PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Stroh 13K-423**

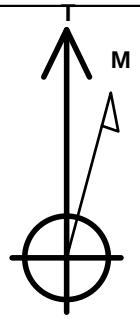
Surface Location: Stroh 13GK-HZ Pad Sec. 13-T4N-R67W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
Ground Elevation: 4805.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1356828.44	3183286.69	40.311030	-104.842760	

Original Well Elev WELL @ 4820.0ft (Original Well Elev)

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 2353'FSL & 1646'FWL, Sec.13	1.0	0.0	0.0	Point
BHL 500'FSL & 1741'FWL, Sec.24	7276.0	-7114.9	112.1	Point



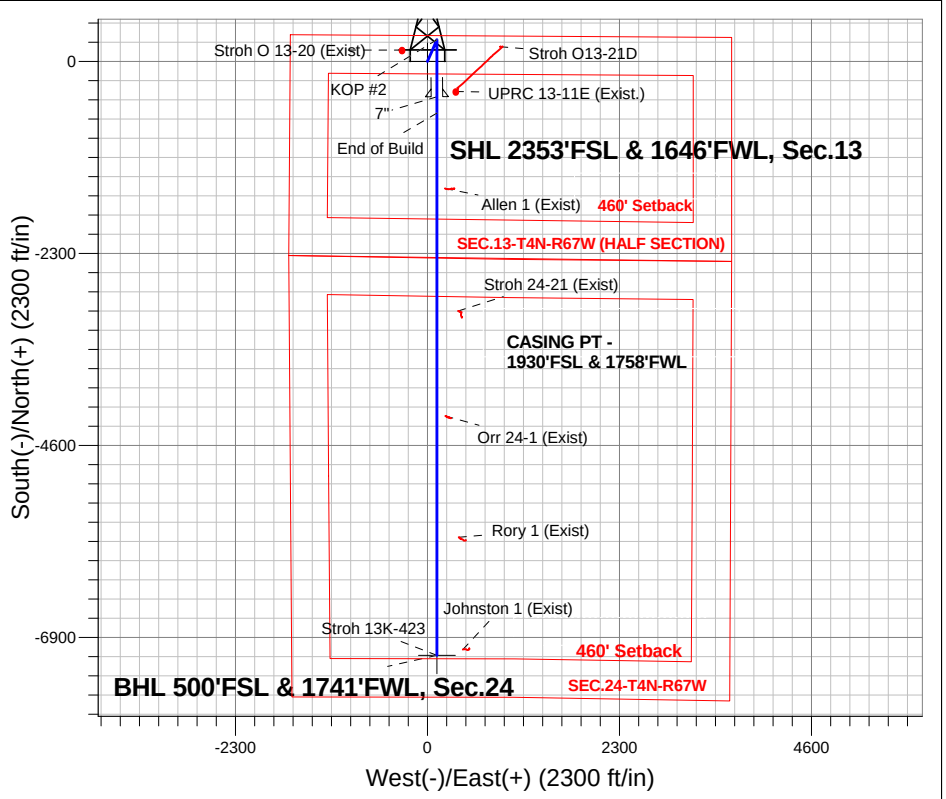
Azimuths to True North
Magnetic North: 8.53°

Magnetic Field
Strength: 52788.3snT
Dip Angle: 66.87°
Date: 3/11/2014
Model: IGRF2010

Stroh 13GK-HZ Pad Sec. 13-T4N-R67W
Stroh 13K-423
Plan #2 (4-9-14)
10:56, April 10 2014

ANNOTATIONS

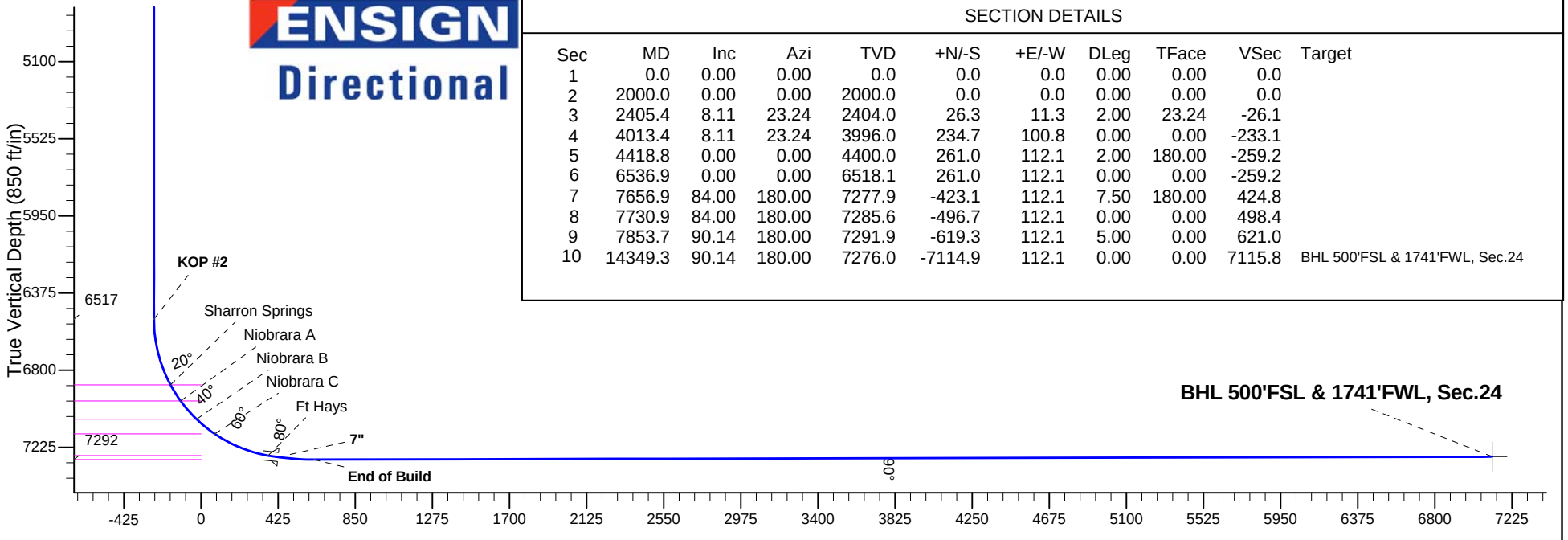
TVD	MD	Annotation
2000.0	2000.0	KOP #1
6517.2	6536.0	KOP #2
7291.9	7853.7	End of Build



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	2000.0	0.00	0.00	2000.0	0.0	0.0	0.00	0.00	0.0	
3	2405.4	8.11	23.24	2404.0	26.3	11.3	2.00	23.24	-26.1	
4	4013.4	8.11	23.24	3996.0	234.7	100.8	0.00	0.00	-233.1	
5	4418.8	0.00	0.00	4400.0	261.0	112.1	2.00	180.00	-259.2	
6	6536.9	0.00	0.00	6518.1	261.0	112.1	0.00	0.00	-259.2	
7	7656.9	84.00	180.00	7277.9	-423.1	112.1	7.50	180.00	424.8	
8	7730.9	84.00	180.00	7285.6	-496.7	112.1	0.00	0.00	498.4	
9	7853.7	90.14	180.00	7291.9	-619.3	112.1	5.00	0.00	621.0	
10	14349.3	90.14	180.00	7276.0	-7114.9	112.1	0.00	0.00	7115.8	BHL 500'FSL & 1741'FWL, Sec.24

ENSIGN Directional



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.13-T4N-R67W
Stroh 13GK-HZ Pad Sec. 13-T4N-R67W
Stroh 13K-423

Wellbore #1

Plan: Plan #2 (4-9-14)

Standard Planning Report

10 April, 2014

Database:	landmark	**Local Co-ordinate Reference:**	Well Stroh 13K-423
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**TVD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Project:	SEC.13-T4N-R67W	**MD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**North Reference:**	True
Well:	Stroh 13K-423	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (4-9-14)		

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 13K-423

Well Position	**+N/-S**	0.0 ft	**Northing:**	1,356,828.44 ft	**Latitude:**	40.311030
	+E/-W	119.9 ft	**Easting:**	3,183,286.69 ft	**Longitude:**	-104.842760
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	4,805.0 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 #2 (4-9-14)

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	179.10

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	
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,405.4	8.11	23.24	2,404.0	26.3	11.3	2.00	2.00	0.00	23.24	
4,013.4	8.11	23.24	3,996.0	234.7	100.8	0.00	0.00	0.00	0.00	
4,418.8	0.00	0.00	4,400.0	261.0	112.1	2.00	-2.00	0.00	180.00	
6,536.9	0.00	0.00	6,518.1	261.0	112.1	0.00	0.00	0.00	0.00	
7,656.9	84.00	180.00	7,277.9	-423.1	112.1	7.50	7.50	0.00	180.00	
7,730.9	84.00	180.00	7,285.6	-496.7	112.1	0.00	0.00	0.00	0.00	
7,853.7	90.14	180.00	7,291.9	-619.3	112.1	5.00	5.00	0.00	0.00	
14,349.3	90.14	180.00	7,276.0	-7,114.9	112.1	0.00	0.00	0.00	0.00	BHL 500'FSL & 174

Database:	landmark	**Local Co-ordinate Reference:**	Well Stroh 13K-423
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Project:	SEC.13-T4N-R67W	**MD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**North Reference:**	True
Well:	Stroh 13K-423	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (4-9-14)		

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 2353'FSL & 1646'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
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP #1									
2,100.0	2.00	23.24	2,100.0	1.6	0.7	-1.6	2.00	2.00	0.00
2,200.0	4.00	23.24	2,199.8	6.4	2.8	-6.4	2.00	2.00	0.00
2,300.0	6.00	23.24	2,299.5	14.4	6.2	-14.3	2.00	2.00	0.00
2,400.0	8.00	23.24	2,398.7	25.6	11.0	-25.4	2.00	2.00	0.00
2,405.4	8.11	23.24	2,404.0	26.3	11.3	-26.1	2.00	2.00	0.00
2,500.0	8.11	23.24	2,497.7	38.6	16.6	-38.3	0.00	0.00	0.00
2,600.0	8.11	23.24	2,596.7	51.5	22.1	-51.2	0.00	0.00	0.00
2,700.0	8.11	23.24	2,695.7	64.5	27.7	-64.0	0.00	0.00	0.00
2,800.0	8.11	23.24	2,794.7	77.4	33.3	-76.9	0.00	0.00	0.00
2,900.0	8.11	23.24	2,893.7	90.4	38.8	-89.8	0.00	0.00	0.00
3,000.0	8.11	23.24	2,992.7	103.4	44.4	-102.7	0.00	0.00	0.00
3,100.0	8.11	23.24	3,091.7	116.3	50.0	-115.5	0.00	0.00	0.00
3,200.0	8.11	23.24	3,190.7	129.3	55.5	-128.4	0.00	0.00	0.00
3,300.0	8.11	23.24	3,289.7	142.2	61.1	-141.3	0.00	0.00	0.00
3,400.0	8.11	23.24	3,388.7	155.2	66.7	-154.1	0.00	0.00	0.00
3,500.0	8.11	23.24	3,487.7	168.2	72.2	-167.0	0.00	0.00	0.00
3,600.0	8.11	23.24	3,586.7	181.1	77.8	-179.9	0.00	0.00	0.00
3,700.0	8.11	23.24	3,685.7	194.1	83.4	-192.7	0.00	0.00	0.00
3,800.0	8.11	23.24	3,784.7	207.0	88.9	-205.6	0.00	0.00	0.00
3,900.0	8.11	23.24	3,883.7	220.0	94.5	-218.5	0.00	0.00	0.00
4,000.0	8.11	23.24	3,982.7	233.0	100.1	-231.3	0.00	0.00	0.00
4,013.4	8.11	23.24	3,996.0	234.7	100.8	-233.1	0.00	0.00	0.00
4,100.0	6.38	23.24	4,081.9	244.7	105.1	-243.0	2.00	-2.00	0.00
4,200.0	4.38	23.24	4,181.4	253.3	108.8	-251.6	2.00	-2.00	0.00
4,300.0	2.38	23.24	4,281.3	258.7	111.1	-257.0	2.00	-2.00	0.00
4,400.0	0.38	23.24	4,381.2	260.9	112.1	-259.1	2.00	-2.00	0.00
4,418.8	0.00	0.00	4,400.0	261.0	112.1	-259.2	2.00	-2.00	0.00
4,500.0	0.00	0.00	4,481.2	261.0	112.1	-259.2	0.00	0.00	0.00
4,600.0	0.00	0.00	4,581.2	261.0	112.1	-259.2	0.00	0.00	0.00

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Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**North Reference:**	True
Well:	Stroh 13K-423	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (4-9-14)		

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)
4,700.0	0.00	0.00	4,681.2	261.0	112.1	-259.2	0.00	0.00	0.00
4,800.0	0.00	0.00	4,781.2	261.0	112.1	-259.2	0.00	0.00	0.00
4,900.0	0.00	0.00	4,881.2	261.0	112.1	-259.2	0.00	0.00	0.00
5,000.0	0.00	0.00	4,981.2	261.0	112.1	-259.2	0.00	0.00	0.00
5,100.0	0.00	0.00	5,081.2	261.0	112.1	-259.2	0.00	0.00	0.00
5,200.0	0.00	0.00	5,181.2	261.0	112.1	-259.2	0.00	0.00	0.00
5,300.0	0.00	0.00	5,281.2	261.0	112.1	-259.2	0.00	0.00	0.00
5,400.0	0.00	0.00	5,381.2	261.0	112.1	-259.2	0.00	0.00	0.00
5,500.0	0.00	0.00	5,481.2	261.0	112.1	-259.2	0.00	0.00	0.00
5,600.0	0.00	0.00	5,581.2	261.0	112.1	-259.2	0.00	0.00	0.00
5,700.0	0.00	0.00	5,681.2	261.0	112.1	-259.2	0.00	0.00	0.00
5,800.0	0.00	0.00	5,781.2	261.0	112.1	-259.2	0.00	0.00	0.00
5,900.0	0.00	0.00	5,881.2	261.0	112.1	-259.2	0.00	0.00	0.00
6,000.0	0.00	0.00	5,981.2	261.0	112.1	-259.2	0.00	0.00	0.00
6,100.0	0.00	0.00	6,081.2	261.0	112.1	-259.2	0.00	0.00	0.00
6,200.0	0.00	0.00	6,181.2	261.0	112.1	-259.2	0.00	0.00	0.00
6,300.0	0.00	0.00	6,281.2	261.0	112.1	-259.2	0.00	0.00	0.00
6,400.0	0.00	0.00	6,381.2	261.0	112.1	-259.2	0.00	0.00	0.00
6,500.0	0.00	0.00	6,481.2	261.0	112.1	-259.2	0.00	0.00	0.00
6,536.0	0.00	0.00	6,517.2	261.0	112.1	-259.2	0.00	0.00	0.00
KOP #2									
6,536.9	0.00	0.00	6,518.1	261.0	112.1	-259.2	0.00	0.00	0.00
6,600.0	4.73	180.00	6,581.2	258.4	112.1	-256.6	7.50	7.50	0.00
6,700.0	12.23	180.00	6,680.0	243.7	112.1	-241.9	7.50	7.50	0.00
6,800.0	19.73	180.00	6,776.1	216.1	112.1	-214.3	7.50	7.50	0.00
6,900.0	27.23	180.00	6,867.7	176.3	112.1	-174.5	7.50	7.50	0.00
6,913.9	28.28	180.00	6,880.0	169.8	112.1	-168.1	7.50	7.50	0.00
Sharron Springs									
7,000.0	34.73	180.00	6,953.4	124.9	112.1	-123.1	7.50	7.50	0.00
7,019.2	36.17	180.00	6,969.0	113.7	112.1	-112.0	7.50	7.50	0.00
Niobrara A									
7,100.0	42.23	180.00	7,031.6	62.7	112.1	-60.9	7.50	7.50	0.00
7,152.2	46.15	180.00	7,069.0	26.3	112.1	-24.6	7.50	7.50	0.00
Niobrara B									
7,200.0	49.73	180.00	7,101.0	-9.2	112.1	10.9	7.50	7.50	0.00
7,281.0	55.81	180.00	7,150.0	-73.6	112.1	75.4	7.50	7.50	0.00
Niobrara C									
7,300.0	57.23	180.00	7,160.5	-89.5	112.1	91.2	7.50	7.50	0.00
7,400.0	64.73	180.00	7,209.0	-176.9	112.1	178.6	7.50	7.50	0.00
7,500.0	72.23	180.00	7,245.6	-269.8	112.1	271.6	7.50	7.50	0.00
7,600.0	79.73	180.00	7,269.8	-366.8	112.1	368.5	7.50	7.50	0.00
7,601.0	79.81	180.00	7,270.0	-367.8	112.1	369.5	7.50	7.50	0.00
Ft Hays									
7,656.9	84.00	180.00	7,277.9	-423.1	112.1	424.8	7.50	7.50	0.00
7"									
7,700.0	84.00	180.00	7,282.4	-466.0	112.1	467.7	0.00	0.00	0.00
7,730.9	84.00	180.00	7,285.6	-496.7	112.1	498.4	0.00	0.00	0.00
7,800.0	87.46	180.00	7,290.7	-565.6	112.1	567.3	5.00	5.00	0.00
7,853.7	90.14	180.00	7,291.9	-619.3	112.1	621.0	5.00	5.00	0.00
End of Build									
7,900.0	90.14	180.00	7,291.8	-665.6	112.1	667.3	0.00	0.00	0.00
8,000.0	90.14	180.00	7,291.5	-765.6	112.1	767.3	0.00	0.00	0.00

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Well:	Stroh 13K-423	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (4-9-14)		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,100.0	90.14	180.00	7,291.3	-865.6	112.1	867.2	0.00	0.00	0.00
8,200.0	90.14	180.00	7,291.0	-965.6	112.1	967.2	0.00	0.00	0.00
8,300.0	90.14	180.00	7,290.8	-1,065.6	112.1	1,067.2	0.00	0.00	0.00
8,400.0	90.14	180.00	7,290.5	-1,165.6	112.1	1,167.2	0.00	0.00	0.00
8,500.0	90.14	180.00	7,290.3	-1,265.6	112.1	1,267.2	0.00	0.00	0.00
8,600.0	90.14	180.00	7,290.0	-1,365.6	112.1	1,367.2	0.00	0.00	0.00
8,700.0	90.14	180.00	7,289.8	-1,465.6	112.1	1,467.2	0.00	0.00	0.00
8,800.0	90.14	180.00	7,289.6	-1,565.6	112.1	1,567.2	0.00	0.00	0.00
8,900.0	90.14	180.00	7,289.3	-1,665.6	112.1	1,667.1	0.00	0.00	0.00
9,000.0	90.14	180.00	7,289.1	-1,765.6	112.1	1,767.1	0.00	0.00	0.00
9,100.0	90.14	180.00	7,288.8	-1,865.6	112.1	1,867.1	0.00	0.00	0.00
9,200.0	90.14	180.00	7,288.6	-1,965.6	112.1	1,967.1	0.00	0.00	0.00
9,300.0	90.14	180.00	7,288.3	-2,065.6	112.1	2,067.1	0.00	0.00	0.00
9,400.0	90.14	180.00	7,288.1	-2,165.6	112.1	2,167.1	0.00	0.00	0.00
9,500.0	90.14	180.00	7,287.8	-2,265.6	112.1	2,267.1	0.00	0.00	0.00
9,600.0	90.14	180.00	7,287.6	-2,365.6	112.1	2,367.1	0.00	0.00	0.00
9,700.0	90.14	180.00	7,287.4	-2,465.6	112.1	2,467.0	0.00	0.00	0.00
9,800.0	90.14	180.00	7,287.1	-2,565.6	112.1	2,567.0	0.00	0.00	0.00
9,900.0	90.14	180.00	7,286.9	-2,665.6	112.1	2,667.0	0.00	0.00	0.00
10,000.0	90.14	180.00	7,286.6	-2,765.6	112.1	2,767.0	0.00	0.00	0.00
10,100.0	90.14	180.00	7,286.4	-2,865.6	112.1	2,867.0	0.00	0.00	0.00
10,200.0	90.14	180.00	7,286.1	-2,965.6	112.1	2,967.0	0.00	0.00	0.00
10,300.0	90.14	180.00	7,285.9	-3,065.6	112.1	3,067.0	0.00	0.00	0.00
10,400.0	90.14	180.00	7,285.6	-3,165.6	112.1	3,167.0	0.00	0.00	0.00
10,500.0	90.14	180.00	7,285.4	-3,265.6	112.1	3,266.9	0.00	0.00	0.00
10,600.0	90.14	180.00	7,285.2	-3,365.6	112.1	3,366.9	0.00	0.00	0.00
10,700.0	90.14	180.00	7,284.9	-3,465.6	112.1	3,466.9	0.00	0.00	0.00
10,800.0	90.14	180.00	7,284.7	-3,565.6	112.1	3,566.9	0.00	0.00	0.00
10,900.0	90.14	180.00	7,284.4	-3,665.6	112.1	3,666.9	0.00	0.00	0.00
11,000.0	90.14	180.00	7,284.2	-3,765.6	112.1	3,766.9	0.00	0.00	0.00
11,100.0	90.14	180.00	7,283.9	-3,865.6	112.1	3,866.9	0.00	0.00	0.00
11,200.0	90.14	180.00	7,283.7	-3,965.6	112.1	3,966.8	0.00	0.00	0.00
11,300.0	90.14	180.00	7,283.5	-4,065.6	112.1	4,066.8	0.00	0.00	0.00
11,400.0	90.14	180.00	7,283.2	-4,165.6	112.1	4,166.8	0.00	0.00	0.00
11,500.0	90.14	180.00	7,283.0	-4,265.6	112.1	4,266.8	0.00	0.00	0.00
11,600.0	90.14	180.00	7,282.7	-4,365.6	112.1	4,366.8	0.00	0.00	0.00
11,700.0	90.14	180.00	7,282.5	-4,465.6	112.1	4,466.8	0.00	0.00	0.00
11,800.0	90.14	180.00	7,282.2	-4,565.6	112.1	4,566.8	0.00	0.00	0.00
11,900.0	90.14	180.00	7,282.0	-4,665.6	112.1	4,666.8	0.00	0.00	0.00
12,000.0	90.14	180.00	7,281.7	-4,765.6	112.1	4,766.7	0.00	0.00	0.00
12,100.0	90.14	180.00	7,281.5	-4,865.6	112.1	4,866.7	0.00	0.00	0.00
12,200.0	90.14	180.00	7,281.3	-4,965.6	112.1	4,966.7	0.00	0.00	0.00
12,300.0	90.14	180.00	7,281.0	-5,065.6	112.1	5,066.7	0.00	0.00	0.00
12,400.0	90.14	180.00	7,280.8	-5,165.6	112.1	5,166.7	0.00	0.00	0.00
12,500.0	90.14	180.00	7,280.5	-5,265.6	112.1	5,266.7	0.00	0.00	0.00
12,600.0	90.14	180.00	7,280.3	-5,365.6	112.1	5,366.7	0.00	0.00	0.00
12,700.0	90.14	180.00	7,280.0	-5,465.6	112.1	5,466.7	0.00	0.00	0.00
12,800.0	90.14	180.00	7,279.8	-5,565.6	112.1	5,566.6	0.00	0.00	0.00
12,900.0	90.14	180.00	7,279.5	-5,665.6	112.1	5,666.6	0.00	0.00	0.00
13,000.0	90.14	180.00	7,279.3	-5,765.6	112.1	5,766.6	0.00	0.00	0.00
13,100.0	90.14	180.00	7,279.1	-5,865.6	112.1	5,866.6	0.00	0.00	0.00
13,200.0	90.14	180.00	7,278.8	-5,965.6	112.1	5,966.6	0.00	0.00	0.00
13,300.0	90.14	180.00	7,278.6	-6,065.6	112.1	6,066.6	0.00	0.00	0.00

Database:	landmark	**Local Co-ordinate Reference:**	Well Stroh 13K-423
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**TVD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Project:	SEC.13-T4N-R67W	**MD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**North Reference:**	True
Well:	Stroh 13K-423	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (4-9-14)		

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)
13,400.0	90.14	180.00	7,278.3	-6,165.6	112.1	6,166.6	0.00	0.00	0.00
13,500.0	90.14	180.00	7,278.1	-6,265.6	112.1	6,266.6	0.00	0.00	0.00
13,600.0	90.14	180.00	7,277.8	-6,365.6	112.1	6,366.5	0.00	0.00	0.00
13,700.0	90.14	180.00	7,277.6	-6,465.6	112.1	6,466.5	0.00	0.00	0.00
13,800.0	90.14	180.00	7,277.3	-6,565.6	112.1	6,566.5	0.00	0.00	0.00
13,900.0	90.14	180.00	7,277.1	-6,665.6	112.1	6,666.5	0.00	0.00	0.00
14,000.0	90.14	180.00	7,276.9	-6,765.6	112.1	6,766.5	0.00	0.00	0.00
14,100.0	90.14	180.00	7,276.6	-6,865.6	112.1	6,866.5	0.00	0.00	0.00
14,200.0	90.14	180.00	7,276.4	-6,965.6	112.1	6,966.5	0.00	0.00	0.00
14,300.0	90.14	180.00	7,276.1	-7,065.6	112.1	7,066.5	0.00	0.00	0.00
14,349.3	90.14	180.00	7,276.0	-7,114.9	112.1	7,115.8	0.00	0.00	0.00
BHL 500'FSL & 1741'FWL, Sec.24									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,656.9	7,277.9	7"	7	7-1/2

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,913.9	6,880.0	Sharron Springs		0.00	
7,019.2	6,969.0	Niobrara A		0.00	
7,152.2	7,069.0	Niobrara B		0.00	
7,281.0	7,150.0	Niobrara C		0.00	
7,601.0	7,270.0	Ft Hays		0.00	
	7,292.0	Codell		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
2,000.0	2,000.0	0.0	0.0	KOP #1
6,536.0	6,517.2	261.0	112.1	KOP #2
7,853.7	7,291.9	-619.3	112.1	End of Build

ENSIGN Directional

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.13-T4N-R67W
Stroh 13GK-HZ Pad Sec. 13-T4N-R67W
Stroh 13K-423

Wellbore #1
Plan #2 (4-9-14)

Anticollision Report

10 April, 2014

PDC ENERGY
Growing E&P Value

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13K-423
Project:	SEC.13-T4N-R67W	**TVD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**MD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Stroh 13K-423	**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 #2 (4-9-14)	**Offset TVD Reference:**	Offset Datum

Reference Plan #2 (4-9-14)

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** 4/9/2014

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	14,349.3	Plan #2 (4-9-14) (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						
Allen 1 (Exist) - Wellbore #1 - Wellbore #1	8,757.5	7,277.6	100.6	50.1	1.991	CC, ES, SF
Johnston 1 (Exist) - Wellbore #1 - Wellbore #1	14,277.5	7,189.4	313.2	160.8	2.055	CC, ES
Johnston 1 (Exist) - Wellbore #1 - Wellbore #1	14,300.0	7,189.3	314.0	161.2	2.054	SF
Orr 24-1 (Exist) - Wellbore #1 - Wellbore #1	11,482.0	7,191.1	102.5	1.3	1.013	Level 2, CC, ES, SF
Rory 1 (Exist) - Wellbore #1 - Wellbore #1	12,935.4	7,191.3	262.5	134.5	2.051	CC, ES, SF
Stroh 24-21 (Exist) - Wellbore #1 - Wellbore #1	10,223.4	7,218.0	253.6	178.0	3.356	CC, ES, SF
Stroh O 13-20 (Exist) - Wellbore #1 - Wellbore #1	2,140.6	2,129.6	333.5	286.2	7.053	CC
Stroh O 13-20 (Exist) - Wellbore #1 - Wellbore #1	7,000.0	6,942.4	417.3	263.2	2.708	ES, SF
Stroh 13GK-HZ Pad Sec. 13-T4N-R67W						
Stroh 13G-323 - Wellbore #1 - Plan #2 (4-9-14)	400.0	400.0	89.2	87.7	56.722	CC, ES
Stroh 13G-323 - Wellbore #1 - Plan #2 (4-9-14)	900.0	880.5	130.9	127.1	34.461	SF
Stroh 13G-403 - Wellbore #1 - Plan #1 (3-11-14)	166.3	167.3	119.9	119.4	228.341	CC
Stroh 13G-403 - Wellbore #1 - Plan #1 (3-11-14)	200.0	200.0	119.9	119.3	177.853	ES
Stroh 13G-403 - Wellbore #1 - Plan #1 (3-11-14)	2,000.0	1,915.5	487.3	477.5	49.550	SF
Stroh 13K-203 - Wellbore #1 - Plan #1 (3-11-14)	1,600.0	1,600.0	30.7	23.7	4.403	CC, ES
Stroh 13K-203 - Wellbore #1 - Plan #1 (3-11-14)	14,349.3	14,171.1	366.9	126.1	1.524	SF
Stroh 13K-443 - Wellbore #1 - Plan #2 (4-9-14)	1,400.0	1,400.0	58.6	52.5	9.651	CC, ES
Stroh 13K-443 - Wellbore #1 - Plan #2 (4-9-14)	14,349.3	14,200.7	845.7	570.1	3.068	SF
Stroh 13O-343 - Wellbore #1 - Plan #1 (3-11-14)	1,200.0	1,199.0	30.7	25.5	5.937	CC, ES
Stroh 13O-343 - Wellbore #1 - Plan #1 (3-11-14)	14,349.3	14,319.4	578.4	308.6	2.144	SF
Stroh O13-21D Sec.13-T4N-R67W						
Stroh O13-21D - Stroh O13-21D - Stroh O13-21D	1,588.2	1,589.3	479.2	472.9	75.286	CC
Stroh O13-21D - Stroh O13-21D - Stroh O13-21D	1,600.0	1,599.8	479.2	472.8	74.745	ES
Stroh O13-21D - Stroh O13-21D - Stroh O13-21D	6,900.0	6,975.6	762.3	730.2	23.737	SF
UPRC 13-11E (Exist.) - Wellbore #1 - Design #1	7,593.8	7,269.7	225.4	191.6	6.668	CC, ES
UPRC 13-11E (Exist.) - Wellbore #1 - Design #1	7,600.0	7,270.8	225.4	191.6	6.661	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13K-423
Project:	SEC.13-T4N-R67W	**TVD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**MD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Stroh 13K-423	**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 #2 (4-9-14)	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.0 ft

Survey Program: 100-NS-GYRO-MS

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,800.0	7,290.7	7,284.2	7,282.8	19.7	16.6	-70.55	-1,523.1	212.5	962.7	928.3	34.47	27.929	
7,900.0	7,291.8	7,284.6	7,283.2	20.9	16.6	-94.86	-1,523.0	212.5	863.3	826.1	37.28	23.160	
8,000.0	7,291.5	7,283.8	7,282.4	22.2	16.6	-94.40	-1,523.1	212.6	764.1	725.5	38.59	19.799	
8,100.0	7,291.3	7,283.0	7,281.6	23.6	16.6	-93.94	-1,523.1	212.6	665.1	625.1	40.00	16.630	
8,200.0	7,291.0	7,282.2	7,280.8	25.0	16.6	-93.48	-1,523.1	212.6	566.5	525.0	41.47	13.661	
8,300.0	7,290.8	7,281.4	7,280.0	26.6	16.6	-93.01	-1,523.1	212.6	468.4	425.4	43.00	10.894	
8,400.0	7,290.5	7,280.6	7,279.1	28.1	16.6	-92.55	-1,523.1	212.6	371.4	326.8	44.57	8.332	
8,500.0	7,290.3	7,279.7	7,278.3	29.7	16.6	-92.09	-1,523.1	212.6	276.4	230.2	46.19	5.985	
8,600.0	7,290.0	7,278.9	7,277.5	31.4	16.6	-91.62	-1,523.1	212.6	186.9	139.0	47.84	3.906	
8,700.0	7,289.8	7,278.1	7,276.7	33.0	16.6	-91.16	-1,523.1	212.6	115.8	66.3	49.52	2.339	
8,757.5	7,289.7	7,277.6	7,276.2	34.0	16.6	-90.89	-1,523.1	212.7	100.6	50.1	50.50	1.991	CC, ES, SF
8,800.0	7,289.6	7,277.3	7,275.9	34.7	16.6	-90.69	-1,523.1	212.7	109.2	58.0	51.22	2.131	
8,900.0	7,289.3	7,276.5	7,275.1	36.5	16.5	-90.23	-1,523.1	212.7	174.4	121.5	52.94	3.294	
9,000.0	7,289.1	7,275.7	7,274.3	38.2	16.5	-89.77	-1,523.1	212.7	262.5	207.8	54.68	4.801	
9,100.0	7,288.8	7,274.9	7,273.4	39.9	16.5	-89.30	-1,523.1	212.7	356.9	300.5	56.43	6.325	
9,200.0	7,288.6	7,274.0	7,272.6	41.7	16.5	-88.84	-1,523.1	212.7	453.8	395.6	58.19	7.797	
9,300.0	7,288.3	7,273.2	7,271.8	43.5	16.5	-88.38	-1,523.1	212.7	551.7	491.8	59.97	9.201	
9,400.0	7,288.1	7,272.4	7,271.0	45.3	16.5	-87.91	-1,523.1	212.7	650.3	588.6	61.74	10.532	
9,500.0	7,287.8	7,271.6	7,270.2	47.1	16.5	-87.45	-1,523.1	212.7	749.3	685.7	63.53	11.794	
9,600.0	7,287.6	7,270.8	7,269.4	48.9	16.5	-86.99	-1,523.1	212.8	848.5	783.1	65.32	12.990	
9,700.0	7,287.4	7,270.0	7,268.6	50.7	16.5	-86.53	-1,523.1	212.8	947.8	880.7	67.11	14.124	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13K-423
Project:	SEC.13-T4N-R67W	**TVD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**MD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Stroh 13K-423	**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 #2 (4-9-14)	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.0 ft

Survey Program: 100-NS-GYRO-MS

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
13,400.0	7,278.3	7,190.8	7,189.9	120.3	15.5	-90.86	-7,043.1	425.3	931.7	796.0	135.71	6.866	
13,500.0	7,278.1	7,190.6	7,189.7	122.2	15.5	-90.83	-7,043.1	425.3	838.2	700.6	137.61	6.091	
13,600.0	7,277.8	7,190.4	7,189.6	124.1	15.5	-90.80	-7,043.1	425.3	746.4	606.9	139.52	5.350	
13,700.0	7,277.6	7,190.3	7,189.4	126.0	15.5	-90.77	-7,043.1	425.3	657.0	515.6	141.42	4.646	
13,800.0	7,277.3	7,190.1	7,189.2	127.9	15.5	-90.74	-7,043.1	425.3	571.1	427.8	143.33	3.984	
13,900.0	7,277.1	7,189.9	7,189.1	129.8	15.5	-90.72	-7,043.1	425.3	490.5	345.3	145.24	3.378	
14,000.0	7,276.9	7,189.8	7,188.9	131.7	15.5	-90.69	-7,043.1	425.3	418.5	271.4	147.14	2.844	
14,100.0	7,276.6	7,189.6	7,188.8	133.6	15.5	-90.66	-7,043.1	425.3	360.0	211.0	149.05	2.416	
14,200.0	7,276.4	7,189.5	7,188.6	135.5	15.5	-90.63	-7,043.1	425.3	322.7	171.7	150.96	2.138	
14,277.5	7,276.2	7,189.4	7,188.5	137.0	15.5	-90.61	-7,043.1	425.3	313.2	160.8	152.43	2.055	CC, ES
14,300.0	7,276.1	7,189.3	7,188.5	137.4	15.5	-90.60	-7,043.1	425.3	314.0	161.2	152.86	2.054	SF
14,349.3	7,276.0	7,189.2	7,188.4	138.4	15.5	-90.59	-7,043.1	425.3	321.4	167.6	153.80	2.089	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13K-423
Project:	SEC.13-T4N-R67W	**TVD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**MD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Stroh 13K-423	**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 #2 (4-9-14)	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.0 ft

Survey Program: 100-NS-GYRO-MS

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
10,500.0	7,285.4	7,196.3	7,195.8	65.5	17.3	-93.22	-4,247.6	214.5	987.3	904.7	82.63	11.949	
10,600.0	7,285.2	7,195.8	7,195.2	67.4	17.3	-92.92	-4,247.6	214.5	887.9	803.4	84.51	10.507	
10,700.0	7,284.9	7,195.3	7,194.7	69.2	17.3	-92.62	-4,247.6	214.5	788.7	702.3	86.40	9.129	
10,800.0	7,284.7	7,194.7	7,194.2	71.1	17.3	-92.33	-4,247.6	214.5	689.7	601.4	88.28	7.812	
10,900.0	7,284.4	7,194.2	7,193.6	73.0	17.3	-92.03	-4,247.6	214.5	591.0	500.8	90.17	6.554	
11,000.0	7,284.2	7,193.7	7,193.1	74.8	17.3	-91.73	-4,247.6	214.5	492.8	400.7	92.06	5.353	
11,100.0	7,283.9	7,193.1	7,192.6	76.7	17.3	-91.44	-4,247.6	214.5	395.5	301.6	93.95	4.210	
11,200.0	7,283.7	7,192.6	7,192.0	78.6	17.3	-91.14	-4,247.6	214.5	300.1	204.2	95.83	3.131	
11,300.0	7,283.5	7,192.1	7,191.5	80.5	17.3	-90.84	-4,247.6	214.5	208.9	111.2	97.72	2.137	
11,400.0	7,283.2	7,191.5	7,191.0	82.4	17.3	-90.54	-4,247.6	214.5	131.2	31.6	99.61	1.318	Level 3
11,482.0	7,283.0	7,191.1	7,190.5	83.9	17.3	-90.30	-4,247.6	214.6	102.5	1.3	101.16	1.013	Level 2, CC, ES, SF
11,500.0	7,283.0	7,191.0	7,190.4	84.2	17.3	-90.25	-4,247.6	214.6	104.0	2.5	101.50	1.025	Level 2
11,600.0	7,282.7	7,190.5	7,189.9	86.1	17.3	-89.95	-4,247.6	214.6	156.2	52.9	103.39	1.511	
11,700.0	7,282.5	7,189.9	7,189.4	88.0	17.3	-89.65	-4,247.6	214.6	240.8	135.6	105.27	2.288	
11,800.0	7,282.2	7,189.4	7,188.8	89.9	17.3	-89.35	-4,247.6	214.6	334.1	226.9	107.16	3.118	
11,900.0	7,282.0	7,188.9	7,188.3	91.8	17.3	-89.06	-4,247.6	214.6	430.3	321.3	109.04	3.947	
12,000.0	7,281.7	7,188.3	7,187.8	93.7	17.3	-88.76	-4,247.6	214.6	528.0	417.1	110.92	4.760	
12,100.0	7,281.5	7,187.8	7,187.3	95.6	17.3	-88.46	-4,247.6	214.6	626.4	513.6	112.80	5.553	
12,200.0	7,281.3	7,187.3	7,186.7	97.5	17.3	-88.16	-4,247.6	214.6	725.2	610.6	114.68	6.324	
12,300.0	7,281.0	7,186.7	7,186.2	99.4	17.3	-87.86	-4,247.6	214.6	824.4	707.8	116.56	7.073	
12,400.0	7,280.8	7,186.2	7,185.6	101.3	17.3	-87.57	-4,247.6	214.6	923.7	805.2	118.43	7.799	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13K-423
Project:	SEC.13-T4N-R67W	**TVD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**MD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Stroh 13K-423	**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 #2 (4-9-14)	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.0 ft

Survey Program: 100-NS-GYRO-MS

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
12,000.0	7,281.7	7,197.8	7,196.8	93.7	16.6	-92.04	-5,701.0	374.5	971.5	861.4	110.15	8.820	
12,100.0	7,281.5	7,197.1	7,196.1	95.6	16.6	-91.89	-5,701.0	374.5	875.6	763.6	112.05	7.815	
12,200.0	7,281.3	7,196.4	7,195.4	97.5	16.6	-91.74	-5,701.0	374.5	780.8	666.9	113.95	6.852	
12,300.0	7,281.0	7,195.7	7,194.7	99.4	16.6	-91.58	-5,701.0	374.5	687.5	571.6	115.85	5.934	
12,400.0	7,280.8	7,195.0	7,194.0	101.3	16.6	-91.43	-5,701.0	374.5	596.3	478.5	117.75	5.064	
12,500.0	7,280.5	7,194.3	7,193.3	103.2	16.6	-91.28	-5,701.0	374.5	508.4	388.7	119.66	4.249	
12,600.0	7,280.3	7,193.6	7,192.6	105.1	16.5	-91.13	-5,701.0	374.5	425.9	304.3	121.56	3.504	
12,700.0	7,280.0	7,192.9	7,191.9	107.0	16.5	-90.98	-5,701.0	374.5	352.6	229.1	123.46	2.856	
12,800.0	7,279.8	7,192.3	7,191.2	108.9	16.5	-90.83	-5,701.0	374.5	295.3	170.0	125.36	2.356	
12,900.0	7,279.5	7,191.6	7,190.5	110.8	16.5	-90.67	-5,701.0	374.5	264.8	137.6	127.26	2.081	
12,935.4	7,279.5	7,191.3	7,190.3	111.4	16.5	-90.62	-5,701.0	374.5	262.5	134.5	127.94	2.051	CC, ES, SF
13,000.0	7,279.3	7,190.9	7,189.8	112.7	16.5	-90.52	-5,701.0	374.5	270.3	141.1	129.17	2.093	
13,100.0	7,279.1	7,190.2	7,189.1	114.6	16.5	-90.37	-5,701.0	374.6	309.8	178.7	131.07	2.364	
13,200.0	7,278.8	7,189.5	7,188.4	116.5	16.5	-90.22	-5,701.0	374.6	372.7	239.7	132.97	2.803	
13,300.0	7,278.6	7,188.8	7,187.7	118.4	16.5	-90.06	-5,701.0	374.6	449.2	314.4	134.87	3.331	
13,400.0	7,278.3	7,188.1	7,187.0	120.3	16.5	-89.91	-5,701.0	374.6	533.6	396.8	136.77	3.901	
13,500.0	7,278.1	7,187.4	7,186.3	122.2	16.5	-89.76	-5,701.0	374.6	622.6	483.9	138.68	4.490	
13,600.0	7,277.8	7,186.7	7,185.6	124.1	16.5	-89.61	-5,701.0	374.6	714.5	573.9	140.58	5.083	
13,700.0	7,277.6	7,186.0	7,184.9	126.0	16.5	-89.45	-5,701.0	374.6	808.4	665.9	142.48	5.674	
13,800.0	7,277.3	7,185.3	7,184.2	127.9	16.5	-89.30	-5,701.0	374.6	903.5	759.2	144.38	6.258	
13,900.0	7,277.1	7,184.6	7,183.5	129.8	16.5	-89.15	-5,701.0	374.6	999.6	853.4	146.28	6.834	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13K-423
Project:	SEC.13-T4N-R67W	**TVD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**MD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Stroh 13K-423	**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 #2 (4-9-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells - Sec.13-T4N-R67W - Stroh 24-21 (Exist) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 100-NS-GYRO-MS

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
9,300.0	7,288.3	7,219.4	7,217.8	43.5	15.3	-90.63	-2,989.0	365.7	957.6	898.9	58.71	16.309	
9,400.0	7,288.1	7,219.3	7,217.7	45.3	15.3	-90.59	-2,989.0	365.7	861.6	801.1	60.51	14.239	
9,500.0	7,287.8	7,219.1	7,217.6	47.1	15.3	-90.56	-2,989.0	365.7	766.6	704.3	62.31	12.302	
9,600.0	7,287.6	7,219.0	7,217.4	48.9	15.3	-90.52	-2,989.0	365.7	673.0	608.9	64.13	10.495	
9,700.0	7,287.4	7,218.8	7,217.2	50.7	15.3	-90.49	-2,989.0	365.7	581.6	515.7	65.95	8.819	
9,800.0	7,287.1	7,218.7	7,217.1	52.5	15.3	-90.46	-2,989.0	365.7	493.5	425.8	67.77	7.282	
9,900.0	7,286.9	7,218.5	7,216.9	54.4	15.3	-90.42	-2,989.0	365.7	411.0	341.4	69.61	5.904	
10,000.0	7,286.6	7,218.4	7,216.8	56.2	15.3	-90.39	-2,989.0	365.7	338.0	266.5	71.45	4.730	
10,100.0	7,286.4	7,218.2	7,216.6	58.1	15.3	-90.35	-2,989.0	365.7	282.0	208.7	73.29	3.848	
10,200.0	7,286.1	7,218.1	7,216.5	59.9	15.3	-90.32	-2,989.0	365.7	254.7	179.5	75.14	3.389	
10,223.4	7,286.1	7,218.0	7,216.5	60.3	15.3	-90.31	-2,989.0	365.7	253.6	178.0	75.58	3.356	CC, ES, SF
10,300.0	7,285.9	7,217.9	7,216.3	61.8	15.3	-90.28	-2,989.0	365.7	264.9	187.9	77.00	3.441	
10,400.0	7,285.6	7,217.8	7,216.2	63.6	15.3	-90.25	-2,989.0	365.7	309.0	230.2	78.85	3.919	
10,500.0	7,285.4	7,217.6	7,216.0	65.5	15.3	-90.21	-2,989.0	365.7	375.3	294.6	80.72	4.649	
10,600.0	7,285.2	7,217.5	7,215.9	67.4	15.3	-90.18	-2,989.0	365.7	454.0	371.5	82.58	5.498	
10,700.0	7,284.9	7,217.3	7,215.7	69.2	15.3	-90.14	-2,989.0	365.7	539.9	455.4	84.45	6.393	
10,800.0	7,284.7	7,217.2	7,215.6	71.1	15.3	-90.11	-2,989.0	365.7	629.9	543.6	86.32	7.297	
10,900.0	7,284.4	7,217.0	7,215.4	73.0	15.3	-90.07	-2,989.0	365.7	722.6	634.4	88.19	8.193	
11,000.0	7,284.2	7,216.8	7,215.3	74.8	15.3	-90.04	-2,989.0	365.7	817.0	726.9	90.07	9.071	
11,100.0	7,283.9	7,216.7	7,215.1	76.7	15.3	-90.00	-2,989.0	365.7	912.5	820.6	91.94	9.925	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13K-423
Project:	SEC.13-T4N-R67W	**TVD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**MD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Stroh 13K-423	**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 #2 (4-9-14)	**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	-66.16	134.8	-305.1	333.7				
100.0	100.0	89.0	89.0	0.1	1.8	-66.16	134.8	-305.1	333.6	331.7	1.89	176.242	
200.0	200.0	189.0	189.0	0.3	3.8	-66.16	134.8	-305.1	333.6	329.4	4.12	81.012	
300.0	300.0	289.0	289.0	0.6	5.8	-66.16	134.8	-305.1	333.6	327.2	6.34	52.593	
400.0	400.0	389.0	389.0	0.8	7.8	-66.16	134.8	-305.1	333.6	325.0	8.57	38.935	
500.0	500.0	489.0	489.0	1.0	9.8	-66.16	134.8	-305.1	333.6	322.8	10.79	30.908	
600.0	600.0	589.0	589.0	1.2	11.8	-66.16	134.8	-305.1	333.6	320.5	13.02	25.626	
700.0	700.0	689.0	689.0	1.5	13.8	-66.16	134.8	-305.1	333.6	318.3	15.24	21.885	
800.0	800.0	789.0	789.0	1.7	15.8	-66.16	134.8	-305.1	333.6	316.1	17.47	19.097	
900.0	900.0	889.0	889.0	1.9	17.8	-66.16	134.8	-305.1	333.6	313.9	19.69	16.940	
1,000.0	1,000.0	989.0	989.0	2.1	19.8	-66.16	134.8	-305.1	333.6	311.6	21.92	15.220	
1,100.0	1,100.0	1,089.0	1,089.0	2.4	21.8	-66.16	134.8	-305.1	333.6	309.4	24.14	13.817	
1,200.0	1,200.0	1,189.0	1,189.0	2.6	23.8	-66.16	134.8	-305.1	333.6	307.2	26.36	12.651	
1,300.0	1,300.0	1,289.0	1,289.0	2.8	25.8	-66.16	134.8	-305.1	333.6	305.0	28.59	11.667	
1,400.0	1,400.0	1,389.0	1,389.0	3.0	27.8	-66.16	134.8	-305.1	333.6	302.7	30.81	10.825	
1,500.0	1,500.0	1,489.0	1,489.0	3.3	29.8	-66.16	134.8	-305.1	333.6	300.5	33.04	10.096	
1,600.0	1,600.0	1,589.0	1,589.0	3.5	31.8	-66.16	134.8	-305.1	333.6	298.3	35.26	9.459	
1,700.0	1,700.0	1,689.0	1,689.0	3.7	33.8	-66.16	134.8	-305.1	333.6	296.1	37.49	8.897	
1,800.0	1,800.0	1,789.0	1,789.0	3.9	35.8	-66.16	134.8	-305.1	333.6	293.8	39.71	8.399	
1,900.0	1,900.0	1,889.0	1,889.0	4.2	37.8	-66.16	134.8	-305.1	333.6	291.6	41.94	7.953	
2,000.0	2,000.0	1,989.0	1,989.0	4.4	39.8	-66.16	134.8	-305.1	333.6	289.4	44.16	7.553	
2,100.0	2,100.0	2,089.0	2,089.0	4.6	41.8	-89.71	134.8	-305.1	333.5	287.2	46.39	7.191	
2,140.6	2,140.6	2,129.6	2,129.6	4.7	42.6	-90.00	134.8	-305.1	333.5	286.2	47.29	7.053	CC
2,200.0	2,199.8	2,188.8	2,188.8	4.8	43.8	-90.60	134.8	-305.1	333.6	284.9	48.60	6.863	
2,300.0	2,299.5	2,288.5	2,288.5	5.1	45.8	-92.09	134.8	-305.1	333.8	282.9	50.82	6.568	
2,400.0	2,398.7	2,387.7	2,387.7	5.3	47.8	-94.15	134.8	-305.1	334.4	281.4	53.03	6.306	
2,500.0	2,497.7	2,486.7	2,486.7	5.5	49.7	-96.52	134.8	-305.1	335.8	280.5	55.25	6.077	
2,600.0	2,596.7	2,585.7	2,585.7	5.8	51.7	-98.88	134.8	-305.1	337.7	280.2	57.48	5.875	
2,700.0	2,695.7	2,684.7	2,684.7	6.0	53.7	-101.20	134.8	-305.1	340.1	280.4	59.71	5.697	
2,800.0	2,794.7	2,783.7	2,783.7	6.3	55.7	-103.49	134.8	-305.1	343.2	281.3	61.94	5.541	
2,900.0	2,893.7	2,882.7	2,882.7	6.6	57.7	-105.74	134.8	-305.1	346.8	282.6	64.18	5.404	
3,000.0	2,992.7	2,981.7	2,981.7	6.9	59.6	-107.94	134.8	-305.1	350.9	284.5	66.41	5.284	
3,100.0	3,091.7	3,080.7	3,080.7	7.2	61.6	-110.08	134.8	-305.1	355.5	286.9	68.65	5.179	
3,200.0	3,190.7	3,179.7	3,179.7	7.5	63.6	-112.17	134.8	-305.1	360.7	289.8	70.89	5.088	
3,300.0	3,289.7	3,278.7	3,278.7	7.8	65.6	-114.19	134.8	-305.1	366.3	293.1	73.12	5.009	
3,400.0	3,388.7	3,377.7	3,377.7	8.1	67.6	-116.16	134.8	-305.1	372.3	297.0	75.36	4.941	
3,500.0	3,487.7	3,476.7	3,476.7	8.4	69.5	-118.06	134.8	-305.1	378.8	301.2	77.59	4.882	
3,600.0	3,586.7	3,575.7	3,575.7	8.7	71.5	-119.89	134.8	-305.1	385.7	305.9	79.82	4.832	
3,700.0	3,685.7	3,674.7	3,674.7	9.0	73.5	-121.66	134.8	-305.1	393.0	310.9	82.04	4.790	
3,800.0	3,784.7	3,773.7	3,773.7	9.3	75.5	-123.37	134.8	-305.1	400.6	316.3	84.27	4.754	
3,900.0	3,883.7	3,872.7	3,872.7	9.6	77.5	-125.01	134.8	-305.1	408.6	322.1	86.49	4.724	
4,000.0	3,982.7	3,971.7	3,971.7	9.9	79.4	-126.59	134.8	-305.1	416.9	328.2	88.70	4.700	
4,100.0	4,081.9	4,070.9	4,070.9	10.2	81.4	-128.07	134.8	-305.1	424.7	333.7	91.02	4.666	
4,200.0	4,181.4	4,170.4	4,170.4	10.4	83.4	-129.14	134.8	-305.1	430.5	337.2	93.30	4.615	
4,300.0	4,281.3	4,270.3	4,270.3	10.6	85.4	-129.80	134.8	-305.1	434.3	338.8	95.54	4.546	
4,400.0	4,381.2	4,370.2	4,370.2	10.8	87.4	-130.07	134.8	-305.1	435.8	338.1	97.73	4.459	
4,500.0	4,481.2	4,470.2	4,470.2	11.0	89.4	-106.83	134.8	-305.1	435.9	336.0	99.91	4.363	
4,600.0	4,581.2	4,570.2	4,570.2	11.2	91.4	-106.83	134.8	-305.1	435.9	333.8	102.12	4.268	
4,700.0	4,681.2	4,670.2	4,670.2	11.4	93.4	-106.83	134.8	-305.1	435.9	331.5	104.32	4.178	
4,800.0	4,781.2	4,770.2	4,770.2	11.6	95.4	-106.83	134.8	-305.1	435.9	329.3	106.53	4.092	
4,900.0	4,881.2	4,870.2	4,870.2	11.8	97.4	-106.83	134.8	-305.1	435.9	327.1	108.74	4.009	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13K-423
Project:	SEC.13-T4N-R67W	**TVD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**MD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Stroh 13K-423	**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 #2 (4-9-14)	**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	4,981.2	4,970.2	4,970.2	12.0	99.4	-106.83	134.8	-305.1	435.9	324.9	110.94	3.929	
5,100.0	5,081.2	5,070.2	5,070.2	12.2	101.4	-106.83	134.8	-305.1	435.9	322.7	113.15	3.852	
5,200.0	5,181.2	5,170.2	5,170.2	12.4	103.4	-106.83	134.8	-305.1	435.9	320.5	115.36	3.778	
5,300.0	5,281.2	5,270.2	5,270.2	12.6	105.4	-106.83	134.8	-305.1	435.9	318.3	117.57	3.707	
5,400.0	5,381.2	5,370.2	5,370.2	12.8	107.4	-106.83	134.8	-305.1	435.9	316.1	119.78	3.639	
5,500.0	5,481.2	5,470.2	5,470.2	13.0	109.4	-106.83	134.8	-305.1	435.9	313.9	121.99	3.573	
5,600.0	5,581.2	5,570.2	5,570.2	13.2	111.4	-106.83	134.8	-305.1	435.9	311.7	124.20	3.509	
5,700.0	5,681.2	5,670.2	5,670.2	13.4	113.4	-106.83	134.8	-305.1	435.9	309.5	126.41	3.448	
5,800.0	5,781.2	5,770.2	5,770.2	13.6	115.4	-106.83	134.8	-305.1	435.9	307.3	128.62	3.389	
5,900.0	5,881.2	5,870.2	5,870.2	13.8	117.4	-106.83	134.8	-305.1	435.9	305.0	130.83	3.331	
6,000.0	5,981.2	5,970.2	5,970.2	14.0	119.4	-106.83	134.8	-305.1	435.9	302.8	133.05	3.276	
6,100.0	6,081.2	6,070.2	6,070.2	14.2	121.4	-106.83	134.8	-305.1	435.9	300.6	135.26	3.222	
6,200.0	6,181.2	6,170.2	6,170.2	14.4	123.4	-106.83	134.8	-305.1	435.9	298.4	137.47	3.171	
6,300.0	6,281.2	6,270.2	6,270.2	14.6	125.4	-106.83	134.8	-305.1	435.9	296.2	139.69	3.120	
6,400.0	6,381.2	6,370.2	6,370.2	14.8	127.4	-106.83	134.8	-305.1	435.9	294.0	141.90	3.072	
6,500.0	6,481.2	6,470.2	6,470.2	15.0	129.4	-106.83	134.8	-305.1	435.9	291.8	144.12	3.024	
6,600.0	6,581.2	6,570.2	6,570.2	15.2	131.4	73.55	134.8	-305.1	435.1	288.9	146.25	2.975	
6,700.0	6,680.0	6,669.0	6,669.0	15.3	133.4	75.69	134.8	-305.1	431.2	283.0	148.19	2.910	
6,800.0	6,776.1	6,765.1	6,765.1	15.4	135.3	79.60	134.8	-305.1	425.1	274.9	150.14	2.831	
6,900.0	6,867.7	6,856.7	6,856.7	15.4	137.1	84.94	134.8	-305.1	419.3	267.1	152.20	2.755	
6,982.3	6,938.7	6,927.7	6,927.7	15.4	138.6	90.00	134.8	-305.1	417.2	263.4	153.80	2.713	
7,000.0	6,953.4	6,942.4	6,942.4	15.4	138.8	91.12	134.8	-305.1	417.3	263.2	154.10	2.708	ES, SF
7,100.0	7,031.6	7,020.6	7,020.6	15.4	140.4	97.29	134.8	-305.1	423.4	268.2	155.21	2.728	
7,200.0	7,101.0	7,090.0	7,090.0	15.5	141.8	102.57	134.8	-305.1	441.3	286.2	155.18	2.844	
7,300.0	7,160.5	7,149.5	7,149.5	15.8	143.0	106.22	134.8	-305.1	473.7	319.2	154.45	3.067	
7,400.0	7,209.0	7,198.0	7,198.0	16.2	144.0	107.69	134.8	-305.1	520.8	366.6	154.19	3.377	
7,500.0	7,245.6	7,234.6	7,234.6	16.9	144.7	106.49	134.8	-305.1	581.2	425.5	155.70	3.733	
7,600.0	7,269.8	7,258.8	7,258.8	17.7	145.2	102.09	134.8	-305.1	652.4	493.0	159.44	4.092	
7,700.0	7,282.4	7,271.4	7,271.4	18.6	145.4	98.56	134.8	-305.1	731.4	569.1	162.28	4.507	
7,800.0	7,290.7	7,279.7	7,279.7	19.7	145.6	94.26	134.8	-305.1	815.2	650.4	164.83	4.946	
7,900.0	7,291.8	7,280.8	7,280.8	20.9	145.6	89.73	134.8	-305.1	902.6	736.1	166.47	5.422	
8,000.0	7,291.5	7,280.5	7,280.5	22.2	145.6	89.70	134.8	-305.1	992.3	824.6	167.76	5.915	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13K-423
Project:	SEC.13-T4N-R67W	**TVD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**MD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Stroh 13K-423	**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 #2 (4-9-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Stroh 13GK-HZ Pad Sec. 13-T4N-R67W - Stroh 13G-323 - Wellbore #1 - Plan #2 (4-9-14)

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	100.0	100.0	0.1	0.1	-90.00	0.0	-89.2	89.2	89.0	0.22	397.054	
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	0.0	-89.2	89.2	88.6	0.67	132.351	
300.0	300.0	300.0	300.0	0.6	0.6	-90.00	0.0	-89.2	89.2	88.1	1.12	79.411	
400.0	400.0	400.0	400.0	0.8	0.8	-90.00	0.0	-89.2	89.2	87.7	1.57	56.722	CC, ES
500.0	500.0	497.0	497.0	1.0	1.0	-89.84	0.3	-90.9	90.9	88.9	2.01	45.308	
600.0	600.0	593.7	593.6	1.2	1.2	-89.39	1.0	-95.7	95.9	93.5	2.44	39.313	
700.0	700.0	690.0	689.6	1.5	1.4	-88.75	2.3	-103.7	104.3	101.4	2.88	36.169	
800.0	800.0	785.7	784.5	1.7	1.7	-88.00	4.0	-114.9	116.0	112.6	3.34	34.763	
900.0	900.0	880.5	878.3	1.9	2.0	-87.24	6.2	-129.0	130.9	127.1	3.80	34.461	SF
1,000.0	1,000.0	974.3	970.4	2.1	2.3	-86.52	8.9	-145.9	149.1	144.9	4.27	34.898	
1,100.0	1,100.0	1,072.1	1,066.3	2.4	2.7	-85.88	11.9	-165.3	169.1	164.3	4.76	35.495	
1,200.0	1,200.0	1,170.1	1,162.3	2.6	3.1	-85.37	14.9	-184.6	189.0	183.8	5.25	35.978	
1,300.0	1,300.0	1,268.1	1,258.3	2.8	3.5	-84.96	18.0	-204.0	209.0	203.2	5.75	36.352	
1,400.0	1,400.0	1,366.0	1,354.3	3.0	3.9	-84.63	21.0	-223.4	229.0	222.7	6.25	36.648	
1,500.0	1,500.0	1,464.0	1,450.3	3.3	4.3	-84.34	24.0	-242.7	248.9	242.2	6.75	36.888	
1,600.0	1,600.0	1,562.0	1,546.3	3.5	4.7	-84.10	27.1	-262.1	268.9	261.7	7.25	37.086	
1,700.0	1,700.0	1,660.0	1,642.3	3.7	5.2	-83.89	30.1	-281.5	288.9	281.1	7.76	37.252	
1,800.0	1,800.0	1,757.9	1,738.3	3.9	5.6	-83.71	33.1	-300.8	308.9	300.6	8.26	37.392	
1,900.0	1,900.0	1,855.9	1,834.3	4.2	6.0	-83.55	36.2	-320.2	328.9	320.1	8.77	37.512	
2,000.0	2,000.0	1,953.9	1,930.2	4.4	6.5	-83.41	39.2	-339.6	348.9	339.6	9.27	37.616	
2,100.0	2,100.0	2,051.8	2,026.1	4.6	6.9	-106.40	42.2	-358.9	369.4	360.0	9.37	39.403	
2,200.0	2,199.8	2,149.3	2,121.7	4.8	7.3	-106.60	45.3	-378.2	390.8	381.0	9.84	39.730	
2,300.0	2,299.5	2,246.5	2,216.9	5.1	7.8	-107.19	48.3	-397.4	413.3	403.0	10.30	40.132	
2,400.0	2,398.7	2,343.2	2,311.6	5.3	8.2	-108.09	51.3	-416.5	437.1	426.3	10.77	40.592	
2,500.0	2,497.7	2,439.5	2,406.0	5.5	8.6	-109.52	54.2	-435.6	461.6	450.3	11.26	41.011	
2,600.0	2,596.7	2,535.8	2,500.3	5.8	9.0	-110.83	57.2	-454.6	486.4	474.6	11.76	41.368	
2,700.0	2,695.7	2,632.1	2,594.7	6.0	9.5	-112.01	60.2	-473.6	511.4	499.2	12.27	41.675	
2,800.0	2,794.7	2,728.4	2,689.0	6.3	9.9	-113.08	63.2	-492.7	536.6	523.8	12.79	41.942	
2,900.0	2,893.7	2,824.6	2,783.4	6.6	10.3	-114.06	66.2	-511.7	562.0	548.7	13.33	42.173	
3,000.0	2,992.7	2,920.9	2,877.7	6.9	10.7	-114.95	69.2	-530.7	587.5	573.7	13.86	42.376	
3,100.0	3,091.7	3,017.2	2,972.1	7.2	11.2	-115.77	72.1	-549.8	613.2	598.7	14.41	42.555	
3,200.0	3,190.7	3,113.5	3,066.4	7.5	11.6	-116.53	75.1	-568.8	638.9	623.9	14.96	42.712	
3,300.0	3,289.7	3,209.8	3,160.8	7.8	12.0	-117.22	78.1	-587.9	664.7	649.2	15.51	42.853	
3,400.0	3,388.7	3,306.1	3,255.1	8.1	12.5	-117.87	81.1	-606.9	690.7	674.6	16.07	42.978	
3,500.0	3,487.7	3,402.4	3,349.5	8.4	12.9	-118.46	84.1	-625.9	716.7	700.0	16.63	43.091	
3,600.0	3,586.7	3,498.7	3,443.9	8.7	13.3	-119.02	87.0	-645.0	742.7	725.5	17.20	43.192	
3,700.0	3,685.7	3,595.0	3,538.2	9.0	13.8	-119.54	90.0	-664.0	768.9	751.1	17.76	43.284	
3,800.0	3,784.7	3,691.3	3,632.6	9.3	14.2	-120.02	93.0	-683.0	795.0	776.7	18.33	43.368	
3,900.0	3,883.7	3,787.6	3,726.9	9.6	14.6	-120.47	96.0	-702.1	821.3	802.4	18.90	43.444	
4,000.0	3,982.7	3,883.9	3,821.3	9.9	15.0	-120.90	99.0	-721.1	847.5	828.1	19.48	43.514	
4,100.0	4,081.9	3,980.5	3,915.8	10.2	15.5	-121.62	102.0	-740.2	873.2	853.1	20.08	43.496	
4,200.0	4,181.4	4,077.6	4,011.0	10.4	15.9	-122.15	105.0	-759.4	897.1	876.5	20.62	43.502	
4,300.0	4,281.3	4,175.1	4,106.5	10.6	16.3	-122.45	108.0	-778.7	919.2	898.1	21.14	43.486	
4,400.0	4,381.2	4,272.9	4,202.3	10.8	16.8	-122.54	111.0	-798.0	939.5	917.9	21.62	43.457	
4,500.0	4,481.2	4,370.9	4,298.3	11.0	17.2	-98.98	114.1	-817.4	958.6	936.6	22.06	43.457	
4,600.0	4,581.2	4,468.8	4,394.3	11.2	17.7	-98.62	117.1	-836.7	977.7	955.2	22.51	43.428	
4,700.0	4,681.2	4,566.8	4,490.3	11.4	18.1	-98.28	120.1	-856.1	996.9	973.9	22.97	43.401	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13K-423
Project:	SEC.13-T4N-R67W	**TVD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**MD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Stroh 13K-423	**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 #2 (4-9-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Stroh 13GK-HZ Pad Sec. 13-T4N-R67W - Stroh 13G-403 - 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	1.0	1.0	0.0	0.0	-90.00	0.0	-119.9	119.9	119.9	0.00	N/A	
100.0	100.0	101.0	101.0	0.1	0.1	-90.00	0.0	-119.9	119.9	119.7	0.23	528.259	
166.3	166.3	167.3	167.3	0.3	0.3	-90.00	0.0	-119.9	119.9	119.4	0.53	228.341	CC
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	0.0	-119.9	119.9	119.3	0.67	177.853	ES
300.0	300.0	297.0	296.9	0.6	0.5	-89.87	0.3	-121.5	121.6	120.5	1.11	109.585	
400.0	400.0	392.7	392.6	0.8	0.8	-89.51	1.1	-126.3	126.6	125.0	1.55	81.704	
500.0	500.0	488.1	487.6	1.0	1.0	-88.97	2.4	-134.2	134.9	132.9	2.00	67.445	
600.0	600.0	582.8	581.7	1.2	1.3	-88.31	4.3	-145.1	146.4	144.0	2.46	59.523	
700.0	700.0	676.7	674.5	1.5	1.6	-87.62	6.6	-158.9	161.3	158.3	2.93	54.981	
800.0	800.0	769.6	765.8	1.7	1.9	-86.92	9.4	-175.6	179.3	175.9	3.42	52.463	
900.0	900.0	861.2	855.4	1.9	2.3	-86.27	12.7	-194.8	200.5	196.6	3.91	51.218	
1,000.0	1,000.0	951.5	942.9	2.1	2.7	-85.67	16.4	-216.6	224.8	220.4	4.42	50.811	
1,100.0	1,100.0	1,047.1	1,035.2	2.4	3.2	-85.13	20.6	-241.3	251.0	246.0	4.96	50.644	
1,200.0	1,200.0	1,143.6	1,128.3	2.6	3.8	-84.68	24.8	-266.4	277.2	271.7	5.49	50.506	
1,300.0	1,300.0	1,240.1	1,221.4	2.8	4.3	-84.30	29.1	-291.4	303.5	297.4	6.03	50.359	
1,400.0	1,400.0	1,336.6	1,314.4	3.0	4.8	-83.99	33.3	-316.4	329.7	323.1	6.57	50.216	
1,500.0	1,500.0	1,433.1	1,407.5	3.3	5.4	-83.72	37.5	-341.4	356.0	348.9	7.11	50.081	
1,600.0	1,600.0	1,529.5	1,500.6	3.5	5.9	-83.49	41.8	-366.4	382.2	374.6	7.65	49.956	
1,700.0	1,700.0	1,626.0	1,593.7	3.7	6.4	-83.29	46.0	-391.5	408.5	400.3	8.20	49.841	
1,800.0	1,800.0	1,722.5	1,686.8	3.9	7.0	-83.12	50.3	-416.5	434.8	426.0	8.74	49.735	
1,900.0	1,900.0	1,819.0	1,779.8	4.2	7.5	-82.96	54.5	-441.5	461.0	451.8	9.29	49.639	
2,000.0	2,000.0	1,915.5	1,872.9	4.4	8.0	-82.82	58.8	-466.5	487.3	477.5	9.84	49.550	SF
2,100.0	2,100.0	2,011.8	1,965.9	4.6	8.6	-105.60	63.0	-491.5	514.1	504.5	9.62	53.455	
2,200.0	2,199.8	2,107.8	2,058.5	4.8	9.1	-105.48	67.2	-516.4	541.7	531.6	10.09	53.669	
2,300.0	2,299.5	2,203.4	2,150.7	5.1	9.7	-105.64	71.4	-541.2	570.3	559.8	10.57	53.957	
2,400.0	2,398.7	2,298.4	2,242.4	5.3	10.2	-106.04	75.6	-565.8	600.0	588.9	11.05	54.295	
2,500.0	2,497.7	2,393.0	2,333.7	5.5	10.7	-107.08	79.7	-590.4	630.3	618.8	11.55	54.558	
2,600.0	2,596.7	2,487.7	2,425.0	5.8	11.3	-108.06	83.9	-614.9	660.8	648.8	12.07	54.749	
2,700.0	2,695.7	2,582.3	2,516.3	6.0	11.8	-108.96	88.1	-639.4	691.5	678.9	12.60	54.887	
2,800.0	2,794.7	2,677.0	2,607.6	6.3	12.3	-109.78	92.2	-664.0	722.3	709.2	13.14	54.982	
2,900.0	2,893.7	2,771.6	2,698.9	6.6	12.9	-110.53	96.4	-688.5	753.3	739.6	13.69	55.043	
3,000.0	2,992.7	2,866.2	2,790.2	6.9	13.4	-111.22	100.6	-713.1	784.3	770.1	14.24	55.077	
3,100.0	3,091.7	2,960.9	2,881.5	7.2	13.9	-111.86	104.7	-737.6	815.5	800.7	14.80	55.089	
3,200.0	3,190.7	3,055.5	2,972.8	7.5	14.5	-112.45	108.9	-762.2	846.7	831.4	15.37	55.086	
3,300.0	3,289.7	3,150.2	3,064.2	7.8	15.0	-113.01	113.0	-786.7	878.0	862.1	15.94	55.069	
3,400.0	3,388.7	3,244.8	3,155.5	8.1	15.5	-113.52	117.2	-811.3	909.4	892.9	16.52	55.042	
3,500.0	3,487.7	3,339.4	3,246.8	8.4	16.1	-114.00	121.4	-835.8	940.9	923.8	17.10	55.008	
3,600.0	3,586.7	3,434.1	3,338.1	8.7	16.6	-114.45	125.5	-860.3	972.4	954.7	17.69	54.968	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13K-423
Project:	SEC.13-T4N-R67W	**TVD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**MD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Stroh 13K-423	**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 #2 (4-9-14)	**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	-30.7	30.7				
100.0	100.0	100.0	100.0	0.1	0.1	-90.00	0.0	-30.7	30.7	30.5	0.22	136.487	
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	0.0	-30.7	30.7	30.0	0.67	45.496	
300.0	300.0	300.0	300.0	0.6	0.6	-90.00	0.0	-30.7	30.7	29.6	1.12	27.297	
400.0	400.0	400.0	400.0	0.8	0.8	-90.00	0.0	-30.7	30.7	29.1	1.57	19.498	
500.0	500.0	500.0	500.0	1.0	1.0	-90.00	0.0	-30.7	30.7	28.7	2.02	15.165	
600.0	600.0	600.0	600.0	1.2	1.2	-90.00	0.0	-30.7	30.7	28.2	2.47	12.408	
700.0	700.0	700.0	700.0	1.5	1.5	-90.00	0.0	-30.7	30.7	27.8	2.92	10.499	
800.0	800.0	800.0	800.0	1.7	1.7	-90.00	0.0	-30.7	30.7	27.3	3.37	9.099	
900.0	900.0	900.0	900.0	1.9	1.9	-90.00	0.0	-30.7	30.7	26.9	3.82	8.029	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-90.00	0.0	-30.7	30.7	26.4	4.27	7.184	
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	-90.00	0.0	-30.7	30.7	26.0	4.72	6.499	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-90.00	0.0	-30.7	30.7	25.5	5.17	5.934	
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-90.00	0.0	-30.7	30.7	25.1	5.62	5.459	
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	-90.00	0.0	-30.7	30.7	24.6	6.07	5.055	
1,500.0	1,500.0	1,500.0	1,500.0	3.3	3.3	-90.00	0.0	-30.7	30.7	24.2	6.52	4.706	
1,600.0	1,600.0	1,600.0	1,600.0	3.5	3.5	-90.00	0.0	-30.7	30.7	23.7	6.97	4.403	CC, ES
1,700.0	1,700.0	1,699.4	1,699.4	3.7	3.7	-87.38	1.4	-31.6	31.7	24.2	7.41	4.271	
1,800.0	1,800.0	1,798.5	1,798.4	3.9	3.9	-80.50	5.8	-34.4	34.9	27.1	7.86	4.448	
1,900.0	1,900.0	1,897.2	1,896.7	4.2	4.2	-71.73	12.9	-39.1	41.3	33.0	8.30	4.974	
2,000.0	2,000.0	1,995.2	1,993.9	4.4	4.4	-63.40	22.8	-45.5	51.3	42.5	8.75	5.860	
2,100.0	2,100.0	2,093.3	2,090.9	4.6	4.6	-81.23	35.2	-53.6	64.5	55.3	9.19	7.011	
2,200.0	2,199.8	2,192.4	2,188.8	4.8	4.9	-79.94	48.1	-62.0	77.8	68.1	9.64	8.065	
2,300.0	2,299.5	2,291.5	2,286.8	5.1	5.2	-81.16	61.0	-70.4	90.5	80.4	10.10	8.962	
2,400.0	2,398.7	2,390.6	2,384.7	5.3	5.5	-83.96	73.8	-78.8	102.9	92.3	10.57	9.731	
2,500.0	2,497.7	2,489.6	2,482.5	5.5	5.8	-87.29	86.7	-87.2	115.4	104.3	11.07	10.424	
2,600.0	2,596.7	2,588.7	2,580.3	5.8	6.1	-89.98	99.6	-95.5	128.2	116.6	11.58	11.069	
2,700.0	2,695.7	2,687.7	2,678.1	6.0	6.4	-92.17	112.5	-103.9	141.2	129.1	12.11	11.663	
2,800.0	2,794.7	2,786.7	2,775.9	6.3	6.7	-94.00	125.3	-112.3	154.4	141.7	12.65	12.209	
2,900.0	2,893.7	2,885.7	2,873.7	6.6	7.0	-95.53	138.2	-120.7	167.7	154.5	13.20	12.709	
3,000.0	2,992.7	2,984.7	2,971.6	6.9	7.3	-96.84	151.1	-129.1	181.1	167.4	13.76	13.167	
3,100.0	3,091.7	3,083.7	3,069.4	7.2	7.7	-97.97	164.0	-137.5	194.7	180.3	14.33	13.586	
3,200.0	3,190.7	3,182.8	3,167.2	7.5	8.0	-98.95	176.8	-145.8	208.2	193.3	14.90	13.971	
3,300.0	3,289.7	3,281.8	3,265.0	7.8	8.3	-99.82	189.7	-154.2	221.9	206.4	15.49	14.324	
3,400.0	3,388.7	3,380.8	3,362.8	8.1	8.7	-100.58	202.6	-162.6	235.5	219.5	16.08	14.649	
3,500.0	3,487.7	3,479.8	3,460.6	8.4	9.0	-101.26	215.4	-171.0	249.2	232.6	16.67	14.948	
3,600.0	3,586.7	3,579.0	3,558.7	8.7	9.3	-101.87	228.3	-179.4	263.0	245.7	17.27	15.225	
3,700.0	3,685.7	3,685.0	3,663.7	9.0	9.6	-102.77	240.4	-187.2	275.4	257.6	17.84	15.438	
3,800.0	3,784.7	3,791.3	3,769.4	9.3	9.9	-104.17	249.2	-193.0	285.5	267.1	18.40	15.517	
3,900.0	3,883.7	3,897.6	3,875.5	9.6	10.1	-106.07	254.7	-196.6	293.3	274.3	18.94	15.483	
4,000.0	3,982.7	4,003.7	3,981.5	9.9	10.3	-108.44	257.0	-198.0	299.0	279.6	19.47	15.362	
4,100.0	4,081.9	4,104.0	4,081.9	10.2	10.4	-110.81	257.0	-198.1	303.4	283.5	19.95	15.207	
4,200.0	4,181.4	4,203.6	4,181.4	10.4	10.6	-112.50	257.0	-198.1	306.9	286.5	20.39	15.049	
4,300.0	4,281.3	4,303.4	4,281.3	10.6	10.8	-113.55	257.0	-198.1	309.2	288.4	20.80	14.865	
4,400.0	4,381.2	4,403.4	4,381.2	10.8	11.0	-113.97	257.0	-198.1	310.2	289.0	21.18	14.644	
4,500.0	4,481.2	4,503.4	4,481.2	11.0	11.2	-90.74	257.0	-198.1	310.2	288.6	21.55	14.391	
4,600.0	4,581.2	4,603.4	4,581.2	11.2	11.4	-90.74	257.0	-198.1	310.2	288.2	21.95	14.130	
4,700.0	4,681.2	4,703.4	4,681.2	11.4	11.6	-90.74	257.0	-198.1	310.2	287.8	22.35	13.878	
4,800.0	4,781.2	4,803.4	4,781.2	11.6	11.8	-90.74	257.0	-198.1	310.2	287.4	22.75	13.633	
4,900.0	4,881.2	4,903.4	4,881.2	11.8	12.0	-90.74	257.0	-198.1	310.2	287.0	23.16	13.395	
5,000.0	4,981.2	5,003.4	4,981.2	12.0	12.2	-90.74	257.0	-198.1	310.2	286.6	23.56	13.165	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13K-423
Project:	SEC.13-T4N-R67W	**TVD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**MD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Stroh 13K-423	**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 #2 (4-9-14)	**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
5,100.0	5,081.2	5,103.4	5,081.2	12.2	12.4	-90.74	257.0	-198.1	310.2	286.2	23.97	12.942	
5,200.0	5,181.2	5,203.4	5,181.2	12.4	12.6	-90.74	257.0	-198.1	310.2	285.8	24.38	12.725	
5,300.0	5,281.2	5,303.4	5,281.2	12.6	12.8	-90.74	257.0	-198.1	310.2	285.4	24.79	12.515	
5,400.0	5,381.2	5,403.4	5,381.2	12.8	13.0	-90.74	257.0	-198.1	310.2	285.0	25.20	12.311	
5,500.0	5,481.2	5,503.4	5,481.2	13.0	13.2	-90.74	257.0	-198.1	310.2	284.6	25.61	12.113	
5,600.0	5,581.2	5,603.4	5,581.2	13.2	13.4	-90.74	257.0	-198.1	310.2	284.2	26.02	11.920	
5,700.0	5,681.2	5,703.4	5,681.2	13.4	13.6	-90.74	257.0	-198.1	310.2	283.7	26.44	11.733	
5,800.0	5,781.2	5,803.4	5,781.2	13.6	13.8	-90.74	257.0	-198.1	310.2	283.3	26.85	11.551	
5,900.0	5,881.2	5,903.4	5,881.2	13.8	14.0	-90.74	257.0	-198.1	310.2	282.9	27.27	11.375	
6,000.0	5,981.2	6,003.4	5,981.2	14.0	14.2	-90.74	257.0	-198.1	310.2	282.5	27.69	11.203	
6,100.0	6,081.2	6,103.4	6,081.2	14.2	14.4	-90.74	257.0	-198.1	310.2	282.1	28.11	11.036	
6,200.0	6,181.2	6,203.4	6,181.2	14.4	14.6	-90.74	257.0	-198.1	310.2	281.7	28.53	10.874	
6,300.0	6,281.2	6,303.4	6,281.2	14.6	14.8	-90.74	257.0	-198.1	310.2	281.2	28.95	10.716	
6,361.9	6,343.1	6,365.2	6,343.1	14.8	14.9	-90.74	257.0	-198.1	310.2	281.0	29.21	10.620	
6,400.0	6,381.2	6,403.3	6,381.2	14.8	15.0	-90.76	256.9	-198.1	310.2	280.8	29.36	10.564	
6,500.0	6,481.2	6,501.8	6,479.2	15.0	15.1	-92.33	248.4	-198.1	310.4	280.7	29.70	10.451	
6,600.0	6,581.2	6,597.0	6,572.0	15.2	15.2	84.19	227.5	-198.1	311.8	281.9	29.94	10.415	
6,700.0	6,680.0	6,689.4	6,658.7	15.3	15.2	80.57	195.6	-198.1	314.6	284.6	30.04	10.473	
6,800.0	6,776.1	6,779.5	6,738.5	15.4	15.2	77.07	154.0	-198.1	318.5	288.5	30.03	10.608	
6,900.0	6,867.7	6,867.5	6,810.9	15.4	15.2	73.77	104.0	-198.1	323.5	293.6	29.93	10.807	
7,000.0	6,953.4	6,953.6	6,875.2	15.4	15.2	70.70	46.9	-198.1	329.2	299.4	29.79	11.051	
7,100.0	7,031.6	7,038.1	6,931.3	15.4	15.3	67.91	-16.3	-198.1	335.4	305.8	29.65	11.311	
7,200.0	7,101.0	7,121.1	6,978.7	15.5	15.3	65.41	-84.3	-198.1	341.8	312.2	29.58	11.553	
7,300.0	7,160.5	7,200.0	7,016.2	15.8	15.7	63.29	-153.7	-198.1	348.0	318.4	29.63	11.746	
7,400.0	7,209.0	7,283.5	7,047.4	16.2	16.2	61.37	-231.2	-198.1	353.9	324.0	29.91	11.832	
7,500.0	7,245.6	7,363.3	7,068.5	16.9	16.8	59.83	-308.1	-198.1	359.2	328.7	30.46	11.792	
7,600.0	7,269.8	7,442.4	7,080.9	17.7	17.5	58.60	-386.2	-198.1	363.7	332.3	31.33	11.607	
7,700.0	7,282.4	7,522.2	7,084.6	18.6	18.3	57.63	-465.8	-198.1	367.8	335.3	32.55	11.299	
7,800.0	7,290.7	7,621.8	7,084.6	19.7	19.4	56.41	-565.5	-198.1	372.4	338.3	34.10	10.923	
7,900.0	7,291.8	7,721.8	7,084.5	20.9	20.6	56.25	-665.4	-198.1	373.0	336.9	36.12	10.329	
8,000.0	7,291.5	7,821.8	7,084.4	22.2	21.9	56.27	-765.4	-198.1	372.9	334.6	38.36	9.723	
8,100.0	7,291.3	7,921.8	7,084.4	23.6	23.3	56.29	-865.4	-198.1	372.8	332.1	40.74	9.151	
8,200.0	7,291.0	8,021.8	7,084.3	25.0	24.8	56.32	-965.4	-198.1	372.7	329.5	43.25	8.619	
8,300.0	7,290.8	8,121.8	7,084.2	26.6	26.3	56.34	-1,065.4	-198.1	372.6	326.8	45.86	8.126	
8,400.0	7,290.5	8,221.8	7,084.2	28.1	27.9	56.36	-1,165.4	-198.1	372.5	324.0	48.55	7.673	
8,500.0	7,290.3	8,321.8	7,084.1	29.7	29.5	56.38	-1,265.4	-198.1	372.5	321.1	51.32	7.258	
8,600.0	7,290.0	8,421.8	7,084.0	31.4	31.2	56.40	-1,365.4	-198.1	372.4	318.2	54.15	6.877	
8,700.0	7,289.8	8,521.8	7,083.9	33.0	32.8	56.43	-1,465.4	-198.1	372.3	315.2	57.03	6.528	
8,800.0	7,289.6	8,621.8	7,083.9	34.7	34.5	56.45	-1,565.4	-198.1	372.2	312.2	59.96	6.207	
8,900.0	7,289.3	8,721.8	7,083.8	36.5	36.3	56.47	-1,665.4	-198.1	372.1	309.1	62.92	5.913	
9,000.0	7,289.1	8,821.8	7,083.7	38.2	38.0	56.49	-1,765.4	-198.1	372.0	306.0	65.92	5.643	
9,100.0	7,288.8	8,921.8	7,083.7	39.9	39.8	56.52	-1,865.4	-198.1	371.9	302.9	68.95	5.393	
9,200.0	7,288.6	9,021.8	7,083.6	41.7	41.5	56.54	-1,965.4	-198.1	371.8	299.8	72.01	5.163	
9,300.0	7,288.3	9,121.8	7,083.5	43.5	43.3	56.56	-2,065.4	-198.1	371.7	296.6	75.09	4.950	
9,400.0	7,288.1	9,221.8	7,083.5	45.3	45.1	56.58	-2,165.4	-198.1	371.6	293.4	78.19	4.752	
9,500.0	7,287.8	9,321.8	7,083.4	47.1	46.9	56.61	-2,265.4	-198.1	371.5	290.2	81.31	4.569	
9,600.0	7,287.6	9,421.8	7,083.3	48.9	48.8	56.63	-2,365.4	-198.1	371.4	286.9	84.44	4.398	
9,700.0	7,287.4	9,521.8	7,083.2	50.7	50.6	56.65	-2,465.4	-198.1	371.3	283.7	87.59	4.239	
9,800.0	7,287.1	9,621.8	7,083.2	52.5	52.4	56.67	-2,565.4	-198.1	371.2	280.4	90.76	4.090	
9,900.0	7,286.9	9,721.8	7,083.1	54.4	54.2	56.70	-2,665.4	-198.1	371.1	277.2	93.94	3.951	
10,000.0	7,286.6	9,821.8	7,083.0	56.2	56.1	56.72	-2,765.4	-198.1	371.0	273.9	97.12	3.820	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13K-423
Project:	SEC.13-T4N-R67W	**TVD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**MD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Stroh 13K-423	**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 #2 (4-9-14)	**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
10,100.0	7,286.4	9,921.8	7,083.0	58.1	57.9	56.74	-2,865.4	-198.1	370.9	270.6	100.32	3.697	
10,200.0	7,286.1	10,021.8	7,082.9	59.9	59.8	56.76	-2,965.4	-198.1	370.8	267.3	103.53	3.582	
10,300.0	7,285.9	10,121.8	7,082.8	61.8	61.6	56.79	-3,065.4	-198.1	370.7	264.0	106.75	3.473	
10,400.0	7,285.6	10,221.8	7,082.8	63.6	63.5	56.81	-3,165.4	-198.1	370.6	260.7	109.97	3.370	
10,500.0	7,285.4	10,321.8	7,082.7	65.5	65.4	56.83	-3,265.4	-198.1	370.5	257.3	113.20	3.273	
10,600.0	7,285.2	10,421.8	7,082.6	67.4	67.2	56.85	-3,365.4	-198.1	370.4	254.0	116.44	3.181	
10,700.0	7,284.9	10,521.8	7,082.5	69.2	69.1	56.88	-3,465.4	-198.1	370.3	250.7	119.69	3.094	
10,800.0	7,284.7	10,621.8	7,082.5	71.1	71.0	56.90	-3,565.4	-198.1	370.2	247.3	122.94	3.012	
10,900.0	7,284.4	10,721.8	7,082.4	73.0	72.9	56.92	-3,665.4	-198.1	370.1	244.0	126.20	2.933	
11,000.0	7,284.2	10,821.8	7,082.3	74.8	74.7	56.94	-3,765.4	-198.1	370.1	240.6	129.46	2.858	
11,100.0	7,283.9	10,921.8	7,082.3	76.7	76.6	56.97	-3,865.4	-198.1	370.0	237.2	132.73	2.787	
11,200.0	7,283.7	11,021.8	7,082.2	78.6	78.5	56.99	-3,965.4	-198.1	369.9	233.9	136.00	2.720	
11,300.0	7,283.5	11,121.8	7,082.1	80.5	80.4	57.01	-4,065.4	-198.1	369.8	230.5	139.28	2.655	
11,400.0	7,283.2	11,221.8	7,082.1	82.4	82.3	57.04	-4,165.4	-198.1	369.7	227.1	142.56	2.593	
11,500.0	7,283.0	11,321.8	7,082.0	84.2	84.1	57.06	-4,265.4	-198.1	369.6	223.7	145.85	2.534	
11,600.0	7,282.7	11,421.8	7,081.9	86.1	86.0	57.08	-4,365.4	-198.1	369.5	220.3	149.14	2.477	
11,700.0	7,282.5	11,521.8	7,081.8	88.0	87.9	57.10	-4,465.4	-198.1	369.4	217.0	152.43	2.423	
11,800.0	7,282.2	11,621.8	7,081.8	89.9	89.8	57.13	-4,565.4	-198.1	369.3	213.6	155.73	2.371	
11,900.0	7,282.0	11,721.8	7,081.7	91.8	91.7	57.15	-4,665.4	-198.1	369.2	210.2	159.03	2.322	
12,000.0	7,281.7	11,821.8	7,081.6	93.7	93.6	57.17	-4,765.4	-198.1	369.1	206.8	162.34	2.274	
12,100.0	7,281.5	11,921.8	7,081.6	95.6	95.5	57.19	-4,865.4	-198.1	369.0	203.4	165.65	2.228	
12,200.0	7,281.3	12,021.8	7,081.5	97.5	97.4	57.22	-4,965.4	-198.1	368.9	200.0	168.96	2.183	
12,300.0	7,281.0	12,121.8	7,081.4	99.4	99.3	57.24	-5,065.4	-198.1	368.8	196.5	172.27	2.141	
12,400.0	7,280.8	12,221.8	7,081.4	101.3	101.2	57.26	-5,165.4	-198.1	368.7	193.1	175.59	2.100	
12,500.0	7,280.5	12,321.8	7,081.3	103.2	103.1	57.29	-5,265.4	-198.1	368.6	189.7	178.91	2.060	
12,600.0	7,280.3	12,421.8	7,081.2	105.1	105.0	57.31	-5,365.4	-198.1	368.5	186.3	182.24	2.022	
12,700.0	7,280.0	12,521.8	7,081.2	107.0	106.9	57.33	-5,465.4	-198.1	368.4	182.9	185.56	1.986	
12,800.0	7,279.8	12,621.8	7,081.1	108.9	108.8	57.35	-5,565.4	-198.1	368.4	179.5	188.89	1.950	
12,900.0	7,279.5	12,721.8	7,081.0	110.8	110.7	57.38	-5,665.4	-198.1	368.3	176.0	192.22	1.916	
13,000.0	7,279.3	12,821.8	7,080.9	112.7	112.6	57.40	-5,765.4	-198.1	368.2	172.6	195.56	1.883	
13,100.0	7,279.1	12,921.8	7,080.9	114.6	114.5	57.42	-5,865.4	-198.1	368.1	169.2	198.89	1.851	
13,200.0	7,278.8	13,021.8	7,080.8	116.5	116.4	57.45	-5,965.4	-198.1	368.0	165.7	202.23	1.820	
13,300.0	7,278.6	13,121.8	7,080.7	118.4	118.3	57.47	-6,065.4	-198.1	367.9	162.3	205.57	1.790	
13,400.0	7,278.3	13,221.8	7,080.7	120.3	120.2	57.49	-6,165.4	-198.1	367.8	158.9	208.92	1.760	
13,500.0	7,278.1	13,321.8	7,080.6	122.2	122.1	57.51	-6,265.4	-198.1	367.7	155.4	212.26	1.732	
13,600.0	7,277.8	13,421.8	7,080.5	124.1	124.0	57.54	-6,365.4	-198.1	367.6	152.0	215.61	1.705	
13,700.0	7,277.6	13,521.8	7,080.5	126.0	125.9	57.56	-6,465.4	-198.1	367.5	148.5	218.96	1.678	
13,800.0	7,277.3	13,621.8	7,080.4	127.9	127.8	57.58	-6,565.4	-198.1	367.4	145.1	222.32	1.653	
13,900.0	7,277.1	13,721.8	7,080.3	129.8	129.7	57.61	-6,665.4	-198.1	367.3	141.6	225.67	1.628	
14,000.0	7,276.9	13,821.8	7,080.2	131.7	131.6	57.63	-6,765.4	-198.1	367.2	138.2	229.03	1.603	
14,100.0	7,276.6	13,921.8	7,080.2	133.6	133.5	57.65	-6,865.4	-198.1	367.1	134.7	232.39	1.580	
14,200.0	7,276.4	14,021.8	7,080.1	135.5	135.4	57.68	-6,965.4	-198.1	367.0	131.3	235.75	1.557	
14,300.0	7,276.1	14,121.8	7,080.0	137.4	137.3	57.70	-7,065.4	-198.1	366.9	127.8	239.11	1.535	
14,349.3	7,276.0	14,171.1	7,080.0	138.4	138.3	57.71	-7,114.7	-198.1	366.9	126.1	240.77	1.524 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13K-423
Project:	SEC.13-T4N-R67W	**TVD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**MD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Stroh 13K-423	**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 #2 (4-9-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Stroh 13GK-HZ Pad Sec. 13-T4N-R67W - Stroh 13K-443 - Wellbore #1 - Plan #2 (4-9-14)

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	-58.6	58.6				
100.0	100.0	100.0	100.0	0.1	0.1	-90.00	0.0	-58.6	58.6	58.3	0.22	260.567	
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	0.0	-58.6	58.6	57.9	0.67	86.856	
300.0	300.0	300.0	300.0	0.6	0.6	-90.00	0.0	-58.6	58.6	57.4	1.12	52.113	
400.0	400.0	400.0	400.0	0.8	0.8	-90.00	0.0	-58.6	58.6	57.0	1.57	37.224	
500.0	500.0	500.0	500.0	1.0	1.0	-90.00	0.0	-58.6	58.6	56.5	2.02	28.952	
600.0	600.0	600.0	600.0	1.2	1.2	-90.00	0.0	-58.6	58.6	56.1	2.47	23.688	
700.0	700.0	700.0	700.0	1.5	1.5	-90.00	0.0	-58.6	58.6	55.6	2.92	20.044	
800.0	800.0	800.0	800.0	1.7	1.7	-90.00	0.0	-58.6	58.6	55.2	3.37	17.371	
900.0	900.0	900.0	900.0	1.9	1.9	-90.00	0.0	-58.6	58.6	54.7	3.82	15.327	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-90.00	0.0	-58.6	58.6	54.3	4.27	13.714	
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	-90.00	0.0	-58.6	58.6	53.8	4.72	12.408	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-90.00	0.0	-58.6	58.6	53.4	5.17	11.329	
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-90.00	0.0	-58.6	58.6	52.9	5.62	10.423	
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	-90.00	0.0	-58.6	58.6	52.5	6.07	9.651	CC, ES
1,500.0	1,500.0	1,498.0	1,498.0	3.3	3.2	-89.82	0.2	-60.2	60.3	53.8	6.50	9.269	
1,600.0	1,600.0	1,595.7	1,595.6	3.5	3.4	-89.31	0.8	-65.2	65.4	58.4	6.93	9.436	
1,700.0	1,700.0	1,693.0	1,692.5	3.7	3.7	-88.63	1.8	-73.4	73.8	66.5	7.36	10.038	
1,800.0	1,800.0	1,789.6	1,788.4	3.9	3.9	-87.90	3.1	-84.8	85.7	77.9	7.79	11.000	
1,900.0	1,900.0	1,885.4	1,883.0	4.2	4.1	-87.22	4.8	-99.3	100.9	92.6	8.23	12.257	
2,000.0	2,000.0	1,980.0	1,976.1	4.4	4.4	-86.62	6.9	-116.7	119.3	110.6	8.67	13.756	
2,100.0	2,100.0	2,074.5	2,068.3	4.6	4.7	-109.60	9.3	-136.9	141.4	132.3	9.09	15.564	
2,200.0	2,199.8	2,171.5	2,162.8	4.8	5.1	-110.40	11.9	-158.5	165.6	156.1	9.52	17.390	
2,300.0	2,299.5	2,268.0	2,256.9	5.1	5.4	-111.86	14.4	-180.1	191.1	181.1	9.96	19.183	
2,400.0	2,398.7	2,363.9	2,350.3	5.3	5.8	-113.70	16.9	-201.4	218.1	207.6	10.40	20.960	
2,500.0	2,497.7	2,459.5	2,443.5	5.5	6.2	-115.92	19.5	-222.7	246.1	235.3	10.87	22.649	
2,600.0	2,596.7	2,555.1	2,536.6	5.8	6.6	-117.72	22.0	-244.0	274.5	263.1	11.34	24.194	
2,700.0	2,695.7	2,650.7	2,629.8	6.0	7.0	-119.18	24.5	-265.3	303.0	291.2	11.84	25.603	
2,800.0	2,794.7	2,746.2	2,722.9	6.3	7.4	-120.39	27.1	-286.7	331.7	319.4	12.34	26.890	
2,900.0	2,893.7	2,841.8	2,816.0	6.6	7.8	-121.40	29.6	-308.0	360.5	347.7	12.85	28.065	
3,000.0	2,992.7	2,937.4	2,909.2	6.9	8.3	-122.27	32.1	-329.3	389.4	376.1	13.37	29.138	
3,100.0	3,091.7	3,033.0	3,002.3	7.2	8.7	-123.02	34.6	-350.6	418.4	404.5	13.89	30.122	
3,200.0	3,190.7	3,128.5	3,095.5	7.5	9.1	-123.67	37.2	-371.9	447.5	433.0	14.42	31.024	
3,300.0	3,289.7	3,224.1	3,188.6	7.8	9.6	-124.24	39.7	-393.2	476.5	461.6	14.96	31.853	
3,400.0	3,388.7	3,319.7	3,281.7	8.1	10.0	-124.74	42.2	-414.5	505.7	490.1	15.50	32.616	
3,500.0	3,487.7	3,415.3	3,374.9	8.4	10.5	-125.19	44.7	-435.8	534.8	518.8	16.05	33.321	
3,600.0	3,586.7	3,510.8	3,468.0	8.7	10.9	-125.60	47.3	-457.1	564.0	547.4	16.60	33.973	
3,700.0	3,685.7	3,606.4	3,561.2	9.0	11.4	-125.96	49.8	-478.4	593.2	576.0	17.16	34.577	
3,800.0	3,784.7	3,702.0	3,654.3	9.3	11.8	-126.29	52.3	-499.7	622.4	604.7	17.71	35.138	
3,900.0	3,883.7	3,797.6	3,747.4	9.6	12.3	-126.59	54.8	-521.0	651.6	633.4	18.27	35.660	
4,000.0	3,982.7	3,893.2	3,840.6	9.9	12.7	-126.87	57.4	-542.3	680.9	662.1	18.84	36.146	
4,100.0	4,081.9	3,989.0	3,933.9	10.2	13.2	-127.44	59.9	-563.6	709.4	690.0	19.42	36.526	
4,200.0	4,181.4	4,085.4	4,027.9	10.4	13.6	-127.80	62.5	-585.1	735.9	715.9	19.96	36.871	
4,300.0	4,281.3	4,182.3	4,122.3	10.6	14.1	-127.92	65.0	-606.7	760.3	739.8	20.47	37.148	
4,400.0	4,381.2	4,279.6	4,217.1	10.8	14.6	-127.81	67.6	-628.4	782.7	761.7	20.94	37.370	
4,500.0	4,481.2	4,377.0	4,312.1	11.0	15.0	-104.06	70.2	-650.1	803.7	782.3	21.39	37.574	
4,600.0	4,581.2	4,493.5	4,425.8	11.2	15.6	-103.42	73.1	-675.2	824.2	802.3	21.89	37.660	
4,700.0	4,681.2	4,629.0	4,559.2	11.4	16.0	-102.85	76.0	-699.1	840.9	818.5	22.38	37.579	
4,800.0	4,781.2	4,766.6	4,695.5	11.6	16.3	-102.44	78.1	-716.9	853.2	830.4	22.86	37.329	
4,900.0	4,881.2	4,905.6	4,834.0	11.8	16.6	-102.19	79.4	-728.2	861.0	837.7	23.32	36.916	
5,000.0	4,981.2	5,045.4	4,973.7	12.0	16.8	-102.09	80.0	-732.8	864.2	840.4	23.77	36.353	

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 13K-423
Project:	SEC.13-T4N-R67W	**TVD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**MD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Stroh 13K-423	**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 #2 (4-9-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Stroh 13GK-HZ Pad Sec. 13-T4N-R67W - Stroh 13K-443 - Wellbore #1 - Plan #2 (4-9-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,081.2	5,152.9	5,081.2	12.2	17.0	-102.09	80.0	-733.0	864.2	840.1	24.17	35.755	
5,200.0	5,181.2	5,252.9	5,181.2	12.4	17.1	-102.09	80.0	-733.0	864.2	839.7	24.56	35.182	
5,300.0	5,281.2	5,352.9	5,281.2	12.6	17.3	-102.09	80.0	-733.0	864.2	839.3	24.96	34.624	
5,400.0	5,381.2	5,452.9	5,381.2	12.8	17.4	-102.09	80.0	-733.0	864.2	838.9	25.36	34.081	
5,500.0	5,481.2	5,552.9	5,481.2	13.0	17.6	-102.09	80.0	-733.0	864.2	838.5	25.76	33.552	
5,600.0	5,581.2	5,652.9	5,581.2	13.2	17.7	-102.09	80.0	-733.0	864.2	838.1	26.16	33.038	
5,700.0	5,681.2	5,752.9	5,681.2	13.4	17.9	-102.09	80.0	-733.0	864.2	837.7	26.56	32.537	
5,800.0	5,781.2	5,852.9	5,781.2	13.6	18.0	-102.09	80.0	-733.0	864.2	837.3	26.97	32.050	
5,900.0	5,881.2	5,952.9	5,881.2	13.8	18.2	-102.09	80.0	-733.0	864.2	836.9	27.37	31.575	
6,000.0	5,981.2	6,052.9	5,981.2	14.0	18.3	-102.09	80.0	-733.0	864.2	836.5	27.78	31.113	
6,100.0	6,081.2	6,152.9	6,081.2	14.2	18.5	-102.09	80.0	-733.0	864.2	836.0	28.19	30.662	
6,200.0	6,181.2	6,252.9	6,181.2	14.4	18.6	-102.09	80.0	-733.0	864.2	835.6	28.59	30.224	
6,300.0	6,281.2	6,352.9	6,281.2	14.6	18.8	-102.09	80.0	-733.0	864.2	835.2	29.01	29.796	
6,400.0	6,381.2	6,452.9	6,381.2	14.8	19.0	-102.09	80.0	-733.0	864.2	834.8	29.42	29.379	
6,500.0	6,481.2	6,552.9	6,481.2	15.0	19.1	-102.09	80.0	-733.0	864.2	834.4	29.83	28.973	
6,600.0	6,581.2	6,636.8	6,565.1	15.2	19.2	77.84	77.0	-733.0	864.5	834.3	30.16	28.664	
6,700.0	6,680.0	6,717.6	6,645.0	15.3	19.3	77.89	65.7	-733.0	864.3	834.0	30.35	28.477	
6,800.0	6,776.1	6,800.0	6,724.9	15.4	19.4	78.11	45.4	-733.0	863.7	833.2	30.45	28.364	
6,900.0	6,867.7	6,879.6	6,799.5	15.4	19.5	78.49	17.8	-733.0	862.5	832.0	30.49	28.286	
7,000.0	6,953.4	6,961.3	6,872.7	15.4	19.6	79.04	-18.4	-733.0	860.9	830.3	30.56	28.171	
7,100.0	7,031.6	7,043.6	6,942.1	15.4	19.7	79.75	-62.5	-733.0	859.0	828.3	30.71	27.970	
7,200.0	7,101.0	7,126.7	7,006.9	15.5	19.9	80.60	-114.4	-733.0	856.8	825.7	31.04	27.603	
7,300.0	7,160.5	7,210.8	7,066.4	15.8	20.0	81.60	-173.9	-733.0	854.5	822.9	31.61	27.032	
7,400.0	7,209.0	7,296.2	7,119.8	16.2	20.3	82.73	-240.5	-733.0	852.1	819.7	32.48	26.238	
7,500.0	7,245.6	7,383.0	7,166.1	16.9	20.6	83.97	-313.9	-733.0	849.9	816.3	33.68	25.239	
7,600.0	7,269.8	7,471.6	7,204.4	17.7	21.0	85.32	-393.7	-733.0	848.0	812.8	35.19	24.096	
7,700.0	7,282.4	7,562.3	7,233.8	18.6	21.5	86.63	-479.5	-733.0	846.6	809.6	36.99	22.886	
7,800.0	7,290.7	7,656.2	7,253.3	19.7	22.2	87.45	-571.2	-733.0	845.9	806.9	39.06	21.656	
7,900.0	7,291.8	7,754.1	7,264.2	20.9	23.2	88.14	-668.5	-733.0	845.5	804.1	41.40	20.424	
8,000.0	7,291.5	7,852.0	7,271.1	22.2	24.2	88.61	-766.1	-733.0	845.3	801.4	43.93	19.243	
8,100.0	7,291.3	7,951.6	7,271.9	23.6	25.4	88.69	-865.7	-733.0	845.3	798.6	46.66	18.118	
8,200.0	7,291.0	8,051.6	7,272.5	25.0	26.6	88.74	-965.7	-733.0	845.3	795.7	49.53	17.066	
8,300.0	7,290.8	8,151.6	7,273.1	26.6	28.0	88.80	-1,065.7	-733.0	845.3	792.7	52.53	16.092	
8,400.0	7,290.5	8,251.6	7,273.7	28.1	29.4	88.86	-1,165.7	-733.0	845.2	789.6	55.63	15.195	
8,500.0	7,290.3	8,351.6	7,274.3	29.7	30.9	88.92	-1,265.7	-733.0	845.2	786.4	58.82	14.371	
8,600.0	7,290.0	8,451.6	7,274.9	31.4	32.4	88.97	-1,365.7	-733.0	845.2	783.1	62.08	13.615	
8,700.0	7,289.8	8,551.6	7,275.5	33.0	34.0	89.03	-1,465.7	-733.0	845.2	779.8	65.40	12.923	
8,800.0	7,289.6	8,651.6	7,276.1	34.7	35.6	89.09	-1,565.7	-733.0	845.2	776.4	68.78	12.288	
8,900.0	7,289.3	8,751.6	7,276.7	36.5	37.2	89.14	-1,665.7	-733.0	845.2	773.0	72.21	11.705	
9,000.0	7,289.1	8,851.5	7,277.3	38.2	38.9	89.20	-1,765.7	-733.0	845.1	769.5	75.67	11.169	
9,100.0	7,288.8	8,951.5	7,277.9	39.9	40.6	89.26	-1,865.6	-733.0	845.1	766.0	79.17	10.675	
9,200.0	7,288.6	9,051.5	7,278.4	41.7	42.3	89.31	-1,965.6	-733.0	845.1	762.4	82.70	10.219	
9,300.0	7,288.3	9,151.5	7,279.0	43.5	44.0	89.37	-2,065.6	-733.0	845.1	758.9	86.25	9.798	
9,400.0	7,288.1	9,251.5	7,279.6	45.3	45.7	89.43	-2,165.6	-733.0	845.1	755.3	89.83	9.408	
9,500.0	7,287.8	9,351.5	7,280.2	47.1	47.5	89.48	-2,265.6	-733.0	845.1	751.7	93.43	9.045	
9,600.0	7,287.6	9,451.5	7,280.8	48.9	49.3	89.54	-2,365.6	-733.0	845.1	748.0	97.05	8.708	
9,700.0	7,287.4	9,551.5	7,281.4	50.7	51.0	89.60	-2,465.6	-733.0	845.1	744.4	100.68	8.393	
9,800.0	7,287.1	9,651.5	7,282.0	52.5	52.8	89.65	-2,565.6	-733.0	845.1	740.7	104.33	8.100	
9,900.0	7,286.9	9,751.5	7,282.6	54.4	54.6	89.71	-2,665.6	-733.0	845.1	737.1	108.00	7.825	
10,000.0	7,286.6	9,851.5	7,283.2	56.2	56.4	89.77	-2,765.6	-733.0	845.1	733.4	111.67	7.568	
10,100.0	7,286.4	9,951.5	7,283.8	58.1	58.2	89.82	-2,865.6	-733.0	845.1	729.7	115.35	7.326	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13K-423
Project:	SEC.13-T4N-R67W	**TVD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**MD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Stroh 13K-423	**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 #2 (4-9-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Stroh 13GK-HZ Pad Sec. 13-T4N-R67W - Stroh 13K-443 - Wellbore #1 - Plan #2 (4-9-14)

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
10,200.0	7,286.1	10,051.5	7,284.4	59.9	60.1	89.88	-2,965.6	-733.0	845.1	726.0	119.05	7.099	
10,300.0	7,285.9	10,151.5	7,285.0	61.8	61.9	89.94	-3,065.6	-733.0	845.1	722.3	122.75	6.884	
10,400.0	7,285.6	10,251.5	7,285.6	63.6	63.7	89.99	-3,165.6	-733.0	845.1	718.6	126.46	6.682	
10,410.3	7,285.6	10,261.7	7,285.6	63.8	63.9	90.00	-3,175.8	-733.0	845.1	718.2	126.84	6.662	
10,500.0	7,285.4	10,351.5	7,286.2	65.5	65.5	90.05	-3,265.6	-733.0	845.1	714.9	130.18	6.491	
10,600.0	7,285.2	10,451.5	7,286.8	67.4	67.4	90.11	-3,365.6	-733.0	845.1	711.2	133.91	6.311	
10,700.0	7,284.9	10,551.5	7,287.3	69.2	69.2	90.16	-3,465.6	-733.0	845.1	707.4	137.64	6.140	
10,800.0	7,284.7	10,651.5	7,287.9	71.1	71.1	90.22	-3,565.6	-733.0	845.1	703.7	141.37	5.978	
10,900.0	7,284.4	10,751.5	7,288.5	73.0	72.9	90.28	-3,665.6	-733.0	845.1	700.0	145.12	5.823	
11,000.0	7,284.2	10,851.5	7,289.1	74.8	74.8	90.33	-3,765.5	-733.0	845.1	696.2	148.86	5.677	
11,100.0	7,283.9	10,951.5	7,289.7	76.7	76.6	90.39	-3,865.5	-733.0	845.1	692.5	152.61	5.537	
11,200.0	7,283.7	11,051.5	7,290.3	78.6	78.5	90.45	-3,965.5	-733.0	845.1	688.7	156.37	5.405	
11,300.0	7,283.5	11,151.5	7,290.9	80.5	80.4	90.51	-4,065.5	-733.0	845.1	685.0	160.13	5.278	
11,400.0	7,283.2	11,251.5	7,291.5	82.4	82.2	90.56	-4,165.5	-733.0	845.1	681.2	163.89	5.157	
11,500.0	7,283.0	11,351.5	7,292.1	84.2	84.1	90.62	-4,265.5	-733.0	845.1	677.5	167.65	5.041	
11,600.0	7,282.7	11,451.5	7,292.7	86.1	86.0	90.68	-4,365.5	-733.0	845.1	673.7	171.42	4.930	
11,700.0	7,282.5	11,551.5	7,293.3	88.0	87.8	90.73	-4,465.5	-733.0	845.1	669.9	175.19	4.824	
11,800.0	7,282.2	11,651.5	7,293.9	89.9	89.7	90.79	-4,565.5	-733.0	845.1	666.2	178.97	4.722	
11,900.0	7,282.0	11,751.4	7,294.5	91.8	91.6	90.85	-4,665.5	-733.0	845.2	662.4	182.74	4.625	
12,000.0	7,281.7	11,851.4	7,295.1	93.7	93.5	90.90	-4,765.5	-733.0	845.2	658.6	186.52	4.531	
12,100.0	7,281.5	11,951.4	7,295.7	95.6	95.4	90.96	-4,865.5	-733.0	845.2	654.9	190.30	4.441	
12,200.0	7,281.3	12,051.4	7,296.2	97.5	97.2	91.02	-4,965.5	-733.0	845.2	651.1	194.08	4.355	
12,300.0	7,281.0	12,151.4	7,296.8	99.4	99.1	91.07	-5,065.5	-733.0	845.2	647.3	197.87	4.272	
12,400.0	7,280.8	12,251.4	7,297.4	101.3	101.0	91.13	-5,165.5	-733.0	845.2	643.6	201.65	4.191	
12,500.0	7,280.5	12,351.4	7,298.0	103.2	102.9	91.19	-5,265.5	-733.0	845.2	639.8	205.44	4.114	
12,600.0	7,280.3	12,451.4	7,298.6	105.1	104.8	91.24	-5,365.5	-733.0	845.3	636.0	209.23	4.040	
12,700.0	7,280.0	12,551.4	7,299.2	107.0	106.7	91.30	-5,465.5	-733.0	845.3	632.3	213.02	3.968	
12,800.0	7,279.8	12,651.4	7,299.8	108.9	108.6	91.36	-5,565.5	-733.0	845.3	628.5	216.81	3.899	
12,900.0	7,279.5	12,751.4	7,300.4	110.8	110.4	91.41	-5,665.4	-733.0	845.3	624.7	220.60	3.832	
13,000.0	7,279.3	12,851.4	7,301.0	112.7	112.3	91.47	-5,765.4	-733.0	845.3	620.9	224.40	3.767	
13,100.0	7,279.1	12,951.4	7,301.6	114.6	114.2	91.53	-5,865.4	-733.0	845.4	617.2	228.19	3.705	
13,200.0	7,278.8	13,051.4	7,302.2	116.5	116.1	91.58	-5,965.4	-733.0	845.4	613.4	231.99	3.644	
13,300.0	7,278.6	13,151.4	7,302.8	118.4	118.0	91.64	-6,065.4	-733.0	845.4	609.6	235.78	3.586	
13,400.0	7,278.3	13,251.4	7,303.4	120.3	119.9	91.70	-6,165.4	-733.0	845.4	605.9	239.58	3.529	
13,500.0	7,278.1	13,351.4	7,304.0	122.2	121.8	91.75	-6,265.4	-733.0	845.5	602.1	243.38	3.474	
13,600.0	7,277.8	13,451.4	7,304.6	124.1	123.7	91.81	-6,365.4	-733.0	845.5	598.3	247.18	3.421	
13,700.0	7,277.6	13,551.4	7,305.1	126.0	125.6	91.87	-6,465.4	-733.0	845.5	594.5	250.97	3.369	
13,800.0	7,277.3	13,651.4	7,305.7	127.9	127.5	91.92	-6,565.4	-733.0	845.5	590.8	254.77	3.319	
13,900.0	7,277.1	13,751.4	7,306.3	129.8	129.4	91.98	-6,665.4	-733.0	845.6	587.0	258.57	3.270	
14,000.0	7,276.9	13,851.4	7,306.9	131.7	131.3	92.04	-6,765.4	-733.0	845.6	583.2	262.37	3.223	
14,100.0	7,276.6	13,951.4	7,307.5	133.6	133.2	92.09	-6,865.4	-733.0	845.6	579.5	266.17	3.177	
14,200.0	7,276.4	14,051.4	7,308.1	135.5	135.1	92.15	-6,965.4	-733.0	845.7	575.7	269.97	3.132	
14,300.0	7,276.1	14,151.4	7,308.7	137.4	137.0	92.21	-7,065.4	-733.0	845.7	571.9	273.78	3.089	
14,349.3	7,276.0	14,200.7	7,309.0	138.4	137.9	92.24	-7,114.7	-733.0	845.7	570.1	275.65	3.068	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13K-423
Project:	SEC.13-T4N-R67W	**TVD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**MD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Stroh 13K-423	**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 #2 (4-9-14)	**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	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	
300.0	300.0	299.0	299.0	0.6	0.6	90.00	0.0	30.7	30.7	29.6	1.12	27.352	
400.0	400.0	399.0	399.0	0.8	0.8	90.00	0.0	30.7	30.7	29.1	1.57	19.526	
500.0	500.0	499.0	499.0	1.0	1.0	90.00	0.0	30.7	30.7	28.7	2.02	15.182	
600.0	600.0	599.0	599.0	1.2	1.2	90.00	0.0	30.7	30.7	28.2	2.47	12.419	
700.0	700.0	699.0	699.0	1.5	1.5	90.00	0.0	30.7	30.7	27.8	2.92	10.507	
800.0	800.0	799.0	799.0	1.7	1.7	90.00	0.0	30.7	30.7	27.3	3.37	9.105	
900.0	900.0	899.0	899.0	1.9	1.9	90.00	0.0	30.7	30.7	26.9	3.82	8.033	
1,000.0	1,000.0	999.0	999.0	2.1	2.1	90.00	0.0	30.7	30.7	26.4	4.27	7.187	
1,100.0	1,100.0	1,099.0	1,099.0	2.4	2.4	90.00	0.0	30.7	30.7	26.0	4.72	6.502	
1,200.0	1,200.0	1,199.0	1,199.0	2.6	2.6	90.00	0.0	30.7	30.7	25.5	5.17	5.937	CC, ES
1,300.0	1,300.0	1,298.0	1,298.0	2.8	2.8	88.86	0.6	32.2	32.2	26.6	5.61	5.752	
1,400.0	1,400.0	1,396.7	1,396.6	3.0	3.0	85.98	2.6	36.9	37.1	31.0	6.04	6.138	
1,500.0	1,500.0	1,495.0	1,494.5	3.3	3.2	82.57	5.8	44.7	45.3	38.8	6.48	6.991	
1,600.0	1,600.0	1,592.6	1,591.4	3.5	3.5	79.46	10.3	55.5	56.9	50.0	6.92	8.227	
1,700.0	1,700.0	1,689.3	1,686.9	3.7	3.7	76.96	16.0	69.2	72.0	64.6	7.37	9.775	
1,800.0	1,800.0	1,785.2	1,781.2	3.9	4.0	75.05	22.9	85.7	90.4	82.6	7.82	11.562	
1,900.0	1,900.0	1,883.2	1,877.2	4.2	4.3	73.67	30.4	103.6	110.2	101.9	8.28	13.304	
2,000.0	2,000.0	1,981.2	1,973.3	4.4	4.7	72.71	37.9	121.6	130.0	121.2	8.75	14.860	
2,100.0	2,100.0	2,079.5	2,069.5	4.6	5.0	48.99	45.4	139.7	148.7	139.5	9.14	16.261	
2,200.0	2,199.8	2,178.1	2,166.2	4.8	5.4	49.52	52.9	157.8	165.1	155.5	9.59	17.215	
2,300.0	2,299.5	2,276.9	2,263.1	5.1	5.8	50.80	60.4	175.9	179.4	169.4	10.05	17.859	
2,400.0	2,398.7	2,375.9	2,360.1	5.3	6.1	52.71	68.0	194.1	191.7	181.2	10.51	18.238	
2,500.0	2,497.7	2,475.0	2,457.1	5.5	6.5	55.00	75.6	212.3	203.1	192.1	11.00	18.458	
2,600.0	2,596.7	2,574.0	2,554.2	5.8	6.9	57.05	83.1	230.5	214.8	203.3	11.51	18.657	
2,700.0	2,695.7	2,673.0	2,651.3	6.0	7.3	58.88	90.7	248.7	226.7	214.7	12.04	18.836	
2,800.0	2,794.7	2,772.1	2,748.3	6.3	7.7	60.53	98.3	266.9	238.9	226.3	12.58	18.994	
2,900.0	2,893.7	2,871.1	2,845.4	6.6	8.1	62.03	105.9	285.0	251.2	238.1	13.13	19.133	
3,000.0	2,992.7	2,970.2	2,942.4	6.9	8.5	63.38	113.4	303.2	263.7	250.0	13.69	19.255	
3,100.0	3,091.7	3,069.2	3,039.5	7.2	9.0	64.61	121.0	321.4	276.3	262.0	14.27	19.362	
3,200.0	3,190.7	3,168.2	3,136.5	7.5	9.4	65.73	128.6	339.6	289.0	274.2	14.86	19.454	
3,300.0	3,289.7	3,267.3	3,233.6	7.8	9.8	66.76	136.1	357.8	301.8	286.4	15.45	19.535	
3,400.0	3,388.7	3,366.3	3,330.7	8.1	10.2	67.70	143.7	376.0	314.7	298.7	16.05	19.606	
3,500.0	3,487.7	3,465.3	3,427.7	8.4	10.6	68.57	151.3	394.2	327.7	311.1	16.66	19.667	
3,600.0	3,586.7	3,564.4	3,524.8	8.7	11.1	69.37	158.8	412.3	340.8	323.5	17.28	19.721	
3,700.0	3,685.7	3,663.4	3,621.8	9.0	11.5	70.12	166.4	430.5	353.9	336.0	17.90	19.768	
3,800.0	3,784.7	3,762.4	3,718.9	9.3	11.9	70.81	174.0	448.7	367.1	348.5	18.53	19.809	
3,900.0	3,883.7	3,861.5	3,815.9	9.6	12.3	71.45	181.5	466.9	380.3	361.1	19.16	19.844	
4,000.0	3,982.7	3,960.5	3,913.0	9.9	12.7	72.05	189.1	485.1	393.6	373.8	19.80	19.875	
4,100.0	4,081.9	4,059.5	4,010.0	10.2	13.2	72.66	196.7	503.3	407.3	386.9	20.41	19.959	
4,200.0	4,181.4	4,158.4	4,107.0	10.4	13.6	72.85	204.2	521.4	422.0	401.1	20.93	20.165	
4,300.0	4,281.3	4,257.1	4,203.7	10.6	14.0	72.63	211.8	539.5	437.7	416.3	21.40	20.459	
4,400.0	4,381.2	4,355.4	4,300.0	10.8	14.4	72.04	219.3	557.6	454.6	432.8	21.81	20.843	
4,500.0	4,481.2	4,453.4	4,396.1	11.0	14.9	94.23	226.8	575.6	472.3	450.1	22.19	21.281	
4,600.0	4,581.2	4,551.4	4,492.1	11.2	15.3	93.18	234.2	593.6	490.2	467.6	22.60	21.692	
4,700.0	4,681.2	4,649.4	4,588.1	11.4	15.7	92.21	241.7	611.6	508.3	485.3	23.01	22.091	
4,800.0	4,781.2	4,758.6	4,695.3	11.6	16.1	91.24	249.8	630.9	525.9	502.4	23.41	22.460	
4,900.0	4,881.2	4,877.7	4,813.0	11.8	16.5	90.44	256.9	648.1	540.2	516.4	23.82	22.678	
5,000.0	4,981.2	4,998.3	4,932.7	12.0	16.8	89.87	262.2	660.8	550.7	526.5	24.23	22.731	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13K-423
Project:	SEC.13-T4N-R67W	**TVD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**MD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Stroh 13K-423	**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 #2 (4-9-14)	**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
5,100.0	5,081.2	5,119.8	5,053.9	12.2	17.0	89.53	265.6	668.9	557.4	532.8	24.63	22.629	
5,200.0	5,181.2	5,241.8	5,175.8	12.4	17.2	89.39	267.0	672.2	560.2	535.1	25.04	22.374	
5,300.0	5,281.2	5,346.2	5,280.2	12.6	17.3	89.39	267.0	672.3	560.2	534.8	25.43	22.034	
5,400.0	5,381.2	5,446.2	5,380.2	12.8	17.5	89.39	267.0	672.3	560.2	534.4	25.82	21.701	
5,500.0	5,481.2	5,546.2	5,480.2	13.0	17.6	89.39	267.0	672.3	560.2	534.0	26.21	21.375	
5,600.0	5,581.2	5,646.2	5,580.2	13.2	17.8	89.39	267.0	672.3	560.2	533.6	26.60	21.058	
5,700.0	5,681.2	5,746.2	5,680.2	13.4	17.9	89.39	267.0	672.3	560.2	533.2	27.00	20.749	
5,800.0	5,781.2	5,846.2	5,780.2	13.6	18.1	89.39	267.0	672.3	560.2	532.8	27.40	20.448	
5,900.0	5,881.2	5,946.2	5,880.2	13.8	18.2	89.39	267.0	672.3	560.2	532.4	27.80	20.154	
6,000.0	5,981.2	6,046.2	5,980.2	14.0	18.4	89.39	267.0	672.3	560.2	532.0	28.20	19.868	
6,100.0	6,081.2	6,146.2	6,080.2	14.2	18.5	89.39	267.0	672.3	560.2	531.6	28.60	19.588	
6,200.0	6,181.2	6,246.2	6,180.2	14.4	18.7	89.39	267.0	672.3	560.2	531.2	29.00	19.315	
6,300.0	6,281.2	6,346.2	6,280.2	14.6	18.9	89.39	267.0	672.3	560.2	530.8	29.41	19.049	
6,400.0	6,381.2	6,446.2	6,380.2	14.8	19.0	89.39	267.0	672.3	560.2	530.4	29.82	18.790	
6,500.0	6,481.2	6,546.3	6,480.4	15.0	19.2	89.41	266.8	672.3	560.2	530.0	30.22	18.538	
6,597.2	6,578.3	6,643.9	6,577.5	15.2	19.3	-90.08	257.9	672.3	560.2	529.7	30.54	18.343	
6,600.0	6,581.2	6,646.5	6,580.0	15.2	19.3	-89.91	257.5	672.3	560.2	529.6	30.56	18.332	
6,700.0	6,680.0	6,745.4	6,676.2	15.3	19.3	-89.05	234.7	672.3	560.3	529.5	30.76	18.213	
6,800.0	6,776.1	6,843.1	6,767.3	15.4	19.3	-88.13	199.5	672.3	560.5	529.6	30.86	18.160	
6,900.0	6,867.7	6,939.6	6,851.6	15.4	19.3	-87.16	152.8	672.3	560.9	530.0	30.91	18.146	
7,000.0	6,953.4	7,034.7	6,927.9	15.4	19.3	-86.17	96.2	672.3	561.5	530.5	30.96	18.134	
7,100.0	7,031.6	7,128.6	6,995.2	15.4	19.3	-85.16	30.8	672.3	562.2	531.1	31.09	18.082	
7,200.0	7,101.0	7,221.4	7,052.8	15.5	19.3	-84.17	-41.9	672.3	563.1	531.8	31.39	17.941	
7,300.0	7,160.5	7,312.9	7,099.9	15.8	19.4	-83.20	-120.3	672.3	564.2	532.3	31.91	17.682	
7,400.0	7,209.0	7,403.4	7,136.3	16.2	19.6	-82.27	-203.1	672.3	565.4	532.7	32.72	17.277	
7,500.0	7,245.6	7,492.9	7,161.7	16.9	20.0	-81.39	-288.9	672.3	566.6	532.8	33.88	16.727	
7,600.0	7,269.8	7,581.6	7,176.1	17.7	20.5	-80.59	-376.3	672.3	567.9	532.5	35.36	16.058	
7,700.0	7,282.4	7,670.7	7,179.8	18.6	21.1	-79.78	-465.2	672.3	569.3	532.2	37.12	15.338	
7,800.0	7,290.7	7,770.2	7,179.0	19.7	22.0	-78.84	-564.8	672.3	571.0	531.8	39.24	14.551	
7,900.0	7,291.8	7,870.2	7,178.3	20.9	23.0	-78.65	-664.8	672.3	571.4	529.7	41.63	13.724	
8,000.0	7,291.5	7,970.2	7,177.6	22.2	24.2	-78.60	-764.8	672.3	571.5	527.3	44.17	12.937	
8,100.0	7,291.3	8,070.2	7,176.8	23.6	25.4	-78.55	-864.8	672.3	571.6	524.7	46.88	12.192	
8,200.0	7,291.0	8,170.2	7,176.1	25.0	26.8	-78.51	-964.7	672.3	571.7	521.9	49.73	11.496	
8,300.0	7,290.8	8,270.2	7,175.4	26.6	28.2	-78.46	-1,064.7	672.3	571.8	519.1	52.69	10.852	
8,400.0	7,290.5	8,370.2	7,174.6	28.1	29.7	-78.41	-1,164.7	672.3	571.9	516.1	55.75	10.258	
8,500.0	7,290.3	8,470.2	7,173.9	29.7	31.2	-78.36	-1,264.7	672.3	572.0	513.1	58.89	9.713	
8,600.0	7,290.0	8,570.2	7,173.2	31.4	32.7	-78.31	-1,364.7	672.3	572.1	510.0	62.10	9.213	
8,700.0	7,289.8	8,670.2	7,172.4	33.0	34.3	-78.27	-1,464.7	672.3	572.2	506.8	65.36	8.754	
8,800.0	7,289.6	8,770.2	7,171.7	34.7	36.0	-78.22	-1,564.7	672.3	572.3	503.6	68.68	8.332	
8,900.0	7,289.3	8,870.2	7,171.0	36.5	37.6	-78.17	-1,664.7	672.3	572.4	500.3	72.04	7.945	
9,000.0	7,289.1	8,970.2	7,170.2	38.2	39.3	-78.12	-1,764.7	672.3	572.5	497.0	75.44	7.588	
9,100.0	7,288.8	9,070.2	7,169.5	39.9	41.0	-78.07	-1,864.7	672.3	572.6	493.7	78.87	7.260	
9,200.0	7,288.6	9,170.2	7,168.8	41.7	42.7	-78.03	-1,964.7	672.3	572.7	490.3	82.33	6.956	
9,300.0	7,288.3	9,270.2	7,168.0	43.5	44.5	-77.98	-2,064.7	672.3	572.8	487.0	85.81	6.675	
9,400.0	7,288.1	9,370.2	7,167.3	45.3	46.2	-77.93	-2,164.7	672.3	572.9	483.6	89.31	6.414	
9,500.0	7,287.8	9,470.2	7,166.6	47.1	48.0	-77.88	-2,264.7	672.3	573.0	480.1	92.84	6.172	
9,600.0	7,287.6	9,570.2	7,165.8	48.9	49.8	-77.84	-2,364.7	672.3	573.1	476.7	96.37	5.946	
9,700.0	7,287.4	9,670.2	7,165.1	50.7	51.5	-77.79	-2,464.7	672.3	573.2	473.2	99.93	5.736	
9,800.0	7,287.1	9,770.2	7,164.4	52.5	53.3	-77.74	-2,564.7	672.3	573.3	469.8	103.49	5.539	
9,900.0	7,286.9	9,870.2	7,163.6	54.4	55.1	-77.69	-2,664.7	672.3	573.4	466.3	107.07	5.355	
10,000.0	7,286.6	9,970.2	7,162.9	56.2	56.9	-77.64	-2,764.7	672.3	573.5	462.8	110.66	5.182	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13K-423
Project:	SEC.13-T4N-R67W	**TVD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**MD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Stroh 13K-423	**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 #2 (4-9-14)	**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
10,100.0	7,286.4	10,070.2	7,162.2	58.1	58.8	-77.60	-2,864.7	672.3	573.6	459.3	114.26	5.020	
10,200.0	7,286.1	10,170.2	7,161.4	59.9	60.6	-77.55	-2,964.7	672.3	573.7	455.8	117.86	4.867	
10,300.0	7,285.9	10,270.2	7,160.7	61.8	62.4	-77.50	-3,064.7	672.3	573.8	452.3	121.48	4.724	
10,400.0	7,285.6	10,370.2	7,160.0	63.6	64.2	-77.45	-3,164.7	672.3	573.9	448.8	125.10	4.588	
10,500.0	7,285.4	10,470.2	7,159.3	65.5	66.1	-77.41	-3,264.7	672.3	574.0	445.3	128.72	4.459	
10,600.0	7,285.2	10,570.2	7,158.5	67.4	67.9	-77.36	-3,364.7	672.3	574.1	441.8	132.36	4.338	
10,700.0	7,284.9	10,670.2	7,157.8	69.2	69.8	-77.31	-3,464.7	672.3	574.2	438.2	135.99	4.222	
10,800.0	7,284.7	10,770.2	7,157.1	71.1	71.6	-77.26	-3,564.6	672.3	574.3	434.7	139.63	4.113	
10,900.0	7,284.4	10,870.2	7,156.3	73.0	73.5	-77.22	-3,664.6	672.3	574.4	431.2	143.28	4.009	
11,000.0	7,284.2	10,970.2	7,155.6	74.8	75.3	-77.17	-3,764.6	672.3	574.6	427.6	146.93	3.910	
11,100.0	7,283.9	11,070.2	7,154.9	76.7	77.2	-77.12	-3,864.6	672.3	574.7	424.1	150.58	3.816	
11,200.0	7,283.7	11,170.2	7,154.1	78.6	79.1	-77.07	-3,964.6	672.3	574.8	420.5	154.23	3.727	
11,300.0	7,283.5	11,270.2	7,153.4	80.5	80.9	-77.03	-4,064.6	672.3	574.9	417.0	157.89	3.641	
11,400.0	7,283.2	11,370.2	7,152.7	82.4	82.8	-76.98	-4,164.6	672.3	575.0	413.4	161.55	3.559	
11,500.0	7,283.0	11,470.2	7,151.9	84.2	84.7	-76.93	-4,264.6	672.3	575.1	409.9	165.21	3.481	
11,600.0	7,282.7	11,570.2	7,151.2	86.1	86.5	-76.88	-4,364.6	672.3	575.2	406.3	168.87	3.406	
11,700.0	7,282.5	11,670.2	7,150.5	88.0	88.4	-76.84	-4,464.6	672.3	575.3	402.8	172.54	3.334	
11,800.0	7,282.2	11,770.2	7,149.7	89.9	90.3	-76.79	-4,564.6	672.3	575.4	399.2	176.20	3.266	
11,900.0	7,282.0	11,870.2	7,149.0	91.8	92.2	-76.74	-4,664.6	672.3	575.5	395.7	179.87	3.200	
12,000.0	7,281.7	11,970.2	7,148.3	93.7	94.1	-76.69	-4,764.6	672.3	575.7	392.1	183.54	3.136	
12,100.0	7,281.5	12,070.2	7,147.5	95.6	95.9	-76.65	-4,864.6	672.3	575.8	388.6	187.21	3.076	
12,200.0	7,281.3	12,170.1	7,146.8	97.5	97.8	-76.60	-4,964.6	672.3	575.9	385.0	190.88	3.017	
12,300.0	7,281.0	12,270.1	7,146.1	99.4	99.7	-76.55	-5,064.6	672.3	576.0	381.4	194.55	2.961	
12,400.0	7,280.8	12,370.1	7,145.3	101.3	101.6	-76.50	-5,164.6	672.3	576.1	377.9	198.22	2.906	
12,500.0	7,280.5	12,470.1	7,144.6	103.2	103.5	-76.46	-5,264.6	672.3	576.2	374.3	201.89	2.854	
12,600.0	7,280.3	12,570.1	7,143.9	105.1	105.4	-76.41	-5,364.6	672.3	576.3	370.8	205.56	2.804	
12,700.0	7,280.0	12,670.1	7,143.1	107.0	107.3	-76.36	-5,464.6	672.3	576.5	367.2	209.24	2.755	
12,800.0	7,279.8	12,770.1	7,142.4	108.9	109.1	-76.32	-5,564.6	672.3	576.6	363.7	212.91	2.708	
12,900.0	7,279.5	12,870.1	7,141.7	110.8	111.0	-76.27	-5,664.6	672.3	576.7	360.1	216.58	2.663	
13,000.0	7,279.3	12,970.1	7,140.9	112.7	112.9	-76.22	-5,764.6	672.3	576.8	356.5	220.26	2.619	
13,100.0	7,279.1	13,070.1	7,140.2	114.6	114.8	-76.17	-5,864.6	672.3	576.9	353.0	223.93	2.576	
13,200.0	7,278.8	13,170.1	7,139.5	116.5	116.7	-76.13	-5,964.6	672.3	577.0	349.4	227.60	2.535	
13,300.0	7,278.6	13,270.1	7,138.7	118.4	118.6	-76.08	-6,064.6	672.3	577.2	345.9	231.27	2.496	
13,400.0	7,278.3	13,370.1	7,138.0	120.3	120.5	-76.03	-6,164.5	672.3	577.3	342.3	234.94	2.457	
13,500.0	7,278.1	13,470.1	7,137.3	122.2	122.4	-75.99	-6,264.5	672.3	577.4	338.8	238.62	2.420	
13,600.0	7,277.8	13,570.1	7,136.5	124.1	124.3	-75.94	-6,364.5	672.3	577.5	335.2	242.29	2.384	
13,700.0	7,277.6	13,670.1	7,135.8	126.0	126.2	-75.89	-6,464.5	672.3	577.6	331.7	245.96	2.348	
13,800.0	7,277.3	13,770.1	7,135.1	127.9	128.1	-75.85	-6,564.5	672.3	577.7	328.1	249.63	2.314	
13,900.0	7,277.1	13,870.1	7,134.3	129.8	130.0	-75.80	-6,664.5	672.3	577.9	324.6	253.30	2.281	
14,000.0	7,276.9	13,970.1	7,133.6	131.7	131.9	-75.75	-6,764.5	672.3	578.0	321.0	256.97	2.249	
14,100.0	7,276.6	14,070.1	7,132.9	133.6	133.8	-75.70	-6,864.5	672.3	578.1	317.5	260.64	2.218	
14,200.0	7,276.4	14,170.1	7,132.1	135.5	135.7	-75.66	-6,964.5	672.3	578.2	313.9	264.30	2.188	
14,300.0	7,276.1	14,270.1	7,131.4	137.4	137.6	-75.61	-7,064.5	672.3	578.3	310.4	267.97	2.158	
14,349.3	7,276.0	14,319.4	7,131.0	138.4	138.5	-75.59	-7,113.8	672.3	578.4	308.6	269.78	2.144	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13K-423
Project:	SEC.13-T4N-R67W	**TVD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**MD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Stroh 13K-423	**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 #2 (4-9-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Stroh O13-21D Sec.13-T4N-R67W - Stroh O13-21D - Stroh O13-21D - Stroh O13-21D

Offset Site Error: 0.0 ft

Survey Program: 475- **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	1.0	1.0	0.0	0.0	131.69	-327.9	368.1	493.0				
100.0	100.0	101.3	101.3	0.1	0.1	131.69	-327.8	368.1	492.9	492.7	0.23	2,177.562	
200.0	200.0	201.7	201.7	0.3	0.2	131.68	-327.7	368.1	492.8	492.3	0.56	874.134	
300.0	300.0	302.0	302.0	0.6	0.3	131.68	-327.6	368.0	492.7	491.8	0.90	546.659	
400.0	400.0	402.4	402.4	0.8	0.5	131.66	-327.4	367.9	492.4	491.2	1.24	397.547	
500.0	500.0	503.0	503.0	1.0	0.6	131.65	-327.1	367.7	492.1	490.5	1.61	306.485	
600.0	600.0	604.2	604.2	1.2	0.8	131.66	-326.8	367.2	491.6	489.5	2.05	239.788	
700.0	700.0	704.4	704.4	1.5	1.0	131.68	-326.4	366.7	490.9	488.4	2.48	197.551	
800.0	800.0	804.9	804.9	1.7	1.2	131.67	-325.9	366.1	490.2	487.3	2.92	167.697	
900.0	900.0	905.6	905.5	1.9	1.5	131.68	-325.4	365.4	489.3	486.0	3.36	145.438	
1,000.0	1,000.0	1,006.2	1,006.1	2.1	1.7	131.70	-324.8	364.6	488.3	484.5	3.81	128.225	
1,100.0	1,100.0	1,106.6	1,106.6	2.4	1.9	131.73	-324.3	363.6	487.2	483.0	4.25	114.608	
1,200.0	1,200.0	1,207.7	1,207.7	2.6	2.1	131.80	-323.9	362.3	486.0	481.3	4.69	103.518	
1,300.0	1,300.0	1,310.0	1,310.0	2.8	2.3	131.88	-323.3	360.6	484.4	479.2	5.14	94.276	
1,400.0	1,400.0	1,412.2	1,412.2	3.0	2.6	131.86	-321.7	359.1	482.2	476.7	5.58	86.402	
1,500.0	1,500.0	1,509.2	1,509.1	3.3	2.8	131.80	-319.9	357.8	480.1	474.0	6.01	79.878	
1,588.2	1,588.2	1,589.3	1,589.2	3.5	2.9	131.66	-318.6	358.0	479.2	472.9	6.37	75.286	CC
1,600.0	1,600.0	1,599.8	1,599.7	3.5	2.9	131.63	-318.4	358.2	479.2	472.8	6.41	74.745	ES
1,700.0	1,700.0	1,694.4	1,694.2	3.7	3.1	131.27	-316.7	361.0	480.3	473.4	6.82	70.399	
1,800.0	1,800.0	1,799.0	1,798.7	3.9	3.3	130.60	-313.3	365.5	481.4	474.1	7.27	66.242	
1,900.0	1,900.0	1,894.0	1,893.5	4.2	3.5	129.84	-309.0	370.4	482.4	474.7	7.69	62.689	
2,000.0	2,000.0	1,989.0	1,988.2	4.4	3.7	128.97	-304.6	376.6	484.5	476.4	8.12	59.657	
2,100.0	2,100.0	2,087.4	2,086.0	4.6	4.0	104.68	-298.6	385.0	487.9	479.3	8.57	56.908	
2,200.0	2,199.8	2,191.1	2,189.0	4.8	4.2	103.82	-291.0	394.7	492.1	483.1	9.05	54.385	
2,300.0	2,299.5	2,291.3	2,288.5	5.1	4.5	103.35	-282.9	403.5	496.3	486.8	9.52	52.122	
2,400.0	2,398.7	2,388.5	2,384.8	5.3	4.7	103.13	-274.4	413.1	501.9	491.9	10.01	50.148	
2,500.0	2,497.7	2,491.7	2,486.9	5.5	5.0	103.04	-264.1	424.1	507.8	497.2	10.54	48.189	
2,600.0	2,596.7	2,587.8	2,581.6	5.8	5.3	102.70	-252.5	435.8	513.6	502.5	11.08	46.356	
2,700.0	2,695.7	2,681.2	2,672.9	6.0	5.6	101.98	-239.1	450.1	520.7	509.0	11.66	44.666	
2,800.0	2,794.7	2,778.4	2,766.9	6.3	6.0	100.79	-222.0	467.7	528.4	516.1	12.29	43.006	
2,900.0	2,893.7	2,879.7	2,864.9	6.6	6.4	99.58	-204.4	486.5	536.8	523.9	12.93	41.506	
3,000.0	2,992.7	2,978.6	2,961.0	6.9	6.8	98.64	-188.3	503.2	544.6	531.1	13.58	40.109	
3,100.0	3,091.7	3,067.4	3,047.0	7.2	7.1	97.67	-173.4	519.7	553.7	539.5	14.23	38.926	
3,200.0	3,190.7	3,172.7	3,148.4	7.5	7.6	96.38	-154.4	540.8	563.8	548.8	14.96	37.687	
3,300.0	3,289.7	3,269.4	3,241.2	7.8	8.1	95.11	-135.6	560.2	573.3	557.7	15.68	36.568	
3,400.0	3,388.7	3,363.6	3,331.4	8.1	8.5	93.81	-116.8	580.1	584.0	567.6	16.41	35.585	
3,500.0	3,487.7	3,461.3	3,424.7	8.4	9.0	92.48	-97.0	601.1	595.1	578.0	17.16	34.689	
3,600.0	3,586.7	3,555.0	3,514.3	8.7	9.5	91.29	-78.7	621.5	607.1	589.2	17.87	33.971	
3,700.0	3,685.7	3,656.2	3,611.1	9.0	10.0	90.08	-59.4	643.9	619.8	601.2	18.62	33.285	
3,800.0	3,784.7	3,755.7	3,705.9	9.3	10.5	88.82	-38.9	665.7	632.1	612.7	19.39	32.602	
3,900.0	3,883.7	3,847.9	3,793.3	9.6	11.1	87.51	-18.2	687.0	645.1	624.9	20.15	32.019	
4,000.0	3,982.7	3,947.5	3,887.0	9.9	11.7	86.01	5.5	710.8	658.8	637.9	20.95	31.450	
4,100.0	4,081.9	4,042.2	3,976.1	10.2	12.2	84.77	28.2	733.7	673.4	651.7	21.68	31.057	
4,200.0	4,181.4	4,146.2	4,074.6	10.4	12.8	83.40	51.0	757.6	688.1	665.8	22.34	30.799	
4,300.0	4,281.3	4,260.0	4,184.0	10.6	13.3	82.01	71.9	781.4	702.7	679.8	22.95	30.617	
4,400.0	4,381.2	4,363.1	4,284.1	10.8	13.8	80.79	88.3	800.0	716.0	692.5	23.45	30.528	
4,500.0	4,481.2	4,477.3	4,395.7	11.0	14.3	102.51	104.4	818.1	728.3	704.4	23.93	30.430	
4,600.0	4,581.2	4,572.7	4,489.0	11.2	14.7	101.31	116.9	832.7	740.8	716.4	24.37	30.393	
4,700.0	4,681.2	4,684.0	4,598.4	11.4	15.1	100.07	130.1	848.7	752.8	728.0	24.84	30.308	
4,800.0	4,781.2	4,798.0	4,711.0	11.6	15.5	99.05	141.4	862.3	763.0	737.7	25.29	30.173	
4,900.0	4,881.2	4,910.3	4,822.4	11.8	15.8	98.20	151.3	873.3	771.4	745.7	25.72	29.990	

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 13K-423
Project:	SEC.13-T4N-R67W	**TVD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**MD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Stroh 13K-423	**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 #2 (4-9-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Stroh O13-21D Sec.13-T4N-R67W - Stroh O13-21D - Stroh O13-21D - Stroh O13-21D

Offset Site Error: 0.0 ft

Survey Program: 475- **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	4,981.2	5,020.5	4,931.8	12.0	16.1	97.45	160.3	882.6	778.7	752.6	26.14	29.788	
5,100.0	5,081.2	5,138.4	5,049.2	12.2	16.4	96.83	167.9	889.9	784.0	757.5	26.57	29.513	
5,200.0	5,181.2	5,247.5	5,158.2	12.4	16.6	96.44	172.7	894.4	787.7	760.7	26.96	29.218	
5,300.0	5,281.2	5,357.5	5,268.0	12.6	16.9	96.14	176.5	897.6	790.1	762.8	27.35	28.892	
5,400.0	5,381.2	5,464.1	5,374.6	12.8	17.0	95.95	179.0	899.2	791.4	763.7	27.73	28.545	
5,500.0	5,481.2	5,572.7	5,483.2	13.0	17.2	95.84	180.4	899.8	791.8	763.7	28.10	28.178	
5,600.0	5,581.2	5,676.9	5,587.3	13.2	17.3	95.86	180.2	899.5	791.5	763.1	28.46	27.810	
5,700.0	5,681.2	5,785.2	5,695.7	13.4	17.4	96.02	178.2	898.0	790.3	761.5	28.82	27.418	
5,800.0	5,781.2	5,886.0	5,796.4	13.6	17.6	96.19	176.0	895.8	788.5	759.3	29.18	27.024	
5,900.0	5,881.2	5,989.0	5,899.3	13.8	17.7	96.31	174.6	893.7	786.5	757.0	29.53	26.631	
6,000.0	5,981.2	6,088.3	5,998.6	14.0	17.8	96.36	174.1	891.5	784.4	754.5	29.89	26.240	
6,100.0	6,081.2	6,188.8	6,099.1	14.2	17.9	96.40	173.8	889.3	782.2	752.0	30.26	25.854	
6,200.0	6,181.2	6,288.8	6,199.1	14.4	18.0	96.41	173.9	887.1	780.1	749.5	30.62	25.476	
6,300.0	6,281.2	6,386.6	6,296.9	14.6	18.2	96.38	174.5	885.1	778.0	747.0	30.98	25.108	
6,400.0	6,381.2	6,490.0	6,400.3	14.8	18.3	96.36	175.1	883.2	776.0	744.7	31.36	24.746	
6,500.0	6,481.2	6,587.0	6,497.2	15.0	18.4	96.33	175.7	881.1	773.9	742.1	31.73	24.392	
6,600.0	6,581.2	6,687.7	6,597.9	15.2	18.6	-84.00	176.2	879.2	771.7	739.6	32.04	24.085	
6,700.0	6,680.0	6,784.8	6,694.9	15.3	18.7	-85.32	176.6	877.0	768.0	735.8	32.18	23.865	
6,800.0	6,776.1	6,874.5	6,784.6	15.4	18.8	-87.32	175.4	876.2	765.2	733.0	32.19	23.768	
6,900.0	6,867.7	6,975.6	6,885.8	15.4	19.0	-90.54	175.7	874.2	762.3	730.2	32.11	23.737	SF
6,947.8	6,909.5	7,014.0	6,924.1	15.4	19.0	-92.00	175.9	873.4	761.7	729.7	32.07	23.749	
7,000.0	6,953.4	7,051.0	6,961.1	15.4	19.1	-93.45	176.0	872.8	762.5	730.4	32.03	23.805	
7,100.0	7,031.6	7,123.5	7,033.6	15.4	19.2	-96.29	175.1	872.9	769.1	737.1	31.98	24.049	
7,200.0	7,101.0	7,205.3	7,115.4	15.5	19.3	-99.66	175.0	871.9	781.9	749.9	31.96	24.464	
7,300.0	7,160.5	7,259.5	7,169.6	15.8	19.4	-101.20	175.4	871.0	803.8	771.6	32.19	24.969	
7,400.0	7,209.0	7,305.8	7,215.9	16.2	19.4	-101.62	175.8	870.4	836.3	803.6	32.70	25.578	
7,500.0	7,245.6	7,341.3	7,251.4	16.9	19.5	-100.51	176.0	870.1	879.4	845.8	33.55	26.210	
7,600.0	7,269.8	7,364.6	7,274.7	17.7	19.5	-97.56	176.2	869.8	932.2	897.4	34.74	26.833	
7,700.0	7,282.4	7,376.5	7,286.6	18.6	19.5	-95.30	176.3	869.7	993.2	957.3	35.92	27.652	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13K-423
Project:	SEC.13-T4N-R67W	**TVD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**MD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Stroh 13K-423	**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 #2 (4-9-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Stroh O13-21D Sec.13-T4N-R67W - UPRC 13-11E (Exist.) - Wellbore #1 - Design #1

Offset Site Error: 0.0 ft

Survey Program: 0- **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	1.0	1.0	0.0	0.0	136.90	-360.7	337.5	493.9				
100.0	100.0	101.0	101.0	0.1	0.1	136.90	-360.7	337.5	493.9	493.7	0.23	2,175.748	
200.0	200.0	201.0	201.0	0.3	0.3	136.90	-360.7	337.5	493.9	493.2	0.68	730.068	
300.0	300.0	301.0	301.0	0.6	0.6	136.90	-360.7	337.5	493.9	492.8	1.13	438.624	
400.0	400.0	401.0	401.0	0.8	0.8	136.90	-360.7	337.5	493.9	492.3	1.58	313.482	
500.0	500.0	501.0	501.0	1.0	1.0	136.90	-360.7	337.5	493.9	491.9	2.03	243.896	
600.0	600.0	601.0	601.0	1.2	1.2	136.90	-360.7	337.5	493.9	491.4	2.47	199.592	
700.0	700.0	701.0	701.0	1.5	1.5	136.90	-360.7	337.5	493.9	491.0	2.92	168.909	
800.0	800.0	801.0	801.0	1.7	1.7	136.90	-360.7	337.5	493.9	490.6	3.37	146.403	
900.0	900.0	901.0	901.0	1.9	1.9	136.90	-360.7	337.5	493.9	490.1	3.82	129.189	
1,000.0	1,000.0	1,001.0	1,001.0	2.1	2.1	136.90	-360.7	337.5	493.9	489.7	4.27	115.597	
1,100.0	1,100.0	1,101.0	1,101.0	2.4	2.4	136.90	-360.7	337.5	493.9	489.2	4.72	104.593	
1,200.0	1,200.0	1,201.0	1,201.0	2.6	2.6	136.90	-360.7	337.5	493.9	488.8	5.17	95.502	
1,300.0	1,300.0	1,301.0	1,301.0	2.8	2.8	136.90	-360.7	337.5	493.9	488.3	5.62	87.865	
1,400.0	1,400.0	1,401.0	1,401.0	3.0	3.0	136.90	-360.7	337.5	493.9	487.9	6.07	81.359	
1,500.0	1,500.0	1,501.0	1,501.0	3.3	3.3	136.90	-360.7	337.5	493.9	487.4	6.52	75.750	
1,600.0	1,600.0	1,601.0	1,601.0	3.5	3.5	136.90	-360.7	337.5	493.9	487.0	6.97	70.864	
1,700.0	1,700.0	1,701.0	1,701.0	3.7	3.7	136.90	-360.7	337.5	493.9	486.5	7.42	66.571	
1,800.0	1,800.0	1,801.0	1,801.0	3.9	3.9	136.90	-360.7	337.5	493.9	486.1	7.87	62.768	
1,900.0	1,900.0	1,901.0	1,901.0	4.2	4.2	136.90	-360.7	337.5	493.9	485.6	8.32	59.376	
2,000.0	2,000.0	2,001.0	2,001.0	4.4	4.4	136.90	-360.7	337.5	493.9	485.2	8.77	56.332	
2,100.0	2,100.0	2,101.0	2,101.0	4.6	4.6	113.83	-360.7	337.5	494.6	485.4	9.22	53.675	
2,200.0	2,199.8	2,200.8	2,200.8	4.8	4.8	114.35	-360.7	337.5	496.8	487.1	9.66	51.428	
2,300.0	2,299.5	2,300.5	2,300.5	5.1	5.1	115.19	-360.7	337.5	500.4	490.3	10.10	49.528	
2,400.0	2,398.7	2,399.7	2,399.7	5.3	5.3	116.33	-360.7	337.5	505.8	495.2	10.55	47.931	
2,500.0	2,497.7	2,498.7	2,498.7	5.5	5.5	117.73	-360.7	337.5	512.2	501.2	11.01	46.508	
2,600.0	2,596.7	2,597.7	2,597.7	5.8	5.7	119.10	-360.7	337.5	519.0	507.5	11.48	45.195	
2,700.0	2,695.7	2,696.7	2,696.7	6.0	5.9	120.43	-360.7	337.5	526.0	514.1	11.96	43.988	
2,800.0	2,794.7	2,795.7	2,795.7	6.3	6.2	121.73	-360.7	337.5	533.4	520.9	12.44	42.880	
2,900.0	2,893.7	2,894.7	2,894.7	6.6	6.4	122.99	-360.7	337.5	541.0	528.0	12.92	41.865	
3,000.0	2,992.7	2,993.7	2,993.7	6.9	6.6	124.21	-360.7	337.5	548.8	535.4	13.41	40.934	
3,100.0	3,091.7	3,092.7	3,092.7	7.2	6.8	125.41	-360.7	337.5	556.9	543.0	13.90	40.080	
3,200.0	3,190.7	3,191.7	3,191.7	7.5	7.1	126.56	-360.7	337.5	565.3	550.9	14.38	39.297	
3,300.0	3,289.7	3,290.7	3,290.7	7.8	7.3	127.69	-360.7	337.5	573.8	559.0	14.87	38.579	
3,400.0	3,388.7	3,389.7	3,389.7	8.1	7.5	128.78	-360.7	337.5	582.6	567.3	15.36	37.920	
3,500.0	3,487.7	3,488.7	3,488.7	8.4	7.7	129.84	-360.7	337.5	591.6	575.8	15.85	37.314	
3,600.0	3,586.7	3,587.7	3,587.7	8.7	8.0	130.86	-360.7	337.5	600.8	584.5	16.34	36.758	
3,700.0	3,685.7	3,686.7	3,686.7	9.0	8.2	131.86	-360.7	337.5	610.2	593.3	16.83	36.246	
3,800.0	3,784.7	3,785.7	3,785.7	9.3	8.4	132.83	-360.7	337.5	619.7	602.4	17.32	35.774	
3,900.0	3,883.7	3,884.7	3,884.7	9.6	8.6	133.76	-360.7	337.5	629.4	611.6	17.81	35.339	
4,000.0	3,982.7	3,983.7	3,983.7	9.9	8.8	134.67	-360.7	337.5	639.3	621.0	18.30	34.938	
4,100.0	4,081.9	4,082.9	4,082.9	10.2	9.1	135.58	-360.7	337.5	648.4	629.7	18.77	34.539	
4,200.0	4,181.4	4,182.4	4,182.4	10.4	9.3	136.25	-360.7	337.5	655.2	636.0	19.20	34.123	
4,300.0	4,281.3	4,282.3	4,282.3	10.6	9.5	136.66	-360.7	337.5	659.5	639.9	19.61	33.627	
4,400.0	4,381.2	4,382.2	4,382.2	10.8	9.7	136.83	-360.7	337.5	661.2	641.2	20.00	33.057	
4,500.0	4,481.2	4,482.2	4,482.2	11.0	10.0	160.07	-360.7	337.5	661.3	640.8	20.41	32.404	
4,600.0	4,581.2	4,582.2	4,582.2	11.2	10.2	160.07	-360.7	337.5	661.3	640.4	20.84	31.731	
4,700.0	4,681.2	4,682.2	4,682.2	11.4	10.4	160.07	-360.7	337.5	661.3	640.0	21.27	31.084	
4,800.0	4,781.2	4,782.2	4,782.2	11.6	10.6	160.07	-360.7	337.5	661.3	639.5	21.71	30.463	
4,900.0	4,881.2	4,882.2	4,882.2	11.8	10.9	160.07	-360.7	337.5	661.3	639.1	22.14	29.865	
5,000.0	4,981.2	4,982.2	4,982.2	12.0	11.1	160.07	-360.7	337.5	661.3	638.7	22.58	29.289	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13K-423
Project:	SEC.13-T4N-R67W	**TVD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**MD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Stroh 13K-423	**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 #2 (4-9-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Stroh O13-21D Sec.13-T4N-R67W - UPRC 13-11E (Exist.) - Wellbore #1 - Design #1

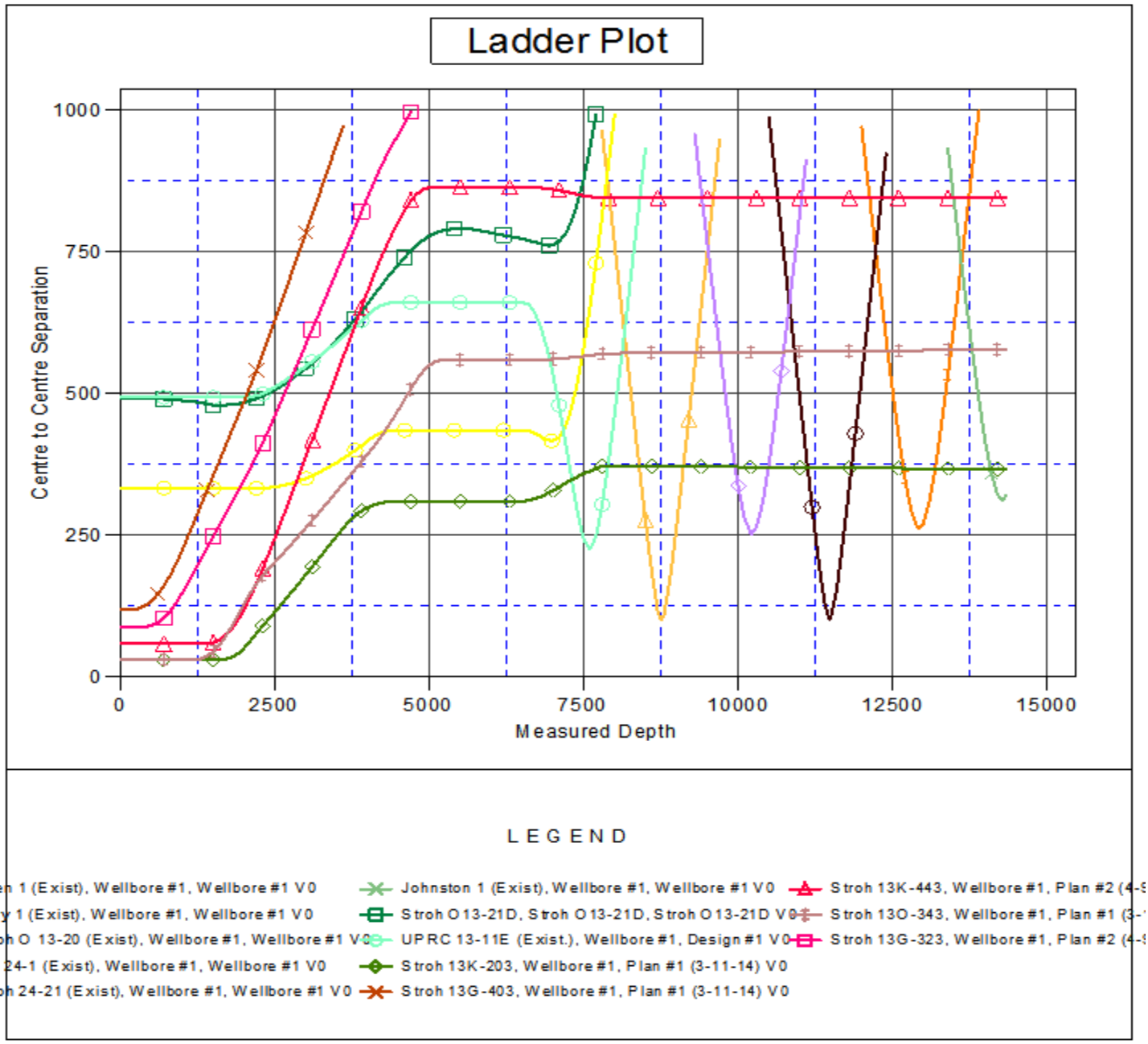
Offset Site Error: 0.0 ft

Survey Program: 0- **Offset Well Error:** 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,081.2	5,082.2	5,082.2	12.2	11.3	160.07	-360.7	337.5	661.3	638.2	23.01	28.735	
5,200.0	5,181.2	5,182.2	5,182.2	12.4	11.5	160.07	-360.7	337.5	661.3	637.8	23.45	28.200	
5,300.0	5,281.2	5,282.2	5,282.2	12.6	11.8	160.07	-360.7	337.5	661.3	637.4	23.89	27.684	
5,400.0	5,381.2	5,382.2	5,382.2	12.8	12.0	160.07	-360.7	337.5	661.3	636.9	24.32	27.187	
5,500.0	5,481.2	5,482.2	5,482.2	13.0	12.2	160.07	-360.7	337.5	661.3	636.5	24.76	26.706	
5,600.0	5,581.2	5,582.2	5,582.2	13.2	12.4	160.07	-360.7	337.5	661.3	636.1	25.20	26.242	
5,700.0	5,681.2	5,682.2	5,682.2	13.4	12.7	160.07	-360.7	337.5	661.3	635.6	25.64	25.793	
5,800.0	5,781.2	5,782.2	5,782.2	13.6	12.9	160.07	-360.7	337.5	661.3	635.2	26.08	25.359	
5,900.0	5,881.2	5,882.2	5,882.2	13.8	13.1	160.07	-360.7	337.5	661.3	634.7	26.51	24.939	
6,000.0	5,981.2	5,982.2	5,982.2	14.0	13.3	160.07	-360.7	337.5	661.3	634.3	26.95	24.533	
6,100.0	6,081.2	6,082.2	6,082.2	14.2	13.6	160.07	-360.7	337.5	661.3	633.9	27.39	24.139	
6,200.0	6,181.2	6,182.2	6,182.2	14.4	13.8	160.07	-360.7	337.5	661.3	633.4	27.83	23.757	
6,300.0	6,281.2	6,282.2	6,282.2	14.6	14.0	160.07	-360.7	337.5	661.3	633.0	28.27	23.387	
6,400.0	6,381.2	6,382.2	6,382.2	14.8	14.2	160.07	-360.7	337.5	661.3	632.5	28.72	23.028	
6,500.0	6,481.2	6,482.2	6,482.2	15.0	14.5	160.07	-360.7	337.5	661.3	632.1	29.16	22.680	
6,600.0	6,581.2	6,582.2	6,582.2	15.2	14.7	-20.07	-360.7	337.5	658.8	629.3	29.47	22.357	
6,700.0	6,680.0	6,681.0	6,681.0	15.3	14.9	-20.89	-360.7	337.5	645.0	615.6	29.41	21.934	
6,800.0	6,776.1	6,777.1	6,777.1	15.4	15.1	-22.54	-360.7	337.5	619.3	590.2	29.02	21.340	
6,900.0	6,867.7	6,868.7	6,868.7	15.4	15.3	-25.27	-360.7	337.5	582.4	554.0	28.39	20.510	
7,000.0	6,953.4	6,954.4	6,954.4	15.4	15.5	-29.46	-360.7	337.5	535.3	507.6	27.71	19.317	
7,100.0	7,031.6	7,032.6	7,032.6	15.4	15.7	-35.71	-360.7	337.5	479.6	452.3	27.30	17.567	
7,200.0	7,101.0	7,102.0	7,102.0	15.5	15.9	-44.77	-360.7	337.5	417.5	389.9	27.67	15.091	
7,300.0	7,160.5	7,161.5	7,161.5	15.8	16.0	-56.93	-360.7	337.5	352.6	323.4	29.16	12.093	
7,400.0	7,209.0	7,210.0	7,210.0	16.2	16.1	-70.81	-360.7	337.5	290.8	259.6	31.24	9.307	
7,500.0	7,245.6	7,246.6	7,246.6	16.9	16.2	-82.99	-360.7	337.5	243.0	210.1	32.85	7.396	
7,593.8	7,268.7	7,269.7	7,269.7	17.6	16.2	-90.00	-360.7	337.5	225.4	191.6	33.79	6.668	CC, ES
7,600.0	7,269.8	7,270.8	7,270.8	17.7	16.2	-90.28	-360.7	337.5	225.4	191.6	33.85	6.661	SF
7,700.0	7,282.4	7,283.4	7,283.4	18.6	16.3	-92.80	-360.7	337.5	248.7	214.0	34.78	7.152	
7,800.0	7,290.7	7,291.7	7,291.7	19.7	16.3	-92.31	-360.7	337.5	304.6	268.7	35.90	8.486	
7,900.0	7,291.8	7,292.8	7,292.8	20.9	16.3	-89.81	-360.7	337.5	379.2	342.0	37.14	10.210	
8,000.0	7,291.5	7,292.5	7,292.5	22.2	16.3	-89.75	-360.7	337.5	463.4	425.0	38.44	12.056	
8,100.0	7,291.3	7,292.3	7,292.3	23.6	16.3	-89.69	-360.7	337.5	552.9	513.1	39.82	13.885	
8,200.0	7,291.0	7,292.0	7,292.0	25.0	16.3	-89.62	-360.7	337.5	645.5	604.3	41.28	15.639	
8,300.0	7,290.8	7,291.8	7,291.8	26.6	16.3	-89.56	-360.7	337.5	740.1	697.3	42.79	17.294	
8,400.0	7,290.5	7,291.5	7,291.5	28.1	16.3	-89.50	-360.7	337.5	835.9	791.5	44.36	18.844	
8,500.0	7,290.3	7,291.3	7,291.3	29.7	16.3	-89.44	-360.7	337.5	932.6	886.6	45.96	20.288	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13K-423
Project:	SEC.13-T4N-R67W	**TVD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**MD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Stroh 13K-423	**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 #2 (4-9-14)	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 4820.0ft (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °
Coordinates are relative to: Stroh 13K-423
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.42°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13K-423
Project:	SEC.13-T4N-R67W	**TVD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**MD Reference:**	WELL @ 4820.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Stroh 13K-423	**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 #2 (4-9-14)	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 4820.0ft (Original Well Elev) Coordinates are relative to: Stroh 13K-423
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°