9	-70.30	-3,536.4	-1,144.7	306.9	174.8	132.17	2.322	
11,000.0	7,267.1	10,783.3	7,162.8	76.2	74.7	-70.33	-3,636.4	-1,144.7	306.9	171.1	135.75	2.261	
11,100.0	7,266.9	10,883.3	7,162.8	78.0	76.5	-70.37	-3,736.4	-1,144.7	306.8	167.5	139.33	2.202	
11,200.0	7,266.7	10,983.3	7,162.9	79.8	78.3	-70.41	-3,836.4	-1,144.7	306.8	163.8	142.91	2.146	
11,300.0	7,266.5	11,083.3	7,162.9	81.6	80.2	-70.44	-3,936.4	-1,144.7	306.7	160.2	146.51	2.093	
11,400.0	7,266.4	11,183.3	7,162.9	83.4	82.0	-70.48	-4,036.4	-1,144.7	306.6	156.5	150.11	2.043	
11,500.0	7,266.2	11,283.3	7,163.0	85.2	83.8	-70.52	-4,136.4	-1,144.7	306.6	152.8	153.71	1.994	
11,600.0	7,266.0	11,383.3	7,163.0	87.0	85.7	-70.56	-4,236.4	-1,144.7	306.5	149.2	157.32	1.948	
11,700.0	7,265.8	11,483.3	7,163.0	88.8	87.5	-70.59	-4,336.4	-1,144.7	306.4	145.5	160.93	1.904	
11,800.0	7,265.7	11,583.3	7,163.1	90.6	89.3	-70.63	-4,436.4	-1,144.7	306.4	141.8	164.55	1.862	
11,900.0	7,265.5	11,683.3	7,163.1	92.5	91.2	-70.67	-4,536.4	-1,144.7	306.3	138.1	168.18	1.821	
12,000.0	7,265.3	11,783.3	7,163.1	94.3	93.0	-70.71	-4,636.4	-1,144.7	306.2	134.4	171.80	1.782	
12,100.0	7,265.2	11,883.3	7,163.2	96.1	94.9	-70.74	-4,736.4	-1,144.7	306.2	130.7	175.44	1.745	
12,200.0	7,265.0	11,983.3	7,163.2	98.0	96.7	-70.78	-4,836.4	-1,144.7	306.1	127.0	179.07	1.709	
12,300.0	7,264.8	12,083.3	7,163.2	99.8	98.6	-70.82	-4,936.4	-1,144.7	306.0	123.3	182.71	1.675	
12,400.0	7,264.6	12,183.3	7,163.3	101.6	100.4	-70.85	-5,036.4	-1,144.7	306.0	119.6	186.35	1.642	
12,500.0	7,264.5	12,283.3	7,163.3	103.5	102.3	-70.89	-5,136.4	-1,144.7	305.9	115.9	190.00	1.610	
12,600.0	7,264.3	12,383.3	7,163.3	105.3	104.2	-70.93	-5,236.4	-1,144.7	305.9	112.2	193.65	1.579	
12,700.0	7,264.1	12,483.3	7,163.4	107.2	106.0	-70.97	-5,336.4	-1,144.7	305.8	108.5	197.30	1.550	
12,800.0	7,263.9	12,583.3	7,163.4	109.0	107.9	-71.00	-5,436.4	-1,144.7	305.7	104.8	200.96	1.521	
12,900.0	7,263.8	12,683.3	7,163.4	110.9	109.8	-71.04	-5,536.4	-1,144.7	305.7	101.1	204.62	1.494	Level 3
13,000.0	7,263.6	12,783.3	7,163.5	112.7	111.6	-71.08	-5,636.4	-1,144.7	305.6	97.3	208.28	1.467	Level 3
13,100.0	7,263.4	12,883.3	7,163.5	114.6	113.5	-71.12	-5,736.4	-1,144.7	305.5	93.6	211.94	1.442	Level 3
13,200.0	7,263.2	12,983.3	7,163.6	116.5	115.4	-71.15	-5,836.4	-1,144.7	305.5	89.9	215.61	1.417	Level 3
13,300.0	7,263.1	13,083.3	7,163.6	118.3	117.3	-71.19	-5,936.4	-1,144.7	305.4	86.1	219.28	1.393	Level 3
13,400.0	7,262.9	13,183.3	7,163.6	120.2	119.1	-71.23	-6,036.4	-1,144.7	305.4	82.4	222.95	1.370	Level 3
13,500.0	7,262.7	13,283.3	7,163.7	122.0	121.0	-71.27	-6,136.4	-1,144.7	305.3	78.7	226.63	1.347	Level 3
13,600.0	7,262.5	13,383.3	7,163.7	123.9	122.9	-71.30	-6,236.4	-1,144.7	305.2	74.9	230.31	1.325	Level 3
13,700.0	7,262.4	13,483.3	7,163.7	125.8	124.8	-71.34	-6,336.4	-1,144.7	305.2	71.2	233.99	1.304	Level 3
13,800.0	7,262.2	13,583.3	7,163.8	127.7	126.6	-71.38	-6,436.4	-1,144.7	305.1	67.4	237.67	1.284	Level 3
13,900.0	7,262.0	13,683.3	7,163.8	129.5	128.5	-71.42	-6,536.4	-1,144.7	305.0	63.7	241.36	1.264	Level 3
14,000.0	7,261.8	13,783.3	7,163.8	131.4	130.4	-71.45	-6,636.4	-1,144.7	305.0	59.9	245.04	1.245	Level 2
14,100.0	7,261.7	13,883.3	7,163.9	133.3	132.3	-71.49	-6,736.4	-1,144.7	304.9	56.2	248.73	1.226	Level 2
14,200.0	7,261.5	13,983.3	7,163.9	135.2	134.2	-71.53	-6,836.4	-1,144.7	304.9	52.4	252.42	1.208	Level 2
14,300.0	7,261.3	14,083.3	7,163.9	137.0	136.1	-71.57	-6,936.4	-1,144.7	304.8	48.7	256.12	1.190	Level 2
14,400.0	7,261.1	14,183.3	7,164.0	138.9	138.0	-71.61	-7,036.4	-1,144.7	304.7	44.9	259.81	1.173	Level 2
14,478.5	7,261.0	14,261.8	7,164.0	140.4	139.4	-71.64	-7,114.9	-1,144.7	304.7	42.0	262.72	1.160	Level 2, SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13G-403
Project:	SEC.13-T4N-R67W	**TVD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**MD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Stroh 13G-403	**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 (3-11-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Stroh 13GK-HZ Pad Sec. 13-T4N-R67W - Stroh 13K-203 - Wellbore #1 - Plan #1 (3-11-14)

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	90.00	0.0	89.2	89.2				
100.0	100.0	99.0	99.0	0.1	0.1	90.00	0.0	89.2	89.2	89.0	0.22	399.046	
200.0	200.0	199.0	199.0	0.3	0.3	90.00	0.0	89.2	89.2	88.6	0.67	132.794	CC, ES
300.0	300.0	299.0	299.0	0.6	0.6	170.56	0.0	89.2	91.0	89.8	1.12	81.257	
400.0	399.8	398.8	398.8	0.8	0.8	171.05	0.0	89.2	96.1	94.6	1.57	61.243	
500.0	499.5	498.5	498.5	1.0	1.0	171.77	0.0	89.2	104.7	102.7	2.02	51.730	
600.0	598.7	597.7	597.7	1.3	1.2	172.59	0.0	89.2	116.8	114.3	2.48	47.048	
700.0	697.5	696.5	696.5	1.7	1.5	173.43	0.0	89.2	132.4	129.4	2.94	44.964	
800.0	795.6	794.6	794.6	2.0	1.7	174.22	0.0	89.2	151.3	147.9	3.41	44.425	
900.0	893.1	892.1	892.1	2.5	1.9	174.92	0.0	89.2	173.7	169.9	3.87	44.875	
1,000.0	989.7	988.7	988.7	3.0	2.1	175.55	0.0	89.2	199.3	194.9	4.34	45.919	
1,100.0	1,086.2	1,085.2	1,085.2	3.5	2.3	176.07	0.0	89.2	225.5	220.7	4.82	46.827	
1,200.0	1,182.7	1,181.7	1,181.7	4.1	2.5	176.48	0.0	89.2	251.8	246.5	5.30	47.531	
1,300.0	1,279.1	1,278.1	1,278.1	4.6	2.8	176.81	0.0	89.2	278.0	272.3	5.78	48.089	
1,400.0	1,375.6	1,374.6	1,374.6	5.2	3.0	177.09	0.0	89.2	304.3	298.0	6.27	48.541	
1,500.0	1,472.1	1,471.1	1,471.1	5.7	3.2	177.32	0.0	89.2	330.6	323.8	6.76	48.912	
1,600.0	1,568.6	1,567.6	1,567.6	6.3	3.4	177.52	0.0	89.2	356.9	349.6	7.25	49.222	
1,700.0	1,665.1	1,670.1	1,670.1	6.8	3.6	177.60	0.7	88.8	382.6	374.9	7.75	49.358	
1,800.0	1,761.5	1,776.8	1,776.7	7.4	3.9	177.26	4.6	86.3	406.2	398.0	8.26	49.187	
1,900.0	1,858.0	1,884.4	1,883.9	8.0	4.1	176.54	11.8	81.5	427.5	418.7	8.77	48.723	
2,000.0	1,954.5	1,992.7	1,991.5	8.5	4.4	175.47	22.5	74.6	446.5	437.2	9.31	47.982	
2,100.0	2,051.0	2,096.0	2,093.6	9.1	4.6	174.21	35.5	66.1	463.7	453.8	9.85	47.078	
2,200.0	2,147.5	2,194.1	2,190.5	9.6	4.9	173.06	48.3	57.8	480.8	470.3	10.40	46.214	
2,300.0	2,243.9	2,292.1	2,287.4	10.2	5.2	171.98	61.0	49.5	498.0	487.0	10.97	45.389	
2,400.0	2,340.4	2,390.2	2,384.2	10.8	5.5	170.97	73.8	41.2	515.4	503.9	11.56	44.605	
2,500.0	2,436.9	2,488.3	2,481.1	11.3	5.8	170.03	86.5	32.9	533.0	520.8	12.15	43.858	
2,600.0	2,533.4	2,586.4	2,578.0	11.9	6.1	169.15	99.3	24.6	550.7	537.9	12.76	43.150	
2,700.0	2,629.8	2,684.4	2,674.9	12.5	6.4	168.33	112.0	16.3	568.5	555.1	13.38	42.482	
2,800.0	2,726.3	2,782.5	2,771.8	13.0	6.7	167.55	124.8	8.0	586.4	572.4	14.01	41.850	
2,900.0	2,822.8	2,880.6	2,868.7	13.6	7.0	166.82	137.5	-0.3	604.4	589.8	14.65	41.254	
3,000.0	2,919.3	2,978.7	2,965.6	14.2	7.3	166.13	150.3	-8.6	622.6	607.3	15.30	40.692	
3,100.0	3,015.8	3,076.8	3,062.5	14.7	7.6	165.48	163.0	-16.9	640.8	624.8	15.95	40.161	
3,200.0	3,112.2	3,174.8	3,159.4	15.3	8.0	164.87	175.8	-25.2	659.0	642.4	16.62	39.660	
3,300.0	3,208.7	3,272.9	3,256.3	15.9	8.3	164.29	188.5	-33.6	677.4	660.1	17.28	39.188	
3,400.0	3,305.2	3,371.0	3,353.1	16.4	8.6	163.74	201.3	-41.9	695.8	677.8	17.96	38.742	
3,500.0	3,401.7	3,469.1	3,450.0	17.0	9.0	163.22	214.0	-50.2	714.2	695.6	18.64	38.321	
3,600.0	3,498.2	3,567.1	3,546.9	17.6	9.3	162.72	226.8	-58.5	732.7	713.4	19.32	37.923	
3,700.0	3,594.6	3,656.1	3,635.0	18.1	9.5	162.37	237.4	-65.4	751.8	731.9	19.92	37.751	
3,800.0	3,691.1	3,744.0	3,722.3	18.7	9.8	162.23	245.7	-70.8	772.3	751.8	20.46	37.746	SF
3,900.0	3,787.6	3,831.3	3,809.3	19.3	9.9	162.27	251.7	-74.7	794.0	773.0	20.96	37.877	
4,000.0	3,884.1	3,918.0	3,895.9	19.8	10.1	162.48	255.4	-77.1	817.0	795.5	21.42	38.133	
4,100.0	3,980.5	4,004.0	3,981.9	20.4	10.3	162.85	257.0	-78.1	841.2	819.4	21.85	38.508	
4,200.0	4,077.0	4,098.2	4,076.0	21.0	10.4	163.34	257.0	-78.1	866.4	844.2	22.26	38.925	
4,300.0	4,173.5	4,194.6	4,172.5	21.5	10.6	163.82	257.0	-78.1	891.7	869.1	22.69	39.295	
4,400.0	4,270.0	4,291.1	4,269.0	22.1	10.8	164.28	257.0	-78.1	917.1	894.0	23.13	39.647	
4,500.0	4,366.5	4,387.6	4,365.5	22.6	11.0	164.71	257.0	-78.1	942.5	918.9	23.57	39.983	
4,600.0	4,462.9	4,484.1	4,461.9	23.2	11.1	165.12	257.0	-78.1	968.0	944.0	24.02	40.305	
4,700.0	4,559.4	4,580.5	4,558.4	23.8	11.3	165.51	257.0	-78.1	993.5	969.0	24.46	40.611	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13G-403
Project:	SEC.13-T4N-R67W	**TVD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**MD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Stroh 13G-403	**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 (3-11-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Stroh 13GK-HZ Pad Sec. 13-T4N-R67W - Stroh 13K-423 - Wellbore #1 - Plan #1 (3-11-14)

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	90.00	0.0	119.9	119.9				
100.0	100.0	99.0	99.0	0.1	0.1	90.00	0.0	119.9	119.9	119.7	0.22	536.218	
200.0	200.0	199.0	199.0	0.3	0.3	90.00	0.0	119.9	119.9	119.2	0.67	178.442	CC, ES
300.0	300.0	299.0	299.0	0.6	0.6	170.51	0.0	119.9	121.6	120.5	1.12	108.660	
400.0	399.8	398.8	398.8	0.8	0.8	170.88	0.0	119.9	126.8	125.2	1.57	80.787	
500.0	499.5	498.5	498.5	1.0	1.0	171.44	0.0	119.9	135.4	133.4	2.02	66.877	
600.0	598.7	597.7	597.7	1.3	1.2	172.11	0.0	119.9	147.5	145.0	2.48	59.394	
700.0	697.5	696.5	696.5	1.7	1.5	172.83	0.0	119.9	163.0	160.1	2.94	55.369	
800.0	795.6	794.6	794.6	2.0	1.7	173.54	0.0	119.9	181.9	178.5	3.41	53.406	
900.0	893.1	892.1	892.1	2.5	1.9	174.20	0.0	119.9	204.3	200.4	3.87	52.766	SF
1,000.0	989.7	988.7	988.7	3.0	2.1	174.82	0.0	119.9	229.9	225.5	4.34	52.947	
1,100.0	1,086.2	1,085.2	1,085.2	3.5	2.3	175.35	0.0	119.9	256.1	251.2	4.82	53.153	
1,200.0	1,182.7	1,181.7	1,181.7	4.1	2.5	175.78	0.0	119.9	282.3	277.0	5.30	53.277	
1,300.0	1,279.1	1,278.1	1,278.1	4.6	2.8	176.14	0.0	119.9	308.5	302.8	5.78	53.350	
1,400.0	1,375.6	1,374.6	1,374.6	5.2	3.0	176.44	0.0	119.9	334.8	328.5	6.27	53.390	
1,500.0	1,472.1	1,471.1	1,471.1	5.7	3.2	176.70	0.0	119.9	361.0	354.3	6.76	53.408	
1,600.0	1,568.6	1,567.6	1,567.6	6.3	3.4	176.93	0.0	119.9	387.3	380.1	7.25	53.412	
1,700.0	1,665.1	1,664.1	1,664.1	6.8	3.6	177.12	0.0	119.9	413.6	405.8	7.74	53.406	
1,800.0	1,761.5	1,760.5	1,760.5	7.4	3.8	177.29	0.0	119.9	439.9	431.6	8.24	53.394	
1,900.0	1,858.0	1,857.0	1,857.0	8.0	4.1	177.45	0.0	119.9	466.1	457.4	8.73	53.378	
2,000.0	1,954.5	1,953.5	1,953.5	8.5	4.3	177.58	0.0	119.9	492.4	483.2	9.23	53.359	
2,100.0	2,051.0	2,047.2	2,047.2	9.1	4.5	177.66	0.3	120.1	518.8	509.1	9.72	53.389	
2,200.0	2,147.5	2,137.7	2,137.7	9.6	4.7	177.46	3.0	121.4	546.1	535.9	10.20	53.533	
2,300.0	2,243.9	2,227.6	2,227.4	10.2	4.9	177.01	8.1	124.0	574.5	563.8	10.69	53.758	
2,400.0	2,340.4	2,316.6	2,315.9	10.8	5.1	176.34	15.6	127.8	603.9	592.7	11.17	54.044	
2,500.0	2,436.9	2,404.5	2,403.1	11.3	5.3	175.50	25.5	132.7	634.5	622.8	11.67	54.370	
2,600.0	2,533.4	2,497.6	2,495.2	11.9	5.5	174.53	37.6	138.8	665.9	653.7	12.19	54.627	
2,700.0	2,629.8	2,591.9	2,588.5	12.5	5.8	173.63	49.9	145.0	697.5	684.8	12.72	54.822	
2,800.0	2,726.3	2,686.2	2,681.8	13.0	6.0	172.81	62.2	151.2	729.3	716.0	13.27	54.970	
2,900.0	2,822.8	2,780.5	2,775.1	13.6	6.3	172.05	74.5	157.3	761.2	747.4	13.82	55.079	
3,000.0	2,919.3	2,874.8	2,868.5	14.2	6.5	171.36	86.8	163.5	793.2	778.8	14.38	55.159	
3,100.0	3,015.8	2,969.2	2,961.8	14.7	6.8	170.72	99.1	169.7	825.3	810.3	14.95	55.216	
3,200.0	3,112.2	3,063.5	3,055.1	15.3	7.1	170.12	111.4	175.9	857.4	841.9	15.52	55.252	
3,300.0	3,208.7	3,157.8	3,148.4	15.9	7.4	169.57	123.7	182.1	889.7	873.6	16.10	55.274	
3,400.0	3,305.2	3,252.1	3,241.7	16.4	7.6	169.06	136.0	188.2	922.0	905.3	16.68	55.283	
3,500.0	3,401.7	3,346.4	3,335.0	17.0	7.9	168.58	148.3	194.4	954.4	937.1	17.26	55.282	
3,600.0	3,498.2	3,440.7	3,428.3	17.6	8.2	168.14	160.6	200.6	986.8	969.0	17.85	55.274	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13G-403
Project:	SEC.13-T4N-R67W	**TVD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**MD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Stroh 13G-403	**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 (3-11-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Stroh 13GK-HZ Pad Sec. 13-T4N-R67W - Stroh 13K-443 - Wellbore #1 - Plan #1 (3-11-14)

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	90.00	0.0	61.4	61.4				
100.0	100.0	99.0	99.0	0.1	0.1	90.00	0.0	61.4	61.4	61.1	0.22	274.344	
200.0	200.0	199.0	199.0	0.3	0.3	90.00	0.0	61.4	61.4	60.7	0.67	91.296	CC, ES
300.0	300.0	299.0	299.0	0.6	0.6	170.64	0.0	61.4	63.1	62.0	1.12	56.345	
400.0	399.8	398.8	398.8	0.8	0.8	171.34	0.0	61.4	68.2	66.7	1.57	43.477	
500.0	499.5	498.5	498.5	1.0	1.0	172.30	0.0	61.4	76.9	74.8	2.02	37.963	
600.0	598.7	597.7	597.7	1.3	1.2	173.32	0.0	61.4	89.0	86.5	2.48	35.829	
700.0	697.5	696.5	696.5	1.7	1.5	174.29	0.0	61.4	104.5	101.6	2.94	35.510	
800.0	795.6	794.6	794.6	2.0	1.7	175.13	0.0	61.4	123.5	120.1	3.41	36.267	
900.0	893.1	892.1	892.1	2.5	1.9	175.85	0.0	61.4	145.9	142.1	3.87	37.707	
1,000.0	989.7	988.7	988.7	3.0	2.1	176.45	0.0	61.4	171.5	167.2	4.34	39.534	
1,100.0	1,086.2	1,085.2	1,085.2	3.5	2.3	176.92	0.0	61.4	197.8	193.0	4.82	41.080	
1,200.0	1,182.7	1,181.7	1,181.7	4.1	2.5	177.28	0.0	61.4	224.1	218.8	5.30	42.310	
1,300.0	1,279.1	1,278.1	1,278.1	4.6	2.8	177.57	0.0	61.4	250.4	244.6	5.78	43.308	
1,400.0	1,375.6	1,374.6	1,374.6	5.2	3.0	177.80	0.0	61.4	276.6	270.4	6.27	44.134	
1,500.0	1,472.1	1,479.5	1,479.5	5.7	3.2	178.01	0.1	60.3	301.9	295.2	6.76	44.649	
1,600.0	1,568.6	1,589.1	1,588.9	6.3	3.4	178.19	0.8	55.2	323.7	316.4	7.25	44.640	
1,700.0	1,665.1	1,700.4	1,699.8	6.8	3.7	178.35	2.1	45.8	341.6	333.9	7.75	44.087	
1,800.0	1,761.5	1,813.1	1,811.7	7.4	3.9	178.50	4.0	31.9	355.8	347.5	8.26	43.060	
1,900.0	1,858.0	1,926.9	1,923.9	8.0	4.2	178.64	6.5	13.5	365.9	357.2	8.79	41.649	
2,000.0	1,954.5	2,030.2	2,025.3	8.5	4.6	178.77	9.1	-6.1	373.3	364.0	9.30	40.139	
2,100.0	2,051.0	2,129.9	2,123.2	9.1	4.9	178.89	11.7	-25.1	380.5	370.7	9.81	38.774	
2,200.0	2,147.5	2,229.7	2,221.1	9.6	5.2	179.01	14.3	-44.1	387.8	377.5	10.33	37.552	
2,300.0	2,243.9	2,329.4	2,318.9	10.2	5.6	179.12	16.8	-63.1	395.0	384.2	10.85	36.408	
2,400.0	2,340.4	2,429.1	2,416.8	10.8	5.9	179.23	19.4	-82.2	402.3	390.9	11.38	35.366	
2,500.0	2,436.9	2,528.9	2,514.7	11.3	6.3	179.33	22.0	-101.2	409.5	397.6	11.90	34.408	
2,600.0	2,533.4	2,628.6	2,612.5	11.9	6.7	179.43	24.6	-120.2	416.8	404.4	12.43	33.524	
2,700.0	2,629.8	2,728.3	2,710.4	12.5	7.1	179.53	27.1	-139.2	424.0	411.1	12.96	32.707	
2,800.0	2,726.3	2,828.1	2,808.3	13.0	7.5	179.62	29.7	-158.2	431.3	417.8	13.50	31.950	
2,900.0	2,822.8	2,927.8	2,906.2	13.6	7.9	179.71	32.3	-177.3	438.5	424.5	14.03	31.247	
3,000.0	2,919.3	3,027.5	3,004.0	14.2	8.3	179.80	34.8	-196.3	445.8	431.2	14.57	30.592	
3,100.0	3,015.8	3,127.3	3,101.9	14.7	8.7	179.88	37.4	-215.3	453.1	437.9	15.11	29.981	
3,200.0	3,112.2	3,227.0	3,199.8	15.3	9.1	179.97	40.0	-234.3	460.3	444.7	15.65	29.410	
3,300.0	3,208.7	3,326.7	3,297.6	15.9	9.5	-179.95	42.6	-253.3	467.6	451.4	16.19	28.874	
3,400.0	3,305.2	3,426.5	3,395.5	16.4	9.9	-179.88	45.1	-272.3	474.8	458.1	16.74	28.372	
3,500.0	3,401.7	3,526.2	3,493.4	17.0	10.3	-179.80	47.7	-291.4	482.1	464.8	17.28	27.899	
3,600.0	3,498.2	3,625.9	3,591.2	17.6	10.7	-179.73	50.3	-310.4	489.3	471.5	17.82	27.454	
3,700.0	3,594.6	3,725.7	3,689.1	18.1	11.1	-179.66	52.9	-329.4	496.6	478.2	18.37	27.034	
3,800.0	3,691.1	3,825.4	3,787.0	18.7	11.5	-179.59	55.4	-348.4	503.9	485.0	18.92	26.637	
3,900.0	3,787.6	3,925.1	3,884.9	19.3	12.0	-179.52	58.0	-367.4	511.1	491.7	19.46	26.262	
4,000.0	3,884.1	4,024.9	3,982.7	19.8	12.4	-179.46	60.6	-386.4	518.4	498.4	20.01	25.906	
4,100.0	3,980.5	4,124.6	4,080.6	20.4	12.8	-179.40	63.1	-405.5	525.7	505.1	20.56	25.568	
4,200.0	4,077.0	4,224.3	4,178.5	21.0	13.2	-179.34	65.7	-424.5	532.9	511.8	21.11	25.248	
4,300.0	4,173.5	4,324.1	4,276.3	21.5	13.6	-179.28	68.3	-443.5	540.2	518.5	21.66	24.943	
4,400.0	4,270.0	4,423.8	4,374.2	22.1	14.1	-179.22	70.9	-462.5	547.5	525.2	22.21	24.652	
4,500.0	4,366.5	4,519.7	4,468.3	22.6	14.5	-179.17	73.3	-480.7	554.8	532.1	22.74	24.395	
4,600.0	4,462.9	4,600.0	4,547.4	23.2	14.7	-179.13	75.2	-494.4	564.2	541.0	23.22	24.296	
4,700.0	4,559.4	4,685.8	4,632.3	23.8	15.0	-179.10	76.8	-506.6	576.5	552.8	23.69	24.333	
4,800.0	4,655.9	4,767.9	4,713.9	24.3	15.2	-179.09	78.1	-515.9	591.6	567.5	24.15	24.500	
4,900.0	4,752.4	4,849.3	4,795.0	24.9	15.3	-179.09	79.0	-522.8	609.6	585.0	24.60	24.783	
5,000.0	4,848.9	4,929.7	4,875.3	25.5	15.5	-179.10	79.6	-527.4	630.3	605.2	25.04	25.174	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13G-403
Project:	SEC.13-T4N-R67W	**TVD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**MD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Stroh 13G-403	**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 (3-11-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Stroh 13GK-HZ Pad Sec. 13-T4N-R67W - Stroh 13K-443 - Wellbore #1 - Plan #1 (3-11-14)

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	4,945.3	5,009.1	4,954.7	26.0	15.6	-179.12	79.9	-529.7	653.7	628.2	25.47	25.665	
5,200.0	5,041.8	5,095.3	5,040.8	26.6	15.7	-179.15	80.0	-530.1	679.6	653.7	25.92	26.220	
5,300.0	5,138.3	5,191.8	5,137.3	27.2	15.9	-179.18	80.0	-530.1	705.9	679.5	26.39	26.744	
5,400.0	5,234.8	5,288.3	5,233.8	27.7	16.0	-179.21	80.0	-530.1	732.2	705.3	26.87	27.248	
5,500.0	5,331.3	5,384.7	5,330.3	28.3	16.2	-179.24	80.0	-530.1	758.5	731.1	27.35	27.733	
5,600.0	5,427.7	5,481.2	5,426.7	28.9	16.3	-179.26	80.0	-530.1	784.8	756.9	27.83	28.200	
5,700.0	5,524.2	5,577.7	5,523.2	29.4	16.5	-179.29	80.0	-530.1	811.1	782.8	28.31	28.651	
5,800.0	5,620.9	5,674.4	5,619.9	29.9	16.6	-179.31	80.0	-530.1	836.4	807.6	28.81	29.033	
5,900.0	5,718.5	5,772.0	5,717.5	30.3	16.8	-179.34	80.0	-530.1	858.4	829.1	29.26	29.341	
6,000.0	5,816.7	5,870.2	5,815.7	30.6	16.9	-179.36	80.0	-530.1	877.0	847.3	29.66	29.564	
6,100.0	5,915.6	5,969.1	5,914.6	30.9	17.1	-179.37	80.0	-530.1	892.1	862.1	30.03	29.707	
6,200.0	6,014.9	6,068.4	6,013.9	31.1	17.3	-179.38	80.0	-530.1	903.8	873.4	30.36	29.774	
6,300.0	6,114.6	6,168.0	6,113.6	31.3	17.4	-179.39	80.0	-530.1	912.0	881.4	30.64	29.768	
6,400.0	6,214.4	6,267.9	6,213.4	31.5	17.6	-179.39	80.0	-530.1	916.7	885.9	30.88	29.691	
6,500.0	6,314.4	6,367.9	6,313.4	31.5	17.8	100.23	80.0	-530.1	918.0	886.9	31.10	29.515	
6,600.0	6,414.4	6,467.9	6,413.4	31.6	18.0	100.23	80.0	-530.1	918.0	886.5	31.47	29.169	
6,700.0	6,514.4	6,565.1	6,510.7	31.7	18.1	-79.78	79.9	-530.1	918.0	886.2	31.82	28.853	
6,800.0	6,614.0	6,650.0	6,595.3	31.8	18.2	-79.88	73.7	-530.1	917.7	885.7	32.00	28.680	
6,900.0	6,711.6	6,730.2	6,674.2	31.8	18.3	-80.12	59.3	-530.1	917.1	884.9	32.15	28.525	
7,000.0	6,805.5	6,813.2	6,753.7	31.9	18.4	-80.50	35.8	-530.1	916.1	883.7	32.31	28.354	
7,100.0	6,894.2	6,900.0	6,833.6	31.9	18.5	-81.05	2.2	-530.1	914.7	882.2	32.51	28.141	
7,200.0	6,976.1	6,981.0	6,904.3	31.9	18.6	-81.69	-37.2	-530.1	913.2	880.4	32.76	27.872	
7,300.0	7,049.8	7,066.1	6,973.7	31.9	18.8	-82.47	-86.4	-530.1	911.5	878.3	33.15	27.498	
7,400.0	7,114.2	7,150.0	7,036.4	31.9	18.9	-83.34	-142.2	-530.1	909.7	876.0	33.68	27.008	
7,500.0	7,167.9	7,239.7	7,096.1	32.0	19.2	-84.37	-209.0	-530.1	908.0	873.5	34.46	26.348	
7,600.0	7,210.3	7,328.6	7,147.2	32.1	19.5	-85.46	-281.8	-530.1	906.4	870.9	35.49	25.541	
7,700.0	7,240.4	7,419.3	7,190.3	32.3	19.9	-86.63	-361.5	-530.1	905.1	868.3	36.81	24.586	
7,800.0	7,257.9	7,511.9	7,224.2	32.6	20.4	-87.87	-447.6	-530.1	904.1	865.7	38.46	23.507	
7,900.0	7,268.1	7,607.5	7,248.0	33.0	21.2	-88.77	-540.1	-530.1	903.7	863.2	40.43	22.349	
8,000.0	7,272.3	7,705.7	7,261.0	33.4	22.1	-89.35	-637.4	-530.1	903.5	860.9	42.63	21.192	
8,100.0	7,272.1	7,805.1	7,269.9	34.0	23.2	-89.92	-736.4	-530.1	903.5	858.4	45.09	20.038	
8,105.0	7,272.1	7,810.1	7,270.1	34.1	23.2	-89.94	-741.4	-530.1	903.5	858.3	45.22	19.980	
8,200.0	7,272.0	7,905.1	7,271.7	34.7	24.4	-90.05	-836.3	-530.1	903.5	855.8	47.68	18.949	
8,300.0	7,271.8	8,005.1	7,272.3	35.5	25.7	-90.10	-936.3	-530.1	903.5	853.1	50.42	17.920	
8,400.0	7,271.6	8,105.1	7,272.9	36.4	27.0	-90.15	-1,036.3	-530.1	903.5	850.2	53.29	16.953	
8,500.0	7,271.4	8,205.1	7,273.5	37.4	28.5	-90.20	-1,136.3	-530.1	903.5	847.2	56.29	16.052	
8,600.0	7,271.3	8,305.1	7,274.1	38.5	30.0	-90.24	-1,236.3	-530.1	903.5	844.1	59.38	15.217	
8,700.0	7,271.1	8,405.1	7,274.7	39.6	31.5	-90.29	-1,336.3	-530.1	903.5	841.0	62.55	14.445	
8,800.0	7,270.9	8,505.1	7,275.3	40.8	33.1	-90.34	-1,436.3	-530.1	903.5	837.7	65.79	13.733	
8,900.0	7,270.7	8,605.1	7,275.9	42.1	34.7	-90.39	-1,536.3	-530.1	903.5	834.4	69.10	13.076	
9,000.0	7,270.6	8,705.1	7,276.5	43.5	36.4	-90.44	-1,636.3	-530.1	903.6	831.1	72.46	12.470	
9,100.0	7,270.4	8,805.1	7,277.1	44.9	38.0	-90.49	-1,736.3	-530.1	903.6	827.7	75.86	11.911	
9,200.0	7,270.2	8,905.1	7,277.7	46.3	39.7	-90.54	-1,836.3	-530.1	903.6	824.3	79.31	11.394	
9,300.0	7,270.0	9,005.0	7,278.3	47.8	41.4	-90.59	-1,936.3	-530.1	903.6	820.8	82.79	10.915	
9,400.0	7,269.9	9,105.0	7,278.9	49.3	43.2	-90.63	-2,036.3	-530.1	903.6	817.3	86.30	10.471	
9,500.0	7,269.7	9,205.0	7,279.5	50.8	44.9	-90.68	-2,136.3	-530.1	903.6	813.8	89.83	10.059	
9,600.0	7,269.5	9,305.0	7,280.0	52.4	46.7	-90.73	-2,236.3	-530.1	903.6	810.2	93.40	9.675	
9,700.0	7,269.3	9,405.0	7,280.6	54.0	48.5	-90.78	-2,336.3	-530.1	903.7	806.7	96.98	9.318	
9,800.0	7,269.2	9,505.0	7,281.2	55.6	50.2	-90.83	-2,436.3	-530.1	903.7	803.1	100.58	8.985	
9,900.0	7,269.0	9,605.0	7,281.8	57.3	52.0	-90.88	-2,536.3	-530.1	903.7	799.5	104.20	8.673	
10,000.0	7,268.8	9,705.0	7,282.4	58.9	53.8	-90.93	-2,636.3	-530.1	903.7	795.9	107.83	8.381	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13G-403
Project:	SEC.13-T4N-R67W	**TVD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**MD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Stroh 13G-403	**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 (3-11-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Stroh 13GK-HZ Pad Sec. 13-T4N-R67W - Stroh 13K-443 - Wellbore #1 - Plan #1 (3-11-14)

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	7,268.6	9,805.0	7,283.0	60.6	55.6	-90.97	-2,736.3	-530.1	903.7	792.2	111.48	8.106	
10,200.0	7,268.5	9,905.0	7,283.6	62.3	57.5	-91.02	-2,836.3	-530.1	903.7	788.6	115.14	7.849	
10,300.0	7,268.3	10,005.0	7,284.2	64.0	59.3	-91.07	-2,936.2	-530.1	903.8	784.9	118.81	7.606	
10,400.0	7,268.1	10,105.0	7,284.8	65.7	61.1	-91.12	-3,036.2	-530.1	903.8	781.3	122.50	7.378	
10,500.0	7,267.9	10,205.0	7,285.4	67.4	62.9	-91.17	-3,136.2	-530.1	903.8	777.6	126.19	7.162	
10,600.0	7,267.8	10,305.0	7,286.0	69.2	64.8	-91.22	-3,236.2	-530.1	903.8	773.9	129.89	6.958	
10,700.0	7,267.6	10,405.0	7,286.6	70.9	66.6	-91.27	-3,336.2	-530.1	903.8	770.3	133.60	6.766	
10,800.0	7,267.4	10,505.0	7,287.2	72.7	68.5	-91.32	-3,436.2	-530.1	903.9	766.6	137.31	6.583	
10,900.0	7,267.2	10,605.0	7,287.8	74.5	70.3	-91.36	-3,536.2	-530.1	903.9	762.9	141.03	6.409	
11,000.0	7,267.1	10,705.0	7,288.4	76.2	72.2	-91.41	-3,636.2	-530.1	903.9	759.2	144.76	6.244	
11,100.0	7,266.9	10,805.0	7,289.0	78.0	74.0	-91.46	-3,736.2	-530.1	903.9	755.5	148.49	6.087	
11,200.0	7,266.7	10,905.0	7,289.5	79.8	75.9	-91.51	-3,836.2	-530.1	904.0	751.7	152.23	5.938	
11,300.0	7,266.5	11,005.0	7,290.1	81.6	77.8	-91.56	-3,936.2	-530.1	904.0	748.0	155.98	5.796	
11,400.0	7,266.4	11,105.0	7,290.7	83.4	79.6	-91.61	-4,036.2	-530.1	904.0	744.3	159.72	5.660	
11,500.0	7,266.2	11,205.0	7,291.3	85.2	81.5	-91.66	-4,136.2	-530.1	904.1	740.6	163.47	5.530	
11,600.0	7,266.0	11,305.0	7,291.9	87.0	83.4	-91.70	-4,236.2	-530.1	904.1	736.8	167.23	5.406	
11,700.0	7,265.8	11,405.0	7,292.5	88.8	85.3	-91.75	-4,336.2	-530.1	904.1	733.1	170.99	5.288	
11,800.0	7,265.7	11,505.0	7,293.1	90.6	87.1	-91.80	-4,436.2	-530.1	904.1	729.4	174.75	5.174	
11,900.0	7,265.5	11,605.0	7,293.7	92.5	89.0	-91.85	-4,536.2	-530.1	904.2	725.7	178.52	5.065	
12,000.0	7,265.3	11,705.0	7,294.3	94.3	90.9	-91.90	-4,636.2	-530.1	904.2	721.9	182.28	4.960	
12,100.0	7,265.2	11,805.0	7,294.9	96.1	92.8	-91.95	-4,736.2	-530.1	904.2	718.2	186.05	4.860	
12,200.0	7,265.0	11,905.0	7,295.5	98.0	94.7	-92.00	-4,836.2	-530.1	904.3	714.4	189.83	4.764	
12,300.0	7,264.8	12,005.0	7,296.1	99.8	96.5	-92.04	-4,936.2	-530.1	904.3	710.7	193.60	4.671	
12,400.0	7,264.6	12,105.0	7,296.7	101.6	98.4	-92.09	-5,036.2	-530.1	904.3	706.9	197.38	4.582	
12,500.0	7,264.5	12,205.0	7,297.3	103.5	100.3	-92.14	-5,136.1	-530.1	904.4	703.2	201.16	4.496	
12,600.0	7,264.3	12,305.0	7,297.9	105.3	102.2	-92.19	-5,236.1	-530.1	904.4	699.5	204.94	4.413	
12,700.0	7,264.1	12,404.9	7,298.4	107.2	104.1	-92.24	-5,336.1	-530.1	904.4	695.7	208.72	4.333	
12,800.0	7,263.9	12,504.9	7,299.0	109.0	106.0	-92.29	-5,436.1	-530.1	904.5	692.0	212.50	4.256	
12,900.0	7,263.8	12,604.9	7,299.6	110.9	107.9	-92.34	-5,536.1	-530.1	904.5	688.2	216.29	4.182	
13,000.0	7,263.6	12,704.9	7,300.2	112.7	109.8	-92.39	-5,636.1	-530.1	904.5	684.5	220.08	4.110	
13,100.0	7,263.4	12,804.9	7,300.8	114.6	111.7	-92.43	-5,736.1	-530.1	904.6	680.7	223.87	4.041	
13,200.0	7,263.2	12,904.9	7,301.4	116.5	113.5	-92.48	-5,836.1	-530.1	904.6	677.0	227.65	3.974	
13,300.0	7,263.1	13,004.9	7,302.0	118.3	115.4	-92.53	-5,936.1	-530.1	904.7	673.2	231.45	3.909	
13,400.0	7,262.9	13,104.9	7,302.6	120.2	117.3	-92.58	-6,036.1	-530.1	904.7	669.5	235.24	3.846	
13,500.0	7,262.7	13,204.9	7,303.2	122.0	119.2	-92.63	-6,136.1	-530.1	904.7	665.7	239.03	3.785	
13,600.0	7,262.5	13,304.9	7,303.8	123.9	121.1	-92.68	-6,236.1	-530.1	904.8	662.0	242.82	3.726	
13,700.0	7,262.4	13,404.9	7,304.4	125.8	123.0	-92.73	-6,336.1	-530.1	904.8	658.2	246.62	3.669	
13,800.0	7,262.2	13,504.9	7,305.0	127.7	124.9	-92.77	-6,436.1	-530.1	904.9	654.5	250.41	3.613	
13,900.0	7,262.0	13,604.9	7,305.6	129.5	126.8	-92.82	-6,536.1	-530.1	904.9	650.7	254.21	3.560	
14,000.0	7,261.8	13,704.9	7,306.2	131.4	128.7	-92.87	-6,636.1	-530.1	904.9	646.9	258.00	3.507	
14,100.0	7,261.7	13,804.9	7,306.8	133.3	130.6	-92.92	-6,736.1	-530.1	905.0	643.2	261.80	3.457	
14,200.0	7,261.5	13,904.9	7,307.3	135.2	132.5	-92.97	-6,836.1	-530.1	905.0	639.4	265.60	3.408	
14,300.0	7,261.3	14,004.9	7,307.9	137.0	134.4	-93.02	-6,936.1	-530.1	905.1	635.7	269.40	3.360	
14,400.0	7,261.1	14,104.9	7,308.5	138.9	136.3	-93.06	-7,036.1	-530.1	905.1	631.9	273.19	3.313	
14,478.5	7,261.0	14,183.4	7,309.0	140.4	137.8	-93.10	-7,114.6	-530.1	905.2	629.0	276.18	3.277	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13G-403
Project:	SEC.13-T4N-R67W	**TVD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**MD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Stroh 13G-403	**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 (3-11-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Stroh 13GK-HZ Pad Sec. 13-T4N-R67W - Stroh 13O-343 - Wellbore #1 - Plan #1 (3-11-14)

Offset Site Error: 0.0 ft

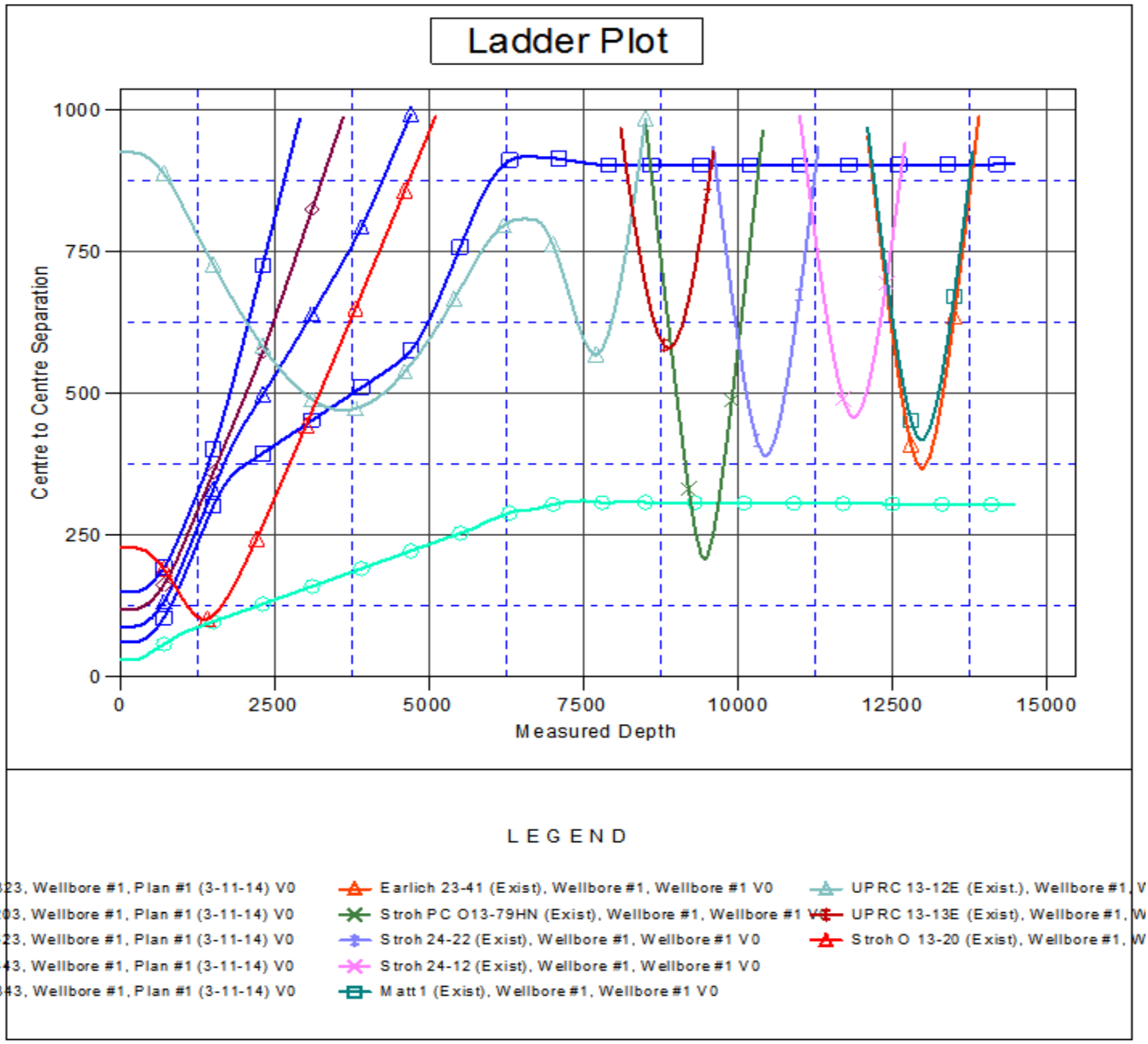
Survey Program: 0-MWD

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	90.00	0.0	150.6	150.6				
100.0	100.0	98.0	98.0	0.1	0.1	90.00	0.0	150.6	150.6	150.4	0.22	676.784	
200.0	200.0	198.0	198.0	0.3	0.3	90.00	0.0	150.6	150.6	149.9	0.67	224.842	CC, ES
300.0	300.0	298.0	298.0	0.6	0.6	170.48	0.0	150.6	152.3	151.2	1.12	136.335	
400.0	399.8	397.8	397.8	0.8	0.8	170.78	0.0	150.6	157.5	155.9	1.57	100.471	
500.0	499.5	497.5	497.5	1.0	1.0	171.24	0.0	150.6	166.1	164.1	2.02	82.113	
600.0	598.7	596.7	596.7	1.3	1.2	171.80	0.0	150.6	178.1	175.7	2.48	71.805	
700.0	697.5	695.5	695.5	1.7	1.5	172.42	0.0	150.6	193.6	190.7	2.94	65.825	
800.0	795.6	793.6	793.6	2.0	1.7	173.05	0.0	150.6	212.6	209.2	3.41	62.430	
900.0	893.1	891.1	891.1	2.5	1.9	173.66	0.0	150.6	234.9	231.1	3.87	60.693	
1,000.0	989.7	987.7	987.7	3.0	2.1	174.25	0.0	150.6	260.4	256.1	4.34	60.008	
1,100.0	1,086.2	1,084.2	1,084.2	3.5	2.3	174.78	0.0	150.6	286.6	281.8	4.82	59.508	
1,200.0	1,182.7	1,180.7	1,180.7	4.1	2.5	175.22	0.0	150.6	312.8	307.5	5.30	59.049	
1,300.0	1,279.1	1,269.8	1,269.8	4.6	2.7	175.49	0.3	151.4	339.9	334.1	5.77	58.956	SF
1,400.0	1,375.6	1,355.9	1,355.9	5.2	2.9	175.52	1.6	154.5	369.5	363.2	6.23	59.295	
1,500.0	1,472.1	1,440.6	1,440.3	5.7	3.1	175.37	3.9	159.9	401.6	394.9	6.70	59.965	
1,600.0	1,568.6	1,523.6	1,523.0	6.3	3.3	175.08	7.0	167.5	436.1	428.9	7.16	60.891	
1,700.0	1,665.1	1,600.0	1,598.7	6.8	3.5	174.72	10.7	176.3	473.0	465.4	7.62	62.108	
1,800.0	1,761.5	1,684.7	1,682.4	7.4	3.7	174.25	15.7	188.4	512.3	504.2	8.10	63.279	
1,900.0	1,858.0	1,762.5	1,758.9	8.0	3.9	173.75	21.2	201.4	553.8	545.3	8.57	64.645	
2,000.0	1,954.5	1,850.7	1,845.4	8.5	4.2	173.19	27.9	217.6	596.8	587.8	9.06	65.861	
2,100.0	2,051.0	1,940.9	1,933.7	9.1	4.5	172.70	34.8	234.2	639.9	630.3	9.56	66.946	
2,200.0	2,147.5	2,031.0	2,022.0	9.6	4.8	172.26	41.7	250.7	683.0	672.9	10.06	67.886	
2,300.0	2,243.9	2,121.1	2,110.3	10.2	5.2	171.88	48.5	267.3	726.1	715.5	10.57	68.699	
2,400.0	2,340.4	2,211.2	2,198.7	10.8	5.5	171.54	55.4	283.8	769.2	758.2	11.08	69.426	
2,500.0	2,436.9	2,301.4	2,287.0	11.3	5.8	171.24	62.3	300.3	812.4	800.8	11.59	70.069	
2,600.0	2,533.4	2,391.5	2,375.3	11.9	6.2	170.96	69.2	316.9	855.6	843.5	12.11	70.638	
2,700.0	2,629.8	2,481.6	2,463.6	12.5	6.6	170.72	76.1	333.4	898.8	886.2	12.63	71.148	
2,800.0	2,726.3	2,571.7	2,552.0	13.0	6.9	170.49	83.0	350.0	942.0	928.8	13.16	71.606	
2,900.0	2,822.8	2,661.9	2,640.3	13.6	7.3	170.29	89.9	366.5	985.2	971.5	13.68	72.020	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13G-403
Project:	SEC.13-T4N-R67W	**TVD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**MD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Stroh 13G-403	**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 (3-11-14)	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 4821.0ft (Original Well Elev) Coordinates are relative to: Stroh 13G-403
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: 0.42°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13G-403
Project:	SEC.13-T4N-R67W	**TVD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**MD Reference:**	WELL @ 4821.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Stroh 13G-403	**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 (3-11-14)	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 4821.0ft (Original Well Elev) Coordinates are relative to: Stroh 13G-403
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: 0.42°