

PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Stroh 13K-203**

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

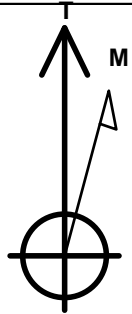
Ground Elevation: 4805.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1356828.21	3183256.02	40.311030	-104.842870	

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

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 2353'FSL & 1616'FWL, Sec.13	1.0	0.0	-167.3	Point
BHL 500'FSL & 1430'FWL, Sec.24	7080.0	-7114.9	-167.4	Point



Azimuths to True North
Magnetic North: 8.53°

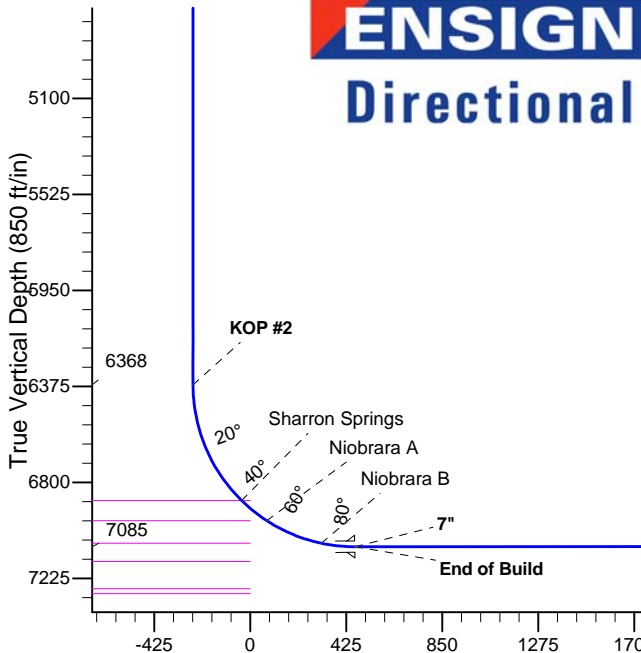
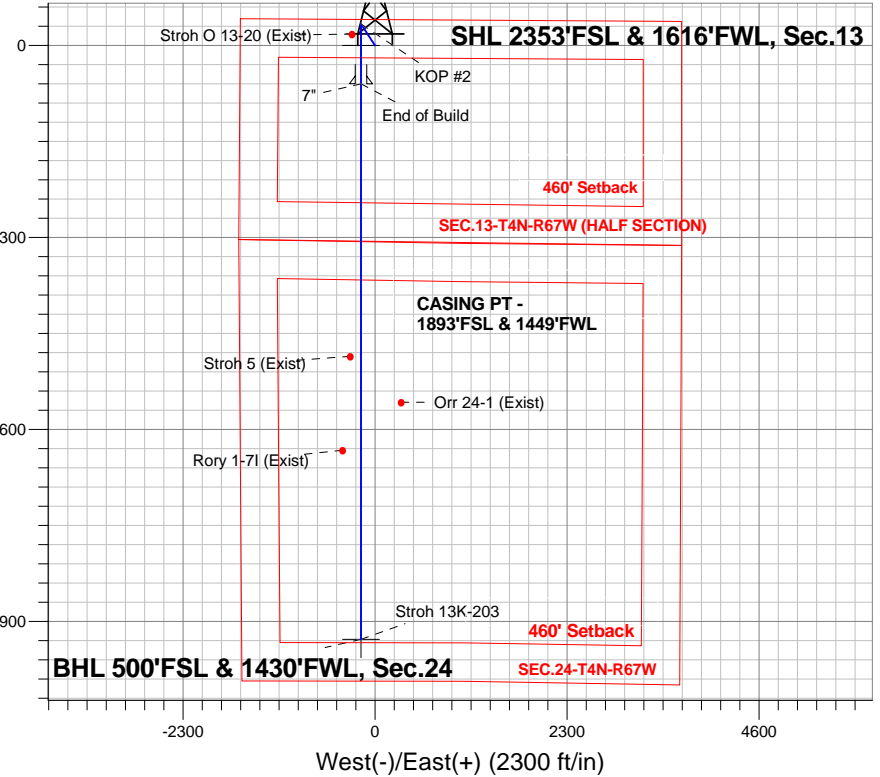
Magnetic Field
Strength: 52788.2srT
Dip Angle: 66.87°
Date: 3/11/2014
Model: IGRF2010

Stroh 13GK-HZ Pad Sec. 13-T4N-R67W
Stroh 13K-203
Plan #1 (3-11-14)
11:00, April 01 2014

ANNOTATIONS

TVD	MD	Annotation
1600.0	1600.0	KOP #1
6368.5	6390.6	KOP #2
7084.6	7516.1	End of Build

South(-)/North(+) (2300 ft/in)



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	1600.0	0.00	0.00	1600.0	0.0	0.0	0.00	0.00	0.0	
3	2046.3	8.93	326.92	2044.5	29.1	-18.9	2.00	326.92	-28.6	
4	3575.8	8.93	326.92	3555.5	227.9	-148.4	0.00	0.00	-224.4	
5	4022.1	0.00	0.00	4000.0	257.0	-167.4	2.00	180.00	-253.0	
6	6390.6	0.00	0.00	6368.4	257.0	-167.4	0.00	0.00	-253.0	
7	7516.1	90.04	180.00	7084.6	-459.7	-167.4	8.00	180.00	463.5	
8	14171.3	90.04	180.00	7080.0	-7114.9	-167.4	0.00	0.00	7116.9	BHL 500'FSL & 1430'FWL, Sec.24

BHL 500'FSL & 1430'FWL, Sec.24

Vertical Section at 181.35° (850 ft/in)



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.13-T4N-R67W

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

Stroh 13K-203

Wellbore #1

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

Standard Planning Report

01 April, 2014

Database:	landmark	Local Co-ordinate Reference:	Well Stroh 13K-203
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4820.0ft (Original Well Elev)
Project:	SEC.13-T4N-R67W	MD Reference:	WELL @ 4820.0ft (Original Well Elev)
Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	North Reference:	True
Well:	Stroh 13K-203	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (3-11-14)		

Project	SEC.13-T4N-R67W, Weld County, Colorado		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W		
Site Position:		Northing:	1,356,827.56 ft
From:	Lat/Long	Easting:	3,183,166.78 ft
Position Uncertainty:	0.0 ft	Slot Radius:	"
		Latitude:	40.311030
		Longitude:	-104.843190
		Grid Convergence:	0.42 °

Well	Stroh 13K-203		
Well Position	+N/-S	0.0 ft	Northing:
	+E/-W	89.2 ft	Easting:
Position Uncertainty		0.0 ft	Wellhead Elevation:
			Latitude:
			Longitude:
			Ground Level:

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	3/11/2014	8.53	66.87	52,788

Design	Plan #1 (3-11-14)			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	181.35

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	
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,046.3	8.93	326.92	2,044.5	29.1	-18.9	2.00	2.00	0.00	326.92	
3,575.8	8.93	326.92	3,555.5	227.9	-148.4	0.00	0.00	0.00	0.00	
4,022.1	0.00	0.00	4,000.0	257.0	-167.4	2.00	-2.00	0.00	180.00	
6,390.6	0.00	0.00	6,368.4	257.0	-167.4	0.00	0.00	0.00	0.00	
7,516.1	90.04	180.00	7,084.6	-459.7	-167.4	8.00	8.00	0.00	180.00	
14,171.3	90.04	180.00	7,080.0	-7,114.9	-167.4	0.00	0.00	0.00	0.00	BHL 500'FSL & 143

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Project:	SEC.13-T4N-R67W	MD Reference:	WELL @ 4820.0ft (Original Well Elev)
Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	North Reference:	True
Well:	Stroh 13K-203	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (3-11-14)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
1.0	0.00	0.00	1.0	0.0	0.0	0.0	0.00	0.00	0.00
SHL 2353'FSL & 1616'FWL, Sec.13									
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP #1									
1,700.0	2.00	326.92	1,700.0	1.5	-1.0	-1.4	2.00	2.00	0.00
1,800.0	4.00	326.92	1,799.8	5.8	-3.8	-5.8	2.00	2.00	0.00
1,900.0	6.00	326.92	1,899.5	13.2	-8.6	-12.9	2.00	2.00	0.00
2,000.0	8.00	326.92	1,998.7	23.4	-15.2	-23.0	2.00	2.00	0.00
2,046.3	8.93	326.92	2,044.5	29.1	-18.9	-28.6	2.00	2.00	0.00
2,100.0	8.93	326.92	2,097.5	36.1	-23.5	-35.5	0.00	0.00	0.00
2,200.0	8.93	326.92	2,196.3	49.1	-31.9	-48.3	0.00	0.00	0.00
2,300.0	8.93	326.92	2,295.1	62.1	-40.4	-61.1	0.00	0.00	0.00
2,400.0	8.93	326.92	2,393.9	75.1	-48.9	-73.9	0.00	0.00	0.00
2,500.0	8.93	326.92	2,492.7	88.1	-57.4	-86.7	0.00	0.00	0.00
2,600.0	8.93	326.92	2,591.5	101.1	-65.8	-99.5	0.00	0.00	0.00
2,700.0	8.93	326.92	2,690.3	114.1	-74.3	-112.3	0.00	0.00	0.00
2,800.0	8.93	326.92	2,789.1	127.1	-82.8	-125.1	0.00	0.00	0.00
2,900.0	8.93	326.92	2,887.9	140.1	-91.2	-137.9	0.00	0.00	0.00
3,000.0	8.93	326.92	2,986.6	153.1	-99.7	-150.7	0.00	0.00	0.00
3,100.0	8.93	326.92	3,085.4	166.1	-108.2	-163.5	0.00	0.00	0.00
3,200.0	8.93	326.92	3,184.2	179.1	-116.6	-176.3	0.00	0.00	0.00
3,300.0	8.93	326.92	3,283.0	192.1	-125.1	-189.1	0.00	0.00	0.00
3,400.0	8.93	326.92	3,381.8	205.1	-133.6	-201.9	0.00	0.00	0.00
3,500.0	8.93	326.92	3,480.6	218.1	-142.0	-214.7	0.00	0.00	0.00
3,575.8	8.93	326.92	3,555.5	227.9	-148.4	-224.4	0.00	0.00	0.00
3,600.0	8.44	326.92	3,579.4	231.0	-150.4	-227.4	2.00	-2.00	0.00
3,700.0	6.44	326.92	3,678.5	241.8	-157.5	-238.1	2.00	-2.00	0.00
3,800.0	4.44	326.92	3,778.1	249.8	-162.7	-245.9	2.00	-2.00	0.00
3,900.0	2.44	326.92	3,877.9	254.8	-166.0	-250.8	2.00	-2.00	0.00
4,000.0	0.44	326.92	3,977.9	256.9	-167.3	-252.9	2.00	-2.00	0.00
4,022.1	0.00	0.00	4,000.0	257.0	-167.4	-253.0	2.00	-2.00	0.00
4,100.0	0.00	0.00	4,077.9	257.0	-167.4	-253.0	0.00	0.00	0.00
4,200.0	0.00	0.00	4,177.9	257.0	-167.4	-253.0	0.00	0.00	0.00
4,300.0	0.00	0.00	4,277.9	257.0	-167.4	-253.0	0.00	0.00	0.00
4,400.0	0.00	0.00	4,377.9	257.0	-167.4	-253.0	0.00	0.00	0.00
4,500.0	0.00	0.00	4,477.9	257.0	-167.4	-253.0	0.00	0.00	0.00
4,600.0	0.00	0.00	4,577.9	257.0	-167.4	-253.0	0.00	0.00	0.00

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Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	North Reference:	True
Well:	Stroh 13K-203	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (3-11-14)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,700.0	0.00	0.00	4,677.9	257.0	-167.4	-253.0	0.00	0.00	0.00
4,800.0	0.00	0.00	4,777.9	257.0	-167.4	-253.0	0.00	0.00	0.00
4,900.0	0.00	0.00	4,877.9	257.0	-167.4	-253.0	0.00	0.00	0.00
5,000.0	0.00	0.00	4,977.9	257.0	-167.4	-253.0	0.00	0.00	0.00
5,100.0	0.00	0.00	5,077.9	257.0	-167.4	-253.0	0.00	0.00	0.00
5,200.0	0.00	0.00	5,177.9	257.0	-167.4	-253.0	0.00	0.00	0.00
5,300.0	0.00	0.00	5,277.9	257.0	-167.4	-253.0	0.00	0.00	0.00
5,400.0	0.00	0.00	5,377.9	257.0	-167.4	-253.0	0.00	0.00	0.00
5,500.0	0.00	0.00	5,477.9	257.0	-167.4	-253.0	0.00	0.00	0.00
5,600.0	0.00	0.00	5,577.9	257.0	-167.4	-253.0	0.00	0.00	0.00
5,700.0	0.00	0.00	5,677.9	257.0	-167.4	-253.0	0.00	0.00	0.00
5,800.0	0.00	0.00	5,777.9	257.0	-167.4	-253.0	0.00	0.00	0.00
5,900.0	0.00	0.00	5,877.9	257.0	-167.4	-253.0	0.00	0.00	0.00
6,000.0	0.00	0.00	5,977.9	257.0	-167.4	-253.0	0.00	0.00	0.00
6,100.0	0.00	0.00	6,077.9	257.0	-167.4	-253.0	0.00	0.00	0.00
6,200.0	0.00	0.00	6,177.9	257.0	-167.4	-253.0	0.00	0.00	0.00
6,300.0	0.00	0.00	6,277.9	257.0	-167.4	-253.0	0.00	0.00	0.00
6,390.6	0.00	0.00	6,368.5	257.0	-167.4	-253.0	0.00	0.00	0.00
KOP #2									
6,400.0	0.75	180.00	6,377.9	256.9	-167.4	-252.9	8.02	8.02	0.00
6,500.0	8.75	180.00	6,477.4	248.7	-167.4	-244.7	8.00	8.00	0.00
6,600.0	16.75	180.00	6,574.9	226.6	-167.4	-222.6	8.00	8.00	0.00
6,700.0	24.75	180.00	6,668.3	191.2	-167.4	-187.2	8.00	8.00	0.00
6,800.0	32.75	180.00	6,755.9	143.1	-167.4	-139.2	8.00	8.00	0.00
6,900.0	40.75	180.00	6,836.0	83.3	-167.4	-79.4	8.00	8.00	0.00
6,960.4	45.58	180.00	6,880.0	42.1	-167.4	-38.1	8.00	8.00	0.00
Sharron Springs									
7,000.0	48.75	180.00	6,906.9	13.0	-167.4	-9.0	8.00	8.00	0.00
7,100.0	56.75	180.00	6,967.4	-66.6	-167.4	70.5	8.00	8.00	0.00
7,102.9	56.98	180.00	6,969.0	-69.0	-167.4	72.9	8.00	8.00	0.00
Niobrara A									
7,200.0	64.75	180.00	7,016.2	-153.7	-167.4	157.6	8.00	8.00	0.00
7,300.0	72.75	180.00	7,052.4	-246.9	-167.4	250.7	8.00	8.00	0.00
7,365.6	78.00	180.00	7,069.0	-310.3	-167.4	314.2	8.00	8.00	0.00
Niobrara B									
7,400.0	80.75	180.00	7,075.3	-344.1	-167.4	348.0	8.00	8.00	0.00
7,500.0	88.75	180.00	7,084.5	-443.6	-167.4	447.4	8.00	8.00	0.00
7,516.1	90.04	180.00	7,084.6	-459.7	-167.4	463.5	7.99	7.99	0.00
End of Build - 7"									
7,600.0	90.04	180.00	7,084.6	-543.6	-167.4	547.4	0.00	0.00	0.00
7,700.0	90.04	180.00	7,084.5	-643.6	-167.4	647.4	0.00	0.00	0.00
7,800.0	90.04	180.00	7,084.4	-743.6	-167.4	747.4	0.00	0.00	0.00
7,900.0	90.04	180.00	7,084.4	-843.6	-167.4	847.3	0.00	0.00	0.00
8,000.0	90.04	180.00	7,084.3	-943.6	-167.4	947.3	0.00	0.00	0.00
8,100.0	90.04	180.00	7,084.2	-1,043.6	-167.4	1,047.3	0.00	0.00	0.00
8,200.0	90.04	180.00	7,084.2	-1,143.6	-167.4	1,147.2	0.00	0.00	0.00
8,300.0	90.04	180.00	7,084.1	-1,243.6	-167.4	1,247.2	0.00	0.00	0.00
8,400.0	90.04	180.00	7,084.0	-1,343.6	-167.4	1,347.2	0.00	0.00	0.00
8,500.0	90.04	180.00	7,084.0	-1,443.6	-167.4	1,447.2	0.00	0.00	0.00
8,600.0	90.04	180.00	7,083.9	-1,543.6	-167.4	1,547.1	0.00	0.00	0.00
8,700.0	90.04	180.00	7,083.8	-1,643.6	-167.4	1,647.1	0.00	0.00	0.00
8,800.0	90.04	180.00	7,083.7	-1,743.6	-167.4	1,747.1	0.00	0.00	0.00
8,900.0	90.04	180.00	7,083.7	-1,843.6	-167.4	1,847.0	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 13K-203	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (3-11-14)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
9,000.0	90.04	180.00	7,083.6	-1,943.6	-167.4	1,947.0	0.00	0.00	0.00
9,100.0	90.04	180.00	7,083.5	-2,043.6	-167.4	2,047.0	0.00	0.00	0.00
9,200.0	90.04	180.00	7,083.5	-2,143.6	-167.4	2,147.0	0.00	0.00	0.00
9,300.0	90.04	180.00	7,083.4	-2,243.6	-167.4	2,246.9	0.00	0.00	0.00
9,400.0	90.04	180.00	7,083.3	-2,343.6	-167.4	2,346.9	0.00	0.00	0.00
9,500.0	90.04	180.00	7,083.3	-2,443.6	-167.4	2,446.9	0.00	0.00	0.00
9,600.0	90.04	180.00	7,083.2	-2,543.6	-167.4	2,546.9	0.00	0.00	0.00
9,700.0	90.04	180.00	7,083.1	-2,643.6	-167.4	2,646.8	0.00	0.00	0.00
9,800.0	90.04	180.00	7,083.1	-2,743.6	-167.4	2,746.8	0.00	0.00	0.00
9,900.0	90.04	180.00	7,083.0	-2,843.6	-167.4	2,846.8	0.00	0.00	0.00
10,000.0	90.04	180.00	7,082.9	-2,943.6	-167.4	2,946.7	0.00	0.00	0.00
10,100.0	90.04	180.00	7,082.8	-3,043.6	-167.4	3,046.7	0.00	0.00	0.00
10,200.0	90.04	180.00	7,082.8	-3,143.6	-167.4	3,146.7	0.00	0.00	0.00
10,300.0	90.04	180.00	7,082.7	-3,243.6	-167.4	3,246.7	0.00	0.00	0.00
10,400.0	90.04	180.00	7,082.6	-3,343.6	-167.4	3,346.6	0.00	0.00	0.00
10,500.0	90.04	180.00	7,082.6	-3,443.6	-167.4	3,446.6	0.00	0.00	0.00
10,600.0	90.04	180.00	7,082.5	-3,543.6	-167.4	3,546.6	0.00	0.00	0.00
10,700.0	90.04	180.00	7,082.4	-3,643.6	-167.4	3,646.5	0.00	0.00	0.00
10,800.0	90.04	180.00	7,082.4	-3,743.6	-167.4	3,746.5	0.00	0.00	0.00
10,900.0	90.04	180.00	7,082.3	-3,843.6	-167.4	3,846.5	0.00	0.00	0.00
11,000.0	90.04	180.00	7,082.2	-3,943.6	-167.4	3,946.5	0.00	0.00	0.00
11,100.0	90.04	180.00	7,082.1	-4,043.6	-167.4	4,046.4	0.00	0.00	0.00
11,200.0	90.04	180.00	7,082.1	-4,143.6	-167.4	4,146.4	0.00	0.00	0.00
11,300.0	90.04	180.00	7,082.0	-4,243.6	-167.4	4,246.4	0.00	0.00	0.00
11,400.0	90.04	180.00	7,081.9	-4,343.6	-167.4	4,346.4	0.00	0.00	0.00
11,500.0	90.04	180.00	7,081.9	-4,443.6	-167.4	4,446.3	0.00	0.00	0.00
11,600.0	90.04	180.00	7,081.8	-4,543.6	-167.4	4,546.3	0.00	0.00	0.00
11,700.0	90.04	180.00	7,081.7	-4,643.6	-167.4	4,646.3	0.00	0.00	0.00
11,800.0	90.04	180.00	7,081.7	-4,743.6	-167.4	4,746.2	0.00	0.00	0.00
11,900.0	90.04	180.00	7,081.6	-4,843.6	-167.4	4,846.2	0.00	0.00	0.00
12,000.0	90.04	180.00	7,081.5	-4,943.6	-167.4	4,946.2	0.00	0.00	0.00
12,100.0	90.04	180.00	7,081.4	-5,043.6	-167.4	5,046.2	0.00	0.00	0.00
12,200.0	90.04	180.00	7,081.4	-5,143.6	-167.4	5,146.1	0.00	0.00	0.00
12,300.0	90.04	180.00	7,081.3	-5,243.6	-167.4	5,246.1	0.00	0.00	0.00
12,400.0	90.04	180.00	7,081.2	-5,343.6	-167.4	5,346.1	0.00	0.00	0.00
12,500.0	90.04	180.00	7,081.2	-5,443.6	-167.4	5,446.0	0.00	0.00	0.00
12,600.0	90.04	180.00	7,081.1	-5,543.6	-167.4	5,546.0	0.00	0.00	0.00
12,700.0	90.04	180.00	7,081.0	-5,643.6	-167.4	5,646.0	0.00	0.00	0.00
12,800.0	90.04	180.00	7,081.0	-5,743.6	-167.4	5,746.0	0.00	0.00	0.00
12,900.0	90.04	180.00	7,080.9	-5,843.6	-167.4	5,845.9	0.00	0.00	0.00
13,000.0	90.04	180.00	7,080.8	-5,943.6	-167.4	5,945.9	0.00	0.00	0.00
13,100.0	90.04	180.00	7,080.7	-6,043.6	-167.4	6,045.9	0.00	0.00	0.00
13,200.0	90.04	180.00	7,080.7	-6,143.6	-167.4	6,145.9	0.00	0.00	0.00
13,300.0	90.04	180.00	7,080.6	-6,243.6	-167.4	6,245.8	0.00	0.00	0.00
13,400.0	90.04	180.00	7,080.5	-6,343.6	-167.4	6,345.8	0.00	0.00	0.00
13,500.0	90.04	180.00	7,080.5	-6,443.6	-167.4	6,445.8	0.00	0.00	0.00
13,600.0	90.04	180.00	7,080.4	-6,543.6	-167.4	6,545.7	0.00	0.00	0.00
13,700.0	90.04	180.00	7,080.3	-6,643.6	-167.4	6,645.7	0.00	0.00	0.00
13,800.0	90.04	180.00	7,080.3	-6,743.6	-167.4	6,745.7	0.00	0.00	0.00
13,900.0	90.04	180.00	7,080.2	-6,843.6	-167.4	6,845.7	0.00	0.00	0.00
14,000.0	90.04	180.00	7,080.1	-6,943.6	-167.4	6,945.6	0.00	0.00	0.00
14,100.0	90.04	180.00	7,080.0	-7,043.6	-167.4	7,045.6	0.00	0.00	0.00
14,171.3	90.04	180.00	7,080.0	-7,114.9	-167.4	7,116.9	0.00	0.00	0.00

Database:	landmark	Local Co-ordinate Reference:	Well Stroh 13K-203
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4820.0ft (Original Well Elev)
Project:	SEC.13-T4N-R67W	MD Reference:	WELL @ 4820.0ft (Original Well Elev)
Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	North Reference:	True
Well:	Stroh 13K-203	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (3-11-14)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
BHL 500'FSL & 1430'FWL, Sec.24									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
7,516.1	7,084.6	7"	7	7-1/2	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
6,960.4	6,880.0	Sharron Springs		0.00		
7,102.9	6,969.0	Niobrara A		0.00		
7,365.6	7,069.0	Niobrara B		0.00		
	7,150.0	Niobrara C		0.00		
	7,270.0	Ft Hays		0.00		
	7,292.0	Codell		0.00		

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
1,600.0	1,600.0	0.0	0.0	KOP #1	
6,390.6	6,368.5	257.0	-167.4	KOP #2	
7,516.1	7,084.6	-459.7	-167.4	End of Build	



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.13-T4N-R67W

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

Stroh 13K-203

Wellbore #1

Plan #1 (3-11-14)

Anticollision Report

01 April, 2014



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Stroh 13K-203
Project:	SEC.13-T4N-R67W	TVD Reference:	WELL @ 4820.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	MD Reference:	WELL @ 4820.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Stroh 13K-203	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-11-14)	Offset TVD Reference:	Offset Datum

Reference	Plan #1 (3-11-14)
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria
Interpolation Method:	MD Interval 100.0ft
Depth Range:	Unlimited
Results Limited by:	Maximum center-center distance of 1,000.0ft
Warning Levels Evaluated at:	2.00 Sigma
Error Model:	ISCWSA
Scan Method:	Closest Approach 3D
Error Surface:	Elliptical Conic

Survey Tool Program		Date	4/1/2014		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	14,171.3	Plan #1 (3-11-14) (Wellbore #1)	MWD	MWD - Standard	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Existing Wells - Sec.13-T4N-R67W						
Orr 24-1 (Exist) - Wellbore #1 - Wellbore #1	11,329.7	6,989.0	479.8	255.8	2.142	CC, ES, SF
Rory 1-71 (Exist) - Wellbore #1 - Wellbore #1	11,905.2	6,987.6	220.3	-14.5	0.938	Level 1, CC, ES, SF
Stroh 5 (Exist) - Wellbore #1 - Wellbore #1	10,779.6	7,064.4	128.3	-86.9	0.596	Level 1, CC, ES, SF
Stroh O 13-20 (Exist) - Wellbore #1 - Wellbore #1	6,815.1	6,757.5	107.0	-43.0	0.714	Level 1, CC, ES, SF
Stroh 13GK-HZ Pad Sec. 13-T4N-R67W						
Stroh 13G-323 - Wellbore #1 - Plan #1 (3-11-14)	400.0	400.0	58.6	57.0	37.224	CC, ES
Stroh 13G-323 - Wellbore #1 - Plan #1 (3-11-14)	700.0	693.0	73.8	70.9	25.500	SF
Stroh 13G-403 - Wellbore #1 - Plan #1 (3-11-14)	166.3	167.3	89.2	88.7	169.928	CC
Stroh 13G-403 - Wellbore #1 - Plan #1 (3-11-14)	200.0	200.0	89.2	88.6	132.360	ES
Stroh 13G-403 - Wellbore #1 - Plan #1 (3-11-14)	3,700.0	3,594.3	745.8	726.1	37.842	SF
Stroh 13K-423 - Wellbore #1 - Plan #1 (3-11-14)	1,600.0	1,600.0	30.7	23.7	4.403	CC, ES
Stroh 13K-423 - Wellbore #1 - Plan #1 (3-11-14)	14,171.3	14,350.5	383.1	139.2	1.571	SF
Stroh 13K-443 - Wellbore #1 - Plan #1 (3-11-14)	1,400.0	1,400.0	27.9	21.8	4.596	CC, ES
Stroh 13K-443 - Wellbore #1 - Plan #1 (3-11-14)	14,171.3	14,182.4	506.6	256.9	2.029	SF
Stroh 13O-343 - Wellbore #1 - Plan #1 (3-11-14)	1,200.0	1,199.0	61.4	56.2	11.874	CC, ES
Stroh 13O-343 - Wellbore #1 - Plan #1 (3-11-14)	14,171.3	14,320.9	871.9	596.0	3.160	SF

Offset Design Existing Wells - Sec.13-T4N-R67W - Orr 24-1 (Exist) - Wellbore #1 - Wellbore #1											
Survey Program: 7351-UNKNOWN											
Reference											
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	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)
10,500.0	7,082.6	6,989.6	6,989.6	68.7	139.8	-90.07	-4,273.3	312.4	958.4	750.0	208.45
10,600.0	7,082.5	6,989.5	6,989.5	70.6	139.8	-90.06	-4,273.3	312.4	873.3	663.0	210.32
10,700.0	7,082.4	6,989.4	6,989.4	72.4	139.8	-90.05	-4,273.3	312.4	791.6	579.5	212.19
10,800.0	7,082.4	6,989.4	6,989.4	74.3	139.8	-90.04	-4,273.3	312.4	714.7	500.6	214.07
10,900.0	7,082.3	6,989.3	6,989.3	76.2	139.8	-90.04	-4,273.3	312.4	644.1	428.1	215.95
11,000.0	7,082.2	6,989.2	6,989.2	78.1	139.8	-90.03	-4,273.3	312.4	582.1	364.3	217.83
11,100.0	7,082.1	6,989.1	6,989.1	80.0	139.8	-90.02	-4,273.3	312.4	531.9	312.2	219.71
11,200.0	7,082.1	6,989.1	6,989.1	81.8	139.8	-90.01	-4,273.3	312.4	497.0	275.4	221.59
11,300.0	7,082.0	6,989.0	6,989.0	83.7	139.8	-90.00	-4,273.3	312.4	480.7	257.2	223.48
11,329.7	7,082.0	6,989.0	6,989.0	84.3	139.8	-90.00	-4,273.3	312.4	479.8	255.8	224.04
Warning											
2.142 CC, ES, SF											

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Stroh 13K-203
Project:	SEC.13-T4N-R67W	TVD Reference:	WELL @ 4820.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	MD Reference:	WELL @ 4820.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Stroh 13K-203	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells - Sec.13-T4N-R67W - Orr 24-1 (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7351-UNKNOWN													Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis		Distance									Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
11,400.0	7,081.9	6,988.9	6,988.9	85.6	139.8	-89.99	-4,273.3	312.4	484.9	259.6	225.36	2.152		
11,500.0	7,081.9	6,988.9	6,988.9	87.5	139.8	-89.99	-4,273.3	312.4	509.1	281.9	227.25	2.240		
11,600.0	7,081.8	6,988.8	6,988.8	89.4	139.8	-89.98	-4,273.3	312.4	550.7	321.6	229.14	2.403		
11,700.0	7,081.7	6,988.7	6,988.7	91.3	139.8	-89.97	-4,273.3	312.4	606.1	375.0	231.03	2.623		
11,800.0	7,081.7	6,988.7	6,988.7	93.2	139.8	-89.96	-4,273.3	312.4	671.9	438.9	232.92	2.884		
11,900.0	7,081.6	6,988.6	6,988.6	95.1	139.8	-89.95	-4,273.3	312.4	745.3	510.5	234.82	3.174		
12,000.0	7,081.5	6,988.5	6,988.5	97.0	139.8	-89.94	-4,273.3	312.4	824.3	587.6	236.71	3.482		
12,100.0	7,081.4	6,988.4	6,988.4	98.9	139.8	-89.94	-4,273.3	312.4	907.5	668.9	238.60	3.803		
12,200.0	7,081.4	6,988.4	6,988.4	100.8	139.8	-89.93	-4,273.3	312.4	993.8	753.3	240.50	4.132		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Stroh 13K-203
Project:	SEC.13-T4N-R67W	TVD Reference:	WELL @ 4820.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	MD Reference:	WELL @ 4820.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Stroh 13K-203	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells - Sec.13-T4N-R67W - Rory 1-7I (Exist) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 7416-UNKNOWN												Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
11,000.0	7,082.2	6,988.2	6,988.2	78.1	139.8	90.16	-4,848.9	-387.7	931.7	713.9	217.80	4.278	
11,100.0	7,082.1	6,988.1	6,988.1	80.0	139.8	90.15	-4,848.9	-387.7	834.9	615.2	219.69	3.800	
11,200.0	7,082.1	6,988.1	6,988.1	81.8	139.8	90.13	-4,848.9	-387.7	738.9	517.3	221.57	3.335	
11,300.0	7,082.0	6,988.0	6,988.0	83.7	139.8	90.11	-4,848.9	-387.7	644.2	420.7	223.45	2.883	
11,400.0	7,081.9	6,987.9	6,987.9	85.6	139.8	90.09	-4,848.9	-387.7	551.2	325.9	225.34	2.446	
11,500.0	7,081.9	6,987.9	6,987.9	87.5	139.8	90.07	-4,848.9	-387.7	461.3	234.1	227.23	2.030	
11,600.0	7,081.8	6,987.8	6,987.8	89.4	139.8	90.06	-4,848.9	-387.7	376.5	147.4	229.12	1.643	
11,700.0	7,081.7	6,987.7	6,987.7	91.3	139.8	90.04	-4,848.9	-387.7	301.2	70.2	231.01	1.304	Level 3
11,800.0	7,081.7	6,987.7	6,987.7	93.2	139.8	90.02	-4,848.9	-387.7	244.2	11.3	232.90	1.049	Level 2
11,900.0	7,081.6	6,987.6	6,987.6	95.1	139.8	90.00	-4,848.9	-387.7	220.4	-14.4	234.80	0.939	Level 1
11,905.2	7,081.6	6,987.6	6,987.6	95.2	139.8	90.00	-4,848.9	-387.7	220.3	-14.5	234.90	0.938	Level 1, CC, ES, SF
12,000.0	7,081.5	6,987.5	6,987.5	97.0	139.8	89.98	-4,848.9	-387.7	239.8	3.2	236.69	1.013	Level 2
12,100.0	7,081.4	6,987.4	6,987.4	98.9	139.7	89.96	-4,848.9	-387.7	294.1	55.5	238.58	1.232	Level 2
12,200.0	7,081.4	6,987.4	6,987.4	100.8	139.7	89.95	-4,848.9	-387.7	368.0	127.5	240.48	1.530	
12,300.0	7,081.3	6,987.3	6,987.3	102.7	139.7	89.93	-4,848.9	-387.7	452.0	209.7	242.38	1.865	
12,400.0	7,081.2	6,987.2	6,987.2	104.6	139.7	89.91	-4,848.9	-387.7	541.6	297.3	244.27	2.217	
12,500.0	7,081.2	6,987.2	6,987.2	106.5	139.7	89.89	-4,848.9	-387.7	634.2	388.0	246.17	2.576	
12,600.0	7,081.1	6,987.1	6,987.1	108.4	139.7	89.87	-4,848.9	-387.7	728.8	480.7	248.07	2.938	
12,700.0	7,081.0	6,987.0	6,987.0	110.3	139.7	89.86	-4,848.9	-387.7	824.7	574.7	249.97	3.299	
12,800.0	7,081.0	6,987.0	6,987.0	112.2	139.7	89.84	-4,848.9	-387.7	921.4	669.6	251.87	3.658	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Stroh 13K-203
Project:	SEC.13-T4N-R67W	TVD Reference:	WELL @ 4820.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	MD Reference:	WELL @ 4820.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Stroh 13K-203	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells - Sec.13-T4N-R67W - Stroh 5 (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7482-UNKNOWN													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	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
9,800.0	7,083.1	7,065.1	7,065.1	55.7	141.3	90.31	90.31	-3,723.2	-295.7	988.0	791.0	196.93	5.017	
9,900.0	7,083.0	7,065.0	7,065.0	57.5	141.3	90.27	90.27	-3,723.2	-295.7	888.9	690.1	198.78	4.472	
10,000.0	7,082.9	7,064.9	7,064.9	59.4	141.3	90.24	90.24	-3,723.2	-295.7	790.1	589.4	200.63	3.938	
10,100.0	7,082.8	7,064.8	7,064.8	61.2	141.3	90.21	90.21	-3,723.2	-295.7	691.6	489.1	202.49	3.415	
10,200.0	7,082.8	7,064.8	7,064.8	63.1	141.3	90.18	90.18	-3,723.2	-295.7	593.6	389.3	204.35	2.905	
10,300.0	7,082.7	7,064.7	7,064.7	65.0	141.3	90.15	90.15	-3,723.2	-295.7	496.4	290.2	206.21	2.407	
10,400.0	7,082.6	7,064.6	7,064.6	66.8	141.3	90.12	90.12	-3,723.2	-295.7	400.7	192.6	208.08	1.926	
10,500.0	7,082.6	7,064.6	7,064.6	68.7	141.3	90.09	90.09	-3,723.2	-295.7	307.6	97.7	209.95	1.465	Level 3
10,600.0	7,082.5	7,064.5	7,064.5	70.6	141.3	90.06	90.06	-3,723.2	-295.7	220.7	8.9	211.82	1.042	Level 2
10,700.0	7,082.4	7,064.4	7,064.4	72.4	141.3	90.02	90.02	-3,723.2	-295.7	151.0	-62.7	213.69	0.706	Level 1
10,779.6	7,082.4	7,064.4	7,064.4	73.9	141.3	90.00	90.00	-3,723.2	-295.7	128.3	-86.9	215.18	0.596	Level 1, CC, ES, SF
10,800.0	7,082.4	7,064.4	7,064.4	74.3	141.3	89.99	89.99	-3,723.2	-295.7	129.9	-85.7	215.57	0.603	Level 1
10,900.0	7,082.3	7,064.3	7,064.3	76.2	141.3	89.96	89.96	-3,723.2	-295.7	175.9	-41.5	217.45	0.809	Level 1
11,000.0	7,082.2	7,064.2	7,064.2	78.1	141.3	89.93	89.93	-3,723.2	-295.7	255.0	35.7	219.33	1.163	Level 2
11,100.0	7,082.1	7,064.1	7,064.1	80.0	141.3	89.90	89.90	-3,723.2	-295.7	345.1	123.9	221.21	1.560	
11,200.0	7,082.1	7,064.1	7,064.1	81.8	141.3	89.87	89.87	-3,723.2	-295.7	439.5	216.5	223.09	1.970	
11,300.0	7,082.0	7,064.0	7,064.0	83.7	141.3	89.84	89.84	-3,723.2	-295.7	536.0	311.0	224.98	2.382	
11,400.0	7,081.9	7,063.9	7,063.9	85.6	141.3	89.81	89.81	-3,723.2	-295.7	633.5	406.7	226.86	2.793	
11,500.0	7,081.9	7,063.9	7,063.9	87.5	141.3	89.78	89.78	-3,723.2	-295.7	731.7	503.0	228.75	3.199	
11,600.0	7,081.8	7,063.8	7,063.8	89.4	141.3	89.74	89.74	-3,723.2	-295.7	830.4	599.7	230.64	3.600	
11,700.0	7,081.7	7,063.7	7,063.7	91.3	141.3	89.71	89.71	-3,723.2	-295.7	929.3	696.8	232.53	3.997	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Stroh 13K-203
Project:	SEC.13-T4N-R67W	TVD Reference:	WELL @ 4820.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	MD Reference:	WELL @ 4820.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Stroh 13K-203	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells - Sec.13-T4N-R67W - Stroh O 13-20 (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7438-UNKNOWN													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-63.84		134.8	-274.4	305.9				
100.0	100.0	89.0	89.0	0.1	1.8	-63.84		134.8	-274.4	305.7	303.9	1.89	161.548	
200.0	200.0	189.0	189.0	0.3	3.8	-63.84		134.8	-274.4	305.7	301.6	4.12	74.257	
300.0	300.0	289.0	289.0	0.6	5.8	-63.84		134.8	-274.4	305.7	299.4	6.34	48.208	
400.0	400.0	389.0	389.0	0.8	7.8	-63.84		134.8	-274.4	305.7	297.2	8.57	35.689	
500.0	500.0	489.0	489.0	1.0	9.8	-63.84		134.8	-274.4	305.7	295.0	10.79	28.331	
600.0	600.0	589.0	589.0	1.2	11.8	-63.84		134.8	-274.4	305.7	292.7	13.02	23.489	
700.0	700.0	689.0	689.0	1.5	13.8	-63.84		134.8	-274.4	305.7	290.5	15.24	20.060	
800.0	800.0	789.0	789.0	1.7	15.8	-63.84		134.8	-274.4	305.7	288.3	17.47	17.505	
900.0	900.0	889.0	889.0	1.9	17.8	-63.84		134.8	-274.4	305.7	286.1	19.69	15.527	
1,000.0	1,000.0	989.0	989.0	2.1	19.8	-63.84		134.8	-274.4	305.7	283.8	21.92	13.951	
1,100.0	1,100.0	1,089.0	1,089.0	2.4	21.8	-63.84		134.8	-274.4	305.7	281.6	24.14	12.665	
1,200.0	1,200.0	1,189.0	1,189.0	2.6	23.8	-63.84		134.8	-274.4	305.7	279.4	26.36	11.597	
1,300.0	1,300.0	1,289.0	1,289.0	2.8	25.8	-63.84		134.8	-274.4	305.7	277.2	28.59	10.694	
1,400.0	1,400.0	1,389.0	1,389.0	3.0	27.8	-63.84		134.8	-274.4	305.7	274.9	30.81	9.922	
1,500.0	1,500.0	1,489.0	1,489.0	3.3	29.8	-63.84		134.8	-274.4	305.7	272.7	33.04	9.254	
1,600.0	1,600.0	1,589.0	1,589.0	3.5	31.8	-63.84		134.8	-274.4	305.7	270.5	35.26	8.670	
1,700.0	1,700.0	1,689.0	1,689.0	3.7	33.8	-30.95		134.8	-274.4	304.2	266.8	37.47	8.120	
1,800.0	1,799.8	1,788.8	1,788.8	3.9	35.8	-31.51		134.8	-274.4	299.8	260.1	39.63	7.564	
1,900.0	1,899.5	1,888.5	1,888.5	4.2	37.8	-32.48		134.8	-274.4	292.4	250.6	41.75	7.002	
2,000.0	1,998.7	1,987.7	1,987.7	4.4	39.8	-33.92		134.8	-274.4	282.1	238.3	43.84	6.437	
2,100.0	2,097.5	2,086.5	2,086.5	4.7	41.7	-35.78		134.8	-274.4	269.7	223.7	45.97	5.866	
2,200.0	2,196.3	2,185.3	2,185.3	4.9	43.7	-37.79		134.8	-274.4	257.2	209.0	48.19	5.337	
2,300.0	2,295.1	2,284.1	2,284.1	5.2	45.7	-40.00		134.8	-274.4	245.1	194.6	50.43	4.860	
2,400.0	2,393.9	2,382.9	2,382.9	5.5	47.7	-42.44		134.8	-274.4	233.3	180.6	52.68	4.429	
2,500.0	2,492.7	2,481.7	2,481.7	5.8	49.6	-45.12		134.8	-274.4	222.0	167.1	54.94	4.041	
2,600.0	2,591.5	2,580.5	2,580.5	6.1	51.6	-48.09		134.8	-274.4	211.3	154.1	57.23	3.693	
2,700.0	2,690.3	2,679.3	2,679.3	6.4	53.6	-51.35		134.8	-274.4	201.2	141.7	59.53	3.380	
2,800.0	2,789.1	2,778.1	2,778.1	6.7	55.6	-54.94		134.8	-274.4	191.8	130.0	61.86	3.101	
2,900.0	2,887.9	2,876.9	2,876.9	7.1	57.5	-58.88		134.8	-274.4	183.3	119.1	64.20	2.855	
3,000.0	2,986.6	2,975.6	2,975.6	7.4	59.5	-63.18		134.8	-274.4	175.7	109.1	66.57	2.639	
3,100.0	3,085.4	3,074.4	3,074.4	7.7	61.5	-67.82		134.8	-274.4	169.2	100.2	68.95	2.454	
3,200.0	3,184.2	3,173.2	3,173.2	8.1	63.5	-72.79		134.8	-274.4	163.9	92.6	71.34	2.297	
3,300.0	3,283.0	3,272.0	3,272.0	8.4	65.4	-78.05		134.8	-274.4	159.9	86.2	73.73	2.169	
3,400.0	3,381.8	3,370.8	3,370.8	8.7	67.4	-83.52		134.8	-274.4	157.4	81.3	76.10	2.069	
3,500.0	3,480.6	3,469.6	3,469.6	9.1	69.4	-89.10		134.8	-274.4	156.4	78.0	78.46	1.994	
3,516.0	3,496.4	3,485.4	3,485.4	9.1	69.7	-90.00		134.8	-274.4	156.4	77.6	78.83	1.984	
3,600.0	3,579.4	3,568.4	3,568.4	9.4	71.4	-94.68		134.8	-274.4	156.9	76.2	80.77	1.943	
3,700.0	3,678.5	3,667.5	3,667.5	9.7	73.4	-99.34		134.8	-274.4	158.5	75.5	82.98	1.910	
3,800.0	3,778.1	3,767.1	3,767.1	9.9	75.3	-102.71		134.8	-274.4	160.3	75.2	85.17	1.883	
3,900.0	3,877.9	3,866.9	3,866.9	10.1	77.3	-104.81		134.8	-274.4	161.8	74.4	87.35	1.852	
4,000.0	3,977.9	3,966.9	3,966.9	10.3	79.3	-105.68		134.8	-274.4	162.4	72.9	89.52	1.815	
4,100.0	4,077.9	4,066.9	4,066.9	10.4	81.3	-138.78		134.8	-274.4	162.5	70.8	91.68	1.772	
4,200.0	4,177.9	4,166.9	4,166.9	10.6	83.3	-138.78		134.8	-274.4	162.5	68.6	93.87	1.731	
4,300.0	4,277.9	4,266.9	4,266.9	10.8	85.3	-138.78		134.8	-274.4	162.5	66.4	96.06	1.691	
4,400.0	4,377.9	4,366.9	4,366.9	11.0	87.3	-138.78		134.8	-274.4	162.5	64.2	98.26	1.653	
4,500.0	4,477.9	4,466.9	4,466.9	11.2	89.3	-138.78		134.8	-274.4	162.5	62.0	100.45	1.617	
4,600.0	4,577.9	4,566.9	4,566.9	11.4	91.3	-138.78		134.8	-274.4	162.5	59.8	102.65	1.583	
4,700.0	4,677.9	4,666.9	4,666.9	11.6	93.3	-138.78		134.8	-274.4	162.5	57.6	104.84	1.550	
4,800.0	4,777.9	4,766.9	4,766.9	11.8	95.3	-138.78		134.8	-274.4	162.5	55.4	107.04	1.518	
4,900.0	4,877.9	4,866.9	4,866.9	12.0	97.3	-138.78		134.8	-274.4	162.5	53.2	109.24	1.487 Level 3	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Stroh 13K-203
Project:	SEC.13-T4N-R67W	TVD Reference:	WELL @ 4820.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	MD Reference:	WELL @ 4820.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Stroh 13K-203	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells - Sec.13-T4N-R67W - Stroh O 13-20 (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7438-UNKNOWN													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,977.9	4,966.9	4,966.9	12.2	99.3	-138.78		134.8	-274.4	162.5	51.0	111.43	1.458	Level 3
5,100.0	5,077.9	5,066.9	5,066.9	12.4	101.3	-138.78		134.8	-274.4	162.5	48.8	113.63	1.430	Level 3
5,200.0	5,177.9	5,166.9	5,166.9	12.6	103.3	-138.78		134.8	-274.4	162.5	46.6	115.83	1.402	Level 3
5,300.0	5,277.9	5,266.9	5,266.9	12.8	105.3	-138.78		134.8	-274.4	162.5	44.4	118.04	1.376	Level 3
5,400.0	5,377.9	5,366.9	5,366.9	13.0	107.3	-138.78		134.8	-274.4	162.5	42.2	120.24	1.351	Level 3
5,500.0	5,477.9	5,466.9	5,466.9	13.2	109.3	-138.78		134.8	-274.4	162.5	40.0	122.44	1.327	Level 3
5,600.0	5,577.9	5,566.9	5,566.9	13.4	111.3	-138.78		134.8	-274.4	162.5	37.8	124.64	1.303	Level 3
5,700.0	5,677.9	5,666.9	5,666.9	13.6	113.3	-138.78		134.8	-274.4	162.5	35.6	126.85	1.281	Level 3
5,800.0	5,777.9	5,766.9	5,766.9	13.8	115.3	-138.78		134.8	-274.4	162.5	33.4	129.05	1.259	Level 3
5,900.0	5,877.9	5,866.9	5,866.9	14.0	117.3	-138.78		134.8	-274.4	162.5	31.2	131.26	1.238	Level 2
6,000.0	5,977.9	5,966.9	5,966.9	14.2	119.3	-138.78		134.8	-274.4	162.5	29.0	133.46	1.217	Level 2
6,100.0	6,077.9	6,066.9	6,066.9	14.4	121.3	-138.78		134.8	-274.4	162.5	26.8	135.67	1.197	Level 2
6,200.0	6,177.9	6,166.9	6,166.9	14.6	123.3	-138.78		134.8	-274.4	162.5	24.6	137.88	1.178	Level 2
6,300.0	6,277.9	6,266.9	6,266.9	14.8	125.3	-138.78		134.8	-274.4	162.5	22.4	140.09	1.160	Level 2
6,400.0	6,377.9	6,366.9	6,366.9	15.0	127.3	41.23		134.8	-274.4	162.4	20.1	142.28	1.141	Level 2
6,500.0	6,477.4	6,466.4	6,466.4	15.1	129.3	43.57		134.8	-274.4	156.3	12.7	143.55	1.089	Level 2
6,600.0	6,574.9	6,563.9	6,563.9	15.2	131.3	50.61		134.8	-274.4	141.0	-3.0	144.03	0.979	Level 1
6,700.0	6,668.3	6,657.3	6,657.3	15.2	133.1	64.43		134.8	-274.4	121.0	-24.9	145.89	0.829	Level 1
6,800.0	6,755.9	6,744.9	6,744.9	15.2	134.9	86.25		134.8	-274.4	107.4	-42.4	149.72	0.717	Level 1
6,815.1	6,768.5	6,757.5	6,757.5	15.2	135.2	89.98		134.8	-274.4	107.0	-43.0	150.03	0.714	Level 1, CC, ES, SF
6,900.0	6,836.0	6,825.0	6,825.0	15.2	136.5	110.01		134.8	-274.4	118.8	-28.7	147.47	0.805	Level 1
7,000.0	6,906.9	6,895.9	6,895.9	15.3	137.9	126.88		134.8	-274.4	162.2	25.6	136.61	1.187	Level 2
7,100.0	6,967.4	6,956.4	6,956.4	15.3	139.1	135.88		134.8	-274.4	228.0	104.1	123.98	1.839	
7,200.0	7,016.2	7,005.2	7,005.2	15.7	140.1	138.98		134.8	-274.4	307.7	193.0	114.71	2.683	
7,300.0	7,052.4	7,041.4	7,041.4	16.3	140.8	136.59		134.8	-274.4	396.4	282.3	114.09	3.474	
7,400.0	7,075.3	7,064.3	7,064.3	17.1	141.3	125.71		134.8	-274.4	490.7	360.8	129.97	3.776	
7,500.0	7,084.5	7,073.5	7,073.5	18.0	141.5	96.70		134.8	-274.4	588.2	429.9	158.31	3.716	
7,600.0	7,084.6	7,073.6	7,073.6	19.1	141.5	89.75		134.8	-274.4	686.8	526.3	160.50	4.279	
7,700.0	7,084.5	7,073.5	7,073.5	20.3	141.5	89.71		134.8	-274.4	785.7	624.0	161.69	4.860	
7,800.0	7,084.4	7,073.4	7,073.4	21.6	141.5	89.67		134.8	-274.4	884.9	721.9	162.99	5.429	
7,900.0	7,084.4	7,073.4	7,073.4	23.0	141.5	89.63		134.8	-274.4	984.3	819.9	164.37	5.988	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Stroh 13K-203
Project:	SEC.13-T4N-R67W	TVD Reference:	WELL @ 4820.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	MD Reference:	WELL @ 4820.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Stroh 13K-203	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Stroh 13GK-HZ Pad Sec. 13-T4N-R67W - Stroh 13G-323 - Wellbore #1 - Plan #1 (3-11-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWDD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	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	498.0	498.0	1.0	1.0	-89.75		0.3	-60.2	60.3	58.2	2.01	29.993	
600.0	600.0	595.7	595.6	1.2	1.2	-89.10		1.0	-65.2	65.3	62.9	2.45	26.709	
700.0	700.0	693.0	692.5	1.5	1.4	-88.20		2.3	-73.4	73.8	70.9	2.89	25.500 SF	
800.0	800.0	789.7	788.5	1.7	1.7	-87.25		4.1	-84.7	85.6	82.2	3.35	25.534	
900.0	900.0	885.4	883.1	1.9	2.0	-86.36		6.3	-99.1	100.7	96.9	3.82	26.345	
1,000.0	1,000.0	980.1	976.1	2.1	2.3	-85.58		9.0	-116.4	119.2	114.9	4.31	27.638	
1,100.0	1,100.0	1,074.6	1,068.4	2.4	2.7	-84.92		12.1	-136.6	140.7	135.9	4.82	29.197	
1,200.0	1,200.0	1,172.0	1,163.3	2.6	3.1	-84.40		15.5	-158.3	163.2	157.9	5.34	30.549	
1,300.0	1,300.0	1,269.4	1,258.2	2.8	3.6	-84.00		18.9	-179.9	185.7	179.8	5.87	31.618	
1,400.0	1,400.0	1,366.9	1,353.2	3.0	4.0	-83.70		22.3	-201.6	208.2	201.8	6.41	32.472	
1,500.0	1,500.0	1,464.3	1,448.1	3.3	4.5	-83.45		25.6	-223.3	230.7	223.7	6.96	33.165	
1,600.0	1,600.0	1,561.7	1,543.0	3.5	5.0	-83.24		29.0	-245.0	253.2	245.7	7.50	33.737	
1,700.0	1,700.0	1,659.4	1,638.2	3.7	5.4	-49.95		32.4	-266.7	274.6	267.1	7.52	36.494	
1,800.0	1,799.8	1,757.5	1,733.7	3.9	5.9	-50.28		35.8	-288.5	293.8	285.8	8.00	36.724	
1,900.0	1,899.5	1,855.8	1,829.6	4.2	6.4	-51.07		39.2	-310.4	310.9	302.5	8.48	36.653	
2,000.0	1,998.7	1,954.4	1,925.6	4.4	6.8	-52.26		42.6	-332.4	326.0	317.1	8.98	36.320	
2,100.0	2,097.5	2,053.0	2,021.6	4.7	7.3	-53.87		46.0	-354.3	339.6	330.1	9.49	35.772	
2,200.0	2,196.3	2,151.5	2,117.7	4.9	7.8	-55.50		49.5	-376.2	353.2	343.1	10.03	35.209	
2,300.0	2,295.1	2,250.1	2,213.7	5.2	8.3	-57.00		52.9	-398.2	367.0	356.4	10.59	34.669	
2,400.0	2,393.9	2,348.7	2,309.8	5.5	8.8	-58.40		56.3	-420.1	381.1	369.9	11.16	34.152	
2,500.0	2,492.7	2,447.3	2,405.8	5.8	9.2	-59.70		59.7	-442.1	395.4	383.7	11.75	33.658	
2,600.0	2,591.5	2,545.9	2,501.9	6.1	9.7	-60.91		63.1	-464.0	409.9	397.5	12.35	33.189	
2,700.0	2,690.3	2,644.5	2,598.0	6.4	10.2	-62.03		66.5	-485.9	424.5	411.6	12.97	32.744	
2,800.0	2,789.1	2,743.1	2,694.0	6.7	10.7	-63.08		70.0	-507.9	439.3	425.7	13.59	32.322	
2,900.0	2,887.9	2,841.7	2,790.1	7.1	11.2	-64.07		73.4	-529.8	454.3	440.0	14.23	31.924	
3,000.0	2,986.6	2,940.2	2,886.1	7.4	11.7	-64.99		76.8	-551.7	469.3	454.5	14.88	31.549	
3,100.0	3,085.4	3,038.8	2,982.2	7.7	12.1	-65.85		80.2	-573.7	484.5	469.0	15.53	31.195	
3,200.0	3,184.2	3,137.4	3,078.2	8.1	12.6	-66.66		83.6	-595.6	499.8	483.6	16.19	30.861	
3,300.0	3,283.0	3,236.0	3,174.3	8.4	13.1	-67.42		87.0	-617.6	515.1	498.3	16.86	30.547	
3,400.0	3,381.8	3,334.6	3,270.3	8.7	13.6	-68.14		90.4	-639.5	530.6	513.1	17.54	30.251	
3,500.0	3,480.6	3,433.2	3,366.4	9.1	14.1	-68.82		93.9	-661.4	546.1	527.9	18.22	29.972	
3,600.0	3,579.4	3,531.8	3,462.4	9.4	14.6	-69.52		97.3	-683.4	561.8	542.9	18.90	29.721	
3,700.0	3,678.5	3,630.3	3,558.5	9.7	15.0	-70.20		100.7	-705.3	578.3	558.8	19.50	29.655	
3,800.0	3,778.1	3,728.7	3,654.3	9.9	15.5	-70.56		104.1	-727.2	596.0	575.9	20.05	29.728	
3,900.0	3,877.9	3,826.9	3,750.0	10.1	16.0	-70.63		107.5	-749.0	614.9	594.3	20.54	29.933	
4,000.0	3,977.9	3,924.6	3,845.2	10.3	16.5	-70.44		110.9	-770.8	634.9	613.9	20.98	30.266	
4,100.0	4,077.9	4,022.1	3,940.2	10.4	17.0	-102.86		114.3	-792.5	655.8	634.4	21.37	30.692	
4,200.0	4,177.9	4,119.5	4,035.1	10.6	17.5	-102.16		117.6	-814.2	676.8	655.1	21.77	31.086	
4,300.0	4,277.9	4,217.0	4,130.0	10.8	17.9	-101.50		121.0	-835.8	698.0	675.8	22.18	31.464	
4,400.0	4,377.9	4,314.4	4,225.0	11.0	18.4	-100.88		124.4	-857.5	719.2	696.6	22.60	31.827	
4,500.0	4,477.9	4,411.8	4,319.9	11.2	18.9	-100.29		127.8	-879.2	740.5	717.5	23.01	32.175	
4,600.0	4,577.9	4,509.2	4,414.8	11.4	19.4	-99.74		131.1	-900.9	761.9	738.4	23.43	32.510	
4,700.0	4,677.9	4,606.7	4,509.8	11.6	19.9	-99.21		134.5	-922.6	783.3	759.4	23.86	32.832	
4,800.0	4,777.9	4,704.1	4,604.7	11.8	20.3	-98.72		137.9	-944.2	804.8	780.5	24.28	33.141	
4,900.0	4,877.9	4,801.5	4,699.6	12.0	20.8	-98.25		141.3	-965.9	826.3	801.6	24.71	33.437	
5,000.0	4,977.9	4,899.0	4,794.5	12.2	21.3	-97.80		144.6	-987.6	847.9	822.8	25.14	33.723	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Stroh 13K-203
Project:	SEC.13-T4N-R67W	TVD Reference:	WELL @ 4820.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	MD Reference:	WELL @ 4820.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Stroh 13K-203	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Stroh 13GK-HZ Pad Sec. 13-T4N-R67W - Stroh 13G-323 - Wellbore #1 - Plan #1 (3-11-14)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,077.9	4,996.4	4,889.5	12.4	21.8	-97.38	148.0	-1,009.3	869.6	844.0	25.58	33.997	
5,200.0	5,177.9	5,093.8	4,984.4	12.6	22.3	-96.97	151.4	-1,031.0	891.3	865.3	26.01	34.260	
5,300.0	5,277.9	5,191.3	5,079.3	12.8	22.7	-96.59	154.8	-1,052.6	913.0	886.5	26.45	34.514	
5,400.0	5,377.9	5,288.7	5,174.2	13.0	23.2	-96.22	158.1	-1,074.3	934.8	907.9	26.89	34.758	
5,500.0	5,477.9	5,386.1	5,269.2	13.2	23.7	-95.87	161.5	-1,096.0	956.6	929.2	27.34	34.993	
5,600.0	5,577.9	5,483.6	5,364.1	13.4	24.2	-95.54	164.9	-1,117.7	978.4	950.6	27.78	35.219	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Stroh 13K-203
Project:	SEC.13-T4N-R67W	TVD Reference:	WELL @ 4820.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	MD Reference:	WELL @ 4820.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Stroh 13K-203	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Stroh 13GK-HZ Pad Sec. 13-T4N-R67W - Stroh 13G-403 - Wellbore #1 - Plan #1 (3-11-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	1.0	1.0	0.0	0.0	-90.00	0.0	-89.2	89.2	89.2	0.00	N/A		
100.0	100.0	101.0	101.0	0.1	0.1	-90.00	0.0	-89.2	89.2	89.0	0.23	393.123		
166.3	166.3	167.3	167.3	0.3	0.3	-90.00	0.0	-89.2	89.2	88.7	0.53	169.928 CC		
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	0.0	-89.2	89.2	88.6	0.67	132.360 ES		
300.0	300.0	298.0	297.9	0.6	0.6	-89.82	0.3	-90.9	90.9	89.8	1.11	81.763		
400.0	400.0	394.7	394.6	0.8	0.8	-89.34	1.1	-95.8	96.0	94.4	1.56	61.685		
500.0	500.0	491.0	490.5	1.0	1.0	-88.64	2.5	-103.8	104.4	102.4	2.01	51.904		
600.0	600.0	586.7	585.5	1.2	1.3	-87.83	4.4	-114.9	116.1	113.6	2.48	46.855		
700.0	700.0	681.5	679.2	1.5	1.6	-87.01	6.7	-129.0	131.0	128.1	2.96	44.342		
800.0	800.0	775.2	771.4	1.7	1.9	-86.23	9.6	-146.0	149.3	145.8	3.45	43.276		
900.0	900.0	867.7	861.7	1.9	2.3	-85.53	12.9	-165.6	170.7	166.7	3.96	43.093		
1,000.0	1,000.0	958.9	950.0	2.1	2.8	-84.92	16.7	-187.8	195.3	190.8	4.49	43.472		
1,100.0	1,100.0	1,055.1	1,042.9	2.4	3.3	-84.38	20.9	-212.7	221.5	216.5	5.05	43.852		
1,200.0	1,200.0	1,151.6	1,136.0	2.6	3.8	-83.96	25.2	-237.7	247.8	242.1	5.62	44.117		
1,300.0	1,300.0	1,248.1	1,229.0	2.8	4.3	-83.61	29.4	-262.8	274.0	267.8	6.19	44.275		
1,400.0	1,400.0	1,344.5	1,322.1	3.0	4.9	-83.33	33.7	-287.8	300.3	293.5	6.77	44.367		
1,500.0	1,500.0	1,441.0	1,415.2	3.3	5.4	-83.09	37.9	-312.8	326.6	319.2	7.35	44.418		
1,600.0	1,600.0	1,537.5	1,508.3	3.5	5.9	-82.89	42.1	-337.8	352.8	344.9	7.94	44.442		
1,700.0	1,700.0	1,634.3	1,601.6	3.7	6.5	-49.45	46.4	-362.9	378.0	370.3	7.69	49.136		
1,800.0	1,799.8	1,731.5	1,695.5	3.9	7.0	-49.51	50.7	-388.1	401.0	392.8	8.19	48.981		
1,900.0	1,899.5	1,829.2	1,789.7	4.2	7.6	-49.93	55.0	-413.5	421.8	413.2	8.69	48.561		
2,000.0	1,998.7	1,927.1	1,884.2	4.4	8.1	-50.67	59.3	-438.9	440.6	431.4	9.20	47.904		
2,100.0	2,097.5	2,025.2	1,978.8	4.7	8.7	-51.78	63.6	-464.3	457.6	447.9	9.73	47.053		
2,200.0	2,196.3	2,123.3	2,073.4	4.9	9.2	-52.97	67.9	-489.7	474.6	464.4	10.27	46.207		
2,300.0	2,295.1	2,221.4	2,168.1	5.2	9.8	-54.07	72.2	-515.2	491.8	481.0	10.83	45.396		
2,400.0	2,393.9	2,319.4	2,262.7	5.5	10.3	-55.11	76.5	-540.6	509.2	497.8	11.41	44.622		
2,500.0	2,492.7	2,417.5	2,357.3	5.8	10.9	-56.07	80.8	-566.0	526.7	514.7	12.00	43.885		
2,600.0	2,591.5	2,515.6	2,451.9	6.1	11.4	-56.97	85.1	-591.5	544.4	531.7	12.60	43.186		
2,700.0	2,690.3	2,613.7	2,546.5	6.4	12.0	-57.81	89.4	-616.9	562.1	548.9	13.22	42.524		
2,800.0	2,789.1	2,711.7	2,641.2	6.7	12.5	-58.61	93.8	-642.3	580.0	566.2	13.84	41.898		
2,900.0	2,887.9	2,809.8	2,735.8	7.1	13.1	-59.35	98.1	-667.8	598.0	583.5	14.48	41.306		
3,000.0	2,986.6	2,907.9	2,830.4	7.4	13.6	-60.06	102.4	-693.2	616.1	601.0	15.12	40.747		
3,100.0	3,085.4	3,006.0	2,925.0	7.7	14.2	-60.72	106.7	-718.6	634.2	618.5	15.77	40.219		
3,200.0	3,184.2	3,104.1	3,019.7	8.1	14.8	-61.34	111.0	-744.1	652.5	636.1	16.43	39.720		
3,300.0	3,283.0	3,202.1	3,114.3	8.4	15.3	-61.94	115.3	-769.5	670.8	653.7	17.09	39.249		
3,400.0	3,381.8	3,300.2	3,208.9	8.7	15.9	-62.50	119.6	-794.9	689.2	671.4	17.76	38.804		
3,500.0	3,480.6	3,398.3	3,303.5	9.1	16.4	-63.03	123.9	-820.4	707.6	689.2	18.44	38.384		
3,600.0	3,579.4	3,496.4	3,398.2	9.4	17.0	-63.61	128.3	-845.8	726.2	707.1	19.11	38.001		
3,700.0	3,678.5	3,594.3	3,492.7	9.7	17.5	-64.27	132.6	-871.2	745.8	726.1	19.71	37.842 SF		
3,800.0	3,778.1	3,692.1	3,587.0	9.9	18.1	-64.70	136.9	-896.6	767.0	746.7	20.26	37.850		
3,900.0	3,877.9	3,789.4	3,680.9	10.1	18.6	-64.92	141.1	-921.8	789.6	768.8	20.77	38.018		
4,000.0	3,977.9	3,886.3	3,774.4	10.3	19.2	-64.96	145.4	-946.9	813.7	792.4	21.22	38.337		
4,100.0	4,077.9	3,982.8	3,867.5	10.4	19.7	-97.60	149.6	-972.0	838.8	817.2	21.63	38.774		
4,200.0	4,177.9	4,079.3	3,960.6	10.6	20.3	-97.09	153.9	-997.0	864.0	842.0	22.06	39.171		
4,300.0	4,277.9	4,175.8	4,053.7	10.8	20.8	-96.60	158.1	-1,022.0	889.3	866.8	22.49	39.550		
4,400.0	4,377.9	4,272.3	4,146.7	11.0	21.4	-96.14	162.4	-1,047.0	914.7	891.8	22.92	39.911		
4,500.0	4,477.9	4,368.7	4,239.8	11.2	21.9	-95.71	166.6	-1,072.0	940.1	916.7	23.35	40.256		
4,600.0	4,577.9	4,465.2	4,332.9	11.4	22.5	-95.29	170.8	-1,097.1	965.5	941.7	23.79	40.586		
4,700.0	4,677.9	4,561.7	4,426.0	11.6	23.0	-94.90	175.1	-1,122.1	991.0	966.8	24.23	40.901		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Stroh 13K-203
Project:	SEC.13-T4N-R67W	TVD Reference:	WELL @ 4820.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	MD Reference:	WELL @ 4820.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Stroh 13K-203	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Stroh 13GK-HZ Pad Sec. 13-T4N-R67W - Stroh 13K-423 - Wellbore #1 - Plan #1 (3-11-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWDD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	90.00	0.0	30.7	30.7					
100.0	100.0	100.0	100.0	0.1	0.1	90.00	0.0	30.7	30.7	30.5	0.22	136.487		
200.0	200.0	200.0	200.0	0.3	0.3	90.00	0.0	30.7	30.7	30.0	0.67	45.496		
300.0	300.0	300.0	300.0	0.6	0.6	90.00	0.0	30.7	30.7	29.6	1.12	27.297		
400.0	400.0	400.0	400.0	0.8	0.8	90.00	0.0	30.7	30.7	29.1	1.57	19.498		
500.0	500.0	500.0	500.0	1.0	1.0	90.00	0.0	30.7	30.7	28.7	2.02	15.165		
600.0	600.0	600.0	600.0	1.2	1.2	90.00	0.0	30.7	30.7	28.2	2.47	12.408		
700.0	700.0	700.0	700.0	1.5	1.5	90.00	0.0	30.7	30.7	27.8	2.92	10.499		
800.0	800.0	800.0	800.0	1.7	1.7	90.00	0.0	30.7	30.7	27.3	3.37	9.099		
900.0	900.0	900.0	900.0	1.9	1.9	90.00	0.0	30.7	30.7	26.9	3.82	8.029		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	90.00	0.0	30.7	30.7	26.4	4.27	7.184		
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	90.00	0.0	30.7	30.7	26.0	4.72	6.499		
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	90.00	0.0	30.7	30.7	25.5	5.17	5.934		
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	90.00	0.0	30.7	30.7	25.1	5.62	5.459		
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	90.00	0.0	30.7	30.7	24.6	6.07	5.055		
1,500.0	1,500.0	1,500.0	1,500.0	3.3	3.3	90.00	0.0	30.7	30.7	24.2	6.52	4.706		
1,600.0	1,600.0	1,600.0	1,600.0	3.5	3.5	90.00	0.0	30.7	30.7	23.7	6.97	4.403 CC, ES		
1,700.0	1,700.0	1,700.0	1,700.0	3.7	3.7	125.71	0.0	30.7	31.7	24.3	7.41	4.271		
1,800.0	1,799.8	1,799.8	1,799.8	3.9	3.9	132.63	0.0	30.7	35.0	27.1	7.85	4.455		
1,900.0	1,899.5	1,899.5	1,899.5	4.2	4.2	141.45	0.0	30.7	41.4	33.1	8.28	4.997		
2,000.0	1,998.7	1,998.7	1,998.7	4.4	4.4	149.81	0.0	30.7	51.5	42.8	8.70	5.917		
2,100.0	2,097.5	2,097.8	2,097.8	4.7	4.6	155.01	1.5	31.4	64.9	55.7	9.13	7.106		
2,200.0	2,196.3	2,197.1	2,197.0	4.9	4.8	156.06	6.1	33.7	78.5	68.9	9.58	8.196		
2,300.0	2,295.1	2,296.5	2,296.0	5.2	5.0	154.65	13.7	37.6	91.8	81.7	10.04	9.143		
2,400.0	2,393.9	2,395.7	2,394.5	5.5	5.3	151.70	24.4	42.9	104.9	94.4	10.51	9.974		
2,500.0	2,492.7	2,494.6	2,492.3	5.8	5.5	148.23	37.2	49.4	118.2	107.2	11.02	10.732		
2,600.0	2,591.5	2,593.5	2,590.2	6.1	5.8	145.43	50.1	55.8	131.9	120.4	11.53	11.436		
2,700.0	2,690.3	2,692.4	2,688.0	6.4	6.0	143.15	63.0	62.3	145.9	133.8	12.07	12.086		
2,800.0	2,789.1	2,791.3	2,785.8	6.7	6.3	141.28	75.9	68.8	160.0	147.4	12.61	12.683		
2,900.0	2,887.9	2,890.1	2,883.6	7.1	6.6	139.71	88.8	75.3	174.3	161.1	13.17	13.230		
3,000.0	2,986.6	2,989.0	2,981.4	7.4	6.9	138.38	101.7	81.8	188.7	174.9	13.74	13.732		
3,100.0	3,085.4	3,087.9	3,079.2	7.7	7.1	137.23	114.6	88.2	203.1	188.8	14.31	14.191		
3,200.0	3,184.2	3,186.7	3,177.0	8.1	7.4	136.24	127.5	94.7	217.7	202.8	14.90	14.613		
3,300.0	3,283.0	3,285.6	3,274.8	8.4	7.7	135.38	140.4	101.2	232.3	216.8	15.48	15.000		
3,400.0	3,381.8	3,384.5	3,372.7	8.7	8.0	134.61	153.3	107.7	246.9	230.8	16.08	15.356		
3,500.0	3,480.6	3,483.4	3,470.5	9.1	8.3	133.93	166.2	114.1	261.6	244.9	16.68	15.685		
3,600.0	3,579.4	3,582.2	3,568.3	9.4	8.7	133.36	179.1	120.6	276.2	258.9	17.28	15.985		
3,700.0	3,678.5	3,681.3	3,666.3	9.7	9.0	132.63	192.0	127.1	289.2	271.4	17.85	16.204		
3,800.0	3,778.1	3,780.5	3,764.4	9.9	9.3	131.45	204.9	133.6	300.0	281.6	18.40	16.303		
3,900.0	3,877.9	3,879.6	3,862.5	10.1	9.6	129.84	217.8	140.1	308.7	289.8	18.93	16.303		
4,000.0	3,977.9	3,978.7	3,960.5	10.3	9.9	127.82	230.8	146.6	315.5	296.1	19.44	16.227		
4,100.0	4,077.9	4,081.4	4,062.3	10.4	10.2	92.48	243.1	152.8	320.9	301.0	19.93	16.104		
4,200.0	4,177.9	4,185.9	4,166.3	10.6	10.4	90.80	252.5	157.5	325.1	304.8	20.37	15.960		
4,300.0	4,277.9	4,291.1	4,271.2	10.8	10.7	89.75	258.4	160.5	327.9	307.2	20.78	15.780		
4,400.0	4,377.9	4,396.6	4,376.6	11.0	10.8	89.32	260.9	161.8	329.2	308.0	21.17	15.549		
4,500.0	4,477.9	4,497.8	4,477.9	11.2	11.0	89.30	261.0	161.8	329.2	307.7	21.54	15.280		
4,600.0	4,577.9	4,597.8	4,577.9	11.4	11.2	89.30	261.0	161.8	329.2	307.3	21.94	15.004		
4,700.0	4,677.9	4,697.8	4,677.9	11.6	11.4	89.30	261.0	161.8	329.2	306.9	22.34	14.735		
4,800.0	4,777.9	4,797.8	4,777.9	11.8	11.6	89.30	261.0	161.8	329.2	306.5	22.74	14.475		
4,900.0	4,877.9	4,897.8	4,877.9	12.0	11.8	89.30	261.0	161.8	329.2	306.1	23.14	14.223		
5,000.0	4,977.9	4,997.8	4,977.9	12.2	12.0	89.30	261.0	161.8	329.2	305.6	23.55	13.979		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Stroh 13K-203
Project:	SEC.13-T4N-R67W	TVD Reference:	WELL @ 4820.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	MD Reference:	WELL @ 4820.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Stroh 13K-203	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Stroh 13GK-HZ Pad Sec. 13-T4N-R67W - Stroh 13K-423 - Wellbore #1 - Plan #1 (3-11-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,077.9	5,097.8	5,077.9	12.4	12.2	89.30	89.30	261.0	161.8	329.2	305.2	23.96	13.742	
5,200.0	5,177.9	5,197.8	5,177.9	12.6	12.4	89.30	89.30	261.0	161.8	329.2	304.8	24.36	13.512	
5,300.0	5,277.9	5,297.8	5,277.9	12.8	12.6	89.30	89.30	261.0	161.8	329.2	304.4	24.77	13.289	
5,400.0	5,377.9	5,397.8	5,377.9	13.0	12.8	89.30	89.30	261.0	161.8	329.2	304.0	25.18	13.072	
5,500.0	5,477.9	5,497.8	5,477.9	13.2	13.0	89.30	89.30	261.0	161.8	329.2	303.6	25.59	12.862	
5,600.0	5,577.9	5,597.8	5,577.9	13.4	13.2	89.30	89.30	261.0	161.8	329.2	303.2	26.01	12.658	
5,700.0	5,677.9	5,697.8	5,677.9	13.6	13.4	89.30	89.30	261.0	161.8	329.2	302.8	26.42	12.459	
5,800.0	5,777.9	5,797.8	5,777.9	13.8	13.6	89.30	89.30	261.0	161.8	329.2	302.4	26.84	12.266	
5,900.0	5,877.9	5,897.8	5,877.9	14.0	13.8	89.30	89.30	261.0	161.8	329.2	301.9	27.25	12.079	
6,000.0	5,977.9	5,997.8	5,977.9	14.2	14.0	89.30	89.30	261.0	161.8	329.2	301.5	27.67	11.897	
6,100.0	6,077.9	6,097.8	6,077.9	14.4	14.3	89.30	89.30	261.0	161.8	329.2	301.1	28.09	11.719	
6,200.0	6,177.9	6,197.8	6,177.9	14.6	14.5	89.30	89.30	261.0	161.8	329.2	300.7	28.51	11.547	
6,300.0	6,277.9	6,297.8	6,277.9	14.8	14.7	89.30	89.30	261.0	161.8	329.2	300.3	28.93	11.379	
6,363.2	6,341.1	6,361.0	6,341.1	14.9	14.8	-90.74	-90.74	261.0	161.8	329.2	300.0	29.20	11.276	
6,400.0	6,377.9	6,397.8	6,377.9	15.0	14.9	-90.71	-90.71	261.0	161.8	329.2	299.8	29.35	11.217	
6,500.0	6,477.4	6,497.4	6,477.4	15.1	15.1	-92.12	-92.12	261.0	161.8	329.4	299.7	29.69	11.096	
6,600.0	6,574.9	6,597.4	6,577.4	15.2	15.3	-95.46	-95.46	258.7	161.8	330.7	300.8	29.92	11.056	
6,700.0	6,668.3	6,700.9	6,679.7	15.2	15.4	-99.05	-99.05	243.7	161.8	333.5	303.5	29.98	11.124	
6,800.0	6,755.9	6,807.5	6,782.0	15.2	15.4	-102.62	-102.62	214.0	161.8	337.7	307.8	29.91	11.291	
6,900.0	6,836.0	6,917.6	6,882.2	15.2	15.4	-106.07	-106.07	168.6	161.8	343.2	313.4	29.74	11.540	
7,000.0	6,906.9	7,031.4	6,977.9	15.3	15.4	-109.32	-109.32	107.1	161.8	349.6	320.1	29.54	11.837	
7,100.0	6,967.4	7,149.2	7,066.1	15.3	15.5	-112.31	-112.31	29.3	161.8	356.8	327.4	29.42	12.128	
7,200.0	7,016.2	7,270.9	7,143.6	15.7	15.7	-114.98	-114.98	-64.4	161.8	364.1	334.6	29.52	12.335	
7,300.0	7,052.4	7,396.6	7,207.0	16.3	16.2	-117.26	-117.26	-172.8	161.8	371.1	341.1	29.98	12.379	
7,400.0	7,075.3	7,525.9	7,252.8	17.1	17.0	-119.11	-119.11	-293.5	161.8	377.4	346.4	30.92	12.204	
7,500.0	7,084.5	7,658.2	7,277.9	18.0	18.2	-120.49	-120.49	-423.3	161.8	382.3	349.9	32.39	11.804	
7,600.0	7,084.6	7,763.3	7,288.4	19.1	19.3	-121.77	-121.77	-527.8	161.8	387.5	353.5	33.96	11.409	
7,700.0	7,084.5	7,879.7	7,291.8	20.3	20.6	-122.20	-122.20	-644.1	161.8	389.0	353.0	36.06	10.789	
7,800.0	7,084.4	7,979.7	7,291.6	21.6	21.9	-122.18	-122.18	-744.1	161.8	388.9	350.6	38.30	10.155	
7,900.0	7,084.4	8,079.7	7,291.3	23.0	23.3	-122.16	-122.16	-844.1	161.8	388.8	348.1	40.69	9.556	
8,000.0	7,084.3	8,179.7	7,291.1	24.5	24.7	-122.13	-122.13	-944.1	161.8	388.7	345.5	43.21	8.997	
8,100.0	7,084.2	8,279.7	7,290.8	26.0	26.2	-122.11	-122.11	-1,044.1	161.8	388.6	342.8	45.83	8.480	
8,200.0	7,084.2	8,379.7	7,290.6	27.5	27.8	-122.09	-122.09	-1,144.1	161.8	388.5	340.0	48.55	8.003	
8,300.0	7,084.1	8,479.7	7,290.3	29.1	29.4	-122.07	-122.07	-1,244.1	161.8	388.4	337.1	51.34	7.566	
8,400.0	7,084.0	8,579.7	7,290.1	30.8	31.0	-122.05	-122.05	-1,344.1	161.8	388.4	334.2	54.20	7.166	
8,500.0	7,084.0	8,679.7	7,289.9	32.5	32.7	-122.03	-122.03	-1,444.1	161.8	388.3	331.2	57.11	6.799	
8,600.0	7,083.9	8,779.7	7,289.6	34.2	34.4	-122.00	-122.00	-1,544.1	161.8	388.2	328.1	60.07	6.462	
8,700.0	7,083.8	8,879.7	7,289.4	35.9	36.1	-121.98	-121.98	-1,644.1	161.8	388.1	325.0	63.07	6.153	
8,800.0	7,083.7	8,979.7	7,289.1	37.6	37.8	-121.96	-121.96	-1,744.1	161.8	388.0	321.9	66.10	5.869	
8,900.0	7,083.7	9,079.7	7,288.9	39.4	39.6	-121.94	-121.94	-1,844.1	161.8	387.9	318.7	69.17	5.608	
9,000.0	7,083.6	9,179.7	7,288.6	41.2	41.3	-121.92	-121.92	-1,944.1	161.8	387.8	315.5	72.26	5.366	
9,100.0	7,083.5	9,279.7	7,288.4	42.9	43.1	-121.89	-121.89	-2,044.1	161.8	387.7	312.3	75.38	5.143	
9,200.0	7,083.5	9,379.7	7,288.1	44.7	44.9	-121.87	-121.87	-2,144.1	161.8	387.6	309.1	78.52	4.936	
9,300.0	7,083.4	9,479.7	7,287.9	46.5	46.7	-121.85	-121.85	-2,244.1	161.8	387.5	305.8	81.68	4.744	
9,400.0	7,083.3	9,579.7	7,287.7	48.4	48.5	-121.83	-121.83	-2,344.1	161.8	387.4	302.6	84.86	4.566	
9,500.0	7,083.3	9,679.7	7,287.4	50.2	50.3	-121.81	-121.81	-2,444.1	161.8	387.3	299.3	88.05	4.399	
9,600.0	7,083.2	9,779.7	7,287.2	52.0	52.2	-121.79	-121.79	-2,544.1	161.8	387.2	296.0	91.25	4.244	
9,700.0	7,083.1	9,879.7	7,286.9	53.8	54.0	-121.76	-121.76	-2,644.1	161.8	387.2	292.7	94.47	4.098	
9,800.0	7,083.1	9,979.7	7,286.7	55.7	55.8	-121.74	-121.74	-2,744.1	161.8	387.1	289.4	97.70	3.962	
9,900.0	7,083.0	10,079.7	7,286.4	57.5	57.7	-121.72	-121.72	-2,844.1	161.8	387.0	286.0	100.94	3.834	
10,000.0	7,082.9	10,179.7	7,286.2	59.4	59.5	-121.70	-121.70	-2,944.1	161.8	386.9	282.7	104.19	3.713	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Stroh 13K-203
Project:	SEC.13-T4N-R67W	TVD Reference:	WELL @ 4820.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	MD Reference:	WELL @ 4820.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Stroh 13K-203	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Stroh 13GK-HZ Pad Sec. 13-T4N-R67W - Stroh 13K-423 - Wellbore #1 - Plan #1 (3-11-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
10,100.0	7,082.8	10,279.7	7,285.9	61.2	61.4	-121.68	-3,044.1	161.8	386.8	279.3	107.45	3.600		
10,200.0	7,082.8	10,379.7	7,285.7	63.1	63.2	-121.65	-3,144.1	161.8	386.7	276.0	110.71	3.493		
10,300.0	7,082.7	10,479.7	7,285.5	65.0	65.1	-121.63	-3,244.1	161.8	386.6	272.6	113.99	3.392		
10,400.0	7,082.6	10,579.7	7,285.2	66.8	66.9	-121.61	-3,344.1	161.8	386.5	269.2	117.27	3.296		
10,500.0	7,082.6	10,679.7	7,285.0	68.7	68.8	-121.59	-3,444.1	161.8	386.4	265.9	120.56	3.205		
10,600.0	7,082.5	10,779.7	7,284.7	70.6	70.7	-121.56	-3,544.1	161.8	386.3	262.5	123.85	3.119		
10,700.0	7,082.4	10,879.7	7,284.5	72.4	72.6	-121.54	-3,644.1	161.8	386.2	259.1	127.15	3.038		
10,800.0	7,082.4	10,979.7	7,284.2	74.3	74.4	-121.52	-3,744.1	161.8	386.2	255.7	130.46	2.960		
10,900.0	7,082.3	11,079.7	7,284.0	76.2	76.3	-121.50	-3,844.1	161.8	386.1	252.3	133.77	2.886		
11,000.0	7,082.2	11,179.7	7,283.7	78.1	78.2	-121.48	-3,944.1	161.8	386.0	248.9	137.08	2.816		
11,100.0	7,082.1	11,279.7	7,283.5	80.0	80.1	-121.45	-4,044.1	161.8	385.9	245.5	140.40	2.748		
11,200.0	7,082.1	11,379.7	7,283.3	81.8	81.9	-121.43	-4,144.1	161.8	385.8	242.1	143.73	2.684		
11,300.0	7,082.0	11,479.7	7,283.0	83.7	83.8	-121.41	-4,244.1	161.8	385.7	238.6	147.06	2.623		
11,400.0	7,081.9	11,579.7	7,282.8	85.6	85.7	-121.39	-4,344.1	161.8	385.6	235.2	150.39	2.564		
11,500.0	7,081.9	11,679.7	7,282.5	87.5	87.6	-121.37	-4,444.1	161.8	385.5	231.8	153.73	2.508		
11,600.0	7,081.8	11,779.7	7,282.3	89.4	89.5	-121.34	-4,544.1	161.8	385.4	228.4	157.07	2.454		
11,700.0	7,081.7	11,879.7	7,282.0	91.3	91.4	-121.32	-4,644.1	161.8	385.3	224.9	160.41	2.402		
11,800.0	7,081.7	11,979.7	7,281.8	93.2	93.3	-121.30	-4,744.1	161.8	385.2	221.5	163.76	2.353		
11,900.0	7,081.6	12,079.7	7,281.5	95.1	95.2	-121.28	-4,844.1	161.8	385.2	218.0	167.11	2.305		
12,000.0	7,081.5	12,179.7	7,281.3	97.0	97.1	-121.26	-4,944.1	161.8	385.1	214.6	170.46	2.259		
12,100.0	7,081.4	12,279.7	7,281.1	98.9	99.0	-121.23	-5,044.1	161.8	385.0	211.2	173.82	2.215		
12,200.0	7,081.4	12,379.7	7,280.8	100.8	100.8	-121.21	-5,144.1	161.8	384.9	207.7	177.18	2.172		
12,300.0	7,081.3	12,479.7	7,280.6	102.7	102.7	-121.19	-5,244.1	161.8	384.8	204.2	180.54	2.131		
12,400.0	7,081.2	12,579.7	7,280.3	104.6	104.6	-121.17	-5,344.1	161.8	384.7	200.8	183.91	2.092		
12,500.0	7,081.2	12,679.7	7,280.1	106.5	106.5	-121.14	-5,444.1	161.8	384.6	197.3	187.28	2.054		
12,600.0	7,081.1	12,779.7	7,279.8	108.4	108.4	-121.12	-5,544.1	161.8	384.5	193.9	190.65	2.017		
12,700.0	7,081.0	12,879.7	7,279.6	110.3	110.3	-121.10	-5,644.1	161.8	384.4	190.4	194.02	1.981		
12,800.0	7,081.0	12,979.7	7,279.3	112.2	112.2	-121.08	-5,744.1	161.8	384.3	186.9	197.40	1.947		
12,900.0	7,080.9	13,079.7	7,279.1	114.1	114.1	-121.05	-5,844.1	161.8	384.2	183.5	200.77	1.914		
13,000.0	7,080.8	13,179.7	7,278.9	116.0	116.0	-121.03	-5,944.1	161.8	384.2	180.0	204.15	1.882		
13,100.0	7,080.7	13,279.7	7,278.6	117.9	117.9	-121.01	-6,044.1	161.8	384.1	176.5	207.54	1.851		
13,200.0	7,080.7	13,379.7	7,278.4	119.8	119.8	-120.99	-6,144.1	161.8	384.0	173.1	210.92	1.820		
13,300.0	7,080.6	13,479.7	7,278.1	121.7	121.8	-120.97	-6,244.1	161.8	383.9	169.6	214.31	1.791		
13,400.0	7,080.5	13,579.7	7,277.9	123.6	123.7	-120.94	-6,344.1	161.8	383.8	166.1	217.70	1.763		
13,500.0	7,080.5	13,679.7	7,277.6	125.5	125.6	-120.92	-6,444.1	161.8	383.7	162.6	221.09	1.736		
13,600.0	7,080.4	13,779.7	7,277.4	127.4	127.5	-120.90	-6,544.1	161.8	383.6	159.1	224.48	1.709		
13,700.0	7,080.3	13,879.7	7,277.2	129.3	129.4	-120.88	-6,644.1	161.8	383.5	155.6	227.88	1.683		
13,800.0	7,080.3	13,979.7	7,276.9	131.2	131.3	-120.85	-6,744.1	161.8	383.4	152.2	231.28	1.658		
13,900.0	7,080.2	14,079.7	7,276.7	133.1	133.2	-120.83	-6,844.1	161.8	383.3	148.7	234.68	1.634		
14,000.0	7,080.1	14,179.7	7,276.4	135.0	135.1	-120.81	-6,944.1	161.8	383.3	145.2	238.08	1.610		
14,100.0	7,080.0	14,279.7	7,276.2	136.9	137.0	-120.79	-7,044.1	161.8	383.2	141.7	241.48	1.587		
14,165.8	7,080.0	14,345.5	7,276.0	138.2	138.2	-120.77	-7,109.9	161.8	383.1	139.4	243.73	1.572		
14,171.3	7,080.0	14,350.5	7,276.0	138.3	138.3	-120.77	-7,114.9	161.8	383.1	139.2	243.90	1.571 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Stroh 13K-203
Project:	SEC.13-T4N-R67W	TVD Reference:	WELL @ 4820.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	MD Reference:	WELL @ 4820.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Stroh 13K-203	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Stroh 13GK-HZ Pad Sec. 13-T4N-R67W - Stroh 13K-443 - Wellbore #1 - Plan #1 (3-11-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-90.01	-90.01	0.0	-27.9	27.9				
100.0	100.0	100.0	100.0	0.1	0.1	-90.01	-90.01	0.0	-27.9	27.9	27.7	0.22	124.079	
200.0	200.0	200.0	200.0	0.3	0.3	-90.01	-90.01	0.0	-27.9	27.9	27.2	0.67	41.360	
300.0	300.0	300.0	300.0	0.6	0.6	-90.01	-90.01	0.0	-27.9	27.9	26.8	1.12	24.816	
400.0	400.0	400.0	400.0	0.8	0.8	-90.01	-90.01	0.0	-27.9	27.9	26.3	1.57	17.726	
500.0	500.0	500.0	500.0	1.0	1.0	-90.01	-90.01	0.0	-27.9	27.9	25.9	2.02	13.787	
600.0	600.0	600.0	600.0	1.2	1.2	-90.01	-90.01	0.0	-27.9	27.9	25.4	2.47	11.280	
700.0	700.0	700.0	700.0	1.5	1.5	-90.01	-90.01	0.0	-27.9	27.9	25.0	2.92	9.545	
800.0	800.0	800.0	800.0	1.7	1.7	-90.01	-90.01	0.0	-27.9	27.9	24.5	3.37	8.272	
900.0	900.0	900.0	900.0	1.9	1.9	-90.01	-90.01	0.0	-27.9	27.9	24.1	3.82	7.299	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-90.01	-90.01	0.0	-27.9	27.9	23.6	4.27	6.530	
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	-90.01	-90.01	0.0	-27.9	27.9	23.2	4.72	5.909	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-90.01	-90.01	0.0	-27.9	27.9	22.7	5.17	5.395	
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-90.01	-90.01	0.0	-27.9	27.9	22.3	5.62	4.963	
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	-90.01	-90.01	0.0	-27.9	27.9	21.8	6.07	4.596 CC, ES	
1,500.0	1,500.0	1,499.0	1,499.0	3.3	3.2	-89.56	-89.56	0.2	-29.6	29.6	23.1	6.50	4.551	
1,600.0	1,600.0	1,597.8	1,597.6	3.5	3.5	-88.49	-88.49	0.9	-34.7	34.7	27.8	6.93	5.012	
1,700.0	1,700.0	1,696.2	1,695.6	3.7	3.7	-55.97	-55.97	2.0	-43.0	42.3	35.0	7.36	5.754	
1,800.0	1,799.8	1,794.1	1,792.9	3.9	3.9	-59.02	-59.02	3.6	-54.7	51.4	43.6	7.78	6.611	
1,900.0	1,899.5	1,891.6	1,889.1	4.2	4.1	-63.17	-63.17	5.6	-69.6	62.3	54.1	8.21	7.590	
2,000.0	1,998.7	1,989.2	1,985.1	4.4	4.4	-67.70	-67.70	8.1	-87.5	75.1	66.5	8.67	8.669	
2,100.0	2,097.5	2,088.1	2,082.1	4.7	4.7	-72.66	-72.66	10.6	-106.4	88.1	78.9	9.16	9.612	
2,200.0	2,196.3	2,187.0	2,179.2	4.9	5.1	-76.62	-76.62	13.2	-125.2	101.4	91.7	9.69	10.465	
2,300.0	2,295.1	2,285.8	2,276.2	5.2	5.4	-79.66	-79.66	15.7	-144.1	115.1	104.9	10.24	11.239	
2,400.0	2,393.9	2,384.7	2,373.2	5.5	5.8	-82.04	-82.04	18.3	-162.9	129.1	118.3	10.82	11.932	
2,500.0	2,492.7	2,483.6	2,470.3	5.8	6.1	-83.96	-83.96	20.8	-181.8	143.2	131.8	11.41	12.550	
2,600.0	2,591.5	2,582.5	2,567.3	6.1	6.5	-85.54	-85.54	23.4	-200.7	157.5	145.5	12.02	13.101	
2,700.0	2,690.3	2,681.4	2,664.4	6.4	6.9	-86.85	-86.85	25.9	-219.5	171.8	159.2	12.64	13.591	
2,800.0	2,789.1	2,780.3	2,761.4	6.7	7.3	-87.96	-87.96	28.5	-238.4	186.3	173.0	13.28	14.029	
2,900.0	2,887.9	2,879.2	2,858.5	7.1	7.7	-88.91	-88.91	31.0	-257.2	200.8	186.9	13.92	14.421	
3,000.0	2,986.6	2,978.1	2,955.5	7.4	8.1	-89.73	-89.73	33.6	-276.1	215.3	200.7	14.58	14.773	
3,100.0	3,085.4	3,077.0	3,052.6	7.7	8.5	-90.44	-90.44	36.1	-294.9	229.9	214.7	15.24	15.090	
3,200.0	3,184.2	3,175.9	3,149.6	8.1	8.9	-91.08	-91.08	38.7	-313.8	244.5	228.6	15.90	15.377	
3,300.0	3,283.0	3,274.8	3,246.6	8.4	9.3	-91.64	-91.64	41.2	-332.7	259.2	242.6	16.57	15.636	
3,400.0	3,381.8	3,373.7	3,343.7	8.7	9.7	-92.14	-92.14	43.8	-351.5	273.8	256.6	17.25	15.872	
3,500.0	3,480.6	3,472.6	3,440.7	9.1	10.1	-92.59	-92.59	46.3	-370.4	288.5	270.6	17.93	16.088	
3,600.0	3,579.4	3,571.5	3,537.8	9.4	10.5	-93.04	-93.04	48.9	-389.2	303.2	284.6	18.61	16.291	
3,700.0	3,678.5	3,670.4	3,634.9	9.7	10.9	-93.24	-93.24	51.4	-408.1	317.7	298.5	19.20	16.549	
3,800.0	3,778.1	3,769.3	3,731.9	9.9	11.3	-92.83	-92.83	54.0	-427.0	332.1	312.4	19.74	16.826	
3,900.0	3,877.9	3,868.0	3,828.7	10.1	11.7	-91.90	-91.90	56.5	-445.8	346.5	326.2	20.22	17.133	
4,000.0	3,977.9	3,966.4	3,925.3	10.3	12.1	-90.51	-90.51	59.1	-464.5	360.9	340.2	20.64	17.481	
4,100.0	4,077.9	4,064.5	4,021.6	10.4	12.5	-121.74	-121.74	61.6	-483.3	375.7	354.6	21.02	17.869	
4,200.0	4,177.9	4,162.6	4,117.9	10.6	13.0	-119.96	-119.96	64.1	-502.0	390.8	369.4	21.42	18.249	
4,300.0	4,277.9	4,260.8	4,214.2	10.8	13.4	-118.31	-118.31	66.7	-520.7	406.3	384.5	21.81	18.632	
4,400.0	4,377.9	4,358.9	4,310.5	11.0	13.8	-116.79	-116.79	69.2	-539.4	422.1	399.9	22.20	19.015	
4,500.0	4,477.9	4,457.0	4,406.8	11.2	14.2	-115.37	-115.37	71.7	-558.1	438.2	415.6	22.59	19.395	
4,600.0	4,577.9	4,563.9	4,511.8	11.4	14.6	-113.99	-113.99	74.4	-577.8	454.0	431.0	22.99	19.750	
4,700.0	4,677.9	4,678.5	4,625.1	11.6	14.9	-112.87	-112.87	76.7	-594.9	467.0	443.6	23.37	19.978	
4,800.0	4,777.9	4,794.5	4,740.3	11.8	15.2	-112.08	-112.08	78.4	-607.6	476.6	452.8	23.76	20.061	
4,900.0	4,877.9	4,911.2	4,856.8	12.0	15.5	-111.60	-111.60	79.5	-615.8	482.7	458.5	24.14	19.995	
5,000.0	4,977.9	5,028.5	4,974.0	12.2	15.6	-111.40	-111.40	80.0	-619.2	485.3	460.7	24.53	19.785	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Stroh 13K-203
Project:	SEC.13-T4N-R67W	TVD Reference:	WELL @ 4820.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	MD Reference:	WELL @ 4820.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Stroh 13K-203	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Stroh 13GK-HZ Pad Sec. 13-T4N-R67W - Stroh 13K-443 - Wellbore #1 - Plan #1 (3-11-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,077.9	5,132.4	5,077.9	12.4	15.8	-111.39		80.0	-619.3	485.3	460.4	24.91	19.487	
5,200.0	5,177.9	5,232.4	5,177.9	12.6	15.9	-111.39		80.0	-619.3	485.3	460.1	25.29	19.191	
5,300.0	5,277.9	5,332.4	5,277.9	12.8	16.1	-111.39		80.0	-619.3	485.3	459.7	25.68	18.903	
5,400.0	5,377.9	5,432.4	5,377.9	13.0	16.2	-111.39		80.0	-619.3	485.3	459.3	26.06	18.621	
5,500.0	5,477.9	5,532.4	5,477.9	13.2	16.4	-111.39		80.0	-619.3	485.3	458.9	26.45	18.347	
5,600.0	5,577.9	5,632.4	5,577.9	13.4	16.6	-111.39		80.0	-619.3	485.3	458.5	26.85	18.079	
5,700.0	5,677.9	5,732.4	5,677.9	13.6	16.7	-111.39		80.0	-619.3	485.3	458.1	27.24	17.818	
5,800.0	5,777.9	5,832.4	5,777.9	13.8	16.9	-111.39		80.0	-619.3	485.3	457.7	27.63	17.563	
5,900.0	5,877.9	5,932.4	5,877.9	14.0	17.1	-111.39		80.0	-619.3	485.3	457.3	28.03	17.315	
6,000.0	5,977.9	6,032.4	5,977.9	14.2	17.2	-111.39		80.0	-619.3	485.3	456.9	28.43	17.072	
6,100.0	6,077.9	6,132.4	6,077.9	14.4	17.4	-111.39		80.0	-619.3	485.3	456.5	28.83	16.835	
6,200.0	6,177.9	6,232.4	6,177.9	14.6	17.6	-111.39		80.0	-619.3	485.3	456.1	29.23	16.604	
6,300.0	6,277.9	6,332.4	6,277.9	14.8	17.7	-111.39		80.0	-619.3	485.3	455.7	29.63	16.378	
6,400.0	6,377.9	6,432.4	6,377.9	15.0	17.9	68.62		80.0	-619.3	485.3	455.3	30.04	16.156	
6,500.0	6,477.4	6,531.9	6,477.4	15.1	18.1	69.75		80.0	-619.3	482.4	452.1	30.29	15.927	
6,600.0	6,574.9	6,616.8	6,562.2	15.2	18.2	72.02		77.3	-619.3	476.1	445.8	30.29	15.717	
6,700.0	6,668.3	6,700.0	6,644.6	15.2	18.3	74.67		65.7	-619.3	469.6	439.4	30.19	15.555	
6,800.0	6,755.9	6,783.4	6,725.4	15.2	18.4	77.67		45.3	-619.3	463.4	433.3	30.09	15.402	
6,900.0	6,836.0	6,869.4	6,805.9	15.2	18.5	81.03		15.1	-619.3	458.0	427.9	30.09	15.223	
7,000.0	6,906.9	6,957.8	6,884.5	15.3	18.6	84.69		-25.2	-619.3	454.1	423.8	30.27	15.000	
7,100.0	6,967.4	7,049.0	6,960.3	15.3	18.8	88.59		-76.0	-619.3	452.1	421.4	30.67	14.742	
7,135.1	6,985.9	7,081.8	6,985.9	15.4	18.8	90.00		-96.3	-619.3	451.9	421.0	30.88	14.636	
7,200.0	7,016.2	7,143.7	7,031.9	15.7	18.9	92.65		-137.8	-619.3	452.5	421.2	31.27	14.469	
7,300.0	7,052.4	7,242.4	7,097.8	16.3	19.2	96.80		-211.1	-619.3	455.6	423.5	32.06	14.213	
7,400.0	7,075.3	7,345.9	7,156.2	17.1	19.5	100.95		-296.6	-619.3	461.5	428.6	32.97	13.999	
7,500.0	7,084.5	7,455.2	7,204.7	18.0	20.1	105.02		-394.4	-619.3	470.2	436.2	33.99	13.835	
7,600.0	7,084.6	7,572.9	7,240.7	19.1	20.9	109.06		-506.3	-619.3	479.6	444.3	35.28	13.594	
7,700.0	7,084.5	7,693.4	7,259.7	20.3	22.0	111.19		-625.2	-619.3	485.0	447.9	37.16	13.052	
7,800.0	7,084.4	7,801.9	7,269.7	21.6	23.1	112.29		-733.2	-619.3	488.5	449.2	39.33	12.420	
7,900.0	7,084.4	7,911.2	7,271.8	23.0	24.5	112.52		-842.5	-619.3	489.2	447.3	41.90	11.675	
8,000.0	7,084.3	8,011.2	7,272.4	24.5	25.8	112.59		-942.5	-619.3	489.5	444.9	44.55	10.988	
8,100.0	7,084.2	8,111.2	7,273.0	26.0	27.1	112.67		-1,042.5	-619.3	489.7	442.4	47.31	10.351	
8,200.0	7,084.2	8,211.2	7,273.6	27.5	28.6	112.74		-1,142.5	-619.3	490.0	439.8	50.18	9.766	
8,300.0	7,084.1	8,311.2	7,274.2	29.1	30.1	112.81		-1,242.5	-619.3	490.3	437.1	53.12	9.229	
8,400.0	7,084.0	8,411.2	7,274.7	30.8	31.6	112.88		-1,342.5	-619.3	490.5	434.4	56.14	8.738	
8,500.0	7,084.0	8,511.2	7,275.3	32.5	33.2	112.95		-1,442.5	-619.3	490.8	431.6	59.21	8.289	
8,600.0	7,083.9	8,611.2	7,275.9	34.2	34.8	113.02		-1,542.5	-619.3	491.0	428.7	62.33	7.877	
8,700.0	7,083.8	8,711.2	7,276.5	35.9	36.5	113.09		-1,642.5	-619.3	491.3	425.8	65.50	7.501	
8,800.0	7,083.7	8,811.2	7,277.1	37.6	38.1	113.17		-1,742.5	-619.3	491.6	422.9	68.70	7.155	
8,900.0	7,083.7	8,911.2	7,277.7	39.4	39.8	113.24		-1,842.5	-619.3	491.8	419.9	71.93	6.838	
9,000.0	7,083.6	9,011.2	7,278.3	41.2	41.5	113.31		-1,942.5	-619.3	492.1	416.9	75.18	6.545	
9,100.0	7,083.5	9,111.2	7,278.9	42.9	43.3	113.38		-2,042.5	-619.3	492.3	413.9	78.46	6.275	
9,200.0	7,083.5	9,211.2	7,279.5	44.7	45.0	113.45		-2,142.5	-619.3	492.6	410.8	81.76	6.025	
9,300.0	7,083.4	9,311.2	7,280.1	46.5	46.8	113.52		-2,242.5	-619.3	492.9	407.8	85.07	5.794	
9,400.0	7,083.3	9,411.2	7,280.7	48.4	48.6	113.59		-2,342.4	-619.3	493.1	404.7	88.39	5.579	
9,500.0	7,083.3	9,511.2	7,281.3	50.2	50.3	113.66		-2,442.4	-619.3	493.4	401.7	91.73	5.379	
9,600.0	7,083.2	9,611.2	7,281.9	52.0	52.1	113.73		-2,542.4	-619.3	493.7	398.6	95.08	5.192	
9,700.0	7,083.1	9,711.2	7,282.5	53.8	53.9	113.80		-2,642.4	-619.3	493.9	395.5	98.44	5.018	
9,800.0	7,083.1	9,811.2	7,283.1	55.7	55.8	113.87		-2,742.4	-619.3	494.2	392.4	101.81	4.854	
9,900.0	7,083.0	9,911.2	7,283.6	57.5	57.6	113.94		-2,842.4	-619.3	494.5	389.3	105.18	4.701	
10,000.0	7,082.9	10,011.2	7,284.2	59.4	59.4	114.01		-2,942.4	-619.3	494.7	386.2	108.56	4.557	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Stroh 13K-203
Project:	SEC.13-T4N-R67W	TVD Reference:	WELL @ 4820.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	MD Reference:	WELL @ 4820.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Stroh 13K-203	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Stroh 13GK-HZ Pad Sec. 13-T4N-R67W - Stroh 13K-443 - Wellbore #1 - Plan #1 (3-11-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,100.0	7,082.8	10,111.2	7,284.8	61.2	61.2	114.08	-3,042.4	-619.3	495.0	383.1	111.94	4.422		
10,200.0	7,082.8	10,211.2	7,285.4	63.1	63.1	114.15	-3,142.4	-619.3	495.3	379.9	115.33	4.294		
10,300.0	7,082.7	10,311.2	7,286.0	65.0	64.9	114.22	-3,242.4	-619.3	495.6	376.8	118.72	4.174		
10,400.0	7,082.6	10,411.2	7,286.6	66.8	66.7	114.29	-3,342.4	-619.3	495.8	373.7	122.12	4.060		
10,500.0	7,082.6	10,511.2	7,287.2	68.7	68.6	114.36	-3,442.4	-619.3	496.1	370.6	125.51	3.953		
10,600.0	7,082.5	10,611.2	7,287.8	70.6	70.4	114.43	-3,542.4	-619.3	496.4	367.5	128.91	3.850		
10,700.0	7,082.4	10,711.2	7,288.4	72.4	72.3	114.50	-3,642.4	-619.3	496.6	364.3	132.31	3.754		
10,800.0	7,082.4	10,811.2	7,289.0	74.3	74.2	114.57	-3,742.4	-619.3	496.9	361.2	135.71	3.662		
10,900.0	7,082.3	10,911.2	7,289.6	76.2	76.0	114.64	-3,842.4	-619.3	497.2	358.1	139.12	3.574		
11,000.0	7,082.2	11,011.2	7,290.2	78.1	77.9	114.71	-3,942.4	-619.3	497.5	355.0	142.52	3.491		
11,100.0	7,082.1	11,111.2	7,290.8	80.0	79.8	114.78	-4,042.4	-619.3	497.8	351.8	145.92	3.411		
11,200.0	7,082.1	11,211.2	7,291.4	81.8	81.6	114.85	-4,142.4	-619.3	498.0	348.7	149.33	3.335		
11,300.0	7,082.0	11,311.2	7,292.0	83.7	83.5	114.92	-4,242.4	-619.3	498.3	345.6	152.73	3.263		
11,400.0	7,081.9	11,411.2	7,292.5	85.6	85.4	114.99	-4,342.4	-619.3	498.6	342.5	156.13	3.193		
11,500.0	7,081.9	11,511.2	7,293.1	87.5	87.2	115.06	-4,442.4	-619.3	498.9	339.3	159.53	3.127		
11,600.0	7,081.8	11,611.2	7,293.7	89.4	89.1	115.13	-4,542.4	-619.3	499.2	336.2	162.94	3.063		
11,700.0	7,081.7	11,711.2	7,294.3	91.3	91.0	115.19	-4,642.4	-619.3	499.4	333.1	166.34	3.003		
11,800.0	7,081.7	11,811.2	7,294.9	93.2	92.9	115.26	-4,742.4	-619.3	499.7	330.0	169.73	2.944		
11,900.0	7,081.6	11,911.2	7,295.5	95.1	94.8	115.33	-4,842.3	-619.3	500.0	326.9	173.13	2.888		
12,000.0	7,081.5	12,011.1	7,296.1	97.0	96.7	115.40	-4,942.3	-619.3	500.3	323.8	176.53	2.834		
12,100.0	7,081.4	12,111.1	7,296.7	98.9	98.5	115.47	-5,042.3	-619.3	500.6	320.6	179.92	2.782		
12,200.0	7,081.4	12,211.1	7,297.3	100.8	100.4	115.54	-5,142.3	-619.3	500.9	317.5	183.32	2.732		
12,300.0	7,081.3	12,311.1	7,297.9	102.7	102.3	115.61	-5,242.3	-619.3	501.1	314.4	186.71	2.684		
12,400.0	7,081.2	12,411.1	7,298.5	104.6	104.2	115.67	-5,342.3	-619.3	501.4	311.3	190.10	2.638		
12,500.0	7,081.2	12,511.1	7,299.1	106.5	106.1	115.74	-5,442.3	-619.3	501.7	308.2	193.48	2.593		
12,600.0	7,081.1	12,611.1	7,299.7	108.4	108.0	115.81	-5,542.3	-619.3	502.0	305.1	196.87	2.550		
12,700.0	7,081.0	12,711.1	7,300.3	110.3	109.9	115.88	-5,642.3	-619.3	502.3	302.0	200.25	2.508		
12,800.0	7,081.0	12,811.1	7,300.9	112.2	111.8	115.95	-5,742.3	-619.3	502.6	298.9	203.63	2.468		
12,900.0	7,080.9	12,911.1	7,301.4	114.1	113.7	116.01	-5,842.3	-619.3	502.9	295.9	207.01	2.429		
13,000.0	7,080.8	13,011.1	7,302.0	116.0	115.6	116.08	-5,942.3	-619.3	503.2	292.8	210.39	2.392		
13,100.0	7,080.7	13,111.1	7,302.6	117.9	117.5	116.15	-6,042.3	-619.3	503.5	289.7	213.76	2.355		
13,200.0	7,080.7	13,211.1	7,303.2	119.8	119.4	116.22	-6,142.3	-619.3	503.7	286.6	217.14	2.320		
13,300.0	7,080.6	13,311.1	7,303.8	121.7	121.3	116.29	-6,242.3	-619.3	504.0	283.5	220.50	2.286		
13,400.0	7,080.5	13,411.1	7,304.4	123.6	123.1	116.35	-6,342.3	-619.3	504.3	280.5	223.87	2.253		
13,500.0	7,080.5	13,511.1	7,305.0	125.5	125.0	116.42	-6,442.3	-619.3	504.6	277.4	227.24	2.221		
13,600.0	7,080.4	13,611.1	7,305.6	127.4	126.9	116.49	-6,542.3	-619.3	504.9	274.3	230.60	2.190		
13,700.0	7,080.3	13,711.1	7,306.2	129.3	128.8	116.56	-6,642.3	-619.3	505.2	271.3	233.96	2.159		
13,800.0	7,080.3	13,811.1	7,306.8	131.2	130.7	116.62	-6,742.3	-619.3	505.5	268.2	237.31	2.130		
13,900.0	7,080.2	13,911.1	7,307.4	133.1	132.6	116.69	-6,842.3	-619.3	505.8	265.2	240.67	2.102		
14,000.0	7,080.1	14,011.1	7,308.0	135.0	134.6	116.76	-6,942.3	-619.3	506.1	262.1	244.02	2.074		
14,100.0	7,080.0	14,111.1	7,308.6	136.9	136.5	116.82	-7,042.3	-619.3	506.4	259.1	247.36	2.047		
14,171.3	7,080.0	14,182.4	7,309.0	138.3	137.8	116.87	-7,113.5	-619.3	506.6	256.9	249.75	2.029 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Stroh 13K-203
Project:	SEC.13-T4N-R67W	TVD Reference:	WELL @ 4820.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	MD Reference:	WELL @ 4820.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Stroh 13K-203	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Stroh 13GK-HZ Pad Sec. 13-T4N-R67W - Stroh 13O-343 - Wellbore #1 - Plan #1 (3-11-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	90.00	90.00	0.0	61.4	61.4				
100.0	100.0	99.0	99.0	0.1	0.1	90.00	90.00	0.0	61.4	61.4	61.1	0.22	274.344	
200.0	200.0	199.0	199.0	0.3	0.3	90.00	90.00	0.0	61.4	61.4	60.7	0.67	91.296	
300.0	300.0	299.0	299.0	0.6	0.6	90.00	90.00	0.0	61.4	61.4	60.2	1.12	54.704	
400.0	400.0	399.0	399.0	0.8	0.8	90.00	90.00	0.0	61.4	61.4	59.8	1.57	39.052	
500.0	500.0	499.0	499.0	1.0	1.0	90.00	90.00	0.0	61.4	61.4	59.3	2.02	30.364	
600.0	600.0	599.0	599.0	1.2	1.2	90.00	90.00	0.0	61.4	61.4	58.9	2.47	24.838	
700.0	700.0	699.0	699.0	1.5	1.5	90.00	90.00	0.0	61.4	61.4	58.4	2.92	21.014	
800.0	800.0	799.0	799.0	1.7	1.7	90.00	90.00	0.0	61.4	61.4	58.0	3.37	18.210	
900.0	900.0	899.0	899.0	1.9	1.9	90.00	90.00	0.0	61.4	61.4	57.5	3.82	16.067	
1,000.0	1,000.0	999.0	999.0	2.1	2.1	90.00	90.00	0.0	61.4	61.4	57.1	4.27	14.375	
1,100.0	1,100.0	1,099.0	1,099.0	2.4	2.4	90.00	90.00	0.0	61.4	61.4	56.6	4.72	13.005	
1,200.0	1,200.0	1,199.0	1,199.0	2.6	2.6	90.00	90.00	0.0	61.4	61.4	56.2	5.17	11.874 CC, ES	
1,300.0	1,300.0	1,297.0	1,297.0	2.8	2.8	89.42	89.42	0.6	62.9	62.9	57.3	5.60	11.225	
1,400.0	1,400.0	1,394.8	1,394.7	3.0	3.0	87.84	87.84	2.5	67.5	67.7	61.6	6.04	11.209	
1,500.0	1,500.0	1,492.2	1,491.7	3.3	3.2	85.64	85.64	5.7	75.1	75.7	69.2	6.47	11.691	
1,600.0	1,600.0	1,588.9	1,587.7	3.5	3.5	83.26	83.26	10.1	85.7	87.0	80.1	6.92	12.582	
1,700.0	1,700.0	1,684.6	1,682.3	3.7	3.7	114.66	114.66	15.7	99.1	102.4	95.1	7.34	13.948	
1,800.0	1,799.8	1,779.2	1,775.2	3.9	4.0	114.38	114.38	22.4	115.2	122.5	114.7	7.78	15.738	
1,900.0	1,899.5	1,876.5	1,870.6	4.2	4.3	115.17	115.17	29.9	133.1	145.3	137.1	8.23	17.666	
2,000.0	1,998.7	1,973.3	1,965.5	4.4	4.6	116.68	116.68	37.2	150.9	169.7	161.1	8.68	19.562	
2,100.0	2,097.5	2,069.6	2,059.9	4.7	5.0	118.73	118.73	44.6	168.6	195.7	186.5	9.15	21.390	
2,200.0	2,196.3	2,165.9	2,154.2	4.9	5.3	120.55	120.55	52.0	186.2	222.0	212.4	9.64	23.033	
2,300.0	2,295.1	2,262.1	2,248.6	5.2	5.7	121.98	121.98	59.3	203.9	248.5	238.4	10.15	24.496	
2,400.0	2,393.9	2,358.4	2,342.9	5.5	6.1	123.14	123.14	66.7	221.6	275.2	264.5	10.66	25.802	
2,500.0	2,492.7	2,454.7	2,437.2	5.8	6.4	124.10	124.10	74.0	239.3	301.9	290.7	11.19	26.969	
2,600.0	2,591.5	2,550.9	2,531.6	6.1	6.8	124.90	124.90	81.4	256.9	328.7	316.9	11.73	28.014	
2,700.0	2,690.3	2,647.2	2,625.9	6.4	7.2	125.58	125.58	88.7	274.6	355.5	343.2	12.28	28.954	
2,800.0	2,789.1	2,743.4	2,720.2	6.7	7.6	126.16	126.16	96.1	292.3	382.4	369.5	12.83	29.802	
2,900.0	2,887.9	2,839.7	2,814.5	7.1	8.0	126.67	126.67	103.4	309.9	409.3	395.9	13.39	30.568	
3,000.0	2,986.6	2,935.9	2,908.9	7.4	8.4	127.11	127.11	110.8	327.6	436.2	422.3	13.95	31.264	
3,100.0	3,085.4	3,032.2	3,003.2	7.7	8.8	127.50	127.50	118.2	345.3	463.2	448.6	14.52	31.897	
3,200.0	3,184.2	3,128.4	3,097.5	8.1	9.2	127.85	127.85	125.5	363.0	490.1	475.0	15.09	32.475	
3,300.0	3,283.0	3,224.7	3,191.9	8.4	9.6	128.17	128.17	132.9	380.6	517.1	501.4	15.67	33.005	
3,400.0	3,381.8	3,320.9	3,286.2	8.7	10.0	128.45	128.45	140.2	398.3	544.1	527.9	16.25	33.491	
3,500.0	3,480.6	3,417.2	3,380.5	9.1	10.4	128.70	128.70	147.6	416.0	571.1	554.3	16.83	33.939	
3,600.0	3,579.4	3,513.5	3,474.9	9.4	10.8	129.03	129.03	154.9	433.7	598.1	580.7	17.42	34.339	
3,700.0	3,678.5	3,610.2	3,569.7	9.7	11.2	129.46	129.46	162.3	451.4	623.5	605.5	17.98	34.681	
3,800.0	3,778.1	3,707.4	3,664.9	9.9	11.7	129.61	129.61	169.7	469.3	646.8	628.3	18.51	34.935	
3,900.0	3,877.9	3,805.0	3,760.6	10.1	12.1	129.49	129.49	177.2	487.2	668.0	648.9	19.02	35.117	
4,000.0	3,977.9	3,902.9	3,856.5	10.3	12.5	129.15	129.15	184.7	505.2	687.0	667.5	19.49	35.242	
4,100.0	4,077.9	4,000.9	3,952.5	10.4	12.9	95.36	95.36	192.2	523.2	704.6	684.7	19.94	35.335	
4,200.0	4,177.9	4,098.9	4,048.6	10.6	13.3	94.63	94.63	199.7	541.2	722.3	701.9	20.40	35.402	
4,300.0	4,277.9	4,196.9	4,144.6	10.8	13.8	93.92	93.92	207.2	559.2	740.2	719.3	20.87	35.474	
4,400.0	4,377.9	4,294.9	4,240.7	11.0	14.2	93.26	93.26	214.6	577.2	758.1	736.8	21.33	35.548	
4,500.0	4,477.9	4,392.9	4,336.7	11.2	14.6	92.62	92.62	222.1	595.2	776.1	754.3	21.78	35.625	
4,600.0	4,577.9	4,490.9	4,432.8	11.4	15.0	92.01	92.01	229.6	613.1	794.2	771.9	22.24	35.704	
4,700.0	4,677.9	4,588.9	4,528.8	11.6	15.5	91.43	91.43	237.1	631.1	812.4	789.7	22.70	35.784	
4,800.0	4,777.9	4,686.9	4,624.9	11.8	15.9	90.87	90.87	244.6	649.1	830.6	807.5	23.16	35.865	
4,900.0	4,877.9	4,819.7	4,755.5	12.0	16.3	90.23	90.23	253.7	671.0	847.1	823.4	23.65	35.824	
5,000.0	4,977.9	4,956.5	4,891.1	12.2	16.7	89.76	89.76	260.6	687.6	859.2	835.1	24.12	35.627	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Stroh 13K-203
Project:	SEC.13-T4N-R67W	TVD Reference:	WELL @ 4820.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	MD Reference:	WELL @ 4820.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Stroh 13K-203	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Stroh 13GK-HZ Pad Sec. 13-T4N-R67W - Stroh 13O-343 - Wellbore #1 - Plan #1 (3-11-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,077.9	5,094.7	5,028.9	12.4	17.0	89.47		265.0	698.3	867.0	842.4	24.58	35.278	
5,200.0	5,177.9	5,233.8	5,167.8	12.6	17.2	89.35		266.9	702.8	870.3	845.3	25.02	34.790	
5,300.0	5,277.9	5,342.8	5,276.9	12.8	17.3	89.34		267.0	703.0	870.4	845.0	25.41	34.253	
5,400.0	5,377.9	5,442.8	5,376.9	13.0	17.5	89.34		267.0	703.0	870.4	844.6	25.80	33.735	
5,500.0	5,477.9	5,542.8	5,476.9	13.2	17.6	89.34		267.0	703.0	870.4	844.2	26.19	33.230	
5,600.0	5,577.9	5,642.8	5,576.9	13.4	17.8	89.34		267.0	703.0	870.4	843.8	26.59	32.737	
5,700.0	5,677.9	5,742.8	5,676.9	13.6	17.9	89.34		267.0	703.0	870.4	843.4	26.98	32.257	
5,800.0	5,777.9	5,842.8	5,776.9	13.8	18.1	89.34		267.0	703.0	870.4	843.0	27.38	31.789	
5,900.0	5,877.9	5,942.8	5,876.9	14.0	18.2	89.34		267.0	703.0	870.4	842.6	27.78	31.333	
6,000.0	5,977.9	6,042.8	5,976.9	14.2	18.4	89.34		267.0	703.0	870.4	842.2	28.18	30.888	
6,100.0	6,077.9	6,142.8	6,076.9	14.4	18.5	89.34		267.0	703.0	870.4	841.8	28.58	30.454	
6,200.0	6,177.9	6,242.8	6,176.9	14.6	18.7	89.34		267.0	703.0	870.4	841.4	28.98	30.030	
6,300.0	6,277.9	6,342.8	6,276.9	14.8	18.8	89.34		267.0	703.0	870.4	841.0	29.39	29.617	
6,363.2	6,341.1	6,406.0	6,340.1	14.9	18.9	-90.68		267.0	703.0	870.4	840.8	29.64	29.363	
6,400.0	6,377.9	6,442.8	6,376.9	15.0	19.0	-90.66		267.0	703.0	870.4	840.6	29.79	29.216	
6,500.0	6,477.4	6,542.7	6,476.8	15.1	19.2	-91.19		266.9	703.0	870.6	840.5	30.09	28.936	
6,600.0	6,574.9	6,645.4	6,579.0	15.2	19.3	-92.05		257.7	703.0	870.9	840.7	30.23	28.808	
6,700.0	6,668.3	6,750.2	6,680.7	15.2	19.3	-92.89		233.3	703.0	871.5	841.2	30.27	28.786	
6,800.0	6,755.9	6,856.9	6,779.7	15.2	19.3	-93.67		193.5	703.0	872.2	841.9	30.27	28.815	
6,900.0	6,836.0	6,965.7	6,873.3	15.2	19.3	-94.38		138.3	703.0	872.9	842.6	30.29	28.816	
7,000.0	6,906.9	7,076.4	6,958.8	15.3	19.3	-95.00		68.3	703.0	873.7	843.3	30.45	28.693	
7,100.0	6,967.4	7,188.7	7,033.6	15.3	19.3	-95.52		-15.4	703.0	874.4	843.6	30.84	28.354	
7,200.0	7,016.2	7,302.4	7,095.0	15.7	19.4	-95.93		-111.0	703.0	875.1	843.5	31.55	27.734	
7,300.0	7,052.4	7,417.2	7,140.9	16.3	19.7	-96.20		-216.1	703.0	875.5	842.8	32.66	26.807	
7,400.0	7,075.3	7,532.6	7,169.5	17.1	20.2	-96.33		-327.7	703.0	875.7	841.5	34.17	25.631	
7,500.0	7,084.5	7,648.2	7,179.8	18.0	20.9	-96.32		-442.8	703.0	875.7	839.6	36.04	24.297	
7,600.0	7,084.6	7,749.8	7,179.2	19.1	21.8	-96.27		-544.3	703.0	875.6	837.5	38.15	22.953	
7,700.0	7,084.5	7,849.8	7,178.5	20.3	22.8	-96.23		-644.3	703.0	875.5	835.0	40.48	21.627	
7,800.0	7,084.4	7,949.8	7,177.7	21.6	23.9	-96.18		-744.3	703.0	875.5	832.4	43.03	20.344	
7,900.0	7,084.4	8,049.8	7,177.0	23.0	25.2	-96.14		-844.3	703.0	875.4	829.6	45.76	19.129	
8,000.0	7,084.3	8,149.7	7,176.3	24.5	26.5	-96.10		-944.3	703.0	875.3	826.7	48.64	17.997	
8,100.0	7,084.2	8,249.7	7,175.5	26.0	27.9	-96.05		-1,044.3	703.0	875.2	823.6	51.64	16.950	
8,200.0	7,084.2	8,349.7	7,174.8	27.5	29.4	-96.01		-1,144.3	703.0	875.2	820.4	54.74	15.988	
8,300.0	7,084.1	8,449.7	7,174.1	29.1	30.9	-95.97		-1,244.3	703.0	875.1	817.2	57.93	15.106	
8,400.0	7,084.0	8,549.7	7,173.3	30.8	32.4	-95.92		-1,344.3	703.0	875.0	813.8	61.19	14.299	
8,500.0	7,084.0	8,649.7	7,172.6	32.5	34.0	-95.88		-1,444.3	703.0	875.0	810.4	64.52	13.561	
8,600.0	7,083.9	8,749.7	7,171.9	34.2	35.6	-95.84		-1,544.3	703.0	874.9	807.0	67.90	12.885	
8,700.0	7,083.8	8,849.7	7,171.1	35.9	37.3	-95.79		-1,644.3	703.0	874.8	803.5	71.32	12.266	
8,800.0	7,083.7	8,949.7	7,170.4	37.6	39.0	-95.75		-1,744.3	703.0	874.8	800.0	74.79	11.696	
8,900.0	7,083.7	9,049.7	7,169.7	39.4	40.7	-95.71		-1,844.3	703.0	874.7	796.4	78.29	11.173	
9,000.0	7,083.6	9,149.7	7,168.9	41.2	42.4	-95.66		-1,944.3	703.0	874.6	792.8	81.82	10.690	
9,100.0	7,083.5	9,249.7	7,168.2	42.9	44.1	-95.62		-2,044.2	703.0	874.6	789.2	85.37	10.244	
9,200.0	7,083.5	9,349.7	7,167.5	44.7	45.9	-95.58		-2,144.2	703.0	874.5	785.6	88.95	9.831	
9,300.0	7,083.4	9,449.7	7,166.7	46.5	47.6	-95.53		-2,244.2	703.0	874.4	781.9	92.55	9.448	
9,400.0	7,083.3	9,549.7	7,166.0	48.4	49.4	-95.49		-2,344.2	703.0	874.4	778.2	96.17	9.092	
9,500.0	7,083.3	9,649.7	7,165.3	50.2	51.2	-95.45		-2,444.2	703.0	874.3	774.5	99.80	8.761	
9,600.0	7,083.2	9,749.7	7,164.5	52.0	53.0	-95.40		-2,544.2	703.0	874.3	770.8	103.45	8.451	
9,700.0	7,083.1	9,849.7	7,163.8	53.8	54.8	-95.36		-2,644.2	703.0	874.2	767.1	107.11	8.162	
9,800.0	7,083.1	9,949.7	7,163.1	55.7	56.6	-95.32		-2,744.2	703.0	874.1	763.3	110.78	7.890	
9,900.0	7,083.0	10,049.7	7,162.3	57.5	58.4	-95.27		-2,844.2	703.0	874.1	759.6	114.47	7.636	
10,000.0	7,082.9	10,149.7	7,161.6	59.4	60.2	-95.23		-2,944.2	703.0	874.0	755.8	118.16	7.397	

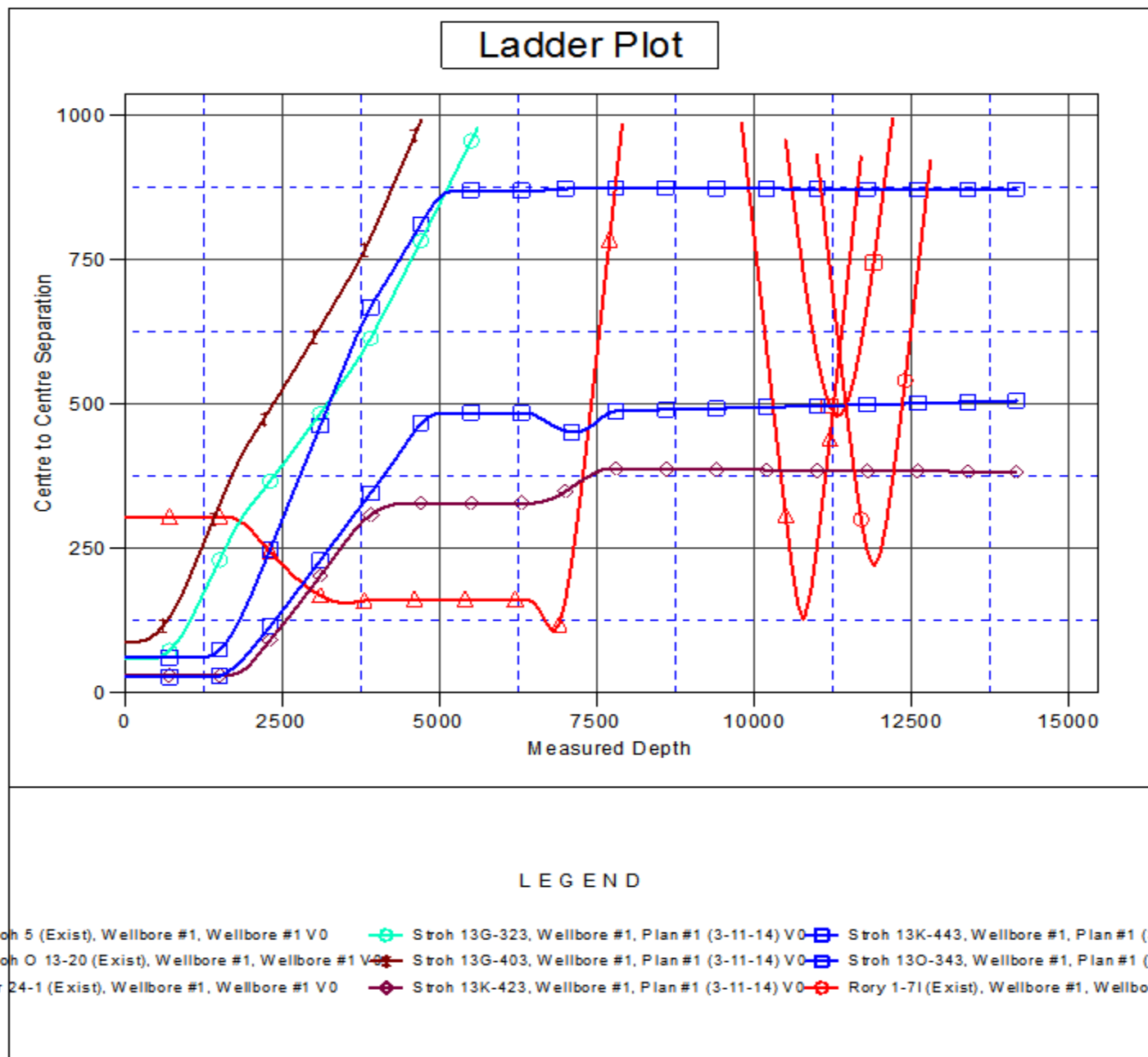
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Stroh 13K-203
Project:	SEC.13-T4N-R67W	TVD Reference:	WELL @ 4820.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	MD Reference:	WELL @ 4820.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Stroh 13K-203	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Stroh 13GK-HZ Pad Sec. 13-T4N-R67W - Stroh 13O-343 - Wellbore #1 - Plan #1 (3-11-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
10,100.0	7,082.8	10,249.7	7,160.9	61.2	62.0	-95.19	-3,044.2	703.0	873.9	752.1	121.86	7.171		
10,200.0	7,082.8	10,349.7	7,160.1	63.1	63.9	-95.14	-3,144.2	703.0	873.9	748.3	125.58	6.959		
10,300.0	7,082.7	10,449.7	7,159.4	65.0	65.7	-95.10	-3,244.2	703.0	873.8	744.5	129.29	6.758		
10,400.0	7,082.6	10,549.7	7,158.7	66.8	67.6	-95.06	-3,344.2	703.0	873.8	740.7	133.02	6.569		
10,500.0	7,082.6	10,649.7	7,157.9	68.7	69.4	-95.01	-3,444.2	703.0	873.7	737.0	136.75	6.389		
10,600.0	7,082.5	10,749.7	7,157.2	70.6	71.2	-94.97	-3,544.2	703.0	873.7	733.2	140.49	6.219		
10,700.0	7,082.4	10,849.7	7,156.5	72.4	73.1	-94.93	-3,644.2	703.0	873.6	729.4	144.23	6.057		
10,800.0	7,082.4	10,949.7	7,155.7	74.3	75.0	-94.88	-3,744.2	703.0	873.5	725.6	147.98	5.903		
10,900.0	7,082.3	11,049.7	7,155.0	76.2	76.8	-94.84	-3,844.2	703.0	873.5	721.7	151.74	5.757		
11,000.0	7,082.2	11,149.7	7,154.3	78.1	78.7	-94.80	-3,944.2	703.0	873.4	717.9	155.49	5.617		
11,100.0	7,082.1	11,249.7	7,153.5	80.0	80.5	-94.75	-4,044.2	703.0	873.4	714.1	159.26	5.484		
11,200.0	7,082.1	11,349.7	7,152.8	81.8	82.4	-94.71	-4,144.1	703.0	873.3	710.3	163.02	5.357		
11,300.0	7,082.0	11,449.7	7,152.1	83.7	84.3	-94.67	-4,244.1	703.0	873.3	706.5	166.79	5.236		
11,400.0	7,081.9	11,549.7	7,151.3	85.6	86.2	-94.62	-4,344.1	703.0	873.2	702.6	170.56	5.119		
11,500.0	7,081.9	11,649.7	7,150.6	87.5	88.0	-94.58	-4,444.1	703.0	873.2	698.8	174.34	5.008		
11,600.0	7,081.8	11,749.7	7,149.9	89.4	89.9	-94.54	-4,544.1	703.0	873.1	695.0	178.12	4.902		
11,700.0	7,081.7	11,849.7	7,149.1	91.3	91.8	-94.49	-4,644.1	703.0	873.0	691.1	181.90	4.800		
11,800.0	7,081.7	11,949.7	7,148.4	93.2	93.7	-94.45	-4,744.1	703.0	873.0	687.3	185.69	4.701		
11,900.0	7,081.6	12,049.7	7,147.7	95.1	95.6	-94.41	-4,844.1	703.0	872.9	683.5	189.47	4.607		
12,000.0	7,081.5	12,149.7	7,146.9	97.0	97.4	-94.36	-4,944.1	703.0	872.9	679.6	193.26	4.517		
12,100.0	7,081.4	12,249.7	7,146.2	98.9	99.3	-94.32	-5,044.1	703.0	872.8	675.8	197.05	4.429		
12,200.0	7,081.4	12,349.7	7,145.5	100.8	101.2	-94.28	-5,144.1	703.0	872.8	671.9	200.85	4.346		
12,300.0	7,081.3	12,449.7	7,144.7	102.7	103.1	-94.23	-5,244.1	703.0	872.7	668.1	204.64	4.265		
12,400.0	7,081.2	12,549.7	7,144.0	104.6	105.0	-94.19	-5,344.1	703.0	872.7	664.3	208.44	4.187		
12,500.0	7,081.2	12,649.6	7,143.3	106.5	106.9	-94.15	-5,444.1	703.0	872.6	660.4	212.24	4.112		
12,600.0	7,081.1	12,749.6	7,142.5	108.4	108.8	-94.10	-5,544.1	703.0	872.6	656.6	216.04	4.039		
12,700.0	7,081.0	12,849.6	7,141.8	110.3	110.7	-94.06	-5,644.1	703.0	872.6	652.7	219.85	3.969		
12,800.0	7,081.0	12,949.6	7,141.1	112.2	112.5	-94.02	-5,744.1	703.0	872.5	648.9	223.65	3.901		
12,900.0	7,080.9	13,049.6	7,140.3	114.1	114.4	-93.97	-5,844.1	703.0	872.5	645.0	227.46	3.836		
13,000.0	7,080.8	13,149.6	7,139.6	116.0	116.3	-93.93	-5,944.1	703.0	872.4	641.2	231.26	3.772		
13,100.0	7,080.7	13,249.6	7,138.9	117.9	118.2	-93.89	-6,044.1	703.0	872.4	637.3	235.07	3.711		
13,200.0	7,080.7	13,349.6	7,138.1	119.8	120.1	-93.84	-6,144.0	703.0	872.3	633.4	238.88	3.652		
13,300.0	7,080.6	13,449.6	7,137.4	121.7	122.0	-93.80	-6,244.0	703.0	872.3	629.6	242.70	3.594		
13,400.0	7,080.5	13,549.6	7,136.7	123.6	123.9	-93.76	-6,344.0	703.0	872.2	625.7	246.51	3.538		
13,500.0	7,080.5	13,649.6	7,135.9	125.5	125.8	-93.71	-6,444.0	703.0	872.2	621.9	250.32	3.484		
13,600.0	7,080.4	13,749.6	7,135.2	127.4	127.7	-93.67	-6,544.0	703.0	872.2	618.0	254.14	3.432		
13,700.0	7,080.3	13,849.6	7,134.5	129.3	129.6	-93.63	-6,644.0	703.0	872.1	614.2	257.95	3.381		
13,800.0	7,080.3	13,949.6	7,133.7	131.2	131.5	-93.58	-6,744.0	703.0	872.1	610.3	261.77	3.331		
13,900.0	7,080.2	14,049.6	7,133.0	133.1	133.4	-93.54	-6,844.0	703.0	872.0	606.4	265.59	3.283		
14,000.0	7,080.1	14,149.6	7,132.3	135.0	135.3	-93.50	-6,944.0	703.0	872.0	602.6	269.41	3.237		
14,100.0	7,080.0	14,249.6	7,131.5	136.9	137.2	-93.45	-7,044.0	703.0	871.9	598.7	273.23	3.191		
14,171.3	7,080.0	14,320.9	7,131.0	138.3	138.6	-93.42	-7,115.3	703.0	871.9	596.0	275.95	3.160 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Stroh 13K-203
Project:	SEC.13-T4N-R67W	TVD Reference:	WELL @ 4820.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	MD Reference:	WELL @ 4820.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Stroh 13K-203	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-11-14)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4820.0ft (Original Well Elev) Coordinates are relative to: Stroh 13K-203
 Offset Depths are relative to Offset Datum
 Central Meridian is -105.500000 °
 Coordinate System is US State Plane 1983, Colorado Northern Zone
 Grid Convergence at Surface is: 0.42°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Stroh 13K-203
Project:	SEC.13-T4N-R67W	TVD Reference:	WELL @ 4820.0ft (Original Well Elev)
Reference Site:	Stroh 13GK-HZ Pad Sec. 13-T4N-R67W	MD Reference:	WELL @ 4820.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Stroh 13K-203	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
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