PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Stroh 13G-323**

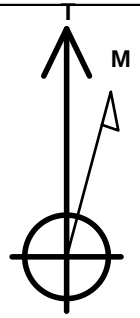
Surface Location: Stroh 13GK-HZ Pad Sec. 13-T4N-R67W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
Ground Elevation: 4805.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1356827.78	3183197.46	40.311030	-104.843080	

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

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 2352'FSL & 1556'FWL, Sec.13	1.0	0.0	0.0	Point
BHL 500'FSL & 487'FWL, Sec.24	7164.0	-7114.9	-1053.4	Point



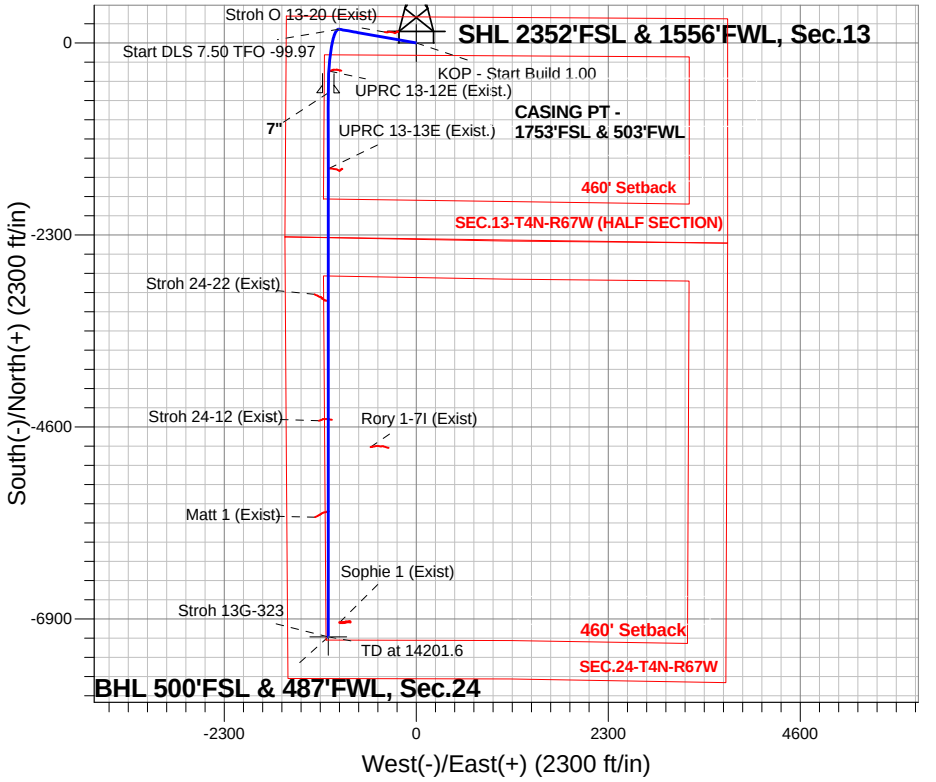
Azimuths to True North
Magnetic North: 8.53°

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

Stroh 13GK-HZ Pad Sec. 13-T4N-R67W
Stroh 13G-323
Plan #3 (1-28-15)

ANNOTATIONS

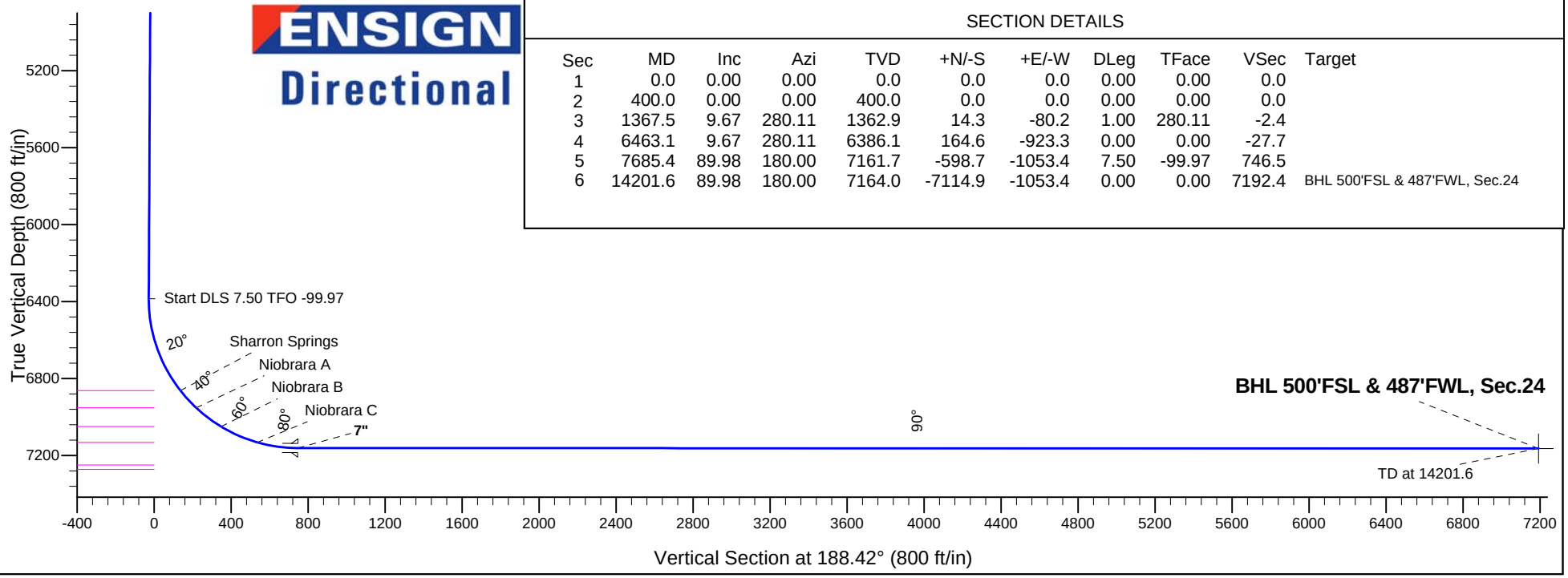
TVD	MD	Annotation
400.0	400.0	KOP - Start Build 1.00
6386.1	6463.1	Start DLS 7.50 TFO -99.97
7164.0	14201.6	TD at 14201.6



ENSIGN Directional

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.0	
3	1367.5	9.67	280.11	1362.9	14.3	-80.2	1.00	280.11	-2.4	
4	6463.1	9.67	280.11	6386.1	164.6	-923.3	0.00	0.00	-27.7	
5	7685.4	89.98	180.00	7161.7	-598.7	-1053.4	7.50	-99.97	746.5	
6	14201.6	89.98	180.00	7164.0	-7114.9	-1053.4	0.00	0.00	7192.4	BHL 500'FSL & 487'FWL, Sec.24



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.13-T4N-R67W
Stroh 13GK-HZ Pad Sec. 13-T4N-R67W
Stroh 13G-323

Wellbore #1

Plan: Plan #3 (1-28-15)

Standard Planning Report

30 January, 2015

Database:	landmark	**Local Co-ordinate Reference:**	Well Stroh 13G-323
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 13G-323	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #3 (1-28-15)		

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

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

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

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

Well Stroh 13G-323

Well Position	**+N/-S**	0.0 ft	**Northing:**	1,356,827.78 ft	**Latitude:**	40.311030
	+E/-W	30.7 ft	**Easting:**	3,183,197.46 ft	**Longitude:**	-104.843080
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 #3 (1-28-15)

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	188.42

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,367.5	9.67	280.11	1,362.9	14.3	-80.2	1.00	1.00	0.00	280.11	
6,463.1	9.67	280.11	6,386.1	164.6	-923.3	0.00	0.00	0.00	0.00	
7,685.4	89.98	180.00	7,161.7	-598.7	-1,053.4	7.50	6.57	-8.19	-99.97	
14,201.6	89.98	180.00	7,164.0	-7,114.9	-1,053.4	0.00	0.00	0.00	0.00	BHL 500'FSL & 487

Database:	landmark	**Local Co-ordinate Reference:**	Well Stroh 13G-323
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 13G-323	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #3 (1-28-15)		

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
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP - Start Build 1.00									
500.0	1.00	280.11	500.0	0.2	-0.9	0.0	1.00	1.00	0.00
600.0	2.00	280.11	600.0	0.6	-3.4	-0.1	1.00	1.00	0.00
700.0	3.00	280.11	699.9	1.4	-7.7	-0.2	1.00	1.00	0.00
800.0	4.00	280.11	799.7	2.5	-13.7	-0.4	1.00	1.00	0.00
900.0	5.00	280.11	899.4	3.8	-21.5	-0.6	1.00	1.00	0.00
1,000.0	6.00	280.11	998.9	5.5	-30.9	-0.9	1.00	1.00	0.00
1,100.0	7.00	280.11	1,098.3	7.5	-42.0	-1.3	1.00	1.00	0.00
1,200.0	8.00	280.11	1,197.4	9.8	-54.9	-1.6	1.00	1.00	0.00
1,300.0	9.00	280.11	1,296.3	12.4	-69.4	-2.1	1.00	1.00	0.00
1,367.5	9.67	280.11	1,362.9	14.3	-80.2	-2.4	1.00	1.00	0.00
1,400.0	9.67	280.11	1,394.9	15.3	-85.6	-2.6	0.00	0.00	0.00
1,500.0	9.67	280.11	1,493.5	18.2	-102.1	-3.1	0.00	0.00	0.00
1,600.0	9.67	280.11	1,592.1	21.2	-118.7	-3.6	0.00	0.00	0.00
1,700.0	9.67	280.11	1,690.7	24.1	-135.2	-4.1	0.00	0.00	0.00
1,800.0	9.67	280.11	1,789.3	27.1	-151.8	-4.5	0.00	0.00	0.00
1,900.0	9.67	280.11	1,887.8	30.0	-168.3	-5.0	0.00	0.00	0.00
2,000.0	9.67	280.11	1,986.4	33.0	-184.9	-5.5	0.00	0.00	0.00
2,100.0	9.67	280.11	2,085.0	35.9	-201.4	-6.0	0.00	0.00	0.00
2,200.0	9.67	280.11	2,183.6	38.9	-218.0	-6.5	0.00	0.00	0.00
2,300.0	9.67	280.11	2,282.1	41.8	-234.5	-7.0	0.00	0.00	0.00
2,400.0	9.67	280.11	2,380.7	44.8	-251.0	-7.5	0.00	0.00	0.00
2,500.0	9.67	280.11	2,479.3	47.7	-267.6	-8.0	0.00	0.00	0.00
2,600.0	9.67	280.11	2,577.9	50.7	-284.1	-8.5	0.00	0.00	0.00
2,700.0	9.67	280.11	2,676.5	53.6	-300.7	-9.0	0.00	0.00	0.00
2,800.0	9.67	280.11	2,775.0	56.6	-317.2	-9.5	0.00	0.00	0.00
2,900.0	9.67	280.11	2,873.6	59.5	-333.8	-10.0	0.00	0.00	0.00
3,000.0	9.67	280.11	2,972.2	62.5	-350.3	-10.5	0.00	0.00	0.00
3,100.0	9.67	280.11	3,070.8	65.4	-366.9	-11.0	0.00	0.00	0.00
3,200.0	9.67	280.11	3,169.3	68.4	-383.4	-11.5	0.00	0.00	0.00
3,300.0	9.67	280.11	3,267.9	71.3	-399.9	-12.0	0.00	0.00	0.00
3,400.0	9.67	280.11	3,366.5	74.3	-416.5	-12.5	0.00	0.00	0.00
3,500.0	9.67	280.11	3,465.1	77.2	-433.0	-13.0	0.00	0.00	0.00
3,600.0	9.67	280.11	3,563.7	80.2	-449.6	-13.5	0.00	0.00	0.00
3,700.0	9.67	280.11	3,662.2	83.1	-466.1	-14.0	0.00	0.00	0.00
3,800.0	9.67	280.11	3,760.8	86.1	-482.7	-14.5	0.00	0.00	0.00
3,900.0	9.67	280.11	3,859.4	89.0	-499.2	-15.0	0.00	0.00	0.00
4,000.0	9.67	280.11	3,958.0	92.0	-515.8	-15.4	0.00	0.00	0.00
4,100.0	9.67	280.11	4,056.5	94.9	-532.3	-15.9	0.00	0.00	0.00
4,200.0	9.67	280.11	4,155.1	97.9	-548.8	-16.4	0.00	0.00	0.00
4,300.0	9.67	280.11	4,253.7	100.8	-565.4	-16.9	0.00	0.00	0.00
4,400.0	9.67	280.11	4,352.3	103.8	-581.9	-17.4	0.00	0.00	0.00
4,500.0	9.67	280.11	4,450.9	106.7	-598.5	-17.9	0.00	0.00	0.00
4,600.0	9.67	280.11	4,549.4	109.7	-615.0	-18.4	0.00	0.00	0.00
4,700.0	9.67	280.11	4,648.0	112.6	-631.6	-18.9	0.00	0.00	0.00
4,800.0	9.67	280.11	4,746.6	115.6	-648.1	-19.4	0.00	0.00	0.00
4,900.0	9.67	280.11	4,845.2	118.5	-664.7	-19.9	0.00	0.00	0.00
5,000.0	9.67	280.11	4,943.7	121.5	-681.2	-20.4	0.00	0.00	0.00

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Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	**North Reference:**	True
Well:	Stroh 13G-323	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #3 (1-28-15)		

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)
5,100.0	9.67	280.11	5,042.3	124.4	-697.7	-20.9	0.00	0.00	0.00
5,200.0	9.67	280.11	5,140.9	127.4	-714.3	-21.4	0.00	0.00	0.00
5,300.0	9.67	280.11	5,239.5	130.3	-730.8	-21.9	0.00	0.00	0.00
5,400.0	9.67	280.11	5,338.1	133.3	-747.4	-22.4	0.00	0.00	0.00
5,500.0	9.67	280.11	5,436.6	136.2	-763.9	-22.9	0.00	0.00	0.00
5,600.0	9.67	280.11	5,535.2	139.2	-780.5	-23.4	0.00	0.00	0.00
5,700.0	9.67	280.11	5,633.8	142.1	-797.0	-23.9	0.00	0.00	0.00
5,800.0	9.67	280.11	5,732.4	145.1	-813.6	-24.4	0.00	0.00	0.00
5,900.0	9.67	280.11	5,830.9	148.0	-830.1	-24.9	0.00	0.00	0.00
6,000.0	9.67	280.11	5,929.5	151.0	-846.6	-25.4	0.00	0.00	0.00
6,100.0	9.67	280.11	6,028.1	153.9	-863.2	-25.9	0.00	0.00	0.00
6,200.0	9.67	280.11	6,126.7	156.9	-879.7	-26.3	0.00	0.00	0.00
6,300.0	9.67	280.11	6,225.3	159.8	-896.3	-26.8	0.00	0.00	0.00
6,400.0	9.67	280.11	6,323.8	162.8	-912.8	-27.3	0.00	0.00	0.00
6,463.1	9.67	280.11	6,386.0	164.6	-923.3	-27.7	0.00	0.00	0.00
Start DLS 7.50 TFO -99.97									
6,500.0	9.59	263.53	6,422.4	164.8	-929.4	-27.0	7.50	-0.24	-44.94
6,600.0	12.79	227.66	6,520.6	156.4	-945.9	-16.2	7.50	3.20	-35.87
6,700.0	18.62	209.87	6,616.9	135.1	-962.0	7.2	7.50	5.83	-17.79
6,800.0	25.32	200.77	6,709.6	101.2	-977.6	43.0	7.50	6.70	-9.10
6,900.0	32.36	195.35	6,797.2	55.3	-992.3	90.6	7.50	7.04	-5.41
6,980.6	38.16	192.33	6,863.0	10.2	-1,003.3	136.9	7.50	7.18	-3.75
Sharron Springs									
7,000.0	39.56	191.72	6,878.1	-1.7	-1,005.8	149.0	7.50	7.23	-3.15
7,100.0	46.83	189.05	6,950.9	-69.0	-1,018.1	217.4	7.50	7.28	-2.67
7,101.6	46.95	189.02	6,952.0	-70.1	-1,018.2	218.5	7.50	7.30	-2.33
Niobrara A									
7,200.0	54.16	186.96	7,014.5	-145.4	-1,028.7	294.5	7.50	7.32	-2.09
7,264.4	58.89	185.81	7,050.0	-198.7	-1,034.7	348.1	7.50	7.35	-1.79
Niobrara B									
7,300.0	61.51	185.22	7,067.7	-229.5	-1,037.6	379.0	7.50	7.36	-1.65
7,400.0	68.88	183.71	7,109.6	-319.9	-1,044.7	469.5	7.50	7.37	-1.51
7,470.5	74.09	182.74	7,132.0	-386.6	-1,048.4	536.0	7.50	7.38	-1.38
Niobrara C									
7,500.0	76.27	182.35	7,139.6	-415.1	-1,049.7	564.4	7.50	7.39	-1.33
7,600.0	83.66	181.06	7,157.0	-513.5	-1,052.6	662.1	7.50	7.39	-1.28
7,685.4	89.98	180.00	7,161.7	-598.7	-1,053.4	746.5	7.50	7.40	-1.25
7"									
7,700.0	89.98	180.00	7,161.7	-613.3	-1,053.4	761.0	0.00	0.00	0.00
7,800.0	89.98	180.00	7,161.7	-713.3	-1,053.4	859.9	0.00	0.00	0.00
7,900.0	89.98	180.00	7,161.8	-813.3	-1,053.4	958.8	0.00	0.00	0.00
8,000.0	89.98	180.00	7,161.8	-913.3	-1,053.4	1,057.7	0.00	0.00	0.00
8,100.0	89.98	180.00	7,161.8	-1,013.3	-1,053.4	1,156.7	0.00	0.00	0.00
8,200.0	89.98	180.00	7,161.9	-1,113.3	-1,053.4	1,255.6	0.00	0.00	0.00
8,300.0	89.98	180.00	7,161.9	-1,213.3	-1,053.4	1,354.5	0.00	0.00	0.00
8,400.0	89.98	180.00	7,161.9	-1,313.3	-1,053.4	1,453.4	0.00	0.00	0.00
8,500.0	89.98	180.00	7,162.0	-1,413.3	-1,053.4	1,552.3	0.00	0.00	0.00
8,600.0	89.98	180.00	7,162.0	-1,513.3	-1,053.4	1,651.3	0.00	0.00	0.00
8,700.0	89.98	180.00	7,162.1	-1,613.3	-1,053.4	1,750.2	0.00	0.00	0.00
8,800.0	89.98	180.00	7,162.1	-1,713.3	-1,053.4	1,849.1	0.00	0.00	0.00
8,900.0	89.98	180.00	7,162.1	-1,813.3	-1,053.4	1,948.0	0.00	0.00	0.00
9,000.0	89.98	180.00	7,162.2	-1,913.3	-1,053.4	2,046.9	0.00	0.00	0.00

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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 13G-323	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #3 (1-28-15)		

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)
9,100.0	89.98	180.00	7,162.2	-2,013.3	-1,053.4	2,145.9	0.00	0.00	0.00
9,200.0	89.98	180.00	7,162.2	-2,113.3	-1,053.4	2,244.8	0.00	0.00	0.00
9,300.0	89.98	180.00	7,162.3	-2,213.3	-1,053.4	2,343.7	0.00	0.00	0.00
9,400.0	89.98	180.00	7,162.3	-2,313.3	-1,053.4	2,442.6	0.00	0.00	0.00
9,500.0	89.98	180.00	7,162.3	-2,413.3	-1,053.4	2,541.6	0.00	0.00	0.00
9,600.0	89.98	180.00	7,162.4	-2,513.3	-1,053.4	2,640.5	0.00	0.00	0.00
9,700.0	89.98	180.00	7,162.4	-2,613.3	-1,053.4	2,739.4	0.00	0.00	0.00
9,800.0	89.98	180.00	7,162.4	-2,713.3	-1,053.4	2,838.3	0.00	0.00	0.00
9,900.0	89.98	180.00	7,162.5	-2,813.3	-1,053.4	2,937.2	0.00	0.00	0.00
10,000.0	89.98	180.00	7,162.5	-2,913.3	-1,053.4	3,036.2	0.00	0.00	0.00
10,100.0	89.98	180.00	7,162.5	-3,013.3	-1,053.4	3,135.1	0.00	0.00	0.00
10,200.0	89.98	180.00	7,162.6	-3,113.3	-1,053.4	3,234.0	0.00	0.00	0.00
10,300.0	89.98	180.00	7,162.6	-3,213.3	-1,053.4	3,332.9	0.00	0.00	0.00
10,400.0	89.98	180.00	7,162.6	-3,313.3	-1,053.4	3,431.9	0.00	0.00	0.00
10,500.0	89.98	180.00	7,162.7	-3,413.3	-1,053.4	3,530.8	0.00	0.00	0.00
10,600.0	89.98	180.00	7,162.7	-3,513.3	-1,053.4	3,629.7	0.00	0.00	0.00
10,700.0	89.98	180.00	7,162.8	-3,613.3	-1,053.4	3,728.6	0.00	0.00	0.00
10,800.0	89.98	180.00	7,162.8	-3,713.3	-1,053.4	3,827.5	0.00	0.00	0.00
10,900.0	89.98	180.00	7,162.8	-3,813.3	-1,053.4	3,926.5	0.00	0.00	0.00
11,000.0	89.98	180.00	7,162.9	-3,913.3	-1,053.4	4,025.4	0.00	0.00	0.00
11,100.0	89.98	180.00	7,162.9	-4,013.3	-1,053.4	4,124.3	0.00	0.00	0.00
11,200.0	89.98	180.00	7,162.9	-4,113.3	-1,053.4	4,223.2	0.00	0.00	0.00
11,300.0	89.98	180.00	7,163.0	-4,213.3	-1,053.4	4,322.1	0.00	0.00	0.00
11,400.0	89.98	180.00	7,163.0	-4,313.3	-1,053.4	4,421.1	0.00	0.00	0.00
11,500.0	89.98	180.00	7,163.0	-4,413.3	-1,053.4	4,520.0	0.00	0.00	0.00
11,600.0	89.98	180.00	7,163.1	-4,513.3	-1,053.4	4,618.9	0.00	0.00	0.00
11,700.0	89.98	180.00	7,163.1	-4,613.3	-1,053.4	4,717.8	0.00	0.00	0.00
11,800.0	89.98	180.00	7,163.1	-4,713.3	-1,053.4	4,816.8	0.00	0.00	0.00
11,900.0	89.98	180.00	7,163.2	-4,813.3	-1,053.4	4,915.7	0.00	0.00	0.00
12,000.0	89.98	180.00	7,163.2	-4,913.3	-1,053.4	5,014.6	0.00	0.00	0.00
12,100.0	89.98	180.00	7,163.2	-5,013.3	-1,053.4	5,113.5	0.00	0.00	0.00
12,200.0	89.98	180.00	7,163.3	-5,113.3	-1,053.4	5,212.4	0.00	0.00	0.00
12,300.0	89.98	180.00	7,163.3	-5,213.3	-1,053.4	5,311.4	0.00	0.00	0.00
12,400.0	89.98	180.00	7,163.3	-5,313.3	-1,053.4	5,410.3	0.00	0.00	0.00
12,500.0	89.98	180.00	7,163.4	-5,413.3	-1,053.4	5,509.2	0.00	0.00	0.00
12,600.0	89.98	180.00	7,163.4	-5,513.3	-1,053.4	5,608.1	0.00	0.00	0.00
12,700.0	89.98	180.00	7,163.5	-5,613.3	-1,053.4	5,707.0	0.00	0.00	0.00
12,800.0	89.98	180.00	7,163.5	-5,713.3	-1,053.4	5,806.0	0.00	0.00	0.00
12,900.0	89.98	180.00	7,163.5	-5,813.3	-1,053.4	5,904.9	0.00	0.00	0.00
13,000.0	89.98	180.00	7,163.6	-5,913.3	-1,053.4	6,003.8	0.00	0.00	0.00
13,100.0	89.98	180.00	7,163.6	-6,013.3	-1,053.4	6,102.7	0.00	0.00	0.00
13,200.0	89.98	180.00	7,163.6	-6,113.3	-1,053.4	6,201.7	0.00	0.00	0.00
13,300.0	89.98	180.00	7,163.7	-6,213.3	-1,053.4	6,300.6	0.00	0.00	0.00
13,400.0	89.98	180.00	7,163.7	-6,313.3	-1,053.4	6,399.5	0.00	0.00	0.00
13,500.0	89.98	180.00	7,163.7	-6,413.3	-1,053.4	6,498.4	0.00	0.00	0.00
13,600.0	89.98	180.00	7,163.8	-6,513.3	-1,053.4	6,597.3	0.00	0.00	0.00
13,700.0	89.98	180.00	7,163.8	-6,613.3	-1,053.4	6,696.3	0.00	0.00	0.00
13,800.0	89.98	180.00	7,163.8	-6,713.3	-1,053.4	6,795.2	0.00	0.00	0.00
13,900.0	89.98	180.00	7,163.9	-6,813.3	-1,053.4	6,894.1	0.00	0.00	0.00
14,000.0	89.98	180.00	7,163.9	-6,913.3	-1,053.4	6,993.0	0.00	0.00	0.00
14,100.0	89.98	180.00	7,163.9	-7,013.3	-1,053.4	7,092.0	0.00	0.00	0.00
14,200.0	89.98	180.00	7,164.0	-7,113.3	-1,053.4	7,190.9	0.00	0.00	0.00
14,201.6	89.98	180.00	7,164.0	-7,114.9	-1,053.4	7,192.4	0.00	0.00	0.00

Database:	landmark	**Local Co-ordinate Reference:**	Well Stroh 13G-323
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 13G-323	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #3 (1-28-15)		

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)

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
SHL 2352'FSL & 155(- plan hits target - Point	0.00	0.00	1.0	0.0	0.0	1,356,827.78	3,183,197.46	40.311030	-104.843080
BHL 500'FSL & 487'F - plan hits target - Point	0.00	0.00	7,164.0	-7,114.9	-1,053.4	1,349,705.63	3,182,196.84	40.291500	-104.846856

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,685.4	7,161.7	7"	7	7-1/2

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,980.6	6,863.0	Sharron Springs		0.00	
7,101.6	6,952.0	Niobrara A		0.00	
7,264.4	7,050.0	Niobrara B		0.00	
7,470.5	7,132.0	Niobrara C		0.00	
	7,250.0	Ft Hays		0.00	
	7,272.0	Codell		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
400.0	400.0	0.0	0.0	KOP - Start Build 1.00
6,463.1	6,386.1	14.3	-80.2	Start DLS 7.50 TFO -99.97
14,201.6	7,164.0	164.6	-923.3	TD at 14201.6

ENSIGN Directional

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.13-T4N-R67W
Stroh 13GK-HZ Pad Sec. 13-T4N-R67W
Stroh 13G-323

Wellbore #1
Plan #3 (1-28-15)

Anticollision Report

30 January, 2015

PDC ENERGY
Growing E&P Value

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13G-323
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 13G-323	**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 #3 (1-28-15)	**Offset TVD Reference:**	Offset Datum

Reference Plan #3 (1-28-15)

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** 1/30/2015

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	14,201.6	Plan #3 (1-28-15) (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						
Matt 1 (Exist) - Wellbore #1 - Wellbore #1	12,760.9	7,068.4	144.8	16.5	1.129	Level 2, CC, ES, SF
Rory 1-7I (Exist) - Wellbore #1 - Wellbore #1	11,928.0	7,083.6	512.6	399.6	4.535	CC, ES
Rory 1-7I (Exist) - Wellbore #1 - Wellbore #1	12,000.0	7,084.0	517.7	403.2	4.525	SF
Sophie 1 (Exist) - Wellbore #1 - Wellbore #1	14,029.5	7,080.3	141.5	-10.4	0.932	Level 1, CC, ES, SF
Stroh 24-12 (Exist) - Wellbore #1 - Wellbore #1	11,610.2	7,155.9	103.8	-2.5	0.977	Level 1, CC, ES, SF
Stroh 24-22 (Exist) - Wellbore #1 - Wellbore #1	10,104.9	7,159.3	150.9	72.1	1.916	CC, ES, SF
Existing Wells Sec.13-T4N-R67W (Grid North)						
Stroh O 13-20 (Exist) - Wellbore #1 - Wellbore #1	2,501.3	2,472.7	89.6	76.6	6.934	CC, ES
Stroh O 13-20 (Exist) - Wellbore #1 - Wellbore #1	2,600.0	2,570.3	90.8	77.5	6.816	SF
UPRC 13-12E (Exist.) - Wellbore #1 - Wellbore #1	7,412.9	7,132.4	15.6	-20.9	0.428	Level 1, CC, ES, SF
UPRC 13-13E (Exist.) - Wellbore #1 - Wellbore #1	8,590.6	7,181.2	25.2	-25.7	0.495	Level 1, CC, ES, SF
Stroh 13GK-HZ Pad Sec. 13-T4N-R67W						
Stroh 13G-203 - Wellbore #1 - Plan #2 (1-27-15)	166.3	167.3	30.7	30.2	58.413	CC
Stroh 13G-203 - Wellbore #1 - Plan #2 (1-27-15)	200.0	201.0	30.7	30.0	45.351	ES
Stroh 13G-203 - Wellbore #1 - Plan #2 (1-27-15)	14,201.6	14,241.6	433.0	166.5	1.625	SF
Stroh 13K-223 - Wellbore #1 - Plan #3 (1-28-15)	400.0	400.0	89.2	87.7	56.722	CC, ES
Stroh 13K-223 - Wellbore #1 - Plan #3 (1-28-15)	1,100.0	1,098.3	131.5	126.8	28.184	SF
Stroh 13K-243 - Wellbore #1 - Plan #3 (1-28-15)	400.0	400.0	30.7	29.1	19.498	CC, ES
Stroh 13K-243 - Wellbore #1 - Plan #3 (1-28-15)	14,201.6	13,987.6	425.8	160.5	1.605	SF
Stroh 13K-303 - Wellbore #1 - Plan #2 (1-28-15)	400.0	400.0	58.6	57.0	37.224	CC, ES
Stroh 13K-303 - Wellbore #1 - Plan #2 (1-28-15)	14,201.6	14,223.6	945.9	670.2	3.432	SF
Stroh 13O-343 - Wellbore #1 - Plan #2 (1-28-15)	400.0	399.0	119.9	118.4	76.329	CC, ES
Stroh 13O-343 - Wellbore #1 - Plan #2 (1-28-15)	1,200.0	1,196.4	175.1	170.0	34.255	SF

Offset Design Existing Wells - Sec.13-T4N-R67W - Matt 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
11,800.0	7,163.1	7,045.2	7,042.7	93.9	17.7	78.27	-5,673.6	-1,197.0	971.4	862.8	108.70	8.937	
11,900.0	7,163.2	7,047.6	7,045.1	95.7	17.7	79.20	-5,673.7	-1,197.1	872.7	761.9	110.81	7.876	
12,000.0	7,163.2	7,050.0	7,047.5	97.6	17.7	80.14	-5,673.7	-1,197.2	774.3	661.4	112.90	6.858	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13G-323
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 13G-323	**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 #3 (1-28-15)	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.0 ft

Survey Program: 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
12,100.0	7,163.2	7,052.5	7,049.9	99.5	17.7	81.08	-5,673.8	-1,197.3	676.4	561.4	114.98	5.882	
12,200.0	7,163.3	7,054.9	7,052.3	101.3	17.7	82.03	-5,673.9	-1,197.4	579.1	462.1	117.05	4.948	
12,300.0	7,163.3	7,057.3	7,054.7	103.2	17.7	82.98	-5,673.9	-1,197.5	483.0	363.9	119.09	4.055	
12,400.0	7,163.3	7,059.7	7,057.1	105.1	17.7	83.93	-5,674.0	-1,197.6	388.7	267.6	121.12	3.210	
12,500.0	7,163.4	7,062.1	7,059.5	106.9	17.7	84.88	-5,674.0	-1,197.7	298.3	175.2	123.12	2.423	
12,600.0	7,163.4	7,064.5	7,062.0	108.8	17.7	85.84	-5,674.1	-1,197.8	216.4	91.3	125.10	1.730	
12,700.0	7,163.5	7,067.0	7,064.4	110.7	17.7	86.79	-5,674.1	-1,197.9	157.0	30.0	127.06	1.236	Level 2
12,760.9	7,163.5	7,068.4	7,065.8	111.8	17.7	87.37	-5,674.2	-1,198.0	144.8	16.5	128.24	1.129	Level 2, CC, ES, SF
12,800.0	7,163.5	7,069.4	7,066.8	112.6	17.7	87.75	-5,674.2	-1,198.1	150.0	21.0	128.99	1.163	Level 2
12,900.0	7,163.5	7,071.8	7,069.2	114.4	17.7	88.70	-5,674.3	-1,198.2	200.7	69.9	130.89	1.534	
13,000.0	7,163.6	7,074.2	7,071.6	116.3	17.7	89.66	-5,674.3	-1,198.3	279.5	146.7	132.77	2.105	
13,100.0	7,163.6	7,076.6	7,074.0	118.2	17.7	90.61	-5,674.4	-1,198.4	368.6	234.0	134.61	2.739	
13,200.0	7,163.6	7,079.0	7,076.4	120.1	17.7	91.56	-5,674.4	-1,198.5	462.2	325.8	136.42	3.388	
13,300.0	7,163.7	7,081.4	7,078.8	121.9	17.8	92.51	-5,674.5	-1,198.6	558.1	419.9	138.20	4.038	
13,400.0	7,163.7	7,083.9	7,081.3	123.8	17.8	93.46	-5,674.6	-1,198.7	655.1	515.2	139.95	4.681	
13,500.0	7,163.7	7,086.3	7,083.7	125.7	17.8	94.40	-5,674.6	-1,198.8	753.0	611.3	141.66	5.315	
13,600.0	7,163.8	7,088.7	7,086.1	127.6	17.8	95.34	-5,674.7	-1,198.9	851.3	707.9	143.33	5.939	
13,700.0	7,163.8	7,091.1	7,088.5	129.5	17.8	96.27	-5,674.7	-1,199.1	949.9	805.0	144.97	6.553	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13G-323
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 13G-323	**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 #3 (1-28-15)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells - Sec.13-T4N-R67W - Rory 1-7I (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
11,100.0	7,162.9	7,078.3	7,074.5	81.0	18.3	-90.59	-4,841.2	-540.8	973.8	876.4	97.43	9.995	
11,200.0	7,162.9	7,078.9	7,075.1	82.8	18.3	-90.66	-4,841.2	-540.8	890.3	791.0	99.31	8.965	
11,300.0	7,163.0	7,079.5	7,075.7	84.7	18.3	-90.73	-4,841.3	-540.8	810.6	709.4	101.19	8.011	
11,400.0	7,163.0	7,080.2	7,076.4	86.5	18.3	-90.80	-4,841.3	-540.8	735.9	632.8	103.08	7.139	
11,500.0	7,163.0	7,080.8	7,077.0	88.3	18.3	-90.87	-4,841.3	-540.8	667.8	562.8	104.96	6.362	
11,600.0	7,163.1	7,081.5	7,077.6	90.2	18.3	-90.94	-4,841.3	-540.8	608.6	501.7	106.85	5.696	
11,700.0	7,163.1	7,082.1	7,078.3	92.0	18.3	-91.02	-4,841.3	-540.9	561.0	452.3	108.74	5.160	
11,800.0	7,163.1	7,082.7	7,078.9	93.9	18.3	-91.09	-4,841.3	-540.9	528.4	417.7	110.62	4.776	
11,900.0	7,163.2	7,083.4	7,079.6	95.7	18.3	-91.16	-4,841.3	-540.9	513.4	400.9	112.51	4.563	
11,928.0	7,163.2	7,083.6	7,079.7	96.3	18.3	-91.18	-4,841.3	-540.9	512.6	399.6	113.04	4.535	CC, ES
12,000.0	7,163.2	7,084.0	7,080.2	97.6	18.3	-91.23	-4,841.3	-540.9	517.7	403.2	114.41	4.525	SF
12,100.0	7,163.2	7,084.7	7,080.9	99.5	18.3	-91.31	-4,841.3	-540.9	540.7	424.4	116.30	4.649	
12,200.0	7,163.3	7,085.3	7,081.5	101.3	18.3	-91.38	-4,841.3	-540.9	580.3	462.1	118.19	4.910	
12,300.0	7,163.3	7,086.0	7,082.2	103.2	18.3	-91.45	-4,841.3	-540.9	633.4	513.3	120.08	5.274	
12,400.0	7,163.3	7,086.7	7,082.8	105.1	18.3	-91.53	-4,841.3	-541.0	696.8	574.9	121.98	5.713	
12,500.0	7,163.4	7,087.3	7,083.5	106.9	18.3	-91.60	-4,841.3	-541.0	768.1	644.2	123.87	6.201	
12,600.0	7,163.4	7,088.0	7,084.2	108.8	18.3	-91.67	-4,841.3	-541.0	845.2	719.4	125.77	6.720	
12,700.0	7,163.5	7,088.7	7,084.8	110.7	18.3	-91.75	-4,841.3	-541.0	926.7	799.0	127.67	7.259	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13G-323
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 13G-323	**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 #3 (1-28-15)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells - Sec.13-T4N-R67W - Sophie 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
13,100.0	7,163.6	7,083.8	7,082.2	118.2	17.2	-92.53	-6,942.8	-912.0	940.2	806.0	134.16	7.008	
13,200.0	7,163.6	7,083.4	7,081.8	120.1	17.2	-92.38	-6,942.8	-912.0	841.5	705.4	136.06	6.184	
13,300.0	7,163.7	7,083.0	7,081.4	121.9	17.2	-92.22	-6,942.8	-912.0	743.1	605.1	137.96	5.386	
13,400.0	7,163.7	7,082.7	7,081.0	123.8	17.2	-92.07	-6,942.8	-912.0	645.2	505.3	139.86	4.613	
13,500.0	7,163.7	7,082.3	7,080.6	125.7	17.2	-91.92	-6,942.8	-912.0	548.1	406.3	141.76	3.866	
13,600.0	7,163.8	7,081.9	7,080.3	127.6	17.2	-91.76	-6,942.8	-912.0	452.2	308.5	143.66	3.148	
13,700.0	7,163.8	7,081.5	7,079.9	129.5	17.2	-91.61	-6,942.8	-912.0	358.6	213.0	145.57	2.463	
13,800.0	7,163.8	7,081.2	7,079.5	131.4	17.2	-91.46	-6,942.8	-912.0	269.6	122.1	147.47	1.828	
13,900.0	7,163.9	7,080.8	7,079.1	133.3	17.2	-91.30	-6,942.8	-912.0	191.8	42.4	149.37	1.284	Level 3
14,000.0	7,163.9	7,080.4	7,078.8	135.1	17.2	-91.15	-6,942.8	-912.0	144.5	-6.8	151.27	0.955	Level 1
14,029.5	7,163.9	7,080.3	7,078.6	135.7	17.2	-91.10	-6,942.8	-912.0	141.5	-10.4	151.83	0.932	Level 1, CC, ES, SF
14,100.0	7,163.9	7,080.0	7,078.4	137.0	17.2	-91.00	-6,942.8	-912.0	158.1	4.9	153.17	1.032	Level 2
14,200.0	7,164.0	7,079.6	7,078.0	138.9	17.2	-90.84	-6,942.8	-911.9	221.6	66.5	155.07	1.429	Level 3
14,201.6	7,164.0	7,079.6	7,078.0	139.0	17.2	-90.84	-6,942.8	-911.9	222.8	67.7	155.10	1.436	Level 3

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13G-323
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 13G-323	**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 #3 (1-28-15)	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.0 ft

Survey Program: 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
10,700.0	7,162.8	7,148.7	7,146.4	73.7	17.5	84.69	-4,523.4	-1,157.0	916.1	826.9	89.16	10.275	
10,800.0	7,162.8	7,149.5	7,147.2	75.5	17.5	85.13	-4,523.5	-1,157.0	816.8	725.8	91.04	8.972	
10,900.0	7,162.8	7,150.3	7,148.0	77.3	17.5	85.57	-4,523.5	-1,157.1	717.7	624.8	92.93	7.724	
11,000.0	7,162.9	7,151.1	7,148.8	79.2	17.5	86.01	-4,523.5	-1,157.1	618.9	524.1	94.81	6.528	
11,100.0	7,162.9	7,151.9	7,149.6	81.0	17.5	86.44	-4,523.5	-1,157.1	520.6	423.9	96.70	5.384	
11,200.0	7,162.9	7,152.7	7,150.4	82.8	17.5	86.88	-4,523.5	-1,157.1	423.1	324.5	98.58	4.292	
11,300.0	7,163.0	7,153.4	7,151.2	84.7	17.5	87.31	-4,523.5	-1,157.1	327.1	226.6	100.46	3.256	
11,400.0	7,163.0	7,154.2	7,152.0	86.5	17.5	87.74	-4,523.5	-1,157.1	234.4	132.1	102.34	2.291	
11,500.0	7,163.0	7,155.0	7,152.8	88.3	17.5	88.17	-4,523.5	-1,157.2	151.4	47.2	104.22	1.453	Level 3
11,600.0	7,163.1	7,155.8	7,153.5	90.2	17.5	88.60	-4,523.5	-1,157.2	104.3	-1.8	106.10	0.983	Level 1
11,610.2	7,163.1	7,155.9	7,153.6	90.4	17.5	88.64	-4,523.5	-1,157.2	103.8	-2.5	106.29	0.977	Level 1, CC, ES, SF
11,700.0	7,163.1	7,156.5	7,154.3	92.0	17.5	89.02	-4,523.5	-1,157.2	137.3	29.3	107.97	1.271	Level 3
11,800.0	7,163.1	7,157.3	7,155.1	93.9	17.5	89.45	-4,523.5	-1,157.2	216.3	106.5	109.84	1.970	
11,900.0	7,163.2	7,158.1	7,155.8	95.7	17.5	89.87	-4,523.5	-1,157.2	307.8	196.1	111.71	2.756	
12,000.0	7,163.2	7,158.8	7,156.6	97.6	17.5	90.29	-4,523.5	-1,157.3	403.4	289.8	113.57	3.552	
12,100.0	7,163.2	7,159.6	7,157.4	99.5	17.5	90.71	-4,523.5	-1,157.3	500.7	385.2	115.43	4.337	
12,200.0	7,163.3	7,160.4	7,158.1	101.3	17.5	91.12	-4,523.5	-1,157.3	598.9	481.6	117.28	5.106	
12,300.0	7,163.3	7,161.1	7,158.9	103.2	17.5	91.54	-4,523.5	-1,157.3	697.6	578.4	119.14	5.855	
12,400.0	7,163.3	7,161.9	7,159.6	105.1	17.5	91.95	-4,523.5	-1,157.3	796.6	675.6	120.98	6.584	
12,500.0	7,163.4	7,162.6	7,160.4	106.9	17.5	92.36	-4,523.5	-1,157.3	895.8	773.0	122.82	7.293	
12,600.0	7,163.4	7,163.3	7,161.1	108.8	17.5	92.77	-4,523.6	-1,157.4	995.2	870.5	124.66	7.983	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13G-323
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 13G-323	**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 #3 (1-28-15)	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.0 ft

Survey Program: 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
9,200.0	7,162.2	7,171.3	7,169.1	47.5	18.1	92.86	-3,018.0	-1,204.6	917.3	855.2	62.11	14.769	
9,300.0	7,162.3	7,170.0	7,167.8	49.1	18.1	92.36	-3,018.0	-1,204.6	818.8	754.9	63.93	12.808	
9,400.0	7,162.3	7,168.7	7,166.5	50.8	18.1	91.86	-3,018.1	-1,204.5	720.8	655.0	65.76	10.961	
9,500.0	7,162.3	7,167.3	7,165.1	52.5	18.1	91.36	-3,018.1	-1,204.5	623.4	555.8	67.60	9.222	
9,600.0	7,162.4	7,166.0	7,163.8	54.2	18.1	90.86	-3,018.1	-1,204.4	526.9	457.5	69.44	7.588	
9,700.0	7,162.4	7,164.7	7,162.5	55.9	18.1	90.36	-3,018.1	-1,204.4	432.1	360.8	71.29	6.061	
9,800.0	7,162.4	7,163.4	7,161.2	57.7	18.1	89.85	-3,018.1	-1,204.4	340.2	267.0	73.14	4.651	
9,900.0	7,162.5	7,162.0	7,159.8	59.4	18.1	89.35	-3,018.2	-1,204.3	254.5	179.5	74.99	3.393	
10,000.0	7,162.5	7,160.7	7,158.5	61.2	18.1	88.85	-3,018.2	-1,204.3	183.8	106.9	76.84	2.392	
10,100.0	7,162.5	7,159.4	7,157.2	62.9	18.0	88.34	-3,018.2	-1,204.3	151.0	72.3	78.69	1.919	
10,104.9	7,162.5	7,159.3	7,157.1	63.0	18.0	88.32	-3,018.2	-1,204.2	150.9	72.1	78.78	1.916	CC, ES, SF
10,200.0	7,162.6	7,158.0	7,155.9	64.7	18.0	87.84	-3,018.2	-1,204.2	178.4	97.8	80.54	2.215	
10,300.0	7,162.6	7,156.7	7,154.5	66.5	18.0	87.34	-3,018.2	-1,204.2	246.6	164.3	82.38	2.994	
10,400.0	7,162.6	7,155.4	7,153.2	68.3	18.0	86.83	-3,018.2	-1,204.1	331.4	247.2	84.23	3.935	
10,500.0	7,162.7	7,154.1	7,151.9	70.1	18.0	86.33	-3,018.3	-1,204.1	422.9	336.8	86.07	4.914	
10,600.0	7,162.7	7,152.7	7,150.5	71.9	18.0	85.82	-3,018.3	-1,204.1	517.6	429.6	87.91	5.888	
10,700.0	7,162.8	7,151.4	7,149.2	73.7	18.0	85.32	-3,018.3	-1,204.0	613.9	524.2	89.74	6.841	
10,800.0	7,162.8	7,150.1	7,147.9	75.5	18.0	84.82	-3,018.3	-1,204.0	711.2	619.7	91.56	7.768	
10,900.0	7,162.8	7,148.7	7,146.6	77.3	18.0	84.31	-3,018.3	-1,203.9	809.2	715.9	93.38	8.666	
11,000.0	7,162.9	7,147.4	7,145.2	79.2	18.0	83.81	-3,018.4	-1,203.9	907.7	812.5	95.20	9.534	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13G-323
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 13G-323	**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 #3 (1-28-15)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells Sec.13-T4N-R67W (Grid North) - Stroh O 13-20 (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
0.0	0.0	0.0	0.0	0.0	0.0	-58.02	134.8	-215.9	254.7				
100.0	100.0	89.1	89.1	0.1	0.1	-58.07	134.6	-216.0	254.5	254.2	0.23	1,103.082	
132.6	132.6	121.6	121.6	0.2	0.2	-58.10	134.5	-216.0	254.5	254.1	0.37	681.055	
200.0	200.0	188.7	188.7	0.3	0.4	-58.16	134.3	-216.2	254.5	253.8	0.70	364.961	
300.0	300.0	289.0	289.0	0.6	0.6	-58.27	133.9	-216.5	254.6	253.4	1.18	215.422	
400.0	400.0	388.9	388.9	0.8	0.9	-58.46	133.2	-217.0	254.6	252.9	1.67	152.456	
500.0	500.0	488.8	488.8	1.0	1.1	21.36	132.7	-217.4	253.8	251.7	2.15	118.108	
600.0	600.0	587.4	587.4	1.2	1.3	21.53	132.6	-217.7	251.7	249.2	2.54	99.132	
700.0	699.9	686.8	686.8	1.4	1.4	22.01	133.4	-218.1	248.4	245.5	2.86	86.782	
800.0	799.7	787.4	787.3	1.7	1.6	22.69	134.2	-218.5	243.5	240.3	3.21	75.742	
900.0	899.4	886.9	886.9	1.9	1.7	23.51	134.7	-218.8	236.8	233.2	3.62	65.468	
1,000.0	998.9	985.9	985.9	2.2	1.9	24.55	135.3	-219.3	228.8	224.8	4.05	56.495	
1,100.0	1,098.3	1,085.1	1,085.1	2.4	2.2	25.88	136.1	-219.9	219.5	215.0	4.51	48.718	
1,200.0	1,197.4	1,183.5	1,183.5	2.7	2.4	27.49	136.8	-220.9	209.0	204.0	4.99	41.908	
1,300.0	1,296.3	1,282.8	1,282.7	3.1	2.7	29.51	137.6	-222.0	197.4	191.9	5.49	35.935	
1,400.0	1,394.9	1,382.3	1,382.3	3.4	2.9	32.06	138.2	-222.9	184.3	178.3	6.02	30.599	
1,500.0	1,493.5	1,481.5	1,481.5	3.8	3.2	34.99	138.6	-223.6	171.0	164.4	6.58	25.971	
1,600.0	1,592.1	1,580.3	1,580.2	4.1	3.4	38.41	138.9	-224.1	158.0	150.9	7.17	22.048	
1,700.0	1,690.7	1,678.9	1,678.9	4.5	3.7	42.44	139.2	-224.6	145.7	137.9	7.78	18.738	
1,800.0	1,789.3	1,777.7	1,777.6	4.9	3.9	47.07	139.4	-225.3	134.2	125.8	8.41	15.962	
1,900.0	1,887.8	1,876.4	1,876.3	5.2	4.2	52.24	139.2	-226.4	123.7	114.6	9.07	13.641	
2,000.0	1,986.4	1,975.5	1,975.4	5.6	4.4	58.29	138.9	-227.6	114.2	104.5	9.75	11.716	
2,100.0	2,085.0	2,074.9	2,074.8	6.0	4.6	65.32	138.2	-228.7	105.9	95.4	10.44	10.140	
2,200.0	2,183.6	2,174.0	2,173.9	6.4	4.8	73.22	136.8	-230.0	98.7	87.6	11.12	8.878	
2,300.0	2,282.1	2,272.5	2,272.4	6.8	5.0	82.00	135.4	-231.4	93.6	81.8	11.78	7.949	
2,400.0	2,380.7	2,372.2	2,372.1	7.1	5.3	91.36	133.8	-233.4	90.8	78.4	12.39	7.332	
2,500.0	2,479.3	2,471.4	2,471.2	7.5	5.5	100.97	131.3	-235.6	89.6	76.6	12.91	6.938	
2,501.3	2,480.6	2,472.7	2,472.5	7.5	5.5	101.10	131.3	-235.7	89.6	76.6	12.91	6.934	CC, ES
2,600.0	2,577.9	2,570.3	2,570.1	7.9	5.7	110.67	128.7	-237.8	90.8	77.5	13.32	6.816	SF
2,700.0	2,676.5	2,669.2	2,668.9	8.3	5.9	119.79	126.0	-240.1	94.4	80.8	13.65	6.917	
2,800.0	2,775.0	2,767.7	2,767.3	8.7	6.1	127.88	123.5	-242.5	100.4	86.4	13.94	7.200	
2,900.0	2,873.6	2,866.1	2,865.7	9.1	6.4	134.99	121.3	-244.5	108.6	94.4	14.21	7.642	
3,000.0	2,972.2	2,964.7	2,964.3	9.5	6.6	140.75	119.7	-246.7	118.4	103.9	14.52	8.157	
3,100.0	3,070.8	3,062.9	3,062.4	9.8	6.8	145.44	118.5	-248.7	129.6	114.7	14.86	8.722	
3,200.0	3,169.3	3,161.3	3,160.8	10.2	7.1	149.38	117.5	-250.2	142.0	126.8	15.22	9.330	
3,300.0	3,267.9	3,259.5	3,259.0	10.6	7.3	152.62	116.7	-251.5	155.2	139.6	15.60	9.948	
3,400.0	3,366.5	3,357.1	3,356.6	11.0	7.6	155.42	115.8	-252.3	169.4	153.4	15.99	10.590	
3,500.0	3,465.1	3,455.0	3,454.4	11.4	7.8	157.50	115.9	-252.7	184.5	168.1	16.39	11.256	
3,600.0	3,563.7	3,554.5	3,553.9	11.8	8.0	159.06	116.9	-253.1	199.9	183.1	16.78	11.909	
3,700.0	3,662.2	3,655.0	3,654.4	12.2	8.2	160.36	117.8	-254.4	214.6	197.4	17.21	12.469	
3,800.0	3,760.8	3,755.1	3,754.5	12.6	8.4	161.44	118.9	-256.4	228.7	211.0	17.67	12.944	
3,900.0	3,859.4	3,855.1	3,854.5	13.0	8.7	162.33	120.2	-258.9	242.4	224.3	18.14	13.366	
4,000.0	3,958.0	3,955.5	3,954.8	13.4	8.9	163.07	121.7	-261.9	255.7	237.1	18.61	13.737	
4,100.0	4,056.5	4,056.8	4,056.0	13.7	9.2	163.72	123.2	-265.6	268.4	249.3	19.10	14.052	
4,200.0	4,155.1	4,158.8	4,157.9	14.1	9.4	164.31	124.7	-270.3	280.2	260.6	19.60	14.296	
4,300.0	4,253.7	4,260.0	4,258.9	14.5	9.7	164.85	126.1	-275.8	291.2	271.1	20.10	14.485	
4,400.0	4,352.3	4,359.5	4,358.3	14.9	9.9	165.35	127.3	-281.6	301.8	281.2	20.60	14.650	
4,500.0	4,450.9	4,458.9	4,457.5	15.3	10.2	165.86	128.3	-287.2	312.5	291.4	21.10	14.811	
4,600.0	4,549.4	4,557.9	4,556.3	15.7	10.5	166.38	129.1	-292.9	323.2	301.6	21.60	14.967	
4,700.0	4,648.0	4,655.4	4,653.7	16.1	10.7	166.86	129.8	-298.1	334.3	312.2	22.09	15.133	
4,800.0	4,746.6	4,752.2	4,750.4	16.5	11.0	167.27	130.9	-302.6	346.1	323.5	22.59	15.325	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13G-323
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 13G-323	**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 #3 (1-28-15)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells Sec.13-T4N-R67W (Grid North) - Stroh O 13-20 (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
4,900.0	4,845.2	4,850.1	4,848.2	16.9	11.2	167.65	132.0	-306.6	358.5	335.5	23.08	15.534	
5,000.0	4,943.7	4,947.7	4,945.7	17.3	11.5	168.03	132.9	-310.4	371.2	347.7	23.58	15.745	
5,100.0	5,042.3	5,045.1	5,043.1	17.7	11.7	168.45	133.4	-313.5	384.6	360.5	24.07	15.975	
5,200.0	5,140.9	5,143.9	5,141.8	18.1	12.0	168.79	134.3	-316.5	398.0	373.5	24.57	16.199	
5,300.0	5,239.5	5,242.3	5,240.1	18.4	12.2	169.15	134.9	-319.4	411.6	386.6	25.07	16.419	
5,400.0	5,338.1	5,340.6	5,338.5	18.8	12.5	169.56	135.0	-322.1	425.5	399.9	25.57	16.639	
5,500.0	5,436.6	5,438.6	5,436.4	19.2	12.8	169.96	135.0	-324.7	439.4	413.3	26.07	16.855	
5,600.0	5,535.2	5,535.4	5,533.2	19.6	13.0	170.36	134.6	-326.7	453.8	427.3	26.56	17.088	
5,700.0	5,633.8	5,635.1	5,632.8	20.0	13.3	170.89	133.2	-328.7	468.5	441.5	27.03	17.330	
5,800.0	5,732.4	5,737.7	5,735.4	20.4	13.5	171.52	130.7	-331.4	482.6	455.1	27.51	17.546	
5,900.0	5,830.9	5,839.9	5,837.5	20.8	13.7	172.05	128.8	-334.8	496.0	468.0	27.99	17.719	
6,000.0	5,929.5	5,939.6	5,937.2	21.2	14.0	172.45	127.8	-338.5	509.0	480.5	28.49	17.865	
6,100.0	6,028.1	6,037.6	6,035.1	21.6	14.3	172.77	127.1	-342.0	522.2	493.2	28.99	18.009	
6,200.0	6,126.7	6,135.8	6,133.2	22.0	14.5	173.04	126.9	-345.3	535.6	506.1	29.50	18.155	
6,300.0	6,225.3	6,233.8	6,231.2	22.4	14.8	173.27	126.9	-348.5	549.1	519.0	30.01	18.298	
6,400.0	6,323.8	6,330.4	6,327.8	22.8	15.0	173.49	126.9	-351.2	562.9	532.4	30.51	18.452	
6,500.0	6,422.4	6,429.5	6,426.8	23.1	15.3	-169.67	127.0	-353.8	577.1	546.0	31.01	18.608	
6,600.0	6,520.6	6,530.1	6,527.3	23.5	15.6	-134.39	127.3	-356.7	590.1	558.6	31.49	18.739	
6,700.0	6,616.9	6,625.0	6,622.3	23.7	15.8	-118.29	127.5	-359.4	602.9	570.9	31.95	18.872	
6,800.0	6,709.6	6,716.7	6,713.9	24.0	16.1	-111.79	127.8	-361.8	616.6	584.2	32.36	19.050	
6,900.0	6,797.2	6,803.9	6,801.0	24.2	16.3	-109.52	128.4	-363.9	632.7	600.0	32.73	19.332	
7,000.0	6,878.1	6,886.9	6,884.1	24.5	16.5	-109.26	128.9	-366.1	653.2	620.1	33.04	19.771	
7,100.0	6,950.9	6,958.1	6,955.2	24.7	16.7	-109.40	129.3	-368.0	679.8	646.5	33.29	20.418	
7,200.0	7,014.5	7,020.0	7,017.0	25.0	16.8	-109.32	129.8	-369.5	714.4	680.8	33.61	21.259	
7,300.0	7,067.7	7,073.6	7,070.7	25.4	17.0	-108.56	130.0	-370.8	757.8	723.6	34.11	22.212	
7,400.0	7,109.6	7,114.3	7,111.3	25.8	17.1	-106.42	130.1	-371.6	809.7	774.7	34.97	23.154	
7,500.0	7,139.6	7,140.7	7,137.8	26.3	17.2	-102.47	130.1	-372.1	869.8	833.6	36.17	24.045	
7,600.0	7,157.0	7,156.7	7,153.8	26.8	17.2	-96.84	130.2	-372.3	936.5	899.1	37.42	25.028	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13G-323
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 13G-323	**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 #3 (1-28-15)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells Sec.13-T4N-R67W (Grid North) - UPRC 13-12E (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
0.0	0.0	16.0	16.0	0.0	0.0	-110.32	-331.5	-895.2	954.6	954.6	0.02	N/A	
100.0	100.0	115.5	115.5	0.1	0.2	-110.31	-331.3	-895.3	954.6	954.4	0.28	3,430.671	
200.0	200.0	211.6	211.6	0.3	0.4	-110.30	-331.3	-895.6	954.9	954.2	0.71	1,349.928	
300.0	300.0	310.7	310.7	0.6	0.6	-110.31	-331.6	-896.0	955.4	954.3	1.14	840.760	
400.0	400.0	411.1	411.1	0.8	0.8	-110.32	-332.0	-896.4	955.9	954.3	1.58	604.122	
500.0	500.0	503.0	503.0	1.0	1.0	-30.43	-331.9	-897.4	956.1	954.1	2.02	474.259	
600.0	600.0	601.8	601.8	1.2	1.3	-30.48	-331.8	-898.9	955.3	952.8	2.48	385.264	
700.0	699.9	705.7	705.7	1.4	1.5	-30.60	-331.9	-900.3	952.8	949.8	2.97	321.131	
800.0	799.7	806.7	806.7	1.7	1.8	-30.78	-331.7	-901.4	948.5	945.1	3.45	275.218	
900.0	899.4	900.0	900.0	1.9	2.0	-31.03	-332.1	-902.8	943.3	939.4	3.90	241.564	
1,000.0	998.9	999.3	999.3	2.2	2.3	-31.35	-332.6	-904.6	936.9	932.5	4.39	213.496	
1,100.0	1,098.3	1,106.9	1,106.8	2.4	2.6	-31.72	-332.0	-906.1	928.4	923.5	4.89	189.908	
1,200.0	1,197.4	1,200.9	1,200.8	2.7	2.8	-32.16	-332.0	-907.2	918.4	913.1	5.36	171.442	
1,300.0	1,296.3	1,305.0	1,304.9	3.1	3.1	-32.74	-332.5	-908.3	907.0	901.1	5.87	154.414	
1,400.0	1,394.9	1,406.3	1,406.2	3.4	3.3	-33.36	-332.6	-908.9	893.8	887.4	6.40	139.559	
1,500.0	1,493.5	1,503.8	1,503.7	3.8	3.6	-33.93	-332.5	-909.6	880.4	873.4	6.93	126.948	
1,600.0	1,592.1	1,606.2	1,606.1	4.1	3.8	-34.55	-332.3	-910.2	866.8	859.4	7.48	115.936	
1,700.0	1,690.7	1,702.0	1,701.9	4.5	4.1	-35.12	-331.9	-910.8	853.4	845.4	8.00	106.678	
1,800.0	1,789.3	1,802.0	1,801.9	4.9	4.3	-35.73	-331.3	-911.6	840.1	831.6	8.53	98.443	
1,900.0	1,887.8	1,898.7	1,898.6	5.2	4.5	-36.36	-331.2	-912.2	827.0	817.9	9.08	91.123	
2,000.0	1,986.4	1,997.5	1,997.4	5.6	4.8	-37.00	-330.7	-913.2	814.0	804.4	9.62	84.604	
2,100.0	2,085.0	2,095.5	2,095.4	6.0	5.0	-37.61	-329.6	-914.4	801.3	791.1	10.17	78.825	
2,200.0	2,183.6	2,192.6	2,192.5	6.4	5.3	-38.22	-328.6	-915.8	788.7	778.0	10.72	73.606	
2,300.0	2,282.1	2,286.0	2,285.9	6.8	5.5	-38.84	-327.8	-917.5	776.7	765.5	11.27	68.925	
2,400.0	2,380.7	2,389.4	2,389.2	7.1	5.8	-39.57	-327.4	-919.4	765.0	753.1	11.86	64.511	
2,500.0	2,479.3	2,483.1	2,482.9	7.5	6.0	-40.25	-327.0	-920.9	753.3	740.8	12.42	60.636	
2,600.0	2,577.9	2,582.6	2,582.4	7.9	6.3	-41.03	-327.1	-922.8	742.1	729.1	13.01	57.024	
2,700.0	2,676.5	2,687.9	2,687.7	8.3	6.5	-41.82	-326.4	-924.6	730.6	717.0	13.62	53.637	
2,800.0	2,775.0	2,782.2	2,781.9	8.7	6.8	-42.52	-325.2	-926.3	718.9	704.7	14.20	50.639	
2,900.0	2,873.6	2,876.9	2,876.6	9.1	7.0	-43.21	-324.2	-928.8	708.1	693.3	14.79	47.888	
3,000.0	2,972.2	2,977.8	2,977.5	9.5	7.3	-44.01	-323.5	-931.4	697.6	682.2	15.41	45.285	
3,100.0	3,070.8	3,072.7	3,072.3	9.8	7.5	-44.83	-323.3	-933.4	687.2	671.2	16.01	42.922	
3,200.0	3,169.3	3,172.1	3,171.7	10.2	7.8	-45.70	-323.3	-936.1	677.5	660.9	16.64	40.727	
3,300.0	3,267.9	3,274.4	3,274.0	10.6	8.1	-46.57	-322.4	-938.9	667.6	650.3	17.27	38.646	
3,400.0	3,366.5	3,370.2	3,369.7	11.0	8.3	-47.42	-321.8	-941.3	657.6	639.7	17.90	36.742	
3,500.0	3,465.1	3,475.1	3,474.6	11.4	8.6	-48.40	-321.3	-944.0	648.0	629.4	18.55	34.930	
3,600.0	3,563.7	3,573.7	3,573.2	11.8	8.8	-49.31	-320.0	-946.0	637.7	618.5	19.19	33.233	
3,700.0	3,662.2	3,672.0	3,671.4	12.2	9.1	-50.27	-319.1	-948.2	627.8	608.0	19.83	31.654	
3,800.0	3,760.8	3,769.2	3,768.6	12.6	9.3	-51.28	-318.4	-950.2	618.3	597.8	20.48	30.184	
3,900.0	3,859.4	3,864.4	3,863.8	13.0	9.6	-52.39	-318.9	-951.8	609.4	588.3	21.12	28.849	
4,000.0	3,958.0	3,960.7	3,960.1	13.4	9.8	-53.60	-320.1	-953.5	601.3	579.6	21.76	27.639	
4,100.0	4,056.5	4,061.6	4,060.9	13.7	10.0	-54.91	-321.6	-955.2	593.7	571.3	22.41	26.491	
4,200.0	4,155.1	4,160.7	4,160.1	14.1	10.2	-56.17	-322.3	-957.0	585.9	562.8	23.08	25.382	
4,300.0	4,253.7	4,263.3	4,262.6	14.5	10.5	-57.46	-322.7	-959.2	578.4	554.6	23.78	24.320	
4,400.0	4,352.3	4,362.2	4,361.5	14.9	10.8	-58.71	-322.2	-961.2	570.4	545.9	24.48	23.305	
4,500.0	4,450.9	4,461.4	4,460.6	15.3	11.0	-60.03	-322.4	-963.0	563.0	537.9	25.18	22.360	
4,600.0	4,549.4	4,559.2	4,558.4	15.7	11.3	-61.37	-322.3	-964.6	555.8	529.9	25.89	21.469	
4,700.0	4,648.0	4,660.0	4,659.2	16.1	11.5	-62.74	-322.2	-966.8	549.1	522.5	26.61	20.639	
4,800.0	4,746.6	4,759.7	4,758.9	16.5	11.8	-64.04	-321.1	-969.3	542.1	514.8	27.32	19.846	
4,900.0	4,845.2	4,854.9	4,854.0	16.9	12.1	-65.27	-320.1	-972.2	535.8	507.8	28.01	19.127	
5,000.0	4,943.7	4,950.8	4,949.9	17.3	12.3	-66.59	-320.0	-975.2	530.5	501.8	28.72	18.476	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13G-323
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 13G-323	**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 #3 (1-28-15)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells Sec.13-T4N-R67W (Grid North) - UPRC 13-12E (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
5,100.0	5,042.3	5,048.3	5,047.3	17.7	12.5	-68.08	-320.9	-977.4	526.0	496.5	29.42	17.876	
5,200.0	5,140.9	5,149.1	5,148.2	18.1	12.8	-69.66	-321.9	-979.7	521.9	491.8	30.14	17.314	
5,300.0	5,239.5	5,250.4	5,249.4	18.4	13.1	-71.18	-321.9	-982.3	517.5	486.6	30.87	16.762	
5,400.0	5,338.1	5,350.9	5,349.9	18.8	13.3	-72.79	-322.2	-984.2	513.4	481.8	31.60	16.244	
5,500.0	5,436.6	5,450.8	5,449.8	19.2	13.6	-74.35	-321.6	-986.4	509.1	476.7	32.33	15.747	
5,600.0	5,535.2	5,550.5	5,549.4	19.6	13.8	-76.05	-321.7	-987.8	505.4	472.3	33.05	15.289	
5,700.0	5,633.8	5,651.2	5,650.1	20.0	14.1	-77.75	-321.1	-989.2	501.5	467.7	33.78	14.848	
5,800.0	5,732.4	5,747.3	5,746.3	20.4	14.3	-79.36	-320.5	-991.0	498.2	463.7	34.48	14.451	
5,900.0	5,830.9	5,843.1	5,842.0	20.8	14.6	-81.06	-320.8	-992.3	496.1	461.0	35.17	14.106	
6,000.0	5,929.5	5,939.0	5,937.9	21.2	14.8	-82.69	-321.2	-994.4	494.9	459.0	35.86	13.802	
6,033.8	5,962.8	5,970.2	5,969.1	21.3	14.9	-83.22	-321.6	-995.2	494.8	458.7	36.08	13.713	
6,100.0	6,028.1	6,035.4	6,034.3	21.6	15.1	-84.32	-322.6	-996.9	495.0	458.5	36.53	13.549	
6,200.0	6,126.7	6,136.6	6,135.4	22.0	15.3	-85.96	-323.3	-1,000.1	495.1	457.9	37.22	13.302	
6,300.0	6,225.3	6,234.3	6,233.0	22.4	15.6	-87.50	-324.2	-1,003.4	495.8	458.0	37.89	13.086	
6,400.0	6,323.8	6,334.7	6,333.4	22.8	15.8	-89.05	-324.9	-1,007.2	496.8	458.2	38.57	12.881	
6,500.0	6,422.4	6,432.0	6,430.6	23.1	16.1	-74.28	-325.8	-1,009.9	497.3	458.1	39.17	12.696	
6,600.0	6,520.6	6,528.8	6,527.4	23.5	16.3	-40.38	-327.1	-1,012.4	488.2	449.0	39.20	12.455	
6,700.0	6,616.9	6,625.4	6,623.9	23.7	16.5	-24.32	-328.7	-1,015.1	466.9	428.3	38.60	12.097	
6,800.0	6,709.6	6,719.6	6,718.0	24.0	16.8	-16.93	-330.3	-1,017.3	433.4	396.0	37.36	11.600	
6,900.0	6,797.2	6,812.3	6,810.7	24.2	17.0	-13.23	-331.2	-1,019.8	387.5	352.0	35.54	10.905	
7,000.0	6,878.1	6,897.6	6,896.0	24.5	17.2	-11.41	-331.0	-1,022.6	329.7	296.6	33.17	9.941	
7,100.0	6,950.9	6,967.9	6,966.2	24.7	17.4	-10.92	-330.8	-1,025.0	261.9	231.6	30.33	8.634	
7,200.0	7,014.5	7,030.3	7,028.6	25.0	17.6	-12.48	-331.2	-1,027.0	185.8	158.6	27.26	6.819	
7,300.0	7,067.7	7,083.8	7,082.1	25.4	17.7	-20.33	-332.0	-1,028.5	102.9	77.9	25.02	4.112	
7,400.0	7,109.6	7,127.6	7,125.8	25.8	17.8	-75.47	-332.8	-1,029.7	19.8	-15.7	35.45	0.557	Level 1
7,412.9	7,114.2	7,132.4	7,130.6	25.8	17.8	-91.59	-332.9	-1,029.8	15.6	-20.9	36.57	0.428	Level 1, CC, ES, SF
7,500.0	7,139.6	7,159.1	7,157.4	26.3	17.9	-143.71	-333.3	-1,030.6	84.0	57.1	26.95	3.119	
7,600.0	7,157.0	7,178.1	7,176.4	26.8	17.9	-142.20	-333.6	-1,031.2	181.2	153.4	27.83	6.510	
7,700.0	7,161.7	7,184.4	7,182.6	27.5	17.9	-102.88	-333.7	-1,031.4	280.5	241.6	38.94	7.204	
7,800.0	7,161.7	7,186.0	7,184.2	28.3	17.9	-106.70	-333.7	-1,031.5	380.3	340.6	39.73	9.573	
7,900.0	7,161.8	7,187.5	7,185.7	29.3	17.9	-110.39	-333.7	-1,031.5	480.2	439.7	40.44	11.873	
8,000.0	7,161.8	7,189.1	7,187.3	30.3	18.0	-113.93	-333.7	-1,031.6	580.1	539.0	41.07	14.122	
8,100.0	7,161.8	7,190.6	7,188.9	31.4	18.0	-117.29	-333.8	-1,031.6	680.0	638.4	41.62	16.338	
8,200.0	7,161.9	7,192.2	7,190.4	32.6	18.0	-120.48	-333.8	-1,031.6	779.9	737.8	42.09	18.531	
8,300.0	7,161.9	7,193.7	7,192.0	33.9	18.0	-123.49	-333.8	-1,031.7	879.9	837.4	42.48	20.712	
8,400.0	7,161.9	7,195.3	7,193.5	35.2	18.0	-126.31	-333.8	-1,031.7	979.8	937.0	42.81	22.888	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13G-323
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 13G-323	**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 #3 (1-28-15)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells Sec.13-T4N-R67W (Grid North) - UPRC 13-13E (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
7,600.0	7,157.0	7,178.9	7,176.4	26.8	17.0	-22.04	-1,504.0	-1,028.2	990.8	973.1	17.65	56.127	
7,700.0	7,161.7	7,183.4	7,180.9	27.5	17.0	-96.61	-1,503.9	-1,028.3	891.0	852.8	38.24	23.303	
7,800.0	7,161.7	7,183.1	7,180.7	28.3	17.0	-96.04	-1,503.9	-1,028.3	791.0	751.7	39.39	20.085	
7,900.0	7,161.8	7,182.9	7,180.4	29.3	17.0	-95.48	-1,503.9	-1,028.3	691.1	650.5	40.63	17.009	
8,000.0	7,161.8	7,182.6	7,180.2	30.3	17.0	-94.91	-1,503.9	-1,028.3	591.2	549.2	41.96	14.090	
8,100.0	7,161.8	7,182.4	7,179.9	31.4	17.0	-94.35	-1,503.9	-1,028.3	491.3	447.9	43.35	11.332	
8,200.0	7,161.9	7,182.1	7,179.7	32.6	17.0	-93.78	-1,503.9	-1,028.3	391.5	346.6	44.81	8.736	
8,300.0	7,161.9	7,181.9	7,179.4	33.9	17.0	-93.22	-1,503.9	-1,028.2	291.7	245.4	46.31	6.299	
8,400.0	7,161.9	7,181.7	7,179.2	35.2	17.0	-92.66	-1,503.9	-1,028.2	192.3	144.4	47.86	4.018	
8,500.0	7,162.0	7,181.4	7,178.9	36.6	17.0	-92.10	-1,503.9	-1,028.2	94.1	44.6	49.44	1.903	
8,590.6	7,162.0	7,181.2	7,178.7	37.9	17.0	-91.59	-1,503.9	-1,028.2	25.2	-25.7	50.90	0.495	Level 1, CC, ES, SF
8,600.0	7,162.0	7,181.2	7,178.7	38.1	17.0	-91.54	-1,503.9	-1,028.2	26.9	-24.2	51.05	0.526	Level 1
8,700.0	7,162.1	7,180.9	7,178.4	39.5	17.0	-90.98	-1,503.9	-1,028.2	112.2	59.5	52.69	2.130	
8,800.0	7,162.1	7,180.7	7,178.2	41.1	17.0	-90.43	-1,503.9	-1,028.2	210.9	156.5	54.35	3.880	
8,900.0	7,162.1	7,180.4	7,178.0	42.6	17.0	-89.87	-1,503.9	-1,028.2	310.4	254.4	56.02	5.540	
9,000.0	7,162.2	7,180.2	7,177.7	44.2	17.0	-89.32	-1,503.9	-1,028.2	410.1	352.4	57.71	7.107	
9,100.0	7,162.2	7,179.9	7,177.5	45.8	17.0	-88.77	-1,503.9	-1,028.2	510.0	450.6	59.41	8.584	
9,200.0	7,162.2	7,179.7	7,177.2	47.5	17.0	-88.22	-1,504.0	-1,028.2	609.9	548.8	61.12	9.978	
9,300.0	7,162.3	7,179.5	7,177.0	49.1	17.0	-87.68	-1,504.0	-1,028.2	709.8	647.0	62.84	11.296	
9,400.0	7,162.3	7,179.2	7,176.8	50.8	17.0	-87.13	-1,504.0	-1,028.2	809.7	745.2	64.56	12.542	
9,500.0	7,162.3	7,179.0	7,176.5	52.5	17.0	-86.59	-1,504.0	-1,028.2	909.7	843.4	66.29	13.723	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13G-323
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 13G-323	**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 #3 (1-28-15)	**Offset TVD Reference:**	Offset Datum

Offset Design Stroh 13GK-HZ Pad Sec. 13-T4N-R67W - Stroh 13G-203 - Wellbore #1 - Plan #2 (1-27-15)

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	-90.02	0.0	-30.7	30.7	30.7	0.00	N/A	
100.0	100.0	101.0	101.0	0.1	0.1	-90.02	0.0	-30.7	30.7	30.5	0.23	135.136	
166.3	166.3	167.3	167.3	0.3	0.3	-90.02	0.0	-30.7	30.7	30.2	0.53	58.413	CC
200.0	200.0	201.0	201.0	0.3	0.3	-90.02	0.0	-30.7	30.7	30.0	0.68	45.351	ES
300.0	300.0	300.5	300.5	0.6	0.6	-89.71	0.2	-31.5	31.5	30.4	1.12	28.270	
400.0	400.0	400.0	400.0	0.8	0.8	-88.90	0.7	-34.1	34.1	32.6	1.56	21.918	
500.0	500.0	499.2	499.1	1.0	1.0	-8.09	1.5	-38.3	37.6	35.6	1.99	18.893	
600.0	600.0	598.5	598.1	1.2	1.2	-7.28	2.6	-44.3	41.0	38.6	2.42	16.949	
700.0	699.9	697.7	697.0	1.4	1.5	-6.57	4.1	-51.9	44.4	41.5	2.86	15.548	
800.0	799.7	796.8	795.7	1.7	1.7	-5.94	5.9	-61.2	47.8	44.5	3.30	14.491	
900.0	899.4	895.9	894.2	1.9	2.0	-5.36	8.0	-72.1	51.2	47.5	3.75	13.660	
1,000.0	998.9	994.9	992.4	2.2	2.3	-4.83	10.4	-84.7	54.6	50.4	4.20	12.987	
1,100.0	1,098.3	1,093.9	1,090.3	2.4	2.7	-4.34	13.2	-99.0	57.9	53.3	4.66	12.426	
1,200.0	1,197.4	1,192.8	1,187.9	2.7	3.0	-3.88	16.3	-114.9	61.3	56.2	5.13	11.949	
1,300.0	1,296.3	1,291.7	1,285.1	3.1	3.4	-3.45	19.7	-132.5	64.6	59.0	5.60	11.533	
1,400.0	1,394.9	1,390.5	1,381.9	3.4	3.8	-3.04	23.4	-151.7	68.0	61.9	6.09	11.176	
1,500.0	1,493.5	1,489.2	1,478.3	3.8	4.2	-2.60	27.4	-172.5	72.8	66.2	6.58	11.050	
1,600.0	1,592.1	1,588.5	1,575.0	4.1	4.7	-2.16	31.7	-194.7	78.9	71.8	7.09	11.130	
1,700.0	1,690.7	1,688.3	1,672.1	4.5	5.2	-1.78	36.1	-217.3	85.2	77.6	7.60	11.211	
1,800.0	1,789.3	1,788.1	1,769.3	4.9	5.6	-1.45	40.4	-239.8	91.4	83.3	8.11	11.278	
1,900.0	1,887.8	1,887.9	1,866.4	5.2	6.1	-1.16	44.8	-262.3	97.7	89.1	8.62	11.334	
2,000.0	1,986.4	1,987.7	1,963.5	5.6	6.6	-0.90	49.1	-284.8	104.0	94.9	9.14	11.382	
2,100.0	2,085.0	2,087.5	2,060.7	6.0	7.1	-0.68	53.5	-307.3	110.3	100.7	9.66	11.422	
2,200.0	2,183.6	2,187.3	2,157.8	6.4	7.6	-0.48	57.8	-329.8	116.6	106.4	10.18	11.457	
2,300.0	2,282.1	2,287.1	2,254.9	6.8	8.1	-0.30	62.2	-352.4	122.9	112.2	10.70	11.487	
2,400.0	2,380.7	2,386.9	2,352.0	7.1	8.6	-0.14	66.5	-374.9	129.2	118.0	11.22	11.514	
2,500.0	2,479.3	2,486.7	2,449.2	7.5	9.0	0.01	70.9	-397.4	135.5	123.7	11.74	11.537	
2,600.0	2,577.9	2,586.5	2,546.3	7.9	9.5	0.15	75.3	-419.9	141.8	129.5	12.27	11.557	
2,700.0	2,676.5	2,686.3	2,643.4	8.3	10.0	0.27	79.6	-442.4	148.1	135.3	12.79	11.575	
2,800.0	2,775.0	2,786.1	2,740.6	8.7	10.5	0.38	84.0	-464.9	154.4	141.0	13.32	11.591	
2,900.0	2,873.6	2,885.9	2,837.7	9.1	11.0	0.49	88.3	-487.5	160.7	146.8	13.84	11.606	
3,000.0	2,972.2	2,985.7	2,934.8	9.5	11.5	0.58	92.7	-510.0	167.0	152.6	14.37	11.619	
3,100.0	3,070.8	3,085.5	3,032.0	9.8	12.0	0.67	97.0	-532.5	173.2	158.4	14.90	11.630	
3,200.0	3,169.3	3,185.3	3,129.1	10.2	12.5	0.75	101.4	-555.0	179.5	164.1	15.42	11.641	
3,300.0	3,267.9	3,285.1	3,226.2	10.6	13.0	0.83	105.7	-577.5	185.8	169.9	15.95	11.650	
3,400.0	3,366.5	3,384.9	3,323.4	11.0	13.5	0.90	110.1	-600.0	192.1	175.7	16.48	11.659	
3,500.0	3,465.1	3,484.7	3,420.5	11.4	14.0	0.97	114.4	-622.5	198.4	181.4	17.01	11.667	
3,600.0	3,563.7	3,584.5	3,517.6	11.8	14.5	1.04	118.8	-645.1	204.7	187.2	17.54	11.675	
3,700.0	3,662.2	3,684.3	3,614.7	12.2	15.0	1.09	123.1	-667.6	211.0	193.0	18.07	11.681	
3,800.0	3,760.8	3,784.1	3,711.9	12.6	15.5	1.15	127.5	-690.1	217.3	198.7	18.60	11.688	
3,900.0	3,859.4	3,883.9	3,809.0	13.0	16.0	1.20	131.8	-712.6	223.6	204.5	19.12	11.693	
4,000.0	3,958.0	3,983.7	3,906.1	13.4	16.5	1.25	136.2	-735.1	229.9	210.3	19.65	11.699	
4,100.0	4,056.5	4,083.5	4,003.3	13.7	17.0	1.30	140.6	-757.6	236.2	216.0	20.18	11.703	
4,200.0	4,155.1	4,183.3	4,100.4	14.1	17.5	1.35	144.9	-780.2	242.5	221.8	20.71	11.708	
4,300.0	4,253.7	4,283.1	4,197.5	14.5	18.0	1.39	149.3	-802.7	248.8	227.6	21.25	11.712	
4,400.0	4,352.3	4,382.9	4,294.7	14.9	18.5	1.43	153.6	-825.2	255.1	233.4	21.78	11.716	
4,500.0	4,450.9	4,482.7	4,391.8	15.3	19.0	1.47	158.0	-847.7	261.4	239.1	22.31	11.720	
4,600.0	4,549.4	4,582.5	4,488.9	15.7	19.5	1.51	162.3	-870.2	267.7	244.9	22.84	11.723	
4,700.0	4,648.0	4,682.3	4,586.1	16.1	20.0	1.54	166.7	-892.7	274.0	250.7	23.37	11.727	
4,800.0	4,746.6	4,782.1	4,683.2	16.5	20.5	1.57	171.0	-915.2	280.3	256.4	23.90	11.730	
4,900.0	4,845.2	4,881.9	4,780.3	16.9	21.0	1.61	175.4	-937.8	286.6	262.2	24.43	11.733	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13G-323
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 13G-323	**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 #3 (1-28-15)	**Offset TVD Reference:**	Offset Datum

Offset Design Stroh 13GK-HZ Pad Sec. 13-T4N-R67W - Stroh 13G-203 - Wellbore #1 - Plan #2 (1-27-15)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,943.7	4,981.7	4,877.4	17.3	21.5	1.64	179.7	-960.3	292.9	268.0	24.96	11.735	
5,100.0	5,042.3	5,081.5	4,974.6	17.7	22.0	1.67	184.1	-982.8	299.2	273.7	25.49	11.738	
5,200.0	5,140.9	5,181.3	5,071.7	18.1	22.5	1.69	188.4	-1,005.3	305.5	279.5	26.02	11.740	
5,300.0	5,239.5	5,281.1	5,168.8	18.4	23.0	1.72	192.8	-1,027.8	311.8	285.3	26.56	11.742	
5,400.0	5,338.1	5,380.9	5,266.0	18.8	23.5	1.75	197.1	-1,050.3	318.1	291.0	27.09	11.745	
5,500.0	5,436.6	5,480.7	5,363.1	19.2	24.0	1.77	201.5	-1,072.9	324.4	296.8	27.62	11.747	
5,600.0	5,535.2	5,580.5	5,460.2	19.6	24.5	1.80	205.9	-1,095.4	330.7	302.6	28.15	11.749	
5,700.0	5,633.8	5,680.3	5,557.4	20.0	25.0	1.82	210.2	-1,117.9	337.0	308.3	28.68	11.750	
5,800.0	5,732.4	5,780.1	5,654.5	20.4	25.5	1.84	214.6	-1,140.4	343.3	314.1	29.21	11.752	
5,900.0	5,830.9	5,879.9	5,751.6	20.8	26.0	1.86	218.9	-1,162.9	349.6	319.9	29.75	11.754	
6,000.0	5,929.5	5,979.7	5,848.7	21.2	26.5	1.88	223.3	-1,185.4	355.9	325.7	30.28	11.755	
6,100.0	6,028.1	6,079.5	5,945.9	21.6	27.0	1.90	227.6	-1,208.0	362.2	331.4	30.81	11.757	
6,200.0	6,126.7	6,179.3	6,043.0	22.0	27.5	1.92	232.0	-1,230.5	368.5	337.2	31.34	11.758	
6,300.0	6,225.3	6,279.1	6,140.1	22.4	28.0	1.94	236.3	-1,253.0	374.8	343.0	31.88	11.759	
6,400.0	6,323.8	6,378.9	6,237.3	22.8	28.5	1.96	240.7	-1,275.5	381.1	348.7	32.41	11.761	
6,500.0	6,422.4	6,486.0	6,341.5	23.1	29.0	17.84	242.0	-1,299.7	387.0	354.1	32.91	11.760	
6,600.0	6,520.6	6,596.6	6,448.4	23.5	29.4	51.90	228.6	-1,324.5	392.3	359.0	33.32	11.772	
6,700.0	6,616.9	6,706.5	6,551.5	23.7	29.8	67.72	199.7	-1,348.4	397.3	363.6	33.72	11.783	
6,800.0	6,709.6	6,815.4	6,648.8	24.0	30.1	74.71	156.4	-1,371.0	402.0	367.9	34.11	11.786	
6,900.0	6,797.2	6,923.2	6,738.2	24.2	30.4	77.90	99.9	-1,391.7	406.4	371.9	34.53	11.770	
7,000.0	6,878.1	7,029.8	6,818.0	24.5	30.7	79.22	32.0	-1,410.3	410.4	375.4	35.01	11.725	
7,100.0	6,950.9	7,135.0	6,887.1	24.7	30.9	79.50	-45.6	-1,426.4	414.1	378.5	35.58	11.637	
7,200.0	7,014.5	7,238.9	6,944.5	25.0	31.2	79.17	-131.0	-1,439.7	417.3	381.0	36.33	11.488	
7,300.0	7,067.7	7,341.3	6,989.5	25.4	31.5	78.45	-222.4	-1,450.2	420.2	382.9	37.29	11.269	
7,400.0	7,109.6	7,442.4	7,021.9	25.8	31.8	77.48	-317.7	-1,457.8	422.6	384.1	38.51	10.972	
7,500.0	7,139.6	7,542.1	7,041.6	26.3	32.2	76.34	-415.3	-1,462.4	424.5	384.4	40.06	10.596	
7,600.0	7,157.0	7,640.5	7,048.7	26.8	32.6	75.10	-513.3	-1,464.2	425.8	383.9	41.94	10.154	
7,700.0	7,161.7	7,740.1	7,048.4	27.5	33.1	74.45	-612.9	-1,464.2	426.4	382.2	44.15	9.657	
7,800.0	7,161.7	7,840.1	7,048.1	28.3	33.8	74.41	-712.9	-1,464.2	426.5	380.1	46.39	9.194	
7,900.0	7,161.8	7,940.1	7,047.8	29.3	34.5	74.36	-812.9	-1,464.2	426.6	377.8	48.80	8.741	
8,000.0	7,161.8	8,040.1	7,047.5	30.3	35.3	74.32	-912.9	-1,464.2	426.7	375.3	51.37	8.306	
8,100.0	7,161.8	8,140.1	7,047.2	31.4	36.2	74.27	-1,012.9	-1,464.2	426.8	372.7	54.07	7.892	
8,200.0	7,161.9	8,240.1	7,046.8	32.6	37.2	74.23	-1,112.9	-1,464.2	426.9	370.0	56.89	7.503	
8,300.0	7,161.9	8,340.1	7,046.5	33.9	38.3	74.18	-1,212.9	-1,464.2	426.9	367.1	59.80	7.140	
8,400.0	7,161.9	8,440.1	7,046.2	35.2	39.4	74.14	-1,312.9	-1,464.2	427.0	364.2	62.79	6.801	
8,500.0	7,162.0	8,540.1	7,045.9	36.6	40.6	74.09	-1,412.9	-1,464.2	427.1	361.3	65.86	6.485	
8,600.0	7,162.0	8,640.1	7,045.6	38.1	41.9	74.05	-1,512.9	-1,464.2	427.2	358.2	68.99	6.193	
8,700.0	7,162.1	8,740.1	7,045.3	39.5	43.2	74.00	-1,612.9	-1,464.2	427.3	355.2	72.17	5.921	
8,800.0	7,162.1	8,840.1	7,045.0	41.1	44.6	73.96	-1,712.9	-1,464.2	427.4	352.0	75.40	5.669	
8,900.0	7,162.1	8,940.1	7,044.6	42.6	46.0	73.91	-1,812.9	-1,464.2	427.5	348.8	78.67	5.434	
9,000.0	7,162.2	9,040.1	7,044.3	44.2	47.5	73.87	-1,912.9	-1,464.2	427.6	345.6	81.98	5.216	
9,100.0	7,162.2	9,140.1	7,044.0	45.8	49.0	73.82	-2,012.9	-1,464.2	427.7	342.4	85.32	5.013	
9,200.0	7,162.2	9,240.1	7,043.7	47.5	50.5	73.78	-2,112.9	-1,464.2	427.8	339.1	88.68	4.824	
9,300.0	7,162.3	9,340.1	7,043.4	49.1	52.1	73.73	-2,212.9	-1,464.2	427.9	335.8	92.07	4.648	
9,400.0	7,162.3	9,440.1	7,043.1	50.8	53.6	73.69	-2,312.9	-1,464.2	428.0	332.5	95.48	4.483	
9,500.0	7,162.3	9,540.1	7,042.8	52.5	55.2	73.64	-2,412.9	-1,464.2	428.1	329.2	98.91	4.328	
9,600.0	7,162.4	9,640.1	7,042.4	54.2	56.9	73.60	-2,512.9	-1,464.2	428.2	325.8	102.36	4.183	
9,700.0	7,162.4	9,740.1	7,042.1	55.9	58.5	73.55	-2,612.9	-1,464.2	428.3	322.5	105.82	4.047	
9,800.0	7,162.4	9,840.1	7,041.8	57.7	60.2	73.51	-2,712.9	-1,464.2	428.4	319.1	109.30	3.920	
9,900.0	7,162.5	9,940.1	7,041.5	59.4	61.9	73.46	-2,812.9	-1,464.2	428.5	315.7	112.78	3.799	
10,000.0	7,162.5	10,040.1	7,041.2	61.2	63.5	73.42	-2,912.9	-1,464.2	428.6	312.3	116.28	3.686	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13G-323
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 13G-323	**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 #3 (1-28-15)	**Offset TVD Reference:**	Offset Datum

Offset Design Stroh 13GK-HZ Pad Sec. 13-T4N-R67W - Stroh 13G-203 - Wellbore #1 - Plan #2 (1-27-15)

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	7,162.5	10,140.1	7,040.9	62.9	65.2	73.37	-3,012.9	-1,464.2	428.7	308.9	119.79	3.579	
10,200.0	7,162.6	10,240.1	7,040.6	64.7	67.0	73.33	-3,112.9	-1,464.2	428.8	305.5	123.31	3.477	
10,300.0	7,162.6	10,340.1	7,040.3	66.5	68.7	73.28	-3,212.9	-1,464.2	428.9	302.1	126.83	3.382	
10,400.0	7,162.6	10,440.1	7,039.9	68.3	70.4	73.24	-3,312.9	-1,464.2	429.0	298.6	130.37	3.291	
10,500.0	7,162.7	10,540.1	7,039.6	70.1	72.2	73.19	-3,412.9	-1,464.2	429.1	295.2	133.91	3.204	
10,600.0	7,162.7	10,640.1	7,039.3	71.9	73.9	73.15	-3,512.9	-1,464.2	429.2	291.8	137.45	3.123	
10,700.0	7,162.8	10,740.1	7,039.0	73.7	75.7	73.11	-3,612.9	-1,464.2	429.3	288.3	141.00	3.045	
10,800.0	7,162.8	10,840.1	7,038.7	75.5	77.5	73.06	-3,712.9	-1,464.2	429.4	284.8	144.56	2.970	
10,900.0	7,162.8	10,940.1	7,038.4	77.3	79.3	73.02	-3,812.9	-1,464.2	429.5	281.4	148.12	2.900	
11,000.0	7,162.9	11,040.1	7,038.1	79.2	81.0	72.97	-3,912.9	-1,464.2	429.6	277.9	151.68	2.832	
11,100.0	7,162.9	11,140.1	7,037.7	81.0	82.8	72.93	-4,012.9	-1,464.2	429.7	274.5	155.25	2.768	
11,200.0	7,162.9	11,240.1	7,037.4	82.8	84.6	72.88	-4,112.9	-1,464.2	429.8	271.0	158.82	2.706	
11,300.0	7,163.0	11,340.1	7,037.1	84.7	86.4	72.84	-4,212.9	-1,464.2	429.9	267.5	162.40	2.647	
11,400.0	7,163.0	11,440.1	7,036.8	86.5	88.2	72.79	-4,312.9	-1,464.2	430.0	264.0	165.97	2.591	
11,500.0	7,163.0	11,540.1	7,036.5	88.3	90.1	72.75	-4,412.9	-1,464.2	430.1	260.6	169.55	2.537	
11,600.0	7,163.1	11,640.1	7,036.2	90.2	91.9	72.71	-4,512.9	-1,464.2	430.2	257.1	173.13	2.485	
11,700.0	7,163.1	11,740.1	7,035.9	92.0	93.7	72.66	-4,612.9	-1,464.2	430.3	253.6	176.71	2.435	
11,800.0	7,163.1	11,840.1	7,035.5	93.9	95.5	72.62	-4,712.9	-1,464.2	430.4	250.1	180.30	2.387	
11,900.0	7,163.2	11,940.1	7,035.2	95.7	97.3	72.57	-4,812.9	-1,464.2	430.5	246.7	183.88	2.341	
12,000.0	7,163.2	12,040.1	7,034.9	97.6	99.2	72.53	-4,912.9	-1,464.2	430.6	243.2	187.47	2.297	
12,100.0	7,163.2	12,140.1	7,034.6	99.5	101.0	72.48	-5,012.9	-1,464.2	430.8	239.7	191.06	2.255	
12,200.0	7,163.3	12,240.1	7,034.3	101.3	102.9	72.44	-5,112.9	-1,464.2	430.9	236.2	194.65	2.214	
12,300.0	7,163.3	12,340.1	7,034.0	103.2	104.7	72.40	-5,212.9	-1,464.2	431.0	232.7	198.24	2.174	
12,400.0	7,163.3	12,440.1	7,033.7	105.1	106.5	72.35	-5,312.9	-1,464.2	431.1	229.2	201.83	2.136	
12,500.0	7,163.4	12,540.1	7,033.3	106.9	108.4	72.31	-5,412.9	-1,464.2	431.2	225.8	205.42	2.099	
12,600.0	7,163.4	12,640.1	7,033.0	108.8	110.2	72.26	-5,512.9	-1,464.2	431.3	222.3	209.01	2.063	
12,700.0	7,163.5	12,740.1	7,032.7	110.7	112.1	72.22	-5,612.9	-1,464.2	431.4	218.8	212.60	2.029	
12,800.0	7,163.5	12,840.1	7,032.4	112.6	113.9	72.17	-5,712.9	-1,464.2	431.5	215.3	216.19	1.996	
12,900.0	7,163.5	12,940.1	7,032.1	114.4	115.8	72.13	-5,812.9	-1,464.2	431.6	211.8	219.79	1.964	
13,000.0	7,163.6	13,040.1	7,031.8	116.3	117.7	72.09	-5,912.9	-1,464.2	431.7	208.3	223.38	1.933	
13,100.0	7,163.6	13,140.1	7,031.5	118.2	119.5	72.04	-6,012.9	-1,464.2	431.8	204.8	226.97	1.903	
13,200.0	7,163.6	13,240.1	7,031.1	120.1	121.4	72.00	-6,112.9	-1,464.2	431.9	201.4	230.56	1.873	
13,300.0	7,163.7	13,340.0	7,030.8	121.9	123.2	71.95	-6,212.9	-1,464.2	432.0	197.9	234.15	1.845	
13,400.0	7,163.7	13,440.0	7,030.5	123.8	125.1	71.91	-6,312.9	-1,464.2	432.1	194.4	237.74	1.818	
13,500.0	7,163.7	13,540.0	7,030.2	125.7	127.0	71.87	-6,412.9	-1,464.2	432.2	190.9	241.34	1.791	
13,600.0	7,163.8	13,640.0	7,029.9	127.6	128.8	71.82	-6,512.9	-1,464.2	432.4	187.4	244.93	1.765	
13,700.0	7,163.8	13,740.0	7,029.6	129.5	130.7	71.78	-6,612.9	-1,464.2	432.5	183.9	248.52	1.740	
13,800.0	7,163.8	13,840.0	7,029.3	131.4	132.6	71.73	-6,712.9	-1,464.2	432.6	180.5	252.11	1.716	
13,900.0	7,163.9	13,940.0	7,028.9	133.3	134.5	71.69	-6,812.9	-1,464.2	432.7	177.0	255.69	1.692	
14,000.0	7,163.9	14,040.0	7,028.6	135.1	136.3	71.65	-6,912.9	-1,464.2	432.8	173.5	259.28	1.669	
14,100.0	7,163.9	14,140.0	7,028.3	137.0	138.2	71.60	-7,012.9	-1,464.2	432.9	170.0	262.87	1.647	
14,200.0	7,164.0	14,240.0	7,028.0	138.9	140.1	71.56	-7,112.9	-1,464.2	433.0	166.6	266.46	1.625	
14,201.6	7,164.0	14,241.6	7,028.0	139.0	140.1	71.56	-7,114.4	-1,464.2	433.0	166.5	266.51	1.625	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13G-323
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 13G-323	**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 #3 (1-28-15)	**Offset TVD Reference:**	Offset Datum

Offset Design Stroh 13GK-HZ Pad Sec. 13-T4N-R67W - Stroh 13K-223 - Wellbore #1 - Plan #3 (1-28-15)

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	500.0	500.0	1.0	1.0	169.99	0.0	89.2	90.1	88.1	2.01	44.764	
600.0	600.0	600.0	600.0	1.2	1.2	170.26	0.0	89.2	92.7	90.2	2.45	37.864	
700.0	699.9	699.9	699.9	1.4	1.5	170.69	0.0	89.2	97.0	94.1	2.89	33.589	
800.0	799.7	799.7	799.7	1.7	1.7	171.23	0.0	89.2	103.0	99.7	3.33	30.938	
900.0	899.4	899.4	899.4	1.9	1.9	171.84	0.0	89.2	110.8	107.0	3.77	29.353	
1,000.0	998.9	998.9	998.9	2.2	2.1	172.48	0.0	89.2	120.3	116.1	4.22	28.505	
1,100.0	1,098.3	1,098.3	1,098.3	2.4	2.4	173.11	0.0	89.2	131.5	126.8	4.67	28.184	SF
1,200.0	1,197.4	1,197.4	1,197.4	2.7	2.6	173.71	0.0	89.2	144.5	139.4	5.11	28.254	
1,300.0	1,296.3	1,296.3	1,296.3	3.1	2.8	174.28	0.0	89.2	159.2	153.6	5.56	28.620	
1,400.0	1,394.9	1,394.9	1,394.9	3.4	3.0	174.81	0.0	89.2	175.5	169.5	6.01	29.187	
1,500.0	1,493.5	1,493.5	1,493.5	3.8	3.2	175.26	0.0	89.2	192.3	185.8	6.47	29.705	
1,600.0	1,592.1	1,592.1	1,592.1	4.1	3.5	175.64	0.0	89.2	209.0	202.1	6.93	30.147	
1,700.0	1,690.7	1,690.7	1,690.7	4.5	3.7	175.96	0.0	89.2	225.8	218.4	7.40	30.528	
1,800.0	1,789.3	1,789.3	1,789.3	4.9	3.9	176.24	0.0	89.2	242.5	234.7	7.86	30.860	
1,900.0	1,887.8	1,887.8	1,887.8	5.2	4.1	176.49	0.0	89.2	259.3	251.0	8.32	31.151	
2,000.0	1,986.4	1,986.4	1,986.4	5.6	4.4	176.70	0.0	89.2	276.1	267.3	8.79	31.409	
2,100.0	2,085.0	2,083.8	2,083.8	6.0	4.6	176.77	0.6	89.5	293.0	283.8	9.25	31.670	
2,200.0	2,183.6	2,180.8	2,180.8	6.4	4.8	176.54	2.6	90.4	310.5	300.8	9.71	31.958	
2,300.0	2,282.1	2,277.6	2,277.5	6.8	5.0	176.06	6.2	91.9	328.4	318.2	10.18	32.267	
2,400.0	2,380.7	2,374.1	2,373.8	7.1	5.2	175.36	11.2	94.1	346.8	336.2	10.64	32.592	
2,500.0	2,479.3	2,470.3	2,469.7	7.5	5.4	174.49	17.7	96.9	365.8	354.7	11.11	32.932	
2,600.0	2,577.9	2,566.0	2,565.1	7.9	5.7	173.48	25.7	100.3	385.4	373.8	11.58	33.282	
2,700.0	2,676.5	2,661.4	2,659.9	8.3	5.9	172.36	35.0	104.3	405.7	393.7	12.06	33.642	
2,800.0	2,775.0	2,756.2	2,754.0	8.7	6.1	171.14	45.8	108.9	426.8	414.2	12.55	34.008	
2,900.0	2,873.6	2,850.5	2,847.4	9.1	6.4	169.86	57.9	114.1	448.7	435.6	13.05	34.379	
3,000.0	2,972.2	2,944.2	2,940.0	9.5	6.6	168.52	71.3	119.9	471.4	457.8	13.56	34.757	
3,100.0	3,070.8	3,040.2	3,034.6	9.8	6.9	167.16	86.0	126.2	494.8	480.7	14.10	35.105	
3,200.0	3,169.3	3,136.8	3,129.8	10.2	7.2	165.92	100.8	132.6	518.5	503.9	14.64	35.423	
3,300.0	3,267.9	3,233.3	3,225.0	10.6	7.4	164.78	115.7	138.9	542.4	527.2	15.19	35.714	
3,400.0	3,366.5	3,329.9	3,320.2	11.0	7.7	163.74	130.5	145.3	566.5	550.7	15.74	35.983	
3,500.0	3,465.1	3,426.5	3,415.4	11.4	8.0	162.78	145.3	151.6	590.7	574.4	16.30	36.231	
3,600.0	3,563.7	3,523.0	3,510.6	11.8	8.3	161.90	160.1	158.0	615.1	598.2	16.87	36.462	
3,700.0	3,662.2	3,619.6	3,605.8	12.2	8.6	161.08	174.9	164.4	639.6	622.2	17.44	36.676	
3,800.0	3,760.8	3,716.1	3,701.0	12.6	9.0	160.32	189.7	170.7	664.3	646.3	18.01	36.876	
3,900.0	3,859.4	3,812.7	3,796.2	13.0	9.3	159.62	204.5	177.1	689.0	670.4	18.59	37.064	
4,000.0	3,958.0	3,909.2	3,891.4	13.4	9.6	158.97	219.3	183.5	713.8	694.7	19.17	37.240	
4,100.0	4,056.5	4,017.0	3,997.9	13.7	9.9	158.36	234.9	190.2	738.2	718.5	19.75	37.379	
4,200.0	4,155.1	4,131.5	4,111.5	14.1	10.2	158.03	247.6	195.6	760.6	740.3	20.29	37.494	
4,300.0	4,253.7	4,247.2	4,226.8	14.5	10.5	158.00	256.2	199.3	780.8	760.0	20.79	37.548	
4,400.0	4,352.3	4,363.8	4,343.3	14.9	10.7	158.25	260.5	201.1	798.6	777.4	21.27	37.549	
4,500.0	4,450.9	4,471.3	4,450.9	15.3	10.9	158.70	261.0	201.3	814.6	792.9	21.71	37.517	
4,600.0	4,549.4	4,569.9	4,549.4	15.7	11.0	159.12	261.0	201.3	830.3	808.1	22.16	37.469	
4,700.0	4,648.0	4,668.5	4,648.0	16.1	11.2	159.52	261.0	201.3	846.0	823.4	22.61	37.416	
4,800.0	4,746.6	4,767.1	4,746.6	16.5	11.4	159.91	261.0	201.3	861.8	838.8	23.06	37.366	
4,900.0	4,845.2	4,865.7	4,845.2	16.9	11.6	160.29	261.0	201.3	877.6	854.1	23.52	37.319	
5,000.0	4,943.7	4,964.2	4,943.7	17.3	11.8	160.65	261.0	201.3	893.5	869.5	23.97	37.275	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13G-323
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 13G-323	**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 #3 (1-28-15)	**Offset TVD Reference:**	Offset Datum

Offset Design Stroh 13GK-HZ Pad Sec. 13-T4N-R67W - Stroh 13K-223 - Wellbore #1 - Plan #3 (1-28-15)

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	5,042.3	5,062.8	5,042.3	17.7	12.0	161.00	261.0	201.3	909.4	885.0	24.42	37.234	
5,200.0	5,140.9	5,161.4	5,140.9	18.1	12.2	161.34	261.0	201.3	925.3	900.5	24.88	37.195	
5,300.0	5,239.5	5,260.0	5,239.5	18.4	12.4	161.67	261.0	201.3	941.3	916.0	25.33	37.158	
5,400.0	5,338.1	5,358.5	5,338.1	18.8	12.6	161.98	261.0	201.3	957.3	931.5	25.79	37.123	
5,500.0	5,436.6	5,457.1	5,436.6	19.2	12.8	162.29	261.0	201.3	973.3	947.1	26.24	37.090	
5,600.0	5,535.2	5,555.7	5,535.2	19.6	13.0	162.58	261.0	201.3	989.3	962.6	26.70	37.059	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13G-323
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 13G-323	**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 #3 (1-28-15)	**Offset TVD Reference:**	Offset Datum

Offset Design Stroh 13GK-HZ Pad Sec. 13-T4N-R67W - Stroh 13K-243 - Wellbore #1 - Plan #3 (1-28-15)

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	90.02	0.0	30.7	30.7				
100.0	100.0	100.0	100.0	0.1	0.1	90.02	0.0	30.7	30.7	30.5	0.22	136.487	
200.0	200.0	200.0	200.0	0.3	0.3	90.02	0.0	30.7	30.7	30.0	0.67	45.496	
300.0	300.0	300.0	300.0	0.6	0.6	90.02	0.0	30.7	30.7	29.6	1.12	27.297	
400.0	400.0	400.0	400.0	0.8	0.8	90.02	0.0	30.7	30.7	29.1	1.57	19.498	CC, ES
500.0	500.0	500.0	500.0	1.0	1.0	170.18	0.0	30.7	31.5	29.5	2.01	15.668	
600.0	600.0	600.0	600.0	1.2	1.2	170.93	0.0	30.7	34.1	31.7	2.45	13.939	
700.0	699.9	699.9	699.9	1.4	1.5	171.95	0.0	30.7	38.4	35.5	2.89	13.311	
800.0	799.7	799.7	799.7	1.7	1.7	173.04	0.0	30.7	44.5	41.2	3.33	13.360	
900.0	899.4	899.4	899.4	1.9	1.9	174.07	0.0	30.7	52.3	48.5	3.77	13.854	
1,000.0	998.9	998.9	998.9	2.2	2.1	174.98	0.0	30.7	61.8	57.6	4.22	14.653	
1,100.0	1,098.3	1,098.3	1,098.3	2.4	2.4	175.75	0.0	30.7	73.1	68.4	4.67	15.670	
1,200.0	1,197.4	1,197.4	1,197.4	2.7	2.6	176.39	0.0	30.7	86.1	81.0	5.11	16.846	
1,300.0	1,296.3	1,296.3	1,296.3	3.1	2.8	176.91	0.0	30.7	100.9	95.3	5.56	18.141	
1,400.0	1,394.9	1,394.9	1,394.9	3.4	3.0	177.33	0.0	30.7	117.3	111.3	6.01	19.505	
1,500.0	1,493.5	1,495.8	1,495.8	3.8	3.2	177.68	0.1	29.9	133.3	126.8	6.46	20.623	
1,600.0	1,592.1	1,597.2	1,597.2	4.1	3.4	177.97	0.4	27.3	147.6	140.7	6.91	21.370	
1,700.0	1,690.7	1,699.2	1,699.0	4.5	3.7	178.23	0.9	22.9	160.1	152.7	7.35	21.769	
1,800.0	1,789.3	1,801.5	1,801.2	4.9	3.9	178.46	1.6	16.7	170.8	163.0	7.81	21.878	
1,900.0	1,887.8	1,904.3	1,903.6	5.2	4.1	178.69	2.6	8.7	179.8	171.5	8.27	21.746	
2,000.0	1,986.4	2,007.3	2,006.2	5.6	4.4	178.93	3.8	-1.3	187.0	178.2	8.73	21.409	
2,100.0	2,085.0	2,110.6	2,108.8	6.0	4.6	179.16	5.2	-13.0	192.4	183.2	9.20	20.901	
2,200.0	2,183.6	2,214.0	2,211.3	6.4	4.9	179.41	6.8	-26.6	196.0	186.3	9.68	20.245	
2,300.0	2,282.1	2,317.6	2,313.6	6.8	5.2	179.68	8.6	-42.1	197.7	187.6	10.16	19.465	
2,400.0	2,380.7	2,418.4	2,413.1	7.1	5.5	179.96	10.6	-58.5	198.3	187.6	10.64	18.637	
2,500.0	2,479.3	2,518.4	2,511.8	7.5	5.8	-179.76	12.5	-74.7	198.7	187.6	11.12	17.874	
2,600.0	2,577.9	2,618.4	2,610.4	7.9	6.1	-179.49	14.4	-91.0	199.2	187.6	11.60	17.170	
2,700.0	2,676.5	2,718.4	2,709.1	8.3	6.4	-179.22	16.4	-107.2	199.7	187.6	12.09	16.518	
2,800.0	2,775.0	2,818.4	2,807.7	8.7	6.8	-178.94	18.3	-123.5	200.2	187.6	12.58	15.915	
2,900.0	2,873.6	2,918.4	2,906.4	9.1	7.1	-178.67	20.2	-139.8	200.6	187.6	13.07	15.354	
3,000.0	2,972.2	3,018.4	3,005.0	9.5	7.4	-178.41	22.1	-156.0	201.1	187.6	13.56	14.832	
3,100.0	3,070.8	3,118.4	3,103.6	9.8	7.8	-178.14	24.1	-172.3	201.6	187.6	14.06	14.344	
3,200.0	3,169.3	3,218.4	3,202.3	10.2	8.1	-177.87	26.0	-188.5	202.1	187.6	14.55	13.889	
3,300.0	3,267.9	3,318.4	3,300.9	10.6	8.5	-177.61	27.9	-204.8	202.6	187.6	15.05	13.462	
3,400.0	3,366.5	3,418.3	3,399.6	11.0	8.9	-177.34	29.9	-221.1	203.1	187.6	15.55	13.061	
3,500.0	3,465.1	3,518.3	3,498.2	11.4	9.2	-177.08	31.8	-237.3	203.6	187.6	16.05	12.684	
3,600.0	3,563.7	3,618.3	3,596.9	11.8	9.6	-176.82	33.7	-253.6	204.2	187.6	16.56	12.329	
3,700.0	3,662.2	3,718.3	3,695.5	12.2	9.9	-176.56	35.6	-269.8	204.7	187.6	17.06	11.994	
3,800.0	3,760.8	3,818.3	3,794.2	12.6	10.3	-176.30	37.6	-286.1	205.2	187.6	17.57	11.677	
3,900.0	3,859.4	3,918.3	3,892.8	13.0	10.7	-176.04	39.5	-302.4	205.7	187.6	18.08	11.378	
4,000.0	3,958.0	4,018.3	3,991.5	13.4	11.0	-175.79	41.4	-318.6	206.3	187.7	18.59	11.094	
4,100.0	4,056.5	4,118.3	4,090.1	13.7	11.4	-175.53	43.4	-334.9	206.8	187.7	19.10	10.825	
4,200.0	4,155.1	4,218.3	4,188.7	14.1	11.8	-175.28	45.3	-351.1	207.3	187.7	19.62	10.569	
4,300.0	4,253.7	4,318.3	4,287.4	14.5	12.2	-175.03	47.2	-367.4	207.9	187.7	20.13	10.325	
4,400.0	4,352.3	4,418.3	4,386.0	14.9	12.5	-174.78	49.1	-383.7	208.4	187.8	20.65	10.094	
4,500.0	4,450.9	4,518.3	4,484.7	15.3	12.9	-174.53	51.1	-399.9	209.0	187.8	21.17	9.873	
4,600.0	4,549.4	4,618.3	4,583.3	15.7	13.3	-174.28	53.0	-416.2	209.5	187.8	21.69	9.662	
4,700.0	4,648.0	4,718.3	4,682.0	16.1	13.6	-174.03	54.9	-432.4	210.1	187.9	22.21	9.460	
4,800.0	4,746.6	4,818.3	4,780.6	16.5	14.0	-173.79	56.9	-448.7	210.7	187.9	22.73	9.267	
4,900.0	4,845.2	4,918.3	4,879.3	16.9	14.4	-173.54	58.8	-465.0	211.2	188.0	23.25	9.083	
5,000.0	4,943.7	5,018.3	4,977.9	17.3	14.8	-173.30	60.7	-481.2	211.8	188.0	23.78	8.906	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13G-323
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 13G-323	**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 #3 (1-28-15)	**Offset TVD Reference:**	Offset Datum

Offset Design Stroh 13GK-HZ Pad Sec. 13-T4N-R67W - Stroh 13K-243 - Wellbore #1 - Plan #3 (1-28-15)

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	5,042.3	5,118.3	5,076.5	17.7	15.2	-173.06	62.6	-497.5	212.4	188.1	24.31	8.737	
5,200.0	5,140.9	5,218.2	5,175.2	18.1	15.5	-172.82	64.6	-513.7	212.9	188.1	24.84	8.574	
5,300.0	5,239.5	5,318.2	5,273.8	18.4	15.9	-172.58	66.5	-530.0	213.5	188.2	25.37	8.418	
5,400.0	5,338.1	5,418.2	5,372.5	18.8	16.3	-172.34	68.4	-546.2	214.1	188.2	25.90	8.268	
5,500.0	5,436.6	5,518.2	5,471.1	19.2	16.7	-172.11	70.4	-562.5	214.7	188.3	26.43	8.124	
5,600.0	5,535.2	5,618.2	5,569.8	19.6	17.0	-171.87	72.3	-578.8	215.3	188.3	26.96	7.985	
5,700.0	5,633.8	5,718.2	5,668.4	20.0	17.4	-171.64	74.2	-595.0	215.9	188.4	27.50	7.851	
5,800.0	5,732.4	5,815.7	5,764.6	20.4	17.8	-171.42	76.1	-610.7	216.7	188.7	28.02	7.735	
5,900.0	5,830.9	5,908.7	5,856.7	20.8	18.0	-171.35	77.6	-623.2	220.1	191.6	28.47	7.730	
6,000.0	5,929.5	6,000.0	5,947.5	21.2	18.2	-171.44	78.7	-632.7	226.6	197.7	28.90	7.842	
6,100.0	6,028.1	6,093.7	6,041.0	21.6	18.4	-171.67	79.5	-639.3	236.3	207.0	29.31	8.062	
6,200.0	6,126.7	6,185.2	6,132.4	22.0	18.6	-172.02	79.9	-642.9	249.1	219.4	29.70	8.388	
6,300.0	6,225.3	6,278.0	6,225.3	22.4	18.7	-172.46	80.0	-643.7	264.9	234.8	30.08	8.806	
6,400.0	6,323.8	6,374.7	6,321.9	22.8	18.8	-172.86	79.8	-643.7	281.6	251.1	30.49	9.237	
6,500.0	6,422.4	6,462.7	6,409.6	23.1	18.9	-155.17	72.7	-643.7	300.4	269.4	31.04	9.678	
6,600.0	6,520.6	6,550.0	6,495.2	23.5	19.1	-117.72	55.8	-643.7	319.5	287.8	31.67	10.087	
6,700.0	6,616.9	6,635.6	6,576.7	23.7	19.2	-98.79	29.8	-643.7	337.7	305.4	32.24	10.475	
6,800.0	6,709.6	6,721.1	6,654.7	24.0	19.3	-88.96	-5.1	-643.7	354.7	322.0	32.68	10.852	
6,900.0	6,797.2	6,806.3	6,728.0	24.2	19.4	-83.18	-48.3	-643.7	370.1	337.1	33.09	11.186	
7,000.0	6,878.1	6,891.3	6,796.0	24.5	19.5	-79.52	-99.3	-643.7	383.9	350.5	33.41	11.489	
7,100.0	6,950.9	6,976.2	6,857.9	24.7	19.7	-77.17	-157.5	-643.7	395.8	362.0	33.73	11.734	
7,200.0	7,014.5	7,061.4	6,913.0	25.0	19.9	-75.71	-222.4	-643.7	405.5	371.5	34.09	11.897	
7,300.0	7,067.7	7,150.0	6,962.3	25.4	20.2	-74.95	-295.9	-643.7	413.2	378.6	34.58	11.946	
7,400.0	7,109.6	7,232.7	7,000.4	25.8	20.6	-74.70	-369.3	-643.7	418.5	383.3	35.21	11.884	
7,500.0	7,139.6	7,319.2	7,031.5	26.3	21.2	-74.97	-449.9	-643.7	421.6	385.5	36.10	11.677	
7,600.0	7,157.0	7,406.3	7,053.4	26.8	21.8	-75.69	-534.2	-643.7	422.3	385.1	37.25	11.336	
7,700.0	7,161.7	7,494.2	7,065.6	27.5	22.6	-76.80	-621.2	-643.7	420.9	382.1	38.80	10.847	
7,780.6	7,161.7	7,566.7	7,068.2	28.2	23.3	-77.14	-693.6	-643.7	420.2	379.6	40.61	10.347	
7,800.0	7,161.7	7,586.1	7,068.1	28.3	23.5	-77.13	-713.0	-643.7	420.2	379.2	41.06	10.234	
7,900.0	7,161.8	7,686.1	7,067.8	29.3	24.7	-77.08	-813.0	-643.7	420.3	376.8	43.54	9.654	
8,000.0	7,161.8	7,786.1	7,067.5	30.3	25.9	-77.03	-913.0	-643.7	420.4	374.2	46.18	9.103	
8,100.0	7,161.8	7,886.1	7,067.2	31.4	27.3	-76.99	-1,013.0	-643.7	420.5	371.5	48.97	8.587	
8,200.0	7,161.9	7,986.1	7,066.9	32.6	28.7	-76.94	-1,113.0	-643.7	420.6	368.7	51.87	8.107	
8,300.0	7,161.9	8,086.1	7,066.5	33.9	30.1	-76.89	-1,213.0	-643.7	420.6	365.8	54.88	7.664	
8,400.0	7,161.9	8,186.1	7,066.2	35.2	31.6	-76.85	-1,313.0	-643.7	420.7	362.7	57.98	7.257	
8,500.0	7,162.0	8,286.1	7,065.9	36.6	33.2	-76.80	-1,413.0	-643.7	420.8	359.7	61.14	6.882	
8,600.0	7,162.0	8,386.1	7,065.6	38.1	34.8	-76.76	-1,513.0	-643.7	420.9	356.5	64.36	6.539	
8,700.0	7,162.1	8,486.1	7,065.3	39.5	36.4	-76.71	-1,613.0	-643.7	421.0	353.3	67.64	6.223	
8,800.0	7,162.1	8,586.1	7,065.0	41.1	38.0	-76.66	-1,713.0	-643.7	421.0	350.1	70.96	5.933	
8,900.0	7,162.1	8,686.1	7,064.7	42.6	39.7	-76.62	-1,813.0	-643.7	421.1	346.8	74.32	5.666	
9,000.0	7,162.2	8,786.1	7,064.3	44.2	41.4	-76.57	-1,913.0	-643.7	421.2	343.5	77.72	5.420	
9,100.0	7,162.2	8,886.1	7,064.0	45.8	43.1	-76.53	-2,013.0	-643.7	421.3	340.1	81.14	5.192	
9,200.0	7,162.2	8,986.1	7,063.7	47.5	44.9	-76.48	-2,113.0	-643.7	421.4	336.8	84.59	4.981	
9,300.0	7,162.3	9,086.1	7,063.4	49.1	46.6	-76.43	-2,213.0	-643.7	421.4	333.4	88.06	4.786	
9,400.0	7,162.3	9,186.1	7,063.1	50.8	48.4	-76.39	-2,313.0	-643.7	421.5	330.0	91.55	4.604	
9,500.0	7,162.3	9,286.1	7,062.8	52.5	50.1	-76.34	-2,413.0	-643.7	421.6	326.5	95.05	4.435	
9,600.0	7,162.4	9,386.1	7,062.5	54.2	51.9	-76.29	-2,513.0	-643.7	421.7	323.1	98.58	4.278	
9,700.0	7,162.4	9,486.1	7,062.1	55.9	53.7	-76.25	-2,613.0	-643.7	421.8	319.7	102.11	4.130	
9,800.0	7,162.4	9,586.1	7,061.8	57.7	55.5	-76.20	-2,713.0	-643.7	421.9	316.2	105.66	3.993	
9,900.0	7,162.5	9,686.1	7,061.5	59.4	57.3	-76.16	-2,813.0	-643.7	421.9	312.7	109.22	3.863	
10,000.0	7,162.5	9,786.1	7,061.2	61.2	59.1	-76.11	-2,913.0	-643.7	422.0	309.2	112.78	3.742	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13G-323
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 13G-323	**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 #3 (1-28-15)	**Offset TVD Reference:**	Offset Datum

Offset Design Stroh 13GK-HZ Pad Sec. 13-T4N-R67W - Stroh 13K-243 - Wellbore #1 - Plan #3 (1-28-15)

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	7,162.5	9,886.1	7,060.9	62.9	61.0	-76.06	-3,013.0	-643.7	422.1	305.7	116.36	3.628	
10,200.0	7,162.6	9,986.1	7,060.6	64.7	62.8	-76.02	-3,113.0	-643.7	422.2	302.2	119.94	3.520	
10,300.0	7,162.6	10,086.1	7,060.3	66.5	64.6	-75.97	-3,213.0	-643.7	422.3	298.7	123.53	3.418	
10,400.0	7,162.6	10,186.1	7,059.9	68.3	66.5	-75.93	-3,313.0	-643.7	422.4	295.2	127.13	3.322	
10,500.0	7,162.7	10,286.1	7,059.6	70.1	68.3	-75.88	-3,413.0	-643.7	422.4	291.7	130.73	3.231	
10,600.0	7,162.7	10,386.1	7,059.3	71.9	70.1	-75.83	-3,513.0	-643.7	422.5	288.2	134.34	3.145	
10,700.0	7,162.8	10,486.1	7,059.0	73.7	72.0	-75.79	-3,613.0	-643.7	422.6	284.7	137.95	3.064	
10,800.0	7,162.8	10,586.1	7,058.7	75.5	73.9	-75.74	-3,713.0	-643.7	422.7	281.1	141.56	2.986	
10,900.0	7,162.8	10,686.1	7,058.4	77.3	75.7	-75.70	-3,813.0	-643.7	422.8	277.6	145.18	2.912	
11,000.0	7,162.9	10,786.1	7,058.1	79.2	77.6	-75.65	-3,913.0	-643.7	422.9	274.1	148.81	2.842	
11,100.0	7,162.9	10,886.1	7,057.7	81.0	79.4	-75.61	-4,013.0	-643.7	423.0	270.5	152.43	2.775	
11,200.0	7,162.9	10,986.1	7,057.4	82.8	81.3	-75.56	-4,113.0	-643.7	423.0	267.0	156.06	2.711	
11,300.0	7,163.0	11,086.1	7,057.1	84.7	83.2	-75.51	-4,213.0	-643.7	423.1	263.4	159.69	2.650	
11,400.0	7,163.0	11,186.1	7,056.8	86.5	85.0	-75.47	-4,313.0	-643.7	423.2	259.9	163.32	2.591	
11,500.0	7,163.0	11,286.1	7,056.5	88.3	86.9	-75.42	-4,413.0	-643.7	423.3	256.4	166.95	2.535	
11,600.0	7,163.1	11,386.1	7,056.2	90.2	88.8	-75.38	-4,513.0	-643.7	423.4	252.8	170.59	2.482	
11,700.0	7,163.1	11,486.1	7,055.9	92.0	90.7	-75.33	-4,613.0	-643.7	423.5	249.3	174.23	2.431	
11,800.0	7,163.1	11,586.1	7,055.5	93.9	92.5	-75.29	-4,713.0	-643.7	423.6	245.7	177.87	2.381	
11,900.0	7,163.2	11,686.1	7,055.2	95.7	94.4	-75.24	-4,813.0	-643.7	423.7	242.2	181.50	2.334	
12,000.0	7,163.2	11,786.1	7,054.9	97.6	96.3	-75.19	-4,913.0	-643.7	423.7	238.6	185.14	2.289	
12,100.0	7,163.2	11,886.1	7,054.6	99.5	98.2	-75.15	-5,013.0	-643.7	423.8	235.1	188.79	2.245	
12,200.0	7,163.3	11,986.1	7,054.3	101.3	100.1	-75.10	-5,113.0	-643.7	423.9	231.5	192.43	2.203	
12,300.0	7,163.3	12,086.1	7,054.0	103.2	101.9	-75.06	-5,213.0	-643.7	424.0	227.9	196.07	2.163	
12,400.0	7,163.3	12,186.1	7,053.7	105.1	103.8	-75.01	-5,313.0	-643.7	424.1	224.4	199.71	2.124	
12,500.0	7,163.4	12,286.1	7,053.3	106.9	105.7	-74.97	-5,413.0	-643.7	424.2	220.8	203.36	2.086	
12,600.0	7,163.4	12,386.1	7,053.0	108.8	107.6	-74.92	-5,513.0	-643.7	424.3	217.3	207.00	2.050	
12,700.0	7,163.5	12,486.1	7,052.7	110.7	109.5	-74.87	-5,613.0	-643.7	424.4	213.7	210.64	2.015	
12,800.0	7,163.5	12,586.1	7,052.4	112.6	111.4	-74.83	-5,712.9	-643.7	424.5	210.2	214.29	1.981	
12,900.0	7,163.5	12,686.1	7,052.1	114.4	113.3	-74.78	-5,812.9	-643.7	424.6	206.6	217.93	1.948	
13,000.0	7,163.6	12,786.1	7,051.8	116.3	115.2	-74.74	-5,912.9	-643.7	424.7	203.1	221.57	1.917	
13,100.0	7,163.6	12,886.1	7,051.5	118.2	117.1	-74.69	-6,012.9	-643.7	424.7	199.5	225.22	1.886	
13,200.0	7,163.6	12,986.1	7,051.1	120.1	119.0	-74.65	-6,112.9	-643.7	424.8	196.0	228.86	1.856	
13,300.0	7,163.7	13,086.1	7,050.8	121.9	120.9	-74.60	-6,212.9	-643.7	424.9	192.4	232.50	1.828	
13,400.0	7,163.7	13,186.1	7,050.5	123.8	122.8	-74.56	-6,312.9	-643.7	425.0	188.9	236.14	1.800	
13,500.0	7,163.7	13,286.1	7,050.2	125.7	124.7	-74.51	-6,412.9	-643.7	425.1	185.3	239.78	1.773	
13,600.0	7,163.8	13,386.1	7,049.9	127.6	126.5	-74.47	-6,512.9	-643.7	425.2	181.8	243.43	1.747	
13,700.0	7,163.8	13,486.1	7,049.6	129.5	128.4	-74.42	-6,612.9	-643.7	425.3	178.2	247.07	1.721	
13,800.0	7,163.8	13,586.1	7,049.3	131.4	130.3	-74.38	-6,712.9	-643.7	425.4	174.7	250.71	1.697	
13,900.0	7,163.9	13,686.1	7,048.9	133.3	132.2	-74.33	-6,812.9	-643.7	425.5	171.1	254.35	1.673	
14,000.0	7,163.9	13,786.1	7,048.6	135.1	134.1	-74.29	-6,912.9	-643.7	425.6	167.6	257.98	1.650	
14,100.0	7,163.9	13,886.1	7,048.3	137.0	136.0	-74.24	-7,012.9	-643.7	425.7	164.1	261.62	1.627	
14,200.0	7,164.0	13,986.1	7,048.0	138.9	137.9	-74.19	-7,112.9	-643.7	425.8	160.5	265.26	1.605	
14,201.6	7,164.0	13,987.6	7,048.0	139.0	138.0	-74.19	-7,114.5	-643.7	425.8	160.5	265.32	1.605	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13G-323
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 13G-323	**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 #3 (1-28-15)	**Offset TVD Reference:**	Offset Datum

Offset Design Stroh 13GK-HZ Pad Sec. 13-T4N-R67W - Stroh 13K-303 - Wellbore #1 - Plan #2 (1-28-15)

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	CC, ES
500.0	500.0	500.0	500.0	1.0	1.0	170.04	0.0	58.6	59.4	57.4	2.01	29.523	
600.0	600.0	600.0	600.0	1.2	1.2	170.45	0.0	58.6	62.0	59.6	2.45	25.331	
700.0	699.9	699.9	699.9	1.4	1.5	171.07	0.0	58.6	66.3	63.4	2.89	22.966	
800.0	799.7	799.7	799.7	1.7	1.7	171.81	0.0	58.6	72.3	69.0	3.33	21.728	
900.0	899.4	899.4	899.4	1.9	1.9	172.60	0.0	58.6	80.1	76.3	3.77	21.231	
1,000.0	998.9	998.9	998.9	2.2	2.1	173.38	0.0	58.6	89.6	85.4	4.22	21.245	
1,100.0	1,098.3	1,098.3	1,098.3	2.4	2.4	174.11	0.0	58.6	100.9	96.2	4.67	21.624	
1,200.0	1,197.4	1,197.4	1,197.4	2.7	2.6	174.77	0.0	58.6	113.9	108.8	5.11	22.273	
1,300.0	1,296.3	1,296.3	1,296.3	3.1	2.8	175.36	0.0	58.6	128.6	123.0	5.56	23.126	
1,400.0	1,394.9	1,394.9	1,394.9	3.4	3.0	175.88	0.0	58.6	145.0	139.0	6.01	24.111	
1,500.0	1,493.5	1,493.5	1,493.5	3.8	3.2	176.30	0.0	58.6	161.7	155.3	6.47	24.992	
1,600.0	1,592.1	1,592.1	1,592.1	4.1	3.5	176.65	0.0	58.6	178.5	171.6	6.93	25.750	
1,700.0	1,690.7	1,692.7	1,692.7	4.5	3.7	176.77	0.6	58.2	194.8	187.4	7.40	26.341	
1,800.0	1,789.3	1,793.8	1,793.8	4.9	3.9	176.50	2.7	56.8	210.0	202.2	7.86	26.723	
1,900.0	1,887.8	1,895.3	1,895.1	5.2	4.1	175.91	6.4	54.4	224.1	215.8	8.33	26.919	
2,000.0	1,986.4	1,996.9	1,996.6	5.6	4.4	175.05	11.5	51.1	237.1	228.3	8.80	26.958	
2,100.0	2,085.0	2,098.7	2,098.1	6.0	4.6	173.95	18.2	46.7	249.1	239.8	9.27	26.863	
2,200.0	2,183.6	2,200.7	2,199.6	6.4	4.8	172.62	26.4	41.4	260.2	250.4	9.76	26.653	
2,300.0	2,282.1	2,302.6	2,300.9	6.8	5.1	171.09	36.1	35.1	270.3	260.0	10.26	26.343	
2,400.0	2,380.7	2,404.6	2,401.9	7.1	5.4	169.37	47.3	27.8	279.7	268.9	10.78	25.945	
2,500.0	2,479.3	2,506.4	2,502.7	7.5	5.6	167.45	60.0	19.5	288.3	277.0	11.32	25.472	
2,600.0	2,577.9	2,608.1	2,603.0	7.9	5.9	165.34	74.1	10.3	296.4	284.5	11.89	24.933	
2,700.0	2,676.5	2,709.6	2,702.7	8.3	6.2	163.06	89.7	0.1	304.1	291.6	12.49	24.342	
2,800.0	2,775.0	2,808.5	2,799.8	8.7	6.6	160.80	105.7	-10.3	311.9	298.7	13.12	23.767	
2,900.0	2,873.6	2,907.5	2,896.9	9.1	6.9	158.65	121.6	-20.6	320.1	306.3	13.77	23.238	
3,000.0	2,972.2	3,006.4	2,994.0	9.5	7.2	156.62	137.5	-31.0	328.7	314.3	14.45	22.753	
3,100.0	3,070.8	3,105.4	3,091.1	9.8	7.6	154.69	153.5	-41.4	337.8	322.6	15.14	22.309	
3,200.0	3,169.3	3,204.3	3,188.2	10.2	8.0	152.86	169.4	-51.8	347.2	331.3	15.85	21.903	
3,300.0	3,267.9	3,303.3	3,285.3	10.6	8.3	151.12	185.3	-62.1	357.0	340.4	16.58	21.534	
3,400.0	3,366.5	3,402.2	3,382.4	11.0	8.7	149.48	201.3	-72.5	367.0	349.7	17.31	21.199	
3,500.0	3,465.1	3,500.0	3,478.4	11.4	9.0	147.97	216.9	-82.7	377.4	359.4	18.04	20.918	
3,600.0	3,563.7	3,597.1	3,574.1	11.8	9.3	146.91	230.3	-91.4	388.5	369.8	18.67	20.803	
3,700.0	3,662.2	3,694.0	3,670.2	12.2	9.6	146.38	241.0	-98.4	400.3	381.0	19.25	20.788	
3,800.0	3,760.8	3,790.8	3,766.6	12.6	9.8	146.33	249.0	-103.6	412.6	392.9	19.78	20.860	
3,900.0	3,859.4	3,887.5	3,863.0	13.0	10.0	146.71	254.2	-107.0	425.6	405.3	20.25	21.017	
4,000.0	3,958.0	3,983.7	3,959.2	13.4	10.2	147.50	256.8	-108.7	439.2	418.5	20.66	21.257	
4,100.0	4,056.5	4,081.1	4,056.5	13.7	10.3	148.58	257.0	-108.8	453.4	432.4	21.04	21.554	
4,200.0	4,155.1	4,179.7	4,155.1	14.1	10.5	149.65	257.0	-108.8	467.9	446.5	21.43	21.836	
4,300.0	4,253.7	4,278.2	4,253.7	14.5	10.7	150.66	257.0	-108.8	482.5	460.7	21.83	22.109	
4,400.0	4,352.3	4,376.8	4,352.3	14.9	10.9	151.60	257.0	-108.8	497.3	475.1	22.22	22.376	
4,500.0	4,450.9	4,475.4	4,450.9	15.3	11.1	152.49	257.0	-108.8	512.2	489.6	22.63	22.637	
4,600.0	4,549.4	4,574.0	4,549.4	15.7	11.3	153.33	257.0	-108.8	527.2	504.2	23.03	22.891	
4,700.0	4,648.0	4,672.6	4,648.0	16.1	11.5	154.13	257.0	-108.8	542.3	518.9	23.44	23.139	
4,800.0	4,746.6	4,771.1	4,746.6	16.5	11.6	154.88	257.0	-108.8	557.5	533.7	23.85	23.379	
4,900.0	4,845.2	4,869.7	4,845.2	16.9	11.8	155.59	257.0	-108.8	572.8	548.6	24.26	23.613	
5,000.0	4,943.7	4,968.3	4,943.7	17.3	12.0	156.27	257.0	-108.8	588.2	563.5	24.67	23.840	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13G-323
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 13G-323	**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 #3 (1-28-15)	**Offset TVD Reference:**	Offset Datum

Offset Design Stroh 13GK-HZ Pad Sec. 13-T4N-R67W - Stroh 13K-303 - Wellbore #1 - Plan #2 (1-28-15)

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	5,042.3	5,066.9	5,042.3	17.7	12.2	156.91	257.0	-108.8	603.7	578.6	25.09	24.060	
5,200.0	5,140.9	5,165.4	5,140.9	18.1	12.4	157.52	257.0	-108.8	619.2	593.7	25.51	24.273	
5,300.0	5,239.5	5,264.0	5,239.5	18.4	12.6	158.10	257.0	-108.8	634.8	608.9	25.93	24.481	
5,400.0	5,338.1	5,362.6	5,338.1	18.8	12.8	158.65	257.0	-108.8	650.4	624.1	26.35	24.682	
5,500.0	5,436.6	5,461.2	5,436.6	19.2	13.0	159.17	257.0	-108.8	666.1	639.4	26.78	24.877	
5,600.0	5,535.2	5,559.8	5,535.2	19.6	13.2	159.67	257.0	-108.8	681.9	654.7	27.21	25.066	
5,700.0	5,633.8	5,658.3	5,633.8	20.0	13.4	160.15	257.0	-108.8	697.7	670.1	27.63	25.249	
5,800.0	5,732.4	5,756.9	5,732.4	20.4	13.6	160.61	257.0	-108.8	713.6	685.5	28.06	25.427	
5,900.0	5,830.9	5,855.5	5,830.9	20.8	13.8	161.05	257.0	-108.8	729.5	701.0	28.50	25.599	
6,000.0	5,929.5	5,954.1	5,929.5	21.2	14.0	161.47	257.0	-108.8	745.4	716.5	28.93	25.766	
6,100.0	6,028.1	6,052.6	6,028.1	21.6	14.2	161.87	257.0	-108.8	761.4	732.0	29.37	25.928	
6,200.0	6,126.7	6,151.2	6,126.7	22.0	14.4	162.25	257.0	-108.8	777.4	747.6	29.80	26.086	
6,300.0	6,225.3	6,249.8	6,225.3	22.4	14.6	162.62	257.0	-108.8	793.4	763.2	30.24	26.238	
6,400.0	6,323.8	6,348.4	6,323.8	22.8	14.8	162.98	257.0	-108.8	809.5	778.8	30.68	26.387	
6,500.0	6,422.4	6,447.5	6,423.0	23.1	15.0	-179.94	257.0	-108.8	825.7	794.6	31.06	26.581	
6,600.0	6,520.6	6,560.8	6,535.7	23.5	15.2	-143.31	247.3	-108.8	842.1	810.9	31.24	26.954	
6,700.0	6,616.9	6,673.8	6,645.3	23.7	15.2	-124.62	220.2	-108.8	857.9	826.6	31.31	27.397	
6,800.0	6,709.6	6,786.2	6,748.7	24.0	15.3	-114.54	176.4	-108.8	872.9	841.5	31.36	27.830	
6,900.0	6,797.2	6,897.4	6,843.0	24.2	15.3	-108.09	117.7	-108.8	886.8	855.3	31.49	28.161	
7,000.0	6,878.1	7,007.2	6,926.1	24.5	15.3	-103.42	46.1	-108.8	899.6	867.8	31.79	28.300	
7,100.0	6,950.9	7,115.1	6,996.2	24.7	15.3	-99.75	-35.8	-108.8	911.0	878.6	32.33	28.180	
7,200.0	7,014.5	7,220.9	7,052.2	25.0	15.6	-96.73	-125.5	-108.8	920.9	887.8	33.14	27.785	
7,300.0	7,067.7	7,324.5	7,093.7	25.4	16.2	-94.18	-220.3	-108.8	929.2	895.0	34.24	27.139	
7,400.0	7,109.6	7,425.6	7,120.6	25.8	16.9	-92.02	-317.7	-108.8	935.9	900.3	35.59	26.300	
7,500.0	7,139.6	7,524.4	7,133.4	26.3	17.8	-90.19	-415.5	-108.8	940.9	903.8	37.13	25.339	
7,600.0	7,157.0	7,622.3	7,134.6	26.8	18.8	-88.77	-513.4	-108.8	944.1	905.2	38.85	24.300	
7,700.0	7,161.7	7,722.1	7,134.3	27.5	20.0	-88.34	-613.2	-108.8	945.0	904.2	40.82	23.148	
7,800.0	7,161.7	7,822.1	7,134.0	28.3	21.2	-88.32	-713.2	-108.8	945.0	901.8	43.23	21.860	
7,900.0	7,161.8	7,922.1	7,133.7	29.3	22.6	-88.30	-813.2	-108.8	945.0	899.2	45.83	20.620	
8,000.0	7,161.8	8,022.1	7,133.4	30.3	24.0	-88.28	-913.2	-108.8	945.0	896.4	48.59	19.447	
8,100.0	7,161.8	8,122.1	7,133.1	31.4	25.5	-88.26	-1,013.2	-108.8	945.0	893.5	51.50	18.352	
8,200.0	7,161.9	8,222.1	7,132.8	32.6	27.1	-88.24	-1,113.2	-108.8	945.0	890.5	54.51	17.336	
8,300.0	7,161.9	8,322.1	7,132.5	33.9	28.7	-88.22	-1,213.2	-108.8	945.0	887.4	57.63	16.399	
8,400.0	7,161.9	8,422.1	7,132.2	35.2	30.3	-88.20	-1,313.2	-108.8	945.1	884.2	60.82	15.538	
8,500.0	7,162.0	8,522.1	7,131.9	36.6	31.9	-88.18	-1,413.2	-108.8	945.1	881.0	64.09	14.746	
8,600.0	7,162.0	8,622.1	7,131.6	38.1	33.6	-88.16	-1,513.2	-108.8	945.1	877.7	67.42	14.018	
8,700.0	7,162.1	8,722.1	7,131.3	39.5	35.4	-88.14	-1,613.2	-108.8	945.1	874.3	70.80	13.350	
8,800.0	7,162.1	8,822.1	7,131.0	41.1	37.1	-88.12	-1,713.2	-108.8	945.1	870.9	74.22	12.734	
8,900.0	7,162.1	8,922.1	7,130.7	42.6	38.8	-88.10	-1,813.2	-108.8	945.1	867.4	77.68	12.167	
9,000.0	7,162.2	9,022.1	7,130.4	44.2	40.6	-88.08	-1,913.2	-108.8	945.1	863.9	81.17	11.643	
9,100.0	7,162.2	9,122.1	7,130.1	45.8	42.4	-88.06	-2,013.2	-108.8	945.1	860.4	84.70	11.159	
9,200.0	7,162.2	9,222.1	7,129.8	47.5	44.2	-88.04	-2,113.2	-108.8	945.1	856.9	88.25	10.710	
9,300.0	7,162.3	9,322.1	7,129.5	49.1	46.0	-88.02	-2,213.2	-108.8	945.2	853.3	91.82	10.293	
9,400.0	7,162.3	9,422.1	7,129.2	50.8	47.8	-88.00	-2,313.2	-108.8	945.2	849.7	95.41	9.906	
9,500.0	7,162.3	9,522.1	7,129.0	52.5	49.6	-87.98	-2,413.2	-108.8	945.2	846.1	99.03	9.545	
9,600.0	7,162.4	9,622.1	7,128.7	54.2	51.4	-87.96	-2,513.2	-108.8	945.2	842.5	102.65	9.208	
9,700.0	7,162.4	9,722.1	7,128.4	55.9	53.3	-87.94	-2,613.2	-108.8	945.2	838.9	106.30	8.892	
9,800.0	7,162.4	9,822.1	7,128.1	57.7	55.1	-87.92	-2,713.2	-108.8	945.2	835.3	109.95	8.597	
9,900.0	7,162.5	9,922.1	7,127.8	59.4	56.9	-87.90	-2,813.2	-108.8	945.2	831.6	113.62	8.319	
10,000.0	7,162.5	10,022.1	7,127.5	61.2	58.8	-87.88	-2,913.2	-108.8	945.2	827.9	117.30	8.059	
10,100.0	7,162.5	10,122.1	7,127.2	62.9	60.6	-87.86	-3,013.2	-108.8	945.2	824.3	120.98	7.813	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13G-323
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 13G-323	**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 #3 (1-28-15)	**Offset TVD Reference:**	Offset Datum

Offset Design Stroh 13GK-HZ Pad Sec. 13-T4N-R67W - Stroh 13K-303 - Wellbore #1 - Plan #2 (1-28-15)

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	7,162.6	10,222.1	7,126.9	64.7	62.5	-87.84	-3,113.2	-108.8	945.3	820.6	124.68	7.582	
10,300.0	7,162.6	10,322.1	7,126.6	66.5	64.4	-87.82	-3,213.2	-108.8	945.3	816.9	128.38	7.363	
10,400.0	7,162.6	10,422.1	7,126.3	68.3	66.2	-87.80	-3,313.2	-108.8	945.3	813.2	132.09	7.156	
10,500.0	7,162.7	10,522.1	7,126.0	70.1	68.1	-87.78	-3,413.2	-108.8	945.3	809.5	135.81	6.960	
10,600.0	7,162.7	10,622.1	7,125.7	71.9	70.0	-87.75	-3,513.2	-108.8	945.3	805.8	139.54	6.775	
10,700.0	7,162.8	10,722.1	7,125.4	73.7	71.8	-87.73	-3,613.2	-108.8	945.3	802.1	143.27	6.598	
10,800.0	7,162.8	10,822.1	7,125.1	75.5	73.7	-87.71	-3,713.2	-108.8	945.3	798.3	147.00	6.431	
10,900.0	7,162.8	10,922.1	7,124.8	77.3	75.6	-87.69	-3,813.2	-108.8	945.4	794.6	150.74	6.271	
11,000.0	7,162.9	11,022.1	7,124.5	79.2	77.5	-87.67	-3,913.2	-108.8	945.4	790.9	154.49	6.119	
11,100.0	7,162.9	11,122.1	7,124.2	81.0	79.3	-87.65	-4,013.2	-108.8	945.4	787.1	158.24	5.974	
11,200.0	7,162.9	11,222.1	7,123.9	82.8	81.2	-87.63	-4,113.2	-108.8	945.4	783.4	161.99	5.836	
11,300.0	7,163.0	11,322.1	7,123.6	84.7	83.1	-87.61	-4,213.2	-108.8	945.4	779.7	165.75	5.704	
11,400.0	7,163.0	11,422.1	7,123.3	86.5	85.0	-87.59	-4,313.2	-108.8	945.4	775.9	169.51	5.578	
11,500.0	7,163.0	11,522.1	7,123.0	88.3	86.9	-87.57	-4,413.2	-108.8	945.4	772.2	173.27	5.456	
11,600.0	7,163.1	11,622.1	7,122.7	90.2	88.8	-87.55	-4,513.2	-108.8	945.4	768.4	177.03	5.340	
11,700.0	7,163.1	11,722.1	7,122.4	92.0	90.7	-87.53	-4,613.2	-108.8	945.5	764.7	180.80	5.229	
11,800.0	7,163.1	11,822.1	7,122.1	93.9	92.6	-87.51	-4,713.2	-108.8	945.5	760.9	184.57	5.122	
11,900.0	7,163.2	11,922.1	7,121.8	95.7	94.5	-87.49	-4,813.2	-108.8	945.5	757.1	188.35	5.020	
12,000.0	7,163.2	12,022.1	7,121.5	97.6	96.3	-87.47	-4,913.2	-108.8	945.5	753.4	192.12	4.921	
12,100.0	7,163.2	12,122.1	7,121.2	99.5	98.2	-87.45	-5,013.2	-108.8	945.5	749.6	195.90	4.827	
12,200.0	7,163.3	12,222.1	7,120.9	101.3	100.1	-87.43	-5,113.2	-108.8	945.5	745.9	199.68	4.735	
12,300.0	7,163.3	12,322.1	7,120.6	103.2	102.0	-87.41	-5,213.2	-108.8	945.5	742.1	203.46	4.647	
12,400.0	7,163.3	12,422.1	7,120.3	105.1	103.9	-87.39	-5,313.2	-108.8	945.6	738.3	207.25	4.563	
12,500.0	7,163.4	12,522.1	7,120.0	106.9	105.8	-87.37	-5,413.2	-108.8	945.6	734.5	211.03	4.481	
12,600.0	7,163.4	12,622.1	7,119.8	108.8	107.7	-87.35	-5,513.2	-108.8	945.6	730.8	214.82	4.402	
12,700.0	7,163.5	12,722.1	7,119.5	110.7	109.6	-87.33	-5,613.2	-108.8	945.6	727.0	218.61	4.326	
12,800.0	7,163.5	12,822.1	7,119.2	112.6	111.5	-87.31	-5,713.2	-108.8	945.6	723.2	222.40	4.252	
12,900.0	7,163.5	12,922.1	7,118.9	114.4	113.4	-87.29	-5,813.2	-108.8	945.6	719.5	226.19	4.181	
13,000.0	7,163.6	13,022.1	7,118.6	116.3	115.3	-87.27	-5,913.2	-108.8	945.7	715.7	229.98	4.112	
13,100.0	7,163.6	13,122.1	7,118.3	118.2	117.2	-87.25	-6,013.2	-108.8	945.7	711.9	233.77	4.045	
13,200.0	7,163.6	13,222.1	7,118.0	120.1	119.1	-87.23	-6,113.2	-108.8	945.7	708.1	237.57	3.981	
13,300.0	7,163.7	13,322.1	7,117.7	121.9	121.0	-87.21	-6,213.2	-108.8	945.7	704.3	241.36	3.918	
13,400.0	7,163.7	13,422.1	7,117.4	123.8	122.9	-87.19	-6,313.2	-108.8	945.7	700.6	245.16	3.858	
13,500.0	7,163.7	13,522.1	7,117.1	125.7	124.8	-87.17	-6,413.2	-108.8	945.7	696.8	248.95	3.799	
13,600.0	7,163.8	13,622.1	7,116.8	127.6	126.8	-87.15	-6,513.2	-108.8	945.8	693.0	252.75	3.742	
13,700.0	7,163.8	13,722.1	7,116.5	129.5	128.7	-87.13	-6,613.2	-108.8	945.8	689.2	256.55	3.686	
13,800.0	7,163.8	13,822.1	7,116.2	131.4	130.6	-87.11	-6,713.2	-108.8	945.8	685.4	260.35	3.633	
13,900.0	7,163.9	13,922.1	7,115.9	133.3	132.5	-87.09	-6,813.2	-108.8	945.8	681.7	264.15	3.581	
14,000.0	7,163.9	14,022.1	7,115.6	135.1	134.4	-87.07	-6,913.2	-108.8	945.8	677.9	267.95	3.530	
14,100.0	7,163.9	14,122.1	7,115.3	137.0	136.3	-87.05	-7,013.2	-108.8	945.8	674.1	271.75	3.480	
14,200.0	7,164.0	14,222.1	7,115.0	138.9	138.2	-87.03	-7,113.2	-108.8	945.9	670.3	275.56	3.433	
14,201.6	7,164.0	14,223.6	7,115.0	139.0	138.2	-87.03	-7,114.7	-108.8	945.9	670.2	275.62	3.432	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13G-323
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 13G-323	**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 #3 (1-28-15)	**Offset TVD Reference:**	Offset Datum

Offset Design Stroh 13GK-HZ Pad Sec. 13-T4N-R67W - Stroh 13O-343 - Wellbore #1 - Plan #2 (1-28-15)

Offset Site Error: 0.0 ft

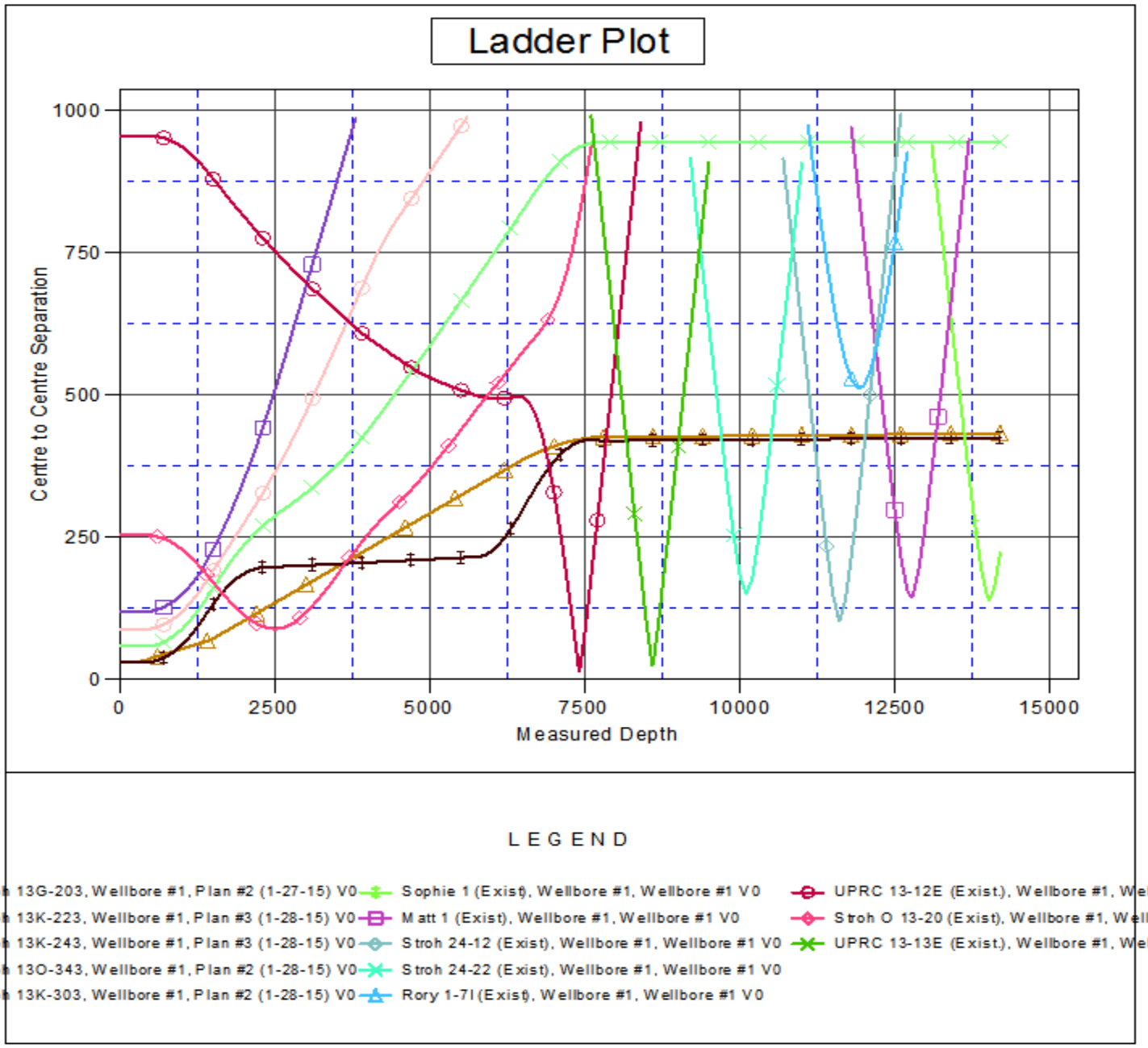
Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	90.00	0.0	119.9	119.9				
100.0	100.0	99.0	99.0	0.1	0.1	90.00	0.0	119.9	119.9	119.7	0.22	536.218	
200.0	200.0	199.0	199.0	0.3	0.3	90.00	0.0	119.9	119.9	119.2	0.67	178.442	
300.0	300.0	299.0	299.0	0.6	0.6	90.00	0.0	119.9	119.9	118.8	1.12	106.922	
400.0	400.0	399.0	399.0	0.8	0.8	90.00	0.0	119.9	119.9	118.4	1.57	76.329	CC, ES
500.0	500.0	499.0	499.0	1.0	1.0	169.96	0.0	119.9	120.8	118.8	2.01	60.072	
600.0	600.0	599.0	599.0	1.2	1.2	170.17	0.0	119.9	123.4	120.9	2.45	50.443	
700.0	699.9	698.9	698.9	1.4	1.5	170.49	0.0	119.9	127.7	124.8	2.89	44.247	
800.0	799.7	798.7	798.7	1.7	1.7	170.92	0.0	119.9	133.7	130.4	3.33	40.176	
900.0	899.4	898.4	898.4	1.9	1.9	171.41	0.0	119.9	141.4	137.7	3.77	37.500	
1,000.0	998.9	997.9	997.9	2.2	2.1	171.94	0.0	119.9	150.9	146.7	4.22	35.787	
1,100.0	1,098.3	1,097.3	1,097.3	2.4	2.4	172.48	0.0	119.9	162.1	157.5	4.66	34.766	
1,200.0	1,197.4	1,196.4	1,196.4	2.7	2.6	173.03	0.0	119.9	175.1	170.0	5.11	34.255	SF
1,300.0	1,296.3	1,292.5	1,292.5	3.1	2.8	173.44	0.3	120.6	190.5	184.9	5.55	34.332	
1,400.0	1,394.9	1,387.8	1,387.8	3.4	3.0	173.63	1.2	122.8	208.9	203.0	5.98	34.926	
1,500.0	1,493.5	1,482.5	1,482.4	3.8	3.2	173.64	2.7	126.4	229.3	222.8	6.42	35.690	
1,600.0	1,592.1	1,576.6	1,576.3	4.1	3.4	173.49	4.8	131.3	251.0	244.1	6.87	36.553	
1,700.0	1,690.7	1,670.0	1,669.5	4.5	3.6	173.21	7.4	137.7	274.2	266.9	7.31	37.497	
1,800.0	1,789.3	1,762.7	1,761.8	4.9	3.8	172.85	10.6	145.4	298.8	291.1	7.76	38.505	
1,900.0	1,887.8	1,854.7	1,853.3	5.2	4.1	172.43	14.4	154.4	324.9	316.7	8.21	39.566	
2,000.0	1,986.4	1,946.0	1,943.9	5.6	4.3	171.96	18.6	164.7	352.3	343.7	8.66	40.669	
2,100.0	2,085.0	2,036.4	2,033.4	6.0	4.5	171.47	23.4	176.2	381.2	372.1	9.12	41.805	
2,200.0	2,183.6	2,126.0	2,122.0	6.4	4.8	170.97	28.7	188.9	411.4	401.9	9.57	42.970	
2,300.0	2,282.1	2,214.7	2,209.4	6.8	5.1	170.46	34.4	202.7	443.1	433.0	10.04	44.153	
2,400.0	2,380.7	2,300.0	2,293.3	7.1	5.3	169.97	40.4	217.1	476.1	465.6	10.49	45.382	
2,500.0	2,479.3	2,389.4	2,380.9	7.5	5.7	169.45	47.3	233.5	510.5	499.5	10.96	46.567	
2,600.0	2,577.9	2,475.4	2,464.9	7.9	6.0	168.96	54.3	250.4	546.2	534.8	11.43	47.788	
2,700.0	2,676.5	2,566.7	2,553.8	8.3	6.3	168.46	62.1	269.3	582.8	570.9	11.91	48.924	
2,800.0	2,775.0	2,659.6	2,644.4	8.7	6.7	168.01	70.1	288.5	619.6	607.2	12.40	49.962	
2,900.0	2,873.6	2,752.5	2,734.9	9.1	7.1	167.61	78.1	307.7	656.3	643.4	12.89	50.913	
3,000.0	2,972.2	2,845.4	2,825.5	9.5	7.5	167.26	86.1	326.9	693.1	679.7	13.38	51.786	
3,100.0	3,070.8	2,938.3	2,916.0	9.8	7.9	166.94	94.1	346.1	729.9	716.0	13.88	52.589	
3,200.0	3,169.3	3,031.2	3,006.6	10.2	8.3	166.65	102.1	365.3	766.7	752.3	14.38	53.331	
3,300.0	3,267.9	3,124.1	3,097.2	10.6	8.7	166.38	110.1	384.5	803.5	788.7	14.88	54.018	
3,400.0	3,366.5	3,217.0	3,187.7	11.0	9.1	166.14	118.1	403.7	840.4	825.0	15.38	54.655	
3,500.0	3,465.1	3,309.9	3,278.3	11.4	9.5	165.92	126.1	422.9	877.2	861.4	15.88	55.248	
3,600.0	3,563.7	3,402.8	3,368.8	11.8	9.9	165.72	134.1	442.1	914.1	897.7	16.38	55.801	
3,700.0	3,662.2	3,495.8	3,459.4	12.2	10.4	165.53	142.1	461.3	951.0	934.1	16.89	56.316	
3,800.0	3,760.8	3,588.7	3,549.9	12.6	10.8	165.36	150.0	480.5	987.9	970.5	17.39	56.799	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Stroh 13G-323
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 13G-323	**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 #3 (1-28-15)	**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 13G-323
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 13G-323
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 13G-323	**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 #3 (1-28-15)	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 4820.0ft (Original Well Elev) Coordinates are relative to: Stroh 13G-323
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°